

Crop diversity & Agronomy



Research on organic crops has a pivotal role to play in redesigning the whole of agriculture towards greater sustainability and resilience.

ORC has consistently worked on crop science and has been a driving force in diversification in cropping systems and plant breeding. Cropping system research encompasses the way agricultural production is organised, including rotation and the management of crops and soils. Cropping system design is the basis of how agriculture provides ecosystem services, including the production of food and the regulation of climate, nutrient, water and carbon cycles, diseases and biodiversity. Organic cropping systems are a catalyst of agroecological innovation, and have a pivotal role in redesigning the whole of agriculture towards greater sustainability and resilience.

Our research in this area aims to strengthen work on cropping system diversification by expanding the scope of on-farm data collection and analysis, driving improved decision-making in the light of complexity and supporting agroecological transition in this process.

Some of our projects

GreenGrass

Organic Research Centre's new project GreenGrass is set to work with dairy farmers in the UK, focusing on strategies to reduce nitrogen (N) fertiliser use on grasslands. This initiative, driven by a commitment to sustainable agriculture, aims to bridge the gap between conventional and organic farming methods, addressing the pressing issue of greenhouse gas (GHG) emissions.



Feed the Soil

Our vision is to create a leading research and knowledge hub for innovative organic waste management, empowering farmers to feed the soil, grow healthy plants, and build resilient cropping systems.

Working with The Land Gardeners, we're teaming up with farmers across the UK to co-design trials that answer their questions about how to make composting work best on their farms.

We'll be exploring a range of methods, including bokashi (a fermented manure process), vermicomposting (using worms to boost nutrient availability), Johnson-Su bioreactors, and biodynamic techniques like controlled microbial composting.

The end result will be clear, practical guidance to help farmers choose and improve composting methods that fit their systems.



LiveSeeding

LiveSeeding aims to significantly enhance organic production across Europe by improving the availability of organic plant reproductive material, particularly organic cultivars bred for diverse environments and local adaptability. ORC plays a crucial role, collaborating with a range of

partners, including breeders, farmers, food businesses, and policymakers. The project supports work to address challenges faced in the organic seed sector, recognising the importance of seed in the transition towards sustainable, climate-neutral, and healthier food systems.

Oper8

The Organic Research Centre and Agricollogy have been key delivery partners in this European thematic network that promotes innovative ways to reduce reliance on herbicides. Working with our partners in the UK (ADAS RSK Ltd) we have hosted farm walks and produced videos documenting

many novel strategies. These include electric weeding, robotics, and cultural controls. Competitive cultivars: varieties that are particularly effective at suppressing weeds through physical or biochemical strategies, are closely linked with our work in the LiveSeeding project.



Living Mulch Farming System

The project aims to develop a new method of growing arable crops which is environmentally sound, climate positive and capable of increasing farm productivity. The innovative solution that the Frasers of Denby Hall Farm, near Huddersfield, have identified for further testing is a 'Living Mulch System' capable of achieving organic, no-till production. The project will explore the effectiveness of different

understorey species in terms of crop performance, weed competitiveness and environmental impacts.

More on our crops research



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