

# AGROY: creating value through smart farming

Ramendra Singh, Jitender Kumar and Avilash Nayak

"I describe Agroy as an Amazon for farmers." Brad McDonald, Managing Director and Co-Founder, Agroy Inc.

## Introduction

"Will it be a groundbreaking approach to farming in India? Will it create the much-needed "wow" effect in the market?" thought Amit Mittan, the Country Manager at Agroy Group India, as his thoughts drifted towards crafting and developing a market for smart farming in India. Although Amit himself hailed from a smallholder farming family in rural India and was familiar to the traditional models of farming, he wondered if the Agroy model would be a gamechanger. Amit previously worked for 10 years in several agricultural companies after completing his Master of Science in Agriculture.

Agroy claimed to be the first global agri e-commerce platform. It was a cloud-based Web and mobile platform for farmers to buy agri-inputs across continents. Founded in 2011 in Helsinki, Finland, Agroy expanded internationally to the US in 2016 and was poised to expand into India in 2017 with Brazil and Canada slated next for expansion. Though high in potential, expansion into targeted rural India for Agroy presented several complexities. Indian farmers had low technological awareness, were price sensitive and had virtually zero digital transaction knowledge. Moreover, the company had to tackle demographic and language complexities, changing crop seasons and stiff competition from micro-retailers and other major local and international players with well-established operations. Would its strategy work with Agroy intending to replicate its success in an uncertain environment such as India? Would it be able to surmount the challenges and sustain despite the adversities it was sure to face in a developing country like India? Agroy farms worldwide were present in several continents ([Exhibit 1](#)).

## Entrepreneurial beginnings

An Iowa farm boy named Brad McDonald (Brad) who raised pigs and grew corn, had an entrepreneurial spirit. He sold puppies to pay for college at Notre Dame, and after college, he worked at Bunge specializing in economic research for industry trends and later advised traders at their North American headquarters in St. Louis. Later, Brad transitioned to Wells Fargo to collaborate with US bankers in agricultural lending. This led to Agroy's birth.

After working with farmers in the agri-business, Brad realized that farmers were unable to compare prices of the products that they had to buy, irrespective of what the prices quoted to them were. Coincidentally, in 2016, Brad was approached by a client with a novel idea of providing agricultural products online. It was met with phenomenal success in Europe, though still nascent in the USA. Capitalizing on this, Brad co-founded a company in the USA

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called Agroy Inc. with the idea of replicating the European business model. Brad kept thinking to himself that this concept was akin to an “Amazon for farmers”!

### *Agroy's modus operandi*

Agroy's intention was to provide a cloud-based global platform for farmers to buy agri-inputs efficiently at scale. Starting locally and optimizing globally, the platform was for farmers to broaden their buying experience by not just buying from their neighbors, owing to their ignorance about their choices, but also comparing and contrasting prices from other farmers across other states and make judicious buying decisions. Initially it was an online Web-based application, but later its services were extended to include a mobile application in 2018. The online option allowed them to buy in bulk with the best available discounts. Agroy intended to revolutionize agricultural buying.

Agroy bought directly from manufacturers and sold to farmers without any intermediaries. Farmers had to sign up for free at Agroyinc.com and when Agroy had a product to sell, primarily seeds, fertilizers or chemicals, farmers registered with Agroy in that region would get an email with the information about the product and the price. Farmers would use the information shared in the email to negotiate better prices or buy directly from Agroy. Reasonable prices were negotiated by Agroy owing to the leverage they gained due to the scale of farmers registered with them. Agroy's goal was to save farmer's money while buying agri-products. For example, Agroy was able to offer savings of \$35 per ton on dry fertilizers. Further, the company also offered incentives to large-scale farmers to help grow their network rapidly. Farmers with 10,000-plus acres (in the USA), with the capacity to store extra fertilizer or other such related products, were paid for their storage facility. Agroy was primarily a platform for farmers to meet and buy products online, similar to e-commerce. Online trading allowed farmers to avoid high fixed costs. Further, when Agroy introduced the phone app, farmers on downloading the app could get relevant information such as seasonal growing patterns of crops, seeds, pre-sowing instructions, post-harvesting and other such inputs for proper and efficient crop sowing, growing and harvesting. In addition, the app had the best fixed prices for farmers compared to the fluctuating prices and hidden costs of other players in the market. Agroy negotiated prices based on volume and monitored operations. It offered a three-tier channel of distribution to reach the consumer similar to a “carrying and forwarding” agent. The core value proposition of the firm lay in services such as “door-to-door” service, which is practically unthinkable in the rural Indian set up.

Agroy's registration process included filling in details of the total hectares or the acreage under cultivation of the variety of crops along with the farmer's details. Those with more than 10 ha of land as commissioned by the Ministry of Agriculture and Farmer's Welfare, the Government of India or from other authorized agencies of the government were required to provide required documentation for authentication. On Agroy's part, there was a careful selection of farmers with a comprehensive list of personal contact details. Potential farmers were also listed despite not being registered with them. Farmer meetings were planned and information spread through word of mouth about the company. Further help was sought from various agencies, including The Federation of Indian Chambers of Commerce and Industry (FICCI) and Confederation of Indian Industry (CII), to promote Agroy and raise awareness about the company. A management information system (MIS) and a work process were set up for each employee and process at Agroy. Finally, Agroy targeted a minimum number of registrations prior to the commencement of the crop season to be able to benefit the farmers at the right time. Agroy's plan was to register farmers before they established their business.

Digitization and smart farming were the basis for Agroy's success, owing to the tremendous benefits it provided farmers. With smart devices such as sensors, drones and GPS connected to the internet, data was generated on predominantly four fronts: weather data

systems, seed optimization systems, irrigation systems and farm equipment systems. Known as a “system of systems” owing to the subsystems of the larger “Farm Management System,” the subsystems were further divided into various equipment’s such as “rain sensors, humidity sensors, temperature sensors, weather maps, seed database, field sensors, irrigation nodes and such others” (Exhibit 2). The data was then automatically stored and processed on a cloud-based data management system. And finally, decision support analytics based on collected field data was provided to the farmer via a smart phone or a computer through the internet.

Agroy’s electronic trading service could be scaled if needed, which meant there was minimal necessity for investments in new offices or warehouses while expanding. The aim was to create a global network of subsidiaries by breaking down local price differences between continents, exchange rate differences and legislative differences.

## The expansion

In 2016, Agroy felt it had adequate experience and were in a position to expand. The aim was to share the experiences of Finnish farmers and spread the company’s business model and trading service to other countries. According to Jukka Peuranpää (Jukka) the CEO of Agroy:

Agroy is like the Uber of agriculture, the world is changing, and we must question the old practices. Uber has revolutionized the taxi industry and Airbnb has revolutionized accommodation. E-commerce will eventually touch all industries and transform them one way or another.

In most countries, both developed and developing, agricultural practices, in particular trade, followed traditional methods. This generated low revenues per employee. According to Jukka:

The costs of agricultural trade are currently paid by the farmers. The model must be made more efficient. Though the United States has a long tradition of agricultural cooperatives, they have not yet united their forces at a large scale. If the combined purchasing power of these farmers were, for example, a few million acres, the prices would start to go down at a brisk pace. Hence there is still work to be done.

In Agroy’s current model in Finland, the average revenue per farmer from agricultural trade was €15m compared to an average of €1 million provided by most agricultural businesses elsewhere. The Agroy model was designed such that intermediaries were eliminated and was more efficient. In addition, it also helped farmers directly trade their produce.

## Moving overseas

Having grown to include 1,000-plus farmers in Finland, Agroy had concurrently grown their revenues at a rapid pace. Intending to replicate this model, management made plans for expansion. Europe was their first choice, however, due to linguistic differences, as there are many dialects in Europe among the farmers, the idea was dropped. According to an Agroy spokesperson:

We decided to start our globalization in America. The digital age made it easier to make companies global.

The expansion into the USA had two subsidiaries: Agroy Plc (India) and Agroy Inc (US). Brad reminisces:

We started building our network one state at a time by including the major farmers as our members, like we did in Finland.

One of the pull factors in the US market was the country's large field area open for cultivation. In Finland, approximately 2.5 million acres of land was used for grain cultivation, as compared to 325 million acres available for cultivation in the USA, as per Agroy's information.

In the following year in 2017, Agroy moved to India. The same expansion strategy that was used in the USA was replicated in India. The company aimed to supply Indian farmers with fertilizers, seeds and agrochemicals. In the category of fertilizers, the products included urea, micro-fertilizers and di-ammonium phosphate (DAP). In the category of seeds, the collective share in for grains, vegetables and forage stood at 40 per cent and individual expected margins of 8 per cent, 12 per cent and 8 per cent, respectively. In this category, the focus was on wheat, rice, corn, oats, mustards, cucurbits, melons, gourds, lucern and sorghum. The last category was agrochemicals and broadly classified into seed treatment, granular growth promoters and insect and fungi powder with the cumulative share in revenue of 40 per cent and individual expected margins of 12 per cent, 6 per cent, 12 per cent and 8 per cent, respectively ([Exhibits 3 and 4](#)).

In India, Agroy intended to implement its platform in a three-tier manner. The first stage was to focus on efficiency in buying agri-inputs, the next stage was to facilitate the farmers and their organizations to buy online without an Agroy country manager and the final stage was to implement a licensed buying platform with information on farm management that was backed with data collected and analyzed, with tailored recommendations for fertilizer use, pest control and information about alternative ways to increase yield.

### Indian market overview

Agriculture played a critical role in India's economy, with 58 per cent of the rural households depending on it as the principal means of livelihood. The share of primary sectors is estimated to be 20.4 per cent of the gross value added (GVA) during 2016-2017 at the current prices. The Indian food and grocery market was the world's sixth largest, with retail contributing 70 per cent of the sales. During the 2017-2018 crop year, food grain production was expected to reach a record 277.49 million tons compared to 275.68 million tons during 2016-2017. Agricultural exports from India reached \$28.09 billion during April 2017-January 2018.

According to the Department of Industrial Policy and Promotion (DIPP), the Indian agricultural services and agricultural machinery sectors have cumulatively attracted foreign direct investment (FDI) equity inflow of about \$2.02bn and \$466.31m, respectively, during April 2000 to December 2017.

At 157.35 million hectares, India holds the second largest agricultural land in the world with 20 agri-climatic regions and all 15 major climates. India is the largest producer of spices, pulses, tea and jute and the second largest producer of wheat, rice and cotton. The Prime Minister's Economic Advisory Council (PMEAC) estimated farm sector growth for current fiscal at 4.8 per cent, more than double from previous the years 1.9 per cent.

In India there are three main crop seasons, according to which the seeds and other agricultural input products are supplied. *Kharif* crops are cultivated at the beginning of the monsoons (May-June) and are harvested from September to October. Major *Kharif* crops are rice, jowar, bajra, cotton and sugarcane. *Rabi* crops are cultivated at the beginning of the winter season (January-February) and are harvested in spring. Major crops of this season are wheat, gram, linseed, rapeseed and mustard.

Agroy wanted to focus on states that had a high GDP and population. One such state is Punjab ([Exhibit 5](#)) where the district of Ludhiana (Punjab) has the highest population, GDP and per capita consumption of crops such as rice and wheat. The main crops grown here

are rice, wheat and vegetables. The other state was Haryana, also situated in North India where the soil is very fertile.

India has 23 official languages along with innumerable local dialects. Because of this, for Agroy to enter the country as a foreign company would be even more challenging. According to a report published jointly by the Internet and Mobile Association of India (IAMAI) and KANTAR-IMRB, mobile internet penetration in rural India was 18 per cent. To exacerbate the situation, India has approximately 107 million private farms with the average farm size being 1.55 ha.

Several well-known fertilizer and agrochemical companies, including Koch Bayer, Dupont and Monsanto along with a host of local manufacturers, were already established in India and could serve as reliable fertilizer and agrochemicals manufacturers/suppliers to Agroy.

### Market insights and marketing to rural India

India has small landholdings, with the average farm size being 1.55 ha. This has a direct link to the size of the orders the farmers placed. For small holdings, the orders tend to be small which escalate the delivery cost. Agroy provides financial assistance by outsourcing small finance banks on behalf of the farmer. The Indian farmers' market was driven by influence, i.e. by other farmers' opinions and equipment. Further, Indian farmers based their purchases on trust, and in this instance, Agroy scored high, as they provided an online service and were transparent. The Indian farmers' market is unorganized and lacking in infrastructure development and, because of this, sellers need bulk purchasers. Customer reach could be enhanced by the proposed building of technological awareness by introducing simple processes and interfaces and helping them overcome the fear of adopting high-level technologies, using local languages on their online applications and through farmer group meetings. These were some of the techniques through which Agroy planned to establish itself in India. Agroy planned to target 10,000 farmers through Facebook and grow its existing LinkedIn profile by posting professional updates for visibility. Other Web platforms such as YouTube, E-news, Inc42 (online) and YourStory (magazine), newspapers and magazines were also to be targeted.

### Government initiatives

In March 2018, the Government of India extended the urea subsidy to farmers until 2020 with the aim of ensuring supply of urea at statutory controlled prices. Urea subsidy for 2018-2019 is estimated to be \$6.95bn. With an aim to boost innovation and entrepreneurship in agriculture, the Government of India introduced a new Agri-Udaan Program to mentor start-ups and to enable them to connect with potential investors. The government also allowed 100 per cent FDI in marketing of food products.

The government planned to triple the capacity of the food processing sector in India from the current 10 per cent of agricultural produce in 2016-2017 to a much higher amount and committed \$936.38bn as investments for mega food parks in the country, as part of the scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA). It was also going to provide \$306.29m for the computerization of Primary Agricultural Credit Society (PACS) to ensure cooperatives benefitted through digital technology.

### Marketing dynamics

Agroy's target for the state of Punjab was 4,000 downloads ([Exhibit 6](#)). The districts of Karnal and Sonapat in the state of Haryana grew rice, wheat and vegetables and had a similar target of 2,500 downloads. Sonapat had a high GDP and practiced commercial farming. Similarly, Karnal also had a high GDP, and the literacy rate was an additional

benefit apart from its advanced farming practices. Another district of Punjab, Moga, which mainly farmed livestock, was targeted by Agroy for 1,000 downloads. Thus, the area selection carried out chooses the target markets in accordance with the target downloads for each corresponding district.

Through a well-established three-tiered channel of distribution ([Exhibit 7](#)), Agroy set for itself a revenue target of €120m by the end of 2022. Agroy had four customer categories: Farmer Producer Organizations Groups (FPOs), bulk purchasers, influencers and retail farms. The last category of retail farms contributed majority of the revenue for the company ([Exhibit 8](#)).

Owing to multiple stakeholders, gross margins were low. To counter this, flat operation was Agroy's answer. The target for FPO groups and retail farms was 8 per cent, while that of bulk purchasers and influencers was 4 per cent. Outsourcing was used as a solution for high operational costs which limited talent engagement and technological developments. To combat high operational losses owing to high operational capital, Agroy intended to forecast and balance risk with shares in revenue not exceeding 20 per cent for fertilizers. High operational costs lowered net margins. Among the four categories of customers, bulk purchasers have the largest farms in terms of size followed by influencers, and proportionally the buying potential was the largest for bulk purchasers followed by influencers, FPO groups and by retail farms ([Exhibit 9](#)). Following this trend, the required tie-ups were the highest for retail farms, followed by FPO groups, influencers and bulk purchasers.

With a country manager, eight territory managers and two marketing managers, Agroy was set to spend approximately €300,000 per annum on manpower. Other overhead costs included rent for offices and administration costs, marketing events such as farmer meetings, information technology-related costs and others.

If Agroy's requirement for registering as a customer is one who has a minimum of 10 ha of land, it would need 10,000 farmers to register a total of 100,000 hectares. To breakeven, it needed to have a total of 5,345 customers, who would invest 10 per cent of their total investment in crop through Agroy. The company needed roughly 53 per cent of registered farmers to transact at a minimum of 10 per cent of their total purchase value of inputs in each crop to breakeven. All solutions and offerings were to be designed keeping in mind the cost of product to the farmer as Indian farmers are price-sensitive. Based on such assumptions, back of envelope calculations showed that the total revenue required to breakeven stood at €2,944,000, at an average gross profit trend of 15 per cent. Each hectare spending per crop for rice, cotton and vegetables stood at €462, €292 and €769 (conversion: \$1 = INR 68 = €0.9 as per Internal Revenue Service, USA, 2017), respectively, and therefore, the average hectare spending per crop was €508, and Agroy's share per hectare assumed on the basis of market trends was €51 provided a farmer bought 10 per cent from Agroy. The first-year target hectares for coverage was 100,000 and total hectares required to breakeven was 57,988. Agroy's gross profit share for agrochemicals and seeds stood at 8-20 per cent, and for fertilizers it was 4-16 per cent. For its value-added services, such as logistics and credit, the gross margin was approximately 10-25 per cent. [Exhibit 10](#) shows that the market share of chemical was much higher than that for seeds and fertilizers in the case of cotton and rice, but for vegetables, the market share of seeds was the highest.

There are a certain set of actions required on Agroy's part to breakeven including needing to find out the strengths of competitors to achieve the equal platform and to maintain the same to be a market player. To stand out in the market, it should make inquiries and serve customer's unmet needs and its competitor's weaknesses. Agroy should perform a deep market analysis and make strategic plans to achieve an increment of 12 per cent customer acquisition to breakeven faster than the competition. It also needs to have an increment of 15 per cent in customer retention to be on breakeven. Finally, Agroy needs to develop



offerings to increase the share from 10 per cent of total purchase to make profit and sustainable expansion. At the same time the company should be able to understand its entry point in the customer funnel so that specific solutions can be designed on the basis of need and service model (Exhibit 11).

It is known that 22 million Indian farmers have a farms 2 ha or larger, and the average farm size in the Indian state of Punjab is 4 ha. When a calculation based on a sample farm size of 4 ha with two harvesting seasons of rice and wheat was done, it was seen that by buying Fertilizer, Agrichemicals and Seeds (FAS) inputs through Agroy's service created the reasonable expectation of a cost benefit of 10 per cent and that by using FAS inputs recommended by Agroy's agronomist, a 10 per cent increase in yield was again a reasonable expectation. That makes a profit improvement for a 4-ha farm at INR 49,538 (Exhibits 12 and 13). In addition, when a benefit calculation for the owner of a 4-ha farm was done, it was seen that by using the Agroy service, farmers could expect a benefit of 14 per cent in their earnings from selling rice and wheat. Finally, by using Agroy's service, farmers could expect a total profit of INR 49,538 for a 4-ha farm for rice and wheat (Exhibits 14 and 15). Agroy also worked in conjunction with various financial institutions, such as leading government banks, as they had deep influence in rural areas. Leading private banks, that are expanding aggressively, had to be contacted, along with small finance banks and non-banks which were granting loans also needed to be brought under the collaborative network for tie-ups (Exhibit 16).

## Competitors

Agroy faced stiff competition from local players. In addition, Agroy also faced competition from the parallel economy as goods acquired illegally were cheaper than those in formal markets, where the supplier did not pay taxes. An additional threat to Agroy was from offline operators and micro-retailers. Agroy had an uphill task of wooing farmers who for centuries had relied on offline stores and micro retailers for their agricultural input.

Agroy's main competitor was Agro Star, which was headquartered in Pune but operated in the states of Gujarat, Maharashtra and Rajasthan. It had over 10 lakh (1 lakh = 100,000) farmers on its platform. These farmers had to give a missed call or access the mobile app to get solutions. Based on their farming needs, branded agri-inputs such as seeds, crop nutrition, crop protection and farm implements were delivered to their doorsteps. It was a technology platform that provided real-time solutions to farmers for their agri-needs. The firm was also awarded *The Economic Times* Start-up award 2016 for Best Social Enterprise. Agro Star had already raised \$10m in Series B round led by Accel India with participation from investors such as IDG Ventures and Aavishkaar. The company averaged 5,000-7,000 transactions daily and received 200,000 missed calls from farmers every month.

Other competitors included Big Heart and D-Haat, among others. Another major player was Behtar Zindagi, India's first "online agri-input store" with suppliers across India. It had a unique customer-focused strategy of exploiting the current e-commerce ecosystem across the country that differentiated it from its competitors. Like others, it enabled farmers to receive important information about pesticides and soil and water conservation. It aimed to improve access to markets by refining the associated economy. Its app was launched in 18 different regional languages (both SMS and Voice SMS) and available 24/7. The Location-Based Service (LBS) form of Behtar Zindagi helped users ascertain the information on the basis of their current location. Behtar Zindagi received over 15 million queries which no other mobile value-added service (MVAS) provider has been able to achieve to date.

Lastly micro-retailers were a threat to Agroy. The agri-input retailer is a basically a businessman with or without a technical qualification and a service provider. In India, there are about 282,000 agri-input dealers. The first point of contact of farmers were those agri-input dealers and the farmers naturally were interested in the usage of inputs, both in

terms of quality and quantity but, due to the lack of formal agricultural education, they failed to answer the queries properly and this is where Agroy had an edge. It was seen that credit availability, quality of product, availability of preferred brand, price of the product and malpractices significantly influenced the retailer's loyalty among farmers. In a study conducted during 2016-2017 in the Bilaspur district of Chhattisgarh on the entrepreneurial behavior of agri-input dealers, it was found that most of the respondents belonged to the middle-aged group and had medium-level of entrepreneurial behavior. It was also found that the retailer's mode of communication was primarily through farmers. Majority of the retailers offered cash discounts to their customers and payback mode was mostly as installments. The major problems faced by them were delays in payment by the farmers, lack of knowledge of farmers about doses of pesticides, methods of application and low profit on reputed company's products.

## Challenges

In spite of various strengths, such as having a strong financial back-up, a large number of farmers on board, best prices to offer and direct contact with farmers, Agroy, like any other multinational company, has its share of challenges and shortcomings. First, the delivery of products remained a huge concern owing to the door-to-door service promise. There is reluctance to establish distribution channels in the rural sector and even those agreeable to do so demand a very high margin for services. Courier companies were also reluctant to deliver to rural India, owing to poor infrastructure and the poor returns when compared to the high investment. As Agroy's dependency on distribution was dependent on outsourcing, it had considerably less control over departments as they were awarded by specific contracts. Payments were the biggest concern for Agroy. Cash on delivery was a viable mode of payment, but it had its shortcomings. To pay through technological devices, the farmers were not technologically savvy enough. Apart from technology, the availability of smart phones in rural areas was not too high and the internet connectivity was always a challenge.

## Conclusion

Agroy sought long-term growth by offering its service throughout the country. The company's LinkedIn page calls itself "A price freedom fighter for farmers." With its managing director and co-founder Brad McDonald named in the 2018 Forbes list, as a "30 under 30 visionary," Agroy had a tremendous potential for growth in India. The company intended to have its own distribution channels, but it had to take note of the various issues and complications associated with them, such as pilferage, damage and theft of the products, return policy, quality testing and late delivery issues. It should have a direct contact or consumer redressal center to sort out customer queries and problems. For a better "Agroy experience" it needed to contact *sarpanches* (village heads) and *gram panchayats* (village council) and convince them of their services. On the technology front, in India and globally, many companies were working on big data such as FBN, The Weather Company (IBM), Sat Sure, RML and e-commerce firms such as Agrostar, BigHaat and DeHaat. Few others were taking the help offered by big data for the decision support function in their apps. For example, CropIn was one of the companies who developed a large dataset of 1.6 million farmers on multiple data points and were selling that data to various companies for multiple usages.

Against the backdrop of such an opportunity, will Amit Mittan be able to establish the concept of smart farming among poor and low-literate Indian farmers? Although Agroy estimates that by 2030 more than half of world's grain farm area would be digitized, can Agroy develop the capabilities to create a successful collaborative ecosystem in India, as it has done with success in Finland and USA? But, above all, was it the right time for smart farming to come to India, or was it too early?

### Keywords:

Marketing, Marketing mix,  
Added value/value chain,  
Business development,  
Food marketing



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Exhibit 1. Agroy Farms distribution around the world in hectares

Figure E1

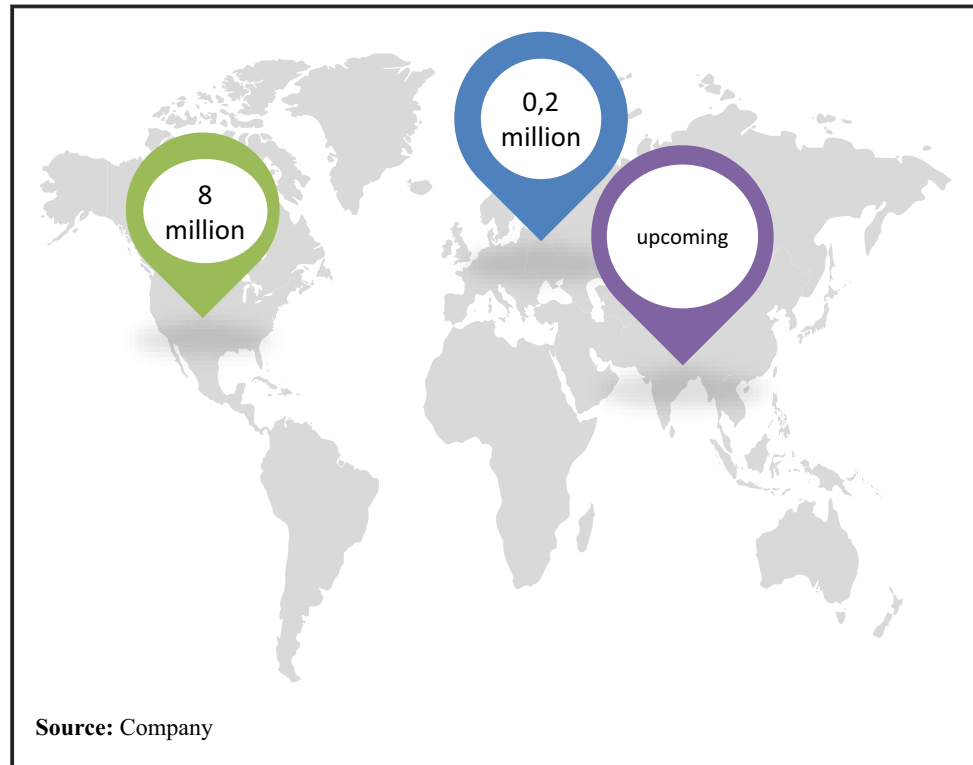


Exhibit 2. System of systems

Figure E2

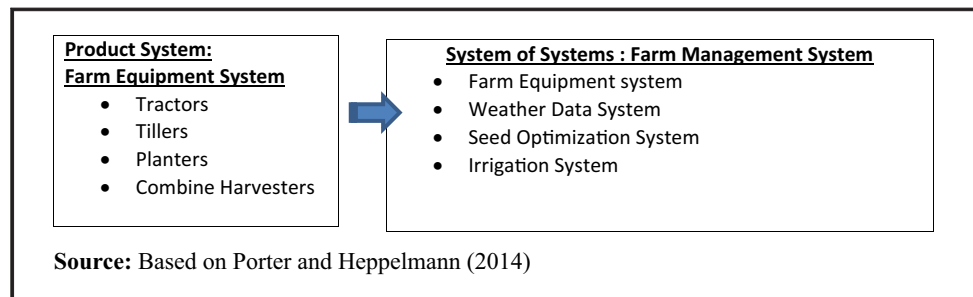


Exhibit 3. Product category share in revenue

Figure E3

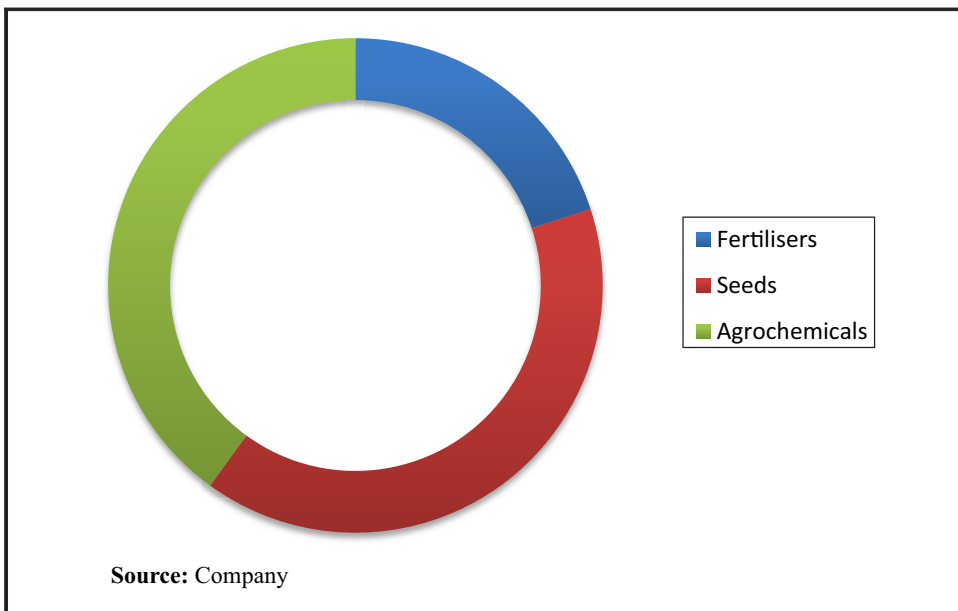


Exhibit 4. Products share in revenue

Figure E4

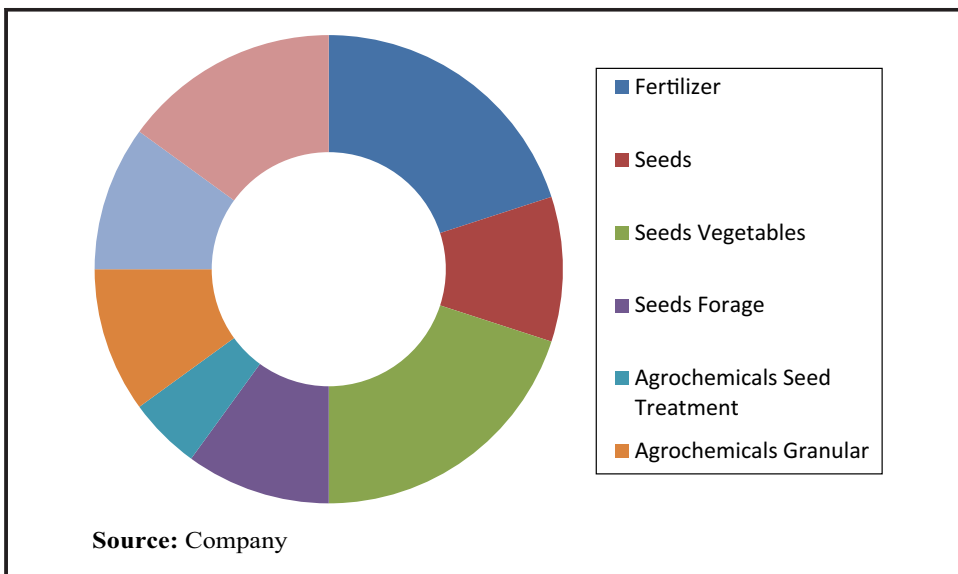


Exhibit 5. Map of India

Figure E5



Exhibit 6. Area Selection, main crops and target download

<b>Table E1</b>				
<i>Sl. No.</i>	<i>State</i>	<i>District</i>	<i>Crops</i>	<i>Target download</i>
1	Punjab	Ludhiana	Rice, wheat and vegetables	4,000
2	Punjab	Moga	Livestock	1,000
3	Haryana	Karnal	Rice, wheat and vegetables	2,500
4	Haryana	Sonipat	Rice, wheat and vegetables	2,500

Sources: Authors

Exhibit 7. Three-tier channel of distribution

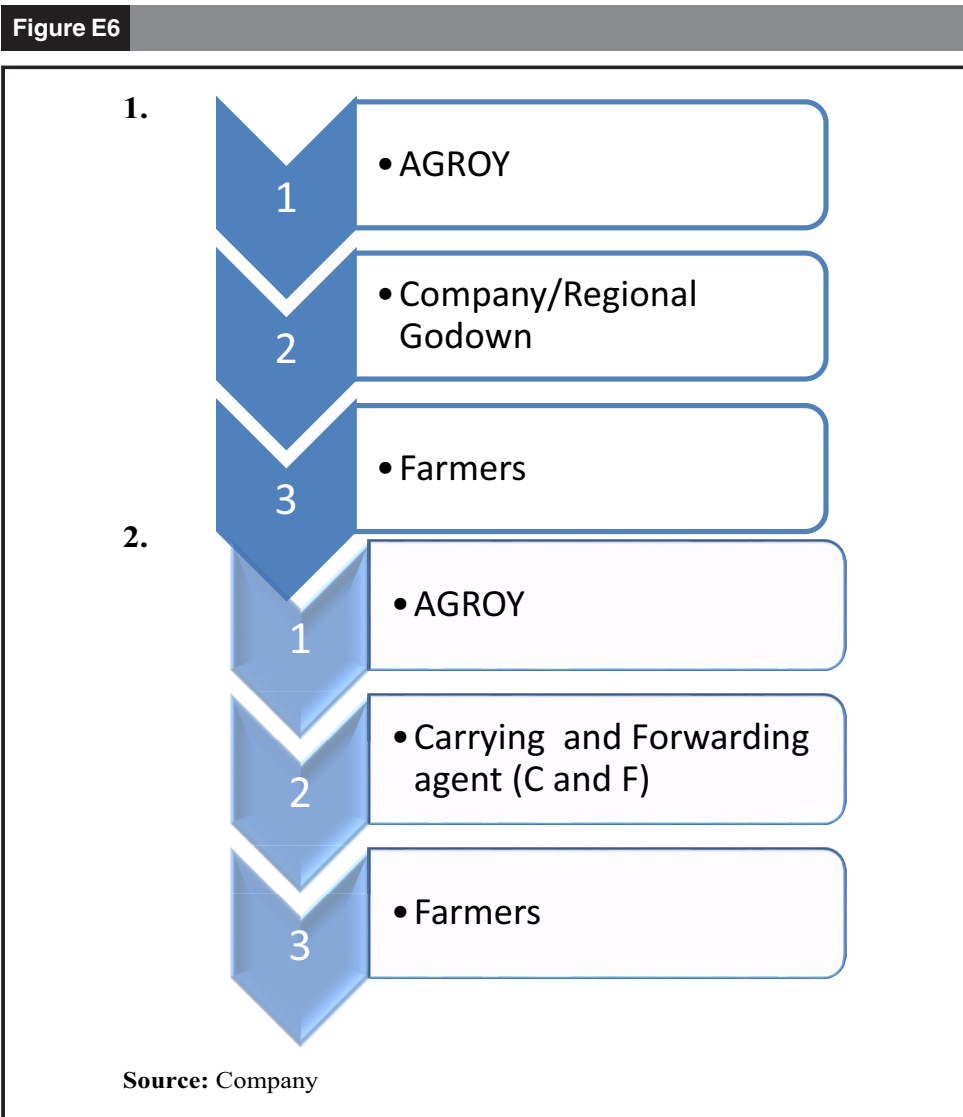


Exhibit 8. Revenue contribution across customer category

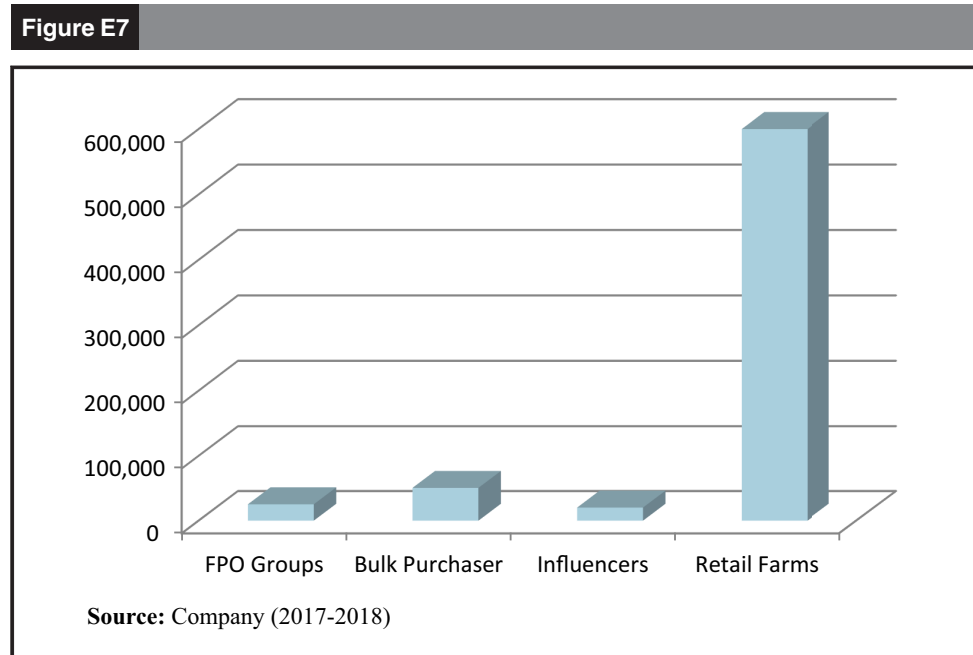


Exhibit 9. Size of farms

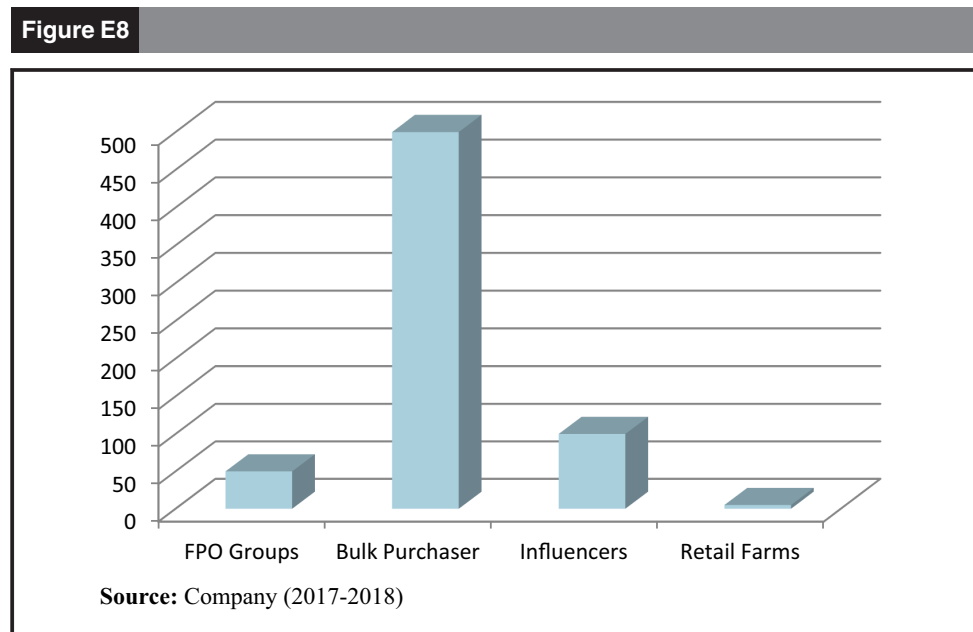




Exhibit 10. Agroy share of market per hectare

**Figure E9**

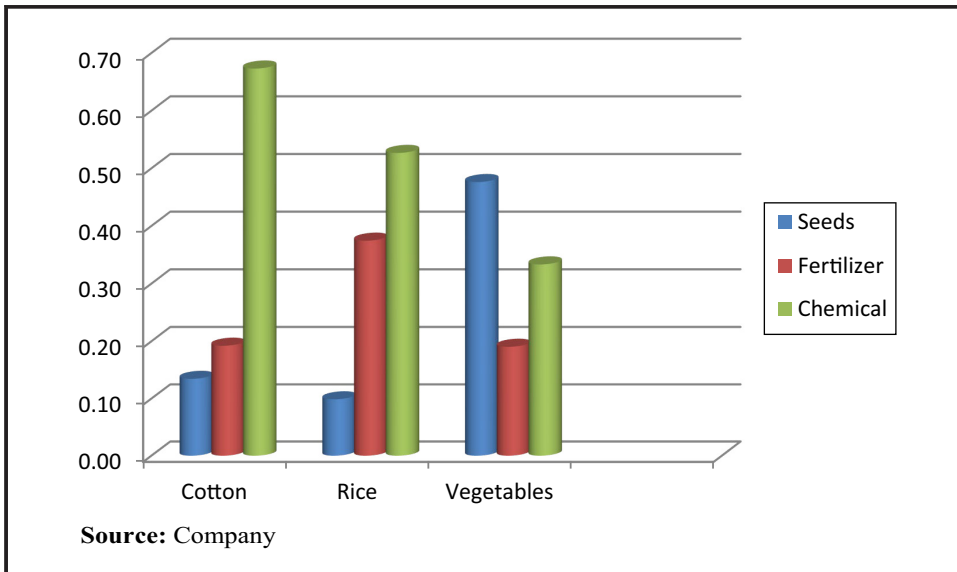


Exhibit 11. Customer funnel

**Figure E10**

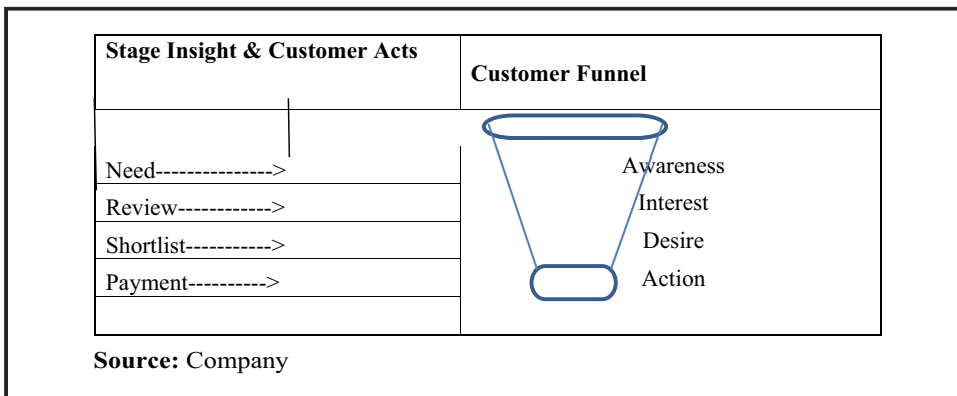
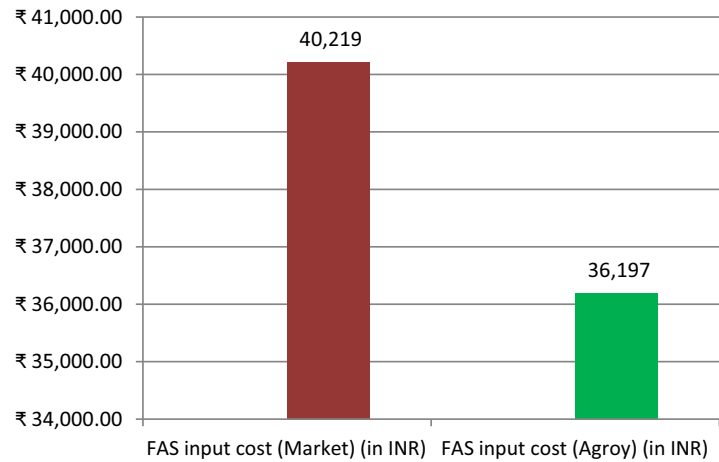
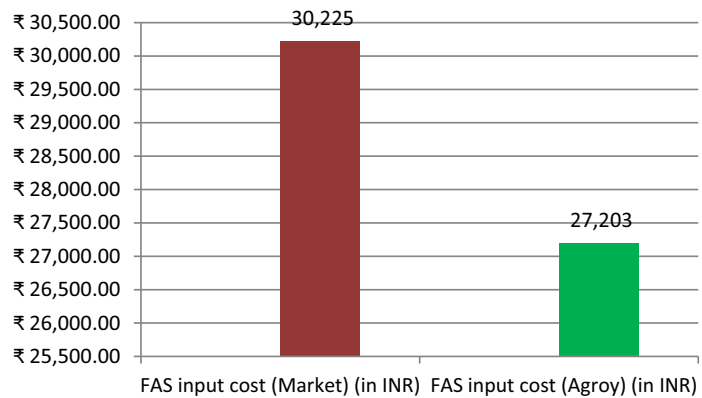


Exhibit 12. Fertilizer, Agrichemicals and Seeds (FAS) input cost (INR) for a 4-ha Indian farm

Figure E11



(a)



(b)

**Notes:** (a) RICE; (b) WHEAT; Conversion: \$1 = INR67.809 = €0.923  
(Source: Internal Revenue Service, United States of America Federal Government, 2017)

**Source:** Company

Exhibit 13. Yield (t/ha) for a 4-ha Indian farm

Figure E12

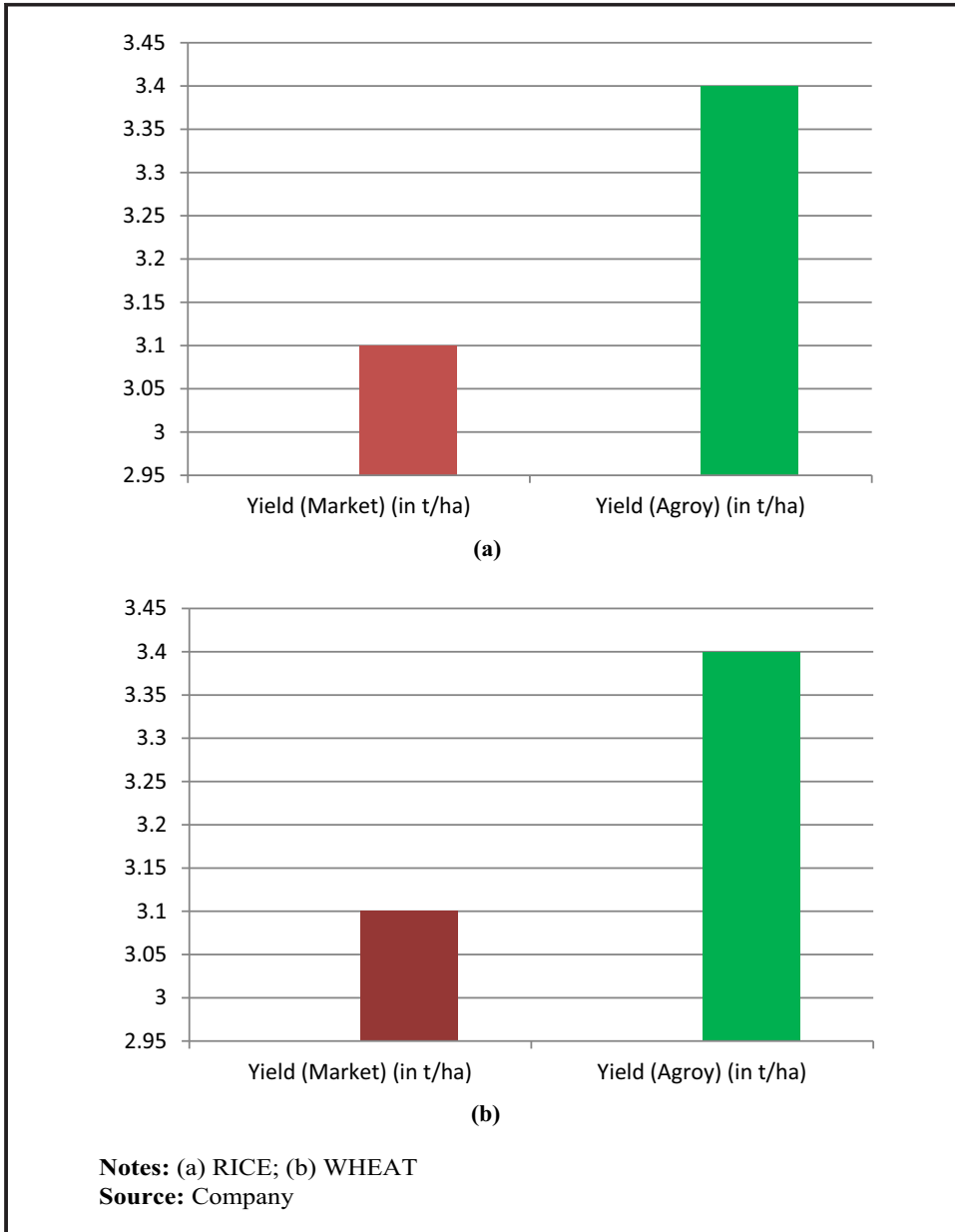


Exhibit 14. Farmer profit (INR) for a 4-ha Indian farm

Figure E13

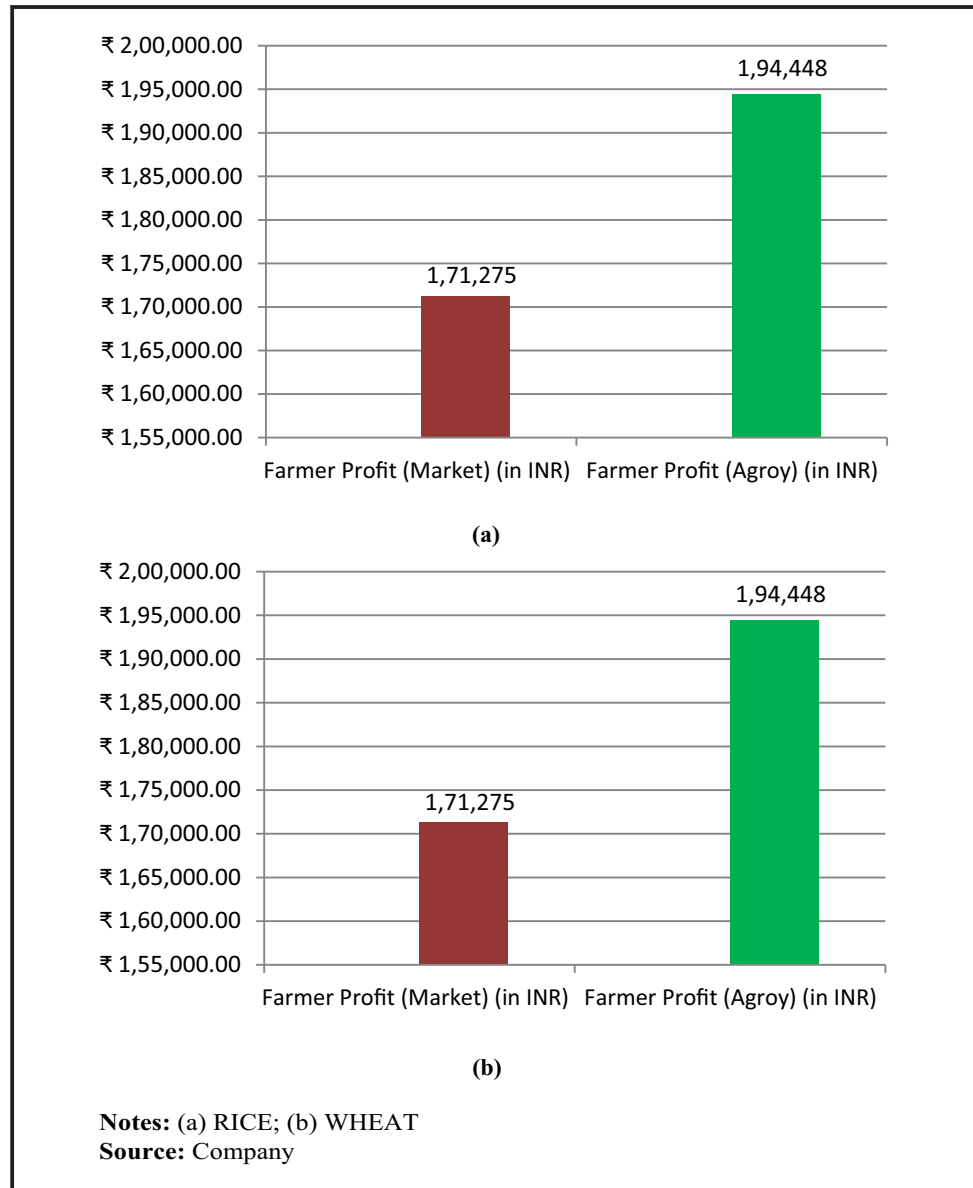


Exhibit 15. Total (for both grains: rice and wheat) farmer profit (INR) for a 4-ha Indian farm

Figure E14

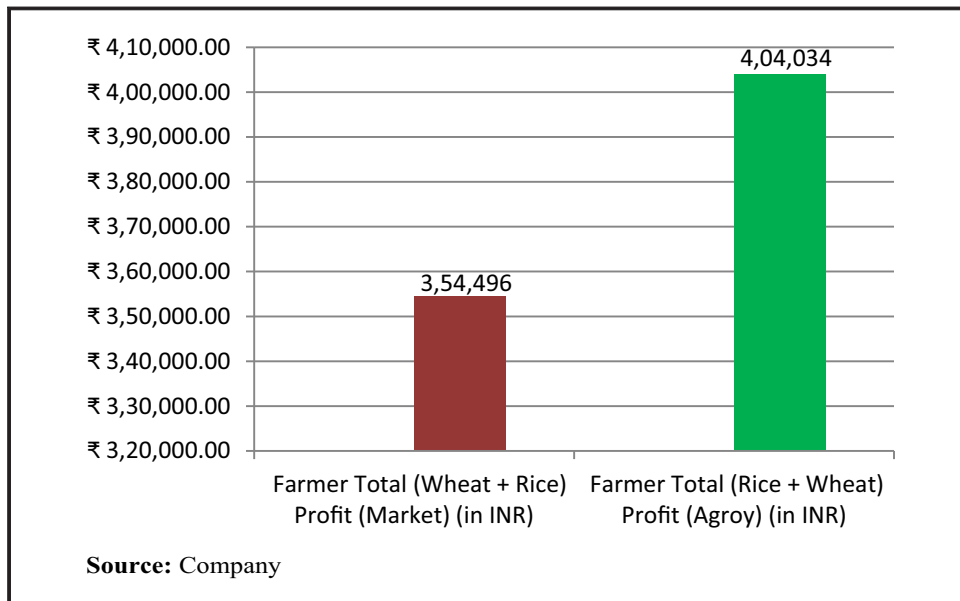


Exhibit 16

Financial inclusions

- Yes Bank
- ICICI Bank
- Bandhan Bank
- HDFC Bank
- Capitol Small Finance Bank
- Gramin Bank
- Ujjivan
- Intelcap (Source: Company)

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