

Pathways to phase-out contentious inputs from organic agriculture in Europe (Organic-PLUS)

Can we avoid copper, mineral oil, synthetic vitamins, antibiotics, conventional straw, peat, plastic and animal-derived fertilisers?

With 25 partners from 12 countries, the Organic-PLUS project will strengthen the integrity of organic agriculture in Europe. Contentious inputs such as copper, antibiotics, peat, plastic and fertilisers derived from non-organic sources need to be phased out.

The coordination is carried out by Professor Ulrich Schmutz at Coventry University (CU), UK.

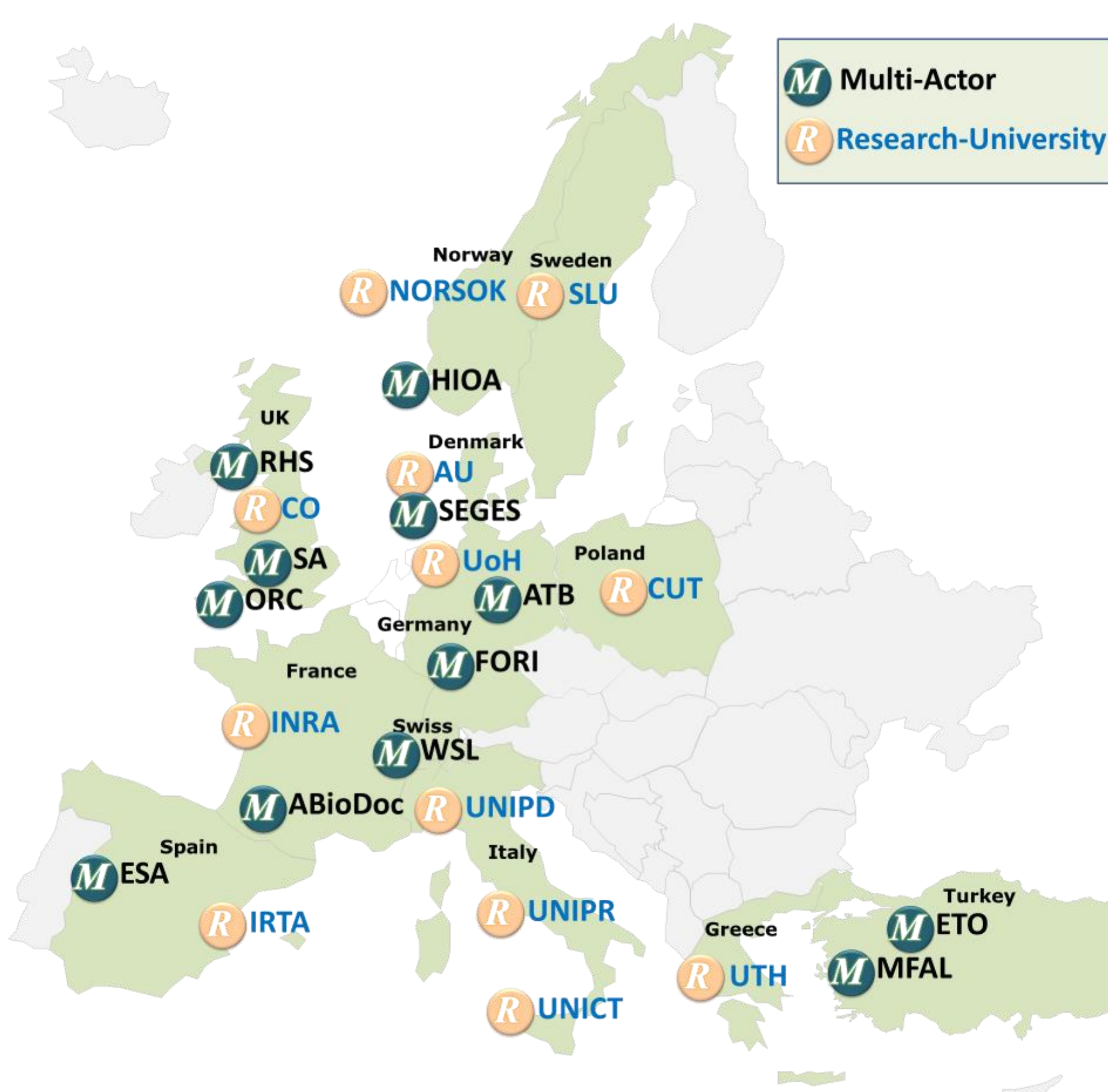


Figure 1. Countries and partners participating in Organic-PLUS.

Project objectives

- 1) identify and evaluate contentious inputs currently used in organic agriculture in Europe
- 2) provide specific technical solutions to minimize or phase-out the use of such inputs
- 3) provide environmental, social and economic assessment of phase-out scenarios
- 4) disseminate and broker knowledge, ideas and results to maximize impact

All experimental work will be conducted in multiple European countries in close collaboration with relevant stakeholders including product manufacturers and commercial farmers and growers.



Figure 2. Copper salts (blue powder) protects plants against fungal disease. Significant amounts are used in organic agriculture in Europe, with toxic effects on the environment and accumulation in soil.

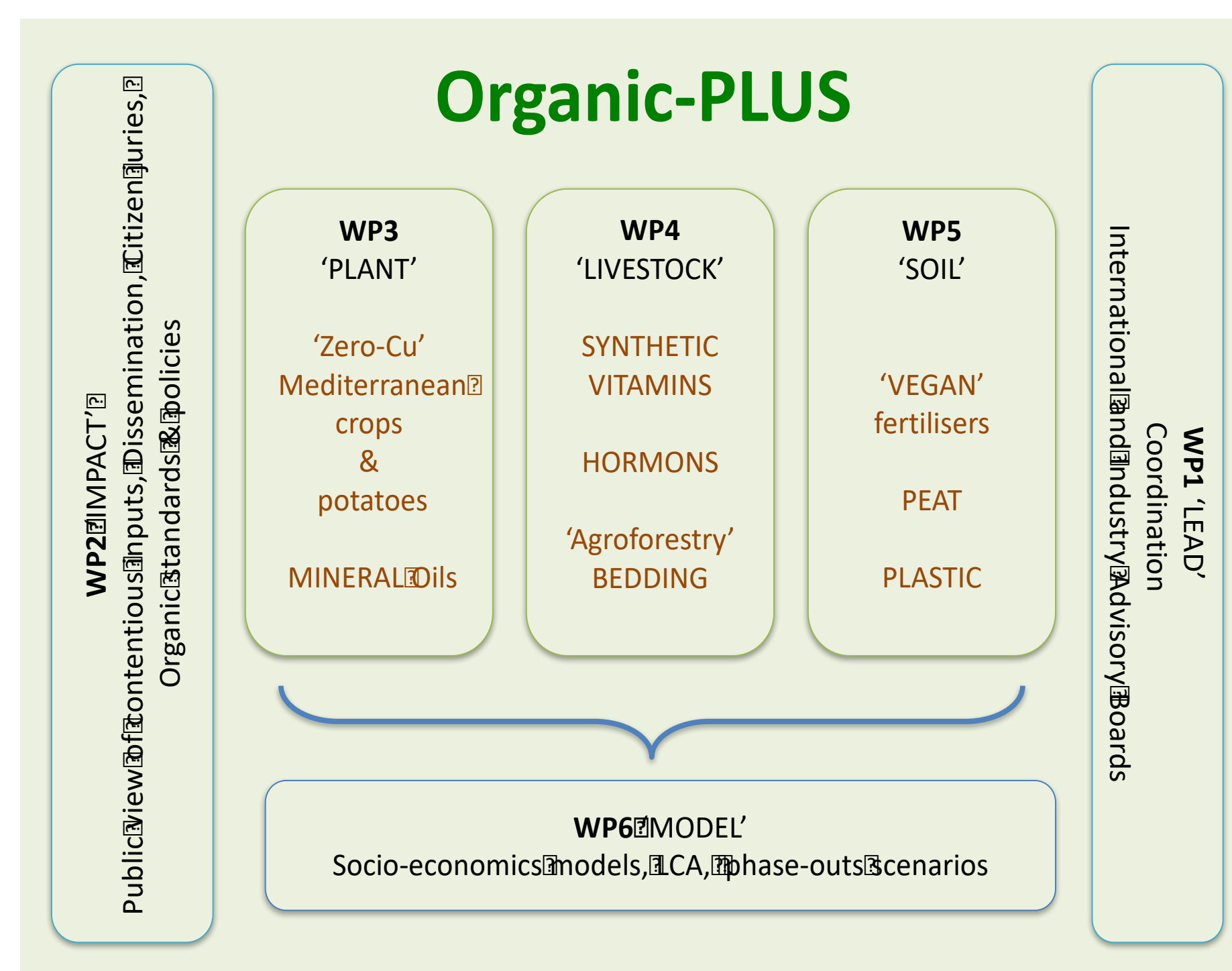


Figure 3. Project overview of the Organic-PLUS with work-packages (WP) and key research fields.

Project activities

WP PLANT researches alternatives to copper and mineral oils used for plant protection, working on potatoes, glass-house crops and perennial Mediterranean crops.

WP LIVESTOCK studies the use of natural plant sources of vitamins, and novel bedding materials in place of straw from conventional farms, such as agroforestry products. Natural anti-infective and immune-stimulating molecules are studied as alternatives to antibiotics and anthelmintic drugs.



Figure 4. Nicely bedded organic calf. However, conventional straw may contain residues of growth regulators to shorten the straw, as well as glyphosate and other pesticides.

WP SOIL researches alternatives to manure from non-organic farms and other animal-derived fertility inputs, such as blood- and bone meal. Legume-based and marine-derived fertilisers, as well as pond sediments from organic fish farming will be studied. Peat in growing media may be replaced by processed materials from agroforestry and cuttings from perennial crops. Degradable plastics and biocomposites may replace fossil fuel-derived plastic for weed suppression.



Figure 5. Seaweeds contain a multitude of nutrients: the new organic fertiliser?

What do the consumers say?

Consumers' perceptions are crucial for the market development of organic products. WP IMPACT studies consumers' attitudes towards existing inputs and relevant alternatives, to ensure they are in line with their expectations as well as with organic principles.



Figure 6. Future consumers – what do they expect, and what will they accept from organic production methods?

Are the alternatives truly sustainable?

WP MODEL integrates results from all WPs to produce scenarios for the phasing out of contentious inputs. Sustainability evaluations will be made by life cycle assessment tools.



Figure 7. Plastic is a useful tool for soil covering. Completely degradable plastic from renewable resources is required, but the cover also has to last long enough to fulfill the purpose. Can we add biochar as a filler in the plastic cover?

The Organic-PLUS team wants to get in touch with other scientists working in related fields, and other stakeholders. We welcome your comments and responses, and we like to add you to the stakeholder database of the project. Read more about the project, and subscribe to our newsletter!

Link to the NORSØK project website:

<https://www.norsok.no/en/projects/2018/pathways-to-phase-out-contentious-inputs-from-organic-agriculture-in-europe-organic-plus>

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