

PIENAAR ENERGY (PTY) LTD

Edamame 3 Solar Power Generation



Overview

In this study, we successfully cultivated edamame using three hydroponic systems— nutrient film technique (NFT), rockwool, and aeroponics (mist culture)—within an LED plant factory. Their innovative findings, now published in the renowned journal *Scientific Reports* (Volume 15), delineate a sustainable methodology that not only enables year-round edamame production but also surpasses field cultivation yields in both quantity and quality. Central to their research was the NFT cultivation delivers year-round growth of edamame in LED plant factories, enhancing pod yield, sugar, and isoflavone content while enabling production beyond traditional field limitations. Credit: Professor Toshio Sano from Hosei University. Researchers develop a hydroponic cultivation system using LED lighting to produce fresh, high-quality edamame consistently throughout the year. A research team at Hosei University and the University of Tokyo has achieved the world's first stable production of edamame in an artificial light-type. Edamame, a highly nutritious legume, has gained global popularity, yet its long-term storage is challenging due to quality deterioration, restricting its market distribution to seasonal availability.

Edamame 3 Solar Power Generation



Tokyo's Edamame Revolution: Year-Round Harvests via LED Plant ...

However, Takano's study demonstrates that edamame can thrive in controlled environments, offering a sustainable solution to meet global demand. The research team employed ...

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Year-round edamame: Hydroponic LED plant factories redefine ...

Building on that success, they set out to tackle edamame, a high-protein, nutrient-rich legume widely consumed worldwide. The findings were published online in the journal Scientific ...



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Year-round edamame: hydroponic LED plant factories redefine ...

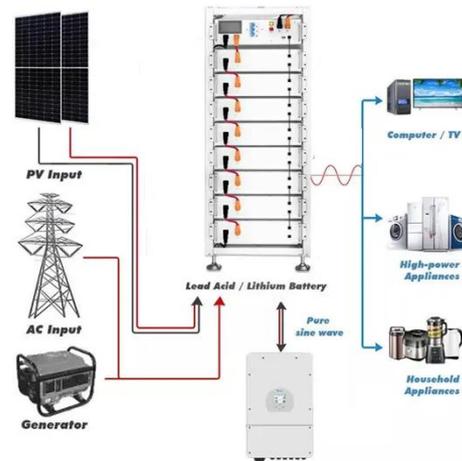
"Since edamame is cultivated not in open fields but through hydroponics in an LED-based plant factory, it may become possible to grow edamame even in urban areas, deserts, or outer ...

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PRESS RELEASE: Year-Round Edamame: Hydroponic LED Plant

This breakthrough enables year-round production of high-quality, nutritious edamame in diverse environments from urban buildings to deserts and even outer space, marking a significant ...

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Edamame 3 Solar Power Generation

Solar photovoltaic (PV) power generation is the process of converting energy from the sun into electricity using solar panels. Solar panels, also called PV panels, are combined into arrays in a PV system.

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Hydroponic LED Plant Factories Revolutionize Sustainable Year

...

The implications of this research extend well beyond urban or terrestrial agriculture. Professor Sano highlights the transformative potential of this innovation, envisioning edamame ...

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Sustainable Edamame production in an artificial light



plant factory

In this study, we successfully cultivated edamame using three hydroponic systems-nutrient film technique (NFT), rockwool, and aeroponics (mist culture)-within an LED plant factory.

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Hydroponic Edamame

"Since edamame is cultivated not in open fields but through hydroponics in an LED-based plant factory, it may become possible to grow edamame even in urban areas, deserts, or outer ...



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Sustainable Edamame Production in an Artificial Light Plant ...

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