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ZIWO AGRICULTURAL SERVICE Co. LTD.: VERTICAL INTEGRATION

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In December 2011, Xijun Yu, the chief executive officer (CEO) of Ziwo Agricultural Service Co., Ltd. (Ziwo), was faced with a series of urgent decisions. In 2008, Ziwo was the market leader of agricultural material retailors in Shenyang, in Liaoning Province, China. However, the agricultural supply chain in China had changed rapidly due to the transition of Chinese cropland from decentralized to centralized distribution. As a middle link in this chain, Ziwo’s market share was crowded by upstream suppliers, and its margin was squeezed by downstream buyers. Meanwhile, Ziwo was also in increasingly fierce competition with horizontal competitors and new entrants.

Ziwo had suffered from a sharp decline of market share and income from 2008 to 2011. In this situation, Yu considered integrating the supply chain vertically to survive the dilemma. As the CEO of Ziwo, he had to answer some questions. First, was it necessary for Ziwo to implement the vertical integration strategy to win back competitive advantages? Second, which direction should the vertical integration strategy take— forward or backward? Third, how could Ziwo achieve vertical integration under its current circumstance?

The AGRICULTURAL SUPPLY CHAIN IN CHINA

Agricultural Materials

Agricultural materials (AM) were the substances used in the process of agricultural production, mainly fertilizer, pesticide, seeds, and agricultural machinery. In China, the basic agricultural materials were seeds, fertilizer, and pesticide, all of which shared common market characteristics.

Wide Product Variety

The AM companies in China were not competitive. There were only a handful of seed companies in developed countries, each with a large market share.[[1]](#footnote-1) However, there were many seed companies in China (see Exhibit 1),[[2]](#footnote-2) each with only a small market share. The top 50 seed companies in China together only held 35 per cent of the market share.[[3]](#footnote-3) As a result, there were numerous categories of seeds on the market. For instance, an average of 35 kinds of corn seeds were nationally approved every year; a total of 420 types had been approved from 2004 to 2015 (see Exhibit 2). Among all the seed companies, only 7 per cent of them had registered capital of more than ¥100 million[[4]](#footnote-4) (see Exhibit 3). Further, with inadequate research resources and little intellectual property protection, most seed companies invested just a mere 2 per cent of sales revenue in research and development—far below the international standard of 10 per cent.[[5]](#footnote-5) As a consequence, there was little to no product homogeneity in seeds, fertilizers, or pesticides.

Periodic Product Demand

The demand for agricultural materials was especially periodical and time-sensitive. Fertilizer, for example, was intensively used only before cultivation. Hence, the fertilizer retailers needed to manage their inventory and distribution to respond to high demand before spring ploughing.

Technical Requirements

The proper selection and application of agricultural materials needed professional guidance. Pesticides had to be properly selected according to the type of agricultural product and when it was planted. As well, the dosage and time of the application had to be precise.

Agricultural Products

Agricultural products (AP) were the commodities produced from cultivating plants and animals, such as wheat and corn. In China, the AP market for corn, rice, wheat, and other grain crops had few sales channels and the products were often damaged in transport and storage.

Limited Sales Channels

Farm households provided most of the labour for producing agricultural products in China. Unlike larger AP enterprises in developed countries, the individual farm households were unable to participate in a large-scale system of supply and demand. Instead, they had one sales channel: grain traders. These were groups of local individual merchants who bought agricultural products from local farm households at low prices, then sold them to granaries at a higher price to make their profit.

Underdeveloped Logistics

Similarly, the logistics system in China was underdeveloped, especially in the AP market. According to the State Grain Administration of China, the unscientific operations of AP storage and transport damaged 8–10 per cent of the total grain output. The result was a massive loss of 15–20 million tons of agricultural products, at a cost of ¥18–24 billion.[[6]](#footnote-6)

The Agricultural Materials–Agricultural Products (AM–AP) Supply Chain

Unlike the large farms in the United States, which planted about 1,000 acres per farm,[[7]](#footnote-7) Chinese cropland was planted as farm household units. The average farm household cropland was less than 8 mu (about 1.3 acres or half of a hectare[[8]](#footnote-8) and, thus, highly decentralized. This strained what was already an underdeveloped logistics system, which also took its toll on the supply chain. The result was a multi-level AM–AP supply chain that involved AM manufacturers, wholesalers, and retailers; and farm households, grain traders, small granaries, and large granaries (see Exhibit 4).

The AM portion of the supply chain consisted of four parts: AM manufacturers, AM wholesalers, AM retailers, and farm households. The AM manufacturers produced agricultural materials such as seeds, fertilizers, and pesticide. The manufacturers commonly selected an AM wholesaler to sell the materials in city areas. The AM wholesalers, in turn, sold and distributed the materials to AM retailers in each small town. The AM retailers then sold the materials directly to local farm households in the rural area. Finally, the farm households applied the seeds, fertilizers, pesticides, and other agricultural materials to their cropland to produce corn, rice, wheat, and other grain crops.

The decentralized nature of cropland distribution meant that most AM retailers dealt with frequent demands for small orders from farm households. With the underdeveloped logistics system, distribution of the agricultural materials through the whole materials portion of the supply chain also went through multiple hierarchies to meet the fragmented demand in time.[[9]](#footnote-9)

The AP portion of the supply chain consisted of farm households, grain traders, small granaries, and large granaries. Farm households both used agricultural materials and produced agricultural products. After harvesting, the farm households sold their agricultural products to grain traders for income. Then grain traders transported the products to small granaries, and the small granaries gathered and sold the products to large granaries.

The decentralized cropland distribution meant that farm households harvested their crops in small quantities. With the multi-layered sales channel and poor logistics system, agricultural products had to be collected through multiple market hierarchies, from the grain traders to small and large granaries.

ZIWO

Yu established Ziwo in 2001 as an AM retailer in Yu’s hometown, Shenyang, the largest city in Liaoning Province. Ziwo sold fertilizer, pesticide, seeds, and other agricultural materials. Ziwo succeeded as a middle link in the local agricultural supply chain, stocking products from upstream suppliers and selling products to downstream customers.

Upstream Suppliers

Ziwo was too small a retailer to purchase directly from AM manufacturers, so it needed to purchase products from AM wholesalers at their higher prices. Ziwo purchased its supply from Shuangfeng Agricultural Materials Sales Agency. Although upstream manufacturers and wholesalers made most of the profit in this supply chain, Ziwo profited because agricultural materials were in short supply at the time.

Downstream Customers

Ziwo’s customers were farm households with small-scale croplands. Most of the farmers had limited education. Typically, they purchased their agricultural materials from acquaintances, and because the farmers were unable to distinguish among the products, they purchased what their acquaintances recommended. The farmers were not brand loyal, instead following choices made by those with experience and education, such as village elders and local teachers.

Ziwo targeted local customers from Yu’s hometown. In its first two years of business, Ziwo’s major clients were Yu’s acquaintances. Yu, himself, lacked comprehensive knowledge of agricultural materials, so he studied at Liaoning Academy of Agricultural Science. He could, therefore, provide Ziwo’s customers with qualified products and professional guidance. As a result, Ziwo earned a good reputation and attracted continuous purchases from the local farmers.

Ziwo started as a small AM retailer in the AM–AP supply chain, but grew over the next few years. By 2006, Ziwo had become one of the largest AM retailers in Shenyang City.

DEVELOPMENT DILEMMA

Ziwo’s good fortunes did not last long. In 2006, China implemented a series of laws and regulations that centralized the previously decentralized cropland distribution. Farm households that owned small-scale cropland were gradually replaced by agricultural cooperatives,[[10]](#footnote-10) large grain production households[[11]](#footnote-11) and family farms[[12]](#footnote-12) (ALFs for short) that possessed large-scale cropland.

These changes had considerable impact on the original AM–AP supply chain (see Exhibit 5), and led directly to a drop in Ziwo’s income (see Exhibit 6). Because their cropland was centralized and larger, ALFs had more bargaining power, which squeezed Ziwo’s profit margin. It also became worthwhile for AM manufacturers and wholesalers to sell products directly to the ALFs, cutting out Ziwo, the middleman. The manufacturers’ and wholesalers’ expanded business scope crowded Ziwo’s market space as well, increasing the competition. The potential for profits drew even more new entrants into selling agricultural materials, especially attracting local brokers with hometown advantages in geography and reputation.

Ziwo did not have an effective solution to the problem of increasing competition from industrial market entrants. The competition had become cutthroat. The demand for agricultural materials in Shenyang City had remained stable; however, the increasing number of retailers and increasing product homogeneity strengthened the market pressure. The demand and supply imbalance forced prices down, which caused Ziwo great losses.

By 2008, the disordered competition among AM manufacturers, wholesalers, retailers, and local brokers had become fierce. Ziwo had cut prices to maintain its market share, but by the end of 2011, Ziwo’s income had dropped to what it was when the company was started in 2001 (see Exhibit 6).

VERTICAL INTEGRATION IN the AGRICULTURAL SUPPLY CHAIN

There was an old saying in China: “Poverty gives rise to the desire for change.” But how was Ziwo to change? Yu and his senior management team began sorting out the new AM–AP supply chain.

The AM–AP Supply Chain in 2011

There were no plans in the AM market to technically integrate the use of fertilizer, pesticide, and seeds. ALFs tried to reduce their cost of production by purchasing directly from AM manufacturers at a low price. However, because AM manufacturing was not yet advanced in China, the materials were commonly produced by different manufacturers. Thus, ALFs were challenged in matching diverse products from different manufacturers for purchase. Also, the technical services varied among the manufacturers, increasing the quality risk for ALFs. The ALFs had their technical demands, and AM manufacturers needed new sales channels to promote their products and gain market share.

The AP market was also suffering. Low grain prices and limited sales channels had reduced farmers’ profits. Farm households with grain output too small to deal directly with large granaries had to trade at a lower price with grain traders. The ALFs, although larger, still were not gaining advantages with their product quantity because it did not meet the demand of large granaries. Therefore, the farmers had to bear the cost of grain transportation and the risk with loss of product quality. The large granaries also suffered because the quality of the grain they collected varied and the layered supply process added significantly to their purchase cost.

The Advantages of Ziwo

Ziwo had been in the AM–AP supply chain for 10 years. Yu was experienced, and his company had some advantages. The qualified products and service Ziwo offered had earned the company a good reputation and a wide social network in Shenyang. And with Yu being a local, his already rich social network had grown with his decade of working experience in the agricultural industry.

Ziwo also offered expertise in agriculture. From the beginning, Yu kept learning, acquiring a great deal of agricultural knowledge and becoming an agricultural expert. During his study, Yu also met many agricultural experts, such as Yang Na, a professor at Shenyang Agricultural University and Liang Chen, a professor at the Liaoning Academy of Agricultural Sciences.

Whether to Vertically Integrate

On December 5, 2011, Yu held a meeting with the senior management team at Ziwo to discuss how they could use Ziwo’s advantages to respond to the changes in the AM–AP supply chain. Yongning Yang, the chief marketing officer, started the discussion. He advocated paying attention to the changing need of their customers. In the initial stages, customers mainly demanded agricultural materials, but with the changes, their demands had expanded to include technical service, risk avoidance, and sales channels for their agricultural products. Ziwo was not meeting customers’ needs if it stuck to just selling agricultural materials. Yang suggested restructuring Ziwo’s major business to provide multiform services, especially support with a sales channel. Yang maintained that the only way to keep and attract customers was to enter the downstream business and provide a sales channel for farmers to sell their products.

Lijun Li, Ziwo’s chief operating officer, was in favour of providing sales channels but wanted to protect the company’s original major business. He felt the company could engage in the upstream business by guiding farmers to buy agricultural materials directly from the manufacturers. This would decrease the transaction costs for both farmers and manufacturers. Li believed that if they could manage both the upstream and downstream business, Ziwo would gain a significant competitive advantage.

Weile He, the chief financial officer, was concerned that the company’s financial position could not support vertical integration. Ziwo’s market share had fallen three years in a row, and the company’s cash flow was limited after having deficits for two years. He concluded that there was not enough money for the company to vertically integrate by merging with companies downstream or upstream. His suggestion was to implement vertical integration by seeking co-operation from other companies.

The Plan for Vertical Integration

After considering the situation and analyzing Ziwo’s strengths, Yu and the management team decided that Ziwo would implement forward and backward integration at the same time to provide diverse services and products. The goal was to meet customers’ needs for technical service, a sales channel, risk avoidance, and continued purchase of AM products.

In early 2012, Ziwo changed its major business from selling seeds, fertilizer, and pesticide to providing an agricultural technology consulting service and a grain sales channel. Ziwo built on its good reputation, expertise, and Yu’s social network to integrate the supply chain vertically in Shenyang (see Exhibit 7).

Technical Support

Ziwo provided ALFs with free technical support in plans that combined fertilizer, pesticide, and seeds. Yu and Professor Yang Na provided the expertise. This became the key differentiator, attracting ALFs to work with Ziwo. To obtain the free technical service, ALFs had to enter a contract with Ziwo, agreeing to two key terms: First, ALFs had to use the agricultural materials specified by Ziwo, and Ziwo would provide the qualified materials at a price not higher than the average market price. Second, ALFs had to sell their quality-assured grain output to Ziwo, and Ziwo promised to purchase the grain from the ALFs at a price not less than the average market price.

In 2012, nearly 40 per cent of Ziwo’s former customers signed a contract with the company. Eleven of the customers owned over 1,000 mu (165 acres) of cropland each, and 15 of them owned over 500 mu (82 acres) each. In total, Ziwo had provided free technical services to cropland that totalled more than 20,000 mu (about 3,300 acres). With demand for agricultural materials and huge grain output on this cropland scale, Ziwo gained significant bargaining power with upstream AM manufacturers and downstream large granaries.

Co-Operation with Large Granaries

Ziwo co-operated directly with large granaries, and provided them with high-quality AP. Ziwo also required a contract from the granaries in exchange for the high-quality AP. In this arrangement, Ziwo collected the agricultural product from the ALFs for the large granaries without using grain traders or small granaries. This meant that Ziwo could pay the farmers a higher price than they would get from the grain traders, and the granaries still saved on the purchase cost, getting a large-scale supply of high-quality product without incurring the cost and inconvenience of purchasing from several small granaries. This gave Ziwo bargaining power with the large granaries, who then contracted to purchase all the agricultural product provided by Ziwo as long as the product met the requirements for quality. Ziwo earned revenue by charging for the trade by sale volumes.

Collaboration with AM Manufacturers

Ziwo collaborated directly with AM manufacturers that needed to expand their product sales channel. With its resources of ALFs customers, who had great demand for agricultural materials, Ziwo had gained bargaining power with the AM manufacturers. Ziwo contracted with the AM manufacturers to provide adequate, high-quality agricultural materials at a price not higher than the average market price, and helped the manufacturers sell agricultural materials directly to the ALFs in Shenyang. With this setup, Ziwo eliminated the AM wholesalers and retailers, and reduced the transaction cost for both the AM manufacturers and the ALFs with more profitable AM prices. Ziwo earned revenue in this stream also by charging by sale volumes.

Measure of Success

The ALFs increased their grain output with the autumn harvest of 2012. One of Ziwo’s customers reported that he spent less money on agricultural material over the year, but yielded a larger grain output. Meanwhile, he sold the grain to Ziwo at a price higher than the market average, increasing his income 20 per cent over the previous year.

Ziwo’s new business created a buzz in Shenyang. A number of ALFs from the neighbouring area were enticed to co-operate with Ziwo, as were the AM manufacturers and large granaries. In 2013, Ziwo increased its contracts with ALFs to 36. Ziwo was then providing services to over 40,000 mu (6,590 acres) of cropland in total. Ziwo went into partnerships with nine AM manufacturers and four large granaries.

The next year, Ziwo’s business scope was enlarged again. By 2015, Ziwo’s service involved 75 ALFs, 21 AM manufacturers, and eight large granaries, covering over 110,000 mu (18,121 acres) of cropland. Ziwo’s revenue also peaked that year (see Exhibit 6).

FUTURE CHALLENGE

Yu was pleased with Ziwo’s success, but he was more concerned about the threat from Chinese Internet giants such as Alibaba Group Holding Limited (Alibaba) and JD.com, Inc. (JD). They had entered the agricultural supply chain by launching an e-business in agricultural materials. In July 2015, Alibaba launched its online AM channel and began negotiating contracts with offline AM companies.[[13]](#footnote-13) The same year, JD also launched its online AM channel.[[14]](#footnote-14) Other Internet giants such as Lenovo Group Ltd. were also entering the market space.[[15]](#footnote-15)

The Chinese Internet giants were entering the agricultural supply chain as they had done in other industrial chains. Since 2010, the retail e-business had heavily impacted the traditional industries. In 2014, the apparel retail e-business forced Giordano International Limited, a fashion brand retailer, to close 165 physical stores in the Chinese market.[[16]](#footnote-16) The e-business in electronic retail forced Suning Commerce Group, a well-established Chinese electronic retailer, to close 68physical stores and build its own online store for survival. Internet technology was also generating new media that occupied the largest portion of that market space in 2015, leading to the failure of traditional media (see Exhibit 8).

Yu could not help but wonder if Ziwo’s future was secure. Would Ziwo also be vulnerable to the influence of Internet technology?

EXHIBIT 1: NUMBER OF SEED COMPANies IN CHINA (2011–2016)

Source: “Analysis of the Market Scale and Structure of Chinese Seeds Industry in 2016,” China Industry Information, August 31, 2016, accessed March 18, 2017, www.chyxx.com/industry/201608/443637.html.

EXHIBIT 2: NUMBER OF NATIONALly APPROVED categories of CORN SEEDS (2004–2015)

Source: “Analysis of the Status and Development Trend Prediction of Chinese Seeds Industry in 2016,” China Industry Information, August 24, 2016, accessed March 18, 2017, www.chyxx.com/industry/201608/441071.html.

EXHIBIT 3: REGISTERED CAPITAL OF SEED COMPANIES IN CHINA, 2016

Note: 751 19% signifies there are 751 seed companies with registered capital under ¥5 million, accounting for 19% of all seed companies in China.

Source: “Analysis of the Market Scale and Structure of Chinese Seeds Industry in 2016,” China Industry Information, August 31, 2016, accessed March 18, 2017, www.chyxx.com/industry/201608/443637.html.

EXHIBIT 4: AGRICULTURAL SUPPLY CHAIN IN CHINA (2001–2008)



Note: AM = agricultural materials (seeds, fertilizer, pesticides, etc.); AP = agricultural products (corn, rice, wheat, and other grain crops).

Source: Created by the case authors based on Xijun Yu (chief executive officer, Ziwo Agricultural Service Co., Ltd.), in discussion with the authors, May 2, 2016.

EXHIBIT 5: AGRICULTURAL SUPPLY CHAIN IN CHINA (2008–2011)



Note: AM = agricultural materials; AP = agricultural products.

Source: Created by the case authors based on Xijun Yu (chief executive officer, Ziwo Agricultural Service Co., Ltd.), in discussion with the authors, May 2, 2016.

EXHIBIT 6: Ziwo Agricultural Service INCOME (2001–2015)

Note: ¥ = CNY = Chinese Yuan; ¥6.90 = US$1 on March 19, 2017.

Source: Created by the case authors using data from Ziwo Agricultural Service.

EXHIBIT 7: VERTICAL INTEGRATION OF ZIWO Agricultural Service



Note: AM = agricultural materials; AP = agricultural products.

Source: Created by the case authors based on Xijun Yu (chief executive officer, Ziwo Agricultural Service Co., Ltd.), in discussion with the authors, May 2, 2016.

EXHIBIT 8: MEDIA MODEs IN CHINESE MEDIA MARKET, PERCENTAGE OF Total

Note: PC = personal computer.

Source: “Eight Pictures Telling You the Influence of Internet over Media Industry,” Siilu, April 23, 2015, accessed March 19, 2017, www.siilu.com/20150423/132045.shtml.

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3. “Analysis of the Status and Development Trend Prediction of Chinese Seeds Industry in 2016,” China Industry Information, August 24, 2016, accessed March 18, 2017, www.chyxx.com/industry/201608/441071.html. [↑](#footnote-ref-3)
4. ¥ = CNY = Chinese yuan; ¥6.90 = US$1 on March 19, 2017. [↑](#footnote-ref-4)
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8. “Cropland per Household in China Is Less Than 8 Mu: The Demand of Moderately Encouraging Land-Scale Operation,” Xinhuanet News, July 5, 2015, accessed March 17, 2017, http://news.xinhuanet.com/politics/2015-07/05/c\_127985450.htm. Mu (or mou) was a Chinese unit of land measurement, equivalent to 0.165 acre (1 acre = 6 mu) or 666.5 square metres (1 hectare = 15 mu). [↑](#footnote-ref-8)
9. “Agricultural Materials Online Business Has Become a Trend,” Chinese Fertilizer Website, December 13, 2016, accessed March 19, 2017, www.huafei168.com/News/1214770.html. [↑](#footnote-ref-9)
10. Agricultural cooperatives refer to economic mutual aid organizations that are voluntarily united and democratically managed by the production operators of similar agricultural product or the providers and users of similar agricultural service. [↑](#footnote-ref-10)
11. Large grain production households refer to the farm households who own relative centralized cropland over 50 mu (8.25 acres) and mainly produce coin, wheat, and other grain crop. Their production achieves uniform management and they are responsible for their own profits and losses. [↑](#footnote-ref-11)
12. Family farms refer to the new-type agricultural operations where family members form the main labour force. They work on large-scale, intensive, and commercial agricultural operations, and agricultural income is their major source of income. [↑](#footnote-ref-12)
13. “Alibaba Leading the Campaign of Agricultural Materials Online Business,” Hi Business College, September 10, 2015, accessed March 18, 2017, www.hishop.com.cn/ecschool/kdzx/show\_24136.html. [↑](#footnote-ref-13)
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16. “The Failure of Physical Clothing Stores Suffering from e-Business.” Sina, November 14, 2014, accessed March 19, 2017, http://tech.sina.com.cn/i/2014-11-14/doc-icczmvum9870745.shtml. [↑](#footnote-ref-16)