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Theme 1: Managing Natural Capital for the Future
Swedish University of Agricultural Sciences
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I, Kirsten Henderson, consent to the following report being posted on the Co-operative Research Programme's website.

1. What were the objectives of the research project? Why is the research project important?

Objective: The CRP research project aimed to promote grassy and flowering strips in mainstream agriculture management and explore their limitations. Sustainable agriculture production will most certainly require policies, government support and changing perspectives. What became clear from farmer testimonial is that although farmers are the direct actors, policies, consumer demands, seed availability, land and other socio-economic factors are driving their practices. In the end, we expanded the project to include agro-ecology as a whole and explored the constraints preventing the establishment of agro-ecology in mainstream agricultural systems and the conditions necessary for agro-ecology to become a widespread practice.

Significance: Before implementing sustainable agriculture initiatives it is necessary to have an understanding of the major challenges faced by farmers, what is possible under current legislation, the wants and needs of farmers and society. Without having a basic understanding of the goals and constraints of each actor, initiatives are unlikely to be successful. The collaborative project with the Swedish University of Agricultural Sciences explored the differences between experimental agro-ecological systems and real-world systems.

2. Were the objectives of the fellowship achieved?

Or are they on the way to being achieved?

If not, for what reasons? (The data or research is still ongoing or being analysed; technical reasons (e.g. equipment not working, adverse weather conditions, unexpected results, etc.; other reasons?)

Part of the objectives of the fellowship were achieved. A literature review was conducted and we had meaningful discussions about farm practices and perspectives. It was possible to compare and contrast the perspectives of Swedish and French farmers, as well as explore the impact of policies on farmers. The secondary objective of the proposed project relates to how policies can assist in making the transition to sustainable agriculture through social and economic elements; this has become the primary focus of the collaborative project and will be achieved following the fellowship.

The data collection portion of the proposed project was hindered by late spring conditions, which delayed the seeding of flower strips and crops, in some cases the spring was too wet/late that it was seeding was not a viable option. I was able to participate in some preliminary data collection, but due to the late/wet spring conditions much of the anticipated field work was not conducted.

In summary, the project has taken a different direction, still focused on sustainable agriculture, but with an emphasis on decision-making and constraints. The collaboration is on-going, therefore there will be further opportunities to continue and evolve the project.

3. What were the major achievements of the fellowship? (up to three)

- 1) A new **collaboration** that brings perspectives from agricultural systems to my knowledge of socio-ecological systems.
- 2) A future **publication** on farmer actions and limitations imposed by policies, consumers, companies, etc. that hinder agro-ecological practices.

4. Will there be any follow-up work?

Publication: Following the CRP project a publication on agricultural practices and decision-making (constraints, wants, needs) that alter the landscape, impact food security and alter environmental integrity is expected. The work should be submitted for publication by early next year.

Future work: There is the potential for future collaboration. I have a background in socio-ecological systems, primarily decision-making/peer influence and the resulting changes in the landscape, whereas Riccardo Bommarco is a leader in the field of agriculture diversification. Together the two labs can work on policies that define the food system and environmental preservation.

5. How might the results of your research project be important for helping develop regional, national or international agro-food, fisheries or forestry policies and, or practices, or be beneficial for society? Please express this in terms of environmental/food security/food safety/ economic/health (human and livestock and plant) benefits, etc.

Industrial farming was touted as a means to improve food security, but it has failed to do so and in the meantime has led to significant environmental degradation. Meanwhile, agro-ecology has the potential to increase production with fewer inputs. Much of the world already uses agro-ecological practices for a lack of machinery, but the promises of modernised farm systems, greater production, reduced labour, mean more farmers are likely to shift to industrial farming. We explore the social, ecological and economic factors that differentiate agro-ecology and industrial farming from the perspective of farmers, institutions and consumers. The aim is to determine the major challenges of implementing agro-ecology in Europe and whether agro-ecology could be used as a tool in the industrial farming system to maintain production, while reducing the inputs required and decreasing the environmental footprint. Agro-ecology is a social movement as well as a farming practice, it seems unrealistic that the majority of farmers would shift to agro-ecology. This project aims to determine the feasibility of agro-ecology as a sustainable agriculture practice.

6. How was this research relevant to:

1) The objectives of the CRP?

This research project incorporates the three pillars of sustainable development -- social, economic and environmental elements -- and has the potential to promote policies to improve biodiversity and environmental integrity alongside agricultural production. As the population grows and becomes wealthier, the demand for food is increasing, with a predicted increase in production of 70% in the next 30 years to meet the demands. Therefore, agricultural practices will either need to intensify,

expand or both; yet this requires management of semi-natural spaces to maintain production and quality. Research shows that agro-ecology has many potential social, ecological and economic benefits, but in reality it is far from becoming mainstream. The aim of this project is to determine the main considerations/constraints farmers face and how that impacts the use of agro-ecological practices.

2) The CRP research theme?

The research aligns with the theme ‘Managing Natural Capital for the Future’ as it aims to progress sustainable agricultural policies. At present, a 2m margin, known as a riparian buffer, is required between water bodies and cultivated fields. The original aim of the collaborative research project was to show the benefits of having similar margins throughout the landscape. After discussions and delays in seeding, the research project evolved to include a range of agro-ecology practices — including tillage, fewer inputs, rotations, flower strips, trap crops — and we asked what is required to make these practices more widespread. We looked at the challenges farmers face and how policies could remove some of the constraints.

7. Satisfaction

Given the pandemic, I had lowered my expectations. In the spring, I was able to partake in some fieldwork, hindered by weather more so than Covid. It is difficult to plan ahead when fieldwork is involved. I’m not sure if it was a possibility to delay the visit under the fellowship guidelines, but there should be some flexibility in the dates. Discussions in the spring were limited by Covid, but I was still able to define the project and gain an understanding of Swedish farming practices and the policies/agencies that support them. My second visit in the autumn was more productive in terms of discussions and consolidation of ideas. The project evolved after my first visit thanks to diverse inputs, which made the project more relevant to current farmer/policy challenges. Overall, the collaboration was extremely valuable to my research work. The opportunity to broaden one’s scope is essential to research with practical applications. This fellowship will be advantageous for securing future funding and will enable me to continue working on projects related to practical applications of agro-ecology. As a young researcher the OECD Co-operative Research Programme fellowship is a definite career boost.

8. Advertising the Co-operative Research Programme

I regularly look at the OECD website for events, updates, funding. I happened to come across the Co-operative Research Programme. I generally see ‘calls for applicants’ circulated in emails to my research station, it would be useful for hosts and participants to send the call throughout their network. Otherwise, on journal sites that have an updates/events section.