Sixty Days to Make a Difference:

Evaluating the Effect of the Krishi Sakhi Model of Agricultural Extension on the Alwar Region of Rajasthan, India



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and Development
(An initialise of the Sehgal Foundation)



2016 Borlaug-Ruan International Internship

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An Introduction to My Journey

My Background and Motivation

I first became interested in applying for the Borlaug-Ruan Internship when I was a junior in high school. I was not what one would probably envision as an aspiring agriculturist. I was interested in everything – music, writing, science, you name it – but never once had I considered directing those interests towards agriculture. In many ways, agriculture is one of the most undervalued fields among young people. Like many of my peers, the way I saw agriculture was largely shaped by the rural community in which I lived, where the attitude among adults was that



agriculture was something you did because you 'had to,' and the attitude among my peers was that a successful career was one that would take you as far away from the dirt as possible. Those students who were aiming to pursue science, technology, engineering, and mathematics fields in college were interested in the technology industry – the Silicon Valley Jobs – and their parents and teachers strongly encouraged that pursuit.

At the time I fell into the same category, but that all changed when I participated in the World Food Prize Global Youth Institute in October of 2014. A part of me felt that a job in technology would be unfulfilling; I wanted a job that made a difference, not just money. I had begun competing in science fairs during high school, and my mentor suggested that I should read a book called 40 Chances, written by Howard Buffett, and consider writing a paper for the World Food Prize Global Youth Institute. The idea that I could have a career that saved lives by meeting the most basic human right – the right to adequate and nutritious food – was inspiring. Like many people, I was aware that I existed in a privileged sphere where I could count on my next meal, but in the course of researching for my paper the immense degree to which I was privileged came sharply into focus. The fact that 1 in 9 people on Earth do not have enough food to eat was sobering, and as I write this I am reminded of a Henry Wallace quote from his time as Vice President, "Those who write the peace must think of the whole world. There can be no privileged peoples" (FAO & Wallace).

After attending the Global Youth Institute in 2014, I applied to the Wallace-Carver Fellowship and worked with the National Resource Conservation Service. Not only was that experience where I became truly engaged in the field of agriculture, but it was also when I realized how important it was to me that I work one-on-one with farmers. That desire to engage with people in the field directed me towards the social sciences. After that encouraging experience, the Borlaug-Ruan Internship seemed the natural continuation of my passion for agriculture. I am now pursuing a degree in Economics and Arabic and Middle East Studies with the goal of working in the agricultural development field doing economic planning. Given my interests, my placement with the Sehgal Foundation could not have been any better. I was able to work on a project that closely mirrors what I would like to pursue long-term in my career: identifying barriers to adopting agricultural best practices and trying to understand, both qualitatively and quantitatively, what key barriers hinder development in rural communities.

Personal Development

The problem with any so-called "life-changing" experience is returning to your daily life and remaining changed for the better. Upon returning home, it is easy to slip back into the same patterns of indifference or self-absorbed busyness that comprise a big portion of my time. However, a somewhat startling, yet innocuous, experience helped to solidify what I had learned during my time in India. I had just walked out of a post office in Waco, Texas, on a shimmering, hot day and was getting in my car when a man – seemingly homeless, African-American, and elderly – shouted at me. "What do *you* know about Waco?" he pressed me, angrily. There was no doubt from his tone of voice that the question was hypothetical, an angry reminder that I lived in a small, carefully cultivated ecosystem of the well-educated in a town where nearly 30% of the population lives below the poverty line. And, owing to the time I spent in India, it felt like he was cross-examining me. "Sure," he seemed to me to be saying, "You've worked with some of the disadvantaged on the other side of the world, but what do you know about your home?" It was a good question, and I realized that I did not have a fair answer. I did not have to travel to the opposite side of the planet to find hunger, racial disparity, and basic human needs not being met – they exist right here in Waco, Texas. Leaving my home for a while helped me see with fresh eyes and understand that fact.

While I was growing up, the most common reason given to pursue a career in a STEM field was job stability and high pay. Although those are important, I was not convinced that it would be fulfilling over the long term to work for those goals alone. A healthy society has to run on empathy, because no system will ever be able to distribute resources perfectly. That is up to the better part of our nature as human beings and citizens of a global world. This is as true in Waco, Texas, as it is in Rajasthan, India. My experience in India helped me understand that acts of social good, in this case through engagement in agriculture, are not charity, but a way of giving back some of the advantages I have been given in life. Because of this opportunity, I realized the potential for a career in the field of agriculture to make a difference in people's lives all over the world, as well as right here at home.

With that said, this was not just an experience of personal growth, but also of methodologically sound research design and implementation. Sound research was possible because, with the help of my mentors, I was able to contextualize my presence in Alwar and avoid some of the major limitations inherent in a western-centric, male vantage point. The research team set out with the ambitious target of saturating all samples (nearing census level sampling of the villages we had available), and reporting back to the Sehgal Foundation with a report detailing the degree to which the *Krishi Sakhi* program was successful. Setting this high goal was an immense opportunity for me to grow as a researcher as it required me to make vast strides in my methodological design, a skill that is difficult to learn outside of the classroom. Further, I learned skills related to data analysis, such as how to perform statistical regressions, research methodology and implementation, sensitivity to gender issues, and a better understanding of my position within the context of race and western-centric research models. Without a doubt, I grew tremendously throughout this experience, both as a researcher and as a person.

Research Center Background

A Brief Introduction to the Sehgal Foundation

I spent eight weeks this summer working at the SM Sehgal Foundation, located in the city of Gurgaon, in Haryana, India. The Sehgal Foundation is an Indian nonprofit that was founded by Dr. Suri and Edda Sehgal in 1999 using the proceeds from the sale of their hybrid seed company, ProAgro Group. The foundation gives back to the country that Dr. Sehgal grew up in by focusing its efforts in three main areas: water management, rural good governance, and agriculture. In water management, the foundation has



won awards for its work developing a bio-sand filter for household use, and its community-led radio programs are a significant innovation in promoting good governance in rural India. My work focused on agricultural extension, and

specifically, the advancement of rural women farmers, which was recently added as one of the Sehgal Foundation's chief goals. The Sehgal Foundation exemplifies, not just the ways in which agricultural development can benefit an economy, but also the good that can be done by two individuals determined to pay it forward. During my time there, I worked with some of the most dedicated and talented people I have ever met, all of whom were focusing their efforts on ways to make India's rural communities healthier and more sustainable.

A Brief Introduction to Alwar, Rajasthan

Alwar is a region located in the Northeastern part of the Indian state of Rajasthan, between 27°34′ 28°4′ north Latitudes and 76°7′ and 77°13′ east Longitudes. It has a total population of 3,674,179, a male population of 1,939,026, and a female population of 1,735,153 (Alwar), giving it the sex ratio of 895:886. The literacy rate for males and females was 83.75 and 56.25, respectively (Alwar). Religious adherence in Alwar is approximately 82.72% Hindu, 14.90% Muslim, and 1.76% Sikh (Alwar). 82.19% of residents of Alwar live and work in rural areas (Alwar).

Research

The project sought to understand the *Krishi Chetna* and *Unnat Krishi* programs –part of the *Krishi Sakhi* model of agricultural extension – which aims to empower rural women farmers within their communities by providing them with training to educate fellow women farmers. The program operates within the larger context of the Self-Help Group (SHG) framework, which is a multilevel system created to provide women with microfinance resources. The SM Sehgal Foundation explains the goal of the project thus:

In India, women are responsible for 60-80% of total food production, but their access to farming related assets, knowledge, inputs and services is much lower than that of male farmers. Sehgal Foundation's Krishi Chetna (agricultural awareness) project aims to change this dynamic by increasing the role women play in agricultural decision-making (Empowering).

The *Krishi Chetna* program is targeted specifically at communities in the Alwar Region of Rajasthan, India. Conducting a study to determine whether the program was effective posed a challenge, in that there are many different definitions of an 'effective' program in this context. Would an effective program simply be one that increased agricultural yields in the Alwar region? Would the program be considered a success if that goal was not accomplished but rural women were significantly more empowered? Ultimately, the research team decided it was necessary to evaluate both of the above aspects in order to get a well-rounded picture of the *Krishi Chetna* and *Unnat Krishi* programs and of the overall success of the *Krishi Sakhi* model of agricultural extension.

The research team designed this study to measure both women's empowerment in agriculture and the effect of the interventions on crop yields in the Alwar region of Rajasthan. The research team implemented both qualitative and quantitative methodologies in order to cross-validate findings. In the case of the empowerment metric, which is particularly difficult to accurately quantify, the qualitative interviews gave the researchers a much better understanding of how to interpret the data. While the quantitative data showed a statistically significant increase in several areas of empowerment, the research team encourages an even more optimistic interpretation of that data, in light of the qualitative interviews, which suggested that women who participated in the program considered themselves very empowered compared to their peers. This quote from one of the *Krishi Sakhis* interviewed in one of the qualitative interviews sums up why the researchers encourage an optimistic interpretation of the already positive data on empowerment:

Everyone listens to her [the program participant] in the household. Initially, the husband used to think that what she is saying is of no use, but then we finally invited all the men to one of our meetings and explained to them what we are doing. So, we have a meeting with both the men and women, and that's when they finally understood the importance of what we were doing (Interview 1).

The data suggests that the *Krishi Sakhi* model of agricultural extension, when employed within the larger context of self-help groups, can make a positive impact on the lives of rural women farmers. The evidence for this assertion is presented in the results and conclusion section.

Abstract

About 70 percent of farm work in India is performed by women, yet they are consistently undervalued in their communities and under evaluated by the NGO sector (Rao, 2006). Government-led agricultural extension is often not enough to confront this problem. As the 2010 IFPRI Review of Agricultural Extension in India explains, the traditional model of agricultural extension has "produced numerous success stories, but it has serious limitations for broad-based, sustained agricultural growth and poverty reduction" (IFPRI, 2010). The same report also emphasizes the role of "Demand-driven and participatory approaches" in improving agricultural extension in India (IFPRI 2010). It has been well documented that women are often highly effective and community-minded leaders, but are frequently neglected by the system. The *Krishi Sakhi* model of extension aims to address these problems with its participatory, woman-led approach. It is therefore imperative that the Sehgal Foundation, with its commitment to empowering women in agriculture, conducts a study to evaluate the efficacy of its programs directed towards that purpose.

The aim of the study is to provide both a quantitative and qualitative analysis of two initiatives of the SM Sehgal Foundation – The Unnat Krishi (Improved Agriculture) and Krishi Chetna (Agricultural Awareness) programs– both of which employ the Krishi Sakhi model of agricultural extension, which aims to empower rural communities, and particularly women, through the employment of "barefoot agricultural paraprofessionals." These women are called Krishi Sakhis, meaning friends of farmers. Through the use of survey questions designed to test the retention of information, the researcher will test the hypothesis that the Krishi Sakhi model of extension is an effective (as defined in the methodology) means of empowering rural women through better agricultural practices. Specifically, the study is focused on the Indian district of Alwar, in the state of Rajasthan. The evaluation is directed at members of Self Help Groups (SHGs) that have been targeted by either the *Unnat Krishi* or *Krishi Chetna* interventions. Elements of the evaluation will also be targeted at the Krishi Sakhis themselves. By formulating questions to evaluate key social and economic factors that impact the implementation of the Krishi Sakhi program, the research team aims to provide an analysis that quantifies factors such as: retention of information, limitations to implementation, perception of economic benefit, impact on economic mobility, and social agency. Because the Krishi Sakhi interventions are meant to empower women, and by extension improve their communities, the final analysis will center upon whether or not that goal has been accomplished. Because metrics like 'empowerment' are difficult to quantify, some qualitative analysis will be necessary, and questions to that effect have been incorporated into the methodology. The ultimate result of the study will be a well-informed normative evaluation of the Krishi Sakhi model of extension.

Introduction/Background

Women in India are integral to the economies they are a part of while simultaneously being undervalued by them. This problem is especially pronounced in rural India, where women are often expected to be the key actors in agricultural production – managing the planting, weeding, harvesting, and processing – all while being the primary caretakers for their families. Historically, these women have faced marginalization due to their gender that leaves them unable to manage their farms with optimum efficiency, let alone live with the dignity and respect they deserve. This injustice is a drain on the Indian economy. By finding a solution there is substantial potential to improve agricultural output while at the same time addressing a grave injustice in the way India treats its women farmers.

In order to better understand how to achieve this dual goal of social justice and economic improvement, one needs to view the problem through the heuristic of women's empowerment. Empowerment is a concept whose meaning will naturally change to varying degrees depending on the situation to which it relates, but the definition given by the World Bank's *Empowerment and Poverty Reduction: A Source Book*, presents itself as a particularly good generalization: "Empowerment refers broadly to the expansion of freedom of choice and action to shape one's life. It implies control over resources and decisions" (xviii, Narayan). One can infer, both from a broad body of literature

surrounding the subject, and a certain degree of cultural awareness, that freedom of choice and action are severely limited in many rural Indian communities, and this is especially true for women.

The area where further research is required is understanding how and why women face barriers to their empowerment. And, given the importance of the role women play in the agricultural sector, and the fact that this industry is still the backbone of the Indian economy, why women face those barriers is a question of both economic importance and moral impetus. Therefore, a study specifically situated within the framework of rural Indian women engaged in agriculture, and aimed at understanding the challenges to women's empowerment, has potential to have a high impact factor.

Glossary of Terms

SHG – Self Help Groups STEM – Science, Technology, Engineering, and Mathematics IFPRI – International Food Policy Research Institute ICAR – Indian Council of Agricultural Research

Limitations

- Spillover effect in control villages.
- Limited number of control villages and control samples that were available for sampling during an eight-week period.
- Men were used as enumerators, which could potentially influence data collected from women respondents. However, the methodology aimed to offset that possible epistemic disadvantage by interviewing with the SHG framework, which empowers women in relation to men. By targeting women who are rooted in the SHG framework, the respondents were limited to women who have enhanced ability to express themselves in relations with men. It is impossible to completely negate this bias, but it is possible to minimize it.
- Privilege and barriers as an outsider (Westerner, fair skin, English-speaking)
- Privilege as a male as a male researcher working to address systemic challenges faced by women, it is important to be aware that extra sensitivity to privilege is necessary.
- Caste issues when working within an Indian context it is always necessary to keep caste in mind as a significant factor. Caste can play a significant role in determining a person's role in society, wealth, and access to capital, among other things. Data on caste was collected in order to make it possible to control for this variable.
- Tarmac Bias The methodology avoided selecting for only easily accessible villages by having control villages that were geographically isolated from the experimental villages. It was necessary to drop certain control villages from the sampling pool because of potential for spillover, and the final result was a group of villages reasonably assumed to be representative.
- Language interpretation in survey delivery addressed by hiring enumerators with cultural sensitivity and language skills. Enumerators had the advantage of not being from the same village as respondents but still knowing the local language and cultural context of Alwar, Rajasthan.
- Cultural Bias as a white male, the researcher is at an epistemic disadvantage. One could not expect to get truly earnest answers to the research questions as an outsider, introducing a whole host of limitations. The research team negated this disadvantage by hiring enumerators with cultural understanding and language skills.
- Interpretation in survey design the questionnaire was translated into Hindi and cross-verified by different stakeholders in the project in terms of language, diction, syntax, intonation (which words to emphasize), avoidance of gender-blind questions, cultural sensitivity (especially as it relates to a deeply patriarchal society in Alwar).

Materials, Methods and Tools

The methodology employed in this study is threefold, deriving from both a field-based interaction with the respondents, a lab-based statistical analysis of the quantitative data, and elements of the write-up which seek to understand how the qualitative elements gathered can be used to supplement the research team's understanding of the statistical analysis.

Survey respondents were categorized into two groups: experimental and control villages. Control villages were selected based on census data for villages that were identified as having not participated in a *Krishi Sakhi* intervention. Experimental villages were selected based on information provided at the federation level that listed the villages currently participating in a *Krishi Sakhi* intervention. These were matched with control villages that shared key demographic similarities, such as total population, and breakdown of male and female populations.

Because there were a greater number of experimental villages available to sample from than control villages, the research team took into account the importance of social capital in order to obtain the best representative sample of the experimental villages. Federation level authorities were consulted and asked to rank the performance of SHGs on a scale of low, medium, and high performing. Because the number of SHGs is too small to obtain a representative sample via a simple random sampling method, the SHGs were selected based on these rankings so that an equal proportion of each ranking was represented. Thus, it was possible to utilize the social capital the research team had at their disposal in order to obtain a sample that represented SHGs performing at all different levels, despite a relatively limited sample size.

Next, surveys were administered to respondents in the Alwar district of Rajasthan. Survey enumerators were selected based on the following criterion: native proficiency in Hindi, understanding and personal adaptability to local customs, experience living and/or working in the region, and exhibited interest in the broader goals of the study. A member of the research team, whose job it was to ensure the quality of the data and that ethical good practice was followed at all times, supervised survey enumerators.

Survey respondents were selected based on data provided by leaders of the *Krishi Sakhi* interventions at the district level. Names of participants in the interventions were categorized by level of participation – having a demonstration plot on their land, attending a training session, or participating in a field day. Participants were further categorized by the number of years they had participated in the programs – 2012-13, 2013-14, 2014-15, or some combination of multiple years.

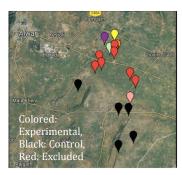
The survey was tailored to fit the differences between the experimental and control groups, changing questions with little relevance to more accurately reflect the condition of the target group. For example, a question on the survey for the experimental group that reads, "Which years did you participate [in the *Krishi Sakhi* intervention]?" would be changed to reflect the fact that the control group was selected specifically because they did not participate in the *Krishi Sakhi* intervention. Instead, the question might be asked: "Where do you receive agricultural training?"

The survey was designed based on simple questions that elicit either a positive or negative response from the respondent (yes/no), a simple categorization, or open-ended qualitative questions, with the qualitative questions typically acting in an elaborative capacity. The researchers analyzed the responses to the qualitative, open-ended questions, creating a survey system that prompted both exhaustive and mutually exclusive responses. For instance, a question from the survey, which aimed to evaluate the knowledge retained by respondents about the application of urea, reads:

"How much urea	do vou apply per	r bigha? For millet:	For mustard:	,
now much urea	l do vou abbiv be	i bigna <i>t</i> foi millet.	roi mustatu.	

The response to this question would be categorized simply as "correct," or "incorrect," as defined by the parameters predetermined by the researchers. This system is optimized for respondents who are functionally illiterate, as is the case with many of the women in the Alwar district of Rajasthan (Alwar).

Particular care was taken when selecting villages to include in the sample population. The village of Butyana was eliminated because it was surrounded (geographically) by experimental villages on all sides, increasing the likelihood of spillover. Butyana is located along the most-used route from Barodameo to Laxmangarh, inferring the risk of high spillover. Also, a disqualifying factor was its proximity to Barodameo – a large revenue village, having a lot of small businesses that the local population frequents – therefore increasing the likelihood of spillover. The village of Moliya was not considered because it was included as the most demographically similar counterpart to Butyana. The village of Jawli, although it at first appears to be closely located to control villages, is



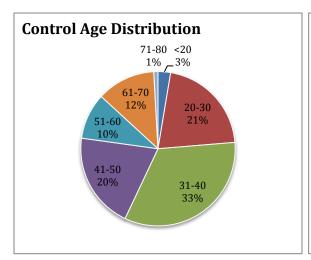
actually relatively geographically isolated from the surrounding villages because there is a separate road leading into the village. It is far removed from the main routes of travel in the local area and there is low prevalence of traffic in the area. Therefore, the research team, in consultation with people with social capital, deemed it unlikely that there would be high spillover.

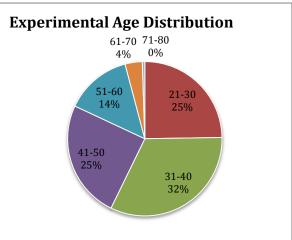
The team considered taking samples from non-SHG members as a control, but the idea was ultimately rejected because of the importance of the sample being taken within the socio-economic and empowerment framework of the SHG program run by IBTADA. To have selected samples outside of this framework would have produced non-comparable results.

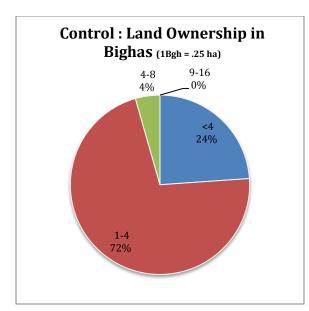
Results

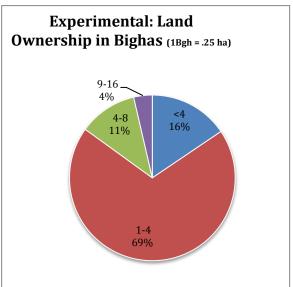
The survey response rate was 115/140 (82.14%) for the control villages, and 196/240 (81.67%) for the experimental group. A response was defined as having consented to participation in the survey and completion of at least part of the questionnaire. For a vast majority of respondents, very little was left unanswered.

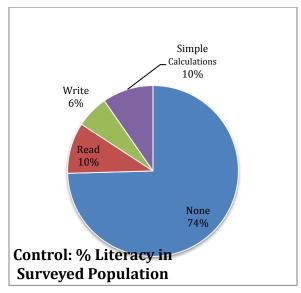
In order to understand the population being sampled, and in order to collect data for use as independent variables against which to analyze other survey questions, demographic information was collected about each respondent. Below, that data is compiled into a picture of the average survey respondent, separated by control and experimental groups.

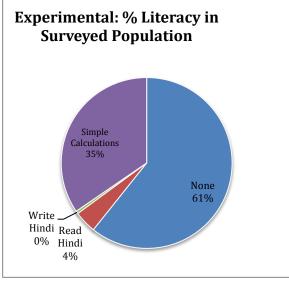


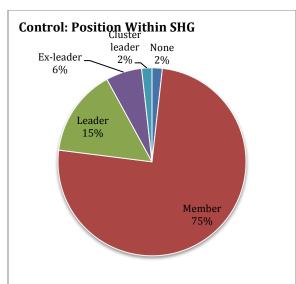


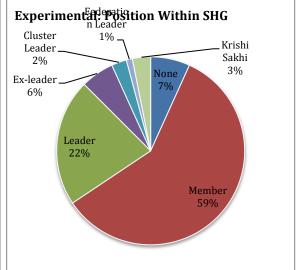


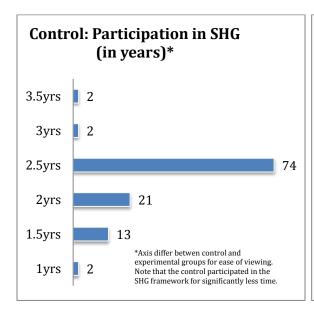




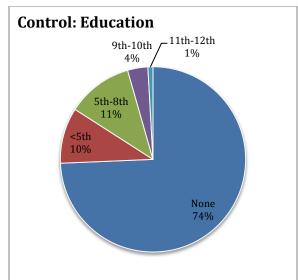


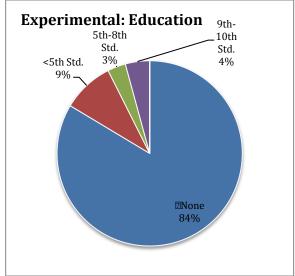


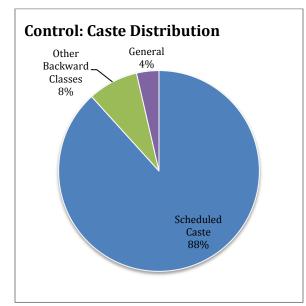


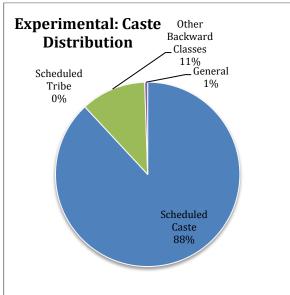


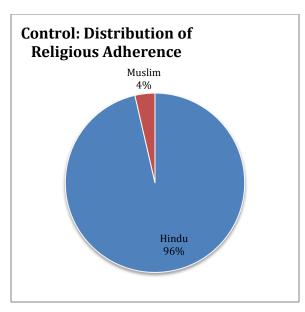


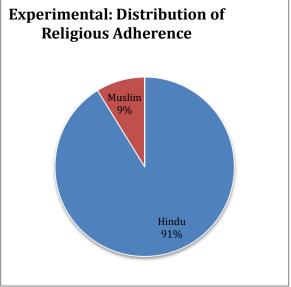




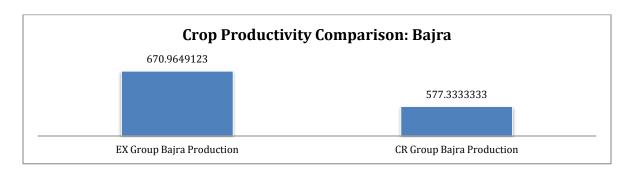




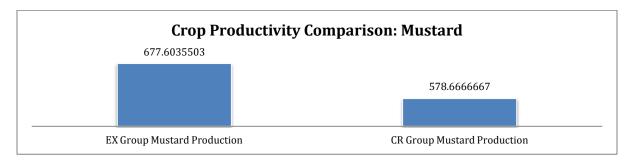




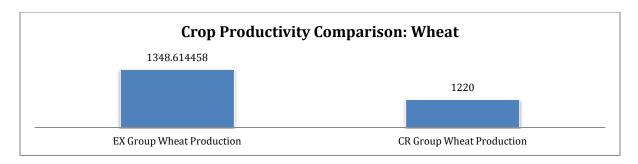
Following is a graphical comparison of crop productivity for the control and experimental groups. Crop productivity is self-reported for the previous growing season.



Respondents report an increase in the yield of Bajra for the experimental group as compared to the control for the previous growing season.



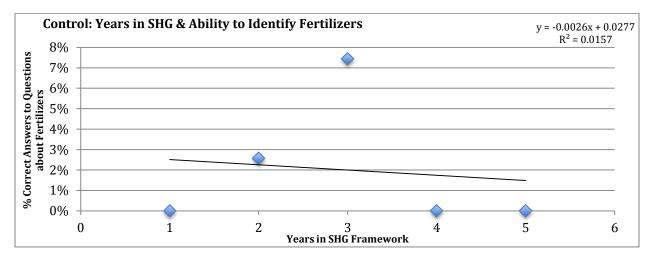
Respondents report an increase in the yield of mustard for the experimental group as compared to the control for the previous growing season.



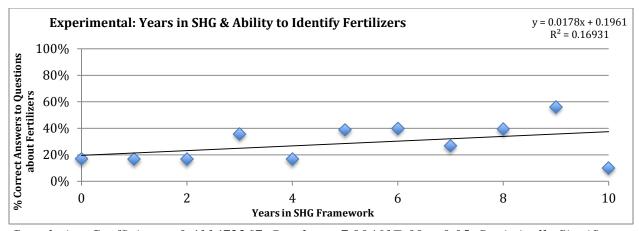
Respondents report an increase in the yield of wheat for the experimental group as compared to the control for the previous growing season.

Next, the researcher correlated the independent variables (1) years in SHG framework [#101], and (2) position within the SHG framework [#111], with the dependent variables: (1) Knowledge of fertilizer usage [#207], (2) Fertilizer usage [#208], (3) Input usage [#212], (4) Ability to identify inputs [#213], (5) Empowerment [#400s], (6) Leadership (men's perception) [#900s].

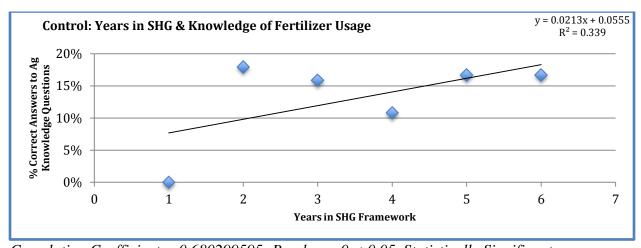
The reference numbers in brackets refer to the specific question or set of questions on the survey that correspond with that variable. The survey questions can be found in the appendix to the long-form essay, which will be made available online at www.worldfoodprize.org.



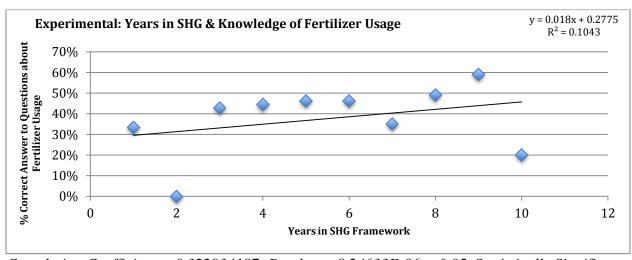
Correlation Coefficient = 0.027918489: P-value = 0.787149837 > 0.05. Statistically



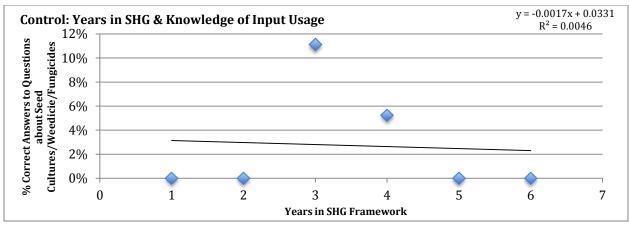
 $Correlation \ Coefficient = 0.411472267; \ P-value = 7.90461E-09 < 0.05, \ Statistically \ Significant$



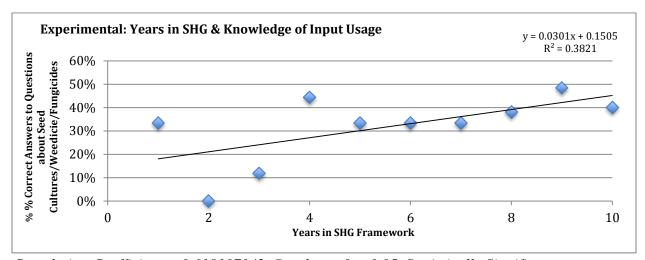
 $Correlation \ Coefficient = 0.680299595; \ P-value = 0 < 0.05, \ Statistically \ Significant$



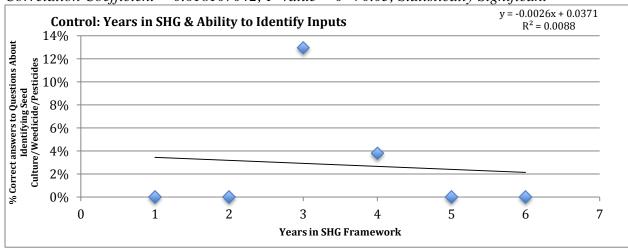
Correlation Coefficient = 0.322934187; P-value = 8.24633E-06 < 0.05, Statistically Significant



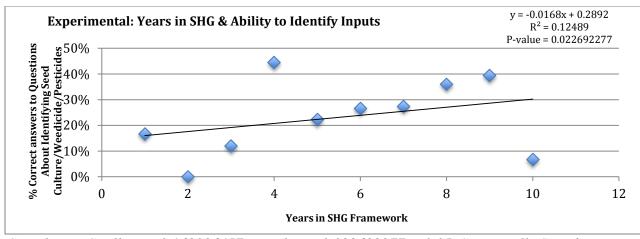
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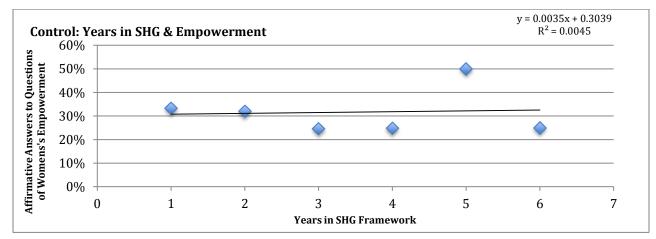
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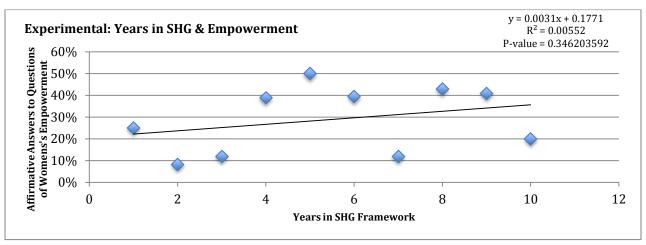
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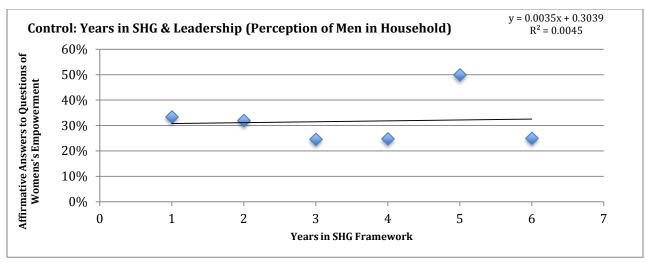
Correlation Coefficient 0.168386457; P-value = 0.022692277 < 0.05, Statistically Significant



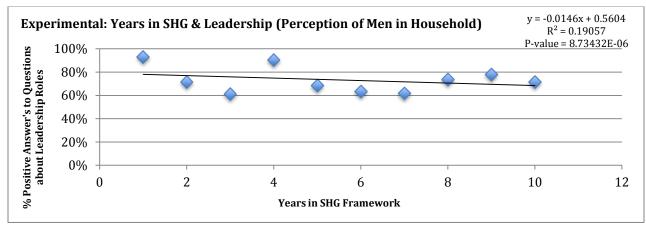
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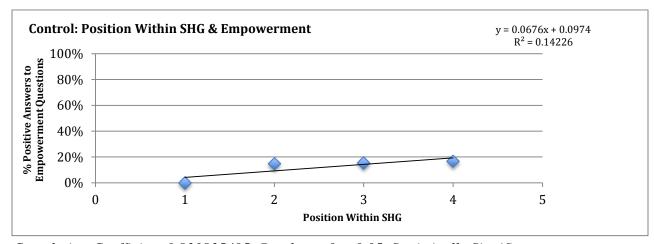
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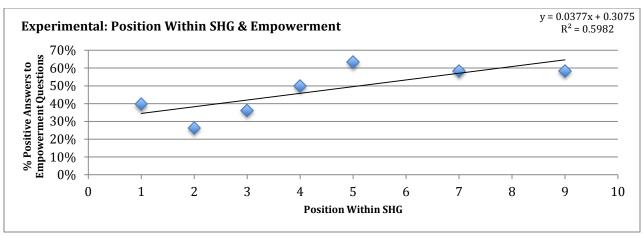
Correlation Coefficient 0.299702341; P-value = 0 < 0.05, Statistically Significant



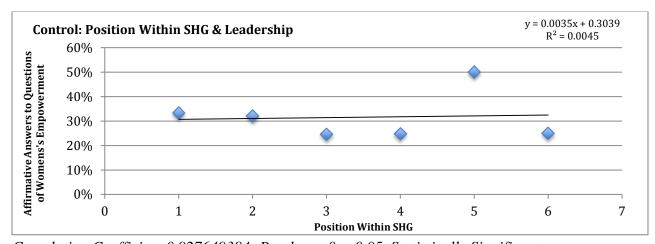
Correlation Coefficient -0.291045488; P-value = 6.4126E-05 < 0.05, Statistically Significant



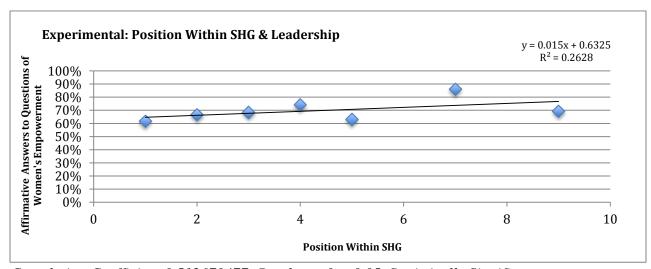
Correlation Coefficient 0.830835495; P-value = 0 < 0.05, Statistically Significant



Correlation Coefficient 0.773411934; P-value = 0 < 0.05, Statistically Significant



Correlation Coefficient 0.927649384; P-value = 0 < 0.05, Statistically Significant



Correlation Coefficient 0.512670477; P-value = 0 < 0.05, Statistically Significant

Discussion and Impact

The above regressions demonstrate that the experimental group showed a statistically significant relationship between years spent in the SHG framework and position within the SHG framework and each dependent variable. This is indicative of a strong impact factor for the SM Sehgal Foundation's *Krishi Chetna* and *Unnat Krishi* programs in the Alwar region of Rajasthan, India. Further, the control supports these findings when it shows a lower positive relationship than the experimental group, or no statistically significant correlation at all. Notable exceptions including the "Position within SHG and Leadership (Men's Perception)," regression, which showed the control having an even higher positive correlation than the experimental group, the "Position within SHG & Empowerment" regression showed a similar trend, and the "Years in SHG & Leadership (Men's Perception)" regression, which showed a positive relationship for the control and a negative relationship for the experimental. This seems to suggest that, while the *Krishi Chetna* and *Unnat Krishi* programs were effective, the SHG framework in general has more of a role to play in empowerment. Further, the "Years Spent in SHG & Fertilizer Use" correlation shows both the control and experimental groups with strong positive relationships, and the control group even more so. This may suggest again that the SHG framework itself is the most important factor in these interventions.

The fact that the experimental group was not consistently outperforming the control (that is to say, a few of the control groups marginally outperformed or equaled the experimental groups) in a positive relationship between the selected variables should not be discouraging to those agents who implemented the program. First, it is possible that the larger sample size for the experimental group decreased the variability in the data enough to account for some of the discrepancy, therefore closing the performance gap between the two groups. Also, only those individuals who had participated in some form of SHG were interviewed in the control group, meaning that those individuals were already included in the broader framework of which the *Krishi Chetna* and *Unnat Krishi* interventions were meant to be a part. The *Krishi Chetna* and *Unnat Krishi* participants also showed statistically significant increases in almost every dependent variable based on how much time or involvement they had in the program. Also, in baseline comparisons between the raw scores on self-reported crop yields, the experimental far outperformed the control. In baseline comparisons between the raw scores on ability to identify inputs, seed cultures, pesticides, herbicides, fertilizers, empowerment, use of inputs, and fertilizer application*, the experimental group also far outperformed the control. This seems to indicate that there may be other factors responsible for the discrepancies in the respective performance of each group.

*Not included in the data section above due to space constraints. Find in appendix attached to the long-form essay.

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Photos





Seeing the city with NC State interns!

Riding in the autos!





Two men in Alwar selling fruits and vegetables. A villager's calf grazing just outside of Alwar.



A woman farmer working with her cattle. A young boy in Alwar asked me to take his portrait.

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Appendix

Krishi Sakhi Interview #1 1 July, 2016 Prasant: Interviewer Mohit: Translator

Sam: Transcript

Transcript 1

Interviewer [I]: Where do you send your soil samples to get them tested?

Krishi Sakhi [K]: I send them to the gramsewa.

I: Do you know how to get your soil sample?

K: I divide my farm into four parts and there is one part in the center, and you should never take soil from anywhere around the tree. Try to take soil from the corners. Now you hit the ground with the plough in this way [hand gesture] and in this way [hand gesture].

I: Apart from this, what all do you get as fertilizer?

K: I get SSV, urea, SBA, zinc, potash, and ferrous.

I: So you get potash, ferrous, and boron?

K: ...and also chloride.

I: How much chloride do you get?

K: I buy a 100g box.

I: Why do we use chloride?

K: So when we mix it with the seed there is a lesser chance of getting termites on it.

I: [Prasant to Mohit] We need to find out the real name for this (chloride) because it is something else.

I: First of all, let me introduce ourselves. My name is Prasant, this is Sam, this is Mohit. So what we are trying to do is that for the next one month we are going to be traveling in different areas and talk to all the Krishi Sakhis and SHG members. The primary topic of our conversation with them is going to be that after providing all of the services that the krishi sakhi does, has there been any change? Has their reputation in the household increased? To find out when the next time we launch this project, what are the things we need to incorporate in it and what are the things that are lacking in it?

K: I know pretty much everything there is to know right now. I know which seed is to be mixed with which type of fertilizer. So, basically, I know everything there is to know, but I might have forgotten some of it.

I: Who gives you all this information?

K: This guy tells me [points at Alwar office employee].

I: Did you learn from a krishi sakhi?

- K: There used to be two meetings every month, on the 10th and 26th.
- I: So what do you do in that meeting? Do you have a register?
- K: Yes, we have a register and a diary.
- I: Is the register for the Krishi Sakhi the same as the one for the SHG?
- K: No it is different.
- I: What all do you fill in the register?
- K: The name of the lady, the name of her husband, the name of her village, which district it belongs to.
- I: What all do you fill in the register related to farming?
- K: We fill in all the names. That's how we find out who is present and who is not.
- I: [to Mohit] Remind me that we have to get a look at one of the krishi sakhi registers. (done)
- I: Where do you keep the register?
- K: I keep it with myself but I haven't filled it yet. The new one is yet not filled, and the old one I've given to them [Alwar office employees].
- M: We just want to see what all you put in the columns of that register.
- [Conversation pertaining to finding the old register]
- I: Please tell me that initially you were trained by a krishi sakhi. What has been the huge difference before the training and after?
- K: Initially, we did not use any fertilizers. We did not use any PSSV in the millet.
- M: So has there been any difference in the types of crops that you used to get and those nowadays?
- K: Initially, we did not use any hybrid seeds. We used to use organic seeds.
- M: Did you have any hybrid seeds available early on?
- K: No, we did not have any hybrid seeds available at that time. Initially, we had only organic seeds, now we use predominantly hybrid seeds.
- M: Apart from the seeds, has there been any difference in the method of farming that you use?
- K: Yes, now we plant the seeds at the time of the year when it is so hot that most of the termites and insects die themselves [without pesticide]. Earlier on we used to harvest our seed as soon as it was ready, now we wait until the sun has killed them [termites, pests, etc.] off.
- I: You have given all the information about the amount of fertilizers and the techniques that are to be used to a woman, now who listens to her in her household?
- K: Everyone listens to her in the household. Initially, the husband used to think that what she is saying is of no use, but then we finally invited all the men to one of our meetings and explained to them what we are doing. So, we have

a meeting with both the men and women, and that's when they finally understood the importance of what we were doing. That's when they finally understood that using different types of fertilizers, like ferrous, produces better quality millet. There is a better shine to the millet.

I: In spite of the fact that you told him everything that you've learned, he might still disagree with you?

K: Now everything is okay. Once in a blue moon, if the millet that I put in was not up to the mark, then he would question that he was not the one who planted the seed, so it is my fault.

I: Do you invite males to the field?

K: We invite them to some of our meetings, and then we have a discussion between the males and the females.

I: What do you tell males in the field?

K: [difficult to understand] We tell them the different fertilizers we use. Millet, millet requires 15-20 days of tilling, we have to put in fertilizers after that, urea 12.5kg.

I: So, tell me about your household. Whenever there is a function of decision in your household, say relating to your child's education or marriage, do you have a say in that?

K: There are no such problems. My husband has a shop close by. My husband just has a shop and I am the one doing all the farming. I am the one sowing all the seeds and doing the harvesting.

I: So what does the man do on the farm?

K: He doesn't do anything. He just goes to the shop late at night and comes back early in the morning [might have misspoken].

I: Has there been a situation in which the harvest was less than you expected?

K: The harvest is more than what it used to be earlier.

I: Who goes to sell the harvest?

K: My husband because there are many types of people you can find in the market. How can you expect me to go there when I am doing all the farming?

I: Has he ever asked you to accompany him?

K: No, never.

M: If your husband ever falls sick, will you go and sell the crops?

K: Just some time ago my husband was coming back from my house from Baroda, a dog bit a huge part of his meat; he still has the scar. This is something that happened on the 24th, and the scar is still there. We didn't even get any injections. I called the SHG and told them that I won't be attending the meeting because a dog bit my husband. I told him to go to the hospital get an injection.

I: Why do women need to know about the soil report card?

K: Let's take an example of the human body. There are a lot of diseases in the human body. So whenever we are suffering from malaria or typhoid; when we have the common cold we take medicine for it. So, if we don't get a check-up from our doctor, we will never know what is wrong with us.

I: Does the male have a mindset to get a checkup?

K: Whenever the neighbors ask what is wrong with me, "have you gotten a check-up?" Then my husband would probably say, "yes I have shown her to a doctor." Just a few days ago, during Rakashabandhan, I fell sick and he called a doctor, who found out that I had a fever. He gave me some medicine and injection and went away, but even after 3 months I still had the fever. He took me to a lot of places, but the fever was still there. Then, my neighbors told me that I should go for a full health check-up.

I: If you were to start a Krishi Sakhi program for males, would it have been as effective?

K: If it had been specifically for men, no women would have benefitted from it. There would have been only men in there. Because right now it is for females, men can still come.

I: How much land do you have?

K: 1.5 Bighas.

I: Who owns the land?

K: My father-in-law.

I: How do you divide it?

K: Because there are four sons, it has been divided into four equal parts.

I: [Sam] do you want to ask some questions?

I: [On Sam's behalf]: When did you start farming?

K: My father was sick for a long time, many years ago, 8 to 10 years, my father had 10-12 bighas of land. We were two sisters and we had a younger brother, he was very small and my mother used to get sick a lot also. For five years she was sick. So, the two of us – me and my sister – used to study, take care of our parents, do all of the household work, and also take care of the farm. We had nobody working for us. In an emergency we used to help take care of our neighbor's farms, and visa versa. So 11 years I took care of my father's farm.

I: How old are you now?

K: I don't know.

I: Okay, how old is your daughter?

K: Eh, forget about that. I will tell you my age. I am around 35-36 years old.

I: Up to what year did you study?

K: I studied up to the eighth standard.

I: Do you have kids studying right now?

K: Yes; I have two daughters and one son, the son being the youngest of the three.

I: According to you, what should be the maximum amount of education that a girl receives?

K: I say to her that she should study as much as she wants.

M: In which classes do you daughters study?

- K: One is in 8 and the other in 3, and the little boy is in 1st. All three are studying in a private school.
- I: When did you get married?
- K: I was married at a very young age because of my older sister. My daughter was born in 2003.
- I: When were you born?
- K: I do not know my date of birth.
- I: The Sehgal Foundation has no programs in your village, but since the Krishi Program has been going on in your village you must have been trained by one of the krishi sakhis, and that's how you became one?
- K: I became a Krishi Sakhi when one of the Krishi Sakhis moved to the Adhikar Sakhi program and her position became vacant.
- I: How old is your SHG?
- K: My SHG started in the second month of 2010.
- I: Have you been a member of the SHG from the beginning or did you join later?
- K: I did not join it from the first meeting; I joined it around 6 months later.
- I: According to you, what has been the change in the mindset of the Krishi Sakhis ever since the beginning of this program?
- K: Now the Krishi Sakhis have a fair idea about the timing of harvesting, tilling, and the types of fertilizers to use. Now they understand that if they till and sow on time they will have a better crop.
- S: [through M] What are the best and the worst things about the program, in your opinion? ...
- M: What are the bad things about the program? ...
- I: What are the things that were hard for women to understand?
- K: When we were told to buy fertilizers like boron and potash we thought, "we are already giving some money to the SHG, why should we spend more on fertilizer?" The main problem was convincing them to buy the fertilizers because they had a pretty good point; it was a lot of money. So, we finally told our supervisors that the most expensive fertilizers, like boron, zinc, potash, and ferrous were the one's women were reluctant to buy.
- I: When you tell a woman to put in urea or DAP, how do you remember the name and quantity to be used? Is it by the size and color?
- K: I remember it by the quantity. I know that 35Kg of SSV is used for millet, and 15kg of urea. The leftover 25kg of fertilizers are to be used -12kg before tilling, and 12kg after.
- I: Were you aware of the name urea before joining the program?
- K: Yes; I have been working on farms since my childhood and my father used to bring these fertilizers since I was a kid, so I have known for a long time what urea and DAP is.
- I: Do you have a hard time explaining to women in your village what urea or DAP is? Do they have difficulty understanding?

K: No; no they understand.

M: Well, now they understand, but did they have the capability to understand before the program started?

K: Everyone knew about urea, but SSV and phosphate were the things they were not aware of. They were astonished that some fertilizers are so cheap.

I: Let's say that you tell one of the women, "Apply 5kg of zinc." What do they say to buy it in the shop? Give me that red colored thing?

K: No; they just ask for zinc! Because zinc comes in both red and black, so he [shop keeper] just gives them the zinc that is available in the shop.

M: Let's say that you go to a shop and ask for zinc, and he gives you a white-colored powder, how do you find out if it really is zinc, or something else?

K: I read the package. The zinc fertilizer has zinc written all over the package.

M: So you read it and understand that it is zinc? Is it written in Hindi?

K: Yes. The first thing I do is look and see what is written on the package.

I: You can read it, but can the other women farmers read it?

K: If another Krishi Sakhi asks where she should buy zinc from, I tell her the name of the exact shopkeeper and he gives them the zinc.

I: It was really nice talking to you! You are extremely experience, which is why we wanted to talk to you. In most of the villages the program has not been there that long, but in your village it has been there for the last 6 years.

K: The first two Krishi Sakhis of my SHG were illiterate.

I: So how were they able to explain and understand.

K: She [KS] used to find someone literate, or usually they would get help from their kids or their husband.

I: Did they learn to count after that?

K: No.

I: Let's say there is a Krishi Sakhi who is illiterate and she needs to put in 50kg of urea, but she needs to only put in half right now and half after the tilling. How will she know?

K: You [Prasant] go and tell her that, she will tell you everything about how to do it.

I: How does she know that it is 50kg? Does she guess it?

K: No, we have a scale. Guessing doesn't help because many times it can lead to huge errors, so we all have a scale. The Krishi Sakhi also has a lot of other tools that she rents out. For instance, she gives the sprayer for 10 rupees/day. So, if there is any problem with the tool that is returned to her, she doesn't accept it back. She checks the tools before giving them and makes sure that the tools are fine before she lends them out.

I: Thanks a lot, we took a lot of your time. We probably won't even visit your village.

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K: You are most welcome.

I: We want to come, but we will not have enough time. We only have 4-5 weeks, so we will attend your meeting on

the 14th.

END TRANSCRIPT

Krishi Sakhi Interview #2 Prasant: Interviewer Mohit: Translator Sam: Transcript

Transcript 2

Prasant [I] Mohit [M] Krishi Sakhis [K]

Interviewer [I]: My name is Prasant. This is Sam and this is Mohit. We are trying to find out has the Krishi Sakhi program been useful for the women farmers? We won't take a lot of your time and we hope to come back to your village and talk to others.

How long has it been since you joined the SHG?

Krishi Sakhi [K]: I've been apart of the SHG for the last 8 years. There are 3 SHGs.

I: Since when have you been a Krishi Sakhi?

K: Since 2013.

I: Who was the Krishi Sakhi before you?

K: I was the first one. I was the head of the SHG.

I: Are you still?

K: Yes, I am still the head.

I: How long has SHG been in the area? 8 years right?

K: Yeah.

I: What information do you give to women as the Krishi Sakhi?

K: I start by telling them when to sow the seeds, and then I tell them about fertilizers, the right proportion of fertilizers to be used for a given amount of seeds. Then I tell them what amount of water they should use. This is the type of information that I provide them with.

I: How many members are in the SHG who attend the meetings? K: Around 20-25. I: Do you get your soil tested? K: Yes, sometimes I go there myself, and sometimes I send him [Alwar office employee present]. I: Who tests your soil? K: The gramsewak. I: How much money does he take? K: 5 rupees. I: How much money does the SHG take for soil testing? K: They take 60 rupees. [Alwar office employee]: The cost of transportation of going to the gramsewak is covered in the 60 rupees, which is why we take more. K: Yeah that is the best way because it costs more if we do it ourselves. I: Do they give you back the soil report card? K: Yes, we get back a report card in which there is the name of the farm, village, district, and panchayat. I: How much time does it take to get the report? K: Around 15-30 days. I: Do you have to go anywhere to get the report or is it delivered to your house? K: It is delivered. I: Do you maintain a register for the SHG meetings? K: I am illiterate, but my child does it for me. I: What all do you write down in the register? K: The amount of seeds used, the amount of fertilizers used, the cost of those operations, and what we saved. I: Do you get any salary for your services? K: Yes.

K: Initially, the man who was with us used to give it to me. Now it is transferred into my bank account.

I: How did you get to know about all these things before you were a Krishi Sakhi?

I: So who gives it?

K: Initially, I did not know the name of any of the fertilizers. Then we started pooling little amount of money to create an SHG. It was very beneficial for me because we could take the money on loan whenever we needed it.

I: How much money do you collect every month now?

K: 100 rupees.

I: Have you taken any loans now?

K: Yes.

I: What have you taken a loan for?

K: I took a loan for 175,000. I used it for household needs, like buying a buffalo.

[Extended conversation about buffalo]

I: How much land do you have that you farm on?

K: I have 1 bigha.

I: Do you rent any land?

K: Yes, sometimes, but not this year.

I: All the times that you tell the women about farming, do you also tell the men?

K: Yes.

I: How does the man of the house trust the woman?

K: Because he can see that, initially, the harvest was not of the quality that it is now.

I: Did he believe you the first time?

K: No; he constantly kept saying that the fertilizer I was using was wrong.

I: Did you ask the men to visit the farm to have a look at the crops harvested?

K: Yes, twice a year.

I: So what all do you tell them during their visit to the farm?

K: I tell them about the amount of fertilizers that I use and the method I use for farming the crops.

I: Do you pull out the roots of the crops to show them?

K: Yes, the crops that I plant have better roots than someone who has no idea about farming, who has not been in the program.

I: The women who join the Krishi Sakhi program when it began, are they still with you or have they left?

K: They are still with us. I: Has the size increased or decreased? K: It has increased. I: Do you give any demos? K: No. I: I want to know why women are joining the Krishi Sakhi program with such enthusiasm. K: Because the women do all the work, we have very much less land, and the males all go out for work, so we do all the work of sowing and harvesting. I: Where do you sell your crops? K: In Alwar. I: Who takes the crops to Alwar? K: My husband. I: How do you find out what the correct price is? Husband [H]: If the crops are of great quality then we sell them. I: You have only 1 bigha of land, so how much do you save for yourself and how much do you sell? H: We save most of it for our use and sell the leftovers within our village. If there is still something left, then we send it to Alwar. I: Can I see the register? K: I do not have the new one, just the old one. [Someone fetches it] H: My wife is illiterate but she grasps things very quickly. I: Let's say that you [H] get sick or you have a prior engagement, and are unable to go sell the crops, would you allow your wife to go sell them?

H: Yes.

I: What are the things that she does outside of the house?

H: She attends all the meetings, goes to Delhi and Gurgaon.

I: How many kids do you have?

- H: Four kids. I have got 3 sons and 1 daughter.
- I: What are you teaching them?
- H: Two of my kids are married. One of them has studied up to 10^{th} grade and the other to 9^{th} grade. One is working in a paint shop and the other is repairing motorcycles. I am a stoneworker and she is a farmer. And the other two kids are still studying.
- I: When do you allow your daughters to get married?
- H: At the age of 18-19.
- I: What is the use of teaching women about farming?
- H: When a girl gets married and goes to her in-laws she will at least help provide for her family through farming.
- I: Your son has beautiful handwriting [looking at record]
- H: He is in 11th grade.
- I: Where does he want to study now that he is in 11th?
- H: My son wanted to study mathematics and science, but since he didn't score high enough in his 10th grade he got only 48% he had to take arts. My son thinks that his examination papers were not checked correctly. My son said maybe we should send them back for reevaluation, but I said, "What is the use?"
- I: Why did he not take science if that is what he wanted to study?
- H: The principal said that he wouldn't accept anyone less than 65% marks.
- I: Why didn't you try some other school?
- H: The only other school was in Alwar and it was too expensive.
- I: Do you not belong to a reserved category? [caste]
- H: Yes, we are from a reserved caste, but our child has always studied in a private institute. I don't know if we can get reservation now but we haven't used it until late. [he doesn't seem to know what reservation is]
- I: If you would have availed reservation the cost of their education would have been much, much less.
- H: Yes, that is true, but you are not taking into consideration the hostel fees and transportation.

M: You only get reservations in government institutions, and if he studies in a government institution it costs exponentially less than a private one because it is completely subsidized and the government covers 80% of the fees so you would have benefited.

I: There is a school in every district called Novadya vidyalaya, why did he not join that?

H: It is a very rigorous process to join that and they take into consideration grades.

I: Yes, but they only take admission from 6^{th} grades onward. If your kids had joined that they would've had the best educations.

You work with stones right? Do you cough a lot?

H: Yes.

I: Do your knees hurt?

H: If you work hard your knees tend to hurt. I have to raise my kids. I make lentil grinding machines [mills].

I: Those are out of date these days.

H: No, people still buy them. This is an indigenous product and flour that is produced through it tastes much better.

I: [to krishi sakhi] When you are explaining the methods of farming to other women, what is the hardest part to explain?

K: Now we don't have any problems, but at first it was hard to explain to them SSV fertilizers and the women were reluctant to use urea. Initially, they weren't able to understand the names of the fertilizers and the terminology.

H: I also help her to educate other women and once they saw the benefits, after the first harvest, they started believing us. She goes from farm to farm, house to house, explaining to women the different methods.

I: But some women still might have a hard time understanding. Let's say you ask them to put in a particular type of fertilizer, how do they understand which fertilizer to use? Is it through the color?

K: No, now they understand it just using the names. Initially, they used to identify it by their color. Like, they used to call phosphorous 'the black fertilizer.' They used to call urea 'the white fertilizer.' Now they understand everything. At first, they called ferrous 'the green fertilizer,' which looks like a *halwa*. [Indian sweet dish] They used to think of boron like the Indian salt. But, after I told them that the fertilizers I had given them

were based on the soil reports, they finally understood the point of using the fertilizers. Now they remember all the fertilizers by their names.

I: We will be visiting a lot of SHGs, some of them might recognize the fertilizers through their names, some through color.

M: Let's say that somebody gives you boron, but says that it is urea. Would you be able to identify it?

K: Yes.

I: Let's say that someone puts urea in a packet of boron. Could you identify what it really is?

K: Yes, now they [SHG members] are very cunning.

I: Where do you get all your fertilizers from?

K: He [Alwar employee] gives them to us.

I: Yes, he gives it to you because you have a smaller amount of land. What if you need more fertilizers?

K: We can get more from Laxmangarh.

[Break in recording]

~ Do the women get to have a say about household matters?

H: It is stupid to limit a woman. In fact, she should be encouraged to speak up.

I: So which standard to the women in this village study?

H: Many of them are working in government institutions. Most of them have studied up to 12th grade. Some of the women are working in Alwar, and these women are from the scheduled caste category. We have around 10-20 women working in government institutions. One of them is a stationmaster.

I: You should send your kids out to a better school to get a better quality of education. This will be better for their future.

K: One of my kids wants to study agriculture.

I: There are three places where there are good ag institutes. One is in Harsana. How can he study agriculture if he is already taking arts?

END TRANSCRIPT

Transcript: Krishi Sakhi monthly meeting 14 Iuly 2016

Prasant: Interviewer Mohit: Translator Sam: Transcript

Transcript 3

Prasant [I] Mohit [M] Krishi Sakhis [K] Assam Khan [A] Rajesh Sharma [R]

- [I] What is a community resource person?
- [A] The national Rural livelihood Mission (NRLM) are working on the same project with Krishi Sakhis so they have started working with us since 2007, so when the work with the SHGs was started, it started with 122 blocks in Rajasthan.

So, to start working in these 122 blocks, the federation decided that they would hire community resource persons from the places where this project had been going on for a long time. So we have an MOU (memorandum of understanding) with them, so we sent our best Krishi Sakhis for a 15-day training, after which they were sent to different blocks and districts. The response is pretty good, and so we are going to continue with the work.

- [I] So, the government pays them their salary?
- [A] Yes, they are paid a lifetime salary. The government pays the federation.
- [I] By what name are they known within the community?
- [A] They are known as community resource persons (CRPs).
- [I] Do they understand when people call them a CRP? Do people understand the concept of the CRP?
- [A] People in our district do understand, who are working with IBTADA, but we do not know about the other districts.
- [I] Ok so, everyone in IBTADA's district understands the concept of a CRP...

We should introduce ourselves (INTRODUCTIONS HAPPEN HERE)

One of the individuals (male) introduced himself as an Internet Sakhi. Google sponsored the project he is working for and so did the Radan TATA trust. The Internet Sakhi project creates individuals in rural areas to train individuals on the functions of the Internet to create rural technology literacy.

{...}

[A] The MP Government is trying to do an MOU with us, but we have not yet said yes to them because we might face a lot of problems [doing and MOU with another state]. When we send a CRP from here we don't

send them in a group because they are divided into different blocks. We have to collect payments from them, which is a big logistical challenge, then we also have to track the payments, which again is a problem. Many times the payments are stalled because this or that bill is not correct.

[I] There are many problems signing an MOU with another state government.

{Prasant explains to the KS about the WFP and what we are doing here}

[I] How many of you over here are CRPs? (two women raise hands)

What is the difference between your job as a Krishi Sakhi and what you do now as a CRP?

[K] As a KS we used to do the same thing that the rest of them [KS] used to do – writing down the names of the farmers who were members of our SHGs, distribute fertilizer and seeds, used to ask what they needed and write them down, used to teach them the amounts of fertilizer they should use – now as a CRP we have a target of one village per week. We do a survey for the first couple of days and in the survey we find out how many of the villagers have land and how many do not. After doing the survey, we differentiate between those with land and those without, and then we create three schools in every village. It takes us another two days to create those schools. The next two days we train the people who attend our classes, and select Krishi Sakhis out of them. There is one Krishi Sakhi selected from every three schools.

[I] How many women are there in every school?

[K] 10-15

[I] So, as a CRP, you train only Krishi Sakhis, or do you also train the rest of the women?

[K] We train both of them, because in the classroom there are normal women, and also the one we will pick to train as a Krishi Sakhi.

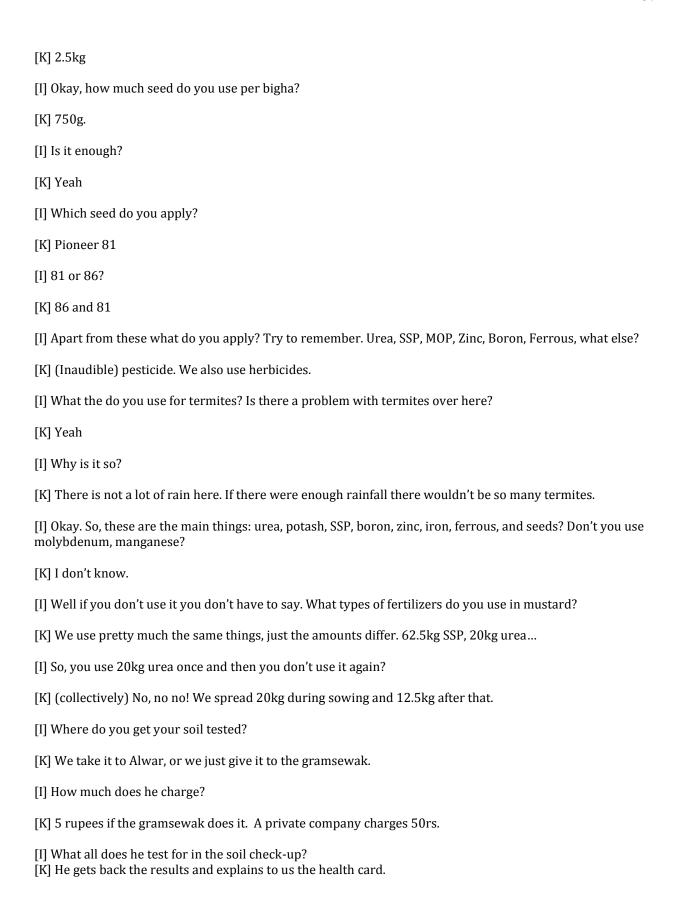
On the last day, the 7^{th} day, of the school, we tell the selected Krishi Sakhi about her responsibilities. The women in the schools self-select the Krishi Sakhi from amongst themselves.

- [I] So, what is the duration of their classes?
- [K] The classes go on for as long as you want them to.
- [I] You said that on the 7^{th} day you told the Krishi Sakhis about their responsibilities, so how many days do you train the KS for that position?
- [K] We work for 7 days in one village, two days for the creation of classes, two days for the training. We gather all the farmers, they can be in groups of 30-45, we make them sit down and select the KS from amongst themselves. So, after selecting the KS, the next day we train them about farming for an entire day.
- [I] The villages that you visit to create these schools, are they close to this district or far away?
- [K] They do send us to far away districts.
- [I] Do they provide you with food and accommodations?
- [K] No.
- [A] Yes, we do (interrupting).

- [K] Yeah, yeah of course they do. They give us 200rs.
- [I] Tell me quickly. You tell people to get their soil tested. So, when you use Pearl Millet, which of the fertilizers do you tell the members of our group to use?

Tell us about your experience, it's not like we are testing you. We have land close to Gurgaon where we use different fertilizers than what are used here, since you have sweet water here, so tell me about the fertilizers you use over here.

- [K] We use 35kg of SSP
- [I] By that you mean per bigha?
- [K] 15kg of Urea,
- [I] Do you divide it in half? Do you use half before sowing and half after tilling?
- [K] We use 10kg after tilling
- [I] So you use 15kg before sowing and 10kg after? So, that's 25kg of Urea.
- [K] We get a 50kg pack of the fertilizer, of which 15kg is spread before sowing, the amount that is spread after is usually the amount that we are told to use by the soil card.
- [I] Tell me more. What else do you apply? What do you use for potash, MOP or something else?
- [K] We use potash.
- [I] How much? 2.5kg?
- [K] (Many speaking at once) No, 5kg.
- [I] Zinc?
- [K] 5kg. (another KS interjects) It depends upon the soil health card. If the soil health card tells us less, we apply less, but the average is 5kg.
- [I] So, apart from these, what else do you apply? Boron, 500g?
- [K] Yes
- [I] Don't you all use DAP?
- [K] No, we have already used SSP.
- [I] Ok, some places use DAP and some use SSP.
- [K] In Laxmangarh district DAP is not provided.
- [I] We have covered Urea, Pothash, SSP, Zinc, anything else?
- [K] (collectively) Yes, Ferrous.
- [I] How much Ferrous do you use?



- [I] When you give him 50rs does he check something more than the NPK and PH? He doesn't check micronutrients, does he?
- [R] We can also get the micronutrients checked. TATA gets them done.
- [I] Do you guys have any van (mobile lab) that comes and checks your soil?
- [K] No.
- [I] If we provided you with such a thing would it be helpful? Not once a year, but four times a year, twice a season?
- [K] Tell us what we have to do to get this facility.
- [I] We are talking to a few people about this. As you know there are new techniques that are coming out, so some people have started providing these facilities in a van. What we would do is provide one van for the entire Rajasthan region. It would stay here for one week and work in 10 villages. The van would only test for MPK and PH, nothing else. I don't think it will be able to provide any electrical conductivity testing.
- [I] We kind of got off topic. Tell me more about the amount of fertilizers used in...we use urea, we use potash... how much potash do you guys use...?
- [K] 5kg that is the average, otherwise, it depends upon the test.
- [I] Yeah, but everyone doesn't get to have a test, so lets go with the 5kg average.

How much ferrous do you use?

- [K] 5kg
- [I] Do you apply zinc?
- [K] Yeah, 5kg
- [I] Okay, do you know anything else? Do you also apply boron?
- [K] Yeah, 500g.
- [I] And how much seed do you apply?
- [K] 750g; We use a machine to spread the seed and whatever is left we leave in the machine.
- [I] So do you mix the seed with the soil or the fertilizer and then put it in the machine, or do you put it alone?
- [K] No, we don't mix it with anything. We apply the fertilizers way before hand according to the soil health card, then we fill up the tank with the seed and mark it to 750g.
- [I] This machine, is it hand-held or one that comes with a tractor?
- [K] It is one that is used with a tractor.
- [R] When we have a bag of seed that weighs 5kg, we put the entire thing in the tank of the machine, but the machine only uses 750g to spread on the land. The machine has specific marks for different seeds. For instance, when we spread mustard, we usually put it at number 3.

- [I] Who provides you with the equipment?
- [A] We do.
- [I] What has been the change in the way women live everyday because of this program? Each of you have to give one reason.
- [K] There has been a lot of change in our living conditions and mentality. Initially, our own family members were reluctant to use all the methods we were taught. They used to say that we don't understand the method you are using for farming, as we have never used fertilizers before sowing the seed. So, these methods were started off by Krishi Sakhis and initially our entire village used to discourage the use of fertilizer before sowing the pearl millet, but once we used the method and their was an increase in the harvest then everyone was interested in our methods.
- [I] What has been the major change in your relationship with the other members of your household?
- [K] (everyone talking at once, garbled)
- [I] How many of you go to sell the harvest yourselves?
- [K] We don't. Usually, one of the house members go.
- [I] So, the money they get from the sale. Do they give it to you?
- [K] They do if we need it. The head of the house, usually husband or father in law, keeps the money and gives it to us if and when we need it.
- [I] Let's say that you give them the method and they apply it in an incorrect manner. What then?
- [K] We don't tell them in theoretical terms what to do. We show them in a practical manner what to do.

If you explain the method to them once they get it. You don't need to explain it to them anymore. We had a little difficultly in the first year, but since then everything has been fine.

- [I] Let's say that you have to send one of the kids to study outside of the village, are you asked about that decision?
- [K] (Collectively) All of us are asked.
- [A] This [women not being asked] used to happen earlier on. Now they are asked.

[everyone present agrees with the fact that now women are asked about important decisions within the household]

- [I] Whenever you go for a meeting do you all wear green?
- [K] Yes, we do.
- [R] The green color is only for the KS, not for the members.
- [I] What has been the difference in the harvest that you get per bigha?
- [K] Initially, we used to get 4-5 mun, (1mun=40kg), now we get around 10-11mun.

- [I] Where do you get the water from?
- [K] We get it from the bore [well].

Some of us have private water and some of us don't. Those of us that don't take it from the bore well. It costs around 1000rs.

- [I] What information do you provide about the seeds and fertilizers?
- [K] We tell them about sowing and tilling.
- [I] If someone was to use organic instead of chemical fertilizers, how would you explain it to them?
- [K] We tell them how to make fertilizers using powder. First of all you dig a hole and then ... (inaudible).
- [I] Tell me, why do we put urea and SSP?
- [K] SSP contains phosphorous, which strengthens the roots. For instance, when you build a house you want it to have a strong foundation. In a similar way, phosphorous strengthens the crop.
- [I] What is urea used for?
- [K] Urea helps in the growth of the crops and nitrogen increases the height.
- [I] What is used to increase the thickness of the crop?
- [K] Phosphorous.
- [I] I'm noting down all the answers to the questions here and I will ask the same questions to the members of your groups.

I don't care if you answer right or wrong, I am just curious about whether you are able to explain to them what you are telling me. Because you might be able to explain but it is important that they understand. You guys underwent the program for a long duration, which is why we are going to do two surveys. One of them is going to be with a group that has not had any such programs. There are six such villages in which there are SHGs but no agricultural programs, because only then we will be able to differentiate between the krishi sakhis that have been trained and the untrained ones.

What does zinc contain?

- [K] Zinc is used to protect the plant. (more explanation in dialect unknown by translator)
- [I] Why do we use sulphur?
- [K] Sulphur helps in keeping the plant greener.
- [I] You don't use sulphur in its pure form though?
- [K] Sulphur is a major ingredient in SSP, so it gets sulphur when we apply that to the ground.
- [I] Tell me something about boron.
- [K] Boron helps in getting broad and green leaves.

[I] Tell me something about ferrous.
[K] I just told you.
[I] No, you did not tell me about ferrous.
[K] Ferrous sulfate? I just told you about ferrous sulfate, which we use to keep the plants green.
[I] Well, I asked about boron.
[K] Well, I told you about that too. It's used to keep the leaves broad and green.
(another Krishi Sakhi) You forgot to ask about potash.
[I] Okay, what do you know about potash?
[K] Helps to fight termites and germs, especially in crops like mustard.
[I] So once you've told the members the different functions of the different fertilizers, how do they know that what you've told them is really happening?
For instance, let's say you tell them to use this fertilizer and your crops will be greener. How would they know it will work?
[K] Let's say someone didn't apply the fertilizer like we told them to and someone else did. They can see the difference for themselves.
[I] So, how many times do you do this every year?
[K] Every year we do it for pearl millet, mustard, and wheat, which are our three major crops. We train them thrice on every type of crop.
[I] You tell them how much urea you put in wheat?
[K] 25kg before and 12.5kg after, but we put in 12.5kg twice in two different applications.
[I] How much MOP, potassium do you use?
[K] 5kg
[I] and how much zinc?
[K] 5kg
[I] how much boron?
[K] 500g
[I] Ferrous?
[K] 2.5kg
[I] Which type of culture do you use?

- [K] Herbicides and PSP and azetobactor culture
- [I] Which fungicides do you use?
- [K] Mancozeb and forem
- [I] Mancozeb comes in many forms 30% 40% etc. depending upon its strength

Let's say that you have a fever. If your condition is not that bad the doctor will give you a less powerful medicine. Similarly, fertilizers have different strengths depending on the type of soil.

[K] We use the fungicide depending upon its strength. If it is a stronger version we use a lesser amount and if it's a weaker version we use large quantities.

We use chlorifide in wheat.

- [I] Chlorifide is used for termites?
- [K] Yes.

(Prasant explains Mohit's upcoming visit)

- [I] When Mohit is out here collecting answers to questions, can he talk to men and women seperately?
- [K] Most of the men probably won't answer any questions.
- [I] We'll have around four or five questions just for the men, and the rest are for women, but we don't want them to answer in the presence of men because you people are now empowered since you have got the required training and you will be able to answer freely, but the other women who have not yet gone through the training will probably not be able to answer with complete independence and their answers may be influenced by their husband sitting next to them.
- [K] That will not be a problem. You could ask them to go out and they will completely understand.

When you question a man he will answer, and when you question a woman she will answer. There probably won't be any problems.

END TRANSCRIPT

CONTROL ENGLISH SURVEY

Questions for the Quantitative Analysis of the Krishi Sakhi Model of Agricultural Extension in Alwar, Rajasthan (Shortened for deployment):

An Initiative of the S.M. Sehgal Foundation

Samuel Gostomski

Informed Consent & Respondent Confidentiality

This research is part of a joint project of the World Food Prize Internship and S M Sehgal Foundation. It is being done under the supervision of Mr. Prasant Mohanty, Project Leader at S M Sehgal Foundation and Mr. Samuel Gostomski, Intern, World Food Prize. This survey is being done to evaluate the changes in the agricultural practices because of the Krishi Sakhi program and its social impact. We hereby declare that this data will be used for producing a mandated report as a part of the World Food Prize Internship and; academic literature for the academic fraternity, policy making bodies and stakeholders of the agriculture sector. At no point will your identity be revealed in any document. Do you wish to be part of this research study?

YES □ NO □

Demographic Questions

Survey Number: ______ Member ID: ______ Name of Woman: _____ Name of SHG: ______ Time of Interview: Time of Interview:

Enumerator Name:	

<mark>For Wome</mark> n	. Only						Mambar ID.				
roi woillel	Ulliy						Member ib:				
			(a) □ Muslim (b) HG since (year):				100. Caste?: SC (a) □ ST (l	b)□	□ OBC (c)□ Gen	ieral(d) 🗆	
	d ?: (a)) Ye	es 🗆 (b) No 🗀) Divorced/Separa	ated	□ 103 . If yes, h	iow	many years since M	arriage? :	
105. Age (i yrs)	in		106. Land that you own? (bighas)		107. Land taken on <i>rent</i> ? (bighas)		108. In whose name is the land?		109. Literacy		
Under 20	(a)		(a) None		(a) None		Woman (a)	[None	(a)	
20-30	(b)		(b) < 4		(b) < 4		Husband (b)	[Read Hindi	(b)	
31-40	(c)		(c) 4-8		(c) 4-8		Joint (c)	[☐ Write Hindi	(c)	
41-50	(d)		(d) 9-16		(d) 9-16		None:(Landless/Oral Lessee) (d)	[Simple Calculation	ns (d)	
51-60	(e)		(e) 17-40		(e) 17-40		Other:(e)	[
61-70	(f)		(f) > 40		(f) > 40						
71-80	(g)		1 ha=4 bigha	in L	ocal Calculations	5	_				
110. Education 111. Position in SHG Reinforcement/Cognition											

			Framewo	rk										
None	(a)		None ((a)			201 . Have y	ou heard o	of the <i>Krish</i>	ni Sakhis?	Yes (a)		No	(b) 🗆
> 5 th Std.	(b)		SHG Member	(b)			202. Where Sakhi?	e did you le	earn of the	Krishi				
5 th – 8 th Std. (c)			SHG Leader	(c)										
9 th – 10th Std (d)	-		Ex-SHG Leader	(d)										
11 th -12 th Std (e)	l.		Cluster Leader	(e)										
College (BA)	(f)		Ex-Cluster Leader	(f)										
University	(g)		Federation Leader	(g)										
And Above	(h)		Ex-Federation Leade	r (h)										
			Krishi Sakhi	(i)										
					2012-	13	(a) 🗆	2013-14	(b) 🗆	2014-15	(c) 🗆	Non	ıe	(d) 🗆
205 . Did you get the following benefits from the government agriculture program during these three years?				Demo Traini Field I None	_	(a1) □ (a2) □ (a3) □ (a4) □	Demo Training Field Day None	(b1) □ (b2) □ (b3) □ (b4) □	Demo Training Field Day None	(c1) □ (c2) □ (c3) □ (c4) □				

20 6.	What fertilizers do you put on your field? Just tick valid options:	(a) Urea Yes (a1)□ No (a2)□ Don't Know (a3) □	(b) SSP/DAP Yes (b1) □ No (b2) □ Don't Know (b3) □	(c) Potash/MOP Yes (c1)□ No (c2)□ Don't Know (c3)□	(d) Zinc Yes (d1)□ No (d2)□ Don't Know (d3)□	(e) Boron Yes (e1)□ No (e2)□ Don't Know (e3) □	(f) Iron Yes (f1)□ No (f2)□ Don't Know (f3) □
20 7.	Why do you use this fertilizer? What happens if you use this?						
20 8.	What is the color and texture?						
20 9.	How much do you apply per bigha? (in kg.)	` '	(b1) Bajra: (b2) Mustard: (b3). Wheat: (b4) Don't know	(c1) Bajra: (c2) Mustard: (c3) Wheat: (c4) Don't know	(d1) Bajra: (d2) Mustard: _ (d3) Wheat: (d4) Don't know	(e1) Bajra: (e2) Mustard: (e3) Wheat: (e4) Don't know	(f1) Bajra: (f2) Mustard: (f3) Wheat: (f4) Don't know
21 0.	Has applying increased your crop yields?	Yes (a1) □ No (a2) □ No change (a3) □	Yes (b1) □ No (b2) □ No change (b3) □	Yes (c1) □ No (c2) □ No change (c3) □	Yes (d1) □ No (d2) □ No change (d3) □	Yes (e1) □ No (e2) □ No change (e3) □	Yes (f1) □ No (f2) □ No change (f3) □

211.	What other inputs do you put on your field? Just tick valid options:	(a) Seed Culture (PSB+Azotobact er) Yes (a1)□ No (a2)□ Don't Know(a3)□	Yes No Don't	Veedicide (b1) □ (b2) □ (know(b3)) □	-	1) 🗆 2) 🗆		301. Which farm activities do you engage in?				
212.	What is the function of?							Ploughing/H arrowing (a) □	Irrigating Land (e) □	Fertilizer Application (i) □		
213.	What color and texture is?							Sowing (b) □	Spraying (f) \square	Weeding (j) □		
214.	How much do you apply per bigha? (in kg. Or liter)		(b2)N	Bajra: Mustard: Wheat:	(c1)Bajra: (c2)Musta (c3)Wheat	rd:	l: (c) 🗆		Drying (g) □	Cleaning (k) □		
215.	Has applying increased your crop yields?	Yes(a1)□ No(a2)□ No change(a3)□	Yes(h No(b No ch		Yes(c1)□ No(c2)□ No change(c3) □			Packing (d) □	Selling (h) □			
			1						T			
216. bigha	How much amount of so) ?		(a)Bajra:		(b)Mus	star	d:	(c)Wheat:				
217.	How much produce per		(a)Bajra:		(b)Mus	star	d:	(c)Wheat:				
218 . I (in Kg	How much produce do g	you sell in the marke	et?	(a)Bajra:		(b)Mustard:			(c)Wheat:			

Decision Making Capacity													
401 . Who decides what <u>kind</u> of inpu	t to put ?		(a)Woman □	(b)Man □	(c)Jointly								
402 . Who decides what make of inpo	ut to put ?	(a)Woman □	(b)Man □	(c)Jointly									
403 . Who decides what amount of in	nput to get ?		(a)Woman □	(b)Man □	(c)Jointly								
404. Who owns any agricultural eq	quipment ?		(a)Woman □	(b)Man □	(c)Jointly								
405. Who decides where to sell the	e agricultural produce ?		(a)Woman □	(b)Man □	(c)Jointly								
406 . Who <u>decides how much mone</u> Do not plan □	ey to set aside for agriculture a	? (d)	(a)Woman □	(b)Man □	(c)Jointly								
	Social Mobility/Empowerment 501. Do you feel that your husband values your opinion more after you received agricultural training? Yes (a) \(\subseteq \) No (b) \(\supseteq \) No change (c) 502. Will your husband allow you to travel outside your village for long-term agriculture training (for example, a month)? Yes (a) \(\supseteq \) No (b) \(\supseteq \) Other (c) \(\supseteq \)												
503 . When you advise your husband	about farming, what is his read	ction? How well d	oes he take it?										
Activity	Time Spent (Women)	For men or	<mark>1ly</mark> : Activity F	<mark>or men only</mark> : Tir	ne Spent								

602 . Eating meals	702 . Eating meals
603 . Caring for sick	703 . Caring for sick
604 . Child Care/Caring for children	704 . Childcare
605 . Sewing/making clothes	705. Sewing/making clothes
606 . Collecting water	706. Collecting water
607. Laundry	707. Laundry
608. Cleaning house	708 . Cleaning house
609 . Preparing food	709 . Preparing food
610 . Working on the farm	710 . Working on the farm
611. Working as employed	711. Working as employed
612 . Marketing (ie selling crops)	712. Marketing (ie selling crops)
613. Shopping (for household needs)	713. Shopping (for household needs)
614 . Shopping (for farm needs)	714 . Shopping (for farm needs)
615 . Travelling/commuting	715. Travelling/commuting
616 . Community meeting	716 . Community meeting
617. Leisure time	717. Leisure time

618 . Sleeping/resting	718. Sleeping/resting		
Social Mobility/Empoyeement	For Men Only		
	n more after she received agricultural training?	(a)Yes □	(b)No □
(c)No change □802. Would it be possible for your wide.d. Why or why not? :	fe to go out of station for agriculture training? (a)Yes	□ (b)No□	(c)Other □
803. When your wife makes a sugges d. Why or why not?:	tion about farming is it actually that important to list	en? (a) Yes □ (b) No □ (c) Other □
Leadership Roles			
-	ney in your household? Husband (a) ☐ Wife (b) ☐ Fa	ther in law (c)	\square Mother in law (d) \square Other (e)
902. Who makes decisions about farm	nion before you decide? (a)Yes \square (b) No \square ning in your house?: (a)Husband \square (b)Wife \square (c) Oth vife about these decisions? : (a)Yes \square (b)No \square	her □	
903. Who sells the harvest? (a) Husba			
904 . Do you like it when your wife tr d. Why or why not? :	es to contribute to decisions? (a)Yes \Box (b)No \Box (c)C	ther 🗆	
	END SURVEY		

EXPERIMENTAL ENGLISH SURVEY

Questions for the Quantitative Analysis of the Krishi Sakhi Model of Agricultural Extension in Alwar, Rajasthan (Shortened for deployment):

An Initiative of the S.M. Sehgal Foundation

Samuel Gostomski

Informed Consent & Respondent Confidentiality

This research is part of a joint project of the World Food Prize Internship and S M Sehgal Foundation. It is being done under the supervision of Mr. Prasant Mohanty, Project Leader at S M Sehgal Foundation and Mr. Samuel Gostomski, Intern, World Food Prize. This survey is being done to evaluate the changes in the agricultural practices because of the Krishi Sakhi program and its social impact. We hereby declare that this data will be used for producing a mandated report as a part of the World Food Prize Internship and; academic literature for the academic fraternity, policy making bodies and stakeholders of the agriculture sector. At no point will your identity be revealed in any document. Do you wish to be part of this research study?

YES □ NO □

Demographic Questions

Survey Number: ______ Member ID: ______ Name of Woman: _____ Name of SHG: _____ Time of Interview: Time of Interview:

Enumerator l	Name:	
Enumerator l	Name:	

<mark>For Women</mark>	Only						Memb	er ID: _					
101 . Member 102 . Married	99. Religion?: Hindu (a) ☐ Muslim (b) ☐ Other (c) 100. Caste?: SC (a) ☐ ST (b) ☐ OBC (c) ☐ General(d) ☐ .01. Member of the SHG since (year):02. Married ?: (a) Yes ☐ (b) No ☐ (c) Divorced/Separated ☐ 103. If yes, how many years since Marriage? :04. How many children? :												
105. Age (i yrs)	n		106. Land that you <i>own</i> ? (bighas)		107. Land taker on <i>rent</i> ? (bighas)	n	108. In whose name is t land?	the		109. Literacy			
Under 20	(a)		(a) None		(a) None		Woman	(a)		None	(a)		
20-30	(b)		(b) < 4		(b) < 4		Husband	(b)		Read Hindi	(b)		
31-40	(c)		(c) 4-8		(c) 4-8		Joint	(c)		Write Hindi	(c)		
41-50	(d)		(d) 8-16		(d) 8-16		None:(Landless/Oral Le	essee)		Simple Calculatio	ns (d)		
51-60	(e)		(e) 16-40		(e) 16-40		Other:(e)						
61-70	(f)		(e) > 40		(e) > 40								
71-80	(g)		1 ha=4 bigha	in L	ocal Calculation	ıs	_						
110. Educa	ation		111. Posi	tio	n in SHG		Reir	nforcen	nen	t/Cognition			

			Framew	ork										
None	(a)		None	(a)			201 . Have	you heard o	of the <i>Krisi</i>	hi Sakhis?	Yes	(a) 🗆	No	(b) 🗆
> 5 th Std.	(b)		SHG Member	(b)			202. Name	of Krishi S	akhi				·	
5 th – 8 th Std. (c)			SHG Leader	(c)			203 . How r Krishi Sakh	-	-	et a	None	(a) 🗆	1-3	(b) □
9 th – 10th Std (d)	l.		Ex-SHG Leader	(d)							4-6	(c) 🗆	7-9	(d) 🗆
11 th -12 th Sto (e)	l.		Cluster Leader	(e)							More th	nan 9	(e) 🗆	
College (BA)	(f)		Ex-Cluster Leader	(f)										
University	(g)		Federation Leader	(g)										
And Above	(h)		Ex-Federation Lead	er (h)										
			Krishi Sakhi	(i)										
204 . Which ye	ears d	id yo	ou participate?		2012-	13	(a) 🗆	2013-14	(b) 🗆	2014-15	(c) [□ No	ne	(d) 🗆
205 . Program intervention participated in			Demo Traini Field I None	ng	(a1) □ (a2) □ (a3) □ (a4) □	Demo Training Field Day None	(b1) □ (b2) □ (b3) □ (b4) □	Demo Training Field Day None	(d1) [(d2) [(d3) [(d4) [

20 6.	What fertilizers do you put on your field? Just tick valid options:	(a) Urea Yes (a1)□ No (a2)□ Don't Know (a3) □	(b) SSP/DAP Yes (b1) □ No (b2) □ Don't Know (b3) □	(c) Potash/MOP Yes (c1)□ No (c2)□ Don't Know (c3)□	(d) Zinc Yes (d1)□ No (d2) □ Don't Know (d3) □	(e) Boron Yes (e1)□ No (e2)□ Don't Know (e3) □	(f) Iron Yes (f1)□ No (f2)□ Don't Know (f3) □
20 7.	What color and texture is?						
20 8.	What is the function of?						
20 9.	How much do you apply per bigha? (in kg.)	(a1) Bajra: (a2) Mustard: (a3) Wheat:	(b1) Bajra: (b2) Mustard: (b3). Wheat:	(c1) Bajra: (c2) Mustard: (c3) Wheat:	(d1) Bajra: (d2) Mustard: _ (d3) Wheat:	(e1) Bajra: (e2) Mustard: (e3) Wheat:	(f1) Bajra: (f2) Mustard: (f3) Wheat:
21 0.	Has applying increased your crop yields?	Yes (a1) □ No (a2) □ No change (a3) □	` ,	Yes (c1) □ No (c2) □ No change (c3) □	Yes (d1) □ No (d2) □ No change (d3) □	Yes (e1) □ No (e2) □ No change (e3) □	Yes (f1) □ No (f2) □ No change (f3) □

211.	What other inputs do you put on your	(a) Seed Cultur (PSB+Azotoba	•	` '		esticide/Fu de	301. Which farm activities do you engage in?
	field? Just tick valid options:	er) Yes (a1) No (a2) Don't Know(a3)			Yes No	(c1) □ (c2) □ 't Know(c3)	

212.	What is the function of?				_		arrowing (a)		rrigating Land (e) \square	Fertilizer Application (i)		
213.	What color and texture is?						Sowing (b) □ S		Sowing (b) Sp		Spraying (f) 🗆	Weeding (j) □
214.	How much do you apply per bigha? (in kg. Or liter)	(a1)Bajra: (a2)Mustard: (a3)Wheat:	(b1)Bajra: (b2)Mustard: (b3)Wheat:	(c1)Bajra: (c2)Mustard: (c3)Wheat:			Harvesting (c) □	g I	Orying (g) □	Cleaning (k) □		
215.	Has applying increased your crop yields?	Yes(a1)□ No(a2)□ No change(a3)□	Yes(b1)□ No(b2)□ No change(b3)□	Yes(c1)□ No(c2)□ No change(c3)□			Packing (d) S	Selling (h) □			
216.	How much amount of s	eed do you put (in a	bigha) ?		(a)B	ajra	a:	(b)Mustard:		(c)Wheat:		
217.	How much produce per	bigha ? (in Kg)			(a)Bajra:			(b)Mustard:		(c)Wheat:		
218.	How much produce do	you sell in the mark	et?(in Kg)		(a)Bajra:		(b)Mustard:		(c)Wheat:			
	Decision Making Capacity											
401.	Who decides what king	<u>l</u> of input to put?				(a	a)Woman 🗆]	(b)Man □	(c)Jointly □		
402.	Who decides what <u>mal</u>	<u>ke</u> of input to put?				(a)Woman □ (b)Man □			(c)Jointly \square			

403 . Who decides what amount of input to get ?	(a)Woman □	(b)Man □	(c)Jointly \Box
404. Who owns any agricultural equipment?	(a)Woman □	(b)Man □	(c)Jointly □
405 . Who decides where to sell the agricultural produce?	(a)Woman □	(b)Man ☐ (c)Joint (b)Man ☐ (c)Joint (b)Man ☐ (c)Joint (c)Joint (c)Joint (d) ☐ (c) ☐	(c)Jointly □
406 . Who <u>decides how much money to set aside for</u> agriculture? (d) Do not plan □	(a)Woman □	(b)Man □	(c)Jointly \square
Social Mobility/Empowerment 501. Do you feel that your husband values your opinion more after you received 502. Will your husband allow you to travel outside your village for long-term ag (b) □ Other (c) □ a. Why or why not?:	riculture training (for exan	nple, a month)?	
503 . Does your husband listen to you when you give him advice about farming?	SS		

Activity	Time Spent (Women)	For men only: Activity	For men only: Time Spent
602 . Eating meals		702 . Eating meals	
603 . Caring for sick		703 . Caring for sick	
604 . Child Care/Caring for children		704 . Childcare	
605 . Sewing/making clothes		705 . Sewing/making clothes	

606 . Collecting water	706 . Collecting water
607. Laundry	707. Laundry
608 . Cleaning house	708 . Cleaning house
609 . Preparing food	709 . Preparing food
610 . Working on the farm	710 . Working on the farm
611. Working as employed	711 . Working as employed
612. Marketing (ie selling crops)	712. Marketing (ie selling crops)
613. Shopping (for household needs)	713. Shopping (for household needs)
614 . Shopping (for farm needs)	714 . Shopping (for farm needs)
615. Travelling/commuting	715. Travelling/commuting
616 . Community meeting	716 . Community meeting
617 . Leisure time	717. Leisure time
618 . Sleeping/resting	718 . Sleeping/resting

For Men Only

Social Mobility,	/Empowerment
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books Mobility/Empowerment			
801 . Do you value your wife's opinion more after she received agricultural training?	(a)\	Yes □	(b)No □
(c)No change \square			
802. Would it be possible for your wife to go out of station for agriculture training? (a)Ye	s 🖵	(b)No 🗔	(c)Other \square

your wife makes a suggestion about farming is it actually that important to listen? (a) Yes ☐ (b) No ☐ (c) Other ☐ r why not? :
Roles nakes decisions about money in your household? Husband (a) \square Wife (b) \square Father in law (c) \square Mother in law (d) \square Other (e)
Oo you ask your wife's opinion before you decide? (a)Yes \square (b) No \square nakes decisions about farming in your house?: (a)Husband \square (b)Wife \square (c) Other \square Oo you consult with your wife about these decisions? : (a)Yes \square (b)No \square
ells the harvest? (a) Husband \Box (b) Wife \Box (c) Other \Box Oo you ask your wife's opinion? (a) Yes \Box (b) No \Box (c) Other \Box I like it when your wife tries to contribute to decisions? (a) Yes \Box (b) No \Box (c) Other \Box r why not? :
1 e)

END SURVEY

CONTROL HINDI SURVEY

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102.		□□□?:	□ □ □ (a) □		□□□ (b) □		/ / 3 लव	ग (c	e) 🗆 103. 🗆 🗆	
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104.		□□?:								
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(a) 20 🗆 🗆 कम		(a) 🗆 🗆 🗆			(a) □□□□		(a) □□□□□		(a) □□□□□□□	
(b) 20-30		(b) 4 □ □ कम			(b) 4 □□ कम		(b) 000/0000		(b)	

(c) 31-40	(c) 4-8	(c) 4-8	(c) 000000 / 00000	(c)	
(d) 41-50	(d) 9-16	(d) 9-16	(d)	(d) सरल 🗆 🗆 🗆	
(e) 51-60	(e) 17-40	(e) 17-40	(e) □□□: 		
(f) 61-70	(f) >40	(f) >40			
(g) 71-80		1			

110.	111.	00000/000000						
(a) □□□□□□	(a)	201.						
(b) 5 th Std	(b)	202.						
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(g) (vнv)				Γ	100, 0000,					
(h) एमए □□ ऊपर]		10000,					
					(i)					
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205.				(a1) 🗆		(b1) []		(c1) □	
<mark>== ==================================</mark>				(a2)		((b2)		(c2) \Box	
				□ □ □ (a3)			3)		□□□(c3) □ (c4) □	
				(a4)		(b4)				

206	3114	(a1) (a2) (a3) (a3)	(b1) (b2) (b3) (b3)		(d1) (d2) (d3) (d3)	(e1) (e2) (e3) (e3) (e3)	(f1) (f2) (f3) (f3)
207	इस						
208	इस						
209		(a1)	(b1)	(c1)	(d1)	(e1)	(f1)

		(a4)	(b4)	(c4)	(d4)	(e4)	(f4)		
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216.	आपएक 🗆 🗆 🗆		10 0000 00 ?	(a)	(b) 🗆 🗆 🗆 :	(c) 🗆 🗆 🗆 :	_ (d)		
	एक 🗆 🗆 🗆 🗆 🗆		000 0000	(a)	(b) 🗆 🗆 🗆 :	(c)	(d) □ □ □ □		
	आप		000 000	(a)	(b)	(c)	_ (d) □ □ □ □		
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21 3.	इस				00000000000000000000000000000000000000	((j) □
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21 5.		□□□ (a1)□ (a2)□ (a3)□	(b1) (b2)	□□□ (c1)□ □□□□ (c2)□ □□□□ (c3)□	□□□□ (d)□	□ (h) □	

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Decision Making Capacity & Leadership											
401		<u>00</u>	(a) 🗆 🗆 🗆	(b) 🗆 🗆 🗆	(c)						
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EXPERIMENTAL HINDI SURVEY

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102.		□□ ?:			□ □ (b) □ □ □		□ / □□□□□□□ / अलग (c) □	103.				
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105.)6. आप 			107.		108.		09.			
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(b) 20-30	(b) 4 □□ कम	(b) 4 □ □ कम	(b) □□□/□□□□	(b) 000000000000000000000000000000000000	
(c) 31-40	(c) 4-8	(c) 4-8	(c)	(c) 000000	
(d) 41-50	(d) 9-16	(d) 9-16	(d)	(d) सरल 🗆 🗆 🗆	
(e) 51-60	(e) 17-40	(e) 17-40	(e) □□□: 		
(f) 61-70	(f) >40	(f) >40			
(g) 71-80		1=4 .			

110.	111.	0000/0000		
(a)	(a)	201		
(b) 5 th Std. □ □ □ □ □	(b)	202 :		
(c) 6 th - 8 th Std.	00000,00000 (c)	203	None	(a) 🗆
(d) 9th— 10th Std.	000000,000000 (d)		1-3	(b) 🗆

(e) 11 th -12 th Std.			(e)	,	□□□□,							4-6	(c) [
(f)						□□,						7-9	(d) [
(g) (でみで)	l]	ा परसन		,	□,						>9	(e) [
(h) एमए □□ ऊपर	l			परसन 🗆 🗆										
						(i)								
204. आप		2012-13	(a) [2013-14	(b)) 🗆		2014-15	(c) 🗆			None	(d)
205. उस				(a1) 🗆			((b1) 🗆			(c1) []		
?				(a2)				(b2)				(c2) □		
				□ □ □(a3)				□ □(b3)			(c4)	,		
				(a4) \square				(b4) □						

206	314	(a1) (a2) (a3) (a3)	(b1) (b2) (b3) (b3)	(c1) (c2) (c3) (c3)	(d1) (d2) (d3) (d3)	(e1) (e2) (e3) (e3) (e3)	(f1) (f2) (f3) (f3)
207	इस						
208	इस						
209		(a1)	(b1)	(c1)	(d1)	(e1)	(f1)

		(a4) □ □ □ □ □ □ : □	(b4)	(c4)	(d4)	(e4)	f4)				
210	=====================================		(b1) (b2) (b2) (b3) (b3) (b3)	(c1) (c2) (c2) (c3) (c3) (c3)	(d1) (d2) (d2) (d3) (d3) (d3)	(e2)	(f1) (f2) (f3) (f3)				
216. आप एक । । । । । । । । । । । । । । । । । ।				(a) □ □ □ □ : ————	(b) 🗆 🗆 🗆 :	(c) 🗆 🗆 🗆 🗆 :	(d)				
	एक 			(a) 🗆 🗆 🗆 :	(b) 🗆 🗆 🗆 :	(c)	(d)				
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			1								
21		(a)	(b)	(a1)□ 2)□ (-2)□ (-2)□	आप					

21 2.	इस 				□□□□ (a)□	\$ (□□□□□) (e) □	(i) D
21 3.	इस 					((j) □
21 4.		(a1)	(b1)	(c1)	□□□□ (c)□		(k)□

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21 5.	•	(a1) (a2) (a3) (a3)	(b1) (b2) (b2) (b3) (b3)	(c1) (c2) (c3) (c3) (c3) (c3)	□□□□ (d)□	□ (h) □	(l)

Decision Making Capacity & Leadership								
401	(a) 🗆 🗆 🗆	(b) 🗆 🗆 🗆	(c)					
402.	(a) 🗆 🗆 🗆	(b) 🗆 🗆 🗆	(c)					
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503. जब आप । । । । । । । । । । । । । । । । । ।	10 00 0000	0000 000	

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А. <u>Зगर 901 </u>
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A. <u>Зगर 902. □ □ □ (а) □ , □ □ □ З</u> ПЧ इन □ □ □ □ □ □ □ (с) □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
903. फसल । । । । । । । । । । । । । । । । । । ।
A. <u>अगर 903 </u>
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