



**SUSTAINABLE
SOLAR —
EUROPE 2024**

Session 2: Agricultural Best Practices: How Can Agrisolar Projects Provide Cross-Cutting Benefits for Renewable Energy, Agriculture and Nature?

12 December 2024

Session 2: Agricultural Best Practices: How Can Agrisolar Projects Provide Cross-Cutting Benefits for Renewable Energy, Agriculture and Nature?



Dominique Dejonckheere

Senior Policy Advisor,
COPA COGECA



Ana Rocha

Director in EU's Agri &
Forestry-related Policies,
ELO



Marilda Dhaskali

Senior EU Agriculture and
Bioenergy Policy Officer
Birdlife



Simone Mazzola

COO,
3Bee



Naomi Chevillard

Head of Regulatory
Affairs,
SolarPower Europe



Naomi Chevillard

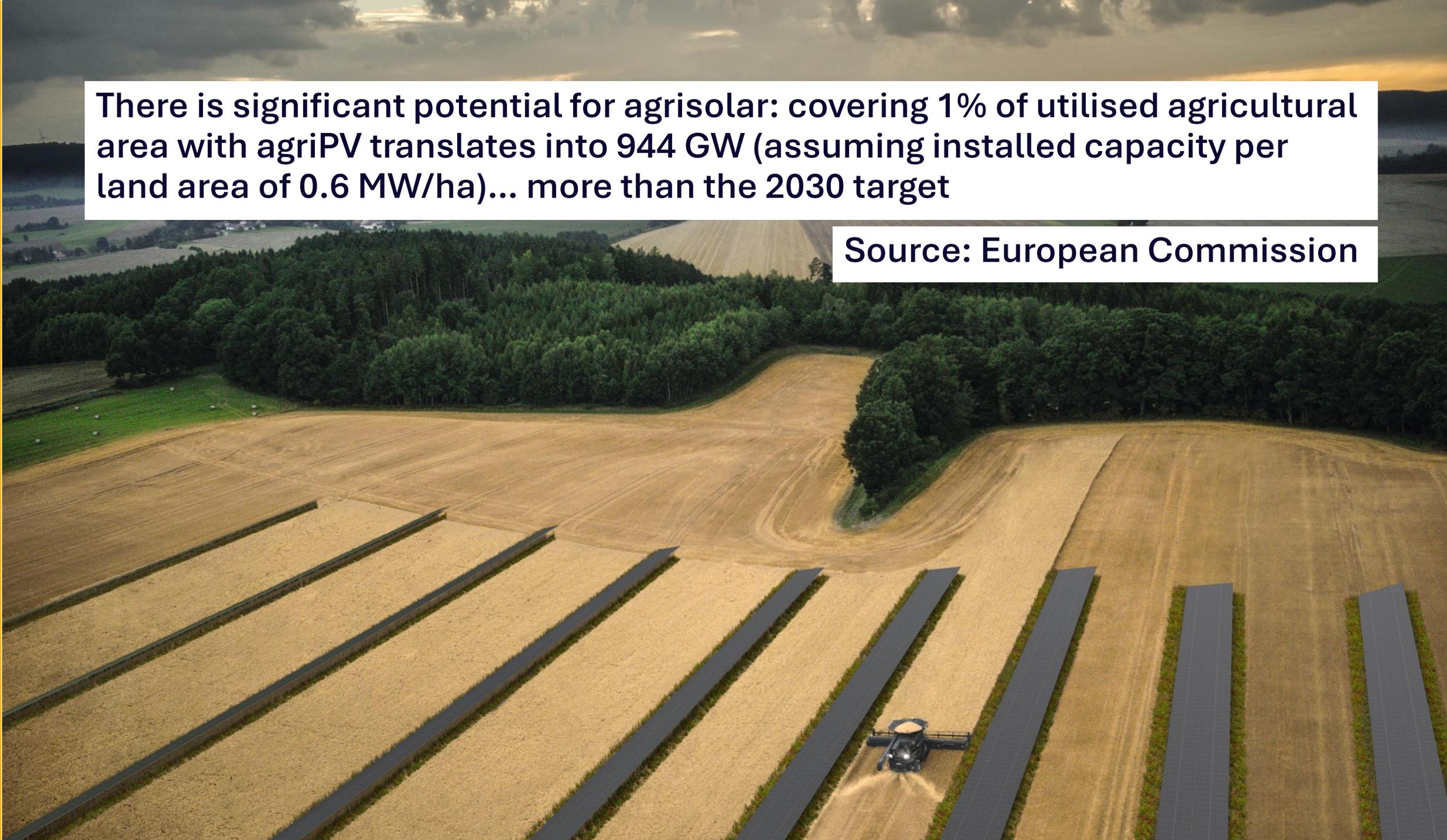
Head of Regulatory Affairs,
SolarPower Europe



Agrisolar Handbook

There is significant potential for agrisolar: covering 1% of utilised agricultural area with agriPV translates into 944 GW (assuming installed capacity per land area of 0.6 MW/ha)... more than the 2030 target

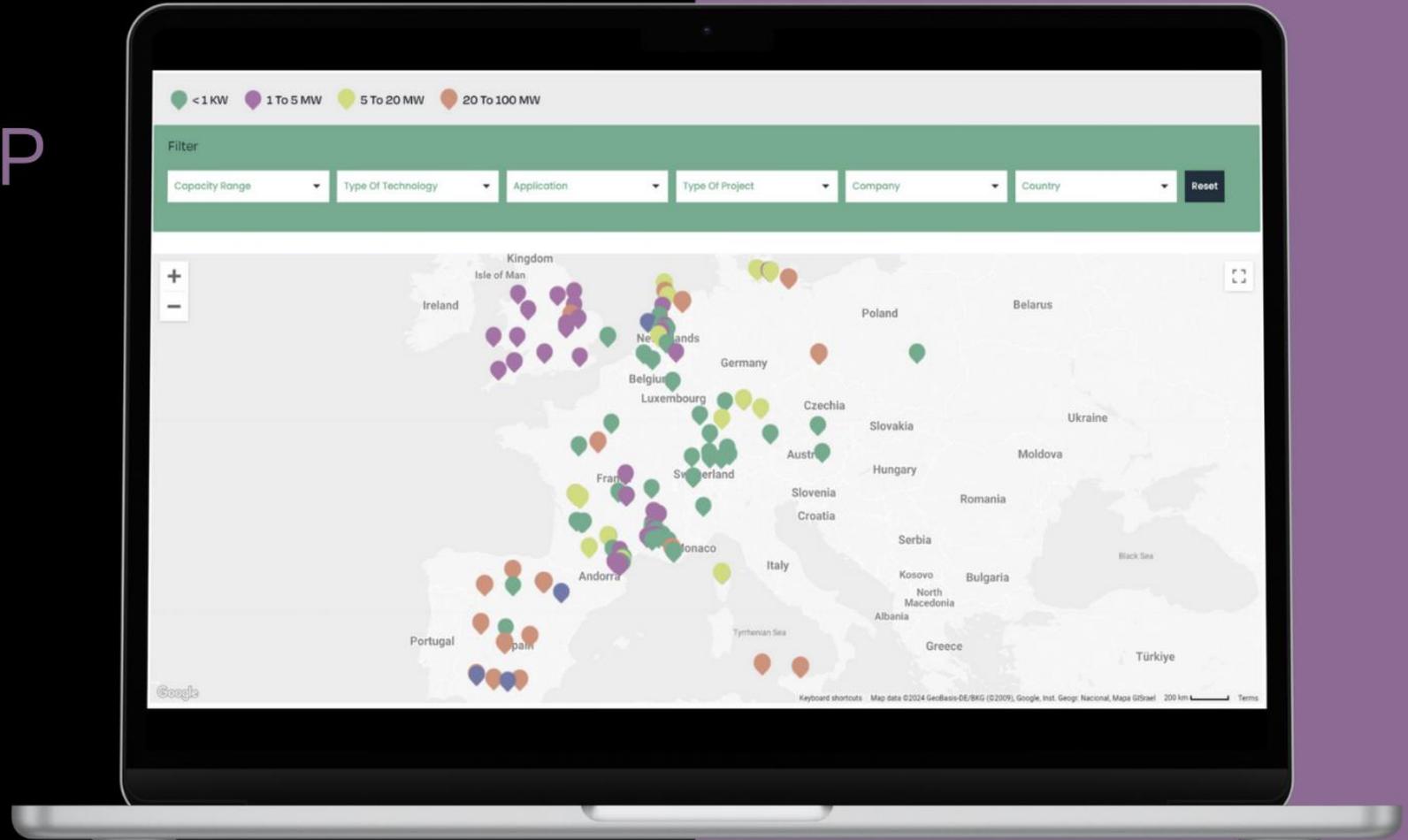
Source: European Commission



Check our Agrisolar Digital map at SolarPower Europe's website!

Discover SolarPower Europe's

AGRISOLAR DIGITAL MAP



Based on that experience, SolarPower Europe has been engaging with the farming industry since 2023...

Conclusions:

- A need to better understand the different types of agrisolar linked to different agricultural practices
- Lack of aggregated evidence on benefits of agrisolar



Which resulted, a year later into our agrisolar handbook Developed with the solar industry and farmers



Agrisolar Handbook

Identifying 10 archetypes of agrisolar

Based on the FAO land use matrix and the typologies of farming activities

Agricultural Land			Land under protective cover
Arable land	Permanent crop land	Permanent meadows and pastures	
 <p>1. Elevated Crop-PV</p>	 <p>4. Elevated perennial-PV</p>	 <p>6. Elevated PV with livestock grazing</p>	 <p>9. Elevated PV greenhouses</p>
 <p>2. Interspace Crop-PV</p>	 <p>5. Interspace perennial-PV</p>	 <p>7. Interspace PV with livestock grazing</p>	
 <p>3. Eco-PV</p>		 <p>8. Hay-PV</p>	

Providing an aggregated view of the benefits of agrisolar projects



Up to 60%¹

crop yield increase (depending on crop type, season, regional climate and PV configuration)



+20-30%

average water retention² for interrow and elevated PV systems



Up to +7°C³

increase of soil temperature in cold periods and

Up to -6°C⁴



Up to 80%⁵

increase of soil carbon storage for solar grazing projects



Up to 60%⁶

increase in pollinators observed on one project

Archetype/ Main components	Agricultural Land			Protective Cover	
	Elevated PV (all types of agricultural land)	Interrow PV (all types of agricultural land)	Eco-PV	Elevated solar greenhouses	PV on farm buildings
Revenue scheme	Land lease business model	Land lease business model	Land lease business model	Provision of infrastructure or for a lower cost Provision of sales of electricity for the farm (self-consumption)	Rent payment for roof Provision of new infrastructure Self-consumption or resale of electricity to the grid, supported by a tariff
Ownership scheme	Higher cost for installation/ operation of projects due to elevated structure adapted to the agriculture practice	Cheaper costs for construction/ operation	Full ownership scheme applicable		
Cost components			Supporting voluntary environmental objectives of the CAP (fallow land)		
Other economic factors	CAP subsidy should be maintained with the agricultural activity/ production Profitability harder to achieve	CAP subsidy should be maintained with the agricultural activity/ production	Financing ecosystem services: (a) Integrated into Agri-PV project with agricultural activity, and production; or (b) GM PV system adapted to the regeneration of the soil and biodiversity	Modernisation and diversification of farm	Modernisation and diversification of farm
Business case	Marginal operational projects in Europe (Innovative and experimental on arable land) - with expected			Economically not viable solution without subsidies	
Feasibility	Marginal impact on land uptake (can vary based on national requirements and/or type of technology) Multiple services to agriculture: livestock well-being, protection from climate hazard events, adaptation to climate change, water savings, improve soil temperature and soil health Potential to improve yield and quality	Potential to maintain crop yield Potential to improve yield and quality Multiple services to agriculture: livestock well-being, adaptation to climate change, water savings	Fallow land substitution	Maintenance of yield of products	Better conditions of agricultural products
Impact on agriculture					
Biodiversity/ Environment	Reduced evapotranspiration Reduced mean ground temperature Possibility to enhance local vegetation Improvements in water retention (an improvement between 20-30% monitored in some operational projects) Possibility to increase animal abundance (better livelihood of bees observed in operational project)	Possibility to enhance local vegetation Possibility to increase animal abundance Improvements in water retention (an improvement between 20-30% monitored in some operational projects) Increased carbon storage	Possibility to enhance local vegetation Possibility to increase animal abundance Improvements in water retention Increased carbon storage	Improvements in water retention Negligent impact on biodiversity (for existing greenhouses)	Negligent impact on biodiversity

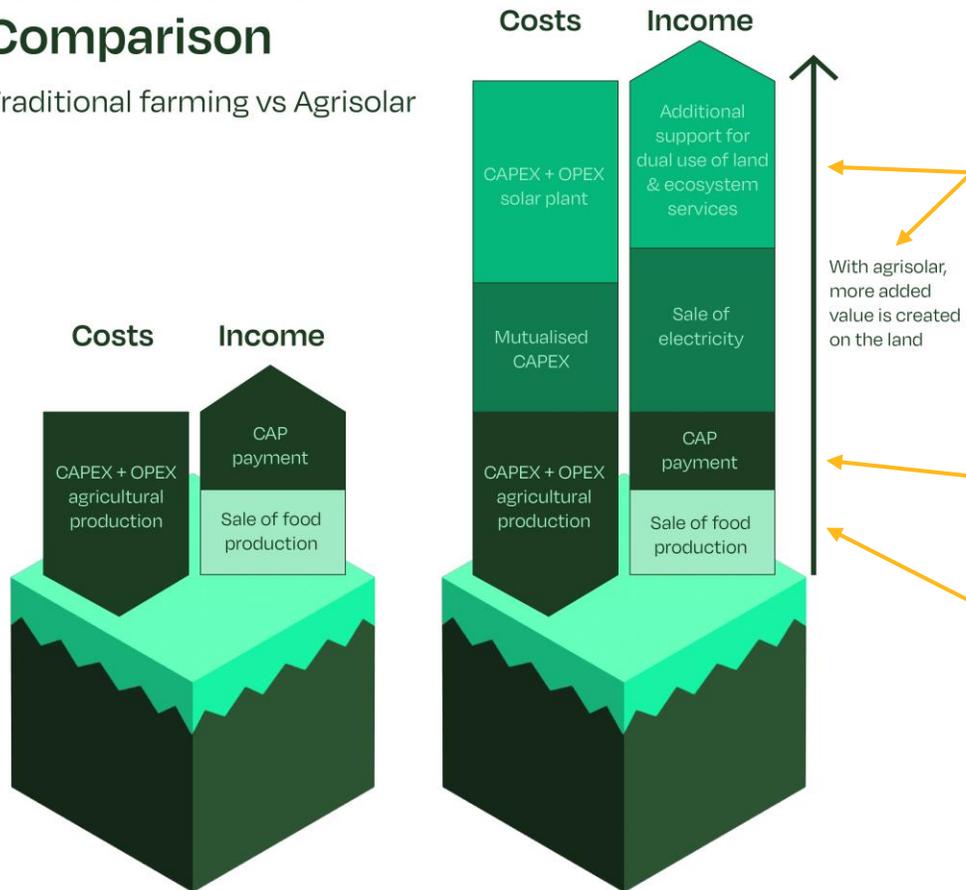
Transparency on impact on agriculture (positive / negative) based on case studies

Gathering data on environmental indicators observed

What can we learn from experience?

Land Revenue Comparison

Traditional farming vs Agrisolar



4. Contribution to rural development could be recognised under Pillar II. Support to infrastructure purchase or training / education for young farmers?

3. We need to develop economic schemes rewarding dual use of land and / or agronomic benefits.

→ Make sure agrisolar environmental benefits are measured and taken into account in biodiversity / climate schemes for farmers (carbon farming, NRL)

→ Co-financing with ecoschemes?

2. CAP subsidies must remain to cover the costs associated to food production

→ We need to clarify Regulation 2021/2115 on CAP strategic plans

1. Food production is not affected.
At worst, minimal loss of productive agricultural land & related revenue
At best, improved revenues thanks to higher yield / reduced water uses.

Download the report at SolarPower Europe's website!

Download SolarPower Europe's latest report

Agrisolar Handbook





www.solarpowereurope.org

Simone Mazzola

COO,
3Bee



SUSTAINABLE
SOLAR _____
EUROPE 2024



BIODIVERSITY WITH 3BEE

Biodiversity in the Agrisolar Sector

Sustainable Solar Power

12 December 2024



3Bee, your Biodiversity Partner

3Bee is a **leading nature tech company**, developing technologies for biodiversity monitoring and protection.

- Only company active in biodiversity to **receive funding by EIC-EU** (i.e., 2.3M€ for **biodiversity credits development**)

3Bee **uses tech to monitor the health of pollinators** and their connection to ecosystems.

- Starting from bees as fundamental bio-indicator

3Bee provides **solutions for biodiversity assessment, monitoring, regeneration, and dissemination leveraging its proprietary protocol Element-E.**

To date, 3Bee has

- implemented regeneration projects alongside **more than 500 companies across 10 countries**, and
- partnered with **research centers, schools, farmers, growers, and citizens** to promote the importance of preserving biodiversity.

60+

People

- +60 Employees
- 10 experts Team R&D

5k+

Tech

- +5.000 IoT Devices
- 5.000 hectares mapped

500+

Stakeholders

- +500 partners
- 13 Research centers

1.5B

Biodiversity

- 1.5 Billion Bees monitored
- 150+ Oases created

Experience in key sector for AgriPV



AGRO

Monitoring and regeneration in the agricultural supply chain for Food / Fashion / Wellness / Pharma



ENERGY

Synergy between energy production and biodiversity (e.g., agrivoltaics)



URBAN & REAL ESTATE

Biodiversity impact analysis and mitigation plan in an urban context



GENAGRICOLA

FERRERO



think energy

Cubico
SUSTAINABLE INVESTMENTS

Schroders
greencoat

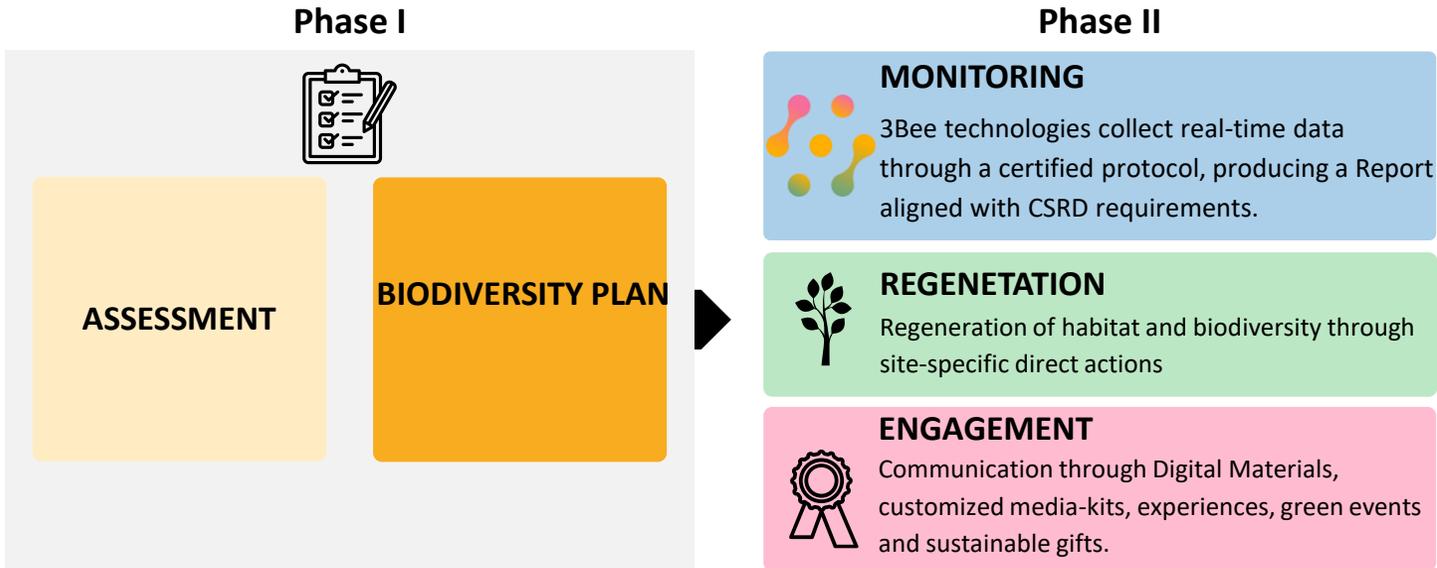


TOYOTA



Our approach and results

Our site-specific approach



Results

Local communities and Brand

Engage **local communities** in your biodiversity journey, both to obtain **initial approvals** and to **maintain and strengthen relationships with the local area**

ESG Impact and Compliance

Produce **ESG biodiversity assessment reports** in line with international standards such as **GRI and ESRS**

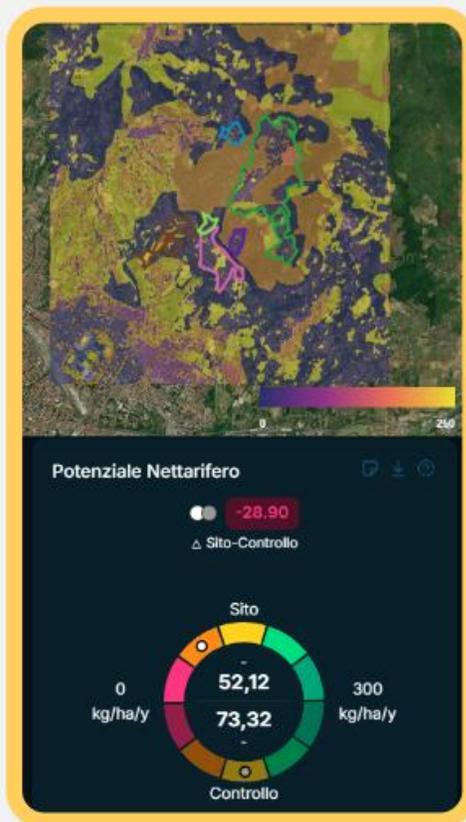
Our partnership on AgriPV



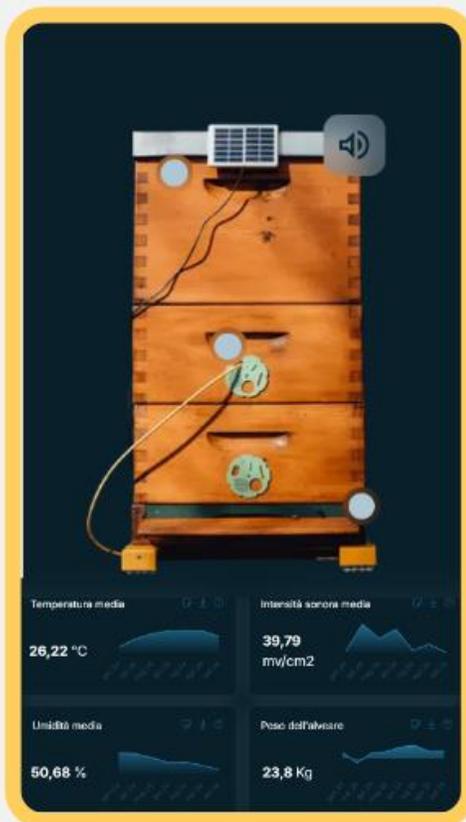
An overview of the services in AgriSolar

Beekeeping sub-module

HoneyBee feasibility

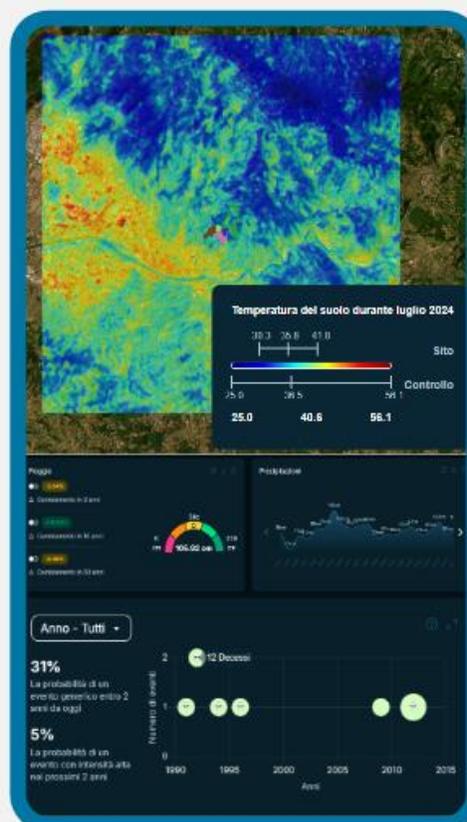


Honey production monitoring



Biodiversity sub-module

Climate resilience



Biodiversity & protected area



On field-monitoring taxa



Available for:

- Pollinators
- Avifauna
- Mammals/Reptiles

Agrivoltaics and Biodiversity

Direct benefits

Major benefit

- Reduced Land Use for the combined output of Solar & Food

Local benefits

- Increased **flower abundance (+4%)**
- **Delayed flowering** for late foragers
- Habitat for diverse **pollinators**



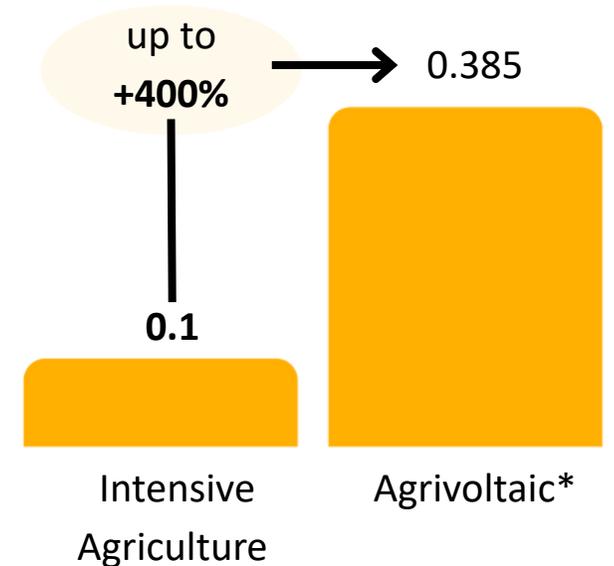
[Link to published paper](#)

Further indirect benefits

The increased value added per hectare by the PV component allows for the following:

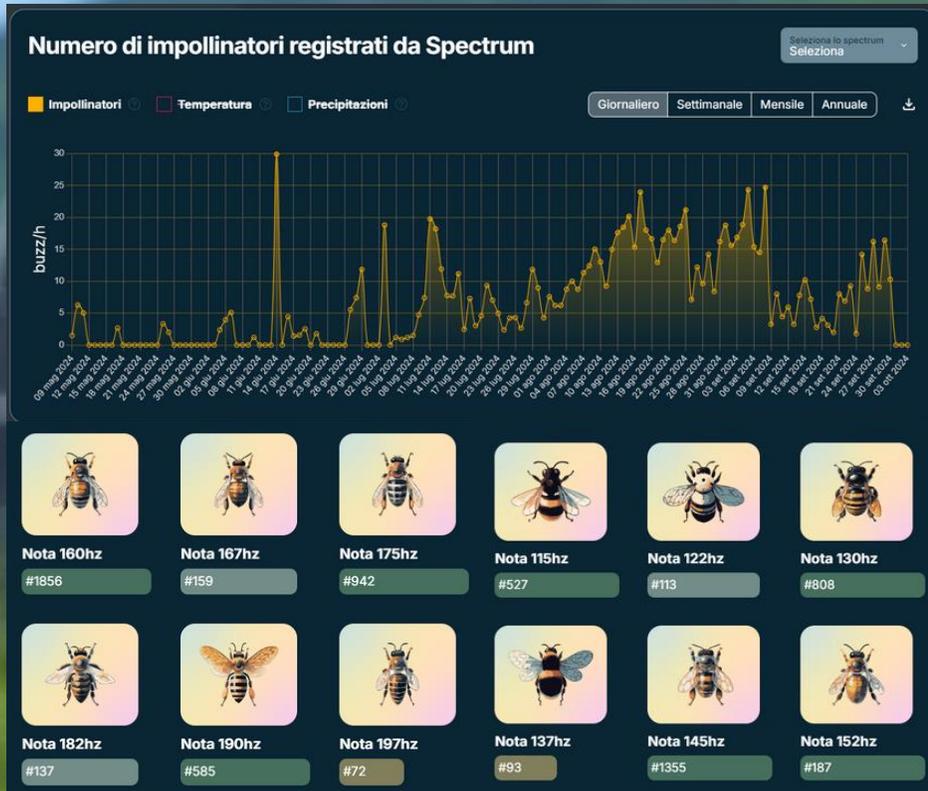
- Dedicate part of the site to **natural area**
- Adopt **regenerative farming practices**
- Draft and implement **site-specific biodiversity plans**

Estimation from model of biodiversity improvement (MSA_LandUse)



Source: GLOBIO model for estimating MSA (Mean Species Abundance), an indicator that ranges from 0 to 1 and indicates the level of biodiversity in the area

* Assumptions: shift to extensive management and creation of natural areas on 10 percent of the UAA



Preliminary Results

- Increased **abundance of pollinators (up to +100%)** validated with on-field data on 5 AgriPV sites
- **Peer reviewed** results by Universities in review, publication expected in Q4-2025
- Long term goal to create a comprehensive study on **positive impact on nature with data validated on field**



CONTACTS

3Bee

Corso di Porta Romana, 61 Milano (MI)

impact@3bee.com

www.3bee.com

Panel discussion



Dominique Dejonckheere

Senior Policy Advisor,
COPA COGECA



Ana Rocha

Director in EU's Agri &
Forestry-related Policies,
ELO



Marilda Dhaskali

Senior EU Agriculture and
Bioenergy Policy Officer
Birdlife



Simone Mazzola

COO,
3Bee



Naomi Chevillard

Head of Regulatory
Affairs,
SolarPower Europe

**SUSTAINABLE
SOLAR _____
EUROPE 2024**

THANK YOU

**inter
solar**
connecting solar business | EUROPE

Solar Promotion GmbH

Kiehnlestraße 16
75172 Pforzheim, Germany
Phone: + 49 7231 58598-0
info@TheSmarterE.de
www.TheSmarterE.de

 **SolarPower
Europe**

SolarPower Europe

Rond-Point Robert Schuman 3
Brussels 1040, Belgium
info@solarpowereurope.org
www.solarpowereurope.org