



# Legume Futures: Legume-supported cropping systems for Europe

Christine Watson & the Legume Futures Team



Legume-supported cropping systems for Europe (Legume Futures) is a collaborative research project funded from the European Union's Seventh Programme for research, technological development and demonstration under grant number 245216 www.legumefutures.de



## To give you a taste of the Legume Futures project





### SOME BACKGROUND

- Europe imports 12% world soyabean production (13 million t or 15 million ha of borrowed land)
- Growing poultry and pig meat consumption drives increased plant protein imports
- Cereal crops (e.g. wheat) have a comparative advantage and protein crop yields are variable
- But fertiliser and soya bean prices are increasing
- Public policy intervention has failed to increase areas of legumes cultivated



# Policy has failed to increase protein crop production





#### **Topics**

#### "Process" level

- Crop production and quality
- N fixation in different legumes
- Nitrous oxide emissions
- Biodiversity
- Rotation generation

### **Europe/Region**

- Barriers to legume use
- Non-food uses of legumes
- N fixation at continental scale
- Impact of legume based rotation

## Legume Futures - Experimental network





#### **Process level examples**







### **United Kingdom, 2011**







### Biodiversity – legumes influence biomass and earthworm species







#### http://images.cryhavok.org/v/World+Peas.jpg.html





In Europe – do grain legumes or forage legumes fix more N?



- Many estimates exist of BNF per hectare in different crops in different countries
- BNF depends greatly on biomass
- >10-fold range in biomass from best to worst growing conditions, even within a country
- Area and yield data available for grain legumes, but to obtain for forage legumes



### GRAIN LEGUMES Total 206,000 t (Gg) N fixed





# Total: 586,000 t of N fixed in forage grasslands







#### Some reflections from the Legume Futures Community

Lack of understanding of long-term benefits vs short-term gain

Common aims of improved yield, stability and quality (ANFs)

Lack of adapted cultivars - winter-hardy, autumn-sown crops desired in Oceanic, Boreal and Continental. Earliness needed in grain legumes for Mediterranean, Boreal and Oceanic

Like socks - one size does not fit all (Different crops suit different soil types, but this conflicts with feed industry's desire for uniformity)

Value of early adopters (transfer of knowledge from organic production an advantage). Need for knowledge exchange – "only old men grow legumes!"



# www.legumefutures.de



Legume-supported cropping systems for Europe (Legume Futures) is a collaborative research project funded from the European Union's Seventh Programme for research, technological development and demonstration under grant number 245216





## Legume Futures



#### Main Navigation

- . Welcome to Legume Putures
- . Resource Centre Home
- + General Information
- + Methodologies
- + Projecta

Last updated on 25 Sep 2013

#### Legume Futures Resource Centre home page

Legume Publishes is an international reactorsh project in the SU Promovork Programme 7. This project sime to develop and assess legumersupported propping systems that will relacible cooperatio and environmental performance of European agriculture.

This Resource Contro is being developed within Legume Futures as a source and repository of information on legumes and legumer/based propping systems. Click the link below or use the left-filend menuite see a list of the defegring in which information is collated.

- · Resource Contre cotogories
- · Latest entries
- \* Contects and further information



#### Scorch Bearch here Ga

10000	 The Charles of Charles	

RSS Food

Print-friendly version

a Silemap