



## Press release

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# Targeted action for biodiversity is also needed in organic agriculture

**The number of different habitats is crucial to sustain species diversity in farmland. Organic farms without targeted measures to promote biodiversity, such as the creation of species-rich habitats, only harbour marginally more species than other farms. This is shown by a recently published study in ten European and two African regions.**

„Organic farming is beneficial to the richness of plant and bee species. However, observed benefits concentrate on arable fields“, says Felix Herzog, senior scientist at the Institute for Sustainability Sciences at Agroscope in Switzerland and coordinator of the EU-funded research project BioBio. An international team investigated the contribution of organic farming to conserving farmland biodiversity. Results obtained between 2010 and 2013 were recently published in the scientific journal *Nature Communications*. Researchers were particularly interested in the farm scale, i.e. the question of whether organic farms harbour more species than their non-organic neighbours. „Even if farmers work on individual parcels, they focus on their farm enterprise when making decisions. In the end, it is crucial what they create and elaborate on their entire farm“, stresses Herzog.



**Sampling of spiders in a grassland in Obwalden, Switzerland. Spiders stand in for many other possible taxonomic groups in farmland (Photo: Felix Herzog, Agroscope)**



The study investigated farms in twelve regions with different production systems. In Switzerland, grassland-based cattle farms in the Canton Obwalden were studied. Arable farms were investigated in Austria and Southern France, mixed farms in Southern Bavaria, for example. In each region, twelve to twenty farms were selected randomly, half of them certified organic for at least five years. No constraints were set on the other farms. In Switzerland, for example, farms complied with the ecological performance criteria.

### **More species because of field boundaries**

More species were found in organic arable fields than in non-organic fields. In contrast, there was little difference in grasslands or vineyards. Organic farming differently benefited the four taxonomic groups of plants, earthworms, spiders and bees, which were sampled as surrogates for the multitude of creatures living on farmland. In general, more species of plants and bees were found on organic than on non-organic fields, but not more species of spiders and earthworms.

If species of field boundaries such as grass strips or hedges were included into the comparison, the difference between organic and non-organic decreases. Overall, marginally more species were observed on organic than non-organic farms. „Obviously, most species found in fields on organic farms were found in the boundaries on the non-organic farms. There was little systematic difference in the total number of species on the farms“, explains Manuel Schneider of Agroscope in Switzerland, who analysed the data of over 1400 plots on the 205 investigated farms. The occurrence of rare or threatened species was not depending on organic farming.

### **Targeted promotion of biodiversity**

More than organic farming is needed to sustain farmland biodiversity. The authors of the study recommend farmers to increase the number of habitats of their farms. „Surprisingly, we did not find a higher number of different habitats on organic farms than non-organic farms, on average over all twelve regions. However, it was clear-cut that the diversity of habitats is key to species diversity“, says Herzog and concludes: „If these additional habitats are different to the rest of the farm, for example hedges in grassland farms or herbaceous strips in arable farms, they have a huge impact on the species richness of a farm.“

[Schneider M.K. et al. \(2014\): Gains to species diversity in organically farmed fields are not propagated at the farm level, Nature Communications 5:4151 doi: 10.1038/ncomms5151](#)



### **The BioBio project**

The research project BioBio within the seventh framework program of the European Union aimed at developing a method to quantify biodiversity on farms. The international consortium led by Agroscope in Switzerland developed a set of biodiversity indicators which needed to be scientifically sound, applicable over Europe as well as relevant and useful for stakeholder groups. The indicators included genetics, species, habitats and farm management. In order to measure them, all habitats of a farm are mapped according to a standardized protocol. On a randomly selected plot in each habitat per farm, all species of plants, earthworms, spiders and bees (domestic and wild) are sampled and the farming activities are recorded. The species groups differ in their habitat requirements and act as surrogates for the intangible multitude of creatures in farmland. The BioBio set of indicators allows for an efficient assessment of the status of biodiversity on a farm.

#### **Further informations:**

- [Measuring Biodiversity](#)
- [www.biobio-indicator.org](http://www.biobio-indicator.org)
- [Herzog F. et al. \(2013\). Measuring Farmland Biodiversity. Solutions. 4: 4.](#)

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