Plant Health Care in Organic Farming

The Future of Copper in Agriculture - 10 July 2018

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Who does IFOAM EU represent?

Representing the organic movement and sector with 190 members in all 28 EU member states, EFTA and EU candidate countries:

- Organic farming associations
- Organic food processors, retailers, traders
- Organic food and farming advisors and researchers
- Organic certifiers

Based on the IFOAM principles of organic agriculture:

What is Organic Agriculture?

Organic Agriculture is a production system that sustains the health of **soils, ecosystems, animals** and **people**. It relies on ecological processes, biodiversity and closed nutrient cycles adapted to local conditions with **continuous lowering dependence** on external inputs.

Organic Agriculture combines **tradition**, **innovation** and **science** to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

The aim is a **highly resilient farming system**
Just an input replacement? No!

- Synthetic pesticides are replaced in organic farming by **strategies**, not exclusively by other input.
- Plant health in organic is managed mainly through **preventive** and **indirect** measures:
  - choosing **appropriate species and varieties** less susceptible to pests and diseases and adapted to local conditions,
  - appropriate **crop rotation**,
  - the enhancement of functional **biodiversity**,
  - the release of **macrobials**, 
  - **mechanical** and **physical** methods.
Characteristics of Organic Plant Health Care

• Where external inputs are used, organic plant health is based on the precautionary principle.
• As a result organic farming rejects the unpredictable risks coming from the release of artificially designed molecules (e.g. “synthetic” pesticides) and organisms (from genetic engineering) into the environment.
• In organic farming only substances already occurring in the natural system are used.
• The organic regulation allows only the use of specific naturally occurring substances, when duly justified and when preventive measures are not enough.
• Herbicides are currently not allowed at all.
Characteristics of Organic Plant Health Care

Inputs limited to substances that are already naturally occurring in the system:
- Simple mineral substances (e.g. Copper, Calcium)
- Substances of plant origin (e.g. Neem, Pyrethrum)
- Microorganisms (e.g. Bacillus thuringiensis)
- Substances of animal origin (e.g. Pheromones, Whey)

In the frame of the implementation of the Regulation 1107/2009/EC

 Guidance documents for the handling of botanicals, pheromones and microorganisms

BUT: No Guidance document for the risk assessment of mineral substances – no scientific sound assessment of copper possible at the moment
Copper Minimisation Strategy: A system approach

- Management measures
- Optimum soil care
- Adequate nutrient supply
- Fungal-resistant or tolerant varieties
- Improved use of forecasting models, newest technology, better formulations
- Research and innovation to find suitable “naturally-occurring substances”
- Lower application rates
- Resistant or robust varieties
- Plant cultivation methods
- Alternative substances
- Improved use of forecasting models, newest technology, better formulations
Example: Copper minimisation strategy in apple growing

Develop alternative substances for disease control
- Development of new preparations suitable for organic farming
- Optimizing the use of existing formulations as sulphur products, baking powder etc.

Lowering application rates in disease control
- Improved use of disease forecasting models
- Newest application technology, splitting of applications

Develop varieties tolerant against major diseases
- Long-term breeding programmes to obtain highest possible genetic diversity
- Obtain a higher diversity of marketable locally adapted varieties

Plant cultivation methods
- Removal of infected leaves to reduce the infestation potential
- Covering of trees (roof)

These elements are combined for the strategy against apple scab and other fungal diseases in organic fruit growing
- The focus of the strategy depends on climatic conditions and region
- All four elements are highly interfering and dependent on each other
Copper in Organic Farming

- Organic movement was the first to put limits to application of copper

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**Figure 1** - Minimization of maximum amounts of copper allowed in organic farming until now (own figure)
Copper Re-Authorisation

- Correct and science based assessment key to ensure appropriate measures: Develop Guidance for the risk assessment of minerals
- Re-authorisation for 7 years
- Importance of copper minimisation strategies:
  - IFOAM EU started development of European strategy paper for copper minimisation in organic agriculture
  - Smoothing mechanisms to facilitate the minimisation strategy
- Research and innovation to reduce copper and to create more resilient systems under way – European & national research projects currently under way
  - Two Horizon2020 projects (RELACS & Organic-Plus) just started and are aimed at identifying alternatives to the use of copper compounds.
Funding for organic farming research under EUs framework programmes

- **Only 0.56% of H2020 budget** for research in Organic Food & Farming*

- **We need more resources**, especially for organic plant breeding!

- **New gaps** are to be expected (climate change, new pests and diseases)

*Source: Elaboration TP Organics on Cuoco, E. et al. (2018) – H2020 total sum doesn’t include calls 2020 as the information are not available
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Thank you for your attention

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