Impact Evaluation Associated with the Bangladesh AVC Project
Midline Report
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Executive Summary

Project Background

The USAID-funded Bangladesh Agricultural Value Chains (AVC) project implemented by Development Alternatives International (DAI) is focused on improving food security and nutrition by strengthening agricultural value chains in the Feed the Future Zone of Influence in Bangladesh. AVC follows a market systems approach, working with private sector firms to co-develop commercial strategies to more effectively engage and incentivize value chain actors, including smallholder farmers, input suppliers, output buyers, and service providers.

The impact evaluation associated with the AVC project neither attempts to measure impacts of all the market systems interventions being conducted, nor all the value chains with which AVC works. Market systems interventions are necessarily too complex and adaptive to attempt to measure impacts of the interventions as a whole; such a measurement would at best provide an average treatment effect on all the adaptive interventions at once. However, particularly with rain-fed agriculture, some interventions must take place at a specific point in time each year, directly targeting large numbers of farmers in a uniform way, and farmers would theoretically adapt to these interventions in the following agricultural season, or would have to wait a year to do so. In this context, in this report the impact evaluation focuses on interventions that took place in the jute value chain in early 2016.[1]

This report explores research questions in three primary areas:

- Understanding adoption

Can targeting financial and informational constraints improve take-up of improved inputs and practices and reduce knowledge gaps? How does take-up affect outcomes at the farm-level?

- The Role of Trust in the Value Chain

USAID has identified trust as a key influencer of interactions between market actors. How does trust between smallholders and input traders affect transactional behavior within the market system, and how does trust influence smallholder productivity?

- Empowerment, Labor Availability & Women's Role in Agriculture

As mobility is increasing and household labor availability is declining, is the role that women are playing in jute production changing?

The analysis takes a gender sensitive approach through the collection of both gender disaggregated data and household level outcomes.

Data Sources

The report relies on two main data sources. First, it uses a portion of the baseline survey conducted for the impact evaluation with a representative sample of 20 jute farming households per village in 50 villages from Faridpur, Jhenaidah, Madaripur and Narail districts. The baseline survey covered multiple topics, including modules making up the Women's Empowerment in Agriculture Index (WEAI). The WEAI modules are completed independently and privately by the main male and female respondents in the household, allowing the team to complement aggregate data on household agricultural outcomes with specific data on topics such as male and female roles in household decision-making and self-perception. The midline survey was collected in the same households, and added 500 jute farming households (10 in each village) representative of jute farming households with more land. The latter survey includes innovations on standard data collection, including a trust game derived from the behavioral economics literature, to improve measures of trust from the baseline.

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[1] The endline report on the impact evaluation will compare impacts of interventions in the jute value chain with impacts from interventions in the mung bean value chain. However, activities in mung bean producing areas were not at a scale to measure impacts at the time of midline data collection.

Understanding Adoption

Interventions

At midline, the impact evaluation measured the effects of two interventions carried out in the study area: NGO Trainings and NAAFCO Promotions. The NGO trainings were a remnant from the previous focus of the AVC, and followed a standard extension model, with local experts providing training to farmers on best practices for improving productivity and output quality. The trainings aimed at generally improving knowledge about the jute production process, including seeding techniques, fertilizing, and dealing with weeds and pests. The promotions were organized with NAAFCO, a private sector input provider. Farmers in this treatment group were exposed to fairs promoting NAAFCO products, describing why their products are useful relative to other jute inputs. The fairs also included a series of raffles through which local smallholders could win discount coupons to purchase NPKS, a fertilizer product designed to be optimal for high-quality jute production. The two interventions were cross-randomized at the village level, so groups intended to be exposed to the NGO trainings, the NAAFCO promotions, and both can be examined against a control group with no concern of confounding factors affecting the analysis.

Outcomes

Both interventions were associated with changes in farmers' subjective expectations around improved inputs, and positive gains in scores on a series of knowledge questions. The NGO Trainings enhanced knowledge around inputs and practices not directly related to NPKS, while NAAFCO promotions were associated with gains in knowledge around practices and outcomes associated with improved fertilizer use. However, the evaluation did not find increases in measures of average productivity or gross margins per hectare. Measured gains in productivity were small and as agricultural yields are highly variable, they were not statistically significant.

The NAAFCO promotions treatment resulted in an increase in take-up on NPKS fertilizer among treatment households, suggesting that private sector models for forms of input or extension service provision could be considered within the context of a market systems approach to foster adoption of new agricultural technologies or practices (Table 1).

Table 1- Effect of Interventions on Key Outcomes

Intervention	Any NPKS Knowledge?	Fertilizer Knowledge Score	Other Input Knowledge Score	Used NPKS	Used IPM	Jute yield (log)
Trainings Only	0.032 (0.048)	0.096 (0.105)	0.208* (0.117)	-0.029 (0.043)	0.133*** (0.040)	0.03 (0.04)
Promotions Only	0.081* (0.047)	0.225* (0.115)	0.012 (0.095)	0.096** (0.040)	0.209*** (0.040)	0.05 (0.04)
Training & Promotions	0.217*** (0.043)	0.271*** (0.080)	0.074 (0.092)	0.144*** (0.029)	0.092** (0.036)	0.01 (0.03)
Mean, Control Group	0.132	-0.137	-0.037	0.016	0.311	7.58

*Note: Table presents regression coefficients (estimated magnitudes of effects), with standard errors (precision of estimates) in parentheses. Stars indicate statistical significance: *10% level; **5% level; ***1% level (for example ** indicates a less than 5% probability that the effect would be observed through random chance).*

In sum, the NAAFCO promotions increase narrow knowledge of NPKS as an input, and drive the adoption of NPKS, which was quite low among the control group at baseline (less than 2 percent). The evaluation finds that knowledge gains among farmers in villages exposed to NGO trainings are broader than among the control villages. Their knowledge about input use beyond fertilizer increases, reflecting the breadth of training topics covered. Among the promotions group, there are positive changes in fertilizer knowledge relative to the control group, which are not reflected among the NGO trainings group. Therefore, the findings suggest that each type of training was at least somewhat effective at what it was meant to do; the NGO trainings increased knowledge broadly about the jute production process, while the promotions group increased knowledge specifically about fertilizer. As such gains

would be the goal of a private sector firm operating promotions in this context, the promotions appear to have been successful in doing what they set out to do. That said, there is no evidence of statistically significant differences in productivity attributable to either treatment. However, the positive coefficients suggest that there could be a potential effect that cannot be identified due to a lack of statistical power.

The Role of Trust in the Value Chain

To study trust in the value chain, the survey instrument incorporated subjective questions on trust between farmers and input retailers, and included an incentivized trust game conducted with farmers and retailers. This game follows a standard experimental design, with some procedural modifications to facilitate implementation in the context of a large-scale household survey (Kramer et al., 2017). In the game, farmers were shown pictures of six local retailers, and were asked for each retailer how much of 150 Taka to keep for himself, and how much to send to the retailer; with the understanding that the research team would triple the amount sent to the retailer, who would in turn decide on an amount to send back to the farmer. For each farmer and for each retailer, the research team selected one game for which the result was paid out, creating real stakes in each game.

In terms of the directly reported survey measure (reported on a 1-10 scale), farmers generally rate input sellers highly (the average score is 8.9 in the midline), and in the incentivized experimental trust game, on average farmers sent retailers more than half of their initial endowment of 150 Taka. Using this experimental measure also provided an interesting finding relating to productivity: farmers who sent more than the median amount among the NAAFCO promotions group produce 15 percent more jute than the control group, while the same result is not present among lower trust farmers. The implication is that interventions that can build trust in their products via trusted input retailers, potentially through improving the market systems, can have productivity effects.

Empowerment, Labor Availability & Women's Role in Agriculture

Analysis of the WEAI data show that empowerment is relatively low in the sample; according to the data, only 38 percent of women achieve empowerment in agriculture. The two primary drivers of disempowerment in the sample were autonomy in production and workload. The next part of the report, focusing on gender differences in labor allocation in jute production, identified during which phases of the production cycle women are involved. It finds that women—whether in the household or hired—tend to participate in post-harvesting tasks but not in production or marketing (Figure 1).

As migration is increasing, the next step was to examine how tasks are changing in households facing more labor scarcity. Although women could, in theory, take on more tasks in jute production to cope with labor shortages, the report finds that in households reporting that labor became less available between baseline and midline, households became more likely to hire female labor, rather than using more female household labor in the production process. Among women within households reporting more labor scarcity, the only change in labor use is that they spend more time within tasks they were already doing. Further, while the daily wage increased on average for male laborers, there is no evidence that wages are increasing similarly among women. Because of the strict gender differentiation of tasks, it may be that opportunities for women remain limited within jute production. Though increased labor scarcity does appear to be changing the composition of labor in jute production, it is changing towards the use of more hired labor rather than changing gender roles within production.
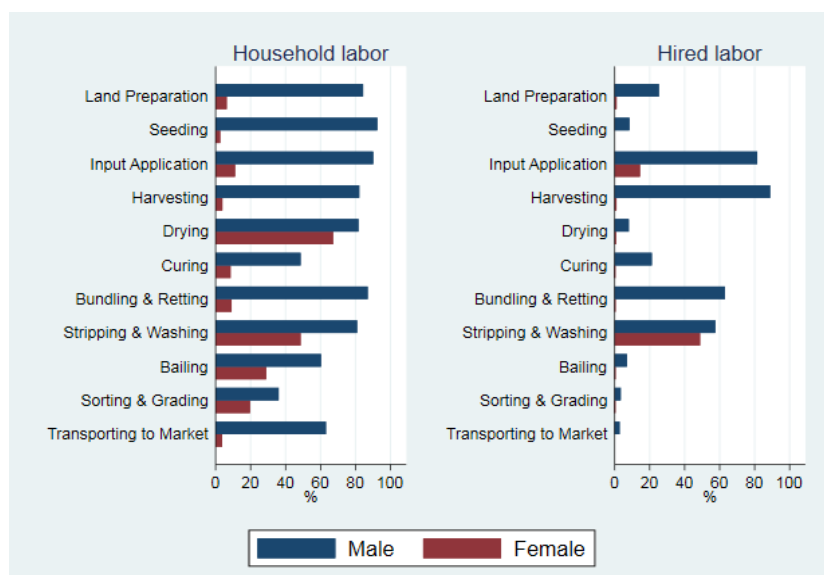
Next Steps

The impact evaluation team is completing a qualitative report, which will focus specifically on questions related to women's role in jute production, as well as an endline report based on data collected in April and May, 2018. The data collection will contain a detailed migration module to better explore its potential role in changing women's roles in agriculture, and another trust game that will test whether associating specific brands (NAAFCO and Partex) with input retailers selling those brands improves trust. The endline survey will be conducted in both the jute and mung bean growing areas. A final report covering the entire impact evaluation will incorporate data from the baseline, the midline, the qualitative phase, and the endline survey.

1   BACKGROUND

Funded under the *Feed the Future* (FTF) Initiative, the Bangladesh Agricultural Value Chains (AVC) project being implemented by Development Alternatives International (DAI) is working to **improve food security and nutrition through strengthened agricultural value chains.** Agricultural value chains in Bangladesh are typically fragmented, and lack investment, inclusion of vulnerable groups, and critical linkages. AVC is focusing on a portfolio of food and non-food crops to facilitate growth in the agricultural sector. AVC is working on improving value chains in six classes of food crops (pulses, tomato, mango, ground nuts, potatoes, and a summer vegetable basket) and two classes of non-food crops (natural fibers and floriculture). The geographic focus for the AVC project is 20 southern districts in Barisal, Dhaka, and Khulna Divisions. Some of the specific value chain interventions are more focused, since not all the focus crops are grown in all project districts.

The AVC project has four main components, which are called intermediate results en route to improved food security through stronger agricultural value chains. These intermediate results are:

- Intermediate Result 1: Sustainable, diversified agricultural productivity increased
- Intermediate Result 2: Agricultural market systems strengthened
- Intermediate Result 3: In7novation and value chain upgrading increased
- Intermediate Result 4: Local capacities and systems strengthened

In addition, the project has several elements that are cross-cutting in each of the main components. These elements include:

- Nutritional practices improved;
- Effective gender integration and youth participation enhanced; and
- Environmental sustainability and resilience to climate change strengthened.

In mid-2015, AVC began to change its focus from primarily contracting smallholder farmer trainings to a market systems approach, in which they work with selected private sector firms to co-develop commercial strategies that more effectively engage and incentivize value chain actors, including smallholder farmers, input suppliers, output buyers, and service providers. The goal of these strategies is to increase transactions, build trust, build industry networks, strengthen market systems, and enable increased investment, competition, and positive development outcomes for communities in FTF target areas. As such, the impact evaluation aims to generate useful insights on constraints to market development in selected value chains with generalizability to other value chains in low-income countries and Bangladesh specifically.

The evaluation will go beyond just trying to understand the impacts of some of the specific, selected AVC interventions on improving agricultural productivity. First, the analysis will evaluate whether and why the "mass market" approach facilitated by AVC, with input suppliers moving from a wholesale to a retail approach for distributing their inputs, can improve outcomes for producers, and enhance mutual trust among both input suppliers and smallholder farmers; to that end, the evaluation team are designing experiments related to repeated interactions, quality signals, and trust to play with sampled market participants.

To understand the main market constraints to the use of high quality inputs in production, the team will examine whether specific interventions at the farmer level help improve the productivity and quality of specific products and assess what value chain actors are willing to pay for high-quality products in order to learn more about where the market structure fails to incentivize quality.   In studying all these aspects of the AVC project, the analysis will take a gender sensitive approach by collecting gender disaggregated data as well as household level outcomes. In addition to incorporating individual level questions, the main survey instruments also incorporate modules from the Women's Empowerment in Agriculture Index (WEAI) instrument. These sections are completed independently and privately by the main male and female respondents in the household, allowing the team to complement aggregate

data on household agricultural outcomes with specific data on topics such as male and female roles in household decision-making and self-perception. The analysis will also explore patterns of participation in the markets studied by gender, and disaggregate the results of the associated experiments by gender. The cross-cutting component of the AVC project on gender will be an important outcome for the impact evaluation.

The impact evaluation will not assess the impacts of all the market system interventions being conducted by AVC. Rather, it will focus on interventions pertaining to one food crop and one non-food crop. In the selection of the food crop, the team only considered crops that are inherently nutritious. Mung beans have nutritional value in terms of iron content. Iron deficiency anemia remains a major health problem in Bangladesh, whereas micronutrients covered by other crops that are potentially being studied by AVC (e.g. orange sweet potato and mango, which are rich in vitamin A) are not as large of a deficiency. Moreover, mung beans are grown by a large number of farmers within a specific part of the FTF Zone of Influence (ZOI), which will enable the impact evaluation to sample a large and relatively representative group of farmers. Finally, mung beans have a reasonably simple value chain (that can therefore be traced more easily), as mung beans are roasted and sold as an individual product; therefore, mung beans are the most appropriate choice for a value chain product for exploration in this impact evaluation.

For the non-food crop, jute was selected because the crop is also grown by a significant proportion of farmers in the FTF ZOI and appears to have similar traits to the mung bean value chain. As trust issues between input sellers, farmers and processors appear to exist in both the mung bean and jute value chains, and farmers do not tend to use certified seeds and other improved inputs in both value chains, there are similar issues that exist in both value chains, allowing for an interesting comparison. That said, jute has a long history as a particularly politicized crop in Bangladesh (e.g. Ali, 2012), and as such the possibilities for expansion of the crop may be limited relative to those for mung beans. Other non-food crops were also considered but the team concluded that these are not viable for an impact evaluation; in the case of cut flowers, the AVC was quite advanced at the time the impact evaluation began, but the number of farmers growing cut flowers in Bangladesh overall is small, so it would be difficult to identify a potential comparison group growing or potentially growing cut flowers for market. Even if a comparison group were identified, it would be difficult to identify a large enough treatment group to make meaningful statistical comparisons. In the case of coir, the value chain is quite underdeveloped, and as such any interventions are quite prospective. Hence, jute is the remaining possibility.

This report focuses on the jute value chain rather than both value chains. The interventions in the mung bean value chain which began under the market systems approach during the calendar year 2016 were too small in scope to include in an impact evaluation, but by late 2017 they will cover a large enough number of farmers to attempt to detect impacts following on our research questions. The following sections focus specifically on analyzing data collected around the interventions which took place in the jute growing areas in 2016.

2 INTERVENTIONS

2.1 NGO TRAININGS

The NGO trainings were a series of informational training sessions organized in February 2016 and targeted training 4,000 farmers per district in four districts (Faridpur, Jhenaidah, Madripur, and Narail). The trainings were undertaken by four AVC subcontractors, non-governmental organizations (NGOs), who were competitively selected for their track records of successful training in agricultural topics.[2] Trainings provided information on a range of best practices relating to jute including improved and certified seed varieties, optimal fertilizer types and application practices, pest identification and management, modern retting techniques for fiber separation, and grading of jute fiber quality. The

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[2] The four subcontractors were Gono Unnayan Prochesta (GUP); Society Development Committee (SDC); Sheba Manab Kallyan Kendra (SMKK); and Prove Society.

goal of the trainings was to provide farmers with information enabling them to produce higher quality jute, and command higher prices.

The extension trainings followed a standard outreach model, with AVC contracting outside organizations to provide training to farmer groups. Representatives travelled to each village in advance of each session to inform farmers of the coming training and register those interested in participating. Participants were required to own at least a small area of cultivated land and have experience growing jute. The goal of these registration criteria was to ensure trainings were focused on farmers most likely to benefit from the information provided, and to introduce participants to peer farmers in their area prior to beginning the trainings.

Following registration, training groups were formed in each area, each consisting of approximately 30 farmers living close to one another. Each group met with a representative of an AVC subcontractor for two full days. Participants were not compensated for attending, but were provided with lunch, tea, snacks and transportation to and from the training. The training leaders were agriculture experts such as former government agriculture officers or freelance consultants, hired by the subcontractor via a competitive interview process. In addition to the informational component, AVC or its subcontractors also arranged linkage meetings as part of, or shortly after the trainings. The goal of these sessions was to reduce informational gaps within the market system for farmers at various points of the value chain. For these sessions, a public or private sector representative would be invited, such as a government official or output purchaser. Public sector representatives would often discuss legislation related to the crop in question, and explain what sorts of institutions the Bangladesh government already has in place that farmers could take advantage of. Private sector representatives typically explained what goods and/or services their organization provides that could be of interest to the farmers. For example, they would explain the quality and grading of the types of jute they require, and make suggestions as to how farmers can improve their output quality to meet these standards.

2.2   NAAFCO PROMOTIONS

In addition to the informational intervention provided by the group trainings, a second treatment intervention was carried out by USAID|AVC's private sector partner NAAFCO to organize a series of input fairs in which suppliers' representatives would organize crop clinics to provide farmers with additional extension advice, give information on NAAFCO products, including NPKS fertilizer, and provide discounts on NPKS fertilizer. NPKS improves on existing fertilizers because it offers a composition of Nitrogen (N), Phosphorus (P), Potassium (K) and Sulfur (S) that is optimal for jute production (Khanom, Hossain, & Hossain, 2012).

The latter intervention follows a market systems approach, targeting input sellers as well as farmers, and adjusting the interventions as seen fit to improve the efficiency of the entire market for jute fertilizer. For the farmer, the aim was to provide both tailored input information (via the crop clinics) and access to promotional discounts, reducing the entry cost to trying NPKS. The overall objective is to attempt to enhance demand later, but also to help farmers understand what makes a fertilizer worth purchasing, including assurances it is not counterfeit. For the input seller, the fairs were designed to not only foster interactions with local smallholder farmers but to provide NAAFCO with insights into the business case for targeting farmers with promotional marketing.

From the research perspective, it was important to isolate a component of the market systems intervention that would or could only take place once a year. Consequently, the promotional component was designed by AVC and IFPRI in collaboration with NAAFCO. During the fairs, a raffle was implemented in which farmers would be eligible to win discount coupons for a 25kg pack of NPKS fertilizer for jute cultivation: first prize winners would receive an 80% discount; second prize winners a 50% discount; and third prize winners a 20% discount. The raffle was designed such

that approximately 50% of participants would win a discount coupon.[3] Discount coupons could be used at local input sellers that were already part of NAAFCO's distribution network.

This design enables the impact evaluation team to evaluate both the effect of lowering the costs associated with taking up NPKS fertilizer, as well as to assess the level of take-up associated with each of the respective discounts. In addition to enabling the comparison of adoption rates between those who did and did not receive a discount, by incorporating variation in the levels of discount the intervention could potentially provide important information to traders on potential marketing strategies for improved products. If, for example, a low discount level induced relatively large take-up, this could indicate high potential demand for improved products. Conversely, if a high discount rate was required to induce take-up, it could be the case that promotional marketing is not a cost-effective strategy for traders to adopt. This design also can help to understand if the one-time discounts led to higher use of NPKS more generally over a longer period, which will be explored in subsequent reports.

The objective of the intervention was to deliver extension advice in a manner which facilitated interactions between farmers and input vendors, and in the process build trust between sellers and clients. In addition to assessing the effect of the respective treatments (information and promotions), the interventions were intended to foster interactions between different actors within the market system. As part of the informational intervention, the farmer registration process was intended to bring together a group of experienced jute farmers, helping to encourage knowledge sharing among peers related to best practices. Similarly, the linkage meetings were intended to encourage information sharing between different value chain actors who might not typically communicate directly. The input promotions fairs followed a similar approach. Advice was provided both on specific products, and in response to farmers' specific queries through the crop clinics.

2.3   RESEARCH QUESTIONS

2.3.1   Understanding Adoption

Key Question: Can targeting financial and informational constraints improve take-up of improved inputs and practices and reduce knowledge gaps?

A primary focus of the evaluation is to assess the extent to which the interventions were successful in promoting input adoption among smallholder farmers. The goal is to understand whether constraints related to price, addressed by the discounts through the fairs, or by knowledge through trainings, affect farmer adoption of improved inputs. By testing the NGO training model alongside and in addition to fairs, the impacts both on input use and then agricultural production can be measured. In line with the research recommendations set out by USAID's Leveraging Economic Opportunities (LEO) project, this approach can evaluate the extent to which a market systems facilitation approach leads to increased take-up of technologies, in turn resulting in improved outcomes across the value chain. In the case of the promotions treatment, the analysis will assess the efficacy of a private sector driven input delivery model and provide lessons learned for future program development.

2.3.2   Trust in the Value Chain

Key Question: How does trust between smallholders and input traders affect transactional behavior within the market system, and how does trust influence smallholder productivity?

Lack of trust between smallholders and input suppliers has been identified as a key influencer of market actor behavior, leading to sub-optimal outcomes (USAID, 2015). The main research question here is whether trust issues

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[3] Some complaints were received by AVC, and relayed to the impact evaluation team, that some participant farmers were unhappy about the discounts because they were inadequate to cover the participation cost. However, note that no farmers were coerced to participate in the fairs, and this report demonstrates some average benefits to farmers in villages that were exposed to the fairs.

either within smallholder farmers or between smallholders and traders affect the transactional behavior of farmers, and if so whether market systems programming can be designed to overcome those trust issues.

An innovative feature of the data collected as part of the evaluation is that it contains measures of trust between buyers and input sellers obtained from both parties. Farmers and input sellers both participated in an incentivized experiment designed to elicit levels of trust between both groups. This analysis, along with additional lab-in-the-field experiments conducted between farmers and input sellers, provides unique insights into patterns of trust and reciprocity between these groups of market actors, and how these patterns affect farmers' transactional behavior.

2.3.3 Labor Scarcity and Women's Roles in Agriculture

Key Question: As mobility is increasing and household labor availability is declining, is the role that women are playing in jute production changing?

A key concern for evaluating market systems interventions is to understand how they affect and interact with existing customs and norms, and influence outcomes for sub-populations within the sample. In the context of Bangladesh where urbanization is proceeding rapidly (Ellis & Roberts, 2016), the population remaining in rural areas is changing, and the consequences of urbanization for rural labor market outcomes, by gender, have not been widely studied. In this report, the analysis explores the role that women are playing the jute value chain as labor scarcity increases through migration.

2.3.4 Further Research Questions

In this report, the focus will be on progressing towards answers related to these first three research questions proposed. The fourth question, which deals with trying to disentangle impacts of different training modalities, will be studied in the endline report, to be completed at the end of FY2018. The fifth question, related to consumer acceptance of processed foods, was conditional on AVC making enough progress on processed mung beans, which did not occur.

3 DATA COLLECTION

3.1 SAMPLE SELECTION

For the jute intervention, an original sampling frame was developed by IFPRI in collaboration with DAI in January 2016. The sample frame identified 59 potential jute producing villages for potential expansion of ongoing interventions, of which 50 were selected for study inclusion. The 50 villages were selected to exclude sub-districts in which only one or two villages were included, and to prevent the selection of villages very close to one another that could cause spillover effects, affecting the ability to draw inferences about intervention effects.

The jute villages selected for the study are in four districts: Faridpur, Jhenaidah, Madripur, and Narail. In line with the study design, treatment status was assigned by village. Given that there were two treatments, each village could therefore fall into one of four categories: receiving both training visits and direct input marketing; receiving training visits only; receiving direct input marketing only; or the control group, who received neither treatment (Figure 3.1).

Figure 3.1- Treatment Design
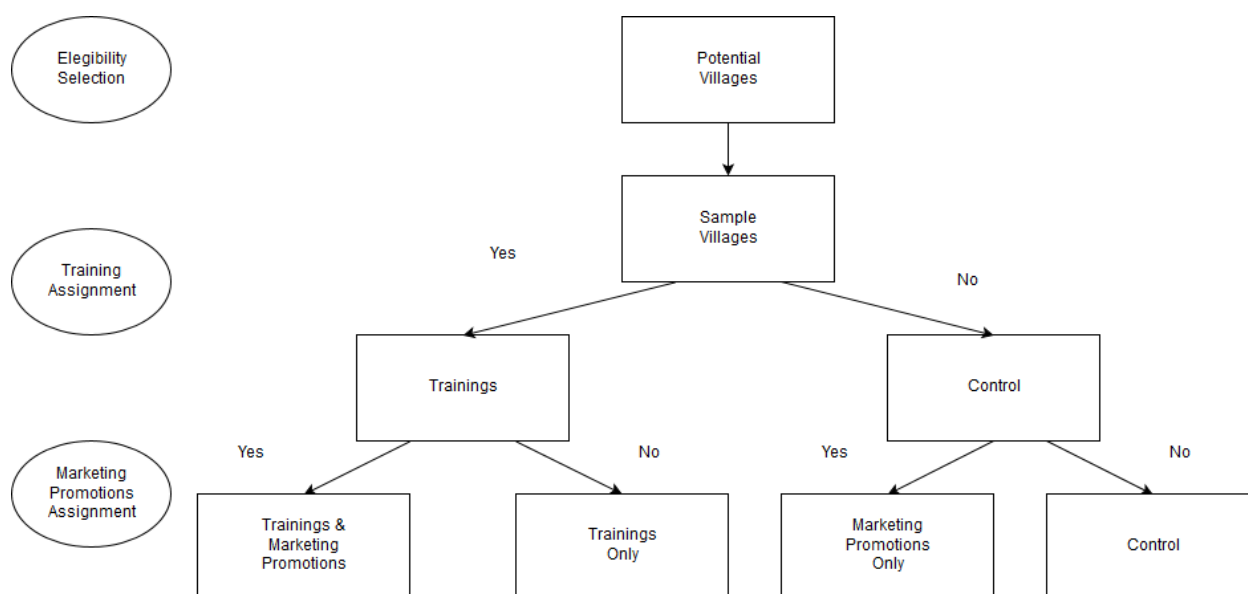
For all villages, a household listing was carried out in early 2016 to develop a sample frame for each village; it is described in more detail in the next section. Using this data, the team applied two eligibility criteria for potential sample inclusion. First, households had to have either grown jute in the previous season, or intend to plant jute in the coming season. This criterion excluded non-agricultural households and ensured inclusion of households growing jute for market. Second, households owning more than 500 decimals (5 acres) of land were excluded, to ensure the sample was drawn from smallholders rather than larger commercial farmers. From the remaining households, the sample first selected all households with a female household head, defined as households in which the primary jute farmer was female, to maximize statistical power for gender related questions. Remaining households were selected at random from among those eligible to create a list of twenty households per village, with a median area of 66 decimals for jute cultivation. For each village, replacements were drawn at random from the remaining unselected households in case the chosen household was not available or refused to participate in the study, though in practice these were seldom used.

Enumerators from DATA used this sample frame to conduct a baseline survey in 1,000 households between February and April 2016. The data collection team also conducted a market survey in each village, as well as a buyer pre-screening to identify local value chain actors who purchased jute output from the farm households. Details on each of these survey instruments are presented in the next section.

Following baseline data collection, AVC updated their selection criteria for program participants to focus on more experienced farmers with slightly larger holdings. To account for these farmers, the impact evaluation team developed an additional sampling framework to capture more of these participants. Within each sampled village, the impact evaluation team sampled an additional 10 households. Additional households were required to have at least ten years of jute farming experience, and have cultivated at least 66 decimals in the previous season. While these households were already eligible to receive the NGO trainings in villages with such trainings, logistical constraints prevented their inclusion in the initial raffle distribution in villages with promotions, and therefore a second round of raffles were organized for these farmers. As a result, additional households received comparable exposure to NGO trainings to the original sample. While baseline survey data is not available for these households, the nature of the analysis design still allows for statistical inference to be drawn between the respective treatment and control groups in each, since their *ex ante* characteristics are expected to be similar.

In collaboration with IFPRI, the DATA field team conducted a second round of household surveys in February-March 2017. The survey included both those in the original sample who were interviewed at baseline (20 x 50 = 1,000 households) and the additional households from the second sample, not interviewed at baseline (10 x 50 = 500 households). The team also conducted interviews with local input sellers in each village (256 households) to better

understand how local input market systems function, and again conducted a market survey on local food prices. For ease of understanding, the remainder of the report will refer to each set of households in terms of these groups, where:

- Group 1 households are farm households from the original sample, interviewed in both the 2016 and 2017 survey rounds;
- Group 2 households are farm households from the additional sample, interviewed only in the 2017 survey round; and
- Group 3 households are input seller households interviewed in the 2017 survey round.

Unless otherwise stated, the analysis will consider the effects of the interventions on a combined sample of Group 1 and Group 2 households. As input sellers often provide services in multiple villages (belonging to different treatment categories), Group 3 households are not considered in the analysis in terms of treatment effects for the households themselves, but will be primarily used to explore the nature of linkages and interactions between farm households and other value chain actors to better understand the process of adoption by farmers.

3.2 SURVEY INSTRUMENTS

All survey data collection was carried out by DATA staff using SurveyCTO, a computer-assisted personal interview (CAPI) program using Android tablet computers. All survey instruments were designed by IFPRI, with DATA providing translation to Bengali and advice on ensuring questions and response options were appropriate to the local context. The AVC monitoring and evaluation team was provided with draft survey forms early in the process for both the baseline and midline, and provided input on the baseline questionnaire. Survey programming was done by IFPRI. IFPRI carried out internal testing prior to trainings, and conducted additional testing in collaboration with DATA during trainings to check for errors and make adjustments to ensure translations were accurate and properly adapted. At baseline, additional support for survey programming was initially provided by ikapadata, a market research company based in Cape Town, South Africa. Both survey rounds included standard data validation features, automatic skip logic and preloading of household-specific information (such as names of household members, which were obtained during the listing exercise).

3.2.1 Household Listing

The household listing was a very short survey which gathered basic information on households in each village. It collected demographic information on the head of each household (age, gender and identifying information), identified their spouse (if married or cohabiting), and whether the household had grown jute in the preceding agricultural season, or planned to grow it in the coming season. The listing was conducted on the first day of survey activities at baseline in each village, and was designed to allow enumerators to reach nearly all households in each village. Information from the listing was then preloaded into the baseline household survey, to allow enumerators to rapidly verify they were at the correct household when commencing each interview.

3.2.2 Output Purchasers Listing

For each village, an output purchaser survey was conducted along with the baseline survey to identify the principal jute buyers in the area. A supervisor from the DATA team met with local officials, village leaders, or other individuals knowledgeable about jute sales in each village. After identifying at least one knowledgeable informant, the supervisor collected basic identifying data for each buyer. Names of local buyers were then included as a preloaded option list in the main baseline household survey, and used as choice options for relevant questions on jute sales.

3.2.3 Market Surveys

Along with the baseline and midline household surveys, for each village a DATA supervisor carried out a food market survey at the principal market used by village residents. They gathered information on the availability and price of food items listed in the consumption module of the household survey. Price data from the market survey was then used to estimate household level consumption expenditures.

3.2.4 Household Surveys

The baseline and midline household surveys were conducted in person by DATA enumerators and consisted of a common format of three forms: a main form focused on agricultural production, and a male and a female form to capture aspects of empowerment at the household level, consisting of modules developed for the Women's Empowerment in Agriculture Index (WEAI). The main respondent was the primary jute farmer in the household, who also answered the individual form for their gender, while their spouse would answer the other individual form. [4] For a household in which the main jute farmer was male, that farmer would answer the main form and male form, while his spouse would answer the female form. The male and female form interviews were conducted by different interviewers, with no other household members present where possible. For input seller (Group 3) households at midline, a subset of the main questionnaire was asked, including the following modules: household identification; household roster; housing; household expenditures; beliefs; and consumption. Input sellers were also asked subsets of the modules on agricultural production and value chain interactions, with questions adapted to be relevant to the respondent. As with the other sample groups, modules were targeted by gender, though the main respondent (the input seller) was exclusively male. Table 3.1 presents a summary of modules included, by group. [5]

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[4] As identified in the household listing exercise, though for both surveys the respondent could be updated if the member from the listing exercise was no longer the primary jute farmer in the household.

[5] For example, rather than ask if the respondent purchased NPKS fertilizer in the previous season, they were asked whether they had sold it in the previous year.

Table 3.1- Household Survey Modules by Respondent Group, Survey Round

Module	Description	Group 1 2016	Group 1 2017	Group 2 2017	Group 3 2017
A	**Household Identification**	X	X	X	X
B	**Roster**	X	X	X	X
C	**Agricultural Production**	X	X	X	
	Jute Production	X	X	X	
	Production of Other Crops	X	X	X	
	Inputs and Labor Allocation	X	X	X	X
	Extension	X	X	X	X
	Technology Use	X	X	X	X
	Input Knowledge		X	X	X
D	**Value Chain Interactions**	X	X	X	X
	Output purchasers	X			
	Input Sellers / Purchasers		X	X	X
E	**Housing**	X		X	X
F	**Access to Capital***	X		X	
	Assets	X	X	X	
	Credit	X	X	X	
G	**Household Expenditures**	X	X	X	X
H	**WEAI**	X	X	X	
	A-WEAI	X			
	Pro-WEAI			X	
I	**Beliefs**	X	X	X	X
	Expectations	X	X	X	X
	Risk Preferences	X			
	Trust		X	X	X
J	**Consumption**	X	X	X	X
	Expenditures	X	X	X	X
	Food Security**	X			
K	**Health**	X	X	X	

* Data on access to capital was collected at midline as part of the Pro-WEAI modules
** The food security module was removed for midline after <1% of households reported hunger at baseline

For each section, enumerators aimed to have the most informed person in the household act as the respondent, hence the main form included questions on agricultural production and sales; input use; labor allocation and adoption of new technologies; and interactions with other value chain actors, while the female form included questions on household composition; expenditures on consumption items and health. Both forms also included several additional modules, which are described in the following subsections.

3.2.5 Women's Empowerment in Agriculture Index (WEAI)

At baseline, the survey included modules from IFPRI's A-WEAI version of the index.[6] Modules were asked of both male and female respondents. The A-WEAI includes questions on control, decision-making, mobility, and time use, as well as questions on asset ownership and access to credit. At midline, Group 2 households completed modules from the updated Pro-WEAI version of the index.[7] Thus, for Group 1 and Group 2 the A-WEAI scores can be generated,

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[6] The A-WEAI was co-developed by IFPRI, USAID, and the Oxford Poverty and Human Development Initiative.

[7] The A-WEAI encompasses five domains of empowerment: Input in Production Decisions; Control over Resources; Control over Use of Income; Group Membership; and Workload. The Pro-WEAI expands the range of indicators used to construct the first three domains (adding questions on: access to information; autonomy in production; decision-making over land; access to a financial account; and autonomy in income). In addition, the Pro-WEAI incorporates two new domains: Mobility (ability to visit

while additionally a Pro-WEAI score can be generated for Group 2. Given the index is focused on agricultural producers, the WEAI modules were not administered to input seller households.

3.2.6 Measuring Expectations

A key outcome for measuring the effectiveness of the informational component of the NPKS intervention was to understand whether the farmer perceived NPKS as likely to increase their own production. If a farmer believes that a new product or practice is not likely to benefit their crop, they are unlikely to use it on their entire crop, if they use it at all. However, asking farmers directly whether they believe an intervention will be good for their jute production is likely to bring about biased responses, since they may fear that negative answers could affect the likelihood of their receiving future interventions, or they may be more likely to try to answer what they believe the interviewer wants to hear. Furthermore, it is important to consider how risky the farmer perceives the intervention to be, since risk averse farmers may avoid adopting technologies they expect to provide higher average but more variable production than their current methods.

To provide a measure of the effectiveness of the informational component, a method of eliciting the likelihood of different outcomes developed by Luseno et al. (2003) was adapted to the context and included in the survey form. This method has the dual advantage of being "low tech," making it easy to implement in the field, as well as intuitive, allowing the team to measure expectations without having to attempt to explain complex concepts of probability to respondents with limited formal education.

The method proceeds as follows. The interviewer presents the respondent with 5 bowls, each corresponding to a different range of potential yields.[8] The respondent is given 10 beans, and asked to allocate them each to a range of yields, according to how likely the respondent thought they were to generate that range of production if applying a specified package of inputs to their jute field that season. After the interviewer modeled different scenarios with the respondent and asked comprehension questions to ensure that they understood the exercise, it was carried out twice. First, the farmer was asked to allocate the beans as if they were using a standard package of fertilizers. Second, they were asked for their expectations if they replaced the standard package with recommended applications of NPKS fertilizer.

Using this information, the team could construct measures capturing both the perceived average effect of NPKS use, relative to conventional fertilizer, and how much uncertainty the farmer associated with the outcome. To construct these outcome variables, summary statistics were calculated across ten observations for each farmer (corresponding to the choice associated with each of the ten beans) and the midpoint of each category. For example, a farmer placing 1 bean in the 0-600 bin, 3 beans in the 601-900 bin and 6 beans in the 901-1050 bin would have an average expected yield of $1/10*300 + 3/10*750.5 + 6/10*975.5 = 840.45$ kg/acre. A similar procedure was used to calculate the standard deviation, which was used in calculating the coefficient of variation (standard deviation/mean), providing a measure of dispersion that could be compared across the two scenarios.

3.2.7 Assessing Input Knowledge

In addition to capturing subjective perceptions of the effects of NPKS, the midline survey sought to directly measure how much participants learned from the trainings. To do so, the midline survey included a module in the section on agricultural production with specific knowledge questions regarding input use and other best practices for jute cultivation. The questions used were developed by IFPRI based on an English translation of the NGO trainings manual, and encompassed questions on: seed sowing and appropriate varieties; fertilizer application, timing, and

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important locations) and Intrahousehold Relationships (which includes questions on respect among household members and attitudes to domestic violence). A tabular comparison of the two indicators is presented in Appendix 8.3.

[8] The ranges (in kg/acre) were: 0-600;601-900;901-1050;1051-1350;1350+. To construct the mean and coefficient of variation, an upper bound of 1800kg/acre (corresponding to the 99th percentile of the yield distribution at baseline) was used. The method, based on a review of studies measuring expectations and perceptions in developing countries (Attanasio, 2009), was pilot-tested extensively for measuring agricultural yield perceptions in the context of Nigeria as part of the Financial and Health Diaries project (Janssens, Kramer, Van der List, & Pap, 2013). It was adjusted by the impact evaluation team for the context of the present study, and further piloted and refined prior to—and during—the baseline survey training.

types; weeding and pest management; harvest practices; appropriate retting techniques; and how to identify high quality jute fiber. IFPRI defined the correct response(s) to a given question based on the training manual. The number of correct questions in each category was then totaled, and standardized (since the number of questions varied by topic) to calculate an overall knowledge score. Since the promotions treatment focused specifically on NPKS fertilizer, the overall score was disaggregated into a fertilizer component, and a component on all topics other than fertilizer.

3.2.8   Trust Experiment

To better understand how trust may affect market interactions between farmers and input sellers, the IFPRI team added an incentivized trust experiment as the final section of the main midline form, in which each farmer was randomly paired with six input sellers from their local area. This trust experiment followed a standard design, first developed by Berg et al. (1995) involving two players. The first player receives a small amount of money from the experimenter, and has the option to keep all or some portion of it, sending the remaining amount to the second player. The experimenter then triples the amount sent, and gives it to the second player, who then decides how much to keep for themselves, and how much to return to the first player.

Under classical economic assumptions with self-interested players, the first player would be expected to send nothing, because the second player would have no reason to return any money. Yet, in practice, Berg et al. (1995) find large majorities of participants do engage in trusting and reciprocal behavior, with first players sending money and second players returning money, even though the games are played anonymously. They argue the amount sent by the first player is a measure of the extent to which the first player trusts the second player to reciprocate, providing a measure of the degree of trustworthiness in the subject pool. Subsequent studies using the same experimental set-up to explore trustworthiness in different social and cultural contexts have found very similar results.[9]

In this implementation, at the end of each survey each farmer was invited to participate in the experiment. They received an envelope containing play money representing 150 Taka (approx. $1.80) associated with a given input seller. They could then decide to either keep 0, 50, 100 or all 150 Taka, and place the remainder in the envelope to send to the input seller. Farmers were told that DATA would triple any money in the envelope, meaning that the input seller would receive 0, 150, 300 or 450 Taka depending on whether the farmer sent 0, 50, 100 or 150 Taka, respectively. This process was repeated for each of the six input sellers. Following the interview with the input seller, input sellers received four envelopes containing each potential amount sent and had to decide how much to return in each scenario. Both farmers and input sellers additionally received a flat fee of 150 Taka to participate; input sellers had the option to include some or all of the fee in the amount sent to farmers. For each of the six input sellers that a farmer was matched with, the value to be returned was calculated, using the input seller's decision. One of the six was then chosen at random to determine an actual payout for the farmer.

To ensure the experiment was implemented consistently in each interview, the IFPRI team developed a standard script using the tablet software which the DATA enumerator read to the farmer or input seller in the field.[10] Similar to the expectations module, the script included examples and comprehension questions to ensure the respondent understood how to play the game. The randomized matching of farmers to input sellers was carried out by IFPRI and preloaded into the tablets used for the interviews. Similarly, the decision amounts were submitted to the server as part of data collection, and used by the IFPRI team to generate anonymous payment lists, to ensure that neither the DATA interviewer nor the interviewee would be able to identify the individual they were paired with whose choice was selected for payment.

The method borrowed heavily on the standard trust game, but was adjusted for implementation in a large-scale household survey based on scripts and procedures developed a similar laboratory field experiment in Nigeria (Barr,

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[9] For a detailed discussion of the trust game, including a summary of contexts in which it has been applied, see Brulhart and Usunier (2008).

[10] The English language version of this script is included as part of the Midline Questionnaire in Appendix 8.4, under the heading "Trust Game".

Dekker, Janssens, Kebede, & Kramer, 2017). The Nigeria study found that giving participants real money and asking them how much of that to send to another player by placing the money in an envelope made the task more tangible, easier to understand and more anonymous (hence less vulnerable to social desirability bias) compared with how the trust game is typically implemented in household surveys. The research team therefore followed a similar procedure in Bangladesh, but because each farmer played with six different sellers, and only one of these games was randomly selected for payment, participants were not given real money in the envelopes; instead, the experiment used plastic game money, and told participants that the game money for the selected game would be replaced by real money. This procedure worked well in the context of the lab-in-the-field experiments conducted as part of the impact evaluation in late 2016.

The procedures were piloted by field coordinators and supervisors prior to the enumerator training, and adjustments were made to the script after the pilot test. For example, the trust game was reduced to include only four choice options for the farmer (sending 0, 50, 100 or 150 Taka instead of sending any amount between 0 and 150 Taka), to simplify the game and make it easier for enumerators to explain. After a field test of the simplified trust game occurred during training, the script was further refined and finalized for implementation to ensure that it was appropriate to the community context and easy for farmers to understand.

3.2.9 Photobooks

In addition to these specialized modules, at the end of each farmer household interview, the main respondent was asked for their permission to have their picture taken by the enumerator. For each Group 3 interview, a photobook was generated containing pictures of each respondent organized by village. The photobook was used for input sellers to identify farmers with whom they had previously transacted by sight, in addition to having their name provided. Similarly, photobooks of input sellers were generated prior to beginning fieldwork of each of the input sellers to be interviewed (using previously collected pictures), so that farmers could likewise visually identify individuals with whom they recalled having previously transacted.

3.3 ENUMERATION TEAM AND TRAINING

Enumerators were organized into 10 teams of six, each led by a supervisor, who in turn reported to two senior DATA staff members overseeing the fieldwork. All team supervisors had significant previous experience implementing surveys in rural areas and underwent additional internal training in managed logistics, reporting procedures and troubleshooting.

All supervisors and enumerators underwent an extensive two-week survey training, developed by DATA in collaboration with IFPRI. The training was delivered by senior staff members at DATA with an IFPRI representative present to provide information on survey instrument design and to answer questions. The goal of the training was both to ensure all enumerators had a strong understanding of the questionnaire structure, proper procedures for each module, and knowledge of how to use the tablets for electronic data collection.

Throughout the training, the data collection program was displayed on a projector so that each enumerator could verify they were collecting the same information as the trainer. Sections requiring specific procedures, such as the module on expectations and the trust experiment, were first modelled by DATA and IFPRI staff members to the group, then role-played by different groups of enumerators, with time devoted after each role play for enumerators to ask questions and provide peer feedback.

The training was also used to extensively test the electronic questionnaire, which was updated daily prior to each session to remove errors, improve translations, and add additional notes or instructions to enumerators based on issues which arose during the training.

3.4   FIELDWORK

3.4.1   Household Interviews

Household data collection for the midline survey began on February 10, 2017 and concluded on March 9. Each team carried out interviews in 5 villages, beginning with Group 1 and Group 2 households. For Group 1 households, the team was instructed to find the household interviewed at baseline. In cases where the household had moved, or its composition had changed, the team was to identify the main respondent from the baseline survey if that respondent was still present within the union and interview their household. If the main respondent had left the union or died, the team were advised to locate the remaining household members and use the individual who was now the principal jute farmer as the main form respondent. Overall, the DATA team was highly successful in locating households from the baseline, successfully re-interviewing 987 of the 1000 baseline households. For Group 2 households, the team followed the sampling procedure described above, attempting to locate listed households, then proceeding through the list of assigned replacements. After completing the assigned quota of Group 1 and Group 2 households within each village in a union (section of a union), the team then carried out Group 3 interviews, while market surveys were carried out by supervisors alongside household data collection.

Figure 3.2- Bangladesh AVC Midline Evaluation Districts
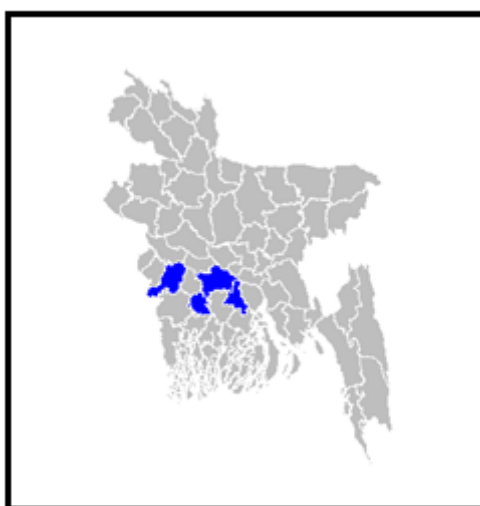
3.4.2   Trust Game Payouts and GPS Verification Form

Following completion of the household survey by all farmer and input seller households within a union, DATA supervisors notified IFPRI. The impact evaluation team would then download submitted survey data from the server and run an automated check to ensure that the trust experiment questions had been completed for each participating household, and that no data was missing. IFPRI then combined this data with the randomly pre-assigned data matching farmers to a given input seller. The combination was used to calculate the amount to be paid out to the farmer. This payment data was entered into a spreadsheet and sent to DATA to enable them to manage the logistics of distributing payments. The data was also uploaded into a custom SurveyCTO form which was used by DATA supervisors in each area to confirm the payment amount to each household, and disburse the appropriate amount. The CTO form enabled DATA supervisors to independently check the amount, without having to contact another team member, to ensure that the randomization procedure was carried out automatically and correctly. The form was also used to collect GPS points for households where a point could not be successfully captured during the initial interview, typically due to weather conditions.

3.5   DATA CAPTURE AND MONITORING

Each team of enumerators was provided with a 3G mobile hotspot, which was used nightly by supervisors to upload the day's interviews to the CTO server. Submitted surveys were then batch downloaded by IFPRI and processed

using a series of automated data quality checks, and feedback was provided to the field team on response rates and interview duration. Each team supervisor also updated an Excel spreadsheet daily, tracking completed interviews and adding any comments or specific feedback. The spreadsheet was processed daily by IFPRI to ensure server submissions matched interviews recorded as completed, and that the status of every household in the sample was recorded accurately.

4 SAMPLE CHARACTERISTICS

4.1 SURVEY SAMPLE

The sample design called for the field team to locate the 1,000 Group 1 households and 500 Group 2 households, along with the 259 previously identified input seller households. The field team was able to successfully locate 987 Group 1 households (Table 4.1), representing an attrition rate of 1.3%. Attrition was similarly low among Group 3 households, was the field team interviewed 256 of the 259 input seller households. For the Group 2 households, 501 interviews were carried out.[11]

Table 4.1- Households Interviewed at Midline, by Sample Group

Sample Group	Group 1 Panel farmer households	Group 2 New farmer households	Group 3 Input seller households
Number of households	987	501	256

To properly assess the impact of the interventions, the analysis will focus primarily on the sample of farmer households (Group 1 and Group 2). To focus on the jute value chain, the sample is further restricted to include only households which report planting jute in each season that they were interviewed. From the 987 Group 1 households that were successfully re-interviewed at midline, an additional 27 households are excluded for reporting not planting jute either or both survey periods (Table 4.2). Of the Group 2 households interviewed, all report growing jute in the most recent season. As a result, the main sample used in the analysis will be 960 + 501 = 1461 households.

Table 4.2- Number of Group 1 (Panel) Households

Baseline sample	1000
of which, located at midline	987
of which, planted at baseline	972
of which, planted at midline	960

4.2 ATTRITION

While the overall attrition rate is quite low, it could still pose a problem for inference if households and individuals who were not re-interviewed have different unobservable characteristics from those who were. If household attrition is non-random, it could bias impact estimates. Therefore, Table 4.3 compares baseline characteristics among Group 1 households who were successfully re-interviewed with households that left the sample. First, it is important to study differences in treatment assignment, a prerequisite for potentially finding differences. There is no difference in treatment assignment for the NGO training intervention (row 1). However, there is a statistically difference for the NAAFCO promotions treatment; a slightly higher proportion of those leaving the sample are from

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[11] One additional interview was carried out with a replacement household after a technical glitch prevented the data from a listed interview from being exported during the field work. The IFPRI team were subsequently able to successfully extract this data, and decided to retain both interviews in the dataset.

control villages. However, the magnitude of this difference is small (equivalent to eight fewer control households than in expectation) and unlikely to meaningfully influence results.

Table 4.3- Comparison of Returning to Non-Returning Baseline Households

	Returning Households			Non-Returning Households			Difference		
	Mean	SD	Obs.	Mean	SD	Obs.	Mean	p-value	Sig.
Treatment Status									
NGO Trainings	0.50	0.50	960	0.50	0.51	40	0.00	0.998	
NAAFCO Promotions	0.51	0.50	960	0.32	0.47	40	0.18	0.037	**
Household Characteristics									
Is female	0.03	0.18	960	0.08	0.27	40	-0.04	0.332	
Age in years	47.3	12.7	960	50.1	12.5	40	-2.8	0.111	
Is Muslim	0.69	0.46	960	0.68	0.47	40	0.01	0.898	
Can read & write	0.50	0.50	960	0.52	0.51	40	-0.03	0.774	
Completed primary education	0.40	0.49	960	0.45	0.50	40	-0.05	0.552	
Completed secondary education	0.09	0.29	960	0.15	0.36	40	-0.06	0.370	
Has secondary income source	0.73	0.45	960	0.70	0.46	40	0.03	0.715	
Asset Index	0.00	2.02	960	-0.36	2.05	39	0.36	0.304	
Planting Decisions									
Jute area planted (Decimals)	87.3	66.1	960	74.6	67.0	24	12.7	0.399	
Inputs Expenditure (Taka)	4849	4827	960	4094	4850	24	755	0.479	
Expenditure on inputs excl. fertilizer (Taka)	2284	2916	960	1989	2766	24	295	0.623	
Days of household labor prior to harvest	14.6	13.4	960	9.4	9.9	24	5.2	0.926	
Days of hired labor prior to harvest	18.0	22.5	960	28.5	66.3	24	-10.5	0.220	
Expenditure on hired labor prior to harvest (Taka)	4683	6227	960	8053	19532	24	-3370	0.393	
Production Outcomes									
Jute harvested (Kg)	755	609	960	580	383	24	175	0.069	*
Jute yield (Kg/decimal)	887	308	960	893	252	24	-6	0.923	
Jute price (Taka/Kg)	45.2	7.5	960	44.8	5.1	24	0.5	0.651	
Total revenue (Taka)	34758	44862	960	27635	20170	24	7123	0.180	
Gross margin (USD/Hectare)	505	2977	960	282	2007	24	223	0.490	

*Notes: Summary statistics from baseline (Group 1) households, split by those included/excluded in midline analysis due to attrition. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively.*

In terms of household characteristics, attrited households appear quite similar to retained households in terms of household characteristics. Among those who planted jute at baseline, there are no statistically significant differences in terms of area cultivated, expenditures on inputs or use of labor. In terms of production, there is a marginally statistically significant difference in terms of total quantity harvested, which is slightly lower in the attrited group than returning households (580 kg on average compared to 755 kg for returning households). However, both groups have similar measures of productivity, price received for their jute, and total revenue from jute sales. Furthermore, given the number of statistical tests in Table 4.3, one would expect at least one test to be significant at the 10 percent level or better.

4.3 RESPONDENT CHARACTERISTICS

Within the farm households in the sample, there are slightly more female than male members (52% female). However, men are far more likely to be identified as the primary farmer: in 95% of households, the main survey respondent was male (Table 4.4). Within households, adult men are much more likely to report agricultural labor on the family farm as their primary source of income (79%) than adult women (22%), though this proportion is unsurprisingly far higher in households in which the main respondent is female. Men in the sample report slightly higher rates of primary and secondary education than women overall, with female household heads being substantially less likely to have completed secondary education (4%) than male household heads (9%) or adult

women in general (12%). Women in the sample are also slightly younger than men on average, though the difference appears to be smaller than in other parts of Bangladesh, where male out-migration rates generally exceed female rates. That said, there is evidence that the type of agricultural activity undertaken varies by gender. Women are much less likely than men to report working on the household's jute crop as their primary activity, but more likely to report taking care of livestock, providing suggestive evidence that some agricultural activity is quite gender specific.

Table 4.4- Form Respondent Characteristics

	HH Members			Main Respondent			WEAI Respondent	
	All	Male	Female	All	Male	Female	Male	Female
Demographic Characteristics								
Is female	51.6%	-	-	4.7%	-	-	-	-
Reports farm work	49.4%	79.1%	21.5%	96.7%	97.9%	72.1%	99.4%	30.9%
Is married	78.2%	76.5%	79.8%	94.9%	96.3%	66.2%	97.2%	98.8%
Completed primary education	49.5%	51.8%	47.4%	39.7%	39.8%	36.8%	40.1%	40.3%
Completed secondary education	14.1%	16.0%	12.3%	9.1%	9.3%	4.4%	10.0%	5.8%
Age	40.6	42.0	39.4	47.2	47.4	42.5	47.7	39.0
16-25	24.1%	22.1%	26.0%	2.5%	2.6%	1.5%	1.8%	10.8%
26-40	29.9%	27.2%	32.4%	30.1%	29.2%	48.5%	27.5%	44.7%
41-60	33.9%	36.7%	31.3%	54.6%	55.1%	42.6%	59.3%	43.9%
60+	12.1%	14.1%	10.3%	12.8%	13.1%	7.4%	11.4%	0.6%
Primary Occupation								
Crop Farming	37.2%	64.5%	11.7%	85.7%	86.9%	61.8%	94.2%	15.8%
Day Labor	1.2%	1.6%	0.8%	1.6%	1.5%	2.9%	0.0%	0.8%
Livestock	18.5%	0.9%	35.0%	1.3%	0.2%	23.5%	0.2%	62.5%
Helping on Farm	3.6%	2.8%	4.4%	0.1%	0.1%	0.0%	0.0%	5.8%
Observations	4,583	2,220	2,363	1,461	1,393	68	499	501

Notes: Demographic and occupational categories of individuals from midline survey households. "HH Members" and "Main Respondent" columns include Group 1 and Group 2 households, while "WEAI respondent" only includes Group 2 households.

4.4   TREATMENT ASSIGNMENT

Recall that due to the randomization, a given farm household, within a village, could belong to one of four assignment categories: control households, who received neither trainings nor access to the NAAFCO promotions; training only households, who could attend trainings but did not have access to the NAAFCO promotions; promotions only households who did not have access to trainings, but did have access to the NAAFCO promotions; and households which had both access to the NGO trainings and the NAAFCO promotions.

Consequently, there are approximately a balanced number of households in treatment and control villages (Table 4.5). In the case of the discount treatment, due to logistical difficulties, NAAFCO were not able to complete raffles in all the assigned villages. As a result, the number of households who did not have access to the raffle is somewhat greater than the number that did: 680 households could participate in the raffles, compared to 781 who did not have access.[12] For Group 1 households, raffles were carried out in 23 of the 25 assigned villages, while for Group 2 households the rate was lower with raffles being carried out in 17 of 25 villages.

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[12] The difference in the number of households that were exposed versus not exposed to the raffles creates a very small loss in statistical power relative to the case in which the sample was split evenly between treatment and control. Considering a variable distributed with a standard normal distribution, this sample can identify an effect size of 0.288 standard deviations, whereas a balanced sample would be able to identify an effect size of 0.287 standard deviations.

Table 4.5- Number of Households, by Treatment

Sample Group:	Group 1- Panel farmer households	Group 2- Additional farmer households
NGO Trainings		
In village with no NGO training	480	251
In village with NGO training	480	250
NAAFCO Marketing		
In village with no NAAFCO promotions	511	330
In village with NAAFCO promotions	449	171
Combined Treatments		
In control village	267	170
In village with NGO trainings	244	160
In village with NAAFCO promotions	213	81
In village with trainings & promotions	236	90

4.5 TREATMENT COMPLIANCE

The analysis will largely be completed using intent-to-treat (ITT) effects, meaning that it will not only focus on individuals or households who took up the interventions, but rather the emphasis is on understanding what the offer of trainings or raffles and fairs did to change outcomes. The main benefit of using an ITT approach is that it represents the average effect of the intervention as a whole, taking into account that some people are potentially not interested in participation. Non-participation among the treatment group is not random, so removing them from the treatment group would mean that the remaining members are no longer directly comparable to control members, since it is not known which control members would not choose to participate. For example, consider the possibility that treatment group members who do not participate have lower levels of intrinsic motivation than treatment group members who do chose to participate. If only participants were considered as the treatment group, the decision to participate would introduce bias, as the analysis cannot isolate those who would have participated within the control group as the proper comparison.

A drawback of using ITT to measure treatment effects is that the primary interest may be in the average treatment effect on the treated (ATT). An estimate of the ATT is simply the ITT divided by the participation rate. However, it is not possible to do statistical inference with that estimate of the ATT. Consequently, one has to use an alternative statistical technique, called instrumental variables estimation, to estimate standard errors on the ATT. However, it should be noted that instrumental variables estimators are quite variable relative to standard estimation techniques (like ordinary least squares estimation, which can be used in estimating the ITT). So with relatively low compliance rates, it may not be possible to estimate an ATT that is statistically significant.

Since it is not possible for the treatments to affect outcomes without participation, it is first important to understand whether or not households participated in trainings or the promotions. The survey instrument asked respondents to report whether they had participated in the interventions. However, self-reports can be affected by recall problems (not remembering participation) or attribution (misremembering who provided the intervention). As a result, self-reports may provide very noisy estimates, and other data sources are typically preferred to measure participation.

In the case of the NGO trainings intervention, administrative data is available, allowing the impact evaluation team to match individuals in the survey data to contemporaneous participation records. Although matching survey data with participation data might sound simple, it was necessary to match both villages and individuals by name and/or phone number. The team used a fuzzy matching algorithm to match names of individuals with the administrative data. As a result, while the administrative data is expected to be more accurate than self-reports, it may still somewhat underestimate training attendance overall. Though the algorithm was designed to be relatively conservative, there is still likely to be some incorrect attribution of attendance to control group members, particularly as they may have forgotten in which year they may have attended a training.

In the case of the NAAFCO promotions intervention, unfortunately administrative data on fair attendance is not available, as the fairs were typically held in open spaces as promotional events, making it impossible to track who attended. The study sample formed only a small proportion of fair participants, given that anyone from the surrounding villages was invited to attend. Hence, even if attendance had been taken it would have been measured with substantial error. As a result, self-reported data from the midline survey must be used to estimate attendance. Note, however, that while farmers needed to attend the fairs to benefit from the advice offered, the raffle component was not conditioned on attendance. Farmers from treatment villages where raffles were carried out were entered into the raffle, whether or not they actually attended the fair. Conversely, even if farmers from control villages attended the fairs, they were not eligible for the raffle. While both groups could benefit from the advice by attending the fair, only treated households could receive a discount from the raffle. Attendance may therefore be a less important concern in evaluating the NAAFCP promotions intervention than in the case of the NGO trainings (Table 4.6).

Table 4.6- Attendance by Treatment

	Assignment		Attendance: Treatment Villages			Attendance: Control Villages		
	Villages	Households	Villages	Households	Rate	Villages	Households	Rate
NGO Trainings								
(Admin data)								
All	**25**	**730**	**24**	**222**	**30.4%**	**6**	**37**	**5.4%**
Group 1	25	480	23	145	30.2%	6	19	4.0%
Group 2	25	250	23	77	30.8%	5	18	7.2%
NAAFCO Events								
(Self-report)								
All	**25**	**738**	**25**	**350**	**47.4%**	**18**	**58**	**8.0%**
Group 1	25	487	25	255	52.4%	18	54	11.4%
Group 2	25	251	23	95	37.8%	2	4	1.6%

Notes: Assignment status from IFPRI sample design, NGO training attendance based on matching survey respondents to administrative data provided by DAI. NAAFCO event participation based on midline household survey self-report. Group 1 & Group 2 households.

For the NGO trainings, in eligible villages the overall attendance rate was 30%, with little difference in attendance levels between Group 1 and Group 2 households. As noted above, this estimate may somewhat undercount training attendance, as not all variations in names may have been captured in the matching procedure. Additionally, there are a few cases in which members of control villages attended trainings, particularly among Group 2 households, but the overall rate is relatively low. Because the difference in training participation, it may be challenging to ascertain impacts on outcomes from the trainings. Moreover, the participation rates could be taken to suggest that AVC's reluctance to continue to rely on NGO trainings to deliver interventions seems justified, as does the agreement from USAID to shift to a market systems approach. We return to this justification in the results section.

In terms of the promotions treatment, attendance at the fairs is somewhat higher, at 47.4% of respondents. Attendance was somewhat higher among Group 1 households than Group 2 households- 52.4% versus 37.8%- reflecting the fact that the second round of events covered fewer villages. The rate of control group households attending the fair is also somewhat higher than for the control group household attending the trainings at 8.0%, and particularly so among Group 1 households, where 16.7% of households report attending the fairs. In part this difference may reflect the typically noisy nature of self-reported data. As described above however, eligibility for the

raffle was independent of whether the individual attended the fair, and was strictly conditioned on village-level treatment status. As a result, the high rate of contamination (particularly in the Group 1 sample) does not present a problem in measuring impacts of the promotions.

While contamination is not a concern in evaluating the effects of the discounts, the overall rate of households receiving discounts was lower than in the original design. As described above, this situation results from the fact that raffles were not carried out in some treatment villages. As a result, the overall rate of households receiving discounts was lower than originally designed (Table 4.7). Among households in treatment villages (ie. who were intended to be treated), 84% were in villages in which a raffle took place. As the raffles were carried out separately for the two sample groups, the treatment rate was somewhat higher for Group 1 households (92%) than Group 2 households (68%).

As a result, the NAAFCO promotions treatment is less intense than intended in the original design. Whereas half of households were supposed to receive discount coupons in the original design, as implemented 39% of households assigned to treatment villages received discount coupons, within which 46% of Group 1 households and 25% of Group 2 households received discounts. In terms of the level of the discount received, of the 285 winners in both groups: 57 (20% of winners) received a discount of 80% of the retail price; 88 (31%) received a 50% discount, and 140 (59%) received a 20% discount.

Table 4.7- Proportion of Treated Households Receiving Discount

	Assignment		Actual			Raffle Winners	
	Villages	Households	Villages	Households	%	Households	%
NAAFCO Promotions							
All	**25**	**738**	**23**	**620**	**84.0%**	**285**	**38.6%**
Group 1	25	487	23	449	92.2%	222	45.6%
Group 2	25	251	17	171	68.1%	63	25.1%

Notes: Assignment status from IFPRI sample design, self-reported attendance taken from midline survey report of main respondent. Group 1 & Group 2 households.

In the context of the analysis, the fact that the proportion of households receiving the treatments is lower than the proportion assigned each treatment does not prevent unbiased estimation of a treatment effect. Since the analysis of treatment effects follows an ITT approach, it considers any household in a treatment village as treated, independent of actual participation. As discussed above, the strength of this approach is that it prevents unobservable characteristics correlated with compliance from driving the results.

However, lower rates of take-up of treatment do pose a concern in terms of statistical power. While the coefficients obtained from ITT estimation will be unbiased, as the rate of treatment compliance decreases, it becomes more difficult to demonstrate the change is statistically different from no change. Intuitively, the weaker the signal the harder it is to distinguish from statistical noise. As a result, the analysis cannot exclude the possibility that there may be effects associated with each of the respective treatments which are not identified, but could have been if the treatment compliance rate had been higher. That said, the low participation rates in the NGO trainings may also speak to the efficacy of that intervention model.

4.6   TREATMENT BALANCE

In any evaluation following a randomized control trial (RCT) design, it is important to ensure that the assignment of the treatment is indeed random. The reason for this is to ensure that the group receiving the treatment is comparable to the group which did not in terms of observed characteristics. Even though assignment to the treatment is done randomly, it could nevertheless be the case that the chance selection procedure could generate treatment and control groups which differ in important respects which would have to be accounted for in subsequent analysis.

To check that the two sets of samples are balanced, Tables 4.8 and 4.9 present summary statistics on gendered household type, primary farmer characteristics, previous jute production, and previous input use, for both treatment and control groups for each randomized intervention. For the statistics relating to jute production and input use, which are likely to change over time, the sample is restricted to Group 1 households, since Group 2 households were not interviewed at baseline. The gendered household type variable and main farmer characteristics were predetermined prior to the intervention or are unlikely to have been affected by the intervention and hence Groups 1 and 2 using midline survey data are both included in these variables.[13]

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[13] For example, it is extremely unlikely that the intervention would induce a farmer to complete secondary education, especially after just one year of intervention. However, it is worthwhile to compare the education levels of both treatment assignment groups to ensure that one does not contain a disproportionate number of well-educated farmers.

Table 4.8- Treatment Balance: Households in Control Villages vs. NGO Training Villages

	No Intervention Village			NGO Training Village				
	Mean	SD	Obs.	Mean	SD	Obs.	p-value	
Gendered Household Type								
Adult male only household	0.00	0.05	379	0.00	0.05	730	0.975	
Adult female only household	0.06	0.23	379	0.01	0.12	730	0.096	*
Adult male & female household	0.94	0.24	379	0.98	0.13	730	0.092	*
Main Respondent Characteristics								
Is female	0.08	0.27	379	0.03	0.16	730	0.088	*
Age in years	46.0	11.9	379	47.2	12.0	730	0.213	
Is Muslim	0.74	0.44	379	0.67	0.47	730	0.619	
Can read & write	0.48	0.50	379	0.50	0.50	730	0.691	
Completed primary education	0.38	0.49	379	0.39	0.49	730	0.760	
Completed secondary education	0.07	0.26	379	0.10	0.29	730	0.289	
Primary income: Farming	0.88	0.33	379	0.88	0.32	730	0.954	
Primary income: Agricultural labor	0.02	0.15	379	0.02	0.12	730	0.447	
Primary income: Trader	0.02	0.15	379	0.03	0.18	730	0.560	
Has secondary income source	0.72	0.45	379	0.75	0.43	730	0.530	
Asset Index	-0.02	1.37	379	-0.03	1.78	730	0.952	
Planting Decisions (Group 1 Only)								
Planted Area	86.8	60.4	249	85.3	63.6	480	0.860	
Inputs Expenditure (Taka)	4917	4828	249	4773	4606	480	0.863	
Expenditure on inputs excl. fertilizer (Taka)	2233	2610	249	2199	2624	480	0.943	
Days of household labor prior to harvest	15.5	14.3	249	13.8	12.8	480	0.446	
Days of hired labor prior to harvest	17.6	22.6	249	19.0	23.0	480	0.656	
Expenditure on hired labor prior to harvest (Taka)	4647	6409	249	4919	6451	480	0.783	
Jute Production (Group 1 Only)								
Jute harvested (Kg)	717.8	532.3	249	758.8	635.4	480	0.589	
Jute yield (Kg/decimal)	861.0	341.7	249	884.8	299.9	480	0.589	
Jute price (Taka/Kg)	45.5	5.3	249	44.6	5.3	480	0.337	
Total revenue (Taka)	30890	23324	249	33156	29313	480	0.506	
Gross margin (USD/Hectare)	434.0	2219.0	249	688.1	2514.7	480	0.183	

Notes: Summary statistics from baseline households, split by village assignment to receive NGO trainings. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. Group 1 & Group 2 households.

Table 4.8 shows that the households in the villages where NGO trainings were not offered are comparable on most observed dimensions to households in villages which were eligible to receive trainings. The primary farmers from these households in both groups are on average of similar age, religious affiliation, education level, and occupation. There is a marginally statistically significant difference in the proportion of female headed households between the two samples, with a slightly higher proportion present in the control than in the treatment group. This difference is likely due to the clustered sample and the low proportion of female headed households, which can cause a statistical difference if female headed households are clustered in a few villages. Consequently, an indicator variable for female household heads is included in the set of controls in subsequent regression analysis to ensure that this difference does not bias results estimated for treatment outcomes. In terms of production outcomes, the households in both groups on average report similar levels of both area cultivated and quantity of jute harvested, and hence similar yields at baseline. Similarly, both report selling comparable amounts of jute and similar values of both the amount they report selling and the total quantity harvested. Both groups report similar levels of input utilization and expenditures.

Table 4.9 presents the same comparison for the marketing promotions treatment. As for the NGO trainings, the primary farmers in the household are on average very similar in terms of demographic characteristics and education levels, though there is a marginally statistically significant difference in terms of ages, with farmers in the treatment

villages reporting being slightly older than those in control villages. While this difference is likely to be a product of random chance, as before the age of the farmer is included as an explanatory variable in subsequent regressions where controls are included. Both groups have balanced characteristics in terms of input usage, expenditures on inputs, and jute production.

Table 4.9- Treatment Balance: Households in Control Villages vs. NAAFCO Promotions Villages

	No Intervention Village			NAAFCO Promotions Village				
	Mean	SD	Obs.	Mean	SD	Obs.	p-value	
Gendered Household Type								
Adult male only household	0.00	0.05	379	0.00	0.05	738	0.982	
Adult female only household	0.06	0.23	379	0.02	0.15	738	0.205	
Adult male & female household	0.94	0.24	379	0.97	0.16	738	0.202	
Main Respondent Characteristics								
Is female	0.08	0.27	379	0.05	0.21	738	0.289	
Age in years	46.0	11.9	379	48.0	11.9	738	0.037	**
Is Muslim	0.74	0.44	379	0.68	0.47	738	0.676	
Can read & write	0.48	0.50	379	0.48	0.50	738	0.903	
Completed primary education	0.38	0.49	379	0.40	0.49	738	0.629	
Completed secondary education	0.07	0.26	379	0.09	0.29	738	0.294	
Primary income: Farming	0.88	0.33	379	0.87	0.33	738	0.885	
Primary income: Agricultural labor	0.02	0.15	379	0.02	0.15	738	0.962	
Primary income: Trader	0.02	0.15	379	0.04	0.20	738	0.371	
Has secondary income source	0.72	0.45	379	0.75	0.43	738	0.420	
Asset Index	-0.02	1.37	379	-0.01	1.90	738	0.937	
Planting Decisions (Group 1 Only)								
Planted Area	86.8	60.4	249	89.7	65.6	487	0.747	
Inputs Expenditure (Taka)	4917	4828	249	5000	5233	487	0.923	
Expenditure on inputs excl. fertilizer (Taka)	2233	2610	249	2415	3350	487	0.727	
Days of household labor prior to harvest	15.5	14.3	249	15.1	14.1	487	0.848	
Days of hired labor prior to harvest	17.6	22.6	249	18.4	23.6	487	0.810	
Expenditure on hired labor prior to harvest (Taka)	4647	6409	249	4683	6191	487	0.970	
Jute Production (Group 1 Only)								
Jute harvested (Kg)	717.8	532.3	249	804.7	634.6	487	0.254	
Jute yield (Kg/decimal)	861.0	341.7	249	903.8	299.8	487	0.343	
Jute price (Taka/Kg)	45.5	5.3	249	45.2	5.6	487	0.767	
Total revenue (Taka)	30890	23324	249	35265	30108	487	0.197	
Gross margin (USD/Hectare)	434.0	2219.0	249	736.2	3030.6	487	0.181	

Notes: Summary statistics from baseline households, split by village assignment to receive NGO trainings. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. Group 1 and Group 2 households are both included unless otherwise specified.

5 ANALYSIS

5.1 UNDERSTANDING ADOPTION

To understand how the interventions influenced farmer behavior, the survey instrument was designed to capture a range of outcomes beyond just take-up of improved inputs. The analysis of the effects of the interventions is therefore structured to follow the potential impact pathways of the two treatments. Specifically, it will explore how the treatments affected: farmers' subjective expectations for the coming agricultural season; their knowledge of

how to use inputs and apply improved practices; their take-up of NPKS fertilizer and overall input expenditures; their allocation of household and hired labor; and their overall agricultural productivity and revenue from jute sales.

5.1.1   Farmer Yield Expectations

An important concern in understanding adoption by farmers is to understand how they perceive a given technology. If farmers do not believe that a given technology provides them with consistent benefits, they are unlikely to continue to use it in future. As described in Section 3.2.6, the primary survey form contained a module designed to elicit farmers' expectations for the coming year under two different potential input scenarios: applying a standard fertilizer mix, and applying NPKS. For each potential scenario, two variables were constructed from the approximate distribution created by the farmer's allocation: the mean and the coefficient of variation of the expected yields. The first measures the average expected outcome, while the second measures the dispersion of expected outcomes. Together, these two measures capture the farmer's expectations over yields under standard fertilizers versus NPKS.

Table 5.1- Summary Statistics for Yield Expectations Due to Fertilizer Use

	Conventional Fertilizer			NPKS		
	Mean	SD	Obs.	Mean	SD	Obs.
Mean (kg/acre)	**1117**	264	1,461	**1242**	248	1,461
Coefficient of Variation	**0.17**	0.12	1,461	**0.15**	0.12	1,461
Implied probability (%): *< 600 kg /acre*	**5.63**	14.47	1,461	**2.57**	8.39	1,461
601-900 kg /acre	**13.50**	19.40	1,461	**8.01**	14.42	1,461
901-1050 kg/acre	**24.53**	24.06	1,461	**18.95**	21.75	1,461
1051-1350 kg /acre	**33.94**	29.43	1,461	**31.91**	28.03	1,461
> 1350 kg/acre	**22.40**	32.82	1,461	**38.56**	38.63	1,461

Notes: Constructed from midline reports of yield expectations module; refer to Section 3.2.6 for details on variable construction. Group 1 and Group 2 households are both included.

Under the conventional input scenario, the mean average expectation was 1,117 kg/acre, which is reasonably close to the realized yield of 1,027 kg/acre from self-reports of actual production at midline (Table 5.1). For NPKS the figure was somewhat higher, with an average reported expected yield of 1242 kg/acre. Responses for NPKS were also slightly less dispersed than for the conventional fertilizer example, as illustrated through the lower coefficient of variation. Respondents appear to perceive less downside risk with NPKS compared to conventional fertilizers: their individual allocations imply a probability of almost 20 percent of realizing a yield of less than 900kg/acre using conventional fertilizers, relative to only a 11 percent risk using NPKS.

While Table 5.1 provides suggestive evidence that the interventions affected respondents' subjective perceptions of the effectiveness of these inputs, to test this hypothesis statistically requires a regression framework. The hypothesis is tested in the following way: Panel A shows estimates of the effect of being in an NGO training village relative to villages receiving no interventions; Panel B shows estimates of the effect of being in a NAAFCO promotions village relative to villages receiving no interventions; and Panel C estimates the effects of being in a training-only village, a promotions-only village, and a training and promotions village respectively, relative to villages which were not eligible for trainings or promotions (the pure control group). Estimates are shown both with and without controls for a set of household characteristics. Full details of the estimation strategy employed are provided in Appendix 8.1.

Table 5.2- Effect of Interventions on Subjective Outcomes

	Any NPKS Knowledge (Self-report)		Trust Game: Amount Sent		Mean expected yield (Typical inputs)		Mean expected yield (NPKS)		Difference in mean expected yield		Difference in CV expected yield	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
NGO Trainings	0.161***	0.151***	-3.6	-2.6	46.9**	41.8*	61.0**	51.0**	14.1	9.2	-0.021**	-0.022**
	(0.045)	(0.045)	(2.9)	(3.1)	(21.3)	(22.2)	(23.2)	(24.2)	(22.6)	(22.7)	(0.008)	(0.008)
Observations	1081	1081	1109	1109	1109	1109	1109	1109	1109	1109	1109	1109
Panel B												
NAAFCO Promotions	0.201***	0.197***	-4.3*	-4.0	40.7**	40.2**	38.7**	33.5	-2.0	-6.7	-0.014	-0.015
	(0.051)	(0.050)	(2.6)	(2.8)	(17.6)	(18.3)	(18.7)	(20.6)	(25.3)	(26.1)	(0.010)	(0.010)
Observations	1059	1059	1117	1117	1117	1117	1117	1117	1117	1117	1117	1117
Panel C												
NGO Training Only	0.051	0.032	-5.9	-5.7	53.2*	50.5*	87.8***	82.7***	34.6	32.2	-0.023**	-0.026***
	(0.052)	(0.048)	(3.7)	(3.9)	(27.1)	(28.4)	(26.9)	(28.1)	(23.0)	(22.8)	(0.009)	(0.010)
NAAFCO Promotions Only	0.101**	0.081*	-6.2*	-5.8	44.0**	38.8**	23.4	14.9	-20.6	-23.9	-0.003	-0.005
	(0.050)	(0.047)	(3.3)	(3.6)	(18.7)	(18.1)	(20.7)	(20.6)	(23.9)	(24.5)	(0.012)	(0.011)
Training & Promotions	0.219***	0.217***	-3.1	-2.4	48.1**	45.1**	47.8**	44.0*	-0.3	-1.0	-0.016*	-0.018**
	(0.045)	(0.043)	(2.7)	(2.8)	(19.6)	(19.6)	(21.4)	(22.4)	(24.1)	(24.6)	(0.009)	(0.009)
p-value (Train Only = Promo Only)	0.248	0.223	0.935	0.991	0.691	0.621	0.005	0.003	0.000	0.000	0.030	0.021
p-value (Train Only = Train + Promo)	0.000	0.000	0.328	0.258	0.830	0.816	0.112	0.127	0.045	0.058	0.349	0.260
p-value (Promo Only = Train + Promo)	0.006	0.001	0.274	0.261	0.820	0.718	0.243	0.152	0.242	0.182	0.183	0.191
Observations	1433	1433	1461	1461	1461	1461	1461	1461	1461	1461	1461	1461
Mean (No interventions)	0.132	0.132	78.1	78.1	1097	1097	1205	1205	108	108	-0.020	-0.020
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Notes: Panel A regresses the outcome variable on an indicator variable which takes the value 1 if the household was eligible to receive trainings and 0 if the household was not eligible to receive either intervention; Panel B regresses the outcome on an indicator which takes the value 1 if the household was eligible to receive NAAFCO promotions and 0 if the household was not eligible to receive either intervention; Panel C regresses the outcome on three indicators, for training eligible households only; promotions eligible households only and households eligible for both trainings and promotions, with households eligible for neither treatment as the excluded category.

Numbers in parentheses identify the set of regression specifications (A-C) associated with each dependent variable. Even numbered specifications include a vector of controls for household characteristics: these include demographic and educational characteristics from midline, and agricultural production variables from baseline, for Group 2 households the latter variables are assigned the median value of their village at baseline as well as an indicator variable for Group 2 status. Odd numbered specifications do not include these controls.

*For binary outcome variables, logistic regressions are estimated, all other outcomes are estimate using OLS regression. Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively.*

First, respondents' self-assessed level of NPKS knowledge is used as a dependent variable (Table 5.2, columns 1-2). The coefficients on each of the treatment outcomes are positive and statistically different from zero at the one percent level, suggesting that individuals who were in treatment villages perceive themselves as more knowledgeable about NPKS than individuals not eligible for either treatment.

The next outcome considered is the average amount that the farmer sent in the trust game (described in Section 3.2.8). The goal of measuring this outcome was to determine whether either of the treatments affected the level of trust which farmers were willing to place in input sellers, which could have important implications for the promotion of new technologies or practices. There are no statistically significant differences in trust levels for either intervention controlling for baseline characteristics. Since trust is only supposed to be built by market systems interventions over longer periods of time, it is not surprising that the interventions did not affect trust between farmers and input dealers.

Turning to the yield expectations (columns 5-8), households in NGO training villages report significantly higher average expected yields when using NPKS, relative to households who were not eligible to receive trainings. While training households do appear to have somewhat more positive expectations from inputs in general, when comparing conventional inputs to NPKS, they perceive a greater benefit associated with NPKS take-up than non-training households (columns 7-8). These households also perceive less variation in outcomes when using NPKS as compared to a conventional fertilizer mix, suggesting that NPKS is not perceived as more risky than standard input allocations.

In terms of the NAAFCO promotions, in comparing treatment to non-treatment villages, eligibility for the discount treatment does not appear to affect perceptions, though there is marginal evidence to suggest that households report a smaller gap in expectations between conventional fertilizer and NPKS. Exploring this idea further with Panel C, farmers in villages were exposed to the NAAFCO promotions were less optimistic about gains that NPKS can bring them compared to farmers from villages with NGO trainings; farmers from NAAFCO villages without NGO trainings do not differ significantly from farmers in the control group.

5.1.2 Knowledge about Inputs

While expectations are clearly important to understand farmers' perceptions of improved inputs, in evaluating the effects of the interventions it is also important to understand whether the informational components of the interventions actually increased farmers' knowledge about inputs and improved practices. In the case of the NGO trainings, improving farmers' knowledge of best practices for jute production was one of the primary goals of the intervention, while the NAAFCO promotions included direct information on different types of inputs and how to apply them.

To provide some context to the information sources on inputs available to farmers, the midline survey included questions on interactions outside of the trainings with input providers (Table 5.3). Farmers were asked whether they received information on inputs in general from their input seller (other than fertilizers) and, if so, how long the discussion lasted. Farmers were then asked the same questions specifically referring to fertilizer, as well as more detailed questions on the topics discussed.

Table 5.3- Summary Statistics on Input Information Provided by Sellers

	Mean	SD	Min.	Max	Obs.
Information provision					
Received information on other inputs	0.40	0.49	0	1	1,460
Minutes spent on other inputs	17.99	20.46	1	240	581
Received information on fertilizer	0.41	0.49	0	1	1,460
Minutes spent on fertilizer	16.18	12.76	1	120	595
Fertilizer topics covered					
Type of fertilizer to use	0.97	0.18	0	1	595
Quantity to apply	0.94	0.23	0	1	595
When to apply	0.83	0.38	0	1	595
Best for certain weather	0.19	0.39	0	1	595
Best to improve yields	0.44	0.50	0	1	595
Best for fiber quality	0.43	0.50	0	1	595
Best for disease resistance	0.35	0.48	0	1	595

Notes: Self-report of access to input information of main survey respondent at midline. Group 1 and Group 2 households are both included.

For both fertilizer and other inputs, approximately 60 percent of farmers do not report receiving information from the vendor at the time of purchase. Among those that do, discussions are typically short: the median discussion time for fertilizer was 10 minutes, while the median time for other inputs was 15 minutes. In terms of the topics discussed for fertilizers, the focus is primarily on the type of product, and how much and when to apply it, rather than which fertilizer to use for different conditions or for different outcomes. For most farmers, the role of the input vendor as a source of information is clearly limited at present.

There is therefore scope for interventions to increase both the amount and type of information regarding inputs available to farmers. The survey questionnaire included a series of questions on topics relating to inputs covered during the input trainings to measure any such increases, as well as specific questions on NPKS and other fertilizers. As distinct from the expectations module, which sought to measure subjective beliefs, the knowledge questions require farmers to demonstrate objective knowledge (for example, the correct variety of jute seed to use in highland areas, or how many days after planting a farmer should commence weeding). These questions allow the impact evaluation team to assess whether respondents in treatment groups know more about input use than those who did not receive the interventions.

Estimated impacts of the NGO trainings and NAAFCO promotions suggest some objective knowledge gains (Table 5.4). In the case of the overall knowledge score, the coefficient on the indicator variable for access to the NGO trainings is positive and statistically significant in both regressions in Panel A (with and without the inclusion of control variables). While the coefficient on the promotions treatment is positive however, it appears to only change knowledge for fertilizer (Panel B), as the first two coefficients are significant, but not the coefficient on the knowledge score with fertilizer excluded. Panel C helps clarify these effects, by separating outcomes into all three potential treatment statuses (relative to the pure control group). The gains to overall knowledge are being driven by participation in the NGO trainings. Disaggregating the overall knowledge score into one score for the fertilizer questions and one for all the other questions, the NAAFCO promotions treatment is associated with a statistically significant increase in scores for fertilizer knowledge, while there is no significant gain for fertilizer knowledge for those who only were assigned to NGO trainings. Conversely, when the fertilizer questions are excluded from the knowledge score, there is a positive and statistically significant effect for the NGO trainings only group, but no significant effect associated with the NAAFCO promotions treatment.

Table 5.4- Effect of Interventions on Knowledge of Inputs & Practices

	Knowledge Score (Standardized)		Knowledge Score for Fertilizer (Standardized)		Knowledge Score excl. Fertilizer (Standardized)	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
NGO Trainings	0.213**	0.161*	0.215**	0.188**	0.153	0.106
	(0.099)	(0.089)	(0.087)	(0.088)	(0.097)	(0.087)
Observations	1109	1109	1109	1109	1109	1109
Panel B						
NAAFCO Promotions	0.264***	0.220***	0.322***	0.292***	0.168	0.131
	(0.091)	(0.076)	(0.084)	(0.081)	(0.102)	(0.089)
Observations	1117	1117	1117	1117	1117	1117
Panel C						
NGO Training Only	0.259**	0.220*	0.137	0.096	0.235**	0.208*
	(0.126)	(0.128)	(0.105)	(0.105)	(0.114)	(0.117)
NAAFCO Promotions Only	0.144	0.090	0.257**	0.225*	0.059	0.012
	(0.091)	(0.084)	(0.121)	(0.115)	(0.099)	(0.095)
Training & Promotions	0.199**	0.162*	0.306***	0.271***	0.102	0.074
	(0.095)	(0.083)	(0.080)	(0.080)	(0.102)	(0.092)
p-value (Train Only = Promo Only)	0.232	0.199	0.284	0.251	0.058	0.047
p-value (Train Only = Train + Promo)	0.565	0.595	0.061	0.070	0.175	0.188
p-value (Promo Only = Train + Promo)	0.492	0.350	0.663	0.679	0.644	0.489
Observations	1461	1461	1461	1461	1461	1461
Mean (No interventions)	-0.082	-0.082	-0.137	-0.137	-0.037	-0.037
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes

*Notes: Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. For full description of regression specifications, refer to Table 5.2.*

These results suggest that NGO led trainings and a market systems approach will impart different knowledge upon farmers. NGO led trainings, even with relatively low attendance, cause broadly improved knowledge among farmers about farming jute, whereas the farmers "trained" by the market systems approach learn more about fertilizer, as designed. The effects on knowledge therefore appear to be in line with the objectives of the respective treatments. Farmers with access to input trainings demonstrate higher levels of knowledge of inputs that those without, while farmers receiving access to the promotional sessions demonstrate higher levels of fertilizer knowledge than those who did not, but similar levels of knowledge about other inputs. In contrast with the idea that a market systems approach might be clearly dominant over an NGO subcontracting approach, they each appear to have different knowledge benefits.

5.1.3 Improved Practices

Given differences in how the interventions influenced both farmers' subjective perceptions and their knowledge of NPKS and improved practices, the analysis next explores how the treatments influenced respondents' take-up of both NPKS and improved practices (Table 5.5). First, whether or not interventions affected adoption of JRO-524, the jute variety promoted by the NGO trainings, is explored (columns 1-2). There is no significant association between the NGO trainings and adoption of JRO-524. However, general improved seed use in the sample is high (95% of control households report using improved seeds), even if a small proportion of households are using JRO-524.

Households may not differentiate strongly between different seed types. For NPKS use, there is a large, statistically significant positive effect of the intervention in both Panels A and B. As demonstrated in Panel C, the estimated effect is zero when considering households who only received NGO trainings, but there is a strong complementarity in villages receiving both trainings and promotions where the effect is large and statistically different from the effect for villages in which only NAAFCO Promotions were offered. These findings are reflected in the variation in take-up rates between training and non-training villages. In raffle villages in which trainings were offered, 25 percent of those who won a discount report using NPKS, while in raffle villages where trainings were not available, only 12 percent of winners report take-up. Therefore, strong evidence exists that the NAAFCO Promotions induced take-up of NPKS, and that this effect was strongest in villages in which NGO trainings were also offered.

Table 5.5- Effect of Interventions on Improved Practices

	Used JRO-524 seed		Used NPKS		Used Improved Pest Management		Used Composting		Used Sorting & Grading	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
NGO Trainings	0.008	0.004	0.125***	0.128***	0.115***	0.119***	0.024	0.016	0.015	-0.006
	(0.030)	(0.029)	(0.036)	(0.035)	(0.030)	(0.031)	(0.021)	(0.020)	(0.058)	(0.058)
Observations	1030	1030	840	840	1081	1081	736	736	980	931
Panel B										
NAAFCO Promotions	-0.027	-0.031	0.168***	0.169***	0.138***	0.137***	0.006	0.008	0.077	0.074
	(0.036)	(0.035)	(0.039)	(0.034)	(0.031)	(0.030)	(0.027)	(0.028)	(0.072)	(0.076)
Observations	975	975	826	826	1089	1089	767	767	997	934
Panel C										
NGO Training Only	-0.014	-0.020	-0.029	-0.029	0.132***	0.133***	0.046*	0.043*	0.034	0.018
	(0.039)	(0.040)	(0.045)	(0.043)	(0.038)	(0.040)	(0.024)	(0.022)	(0.059)	(0.061)
NAAFCO Promotions Only	-0.028	-0.036	0.099**	0.096**	0.220***	0.209***	0.031	0.027	0.045	0.020
	(0.046)	(0.045)	(0.043)	(0.040)	(0.040)	(0.040)	(0.033)	(0.033)	(0.057)	(0.062)
Training & Promotions	0.003	0.002	0.141***	0.144***	0.096***	0.092**	-0.001	-0.002	0.019	0.002
	(0.031)	(0.031)	(0.032)	(0.029)	(0.034)	(0.036)	(0.026)	(0.026)	(0.053)	(0.057)
p-value (Train Only = Promo Only)	0.663	0.611	0.004	0.003	0.086	0.144	0.540	0.516	0.780	0.973
p-value (Train Only = Train + Promo)	0.462	0.338	0.000	0.000	0.378	0.311	0.073	0.074	0.658	0.647
p-value (Promo Only = Train + Promo)	0.340	0.204	0.200	0.138	0.014	0.023	0.315	0.369	0.466	0.666
Observations	1296	1296	1105	1105	1433	1433	1000	1000	1332	1266
Mean (No interventions)	0.087	0.087	0.016	0.016	0.311	0.311	0.034	0.034	0.190	0.190
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

*Notes: Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. For full description of regression specifications, refer to Table 5.2.*

There is further evidence that both interventions increased the proportion of farmers employing improved pest management techniques, with a larger impact in the promotions only group. For use of composting and sorting and grading, there is some weak evidence to suggest a positive effect for the trainings and promotions treatments respectively, but in general though positive the coefficients are small and statistically indistinguishable from zero. In particular for the promotions treatment, such impacts would not have been expected.

5.1.4   Cultivation Decisions

The results thus far have demonstrated that the interventions affected farmers' perceptions, increased their knowledge and increased the rate at which they adopted NPKS. The analysis will next proceed to explore whether changes in knowledge and perceptions led to changes in the decisions households made about allocating other inputs and labor for jute production (Table 5.6). Neither the NGO training nor the NAAFCO promotions treatment were associated with a statistically significant change in the amount of land which farmers used for jute cultivation. This finding is not surprising, but it will be useful in thinking about production effects, since if the intervention had caused farmers to expand into less productive land (or conversely to cultivate a smaller, more productive area more intensively) it could influence the interpretation of results.

Table 5.6- Effect of Interventions on Planting Decisions

	Planted Area		Expenditure on inputs (Taka)		Expenditure on inputs excl. fertilizer (Taka)		Days of household labor prior to harvest		Days of hired labor prior to harvest		Expenditure on hired labor prior to harvest	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
NGO Trainings	-2.83	-3.73	35	-42	-84	-111	0.25	0.06	4.69**	4.64**	1267**	1236***
	(7.00)	(3.53)	(454)	(443)	(172)	(151)	(1.42)	(0.98)	(2.13)	(1.99)	(562)	(444)
Observations	1109	1109	1109	1109	1109	1109	1109	1109	1109	1109	1109	1109
Panel B												
NAAFCO Promotions	2.63	-2.58	609	389	264	159	1.52	0.86	3.34	2.14	1030	714
	(8.73)	(4.40)	(607)	(556)	(317)	(268)	(1.44)	(1.02)	(2.35)	(1.57)	(676)	(437)
Observations	1117	1117	1117	1117	1117	1117	1117	1117	1117	1117	1117	1117
Panel C												
NGO Training Only	-5.64	-2.11	-16	120	5	73	-0.03	0.22	6.74**	7.30***	1842**	2001***
	(8.20)	(3.90)	(507)	(451)	(200)	(177)	(1.58)	(1.21)	(2.72)	(2.39)	(698)	(530)
NAAFCO Promotions Only	16.74	5.67	1476**	1031*	803*	620	3.00	2.00	5.31	2.35	1479	706
	(11.55)	(6.63)	(712)	(604)	(436)	(393)	(1.86)	(1.47)	(3.44)	(2.55)	(950)	(668)
Training & Promotions	0.05	-3.44	295	124	46	-18	0.49	-0.01	4.29*	3.72**	1156*	997**
	(7.92)	(4.10)	(500)	(476)	(202)	(169)	(1.37)	(0.92)	(2.19)	(1.67)	(607)	(415)
p-value (Train Only = Promo Only)	0.027	0.198	0.011	0.021	0.023	0.062	0.055	0.169	0.688	0.107	0.672	0.067
p-value (Train Only = Train + Promo)	0.225	0.686	0.388	0.989	0.724	0.406	0.643	0.805	0.256	0.070	0.141	0.018
p-value (Promo Only = Train + Promo)	0.097	0.168	0.051	0.069	0.053	0.066	0.090	0.098	0.750	0.598	0.682	0.648
Observations	1461	1461	1461	1461	1461	1461	1461	1461	1461	1461	1461	1461
Mean (No interventions)	96.6	96.6	4069	4069	1518	1518	12.4	12.4	20.3	20.3	5394	5394
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

*Notes: Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. For full description of regression specifications, refer to Table 5.2.*

When considering expenditures, there is not strong evidence to suggest that farmers varied their expenditure on inputs as a result of the treatment. While there is a weakly significant result for overall input expenditures in Panel C associated with the promotions treatment, accounting for differences in baseline covariates, there are no differences in overall expenditure excluding fertilizer in treatment villages relative to control villages. Thus, this result appears to be driven by increased fertilizer use, indicating that there is not evidence to suggest that the promotions treatment caused farmers to substitute NPKS for other types of inputs, such as herbicides or insecticides. Equally, it does not suggest that the treatments caused farmers to increase their expenditures on inputs other than fertilizer.

In terms of allocation of labor prior to harvest, neither intervention was associated with a change in the amount of household labor used by the household. Households in NGO training villages however, did increase their usage of hired labor- on average using an additional 5 days of hired labor in the previous season, resulting in their spending an additional 1240 Taka on average for hired labor relative to non-NGO training villages. This result is not driven by differences in the availability of labor locally (based on respondent's reports).

5.1.5 Production outcomes

As there were positive impacts on NPKS use and some inputs, the analysis next turns to jute production outcomes. The following outcome variables are measured: the total quantity of harvested; jute yields; the price received for

jute sales (an indicator of output quality); and total sales revenue (Table 5.7). These outcomes are reported using the natural log of the outcome variable, allowing coefficients to be interpreted in terms of percentages.[14]

In addition to these variables, an additional outcome is included for the gross margin of production per hectare. This measure incorporates both the total value of production (including output used as payments rather than sold directly) and the costs associated with producing that output for a given hectare of land. As such, it allows the overall benefit of the intervention to be assessed. Following USAID's Feed the Future Indicator Handbook (2016), the gross margin is calculated using the following formula:

$$M = ((TP * VS / VQ) - IC) / UP$$

Where TP is the total production in metric tons: VS/VQ is the ratio of the value of sales to the quantity of sales, or the effective unit price; IC is the total cost of inputs; and UP is the area of cultivated land used. Since the coefficient for this outcome has an intuitive interpretation (the additional dollars of benefit per hectare) this value is not reported in logs.

Table 5.7- Effect of Interventions on Production Outcomes

	Jute harvested (log)		Jute yield (log)		Jute price (log)		Sales revenue (log)		Gross margin (USD/Hectare)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
NGO Trainings	-0.01	-0.03	0.02	0.01	-0.01	-0.00	-0.07	-0.10	18.1	9.1
	(0.10)	(0.05)	(0.04)	(0.03)	(0.01)	(0.01)	(0.13)	(0.06)	(42.1)	(43.3)
Observations	1109	1109	1109	1109	1089	1089	1109	1109	1109	1109
Panel B										
NAAFCO Promotions	0.06	0.00	0.03	0.03	-0.01	-0.01	0.04	-0.04	35.3	32.9
	(0.11)	(0.05)	(0.04)	(0.04)	(0.01)	(0.01)	(0.14)	(0.07)	(47.0)	(46.4)
Observations	1117	1117	1117	1117	1095	1095	1117	1117	1117	1117
Panel C										
NGO Training Only	-0.02	0.02	0.04	0.03	-0.00	0.00	-0.09	-0.06	20.8	21.2
	(0.11)	(0.05)	(0.05)	(0.04)	(0.01)	(0.01)	(0.14)	(0.07)	(44.0)	(45.4)
NAAFCO Promotions Only	0.24*	0.10*	0.07	0.05	0.02	0.02	0.22	0.07	28.4	20.2
	(0.13)	(0.06)	(0.05)	(0.04)	(0.01)	(0.01)	(0.16)	(0.08)	(67.8)	(63.2)
Training & Promotions	0.02	-0.02	0.02	0.01	-0.01	-0.01	-0.02	-0.08	35.4	27.0
	(0.10)	(0.05)	(0.04)	(0.03)	(0.01)	(0.01)	(0.13)	(0.06)	(44.4)	(44.3)
p-value (Train Only = Promo Only)	0.018	0.136	0.472	0.586	0.209	0.283	0.011	0.048	0.909	0.986
p-value (Train Only = Train + Promo)	0.580	0.224	0.702	0.532	0.347	0.251	0.423	0.645	0.721	0.879
p-value (Promo Only = Train + Promo)	0.043	0.023	0.312	0.269	0.053	0.051	0.041	0.021	0.920	0.912
Observations	1461	1461	1461	1461	1432	1432	1461	1461	1461	1461
Mean (No training, no promotions)	7.34	7.34	7.58	7.58	4.42	4.42	11.0	11.0	654	654
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

*Notes: Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. For full description of regression specifications, refer to Table 5.2.*

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[14] For example, if a statistically significant coefficient of β=0.05 were obtained for a given treatment, that would imply that the treatment was associated with an approximately 0.05 x 100% = 5% increase in that outcome.

For households in the NGO training villages, there is no evidence of an effect of the intervention on household jute production, with no statistically significant differences in outcomes in either Panel A or Panel C. For the promotions intervention, the sign of the coefficient on the overall quantity of jute harvested, is positive and weakly significant, though this effect is only observed in Panel C when comparing the promotions-only villages to control villages for harvested jute. This effect is not robust to the inclusion of additional controls for use of NPKS or for input expenditures, suggesting that input use is driving the outcome in Panel C. This result for the promotions treatment is driven by the lower portion of the distribution while the upper half converges with the other treatment indicators (Figure 5.1).

Figure 5.1- Cumulative Distribution of Log Harvested Quantity, by Treatment Status
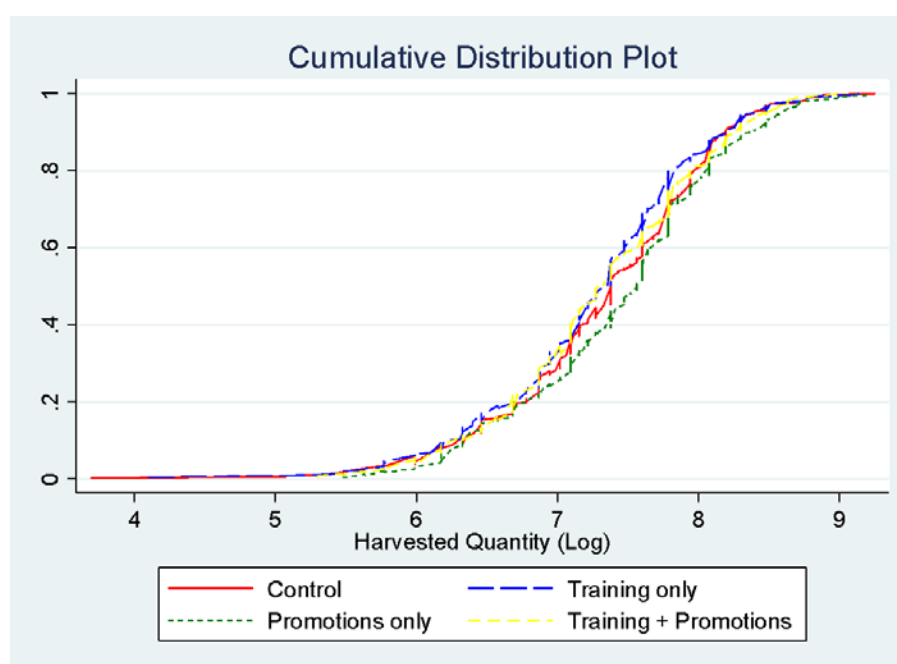
For the other production outcomes considered, none of the treatment variables are statistically significant. Given that the promotions treatment did foster adoption of NPKS, it is important to explore why this did not lead to gains in production outcomes. One potential concern, considering the low levels of take-up discussed in Section 4.5, is that there was a positive impact of the treatment for those who complied (i.e. attended the trainings or received a discount) but that there is insufficient statistical power to identify the effect using the ITT approach.

As an alternative approach, it is also possible to try to estimate a local average treatment effect (LATE) using an instrumental variable approach to measure the effects of compliance with the treatment.[15] To do so, it is necessary to identify a valid instrumental variable which is both sufficiently strongly correlated with complying with the treatment, and uncorrelated with other determinants of the outcome variable. For the NAAFCO promotions treatment, raffle winner status is a good candidate to use, since it is both correlated with increased NPKS use and, due to the random assignment, is unlikely to be correlated with unobservable characteristics. Unfortunately for the NGO trainings, there does not appear to be a valid instrument available to use, since compliance (i.e. attending the trainings) is very likely correlated with unobservable outcomes (such as an individual's latent motivation) which are also likely to be correlated with the outcomes under consideration.

Therefore, in estimating the IV regressions, only the effects of the NAAFCO promotions treatment are considered (Table 5.8). By focusing on raffle winners, the analysis can exclude the hypothesis that the lack of results is simply

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[15] For a detailed description of LATE estimation, see Imbens and Angrist (1994).

being driven by low take-up of the discount. In line with the previous result for treatment status, winning the discount is significantly and positively associated with adoption of NPKS. When focusing on these winners however, there is no observable effect on any production outcomes; the coefficients on the treatment indicator in each case are not statistically different from zero. Though all the estimated coefficients are positive, as expected the standard errors are much larger than in the ITT model. As a result, though the coefficients are all positive they are not statistically different from zero. As a result, it is not possible to conclude the promotions treatment had a positive effect on average production.

Table 5.8- IV Regression, Effect of Treatment Compliance on Production

	Jute harvested (log)		Jute yield (log)		Jute price (log)		Sales revenue (log)		Gross margin (USD/Hectare)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Used NPKS = Won Discount	0.76	0.17	0.20	0.07	0.07	0.05	0.90	0.30	319	155
	(0.85)	(0.37)	(0.32)	(0.27)	(0.14)	(0.11)	(0.96)	(0.43)	(486)	(425)
Mean (Non-winners)	7.32	7.32	7.58	7.58	4.42	4.42	11.01	11.01	664	664
F-statistic (First stage)	16.20	16.80	16.20	16.80	16.58	17.18	16.20	16.80	16.20	16.80
p-value (First stage)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Baseline controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N	1461	1461	1461	1461	1432	1432	1461	1461	1461	1461

Notes: Even numbered specifications include a vector of baseline controls for household characteristics: these include demographic and educational characteristics from midline, and agricultural production variables from baseline, for Group 2 households the latter variables are assigned the median value of their village at baseline as well as an indicator variable for Group 2 status.

Two-stage least squares IV regression of listed outcome variable on NPKS use, instrumented using an indicator variable which takes the value 1 if the respondent was a NAAFCO raffle winner and 0 otherwise. Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively.

Over the sample of Group 1 households excluding adopters of NPKS, there is a fairly large increase in production between baseline and midline (Figure 5.2). Average production increased by approximately 200kg per household, consistent with the increase found among the control group. It seems that overall conditions were highly favorable for jute production in 2016, so the scope for NPKS adoption to further improve on these gains may have been limited or difficult to measure, as they would have been subtle than in an average or bad year.

Figure 5.2- Changes in Aggregated Jute Production from Baseline to Midline

kernel = epanechnikov, bandwidth = 0.1856
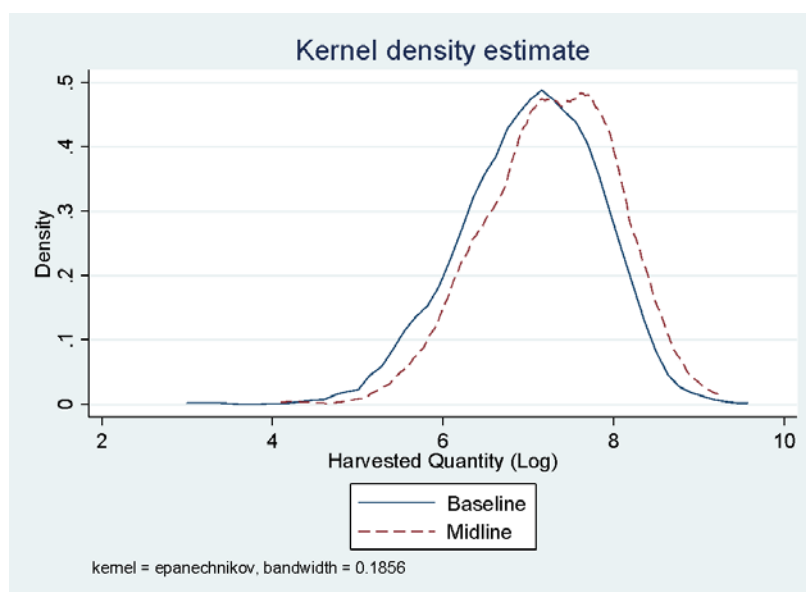
In sum, the NGO trainings and NAAFCO promotions both appear to have helped improve knowledge, albeit in different ways. Trainings were effective at enhancing knowledge around inputs and practices that were not directly

related to NPKS, whereas the NAAFCO promotions were effective at improving knowledge and adoption of NPKS fertilizer. Although the promotions improved NPKS fertilizer usage, and were associated with some increases in harvested quantity, no strong effects were found on other outcomes. This finding can partially be explained through relatively low attendance in trainings, and partially because the difference in yields between using urea only versus NPKS in potentially quite subtle and difficult to find statistically.

Though the analysis does not find strong gains in productivity, it does demonstrate that private sector models can work to induce adoption of improved practices. This is an important consideration in thinking about market systems interventions, since potentially private sector activities for other input types or services could be promoted in a similar manner. For such interventions to succeed and be sustained, a necessary condition is for there to be trust on the part of farmers that the products being offered are genuine and will benefit them. To explore this issue, the next section of the analysis uses information from the household surveys to provide some context on the role of trust in the context of the jute value chain.

5.2   UNDERSTANDING TRUST IN THE VALUE CHAIN

Trust is an important concern in market interactions between smallholder farmers and input vendors. Unlike in other types of markets in which a buyer may make frequent, repeated purchases from a given seller, smallholders typically purchase inputs once a year, in advance of the planting season. Such "one-off" transactions provide weaker incentives to input sellers to supply high quality inputs, since there is less likelihood that providing poor quality products will harm profits in future. Moreover, since the effects of inputs take some time to be realized, it may be more difficult for farmers to recognize low quality inputs relative to other types of goods. As a result, farmers and input vendors may exist in a low trust equilibrium.

The inclusion of input vendors in the survey sample enabled the impact evaluation team to gather detailed information on input sales from both farmers and sellers, and to match these samples to one another. The use of photobooks enabled respondents to clearly identify buyers/sellers whom they may not otherwise have been able to recognize based on name alone. In addition to gathering retrospective information on transactions and relationships between buyers and sellers, the survey also ended with the respondent participating in the incentivized trust game (Section 3.2.8), in which the amount of money that a farmer sent to a given input seller was an indication of the farmer's trust in that input seller to reciprocate and return money. Unlike survey measurements, this incentivized game allowed the team to observe farmer trust and seller reciprocity under conditions in which a modest, but non-trivial, amount of money was at stake. While the treatment interventions were not associated with a statistically significant difference in how farmers played the game, the measure nonetheless provides an opportunity to explore descriptively the results of the trust game and potential insights it may yield for understanding market interactions between farmers and input sellers.

5.2.1   Relationships between farmers and input sellers

As described in Section 3, as part of the main survey, Group 1 and 2 respondents were presented by the enumerator with a photobook of different local input sellers, and asked in turn whether they knew a given input seller, and if they had ever transacted with that seller. If they had, they were asked when they had first transacted with that seller, and if they had done so in the previous season. If they had purchased inputs in the previous season, they were asked a series of questions about the transaction(s). They were then asked to rate how trustworthy and how knowledgeable about inputs they considered the input seller to be, on a scale of 1 to 10. For the input sellers in Group 3, a similar procedure was carried out, with the input seller first being presented with a photobook of farmers in the area to identify, then answering a series of questions about farmers they had transacted with (Table 5.9).

Table 5.9- Summary Statistics: Farmers' Interactions with Input Vendors

	Mean	SD	Min.	Max.	Obs.
Number of sellers known	4.3	3.1	0	41	1461
Proportion of sellers known	0.20	0.21	0	1	1461
Number ever bought from	2.6	1.8	0	13	1461
Proportion of sellers ever bought from	0.11	0.11	0	1	1461
Number bought from last year	1.5	1.0	0	9	1461
Proportion of sellers bought from last year	0.06	0.06	0	0.5	1461
Proportion purchasing from one seller	0.53	0.50	0	1	1461
Years known	8.5	4.6	1	27	1429
Minutes to reach (All)	15.6	11.0	0	120	1367
Minutes to reach (Preferred)	15.4	11.8	0	120	1285
Satisfaction rating (All)	8.7	1.5	1	10	1367
Satisfaction rating (Preferred)	9.1	1.3	1	10	1285
Knowledge rating (All)	7.1	2.0	1	10	1455
Knowledge rating (Preferred)	8.8	1.6	1	10	1422
Trust rating (All)	7.2	1.8	1	10	1455
Trust rating (Preferred)	8.9	1.4	1	10	1438

Notes: Self-reported data from midline survey, using input seller photobooks. Group 1 and Group 2 households are both included.

The number of input sellers that farmers could identify suggests that competition among input providers is generally limited in the sample area. Farmers could recognize just four input sellers from their local area on average- equivalent to 20% of the surveyed input sellers in their local area. Market concentration is an important concern: one third of farmers were able to recognize fewer than three input sellers, with 13% able to identify only one, suggesting that for many the market can be characterized as mono- or duopolistic. There does appear to be some degree of spatial heterogeneity: the median respondent in Mulia district was able to identify only two input sellers, compared to five in Faridpur district. The low level of competition is reflected in purchasing behavior: more than half of the farmers surveyed reported buying from one sole input provider in the previous year, with less than 5% of those surveyed reporting making purchases from more than two different vendors.

In terms of realized purchases, more than half of the farmers surveyed reported buying from one sole input provider in the previous year, with less than 5% of those surveyed reporting making purchases from more than two different vendors. Farmers reported having known input sellers for a relatively long time, 8.5 years on average, and having known their preferred seller for slightly longer: an average of 9.2 years. In general, farmers do not report long travel times to reach input sellers. On average sellers are just over 15 minutes away, and the maximum travel time reported was two hours. There is little variation in average travel times between the farmer's preferred input seller, and other input sellers, suggesting that distance is unlikely to play a considerable role in determining whether a seller is a farmer's preferred choice to make purchases from. In general, farmers report being very satisfied with their input seller- on a scale from one to ten, the average rating was 8.7 for sellers with whom they had transacted that year, and 9.1 for their preferred seller. These averages are not too different from the baseline, and are not suggestive of large trust problems. However, perceptions do appear to matter in choosing an input seller, as farmers typically view their preferred input seller as both more knowledgeable and slightly more trustworthy than local sellers in general.

5.2.2 Trust Experiment

To better understand how trust affects interactions between farmers and input sellers, the midline survey also included an incentivized trust game (described in detail in Section 3). For this game, each farmer was randomly paired with six input sellers from their locality. For each pairing, the farmer received 150 Taka and could opt to send

0, 50, 100 or 150 Taka to each seller. The seller then received triple that amount, and could decide how much to return to the farmer (Table 5.10).

Table 5.10- Trust Decisions & Farmer Outcomes

Farmer Sent	Percentage of transactions	Average Amount Returned	Percentage of Total Received Returned	Average Farmer Payout	Average Seller Payout	Share to Farmer
0	12.9%	0	-	150	0	100.0%
50	33.2%	105	70.2%	205	45	82.1%
100	36.5%	187	62.5%	237	113	67.9%
150	17.5%	265	59.0%	265	185	59.0%

Notes: Summary of farmers' decisions in first stage of incentivized trust game (six decisions per farmer). For details of the trust experiment, refer to Section 3.2.8. Group 1 and Group 2 households are both included.

As can be seen, a large majority of farmer choices indicated that they were willing to trust the input seller at least somewhat, as they chose to send at least some money 87% of the time. Similarly, sellers typically chose to reciprocate. Average payouts to both farmers and sellers are increasing with the amount the farmer chose to send, with farmers who elected to send the full allocation receiving a 77% higher payout on average relative to those who did not send anything, though the share of the total payout going to the seller is increasing with the amount sent. Interestingly there also appeared to be some evidence of altruistic behavior on the part of sellers, with some sellers electing to send some or all of their participation fee to farmers (these additional payments are not included in calculating the averages above).

The farmers knew which six input sellers they were paired with, allowing the potential relationship between the incentivized trust measure and the characteristics of a given input seller to be analyzed (Table 5.11).[16]

Table 5.11- Farmer Trust Decision, by Seller Characteristics

	Mean Amount Sent	% Sending Nothing	% Sending Maximum	Obs.	Mean Amount Sent	% Sending Nothing	% Sending Maximum	Obs.	p-value
Farmer does/has…			Yes				No		
…recognize seller	82	12.0%	19.6%	1687	79	13.1%	17.0%	7079	0.028
…ever purchased from seller	84	11.2%	20.9%	915	79	13.0%	18.1%	772	0.038
…purchased from this year	86	9.1%	21.9%	506	80	13.2%	18.6%	1181	0.008
…prefer seller	89	8.0%	24.2%	376	79	13.1%	18.3%	1311	0.000
Seller does…			Yes				No		
…sell at local market	87	7.6%	25.2%	119	86	9.6%	20.9%	387	0.715
…provide input information	86	11.3%	21.6%	222	86	7.4%	22.2%	284	0.833
…offer discounts	81	11.3%	16.8%	936	79	13.1%	17.6%	7830	0.393
…offer credit	81	11.4%	18.4%	2454	79	13.5%	17.2%	6312	0.011

Notes: Summary of farmers' decisions in first stage of incentivized trust game (six decisions per farmer). Sellers characteristics are assigned based on farmer responses to input seller module in midline survey. Group 1 and Group 2 households are both included.

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[16] To prevent potential negative outcomes for participants, the design was such that decisions would remain anonymous; no input seller knew which farmer they had been paired with, and no farmer knew which input seller's choice had been selected for payment.

Table 5.11 presents the average amount farmers sent to input sellers, based on the characteristics of that seller and the p-value obtained by performing a two-sided t-test of the two means. This allows salient characteristics of input sellers to be identified. The trust measure appears to be increasing with the degree of familiarity between the farmer and input seller.[17] The average amount sent by farmers to sellers they recognize is larger than the average sent to those that they do not. The gap grows when comparing sellers from whom the farmer has ever purchased to those with whom they have never transacted, and is larger again when comparing input sellers whom they purchased from in the previous season to those whom they did not purchase from. The gap is largest when comparing the amount farmers sent to their preferred input supplier to other sellers, with farmers trusting approximately 10 Taka more on average, and six percentage points more likely to send the maximum allocation.

Looking at other seller characteristics, among sellers with whom farmers transacted in the previous year, farmers display similar levels of trust toward local sellers relative to other sellers, and to sellers who provided information on inputs than to those who did not, though in both cases the sample sizes are small. Trust does not appear to vary based upon whether input sellers offer discounts to some customers, however, farmers do display somewhat higher levels of trust toward input sellers who offer credit for input purchases.

5.2.3   Heterogeneity by Trust

In the context of the interventions, the results from the incentivized trust game present an opportunity to explore whether intervention effects vary based upon the degree of trust which farmers demonstrate towards input sellers. To do so, the sample is split between "low trust" individuals, who are defined as farmers who send less than the median amount to input sellers, and "high trust" individuals (those who send the median amount or higher). Results are first presented among high trust farmers (Table 5.12).

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[17] Note that the test here tests for a statistically significant correlation, rather than identifying a causal relationship: farmers may place less trust in sellers with whom they have not transacted in the past, equally they may be less likely to transact with sellers whom they trust less.

Table 5.12- Effect of Interventions on Production (High Trust Individuals)

	Jute harvested (log)		Jute yield (log)		Jute price (log)		Sales revenue (log)		Gross margin (USD/Hectare)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
NGO Trainings	-0.05	-0.04	0.05	0.04	-0.02	-0.02	-0.1	-0.1	38	41
	(0.12)	(0.09)	(0.06)	(0.06)	(0.01)	(0.01)	(0.2)	(0.1)	(71)	(75)
Observations	551	551	551	551	538	538	551	551	551	551
Panel B										
NAAFCO Promotions	0.06	0.03	0.09	0.09	-0.02	-0.02	0.0	0.0	69	77
	(0.14)	(0.10)	(0.07)	(0.07)	(0.02)	(0.02)	(0.2)	(0.1)	(79)	(82)
Observations	559	559	559	559	546	546	559	559	559	559
Panel C										
NGO Training Only	-0.06	-0.02	0.04	0.04	-0.01	0.00	-0.1	-0.1	42	58
	(0.13)	(0.09)	(0.07)	(0.07)	(0.02)	(0.02)	(0.2)	(0.1)	(66)	(71)
NAAFCO Promotions Only	0.24	0.14	0.15**	0.15**	0.01	0.01	0.2	0.1	109	119
	(0.16)	(0.10)	(0.07)	(0.07)	(0.02)	(0.02)	(0.2)	(0.1)	(89)	(84)
Training & Promotions	0.00	-0.01	0.07	0.06	-0.03*	-0.02	-0.1	-0.1	52	57
	(0.12)	(0.09)	(0.06)	(0.06)	(0.01)	(0.01)	(0.2)	(0.1)	(73)	(78)
p-value (Train Only = Promo Only)	0.006	0.005	0.022	0.024	0.486	0.497	0.012	0.010	0.353	0.297
p-value (Train Only = Train + Promo)	0.326	0.732	0.500	0.555	0.062	0.035	0.406	0.519	0.797	0.996
p-value (Promo Only = Train + Promo)	0.023	0.002	0.051	0.023	0.035	0.014	0.040	0.013	0.446	0.318
Observations	725	725	725	725	708	708	725	725	725	725
Mean (No interventions)	7.32	7.32	7.57	7.57	4.43	4.43	11.0	11.0	653	653
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

*Notes: Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. Regression specifications, including outcome variables, are the same as those in Table 5.7, with the sample restricted to farmers who sent the median amount or higher on average in the incentivized trust experiment.*

Effects of the promotions treatment appear to be stronger than in the full sample, the point estimate for these treatments is uniformly larger, and is statistically significant for the promotions only group in Panel C at the 5% level. Overall the take-up rate of NPKS was slightly higher among high trust individuals in the promotions group (12% to 10%) which may account for a portion of this gain, however it alone is insufficient to account for the full difference. For the other production measures, there remains no evidence for statistically significant effects, though the point estimates for effects of the interventions on the gross margin of production appear to be uniformly higher than in the full sample. Conversely, for the low trust sample there appear to be no statistically significant differences between control and treatment groups across all specifications (Table 5.13).

Table 5.13- Effect of Interventions on Production (Low Trust Individuals)

	Jute harvested (log)		Jute yield (log)		Jute price (log)		Sales revenue (log)		Gross margin (USD/Hectare)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
NGO Trainings	0.02	-0.02	-0.02	-0.02	0.01	0.01	-0.0	-0.1	-10	-26
	(0.13)	(0.06)	(0.04)	(0.03)	(0.01)	(0.01)	(0.1)	(0.1)	(52)	(44)
Observations	558	558	558	558	551	551	558	558	558	558
Panel B										
NAAFCO Promotions	0.05	-0.03	-0.04	-0.04	0.01	0.00	0.0	-0.1	-10	-20
	(0.14)	(0.07)	(0.04)	(0.03)	(0.02)	(0.01)	(0.1)	(0.1)	(56)	(48)
Observations	558	558	558	558	549	549	558	558	558	558
Panel C										
NGO Training Only	0.00	0.05	0.02	0.02	0.01	0.01	-0.1	-0.0	-7	-13
	(0.14)	(0.06)	(0.04)	(0.04)	(0.02)	(0.02)	(0.1)	(0.1)	(65)	(57)
NAAFCO Promotions Only	0.22	0.05	-0.03	-0.06	0.03	0.02	0.2	0.0	-59	-92
	(0.15)	(0.08)	(0.05)	(0.04)	(0.02)	(0.02)	(0.1)	(0.1)	(81)	(76)
Training & Promotions	0.04	-0.03	-0.02	-0.04	0.01	0.01	0.0	-0.1	20	-4
	(0.13)	(0.07)	(0.04)	(0.03)	(0.02)	(0.01)	(0.1)	(0.1)	(54)	(45)
p-value (Train Only = Promo Only)	0.091	0.941	0.258	0.055	0.185	0.412	0.038	0.670	0.496	0.304
p-value (Train Only = Train + Promo)	0.695	0.110	0.273	0.088	0.833	0.882	0.346	0.561	0.631	0.845
p-value (Promo Only = Train + Promo)	0.174	0.336	0.876	0.677	0.245	0.453	0.173	0.434	0.327	0.253
Observations	736	736	736	736	724	724	736	736	736	736
Mean (No training, no promotions)	7.36	7.36	7.58	7.58	4.42	4.42	11.1	11.1	655	655
Union Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Notes: Standard errors are clustered at the village level. Asterisks *, ** and *** denote significance at the 10%, 5% and 1% levels respectively. Regression specifications, including outcome variables, are the same as those in Table 5.7, with the sample restricted to farmers who sent less than the median amount on average in the incentivized trust experiment.

5.3   MIGRATION, LABOR SCARCITY AND WOMEN'S ROLE IN AGRICULTURE

As described in Section 2, rural-urban migration is increasing in Bangladesh, resulting in a decline in the availability or agricultural laborers in rural areas. In addition to affecting market systems as a whole, changes in local labor markets may provide additional opportunities or changes in circumstances for women in rural areas. To explore this issue, this section will first provide an overview of the results from the Women's Empowerment in Agriculture Index (WEAI), and focus on specific domains relating to the role that women play in decisions around jute production. It will then provide some context on migration from surveyed households, and the demand for agricultural labor within the sample. Finally, the analysis will proceed to explore the relation between the two, by exploring how changes in labor demand may affect the roles played by women in jute production.

5.3.1   Women's Empowerment in Agriculture Index (WEAI)

As described in Section 3.2.5, as part of the midline survey Group 2 households completed a series of modules based on IFPRI's updated pro-WEAI design.[18] The WEAI score is constructed using two sub-indices.[19] The first sub-index, the five domains of empowerment (5DE), is a measure of empowerment in production, resources, income,

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[18] Group 1 households completed a smaller set of modules from the original A-WEAI design of the index, results from which are included in the baseline report.

[19] For a full description of the design of the WEAI and construction of sub-indices, see Alkire et al. (2012).

leadership, and time. A respondent is considered empowered if they achieve adequacy in 80 percent or more of the weighted indicators that make up the 5DE.[20] The second sub-index, the Gender Parity Index (GPI), measures women's relative empowerment compared to the primary male respondent in the household (Table 5.14).

Table 5.14- WEAI Score & Sub-Index Scores (Group 2)

Indicator	Women	Men
Number of observations	500	498
5DE score	**0.74**	**0.83**
Disempowerment score (1 – 5DE)	0.26	0.17
% achieving empowerment	38%	53%
% not achieving empowerment	62%	47%
Mean 5DE score for not yet empowered	0.58	0.64
Mean disempowerment score (1 – 5DE)	0.42	0.36
Gender Parity Index (GPI)	0.88	
Number of dual-adult households	498	
% achieving gender parity	53%	
% not achieving gender parity	47%	
Average empowerment gap	0.25	
WEAI score	**0.75**	

Notes: Aggregate WEAI score and sub-domains for male and female respondents to midline survey. Includes only Group 2 households.

The WEAI score for Group 2 households in the AVC midline sample was 0.75. Thirty-eight percent of women and 53 percent of men achieved empowerment. Of women who were not yet empowered, the mean 5DE score was 0.58, meaning that these women achieved adequacy in an average of 58 percent of the domains. Of men who were not yet empowered, the mean 5DE score was 0.64, meaning that these men achieved adequacy in an average of 64 percent of the domains. The Gender Parity Index (GPI) was 0.88, and 53 percent of households achieved gender parity. The average empowerment gap between women who did not achieve gender parity and adult males in their household was 25 percent.

Excluding group membership (which is low for both men and women, suggesting there are few civil society groups in the area), the primary drivers of disempowerment in the sample were autonomy in production, and workload (Figure 5.3). The next section of the analysis will therefore focus on the role women play in jute production, before proceeding to look at the role migration plays in influencing the demand for female labor.

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[20] As the aggregate measure for the pro-WEAI is still under development, and to ensure comparability with the baseline measures, the original WEAI was calculated. Three of the original ten indicators are no longer included in the pro-WEAI (rights over assets, public speaking, and leisure) and so were not used in this calculation. The remaining indicators were re-weighted accordingly.

Figure 5.3- Contribution of WEAI Indicators to Total Disempowerment
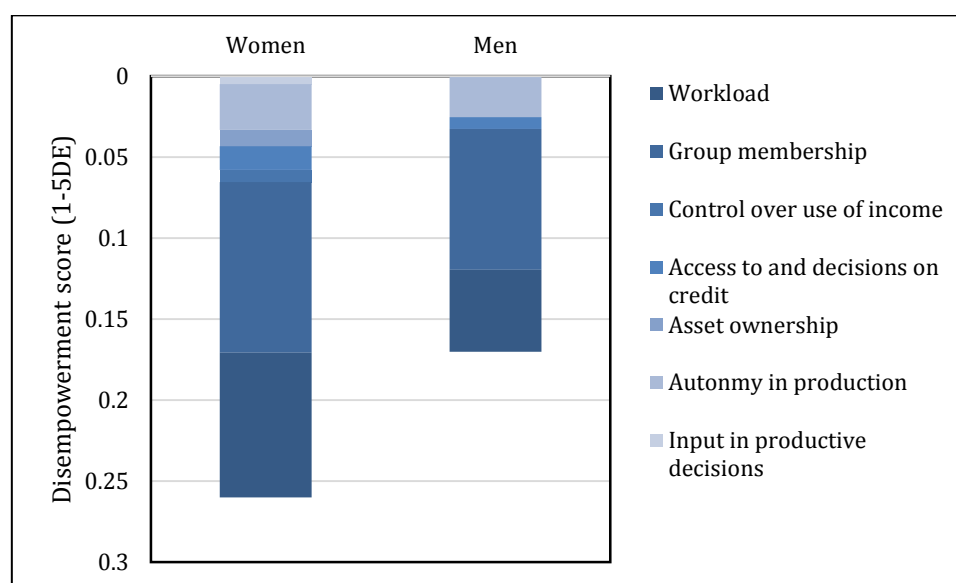
5.3.2 Women's Role in Jute Production

As part of the pro-WEAI modules, both male and female respondents from Group 2 households were asked which members of the household were involved in decision-making around jute production and other farming activities. These questions were asked independently to male and female respondents, to provide insight both into participation rates, and how perceptions of decision-making may differ between male and female respondents (Table 5.15).

Table 5.15- Involvement in Decision-Making, by Activity

	Jute Production		Other Crop Production		Poultry / Small Livestock	
	Male Report	Female Report	Male Report	Female Report	Male Report	Female Report
Male Respondent	99.5%	98.1%	100.0%	99.3%	56.6%	23.8%
Female Respondent	54.9%	61.3%	51.0%	57.2%	94.9%	97.0%
Observations	421	421	416	416	332	332

Notes: Summary of responses to pro-WEAI module questions on agricultural decision-making. Includes only Group 2 households.

There are two important trends in the data. First, the male respondent is typically seen as a primary decision-maker regarding jute production by both genders, while female respondents are only involved in decisions about jute in approximately half of sample households. Second, women play more of a role in decision-making in taking care of small livestock such as poultry where there appears to be a clear gender norm. It is also notable that men are somewhat less likely to report that the female respondent is involved in decision-making over these activities (55% of male respondents report that the female respondent participates in jute production, while 51% report that the female respondent participates in other crop production) and much more likely to report themselves as involved in decision-making over livestock, than the female respondent reports.[21] However, even considering differences in reporting, there appears to be clear gender differences in the extent of men and women's roles in decision-making over agriculture with men much more involved in decisions over the household's primary cash crop.

In addition to the detailed questions on decision-making collected for Group 2 respondents using the pro-WEAI modules, the main household survey included a detailed labor allocation module for the full sample. This module

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[21] Disagreements between spousal reports are not uncommon in household surveys. See Ambler et al. (2017) for a detailed treatment in the context of Bangladesh.

collected disaggregated statistics on how households allocated male and female labor. including labor by both household members and hired laborers, at different stages of jute production.

Figure 5.4 Gendered Labor Allocation, by Production Stage (Groups 1 & 2)
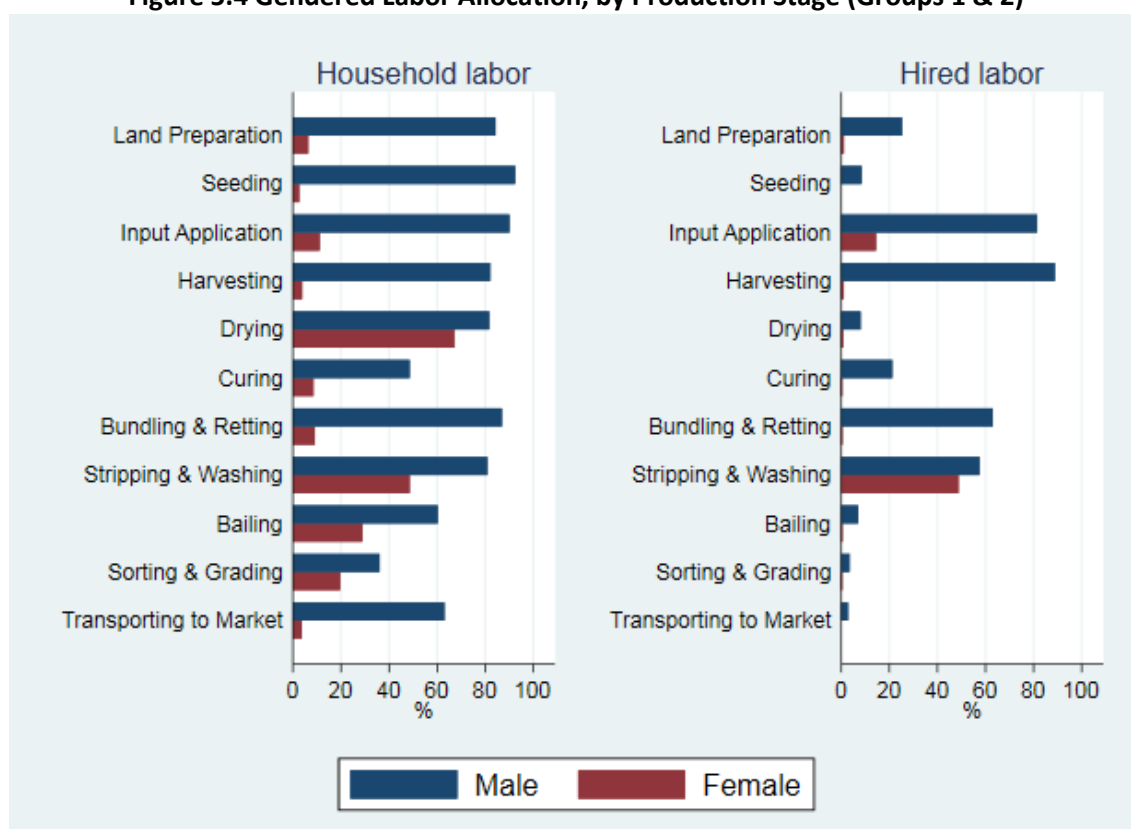
In line with the results on decision-making, jute production is primarily carried out by male household members, with limited use of hired labor at key time-sensitive points: weeding and input application; harvesting; bundling and retting; and stripping and washing. Household female labor is rarely used prior to harvest, but becomes much more prevalent in post-harvest activities to prepare and process the jute crop. Hired labor is predominantly male, though female hired labor is used by a large proportion of households for the stripping and washing of jute (and to a lesser extent for weeding and input application).

These summary statistics, consistent with the more aggregated data on labor allocation collected at baseline, suggest there are gendered norms around stages of the production cycle, with more manually demanding tasks such as land preparation being viewed as "male" tasks, while less physically intensive tasks such as stripping jute fibers being considered more appropriate for women. Differences in gendered time allocation are similarly apparent when comparing the proportion of the total days of labor spent working on jute spent on each activity for each type of laborer. Given that workload accounts for a large share of the drivers of disempowerment among women (even though the survey was conducted at the end of the jute season), increasing uptake of labor-saving technologies could have important benefits in terms of women's empowerment. Similarly, interventions focused on jute processing could particularly benefit women, however a more detailed analysis of local labor markets would be needed to maximize benefits.

Labor by male household members is allocated across a broad range of tasks, with a large proportion of time taken up by input application and weeding, and harvesting. Meanwhile, female household members spend more than 70% of their total time allocation on two post-harvest activities: drying jute, and stripping and washing fibers. When hired male labor is used, similarly to male household labor, it is primarily used for assistance with weeding and input application, or with the harvest. Female hired labor however is overwhelmingly used for assistance with stripping and washing of jute fiber. While some women are hired to assist with weeding and input application, the use of female hired labor is extremely rare for all other tasks. Given these differences, the analysis will next proceed to

explore the changing dynamics of the demand for, and supply of, agricultural laborers and how this may affect women's role in the jute value chain.

5.3.3   Migration and Labor Demand

While the survey instrument was primarily designed to provide data on outcomes relating to the intervention, it included questions which tracked household members in Group 1 households between rounds (Table 5.16). Specifically, if a member had left the household between baseline and midline the respondent was prompted to provide the reason why they had left. While this data cannot provide a comprehensive analysis of internal and external migration in the survey areas, it can provide some insight into how the pool of household labor available to households within the sample changed between rounds, and how this change may have affected labor outcomes for the household.

Table 5.16- Household Migration (Group 1 Households)

	Percentage	Observations
Individuals (Any Migration)	6.0%	4440
Individuals (Temporary Migration)	2.9%	4440
Individuals (Permanent Migration)	3.1%	4440
Of migrants, female	45.5%	268
Households with 1+ Migrant	18.3%	960
Households with 1+ Temporary Migrant	9.1%	960
Households with 1+ Permanent Migrant	9.7%	960

Notes: Reported incidence of migration as primary reason for individuals leaving household, reported at midline in reference to baseline household roster. Group 1 households only (4440 individuals, comprising 960 households).

The overall rate of migration within the survey sample is high, reflecting the high levels of migration within Bangladesh as a whole. Over 18 percent of Group 1 households report having one or more person leave due to migration in the year between the 2016 and 2017 surveys[22], with approximately 6 percent of all members listed at baseline reported as no longer household members due to migration, or 268 individuals out of 4,440 total household members. Migrants are somewhat more likely to be male (54 percent) than female (46 percent), while slight more than half are reported as having permanently left the household.

Table 5.17- Migration by gender, age group

Age	Migrated Permanently		Migrated Temporarily	
	Male	Female	Male	Female
Under 18	34.0%	42.0%	30.0%	35.0%
18-25	27.0%	39.0%	37.0%	38.0%
26-35	23.0%	8.0%	27.0%	15.0%
36-60	11.0%	3.0%	4.0%	8.0%
Over 60	5.0%	8.0%	2.0%	4.0%

Notes: Reported age of individual at baseline, listed as having migrated at baseline. Group 1 households only (4440 individuals, comprising 960 households).

Migration is being heavily driven by younger household members (Table 5.17). Among permanent migrants, 61 percent of males and 81 percent of females were twenty-five years old or younger. A similar pattern is found among temporary migrants. Given that the data shows a decline in the average household size between baseline and

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[22] In comparison, of the households tracked in IFPRI's Bangladesh Integrated Household Survey dataset, 26% of households report that one or more person out-migrated in the three-year period between the 2012 and 2015 survey rounds (Authors' own calculation, IFPRI Bangladesh Integrated Household Survey 2015).

midline among the panel sample, the availability of household members who can work as productive laborers is also likely to have declined. As a result, households may have to adjust their production strategies.

To do so, households may respond in one of three different ways. First, households may increase household labor use by other members, either by intensifying the work done by some household members already working on jute, or by having household members who had not worked on jute in the past to start. Second, they could hire additional labor (or exchange with other households); however, it is well known that external labor is not a perfect substitute for family labor, due to monitoring difficulties. Third, households could have simply reduced total labor inputs, which would either imply increasing other inputs or reduced production. If farmers choose either of the first two options, there could be important consequences for women's labor, since either female household members could spend more time working on jute production, or there could be increased options to work as hired laborers on other farms.

Additionally, recall that jute production in the sample increased from baseline to midline, with Group 1 households increasing their output by approximately 20% at midline, compared to what they reported in the 2015 season (Figure 5.2). Though somewhat larger, this increase is in line with the national trend for Bangladesh which saw an overall increase of 9.1% in jute production from 2015-2016 to 2016-2017 (Bangladesh Bureau of Statistics, 2017). Since production increased, it would seem sensible that demand for labor during harvest and post-harvest processing should have increased, while the data suggest that the overall pool of available household labor is declining.

5.3.4 Labor Scarcity and Female Labor Usage

In line with these trends, households in the sample report increasing difficulty in finding adequate labor for jute production. In both survey rounds, as part of the module on labor allocation, respondents were asked whether they had had trouble finding labor for a particular stage of the jute production process (Table 5.18). Between baseline and midline, there is a large increase in Group 1 households reporting labor scarcity, increasing from 27 to 42 percent of the sample reporting difficulties. The increase in scarcity is somewhat smaller in Faridpur, but is large in the other three districts. The scale of this change provides an opportunity to analyze how households altered labor allocation for jute production. The remainder of this section will use this change to explore changes in labor outcomes by gender.

Table 5.18- Households Reporting Labor Scarcity (Group 1)

	Baseline		Midline	
	N	%	N	%
Group 1	255	26.6%	405	42.2%
Faridpur	110	47.2%	132	56.7%
Jhenaidah	93	30.4%	149	48.7%
Madaripur	28	1.3%	61	28.8%
Narail	24	11.5%	63	30.1%

Notes: Percentage of households reporting difficulty finding labor in baseline and midline survey. Includes only Group 1 households N=960.

However, the difficulty a household experiences in finding labor is not independent of other household characteristics or local trends. In the preceding analysis of intervention effects, treatments were randomly assigned, which led to causal interpretation to the results. Since the variation observed in labor scarcity is not exogenously determined, the following analysis is necessarily descriptive in nature. Nevertheless, the observational analysis may demonstrate potentially interesting correlations between labor scarcity and utilization of female labor, which could inform the design of future programming and research around these issues.

To explore this, households are categorized into three types, based on their responses to the question of whether they had encountered difficulties hiring labor in the previous season, for each survey round. The availability of labor for households which did not report difficulty hiring labor at baseline, but did report difficulty hiring labor at midline is categorized as "Became scarce". Conversely, for households reporting difficulties hiring labor at baseline but not at

midline, it is categorized as "No longer scarce". Lastly, if a household reports either difficulty in both periods, or no difficulty in both periods, the categorization is "No change". Using these categories allows a comparison to be made by households experiencing different trends in the availability of labor (Table 5.19).

Table 5.19- Household Labor Use, by Scarcity Trend (Group 1)

Labor Availability	Male Household Labor				Male Hired Labor					
	Use		Days		Use		Days		Daily Wage (Taka)	
	Baseline	Midline	Baseline	Midline	Baseline	Midline	Baseline	Midline	Baseline	Midline
All Households	**97.1%**	**96.7%**	**40.2**	**35.9**	**95.3%**	**94.8%**	**41.7**	**46.2**	**278**	**313**
Became scarce	96.6%	97.0%	42.3	39.7	97.8%	98.5%	45.2	52.3	281	319
No change	96.9%	96.2%	40.0	34.5	93.8%	93.4%	40.8	44.1	273	311
No longer scarce	99.1%	98.3%	36.6	34.1	97.4%	93.2%	38.0	42.1	294	314
	Female Household Labor				Female Hired Labor					
	Use		Days		Use		Days		Daily Wage (Taka)	
	Baseline	Midline	Baseline	Midline	Baseline	Midline	Baseline	Midline	Baseline	Midline
All Households	**80.9%**	**87.2%**	**11.6**	**12.1**	**50.8%**	**52.8%**	**8.3**	**13.3**	**173**	**152**
Became scarce	78.3%	88.0%	10.9	14.4	44.2%	55.1%	7.1	15.1	178	158
No change	81.8%	87.3%	12.2	11.4	54.0%	52.8%	9.0	12.7	170	151
No longer scarce	82.9%	84.6%	10.6	9.6	50.4%	47.9%	7.9	12.1	177	141

Notes: Summary statistics for labor outcomes at baseline and midline, disaggregated by changes in whether household reported difficulty finding labor at baseline and endline. Group 1 households only.

Overall, the use of male labor whether from household members or hired workers is uniformly high with little variation across survey rounds, though farmers use fewer days of male household labor at midline than in the previous year, and more days of male hired labor. Nominal wages offered by households to hired male laborers increase at midline, though at a lower rate in households which shift from reporting difficulty hiring workers to not finding workers scarce ('no longer scarce').

There is a concurrent increase in the use of female household labor in the sample, driven mainly by households who report difficulty in finding labor at midline but not at baseline ("became scarce"), while other households (with "no change" or "no longer scarce") report an overall decline in the total number of days that female household members worked in jute production. Similarly, there is an overall slight increase in the use of hired female labor in the sample, because of a large increase in the use of female hired laborers in households newly reporting scarcity ("became scarce"). All groups of households report hiring female laborers for longer periods, but again this increase is largest for households newly reporting scarcity ("became scarce"). They more than double the number of days for which they hire female workers. However, the fact that an overall decrease in the daily wage earned by hired females is observed is concerning. So households appear to hire female laborers for longer periods, but pay them less per day worked. This disparity does not appear to be driven simply by the types of work that males and females do, for the activity with the highest rate of use of hired female labor (stripping and washing jute fibers) the average daily wage for males at midline was 400 Taka, compared to only 150 Taka for female laborers.

This comparison can be explored more formally using a regression framework. Table 5.20 presents the regression of the outcome variables for labor on two indicator variables, for households who change their reported scarcity status from baseline to midline, with those reporting no change comprising the excluded category. [23] The specification includes a control for the baseline level of the outcome of interest (with an additional vector of household level controls included in the even numbered regressions). This allows for a more precise exploration of the correlations between changes in labor scarcity between survey rounds and female labor utilization since it allows the analysis to control for village and household level characteristics.

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[23] Households that report no difficulty finding labor at baseline but do so at midline are treated as reporting labor "became scarce", while those reporting difficulty at baseline but not at midline are treated as reporting labor as "no longer scarce".

Table 5.20- Changes in Labor Scarcity & Use of Female Labor (Group 1)

	Rate Used				Days Worked				Wages	
	Household Labor		Hired Labor		Household Labor		Hired Labor		Hired Labor	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Became scarce	<0.001	<0.001	0.070**	0.06**	3.71***	3.45**	5.58**	5.11**	-0.61	-0.32
	(0.02)	(0.02)	(0.03)	(0.029)	(1.38)	(1.36)	(2.18)	(2.23)	(1.79)	(1.82)
No longer scarce	-0.035	-0.037	-0.02	-0.019	-1.58	-1.55	-0.22	-0.23	-1.54	-1.88
	(0.03)	(0.03)	(0.04)	(0.04)	(1.32)	(1.28)	(2.16)	(2.06)	(1.56)	(1.83)
Baseline Controls	N	Y	N	Y	N	Y	N	Y	N	Y
Mean (No change)	0.873	0.873	0.528	0.528	11.45	11.45	12.67	12.67	151.31	151.31
Observations	960	960	960	960	960	960	960	960	348	348

Notes: Ordinary least squares regression of labor outcomes on changes in reported difficulty in finding labor from baseline to midline. Excluded category is households reporting no change. Standard errors are clustered at the village level. Asterisks *,** and *** denote significance at the 10%, 5% and 1% levels respectively.

Using this framework, there does not appear to be evidence that when labor became scarce, households became more likely to use female labor. This may be because among the reference group (no change in scarcity), 87 percent of households already use female household labor. However, there is evidence that such households become more likely to hire labor; with controls, they are six percentage points more likely to hire female labor if they report that female labor became scarce. Further, there are changes along the intensive margin; households reporting an increase in labor scarcity also increase the days of female household labor and hired labor, by about 3.5 and 5.1 days, respectively. There are no clear changes in wages conditional on hiring labor.

As a result, there are potentially subtle patterns of changes occurring in jute production for women. There are no changes in the types of tasks women are doing as labor becomes scarce, but there are some changes in the number of days worked by women on those tasks. Increased labor scarcity does appear to provide opportunities for women to enter the labor market. However, it is unclear whether simple entry is beneficial to women's empowerment, as wages are not concurrently increasing. Future interventions should also consider the potential benefits to women's empowerment of labor saving technologies for post-harvest activities, and attempt to address gender wage gaps more generally.

6 CONCLUSION AND NEXT STEPS

6.1 CONCLUSIONS

This report has discussed results from the midline survey for the impact evaluation of the AVC project. This particular study provides mid-term evidence on the effects of interventions in the jute value chain, which included NGO trainings and fairs run by NAAFCO, a private sector input provider, along with a raffle for a discount on NAAFCO's NPKS fertilizer, which can improve yields compared to the more commonly used urea applications by providing a more balanced nutritional composition. In this section, the findings are summarized and next steps for the evaluation are discussed.

A first goal of the mid-term evaluation is to understand whether constraints related to price or knowledge affect farmer adoption of improved inputs. The NGO trainings and NAAFCO promotions both helped improve knowledge, albeit in different ways. Trainings were effective at enhancing knowledge around inputs and practices not directly related to NPKS, whereas the NAAFCO promotions were mainly effective at improving knowledge and adoption of NPKS fertilizer.

Although the promotions improved NPKS fertilizer usage, and were associated with small increases in harvested quantity, there are no strong effects on outcomes related to productivity. There are two plausible explanations for

why stronger impacts were not observed. First, the intervention asked farmers to make a subtle shift between types of fertilizer, rather than going from no fertilizer to some fertilizer, and the yield increases from this subtle shift will have been modest. Second, participation rates in the NGO trainings and raffles, and adoption rates of fertilizer amongst those winning a discount, were somewhat lower than expected. As a result, the treatment effect estimated here is the average of the effect on farmers who were actually exposed to the intervention, and the effect for those who were not actually exposed to an intervention, which may have limited the treatment effect for the average respondent.

A second evaluation goal is to better understand trust between farmers and input sellers. The market systems approach to changing value chains recognizes that trust issues exist between smallholders and value chain participants. The study seeks to understand whether trust issues either within smallholder farmers or between smallholders and traders affect the transactional behavior of farmers, and if so whether market systems programming can be designed to overcome those trust issues. Farmers appear to trust input dealers that they know through transactions more than dealers that they have never used in the past. Further, having participated in the raffles appears to improve jute yields more among farmers who strongly trust their input sellers than among others, who place less trust in their input sellers. This result suggests that future programming design should consider the role of trust not simply as a component of take-up but an important factor which may influence the degree of compliance with an intervention.

Third, a key concern for evaluating market systems interventions is to understand how they affect both existing customs and norms while other changes are also occurring. The research question explores the role that women play in the jute value chain as labor scarcity increases through migration. There are no changes in the types of tasks women are doing as labor becomes scarce, but there are some changes in the intensity with which women do those tasks. There are apparently more opportunities for women within labor markets as well, as hired labor appears to increase a bit more than household labor intensity, though not enough to exert upward pressure on wages as well. Meanwhile, average wage rates are falling for women while they increase for men. As a result, an observation is that the gender wage gap—within jute production—is actually rising even while women are working more on the intensive margin. This finding may be detrimental to women's welfare as their time allocation is already filled with activities such as child rearing, cooking, and otherwise managing households. Moreover, a potential solution to help empower women would be to develop labor-saving technologies during the jute processing stage and reduce their workload.

6.2   NEXT STEPS

There are five primary next steps for both further analysis and the impact evaluation.

First, the IFPRI team will complete analysis of the lab-in-the-field work that was conducted simulating interventions in a market game played by input dealers and farmers in many of the sample villages. The analysis of that data was started, and will continue again after this report has been submitted. These experiments go in more depth on how trust and reciprocity between farmers and input sellers develops over time, at least within the experiment, and to what extent interventions in market systems could help improve the quality of inputs sold in the market, and outcomes for farmers versus input sellers.

Second, in 2018 an endline survey is planned in both jute and mung bean areas. The mung bean areas took longer to materialize, but interventions have taken place in a large enough geographic area to conduct research there as well, which will be conducted using quasi-experimental analysis. There are potentially quite interesting differences between the mung bean and jute value chains, as issues are likely to be slightly different, despite the evaluation team's efforts to choose relatively similar value chains. In jute, the trust in relationships is likely to be important on both sides of the value chain, between farmers and input dealers, and also between farmers and buyers. In the mung bean chain, it appears to be equally important to encourage farmers to consider the profitability of purchased seed, since most farmers use saved seed in growing mung beans.

Third, more analysis will be conducted through the endline survey on women's empowerment and the interaction between AVC interventions and women's empowerment. Some of this analysis will be conducted using data collected through ongoing qualitative fieldwork, which will be completed in the second quarter of FY 2018. From a program design perspective, there are interesting questions related to women's empowerment that have arisen; for example, the data demonstrate that group membership is relatively infrequent; it could be that by forming women's self-help groups, women have a stronger voice in making agricultural decisions. The endline will also include more detailed questions on labor market participation, including migration, to firm up some of the analysis of changes in labor markets that are ongoing.

Fourth, in the endline, analysis of the fourth research question will be conducted. Specifically, by comparing the NGO trainings that were conducted with jute with more diffuse training methods through AVC sub-contracts with businesses; though direct comparisons will be difficult, some analysis towards answering this question can be conducted.

Fifth, the IFPRI impact evaluation team have been discussing a potential final lab-in-the-field experiment with AVC, potentially focused on trust in the output market rather than the input market, in one of the two value chains. These discussions should take place in January and any such idea would be proposed to USAID before moving forward.

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8 APPENDICES

8.1 ESTIMATION STRATEGY (UNDERSTANDING ADOPTION)

To explore the impact of the different treatment assignments, the analysis employs a standard randomized control trial approach. The goal of the analysis is to estimate the effect of receiving one (or both) of the treatments on a given household, relative to what the outcome would have been had they not received the treatment. The effect of the intervention for that household would then be simply: $\delta = Y_T - Y_U$, where Y_T is the outcome having received the treatment, Y_U, is the outcome without the treatment, and δ is the effect for that household. However, since both Y_T and Y_U cannot be observed for the same household (i.e. a household cannot both receive and not receive a given program), for any given household the effect of the treatment cannot be observed directly.

To overcome this problem, the estimation strategy relies on the random assignment of treatment status to calculate an average treatment effect for the sample. Randomization allows for the construction of a comparison group which is similar to the treatment group in terms of its observable characteristics, such that the expected value of a given outcome is the same for the comparison group as it would be for the treatment group had it not received the treatment. As a result, the average treatment effect can be calculated as the difference in outcomes between the two groups: $\hat{\delta} = E(Y_t | t \in T) - E(Y_c | c \in C)$ where t represents a member of the treatment group, and c represents a member of the comparison, or control group. Less formally, since both groups are observed to share similar characteristics before the intervention, and because receiving the intervention is independent of observable characteristics, the difference in average outcomes between groups may be interpreted as being caused by the intervention.

To do so, the following model is estimated:

$$y_{ij} = \alpha + \beta T_{ij} + \partial X_{ij} + \mu U_j + \varepsilon_{ij}$$

where y_{ij} is the outcome of interest for a household i, in a given union, j; T_{ij} is an indicator variable which takes the value 1 if the household received the treatment; X_{ij} is a vector of household covariates; $Union_j$ is a union-level fixed effect; and ε_{ij} is a mean-zero error term. The key parameter of interest is therefore β since this represents the amount of average change in the outcome which can be attributed to the treatment group, i.e. if the outcome under consideration were jute sales in USD and β = 72.43 and statistically significant, this would be interpreted as meaning that being in the treatment group was associated with an average increase in jute sales of $72.43 relative to the control group during the period of the evaluation. Note that the vector of covariates X_{ij} is independent of treatment status and not required to estimate an unbiased estimate of β. However, since its inclusion may improve the precision of the estimate, and to ensure that estimates are robust to any minor differences in baseline controls, results are provided both with and without baseline covariates included.

For the two treatment interventions under consideration the following models are estimated:

(A) $y_{ij} = \alpha + \beta Training_{ij} + \partial X_{ij} + \mu Union_j + \varepsilon_{ij}$
(B) $y_{ij} = \alpha + \beta Promotions_{ij} + \partial X_{ij} + \mu Union_j + \varepsilon_{ij}$

In addition, to explore the effect of receiving both interventions, an additional model is estimated:

(C) $y_{ij} = \alpha + \beta_1 Training\ Only_{ij} + \beta_2 Promo\ Only_{ij} + \beta_3 Both_{ij} + \partial X_{ij} + \mu Union_j + \varepsilon_{ij}$

This enables comparisons to be drawn between the effect of each possible treatment allocation (only having access to NGO trainings; only having access to NAAFCO promotions; having access to both NGO trainings and NAAFCO promotions) relative to the control group. In addition, Wald tests are performed to test the equality of each of the treatment coefficients to determine if there are statistically significant differences between the effects for each of the three potential treatment assignments. In line with the assignment of treatment status, standard errors are clustered by village.

8.2 SUMMARY STATISTICS

	Full Sample				
	Mean	SD	Min	Max	Obs.
Respondent Characteristics					
Is female	0.05	0.21	0	1	1461
Age in years	47.2	11.9	18	98	1461
Is Muslim	0.69	0.46	0	1	1461
Can read & write	0.50	0.50	0	1	1461
Completed primary education	0.40	0.49	0	1	1461
Completed secondary education	0.09	0.29	0	1	1461
Subjective Expectations					
Any NPKS Knowledge (Self-report)	0.22	0.41	0	1	1461
Trust Game: Amount Sent	79.3	35.5	0	150	1461
Mean expected yield (typical inputs)	1118	264	300	1576	1461
Mean expected yield (NPKS)	1243	248	300	1576	1461
Difference in mean expected yield	125	249	-1276	1276	1461
Difference in CV expected yield	-0.03	0.11	-1	1	1461
Knowledge of Inputs & Practices					
Knowledge Score (Standardized)	0.01	1.04	-5	3	1461
Knowledge Score for Fertilizer (Standardized)	0.01	0.94	-4	3	1461
Knowledge Score excl. Fertilizer (Standardized)	0.01	1.06	-4	3	1461
Input Use & Improved Practices					
Used JRO-524 seed	0.08	0.28	0	1	1461
Used NPKS	0.06	0.24	0	1	1461
Used Improved Pest Management	0.33	0.47	0	1	1461
Used Composting	0.04	0.20	0	1	1461
Used Sorting & Grading	0.15	0.36	0	1	1461
Production Decisions					
Planted Area	97.4	63.7	14	336	1461
Expenditure on inputs (Taka)	4132	4600	226	104335	1461
Expenditure on inputs excl. fertilizer (Taka)	1578	2326	0	66675	1461
Days of household labor prior to harvest	12.6	13.1	0	140	1461
Days of hired labor prior to harvest	22.9	31.3	0	500	1461
Expenditure on hired labor prior to harvest	6013	8210	0	114000	1461
Production Outcomes					
Jute harvested (kg)	990	718	20	5200	1461
Jute yield (Kg/decimal)	1027	319	22	4348	1461
Jute price (Taka/Kg)	42.0	4.5	17	77	1432
Total revenue (Taka)	41508	34102	0	431429	1461
Gross margin (USD/Hectare)	663.0	640.5	-10723	3302	1461

Notes: Summary statistics of respondent characteristics and outcome variables from midline household survey. Group 1 & Group 2 households.

8.3 COMPARISON OF WEAI & PRO-WEAI INDICATORS

Domains and indicators of empowerment in the WEAI and pro-WEAI

Domain	WEAI indicator	Pro-WEAI indicator
Production	Input in productive decisions	Input in productive decisions
		Access to information
Resources	Autonomy in production	Autonomy in production
	Ownership of assets	Ownership of assets
	Rights over assets^	
		Decision-making over land
	Access to and decisions on credit	Access to and decisions on credit
		Access to a financial account
Income	Control over use of income	Control over agricultural income
		Control over non-agricultural income
		Control over household purchases
		Autonomy in income
Leadership	Group membership	Group membership
	Speaking in public^	
Time	Workload	Workload
	Leisure^	
Mobility*		Ability to visit important locations
Intrahousehold relations*		Intrahousehold respect
		Attitudes about domestic violence

*Domains that are not part of the original WEAI

^Not included in the WEAI calculation for this project

Impact Evaluation Associated with the Bangladesh AVC Project

Evaluation team: **Alan de Brauw**, Berber Kramer, Hazel Malapit, and Eric Yen

1   BACKGROUND

Funded under the *Feed the Future* (FTF) Initiative, the Bangladesh Agricultural Value Chains (AVC) project is working to **improve food (and nutrition) security through strengthened agricultural value chains.** Agricultural value chains in Bangladesh are typically fragmented, and lack investment and inclusion of vulnerable groups and critical linkages. AVC is focusing on a portfolio of food and non-food crops to facilitate growth in the agricultural sector. AVC is working on improving value chains in six classes of food crops (pulses, tomato, mango, ground nuts, potatoes, and a summer vegetable basket) and two classes of non-food crops (natural fibers and floriculture). The geographic focus for the AVC project is 20 southern districts in Barisal, Dhaka, and Khulna Divisions. Some of the specific value chain interventions are more focused since specific crops are not grown in all districts.

The AVC project has four main components, which are called intermediate results en route to improved food security through stronger agricultural value chains. These intermediate results are:

- Intermediate Result 1: Sustainable, diversified agricultural productivity increased
- Intermediate Result 2: Agricultural market systems strengthened
- Intermediate Result 3: Innovation and value chain upgrading increased
- Intermediate Result 4: Local capacities and systems strengthened

Finally, the project has a number of cross-cutting elements. These elements include:

- Nutritional practices improved;
- Effective gender integration and youth participation enhanced; and
- Environmental sustainability and resilience to climate change strengthened.

The impact evaluation will not assess the impacts of all of the interventions being conducted by AVC. Rather, it will focus on one food and one non-food crop, ideally with both having comparable attributes and growing patterns. The evaluation will go beyond just trying to understand the impacts of some of the specific, selected AVC interventions on improving agricultural productivity. First, we want to understand whether and why the "mass market" approach facilitated by AVC, with input suppliers moving from a wholesale to a retail approach for distributing their inputs, can enhance mutual trust among both input suppliers and

smallholder farmers; to that end, we are designing experiments related to repeated interactions, quality signals and trust to play with sampled market participants.

Second, we want to understand the main market constraints to production of high-quality products. We will examine whether specific interventions at the farmer level help improve the productivity and quality of specific products, and we will assess what value chain actors are willing to pay for high-quality products in order to learn more about where the market structure fails to incentivize quality. Third, we plan to study all of these points in a gender disaggregated manner, both by using a project level version of the Women's Empowerment in Agriculture Index, and by ensuring that we analyze patterns of participation in the markets we are studying by gender, as well as examining results from experiments by gender. Therefore, the cross-cutting components of the AVC project will be key to the impact evaluation and its results.

Value Chains

IFPRI is focusing on two value chains in the impact evaluation, value chains for mung beans and for jute. As such the impact evaluation does not constitute an impact evaluation of the AVC in its entirety. We considered other crops, but only those that are inherently nutritious from a food perspective. Mung beans have nutritional value in terms of iron content. Iron deficiency anemia remains a major health problem in Bangladesh, whereas micronutrients covered by other crops that are potentially being studied by AVC (e.g. orange sweet potato and mango, which are rich in vitamin A) are not as large of a deficiency. Moreover, mung beans are grown by a large number of farmers and have a reasonably simple value chain (that can therefore be traced), as mung beans are roasted and sold as an individual product, sometimes with some flavoring, offering an alternative to less healthy snacks. Mung beans are therefore the most appropriate choice.

Jute makes an interesting comparison value chain because it is also grown by a significant proportion of farmers in the FTF intervention zone and appears to have similar traits and constraints as the mung bean value chain. We considered other non-food crops but concluded that these are not viable for an impact evaluation; in the case of cut flowers, the AVC is quite advanced, but the number of farmers growing cut flowers in Bangladesh overall is small, and AVC had almost reached the target number of beneficiary farmers during the inception phase of the impact evaluation. In the case of coir, the value chain is in its infancy and as such any interventions are quite prospective. Hence, jute is the remaining possibility. As trust issues between input sellers, farmers and processors appear to exist in both the mung bean and jute value chains, and farmers do not tend to use improved seeds and other inputs in both value chains, there are similar issues that exist in both value chains, allowing for an interesting comparison. That said, jute has a long history as a particularly politicized crop in Bangladesh (e.g. Ali, 2012), and as such the possibilities for expansion of the crop may be limited relative to those for mung beans.

Here, it is worth noting that AVC's focus is changing from primarily contracting trainings to trying to better understand what is not working well for smallholders in their interactions with input suppliers, aggregators, and traders, and building or improving those relationships. In the first two project years, the main approach was to create producer groups at the village level, with

the goals of delivering training on best practices and technologies; creating aggregated demand for inputs and larger aggregated outputs; and creating more, lower-risk opportunities for access to finance. Participating farmers were selected via open meetings with AVC subcontractors, as described in Annex 1. Groups of 30 participating farmers were established based on geographic proximity. These groups then participated in project activities, including training and linkage meetings.

AVC has shifted to a market systems approach, and works with selected private sector firms to co-develop commercial strategies that more effectively engage and incentivize value chain actors, including smallholder farmers, input suppliers, output buyers, and service providers. The ultimate goal of these strategies are to increase transactions, build trust, build industry networks, strengthen market systems, and enable increased investment, competition, and positive development outcomes for communities in FTF target areas. As such, the impact evaluation aims to generate useful insights on constraints to market development in the mung bean and jute value chains that will ideally generalize to other food and non-food value chains in low-income countries and Bangladesh specifically.

2 THEORY OF CHANGE

2.1 ASSESSMENT

AVC has recently shifted from a more traditional value chains approach to a market systems approach, though this shift is currently in process. The concept of a market systems approach is to understand how market interactions take place or do not take place all along the value chain, to identify bottlenecks or constraints, and then to design interventions that attempt to change attitudes of actors toward engaging in transactions or in making market transactions less risky and costly for all involved parties. As such, according to the market systems approach, it is important to understand the way the value chain is or is not working for specific crops before attempting to nudge actors to change behaviors to make the market system work better for all involved. Therefore some of the work in the impact evaluation is trying to assess interventions that might overcome such constraints so that actors within the system start interacting with one another more efficiently.

To develop an impact evaluation around market systems, there are a few particular challenges. The organizing principle behind the market systems approach is that if a bottleneck to a well-functioning value chain can be identified and removed, then actors within the value chain will identify the new profitable opportunities and take advantage of them throughout the market system. If so, it would be very difficult to attribute such changes to the AVC versus a general trend in the market system that would also have occurred in the absence of AVC activities. As such, we do not attempt to conduct an impact evaluation of the AVC as a whole, or even the specific value chains being studied.

A second challenge is that there might be small changes that can be made within a market system that are both preferred by purchasers or a good or service and by the providers. If such mutually profitable opportunities exist and become possible, one can envision that change spreading rapidly through a market system. For example, one can imagine traders learning about an arbitrage opportunity between villages, and prices equilibrating once traders learn to take advantage of that opportunity (similar to Jensen, 2007). Similarly, if someone comes up with a mutually beneficial insurance contract, one can imagine actors quickly coming in and mimicking the contract. Any opportunity that can be taken advantage of quickly also is a challenge for evaluation, since the control group would almost certainly be contaminated from the point-of-view of research.[24]

The goal of the impact evaluation is to be able to attribute change to specific interventions. Thus, we had to overcome the challenges above by finding interventions or components of interventions that can be implemented for (groups of) randomly selected farmers and for which benefits would accrue more slowly, allowing us to attribute changes to the interventions. Specifically, we looked for interventions in the jute and mung bean market systems that were 1) already being planned by AVC to be fielded by partners within the specific chains; 2) where randomization would not adversely affect the pace of market system change, if occurring, because otherwise, actors within the value chain would take advantage of profitable opportunities throughout the market system, which could include the control group; and 3) that could answer interesting questions to AVC, to USAID, and to the research team. Lab-in-the-field experiments take place in a more controlled and observable environment, thereby allowing us to investigate the impacts of market systems interventions for which attribution is difficult outside the lab.

To design an evaluation around AVC activities, we honed in on three major bottlenecks in market systems for jute and mung bean production. A first constraint in these market systems is *a lack of farmers' knowledge* regarding proper cultivation and post-harvesting practices. Although knowledge constraints can be overcome by an informational intervention or training, and could potentially significantly increase productivity as well as demand for inputs and technologies, we assume that private willingness to pay for training alone is limited. As a consequence, farmers may not be trained in the use of specific types of inputs, which reduces demand for those inputs. Consequently, one might ask why the private sector, for instance input sellers who could promote their products through training, do not either outright provide such trainings as a service to increase their customer base, or bundle training with input sales. There are several possible reasons. First, they may not be perceived a respected and effective voice, in particular when farmers are worried that private input sellers bias their trainings towards the inputs they provide themselves, in other words, farmers may not trust private input sellers to provide accurate information. Second, knowledge is a public good. If one private input seller trains farmers, it is not guaranteed that this will increase farmers' loyalty to that particular private input seller; input sellers may distrust farmers and worry that they will purchase their inputs from

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[24] From the *market systems* point of view, quickly reducing arbitrage opportunities or developing new insurance contracts that quickly spread is advantageous; the challenge remains attribution, as is described in the previous paragraph.

other sellers after training. Third, farmers in Bangladesh are mainly smallholder farmers, which means that costs of training an additional farmer are high relative to the potential surplus that this transaction can generate, that is, input sellers will face high transaction costs.

This rationale highlights the second constraint in the jute and mung bean market systems analyzed in the impact evaluation, namely, ***a lack of trust between farmers and input sellers***. The market has converged on an equilibrium where farmers do not trust inputs to be of high quality, and indeed, the quality of locally provided inputs is low, with market prices being unable to signal quality. A lack of trust is common in contexts such as Bangladesh, where contracts are often not enforceable. In such contexts, as long as contracts remain unenforceable, relational contracts will play an important role in improving the quality of and demand for inputs. Relational contracts are informal agreements sustained by the value of future relationships. In a relational contract, a farmer and input seller may have the agreement that the input seller provides high quality along with additional services such as credit or agricultural extension, as long as the farmer buys from the input seller. As long as the value that both parties can obtain from future trade in this relationship is sufficiently high, the informal agreement will sustain. The question, addressed by the impact evaluation, is to what extent the AVC interventions give rise to an emergence of such relational contracts.

A third constraint, also already highlighted above, is ***high transaction costs*** associated with working with smallholder farmers, because production per farmer is low. In a context with perfect enforceability of contracts between farmers, it is possible to generate economies of scale by working with farmer groups to provide inputs, trainings or buy their output. However, such horizontal coordination fails when farmers face private incentives to purchase cheaper inputs outside the group, or cannot commit themselves to sell their outputs through the group because spot markets may offer better prices. Moreover, without strong trust between group members some may try to provide lower quality output to group sales, reducing returns for all group members. A lack of trust between farmers that they will all commit themselves to the group agreement will jeopardize groups' ability to generate economies of scale or to meet quality standards for either export markets or local processing markets. Unreliability of farmer groups will also reduce trust in farmers among other actors in the value chain. Thus, a third question addressed by the impact evaluation is whether the AVC interventions give rise to horizontal coordination, for instance collective marketing, collective purchasing of inputs, and other services provided through farmer groups, and whether input sellers' trust in farmers depends on whether they are organized as a group.

2.2 INTERVENTIONS

In describing interventions implemented by the AVC, we distinguish between two types of interventions: those being implemented by NGOs and those implemented by the private sector.

For the jute value chain, AVC is working primarily through NGOs or subcontractors to improve access to inputs, production, and post-harvest management. In Year 3, AVC subcontractors are training 4,000 farmers each for a total of 16,000 producers across 4 districts with improved capacity and speed the transition to use of imported, certified FO-524 jute seeds (rather than

using non-certified seeds or seeds retained from the previous year). Farmers are being trained on how improved seeds create higher yields; how to grade jute, and the value of different grades. Both improved and traditional seeds will exhibit improved yields in degraded soils if fertilizer is added to the soil at specific times during the growing process, but the yield gains will depend on the fertilizer quality. Because quality of fertilizer and other inputs provided in local markets is low, for instance due to counterfeiting or repackaging, and because certification is a way to signal high quality, an additional important issue discussed in the trainings is whether or not fertilizer is certified.

Trainings are being conducted by four subcontractors (Gono Unnayan Prochesta (GUP), Society Development Committee (SDC), Sheba Manab Kallyan Kendra (SMKK), and Prova Society), who were competitively selected for their track records of successful training in agricultural topics. Trainings and messaging being conveyed are also related to gender mainstreaming, access to finance, and fundamental business strategy. In addition, through linkage meetings, AVC is engaging high-value input suppliers (Konika Seed Company, NAAFCO Group, and Padma Seed Company) and aggregators and introducing them to farmer groups formed at the village level as a new mass market for sales and supply. However, these input suppliers do not have an active role in terms of training on modern cultivation and post-harvesting practices.

To promote market systems development, AVC is also supporting the input suppliers in creative promotional campaigns to reach this market. In the jute value chain, AVC is facilitating a series of informative events, including one fair per district and additional small group sessions, organized and co-funded by NAAFCO, in which representatives of this input supplier will provide information on the products that NAAFCO is selling. The fair will also include a crop clinic in which farmers can seek additional extension advice. In addition, selected farmers will participate in a raffle through which they will receive discounts on a 25 kg pack of jute fertilizer. First-prize winners will receive an 80% discount, second-prize winners a 50% discount and third-prize winners a 20% discount.

For the mung bean value chain, AVC is investing in strengthening the ability of producers and processors to respond to market demand. AVC will facilitate promotional campaigns and other interventions that expand on market linkages between producers and high-quality input and seed suppliers (ACI, Laldeer), and leverage value chain actors' market incentives to expand production. AVC will focus on increasing access to high quality inputs, particularly BARI-6 and BARI-7 (in lieu of current seeds), and modern cultivation practices. The project will work with seed companies and processors to establish preferred supplier networks with producer groups, strengthening market relationships, and support small/medium enterprises (SMEs) and entrepreneurs who are interested in investing in upgrading sorting and processing equipment. Currently, the plan for training prior to the 2016-2017 growing season is that the training will cover the use of improved seed varieties and pulse cultivation practices. The trainings will encourage producers and aggregators to continue investing in upgrades that will drive expanded premium market access and processing. AVC is linking the training program to ongoing promotional campaigns further connecting farmers to seed and input sellers, to create a

competitive market for inputs that links growing farmer demand for improved inputs with quality suppliers to expand access for smallholders.[25]

A description of the project locations is provided in **Table 1**. The districts/unions in which the project is active were selected because of their high concentrations of jute and mung bean farmers, respectively. Specific villages were identified by AVC in collaboration with their subcontractors as having a high concentration of relevant farmers, having acceptable proximity to subcontractors and key private sector actors, and being as far removed from other projects as possible to minimize contamination of the sample for this study.

Table 1. Overview of AVC Project Locations for Jute and Mung Bean Value Chains.

	Jute Value Chain Locations	**Mung Bean Value Chain Locations**
No. of Registered Farmers:	16,000	11,000
Districts:	• Faridpur • Gopalgonj • Jessore • Jhinaidah	• Barguna • Puthuakhali
Local Implementing Partners:	• Gono Unnayan Prochesta (GUP) • Society Development Committee (SDC) • Sheba Manab Kallyan Kendra (SMKK) • Prova Society	• To be determined as the interventions occur at the end of calendar year 2016
Promoted Technology and Management Practices:	• Crop genetic (FO-524 seeds, mulching) • Certified inputs such as fertilizer, weedicide, herbicides • Post-harvest management (ribbon retting, improved retting, grading and sorting, handling, storing) • Pest management (ICM/IMP physical methods) • Marketing and distribution (improved input purchase, market information) • NAAFCO: Promotional fairs and raffles of promotional discounts	• Crop genetic (improved and certified BARI-6 and BARI-7 seeds) • Cultivation practices • Pest management (ICM/IPM methods) • Post-harvest management (decay and insect control, temperature and humidity control, improved quality control technology, sorting and grading, value added processing) • Handling (improved packing house technology and practices, improved transportation)

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[25] Other cross-cutting interventions will also take pace in these value chains; we make the assumption that when randomized, the treatment and control groups will have equal exposure to these additional cross-cutting interventions. Surveys taking place in the middle and end of the project can help test that assumption.

	Jute Value Chain Locations	Mung Bean Value Chain Locations
		• Partex

2.3   OUTCOMES AND INDICATORS

Table 2 provides an overview of the constraints, which randomized interventions address these constraints, outcomes these interventions are expected to have, and what indicators we will use to measure these outcomes. We discuss the indicators in more detail in Section 5, along with indicators of impacts that may be brought about by changes in the relevant outcomes and indicators listed here. Note that we do not list outcomes or indicators that follow from the changes we expected to see in household level outcomes by alleviating these constraints.

Table 2. Constraints, Interventions, Outcomes, and Indicators

Constraints	Interventions addressing the constraint	Relevant outcomes	Relevant indicators
Lack of knowledge regarding improved inputs	Training provided by NGOs Training provided by input sellers Discounts / free trial packs	Improved knowledge of the benefits of improved inputs	Knowledge of improved inputs; Adoption of improved inputs; Yield of targeted crops (jute and mung bean).
Lack of trust between farmers and input sellers	Linkage meetings Wholesale sellers of improved inputs moving to retail system.	Increased prevalence of relational contracts	Inputs purchased on credit; Repeat purchases; Extension/training from private sector; Adoption of improved inputs. Yield of targeted crops (jute and mung bean).
High transaction costs of working with smallholders	Group formation done by NGOs	Improved coordination between farmers	Quantity of inputs purchased and output sold via group.

To highlight how these indicators can help us understand the causal chain, consider the example of how trainings can affect the market system (Figure 1) through group formation; trainings that teach the proper use of inputs and any potential improvements in growing techniques; and

linkages to input sellers and crop buyers. Assuming that the information given in trainings is relevant and that farmers attend trainings, they will become more aware of improved techniques and inputs. Assuming that trainings are convincing enough to try these new techniques or inputs, the next step is that farmers will consider making changes to practices or input use. Assuming again that they have access to these new inputs or techniques, that they can finance these changes, that they are willing to take risks, and that they perceive that investments or changes in investments are profitable, they will adopt those new techniques and will obtain higher levels of output and crop sales if the investments are indeed profitable, if markets exist or can handle additional output, and if shocks do not negatively affect production too much.

Figure 1. Theory of Change, Training Intervention
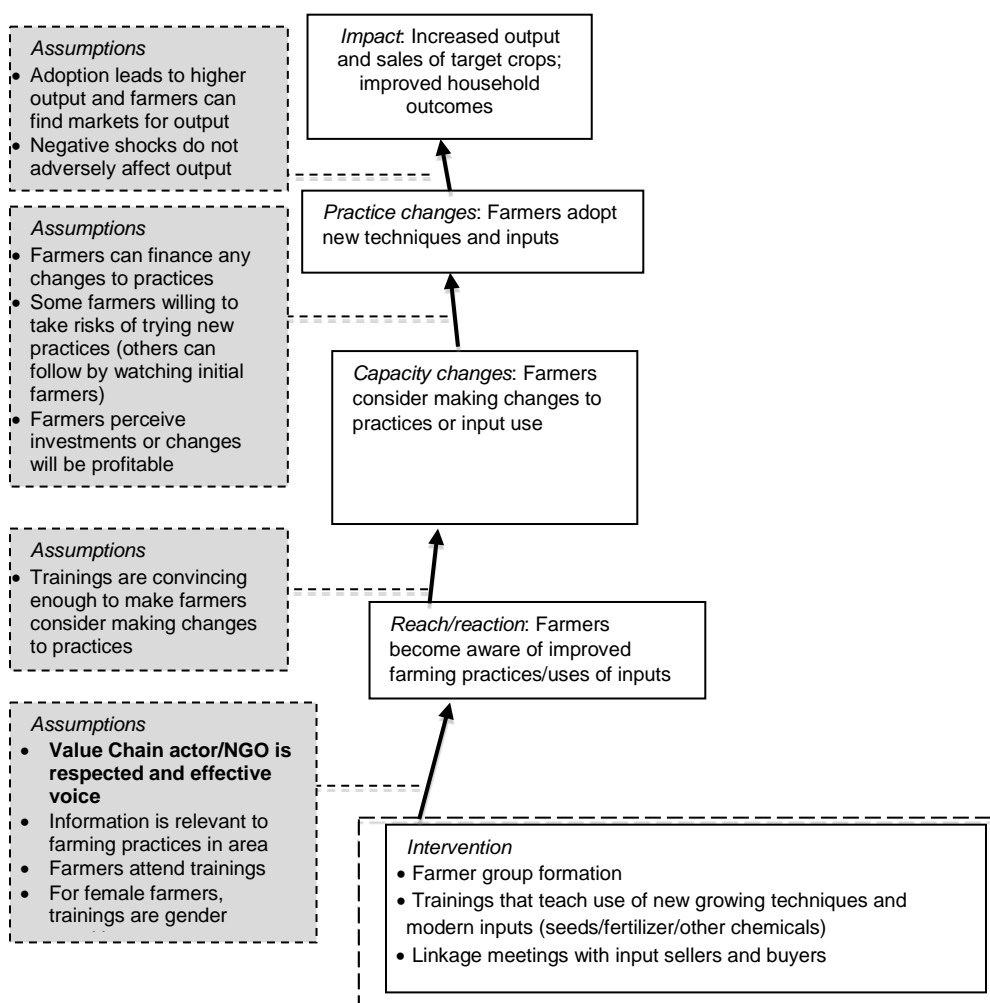
A potential intervention that could improve farmers' trust in private sellers of quality inputs is a promotional campaign, including for instance discounts or free trial packets of inputs. From an economic theory standpoint, a promotional campaign provides information to consumers that changes their perception of the product and hence the demand; further, if promotional/initial discounts or trial packs are used in combination with the information channel above, the price of improved inputs is low enough to fit within a consumer's demand set, encouraging the farmer to "try" those inputs. Either this trial or information provided through promotional campaigns or

agricultural training will lead the consumer to demand more in the long run at the normal, non-discounted, price. The key insight is that the consumer lacks information about or trust in the product (or product category) that the company providing the promotions is selling, and with information, trust and knowledge of potential benefits is enhanced, which results in higher demand for improved inputs. There is a slight difference between information disseminated via promotional campaigns versus promotional discounts and/or trial packs, in that if a farmer receives a discount, then the production of a specific output could be profitable with the discount but not without; if so, one would assume the farmer would not continue to use the input. In other words, the promotional discounts will only lead to increased demand for normal-priced inputs in the long run if the inputs increase yields sufficiently to offset the normal cost of that input.

3   RESEARCH QUESTIONS

The study has several research questions.   These largely revolving around issues of understanding adoption in the value chain; understanding trust in the value chain; women's empowerment; and training modalities.   We are also including a fifth set of questions here related to consumer acceptance of processed foods; we will include that component if it is possible and aligns with AVC's future workplans.

Understanding Adoption

A basic question about the growth of agriculture in developing countries centers around enhancing adoption of new technologies and practices. In both jute and mung bean crops, farmer returns could increase by using better planting material (e.g. improved and varieties of certified seeds that are better for processing) and by using (higher quality) inputs such as certified fertilizer, weedicide and herbicide. AVC is planning to use several types of promotional tools in attempting to upgrade input supply networks. These promotional tools include mass media campaigns (which can include local fairs) to encourage smallholders to use improved seeds (such as BARI 6 and BARI 7) and certified fertilizer as opposed to lower-yielding fertilizers from local markets; comparative demonstration plots; the development of seed seller networks; and promotional discounts or starter packets of high quality seeds and inputs. The promotional discounts are a good candidate for randomization. AVC, through partnering input suppliers, will randomize whether farmers receive these discounts through public raffles in promotional events. These discounts can induce initial adoption of an input or new variety. The question of whether initial promotional discounts can be effective in helping induce technology uptake is a research question of primary interest, understanding that such adoption takes place in an environment in which a positive adoption message is being broadcast from several directions.   We therefore randomize the size of the discount to be able to test the research question:

- Can promotional discounts be used to catalyze input demand and increase production of food and non-food crops, relative to just using mass marketing techniques? What are the effects of increasing that production on household income, individual diets, gendered time use, and other outcomes?

Note that with a short mid-term survey we can ask whether households were exposed to the mass media messages, and that can help us understand the relative efficacy of mass marketing, mass marketing plus promotions, and no marketing. For randomization to identify the impacts of promotional discounts, one would only require that the proportion of households exposed to mass media messages be statistically equivalent across the treatment and control groups. This research question relates to the first key question in the Feed the Future Learning Agenda under "agricultural productivity": "What are characteristics of effective, efficient, and sustainable vehicles for promoting adoption of innovation (technology, practices, behaviors) and diffusion of products and new technologies among the poor, women and socially marginalized? What are the most binding constraints in promoting technology adoption and the most effective interventions for dealing with these constraints?"

Understanding Trust in the Value Chain

A recurring theme that emerged from our discussion with AVC staff is the lack of trust between farmers and traders, which may be a key constraint to the development of many value chains. We propose to measure trust in vertical relationships (e.g., farmer-trader) using trust games and analyze what type of interventions – including stylized elements of the retailer model that AVC is aiming to facilitate – help improve trust in these relationships. We will design these trust games to also involve horizontal coordination, i.e. the need for market their produce or purchase inputs collectively, and we will analyze whether trust in vertical relationships affects coordination in horizontal relationships and vice versa. We will develop these experiments to take place after the baseline survey, since they either involve problems with the coordination of sales between farmers or trust issues related to farmers. The research question we plan with this lab-in-the-field experiment is:

- Do trust issues within smallholder farmers or between smallholders and traders affect the transactional behavior of farmers, and how can programming be designed or modified to overcome such trust issues?

Answering this question in a lab framework may help AVC design better interventions to improve the market system, and speaks to the FTF Learning Agenda question under "Expanded markets, value chains and increased investment": "Have interventions in agricultural value chain development led to development of local institutions and systemic behavior change? What are effective pathways for generating that change?"

Women's Empowerment

The migration trends in Bangladesh present an opportunity for learning about women's empowerment. Labor costs and wages are increasing since there is depopulation in rural areas, with more land being available for farming. Land leasing is hence increasing, with cash transfers from land tenants to the landholders in the city; sharecropping is reducing. We thus propose to stratify by areas of migration, which affects the extent of labor shortages and creates pressure for

women to step into men's roles in agriculture. The stratification will allow us to ask a secondary research question:

- To what extent are women taking on more of men's roles in agriculture? If we observe labor shortages in specific tasks that women manage, are there specific technologies or practices that can be marketed to women to increase productivity and alleviate their time burden?

Answering this question may be helpful to AVC in identifying opportunities for targeting agricultural productivity interventions to women.

Training

An initial aspect of the AVC interventions that we can potentially evaluate is the effectiveness of the training by modality. AVC is interested in understanding whether, for example, a trader would be more effective in conducting farmer trainings because they have an interest in farmer's adoption of improved seeds, as compared to an NGO, who do not have future interactions with the farmers. The change in training modalities will take place between FY2016 and FY2017, which does not give us a chance to do temporal tests, but it will potentially give us a chance to measure impacts of both modalities individually, even if in a non-randomized setting. Whereas we were able to randomize training by NGOs for jute farming (versus no training) in FY2016, it is not yet clear how training will occur in FY2017 for mung beans, and whether training in FY2017 for jute will be conducted by the private sector. It is likely that any jute training will take place through the private sector in FY2017, which would allow for at least a comparison between learning from NGO and private sources; nonetheless, we caution that it would be difficult to control the flow of information through private sources in the sense of attempting to randomize, so we will likely have to use non-random methods (e.g. propensity scores) to examine this hypothesis. Assuming that the change in modalities takes place as planned, we can test the research question:

- Which training modalities are most effective in increasing farmer adoption of improved technologies and practices?

Consumer Acceptance of Processed Foods

We propose to measure the revealed preference for a processed product (e.g, roasted mung beans) that has nutrition labeling relative to an equivalent product with no labels through a lab-in-the-field experiment conducted as part of our fieldwork. Enumerators can carry packets of the processed mung beans during fieldwork and conduct the experiment as part of the mid-line survey. The price could be varied to learn about the price premium. AVC realizes that increased income may lead to an unhealthy diversification of diets ("If you can fry it, they will buy it."), so this experiment aims to measure whether nutrition labeling can help consumer make healthier food purchases. If AVC is able to reach this point in their workplans, we will attempt to answer the research question:

- Under what conditions can nutrition labeling affect consumers' food purchases in rural areas?

This experiment would help us understand the consumer approach to products from value chains, and to understand whether labelling has an impact on consumer decisions in rural areas. Additionally, we can conduct such an experiment quite easily with both men and women to learn about gender differentials in the willingness to pay.

It is important to remember that all of the selected interventions for evaluation take place within the context of other on-going interventions. IFPRI's impact estimates will represent average treatment effects on the treated of the specific interventions, averaging over whether or not other households are exposed to other interventions in the value chain. The impact evaluation will not attempt to measure the overall impacts of the AVC. The research team will need to understand either from project data or household level data how other households are exposed, both within the treatment and control groups. The team will design data collection instruments that will cover other interventions within specific value chains to ensure this essential heterogeneity is captured.

4 METHODOLOGY

4.1 CLUSTER RANDOMIZED TRIALS

Much of the impact evaluation builds on a cluster randomized trial (CRT). CRTs are a type of randomized controlled trial (RCT) in which groups of subjects, rather than individual subjects, are randomized in order to evaluate the impact of a particular intervention, policy or project. Relative to individual level RCTs, CRTs reduce the risk of biases in the evaluation due to spillover and crossover effects between individuals, and are a natural fit when the intervention is applied at the group level. The latter is definitely the case with this project, since both the design and implementation plan rely heavily on actions taken at the farmer group level such as information sharing, community mobilization, trainings and extension, and access to inputs and agents. In this context a CRT is the most appropriate method for the impact evaluation. CRTs also reduce any probability of spillovers or envy between groups. We use villages as the unit of randomization as training groups were not well formed at the time the baseline survey needed to occur.

However, the desirable properties of CRTs come at a statistical cost. Since randomization in the CRT will occur at the village level, the study requires a large number of villages to attain sufficient statistical power to demonstrate impacts. Typically this will be more challenging, administratively and financially, than conducting a study randomizing at the individual level. More importantly, since the unit of analysis of the study is the individual (household) while the unit of randomization is the village, the dependence between individuals of the same village reduces the effective sample size (each additional individual in the same cluster adds little additional information, since outcomes are correlated among individuals within the same village), which must be accounted for when calculating the study sample size through power

calculations. Therefore, only 20 randomly selected farmers from each village will be invited to participate in the study.

To begin the evaluation, we will sample 50 jute growing villages and 50 mung bean growing villages within the Feed the Future intervention area in southern Bangladesh. The idea is to cluster randomize the availability of promotions, to observe whether these improve adoption or productivity at the household level. Ideally, we will be able to cross-randomize access to training; cross-randomization did occur for jute, but is still unclear whether randomization will be possible for the mung bean areas.

Assuming that it is possible, the sample for each component will be broken up as follows:

		Training?	
		Yes	No
Promotions?	Yes	T1	T2
	No	T3	C (Control group)

This randomization was possible for the subsample of jute farmers; it will definitely also be possible to randomize promotions among mung bean farmers and at worst we will attempt to examine training using quasi-experimental methods.

In each village, we will include 20 farmers at least initially who are supposed to be targeted for the interventions; e.g. farmers that fit any criteria given to us by AVC. If some of the households in the baseline survey retrospectively do not "look" appropriate for the intervention, based on either adjusted criteria or alternative criteria, we will plan to supplement both the treatment and control samples and stop following inappropriate households.[26] With this framework, we can compare treatments with the control and potentially with other treatments, to learn about which is most effective; comparisons of training will likely take place across crops. We base power calculations in section 6 on this type of a framework.

To actually design the sample, AVC shared a list of sites where their subcontractors potentially planned to provide training for both jute and mung beans, but where they had not yet begun to register farmers. Subcontractors listed approximately twice as many villages as they needed to train. Based on this input, we did an initial sampling of 50 villages (25 treatment to receive training, 25 control to receive no training) for each of jute and mung bean, and shared the list with AVC (for mung bean, villages have not yet been assigned to treatment groups). We collaborated with AVC on the final selection of sites, then – in the case of jute – AVC shared their training schedule so that we could administer our baseline survey within one month before training was initiated.

In the case of jute, IFPRI then sampled for promotions. We sampled half of each of the training treatment and control villages for promotions, to identify villages that would receive: training and promotions, training and no promotions, no training and promotions, and no training and no

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[26] By criteria, for example, consider land holdings, age of the farmer, and number of years they have been growing the crop of interest.

promotions. A similar approach is envisioned for mung bean. The final list of sampled villages for jute is provided in **Appendix Table 1**, and the list of mung bean villages is in **Appendix Table 2**.

4.2 LAB IN THE FIELD EXPERIMENTS

In the first year of the impact evaluation, we will use lab-in-the-field experiments to analyze trust and trustworthiness among different actors in the market system, and test interventions to potentially improve signals of quality and lead to repeated interactions in the value chains. We are concentrating modeling on input markets. The basic set-up of the experiment is as follows. Farmers and local input sellers (some of whom may have been identified as retailers by the large input providers that collaborate with AVC) will be invited to come to a session in their village or union. A small group of farmers will be matched to a group of two input sellers. Input sellers will decide on a price at which to offer inputs, and will decide quality but will not reveal it to the farmer. Then farmers can choose which seller from which to buy inputs, or can refrain from purchasing from either of them. The joint payoff to either high or low quality inputs is the same; farmers gain more from high quality inputs, whereas input dealers gain more from either setting high prices or from volume sales. Farmers earn *least* when they buy and the input seller provides low quality, whereas the input seller earns *most* when providing low quality, although they can potentially make more by selling high quality to a larger number of farmers. The experiment is set up so that the farmer may not trust the input seller to provide high quality, and refrain from buying inputs, leading to inefficient outcomes.

The goal of lab-in-the-field experiments is to test whether the interventions have a positive effect on trust in these retailers relative to other local input suppliers. The advantage of measuring trust in this way, as opposed to measuring trust in surveys, is that the choices made in the experiments are incentivized. That is, farmers and input sellers face real payoffs in the experiments; a farmer who buys from an untrustworthy input seller will for instance earn less from the experiment than a farmer who does not buy from an unworthy input seller. By making the payoffs real, participants will act more closely to how they would act in 'real life', which is a major advantage over hypothetical survey questions.

After setting up the basic experiment, we will experiment with interventions to attempt to improve trust in the marketplace. First, we will allow input dealers to signal if they plan to sell the high quality input to farmers. The signal is not binding, but gives input sellers a method of telling farmers they plan to provide high quality inputs. In a second experiment, we will test allowing different types of promotional treatments, simulating to the type of promotions that AVC is conducting. The main advantage of doing so via an experimental approach is that the laboratory provides a test bed in which we can construct a market with the desired specifications and then sharply manipulate the factors we wish to study, to see how they interact and ultimately affect trade. In this way, we gain insight into what makes for a better trading system. As such, the experiments will help identify points in the value chain where, and conditions under which, actors lack trust in each other—whether that be between input sellers and farmers, or between farmers themselves (hindering group formation or effectiveness). Identifying such points will

allow making recommendations on where and how to build trust along the beginning of the value chain.

Of course, if the input market improves either through the interventions taking place, it does not necessarily mean that farmer welfare will improve, since the output markets could still work against farmer interests. We plan to work with AVC and USAID to consider whether it makes sense to add lab-in-the-field work for output markets in 2017, which would need to be designed.

5   OUTCOMES OF INTEREST

The research questions posed in Section 3 will be answered using the following outcome variables:

Input Purchases: We will measure input purchases through follow-up surveys. We will measure indicators for the purchase of any improved input (seed, fertilizer, precision services), as the total value and amount of specific inputs purchased, which will lead to the total value and amount of inputs purchased. We expect measures from the baseline and follow-up surveys to be better than administrative records. To be able to measure group level outcomes, we will include in surveys whether or not purchases were made through groups.

Input Purchases on Credit: We will learn about how people purchased inputs, and whether or not they used credit. If farmers purchase on credit, they must trust that the inputs are genuine and the creditor must trust that the farmer will pay them back, so this measure will serve as a measure of trust.

Repeat Purchasers, Same Seller: We want to also understand whether farmers purchase from the same seller year-to-year, since this behavior would also suggest a level of trust in the system. This measure also serves as an indirect measure of trust.

Input Use: That said, it is not necessarily clear that once farmers have purchased inputs, that they will also use them. We will ask about input use on baseline and follow-up surveys, which will allow us to measure indicators for the use of any improved input (seed, fertilizer), the total value and amounts of specific inputs used as well as the total value and amount of overall inputs used.

Agricultural Productivity: We will measure productivity primarily as the productivity for the specific crop of interest; e.g. either jute or mung beans. As a secondary measure, we will use the gross value of agricultural output, using procedures for generating prices for goods that are not sold well established in the development economics literature, which will reflect overall gains to the household rather than just specific gains within one crop.

Output Sales: For the primary cash crops (jute and mung beans), we want to understand whether crop sales increase both for the specific crops for which AVC is developing groups, and to understand whether those sales were conducted through groups to improve prices received for the crops.

Expenditures: We will measure expenditures through a simplified expenditure module in the household survey which will give us an approximate measure of changes in levels and composition of household expenditures. We will look at expenditures in order to assess whether the agricultural input use and the potential increase in productivity are reflected in increased consumption, and to determine whether access to savings through mobile money affects the composition of expenditures in the household, particularly moving away from investments in durable assets.

Food Security: We will use measures of food security that are relatively standardized and were included in the survey.

Food Frequency: One of the final outcome goals of the activity is to understand whether nutritional outcomes improve as a result of interventions. We expect that any nutritional outcomes among jute farmers can only occur through the "income" channel (e.g. through improvements in income), whereas for mung bean farmers they would occur through either the production channel (which makes mung beans cheaper for the household), or through the income channel.

*Pro-WEAI:*We will measure men's and women's empowerment in agriculture using the project WEAI (pro-WEAI) indicators, which is being developed under the second phase of the [Gender, Agriculture and Assets Project (GAAP2)](). As part of the GAAP2 portfolio, the impact evaluation associated with the AVC will collect information on different domains of empowerment in agriculture, including but not limited to, production decisions, access to productive capital, control over income, group membership, and time allocation. The WEAI methodology will allow us to identify the key domains where men and women are disempowered, as well as measure empowerment gaps between men and women within households.

6 STATISTICAL POWER

The CRT sample includes 50 villages for the jute value chain and 50 villages for the mung bean value chain. Each village represents a single cluster and has a cluster size of 20 households. Jute samples villages are located in Faridpur, Jhenaidah, Madaripur, and Narail districts; mung bean sample villages are located in Barguna and Putuakhali districts. For jute, villages were first randomized into two groups: 25 villages that will receive training and 25 that will not. Villages were then additionally randomized into promotion and non-promotion groups, yielding the following four treatment groups:

1. Training + Promotion (13 villages)
2. Training + No Promotion (12 villages)
3. No Training + Promotion (13 villages)
4. No Training + No Promotion (12 villages)

For mung beans, we will randomize in a similar way once interventions are chosen; at minimum there will be an intervention that covers promotional activities for mung beans, and a training type intervention may take place as well. This scenario is covered by the training only power calculations.

In order to identify farmers to be surveyed within a village, survey teams conducted a census (or a household listing exercise) in each village of all available jute/mung bean farmers. We then used the census-generated roster to randomly select 20 households per village for our sample. All female-headed households were automatically included in our sample to ensure sufficient statistical power when answering our gender-related questions. Farmers with more than 500 decimals of land are not considered smallholder farmers and were hence excluded from the sample. We next conduct *ex post* power calculations to determine the minimum detectable treatment effect (MDE) that can be statistically detected given our predetermined sample size.[27] Here we discuss MDEs in adoption of new technologies and practices, agricultural productivity, and household consumption, and across our treatment groups for the following comparisons:

1. Training versus non-training (pooling promotion and non-promotion groups)
2. Promotion versus non-promotion (pooling training and no training groups)
3. Training + promotion versus training-only or promotion-only
4. Winning a prize in the promotional raffle (per village, 10 out of 20 farmers receive a prize)
5. Winning 1st prize in the raffle vs not winning (2 treatment, 10 control farmers per village)
6. Winning 2nd prize in the raffle vs not winning (3 treatment, 10 control farmers per village)
7. Winning 3rd prize in the raffle vs not winning (5 treatment, 10 control farmers per village)

The latter comparisons are valid for the jute growing groups; they may differ for mung bean groups depending upon the type of promotional activity that occurs, as raffles may not be chosen by PARTEX.

Our discussion of statistical power begins with discrete variables (adoption of technologies and practices) before continuing with continuous variables (household consumption, agricultural productivity, and generic variables with a standard-normal distribution). Calculations in the latter were based on data from the 2011-2012 Bangladesh Integrated Household Survey (BIHS), a nationally representative survey of over 6,500 households that includes coverage of the Feed the Future zone of influence. At any given sample size, village-level randomization will generally exhibit lower statistical power when compared to individual-level randomization due to the existence of intra-cluster correlation (ICC). ICC is essentially a measure of the homogeneity of units (households) within the same cluster (village), and is inversely related to statistical power. Given our fixed sample size, this impact is transformed into larger MDEs. We assume an ICC of

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[27] The sample size was determined ahead of time considering the number of villages that were being included in activity expansion for each value chain; it was not possible to collect a much larger sample as a result.

0.1 and corresponding design effect of 2.9.[28] The MDEs between comparison groups also depends on initial adoption rates of improved agricultural technologies and practices. We do not have preliminary data here and estimate the MDEs based on a range of possible initial adoption rates. The following table presents the estimated MDEs in each of our specified comparison groups:[29]

Table 3. Power Calculations, Discrete Variables, AVC Jute and Mung Bean Interventions

Control adoption level	25 clusters/arm, 20 HH/cluster, ICC = 0.1						T: 10 ; C: 10	T: 2 ; C: 10	T: 3 ; C: 10	T: 5 ; C: 10
	Training vs Non-Training		Promotion vs Non-Promotion		Training & Promotion vs Training/Promotion Only		Win Prize	1st Prize	2nd Prize	3rd Prize
	(-)	(+)	(-)	(+)	(-)	(+)	(+)	(+)	(+)	(+)
0.10	0.07	0.11	0.07	0.11	0.10	0.17	0.11	0.19	0.16	0.13
0.20	0.11	0.13	0.11	0.13	0.15	0.20	0.13	0.23	0.20	0.16
0.30	0.13	0.15	0.13	0.15	0.18	0.22	0.15	0.25	0.21	0.18
0.40	0.14	0.15	0.14	0.15	0.20	0.22	0.15	0.26	0.22	0.18
0.50	0.15	0.15	0.15	0.15	0.22	0.22	0.15	0.25	0.22	0.18
0.60	0.15	0.14	0.15	0.14	0.22	0.20	0.14	0.24	0.21	0.17
0.70	0.15	0.13	0.15	0.13	0.22	0.18	0.13	0.21	0.18	0.16
0.80	0.13	0.11	0.13	0.11	0.20	0.15	0.11	0.17	0.15	0.13

For example, if farmers who do not receive training have a 10 percent initial adoption rate of improved fertilizer, the impact evaluation is able to detect with 80 percent power a difference of at least 11 percentage points for training compared to non-training villages. If the non-training group's initial adoption rate is 30 percent, we will be able to detect a difference of at least 15 percentage points with sufficient statistical power. Note that these results may be generalized to any binary outcome that we expect to impact with our intervention. Next, consider household consumption and agricultural productivity, both continuous variables. Household consumption is measured by monthly expenditure per capita in taka. Agricultural productivity is measured by yield in kilograms of output per cultivated acre of the target crop. We estimate the MDEs in the tables below, again assuming an ICC of 0.1 and taking standard deviations from BIHS data to be representative of our study population.

Changes in crop yield are presented separately for jute and mung bean due to differences in productivity variance. The impact evaluation is able to detect an effect of training plus promotion, compared to only training, or only promotion, with 80 percent power if the bundled intervention increases yield by at least 1.76 kg/decimal compared to trainings or promotions

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[28] Source: 2011-2012 Bangladesh Integrated Household Survey (BIHS). An assumption of an ICC of 0.1 is quite standard in the literature on cluster corrected power calculations.

[29] MDEs at the 90% control level are omitted from the table because adoption rates are generally lower and because the MDEs are often outside the feasible range.

alone. Shifting our focus to mung bean, if farmers who receive both training and promotions have a yield that is at least 0.79 kg/decimal higher compared to training-only farmers or promotions-only farmers, we will be able to detect this change with 80 percent power.

Table 4. Power Calculations, Jute and Mung Bean Yields

Yield: Jute (kg/decimal)	25 clusters/arm, 20 HH/cluster, rho = 0.1			T: 10 ; C: 10	T: 2 ; C: 10	T: 3 ; C: 10	T: 5 ; C: 10
Mean, SD: (8.8, 3.87)	Training vs Non-Training	Promotion vs Non-Promotion	Training & Promotion vs Training/Promotion Only	Win Prize	1st Prize	2nd Prize	3rd Prize
units	1.19	1.19	1.76	1.17	2.04	1.74	1.44
%	13.54	13.54	20.00	13.32	23.23	19.73	16.33

Yield: Mung bean (kg/decimal)	25 clusters/arm, 20 HH/cluster, rho = 0.1			T: 10 ; C: 10	T: 2 ; C: 10	T: 3 ; C: 10	T: 5 ; C: 10
Mean, SD: (3.3, 1.73)	Training vs Non-Training	Promotion vs Non-Promotion	Training & Promotion vs Training/Promotion Only	Win Prize	1st Prize	2nd Prize	3rd Prize
units	0.53	0.53	0.79	0.52	0.91	0.78	0.64
%	16.14	16.14	23.85	15.88	27.70	23.52	19.47

The table for household consumption is interpreted in the same manner. The impact evaluation will be able to detect a change in monthly per capita household consumption of at least 662.43 Taka (representing about 27 percent of income) for farmers who win a prize in the raffle compared to farmers who enter the raffle but win nothing. This change is fairly substantial, and reflects the challenge of actually finding impacts on variables with larger variances, like consumption aggregates.

Table 5. Power Calculations, Consumption Yields

Household consumption (taka/person/month)	25 clusters/arm, 20 HH/cluster, rho = 0.1			T: 10 ; C: 10	T: 2 ; C: 10	T: 3 ; C: 10	T: 5 ; C: 10
Mean, SD: (2457.7, 2186.57)	Training vs Non-Training	Promotion vs Non-Promotion	Training & Promotion vs Training/Promotion Only	Win Prize	1st Prize	2nd Prize	3rd Prize
units	673.38	673.38	994.65	662.43	1155.18	980.99	812.08
%	27.40	27.40	40.47	26.95	47.00	39.91	33.04

Finally, we provide MDEs for a generic standard normal continuous variable. Table values represent the required difference in standard deviations between each respective comparison group. We can detect differences of at least 0.31 standard deviations when comparing training

versus non-training and promotion versus non-promotion villages; differences of at least 0.45 standard deviations when comparing villages with promotions plus training versus villages with only trainings, or only promotions; and differences of at least 0.30 standard deviations when comparing prize winners with non-prize winners in the promotion villages. These are considered medium effect sizes; we believe they are achievable for outcomes for which the ratio of the standard deviation to the mean is not very large.

Table 6. Power Calculations, General Continuous Variable

Standard normal, continuous (# of SD)	25 clusters/arm, 20 HH/cluster, rho = 0.1			T: 10 ; C: 10	T: 2 ; C: 10	T: 3 ; C: 10	T: 5 ; C: 10
Mean, SD: (0, 1)	Training vs Non-Training	Promotion vs Non-Promotion	Training & Promotion vs Training/Promotion Only	Win Prize	1st Prize	2nd Prize	3rd Prize
units	0.31	0.31	0.45	0.30	0.53	0.45	0.37

7 QUALITATIVE ANALYSIS

Qualitative work will be completed after the first harvest post randomization and will be designed to focus on two objectives – (1) understanding the factors that affect the implementation and take-up of the intervention, and (2) understanding the different constraints to men's and women's empowerment in agriculture in this setting, which could also help identify entry points for engaging women in AVC interventions. Insights from qualitative work can potentially feed directly into programming if the results are suggestive of changes that would enhance impacts, as well as help elucidate whether completing additional modules in the endline survey would be worthwhile.

Factors that can inform the implementation and design of the intervention

Key informant interviews will be conducted with farmers, input suppliers, trainers and implementers to explore the following topics:

- Farmer feedback on trainings, including perceptions on the effectiveness of trainings and challenges in participating
- Farmer feedback on the gender and nutrition aspect of the trainings
- Challenges faced by farmers who used or attempted to use improved seeds or cultivation practices
- Challenges faced by subcontractors/trainers in conducting trainings
- Challenges faced by input suppliers, aggregators, and implementers in conducting promotional campaigns
- Reasons for non-adoption of improved seeds and/or cultivation practices
- Factors that affect the diffusion of technology to other households in the same communities

- Unintended effects of the interventions

Understanding men's and women's empowerment in agriculture

As a participant in GAAP2, the impact evaluation associated with the AVC is committed to carrying out qualitative research to complement and interpret the data collected through the pro-WEAI module of the impact evaluation surveys. The qualitative work on understanding women's empowerment will be conducted with the support of the GAAP2 qualitative team and will follow their qualitative research strategy, currently under development, which has two purposes – to validate the pro-WEAI and to develop evidence-based strategies for empowering women through agricultural programs.

We will conduct key informant interviews, as well as two male and two female focus group discussions composed of individuals belonging to jute- and mung bean-growing households (4 FGDs in total). These interviews and discussions will explore the following themes:

- Men's/women's perceptions on the most important dimensions of empowerment
- The types of activities and decisions men/women participate in in the jute and mung bean value chains
- How do men/women make decisions about what foods to consume
- Changes in men's/women's time allocation over different seasons, whether these patterns have shifted in the last (x) years, and if so, why
- Acceptability for women/men to take on new roles and tasks within the household and within agriculture, especially in households that experience labor shortages
- Challenges faced by women in earning and controlling their own income
- Reasons for women's physical mobility restrictions, whether these have changed in the last (x) years and why

8 MAJOR TASKS, DELIVERABLES/MILESTONES, AND ESTIMATED TIMELINE (TENTATIVE)

The key sowing seasons in southern Bangladesh are February and March for jute, and December and January for mung beans. The key project activities began with jute in February and March this year (2016), and large-scale promotional activities were timed to occur as farmers started sowing. The timing of specific and important project activities are described in Table 7.

Table 7. Important Project Activities for Impact Evaluation

Activity	Timing
Registration of jute farmers	January 2016
Jute sowing season in Khulna/Jessore districts	February – March 2016
Raffle tickets distributed	March 2016

Activity	Timing
NAAFCO-sponsored jute promotional events held	March – April 2016
Registration of mung bean farmers	TBD, 2016
Mung bean season in Barisal	October 2016 – March 2017
Mung bean promotional events	October- November, 2016

We structure survey and research activities around these seasons/activities, as well as around important dates in Bangladesh (e.g. Ramadan). IFPRI conducted a baseline survey in all villages in February-April 2016; we will thereafter break up surveys to mirror important seasons, to best measure agricultural outputs. Lab-in-the field experiments will take place during July and August of 2016. We will plan a jute midline in September-October 2016 (at which time we will field the pro-WEAI); we will plan a mung bean midline after mung bean sales in 2017. Qualitative work is currently scheduled for October 2016, and an endline will be conducted in September-October 2017 (as presently scheduled). The timing of specific research activities is described in **Table 8**.

Table 8. IFPRI Research Activities

Activity	Timing
Baseline Survey	February-April 2016
Visit, pre-test and set up Lab-in-the-Field work	May 2016
Lab experiments	July – August 2016
Jute midline survey (includes pro-WEAI)	August-September 2016
Qualitative Fieldwork	Late September (after Eid)-October 2016
Final Impact Evaluation Survey	August-September 2017

Finally, we present a task and deliverable schedule in Table 9.

Table 9. Task and Deliverable Schedule

Task	Deliverable or Milestone	Date of Deliverable Submission
Complete Concept Note	Final Concept Note	1 January 2016
Baseline survey instrument	Baseline survey instrument	31 October 2015
Develop IE protocol	First Draft IE Protocol	30 April 2016
Complete IE protocol	Final IE protocol plus register project on AEA registry	31 May 2016
Develop Lab-in-the-Field Experiments	Protocols for L-in-F Experiments	30 June 2016
Develop baseline report	First draft baseline report	30 June 2016
Draft midline survey form	Midline survey form	15 July 2016
Develop Qualitative Question Guide	Qualitative Guide	31 August 2016
Complete baseline report	Final baseline report	15 September 2016
Develop Qualitative Report	Report on Qualitative Work+Lab-in-the-Field work	31 December 2016
Baseline data anonymized and ready for public release	Data Release Plan	31 January 2017
Draft Midline Report (Jute)	Draft midline report	28 February 2017
Finalize Midline Report (Jute)	Final midline report	31 May 2017
Draft Endline Survey form	Endline survey form	15 July 2017
Midline data anonymized and ready for public release	Data Release Plan	31 January 2018
Draft Endline Report	Draft Endline Report	31 March 2018
Final Endline Report	Final Endline Report	30 June 2018
Final Data set anonymized and ready for public release	Released data	30 September 2018

9 REFERENCES

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ANNEX A: RANDOMIZED ASSOCIATIONS

Appendix **Table 1. Sampled Villages for Jute Value Chain by Training and Promotions**

District	Upazila	Union	Village	Trainings	Promotions
Faridpur	Boalmari	Satiore	Koyra	**Yes**	**Yes**
Faridpur	Faridpur Sadar	Koijuri	Akunvatpara	**Yes**	**Yes**
Faridpur	Faridpur Sadar	Koijuri	Ghoradah	**Yes**	**Yes**
Faridpur	Boalmari	Satiore	Patitapara	**Yes**	No
Faridpur	Faridpur Sadar	Koijuri	Kasnail	**Yes**	No
Faridpur	Nagarkanda	Talma	Kathia	**Yes**	No
Faridpur	Faridpur Sadar	Koijuri	Muralidaho	No	**Yes**
Faridpur	Faridpur Sadar	Koijuri	Sreedhorpur	No	**Yes**
Faridpur	Nagarkanda	Ramnagar	Kunjanagar	No	**Yes**
Faridpur	Boalmari	Goshpur	Ralandia	No	No
Faridpur	Faridpur Sadar	Majchar	Bakchar	No	No
Faridpur	Nagarkanda	Talma	Rosulpur	No	No
Jhenaidah	Horinakundu	Capashatia	Valki	**Yes**	**Yes**
Jhenaidah	Jhenaidah Sadar	Horisankorpur	Chadrajani	**Yes**	**Yes**
Jhenaidah	Shailakupa	Digngar	Achintapur	**Yes**	**Yes**
Jhenaidah	Shailakupa	Umedpur	Bistupur	**Yes**	**Yes**
Jhenaidah	Horinakundu	Chadpur	Hamirhati	**Yes**	No
Jhenaidah	Jhenaidah Sadar	Horisankorpur	Norohoridra	**Yes**	No
Jhenaidah	Jhenaidah Sadar	Horisankorpur	Poylanpur	**Yes**	No
Jhenaidah	Shailakupa	Digngar	Horora	**Yes**	No
Jhenaidah	Horinakundu	Chadpur	Zadobpur	No	**Yes**
Jhenaidah	Jhenaidah Sadar	Horisankorpur	Sitarampur	No	**Yes**
Jhenaidah	Shailakupa	Monohorpur	Mohishadanga	No	**Yes**
Jhenaidah	Shailakupa	Monohorpur	Sondah	No	**Yes**
Jhenaidah	Horinakundu	Capashatia	Kesmot	No	No
Jhenaidah	Jhenaidah Sadar	Dogachi	Goalpara Putia	No	No
Jhenaidah	Jhenaidah Sadar	Dogachi	Mdhunathpur	No	No
Jhenaidah	Shailakupa	Umedpur	Umedpur	No	No
Madaripur	Rajoir	Pouroshava	Vanna Bari	**Yes**	**Yes**
Madaripur	Shivchar	Sheroil	Kulatola	**Yes**	**Yes**
Madaripur	Shivchar	Sheroil	Palpara	**Yes**	**Yes**
Madaripur	Rajoir	Pouroshava	Chouari Bari	**Yes**	No
Madaripur	Shivchar	Sheroil	Solapur	**Yes**	No
Madaripur	Rajoir	Khalia	Macha Rong	No	**Yes**
Madaripur	Rajoir	Khalia	Soro Mongol Pashim Par	No	**Yes**
Madaripur	Shivchar	Sheroil	Sadeka Bad	No	**Yes**
Madaripur	Rajoir	Badar Pasa	Umar Khali	No	No
Madaripur	Shivchar	Sheroil	Cawar Hat	No	No
Madaripur	Shivchar	Sheroil	Char Kakoir	No	No
Narail	Narail Sadar	Mulia	Bongram	**Yes**	**Yes**
Narail	Narail Sadar	Mulia	Durbajuri	**Yes**	**Yes**
Narail	Narail Sadar	Mulia	Korgram	**Yes**	**Yes**
Narail	Narail Sadar	Mulia	Baliadanga	**Yes**	No
Narail	Narail Sadar	Mulia	Goalbari	**Yes**	No
Narail	Narail Sadar	Mulia	Shaliarvita	**Yes**	No
Narail	Narail Sadar	Mulia	Echorbaha	No	**Yes**
Narail	Narail Sadar	Mulia	Hijoldanga	No	**Yes**
Narail	Narail Sadar	Mulia	Basvita	No	No
Narail	Narail Sadar	Mulia	Borendar	No	No
Narail	Narail Sadar	Mulia	Goaldanga	No	No

Appendix Table 2. Sampled Villages for Mung Bean Value Chain by Training and Promotions

District	Upazila	Union	Village
Barguna	Amtali	Amtali	Dakshin and Poshchim Amtoli
Barguna	Amtali	Amtali	Mohisdanga
Barguna	Amtali	Amtali	Nilgonj
Barguna	Amtali	Amtali	Uttor & Dakshin Nachnapara
Barguna	Amtali	Gulishakhali	Angulkata
Barguna	Amtali	Gulishakhali	Baingunia
Barguna	Amtali	Gulishakhali	Bazarkhali
Barguna	Amtali	Gulishakhali	Dalachara
Barguna	Amtali	Gulishakhali	Fokirkhali
Barguna	Amtali	Gulishakhali	Goskhali
Barguna	Amtali	Gulishakhali	Gulishakhali
Barguna	Amtali	Gulishakhali	Horidrabaria
Barguna	Amtali	Gulishakhali	Kalibari
Barguna	Amtali	Gulishakhali	Khekuani
Barguna	Amtali	Gulishakhali	Kolagachia
Barguna	Amtali	Kukua	Amragachia
Barguna	Amtali	Kukua	Horimirtunjoy
Barguna	Amtali	Kukua	Kalipura
Barguna	Amtali	Kukua	Keorabunia
Barguna	Amtali	Kukua	Khakdan
Barguna	Amtali	Kukua	Krishnanagar
Barguna	Amtali	Kukua	Kukua
Barguna	Amtali	Kukua	Poshchim & Purbo Chunakhali
Barguna	Amtali	Kukua	Purbo kukua
Barguna	Amtali	Kukua	Raybala
Putuakhali	Dosmina	Bashbaria	Bashbaria
Putuakhali	Dosmina	Bashbaria	Char Hosnabad
Putuakhali	Dosmina	Bashbaria	Dakkin Daspara
Putuakhali	Dosmina	Bashbaria	Dhandania
Putuakhali	Dosmina	Bashbaria	Gasani
Putuakhali	Dosmina	Betagi Sankipur	Betagi
Putuakhali	Dosmina	Betagi Sankipur	Betagi Sankipur
Putuakhali	Dosmina	Betagi Sankipur	Borogopaldi
Putuakhali	Dosmina	Betagi Sankipur	Chinguria
Putuakhali	Dosmina	Betagi Sankipur	Dabari Betagi
Putuakhali	Dosmina	Betagi Sankipur	Jafarabad Betagi
Putuakhali	Dosmina	Betagi Sankipur	Kharija Betagi (Kamrabaz)
Putuakhali	Dosmina	Betagi Sankipur	Rambollov
Putuakhali	Dosmina	Betagi Sankipur	Shamermardana
Putuakhali	Dosmina	Betagi Sankipur	Sohertaluk
Putuakhali	Dosmina	Dosmina	Arojbegi Uttar and Dakshin

Putuakhali	Dosmina	Dosmina	Charhadi Uttar and Dakshin
Putuakhali	Dosmina	Dosmina	Dosmina
Putuakhali	Dosmina	Dosmina	Hajirhut
Putuakhali	Dosmina	Dosmina	Katakhali
Putuakhali	Dosmina	Dosmina	Kaunia
Putuakhali	Dosmina	Dosmina	Nijabad
Putuakhali	Dosmina	Dosmina	Poshchim & Purbo Laxmipur
Putuakhali	Dosmina	Dosmina	Sayeed Jafor
Putuakhali	Dosmina	Dosmina	Uattar Laxmipur

Bangladesh Agricultural Value Chain (AVC) Impact Evaluation

Midline Survey with Jute Farmers and Input Sellers (January – February 2017)
Survey designed and supervised by: International Food Policy Research Institute (IFPRI)
Survey administered by: Data Analysis and Technical Assistance Limited (DATA)

HOUSEHOLD QUESTIONNAIRE

1. Table of Contents

Respondents

The midline questionnaire will be administered to three distinct groups of households:

   a) **Jute farmer households interviewed at baseline (Group 1)**
   b) **Jute farmer households not interviewed at baseline (Group 2)**
   c) **Agricultural input seller households (Group 3)**

For Group 1 households:

There are 20 households per village with whom we did the baseline survey.

1. Jute farmer still cultivating jute and still in the same village: Interview the jute farmer and his household, even if he split from the baseline household and now lives in another household.
2. Jute farmer still in the same village but no longer cultivating jute, or moved to another village: Interview the member of the baseline household who is now jute farming (if nobody is jute farming then interview the primary decision-maker when it comes to agriculture).
3. Only if the entire household moved away from the village, then we can mark that household as 'cannot be interviewed' because of the reason 'moved away'

For Group 2 households:

In Group 2, we should consider two groups of villages: Raffle villages and non-raffle villages. In <u>raffle villages</u>, farmers entered a raffle in which NAAFCO gave out discounts on fertilizer (20%, 50% and 80%). In all raffle villages, raffle tickets were distributed among all 20 households from the baseline (Group 1) as well as 10 additional households who did not participate in the baseline, but who satisfied the following criteria:

1. At least 66 decimals of land at the time of the census
2. Agriculture is the main source of income
3. The farmer is between 18 and 65 years old

These additional farmers are "Group 2" in the raffle villages and we will interview them in the current survey. For that, follow the household that received the raffle ticket, not the individual, then identify the jute farmer. If no longer in the same village, then take replacement households. Also take replacement households when there are less than 10 households that you can interview, so that we have on average 10 households per village. For that, we will provide a list of replacement farmers within the village and a list of replacements from other villages for cases in which you deplete the own-village replacement list.

We also have <u>non-raffle villages</u>. In these villages, we will conduct interviews with 10 households who were not in the baseline. These households should satisfy the same criteria as the farmers in the raffle villages (at least 66 decimals of land at the time of the census, agriculture being the main source of income, and the farmer being between 18 and 65 years old). However, we do not know which households satisfy the last two criteria. Hence, before interviewing Group 2 households in non-raffle villages, the enumerators will always have to ask: (1) is agriculture the main source of income, and (2) is the farmer between 18 and 65 years old.

For Group 3 households:

Interview the person who participated in the lab in the field experiment. If the owner of the enterprise sent a representative to the field experiment, that individual should be the person interviewed. You will be prompted to specify whether the respondent is the owner of the business or their representative. If you cannot find or interview the person who participated in the lab-in-the-field experiments, then interview the most knowledgeable available person, and indicate why you are interviewing someone else.

Structure

The survey is divided into three forms: (1) a **main form** which should be asked to the primary jute farmer (Group 1 & Group 2 households) or to the input seller (Group 3 households); (2) a **male form** which should be asked to the respondent of the main form (if male) or another male household member (if respondent main form is female); and (3) a **female** form, which should be asked to the spouse of the main form respondent (if male) or to the main form respondent (if female). If there is no female in the household, then interview the person responsible for cooking. Always start with the female form.

Not all parts of the survey will be asked to all respondents. All households should complete the main form and female form. Group 1 households do not complete some sections of the main form or female form, and <u>do not</u> complete the male form. Group 2 households complete <u>all</u> sections of all three forms. Group 3 households do not complete some sections of the main form or female form and <u>do</u> complete the male form. Under normal circumstances, the interviewer should first complete the female form with the appropriate

respondent, then complete the main form with the jute farmer or input seller, then complete the male form with the appropriate male respondent (Group 2 & Group 3 households only).

Form	Module Title	Group 1 Baseline Jute Farmers	
Female Form (Respondent: Respondent main form if female; if not, interview spouse of main form respondent)	**B- Household roster**	x	
	J- Consumption	x	
	K- Household Illnesses		
	WEAI- Empowerment & Decision-making		
Main Form (Respondent: Jute farmer / Input seller)	**A- Coversheet & Respondent Consent**	x	
	C1 - Agriculture	x	
	C2 – Jute Production	x	
	C3 – Jute Inputs	x	
	C4 – Knowledge and Knowledge Sharing	x	
	C5 – Extension Services for Jute Production	x	
	C6 – Use of Improved Technologies and Practices in Jute Production	x	
	D2- Relationships with Input Sellers/Farmers	x	
	E- Housing	x	
	G- Non-food Expenditures	x	
	I1- Expectations for Jute Yield	x	
	Trust Game	x	
Male Form (Respondent: Respondent main form if male; if not, interview other male household member)	**WEAI- Empowerment & Decision-making**		

A number of modules require farmers (input sellers) to indicate for different input sellers (farmers) whether they have ever done business with that person. For that purpose, we will prepare photo albums at the union/district level (TBD in consultation with the lab-in-the-field team). For Group 2, we will not yet have pictures; their pictures are only needed for the input sellers, so we will start in a union with interviewing Groups 1 & 2, then print the photo album of farmers, and then interview the input sellers.

⬚   FEMALE FORM

MODULE A: HOUSEHOLD IDENTIFICATION (ALL GROUPS)

Variable	IDENTIFICATION	Response
date	DATE	
interviewer	TEAM [SUPERVISOR NAME/CODE] & INTERVIEWER [NAME/CODE]	
hhid	HOUSEHOLD IDENTIFICATION NUMBER [NUMERICAL]	

Household verification (1): HOUSEHOLD INFORMATION FOR ID ${hhid}		
A_02	DISTRICT / UPAZILA [CODED]	*This information w*
A_03	UNION [CODED]	*Interviewers should*
A_04	VILLAGE [CODED]	*they are interviewing*
HOUSEHOLD HEAD:		
A_08	NAME	*If the preload inform*
A_12	GENDER	*respondent, or if ther*
HOUSEHOLD HEAD'S FATHER		*person to be interviev*
A_10	NAME	*with the interview an*
A_05	HOUSEHOLD LOCATION/LANDMARK [STRING]	
MAIN RESPONDENT IN PREVIOUS ROUND		[PRELOADED

CHECK THE ABOVE INFORMATION CAREFULLY AND CHOOSE "YES" TO PROCEED IF YOU ARE SURE YOU ARE AT THE RIGHT HOUSEHOLD.		☐ 1 – Yes
A_06	CAN YOU START THE INTERVIEW?	☐ 1 – Yes -> A_09
*	YOU CANNOT PROCEED UNLESS YOU HAVE FOUND THE CORRECT HOUSEHOLD. EITHER SPEAK TO THE RESP... CANCEL THE INTERVIEW AND CONTINUE TO LOOK FOR THE RIGHT HOUSEHOLD.	
A_07	WHY CAN YOU NOT START THE INTERVIEW? ***AFTER SELECTING AN ANSWER -> END***	☐ 1 – Moved ☐ 2 – Not found ☐ 3 – Refused ☐ 4 – Unavailable ☐ 5 – Other (speci...

RESPONDENT CHECK

resp_check	Is the main respondent (jute farmer / input seller) still [PRELOADED NAME]? If the family stopped producing jute / selling, but the main respondent is still present in the household, select "Yes". Only select "No" if the person is no longer doing that activity and another household member took over	Yes / No
resp_why	[IF resp_check == NO] Why is [PRELOADED NAME] no longer the main **respondent?**	1. Deceased 2. Health/illness/injur... 3. Moved out of this vil...
resp_alt	[IF resp_check == NO] Who is now the **jute farmer/input seller** in this household?	
relation_alt	[IF resp_check == NO] How is ${resp_alt} related to [PRELOADED NAME]?	1. Spouse/Partner 2. Son/daughter 3. Parent 4. Grandchild 5. Grandparent 6. Employer 7. Employee 8. Other relation, sp... 9. Other, specify

MAIN FORM RESPONDENT

resp_ml	**If resp_check = Yes, respondent is the listed individual** **If resp_check = No, respondent is the person recorded under ${farmer_alt}**

Household verification (2): PLEASE CONFIRM WHETHER THE FOLLOWING IS STILL CORRECT. YOU CAN COLLECT C... INCORRECT.

A_21	Name of the household head	Yes / No
A_09	Head's National ID #: ...	Yes / No
phone	Phone number:	Yes / No
A_22	Name of the household head's father	Yes / No
A_23	Household location / landmark	Yes / No
	RECORD CORRECTIONS FOR ITEMS SELECTED "NO".	
phone2	Is there another phone number we can use to contact you? ENTER 9999 IF NO	

🞎 Module B: Household Roster (All groups)

Instructions for Group 1 Households

The survey program will load a list of members who were listed in the household at baseline. For each member, the respondent will be asked to confirm if they are still a member of the household. The respondent should provide the number of additional members (for example: newborns) who were not listed in the baseline survey. The surveyor should then complete one row for each member. After completing the list of names, you will be prompted to select the male and female form respondents from the list of household members.

Instructions for Group 2 & Group 3 Households

Group 2 & Group 3 households will not have any roster information loaded in the program. One row of questions B1_01-B1_24 should be completed for each of the members listed under B1_00_1. Question B1_00_2 is not asked to Group 2 or Group 3 households. After completing the list of names, you will be prompted to select the male and female form respondents from the list of household members.

Household definition

A household is a group of individuals who eat from the same pot, and sleep under the same roof. Someone is a member of the household if he or she was in the household at least 3 out of the last 6 months, and at least 4 days per week. Exceptions: if someone just moved out with the intention of not moving back soon, then this is not a household member. If someone recently moved in or was born, and the intention for the person is to stay in the household, then this is a household member.

hhid	Please enter the household ID		
A_13	Religion of the household head	🞎 1 – Muslim 🞎 2 – Hindu	🞎 3 – Christian 🞎 4 – Other
A_14	Ethnic group of the household head	🞎 1 – Bengali 🞎 2 – Bihari	🞎 3 – Tribal (specify) 🞎 4 – Other (specify)
B1_00_1	*Groups 2 & 3 only* How many people are currently members of this household?		
B1_00_2	*Group 1 Households only* Please select anyone who is NOT currently a member of the household	🞎 Member 1 🞎 ...	
B1_00_3	*Group 1 Households only* How many household members were NOT included in this list? (include any adults or children who are members of the household but were not listed)		
roster_list	Please list the names of all the household members *For Group 1 Households, the names of returning members will be displayed automatically (who are not excluded from the previous list of baseline members)*	Member 1	
		Member 2	
		...	
main_resp	From the list of members, please select the respondent for the MAIN FORM *Group 1 & Group 2 Households- Select the jute farmer.* *Group 3 Households- Select the input seller*	🞎 Member 1 🞎 Member 2 🞎 Member 3 🞎 Member 4 ...	
female_resp	From the list of members, please select the respondent for the FEMALE FORM	🞎 Member 1	

	Group 1 & Group 2 Households- If the jute farmer is male, select their spouse or a female adult relative. If the jute farmer is female, select the jute farmer. *Group 3 Households- If the input seller is male, select their spouse or a female adult relative. If the input seller is female, select the input seller.*	▢ Member 2 ▢ Member 3 ▢ Member 4 ...
male_resp	From the list of members, please select the respondent for the MALE FORM *Group 1 & Group 2 Households- If the jute farmer is male, select the jute farmer. If the jute farmer is female, select her male spouse or adult male relative.* *Group 3 Households- If the input seller is male, select the input seller. If the input seller is female, select her male spouse or adult male relative*	▢ Member 1 ▢ Member 2 ▢ Member 3 ▢ Member 4 ▢ ...

THE FEMALE RESPONDENT IDENTIFIED (${female_resp}) SHOULD BE THE PERSON WHO ANSWERS ALL SUBSEQUENT QUESTIONS IN THIS FORM. THE JUTE FARMER / INPUT SELLER SHOULD BE THE PERSON WHO ANSWERS THE MAIN FORM

Consent of Respondent

Good morning/afternoon. I am _____ from the Data Analysis and Technical Assistance Limited (DATA), a Bangladeshi research organization based in Dhaka. Together with the International Food Policy Research Institute (IFPRI), we are conducting a survey that will provide IFPRI with necessary information to carry out research that is designed to help promote the welfare of Bangladeshis; particularly, to improve food consumption and nutrition of the people and women's status, and to enhance agricultural development and income generation. Your household has been chosen by a random selection process.

We are inviting you to be a participant in this study. We value your opinion and there are no wrong answers to the questions we will be asking in the interview. We will use approximately 3-4 hours of your time to collect all the information. If you prefer, we can do the interview in two visits.

There will be no cost to you other than your time.   There will be no risk as a result of your participating in the study. Your participation in this research is completely voluntary. You are free to withdraw your consent and discontinue participation in this study at any time.

This study is conducted anonymously. You will only be identified through code numbers. Your identity will not be stored with other information we collect about you. Your responses will be assigned a code number, and the list connecting your name with this number will be kept in a locked room and will be destroyed once all the data has been collected and analyzed. Any information we obtain from you during the research will be kept strictly confidential. Your participation will be highly appreciated.

The answers you give will help provide better information to policy-makers, practitioners and program managers so that they can plan for better services that will respond to your needs.

The researcher read to me orally the consent form and explained to me its meaning. I agree to take part in this research. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any question that arise during the course of the research.

Contact Person:
Name of the Principal Investigator (PI): _____
Address:
Tel: _____; E-mail of PI: _____
Signature of the Enumerator: _____   Date: /_____/_____/_____/

consent_f	Do you agree to be interviewed for the purposes of this study?	
fem_alone	Ability to be interviewed	1. Alone 2. With adult female members present 3. With adult male members present
		4. With adults of both sexes present 5. With children present 6. With adults of both sexes and children present

Member ID	Relation to MALE form respondent	Relation to FEMALE form respondent	Relation to MAIN form respodent	Preloaded Gender	Preloaded Age	Preloaded Marital status	If B1_05a != 1 Who chose your current spouse for you?	Preloaded Age at marriage	Preloaded Level of literacy	Currently attending school or college?	Hours spent in school (last 7 days)
				1. Male 2. Female	(WHOLE YEARS)	1. Unmarried (never married) 2. Married 3. Widow/widower 4. Divorced Separated	1. Chose each other 2. You chose them and they agreed 3. Family arranged and you agreed 4. Family arranged and you did not agree 5. They chose and you agreed 6. They chose and you did not agree	(WHOLE YEARS)	1. Can read and write 2. Can read only 3. Can sign only 4. Cannot read or write	1. Yes 2. No NO ❼B_11	(HOURS)
	B1_02_1	B1_02_2	B1_02_3	B1_03	B1_04	B1_05a	B1_05b	B1_06	B1_07	B1_08	B1_09
1											
2											
...											

Member ID	Hours spent doing homework (last 7 days)	Level of education	Did he/she work for income, profit, or family gain in the last 12 months?	Main source of income or profit in the last 12 months IF DID NOT EARN INCOME, SELECT "NON-EARNING OCCUPATION"		Describe main source of income or profit in the last 12 months	Secondary source of income or profit in the last 12 months		Describe secondary source of income or profit in the last 12 months
	(HOURS)	${CODE2}	1. Yes 2. No NO ❼ NEXT MEMBER	1. Farming 2. Wage laborer 3. Salaried worker 4. Self-employment 5. Trade	6. Production 7. Livestock/poultry 8. Non-earning occupation 9. Other (specify) 10. Don't know	${CODE3}	1. Farming 2. Wage laborer 3. Salaried worker 4. Self-employment 5. Trade	6. Production 7. Livestock/poultry 8. Non-earning occupation 9. Other (specify) 10. Don't know	${CODE3}
	B1_10	B1_11	B1_12	B1_13		B1_14	B1_16		B1_17
1									
2									
…									

Member ID	Number of months spent doing main income activity (last 12 months)	Hours spent doing main income activity (last 7 days)	Number of months spent doing secondary income activity (last 12 months)	Hours spent doing secondary income activity (last 7 days)
	(MONTHS)	(HOURS)	(MONTHS)	(HOURS)
	B1_18	B1_20	B1_22	B1_24
1				
2				
…				

CODE1: Relationship

Relationship with primary respondent

11. Husband/wife
12. Son/daughter
13. Grandson/granddaughter
14. Father/mother
15. Brother/sister
16. Niece/Nephew
17. Cousin
18. Father-in-law/mother-in-law
19. Daughter-in-law/son-in-law
20. Brother-in-law/sister-in-law
21. Wife's niece/nephew
22. Wife's cousin
23. Other relative
24. Other non-relative
25. Permanent servant

CODE2: Education

1. Never attended school
2. Preschool (before class I)
3. Reads in class I
4. Completed class I
5. Completed class II
6. Completed class III
7. Completed class IV
8. Completed class V
9. Completed class VI
10. Completed class VII
11. Completed class VIII
12. Completed class IX
13. Completed Secondary School/Dakhil
14. Completed Higher Secondary/Alim
15. BA/BSC pass/Fazil

CODE3: Occupation

Wage Laborer
1. Agricultural day labor
2. Earth work (govt. program)
3. Sweeper
4. Scavenger
5. Tea garden worker
6. Construction laborer
7. Factory worker
8. Transport worker
9. Apprentice
97. Other (specify)

Salaried worker
10. Government/ parastatal
11. Service (private sector)
12. NGO worker
13. House maid
14. Teacher (GoB Primary school)
15. Teacher (Non-GoB Primary school)
16. Teacher (GoB High school)
17. Teacher (Non-GoB High school)
18. Teacher (college, university)
97. Other (specify)

Self-employment
19. Rickshaw/van pulling
20. Driver of motor vehicle
21. Tailor/seamstress
22. Blacksmith
23. Potter
24. Cobbler
25. Hair cutter
26. Clothes washer
27. Porter
28. Goldsmith/silversmith
29. Repairman (appliances)
30. Mechanic (vehicles)
31. Plumber
32. Electrician
33. Carpenter
34. Mason
35. Doctor
36. Rural physician
37. Midwife
38. Herbal doctor/Kabiraj
39. Engineer
40. Lawyer/deed writer/Moktar
41. Religious leader

42. Lodging master
43. Private tutor/house tutor
44. Beggar
97. Other (specify)

Trader
45. Small INPUT trader (roadside stand or stall)
46. Small NON-INPUT trader (roadside stand or stall)
47. Medium INPUT trader (shop or small store)
48. Medium NON-INPUT trader (shop or small store)
49. Large INPUT trader (large shop or wholesale)
50. Large NON-INPUT trader (large shop or wholesale)
51. Fish Trader
52. Contractor
97. Other (specify)

Production
53. Food Processing
54. Small industry
55. Handicrafts
97. Other (specify)

Livestock/poultry
56. Milk collector
57. Livestock Vet medicine seller
58. Livestock Feed supplier
59. Commercially feed producer
60. Animal Breeder
61. Veterinary/paravet doctor
97. Other (specify)

Farming
62. Working own farm (crop)
63. Share cropper/tenant
64. Homestead farming
65. Fisherman (using non owned/not leased water body)
66. Raising fish / fish pond
67. Raising poultry
68. Raising livestock
69. Dairy production/ dairy farming
97. Other (specify)

Non-earning occupation
70. Caring for children
71. Caring for sick/disabled family member(s)
72. Caring for elderly family member(s)
73. Housework
74. Helping on family farm
75. Helping with family INPUT business
76. Helping with family NON-INPUT business
97. Other (specify)

Don't know

No.	Enumerator Instructions
Male form roster	*Group 2 Households* ENUMERATOR: You have now completed the household roster for the female form. This information will later be used in completing the male form for this household. From this point onward, you should not make changes to the household roster. If you do need to make a change, you must re-complete the household roster section, copy down the updated information, then re-complete modules G2 onward. <u>Do not edit the roster section then skip forward</u>- doing so may cause serious data discrepancies and you may be required to redo the interview. The following information is a summary of the name, age, sex & PID of each member listed in the roster. Using the sheet provided make a careful copy of this information. This information should then be entered in to the first section of the Male Form to identify the household members. Please take care to ensure all data is copied and re-entered correctly. PID NAME AGE SEX Is male respondent? Is female respondent? 1 Member 1 32 M Yes No 2 Member 2 28 F No Yes 3 Member 3 61 F No No 4 Member 4 3 M No No ... Please make a careful note of this information, ensuring that each field is copied correctly. Then use this information to complete the coversheet for relevant Male/Female forms

Module J: Consumption (All Groups)

MODULE J SHOULD BE ASKED TO THE MEMBER OF THE HOUSEHOLD WHO IS MOST INVOLVED IN COOKING FOOD FOR THE FAMILY. FOR HOUSEHOLDS WITH ADULT MALE AND ADULT FEMALE MEMBERS, THIS WILL TYPICALLY BE THE ADULT FEMALE SPOUSE OF THE MAIN RESPONDENT. IF THIS INDIVIDUAL IS UNAVAIBLE, THE SECTION MAY BE COMPLETED BY THE MAIN RESPONDENT.

In the last 7 days, did your household consume any of the following types of food?

Cereals, pulses, and edible oils

Item name	Item no.	In the last 7 days, what types of cereals and pulses did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
	J1_01	J1_02	J1_03	J1_04	J1_05
Course rice (parboiled)	1				
Coarse rice (non-parboiled)	2				
Fine rice	3				
Rice flour	4				
Atta	5				
Semai/noodles	6				
Chira (flattened rice)	7				
Muri/Khoi (puffed rice)	8				
Other	9				
Lentil	10				
Anchor daal	11				
Mung bean	12				
Soybean	13				
Groundnuts	14				
Mustard	15				
Soybean oil	16				
Mustard oil	17				

Non-leafy vegetables

Item name	Item no.	In the last 7 days, what types of non-leafy vegetables did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
		J1_01 J1_02	J1_03	J1_04	J1_05
Bitter gourd	18				
Eggplant	19				
Tomato	20				
Sweet gourd	21				
Water gourd	22				
Bottle gourd	23				
Pumpkin	24				
Cucumber	25				
Sheem	26				
Radish	27				
Cauliflower	28				
Green banana	29				
Green chili	31				
Kachu (arum)	32				
Potato	33				
Onion	34				
Garlic	35				
Cabbage	36				

Leafy vegetables

Item name	Item no.	In the last 7 days, what types of leafy vegetables did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
		J1_01 J1_02	J1_03	J1_04	J1_05
Shalgom	37				
Pui (Indian spinach)	38				
Lal Shak (red amaranth)	39				
Bathua	40				
Kachu Shak	41				
Lau Shak	42				
Dhania Shak	46				

Item name	Item no.				
Palang Shak (spinach)	47				
Onion/garlic stalk	48				
Radish leaves	49				
Mixed leafy vegetables	50				

Meat, fish, eggs, and dairy

Item name	Item no.	In the last 7 days, what types of meat, fish, eggs, and dairy did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
	J1_01	J1_02	J1_03	J1_04	J1_05
Beef/buffalo	51				
Chicken	52				
Fish (large)	53				
Fish (small)	54				
Egg	55				
Milk	56				
Powdered Milk	57				

Fruit

Item name	Item no.	In the last 7 days, what types of fruit did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
	J1_01	J1_02	J1_03	J1_04	J1_05
Mango	58				
Banana	59				
Papaya	60				
Orange	61				
Apple	62				
Coconut	63				
Jack Fruit	64				
Litchis	65				
Black berry	66				
Bel	67				
Pomelo	68				
Grapes	69				

Item name	Item no.				
Amra	70				
Karambola	71				
Guava	72				
Jujube/dried jujube	73				
Olive	74				
Tamarind	75				
Dalim	76				
Lemon	77				
Dates	78				
Sugarcane	79				
Green Coconut	80				
Ata (bullock's heart)	81				
Chalta	82				
Tarmuj (Watermelon)	83				
Bangi (Musk melon)	84				
Pineapple	85				
Sobeda	86				
Jaamrul	87				
Myrobalan/ Indian Gooseberry	88				
Water Caltrop	89				

Spices and condiments

Item name	Item no.	In the last 7 days, what types of spices and condiments did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
	J1_01	J1_02	J1_03	J1_04	J1_05
Dried chili	90				
Turmeric (dried)	91				
Jira	92				
Salt	93				
Panchforan	94				
Coriander	95				
Ginger	96				
Garam Masala	97				

Item name	Item no.				
Tejpata	98				
Sugar	99				
Gur	100				
Tea leaves	101				

Packaged food and drink

Item name	Item no.	In the last 7 days, what types of packaged food and drink did your household consume?	How many days (out of the last 7 days)?	Quantity per day (Average)	Unit
	J1_01	J1_02	J1_03	J1_04	J1_05
Tea- prepared	102				
Coke/Pepsi, etc.	103				
Packaged Juice	104				
Biscuit	105				
Cake	106				
Chips	107				
Chocolate	108				
Chewing gum	109				
Sweets	110				
Chanachur	111				
Tobacco	112				
Betel Leaf	113				
Supari	114				

Dishes prepared outside the home

Item name	Item no.	In the last 7 days, what types of dishes prepared outside the home did your household consume?	How many days (out of the last 7 days)?	Number of dishes/pieces per day	Price paid per dish/piece
	J1_01	J1_02	J1_03	J1_04	J1_06
Bonroti/paoroti	115				
Bhaji	116				
Jhol curry	117				
Singara	118				
Puri	119				
Piaju	120				

Any fried food	121				
Any boiled food	122				

No.	Question	Answer	
J1_07	Were most of the food items purchased, self-produced or received as a gift? SELF-PRODUCED OR RECEIVED AS A GIFT ❼ END MODULE	1. Purchased 2. Self-produced 3. Received as a gift	
J1_08	Where did you acquire most of the food items from?	1. Farm/home 2. Village market (within own village) 3. Village market (outside own village)	4. City market 5. Other (specify)
J1_09	Who paid for most of the food items?	1. Self 2. Spouse 3. Other household member 4. Other non-household member	
J1_10	How were most of the food items paid for?	1. Cash 2. Credit 3. Advance 4. Other (specify)	

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Module K: Household Illnesses (Group 2 ONLY)

MODULE K SHOULD BE ASKED TO THE MEMBER OF THE HOUSEHOLD WHO TYPICALLY TAKES CARE OF MEMBERS WHEN THEY ARE SICK. FOR HOUSEHOLDS WITH ADULT MALE AND ADULT FEMALE MEMBERS, THIS WILL TYPICALLY BE THE ADULT FEMALE SPOUSE OF THE MAIN RESPONDENT. IF THIS INDIVIDUAL IS UNAVAIBLE, THE SECTION MAY BE COMPLETED BY THE MAIN RESPONDENT.

Member ID	Member Name	In the last 4 weeks, has this household member suffered from any of the following? READ ALL OPTIONS ALOUD													
		Significant weight loss	If yes, for how many days? (last 4 weeks)	Prolonged fever	If yes, for how many days? (last 4 weeks)	Diarrhea	If yes, for how many days? (last 4 weeks)	Persistent cough	If yes, for how many days? (last 4 weeks)	Generalized skin rash	If yes, for how many days? (last 4 weeks)	Mouth or throat infection	If yes, for how many days? (last 4 weeks)	Any other illness or injury? (specify)	If yes, for how many days? (last 4 weeks)
		K_02a	K_02b	K_03a	K_03b	K_04a	K_04b	K_05a	K_05b	K_06a	K_06b	K_07a	K_07b	K_08a	K_08b
1															
2															
...															

K_09	In the last 4 weeks, how many days has ${NAME} been unable to perform his/her main activity due to *any* illness or injury? _____ days
K_10	In the last 4 weeks, has ${NAME} contacted or visited a health care facility to seek treatment or advice
K_11	In the last 4 weeks, how many times has ${NAME} contacted or visited a health care facility to seek treatment or advice? _____ times
K_12	In the last 4 weeks, what type of health care facility did ${NAME} contact or visit?

MODULE G2: ROLE IN HOUSEHOLD DECISION-MAKING AROUND PRODUCTION AND INCOME (Group 2 only)

	Now I'd like to ask you some questions about your participation in certain types of work activities and on making decisions on various aspects of household life.	Did you [NAME] participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision? ENTER UP TO THREE (3) MEMBER IDs IF RESPONSE IS MEMBER ID (SELF) ONLY ❷ G2.05 OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE.......98 ❷ NEXT ACTIVITY			How much input did you have in making decisions about [ACTIVITY]? USE CODE G2↓	To what extent do you feel you can participate in decisions regarding [ACTIVITY] if you want(ed) to? CIRCLE ONE	To what extent are you able to access information that you feel is important for making informed decisions regarding [ACTIVITY]? CIRCLE ONE	How much input did you have in decisions about how much of the outputs of [ACTIVITY] to keep for consumption at home rather than selling? USE CODE G2↓	How much input did you have in decisions about how to use income generated from [ACTIVITY]? USE CODE G2↓
				G2.02						G2.07
ACTIVITY		G2.01	ID #1	ID #2	ID #3	G2.03	G2.04	G2.05	G2.06	
A	Staple grain farming and processing of the harvest: grains that are grown primarily for food consumption (rice, maize, wheat, millet)	YES......1 NO.......2 ❷ ACTIVITY B					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
B	Horticultural (gardens) or high value crop farming and processing of the harvest	YES......1 NO.......2 ❷ ACTIVITY C					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
C	Large livestock raising (cattle, buffaloes) and processing of milk and/or meat	YES......1 NO.......2 ❷ ACTIVITY D					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
D	Small livestock raising (sheep, goats, pigs) and processing of milk and/or meat	YES......1 NO.......2 ❷ ACTIVITY E					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
E	Poultry and other small animals raising (chickens, ducks, turkeys) and processing of eggs and/or meat	YES......1 NO.......2 ❷ ACTIVITY F					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		

CODE G2	
LITTLE TO NO INPUT IN DECISIONS	1
INPUT INTO SOME DECISIONS	2
INPUT INTO MOST OR ALL DECISIONS	3
NOT APPICABLE / NO DECISION MADE	98

ACTIVITY	Did you [NAME] participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision? ENTER UP TO THREE (3) MEMBER IDs IF RESPONSE IS MEMBER ID (SELF) ONLY ❷ G2.05 OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE.......98 ❷ NEXT ACTIVITY			How much input did you have in making decisions about [ACTIVITY]? USE CODE G2↓	To what extent do you feel you can participate in decisions regarding [ACTIVITY] if you want(ed) to? CIRCLE ONE	To what extent are you able to access information that you feel is important for making informed decisions regarding [ACTIVITY]? CIRCLE ONE	How much input did you have in decisions about how much of the outputs of [ACTIVITY] to keep for consumption at home rather than selling? USE CODE G2↓	How much input did you have in decisions about how to use income generated from [ACTIVITY]? USE CODE G2↓
		G2.02							G2.07
ACTIVITY	G2.01	ID #1	ID #2	ID #3	G2.03	G2.04	G2.05	G2.06	
F Fishpond culture	YES......1 NO.......2 ❷ ACTIVITY G					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
G Non-farm economic activities (running a small business, self-employment, buy-and-sell)	YES......1 NO.......2 ❷ ACTIVITY H					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
H Wage and salary employment (work that is paid for in cash or in-kind, including both agriculture and other wage work)	YES......1 NO.......2 ❷ ACTIVITY I					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		

I	Large, occasional household purchases (bicycles, land, transport vehicles)						NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
J	Routine household purchases (food for daily consumption or other household needs)						NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		

CODE G2	
LITTLE TO NO INPUT IN DECISIONS	1
INPUT INTO SOME DECISIONS	2
INPUT INTO MOST OR ALL DECISIONS	3
NOT APPICABLE / NO DECISION MADE	98

MODULE G3(A): ACCESS TO PRODUCTIVE CAPITAL (Group 2 ONLY)

G3.01-G3.05 (GROUP 2 ONLY)

Now I'd like to ask you specifically about your household's land.

QUESTION		RESPONSE		
G3.01. Does anyone in your household currently own or cultivate land?		YES........1 NO.........2 ❷ *G3.06, ITEM A*		
G3.02. Who generally makes decisions about what to plant on this land?	ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER 94 NOT APPLICABLE 98	ID #1	ID #2	ID #3
G3.03. Do you [NAME] solely or jointly cultivate any land?	CIRCLE <u>ONE</u>	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO		
G3.04. Who generally makes decisions about what to plant on the land that you yourself cultivate?	ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER 94 NOT APPLICABLE 98	ID #1	ID #2	ID #3
G3.05. Do you own any of the land owned or cultivated by your household?	CIRCLE <u>ONE</u>	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO		

	Now I'd like to ask you about a number of items that could be used to generate income.	Does anyone in your household currently have any [ITEM]?	Do you [NAME] own the [ITEM] in your household? CIRCLE ONE
ITEM		**G3.06**	**G3.07**
A	Large livestock (cattle, buffaloes)	YES........1 NO.........2 ❼ *ITEM B*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
B	Small livestock (sheep, goats, pigs)	YES........1 NO.........2 ❼ *ITEM C*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
C	Poultry and other small animals (chickens, ducks, turkeys)	YES........1 NO.........2 ❼ *ITEM D*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
D	Fish pond or fishing equipment	YES........1 NO.........2 ❼ *ITEM E*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
E	Non-mechanized farm equipment (hand tools, animal-drawn plough)	YES........1 NO.........2 ❼ *ITEM F*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
F	Mechanized farm equipment (tractor-plough, power tiller, treadle pump)	YES........1 NO.........2 ❼ *ITEM G*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
G	Non-farm business equipment (solar panels used for recharging, sewing machine, brewing equipment, fryers)	YES........1 NO.........2 ❼ *ITEM H*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
H	House or building	YES........1 NO.........2 ❼ *ITEM I*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
I	Large consumer durables (refrigerator, TV, sofa)	YES........1 NO.........2 ❼ *ITEM J*	YES, SOLELY 1

		YES, JOINTLY	2
		YES, SOLELY AND JOINTLY	3
		NO	4

		Does anyone in your household currently own any [ITEM]?	Do you [NAME] own any [ITEM]? CIRCLE <u>ONE</u>
ITEM		G3.06	G3.07
J	Small consumer durables (radio, cookware)	YES........1 NO.........2 ❼ *ITEM K*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
K	Cell phone	YES........1 NO.........2 ❼ *ITEM L*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
L	Other land not used for agricultural purposes (pieces/plots, residential or commercial land)	YES........1 NO.........2 ❼ *ITEM M*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
M	Means of transportation (bicycle, motorcycle, car)	YES........1 NO.........2 ❼ *MODULE G3(B)*	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4

MODULE G3(B): ACCESS TO FINANCIAL SERVICES (GROUP 2 ONLY)

Next I'd like to ask about your household's experience with borrowing money or other items (in-kind) in the past 12 months.	Would you or anyone in your household be able to take a loan or borrow cash/in-kind from [SOURCE] if you wanted to?	Has anyone in your household taken any loans or borrowed cash/in-kind from [SOURCE] in the past 12 months? CIRCLE ONE	Who made the decision to borrow from [SOURCE] most of the time? ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE........98			Who makes the decision about what to do with the money or item borrowed from [SOURCE] most of the time? ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE........98			Who is responsible for repaying the money or item borrowed from [SOURCE]? ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE........98		
LENDING SOURCES	**G3.08**	**G3.09**	**G3.10**			**G3.11**			**G3.12**		
			ID #1	ID #2	ID #3	ID #1	ID #2	ID #3	ID #1	ID #2	ID #3
A	Non-governmental organization (NGO)	YES..........1 NO...........2 ❷ SOURCE B MAYBE.....3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ➙ SOURCE B DON'T KNOW 97								
B	Formal lender (bank/financial institution)	YES..........1 NO...........2 ❷ SOURCE C MAYBE.....3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ➙ SOURCE C DON'T KNOW 97								
C	Informal lender	YES..........1 NO...........2 ❷ SOURCE D MAYBE.....3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ➙ SOURCE D DON'T KNOW 97								
D	Friends or relatives	YES..........1 NO...........2 ❷ SOURCE E MAYBE.....3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ➙ SOURCE E DON'T KNOW 97								
E	Group based micro-finance or lending including VSLAs / SACCOs	YES..........1 NO...........2 ❷ SOURCE F MAYBE.....3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ➙ SOURCE F DON'T KNOW 97								
F	Informal credit / savings groups (.e.g., merry-go-rounds, tontines, funeral societies, etc.)	YES..........1 NO...........2 ❷ G3.13 MAYBE.....3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ➙ G3.13 DON'T KNOW 97								

G3.13	An account can be used to save money, to make or receive payments, or to receive wages or financial help. Do you, either by yourself or together with someone else, currently have an account at any of the following places: a bank or other formal institution (e.g., post office)?	YES NO DON'T KNOW

MODULE G4: TIME ALLOCATION (GROUP 2 ONLY)

G4.01: PLEASE RECORD A LOG OF THE ACTIVITIES FOR THE INDIVIDUAL IN THE LAST COMPLETE 24 HOURS (STARTING YESTERDAY MORNING AT 4 AM, FINISHING 3:59 AM OF THE CURRENT DAY). THE TIME INTERVALS ARE MARKED IN 15 MIN INTERVALS. <u>MARK ONE ACTIVITY FOR EACH TIME PERIOD</u> BY ENTERING THE CORRESPONDING ACTIVITY CODE IN THE BOX.

G4.02: CHECK THE BOX BELOW IF THE RESPONDENT WAS CARING FOR CHILDREN WHILE PERFORMING EACH ACTIVITY.

Now I'd like to ask you about how you spent your time during the past 24 hours. We'll begin from yesterday morning, and continue through to this morning. This will be a detailed accounting. I'm interested in everything you did (i.e. resting, eating, personal care, work inside and outside the home, caring for children, cooking, shopping, socializing, etc.), even if it didn't take you much time. I'm particularly interested in agricultural activities such as farming, gardening, and livestock raising whether in the field or on the homestead. I'm also interested in how much time you spent caring for children, especially if it happened while you did some other activity (e.g., collecting water while carrying a child or cooking while watching after a sleeping child).

		Night		Morning	Day									
		4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00
G4.01 Activity (WRITE ACTIVITY CODE)													
G4.02 Did you also care for children? YES.....CHECK BOX NO...LEAVE BLANK	YES CHECK BOX NO LEAVE BLANK	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐

		Day		Evening	Night									
		16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	1:00	2:00	3:00
G4.01 Activity (WRITE ACTIVITY CODE)													
G4.02 Did you also care for children?	YES CHECK BOX NO LEAVE BLANK	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐

ACTIVITY CODES FOR G4.01

1. Sleeping and resting	8. Farming (other than jute)	15. Weaving, sewing, textile care	23. Exercising
2. Eating and drinking	9. Large livestock raising (cattle, buffaloes)	16. Cooking	24. Social activities and hobbies
3. Personal care	10. Small livestock raising (sheep, goats, pigs)	17. Domestic work (including fetching wood and water)	25. Religious activities
4. School (including homework)	11. Poultry and raising other small animals (chickens, ducks turkeys)	18. Post-processing for jute	97. Other (specify)
5. Work as employed	12. Fishpond culture	19. Post-processing for crops other than jute	
6. Own business work	13. Shopping/getting service (including health	20. Caring for children	

7. Farming (jute)	service) 14. Commuting (to/from work or school)	21. Caring for adults/elderly 22. Travelling (Not for work or school)				

| G4.03.In the last 24 hours did you work (at home or outside of the home including chores or other domestic activities) less than usual, about the same as usual, or more than usual? | FOR <u>FEMALES</u> ONLY:

DOES RESPONDENT HAVE A CHILD UNDER 5 YEARS OLD?

YES..........1 ❷ G4.04

NO...........2 ❷ MODULE G5 | G4.04. If you wanted to do something (livelihood-related, training-related, self-care) and could not take your child with you, is there someone who could care for your child in your absence?

YES..........1 ❷ G4.05

NO...........2 ❷ MODULE G5 | G4.05. Who?

ENTER UP TO THREE (3) MEMBER IDs

OTHER CODES:

NON-HH MEMBER.......94

NOT APPLICABLE.......98 | ID #1 | ID #2 | ID #3 |
| LESS THAN USUAL

ABOUT THE SAME AS USUAL

MORE THAN USUAL

IF RESPONDENT IS <u>MALE</u> ❷ MODULE G5 | | | | | | |

MODULE G5: GROUP MEMBERSHIP (GROUP 2 ONLY)

Now I'm going to ask you about groups in the community. These can be either formal or informal and customary groups.	Is there a [GROUP] in your community?	Is this group composed of all male or female or mixed-sex members?	Are you an active member of this [GROUP]?	To what extent do you feel like you can influence decisions in this [GROUP]?	To what extent does this [GROUP] influence life in the community beyond the group activities?
GROUP CATEGORIES	G5.01	G5.02	G5.03	G5.04	G5.05
A	Agricultural / livestock / fisheries producer's group (including marketing groups)	YES 1 NO 2 → *GROUP B* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP B*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
B	Water users' group	YES 1 NO 2 → *GROUP C* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP C*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
C	Forest users' group	YES 1 NO 2 → *GROUP D* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP D*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
D	Credit or microfinance group (including Grameen, SACCOs / merry-go-rounds / VSLAs)	YES 1 NO 2 → *GROUP E* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP E*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
E	Mutual help or insurance group (including burial societies)	YES 1 NO 2 → *GROUP F* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP F*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
F	Trade and business association group	YES 1 NO 2 → *GROUP G* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP G*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
G	Civic group (improving community) or charitable group (helping others)	YES 1 NO 2 → *GROUP H* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP H*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
H	Religious group	YES 1 NO 2 → *GROUP I* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP I*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
I	Other (specify): _____	YES 1 NO 2 → *MODULE G6* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *MODULE G6*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT

If G5.01A = YES, COMPLETE THE QUESTIONS ON PRODUCER GROUPS BELOW (Group 2 only)

No.	Question	Answer
G5_06	Is this producer group related to jute?	1. Yes 2. No NO ❼ END MODULE
G5_07	How many other active members does this producer group have?	(QUANTITY)
G5_08	What year did you join this producer group?	(YEAR)
G5_09	Did you ever engage in any of the following activities for jute through this producer group? IF AT MOST ONE ACTIVITY SELECTED ❼ G5_10	1. Yes 2. No
G5_10	Which of these activities is your main reason for actively participating in this producers group?	☐ ${code2}
G5_11	In the last ${period} season, did you ${CODE2} through this producer group? ONLY SELECT FROM ACTIVITIES SELECTED IN D2_07 IF AT LEAST ONE ACTIVITY SELECTED ❼ D2_11	1. Yes 2. No SELL OUTPUT (PROCESSED OR UNPROCESSED)❼ D2_11
G5_12	What is the main reason why farmers do not always sell or bulk their output via this producer group?"	1. Does not bulk group members' output 2. Does not provide a good price for sold output 3. May not be able to sell the output 4. Corruption / money from sales disappears 5. Does not pay out timely for output sold 6. Does not reward quality / combines output with different quality levels 7. Other (specify)
G5_13	In the last ${period} season, what type of buyer did this producer group mainly sell to?	1. Village collector 7. Cooperative society 2. Wholesaler 8. Farmer society 3. Cold storage owner 9. Retailer 4. Wholesaler to cold storage 10. Consumer 5. Collection center of company 11. Hotel/restaurant 6. Processing farm 12. Other (specify)

No.	Question	Answer
G5_14	In the next 12 months, are you planning to engage in any of the following activities through your producer group? ⬚ Buy inputs for jute ⬚ Sell jute (before post-harvest processing) ⬚ Process jute after harvest ⬚ Sell processed jute (after post-harvest processing) ⬚ Participate in agricultural training for jute ⬚ Any other service for jute (specify)	1. Yes 2. No
Now I'd like you to think about how much jute you and other farmers would sell through your producer group, depending on the price the group offers. In the next ${period} season, of all the jute you are planning to sell, what percentage are you planning to sell though your producer group if the price the group offers is…		
G5_15	…higher than the price that other buyers offer for jute?	(PERCENTAGE)
G5_16	…the same as the price that other buyers offer for jute?	(PERCENTAGE)
G5_17	…lower than the price that other buyers offer for jute?	(PERCENTAGE)
In the next ${period} season, on average, what percentage of their jute do you think other members will sell through your producer group if the price the group offers is…		
G5_18	…higher than the price that other buyers offer for jute?	(PERCENTAGE)
G5_19	…the same as the price that other buyers offer for jute?	(PERCENTAGE)
G5_20	…lower than the price that other buyers offer for jute?	(PERCENTAGE)
G5_21	Do you expect this producer group will offer a higher, lower, or the same price for jute as other buyers you can sell to?	1. Higher price 2. Lower price 3. Same price
G5_22	Does this producer group have any rules or by-laws on how much of your jute members should sell through the group?	1. Yes 2. No NO ❼ END MODULE

G5_23	DESCRIBE RULES/BY-LAWS. PROBE FOR MINIMUM QUANTITY AND WHAT HAPPENS IF QUANTITY IS NOT DELIVERED (E.G. FINES).	

MODULE G6. PHYSICAL MOBILITY (Group 2 only)

QUESTION	RESPONSE FOR G6.01 - G6.06: USE CODE G6↓
G6.01 How often do you visit an urban center?	
G6.02 How often do you go to the market / haat / bazaar?	
G6.03 How often do you go to visit family or relatives?	
G6.04 How often do you go to visit a friend / neighbor's house?	
G6.05 How often do you go to the hospital / clinic / doctor (seek health service)?	
G6.06 How often do you go to a public village gathering / community meeting / training for NGO or programs?	
G6.07. In the last 12 months, how many times have you been away from home for one or more nights (in other words, sleeping somewhere else for the night)?	
G6.08. In the last 12 months, have you been away from home for more than one month at a time?	YES NO *IF RESPONDENT IS <u>MALE</u> ❷MODULE G7*

CODE G6
EVERYDAY
EVERY WEEK AT LEAST ONCE
EVERY 2 WEEKS AT LEAST ONCE
EVERY MONTH AT LEAST ONCE
LESS THAN ONCE A MONTH
NEVER

Now I'd like to ask you some questions about different places you might visit.	Who usually decides whether you can go to [PLACE]? ENTER UP TO THREE (3) MEMBER IDs IF RESPONSE IS <u>MEMBER ID (SELF) ONLY</u> ❷ NEXT PLACE OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE.......98			Does your husband/partner or other household member object to you going alone to [PLACE]?	Under what circumstances would this person <u>NOT</u> object to your going to [PLACE] alone? CIRCLE <u>ALL</u> APPLICABLE	Do these objections prevent you from going <u>alone</u> to [PLACE]?
PLACE	**G6.09**			G6.10	G6.11	**G6.12**
	ID #1	ID #2	ID #3			
A Urban center				YES......1 NO........2 ❷ *PLACE B*	IF I HAVE COMPANY (RELATIVES, CHILDREN)...............................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY................................3 OTHER (SPECIFY)...4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE B*	YES......1 NO........2
B Market / haat / bazaar				YES......1 NO........2 ❷ *PLACE C*	IF I HAVE COMPANY (RELATIVES, CHILDREN)...............................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY................................3 OTHER (SPECIFY)...4	YES......1 NO........2

					UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE C*	
C	Visit family or relatives				YES......1 NO.......2 ❷ *PLACE D*	IF I HAVE COMPANY (RELATIVES, CHILDREN)................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY...............................3 OTHER (SPECIFY)...4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE D*	YES......1 NO........2
D	Visit a friend / neighbor's house				YES......1 NO.......2 ❷ *PLACE E*	IF I HAVE COMPANY (RELATIVES, CHILDREN)................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY...............................3 OTHER (SPECIFY)...4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE E*	YES......1 NO........2
E	Hospital / clinic / doctor (seek health service)				YES......1 NO.......2 ❷ *PLACE F*	IF I HAVE COMPANY (RELATIVES, CHILDREN)................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY...............................3 OTHER (SPECIFY)...4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE F*	YES......1 NO........2

		Who usually decides whether you can go to [PLACE]? ENTER UP TO THREE (3) MEMBER IDs	Does your husband/partner or other household member object to you going alone to [PLACE]?	Under what circumstances would this person NOT object to your going to [PLACE] alone? CIRCLE ALL APPLICABLE	Do these objections prevent you from going alone to [PLACE]?

| | | IF RESPONSE IS <u>MEMBER ID (SELF) ONLY</u> ❷ NEXT PLACE

OTHER CODES:

NON-HH MEMBER.......94

NOT APPLICABLE.......98 | | | | |

PLACE		G6.09			G6.10	G6.11	G6.12
		ID #1	ID #2	ID #3			
F	Temple / church / mosque				YES......1 NO........2 ❷ *PLACE G*	IF I HAVE COMPANY (RELATIVES, CHILDREN)................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY................................3 OTHER (SPECIFY)..4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE G*	YES......1 NO........2
G	Public village gathering or community meeting				YES......1 NO........2 ❷ *PLACE H*	IF I HAVE COMPANY (RELATIVES, CHILDREN)................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY................................3 OTHER (SPECIFY)..4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE H*	YES......1 NO........2
H	Training for NGO / programs				YES......1 NO........2 ❷ *PLACE I*	IF I HAVE COMPANY (RELATIVES, CHILDREN)................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY................................3 OTHER (SPECIFY)..4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO...........5 ❷ *PLACE I*	YES......1 NO........2

I	Outside your community or village				YES......1 NO.......2 ❷ *MODULE G7*	IF I HAVE COMPANY (RELATIVES, CHILDREN).................................1 IF I CAN ARRANGE MY OWN EXPENSES (FOR TRANSPORT).............2 IF I FOLLOW PURDAH / DRESS ACCEPTABLY................................3 OTHER (SPECIFY)..4 UNDER NO CIRCUMSTANCES WOULD I BE ALLOWED TO GO..........5 ❷ *MODULE G7*	YES......1 NO........2

MODULE G7: INTRAHOUSEHOLD RELATIONSHIPS (Group 2 only)

Now I'd like to ask you some questions about how you feel about some of other people in your household or family group and how you think they feel about you. ENTER MEMBER ID FOR EACH RELATION OTHER CODES: NON-HH MEMBER.......94			Do you [NAME] respect your [RELATION]?	Does your [RELATION] respect you?	Do you trust your [RELATION] to do things that are in your best interest?	When you disagree with your [RELATION], do you feel comfortable telling him/her that you disagree?	IS [RELATION] THE OTHER RESPONDENT WITHIN THIS HOUSEHOLD?	Is there a co-wife within your household?
RELATION			G7.02	G7.03	G7.04	G7.05	G7.06	G7.07
A	Husband / wife	ID #						
			MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	YES......1 ❷ *RELATION C* NO........2	
B	Other adult male or female member of the household	ID #						
			MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER		
C	IF RESPONDENT IS MALE: Father (or adapt this category to capture other important relationship) IF RESPONDENT IS FEMALE: Mother-in-law	ID #						YES......1 NO........2 ❷ *MODULE G8(A)*
			MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER *IF RESPONDENT IS MALE* ❷ *MODULE G8(A)*		

		ID #						
D	Most senior co-wife (the person who was in the household just before you, or, if you are the senior wife, the one who married into the household after you)		MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER		

MODULE G8(A): AUTONOMY IN DECISION-MAKING (Group 2 only)

Now I am going to read you some stories about different farmers and their situations regarding different agricultural activities. This question format is different from the rest so take your time in answering. For each I will then ask you how much you are like or not like each of these people. We would like to know if you are completely different from them, similar to them, or somewhere in between. There are no right or wrong answers to these questions. READ ALOUD EACH STORY, SUBSEQUENT QUESTIONs, AND RESPONSE CODES. NAMES SHOULD BE ADOPTED TO LOCAL CONTEXT AND BE MALE/FEMALE DEPENDING ON THE SEX OF THE RESPONDENT. THE ORDER OF TOPICS A-D SHOULD BE RANDOMIZED, AND WITHIN EACH TOPIC, THE ORDER OF STORIES 1-4 SHOULD BE RANDOMIZED.		Are you like this person? CIRCLE ONE	Are you completely the same or somewhat the same? CIRCLE ONE	Are you completely different or somewhat different? CIRCLE ONE
STORY		**G8.01**	**G8.02**	**G8.03**
The types of crops to grow or raise for consumption and sale in market	A1	"[PERSON'S NAME] cannot grow other types of crops here for consumption and sale in market. Beans, sweet potato and maize are the only crops that grow here."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *A2* SOMEWHAT THE SAME........2 ❷ *A2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	A2	"[PERSON'S NAME] is a farmer and grows beans, sweet potato, and maize because her spouse, or another person or group in her community tells her she must grow these crops. She does what they tell her to do."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *A3* SOMEWHAT THE SAME........2 ❷ *A3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	A3	"[PERSON'S NAME] grows the crops for agricultural production that her family or community expect. She wants them to approve of her as a good farmer."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *A4* SOMEWHAT THE SAME........2 ❷ *A4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	A4	"[PERSON'S NAME] chooses the crops that she personally wants to grow for consumption and sale in market and thinks are best for herself and her family. She values growing these crops. If she changed her mind, she could act differently."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B1* SOMEWHAT THE SAME........2 ❷ *B1*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
Livestock raising	B1	"[PERSON'S NAME] cannot raise any livestock other than what she has. These are all that do well here."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B2* SOMEWHAT THE SAME........2 ❷ *B2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	B2	"[PERSON'S NAME] raises the types of livestock she does because her spouse, or another person or group in her community tell her she must use these breeds. She does what they tell her to do."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B3* SOMEWHAT THE SAME........2 ❷ *B3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	B3	"[PERSON'S NAME] raises the kinds of livestock that her family or community expect. She wants them to approve of her as a good livestock raiser."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B4* SOMEWHAT THE SAME........2 ❷ *B4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	B4	"[PERSON'S NAME] chooses the types of livestock that she personally wants to raise and thinks are good for herself and her family. She values raising these types. If she changed her mind, she could act differently."	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *C1* SOMEWHAT THE SAME........2 ❷ *C1*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2

READ ALOUD EACH STORY, SUBSEQUENT QUESTIONs, AND RESPONSE CODES. NAMES SHOULD BE ADOPTED TO LOCAL CONTEXT AND BE MALE/FEMALE DEPENDING ON THE SEX OF THE RESPONDENT.			Are you like this person? CIRCLE ONE	Are you completely the same or somewhat the same? CIRCLE ONE	Are you completely different or somewhat different? CIRCLE ONE
STORY			G8.01	G8.02	G8.03
Taking crops or livestock (incl. eggs or milk) to the market (or not)	C1	*"There is no alternative to how much or how little of her crops or livestock [PERSON'S NAME] can take to the market. She is taking the only possible amount."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *C2* SOMEWHAT THE SAME........2 ❷ *C2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	C2	*"[PERSON'S NAME] takes crops and livestock to the market because her spouse, or another person or group in her community tell her she must sell them there. She does what they tell her to do."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *C3* SOMEWHAT THE SAME........2 ❷ *C3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	C3	*"[PERSON'S NAME] takes the crops and livestock to the market that her family or community expect. She wants them to approve of her."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *C4* SOMEWHAT THE SAME........2 ❷ *C4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	C4	*"[PERSON'S NAME] chooses to take the crops and livestock to market that she personally wants to sell there, and thinks is best for herself and her family. She values this approach to sales. If she changed her mind, she could act differently."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *D1* SOMEWHAT THE SAME........2 ❷ *D1*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
How to use income generated from agricultural and non-agricultural activities	D1	*"There is no alternative to how [PERSON'S NAME] uses her income. How she uses her income is determined by necessity."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *D2* SOMEWHAT THE SAME........2 ❷ *D2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	D2	*"[PERSON'S NAME] uses her income how her spouse, or another person or group in her community tell her she must use it there. She does what they tell her to do."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *D3* SOMEWHAT THE SAME........2 ❷ *D3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	D3	*"[PERSON'S NAME] uses her income in the way that her family or community expect. She wants them to approve of her."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *D4* SOMEWHAT THE SAME........2 ❷ *D4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	D4	*"[PERSON'S NAME] chooses to use her income how she personally wants to, and thinks is best for herself and her family. She values using her income in this way. If she changed her mind, she could act differently."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME...1 ❷ *G8.04* SOMEWHAT THE SAME....2 ❷ *G8.04*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2

MODULE G8(B): NEW GENERAL SELF-EFFICACY SCALE (Group 2 only)

Now I'm going to ask you some questions about different feelings you might have. Please listen to each of the following statements. Think about how each statement relates to your life, and then tell me how much you agree or disagree with the statement on a scale of 1 to 5, where 1 means you "strongly disagree" and 5 means you "strongly agree." (**Note: Randomize order of statements**)

STATEMENTS		G8.04
A	I will be able to achieve most of the goals that I have set for myself.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
B	When facing difficult tasks, I am certain that I will accomplish them.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
C	In general, I think that I can obtain outcomes that are important to me.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
D	I believe I can succeed at most any endeavor to which I set my mind	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
E	I will be able to successfully overcome many challenges.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
F	I am confident that I can perform effectively on many different tasks.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
G	Compared to other people, I can do most tasks very well.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
H	Even when things are tough, I can perform quite well.	STRONGLY DISAGREE DISAGREE

	NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE

MODULE G8(C): LIFE SATISFACTION (Group 2 only)

The following questions ask how satisfied you feel with your life as a whole, on a scale from 1 to 5, where 1 means you feel "very dissatisfied" and 5 means you feel "very satisfied."

	STATEMENTS	G8.05
A	Overall, how satisfied are you with life as a whole these days?	VERY DISSATISFIED DISSATISFIED NEITHER SATISFIED NOR DISSATISFIED SATISFIED VERY SATISFIED
B	Overall, how satisfied with your life were you 5 years ago?	VERY DISSATISFIED DISSATISFIED NEITHER SATISFIED NOR DISSATISFIED SATISFIED VERY SATISFIED
C	As your best guess, overall how satisfied with your life do you expect to feel 5 years from today?	VERY DISSATISFIED DISSATISFIED NEITHER SATISFIED NOR DISSATISFIED SATISFIED VERY SATISFIED

MODULE G9. Attitudes about Domestic Violence (Group 2 only)

Now I would like to ask about your opinion on the following issues. Please keep in mind that I am not asking about your personal experience or whether the following scenarios have happened to you. I would only like to know whether you think the following issues are acceptable.	In your opinion, is a husband justified in hitting or beating his wife in the following situations?
SITUATION	**G9.01**
A	If she goes out without telling him?	YES NO DON'T KNOW
B	If she neglects the children?	YES NO DON'T KNOW
C	If she argues with him?	YES NO DON'T KNOW
D	If she refuses to have sex with him?	YES NO DON'T KNOW
E	If she burns the food?	YES NO DON'T KNOW

Module X: Closing

No.	Question	Field
X1_01	May we take a photograph of you? The photo will only be used for our research.	1. Yes 2. No NO >> gps
Photo	PLEASE TAKE A PHOTOGRAPH OF THE RESPONDENT.	(PHOTO)
Gps	PLEASE RECORD THE CURRENT GPS COORDINATES.	

END OF FEMALE FORM

MAIN FORM

MODULE A: HOUSEHOLD IDENTIFICATION (GROUP 1, 2 & 3)

Variable	IDENTIFICATION	Response
date	DATE	
interviewer	TEAM [SUPERVISOR NAME/CODE] & INTERVIEWER [NAME/CODE]	
hhid	HOUSEHOLD IDENTIFICATION NUMBER [NUMERICAL]	

Household verification (1): HOUSEHOLD INFORMATION FOR ID ${hhid}		
A_02	DISTRICT / UPAZILA [CODED]	*This information will be pre-filled by the survey program. Interviewers should review the information and ensure that they are interviewing the correct respondent.*
A_03	UNION [CODED]	
A_04	VILLAGE [CODED]	
HOUSEHOLD HEAD:		*If the preload information does not conform to the correct respondent, or if there is any doubt over the status of the person to be interviewed, the interviewer should not proceed with the interview and immediately contact their supervisor.*
A_08	NAME	
A_12	GENDER	
HOUSEHOLD HEAD'S FATHER		
A_10	NAME	
A_05	HOUSEHOLD LOCATION/LANDMARK [STRING]	
MAIN RESPONDENT IN PREVIOUS ROUND		[PRELOADED NAME]
CHECK THE ABOVE INFORMATION CAREFULLY AND CHOOSE "YES" TO PROCEED IF YOU ARE SURE YOU ARE AT THE RIGHT HOUSEHOLD.	☐ 1 – Yes	☐ 2 – No *
A_06	CAN YOU START THE INTERVIEW WITH THE MAIN RESPONDENT IDENTIFIED IN FEMALE FORM?	☐ 1 – Yes -> A_09 ☐ 2 – No -> A_07

*	YOU CANNOT PROCEED UNLESS YOU HAVE FOUND THE CORRECT HOUSEHOLD. EITHER SPEAK TO THE RESPONDENT AGAIN TO CHECK THE DETAILS OR CANCEL THE INTERVIEW AND CONTINUE TO LOOK FOR THE RIGHT HOUSEHOLD.		
A_07	WHY CAN YOU NOT START THE INTERVIEW? *AFTER SELECTING AN ANSWER -> END*	☐ 1 – Moved ☐ 2 – Not found ☐ 3 – Refused	☐ 4 – Unavailable ☐ 5 – Other (specify)
RESPONDENT INFORMATION			
main_resp	Please enter the NAME of the respondent for this form, identified in the female form. The respondent should be the primary jute farmer/input seller in the household.		
resp_age	Please provide the age of the respondent for this form		
resp_sex	Please provide the sex of the respondent for this form		

CONSENT OF RESPONDENT

Good morning/afternoon. I am _____ from the Data Analysis and Technical Assistance Limited (DATA), a Bangladeshi research organization based in Dhaka. Together with the International Food Policy Research Institute (IFPRI), we are conducting a survey that will provide IFPRI with necessary information to carry out research that is designed to help promote the welfare of Bangladeshis; particularly, to improve food consumption and nutrition of the people and women's status, and to enhance agricultural development and income generation. Your household has been chosen by a random selection process.

We are inviting you to be a participant in this study. We value your opinion and there are no wrong answers to the questions we will be asking in the interview. We will use approximately 3-4 hours of your time to collect all the information. If you prefer, we can do the interview in two visits.

There will be no cost to you other than your time.   There will be no risk as a result of your participating in the study. Your participation in this research is completely voluntary. You are free to withdraw your consent and discontinue participation in this study at any time.

This study is conducted anonymously. You will only be identified through code numbers. Your identity will not be stored with other information we collect about you. Your responses will be assigned a code number, and the list connecting your name with this number will be kept in a locked room and will be destroyed once all the data has been collected and analyzed. Any information we obtain from you during the research will be kept strictly confidential. Your participation will be highly appreciated.

The answers you give will help provide better information to policy-makers, practitioners and program managers so that they can plan for better services that will respond to your needs.

The researcher read to me orally the consent form and explained to me its meaning. I agree to take part in this research. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any question that arise during the course of the research.

Contact Person:
Name of the Principal Investigator (PI): _____
Address:
Tel: _____; E-mail of PI: _____
Signature of the Enumerator: _____   Date: /_____/_____/_____/

consent_m	"Do you agree to be interviewed for the purposes of this study?"
male_alone	Ability to be interviewed 1. Alone 2. With adult female members present 3. With adult male members present 4. With adults of both sexes present 5. With children present 6. With adults of both sexes and children present
no_consent	WHY DOES THE RESPONDENT NOT GIVE CONSENT? ❼ END INTERVIEW

Module C: Agriculture (All Groups)

Module C1: Production of Crops Other Than Jute (Groups 1 & 2 Only)

C1_01   Did you harvest any crops besides jute in the last 3 seasons (Boro 2015/2016, Aus 2016, and Aman 2016?

What other crops did you harvest?	In which season of 2016 did you harvest ${other}? 2. Rabi (Boro: December 2015 – April 2016) 3. Kharif-I (Aus: May – July 2016) 4. Kharif-II (Aman: August – November 2016)	How much land did you use to grow the …that you harvested in 2016? (DECIMALS)	How much … did you harvest in 2016 (total production)? (KG)	Of the … that you harvested in 2016, how much did you sell? (KG)	Sale price per KG (TAKA)
C1_02	C1_03	C1_04	C1_05	C1_06	C_08
Rice (aman)	███████████				
Rice (aus)	███████████				
Rice (boro)	███████████				
Wheat					
Potato					
Tomato					
Pulses					
Groundnuts					
Mango					
Coriander					
Chili peppers					
Garlic					
Onion					
Mustard					
Sesame					
Other (specify)			████████████████████████		Total sales value instead of price per kg

Module C2:

Jute Production

in Kharif-1

(Aus) 2016

(Group 1 &

Group 2 ONLY)

To grow jute, in what month did you...		How much land did you use to grow jute May –July '16)?	Fiber quantity harvested (total production)	Fiber quantity received from leased out plot	Fiber quantity sold	Who did you sell the fiber to?	If >2 buyers To which two buyers did you sell most of the jute?	How many kg did you sell in total to [BUYER 1]? If >1 buyers And to [BUYER 2]?	What price did [BUYER 1] pay you per kg of jute? If >1 buyers And [BUYER 2]?
start land preparations?	... finish harvesting?								
May be up to 3 months before start of **Kharif-I (Aus: May – July 2016)** season.	May be up to 2 months after end of **Kharif-I (Aus: May – July 2016)** season.	(DECIMALS)	(KG)	(KG)	(KG)	- List of buyers - Other (specify)	List of buyers	Kg	Taka/Kg
C2_02	C2_03	C2_04	C2_05	C2_06	C2_08	C2_09	C2_10	C2_11	C2_12

C2_01. Did you grow jute in Kharif-I (Aus: May-July 2016)?
    1. Yes   2. No >> MODULE C4

Where did you sell your jute to [BUYER 1]? If >1 buyers And to [BUYER 2]? 1. Farm gate (home) 4. Town market (own union) 2. Village market (own village) 5. Town market (other union) 3. Village market (other village) 6. Other (specify)	C2_13 != 1 (Farm gate) How many minutes did you travel on average per transaction with [BUYER 1]? If >1 buyers And to [BUYER 2]?	Main Travel Mode		How much were the total transportation costs to sell to [BUYER 1]? If >1 buyers And to [BUYER 2]? WRITE 0 IF NO COSTS
Code	Minutes	1. Walking 2. Rickshaw 3. Van 4. Push Van 5. Tractor 6. Truck	7. Motorcar 8. Bicycle 9. Motor bicycle 10. Horse cart 11. Bullock cart 12. Other (specify)	Taka
C2_13	C2_14	C2_15		C2_16

Did you sell the jute sticks?	C2_17= 1 What percentage of your jute sticks did you sell?	How much did you receive in total for the sale of your sticks?
1. Yes 2. No	%	(Taka)
C2_17	C2_18	C2_19

Module C3: Jute Production Costs: Inputs (All Groups)

Please answer the following questions about your **use (sales)** of inputs for jute production in Kharif-I (Aus: May – July 2016).

Input	Did you **use (sell)** ...for jute production in Kharif-I (Aus: May – July 2016)? *READ OUT ALL OPTIONS*	How many kg/liters of ... did you **use (sell)** in total?	Unit	From what type of seller did you mainly purchase the...?	What price did you pay per kg / liter to purchase ...?	Were you offered any ... for free, at a subsidy, or discount compared to the market value? PROBE FOR PROMOTIONS FROM TRAINING PROGRAMS, DEALERS & INPUT SELLERS INCLUDE PROMOTIONS EVEN IF NOT USED	What type of organization provided the discount?	Name of organization	What did you mainly do with the subsidy/discount?	What was the value of the gift, subsidy or discount per kg/liter? If AVC, specify % discount received	Did you receive a loan or other form of credit to purchase ...?
	1. Yes 2. No NO ❼ C3_04		1. Kilos 2. Litres	1. Commercial agricultural company 2. Local distributor 3. Agricultural input store 4. Cooperative/farmer association 5. Government 6. Intermediaries 7. NGOs 8. Trader 9. Own production -> Next input 10. Other (specify)	AMOUNT SPENT, EXCL. SUBSIDIES / DISCOUNTS BUT INCL. CREDIT	1. No ❼ C3_06 2. Yes, for free 3. Yes, at a subsidy/discount	1. Input seller (C3_03) 2. AVC/NAAFCO 3. Other local commercial agricultural company 4. Other local distributor 5. Other agricultural input store 6. Other coop./farmer organization 7. Other government institution 8. Other intermediares 9. Other NGOs 10. Other trader 97. Other, specify		1. Used it for own jute cultivation 2. Used it for other crop 3. Sold it to someone else 4. Gave it to someone else 5. Saved it for future use 6. Discarded it / did not use it 7. Other, specify		1. Yes 2. No ❼ C3_10
	C3_01	C3_02	C3_02u	C3_03	C3_04	C3_05	C3_06	C3_07	C3_08	C3_09	C3_10
Seed	Only ask in Group 3										
Urea											

TSP											
DAP											
NPKS											
MOP/MP											
Gypsum											
Magnesium sulph.											
Zinc sulph.											
Manure											
Compost											
Other, spec.											
Insecticide											
Herbicide											
Fungicide											
Irrigation		■			Total cost	■					

Input	C3_10=Yes Source(s)	C3_10=Yes How much credit did you receive or how much did you borrow in total to purchase ...?	C3_10=Yes Could you have obtained more credit to purchase ...?	C3_10=No Could you have obtained a loan or credit to purchase ...?	C3_13 or C3_14=Yes From what source(s)? *ALLOW FOR MULTIPLE RESPONSE*	C3_01==Yes & Group==3 At what price did you sell ... on average?	C3_01==Yes &Group==3 Did you provide any ... for free, at a subsidy, or discounted price compared to the market value?	C3_17==Yes &Group==3 What was the value of the gift, subsidy or discount per kg/liter?	C3_01==Yes Group==3 In the past 12 months, to what percentage of buyers did you sell ... on credit?

	C3_11	C3_12	C3_13	C3_14	C3_15	C3_16	C3_17	C3_18	C3_19
	1.Purchase on credit - ${C3_04} 2.Bank/Formal lender 3.Informal lender 4.Friend/relative 5.Group-based MFI/VSL/Coop. 6. Informal savings group	(Taka)	1. Yes ❼ C3_11 2. No ❼ C3_12	1. Yes 2. No ❼ C3_12	1.Purchase on credit - ${C3_04} 2.Bank/Formal lender 3.Informal lender 4.Friend/relative 5.Group-based MFI/VSL/Coop. 6. Informal savings group	PRICE PER KG/LITER, NET OF PROMOTIONS, SUBSIDIES OR DISCOUNTS INCL. CREDIT	1. No ❼ C3_16 2. Yes, for free 3. Yes, at a subsidy / discount	*(Taka)*	*WRITE ZERO IF NEVER SOLD ... ON CREDIT*
Seed									
Urea									
TSP									
DAP									
NPKS									
MOP									
Gypsum									
Magnesium sulph.									
Zinc sulph.									
Manure									
Compost									
Other, spec.									
Insecticide									
Herbicide									
Fungicide									
Irrigation									

IF GROUP 3 AND NPKS FERTILIZER SELECTED IN C3_01		
C3_20	How many 25kg bags of NAAFCO NPKS fertilizer did you sell with a coupon for a .... a) 20% discount? b) 50% discount? c) 80% discount?	
C3_21	So in total, in Aus 2016, X farmers purchased NPKS from you with a coupon. How many of them: a) Purchased more than one 25kg bag of NPKS from you? b) Purchased any other fertilizers from you?	

	c) Purchased any other inputs, other than fertilizer, from you?	
C3_22	If these X farmers weren't given this coupon, how many of them do you think … a) Would have purchased NPKS from you? b) Would have purchased another fertilizer from you? c) Would have purchased inputs other than fertilizer from you?	

THE REMAINDER ONLY FOR GROUPS 1 & 2 EXCEPT FOR THE INPUT BUSINESS LINE

Activity ONLY ASK LABOR QUANTITIES (DAYS, HOURS, WAGES) FOR TYPES OF LABOR USED IN EACH TASK	Household					Hired					Difficulties finding labor?
	Labor days of 8 hours			Actual days		Hours per day		Wage per day			
	Adult male	Adult female	Child	Male	Female	Male	Female	Male	Female		Yes/No
	C3_31	C3_32	C3_33	C3_34	C3_35	C3_36	C3_37	C3_38	C3_39		C3_40
C3_27_1 For the ${c2_04} decimals used to cultivate jute in the last Kharif-I season, what type of labor did you use for **cultivation**? E.g. ploughing, land leveling, seeding, weeding, applying fertilizers. READ ALL CHOICES ALOUD. (GROUPS 1 & 2 ONLY)											
☐ 1 – Male adult household members (incl. farmer himself) ☐ 2 – Female adult household members ☐ 3 – Child household members					☐ 4 – Hired male labor ☐ 5 – Hired female labor ☐ 6 – Hired machinery ☐ 7 – Did not use any labor						
Ploughing, harrowing, and land leveling											
Seeding											
Weeding, applying fertilizer and other chemicals											
C3_27_2 For the ${c2_04} decimals used to cultivate jute in the last Kharif-I season, what type of labor did you use for **harvesting**? E.g. harvesting, drying, curing, threshing. READ ALL CHOICES ALOUD. (GROUPS 1 & 2 ONLY)											
SEE ABOVE CATEGORIES											
Harvesting											
C3_27_3 For the ${c2_04} decimals used to cultivate jute in the last Kharif-I season, what type of labor did you use for **drying, curing and threshing**? READ ALL CHOICES ALOUD. (GROUPS 1 & 2 ONLY)											
Drying											
Curing											
Threshing											
C3_27_4 For the ${c2_04} decimals used to cultivate jute in the last Kharif-I season, what type of labor did you use for **fiber separation**? E.g. bundling stalks, retting, stripping, washing, bailing. THIS QUESTION AND ACTIVITIES FOR JUTE ONLY. READ ALL CHOICES ALOUD. (GROUPS 1 & 2 ONLY)											
☐ 1 – Male adult household members (incl. farmer himself) ☐ 2 – Female adult household members ☐ 3 – Child household members					☐ 4 – Hired male labor ☐ 5 – Hired female labor ☐ 6 – Hired machinery ☐ 7 – Did not use any labor						
Bundling stalks and retting											

Stripping and washing									
Bailing									

C3_27_5　　　　For the ${c2_04} decimals used to cultivate jute in the last Kharif-I season, what type of labor did you use for **post-harvest processing**?
E.g. sorting, grading packing, transporting. READ ALL CHOICES ALOUD. READ ALL CHOICES ALOUD. (GROUPS 1 & 2 ONLY)

▢ 　1 – Male adult household members (incl. farmer himself)
   ▢ 　2 – Female adult household members
   ▢ 　3 – Child household members
	▢ 　4 – Hired male labor
	 ▢ 　5 – Hired female labor
	 ▢ 　6 – Hired machinery
	 ▢ 　7 – Did not use any labor

Sorting, grading, and packing									
Transporting to market									

C3_27_6　　　　　　　　**Last Kharif-I season, what type of labor did you use in your business for selling jute inputs? READ ALL CHOICES ALOUD (GROUP 3 ONLY)**

▢ 　1 – Male adult household members (incl. farmer himself)
   ▢ 　2 – Female adult household members
   ▢ 　3 – Child household members
	▢ 　4 – Hired male labor
	 ▢ 　5 – Hired female labor
	 ▢ 　6 – Hired machinery
	 ▢ 　7 – Did not use any labor

Labor used for selling jute inputs (excl. labor used for selling other inputs)									

Module C4 Knowledge and Knowledge Sharing of Fertilizers (All Groups)

C4_01	Last jute season, when you **sold (purchased)** your jute inputs other than fertilizer, did you **provide (receive)** information on how the inputs should be used?	1. Yes 2. No
C4_02	[IF C4_01=1] How many minutes did **you (the input seller)** spend explaining how the input should be used (per transaction)?	(Minutes per transaction)
C4_03	Now we have a few questions about fertilizers. Last jute season, when you **sold (purchased)** your jute inputs, did you **provide (receive)** information on what type of fertilizers to use and/or how to apply fertilizers?	1. Yes 2. No
C4_04	[IF C4_03=1] How many minutes did **you (the input seller)** spend explaining what type of fertilizers to use and/or how to apply fertilizers (per transaction)?	(Minutes per transaction)
C4_05	[IF C4_03=1] What type of information did **you provide (receive)** on fertilizer? Did you **provide (receive)** information about ...	1. What type of fertilizer to use? Yes / No 2. How much fertilizer to be applied? Yes / No 3. When to apply fertilizer? Yes / No 4. What fertilizers are best given expected weather conditions? Yes / No 5. What fertilizers improve your yields the most? Yes / No 6. What fertilizers improve the fiber quality of your jute the most? Yes / No 7. What fertilizers improve disease resistance the most? Yes / No
C4_06	How much do you know about the effects of NPKS?	1. Nothing 2. Some but not much 3. Quite a lot 4. Everything
C4_07	[IF C3_01 == 1 for NPKS] Last jute season, when you **sold (purchased)** your jute inputs, did you **provide (receive)** any information about NPKS fertilizers?	1. Yes 2. No
C4_08	[IF C4_07 == 1] Last jute season, what type of information did **you (the input seller)** provide on NPKS? Did you talk about ...	**Basal** **Top** 1. Whether to use NPKS? Yes / No Yes / No 2. How much NPKS to apply? Yes / No Yes / No 3. When to apply NPKS? Yes / No Yes / No 4. What effects NPKS has on your yields? Yes / No Yes / No 5. What effects NPKS has on the fiber quality of your jute? Yes / No Yes / No 6. What effects NPKS has on disease resistance? Yes / No Yes / No
C4_09	Last jute season, how much time did **you (the input seller)** spend giving this information on NPKS?	(Minutes per transaction)

		a) Basal dressing	b) Top dressing
C4_10			
1)	[IF C4_08.2=1] How much NPKS did **you (the input seller)** say should be applied?	Kg/acre	Kg/acre
2)	[IF C4_08.3=1] When did **you (the input seller)** say NPKS should be applied?	(# days before planting)	(# days after planting)

C4_11	**Do you think the farmer did (Did you)** follow this advice?	1. Yes 2. No

C4_12	[C4_08.4==1] What yield did **you (the input seller)** tell **the farmer (you)** to expect with NPKS?	Kg/acre
C4_13	[C4_08.4==1] What yield did **you (the input seller)** tell **the farmer (you)** to expect with a standard fertilizer application of TSP, MP and Manure?	Kg/acre

The following questions are about your thoughts on how to best use fertilizers in jute production. So this is not about what you do, or what you talked about with **farmers (input sellers)**, but what you think would give you the highest profit.

C4_14	For the following fertilizers, how much should one apply? *WRITE 0 IF NOTHING, 99 IF DOES NOT KNOW*		Basal (kg/acre)	Top dressing (kg/acre)
		Urea		
		TSP		
		DAP		
		NPKS		
		MOP		
		Gypsum		
		Magnesium sulphate		
		Zinc sulphate		
		Other (specify)		
C4_15	What should you do with your jute seeds before sowing? DO NOT READ OUT. TICK ALL THAT APPLY.		1. Nothing 2. Treat with Provex 3. Treat with crushed garlic 4. Don't know	
C4_16a	When sowing desh jute, how many kg of seed should you apply per acre... ... when using line sowing?		(Don't know = 9999)	
C4_16b	... when using broadcast sowing?		(Don't know = 9999)	
C4_17a	Now we would like to know when it is better to grow tossa jute, or deshi jute. What is better when you have high lands, where rain water does not stand?		1. Tossa jute 2. Deshi jute 3. Does not matter 4. Don't know	
C4_17b	What is better when you have low lands, where rain water does stand?		1. Tossa jute 2. Deshi jute 3. Does not matter 4. Don't know	
C4_18a	Can you apply urea when there is heavy sun?		1. Yes 2. No 3. Don't know	
C4_18b	Can you apply urea when there is heavy rain?		1. Yes 2. No	

C4_19	When you use organic manure, should you apply more chemical fertilizer, less chemical fertilizer, or the same amount?	1. More chemical fertilizer 2. Less chemical fertilizer 3. The same amount of chemical fertilizer 4. It doesn't matter 5. Don't know
C4_20	How many times should you do weeding on your jute plots?	
C4_21	Which of the following insect attacks can you control by using Diazinon?	1. Bichha insect 2. Letha insect 3. Ghora insect 4. Chelle insect 5. Makor insect 6. Diazinon does not help control any of these insect attacks 7. Don't know
C4_22a	Now please tell me when it is best to cut your jute plants. After how many days of sowing... ... should you cut your jute plants?	(days)
C4_22b	... should you cut the jute plants to achieve the highest yield?	(days)
C4_22c	... should you cut the jute plants to achieve the highest fiber quality?	(days)
C4_23a	Now I have some questions about the difference between traditional retting and ribbon retting. Which is better for the environment?	1. Traditional retting 2. Ribbon retting 3. Does not matter 4. Don't know
C4_23b	Which is better for your health?	1. Traditional retting 2. Ribbon retting 3. Does not matter 4. Don't know
C4_23c	Which is better in cases where water is very scarce?	1. Traditional retting 2. Ribbon retting 3. Does not matter 4. Don't know
C4_24	Which is the best to use for retting: banana plant, soil clod, or sack cloth?	1. Banana plant 2. Soil clod 3. Sack cloth 4. Don't know
C4_25	Should you be retting thick and thin plants together or separately?	1. Together 2. Separately 3. Does not matter 4. Don't know
C4_26	What should your jute look like in order to get paid a higher price?	1. Length must be 8-10 feet

	DO NOT READ OUT, PROBE IF THERE IS ANYTHING ELSE. TICK ALL THAT APPLY	2. Fiber color must be bright 3. Fiber must be spotless and stick less 4. Fiber must be fine and strong 5. Don't know

Module C5: Extension Services for Jute Production (All groups)

THIS MODULE HAS TWO OBJECTIVES: MEASURE THE EXPOSURE TO AVC ACTIVITIES, AND MEASURE EXPOSURE TO OTHER NGO ACTIVITIES THAT MAY HAVE IMPACTED FARMERS, SO THAT WE CAN CONTROL FOR THAT WHEN ESTIMATING HOW EXPOSURE TO AVC ACTIVITIES AFFECTS OUR OUTCOME VARIABLES.

No.	Question	Field
C5_01	In 2016, did you or anyone from your household participate in the following activities related to [**production of jute**]/[**selling inputs for jute production**]? 1. AVC-sponsored jute training (provided by Gono Unnayan Prochesta (GUP), Society Development Committee (SDC), Sheba Manab Kallyan Kendra (SMKK), or Prova Society). 2. AVC/NAAFCO raffle in the village 3. AVC/NAAFCO promotional fair 4. Any other AVC/NAAFCO activities 5. Information about jute production from the private sector, e.g. input sellers, dealers, wholesalers, traders or seed companies (but not AVC/NAAFCO) [Include input seller trainings from seed company/dealers in this category] 6. Other extension services for jute production not provided by AVC (including any agricultural advice you may have received in person or over the phone)	1. Yes 2. No
C5_02	How many hours did you spend in total in this ...? RECORD MINUTES AS FRACTIONS OF AN HOUR, ie. 15 minutes = 0.25	(Hours)
C5_03	Which topics were covered as part of this ...?	CATEGORIES FROM MODULE C6
C5_04	Who provided this extension service for jute production in the Kharif-I (Aus: May – July 2016) season? [ONLY ASK FOR C5_01 ITEM (5)/(6)]	1. Department of Agricultural Extension 2. NGOs (specify) 3. Private Business (specify) 4. Other (specify)
C5_05	Extension service administration level [ONLY ASK FOR C5_01 ITEM (4)/(5)]	1. Upazila 2. Union 3. Village 4. Farmer association group 5. Group of households 6. Individual household 7. Other (specify)
C5_06	How much did you have to pay the organizers to participate in this ...	(Taka)
C5_07	How much cash did you receive in compensation for participating in this ... *INCL. TRANSPORT ALLOWANCE*	(Taka)
C5_08	How many hours did you spend with input suppliers as part of this ...? *INCL. LINKAGE MEETINGS*	(Hours)
C5_09	How many hours did you spend with jute buyers as part of this ...? *INCL. LINKAGE*	(Hours)

	MEETINGS	
C5_10	How useful was this activity for you as a **farmer (input seller)**?	1 – Activity was useless 2 – Activity was not useless, but also not very useful 3 – Activity was a little bit useful 4 – Activity was very much useful
C5_11	What topic was the most useful for you in this extension service?	SHOW CODES SELECTED IN C5_03
C5_12	What topic was the second-most useful for you in this extension service?	IDEM

Module C6: Use of Improved Technologies and Practices in Jute Production (All Groups)

ONLY IF C2_02 == 1 [PLANTED JUTE IN KHARIF-I (AUS: MAY – JULY 2016).] OR IF GROUP 3

Interventions	Did you **use (sell)** ... in the Kharif-I (Aus: May – July 2016) season for jute production?	C6_01==1 What variety did you **use (sell)** for jute production?	Groups 2/3 Did you ever **use (sell)** ...for jute production?	Groups 2/3 What year did you start **using (selling)** ...for jute production?	Groups 2/3 What year did you stop **using (selling)** ... for jute production?	C6_01==2 Why are you not **using (selling)** ... for jute production?	Groups 2/3 What year was ... first available in your village?
	1. Yes 2. No -> C6_03	List of NPKS brands, and seeds from seller census MULTIPLE CHOICE -> C6_04	1. Yes 2. No -> C6_06	(YEAR) IF C6_01 = 1 -> C6_07	(YEAR)	1. Don't know about it 2. Too expensive 3. No cash/cannot get credit at time of purchase 4. Uncertain of benefits 5. Too risky 6. Other (specify)	(YEAR)
	C6_01	C6_02	C6_03	C6_04	C6_05	C6_06	C6_07
NKPS fertilizers	██████		Also Group 1	Also Group 1	Also Group 1	Also Group 1	Also Group 1
Improved and/or certified seed							
(Products related to) Pest management (percing, IPM/ICM, physical method)		████					
(Products related to) Disease management (fungicide, bactericide, nematicide, virucide, IPM/ ICM, water control management)		████					
(Products related to) Composting		████					
Irrigation		████					
(Products related to) Climate change mitigation or adaptation		████					
Improved commodity sales technologies and practices (GROUPS 1 & 2 ONLY)		████					
Improved market information systems technologies and practices (GROUPS 1 & 2 ONLY)		████					

Improved packing house technologies and practices (GROUPS 1 & 2 ONLY)		███				
Improved transportation (GROUPS 1 & 2 ONLY)		███				
Temperature and humidity control (GROUPS 1 & 2 ONLY)		███				
Improved quality control technologies and practices (GROUPS 1 & 2 ONLY)		███				
Sorting and grading (GROUPS 1 & 2 ONLY)		███				
Value added processing (GROUPS 1 & 2 ONLY)		███				

Module D: Marketing

Module D2: Relationships with Local Jute Input SELLERS (GROUP 1 & GROUP 2) / BUYERS (GROUP 3)

${seller}	Have you ever purchased/sold jute seeds, fertilizer or other inputs to cultivate jute from ${seller}/to ${buyer}?	First year you purchased from ${seller}/ sold to ${buyer}	Did you purchase from/sell to them seller in the last Kharif-I season?	Which inputs did you purchase from/ sell to them in the last Kharif-I season?	Did you purchase/sell any inputs at a discount or for free from/to them?	Did you receive/give credit from them to purchase inputs?	Group 1 / Group 2 Only Where do you usually buy from ${seller}?	Group 1 / Group 2 Only How many minutes does it take to travel to ${location} from your home?	Group 1 / Group 2 Only How much did it cost to travel there (per trip)?	Group 1 / Group 2 Only Travel Mode
	1. Yes 2. No >> D2_10 3. Don't know him >> Next seller	(YEAR)	1. Yes 2. No	1. Seed 2. NPKS fertilizer 3. Other fertilizer 4. Insecticide 5. Fungicide 6. Herbicide	1. Yes 2. No	1. Yes 2. No	1. Farm gate (home) 2. Village market (within own village) 3. Village market (outside own village) 4. Town market (within own union) 5. Town market (outside own union) 6. Other (specify)	(MINUTES) SKIP IF SOLD AT "Farm gate (home)"	(Taka)	1. Walking 2. Bicycle 3. Rickshaw 4. CNG 5. Van 6. Push Van 7. Tractor 8. Truck
	D2_01	D2_02	D2_03	D2_04a	D2_04b	D2_04c	D2_05	D2_06a	D2_06b	D2_07
Seller 1										
Seller 2										

| ... | | | | | | | |

${seller}	Reasons for buying from ${input seller} READ OUT ALL OPTIONS AND SELECT ALL THAT APPLY *IF AT MOST ONE ELEMENT SELECTED* ❼ D2_12	Most important reason for buying from ${input seller} ❼ D2_12	Reasons for not buying from ${input seller}	Most important reason for not buying from ${input seller}	Did ${input seller} provide any information or service related to jute production? NO>> ❼ D2_14	How many minutes did ${input seller} spend providing information related to jute production (per transaction)?
	1. Lives nearby 2. Only available seller 3. Buys jute fiber 4. Provides good quality 5. Sells on credit 6. Gives good information 7. Gave a discount 8. Other (specify)	OPTIONS BASED ON REASONS SELECTED IN D2_08	1. Too far away 2. Prices too high 3. Provides low quality 4. Does not sell on credit 5. Does not give good information 6. Did not give discount/promotion 7. Other (specify)	OPTIONS BASED ON REASONS SELECTED IN D2_10 ❼ D2_15	Yes/No	Minutes per transaction
	D2_08	D2_09	D2_10	D2_11	D2_12	D2_13
Seller 1						
Seller 2						
...						

${seller}	On a scale of 1 to 10, where 1 is very unsatisfied and 10 is very satisfied, how would you rate your transaction with ${seller}?	Consider a 10-step ladder, where step 1 is the least trustworthy and step 10 is the most trustworthy. On which step does ${seller} stand?	Overall, on a scale of 1 to 10 how would you rate ${seller}'s knowledge of inputs

	(1 – 10)	(1 – 10)	(1 – 10)
	D2_14	D2_15	D2_16
Seller 1			
Seller 2			
…			

D2_18 Who is your preferred input seller?   POPULATE CHOICES FROM LIST ABOVE

D2_19 Who is your preferred input seller if ${D2_18} is not available? POPULATE CHOICES FROM LIST ABOVE. DO NOT INCLUDE ${D2_18}

Module E: Housing (All Groups)

No.	Question	Answer	No.	Question	Answer	
E_01	Do you own this house, rent this house, or use it for free?	1. Own 2. Rent 3. Use for free 2 ❼ E_03 3 ❼ E_04	E_08	What is your main source of cooking fuel?	1. Electricity 2. Supply gas 3. LPG 4. Kerosene 5. Firewood	6. Dried cow dung 7. Coal 8. Rice bran/sawdust 9. Dried leaves 10. Other (specify)
E_02	If you chose to rent this house to another person, how much would you be able to receive in rent per month?	(TAKA) ❼ E_04	E_09	What is your main source of lighting fuel?	1. Electricity (solar panel) 2. Electricity (power grid) 3. Supply gas 4. LPG 5. Kerosene 6. Firewood	7. Dried cow dung 8. Coal 9. Rice bran/sawdust 10. Dried leaves 11. Other (specify)
E_03	How much rent do you pay per month for this dwelling?	(TAKA)	E_10	What type of latrine do you use?	1. None (open field) 2. Kutcha (fixed place) 3. Pucca (unsealed) 4. Sanitary without flush (water sealed)	5. Sanitary with flush (water sealed) 6. Community latrine 7. Other (specify)
	Do not read this question aloud. Please observe the dwelling and enter your response based on your observation.		E_11	What is your main source of drinking water?	1. Supply water (piped) inside house 2. Supply water (piped) outside house 3. Own tube well 4. Other's tube well 5. Community tube well 6. Rainwater 7. Ring well/indara	8. Pond/river/canal 9. Bottled water 10. Shallow tube well for irrigation 11. Deep tube well for irrigation 12. Other (specify)
E_04	WHAT IS THE CONDITION OF THE DWELLING?	1. No sign of damage 2. Slightly damaged 3. Somewhat damaged 4. Very damaged			13.	
E_05	WHAT IS THE PRIMARY CONSTRUCTION MATERIAL OF THE MAIN DWELLING'S OUTER WALLS?	1. Concrete/brick 2. Tin/CI sheet 3. Wood 4. Mud 5. Bamboo 6. Jute straw 7. Plastic 8. Cardboard/paper 9. Golpaata/palm leaf 10. Grass/straw 5. Other (specify)			14.	

E_06	WHAT IS THE PRIMARY CONSTRUCTION MATERIAL OF THE MAIN DWELLING'S ROOF?	SEE E_05	E_12	What is your main source of water not used for drinking?	SEE E_11			
E_07	WHAT IS THE PRIMARY CONSTRUCTION MATERIAL OF THE MAIN DWELLING'S FLOOR?	SEE E_05	E_13	How do you dispose of garbage?	1. Local authority collects 2. Private firm collects 3. Public garbage pit/hole 4. Own garbage pit/hole 5. Burned/buried		6. Own garbage heap (not pit) 7. Gather in an open place 8. Throw in pond/khaal/beel 9. Other (specify)	

Module G: Household Expenditures on Goods Other Than Food (All Groups)

Module G1: Monthly Recall

"I will now ask you about any goods that you or other household members may have purchased or received for free. Please exclude any expenses or investments to run your business or farm. We are interested in items that you obtained for yourself or the household." * In the last 30 days, * did your household obtain any of the following items?

Item name	Item No.	Amount spent on ${item} (in the past 30 days)	Value of ${item} received for free (in the past 30 days)
	G1_01	G1_02_a	G1_02_b
Fuel, etc.			
Firewood, cow dung, pit coal, gas, agri by-fuel, etc. used for fire	1		
Kerosene, candles, matches, etc.	2		
Electricity (MONTHLY BILL. IF SOLAR, ENTER ESTIMATED VALUE)	3		
Beauty and hygiene			
Women's cosmetics and accessories	4		
Hair cutting, shaving, razor blades, shaving cream, parlour, salon, etc.	5		
Bath soap, shampoo, toothpaste, etc.	6		
Washing soap, powder for cloths	7		
Vim, dish cleaning supplies, finis, phenyl, etc.	8		
Washing / laundry expenses, bleaching powder, soda, etc.	9		
Toilet papers	10		
Mosquito coil or spray	11		
Transportation			
Long-distance transportation (bus fares, CNG taxis, train, etc.)	12		
Short-distance transportation (rickshaw, van, etc.)	13		
Bicycle maintenance, tires, tubes repairs etc.	14		
Maintenance, repairs etc. for other vehicles (motor-cycle, car, boat, etc.)	15		
Petrol, diesel, motor oil, CNG, etc.	16		
Other			
Airtime for mobile phone	17		
Other telecom (telephone charges, telegram, postal, courier, etc.)	18		
Salaries and wages of guards, gardeners, housekeepers, etc.	19		

Other contingencies expenses	20		

Module G2: Annual Recall (All Groups)

In the last 12 months did your household obtain any of the following items?

Item name	Item no.	Amount spent on ${item} (in the past 12 months)	Value of ${item} received for free (in the past 12 months)
	G2_01	G2_02a	G2_02b
Clothing and footwear			
Ready-made clothing for adults	1		
Ready-made clothing for children	2		
Napkins, diapers, disposable napkins	3		
Clothing material, cloth, fabric, silc, and tailoring expenses	4		
Shoes or sandals	5		
Household operations			
Household textiles (bedsheets, quilt, blanket, Katha, Toshok, mosquito netting)	6		
Household appliances (refrigerator, vacuum cleaner, stove, fan, A/C, etc.)	7		
Household cleaning equipment (brooms, dusters, mops, buckets, etc.)	8		
Furniture (bed, chowki, table, chair, sofa, almirah, etc.)	9		
Trunks, suitcases	10		
Household utensils (glass, china, cutlery, glassware, plates, pots, pans, etc.)	11		
Housing			
Water/sewerage charges	12		
Home additions, improvements or painting	13		
Maintenance and repair (disaster-related or routine)	14		

Item name	Item no.	Amount spent on ${item} (in the past 12 months)	Value of ${item} received for free (in the past 12 months)
	G2_01	G2_02a	G2_02b
Health			
Maternity care (midwives, maternity homes, etc.)	15		
Medicines, contraceptives, condoms	16		
Medical tests (X-ray, blood, urine, etc.)	17		
Fees for hospitals, clinics or practitioners (doctors, nurses, homeopath, etc.)	18		
Traditional medical services (traditional care, native doctors, etc.)	19		
Health-related travel (incl. ambulance)	20		
Education			
School fees	21		
Private tutoring	22		
Other fees (registration, examination, etc.)	23		
Textbooks, note books, stationary	24		
Gifts and ceremonies			
Remittances to others living separately	25		
Zakat	26		
Fitra	27		
Donation / Sadqa	28		
Qurbani	29		
Expenditure on ceremonies (weddings, births, deaths/funerals, milad, etc.)	30		
Photography	31		
Parties and presents for a marriage day or birthday	32		
Durables			
Jewellery, clocks, watches	33		
Purses, money bags, vanity bags and other personal use items	34		
Electronics (radio, TV, camera, phone, etc.)	35		
Other			
Bank / interest charges	36		
Other regular fees (cable fees, legal expenses for practitioner fees, etc.)	37		

Insurance (health, life, general, pension, etc.)	38		

Module I: Beliefs (All groups)

Module I1a: Expectations for Jute Production and Sales (All Groups)

Now we would like to play a game in which we ask you some questions about your jute production in the next season. We would like to know two things: how much jute you expect to harvest in the next season and how much money you expect to sell your jute harvest for. We are now going to start with an example.

Suppose I planted jute using normal fertilizer (for example: 36kg of urea (N) and 90kg of manure per acre)
The minimum amount of jute I could harvest this season is 0 kilograms per acre, in case something very unexpected happens and I cannot produce anything.
What would be the maximum amount of jute you could harvest this season if conditions were perfect and nothing bad happened? [X]
So your yield would be between 0 and X kg/acre, ok?

Here, I have split the potential yields into five different boxes.
The first box means that I yielded less than 600 kg of jute per acre. [POINT AT BOX]
The second box means that I yielded 601-900 kg of jute per acre. [POINT AT BOX]
The third box means that I yielded 901-1050 kg of jute per acre. [POINT AT BOX]
The fourth box means that I yielded 1051-1350 kg of jute per acre. [POINT AT BOX]
The fifth box means that I yielded more than 1350 kg of jute per acre. [POINT AT BOX]
MAKE SURE THAT TO THE ENUMERATOR'S RIGHT, YOU ALWAYS SHOW THE LOWEST AMOUNT, AND TO THE LEFT, ALWAYS THE HIGHEST AMOUNT.

Can you tell me how much jute I yield if I choose this box? [POINT AT BOX 5]
[CONFIRM THAT THE RESPONDENT ANSWERED "more than 1350 kg/acre". IF HE DOES NOT, REPEAT INSTRUCTIONS TO HELP HIM UNDERSTAND.]
Can you tell me how much jute I yield if I choose this box? [POINT AT BOX 3]
[CONFIRM THAT THE RESPONDENT ANSWERED "900-1050 kg/acre". IF HE DOES NOT, REPEAT INSTRUCTIONS TO HELP HIM UNDERSTAND.]

I am going to use these marbles to represent the likelihood that each of the yields per acre will actually occur. [SHOW MARBLES]
The more marbles in each box, the more likely it is that I will harvest that amount of jute.

For example, if I put all ten marbles in the first box (less than 600 kg per acre), [PLACE THE MARBLES IN THE BOX]
it means that I believe I will harvest less than 600kg per acre of jute with absolute certainty.
[CLEAR MARBLES FROM BOX]

If I put 5 marbles in the first box (less than 600 kg per acre) [PLACE THE MARBLES] and 5 marbles in the second box (601-900 kg per acre), [PLACE THE MARBLES]
it means that I believe it is equally likely that I will harvest less than 600 kg of jute per acre or 601-900 kilograms per acre of jute, and that I do not expect to harvest more than 900 kg per acre at all.
[CLEAR MARBLES FROM BOXES]

Now let's try another example.
I will put 1 marble in the first box (less than 600 kg/acre) [PLACE THE MARBLES],

Kilograms per acre	Distribution	Marbles
Less than 600 kg/acre	1/10	•
600-900 kg/acre	2/10	• •
900-1050 kg/acre	4/10	• • • •
1050-1350 kg/acre	3/10	• • •
More than 1350 kg/acre	0/10	

2 marbles in the second box (600-900 kg/acre) [PLACE THE MARBLES],
4 marbles in the third box (900-1050 kg/acre) [PLACE THE MARBLES],
3 marbles in the fourth box (1050-1350 kg/acre) [PLACE THE MARBLES],
and no marbles in the fifth box (more than 1350 kg/acre).

This means I believe there is a 1 in 10 chance that I will harvest less than 600 kg per acre [POINT AT THE BOX],
and 2 in 10 chance that I will harvest 600-900 kg per acre [POINT AT THE BOX],
There is also a 4 in 10 chance that I will harvest 900-1050 kg per acre [POINT AT THE BOX],
a 3 in 10 chance that I will harvest 1050-1350 kg per acre [POINT AT THE BOX],
a no chance that I will harvest more than 1350 kg per acre. [POINT AT THE BOX]
Can you tell me how likely it is that I yield 600-900 kg per acre? [POINT AT BOX 2]
[CONFIRM RESPONDENT ANSWERED "2 in 10." IF HE DOES NOT, REPEAT INSTRUCTIONS TO HELP HIM UNDERSTAND]

There is also a 4 in 10 chance that I will harvest 900-1050 kg per acre [POINT AT THE BOX],
a 3 in 10 chance that I will harvest 1050-1350 kg per acre [POINT AT THE BOX],
a no chance that I will harvest more than 1350 kg per acre. [POINT AT THE BOX]
Can you tell me how likely it is that I yield 1050-1350 kg per acre? [POINT AT BOX 4]
[CONFIRM RESPONDENT ANSWERED "3 in 10." IF HE DOES NOT, REPEAT INSTRUCTIONS TO HELP HIM UNDERSTAND]

Most likely, I will harvest between 900-1050 kg/acre, which is why I put 4 out of 10 marbles in this box. [POINT AT THE BOX]
The chance that I harvest between 1050-1350 kg/acre is a little bit less, so I am putting 1 marble less here. [POINT AT THE BOX]
The chance of harvesting between 600-900 kg/acre is less, so I am putting 2 marbles here. [POINT AT THE BOX]
And it is very unlikely that I harvest less than 600 kg/acre, but it may happen, so I am putting only 1 marble here. [POINT AT THE BOX]
I don't think there is any chance that I will harvest between more than 1350 kg/acre, so I did not put any marbles here. [POINT AT THE BOX]

Is this clear? [CONFIRM RESPONDENT UNDERSTANDS]

Now I will ask you questions regarding your expectations for next season's jute harvest.

Yield with urea fertilizer				Yield with NPKS fertilizer			
No.	Script	Yield per Acre	Distribution	No.	Script	Yield per Acre	Distribution
I1_01a	Now I would like to ask you how much jute you would expect to yield if you carried out your normal activities and **applied 36kg of urea fertilizer and 90kg of manure per acre** I have five boxes and ten marbles here. The values shown in each box represent different yields per acre of jute with **36 kg of urea fertilizer and 90kg of manure**. Every marble represents a possibility that the amounts shown in each block will happen in real life. Your task is to divide the marbles over the five blocks. The amount on the left represents the worst case scenario with the lowest yields per acre. The amount on the right represents the best case scenario with the highest yields per acre. The three amounts in the middle represent yields somewhere in-between the worst and the best case scenarios. Notice that as we move from left to right, we move from the lowest to the highest yields. Remember, these are yields that you would expect with **urea fertilizer and manure.** Please divide the marbles over the five blocks now. RECORD THE DISTRIBUTION OF THE MARBLES	0-600 kg		I1_02a	Now I would like to ask you how much jute you would expect to yield if you carried out your normal activities and **applied 75 kg of NPKS fertilizer per acre and 39 kg of urea** I have five boxes and ten marbles here. The values shown in each box represent different yields per acre of jute with **application of 75 kg NPKS fertilizer and 39 kg of urea** Every marble represents a possibility that the amounts shown in each block will happen in real life. Your task is to divide the marbles over the five blocks. The amount on the left represents the worst case scenario with the lowest yields per acre. The amount on the right represents the best case scenario with the highest yields per acre. The three amounts in the middle represent yields somewhere in-between the worst and the best case scenarios. Notice that as we move from left to right, we move from the lowest to the highest yields. Remember, these are yields that you can expect with **application of NPKS fertilizer and urea.** Please divide the marbles over the five blocks now. RECORD THE DISTRIBUTION OF THE MARBLES	0-600kg	
I1_01b		600–900 kg		I1_02b		600–900 kg	
I1_01c		900 – 1050 kg		I1_02c		900 – 1050 kg	
I1_01d		1050 – 1450 kg		I1_02d		1050 – 1450 kg	
I1_01e		1450kg +		I1_02e		1450kg+	

Trust Game (All Groups)

GENERAL INSTRUCTIONS

NOW WE WILL BE PLAYING A GAME FOR REAL MONEY. YOU SHOULD UNDERSTAND THAT THIS IS NOT DATA'S OWN MONEY. IT IS MONEY GIVEN TO DATA BY RESEARCHERS TO USE FOR THIS STUDY. YOU SHOULD ALSO UNDERSTAND THAT THIS IS A NEW GAME THAT NONE OF YOU HAVE PLAYED BEFORE. SO IF YOU HAVE HEARD ABOUT A GAME LIKE THIS BEFORE YOU SHOULD TRY TO FORGET EVERYTHING THAT YOU HAVE BEEN TOLD. THIS IS A COMPLETELY DIFFERENT GAME.

I WILL EXPLAIN THE GAME TO YOU. IT IS IMPORTANT THAT YOU LISTEN AS CAREFULLY AS POSSIBLE, BECAUSE YOU WILL BE ABLE TO MAKE THE DECISIONS THAT ARE RIGHT FOR YOU ONLY WHEN YOU UNDERSTAND THE GAME. YOU CAN ASK ME QUESTIONS TO BE SURE THAT YOU UNDERSTAND HOW TO PLAY.

[FLIPCHART 1]
This game is played by pairs. Each pair is made up of a farmer [POINT] and an input seller [POINT]. You will play this game with **an input seller (a farmer)** from your same union. However, you will not know exactly with whom you are playing, and the **input seller (farmer)** will not know exactly with whom he is playing either. Only the researchers and my supervisor know who is to play with whom and they will never tell anyone else.

[FLIPCHART 2]
At the start of the game, you both get some money. Right now, we will use play money, but in a few days, we will replace whatever you earnt with actual money. Ok? It works as follows. We will give both of you 150 Taka [POINT]. Then, **you (the farmer)** can send some or all of the 150 Taka to **the input seller (you)**. This is done by putting the portion to be sent in an envelope for the seller [POINT]; either all 150 Taka [POINT], or 100 Taka [POINT], or 50 Taka [POINT], or nothing [POINT]. The other money has to be put in another envelope, which is for the farmer. Ok?

Both the seller envelope and the farmer envelope are going to my supervisor. My supervisor will take the money from the seller envelope, triple it, and put the tripled amount back in the seller envelope; so then the seller envelope will contain whatever **you (the farmer)** put in there, <u>times three</u>. Then, the seller envelope goes to **the input seller (you)**. Ok? My supervisor will keep the farmer envelope safe. The money in the farmer envelope will stay the same. So it will not be tripled. Ok?

[FLIPCHART 3, START FROM BOTTOM]
Now let's explain what we mean by tripling the money in the seller envelope.
- If the farmer puts 150 Taka in the seller envelope, how much does the input seller receive? [450]
- If the farmer puts 100 Taka in the seller envelope, how much does the input seller receive? [300]
- If the farmer puts 50 Taka in the seller envelope, how much does the input seller receive? [150]
- If the farmer puts nothing in the seller envelope, how much does the input seller receive? [0]

[FLIPCHART 4]
We then ask the **input seller (you)** whether to return any of this money to **you (the farmer)**. We will give the input seller 150 Taka, then one envelope with the amount from **you (the farmer)** and another envelope for **the input seller (you)**. We will count the money from **you (the farmer)**, then the **input seller (you)** will decide how

much money to put back in the farmer envelope to send back to **you (the farmer)** and how much to put in the seller envelope for **the input seller (you)** to keep: **the input seller (you)** can choose to return any portion to **you (the farmer)**.

[FLIPCHART 5]
Now we have the final step: my supervisor will return to **you (the farmer)** the amount that **the input seller (you)** decided to send back to **you (the farmer)**. So **you (the farmer)** will receive the amount that they decided to keep plus the amount that **the input seller (you)** decides to send back. **You (the farmer)** will receive all of this money back from my supervisor.

[FLIPCHART 6]
So **the input seller (you)** will receive the total amount **the input seller (you)** placed in the seller envelope (of the 150 taka we gave **the input seller (you)** plus whatever **you (the farmer)** sent) minus the amount that **the input seller (you)** decided to send back to **you (the farmer)**. Is that clear?

Here are some examples

[FLIP CHART 7]:
1. Imagine that the farmer gives 150 to the input seller. How much does the farmer keep? [NOTHING]. And how much does the farmer put in the seller envelope? [150 TAKA]. The researchers triple this amount, so the input seller gets how much? [150 X 3 = 450, plus the 150 Taka received at the start of the game = 600 Taka in total]. Then the input seller decides how much to send back to the farmer.
   - Suppose he decides to return 450 Taka. How much will the farmer then receive? [450 Taka] And the input seller? [600-450 = 150 Taka]
   - Suppose he decides to return 150 Taka. How much will the farmer then receive? [150 Taka] And the input seller? [600-150=450 Taka]
   - Suppose he decides to return 0 Taka. How much will the farmer then receive? [0 Taka] And the input seller? [600-0=600 Taka]
     Is this clear?

   Now let's try another example.

[FLIP CHART 8]:
2. Imagine that the farmer gives 100 to the input seller. How much does the farmer keep? [50 TAKA] And how much does the farmer put in the envelope? [100 TAKA] The researchers triple this amount, so the input seller gets how much? [100 X 3 = 300, plus the 150 Taka from the start of the game, so 450 Taka in total]. Then the input seller decides how much to send back to the farmer.
   - Suppose he decides to return 400 Taka. How much will the farmer then receive? [400 + 50 = 450 Taka] And the input seller? [450 − 400 = 50 Taka]
   - Suppose he decides to return 250 Taka. How much will the farmer then receive? [250 + 50 = 300 Taka] And the input seller? [450 − 250 = 200 Taka]
   - Suppose he decides to return 50 Taka. How much will the farmer then receive? [50 + 50 = 100 Taka] And the input seller? [450 − 50 = 400 Taka]
     Is this clear?

   Now let's try another example.

[FLIP CHART 9]:

3. Imagine that the farmer gives 50 to the input seller. How much does the farmer keep? [100 TAKA] And how much does the farmer put in the envelope? [50 TAKA] The researchers triple this amount, so the input seller gets how much? [50 X 3 = 150, plus the 150 Taka from the start of the game, so 300 Taka in total]. Then the input seller decides how much to send back to the farmer.
-   Suppose he decides to return 100 Taka. How much will the farmer then receive? [100 + 100 = 200 Taka] And the input seller? [300 – 100 = 200 Taka]
-   Suppose he decides to return 50 Taka. How much will the farmer then receive? [50 + 100 = 150 Taka] And the input seller? [300 – 50 = 250 Taka]
-   Suppose he decides to return 0 Taka. How much will the farmer then receive? [0 + 100 = 100 Taka] And the input seller? [300 – 0 = 300 Taka]
    Is this clear?

    Now let's try a final example.

[FLIP CHART 10]:

4. Imagine that the farmer gives 0 to the input seller. How much does the farmer keep? [150 TAKA] And how much does the farmer put in the envelope? [0 TAKA] So the input seller gets how much? [0, plus the 150 Taka from the start of the game, so 150 Taka in total]. Then the input seller decides how much to send back to the farmer.
-   Suppose he decides to return 100 Taka. How much will the farmer then receive? [150 + 100 = 250 Taka] And the input seller? [150 – 100 = 50 Taka]
-   Suppose he decides to return 50 Taka. How much will the farmer then receive? [150 + 50 = 200 Taka] And the input seller? [150 – 50 = 100 Taka]
-   Suppose he decides to return 0 Taka. How much will the farmer then receive? [150 + 0 = 150 Taka] And the input seller? [150 – 0 = 150 Taka]
    Is this clear?

Note that if the farmer puts more in the seller envelope, the two of you will earn more together. The more the farmer puts in the seller envelope, the more money there is to be tripled by the researchers. So combined, the two of you earn more together. However, it is not necessarily the case that the farmer earns more when putting more money in the seller envelope; it is entirely up to the input seller to decide what to return. So the farmer could end up with more than 150 Taka or less than 150 Taka, depending on how much the input seller returns. Is that clear?

Group 1 / Group 2 Households Only

You will play this game with 3 different input sellers, so there is a set of seller and farmer envelopes for 3 different input sellers. But the researchers will randomly pick only **one** of the three sets of envelopes, then keep <u>the</u> farmer envelope from <u>that</u> set, and triple the amount in <u>the seller</u> envelope from <u>that</u> set, and send only <u>that</u> seller envelope to the input seller. So the other 2 input sellers will not get an envelope from you; they will get envelopes from a different farmer, also randomly picked. Ok? Each of your sets of buyer and farmer envelopes has an equal chance of being picked, and it will not depend on how much money you put in the envelope.

I will ask you to put money in the envelope for each input seller separately. We will do this as follows. I give you the first set of seller and farmer envelopes and tell you to which input seller the seller envelope will go if randomly picked. Then you decide how much money to put in the seller envelope and how much in the farmer envelope while I turn away – so you can make your choice in private. Then, once you are ready, I will give you the second set of seller and farmer envelopes and tell you to which input seller that seller envelope will go if randomly picked. Then again you decide how much money to put in that second seller envelope while I turn away. Finally, once you are ready with the second set of envelopes, I will tell you to which input seller the third set of envelopes will go if randomly picked. Then again you decide how much money to put in the third seller envelope, again while I am turned away. And then we are done.

The researchers will then randomly pick one of these three sets of farmer and seller envelopes. My supervisor will then triple the money in the seller envelope. The seller envelope is then sent to the input seller. We will not tell him that the money is coming from you. So he will never find out that you were playing with him. Ok?

DO THIS FOR SELLER 1, SELLER 2 AND SELLER 3 (READ OUT THEIR NAMES ONLY JUST BEFORE GIVING THEM THE ENVELOPE SETS, SEQUENTIALLY; WHEN DOING ENVELOPE 1, THEY SHOULD NOT YET KNOW WHO IS INPUT SELLER 2 OR 3).
You will now play this game with [SELLER X]. Here is your 150 Taka. [*At this point 150 dummy Takas/play money is placed in front of the farmer.*] While I am turned away, you must put the amount of money you want to keep in this farmer envelope, and you must put the money you want to be tripled in this seller envelope. You can give [SELLER X] nothing, 50 Taka, 100 Taka, or 150 Taka. If we select this set of envelopes, the researchers will triple the amount in the seller envelope and give it to [SELLER X]. He will then choose how much to return to you. We give you the amount that he returns, plus the amount that is in your farmer envelope. Ok?

[NOW TURN AWAY]

[CONFIRM THAT THE RESPONDENT HAS MADE A DECISION, THEN TURN BACK AROUND- CHECK TO MAKE SURE THAT THE ENVELOPE MATCHES THE SELLER NAME]

Ok we are done now. The researchers will randomly pick one set of farmer and seller envelopes and send the seller envelope from that set to an input seller. The input seller will then decide how much to return to you. In a few days from now, we will let you know how much you earnt and give you the money. Do you have any questions for me now?

Group 3 Households Only

You will play this game with 4 different farmers, so there is a seller envelope for 4 different farmers, but the researchers will randomly pick only **one** of the four sets of envelopes. The money that you put in the farmer envelope <u>for the randomly selected farmer</u> will go to that farmer; and the money you decided to keep from that farmer will go to you. This is the money that you put in the selected seller envelope. So <u>only your choice for that set will be paid by my supervisor</u>. Ok? Each of your sets of buyer and farmer envelopes has an equal chance of being picked, and it will not depend on how much money you put in the envelope.

I will ask you to put money in the envelope for each farmer separately. We will do this as follows. I give you the first envelope and tell you how much is in it. Then you decide how much money to put back in the envelope while I turn away – so you can make your choice in private. Then, once you are ready, I will give you the second envelope and tell you again how much is in it. Then again you decide how much money to put back in that second envelope while I turn away. We follow this procedure for all envelopes. And then we are done. Ok? The researchers will then give the farmer the money in the envelope, plus whatever the farmer decided to put in the farmer envelope. We will not tell him that the money is coming from you. So he will never find out that you were playing with him. Ok?

DO THIS FOR ALL FOUR ENVELOPES. (FOR EACH ENVELOPE SAY THE AMOUNT IN THE ENVELOPE ONLY JUST BEFORE GIVING THEM THE ENVELOPE IN SEQUENCE; WHEN DOING ENVELOPE 1, THEY SHOULD NOT YET KNOW HOW MUCH IS IN ENVELOPE 2 ETC.).

Let's do the game for the first / second / third / etc. envelope. Here is your 150 Taka to start with. And here is the envelope with from farmer 1/2/3/4. There is [... insert amount ...] Taka in the envelope. So the farmer sent you [... insert amount/3 ...] Taka out of his initial 150 Taka. Here is an envelope for you to decide what to send back to the farmer. While I am turned away, please put the amount you want to keep back into the first envelope and the amount you want to send to the farmer into the second envelope. You can give the farmer as much as you like.

[NOW TURN AWAY]

[CONFIRM THAT THE RESPONDENT HAS MADE A DECISION, THEN TURN BACK AROUND- CHECK TO MAKE SURE THAT THE ENVELOPE MATCHES THE FARMER NUMBER]

Ok we are done now. One of the farmers will be randomly selected and you will receive real money in the amount that you decided to keep when playing with that farmer. My supervisor will also give the farmers real money for the amount they earnt; so that is the amount that you gave back in the envelope for the farmer, plus the amount the farmer decided to keep. Do you have any questions for me now?

All Households

ENUMERATOR: Were you able to complete the trust game successfully for all rounds?
ENUMERATOR: Describe any problems you had in completing the trust game.

END OF MAIN FORM

MALE FORM

MODULE A: HOUSEHOLD IDENTIFICATION (GROUP 1, 2 & 3)

Variable	IDENTIFICATION	Response
date	DATE	
interviewer	TEAM [SUPERVISOR NAME/CODE] & INTERVIEWER [NAME/CODE]	
hhid	HOUSEHOLD IDENTIFICATION NUMBER [NUMERICAL]	

Household verification (1): HOUSEHOLD INFORMATION FOR ID ${hhid}		
A_02	DISTRICT / UPAZILA [CODED]	*This information will be pre-filled by the survey program. Interviewers should review the information and ensure that they are interviewing the correct respondent.*
A_03	UNION [CODED]	
A_04	VILLAGE [CODED]	
HOUSEHOLD HEAD:		*If the preload information does not conform to the correct respondent, or if there is any doubt over the status of the person to be interviewed, the interviewer should not proceed with the interview and immediately contact their supervisor.*
A_08	NAME	
A_12	GENDER	
HOUSEHOLD HEAD'S FATHER		
A_10	NAME	
A_05	HOUSEHOLD LOCATION/LANDMARK [STRING]	
MAIN RESPONDENT IN PREVIOUS ROUND		[PRELOADED NAME]
CHECK THE ABOVE INFORMATION CAREFULLY AND CHOOSE "YES" TO PROCEED IF YOU ARE SURE YOU	☐ 1 – Yes	☐ 2 – No *

	ARE AT THE RIGHT HOUSEHOLD.		
A_06	CAN YOU START THE INTERVIEW WITH THE MALE RESPONDENT IDENTIFIED IN FEMALE FORM?	☐ 1 – Yes -> A_09	☐ 2 – No -> A_07
*	YOU CANNOT PROCEED UNLESS YOU HAVE FOUND THE CORRECT HOUSEHOLD. EITHER SPEAK TO THE RESPONDENT AGAIN TO CHECK THE DETAILS OR CANCEL THE INTERVIEW AND CONTINUE TO LOOK FOR THE RIGHT HOUSEHOLD.		
A_07	WHY CAN YOU NOT START THE INTERVIEW? *AFTER SELECTING AN ANSWER -> END*	☐ 1 – Moved ☐ 2 – Not found ☐ 3 – Refused	☐ 4 – Unavailable ☐ 5 – Other (specify)

RESPONDENT INFORMATION

male_resp	Please enter the NAME of the respondent for this form, identified in the female form. The respondent should be the primary jute farmer/input seller in the household.	
resp_age	Please provide the age of the respondent for this form	
resp_sex	Please provide the sex of the respondent for this form	
roster_list	Group 2 Households only Please enter the name, age, sex & PID of each member of the household	Member 1
		Member 2
		…

male_resp	Group 2 Households only From the list of members, please select the ${male_resp}	

CONSENT OF RESPONDENT

Good morning/afternoon. I am _____ from the Data Analysis and Technical Assistance Limited (DATA), a Bangladeshi research organization based in Dhaka. Together with the International Food Policy Research Institute (IFPRI), we are conducting a survey that will provide IFPRI with necessary information to carry out research that is designed to help promote the welfare of Bangladeshis; particularly, to improve food consumption and nutrition of the people and women's status, and to enhance agricultural development and income generation. Your household has been chosen by a random selection process.

We are inviting you to be a participant in this study. We value your opinion and there are no wrong answers to the questions we will be asking in the interview. We will use approximately 3-4 hours of your time to collect all the information. If you prefer, we can do the interview in two visits.
There will be no cost to you other than your time.   There will be no risk as a result of your participating in the study. Your participation in this research is completely voluntary. You are free to withdraw your consent and discontinue participation in this study at any time.

This study is conducted anonymously. You will only be identified through code numbers. Your identity will not be stored with other information we collect about you. Your responses will be assigned a code number, and the list connecting your name with this number will be kept in a locked room and will be destroyed once all the data has been collected and analyzed. Any information we obtain from you during the research will be kept strictly confidential. Your participation will be highly appreciated.
The answers you give will help provide better information to policy-makers, practitioners and program managers so that they can plan for better services that will respond to your needs.

The researcher read to me orally the consent form and explained to me its meaning. I agree to take part in this research. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any question that arise during the course of the research.
.

Contact Person:
Name of the Principal Investigator (PI): _____
Address:
Tel: _____; E-mail of PI: _____
Signature of the Enumerator: _____   **Date:** /_____/_____/_____/

consent_m	"Do you agree to be interviewed for the purposes of this study?"
no_consent	WHY DOES THE RESPONDENT NOT GIVE CONSENT? ❼ END INTERVIEW

MODULE G2: ROLE IN HOUSEHOLD DECISION-MAKING AROUND PRODUCTION AND INCOME (Group 2 only)

Now I'd like to ask you some questions about your participation in certain types of work activities and on making decisions on various aspects of household life.	Did you [NAME] participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision? ENTER UP TO THREE (3) MEMBER IDs IF RESPONSE IS MEMBER ID (SELF) ONLY ❷ G2.05 OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE.......98 ❷ NEXT ACTIVITY			How much input did you have in making decisions about [ACTIVITY]? USE CODE G2↓	To what extent do you feel you can participate in decisions regarding [ACTIVITY] if you want(ed) to? CIRCLE ONE	To what extent are you able to access information that you feel is important for making informed decisions regarding [ACTIVITY]? CIRCLE ONE	How much input did you have in decisions about how much of the outputs of [ACTIVITY] to keep for consumption at home rather than selling? USE CODE G2↓	How much input did you have in decisions about how to use income generated from [ACTIVITY]? USE CODE G2↓
		G2.02							G2.07
ACTIVITY	G2.01	ID #1	ID #2	ID #3	G2.03	G2.04	G2.05	G2.06	
A Staple grain farming and processing of the harvest: grains that are grown primarily for food consumption (rice, maize, wheat, millet)	YES......1 NO.......2 ❷ ACTIVITY B					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
B Horticultural (gardens) or high value crop farming and processing of the harvest	YES......1 NO.......2 ❷ ACTIVITY C					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
C Large livestock raising (cattle, buffaloes) and processing of milk and/or meat	YES......1 NO.......2 ❷ ACTIVITY D					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
D Small livestock raising (sheep, goats, pigs) and processing of milk and/or meat	YES......1 NO.......2 ❷ ACTIVITY E					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
E Poultry and other small animals raising (chickens, ducks, turkeys) and processing of eggs and/or	YES......1 NO.......2 ❷ ACTIVITY F					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		

	meat								

⬚

CODE G2	
LITTLE TO NO INPUT IN DECISIONS	1
INPUT INTO SOME DECISIONS	2
INPUT INTO MOST OR ALL DECISIONS	3
NOT APPICABLE / NO DECISION MADE	98

		Did you [NAME] participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision? **ENTER UP TO THREE (3) MEMBER IDs** **IF RESPONSE IS MEMBER ID (SELF) ONLY ❷** *G2.05* **OTHER CODES:** NON-HH MEMBER.......94 NOT APPLICABLE.......98 ❷ *NEXT ACTIVITY*			How much input did you have in making decisions about [ACTIVITY]? **USE CODE G2↓**	To what extent do you feel you can participate in decisions regarding [ACTIVITY] if you want(ed) to? **CIRCLE ONE**	To what extent are you able to access information that you feel is important for making informed decisions regarding [ACTIVITY]? **CIRCLE ONE**	How much input did you have in decisions about how much of the outputs of [ACTIVITY] to keep for consumption at home rather than selling? **USE CODE G2↓**	How much input did you have in decisions about how to use income generated from [ACTIVITY]? **USE CODE G2↓**
				G2.02						G2.07
ACTIVITY		G2.01	ID #1	ID #2	ID #3	G2.03	G2.04	G2.05	G2.06	
F	Fishpond culture	YES......1 NO.......2 ❷ *ACTIVITY G*					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
G	Non-farm economic activities (running a small business, self-employment, buy-and-sell)	YES......1 NO.......2 ❷ *ACTIVITY H*					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
H	Wage and salary employment (work that is paid for in cash or in-kind, including both agriculture and other wage work)	YES......1 NO.......2 ❷ *ACTIVITY I*					NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		

I	Large, occasional household purchases (bicycles, land, transport vehicles)						NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		
J	Routine household purchases (food for daily consumption or other household needs)						NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT TO A HIGH EXTENT		

CODE G2	
LITTLE TO NO INPUT IN DECISIONS	1
INPUT INTO SOME DECISIONS	2
INPUT INTO MOST OR ALL DECISIONS	3
NOT APPICABLE / NO DECISION MADE	98

MODULE G3(A): ACCESS TO PRODUCTIVE CAPITAL (GROUP 2 ONLY)
G3.01-G3.05 (GROUP 2 ONLY)

Now I'd like to ask you specifically about your household's land.

QUESTION		RESPONSE		
G3.01. Does anyone in your household currently own or cultivate land?		YES........1 NO........2 ❼ *G3.06, ITEM A*		
G3.02. Who generally makes decisions about what to plant on this land?	ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER 94 NOT APPLICABLE 98	ID #1	ID #2	ID #3
G3.03. Do you [NAME] solely or jointly cultivate any land?	CIRCLE <u>ONE</u>	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO		
G3.04. Who generally makes decisions about what to plant on the land that you yourself cultivate?	ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER 94 NOT APPLICABLE 98	ID #1	ID #2	ID #3
G3.05. Do you own any of the land owned or cultivated by your household?	CIRCLE <u>ONE</u>	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO		

Now I'd like to ask you about a number of items that could be used to generate income.	Does anyone in your household currently have any [ITEM]?	Do you [NAME] own any [ITEM]? CIRCLE <u>ONE</u>	
ITEM	**G3.06**	**G3.07**	
A	Large livestock (cattle, buffaloes)	YES........1 NO.........2 ❷ *ITEM B*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
B	Small livestock (sheep, goats, pigs)	YES........1 NO.........2 ❷ *ITEM C*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
C	Poultry and other small animals (chickens, ducks, turkeys)	YES........1 NO.........2 ❷ *ITEM D*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
D	Fish pond or fishing equipment	YES........1 NO.........2 ❷ *ITEM E*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
E	Non-mechanized farm equipment (hand tools, animal-drawn plough)	YES........1 NO.........2 ❷ *ITEM F*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
F	Mechanized farm equipment (tractor-plough, power tiller, treadle pump)	YES........1 NO.........2 ❷ *ITEM G*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
G	Non-farm business equipment (solar panels used for recharging, sewing machine, brewing equipment, fryers)	YES........1 NO.........2 ❷ *ITEM H*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
H	House or building	YES........1 NO.........2 ❷ *ITEM I*	YES, SOLELY YES, JOINTLY YES, SOLELY AND JOINTLY NO	1 2 3 4
I	Large consumer durables (refrigerator, TV, sofa)	YES........1 NO.........2 ❷ *ITEM J*	YES, SOLELY YES, JOINTLY	1 2

| | | YES, SOLELY AND JOINTLY | 3 |
| | | NO | 4 |

		Does anyone in your household currently own any [ITEM]?	Do you [NAME] own any [ITEM]? CIRCLE ONE
ITEM		G3.06	G3.07
J	Small consumer durables (radio, cookware)	YES........1 NO.........2 ❼ ITEM K	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
K	Cell phone	YES........1 NO.........2 ❼ ITEM L	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
L	Other land not used for agricultural purposes (pieces/plots, residential or commercial land)	YES........1 NO.........2 ❼ ITEM M	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4
M	Means of transportation (bicycle, motorcycle, car)	YES........1 NO.........2 ❼ MODULE G3(B)	YES, SOLELY 1 YES, JOINTLY 2 YES, SOLELY AND JOINTLY 3 NO 4

MODULE G3(B): ACCESS TO FINANCIAL SERVICES (GROUP 2 ONLY)

Next I'd like to ask about your household's experience with borrowing money or other items (in-kind) in the past 12 months.	Would you or anyone in your household be able to take a loan or borrow cash/in-kind from [SOURCE] if you wanted to?	Has anyone in your household taken any loans or borrowed cash/in-kind from [SOURCE] in the past 12 months? CIRCLE ONE	Who made the decision to borrow from [SOURCE] most of the time? ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE…....98			Who makes the decision about what to do with the money or item borrowed from [SOURCE] most of the time? ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE…....98			Who is responsible for repaying the money or item borrowed from [SOURCE]? ENTER UP TO THREE (3) MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE…....98		
LENDING SOURCES	**G3.08**	**G3.09**	**G3.10**			**G3.11**			**G3.12**		
			ID #1	ID #2	ID #3	ID #1	ID #2	ID #3	ID #1	ID #2	ID #3
A Non-governmental organization (NGO)	YES……....1 NO………..2 ❷ *SOURCE B* MAYBE…..3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ⟶ *SOURCE B* DON'T KNOW 97									
B Formal lender (bank/financial institution)	YES……....1 NO………..2 ❷ *SOURCE C* MAYBE…..3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ⟶ *SOURCE C* DON'T KNOW 97									
C Informal lender	YES……....1 NO………..2 ❷ *SOURCE D* MAYBE…..3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ⟶ *SOURCE D* DON'T KNOW 97									
D Friends or relatives	YES……....1 NO………..2 ❷ *SOURCE E* MAYBE…..3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ⟶ *SOURCE E* DON'T KNOW 97									
E Group based micro-finance or lending including VSLAs / SACCOs	YES……....1 NO………..2 ❷ *SOURCE F* MAYBE…..3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ⟶ *SOURCE F* DON'T KNOW 97									
F Informal credit / savings groups (.e.g., merry-go-rounds, tontines, funeral societies, etc.)	YES……....1 NO………..2 ❷ *G3.13* MAYBE…..3	YES, CASH 1 YES, IN-KIND 2 YES, CASH AND IN-KIND 3 NO 4 ⟶ *G3.13* DON'T KNOW 97									

G3.13	An account can be used to save money, to make or receive payments, or to receive wages or financial help. Do you, either by yourself or together with someone else, currently have an account at any of the following places: a bank or other formal institution (e.g., post office)?	YES NO DON'T KNOW

MODULE G4: TIME ALLOCATION (GROUP 2 ONLY)

G4.01: PLEASE RECORD A LOG OF THE ACTIVITIES FOR THE INDIVIDUAL IN THE LAST COMPLETE 24 HOURS (STARTING YESTERDAY MORNING AT 4 AM, FINISHING 3:59 AM OF THE CURRENT DAY). THE TIME INTERVALS ARE MARKED IN 15 MIN INTERVALS. <u>MARK ONE ACTIVITY FOR EACH TIME PERIOD</u> BY ENTERING THE CORRESPONDING ACTIVITY CODE IN THE BOX.

G4.02: CHECK THE BOX BELOW IF THE RESPONDENT WAS CARING FOR CHILDREN WHILE PERFORMING EACH ACTIVITY.

Now I'd like to ask you about how you spent your time during the past 24 hours. We'll begin from yesterday morning, and continue through to this morning. This will be a detailed accounting. I'm interested in everything you did (i.e. resting, eating, personal care, work inside and outside the home, caring for children, cooking, shopping, socializing, etc.), even if it didn't take you much time. I'm particularly interested in agricultural activities such as farming, gardening, and livestock raising whether in the field or on the homestead. I'm also interested in how much time you spent caring for children, especially if it happened while you did some other activity (e.g., collecting water while carrying a child or cooking while watching after a sleeping child).

		Night		Morning	Day									
		4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	
G4.01 Activity (WRITE ACTIVITY CODE)														
G4.02 Did you also care for children? YES.....CHECK BOX NO...LEAVE BLANK	YES CHECK BOX / NO LEAVE BLANK	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	

		Day		Evening	Night									
		16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	1:00	2:00	3:00	
G4.01 Activity (WRITE ACTIVITY CODE)														
G4.02 Did you also care for children?	YES CHECK BOX / NO LEAVE BLANK	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	

ACTIVITY CODES FOR G4.01

A	H	Horticultural (gardens) or	N	Shopping / getting service (incl. he	U
B	I	Large livestock r	O	Weaving / sewin	V
C	J	Small livestock rais	P		W
D	K	Poultry and oth	Q	Domestic work (incl. fetching water and	X
E		(chickens, ducks, turkeys)	R	Cari	
F	L		S	Caring for adults	
G	M	Commuting	T	Traveling (not for w	

G4.03. In the last 24 hours did you work (at home or outside of the home including chores or other domestic activities) less than usual, about the same as usual, or more than usual?	FOR <u>FEMALES</u> ONLY: DOES RESPONDENT HAVE A CHILD	G4.04. If you wanted to do something (livelihood-related, training-related, self-care) and could not take your child with you, is there someone who could care	G4.05. Who? ENTER UP TO THREE (3)	ID #1	ID #2	ID #3

	UNDER 5 YEARS OLD? YES..........1 ❷ G4.04 NO...........2 ❷ MODULE G5	for your child in your absence? YES..........1 ❷ G4.05 NO...........2 ❷ MODULE G5	MEMBER IDs OTHER CODES: NON-HH MEMBER.......94 NOT APPLICABLE.......98			
LESS THAN USUAL ABOUT THE SAME AS USUAL MORE THAN USUAL IF RESPONDENT IS <u>MALE</u> ❷ MODULE G5						

MODULE G5: GROUP MEMBERSHIP (GROUP 2 ONLY)

Now I'm going to ask you about groups in the community. These can be either formal or informal and customary groups.	Is there a [GROUP] in your community?	Is this group composed of all male or female or mixed-sex members?	Are you an active member of this [GROUP]?	To what extent do you feel like you can influence decisions in this [GROUP]?	To what extent does this [GROUP] influence life in the community beyond the group activities?
GROUP CATEGORIES	G5.01	G5.02	G5.03	G5.04	G5.05
A	Agricultural / livestock / fisheries producer's group (including marketing groups)	YES 1 NO 2 → *GROUP B* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP B*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
B	Water users' group	YES 1 NO 2 → *GROUP C* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP C*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
C	Forest users' group	YES 1 NO 2 → *GROUP D* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP D*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
D	Credit or microfinance group (including Grameen, SACCOs / merry-go-rounds / VSLAs)	YES 1 NO 2 → *GROUP E* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP E*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
E	Mutual help or insurance group (including burial societies)	YES 1 NO 2 → *GROUP F* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP F*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
F	Trade and business association group	YES 1 NO 2 → *GROUP G* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP G*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
G	Civic group (improving community) or charitable group (helping others)	YES 1 NO 2 → *GROUP H* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP H*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
H	Religious group	YES 1 NO 2 → *GROUP I* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *GROUP I*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT
I	Other (specify): _____	YES 1 NO 2 → *MODULE G6* DON'T KNOW 97	ALL MALE ALL FEMALE MIXED SEX DON'T KNOW	YES......1 NO........2 ❼ *MODULE G6*	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT	NOT AT ALL SMALL EXTENT MEDIUM EXTENT HIGH EXTENT

If G5.01A = YES, COMPLETE THE QUESTIONS ON PRODUCER GROUPS BELOW (Group 2 only)

No.	Question	Answer
G5_06	Is this producer group related to jute?	3. Yes 4. No NO ❼ END MODULE
G5_07	How many other active members does this producer group have?	(QUANTITY)
G5_08	What year did you join this producer group?	(YEAR)
G5_09	Did you ever engage in any of the following activities for jute through this producer group? IF AT MOST ONE ACTIVITY SELECTED ❼ D2_10	3. Yes 4. No
G5_10	Which of these activities is your main reason for actively participating in this producers group?	☐ ${code2}
G5_11	In the last ${period} season, did you ${CODE2} through this producer group? ONLY SELECT FROM ACTIVITIES SELECTED IN D2_07 IF AT LEAST ONE ACTIVITY SELECTED ❼ D2_11	3. Yes 4. No SELL OUTPUT (PROCESSED OR UNPROCESSED)❼ D2_11
G5_12	What is the main reason why farmers do not always sell or bulk their output via this producer group?"	8. Does not bulk group members' output 9. Does not provide a good price for sold output 10. May not be able to sell the output 11. Corruption / money from sales disappears 12. Does not pay out timely for output sold 13. Does not reward quality / combines output with different quality levels 14. Other (specify)
G5_13	In the last ${period} season, what type of buyer did this producer group mainly sell to?	13. Village collector 14. Wholesaler 15. Cold storage owner 16. Wholesaler to cold storage 17. Collection center of company 18. Processing farm 19. Cooperative society 20. Farmer society 21. Retailer 22. Consumer 23. Hotel/restaurant 24. Other (specify)

No.	Question	Answer
G5_14	In the next 12 months, are you planning to engage in any of the following activities through your producer group? ⯀ Buy inputs for jute ⯀ Sell jute (before post-harvest processing) ⯀ Process jute after harvest ⯀ Sell processed jute (after post-harvest processing) ⯀ Participate in agricultural training for jute ⯀ Any other service for jute (specify)	3. Yes 4. No
	Now I'd like you to think about how much jute you and other farmers would sell through your producer group, depending on the price the group offers. In the next ${period} season, of all the jute you are planning to sell, what percentage are you planning to sell though your producer group if the price the group offers is...	
G5_15	...higher than the price that other buyers offer for jute?	(PERCENTAGE)
G5_16	...the same as the price that other buyers offer for jute?	(PERCENTAGE)
G5_17	...lower than the price that other buyers offer for jute?	(PERCENTAGE)
	In the next ${period} season, on average, what percentage of their jute do you think other members will sell through your producer group if the price the group offers is...	
G5_18	...higher than the price that other buyers offer for jute?	(PERCENTAGE)
G5_19	...the same as the price that other buyers offer for jute?	(PERCENTAGE)
G5_20	...lower than the price that other buyers offer for jute?	(PERCENTAGE)
G5_21	Do you expect this producer group will offer a higher, lower, or the same price for jute as other buyers you can sell to?	4. Higher price 5. Lower price 6. Same price
G5_22	Does this producer group have any rules or by-laws on how much of your jute members should sell through the group?	3. Yes 4. No NO ❷ END MODULE

G5_23	DESCRIBE RULES/BY-LAWS. PROBE FOR MINIMUM QUANTITY AND WHAT HAPPENS IF QUANTITY IS NOT DELIVERED (E.G. FINES).	

MODULE G6. PHYSICAL MOBILITY (Group 2 only)

QUESTION	RESPONSE FOR G6.01 - G6.06: USE CODE G6↓
G6.01 How often do you visit an urban center?	
G6.02 How often do you go to the market / haat / bazaar?	
G6.03 How often do you go to visit family or relatives?	
G6.04 How often do you go to visit a friend / neighbor's house?	
G6.05 How often do you go to the hospital / clinic / doctor (seek health service)?	
G6.06 How often do you go to a public village gathering / community meeting / training for NGO or programs?	
G6.07. In the last 12 months, how many times have you been away from home for one or more nights (in other words, sleeping somewhere else for the night)?	
G6.08. In the last 12 months, have you been away from home for more than one month at a time?	YES NO

CODE G6
EVERYDAY
EVERY WEEK AT LEAST ONCE
EVERY 2 WEEKS AT LEAST ONCE
EVERY MONTH AT LEAST ONCE
LESS THAN ONCE A MONTH
NEVER

MODULE G7: INTRAHOUSEHOLD RELATIONSHIPS (Group 2 only)

Now I'd like to ask you some questions about how you feel about some of other people in your household or family group and how you think they feel about you. ENTER MEMBER ID FOR EACH RELATION OTHER CODES: NON-HH MEMBER.......94			Do you [NAME] respect your [RELATION]?	Does your [RELATION] respect you?	Do you trust your [RELATION] to do things that are in your best interest?	When you disagree with your [RELATION], do you feel comfortable telling him/her that you disagree?	IS [RELATION] THE OTHER RESPONDENT WITHIN THIS HOUSEHOLD?	Is there a co-wife within your household?
RELATION			G7.02	G7.03	G7.04	G7.05	G7.06	G7.07
A	Husband / wife	ID #	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	YES......1 ❼ *RELATION C* NO........2	
B	Other adult male or female member of the household	ID #	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER		

		ID #						YES......1
C	**IF RESPONDENT IS MALE:** Father (or adapt this category to capture other important relationship) **IF RESPONDENT IS FEMALE:** Mother-in-law		MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER *IF RESPONDENT IS* *MALE* ❷ *MODULE G8(A)*		NO........2 ❷ *MODULE G8(A)*
D	Most senior co-wife (the person who was in the household just before you, or, if you are the senior wife, the one who married into the household after you)	ID #	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER	MOST OF THE TIME SOMETIMES RARELY NEVER		

MODULE G8(A): AUTONOMY IN DECISION-MAKING (Group 2 only)

Now I am going to read you some stories about different farmers and their situations regarding different agricultural activities. This question format is different from the rest so take your time in answering. For each I will then ask you how much you are like or not like each of these people. We would like to know if you are completely different from them, similar to them, or somewhere in between. There are no right or wrong answers to these questions. READ ALOUD EACH STORY, SUBSEQUENT QUESTIONs, AND RESPONSE CODES. NAMES SHOULD BE ADOPTED TO LOCAL CONTEXT AND BE MALE/FEMALE DEPENDING ON THE SEX OF THE RESPONDENT. THE ORDER OF TOPICS A-D SHOULD BE RANDOMIZED, AND WITHIN EACH TOPIC, THE ORDER OF STORIES 1-4 SHOULD BE RANDOMIZED.	Are you like this person? CIRCLE <u>ONE</u>	Are you completely the same or somewhat the same? CIRCLE <u>ONE</u>	Are you completely different or somewhat different? CIRCLE <u>ONE</u>
STORY	G8.01	G8.02	G8.03

			Are you like this person? (G8.01)	Are you completely the same or somewhat the same? (G8.02)	Are you completely different or somewhat different? (G8.03)
The types of crops to grow or raise for consumption and sale in market	A1	*"[PERSON'S NAME] cannot grow other types of crops here for consumption and sale in market. Beans, sweet potato and maize are the only crops that grow here."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *A2* SOMEWHAT THE SAME.......2 ❷ *A2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	A2	*"[PERSON'S NAME] is a farmer and grows beans, sweet potato, and maize because her spouse, or another person or group in her community tells her she must grow these crops. She does what they tell her to do."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *A3* SOMEWHAT THE SAME.......2 ❷ *A3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	A3	*"[PERSON'S NAME] grows the crops for agricultural production that her family or community expect. She wants them to approve of her as a good farmer."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *A4* SOMEWHAT THE SAME.......2 ❷ *A4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	A4	*"[PERSON'S NAME] chooses the crops that she personally wants to grow for consumption and sale in market and thinks are best for herself and her family. She values growing these crops. If she changed her mind, she could act differently."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B1* SOMEWHAT THE SAME.......2 ❷ *B1*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
Livestock raising	B1	*"[PERSON'S NAME] cannot raise any livestock other than what she has. These are all that do well here."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B2* SOMEWHAT THE SAME.......2 ❷ *B2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	B2	*"[PERSON'S NAME] raises the types of livestock she does because her spouse, or another person or group in her community tell her she must use these breeds. She does what they tell her to do."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B3* SOMEWHAT THE SAME.......2 ❷ *B3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	B3	*"[PERSON'S NAME] raises the kinds of livestock that her family or community expect. She wants them to approve of her as a good livestock raiser."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *B4* SOMEWHAT THE SAME.......2 ❷ *B4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	B4	*"[PERSON'S NAME] chooses the types of livestock that she personally wants to raise and thinks are good for herself and her family. She values raising these types. If she changed her mind, she could act differently."*	YES...1 NO.....2 ❷ *G8.03*	COMPLETELY THE SAME....1 ❷ *C1* SOMEWHAT THE SAME.......2 ❷ *C1*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2

READ ALOUD EACH STORY, SUBSEQUENT QUESTIONs, AND RESPONSE CODES. NAMES SHOULD BE ADOPTED TO LOCAL CONTEXT AND BE MALE/FEMALE DEPENDING ON THE SEX OF THE RESPONDENT.	Are you like this person? CIRCLE ONE	Are you completely the same or somewhat the same? CIRCLE ONE	Are you completely different or somewhat different? CIRCLE ONE
STORY	G8.01	G8.02	G8.03

Taking crops or livestock (incl. eggs or milk) to the market (or not)	C1	*"There is no alternative to how much or how little of her crops or livestock [PERSON'S NAME] can take to the market. She is taking the only possible amount."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *C2* SOMEWHAT THE SAME.......2 ❼ *C2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	C2	*"[PERSON'S NAME] takes crops and livestock to the market because her spouse, or another person or group in her community tell her she must sell them there. She does what they tell her to do."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *C3* SOMEWHAT THE SAME.......2 ❼ *C3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	C3	*"[PERSON'S NAME] takes the crops and livestock to the market that her family or community expect. She wants them to approve of her."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *C4* SOMEWHAT THE SAME.......2 ❼ *C4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	C4	*"[PERSON'S NAME] chooses to take the crops and livestock to market that she personally wants to sell there, and thinks is best for herself and her family. She values this approach to sales. If she changed her mind, she could act differently."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *D1* SOMEWHAT THE SAME.......2 ❼ *D1*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
How to use income generated from agricultural and non-agricultural activities	D1	*"There is no alternative to how [PERSON'S NAME] uses her income. How she uses her income is determined by necessity."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *D2* SOMEWHAT THE SAME.......2 ❼ *D2*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	D2	*"[PERSON'S NAME] uses her income how her spouse, or another person or group in her community tell her she must use it there. She does what they tell her to do."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *D3* SOMEWHAT THE SAME.......2 ❼ *D3*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	D3	*"[PERSON'S NAME] uses her income in the way that her family or community expect. She wants them to approve of her."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME....1 ❼ *D4* SOMEWHAT THE SAME.......2 ❼ *D4*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2
	D4	*"[PERSON'S NAME] chooses to use her income how she personally wants to, and thinks is best for herself and her family. She values using her income in this way. If she changed her mind, she could act differently."*	YES...1 NO.....2 ❼ *G8.03*	COMPLETELY THE SAME...1❼*G8.04* SOMEWHAT THE SAME....2 ❼*G8.04*	COMPLETELY DIFFERENT....1 SOMEWHAT DIFFERENT.......2

MODULE G8(B): NEW GENERAL SELF-EFFICACY SCALE (Group 2 only)

Now I'm going to ask you some questions about different feelings you might have. Please listen to each of the following statements. Think about how each statement relates to your life, and then tell me how much you agree or disagree with the statement on a scale of 1 to 5, where 1 means you "strongly disagree" and 5 means you "strongly agree." (**Note: Randomize order of statements**)

STATEMENTS		G8.04
A	I will be able to achieve most of the goals that I have set for myself.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
B	When facing difficult tasks, I am certain that I will accomplish them.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
C	In general, I think that I can obtain outcomes that are important to me.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
D	I believe I can succeed at most any endeavor to which I set my mind	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
E	I will be able to successfully overcome many challenges.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
F	I am confident that I can perform effectively on many different tasks.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
G	Compared to other people, I can do most tasks very well.	STRONGLY DISAGREE DISAGREE NEITHER AGREE NOR DISAGREE AGREE STRONGLY AGREE
H	Even when things are tough, I can perform quite well.	STRONGLY DISAGREE

		DISAGREE
		NEITHER AGREE NOR DISAGREE
		AGREE
		STRONGLY AGREE

MODULE G8(C): LIFE SATISFACTION (Group 2 only)

The following questions ask how satisfied you feel with your life as a whole, on a scale from 1 to 5, where 1 means you feel "very dissatisfied" and 5 means you feel "very satisfied."

	STATEMENTS	G8.05
A	Overall, how satisfied are you with life as a whole these days?	VERY DISSATISFIED DISSATISFIED NEITHER SATISFIED NOR DISSATISFIED SATISFIED VERY SATISFIED
B	Overall, how satisfied with your life were you 5 years ago?	VERY DISSATISFIED DISSATISFIED NEITHER SATISFIED NOR DISSATISFIED SATISFIED VERY SATISFIED
C	As your best guess, overall how satisfied with your life do you expect to feel 5 years from today?	VERY DISSATISFIED DISSATISFIED NEITHER SATISFIED NOR DISSATISFIED SATISFIED VERY SATISFIED

MODULE G9. Attitudes about Domestic Violence (Group 2 only)

Now I would like to ask about your opinion on the following issues. Please keep in mind that I am not asking about your personal experience or whether the following scenarios have happened to you. I would only like to know whether you think the following issues are acceptable.		In your opinion, is a husband justified in hitting or beating his wife in the following situations?
SITUATION		**G9.01**
A	If she goes out without telling him?	YES NO DON'T KNOW
B	If she neglects the children?	YES NO DON'T KNOW
C	If she argues with him?	YES NO DON'T KNOW
D	If she refuses to have sex with him?	YES NO DON'T KNOW
E	If she burns the food?	YES NO DON'T KNOW

END OF MALE FORM