

Publication	<b>Fortune India</b>
Date	31 <sup>st</sup> March 2022
Link	<a href="https://www.fortuneindia.com/enterprise/kisan-drone-makers-have-a-business-model/107619">https://www.fortuneindia.com/enterprise/kisan-drone-makers-have-a-business-model/107619</a>

## **Kisan drone makers have a business model**

***Drone companies are looking at a rental service model, which would enable farmers to rent a drone to spray on their crops by paying ₹350-450 for a spray.***

***By AJITA SHASHIDHAR, Mar 31, 2022***



*Drone technology has proved to be viable in other Asian countries with smallholder farms similar to India.*

Imagine a drone flying over a 2-acre paddy field dropping fertilisers, pesticides or even nutrients on the crops. For a small farmer in rural India, it would be almost like watching a Star Trek film. But how would it really help him? Drone manufacturers are certain that aerial spraying would not just be more focused and effective, it would substantially reduce input costs, increase the quality and quantity of yield as well as make agriculture more sustainable.

With the central government in Budget 2022 giving impetus to ‘kisan drones’, drone start-ups as well as large corporates such as Mahindra Farm Equipment, are busy putting together their agri drone strategy. After all, India has 160 million hectares of arable land and this certainly is an enormous amount of scale for drone manufacturers and the agri ecosystem at large (agro-chemical and farm equipment companies as well as village level entrepreneurs). The government expects the Indian drone sector to be a ₹15,000-crore market by 2026. The challenge, however, would be to convince the extremely price sensitive Indian farmers to embrace drone technology. Indian farmers have just about started embracing farm mechanisation equipment like specialised tractors, rice transplant machines etc. An aerial equipment like a drone surely comes with a perception of being out of their reach.

### **Promise of Affordability**

Despite the government offering a subsidy to the tune of 70% to a rural entrepreneur to buy a drone, convincing a farmer to opt for a basic pesticide spraying service on rent is going to be far from easy. The drone manufacturers claim their business models are centred around solving problems of the farmers in a cost-effective manner. “We have come up with technology that is affordable for farmers and can help them increase their yield and reduce their costs,” says Agnishwar Jayaprakash, founder and CEO, Garuda Aerospace.

“Drones eliminate over-use of chemicals and can be much more efficient than a traditional sprinkler or manual sprinkling of chemicals. It significantly reduces input costs of the farmer,” adds Abhishek Burman, co-Founder and CEO, General Aeronautics. He says a drone could reduce pesticide usage of a farmer by as much as 80% and water usage by 95%. “When you spray manually you need at least 200 litres of water to spray on one acre of land. The moment a drone comes to play, water consumption goes down to 6-8 litres,” Burman further emphasises.

“When you give a pack of fertiliser or pesticide to a labourer, he will sway it all over and it may end up falling even on those crops which are actually healthy. The drones analyse the crops and understand whether the crop really needs spray or how much is needed. All this plays a huge role in the economics of the entire agro ecosystem,” points out Jayaprakash of Garuda.

Over use of pesticides and fertilisers has always been a concern in India as quality of the produce gets impacted. Due to this our produce often gets rejected in the export market as it doesn't meet the minimum residue limit requirements.

But how much does a farmer need to shell out for a drone service? A kisan drone costs anywhere between ₹4.5 lakh to ₹7 lakh, which is out of bounds for most farmers. The drone companies are therefore looking at a rental service model, which would enable a farmer to rent a drone to spray on his crops by paying ₹350-450 for a spray. Drones also can do crop-mapping, crop health analysis etc but since the farmers are yet to get used to even the basic chemical spraying service, most drone manufacturers are focusing only on spraying.

Mahindra Farm Equipment has been conducting drone-based agricultural trials since August last year. It has been using drones for precision spraying on paddy and hot pepper crops in Telangana and Andhra Pradesh. “We are making drone services accessible and affordable through Krish-e, our farming-as-a-service business. It provides digitally-enabled services, across the complete crop cycle, affordable and accessible to farmers and includes advisory, access to equipment rentals and precision farming solutions. These are all focused on bringing down the overall cost of farming, improving crop output and consequently the farmer's income,” explains Hemant Sikka, president, farm equipment sectors, Mahindra and Mahindra.

But are drones effective in small land holdings? Most agricultural land holdings in India are around 1-2 acres, while in the matured markets like the U.S., each farmer on an average owns 50-60 acres of land. Drone technology, says Astitva Sen, CEO, CropLife India (a sustainable agriculture company), has proved to be viable in other Asian countries with smallholder farms.

“In Japan drone technology has been in use for over 30 years. As per a study by Food and Agriculture Organisation of the United Nations; in China alone, the number of agriculture drones is estimated to have doubled between 2016 and 2017, reaching 13,000 aircrafts and 30 million hectares of crop land was sprayed by drones in 2019,” says Sen.

Drones make perfect commercial sense, agrees Amit Sinha, co-Founder, Unnati (an agri-tech platform). He believes that the ₹350-₹450 price point for a spray across 1-2 acres land mass has potential to become a magic price-point. “You can't spray more than 1-2 acres using a manual spray. A person who sprays manually or uses a sprinkler charges ₹1,500-2,000 to spray on a single acre. A drone can spray over 25-30 acres per day and the cost would be hardly ₹600-700.”

However, Sinha also believes that in a country where 50% of farmers rent farm equipment and 20% still use cattle to plough their fields, the drone rental price-points need to drop further for it to pick up scale.

“₹350-450 is a good price-point, but a lot depends on how many acres of field a drone company can service. They need to service at least 3,000-4,000 acres of land in order to get scale and be profitable,” adds Pradeep Palleli, Co-Founder, Thanos Drones.

### **Emerging Business Models**

Garuda Aerospace's Jayaprakash likes to call himself the Uber of the Indian agri drone market. He has set up a service model where he sells his drones to village level entrepreneurs or pesticide and fertilisers retailers. He trains them and helps them carry out the spraying activities on the fields. “We have started providing them not just the hardware but also software support for this,” explains Jayaprakash, who claims that he has already rolled out 100 drones in the past year. “We ensure all our dealers have a minimum of 200-300 acres of land to service so that they get the required scale to run the business.”

Apart from selling the drones to various stakeholders, Garuda also takes a small commission for itself from the drone rentals. “We are also setting up service centres in collaboration with the Indian Council for Agricultural Research. We have also tied up with 300 farmer associations. There are 22 crore acres of orders which we have secured which would need spraying for the next three years across 16 states,” says Jayaprakash.

On the other hand, the likes of Thanos India and General Aeronautics have opted for a B2B model, wherein they have tied up with large chemical and fertiliser manufacturers as well as farm equipment companies. Palleli of Thanos Drones claims that his start-up already has 3,500 acres of field experience by doing pilots for corporates in the agriculture space across the states of Karnataka, Andhra, Maharashtra and Telangana.

“Most of these companies, especially the ones into chemicals and fertilisers want to offer drone spraying services too. As a manufacturer of a highly capital-intensive product, partnering with big companies helps us reduce risks. In the service model unless you are able to spray certain acres of spraying, ROI becomes a challenge,” Palleli further explains.

Burman of General Aeronautics says that a B2B model is a win-win for all stakeholders. “It's not easy to convince farmers to embrace technology. Therefore, it makes sense to work with a corporation which is already working closely with the farming community.” However, General Aeronautics does plan to explore the service model within the next 3-4 years.

Drones, says Sen of CropLife, are 20 times more efficient and their viability will be defined by various business models, adopted to make it sustainable throughout the year. “As seen in other countries, cost per hectare will come down with increasing adoption and usage of the technology. It is proven for any new technology like mobile phones, costs come down significantly with enhanced usage over a period of time. The economies of scale in usage have meant that the operating costs of drones spraying per hectare in some Asian countries are now equivalent to just ₹100-150 for field crops (rice, wheat and maize) and ₹250-400 in orchards. India will follow similar trends.”

But spraying pesticides and chemicals more efficiently through drones is actually the lowest hanging fruit. The big game actually lies in data play. Drones have the capability of capturing farmer information, crop data and this could help in coming up focused innovations for the agriculture industry. “Data will be the most valuable asset and not the spray,” says Jayaprakash of Garuda Aerospace.