

Empowering Farmers with Drones: A Guide to Agricultural Schemes and Subsidies

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SUMMARY

Drones are transforming the agricultural world by giving way to precision farming, crop monitoring, and using just the right amount of pesticide in the right place. To expedite the introduction of drone technology, governments of many nations have announced known schemes and subsidies that trimmed the costs of operations while encouraging innovation in agriculture. This article looks at the different government supporting drone use in agriculture, explains the benefits and limitations of the programs, and further discusses future trends in agricultural drones.

INTRODUCTION

Drones are a technological and innovative marvel. An aircraft without a human pilot, crew, or passengers on board is referred to as an unmanned aerial vehicle (UAV) or drone. Drones that are more adaptable and reasonably priced are being created with the ability to carry out a variety of activities, including yield estimation, irrigation control, and disease detection. In addition to lowering human exposure to dangerous chemicals, the use of drones in agriculture has several distinct benefits, such as increased efficiency, cost effectiveness due to lower spraying costs, fertilizer and pesticide savings due to high degree of atomization, water savings due to ultra-low volume spraying, etc. This article examines the various government programs that support drone use in agriculture, explains the benefits and limitations of the programs, and discusses future trends in agricultural drones.

Government Schemes in India

Sub-Mission on Agricultural Mechanization (SMAM):

Under Sub-Mission on Agricultural Mechanization (SMAM) grants funding of up to 100 per cent or Rs. 10 lakhs for drone purchases by ICAR institutions, KVKs, and SAUs. Grants up to 75 per cent of the cost of agricultural drones are available to Farmer Producer Organizations (FPOs). A contingency expenditure of Rs. 6,000 per hectare is granted to support implementing agencies, with Rs. 3,000 per hectare set aside for operational needs. The initiative also encourages the creation of "Custom Hiring Centers" and "Hi-tech Hubs of High-Value Machines." Along with raising awareness, efforts are also undertaken to develop capacity and conduct demonstrations among stakeholders.

Farmers eligible for the scheme includes:

- Farmers with land holdings up to 2 hectares.
- Female farmers who are the head of their households.
- Farmers who belong to a Scheduled Caste, Scheduled Tribe or Other Backward Class.

Drone Shakti Scheme:

The Drone Shakti Scheme is an initiative sponsored by the Indian government to promote the usage of drones in various areas across the country. It intends to grow the drone business in India by assisting entrepreneurs, building drone hubs, and incorporating drones into public services.

Features:

Drone-as-a-Service (DaaS): Allows sectors including agriculture, defence, and healthcare to benefit from drone services without owning or maintaining the drones.

Drone Hubs: Created hubs for drone research, development, and manufacture throughout the country.

Overall, the Drone Shakti Scheme is a comprehensive initiative aimed at building a strong ecosystem for India's drone industry, encouraging innovation, increasing local manufacturing, and ensuring that drone technology's benefits are widely available.

Production Linked Incentive (PLI) Scheme:

The Production-Linked Incentive (PLI) Scheme for drones and drone components was announced on September 30, 2021, to boost drone production. An incentive of Rs. 120 crores have been granted to Indian makers of drones and drone components based on their value contribution in India. A manufacturer's value addition will be measured as the difference between the annual sales revenue from drones and drone components (net of GST) and the purchase cost of drones and drone components. The incentive will be provided over three fiscal years beginning in 2021-22. A manufacturer's PLI can be aimed at 20 per cent of its value addition. The PLI rate remains steady at 20 per cent for all three years.

The eligibility criteria for Micro, Small, and Medium Enterprises (MSME) and startups are as follows: Rs. 2 crores of annual sales income for drone manufacturers and Rs. 50 lakhs for drone component makers. PLI for a beneficiary is limited to 25 per cent of the total annual outlay to allow for a larger number of beneficiaries. If a manufacturer fails to meet the threshold for qualified value addition in a given financial year, the manufacturer will be able to claim the lost incentive in the next year if the manufacturer makes up the difference.

Krishi Drone Yatra:

The Krishi Drone Yatra is an effort initiated in India to encourage the use of drones in agriculture, hence increasing efficiency, production, and sustainability in farming operations.

Features:

Live Demonstrations: The Yatra includes live demonstrations of how drones may be utilized in agriculture, namely crop spraying, monitoring, and soil analysis.

Encouragement of Digital Agriculture: The effort is consistent with the government's goal of digital agriculture, which emphasizes the use of new technology to boost agricultural output.

Addressing Labor Shortages: With a dearth of agricultural labor in many regions of India, drones can assist bridge the gap by conducting duties such as sowing, spraying, and monitoring without the need for big labor teams.

Drones can give real-time data on crop health, soil conditions, and insect infestations, allowing farmers to make timely decisions.

Namo Drone Didi Scheme:

It was launched by the Government of India as part of the Sashakt Nari-Viksit Bharat plan. The plan is run by the Ministry of Agriculture and Farmers Welfare. The Namu Drone Didi plan seeks to give drones to 15,000 chosen women SHGs between 2023-24 and 2025-2026 for farmer rental services. The goal of this initiative is to help women in SHGs become financially independent and sustain their livelihoods. The national government of India has proposed Rs. 1261 crores to implement the project. Namu Drone Didi addresses the need to modernize agricultural operations and increase output.

Benefits:

The program offers specialized drone technology training, allowing women to gain sophisticated skills that are becoming increasingly relevant in modern agriculture.

This information allows them to do crop monitoring, soil analysis, and precision farming more efficiently.

Union Kisan Pushpak

Purpose: To acquire drones with equipment/accessories for agricultural purposes such as spraying pesticides, fertilisers, anti-locust spraying, mapping farmlands, and so on, as part of a custom hire operation or for personal agriculture.

Eligibility: The farmer's age should vary from 25 to 60 years. In the event of joint people (not more than two), the age standards must be met by atleast one participant. Others are not required to meet any specified age standards. Applicant shall have good reputation in the market.

Loan amount: Up to 75 per cent of unit cost (including accessories and equipment) depending on quote, with a maximum of Rs 12.00 lakhs for purchasing up to 2 drones.

Loan limit is up to Rs 20.00 lakhs. The maximum payback duration is three years, and interest/instalment payments must be made monthly, including a three-month moratorium. Moratorium periods should be used sparingly whenever possible.

Drones Subsidies

Various subsidy and incentive programs were launched by the Indian government for drone manufacturers, operators, and users to strengthen the drone industry. This will spur the development and further usage of drone technology and expand its applications across diverse sectors.

The Startup India Drone Subsidy Scheme: It basically supports start-ups in the drone sector by providing tax concessional and grants for research and development.

The Urban Transport Drone Subsidy Scheme: This scheme promotes last-mile delivery solutions in urban areas through the deployment subsidy of delivery drones.

Major Laws and Amendments

The "Drone Rules, 2021" still forms the backbone of regulations regarding drones in India. It makes it pretty easy to obtain approval and permissions. Up to 90% of Indian airspace was classified as a green zone for flying drones up to 400 feet. Yet, one has to keep track of the updated changes. Here are a few updates that have recently come into effect:

- The digital sky platform, which serves as an online portal for drone registration and permissions, has been streamlined to offer quicker and more efficient services.
- Beyond Visual Line of Sight (BVLOS) guidelines have become evolved in order to enable long-endurance drone missions.

Challenges

Accordingly, with all the benefits that drones can bring to the doorstep, there are also challenges that might hinder uptake at large-scale adoption. First, a basic constraint would be that purchasing and maintaining a drone incurs heavy costs, which may be burdensome to small farmers and also require a specialized training, which may not be easily reachable for many farmers.

CONCLUSION

Drones are fundamentally changing farming operations by giving farmers highly precise instruments to enhance both productivity and sustainability. Quite literally, supportive initiatives along with financial backing can significantly enhance the accessibility of such technologies, especially for smaller-scale operators. Tackling existing issues like high costs allows the stakeholders to better realize the total capabilities of drone technology in changing agricultural methods. Ongoing development of these programs and increasing investments in farmer education will be vital towards building a more intelligent, sustainable agricultural future.

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