Enabling farmers to respond to the biodiversity crisis together: the role of Citizen Science in Farmer Clusters

Gerid Hager on behalf of the FRAMEwork team
International Institute for Applied Systems Analysis (IIASA)
Farmer clusters for Realising Agrobiodiversity Management across Ecosystems

“Working with farmers to build biodiversity sensitive farming.”
FRAMEwork in a nutshell

**H2020 project:** 2020-2025, 8M  
**Coordinator:** James Hutton Institute (UK – Scotland), 18 partner org

**Ambition:** Scale UK Farmer Cluster approach across Europe to **enhance biodiversity monitoring in farmland landscapes and promote biodiversity-sensitive farming at the landscape scale.**
THE FIVE LEVELS OF TRANSITION TOWARDS SUSTAINABLE FOOD SYSTEMS AND THE RELATED 13 PRINCIPLES OF AGROECOLOGY

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5

PARTICIPATION
Encourage social organization and greater participation in decision-making by food producers and consumers to support the decentralization of governance and local adaptive management of agricultural and food systems.

13

LAND AND NATURAL RESOURCE GOVERNANCE
Recognize and support the needs and interests of family farmers, smallholders, and peasant food producers to sustainable manage local and national natural resources.

12

BIO-DIVERSITY
Maintain and enhance diversity of species, functional diversity and genetic resources and maintain biodiversity in the agroecosystem over time and space at field, farm, landscape, and ecosystem scales.

5

SOCIAL VALUES AND DIETS
Ethics, fair trade, systems based on the culture, tenacity, tradition, social and gender equity of small-scale farmers, and the need for diversity, resilience, security, and socio-environmental justice.

9

ECONOMIC DIVERSIFICATION
Including farmers who depend on ensuring small-scale farmers have greater financial sustainability and value addition opportunities while working towards to ensure food security.

7

BIO-DIVERSITY
Maintain and promote diversity of genetic, functional, and spatial biodiversity in the agroecosystem and sustainable management for farm and ecosystem scales.

5

ANIMAL HEALTH
Ensure animal health and welfare

4

SOIL HEALTH
Ensure soil health and functioning for terrestrial carbon sequestration, particularly by increasing organic matter and by enhancing soil biogas activity.

3

SYNERGY
Enhance positive ecological interactions, energy, integrative, and co-operative institutional and generative feedbacks of agroecosystems plants, animals, trees, microorganisms.

6

CO-CREATION OF KNOWLEDGE
Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange.

8

RECYCLING
Respect local sustainable resources and their service for local and social resilience.

2

INPUT REDUCTION
Reduce or eliminate inputs of pathogens and pests.

1

CONNECTIVITY
Ensure access and confidence between producers and consumers through integration of the agroecosystem and its local networks, including local food systems and networks.

11

FAIRNESS
Support dietary and robust food systems that provide for food security, access to food, and food sovereignty.

10

PARTICIPATION
Encourage social organization and greater participation in decision-making by food producers and consumers to support the decentralization of governance and local adaptive management of agricultural and food systems.
The role of Citizen Science and participatory biodiversity monitoring in Farmer Clusters

Promoting activities in Farmer Clusters to engage farmers and the wider community in citizen science and participatory biodiversity monitoring practices.

Assessing the effects of engaging farmers in biodiversity monitoring on their awareness and willingness to adopt biodiversity-friendly farming practices.

Action research

Pre-post interviews

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Combining semi-structured monitoring and community action to underpin adaptive land management practices for biodiversity protection and enhancement.
What is a Farmer Cluster?

A ‘Farmer Cluster’ is a group of farmers, located in the same region and supported by a facilitator. They share knowledge, support, and motivate each other to improve biodiversity and the ecological health of their connected farmlands.

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Farmer Clusters

11 Clusters in 9 countries

Farming systems

• Arable, extensive grassland and grazing, intensive grassland, orchards, olive groves
• Organic and conventional
What is Citizen Science?

Public participation in science and research.

It is most well-established in the **natural sciences**, particularly in biodiversity research.

Provides well-tested methods and tools for farmer- and **citizen-based** collection of data on biodiversity.

[https://hiking.org/portfolio/giving-a-hand-to-science/](https://hiking.org/portfolio/giving-a-hand-to-science/)
Citizen Science as applied in...

**Observation protocols:** Simple to use, not too time consuming or requiring specialist skills, including earthworm sampling, grassland survey, wildlife cameras.

**Data recording tools, platforms:** iNaturalist.org: global biodiversity observation and data recording platform and community.

**Activity formats:** e.g., BioBlitz: Time- and space-bound public activities to record biodiversity observations, often combined with expert talks and hands-on activities.
Projects with farmers

Wildlife cameras
Projects with farmers

Grassland vegetation

Stats

<table>
<thead>
<tr>
<th>Totals</th>
<th>474 Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>272</td>
</tr>
<tr>
<td>People</td>
<td>10</td>
</tr>
</tbody>
</table>

Most Observations

- heidberghof: 120 observations
- demicls_drl: 123 observations
- walder_stanz: 65 observations
- markus002: 64 observations

Most Species

- heidberghof: 101 species
- demicls_drl: 67 species
- walder_stanz: 53 species
- markus002: 49 species

Most Observed Species

- Common Spotted Orchid: 9 observations
- Early Purple Orchid: 9 observations
- Brit’s Herb T harvested: 6 observations
- Common Columbine: 6 observations
- Spurred Rampion: 4 observations

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BioBlitz
Luxembourg
2022
BioBlitz successes

Observations on iNaturalist in LUX cluster

Before BioBlitz (since 2018): 87

During BioBlitz (2 days): 777

10% of all observations taken in Luxembourg during CNC 2022

BioBlitz
Italy
2023

120 participants
421 observations
8th best BioBlitz out of 16 places in Italy
Data gathered, people engaged
Local actor network

- Other likeminded farmers
- Everyone within the extended and cross-generational family context in and around operating farms
- People within the close social circle of farms

Farmers, farming families and friends

- Farming associations
- Agri-env. organisations
- Citizen science networks
- Nature conservation orgs
- National institutions, e.g., Natural History Museums
- Government and regional bodies

Stakeholders, advisory organisations

- School/student groups
- Families, couples, groups of friends
- Local associations and clubs, e.g., Scouts
- Community initiatives

The wider public, community groups

- Farm cooperatives
- Sustainability start-ups
- Farm shops
- Local food businesses (e.g., producers and local sellers, food coops)

Local businesses

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Challenges and opportunities

**Time availability and effort for farmers**
- Finding the hook, finding the soft spot

**Role and capacity of facilitator/facilitating team is critical**
- By-in and leadership

**Increased exposure – vulnerability vs. opportunity**
- Within the community
- Access to data, implications of information – data as “boundary objects”
  - Effects on farming business and local traditions, ways of knowing
  - Effects on perception of farmers (intra-personal, inter-personal)

Empowering farmer clusters and **strengthen local capacity** to function as local systems in a **self-sustaining way**, including taking ownership of citizen science and participatory monitoring activities.
Thank you

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