Towards new sources of renewable energy: Agro-photovoltaic

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**Abstract.**

European and international policies, such as the Green New Deal and the 2030 Agenda, have pushed member countries to increase the production of renewable and clean energy in their territories. Agro-photovoltaic systems are a strategic and innovative approach to combine solar photovoltaic (PV) with agricultural production and for the recovery of marginal areas.

The Italian National Recovery and Resilience Plan (PNRR) has allocated over 5 billion euros to this technology, encouraging public and private entities to make this type of technological investment. Agro-photovoltaics will guarantee a series of advantages starting from the optimization of the harvest and livestock production, up to the production of clean energy, with a consequent increase in profitability and employment.

The research carried out will aim to provide agricultural entrepreneurs with more information about the crops to choose, the economic advantages deriving from agro-photovoltaics, the safety and health of operators and the main mechanization solutions of the trackers. It is indeed necessary understanding the factors that act on the choice of crop and/or farming system according to the plant design of the photovoltaic system, as today the investment of an agro-photovoltaics system is very expensive if three main variables are not considered: i) type of panel to be inserted (height from the ground, characteristics, tracker, etc.); ii) type of crop to be used including sustainable mechanization and suitable for design and maintenance and phytosanitary treatments; iii) authorizations and environmental regulations to be respected in order to proceed correctly with the installation of the panels.