

# Probiotech

**Country:** Nepal

**Sector:** Agriculture

**IFC Investment:** \$1.9 million

Agriculture is the economic backbone of Nepal. It contributes more than a third of the country's gross domestic product<sup>1</sup> and is the primary—and often the only—source of income for Nepalis who live in remote areas. These small farmers typically cultivate less than one acre of land and find it difficult to expand their farms and increase their incomes due to a lack of training, inputs, and finance.

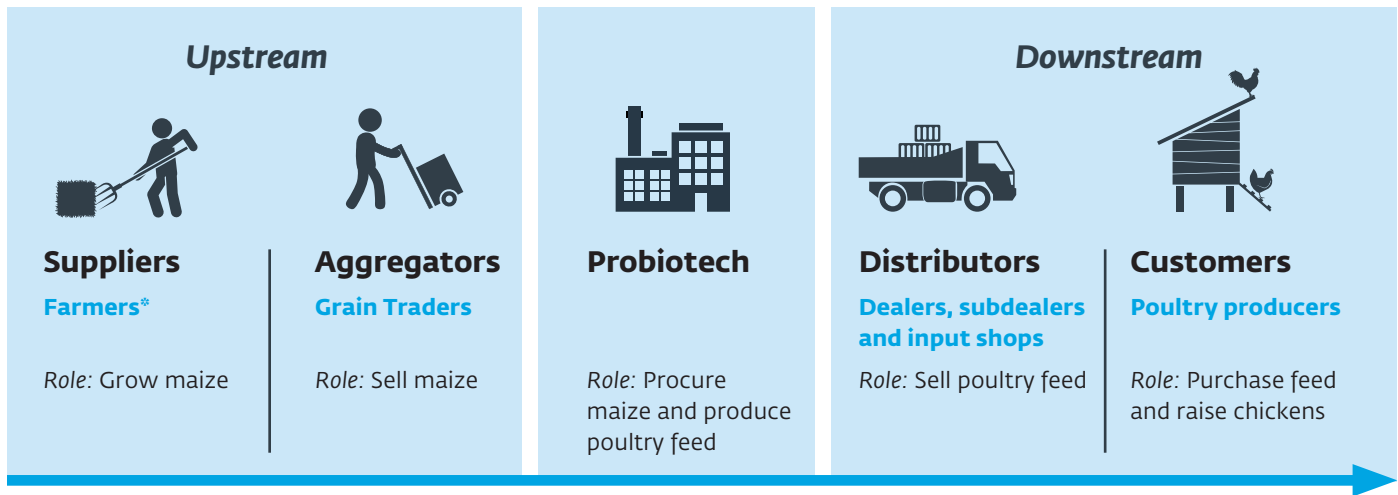
Agribusinesses like Probiotech, a leading processor and producer of animal health and nutrition products in Nepal, have a big stake in the success of small farmers. Probiotech works with these farmers at both ends of its value chain, both of which present unique opportunities and challenges (Figure 1).

Upstream, Probiotech sources ingredients for its animal feed products from grain farmers. A major input is maize, often grown by small farmers who lack the expertise and resources to develop thriving farms.<sup>2</sup> Downstream, Probiotech engages small enterprises to distribute its

animal feed products to poultry and livestock producers, with poultry farms accounting for 90 percent of the company's total feed sales. Many of Probiotech's poultry customers run small-scale operations under constant threat from high production costs and other inefficiencies.

Probiotech does more than buy grain from farmers and process it into feed to sell to poultry producers. By building capacity and facilitating access to input finance across its value chain, Probiotech is bringing about tangible improvements that can have a lasting impact on agriculture in Nepal.



**Figure 1: The Role of Key Players in Probiotech's Poultry Value Chain**

\*Probiotech also procures rice and soya bean for poultry feed

The company grew out of NIMBUS Holdings Private Ltd., a diversified family-run business founded in Nepal in 1998.<sup>3</sup> Today, Probiotech sells animal feed to over 12,000 customers annually, including an estimated 7,200 small-scale poultry producers. Its shareholders are the International Finance Corporation, the Global Agriculture and Food Security Program (GAFSP), and the founders of NIMBUS.

## DISCOVERING AN OPPORTUNITY

Founded by J.P. Agarwal, NIMBUS Holdings' early business model centered on the distribution of imported consumer goods in Nepal. When Agarwal's son, Anand Bagaria, joined the business he brought entrepreneurial experience—he had previously launched several pilot projects including one focused on selling veterinary enzymes. Noting demand for quality products in the veterinary sector, Nimbus began to specialize in the import and distribution of animal health and nutrition products, including vitamins, vaccines, and veterinary medicines.

In 2000 Agarwal and Bagaria established Probiotech as a NIMBUS subsidiary to produce animal feed supplements

such as vitamins and minerals. As Bagaria learned more about the animal feed industry—and poultry in particular—he discovered several inefficiencies in the domestic production of poultry feed that affected the quality of chickens and ultimately the incomes of farmers.

First, high quality feed is critical to producing quality poultry, but the feed industry in Nepal consisted of many small companies that lacked the capacity to meet local demand and produced feed of variable quality. Also, shortages in the supply of raw materials (mostly maize) inhibited feed production and forced feed producers to rely on imports. And second, the absence of strong distribution networks meant that many rural poultry producers were unable to access high quality feed when they needed it and often used household food scraps and feed mixed by local, informal feed providers.

Bagaria set out to address these problems. With no large corporate players in Nepal's animal feed industry, organized feed companies contributed only about 35 percent of all feed. Bagaria saw this as an opportunity for Probiotech to expand from the production of poultry feed supplements to the production of poultry feed itself.<sup>4</sup>



## Probiotech's Value Chain

### An Overview of Challenges and Solutions



#### Value Chain

#### Procurement & Product Development

#### Distribution

#### Customer Service



#### Challenges in Providing Poultry Feed

- Low productivity and quality of locally-grown maize negatively impacts volume and quality of poultry feed
- Maize farmers lack access to training to improve production

- Small poultry producers are hard to reach in hilly regions
- Strikes and road closures disrupt distribution
- Limited credit and logistics resources constrain feed dealers

- Poor biosecurity and farm practices among poultry producers
- Difficult to train large numbers of scattered poultry producers
- Insufficient attention to training women poultry producers
- Poultry producers lack access to finance for inputs

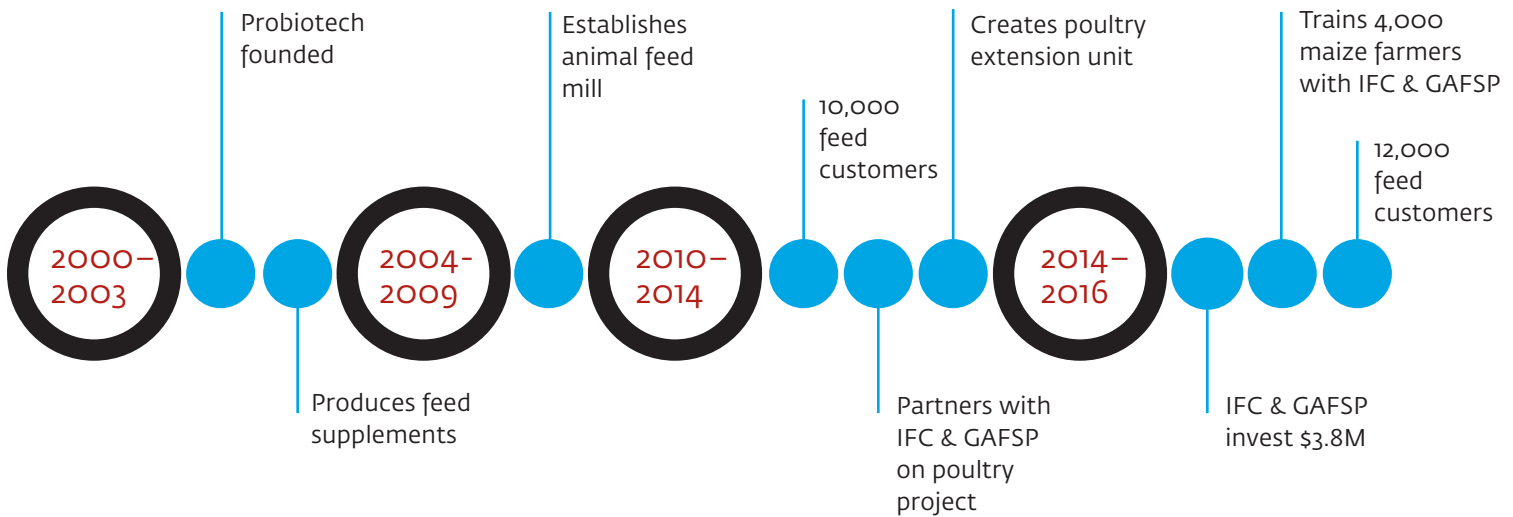


#### Probiotech's Solutions

- Increases long-term local maize supply by facilitating uptake of climate-smart practices among maize farmers
- Builds maize farmers' technical know-how through demo plots, text messaging, and a helpline

- Builds distribution network with national reach
- Uses regional depots to distribute feed to dealers
- Trains dealers and sub-dealers and provides working capital finance
- Reaches small poultry producers through sub-dealers

- Trains poultry producers through events, extension staff, and dealer network
- Employs women extensionists and veterinarians to train women poultry producers
- Facilitates poultry producers' access to inputs on credit through dealer network

**Figure 2: Key Milestones in Probiotech's History**

## Transforming Nepal's Poultry Feed Industry

By 2003, Probiotech was actively exploring the idea of producing poultry feed in Nepal. After consulting with feed companies in neighboring India, Bagaria concluded that domestically produced feed would have several advantages over imported feed:

- **Lower costs:** High import duties on poultry feed are passed on to poultry producers, many of whom already struggle to break even. In addition, feed is a bulky commodity that costs less to transport locally.
- **Quality assurance:** Feed has a short shelf life—just 45 days, or eight days when opened. Local production minimizes deterioration in quality, especially in warm weather.
- **Timely supply:** Local production enables distributors to regularly procure and supply feed for small poultry producers who don't purchase in bulk and need frequent deliveries.

In 2004 Bagaria established Nepal's first pellet feed mill, Shakti Agro Mills, through a joint venture with Suguna,

a leading poultry company in India. A year later, Bagaria consolidated all of NIMBUS's and Probiotech's business lines for animal health, nutrition, and feed under Probiotech (Figure 2).

By producing pellet-based feed, Probiotech's mill did more than increase the supply of local feed—it also improved the quality. Whereas most domestic feed producers sold loose "mash" feed made of ground grain, Probiotech's mill produced pellet feed, which is easier to digest and promotes better growth among "broiler" chickens raised for their meat. This increases revenues and income for poultry producers.

Today, Probiotech produces more than 20 varieties of animal feed, led by Bagaria as Managing Director of NIMBUS and Probiotech.

## BUILDING THE INFRASTRUCTURE FOR EFFICIENT FEED DELIVERY

With its mill up and running, the next challenge for Probiotech was to determine how to deliver its poultry feed products to customers. This was a challenge as many poultry producers are located in remote areas over



hilly terrain. Probiotech sells feed to both large and small poultry producers, but the average customer raises 500 to 2,000 chickens, and its smallest customers raise just 100 chickens at a time.

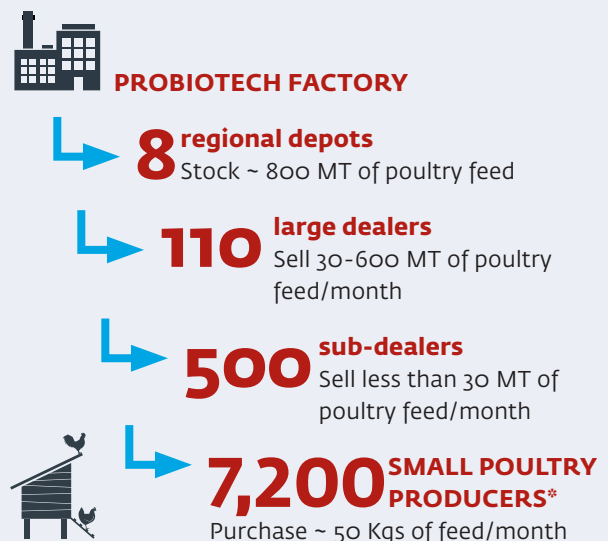
Leveraging the dealer network that NIMBUS had built for its import distribution business, Probiotech began to develop its own nationwide distribution network that would eventually cover 68 of Nepal's 75 districts (Figure 3). It found early on that selecting the right people as distributors was critical since they would serve as the face of Probiotech for customers. Certain selection criteria were particularly important: people who were trusted in the local communities, had a good reputation in business, and had a reasonable level of education. Today, Probiotech's distribution network includes:

**Depots:** Managed by Probiotech, depots are the first link in the distribution chain. Located throughout Nepal, depots help the company minimize disruption in feed distribution due to strikes and road closures. Probiotech supplies feed to dealers directly from its factory as well as through depots.

**Dealer Network:** The next link consists of dealers, 90 percent of whom work exclusively for Probiotech. Large dealers supply feed to sub-dealers as well as to large commercial poultry producers. Sub-dealers help extend the

network's reach to small poultry producers. Probiotech provides working capital credit on favorable terms to dealers who, in turn, offer credit to sub-dealers. The company also trains sub-dealers in financial management and assists them with logistics and product deliveries.

### Figure 3: Probiotech's Distribution Network



\*Probiotech serves 12,000 large, medium, and small-scale producers of poultry, cattle, swine and fish through its dealer network. Of these, an estimated 7,200 are small poultry producers with 100-300 chickens on average

## POULTRY PRODUCERS IN NEPAL

Poultry farming is common in Nepal where nearly half of all households raise chickens in small-scale backyard farms, largely in rural areas.<sup>5</sup> Some households only produce enough for their own consumption while others are able to earn a livelihood or supplement income through poultry farming.

Nepali broiler farms, which raise chickens for their meat, are also small-scale in comparison to similar farms in other countries. About 95 percent of known broiler farms in Nepal have fewer than 2,000 chickens.<sup>6</sup> Farms of this size are becoming rare in India, where most producers manage 5,000-50,000 birds.<sup>7</sup>



**Input stores:** Alongside its dealer network, Probiotech leverages NIMBUS's agri-input stores called NIMBUS Krishi Kendras to sell its feed products. Nine stores are currently in operation but that is expected to grow to 200 by 2020, increasing Probiotech's visibility among potential customers.

Together these feed distribution channels have enabled Probiotech to increase market penetration. Today the company reaches 12,000 customers, including some 7,200 small poultry producers.

## ENABLING SMALL POULTRY PRODUCERS TO SUCCEED

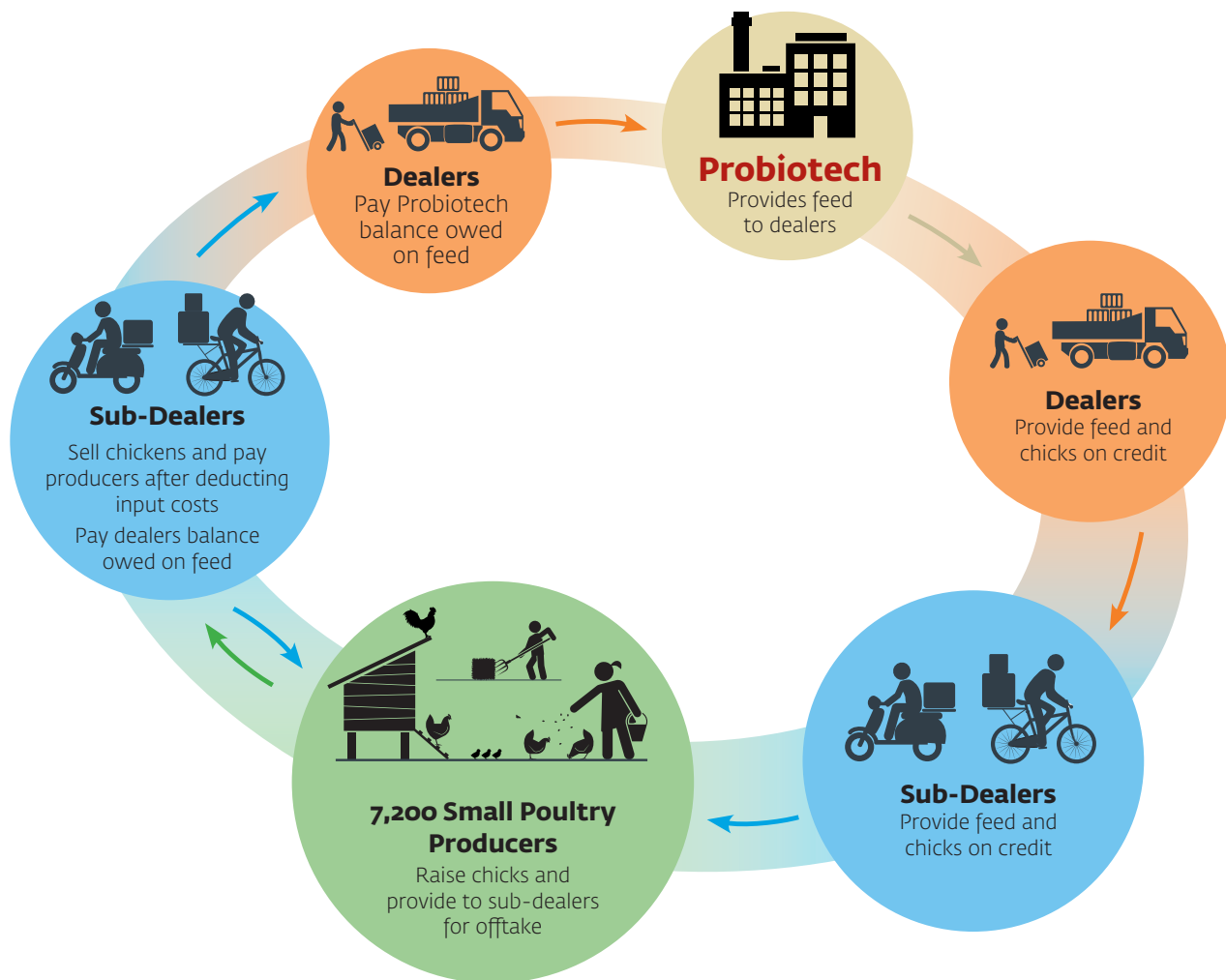
When Probiotech began marketing feed products it found that small poultry producers faced a number of challenges including low quality inputs, limited market linkages, limited access to finance, and insufficient technical knowledge. Addressing these issues was an opportunity for the company to build loyalty among producers and help them grow their operations—and also increase their use of Probiotech products. The company focused on three areas:



**Provide High Quality Feed.** When Probiotech was founded, the Nepali feed market was dominated by low quality mash feed. The high feed conversion ratios associated with mash feed in Nepal indicates that poultry required a large quantity of feed to obtain sufficient nutrition to produce meat or eggs. With feed representing about 80 percent of production costs for small producers,<sup>8</sup> those using mash feed weren't achieving optimal returns. Probiotech's pellet feed, by contrast, achieved improved conversion ratios that could increase producers' efficiency.<sup>9</sup>

To convince poultry producers of the benefits of its improved feed, Probiotech presented them with a no-lose challenge: Feed mash to half of their chickens and Probiotech's pellets to the other half. If the chickens that were fed Probiotech products performed poorly, the company would compensate the farmers. If instead the Probiotech feed helped improve profits, farmers were asked to share their experiences with others in their community.

**Figure 4. An End-to-End Solution for Small Poultry Producers**



**Facilitate Access to Finance and Markets.** Few small-scale poultry producers had access to the relationships and capital necessary to build or expand operations on their own. By advancing feed on credit to its dealers, Probiotech set the wheels in motion for many poultry producers to do so.

How does this work? At the start of a customer relationship, a sub-dealer typically extends credit to a small poultry producer in the form of chicks and feed. The producer then raises the chicks for a month and a half, and returns fully-grown broiler chickens to the sub-dealer. Sub-dealers sell these chickens on the open market and

pay producers the proceeds after deducting the balance owed for inputs (Figure 4).

**Improve Technical Knowledge.** Many of Probiotech's smaller customers do not have formal training in farm management and bio-security best practices; one study suggested that 95 percent of Nepal's small-scale poultry producers lacked technical training.<sup>10</sup> Improper management of poultry sheds can cause disease and death among birds. As a result, small producers are often unable to cover their production costs and end up abandoning the poultry business.

Noting that incremental improvements could bring significant savings for its customers, but that the public sector provided insufficient extension resources, Probiotech began to educate poultry producers through events that often attracted hundreds of participants.

## Poultry Partnership with IFC and GAFSP

In 2010, IFC began to engage with the poultry sector in Nepal given its importance for rural livelihoods and its role in improving food and nutritional security. Utilizing



### SUPPORTING FOOD AND NUTRITIONAL SECURITY

Probiotech's work in the poultry sector not only benefits small-scale poultry producers but also the wider Nepali population. Nepal is among the poorest 15 percent of countries worldwide and over 14 percent of households lack sufficient food.<sup>11</sup> Poultry products provide the primary source of protein for many Nepali families, so improvements in the poultry sector are critical to improving food security. In addition, Probiotech is expanding operations to convert soya-based byproducts from its feed production into affordable, high quality soy-based nuggets which will provide an alternative source of non-animal protein for the local market.

funding provided in part through the Global Agriculture Food Security Program (GAFSP), a multilateral mechanism that aims to support agricultural investments in the world's poorest countries, IFC launched a poultry sector improvement project with several companies in Nepal, including Probiotech.

IFC worked with Probiotech in a number of areas:

1. **Improving the quality of poultry inputs.** IFC provided advisory services to Probiotech to further improve its feed production efficiency and quality. At the same time, IFC worked with hatcheries that supplied chicks to Probiotech's dealers to address disease management and other factors that could enhance the quality and lifespan of chicks.
2. **Training poultry producers.** IFC and GAFSP supported Probiotech to train 4,050 poultry producers in shed cleaning, poultry feeding, and record keeping, among other topics.

Since many poultry producers in Nepal are women, the project took steps to increase their participation. Childcare was provided at trainings which were scheduled at convenient times since family responsibilities often prevented women from attending events. Female veterinarians were trained to provide extension support. Special efforts were also made to link women poultry producers to Probiotech distributors for inputs and offtake. Ultimately, the trainings reached 1,000 women poultry producers, 85 percent of which adapted best practices from the training. Among women producers, the cost of production dropped by 18 percent.

3. **Institutionalizing support services for poultry producers.** The project helped Probiotech to systematize and deepen its approach to supporting poultry producers. Before the project, Probiotech had held basic educational events from time to time, but they were not institutionalized into the company's operations.





### IFC'S ADVISORY SERVICES—PAVING THE WAY TO AN INVESTMENT

IFC and GAFSP observed Probiotech's growth potential through this initial engagement in the poultry sector. Building on the success of the advisory project, IFC and GAFSP invested \$3.8 million in equity financing in Probiotech in 2014. In addition to restructuring the company's equity base, the financing is being used to develop manufacturing units for value-added products that use Probiotech's feed byproducts, such as soy flour, nuggets, and oil.

During the project, Probiotech established a farm extension unit and later embedded it within the company. Probiotech also leveraged helplines, veterinarians, and distributors to further engage and support poultry producers. The company set up its helpline in 2011 to provide advice and assistance to farmers. Its vets follow up on these calls with farm visits to assess poultry producers' needs and provide emergency assistance. The extension unit also works with dealers and sub-dealers to disseminate information about the latest poultry management methods to small-scale producers across rural Nepal.

In the years since the project, Probiotech has developed other initiatives to support poultry producers. Shakti Helping Hand, for example, supports producers whose poultry flocks have been affected by avian flu. In the event that a producer has to slaughter an entire flock, the company provides a grant to help purchase chicks to start a new poultry rearing cycle. These efforts have enabled Probiotech to deepen its relationships and build brand loyalty among producers.



## BUILDING-UP THE MAIZE SECTOR

### Challenges in Supply

Like many other agribusinesses, Probiotech requires a steady and high quality supply of raw material to operate its feed mill at full capacity. Maize is the predominant grain used in poultry feeds worldwide due to its digestibility and energy content, constituting more than half of the raw material used in feed.<sup>12</sup>

Over the years it became increasingly clear to Probiotech that it faced three key issues in securing a reliable and steady supply of maize:

- **Insufficient Volume:** Local supply shortages meant that Probiotech had to purchase maize imported from India, as much as 50 percent in some years, incurring import duties and driving up procurement costs.

- **Low Quality:** Probiotech needed high quality maize to maintain the shelf life of its feed products and to optimize animal health. Poor quality seeds along with challenges in soil fertility, irrigation, pest management, and improper storage had resulted in inconsistent quality of locally grown maize.
- **Supply Aggregation:** Maize is harvested just before the onset of the monsoon season. As a result, many small farmers face pressure to sell their grain immediately at a low price since they lack access to grain storage facilities.

Without improvements in the local maize supply, Probiotech knew it wouldn't be able to significantly increase its local procurement in the long run. Probiotech faced a key question: How could the company effectively build the skills of thousands of small maize farmers spread over Nepal's plains and foothills?

## SMALLHOLDER MAIZE FARMERS

Maize farmers in Nepal are located in the “terai,” or plains, as well as the foothills. They typically cultivate about half a hectare to three hectares of land.

The maize growing season lasts four to five months, culminating in June. As such, farmers typically grow maize along with other crops like rice and vegetables. Their limited access to inputs, finance, and training reduces the productivity of their farms and the quality of maize grown, resulting in lower incomes.

One commonly used solution is contract farming: In many countries, companies provide training and inputs to contract farmers and commit to purchase their produce at harvest time. Culturally, this arrangement was infeasible in Nepal. Farmers were accustomed to selling to traders rather than through exclusive contracts with companies, a system that Probiotech was reluctant to drastically disrupt. Moreover, there is no regulatory framework for contract farming in Nepal. A different solution was needed.

### Climate-Smart Farming

In 2013 Probiotech and IFC joined forces to work on the Pilot Program on Climate Resilience (PPCR),<sup>13</sup> a multi-donor initiative which helps national governments integrate climate resilience into their development plans and activities, including through the private sector. One component of the project promoted climate-smart practices among maize farmers. These practices improve the productivity and quality of maize—key issues that constrained Probiotech’s local procurement.

The PPCR project works with farmers in Bara, a major maize-growing district in the plains, and Parsa, which has a similar climate. The project collaborates with a local nonprofit to train farmers, though they are still free to sell on the open market. The project uses several methods to train maize farmers:



**Demonstration Plots.** Set up alongside maize farmers’ own plots, these plots enable farmers to test new practices, tools, and technologies for climate change adaptation before they implement them at their own farms. Awareness-building and training events are often held at these demonstration sites.



**Face-to-Face Training.** Probiotech developed training materials, including a climate-smart practices handbook for farmers. It also hired agricultural extension officers to train lead farmers who, in turn, shared lessons on climate change adaptation with other farmers. Training events are timed to align with the sowing, growing, and harvesting cycle to ensure farmers get the support they need at the right time.



**Mobile Phones.** The project uses mobile phones to keep farmers informed of market prices, weather forecasts, and farming practices.

The company expects that its work with these maize farmers will pay off in the long run as other farmers learn from their neighbors. Probiotech is already beginning to see results, with a 20 percent increase in the volume of local maize the company procures as of 2015. The project has trained approximately 4,000 maize farmers to date, with about 70 percent adopting new practices from the trainings. Probiotech has collected data on 2,000 maize farmers plot sizes, the inputs they use, and challenges they face, and the company continues to identify opportunities to support them.

## NEW ROLES FOR THE PRIVATE SECTOR

Through a hands-on approach to productivity, quality, and efficiency in Nepal's agriculture ecosystem, Probiotech demonstrates how the private sector can embrace new roles in development. It was never simple. Probiotech had to work to identify and address the key obstacles that prevent its suppliers, distributors, and customers from maximizing their economic potential. In turn, the company has benefited from the strengthened capabilities of these key players in its value chain. Ultimately, the sustained involvement of businesses like Probiotech, along with government and civil society, is critical to promote sustainable agriculture. Probiotech shows companies how this can be done through their core operations as well as through multi-stakeholder partnerships.

For more information on inclusive business at IFC, visit

[www.ifc.org/inclusivebusiness](http://www.ifc.org/inclusivebusiness)

### RIGHTS AND PERMISSIONS

© International Finance Corporation 2016. All rights reserved.

The material in this work is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. IFC does not guarantee the accuracy, reliability or completeness of the content included in this work, or for the conclusions or judgments described herein, and accepts no responsibility or liability for any omissions or errors (including, without limitation, typographical errors and technical errors) in the content whatsoever or for reliance thereon.

### ENDNOTES

- 1 USAID (United States Agency for International Development). 2016. "Agriculture and Food Security." <https://www.usaid.gov/nepal/agriculture-and-food-security>.
- 2 USAID (United States Agency for International Development). 2013. "Hill Maize Research Program Factsheet." <https://www.usaid.gov/nepal/factsheets/hill-maize-research-program-hmrp>.
- 3 Operations of the companies under Nimbus Holdings span agribusiness and animal nutrition, poly woven fabrics production, chemicals, and trading and distribution.
- 4 Probiotech also produces feed for livestock.
- 5 FAO. 2014. "Poultry Sector: Nepal." Animal Production and Health Series Livestock Country Reviews, pp: 20; Nepal Central Bureau of Statistics. 2015. "2014 Statistical Pocket Book of Nepal. National Planning Commission." pp: 139.
- 6 SMDE (Society for Management and Development). 2010. "Integrated Characterization of Four Cross-Border Areas of Nepal in the Border with India for the Risk Assessment of HPAI: A Socio-economic Perspective." FAO/ECTAD-RAP, Nepal.
- 7 FAO. 2003. "Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries." <http://www.fao.org/wairdocs/lead/x6170e/x6170e2k.htm#fn58>.
- 8 GAFSP Project Card. "Nepal: Boosting Poultry Productivity & Farmer Incomes." [http://www.gafspfund.org/sites/gafspfund.org/files/Documents/GAFSP\\_ProjectCard\\_Probiotech.pdf](http://www.gafspfund.org/sites/gafspfund.org/files/Documents/GAFSP_ProjectCard_Probiotech.pdf)
- 9 While existing poultry feed in Nepal provided a high average FCR of 2.2, Probiotech's standard poultry feed has an FCR of 2 and its premium offering has an FCR of 1.8.
- 10 Ryan, O., and A. Pant. 2011. "IFC Builds Farming Capacity in Nepal." Asian Poultry Magazine, November/ December 2011.
- 11 Nepal Food Security Monitoring System. Nepal Food Security Bulletin, Issue 43. Ministry of Agricultural Development, 2015. Kathmandu. <http://reliefweb.int/sites/reliefweb.int/files/resources/wfp273073.pdf>
- 12 Ravindran, Velmurugu. FAO. "Poultry feed availability and nutrition in developing countries." Poultry Development Review. <http://www.fao.org/3/a-al705e.pdf>.
- 13 PPCR is a project of Climate Investment Funds and also works with rice and sugarcane farmers in Nepal.