3rd Annual News Letter

October 2020

Content:

Editorial

It barely seems possible that this is the 3rd Edition of this News Letter and 12 months since the last.

In the 2nd Edition, Frederic Muel (Project leader) alluded to the pace at which developments have been taking place in the world of legumes, throughout the world. The demand for vegetable protein continues to expand rapidly and judging by some of the reactions from within the meat industry, one could be forgiven for thinking that the world has turned it's back on meat consumption and that livestock producers and meat processing companies are heading for oblivion. This of course is nonsense, but there really is a powerful movement afoot demanding wholesome satisfying meat alternatives that carry a strong nutritional, health, and environmental message and as far as food manufacturers go, the source of the protein being favoured is from legumes.

The human food requirement of the world's billions is enormous and although European consumption of legumes is starting from a very low level, make no mistake, if only a tiny proportion of meat eaten from the plates of European citizens is turned aside in favour of plant based proteins, the question we need to ask is not whether the world is ready for legumes, but whether legumes are ready for the world? Naturally this is a ridiculous question, as legumes themselves have been ready for millennia, a more salient point would be to ask what is the supply chain doing to address the demand?

As previously pointed out by Frederic, in many ways it could be said that this and other similar projects are too late. They were established to suggest to policy makers, pathways for transition towards greater pulse production, with protein deficit high on the agenda. However, we live in a capitalist society and when the market moves in a direction showing the way to profitability, investment flows with it. Pulse protein extraction is already underway and pulse crop production is rising to meet demand. I wonder if interest in legumes has ever been higher. The policy makers having decided that they need to encourage more local protein production and to reduce imports, may soon find themselves with the a slightly different question. Not how to encourage production, but how to encourage it sustainably, to encourage good practices and to ensure that investment is in healthy products for the food chain? Answers to questions of how to release barriers to production, to ensure rapid and sustainable transition and ultimately resilience in agriculture for the future, are what Legvalue is seeking to provide. It may ultimately be for the policy makers to hang on to the tail and guide the beast, as the gate is already opened.

In this News Letter we report on and link to; some of the more recent salient science, developments in industry; regional plant protein initiatives, resources available to growers, educators and policymakers; how to engage with other projects working in this area; the Legume Innovation Network – an initiative for innovators; and an introduction to the final project conference in 2021.

I hope you enjoy the content and exploring the links provided. *Roger Vickers* (PGRO)

PUBLISHED PAPERS

Prospective cultivation area of field peas used in animal meat substitutes in the EU.

Marcus Mergenthaler, Bruno Kezeya Sepngang, Wolfgang Stauss, Frédéric Muel

Presented by Marcus Mergenthaler at **14th International European Forum on System Dynamics and Innovation in Food Networks** (The International Center for Food Chain and Network Research, University of Bonn, Germany, February 10-14, 2020, Garmisch-Partenkirchen, Germany)

ABSTRACT

Meat alternatives from leguminous raw materials are expected to play an increasing role in human nutrition. The US Company Beyond Meat entered the EU retail market in the UK, the Netherlands and Germany with a pea-based vegan burger patty in 2019 which is seen as accelerating the trend towards plant-based meat alternatives in the EU. Pea protein isolate is the protein basis of the Beyond Meat burger patty. The raw material basis for the protein isolate can be assumed to be peas from the northern states of the US and from Canada. Additional global cultivation areas and additional general cultivation potential for peas are forecasted for the short to medium term. European peas may become increasingly used as raw materials in the future if the expected market growth evolves with a regional origin of the raw materials. This would result in additional sales potential for EU legume producers with growing cultivation areas. The aim of the present study is to estimate the prospective area of peas for pea-based meat alternatives in the EU within a simple model calculation. Various data sources were used to estimate the cultivation potential. In addition, plausible assumptions were made in case of unavailable data. To estimate future consumption shares, an expert panel was interviewed as part of the European joint project LegValue. Based on per capita consumption of animal meat, consumption volumes of pea-based meat alternatives were estimated. With a consumption share of 2 % for pea-based meat alternatives in the EU, the effects on the production volume and pea cultivation area remain relatively small. With an increased consumption share of pea-based meat alternatives of 12.5 % the pea cultivation area would rise to almost 100 % compared to the current cultivated area. By the third scenario with a consumption of 40 % pea-based meat, the cultivated area would triple. However, the additional share of the pea cultivation area in the total arable area in the EU would be only a small additional increase. Thus, increased pea cultivation would only have minor effects on competition for agricultural land. If pea-meat replaced animal meat, land used for animal feed production would become available.

The full publication can be downloaded here:
http://centmapress.ilb.uni-bonn.de/ojs/index.php/proceedings/article/view/2002

All papers and proceedings from the forum can be found and downloaded here:
http://centmapress.ilb.uni-bonn.de/ojs/index.php/proceedings/issue/view/59

Convergent innovation for affordable nutrition, health, and health care: the global pulse roadmap

Srivardhini K. Jha :John McDermott :Gordon Bacon: Chris Lannon :P. K. Joshi:Laurette Dubé
October 2014 https://nyaspubs.onlinelibrary.wiley.com/doi/full/10.1111/nyas.12543

Annals of the New York Academy of Sciences.

The paper outlines how the principles of convergent innovation (CI) can be applied to bring about a transformation in the pulse value chain. The paper presents three pioneering CI initiatives—two in conception and one in operation—by various actors in the pulse ecosystem, which are delivering economic and human development impact in particular segments of the pulse value chain. It goes on to propose the way forward to scale up these efforts and connect them into a roadmap so as to achieve transformation throughout society, calling into action a number of actors in the ecosystem.

Ann. N.Y. Acad. Sci. ISSN 0077-8923

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
Issue: *Paths of Convergence for Agriculture, Health, and Wealth*

Convergent innovation for affordable nutrition, health, and health care: the global pulse roadmap

Srivardhini K. Jha,[1,2] John McDermott,[2] Gordon Bacon,[3] Chris Lannon,[1] P. K. Joshi,[4] and Laurette Dubé[1,5]

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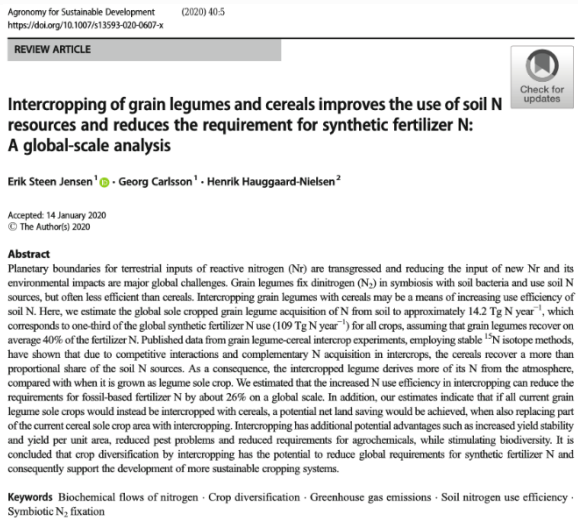
Keywords: convergent innovation; pulse value chain; value chain transformation; agriculture; health

Intercropping of grain legumes and cereals improves the use of soil N resources and reduces the requirement for synthetic fertilizer N: A global-scale analysis

Erik Steen Jensen; Georg Carlsson; Henrik Hauggaard-Nielsen
10 February 2020 https://link.springer.com/article/10.1007/s13593-020-0607-x

Agronomy for Sustainable Development

Planetary boundaries for terrestrial inputs of reactive nitrogen (Nr) are transgressed and reducing the input of new Nr and its environmental impacts are major global challenges. Grain legumes fix dinitrogen (N_2) in symbiosis with soil bacteria and use soil N sources, but often less efficient than cereals. Intercropping grain legumes with cereals may be a means of increasing use efficiency of soil N. Here, we estimate the global sole cropped grain legume acquisition of N from soil to approximately 14.2 Tg N year^{-1}, which corresponds to one-third of the global synthetic fertilizer N use (109 Tg N year^{-1}) for all crops, assuming that grain legumes recover on average 40% of the fertilizer N. Published data from grain legume-cereal intercrop experiments, employing stable ^{15}N isotope methods, have shown that due to competitive interactions



Agronomy for Sustainable Development (2020) 40:5
https://doi.org/10.1007/s13593-020-0607-x

REVIEW ARTICLE

Check for updates

Intercropping of grain legumes and cereals improves the use of soil N resources and reduces the requirement for synthetic fertilizer N: A global-scale analysis

Erik Steen Jensen[1] · Georg Carlsson[1] · Henrik Hauggaard-Nielsen[2]

Accepted: 14 January 2020
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Abstract
Planetary boundaries for terrestrial inputs of reactive nitrogen (Nr) are transgressed and reducing the input of new Nr and its environmental impacts are major global challenges. Grain legumes fix dinitrogen (N_2) in symbiosis with soil bacteria and use soil N sources, but often less efficient than cereals. Intercropping grain legumes with cereals may be a means of increasing use efficiency of soil N. Here, we estimate the global sole cropped grain legume acquisition of N from soil to approximately 14.2 Tg N year^{-1}, which corresponds to one-third of the global synthetic fertilizer N use (109 Tg N year^{-1}) for all crops, assuming that grain legumes recover on average 40% of the fertilizer N. Published data from grain legume-cereal intercrop experiments, employing stable ^{15}N isotope methods, have shown that due to competitive interactions and complementary N acquisition in intercrops, the cereals recover a more than proportional share of the soil N sources. As a consequence, the intercropped legume derives more of its N from the atmosphere, compared with when it is grown as legume sole crop. We estimated that the increased N use efficiency in intercropping can reduce the requirements for fossil-based fertilizer N by about 26% on a global scale. In addition, our estimates indicate that if all current grain legume sole crops would instead be intercropped with cereals, a potential net land saving would be achieved, when also replacing part of the current cereal sole crop area with intercropping. Intercropping has additional potential advantages such as increased yield stability and yield per unit area, reduced pest problems and reduced requirements for agrochemicals, while stimulating biodiversity. It is concluded that crop diversification by intercropping has the potential to reduce global requirements for synthetic fertilizer N and consequently support the development of more sustainable cropping systems.

Keywords Biochemical flows of nitrogen · Crop diversification · Greenhouse gas emissions · Soil nitrogen use efficiency · Symbiotic N_2 fixation

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Sustainable food protein supply reconciling human and ecosystem health: A Leibniz Position

IsabelleWeindl et al
June 2020 https://www.sciencedirect.com/science/article/abs/pii/S2211912420300201#!
Global Food Security


Global Food Security 25 (2020) 100367

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Sustainable food protein supply reconciling human and ecosystem health: A Leibniz Position

Isabelle Weindl, Mario Ost, Petra Wiedmer, Monika Schreiner, Susanne Neugart, Rebecca Klopsch, Holger Kühnhold, Werner Kloas, Ina M. Henkel, Oliver Schlüter, Sara Bußler, Sonoko D. Bellingrath-Kimura, Hua Ma, Tilman Grune, Susanne Rolinski, Susanne Klaus

ARTICLE INFO

Keywords:
Sustainable diets
Protein
Health
Dietary requirements
Food system
Environmental impacts

ABSTRACT

Many global health risks are related to what and how much we eat. At the same time, the production of food, especially from animal origin, contributes to environmental change at a scale that threatens boundaries of a safe operating space for humanity. Here we outline viable solutions how to reconcile healthy protein consumption and sustainable protein production which requires a solid, interdisciplinary evidence base. We review the role of proteins for human and ecosystem health, including physiological effects of dietary proteins, production potentials from agricultural and aquaculture systems, environmental impacts of protein production, and mitigation potentials of transforming current production systems. Various protein sources from plant and animal origin, including insects and fish, are discussed in the light of their health and environmental implications. Integration of available knowledge is essential to move from a dual problem description ("healthy diets versus environment") towards approaches that frame the food challenge of reconciling human and ecosystem health in the context of planetary health. This endeavor requires a shifting focus from metrics at the level of macronutrients to whole diets and a better understanding of the full cascade of health effects caused by dietary proteins, including health risks from food-related environmental degradation.

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FOOD NEWS

New Food Magazine: **3rd December 2019**

Roquette launches new plant-based proteins from peas and fava beansRoquette has announced the expansion of its range of premium plant-based proteins …. the development of new opportunities for plant-based food innovators. https://www.newfoodmagazine.com/news/100073/roquette-launches-plant-based-proteins-peas-fava-beans/

The Guardian News Paper: **8th January 2020**

Counting beans: why 2020 should be the year of the legume. Delicious, cheap, healthy and sustainable, legumes are a versatile staple – so why aren't we eating more of them?
https://www.theguardian.com/lifeandstyle/2020/jan/09/counting-beans-why-2020-should-be-the-year-of-the-legume

Food Technology Magazine: **1st April 2020**

The Top 10 Functional Food Trends
Moving from 'better for you' to 'what's best for me,' consumers are personalizing their approaches to healthy eating and reprioritizing their diet and nutrition goals….. Just over half of consumers eat legumes at least once a week (Datassential 2019).https://www.ift.org/news-and-publications/food-technology-magazine/issues/2020/april/features/the-top-10-functional-food-trends

The Guardian News Paper: **1st August 2020**

Save the World: Grow peas and Beans: Legumes are not only great to eat they are good for the planet too.
https://www.theguardian.com/lifeandstyle/2020/aug/01/save-the-world-grow-beans-and-peas

Food Ingredients First: **11th September 2020**

Debut of meat alternative producer Ojah's vegan ribs.The pea-based texture of the vegan ribs mimics the taste and mouthfeel of slow-cooked pork ribs.

Food Ingredients First: **18th September 2020**

An increasing surge for plant-based proteins and a growing demand for clean and sustainable food products. **With ExcelPro™ Plus PP 50** - a functional compound consisting of pea and pork protein - a functional ingredient with a high water-holding capacity and heat stability
https://cnsmedia.activehosted.com/index.php?action=social&chash=5f268dfb0fbef44de0f668a022707b86.3438&s=e7b2ddd1391e02407ef4789cc5c8ca2a

MAJOR PLAYERS IN THE PEA PROTEIN ISOLATE SECTOR

EU: 3 main factories have an average of 100 000 T of pea transformed each year:
Roquette (France) https://www.roquette.com/food-nutrition-functional-pea-protein
Cosucra (Belgium) https://www.cosucra.com/
Emsland Group (Germany) https://www.emsland-group.de/product-solutions/food-innovation/natural-raw-materials/pea-protein

Nutri-Pea Limited (Canada)
Some other little factories around Saskatoon (Canada)

AGT FOOD (Canada) invested in a factory in USA http://www.agtfoods.com/

China: 5 Chinese companies import peas from Canada (and recently from EU) for the production of noodles (starch source) and export protein isolate to the USA:

Shuangta Food
Yantai Oriental Protein Tech
Shandong Jianyuan Foods
Shandong Huatai Food
Shandong Jindu Talin Foods

New factories in the EU?
It is possible that new factories will come soon, based in the Northern part of EU. There is also some potential development with fababean, one factory (at a pilot scale) is already devoted to fababean fractionation in the Netherlands

F.Muel 15/01/2020

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PUBLICATIONS from the LEGVALUE PROJECT

EU Publishes Feed Protein Balance sheet: **20th May 2019**

While the EU is fully self-sufficient in roughage, the EU produces only 26% of what it consumes for meals from soya bean and rapeseed…. the EU produces only 29% of what it consumes in products with a protein content of 30 to 50%.
https://ec.europa.eu/info/news/commission-publishes-overview-eu-feed-supply-2019-may-20_en

The Market of Legumes in France: **7th March 2019**

Describes the French market of grain legumes harvested dry and dehydrated alfalfa based on quantitative and qualitative data (production, imports, exports, national uses and prices from 2013 to 2017).

http://www.legvalue.eu/publications/the-market-of-legumes-in-france/

Correlation between grain legumes and prices of feed, fertilisers and meat: **13th March 2019**

The study explores the correlation between the prices of feed, fertiliser and meat and the prices of field beans and field peas as well as to evaluate whether these prices can be used as price indicators for legumes.

http://www.legvalue.eu/publications/correlation-between-prices-of-grain-legumes-and-prices-of-feed-fertilisers-and-meat/

Video demonstration of relay cropping with Lentils: **3rd April 2019**

http://www.legvalue.eu/publications/relay-cropping-lentils-into-winter-wheat/

Video presentation of Mechanical weed control in Soya: **20th May 2019**

http://www.legvalue.eu/publications/new-movie-about-mechanical-control-of-weeds-organic-soya/

Erbsenanbaupotentiale für erbsenbasierte fleischalternativen in Deutschland:

28th June 2019

A publication in German outlining the potential for growing peas in Germany were more peas to be consumed in food as meat substitutes.

http://www.legvalue.eu/publications/the-potential-for-growing-peas-in-germany-if-more-pea-based-meat-alternatives-are-consumed/

Market analysis of grain legumes in the UK: **12th July 2019**

The study describes the markets of the main growth legumes and shows price information systems for grain legumes in the UK.

http://www.legvalue.eu/publications/market-analysis-of-grain-legumes-in-the-uk/

Market analysis of grain legumes in Italy: **12th July 2019**

The study describes the markets of the main growth legumes and shows price information systems for grain legumes in Italy.

http://www.legvalue.eu/publications/market-analysis-of-legumes-in-italy/

Worldwide scientific knowledge on legumes: **10th September 2019**

Study examines whether, and how, science addressed the diversity of grain-legume species at the global scale, with particular interest in comparing the share of studies devoted to soya vs. pulses.

http://www.legvalue.eu/publications/worldwide-scientific-knowledge-on-grain-legumes/

Legume Value Chain Study: **18th September 2019**

Poster presented at the European Conference on Crop Diversification

How are legume crops valued in Europe? Insights from the analysis of several Value Chains case studies.

http://www.legvalue.eu/publications/insights-from-the-analysis-of-several-value-chains-case-studies-in-the-h2020-legvalue-project/

How are legume crops valued in Europe: **18th September 2019**
A Legume Value Chain Analysis! Insights from the analysis of several Value Chains case studies in the H2020 LegValue Project.
http://www.legvalue.eu/publications/how-are-legume-crops-valued-in-europe/

A contribution to diversification from a traditional, nearly forgotten crop:
18th September 2019
Poster presented at the European Crop Diversification Conference in BUDAPEST outlines how the Association Rheinische Ackerbohne e.V established a value chain for Faba beans.
http://www.legvalue.eu/publications/a-contribution-to-diversification-from-a-traditional-nearly-forgotten-crop/

Nitrogen fixation in legumes and legumes in the rotation: **30th September 2019**
A video presentation: A focus on nitrogen fixation and how to bring legumes into the rotation.
http://www.legvalue.eu/publications/legume-cultivation-in-sustainable-farming-systems/

Nitrogen sharing in companion crops – Part 1: **30th September 2019**
Video presentation: A focus on crop nutrition and the sharing of Nitrogen between legumes and intercrop companion species.
http://www.legvalue.eu/publications/seminar-on-legume-cultivation-in-organic-and-conventional-farming-systems-in-latvia/

Nitrogen sharing in companion crops – Part 2: **30th September 2019**
A video presentation: Legume cultivation in organic and conventional farming systems. The main focus being the exchange of experience and knowledge
http://www.legvalue.eu/publications/seminar-on-legume-cultivation-in-organic-and-conventional-farming-systems-latvia/

2nd Annual News Letter: **25th October 2019**
A round up of project activities, case studies, project partners features and Legume related news highliughts.
http://www.legvalue.eu/publications/legvalue-2nd-annual-news-letter/

Market analysis of grain legumes in Spain: **30th October 2019**
The study describes the markets and price information systems for grain legumes in Spain.
http://www.legvalue.eu/publications/the-market-of-grain-legumes-in-spain/

The basis of sustainable food: When legumes are at the table: **7th November 2019**
A report in French language :Les racines d'une alimentation durable : quand les protéines végétales s'invitent à table.
http://www.legvalue.eu/publications/the-basis-of-sustainable-food/

A comparative analysis of soya beans and pulses: **2nd December 2019**
Peer-Reviewed Literature on Grain Legume Species in the Web of Science (1980–2018)
http://www.legvalue.eu/publications/peer-reviewed-literature-on-grain-legume-species/

EU agricultural outlook for markets and income 2019-2030: **10th December 2019**

This report provides a medium-term outlook for major EU agricultural markets and agricultural income to 2030.
http://www.legvalue.eu/publications/the-eu-agricultural-outlook-for-markets-and-income/

Crop diversification cluster- expanding the network: **28th February 2020**

Presentation and graphics explaining the multi-EU project collaboration that is the Crop Diversification Cluster.
http://www.legvalue.eu/publications/crop-diversification-cluster-expanding-the-network/

Map of Achievable legume yields across the EU (Part A) **20th June 2020**

Deliverable 1.4; this extensive report explores a 5244 entry dataset, examining the relationships between the grain yield of the five legumes and environmental (soil, climate, latitude) and agronomic (tillage, irrigation, fertilisation, weed control, organic farming practices) aspects.
http://www.legvalue.eu/umbraco/preview/?id=3027#?id=3027

A report on Markets in the EU: **2nd July 2020**

Current and historical data obtained from different statistical databases are used for a basic quantitative description of EU-legume markets.
http://www.legvalue.eu/publications/report-on-markets-in-the-eu/

Detailed flow of goods; seed production to end use: **27th July 2020**

Quantified schematic representations of resources, use and trends in German, France and the UK.
http://www.legvalue.eu/publications/detailed-flow-of-goods-seed-production-to-end-use/

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WEBSITE RESOURCES:

The project web site WWW.legvalue.eu has seen some development during the period with sections providing additional reports, background information and legume related output:
Resources : http://www.legvalue.eu/resource-section/

Educational resources: http://www.legvalue.eu/educational-resources/

European Breeding programmes: http://www.legvalue.eu/resource-section/european-pulse-breeding-programmes/

Bone fide contributions or updates for any of these sections are welcome from anyone. Please send suggestions and content to roger@pgro.org .

EIP- Agri practice abstracts have been produced throughout the duration of the project. 49 have been submitted to the Europa web site to date. https://ec.europa.eu/eip/agriculture/en/find-connect/projects/fostering-sustainable-legume-based-farming-systems
They have also been published on the project web site in the Resources section. http://www.legvalue.eu/resource-section/

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FINAL CONFERENCE

"European Legumes in Transition"

Planning for the final conference towards the end of the Legvalue project is well under way.
The **European Legumes in Transition Conference** is planned to be held on **14th and 15th April 2021 in Brussels, Belgium**.

The event is being jointly conducted with the TRUE project at which we will hear from leading influencers how they believe legumes can be exploited to deliver a more sustainable and environmentally resilient agricultural system for Europe, and the opportunities that exist to realise the transitions envisaged.

There is almost unlimited scope to host posters related to legumes and legume cropping in European context and it is hoped to publish electronic proceedings of the event including all posters in the aftermath of the conference.

Registration to attend the event is already open as is the registration opportunity to request to present. Numbers are likely to be limited to a maximum of 150 but only 30 may be permitted if Covid restrictions remain in place. Whilst the event is free to attend travel, accommodation and subsistence expenses will not be covered.

Details of the agenda are evolving and further information surrounding all aspects of the event can be found on the web site. http://www.legvalue.eu/conference/
The event will see the formal formation and launch of the LIN (European Legume Innovation Network).

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LEGUME INNOVATION NETWORK

A legacy of the TRUE and Legvalue projects as they approach their conclusions the European **Legume Innovation Network** is intended to maintain and grow a connected web, linking people with similar interests enabling challenges to be resolved more-easily, with potential partners finding resources for mutual benefit, helping one another in an industry that is currently at a low level.

This has huge potential, the benefits of legumes being increasingly realised by the wider world. It can be a stakeholders' forum to promote awareness of new insights, services or requirements for commercially competitive production and consumption of legume crops in Europe - and directly help realise more sustainable agri-food systems.

The LIN is not exclusive -partners in all forms will be welcomed by their common interest – to help realise sustainable legume-supported agri-food systems. Registration to the LIN as an expression of interest can be made by registering companies on the Digital Innovation Hub, DIH-Agrifood within which the Legume Innovation Hub is already notionally established. Register organisations via this link https://mapping.dih-agrifood.com/

The LIN is also present as a group on LinkedIn where individuals can also contribute to networked discussions and information exchange on legume innovation topics of any kind. https://www.linkedin.com/groups/8955372/

The LIN has initially been started by those who formed the concept, but following the official launch at the European Legumes in Transition Conference in April 2021 it will be quickly taken over by others, thereafter continuing to evolve to meet the needs of those within the network.

The LIN should retain an enduring focus on innovation and issues spanning the legume supply networks and should be guided, by a founding constitution that ensures a wide membership base that embraces all aspects of:

- input and production, commodity processing and food technologies;
- trading markets, retailing plus new and emerging markets:
- cultural aspect including 'sustainable consumption and environmental impacts;
- socio-economics, governance and policy-development.

Now is the time to get involved. Become a founding member and be part of establishing an exciting network focussing on linking science and industry in an environment of innovation.
Contact roger@pgro.org

COUNTRY ROUND UP

NEWS FROM DENMARK

Roskilde University present;
A Case study analysis of legume suppliers within Norway, Germany, Portugal and Denmark assessing their contribution to sustainable agricultural transition in Europe

Rikke Lybæk* and Henrik Hauggaard-Nielsen. Department of People and Technology (IMT), Roskilde University, Denmark. *rbl@ruc.dk

Case studies examinates the business models of four legume supplier within the EU located in Norway, Germany, Portugal and Denmark, respectively. The purpose of this has been to identify how case companies seek to increase their market shares in a future European legume market, and to accesses whether sustainability issues are included in the marketing of their legumes. We find that the large-scale Norwegian company primarily focus on export markets, with highly refined products (protein & starch separation by air classification) to be mixed unlimited with traditional food, as we know it. The yellow pea is imported to Norway from Denmark and the Baltic countries.

Contrastingly the small-scale Danish company only emphasize on local markets for their own cultivated chick pea and lupine, developing local food chains and applying sustainable agricultural practices, applying principles of agroecology.

The two medium size companies located in Germany and Portugal also applies different business models, where the first seek to expand their markets, for domestic cultivated and imported faba-beans, to also include big global markets like countries in the middle east. They also priorities production of rather large amounts of legume flour (relative to their other sales) as food ingredient to increase their future market shares.

The Portuguese company mainly focus on the domestic markets for locally cultivated chick pea, but also looks into options for selling smaller amounts of certified organic chick pea as well as chick pea flour produce for food mix. The case study revealed the potentials to increase the area of legumes cultivated within the EU in the future, but that it might only to a minor extend contribution to a more sustainable overall food system.

A genuine transition however takes place at the niche level, as the small scale Danish case exemplifies, but only if applied in larger scale will such local food systems contribute to a more sustainable agricultural transition within the EU, adopting principles of agroecology.

The authors wish to thank the case-study actors who were willing to share their insights, thoughts, and experiences regarding grain legumes and the supply market.

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NEWS FROM GERMANY

Second extension of the on farm Network DemoNetErBo in Germany.
The Network DemoNetErBo with the main goal of establishment of a knowledge transfer network for cultivation and utilisation of dry pea and faba bean in Germany has received a second extension. The network activities will continuous to be supported until the end of 2021. This second extension can signals clearly the necessity and the success of this project, which is financed by the federal government of Germany as part of the country's protein strategy. https://www.demoneterbo.agrarpraxisforschung.de/.

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NEWS FROM FRANCE

Some upcoming events in France (from Terres Univia)

Protein connect

Start-up, apply for Protein Connect! The call for applications from this label, of which Terres Univia is a partner, has started. Thanks to him, young innovative companies in the field of plant proteins can benefit from a rich and varied network of many partners, but also benefit from a coaching phase.

The start-ups labeled this year will be highlighted during the Start-up Camp Day, which will take place on January 19, 2021 in Paris. The deadline for applications is October 30, 2020.

For any information request, please send an email to alice.meullemiestre@proteinesfrance.fr

http://www.proteinesfrance.fr/fr/startup

RFL3

The third edition of the Rencontres Francophones Légumineuses (RFL3) will take place from February 24 to 26, 2021, in Angers (FRANCE). This French-speaking meeting will be an opportunity to forge links with actors in the fields of development, industry and research.

These days of meetings, debates and exchanges around pulses are organized by INRAe, CIRAD, Terres Univia and Terres Inovia, in partnership with ESA (Ecole Supérieure d'Agriculture). The purpose of the event? To enable scientists, seed companies, collectors, feed and food industries, and start-ups to share their knowledge to accelerate innovation around legumes.

For any information request, please send an email to contact@fl-legumineuses.com.

https://www.rfl-legumineuses.com/

The organic sector is getting organized to promote cereal legume associations
France, August 28, 2020

Faced with the development of areas for cereal-protein mixtures carried out in organic farming, the sector is organizing itself to find a balance between the “agronomic necessity” of combined cultivation and the logistical difficulties that collect can cause. Collectors and millers testify. In addition to their agronomic benefits, the combinations of cereals-legumes carried out in organic farming have many economic advantages compared to a pure culture: higher and more stable yields securing the income, higher protein levels of cereals (especially wheat) , reduction in organic fertilization and mechanical weeding costs. However, for an outlet in sales culture, their collect and valuation entail strong logistical constraints which can impact the crop margin.

Collection tools have been able to adapt

The collection of cereals and protein crops from associations is the perfect reflection of the necessary adaptation of collectors to the specificities of organic farming. For the Terrena group, a major player in the West of France, these associations in organic represent 40% of summer collect. For the Axéréal organic group, located in the West and in the Center region, they represent 10% of total collect. In order to be able to collect and recover them later, the two cooperatives have invested in sorting and storage tools. End users - feed manufacturers or millers - buy only "pure" products. Gilles Renart, director of the organic sector at Axéréal, specifies that "the feed manufacturers cannot use unsorted batches because their composition is too irregular (5 to 50% of protein in the mixture) and heterogeneous (segregation by gravity in the cells of storage results in variable nutritional value) ”. Sorting work upon receipt of the association is therefore necessary. It must be more efficient (therefore more expensive) if one of the products is intended for human consumption. In addition, each by-product of the association is stored in a specific cell, which forces the storage cells to multiply.
In order to limit the costs associated with sorting and storage, cooperatives offer their members a "positive" list of associations. The other associations proposed by the farmers will be refused. This list includes, for example, 10 combinations at Terrena and 3 at Axéréal, and only mixtures of two species (no trinary mixture or other). In both cases, it appears difficult to collect more associations, the logistical constraints being too great.

In the mill, better quality but more cleaning

Clean quality grain is all that matters to millers. Cereals from associations (soft wheat, large and small spelled, rye) represent a small share of volumes: 2.5% for example for Moulin Marion, a miller specializing in organic flour. The miller requests a grain sample upstream to ensure the cleanliness and quality of the batch.
The Moulin de Brasseuil performs a sieving and a bread-making test on these samples. If accepted and clean, the batch enters the normal process. If the level of impurities is high but the quality is satisfactory, it is isolated to undergo a finer cleaning in order to remove a maximum of seeds and

broken protein crops, which can compromise the bread-making and be allergenic (case of soybeans and lupine). This cleaning is all the more restrictive for the miller when the flour is complete. For Julien-Boris Pelletier, director of Moulin Marion, the processing of these cereals does not require any logistical adaptation: an association wheat is treated in the same way as a wheat produces pure, provided it is clean; otherwise it is processed like any batch with a high level of impurities. The only difference is that the qualities are often more interesting. He specifies that cereals from associations benefit from the same contract as cereals grown in pure form, in which the maximum amount of impurities (2%), quality criteria, prices and downgrading criteria are stipulated.

A compromise to be found between all the actors in the sector

As with most organic crops, the contractualization of production, annual or multi-year, is an essential guarantee of the balance between the various actors in the sector, from the producer to the end user. By collecting and using associated productions, downstream players are therefore mobilizing to promote the development of organic farming, illustrating the cohesion characteristic of the organic field crops sector. Future regulatory changes, and in particular the obligation to use 100% organic ingredients for animal feed from 2021, may however disrupt this operation by promoting the massive integration of organic soy to the detriment of protein crops.
Source: Y VOIR Amélie CARRIERE (ARVALIS - Institut du végétal),Cécile LE GALL (Terres Inovia)

French strategy on vegetable proteins (press release from the Ministry of Agriculture)

The national strategy on plant proteins contributes to the reconquest of our food sovereignty. It is thus one of the flagship measures of the agricultural component of the recovery plan. Increasing France's independence from third countries for its supply of plant proteins for human and animal consumption is the primary objective of the "plant protein" sovereignty plan announced by the President of the Republic. The ambition is clear: to enable France to reduce its dependence, for example on imported soybeans, and to provide French consumers with better control over their food and production methods (non-GMO).

France imports nearly a quarter of the vegetable proteins intended for animal feed, and almost half of the protein-rich materials, mainly in the form of soybean meal from third countries. This situation affects the resilience and sustainability of French agriculture.

Beyond this issue, the national plant protein strategy is also a response to the climate challenge, which is largely based on our ability to reintroduce legumes into rotations and to relocate feed for farm animals. Finally, it responds to the need to support the food transition, legumes for human consumption now part of the new nutritional recommendations and experiencing strong growth in demand, as well as the uses of processed plant proteins in foods or food ingredients.
https://agriculture.gouv.fr/strategie-nationale-sur-les-proteines-vegetales-0

European Union: Denormandie continues its crusade for vegetable proteins

In front of these European counterparts, the French Minister of Agriculture, Julien Denormandie, pleaded for the European Union to provide more support for the production of vegetable proteins.

“The development of vegetable proteins is an important issue for European agriculture, both environmentally and economically. "This is how Julien Denormadie began his speech for the promotion of plant protein production at European level, in front of the agriculture ministers of the Member States, during the" agriculture and fisheries "council on September 21, 2020. The French Minister of Agriculture has presented the European Commission and the German Presidency with a declaration in favor of vegetable proteins. Reduce dependence on imports of plant proteins, but also on nitrogen inputs, improve soil quality, reduce greenhouse gas emissions, secure supplies for breeders, meet societal demand for plant proteins for the human food… The latter has given rise to a long list of advantages to producing vegetable proteins in the European Union. He already welcomed the release of more than 100 million euros for vegetable proteins during the presentation of the French stimulus plan.

Facilitates the implementation of coupled aid

“The CAP tools and, in particular, coupled aid are part of the levers for developing these productions. The Member States must have in the future regulation the flexibilities necessary to effectively implement aid coupled with pulses, ”he insisted.
The French minister also pleaded for the criterion of access to coupled aid "aimed at limiting it to sectors in difficulty" to be reviewed and for the aid not to be capped and to be accessible to mixtures of grasses and legumes. Several Member States have expressed their support for France on this subject, such as Spain, Denmark, Finland, Greece, Hungary, Belgium and Austria.

Other instruments in the future?

EU Agriculture Commissioner Janusz Wojciechowski said he strongly supported reducing European dependence on imports. “This is a subject close to my heart. It makes sense that we are trying to develop high protein crops here. I would like to improve the degree of autonomy of the European Union. It is a question of food safety, but also of environmental responsibility. "
The Agriculture Commissioner mentioned a "range of instruments favorable to protein crops" planned by the European Commission in its proposals for the reform of the CAP.

He mentioned aid for soybean production, regional programs for vegetable proteins, or an optional increase of 2% of aid from the first pillar.

Source: Marie Salset. Lafranceagricole.fr - 09.21.20

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CROP DIVERSIFICATION CLUSTER

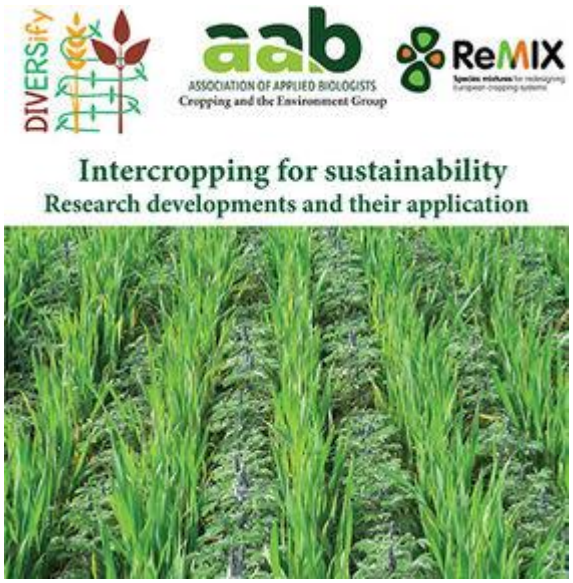
The projects in the crop diversification cluster have received funding from the European Union's Horizon 2020 research and innovation programme

Crop Diversification Cluster: Joining forces to diversify European agriculture

The crop diversification cluster brings together research projects which operate in countries across Europe to increase the impact of crop diversification research. The cluster encourages sustained uptake of diversification measures by European farmers and through innovations across the agri-value chain. The projects in the cluster - Diverfarming, DiverIMPACTS, DIVERSify, LegValue. ReMIX and TRUE - received funding from the EU Horizon 2020 research and innovation programme.
https://www.cropdiversification.eu/

Latest News from;

The Diversify and REMIX Project: Intercropping for Sustainability Congress : January 19/20 / 2021



Intercropping for Sustainability Congress image. Source: cvent.com

DIVERSify and *ReMIX* focus on developing and improving intercropping practices to diversify crop systems. The meeting aims to attract both scientists and agricultural stakeholders from a wide range of regions and farming systems to obtain feedback on research findings and industry-relevant tools, discuss intercropping uptake and practical application, and guide future developments in intercropping research.
Interested? Register here;
http://www.cvent.com/events/intercropping-for-sustainability/event-summary-d39d1013986047abaf1a13438000920f.aspx

Diver Impacts Project: https://www.diverimpacts.net/

DiverIMPACTS featured on the website (https://www.diverimpacts.net/about/deliverables.html). The documents are available via zenodo.org and can be downloaded direct with the links provided. The project deliverables are organised according to the projects work packages https://www.diverimpacts.net/about/work-packages.html).
Take a look to learn more about the projects developments related to crop diversification as the project progresses!

REMIX project : Redesigning European cropping systems based on species MIXtures

The 3rd News letter of the project can be found here https://mailchi.mp/f676aabb34b8/welcome-to-remix-3rd-newsletter

Diverfarming project:

As it passed it's half way point in 2020 the project published a number of interesting case studies involving novel crop diversification. Of particular interest to the LegValue team is the benefit of the diversification of the Mandarin crop with Fab beans in the alleys between the trees. A short video explanation can be found here. https://youtu.be/orT1kZtVPNk other excellent reports and video links can be found on the project web site http://www.diverfarming.eu/index.php/en/news-2 .

Diversify project:

The DIVERSify project aims to optimise the performance of crop species mixtures or 'plant teams' to improve yield stability, reduce pest and disease damage, and enhance stress resilience in agricultural systems. It focuses on improving the productivity and sustainability of European agriculture using an approach that has global relevance, learning from the experience of international researchers and stakeholders. You can keep up with the project here (https://www.plant-teams.eu/) and through it's various social media outputs.
(Twitter @PlantTeams ,
Facebook https://www.facebook.com/PlantTeams/ ,
Flickr https://www.flickr.com/photos/diversify ,
Instagram https://www.instagram.com/diversifyplantteams/ and through Research Gate https://www.researchgate.net/project/DIVERSify-Designing-Innovative-Plant-Teams-for-Ecosystem-Resilience-and-Agricultural-Sustainability).

True project:

The 5th News letter of the True Project was published in September
The final year of the project is targeting on the identification of transition paths for more legumes on Europe's fields and plates. Since their previous newsletter there are many new papers and deliverables published and you can find many blogposts and other news on the TRUE website. For information about the structure of TRUE please visit www.true-project.eu

The News letter can be downloaded here. https://www.true-project.eu/publications-resources/newsletter/