

## **Blog no 1: INTENSE activities in Europe**

### **INTENSE research on recovery of soils and increase in agricultural production.**

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The FACCE SURPLUS project “Intensify production, transform biomass to energy and novel goods and protect soils in Europe (INTENSE)” started 1 April 2016. In this blog, we will give information on the background and status of the project in the summer of 2016.

### **Summary**

INTENSE will respond to several of the “Great Challenges” for the 21st century, which are global food security, use of renewable raw materials and production of biomass for energy and other sectors of the Bioeconomy, for which the agricultural sector is important.

INTENSE will contribute to sustainable increase in food production, novel products for agriculture and new perspectives for European rural landscapes. Future land use must embrace efficient production and utilization of biomass for improved economic, environmental and social outcomes. In the “International Year of Soils” at least 30 % of the agricultural soils in Europe need to be transformed to a state of higher quality.

Accordingly, INTENSE will contribute to reconverting poor, abandoned and polluted sites including grassland, set aside land, brownfields, and otherwise marginal lands into sustainable agricultural production across Europe. Innovative systems-based tools for the development and implementation of integrated food and non-food production serving for intensified land management of these land areas will be constructed. These tools open up a wide range of novel products and services across farming communities in Europe.

Thus utilizing and developing models characterizing fluxes of matter, productivity and socio-economy, the INTENSE project responds to central questions of FACCE-JPI Core theme 3: Sustainable intensification of integrated food and non-food systems of agriculture. Recovery of soils from pollution, drought or other reasons for low productivity requires research on several topics. (a) identification of crucial soil components and processes (b) identification and assessment of plant species producing either high biomass or cash crops on marginal and/or contaminated soil, (c) the optimum composition for composting and biogas production, (d) degradation and absorption of pollutants by selected species and to demonstrate their potential.

INTENSE will combine cropping and soil amendment experiments, precision agricultural and crop modeling tools, experimental biomass conversion to energy, the assessment of greenhouse gas and nutrient emission and other environmental indicators, as well as socioeconomic models. Stakeholders including farms and farm associated biogas enterprises will be an integrated part of the project to serve to facilitate the implementation of sustainable and financially attractive production alternatives.

The holistic approach of the project will enable the identification of common traits and at the same time enable the development and dissemination of production chains for sustainable intensification which are adapted to the environmental and socio-economic diversity within Europe.

### **Aims**

The ambitious aims of the project, are to:

1. Determine and harmonize methodologies for identification and recovery of degraded soils of specific degradation status,
2. Develop, and optimize novel cropping systems, using precision agriculture and modeling tools, which are capable of
  - i) increasing productivity,
  - ii) increasing soil life and functionality,
  - iii) making use of specific amendments, to suppress pathogens and fertilize soils.
3. Develop and implement suitable production systems applicable for land amelioration in complex degradation situations and, finally,
4. Develop and implement sustainable and financially attractive production alternatives for production on recovered farmland.

By now, INTENSE has started the work in the six work packages (WPs) of the project. WP leaders are now in the final stage of organizing their work and make the detailed progress plans. Experiments have started and more will be started during this autumn and next season. Please follow us on our web page at the Coordinator institution (<http://www.nibio.no/en/prosjekter/intense>). We will also be visible on the web pages of every Partner in their respective languages. This Blog will give information and opinions from the project partners and from their activities, with a monthly output from us. We, the project partners, will be glad to receive responses to our blogs. If you want to subscribe to newsletters, please sign up on our home page. We will start the Newsletter in November 2016.