

The fragrance of rice flowers under photovoltaic panels

Can solar power a rice paddy?

As reported in the Journal of Photonics for Energy, the research team installed a dual-axis sun-tracking photovoltaic (PV) system over a rice paddy in Miyada-mura, Nagano Prefecture. Positioned three meters above the ground, the solar panels generated electricity while allowing rice cultivation to continue underneath.

Can solar panels be used in rice farming?

A recent study led by researchers from the University of Tokyo explores a promising solution: integrating solar panels with traditional rice farming in a practice known as agrivoltaics.

Does agrivoltaic rice grow better?

Over two growing seasons, the agrivoltaic system achieved rice yields of 75 percent and 85 percent compared to nearby traditional paddies. While slightly lower in the first year, yield improved significantly in the second year after fine-tuning the amount of sunlight reaching the crops.

Can solar panels tilt a rice paddy?

A rice paddy planted with a dual-axis, sun-tracking system demonstrates PV panels tilted to minimize shading and prioritize rice growth (top) or positioned to prioritize electricity production (bottom). Credit: Y. Okada et al., doi 10.1117/1.JPE.15.032704

Harvesters were shuttling back and forth in the fields, completing the multiple steps of rice harvesting, threshing, and straw crushing in one go. Next to the "Rice Flower Fragrance," the ...

The article from SPIE, titled "Solar panels and rice fields thrive together in Japanese agrivoltaics pilot," published on August 4, 2025, details a pioneering study led by researchers from ...

This dual-axis tracking system is engineered to modulate the angle of PV panels based on temporal agricultural priorities. During the crucial growing season, the system optimizes panel ...

Therefore, maintaining crop yield under shading beneath photovoltaic panels is important. Numerous studies have examined the effects of AVSs on yields, predominantly focusing on ...

Explore Japan's innovative agrivoltaics pilot blending solar panels with rice fields. Discover how this project transforms agriculture and energy today!

A promising solution for this land-use conflict is urgently needed to meet the growing energy and food demands. The idea of "agrivoltaics" or "an agrivoltaic system" (hereafter, AVS) that ...

In recent years, researchers from the University of Tokyo in Japan conducted a six-year field experiment using an agrivoltaics system in Chikusei, a city in Eastern Japan. The study focused ...



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Do photovoltaic systems affect rice crop yield? Emerging interest in these systems led us to investigate their influence on rice crops. Various factors affecting rice crop yield, including fertilizer application, ...

These include maintaining the agricultural yields underneath the photovoltaic (PV) modules, seeking synergies between solar energy generation and crop production and minimising ...

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