



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

PRIMARY PLANT PRODUCTION

*Plant production for a sustainable
and healthier future.*

Improved management of the agro-ecosystem and the cultivation of resilient species/cultivars will be required to mitigate the negative effects of climate change on crop productivity and quality, and to face the challenges caused by the reduction in arable land, soil fertility, water availability and genetic diversity.



Research at the University of Bologna covers a wide range of issues:

- Identification of sustainable agro-ecological practices for low-input agricultural systems and organic farming
- Innovative uses of arable, vegetable and fruit crops for food/feed, nutraceutical and biobased production
- Molecular screening of genetic resources and genomics of crops for the identification of beneficial genes
- Application of new breeding techniques to enhance crop sustainability and food quality
- Interaction of crops with the microbiota, pathogens and insects
- Use of drones for precision agriculture and high-throughput phenotyping
- Mechanization and automation of agricultural practices
- Post-harvest protection of fruit by tuning chemical, physical and biological means
- Tailor the agroecosystem management to optimize the synthesis and accumulation of high-value compounds for food (dietary and nutritional features), feed and biobased applications
- Carbon balance in the soil-plant-atmosphere continuum for developing a more sustainable Life Cycle Analysis (LCA)

HIGHLIGHTS

H2020 projects: [WeLASER](#) - Sustainable weed management in agriculture with laser-based autonomous tools; [UNTWIST](#) - Uncover and promote tolerance to temperature and water stress in *Camelina sativa*; [FOODLAND](#) - Food and Local, Agricultural, and Nutritional Diversity; [InnoVar](#) - Next generation variety testing for improved cropping on European farmland; [DIVERSIFOOD](#) – *Dealing with crop diversity and networking for local high-quality food systems*; [LEGVALUE](#) - *Fostering sustainable legume-based farming systems and agri-feed and food chains in the EU*; [MAGIC](#) – *Marginal Lands for Growing Industrial Crops. Turning a burden into an opportunity*; [EUFRUIT](#) – *European Fruit Network*.

Patents: over twenty new plant varieties; methods and compositions for modulating flowering and maturity in maize, promoting the growth of herbaceous plants, accumulating organic matter in the soil, monitoring fruit quality and ripening.

Infrastructures: [Experimental farm](#) with more than 200 ha of land.