

Call for Innovation in the Organic 2016 Submission template

Guidelines

- Describe your innovation in a simple language (English), easily understandable for non-specialist.
- Check the spelling/grammar carefully before sending it.
- Send your submission(s) in Microsoft Word format to info@tporganics.eu by **12 September 2016 at the latest**.
- In the subject of the email please indicate the following: OID_2016_Theme 1, 2 or 3_Title of your practice
- If you have multiple solutions, submit each one separately as described above.



Categories	Description
1. Which topic does the innovation address?	☒ Innovation in animal health & welfare in organic production systems ☒ Increasing productivity & quality in organic arable farming ☐ Improving transparency of the organic value chain
2. Short title of your innovation (max. 150 characters)	Clover grass protein for organic pig and poultry. Better rotations- better feed- better welfare.

3. Contact person (your name, address, e-mail, telephone)	Erik Fog SEGES (Organic Farming) Agro Food Park 15 DK-8200 Aarhus N Denmark erf@seges.dk +45 8740 5490
4. Project partners / partners who contributed to the development of the innovation (names)	Aalborg University - Department of Chemistry and Bioscience; University of Copenhagen - Department of Food and Resource Economics (IFRO) and Department of Plant and Environmental Sciences; Aarhus University - Department of Animal Science; SEGES – Organic Farming; Danish Technological Institute – AgroTech; Fermentationexperts A/S; Biotest Aps; Institute for Food Studies & Agroindustrial Development-IFAU.
5. Short summary (300-500 words max) of the innovation, addressing the following: What is the innovation about, what are the main objectives, benefits & relevance for organic sector? How can the innovation be used or adopted by others? What are possible drawbacks of the innovation?	The innovation: Clover grass is grown as a protein crop on organic arable farms and farms with no ruminants. Juice of fresh clover grass is extracted with a screw press, fermented with natural lactic acid bacteria and a protein rich concentrate obtained by centrifugation / drying. The fiber rest is used as cattle feed or biogas production – returning as manure to the fields. Objectives: A) Better rotations and better yields on organic farms without ruminants; B) 100 % organic feed for non-ruminants; C) Organic protein feed meeting the needs for essential amino acids (animal welfare); D) Higher self-sufficiency, organic integrity and income

	generation. Benefits/Relevance: Clover grass is a robust crop in organic agriculture with stable high yields and with positive impact on soil fertility and weed control, but it is difficult / costly to integrate clover grass in higher scale on farms without ruminants. The protein extraction raises the value of clover grass on these farms. The grass protein has high levels of methionine and is therefore a valuable protein source and can be produced organically. The high methionine content makes it possible to mix an organic feed with an optimal amino acid composition and as a result of which an oversupply of protein can be avoided (lowering the physiological stress). Biogas production can contribute positively to organic farms climate profile (renewable energy) and the digestate improve the supply of organic fertilizer. Adoption: As soon the processing system is successfully developed the production of clover grass protein can be started in all countries where grass protein will be an attractive alternative to e.g. soya. Drawbacks: The main challenges will be to construct the technique and the production system so it is easy and profitable to use.
6. Context of the innovation. Who were the main actors developing the innovation (private sector, advisory services, farmers' organization, research...)? What made them to develop the innovation? What was the concrete driver?	The grass protein concept is developed by a consortium of Danish universities, the Danish agricultural advisory service and Danish agricultural companies inspired of former experiences in bio-refinery (see question 4). The activities are run as an organic research and development project

	under coordination of the International Centre for Research in Organic Food Systems in Denmark. The main driver has been to find solutions to the following challenges in organic farming (in Denmark): • Low yields in organic crop production on non-ruminant farms • Organic protein with the right amino acid composition / stop the use of protein from conventional agriculture. • Better climate performance of organic farms: better yields, higher carbon sequestration and lower nitrogen losses.
7. How widely is the innovation already used and what is the potential use? Do you think the innovation can be easily scaled-up? • In terms of geographical scale • In terms of numbers of adopters • In terms of type of farmers (e.g. small, med., big)	The innovation is under development in the Danish project OrganoFinery. The first large scale trial has been conducted in the summer 2016 giving a positive expectation on the feasibility of the system. Feeding trials will be performed in the autumn 2016. Further technical innovation will be performed I 2017. The system is expected to be developed into a mobile harvesting/pressing unit feeding a local medium size feed processing plant (bio-refinery). It should be relatively easy to use in areas where there can be harvested approximately 3000 ha of clover grass for processing under a radius of 30-50 km. Number of adopters (local companies starting biorefining of grass) will mainly depend on areas with the necessary concentration of organic farms. The biorefining process need quite big investments and will therefore

	mainly be possible for companies or farmer cooperatives. Economic harvest of grass for biorefining require relatively large areas of clover grass (> 20 ha). Growing of clover grass for protein production will therefore mainly be attractive for medium to big sized farms without ruminants. The produced organic protein feed will be attractive for all sizes of organic pig and poultry farms.
8. Funding source. How was your innovation financed?	The OrganoFinery project has been funded by the Danish Green Development and Demonstration Programme.
9. Links to website, leaflets, audiovisual material...	Website: http://icrofs.dk/en/research/danish-research/organic-rdd-2/oreganofinery/ Facebook-video (in Danish): https://www.facebook.com/segesokologi/videos/915738461871653/ Speech from the project leader: https://www.youtube.com/watch?v=Q5Bi2AW71Ss