



**Integrating agroecology  
with the downstream:  
food value chains**



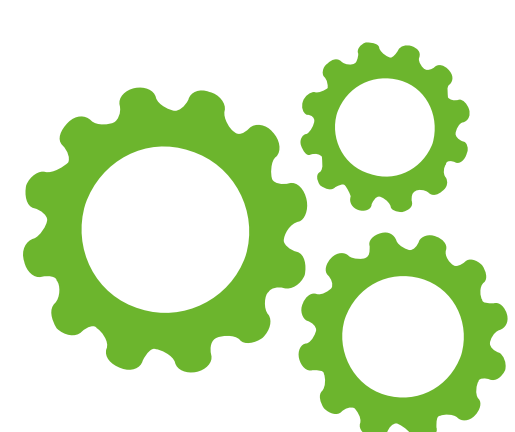
**AGRI  
Innovation** summit 2019



## Other Multiactor Project

### ProRefine: Valorisation of forage legumes for both monogastric animals and ruminants through fractionation

ProRefine: Valorisation des légumineuses fourragères par fractionnement pour les ruminants ET les monogastriques



## Practical problem

Forage legumes have high protein yields. We need efficient fractionation and preservation methods for developing feeds for monogastric animals and ruminants.



## Partners

Research: NIBIO (Norway), Ruralis (Norway), SLU (Sweden), AU (Denmark), INRA (France), UCSC (Italy), IARTC (Turkey). Industry: TRUST'ING – ALF'ING.



## Calendar

Start: 01/01/2018  
End: 01/01/2021



## Budget

Total amount:  
€1,370,000

## Objectives of the project

ProRefine aims to gain new knowledge about local food systems in organic farming based on fractionation of forage legumes, such as lucerne and red clover. We will compare fractionation at harvest (leaves and stems) and post-harvest (juice and pulp). We aim to develop protein feeds that are suitable for monogastric animals such as pigs and poultry and fiber-rich feeds that can be used by ruminants such as dairy cows. We will develop integrated systems for animal production in organic farming that can be adapted to different regions in Europe and Turkey. Furthermore, we aim to assess the sustainability of such systems regarding economy, social aspects and environmental impact.

## Main activities

- Annual stakeholder group meetings in each participating country including Focus Group interviews on various topics
- Development of mathematical models to predict protein supply from forage legumes and for different fractionation methods
- Field trials with fractionation of forage legumes in five regions
- Preservation experiments for protein-rich and fibre-rich fractions
- Evaluation of nutritional value of forage legume fractions in growing pigs and sheep
- Conceptualization of local food systems in organic farming based on forage legume fractionation
- Study of farmer attitudes towards self-sufficiency with feed
- Sustainability assessment including economic, social and environmental aspects

## Expected results

- Knowledge on how to maximize forage legume yields, with regard to crude protein content, leafiness and fiber digestibility under different climatic conditions
- Yields and chemical composition of forage legume fractions that have been separated by leaf stripping or juice pressing
- Knowledge on preservation of forage legume fractions
- Knowledge on nutritional values and digestibility of forage legume fractions in monogastric animals and ruminants
- Barriers identified by farmers and other stakeholders for developing local value chains for organic animal products
- Economic, environmental and social sustainability of local food systems in the context of regional conditions.

## Results so far/first lessons

Actors in the value chain understand self-sufficiency with feed as relevant at many levels, ranging from the farm to the global level. Self-sufficiency is important with regard to food security, nutrient cycles, moral responsibility, employment in rural areas and consumer acceptance of food production and farmers' pride. The stakeholders mentioned goal conflicts between climate considerations and self-sufficiency, shortage of agricultural land, farm economy, logistics and the necessity for high protein levels in animal diets as possible barriers for a high degree of self-sufficiency. We are carrying out field experiments and animal trials in 2019 and 2020.

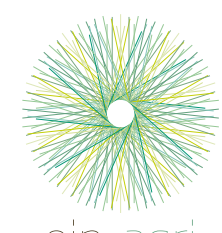
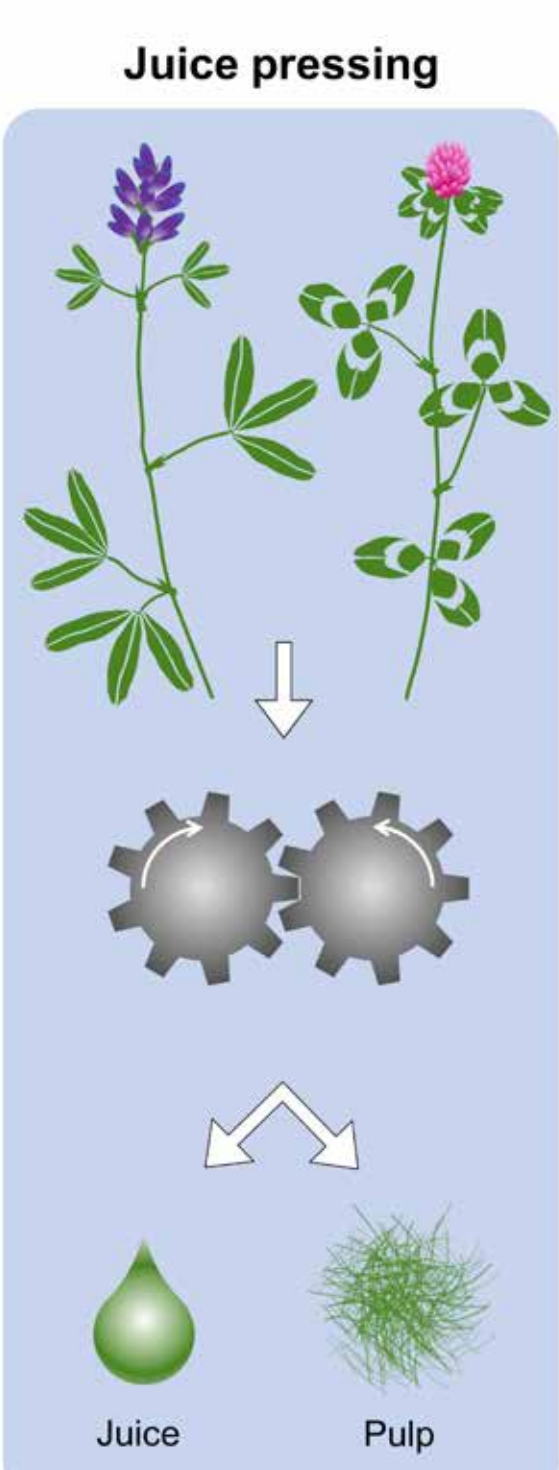
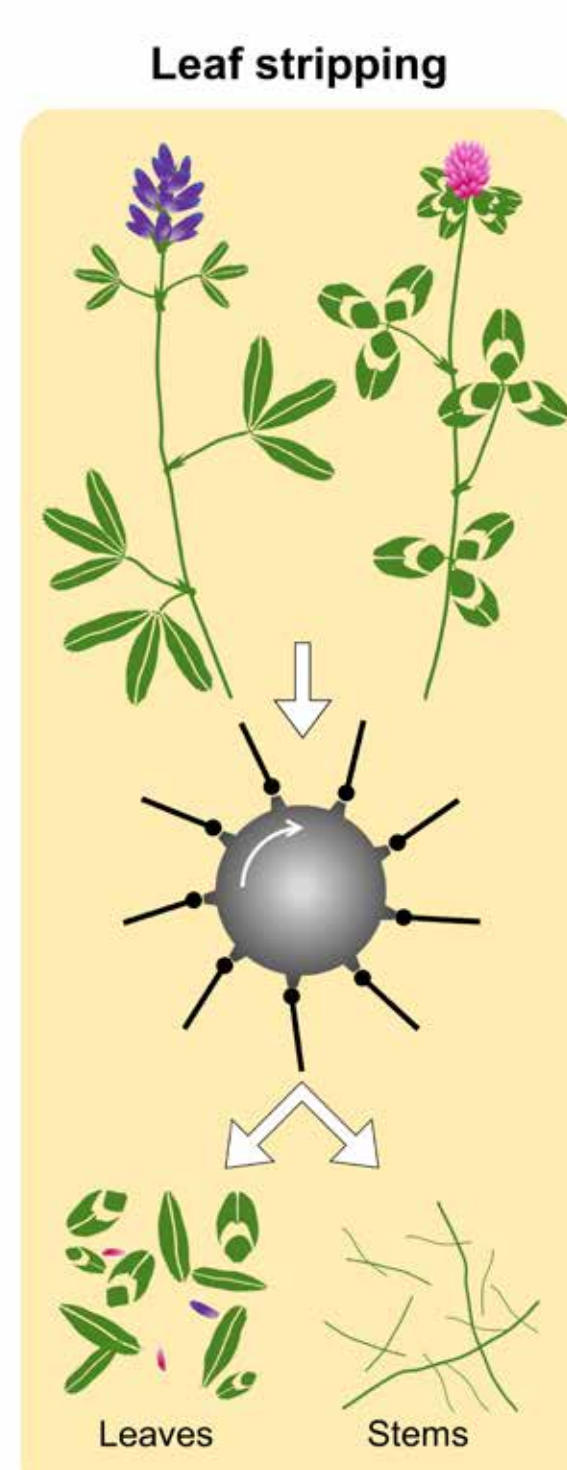
## Who will benefit

The target groups of ProRefine are farmers, advisory services, industry, government officials and the scientific community. We apply a participatory approach by involving regional stakeholder groups. The new knowledge gained will contribute to strengthen the agricultural sector in Europe as a whole by improved utilization of local biological resources. Implementation of fractionating forage legumes may lead to new food products demanded by consumers supporting proximal food chains. New knowledge about local food systems in organic farming can be transferred between countries and across sectors. This will increase the awareness for the use of local resources in food production.

## Supported by:

CORE organic

**Contact:** Eric Juncker, Steffen Adler  
**Mail:** [ecpaval@hotmail.fr](mailto:ecpaval@hotmail.fr)



**AGRI INNOVATION SUMMIT 2019 LISIEUX**  
More information [www.reseaurural.fr/ais2019](http://www.reseaurural.fr/ais2019)

