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Korean precision meets Central Asian potential: Smart farming transforms strawberry production

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In a striking example of technology-led agricultural renewal, a state-of-the-art smart greenhouse has been launched in the Yukorichirchik district of Uzbekistan, converting previously idle infrastructure into a high-performance strawberry production hub. Developed by a Korean smart farm company, the 1.5-hectare facility reflects a strategic effort to modernise underutilised assets while minimising capital expenditure and accelerating deployment.

At the heart of the project lies the Korean-bred â??1943 Firmmitâ? strawberry variety, with approximately 75,000 plants cultivated for export-focused production targeting Russia and Kazakhstan. Selected for its firmness, uniform fruit size, and suitability for long-distance transport, the variety is well aligned with the requirements of premium retail supply chains.

The greenhouse operates on advanced hydroponic systems, utilising coco peat substrates and drip irrigation to deliver water and nutrients directly to the root zone. This soil-free cultivation model allows for precise control over plant nutrition, eliminates soil-borne diseases, and mitigates regional challenges such as salinity and inconsistent field conditions. The result is consistently high-quality produce with uniform flavour, size, and appearance.

An integrated ICT platform underpins operations, incorporating a network of IoT sensors that continuously monitor temperature, humidity, COâ?? levels, and light intensity in real time. Data is centralised within a single system, enabling remote monitoring and control. At the core of this setup is FINO (Firmmit Intelligent Nutrient Optimiser), an AI-based programme that dynamically adjusts fertigation strategies according to local water quality and solar radiation, ensuring stable

crop performance throughout the growing cycle.

Despite a shortened initial production window, the greenhouse delivered approximately 30,000 kg of strawberries, generating revenue of $476,744 and achieving a gross margin of 76.4%. Under full-season conditions, production is projected to reach between 90,000 and 112,500 kg, with yields of up to 1.5 kg per plant. Quality metrics remained strong, with firmness ranging from 15.5 to 16.8 g/mmÂ² and Brix levels between 11.5 and 13.0, while marketable yield reached up to 83 per cent, meeting the standards of premium retail channels.

By delivering consistent, high-quality produce at scale, this smart farming initiative positions Uzbekistan as an emerging contender in premium strawberry exports, demonstrating how precision agriculture and digital technologies can redefine productivity and market access in modern horticulture.