

South Korea to launch first agriculture-dedicated satellite to advance AI-Driven farm management

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New Earth observation satellite will support precision agriculture, disaster response, crop forecasting and digital policymaking through high-resolution data



South Korea is set to launch its first domestically developed satellite dedicated exclusively to agriculture and forestry, marking a major step in the country's transition toward data-driven agricultural management and precision farming. Developed through a collaboration between the Korea AeroSpace Administration, the Rural Development Administration and the Korea Forest Service, the satellite is designed to provide continuous Earth observation data tailored to the country's agricultural and forestry sectors. The spacecraft is scheduled for launch aboard a Falcon 9 rocket from Vandenberg Space Force Base in California.

The satellite represents South Korea's first independent agricultural observation platform, reducing reliance on foreign satellite imagery while establishing a dedicated national infrastructure for monitoring farmland, forests and rural environments. Equipped with five multispectral imaging bands optimized for vegetation monitoring, the satellite will capture imagery covering the Korean Peninsula every three days with a spatial resolution of five meters.

The Ministry of Agriculture, Food and Rural Affairs plans to use the satellite across a wide range of agricultural policy areas, including farmland mapping, compliance monitoring for agricultural subsidy programs, crop production forecasting, disaster management, irrigation oversight and forest monitoring. Satellite imagery will support large-scale agricultural land surveys, reducing the need for time-consuming field inspections while improving the accuracy of farmland verification and subsidy administration. Officials expect the system to strengthen oversight by enabling continuous monitoring of registered agricultural land and reducing the risk of inaccurate claims.

The platform will also enhance crop supply forecasting by tracking the growth of major food crops such as rice and soybeans alongside supply-sensitive horticultural crops. Continuous monitoring is expected to improve market intelligence, allowing policymakers to respond more effectively to production fluctuations and food price volatility. In addition, high-frequency satellite observations will enable earlier identification of crop stress caused by pests, diseases and adverse weather conditions, supporting faster intervention and more effective crop protection strategies.

Beyond crop monitoring, the satellite will strengthen management of agricultural infrastructure by tracking reservoirs, irrigation systems and flood-affected farmland. The data will assist authorities in managing water resources while providing rapid assessments following floods, wildfires, landslides and other natural disasters, improving emergency response and recovery planning. The ministry also intends to integrate satellite imagery with weather, soil, environmental and crop datasets to support the development of an artificial intelligence foundation model for agriculture. The initiative is expected to accelerate digital farming applications and encourage innovation across the country's agri-tech sector.

Over time, satellite data will be made available to private companies and the public, creating opportunities for autonomous farming technologies, precision agriculture services and new digital applications. Enhanced environmental information derived from the satellite is also expected to improve localized forecasting and rural spatial planning. The launch underscores South Korea's broader strategy of combining space technology, artificial intelligence and digital infrastructure to modernize agricultural management, improve food security and strengthen climate resilience across the farming sector.