Market Penetration of IPM Technology Shifts Farmer Choice to Healthier and Environmentally Friendly Practices

Investments into farmer engagement programs resulted in a 130% higher business growth for a biopesticide company in the Southern Delta compared to the rest of the country.

Md. Abu Jafar Talukdar of Ujirpur, Barisal buying his regular supply of sex pheromone traps for his gourd farm
USAID/AVC project in Bangladesh

"Now I spend less, and lose less. With my increased income since using biopesticides, I bought a gas stove for my wife and hired a private tutor for my daughter." shares gourd farmer Md. Abu Jafar Talukdar of Dakshin Harta village, Ujirpur, Barisal.

A single decision of switching from using chemical pesticides to Integrated Pest Management (IPM) products is all it took for farmer Abu Jafar Talukdar to start reaping multitude of benefits. Abu Jafar's spending on pesticides reduced by an astounding 70% on average, he is enjoying increased earnings of around 25% from lower crop losses, and the reduction in use of chemicals is leading to improved soil quality on his farm - all attributed to his shift from using chemical to biopesticide. Furthermore, Abu Jafar also noticed less health related issues like nausea and headaches from pesticide spraying.

"Chemical pesticides don't only kill the harmful pests, but also the helping ones," says Abu Jafar, a vegetable and rice farmer living in Barishal in the Southern Delta of Bangladesh. Abu Jafar noticed that use of chemical pesticides deteriorate soil quality by killing also the beneficial insects that help to maintain soil fertility. Plants sprayed with pesticides attract fewer bees and other insects leading to lower rates of pollination. Thanks to USAID's Agricultural Value Chain (AVC) Activity's partnership with Ispahani, an input company focused on integrated pest management (IPM) products, farmers like Mr. Jafar learned that IPM products can significantly reduce health risks, while also increasing profit by lowering both the cost of inputs and crop losses. Integrated Pest Management (IPM) is an eco-friendly way to both control pests and reduce the use of chemical pesticides at the same time.

Despite proven benefits of biopesticides and Integrated Pest Management (IPM) technology, farmers in Bangladesh have been slow to adopt them due in large part to their strong confidence in using conventional chemical pesticides. In 2013, USAID's Agricultural Value Chains (AVC) project carried out two studies to understand why IPM adoption rates were lagging. The project identified a number of challenges in the biopesticide market. First, while biopesticide companies were running promotional campaigns and conducting training in the field, such programs were found to be poorly targeted to potential customers. The tendency was to run generic campaigns and crop training sessions without effectively addressing farmer questions or communicating the real benefits of biopesticide use. Moreover, poor customer service and slow follow-up from companies or extension agents often resulted in early adopters discontinuing use after only trying IPM for a brief period. Farmers didn't receive timely or sufficient practical guidance on what to do when they faced certain real and pressing challenges.

Based on these findings, AVC launched a partnership with a biopesticide company, Ispahani Agro Limited, to improve marketing strategies, train farmers in practical IPM application, and improve customer service and follow-up support for farmers with the aim of increasing long-term adoption rates. AVC supported Ispahani in launching a new marketing strategy, based on organizing promotional fairs in new communities specifically targeted at vegetable and mango farmers to engage and inform them about the techniques and benefits of biopesticides. These fairs led to high initial adoption rates among participating farmers. To ensure these initial adopters were converted into long-term loyal customers, AVC trained Ispahani to launch a range of proactive follow-up customer support services including regular

training, testimonial advertising, and a customer support call center which actively sought out farmer concerns by making regular phone calls and queries. These investments did much to build a strong loyal customer base of farmers. Additionally, AVC trained Ispahani's marketing team in the importance of developing a network of local Ispahani-certified retailers to engage directly with their farmer customers to provide effective advice on product use as well as troubleshooting support. To do this, Ispahani identified high-performing retailers and provided them with additional capacity to support their network including training in business and marketing tactics and Ispahani-branded signs for their shops. Additionally, retailers were trained to collect feedback on product performance and report back to Ispahani headquarters to improve customized embedded training programs specifically designed to address the real challenges farmers face (often unanticipated) when adopting IPM technology.

Another issue constraining adoption of IPM was the unavailability of a diverse mix of products in the market. A couple of years ago in Bangladesh, there were mainly three companies promoting a few registered bio pesticide products in the market. To address this, USAID supported the IPM Innovation Lab at Virginia Tech University in the USA, which played an important role in subsequently changing this situation. Dr. R. Muniappan, Director of IPM Innovation Lab, made an important link between the AVC activities in Bangladesh and the IPM labs and firms in the neighboring county of India, where the IPM research and marketing were at a more advanced stage. This allowed firms like Ispahani to explore the benefits of numerous new IPM products that could also be marketed and sold in Bangladesh. In August 2016, the AVC activity organized an exposure visit for four Bangladeshi firms, Ispahani, ACI, GME Agro and NAAFCO, to India to the biopesticide labs at the Agricultural University of Tamil Nadu and Bangalore. The visit resulted in 8 new IPM products being selected, 3 of which are now available in Bangladesh and the rest are undergoing registration for commercial use. Among the four firms Ispahani, ACI and GME Agro had worked with IPM technology before, and NAAFCO was purely a chemical pesticide company. As a result of NAAFCO's learning and networking from the exposure visit, they commercially introduced 3 biopesticide products, yellow and blue sticky paper, and a mango bagging technology. The company has already sold around half a million products in less than 2 years. NAAFCO's strategic shift to promoting biopesticides products for 3 agricultural crops was a substantial and productive outcome of the visit. Ispahani also is now working in close collaboration with one of the firms that they visited in Tamil Nadu called Tropical Bioscience Pvt. Ltd. to introduce new kinds of bio-fertilizers, potentially a pioneering technology to be added to the agriculture input market in Bangladesh.

Going back to Abu Jafar's story, he first began using pheromone traps marketed by Ispahani based on a suggestion from a local retailer. These traps attract and kill specific insects by using female sex-pheromone. Initially, he did not consistently remember to change the *lure* in his trap*,* a capsule containing the pheromone used to attract pests, after its expiration date. For some time, he noticed there were no insects getting caught in the trap and he saw signs of infestation in his vegetable plots. This weakened Abu Jafar's confidence in the traps. But driven by his desire to solve the problem, he contacted the retailer who gave him advice earlier about the issue. Fortunately, Abu Jafar's local retailer was well trained by Ispahani. He asked him a number of questions, identified the problem, and advised him on how to solve it by paying attention to expiration dates and putting in a new capsule when needed. In addition to advising Abu Jafar, his retailer also noted down the issue and reported back to Ispahani. The issue was incorporated into further training programs for the benefit of a larger group of customers. Abu Jafar is now a regular customer and user of pheromone traps. Not only do the traps reduce his pesticide costs significantly, but they also increase his yields due to improved pollination from helpful insects and reduced infestation rate from harmful ones. Once a struggling farmer, Abu Jafar no longer worries constantly about making ends meet. He is now able to plan and think about investments for the coming season and count on better yields and income from his field. He also can take pride in being able to deliver safer agricultural products to his customers. "Now I spend less, and lose less. With my increased income since using biopesticides, I bought a gas stove for my wife and hired a private tutor for my daughter," said Abu Jafar when asked about the changes he made in his life.

Abu Jafar's story is not an isolated one. With the support of USAID's AVC project, Ispahani directly built the capacity of more than 12,000 farmers through training and technical learning sessions. They also reached out to around 20,000 farmers through different promotional events, field demonstrations and other field activities, and successfully created a loyal customer base of 35,000 farmers in the Southern Delta who are well-oriented to the appropriate use of pheromone traps. Ispahani has recorded them all as repeat customers of its IPM products. As these farmers are enjoying the benefits of an IPM technology, they are also receiving support from Ispahani to further promote its use among their communities. The farmer to farmer endorsement of IPM technology is building up a demand driven transformation of the pesticide market and creating positive pressure on retailers and dealers to stock up more IPM products. Ispahani found that its investment in farmer engagement programs has resulted in a 380% sales growth in the Southern Delta, as compared to a 250% growth in the northern districts where only traditional marketing methods were followed. Ispahani

is now designing the same engagement programs in districts in the North and they believe this is going to bring a real transformation in their business performance and further develop the market for biopesticides. Ispahani's business growth is attracting around 7 other similar firms to invest in biopesticides and promote IPM technology, including leading Bangladeshi pesticide firms like NAAFCO and GME Agro, and an UK based firm called Russell IPM. By leveraging the business interests of these companies to increase IPM product sales, AVC has not only supported the growth of knowledge and increase in incomes for thousands of farming households, but also has contributed to building a new social change momentum for more ecologically sound agricultural practices and healthier products for consumers.