"Stronger together: Researchers from Wallonia and Flanders join hands for organic farming"

Tuesday 25 March 2025
Gembloux

Workshops summaries

ROUND 1: WORKSHOP SOIL

Trends, evolutions, innovations

The discussion in the first part of the workshop revolved around following topics:

- **Soil quality monitoring / indicators:** The upcoming Soil Directive obliges soil health monitoring ð Search for suitable indicators. An "indice de qualité des sols wallons (IQSW)" is being created. Important for indicators is that they reflect the effect of farmers' practices; can quantify impacts and ecosystem services; are specific enough for the region, but general enough to compare throughout EU; are relevant for both research and farmers; can be used as decision support tools. Indicators are needed for soil biodiversity, humidity, aggregate stability, soil metabolism,…
- **Carbon farming:** It is important to differentiate between Cstocking (which can be measured) and Csequestration (which is a climate change mitigation goal). This will necessitate assessment methods for Cstocking; better understanding of mineralisation and impact of fertilisation; linking farming practices to Cstocking; business models for Cstocking; and a better understanding of Cdynamics, i.e. balance between soil respiration (organic matter turnover ð CO_2-production) and Cstocking. Next to the need for climate change mitigation, there also is the need for climate change adaptation, i.e. making soils more resilient.
- **Soil biodiversity increase and other ecosystem services**: indicators, link between above and below ground biodiversity, effect of inoculants. As ESS are a collective responsibility and not just the farmers', there is need for support, incentives and citizens' consciousness.
- **Water**: good practices needed to enhance both infiltration and retention ð effect of practices in wet / dry years. Erosion mitigation.
- **Good farming practices:** what are good practices for all the above? e.g. cover crop management versus non-inversion tillage
- **Participatory research:** need for co-creation of knowledge with farmers, advisors and researchers; for more bottom-up research; for research for action; for more insight in how to collaborate well with farmers; for more demo- and lighthouse farms. Possibilities for participatory soil sampling in citizen science?

Important remark: there is overlap between these topics, they are all interrelated!

Voting showed most interest to collaborate was in

- Participatory research
- C-dynamics
- Farming practices

Joint actions on participatory soil research:

- **Short term: Farm visits in Wallonia and Flanders** (one in each region): Goal = learn from each other about good practices for participatory research. ð Visit a farmer who has good experiences with participating in research. The TRANSECT project may serve as an example.
  - Maarten De Boever (ILVO) will initiate contacts in autumn to organise an exchange within the OhFine/Ground2Live projects.
- **Longer term: a cross-border Living Lab on soil**, including both Walloon and Flemish organic farmers. Prepare a proposal with a common soil LL for the next Soil Mission call, which will probably open in May. Need to think about how such an interregional LL can be managed consistently in both regions. Researchers may link, as they can communicate in English. Relating to farmers' practices will be essential. Participatory soil monitoring as a subject?

ROUND 1: WORKSHOP ARABLE CROPS

Summary

This workshop brought together key insights and initiatives around the latest trends and innovations in organic arable cropping systems. The topic was very broad reflecting the wide range of themes that were discussed. Participants emphasized the need for collaborative approaches and co-creation that connect farmers, researchers, breeders, and industry partners.

Main trends and innovations

Seed and varieties

- Use of more robust varieties (e.g., potatoes); need for collaboration with industry
- Genetic resources in minor crops and participatory breeding for better adaptation.
- More wheat varieties to increase yield stability and quality.
- Availability of seeds varieties with good bread making characteristics

Soil Fertility, Biodiversity, and Inputs

- Use of complex green manure mixtures for soil improvement.
- Place of legumes in rotation to avoid mining soil resources.
- More tools for biodiversity analysis at farm level.
- Mechanical innovation for cover crop termination.
- Use of organic bio stimulants to enhance crop performance.
- Living mulches (herbal leys) and under sowing (e.g., grass in maize) for weed control, reduced nitrogen leaching, soil fertility and increased biodiversity.

Crop Diversification

- Introduction of new crops for food (e.g., quinoa) and non-food uses (e.g., hemp and lime for textiles).
- Development of new fodder crops like maize-bean mixtures, sorghum, sunflower.
- Mixtures of species/intercropping, especially legumes with cereals or vegetables (e.g., onions + cereals, green manure + vegetables).
- Legume intercropping and rotation strategies (e.g. place of legumes, new crops in the rotation) to enhance fertility and system resilience.
- Managing rotations with new/marginal crops to reduce externalities and maintain soil health.

Integrated and Diversified Farming Systems

- Integrated crop-livestock systems for improving soil organic matter and weed control.
- Integration of sheep in temporary meadows and vegetable crops—emerging practice in larger farms.
- Systemic approaches combining food and feed production in more circular systems.

Post-Harvest and Processing

- Need for specialized tools for harvesting crops like soybeans and sorting grains.
- Sorting systems that serve both cleaning seeds from weed seeds and sorting after harvesting
- How to maintain food-grade quality
- Small-scale, on-farm processing (e.g., grain mills) to support short supply chains.
- Maintaining food-grade standards through better handling and processing innovations.

Supply Chain

- Building supply chains for intercropped (vegetables/cereals) and novel crops.
- Matching farmers with supply chain actors to increase value.
- Research on food marketing: how and why consumers should engage with these crops.

Joint actions:

- **Exchange day on new crops** with high added value (different groups per crop, topic) (added value in crop, food or feed systems)
  - For whom? Researchers, pioneer (experienced) farmers, nutritionists, breeders.
  - Organised by ILVO (Hilde Muylle) together with CRA-W
  - When? November 2025
- **Sharing information** about demo days are organised during summertime
  - CCBT will collect and send around (in 2025)
- **Collecting interest** in different topics by online form
  - CCBT will create a form and put it online
- Depending on the approvement of a project Mieke Lateir (INBO) will take action related to the biodiversity tool

ROUND 1: WORKSHOP ANIMAL WELFARE

Summary

We identified different trends regarding animal welfare in organic production systems.

Main trends

Awareness and societal concerns about animal welfare

- How society sees how animal production is done: sometimes society (citizens and consumers) do not always have all the facts or necessary information, and this can lead to false opinions. Sometimes animal welfare organizations take advantage of this and polarize the societal discussion with wrong facts or with not all the information.

Environmental impact of alternative production systems

- Often technical aspects of alternative production systems are further developed in research projects, but their environmental impact and profitability is not always known.

Data collection and analysis

- There is more and more data being collected related to animal welfare status, but data is not always explored to its full potential. For example it is often used to say something about the welfare status of the animals, but not to look at evolutions over time of a sector for example.

Business models

- If a farmer wants to prioritize animal welfare, this is difficult to translate into a business model. How can this added value be renumerated, who pays for this, how to monitor this. Can we create value chains based on animal welfare? Are these chains economically viable and sustainable? Is the consumer asking for this?

Most important trends

- business model: Business models seem to be a very difficult subject since there hasn't been too much research done regarding this topic. Certainly not in the Belgian context and context is particularly important for business models.
- data collection For issues regarding data collection and distribution, a lot could be learned from initiatives abroad or other types of livestock.

Joint actions

- **Approach supermarkets together** with possible ideas of new business models for organic farmers.
- **Visit pioneer farms in Flanders and Wallonia** regarding business models. This could be organized by Bioforum.
- **Sharing data** (compatible, link to WALLeSmart / DjustConnect). Bring together Eleveo, ILVO, CRA-W to integrate organic specifications in data sharing platforms.

ROUND 1: WORKSHOP PLANT PROTECTION

Trends, evolutions, innovations

Alternatives are being sought for some plant protection products (PPPs)

- **Spinosad** = non-selective insecticide, quite harmful for bees, beneficials and aquatic life.
  - Alternatives: PPPs: Bacillus thuringiensis, NeemAzal, pheromones; insect frass (phytofortifyer); resistant winter wheat and apple varieties
- **Copper:** To date, organic production still profoundly relies on the use of copper fungicides, which show critical toxicological and ecotoxicological properties. Therefore withdrawn end 2025. The FOD has negatively assessed the reduced dose proposed by the groups (max. 3 kg a.i. Cu/ha*year)

Potential solutions:

- **Resistant varieties:** variety screening for robust potato varieties and cereals @CRA-W (see pitch A-M. Faux); @CRA-W (participatory) breeding for organic production in apple, pear, wheat, spelt, durum wheat and potatoes; @ILVO only breeding programme for chickpeas, quinoa, grasses.
  - Develop collaborative work FL-WAL on plant breeding for robust c.v.'s adapted to organic?
  - Is participatory breeding a solution? Chain approach needed e.g. hops: farmers and brewers work together; @the Netherlands for potatoes; @Vives for yacon, tomato and sweet potato; @CRA-W in close partnership with North French CRRG and NOVAFRUITS organic producers association and GAWI.
- **Importance of tackling diseases at an early stage:** i.e. stopping or reducing the primary infection ð Better knowledge needed of life cycle and spread (via wind, rain?). Not only focus on agents, also need more knowledge of the fungus e.g. phytophthora: research @ILVO. How to treat aggressive types? Will always be a combination of PPPs and other methods.
- **Intercropping** may be a solution, but needs adaptation of harvesting and processing machinery.
- **Biostimulants:** Is limesulfur - polysulfurcalcium a solution? - not allowed as PPP (Phytoweb), only allowed for apple with 120 days derogation.

Conclusion

- Few specialised researchers in Belgium, rather generalists.
- There is a need for more information on copper at national level.
- Do we have an overview of the research taking place abroad? No, as it turns out.
- There is a need for more exchange between researchers in Belgium - sharepoint? What exactly do we want with this?

Joint actions

- **Collect research from abroad:** The Flemish Agency for Agriculture and Fisheries takes action.
- **More exchange on research regarding alternatives for Cu:** know better what other researchers are doing. Create a national sharing tool on bibliography (references) and results/reports of efficiency/alternatives, ecotoxicology, etc. Who takes the lead on that??
- **Focus on stopping primary infection via**
  - Varying planting times of various varieties;
  - Advise on removal of potatoes left in the field;
  - Monitoring disease pressure;
  - Longer crop rotation?
  - Better warning systems that take the level of disease susceptibility of various cultivars into account (both potatoes, apple, pear, grapes).

ROUND 2 – WORKSHOP VALUE CHAINS

Summary

Organic farmers are part of bigger value chains. The interaction with value chain actors influence the profitability and thereby the practices used in the production process on a farm. To develop organic agriculture in Belgium we need to provide farmers a economically interesting perspective within organic value chains. We believe that these value chains and the interaction between these actors can be improved to make organic production systems more appealing for farmers and consumers.

Certain characteristics of value chains seem to have a big impact on organic production systems. The factors we identified are:

- Models of economic risk sharing and transparency between producer and transformer
- Lack of transformators or transformation infrastructure in Wallonia
- Stable quality of the products
- The scale of production (small scale production vs. large scale transformation)
- Willingness to collaborate among farmers
- The demand for organic products

We identified the risk sharing models and the demand for organic products to be the most important characteristics of organic value chains. The scale of production and geographical distribution of value chain actors were also perceived to be important, albeit slightly less.

Joint actions

- For the scale of production and geographical distribution we identified an excursion to Cultivaé where we could be inspired by their logistical chain and sorting infrastructure in a profitable way. There is no lead to be identified but Dylan Feyaerts (ILVO) will send a mailing to the participants to see everyones' interest in this excursion.

- For the risk sharing models, we could organize an excursion to the 'interprofessionelles agricoles' and be inspired by their models of risk sharing. Prix juste for the producer.
  - Think about community supported systems. Grow together.
  - In France, they have the "interprofession". There they can communicate. Can discuss and agree about the issues.

- I would be interest to write a paper together where different Belgian or Western European examples on value chains would be compared. Within this paper we could evaluate the adventages and disadvantages of certain value chain models. This could be done if we would write together on a Horzion Europe project proposal. No lead identified but Dylan Feyaerts (ILVO) will send a mailing to the participants to see everyones' interest in this and schedule a meeting where we could identify a lead.

ROUND 2 - WORKSHOP FARM PROFITABILITY

Summary

To evaluate and improve the profitability of farming systems and facilitate the transition to more organic production, we need robust and transparent (economic) data. Without it, we lack the evidence to support farmers, guide policy, and design viable business models. Data not only helps us understand short-term profitability but also supports long-term system thinking. This summary outlines key discussions during the workshop identifying differences in data collection and availability across Flanders and Wallonia and potential actions for improvement and exchange.

Data collection and profitability analysis In Flanders data collection and profitability analysis for the organic sector is not structured or centralized and mainly done related to project, field trials at ILVO and practical research centres. Available data are dispersed and often not accessible or shared. The Flemish organic sector is characterized by small and diverse farms, making data collection difficult and comparing farms complex. Organic farms are not well represented in the FADN. There is a distrust of farmers to share economic data collection.

In Wallonia more data is available, particularly through the FADN and tools liken WALLeSmart where organic farms are better represented then in Flanders. BRIOAA, the Belgian Research Institute of Organic Agriculture and Agroecology owns a 60 hectares organic farm for research and collects data per crop and new crops to assess profitability. CRA-W is working to systematically gather cost data from their field using tools like SYSTERRE (a French tool).

Useful and existing tools:

- **CropExplores**: CropExplore for Farmers
- **Pea-PACT** (Flander -Hogent): EiwitTool
- **Djust2Connect** (Flanders - ILVO): Can potentially link and share data across regions
- **WALLeSmart** (Wallonia – CRA-W): serves a similar function as Djust2Connect in Flanders.
- **KLIMREK** (Flanders- ILVO) and **DECIDE** (Wallonia-CRA-W): LCA based tools to calculate sustainability metrics for farms, can potentially link and share data across regions and tools, including organic farming and LCA/carbon- based metrics.
- **Cost estimation tool for fodder crops, no organic data**: includes scenario fiches for crop rotations and dairy productivity
- **Studies related to relance project on value chain profitability** (ILVO), risk analysis for crops like chickpea and soy also organic.

Gaps and needs

- Lack of a central database aggregating research-based cost and profitability data.
- Efforts needed to better incorporate organic data in existing tools.
- Profitability data analysis should focus on more then euro earned per hectare, also other benefits should be monitored.

Joint actions

- Exchanges on the tools and databases in Wallonia and Flanders
    - Explore what we have and exchange what there is and make the data more visible
- Integration of organic data into the existing platforms like DJustconnect, WALLeSmart, KLIMREK and DECIDE. This can be done together.
- Working on a system valorisation in a future project

Florence Van Stappen will take initiative.

ROUND 2 - WORKSHOP FARM REDESIGN

Summary

Farm redesign is the process of restructuring the entire farming system—not just tweaking individual practices—to better align with ecological, economic, and social goals. It's a transition from input-substitution (e.g., replacing chemical fertilisers with organic ones) toward a systems-based, regenerative approach.

Trends and innovations

- Emphasis on **longer, diversified crop rotations** that balance cash crops with soil fertility-building crops, integrating fodder and food crops.
- **Management of ley crops** (a crop rotation system in which a grass-legume mixture is grown in rotation with agricultural crops)
- Movement towards **plant-based fertilisers** and ABC systems to manage nitrogen availability more sustainably.
- **Focus on landscape-level resource management** to build and maintain soil fertility.
- Increased interest in mixed cropping, successional agroforestry, grazed orchards, and winter grazing on crops to boost resilience and productivity. **Integrating livestock** in production systems.
- Exploring how to combine **no-till practices** with organic systems, supported by innovations in mechanical weeding and cover crop management.
- Promotion of **new breeds and cultivars** suited to organic and low-input systems.
- **Use of banker plants and functional agro-biodiversity** (FAB) to manage pests naturally and new and robust cultivars/varieties to cultivate with no/less pesticides.
- Innovation in **lightweight machinery and mechanical weeding** to avoid soil compaction and reduce chemical dependence.
- **Holistic design approaches to navigate trade-offs** between productivity, biodiversity, economic viability, and climate goals.

Joint actions

- **Organization of exchange day** (or 2 days including a visit to long term field trials in Flanders and Wallonia)
  - What? Visit Ecofoodsystem (other field trials?) (Long term experiments) /A half-day presentation of the various long-term trials on innovative crop rotation
  - Who? Tom Desmarez (Gembloux Agro-Bio Tech)
  - When? mid May 2026
- **Organization of workshop** on Rotations to feed soil to feed human
  - Who? Koen Willekens (ILVO)
  - When? May 2026

ROUND 2 - WORKSHOP Mixed farming systems

Definition & importance

The first discussion focussed on defining "mixed farming systems", as they can take multiple forms. The group agreed on "farms combining any form of crop production with animal production". Mixed farming systems are often less intensive, not specialized in one crop or animal species, but integrating a diversity of crops, plants and animals. They optimise natural resource use and allow closing nutrient cycles (manure use in crops, fermenting plant waste as feed, own feed and protein production, ...). They fit with societal demand for less animal production and enjoy positive consumer perception.

Trends, evolutions, innovations

- **Agroforesty** can be a specific form of mixed farming systems. **Silvo-pastoral systems** could e.g. combine sheep/pigs/poultry with low-stemmed (cf. P'Orchard & PPILOW projects) or cattle with high-stemmed orchards. Agroforestry Vlaanderen is a knowledge hub and can provide farm advice.
- Another form of a mixed farming, is **incorporating animals in a crop rotation**, e.g. rotating pigs on crop land, an old practice, or letting them graze cover crops
- **Using fruit hedges to diversify production** (e.g. grapes, berries, nuts), allows to bring and increase biodiversity in the system, while contributing to the interaction between the systems' components.
- **Knowledge gap: quality of the products produced (plant or animal)** and what is the added nutritional value of these products when they are produced in these mixed farming systems.
- **Stability**: economically and agronomically stable systems, that need less external inputs.
- **Circularity:** Mixed farming systems offer opportunities for closing nutrient cycles and contributing to waste reduction or valorisation. Examples: Black soldier fly can be reared on vegetable waste and the larvae fed to pigs/chickens. Insect frass can be used in mushroom cultivation or as biostimulant. Wastewater from stable cleaning or manure treatment or excess grass can be used to produce algae, which can be fed to poultry. Interactions between systems are of interest.
- **Sustainability (assessment):** mixed farming systems are also more complex systems (not only at one farm, but also at the higher level of multiple adjacent farms and their interactions), and the impact thereof needs to be taken into account in all dimensions of sustainability:
  - ***Economic feasibility:*** Often small scaled farms with good ecological practices and benefits from diversification, but often with limited resources, while they require more skills and investments (e.g. various machinery). The farmer's management skills are very important!
  - ***Social impact***: both internal, e.g. farmer's welfare, and external, e.g. consumer perception (small scale farms give the idea that all is happening and being produced at a more human level and this leads to a positive image of the production system).
  - ***Environmental impact:*** does mixed farming contribute to lower food-feed competition? Are any systems in place that allow testing? What are impacts of N-deposition from animals?; of (bio)pesticides on animals?; on biodiversity?; on climate? ð how to measure?

Joint actions

- **On a short term:** Sharing indicators used to define, monitor and assess performance of mixed farming systems is the first step. It was Suggested to work on a common paper where performance indicators are compared between Flanders and Wallonia, such as production, economics, biodiversity, and environment. At the same time, a common definition of mixed farming systems should be established.
- **On a longer term:** Have a brainstorm on the need or not of specific parameters to assess/monitor these mixed farming systems, due to their complex nature.
  - Michaël Mathot (CRA-W) organises a meeting (support: Marta Lourenço and Hilde Wustenberghs).

Summary of joint actions

Workshop Soil

- *Farm visits in Wallonia and Flanders (one in each region): Goal = learn from each other about good practices for participatory research. ð Visit a farmer who has good experiences with participating in research. The TRANSECT project may serve as an example.*
  - Maarten De Boever (ILVO) will initiate contacts in autumn to organise an exchange within the OhFine/Ground2Live projects.
- *A cross-border Living Lab on soil, including both Walloon and Flemish organic farmers.*
  - Prepare a proposal with a common soil LL for the next Soil Mission call, which will probably open in May. Need to think about how such an interregional LL can be managed consistently in both regions. Researchers may link, as they can communicate in English. Relating to farmers' practices will be essential. Participatory soil monitoring as a subject**?**

Workshop Arable crops

- *Exchange day on new crops with high added value (different groups per crop, topic) (added value in crop, food or feed systems)*
  - For whom? Researchers, pioneer (experienced) farmers, nutritionists, breeders.
  - Organised by ILVO (Hilde Muylle) together with CRA-W
  - When? November 2025
- *Sharing information about demo days are organised during summertime*
  - CCBT will collect and send around (in 2025)
- *Collecting interest in different topics by online form*
  - CCBT will create a form and put it online

Workshop Animal health and welfare

- A*pproach supermarkets together* with possible ideas of new business models for organic farmers.
- *Visit pioneer farms in Flanders and Wallonia* regarding business models. This could be organized by Bioforum.
- *Sharing data* (compatible, link to WALLeSmart / DjustConnect). Bring together Eleveo, ILVO, CRA-W to integrate organic specifications in data sharing platforms.

Workshop Plant protection

- *Collect research from abroad:* The Flemish Agency for Agriculture and Fisheries takes action.
- *More exchange on research regarding alternatives for Cu:* know better what other researchers are doing. Create a national sharing tool on bibliography (references) and results/reports of efficiency/alternatives, ecotoxicology, etc. Who takes the lead on that??
- *Focus on stopping primary infection via*
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Summary of joint actions

Workshop Value chain

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- For the *risk sharing models*, we could organize an excursion to the 'interprofessionelles agricoles' and be inspired by their models of risk sharing. Prix juste for the producer.
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Workshop Farm profitability

- *Exchanges on the tools and databases i*n Wallonia and Flanders
  - Explore what we have and exchange what there is and make the data more visible
- *Integration of organic data into the existing platforms* like DJust2connect, WALLeSmart KLIMREK and DECIDE. This can be done together.
- *Working on a system valorisation in a future project*
  - Florence Van Stappen will take initiative.

Workshop Farm redesign

- *Organization of exchange day (or 2 days including a visit to long term field trials in Flanders and Wallonia)*
  - *What? Visit Ecofoodsystem (other field trials?) (Long term experiments) /A half-day presentation of the various long-term trials on innovative crop rotation*
  - *Who? Tom Desmarez (Gembloux Agro-Bio Tech)*
  - *When? mid May 2026*
- *Organization of workshop on Rotations to feed soil to feed human*
  - *Who? Koen Willekens (ILVO)*
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Workshop Mixed systems

- *Sharing indicators* used to define, monitor and assess performance of mixed farming systems is the first step. It was suggested to work on a common paper where performance indicators are compared between Flanders and Wallonia, such as production, economics, biodiversity, and environment. At the same time, a common definition of mixed farming systems should be established.
- *Brainstorm on the need of specific parameters* to assess/monitor these mixed farming systems, due to their complex nature.
  - Michaël Mathot (CRA-W) organises a meeting (support: Marta Lourenço and Hilde Wustenberghs).