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AGRICULTURE & INNOVATION

## Protein crops

### How can the competitiveness of protein crops in the EU be improved?

This question was addressed by the EIP-AGRI Focus group on protein crops, 20 experts from different countries, including farmers, people working in the feed industry, researchers and advisers. This fact sheet summarises their main findings and recommendations for further work.

The number of EU farms growing protein crops either for their own animals or to sell to local and organic markets is growing. At a regional scale, there are various initiatives to produce protein crops for regionally processed protein products, but they remain limited. The Focus Group experts pointed out that protein crops can contribute to crop diversity in Europe, and bring associated benefits such as a more attractive landscapes, less disease and pest pressure, improved nitrogen management, fewer nitrogen emissions, and increased opportunities for local value chains. To increase the competitiveness of protein crops in the EU, it is important to include protein crops in rotations and optimise the whole arable farm production. The group recommended actions at different levels:

- ▶ **At yield level:** at EU level, EU-grown protein is not competitive, yields are still lower than maize and wheat and therefore farmers` interest is low. The EIP-AGRI Focus Group on Protein Crops concluded that peas, field beans and soya offer the best potential to compete with maize and wheat. Yields can be increased substantially by improving cultivation techniques.
- ▶ **At breeding level:** plant breeding can also help increase competitiveness, both in terms of yield and in terms of quality. The breeding sector can also contribute to reducing the anti-nutritional factors, thus making protein crops more attractive for the feed sector.
- ▶ **At supply chain level:** the infrastructure to process and market EU grown protein would need to be developed. Large-scale processing for feed is almost non-existent.

Cooperation and integration between breeders, producers, and processors such as the feed industry is needed to increase the production of protein crops in the EU . There are good prospects to increase yields through breeding research but this alone will not be enough, investments would also have to be made in the feed sector.

*“Sharing knowledge on the use of varieties and daily experience are key to success. Research can support increasing yield and competitiveness. The whole value chain needs to work together on this.”*

- Chris de Visser (the Netherlands), coordinating expert from the EIP-AGRI Focus Group on protein crops -

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## Ideas for Operational Groups

- ▶ Test different varieties of soya at farm level.
- ▶ Develop new practices and set up new trials with mixtures of 4 to 6 different species.
- ▶ Investigate the scope for adapting and developing protein crops other than beans or oilseed rape for oceanic climates.
- ▶ Develop and test practical economic tools and research results to support farmers in their transition from cereals to protein crops. Consider the effect of the protein crops on the whole rotation system.

## Research needs

- ▶ Develop mixed cropping and mixed forage for different climatic zones. Identify the feeding value of these mixtures and develop a tool for farmers/advisers to support the use of mixtures.
- ▶ Develop new cultivars of faba beans and peas which are more adapted to monogastrics.
- ▶ Plant breeding to establish resistance against *Aphanomyces* (for peas including chickpea) and drought.
- ▶ Search for new oil extraction processes for sunflower and oil seed rape respecting the desired protein quality.
- ▶ Improve faba bean for oceanic climates by breeding to improved yield capability, more determinate growth, improved disease control.
- ▶ Develop soya bean varieties adapted to rain fed production in southern EU.
- ▶ Knowledge development and exchange, coordinated yield optimisation and varieties research between Central Eastern and North West Europe.
- ▶ Look for modern breeding tools (genomic selection, marker assisted selection and so on) to be used for soybean for breeding for higher yield.

## More ideas for Operational Groups and research needs available in the Focus Group report

## Other recommendations

- ▶ Cooperation is needed between the feed industry, plant breeding industry, farmers, research and advisory, government and NGOs.
- ▶ A step-by-step approach is needed in the transition period. While the competitiveness and volumes of protein crops are still low, local value chain solutions could provide the stepping stone to support the transition period to higher volumes and higher competitiveness.

## More information on the EIP-AGRI website



<a href="#">Focus Group webpage</a>	<a href="#">EIP-AGRI Workshop 'How to make protein crops profitable in the EU?'</a>	<b>Inspirational ideas:</b> <ul style="list-style-type: none"><li>- <a href="#">Innovative technology for animal feed rich in protein</a></li><li>- <a href="#">Feeding pigs and poultry: tips for a 100% organic diet</a></li><li>- <a href="#">Growing protein crops to optimise livestock farms' profits</a></li><li>- <a href="#">Pulses- superfood for the future</a></li><li>- <a href="#">Producing protein feed and fuel from biomass (Agrinnovation n°3 - p.10)</a></li></ul>
<a href="#">Focus Group report</a>		
<a href="#">EIP-AGRI Brochure on Competitive protein crops</a>	<b>Press articles:</b> <ul style="list-style-type: none"><li>- <a href="#">Growing protein crops has a profitable future</a></li><li>- <a href="#">German farmer searches sustainable alternatives for imported protein feed</a></li></ul>	<b>Horizon 2020 multi-actor projects:</b> <ul style="list-style-type: none"><li>- <a href="#">LEGVALUE</a></li><li>- <a href="#">TRUE</a></li></ul>

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