VITAL

VIABLE INTENSIFICATION OF AGRICULTURAL PRODUCTION THROUGH SUSTAINABLE LANDSCAPE TRANSITION

Rhinluch

Utiel-Requena

Vaucluse

Kromme Rijn

1° Call:	2015
Project period:	02/2016 - 04/2019
Topic:	Social sciences and humanities, Landscape / land management, Agricultural production system, Landscape / land management, Supply chain, marketing and consumption.
Keywords:	Sustainable intensification, permanent crops, dairy, Fields of Action
Coordinator:	**Dr ir C.J.E. Nynke Schulp** (VU University Amsterdam, The Netherlands)
	Email: nynke.schulp@vu.nl
Project partners:	INRA, **France**; Universidad Politecnica De Valencia, **Spain**; Agrathaer GmbH, **Germany** , Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V, **Germany**.
Total funding:	782.000 €
Website:	www. faccesurplus.org/research-projects/vital vital.environmentalgeography.nl

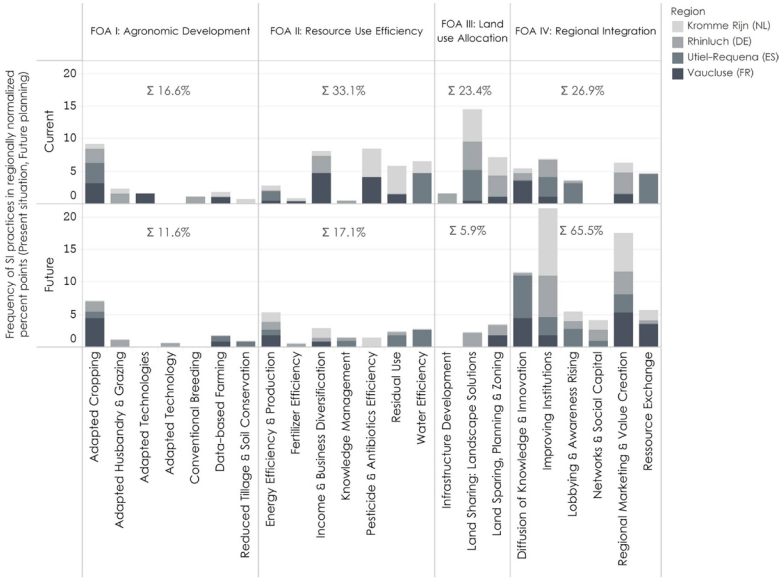
FACCE SURPLUS
SUSTAINABLE AND RESILIENT AGRICULTURE FOR FOOD AND NON-FOOD SYSTEMS

BACKGROUND

Europe will face increasing pressure on agricultural systems due to increasing global food demands, competing claims on land resources and decreasing possibilities to displace production outside Europe. Increasing demands from society for a range of ecosystem services and biodiversity protection call for transitions towards intensive agricultural systems that have minimal detrimental environmental effects. As a response to these major societal challenges, sustainable intensification (SI) is gaining attention. SI cannot be implemented through a generic, single development pathway for all agricultural systems. Alternative trajectories and actions to achieve SI depend on the local and contextual agronomic, environmental and socio-economic conditions. Four case study areas in Western Europe provide a wide range of exemplars where SI is already underway, but where ongoing initiatives leave open space for improvement.

OBJECTIVE

- Identify key conditions of agricultural land systems that allow systems to shift towards sustainable intensification states;
- Explore triggers and transition pathways towards sustainable intensification states;
- Develop and operationalize sustainability indicators that reflect a land use system's position in a space of production intensity, ecological resilience and socio-economic viability, which together determine a region's adaptive capacity towards sustainable intensification;
- Draw upon real-world, operational exemplars, to understand how conditions, triggers and pathways interact, and how they link to value chains and valorization;
- Embed developments in sustainable intensification pathways in larger contexts (landscape, national, EU and global) to understand the potential of up- and out-scaling of regional best-practice examples.



METHODOLOGY

VITAL combines spatial and empirical analysis with participatory research. In four case study areas, we identify drivers, triggers and constraints for SI using social network analysis, surveys, and spatial analysis of landscape structure and functioning. These analyses are in the end upscaled to European scale. Throughout the project, the stakeholder community in the four case study areas is closely involved – from defining the exact scope of sustainable intensification to defining and upscaling the relevant pathways towards sustainable intensification.

RESULTS AND KEY FINDINGS

- Public agencies and farmers' organizations are crucial stakeholders for making SI happen.
- There is a need of formal structures of knowledge exchange. Advisory services are needed that support SI.
- Erosion, inefficient water use and suboptimal land use set a need for SI in 65% of Europe's arable land.
- Socio-economic opportunities limit potential implementation of SI measures.
- High opportunities of SI exist in 34% of the EU's arable land.
- But: the potential of consumer measures for improving value chain level sustainability outweighs the potential of agricultural structure and land based measures.
- Prepared country-specific Knowledge sharing, Communication and Impact Maximization (KCIM) plan to reach the identified stakeholders within and beyond Europe (WP5).
- Life cycle assessment of the woody component, residual waste and co-products of IFNS (WP4).

KEY PUBLICATIONS

- Weltin, M., I. Zasada, A. Piorr, M. Debolini, G. Geniaux, O. Morena Perez, L.A. Scherer, L. Tudela Marco, C.J.E. Schulp, 2017. Conceptualising fields of action for sustainable intensification – A systematic literature review and appication to regional case studies. Agriculture, Ecosystems and Environment 257: 68-80. DOI: 10.1016/j.agee.2018.01.023.
- Scherer, L.A., P.H. Verburg, C.J.E. Schulp, 2017. Opportunities for Sustainable Intensification in European Agriculture. Global Environmental Change 48:43-55. DOI: 10.1016/j.gloenvcha.2017.11.009.
- A.L. Bais-Moleman, C.J.E. Schulp, P.H. Verburg, 2018. Assessing the environmental impacts of production- and consumption-side measures in sustainable agriculture intensification in the European Union. Geoderma, in preparation.