



1 Illustration of an apple tree plantation with PV module cover.

2 PV panels at the agrivoltaic research facility of Fraunhofer ISE in Heggelbach, Germany.

AGRIVOLTAICS COMBINES AGRICULTURE AND PV

The energy transformation requires a massive expansion of solar electricity production, combined with a high demand for space. The problem for ground-mounted systems: Arable land is a very limited and valuable resource. Agrivoltaics solves this conflict by enabling food production and electricity generation on the same area.

Through dual land use, agrivoltaics not only increases land efficiency but also increases the resilience of agricultural production against global warming. Agrivoltaics provides farmers with additional income and promotes the economic development of rural areas.

Intelligent Lighting Management

To harvest solar energy and crops on the same area, a balanced ratio of light and shade is required. Fraunhofer ISE has developed models and concepts to optimize the yields from PV and photosynthesis through targeted light management. By selecting and adapting module types, mounting

frames and installation parameters, it is ensured that the respective plants receive sufficient light throughout the day and year.

Based on our experience with several reference plants in Germany, India and South America we offer the following services:

- GIS-based potential analyses
- analysis and optimization of PV yield (also bifacial, tracking systems)
- light management, profitability
- design of the agrivoltaics power plant
- prototype development and implementation
- quality assurance and monitoring
- optimization of self-consumption of PV electricity
- social and environmental impact studies, feasibility studies
- technology transfer to other countries and climate regions

In recent years, agrivoltaic technology has developed very dynamically in almost all regions of the world. Government subsidy programs in Japan, China, France and the

Fraunhofer Institute for Solar Energy Systems ISE

Heidenhofstr. 2
79110 Freiburg, Germany
Phone +49 761 4588-0

Photovoltaic Modules and Power Plants – Integrated PV – Agrivoltaics

Max Trommsdorff
Phone +49 761 4588-5471
pvmod.apv@ise.fraunhofer.de

www.ise.fraunhofer.de