



KEY-WORDS:
Agri-food System · Agrivoltaics · Solar PV

PROJECT TITLE

Developing a decision support system for the optimization of Agrivoltaic (AGV) systems

PROFILE

I am second-year PhD student in Agri-Food systems

AFFILIATION

Department of Sustainable Crop Production
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LANGUAGES



Level B2



Level A1

HOW TO REACH ME

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Steps of the research

- Energy and Exergy analyses of an AGV system
- Life cycle cost (LCC) and life cycle assessments (LCA) of the system
- Evaluation of crop albedo effects on Bifacial PV module within AGV
- Finding optimal design and configuration of different AGVs in terms of technical, economic and environmental aspects

Main Results

preliminary results depict the higher pitch and height of the PV system can increase electricity and crop production, respectively.

Research Contribution

Through descriptive and comprehensive studies, this project aims to find an optimal AGV layout among different technologies of solar panles and different types of PV structure according to a certain amount of land available, but the best configuration in terms of energy or crop production is not necessarily the best choice because of economic and environmental issues. That is why we have to make some trade-offs between various aspects to come up with an optimal AGV arrangement, which will be implemented using a package of software and some field trials in real conditions.

Collaborations

Malardalen University (Sweden) and some companies such as REMTech, A2A, Hope, etc.

Why should you care?

Agrivoltaics are emerging systems that can produce energy and food on the same land simultaneously which have some advantages such as reduction in crop watering, improving land use efficiency, energy production by renewables energy, mitigation of climate change, etc. Hopefully, many parts of Italy has a good potential to employ such systems but they still need to be more efficient in terms of economic viability and technical productivity