Biodynamic agriculture for dairy products in The Netherlands
Long Term Experimental Plot 8

Experimenting crop diversification and low input farming

Experimentation farm of 25 ha with crop rotations and cows located in Groningen (The Netherlands)

2 MANAGEMENTS HAVE BEEN TESTED IN THIS CASE STUDY

Organic management with long rotation and seasonal use of green manure

Conventional management using a yearly addition of cow manure as an organic amendment, inorganic fertilizer, and pesticides and minimal rotation

Conventional management using inorganic fertilizer, and pesticides; with minimal rotation

WHY IMPLEMENT THESE MANAGEMENT PRACTICES?

To increase soil quality, it was observed clearly how long term organic diversified systems are those with the highest soil organic matter concentration, and earthworm abundance and diversity. Additionally, the production in those systems was very diversified, which consequently led to more diversification in the market

DIVERFARMING

MAIN BENEFITS

AGRONOMICS

1. Crop yield under organic management was slightly lower than in the conventional system, although differences tendedto decrease with time

2. High yields may be achieved under organic management once it hassettled down in the field for at least 10-20 years

3. Organic farms have extra yields from the long rotations (i.e., carrots, celery, cauliflower).

ENVIRONMENTAL

1. Soil organic matter in the organic long term trials was >**50% higher than in the conventional managed soils**

2. **Earthworm abundance was >90% higher under the organic managed** soils than in the conventional managed soils

3. Earthworm diversity was around 80% higher under the organic managed soils than in the conventional managed soils

4. Higher proportion of beneficial microorganisms were present in the organic managed soils.

MAIN DRAWBACKS

AGRONOMICS

1. Not to be patient to reach significant results on the first 5-10 years. Farmers with more than 20 years as producers of diversified organic crops are convinced that this is the path to follow.

2. Not to be prepared to the arrival of new diseases due to climate change

ENVIRONMENTAL

High use of manure can increase high nitrogen concentration in the soil, therefore soil monitoring is essential

FINAL CONCLUSION

The use of multiple cropping and intercropping during constant rotations together with diverse green manure enhanced soil health conditions in the organic long term. Diversification aboveground led to diversification belowground, and then the whole plant-soil system was enhanced. In this long term, the beneficial effects of the organic managementwere clearly observed.

HORIZON 2020

DIVERFARMING