Planting and harvesting alfalfa under photovoltaic panels

Why do alfalfa have panels?

The presence of the panels led to a reduction in evapotranspirationand therefore better efficiency of the use of water by the alfalfa due to the thin soil. This was accompanied by a morphological adaptation of the alfalfa to shading,with elongation of the stems and enlargement of the leaflets.

Can agriphotovoltaic systems be used to grow alfalfa?

Over a period of two years, this research has been investigating an agriphotovoltaic (APV) system with mobile panels along two axes of rotation. The studied crop is alfalfa, a grassland species that has received little attention under these conditions.

Do mobile panels increase alfalfa production?

Conclusions This study shows that over the two years of experimentation the presence of mobile panels allowed an increase in alfalfa production (+10 %) for shading percentage between 29 % - 44 % compared to a full sun situation (835 g.m -2.year -1).

What crops grow under photovoltaic panels?

Importantly,this behavior has also been specifically reported in crops cultivated beneath photovoltaic panels,such as alfalfa(Moretta et al.,2025; Zhang et al.,2017) and corroborated by similar findings in soybean (Potenza et al.,2022),tomato (Scarano et al.,2024),apple (Juillion et al.,2024) and lettuce (Marrou et al.,2013).

By growing these crops--including flowers--under solar panels, farmers and landowners can optimize land use, support biodiversity, and generate renewable energy simultaneously. With ...

Historically and in terms of photovoltaic structures dedicated to APV, fixed panel studies overhanging the crop have been mostly conducted ([8], [15], [10]) but also for vertical panels [19], ...

How to Harvest Alfalfa Under Photovoltaic Panels: A Farmer"s Guide to Dual-Use Farming Why Alfalfa and Solar Panels Are the Ultimate Power Couple Let"s be real - farming under solar panels sounds ...

The alteration of microclimate parameters such as solar radiation, air temperature, humidity and soil temperature under the PV panels was highlighted. Moreover, impact of APV ...

MSU researchers test a new model for Michigan agriculture A farmer harvests alfalfa beneath a row of solar panels in a dual-use field. The agrivoltaics system allows for both crop ...

The photovoltaic (PV) greenhouses are closed agrivoltaic (CA) systems that allow the production of energy and food on the same land, but may result in a yield reduction when the shading of the PV ...

Request PDF | Increasing land productivity with agriphotovoltaics: Application to an alfalfa field | Agriphotovoltaic systems, consisting of the combination of crops and photovoltaic panels (PVPs ...

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As an example, a two-year field trial on alfalfa recorded a season-by-season effect of moderate shading (25-30%) from PV panels on biomass production where shading proved ...

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