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Japan strengthens Agrivoltaic standards to balance national strength at energy and agriculture

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The Japanese government has introduced new national standards for agrivoltaics to address challenges in balancing solar energy production with agricultural output. Following reports that 24% of projects faced farming issues in fiscal 2023, regulators are tightening oversight to ensure sustainable coexistence of farming and energy generation.

By fiscal 2023, Japan had approved 6,137 agrivoltaic sites spanning 1,361.6 hectares, as reported by the Ministry of Agriculture, Forestry and Fisheries (MAFF). To enhance project accountability, developers must now provide cultivation plans, financial forecasts, equipment designs, and proof of crop viability beneath panels. Annual production and financial reporting are mandatory, with stricter rules allowing authorities to deny approval if crop yields fall by 20% or more, agricultural activity is neglected, or panel configurations hinder machinery use.

Non-compliance could result in public disclosure, site inspections, and suspension of renewable energy subsidies like feed-in tariffs (FIT) and feed-in premiums (FIP). Recent suspensions affected 29 installations across 13 operators due to violations such as lapsed permits or inadequate farming maintenance.

MAFF's expert committee is exploring technical benchmarks, including shading ratios under 30%, panel heights around 3 meters, and support pillar spacing of 4 to 5 meters to support farm machinery. Crops like ornamental plants (36% of sites), vegetables (28%), and fruits (13%) dominate agrivoltaic use, though food crop prioritization aligns with food security goals.

Research highlights trade-offs, such as reduced rice yields under panels, yet combined energy and agricultural returns remain favorable. Innovations like dual-axis tracking panels are being explored to optimize sunlight for both crops and energy. Companies like Idemitsu Kosan are advancing commercial agrivoltaic projects as part of broader renewable energy strategies.