Smart Agriculture Needs Effective Ecosystem to Prosper

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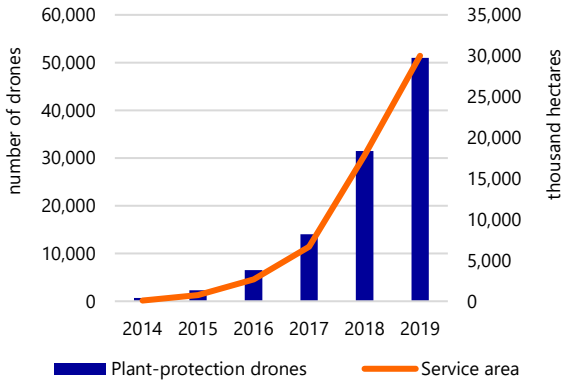
Summary

- In China, drones are widely used in pest control. Benefiting from a healthy industry ecosystem, they have become the most widely used intelligent agricultural machinery. This may inspire other smart agriculture players to think about how they can join forces to make significant strides in a healthy industry ecology.

Figure 1: Figure 1: The higher the intensification ratio, the lower the farm inputs cost



Source: CHNCI, Rabobank 2020

Drones Outshine Others

In China, drones developed rapidly. They are the most widely used and most invested in intelligent agricultural machinery in China. In recent years, the drone industry has made a great leap forward. In 2014, farmers questioned the efficacy of drone applications, and now there are 51,000 plant-protection drones in China (up 136% compared with 2014), serving an area of 30m ha (up 224% compared with 2014).

Right Place, Right Time

Why has the use of drones grown so fast? A well-established ecosystem, including the government, equipment manufacturers, agrochemical manufacturers, service organizations, and farmers, was necessary to support this development. And, it was important that all participants kept up with the industry's evolution in order to meet farmers' demands.

Powerful Policy Support

Land consolidation creates opportunities for drones to execute pest control tasks. Drones are favored among large, professional farmers/organizations because of their high efficiency, precise application, and ability to save water and pesticides.

The government has also introduced supporting policies to promote drone development. For example, the government provides subsidies to reduce the purchase cost for users, which plays an important role in the expansion of drone sales. At the same time, operating standards, quality standards, and professional standards have been introduced to standardize drone applications in pest control.

Strong Manufacturing Capability and Continuously Improving Technology

In order to achieve sizable production capacity, the capability of supporting large-scale production of complex products with an open attitude is required. This capability is scarce around

the world, existing only in China. China has the complete industrial chain needed for drone production, including key parts such as carbon fiber shells, motors, special plastics, lithium batteries, magnetic materials, propellers, etc., which fosters self-sufficiency in the supply chain of drone products. The open attitude solves the problem of sizable production of customized products for small enterprises, who do not have enough capital and strength to build their own factory, with relatively low cost.

Advances in IT have greatly optimized the use of drones in farmland. Agricultural drones with GPS navigation and image recognition have strong environmental adaptability and are simple to operate, which makes drone use widespread not only in field crops, but also in cash crops.

Improving Agrochemical Industry Growth and Formulations

Drones are also helpful for agrochemical manufacturers to achieve new growth in the depressed market. Due to the Zero Growth Initiatives and the oversupply situation, major agrochemical manufacturers are under great pressure to grow. Players can expand their market share by using drones to provide specialized formulations, which could provide opportunities for further growth.

Agrochemical manufacturers are constantly improving their R&D capability to improve their formulations and ensure that agrochemical products are efficient in different environments. The deep involvement of agrochemical enterprises not only promotes their products' application in drones, it also promotes the normative development of the industry.

Emerging Platforms With Attentive Service

Since 2018, several drone platforms that can provide plant-protection services have appeared in China. These platforms connect drone operators who are loosely organized with farmers who need help with pest control. The service mirrors that of online car-hailing apps, ensuring that farmers are approached and forming the integrity of the whole industry chain.

Join Together, Rather Than Confrontation

China's smart agriculture has been developing for several years, but compared to other developed countries, it is still lagging behind. There are still many problems, such as a shortage of talent, the high cost of equipment and software services, inaccurate sensors, difficulties in obtaining data, and limited financial support. Many products are difficult to sell in the market. As a result, data collection is challenging, and digital products cannot be updated in a timely manner to meet market demands. Furthermore, the service is not in place, which is also one of the reasons why the product cannot be applied on a large scale. Many producers only focus on hardware production and software R&D, but ignore services for farmers, such as the introduction of product application, operation optimization, sales channels, maintenance services, etc.

There is no doubt that agricultural modernization in China is an inexorable trend, and smart agriculture will have great potential. It must be realized that the individual stakeholders of the smart agriculture industrial chain cannot work alone, and must join together to solve the issues mentioned above. Especially at this moment, the links of the industrial chain are becoming increasingly close, and the cross-boundary exchanges between industries are more frequent. In China, there are a lot of small agtech enterprises with excellent technology. They have flexible tactics for technology R&D and are strong in product commercialization. However, many enterprises cannot survive because their capital is insufficient, they lack a strong background in manufacturing the product on a large scale, or their interaction with farmers is ineffective and leads to insufficient information. Therefore, leading enterprises should analyze the industry's trends and establish a healthy industry ecology through cooperation with small enterprises that excel in R&D and service. This is a key way to truly transform technology into productivity.

Imprint

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