



Global Forum on Food Security and Nutrition • FSN Forum

TOPIC NOTE

Discussion No. 123 • from 30 November to 21 December 2015

[↗ http://www.fao.org/fsnforum/forum/discussions/liberation](http://www.fao.org/fsnforum/forum/discussions/liberation)

Harnessing the benefits of ecosystem services for effective ecological intensification in agriculture

The next few decades will witness a rapidly increasing demand for agricultural products. This growing demand needs to be met largely through intensification (produce more from the same land surface) because there is little scope for an increase in agricultural area. Ecological intensification - the optimization of all provisioning, regulating and supporting ecosystem services¹ in the agricultural production process - has been proposed as a promising solution.²



In many parts of Europe, agricultural productivity is amongst the highest in the world but depends on unsustainable high levels of external inputs. The challenge for ecological intensification is to reduce reliance on external inputs while maintaining high productivity levels by reestablishing below and above ground ecosystem services. In other parts of Europe, where productivity is less high, the challenge will be to enhance productivity by optimizing ecosystem services rather than by increasing agricultural inputs.

Project [LIBERATION](#) aims to provide the evidence base for ecological intensification and demonstrate the concept in representative agricultural landscape types (managed extensively vs. intensively; with different levels of semi-natural habitats) in seven countries across Europe³.

¹ Ecosystem services are “the benefits people obtain from ecosystems” and include “provisioning services such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling.”

(Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC. Available at: <http://www.millenniumassessment.org/documents/document.356.aspx.pdf>)

² Bommarco, R., Kleijn, D., Potts, S.G. 2012. Ecological intensification: harnessing ecosystem services for food security. *Trends in Ecology and Evolution*. <http://dx.doi.org/10.1016/j.tree.2012.10.012>

³ Italy, Hungary, Sweden, Poland, Germany, Netherlands, UK

Using existing datasets from past and on-going European-scale studies we will first identify general relationships between the configuration of semi-natural habitats, on-farm management and biodiversity in a range of European landscapes and farming systems. Using a modelling approach, the aim of research carried out under LIBERATION is to determine relationships between biodiversity, the delivery of multiple ecosystem services and crop yield.

The main goal of the discussion is to disseminate results and foster discussion on emerging knowledge from research on ecological intensification. Comments will be included in a final report summary that will be shared with project partners – 10 research institutions⁴ across Europe – and included in the final project reporting to the European Union in 2017. The expected impact is to inform the general public and impact relevant policy processes at various levels. The main focus will be the EU level, considering the aims and geographic scope of the project; however, the objective to mainstream measures to upscale ecological intensification across different farming landscapes will likely be relevant to actors within and beyond the EU.

Based on your views and experience, we would like you to engage interested actors around all or any of the three questions below:

- 1. In your experience, how can the efficiency and cost-effectiveness of field and landscape interventions be maximized?**
- 2. How can policy measures – at all levels - be designed in order to capture links between field and landscape management and the promotion of ecosystem services? Based on your experience, do you have any example of such policies?**
- 3. From your knowledge and experience, how aware are European farmers of the relevance of ecosystem services for agricultural production? Do you have any examples of and/or suggestions for best practices for outreach activities to raise awareness on ecosystem services and ecological intensification?**

We would like to thank you in advance for your participation and contributions to this discussion. Your contributions will be of great help for our team at FAO and for the research institutions involved in project LIBERATION, to further strengthen and disseminate evidence supporting the message that ecosystem services are key in the future of sustainable agriculture.

Danielle Nierenberg (Food Tank – The Food Think Tank)

Artur Getz Escudero (Cardiff University/FAO)

⁴ Wageningen UR, NIOO-KNAW, University of Reading, Lund University, Swedish University of Agricultural Sciences, University of Wuerzburg, University of Bayreuth, Centre for Ecological Research – Hungarian Academy of Sciences, University of Padua, Poznan University of Life Sciences