Biorefining forage legumes
for cows, poultry and pigs in organic farming

Aim and added value

The aim of the research project is to gain new knowledge about local production of protein feed for mono gastric animals in organic farming, deriving from forage legumes. New knowledge will contribute to strengthen the agricultural sector in Europe as a whole, by improved utilisation of biological resources and competency on local food systems.

Mechanical fractionation

Two different techniques will be used to separate protein-rich from fibre-rich material. A leaf stripper has a rotating tool that picks off the leaves before the stems are mowed. A double twin-gear screw press squeezes plant juice out of the fresh crop and separates it from the pulp. Adequate preservation methods must be developed to conserve the nutritional value.

Leaf stripping

Leaves and pressed juice from lucerne (Medicago sativa L.) and red clover (Trifolium pratense L.) can be a protein source for monogastric animals such as pigs and poultry. Fibre-rich pulp and stems can be utilised by ruminants. The mechanical processing of the plant fibres may enhance its digestibility.

Juice pressing

Forage legume fractions

Leaves
Stems
Juice
Pulp

Leaf stripper harvesting lucerne

Transnational project

ProRefine has a transnational and multidisciplinary approach and involves actors experienced in organic farming research.

- Testing of new technology is an integrated part of the work
- Field experiments in different countries
- Mathematical models to predict protein supply from forage legumes
- Evaluation the nutritional value in animal feeding experiments
- Developing concepts of production systems based on local feed
- Focus on adaptation to regional characteristics
- Sustainability assessment by considering social, economic and environmental aspects
- Interviews with regional stakeholder groups and organic farmers

Read more about ProRefine:

INRA
Institut National de la Recherche Agronomique, France

TRUST’ING
France

UCSC
Università Cattolica del Sacro Cuore, Italy

AU
Aarhus University, Denmark

Ruralis
Institute for Rural and Regional Research, Norway

NIBIO
Norwegian Institute of Bioeconomy Research

SLU
Swedish University of Agricultural Sciences

IARTC
International Agricultural Research and Training Center, Turkey

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Refined forage legumes
as local sources of protein
feed for monogastrics and
high quality fibre feed
for ruminants in organic
production

Duration: 2018-2021
Total budget: 1.78 mill. €
Six countries, seven institutes and one industry partner
Coordination: NIBIO, Norway
Financial support for this project is provided by funding bodies within the H2020 ERA-net project, CORE Organic Cofund, and with co-funds from the European Commission.
Further information can be obtained from the project coordinator Steffen Adler (NIBIO), steffen.adler@nibio.no