



Rabobank

Land Consolidation Propels Drone Uptake in China

research.rabobank.com/far

RaboResearch

Food & Agribusiness
far.rabobank.com

[Jingyan Sun](#)

Analyst - Farm Inputs
+86 10 5695 1089

Against a backdrop of labour shortage and land consolidation, the usage of drones in Chinese agriculture is skyrocketing. Drones have become a powerful pest control tool for large farming operations due to their precise application, high efficiency and their ability to save water and pesticides.

Drones are booming

In 2016, the number of drones increased from hundreds to 5,000, and the accumulated treated area spanned more than 20 million mu. It is estimated that in 2017 the total amount of drones will reach 10,000.

The business model and service capacity of drone companies will become more mature and the downstream market is expected to boom further. In years to come, the Chinese drone industry will become more professional, grow in scale and face fierce competition.

Short on labour

Drones are a way to combat China's rural labour shortage. To inspire enthusiasm with farmers for production and ensure the availability of food and clothing, the household contract responsibility system was adopted in 1978. However, with industrialisation and urbanisation, farmers are not able to get rich under this operation model, which discourages farming. This brings more migrants into Chinese cities, and the urban population is now larger than its rural counterpart. In 2016, the proportion of the workforce in the primary industry is 27%, down 14% compared to 2007. This leads to a farm labour shortage and higher labour costs in rural areas, which have increased from CNY 160/mu in 2007 to CNY 447/mu in 2015, with a CAGR of 14% (see Figure 1).

On top of that, China is facing the serious problem of an aging and increasingly female labour force as a result of a massive outflow of young and middle-aged rural labourers. The proportion of female labour force was 36% in 1996, but has increased to over 50% in 2010 and is estimated to reach 60% in 2017.

Figure 1: Rural labour costs are rising, 2007-2015

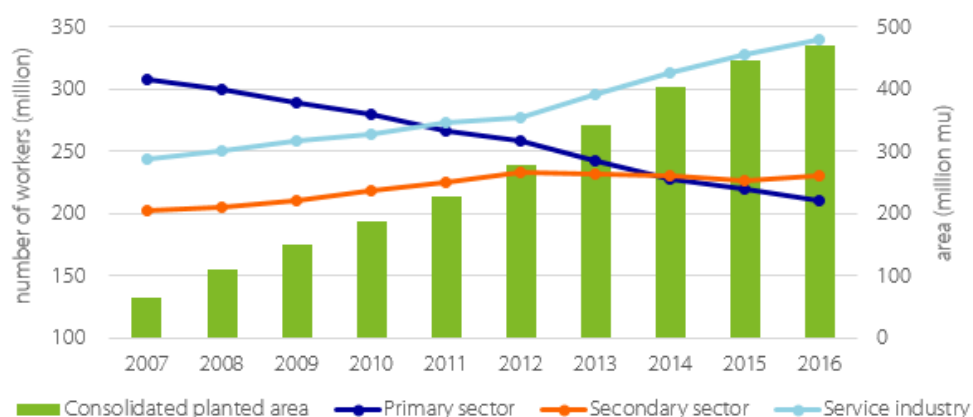


Source: National Development and Reform Commission, 2017

Consolidation across the nation

Meanwhile, land consolidation has accelerated in the last ten years (*see Figure 2*). The total consolidated planted area was 471m mu in 2016, which represents 35% of China's total planted area. Consolidation creates opportunities for drone application to execute pest control tasks. Drones are favoured among professional big farmers/organisations because of their high efficiency, precise application and ability to save water and pesticides.

Figure 2: Land consolidation increases while the rural workforce shrinks, 2007-2016



Note: 2016 workforce number is an estimate using public information

Source: MOA, China National Bureau of Statistics, 2017

How it all started

The domestic drone market has grown rapidly in the past few years. This development can be divided into three stages roughly:

Stage 1: Concept stage (2010-2012). Drones are only applied in the industry on a small scale and operational capacity is minimal. There is no profit for drone manufacturers and service providers.

Stage 2: Demonstration stage (2013-2015). The Chinese drone market is in its infancy. More drone are used in the field, but there is still no profit for players due to limited production capacity and operational capacity.

Stage 3: Application stage (2016-2017). Many more players move into this sector in pursuit of profits. More practical applications are implemented, with field crops, such as wheat, corn, and rice being the key targets.

Imprint

RaboResearch

Food & Agribusiness

far.rabobank.com

Jingyan Sun

Analyst - Farm Inputs

Jingyan.Sun@rabobank.com

+86 10 5695 1089

© 2018 – All rights reserved

This document has been prepared exclusively for your benefit and does not carry any right of publication or disclosure other than to Coöperatieve Rabobank U.A. ("Rabobank"), registered in Amsterdam. Neither this document nor any of its contents may be distributed, reproduced or used for any other purpose without the prior written consent of Rabobank. The information in this document reflects prevailing market conditions and our judgement as of this date, all of which may be subject to change. This document is based on public information. The information and opinions contained in this document have been compiled or derived from sources believed to be reliable, without independent verification. The information and opinions contained in this document are indicative and for discussion purposes only. No rights may be derived from any potential offers, transactions, commercial ideas et cetera contained in this document. This document does not constitute an offer or invitation. This document shall not form the basis of or cannot be relied upon in connection with any contract or commitment whatsoever. The information in this document is not intended and may not be understood as an advice (including without limitation an advice within the meaning of article 1:1 and article 4:23 of the Dutch Financial Supervision Act). This document is governed by Dutch law. The competent court in Amsterdam, The Netherlands has exclusive jurisdiction to settle any dispute which may arise out of or in connection with this document and/or any discussions or negotiations based on it. This report has been published in line with Rabobank's long-term commitment to international food and agribusiness. It is one of a series of publications undertaken by the global department of RaboResearch Food & Agribusiness.

