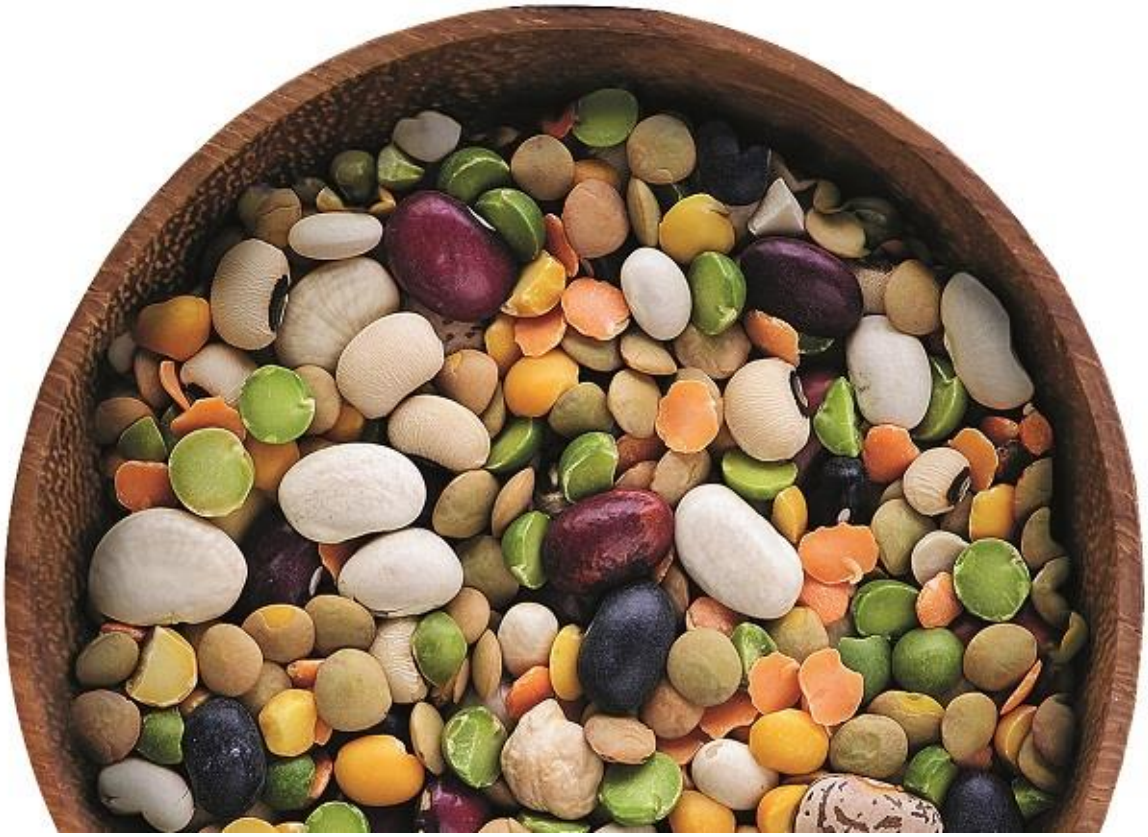
TRansition paths to sUstainable
legume-based systems in Europe

Report of the Atlantic Legume Innovation and Networking (LIN) Workshop

13-14 December, 2017

Processors and Growers Research Organisation, UK



This Project has received funding from the European Union´s Horizon 2020 research and innovation programme under grant agreement No 727973

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1. Introduction

1.1 Background & Objectives

TRUE is a four year program, funded by the European Commission's Horizon 2020 Program over four years until March 2021 to explore strategies to reduce the EU's dependency on imported protein food (soy) and synthetic nitrogen fertilizers. In this context, TRUE aims to identify the best routes, or "transition paths" to increase sustainable legume cultivation and consumption across Europe and includes the entire legume feed and food value chains. During the course of the project, **Legume Innovation and Networking (LIN) Workshops** are organised to involve relevant stakeholders in a multi-actor approach. They take place in three geographical regions with different pedo-climatic conditions: Atlantic, Continental and Mediterranean. The workshops are intended to help:

- exchange insights from **legume based innovations**;
- collate **challenges and needs** regarding legumes across the entire value chain;
- gather stakeholder assessments on **legume markets and policies;**
- identify key leverage points for **improving framework conditions for legume-based food- and feed-chains**.

1.2 Workshop framework, participants and methodology

The first Legume Innovation and Networking Workshop of the Atlantic Region took place on the 13th and 14th December 2017 in Peterborough (UK), hosted by PGRO Research Limited.

The workshop brought together 45 stakeholders and TRUE members on day 1 and 35 on day 2, across the whole legume based value chain to exchange ideas on how to increase legume production and consumption in Europe. The represented stakeholder groups spanned producers, advisors, breeders, processors, traders, consumers, policy makers (EU-, national- and regional levels) and scientists. Representatives and members from affiliated projects such as LegValue were also present.

Participants shared the challenges and needs in 3 main sessions focussing on the different aspects of legume production, legume markets and economics and legume policies and sustainability.

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2. Full Reports of the Different Sessions

Over 2 days, participants were divided into 4 groups and allocated a TRUE project member and a PGRO staff member to act as facilitator and co-facilitator respectively to aid discussion.

Facilitators (co-facilitators) allocated to each group:

Day 1	Day 2
Dave George (Becky Howard)	Roger Vickers (Becky Howard)
Henrick Maass (Lea Herold)	Henrick Maass (Lea Herold)
Dave Styles (Jim Scrimshaw)	Dave Styles (Rob Glover)
Karen Thorsted-Haman (Steve Belcher)	Karen Thorsted-Haman (Steve Belcher)
(Roger Vickers and Pete Iannetta observers)	(Pete Iannetta observer)

Session 1 – Introductory Activity and Production Opportunities and Barriers

Questions about the opportunities and barriers for legume production were put to each group and in particular:

- what are the most important factors stimulating/hampering demand for legumes?
- who are the key players in legume supply chains?

Stimulating Factors for the Production of Legumes

- Pulses offer great benefits, in addition to N to following crop, in terms of soil health and structure. Farmers already adopt techniques, which work well with pulse growing and understand the benefits of improved soil health, reduced compaction, controlled traffic farming etc. to their farm business. Farmers are driven by returns and improved economics and further nitrate restrictions would encourage others in a similar direction. Being able to quantify the benefits more clearly would encourage uptake.
- Microbiome is important and needs to assist rhizobia and plant function for improved production.
- Changes in pulse products e.g. those that are increasing market share: Vegan (1%, Vegans are driving innovation despite being a small group, they may act as a springboard to other markets.), Vegetarian (12%), Food related diseases (diabetes), Flexitarian diets (68%, reducing meat consumption for animal welfare, environment and health). Quick meal markets are required in pulses – work with processors to make convenient meals. Do these and other consumer groups exist and are they growing?

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- Pulse snacks and mass-produced products including pulse flours. Increase in demand for human consumption. Added value products – proteins, fibre and flour products – are growing markets.
- Using Hodmedod as an example, faba beans are canned and packed and have large uptake of products. There seems to be an appetite for these types of product. Volumes are small but novel crops are introduced.
- Some retailers are demanding higher levels of sustainability and require specific varieties of legumes to produce animal feed, so demand is being driven a little by sustainability considerations.
- Aquaculture, although there is still only a small area grown for this market; legumes are more sustainable; soya is still a key component in this system.
- In Ireland, legumes are mainly livestock fed and provide traceability and non-GM.
- Policy can drive increases in legume production – for example, changes to CAP in 2015 and protein subsidies.
- Currency and price fluctuations – the more is grown the cheaper they become as an animal feed protein – this may increase use and demand.

New Opportunities in Legume Production

- A huge opportunity in the lack of EU protein – there is currently a 40M ton deficit which is serviced by cargoes of rape-seed from Australia and from soya imports. Increasing pulse production would decrease the deficit. Opportunities may exist in Ireland for instance.
- Opportunities to investigate at least 22 other legume species for suitability of production in the EU. Greater diversity of legumes in rotations may allow pulses to be grown more regularly than 1 in 5-7 years. Pest and disease issues may vary between species.
- Aquaculture provides an opportunity for growers struggling to control Bruchid in southern UK as there are lower visual quality requirements.
- Breeding opportunities may exist to develop varieties which perform in less than ideal environments e.g. more pH tolerant. Climate change may drive advances in breeding technology and effort.
- Increase forage legume production for animals. Opportunities for clover and other legumes.
- Opportunities for varieties with low vicine/ convicine content. Is there an opportunity to investigate gene manipulation to fill the technology gap? Why not pay for higher protein varieties?
- Development of more specific ‘elite’ rhizobia to improve N fixation.
- Small markets are driven by novelty – can these be developed and expanded? Could be the next multi-million-pound market.
- Alternative food supply systems for vegan and health markets.
- Cookery programs present an opportunity for growth.
- There is a big shift from red meat although the price of red meat is heavily subsidised. Opportunities to complement red meat with legumes exist.

Barriers in Legume Production

1) Governance and Policy

- There is a lack of financial incentives for legume production – for example CAP reform recently removed the ability to include legumes in greening requirements if plant protection

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products are used. This is predicted to lead to a significant fall in area of legumes compared to post-2014 incentives.
- Political uncertainty may be a barrier to change.
- There are no state funded breeding programs in the UK, and commercial breeding programs are focused on other crops (cereals and maize in particular). There is not much investment in open pollinated varieties. Breeding programs are skewed towards breeding for animal feed, not human consumption. Some chemical companies are buying seed companies, as they will rely more on plant genetics than agrochemicals for pest and disease management in future. There is not enough investment in breeding programs for disease and pest control. Government assistance for breeding is required. Breeding programs don't always consider environment interactions. Environment can be a limiting factor. There is a technology time-gap.

2) Disease and Pest Control

- Pest control is a problem for quality in the UK and other markets are required to allow reduced insecticide use for Bruchid (aquaculture). Plant protection products are being lost. Need to look more closely at lycine and tannin content and more work with breeding programs for varieties for the aquaculture market is required.
- Soil-borne pathogens are difficult to manage.
- There may be risks associated with cover crops in terms of pest and disease transmission – pea and bean weevil/ footrot diseases.

3) Grower's Reluctance

- There is also a lack of attractiveness of pulses for growers in the UK. They are considered mainly as a break crop, but not a profitable crop in its own right.
- Cost/ha for each nutrient – ingredients need to be cheap and competitive. How do we compete with soya?
- The price of soya is the market-setter, unless other legumes can be marketed by 'green' retailers.
- We need a change of mind set from soya in animal feeds as default.
- There is still a perception that yield is variable, that there is a lack of knowledge about production, and that infrastructure is lacking to support different legume markets. Where do we intervene to drive expansion?
- Pulse crops may not perceived as valuable crops and there may be no pride in achieving markets compared to other high value crops such as milling wheat.
- Growers may be conservative in their approach and not willing to take too many risks with alternative crops.
- Crop protection is becoming a real issue for growers – loss of active substances is affecting IPM – more stewardship of products is required. Decisions on active substances are too quick, giving growers no time to react. Pulses may not be a priority crop for chemical manufacturers in the UK.
- Displacement of cereals in rotations may lead to shortfalls and adjustments to import requirements.
- Production of UK pulses and legumes is not consistent – supply is the issue, not yield here, although they are linked. Forage crops can be difficult to establish and manage and may

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require higher levels of soil fertility. Successful forage crops are heavily dependent on weather. There are risks to animals with consumption of some forage crops.

- There appears to be a lack of clarity about the benefit of legumes in rotations and N accounting. Still not enough attention is paid to the consideration of soil N residue and it is not always accounted for by growers.
- Need more specific rhizobia to improve production – match inoculum to plants to improve N fixation.
- Red Phaseolus – there is difficulty encouraging interest in production, and competition with other crops.
- Cultivations may be affected by trash after beans.

4) Consumers and Markets

- Markets and consumers are still averse to risk/ change.
- Consumer choice – in the UK animal feed is a by-product of production of legumes principally for human consumption. Quality factors affect markets. Protein quality is a barrier.
- Consumers are currently passive in the systems and business models discussed here.
- Low cost of pulses may lead to perception of 'poor man's meat' and discourage uptake.
- There is a lack of consumer knowledge about the benefits of legume products and ease of use. It is taxing to adopt these products.
- Canned and packet markets are stagnant.
- Quick meal markets are required in pulses – work with processors to make convenient meals. Convenience is key – if there is a requirement to soak overnight then popularity declines quickly.
- There is not a realised daily opportunity to include pulses in daily diets – in other countries they are a key, regular part of diets.
- Decline in demand for UK grown beans in India, has a big impact on overall market. There is huge production in Canada and Australia.
- Currency and price fluctuations – the more is grown the cheaper they become as an animal feed protein – this may put growers off growing pulses. Alternatively, encouraging the use of premium products pushes prices up and may cause reduction of demand compared to cheaper commodities. Lack of futures market and financial stability in farming, with a minimum 12 month period to react to changes.

Which changes are needed?

1) Communication

The ability of legumes to fix atmospheric N is not always considered by growers. Maybe manufactured N is too cheap. Growers should be encouraged to account for N over a longer period than 1 year.

2) Education and Extension Services

More education about N values for pulses would help to encourage better environmental protection and increase business sustainability. Sustainable nutrient management systems exist in New Zealand – could these be transferred into UK/EU systems? There is already much

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information for nutrient management planning in the UK – perhaps more training is required for growers (as well as advisors).

3) Research

- Use of inoculants may help to improve environmental conditions for legumes. Improvement of inoculum required to outcompete native strains. Use of more specialised rhizobia for specific environments.
- Cereal displacement could be addressed by considering rotations and alternative crops.
- Better information is needed about residual N after pulses and the investigation of factors that cause differences (soil/pH/weather) in soil N. Could PGRO start to look more closely at this issue?

4) Policy

- Potential to increase protein content, if this exists, should be recognised by trade – this may be driven by the price competitiveness of the protein in a given market. Price per kg protein is calculated i.e. 23% beans vs 40% soya.
- By 2020 (Brexit) regulation may be an issue and we may have no choice but to produce protein more locally – is this a barrier or an opportunity? Generally there is potential for pulses to be considered a lot more in any future agricultural policy decisions whether EU or UK. Any policy is an opportunity to illustrate resilient and sustainable food production systems linked to N use – there are opportunities to reduce N use *via* use of legumes. Push is required from stakeholders, who will be implementing new policy decisions.
- Should we be pressurising government to set limits to the importation of legumes (and other components) for feed markets. For instance distance travelled – pressure to reduce imports and force use of home-grown.
- Currency and price fluctuations – the more is grown the cheaper they become as an animal feed protein – this may put growers off growing pulses. Alternatively, encouraging the use of premium products pushes prices up and may cause reduction of demand compared to cheaper commodities. Lack of futures market and financial stability in farming, with a minimum 12 month period to react to changes.

Session 2 - Markets Workshop – Production, Processing, Retail and Consumers

Participants in each group were asked about the following:

- What are the most important factors stimulating/hampering demand for legumes?
- In what way do legumes contribute to a more sustainable agri-food system?

Stimulating factors for the demand for legumes

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- Novelty products, market types and uses. The future lies in the snack markets – production of pulse products has increased 50% more than have cereal products. Bean beer for instance – new products are generally well taken up. Increase links to supermarkets to help promote products and ingredients.
- Pulses have a longer shelf-life than meat.
- Take advantage of move to flexitarian, vegan and vegetarian diets. This is where a lot of the innovation occurs in recipes.
- There is a trend towards convenience foods, which may be good for legume-based products.
- Multi-cultural cuisine includes other types of bean and encourages uptake of novel products. There are cultural preferences for use of legumes and localised recipes.
- Satiety of pulses in diets (use during Ramadan) to feel fuller for longer. This could also lead to lower food consumption overall, reducing obesity, heart disease, diabetes, gout, cancer etc.

- The positive environmental effects of legumes should be used to market them: Good for benefits as flowering crop; Lower N applications; Root and soil health. This was mentioned by most groups.
- There is massive demand for new sources of protein in the animal feed sector. Animals must be fed on something. Aquaculture is also looking for new sources of protein due to potential limitations with soya.
- The spectrum of consumers provides additional scope – consumers have different motivations and activity. There may be some attraction to risk and complexity.
- Younger consumers may feel differently about food options – are they more open to change?
- Product provenance stimulates demand – GM free, home-grown etc. Recent food scandals have increased awareness of other food options. Supply chains are short and transparent which makes it easier to stay within regulations.
- Climate change may act as a stimulus for production of new crops and legumes could benefit as an alternative.

Hampering factors in the demand for legumes:

1) Price and Cost

- Price of products hampers uptake – price of R&D increases costs. If prices came down supermarkets might lose niche markets. Supermarkets drive product uptake.
- The supply chain is heavily skewed against producers and towards retailers in price terms. Retail price is often 10X that of production price.
- Added value approach to promoting pulses may not be the ethical route. It adds excessive expense to products that are fundamentally cheap. A significant proportion of the population may not be able to pay for added value of convenience.
- Quality in terms of flavour, texture, amino acid balance; there may be a history of bad experience that prevents uptake; legume based products may not be palatable on their own; quality for different markets (bruchid); protein quality for animal feed.

2) Lack of Knowledge

- We need a cultural attitude change to pulse ingredients. Improve taste. There is a lack of knowledge about how to cook legumes, which hampers uptake. Older generation may have more knowledge about cooking with legumes and pulses.

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- Are snack foods indeed healthier or is that a misconception? Limited data on health benefits and not easily available. Are there issues with palatableness or toxic effects of undercooked beans? This may arise with Phaseolus types or, in a small number of cases, with favism (haemolytic anaemia) caused by eating faba beans. Favism typically occurs in people of Mediterranean, Asian or African descent. May be microbial concerns with bean sprouts.
- Novelty can be a bad thing when used wrongly. Novelty for producers and consumers can discourage uptake.
- Environmental benefits are not well understood by consumers, especially compared to meat production.
- Consumers are inconsistent.
- Consumer awareness of protein content of pulses is poor.
- There is perception of flatulence associated with legumes, although this is countered by some research to reduce flatulence of beans (Colin Leakey).
- Other lifestyle factors interfere with health benefits, such as smoking, drinking, inactivity, processed food etc. The message of health benefits is not being filtered down to the consumer effectively. Health claims are risky.

3) Other Factors

- There is short-term thinking regarding rotations.
- R and D is lacking regarding biological N fixation.
- Is change in public procurement seen as risky?
- Economic sustainability will always drive the demand. Subsidising prices sometimes hampers market stimulation.
- Is change to plant-based proteins for human consumption seen as a threat to the meat industry?
- Trend towards convenience foods may be not so good for some legume products that require preparation.
- The 'eat well' plate emphasises use of fresh veg such as green legumes, but not so much the use of pulses – these are considered protein and compared to meat and fish, thus representing a smaller proportion of the eat well plate.

How can market change?

1) Education

- Use pulses in mass produced products to provide hidden benefits for example in flours/ bread/ other meals. Use as ingredients in meals not as the product itself.
- Change cultural attitudes to pulses: Intelligent-marketing to inform consumers of the presence of pulses in products to prevent putting them off.
- Increase awareness of environmental benefits: environmental benefits and animal welfare considerations.
- Education about dietary requirements would stimulate uptake of healthier foods. Some snack foods are healthier. Increase awareness of health benefits. Increase focus on specific dietary requirements which can be fulfilled by legumes.
- Celebrity chefs and food bloggers can influence behaviour.

2) Policy

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- More recent institutional support for inclusion of pulses in human diets (schools; hospitals etc.). This should be redefined. Public procurement offers great opportunities and was cited by most groups.
- Government should be obliged to promote healthier foods.

General discussion end of Day 1:

Issues and questions raised during the general discussion at the end of the day:

- 5-a-day: How do we increase the perception of legumes as part of this? Has it failed as an initiative? Can we push public health's agenda?
- NHS as a promoter of legumes;
- Ecological health agenda should be promoted;
- Meatless Monday may contribute to an increased use of legumes;
- Beware the negative consequences of not consuming something.

Session 3 – Policies and Sustainability

Participants in each group were asked about the following:

- which changes are needed in the short and long term to have more legumes in the EU agri-food system?
- in what way would these changes impact the sustainability of the agri-food system?

During the discussion, the following statements were made:

- The use of manufactured N was considered to be a key problem for some groups. Suggestions of N tax or penalties for herd size were made. N fertilisers are too cheap right now and losses do not harm farmers financially. There is an inefficient use of N.
- Can demand for product drive supply? There is an increasing demand for sources of plant protein, but the supply is not there. Some considered that we don't need new policy.

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- Different countries grow different legumes and therefore consume different legumes.
- Currently soya has a large place – can other legumes compete on cost and nutritional value?
- What is our capacity to produce enough legumes to replace 900,000 ha soya? This would displace other crops or crop systems.
- For the UK, a key aim is to improve and stabilise yields to increase grower confidence in legumes and increase production compared to wheat and oilseed rape.

Stimulating factors from a policy perspective:

- Much can be achieved with moderate budget (Yea Peas campaign does well on £50K. Use this as an example – this is funded by grower groups: http://www.peas.org/)
- Currently only small initiatives are in place in some countries.
- Importance to remember the interactions and absorption of protein – best consumed as part of integrated diet (Mediterranean) to include fish proteins as well. Complimentary diets to get best dietary benefits of legumes and nutritional balance.

How can these changes be brought about?

1) Education

- Long-term education is required. To transition from cheap meat products in public institutions, we need to educate about what pulses are. Could we change eating behaviour by using examples from diverse communities with different food cultures?
- To increase grower confidence in legumes, they need better information about how to grow legumes well. Agronomists may have more limited knowledge about legumes compared to other crops.

2) Creation of New Services / Schemes

- A better production advisory service is required to improve knowledge. Better R and D is required to improve production – improve knowledge through research as a starting point for better education – there is lack of research in key areas such as micronutrients and key growth stage influences on yield and quality. How is information shared and translated?
- Transition of advisory services from one-to-one services towards demonstration farms and farm walks to improve KE. Peer-to-peer learning. Identify profitable growers as legume farming champions and build farming networks.
- Create a Protein Aid Scheme. These subsidies would directly support the growing of protein crops through a direct payment per hectare of land under cultivation.
- Make protein crops a focus of a new farm entry scheme. This scheme should target access to land, start-up costs, and training. This could be paired with a Protein Aid Scheme for ease of application.
- Create a publicly funded program for pulse research and harmonise data collection. One model would be to match fund the protein crop industry levy over a ten year plan of research support.

3) New Incentives

- All change is driven by reward or penalty: for example introduce rules to enforce a proportion of pulses in rotations, reward benefits such as reduced N, health benefits, water use and pollinator benefits. How would we get 10% pulses into rotations? This would be 1 in 6 years approximately. Rotational design should be a policy.

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- Could risk management incentives be introduced for growers for environmental and/or protein security reasons? Demand would also need to be present to overcome likely outcome of oversupply by offering protein incentives.
- Implement a farmed animal tax. This tax should account for the environmental, health and intrinsic losses from animal farming. One model would be to deduct this tax from animal farming subsidies.
- Incentives to cover the cost of capital equipment to build the infrastructure required for new crops.
- Consult on farming policy with a wider range of stakeholders. This includes smaller agricultural holders and the views of groups not formally represented.
- Provide data to policy makers highlighting the environmental and landscape benefits of legumes to inform policy change.
- WHO guidance needs updating.
- Look at GMO policy / additional protection – pulses provide opportunity to feed people and animals with no risk of GMO contamination. Good for organic production.
- Use joint models, where government, food companies and research combine, to promote use of ingredients and products in a different way. Follow Canadian example. Is there a lack of processing and food technology knowledge for pea protein? Should we be collaborating with Canada?
- Scientists need to take a greater role to explain the positive environmental benefits of pulses and legumes.
- Build stakeholder networks – include water companies etc. Use stories and campaigns for these networks to build evidence.
- Is there a UK organisation that represents pulses? Can lobbying be improved?

4) Marketing

- Pulses need a unique identifier and care should be taken with the word 'superfood' as it has little meaning for consumers.
- Pulses should be marketed for their health benefits – diet, weight loss, low starch, high fibre, high protein – and more effort should go into 'real' foods rather than snack foods. But we need to be wary of unsubstantiated claims ('superfood'). http://studiolidstrom.com/gogreen-by-lantmannen - industry brand in Sweden that will be rolled out across Scandinavia – this should go further. (http://www.gogreen.se/)
- There is a difference between the use of pulses for animal feed and those used for human consumption. Largely across the EU, pulses are grown for animal feed (apart from UK). Suggestion was made to bypass animal consumption and eat pulses directly.
- Make labelling clearer about health and environment benefits. Re-invent brands to expand markets. Can the taste of pulse meals be improved?
- Re-brand and create new markets – supply can be quick to respond to demand.

5) Others

- Processing: How can infrastructure be improved, or investment encouraged? Products need to be available quickly in the market;
  Pea and bean flour – use evidence for health benefits to promote use – energy, minerals, protein fibre. Put Ingredients into mass-produced products such as bread and snacks.

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- Consider the role of retailers and supply chains to drive change – use of the sustainability benefits.
- Large chemical companies are not necessarily involved in pulse breeding. Breeding for region should occur, related to environment more than production.
- Chemical regulation needs to change, as does the focus on agro-chemicals. Alternatives such as microbial and nutritional products need to be brought into production guidance. Move towards IPM approach, incorporating use of organic practices where appropriate.
- More money is required for marketing and promotion.
- Look at regulatory hurdles that cause blockages at seed stage (cross-pollination). Varieties shouldn't be judged against high performing alternatives if they have better characters for human consumption or animal feed.

General discussion Day 2:

Issues and questions raised during the general discussion at the end of the day:

- Global change is required especially around the requirement for meat in diets;
- Increase grower confidence by use of effective advisory services;
- Share information between growers;
- Educate everyone in the supply chain about change from soya to other legumes;
- Remove regulatory hurdles to breeding for region;
- Attempt to make legume products for human consumption more generally acceptable;
- Drive infrastructure and investment in healthy products;
- Use better marketing tools and campaigns;
- Use stealth inclusion in other products;
- There was strong discussion about the structure of the seed industry – it was not agreed that, in the UK or EU, the seed industry is controlled by 6 companies who are linked to the agrochemical industry;
- Common rotations are hard to identify for any region;
- National data is not detailed enough regarding yield;
- N losses are not easy to measure;
- EU policy on N use and objectives is important;
- Highlight the benefit of legumes to growers using real data for N;
- Involve water companies in discussions around N;
- How do we transition to larger scale intercropping? Is it economically viable? Consider weed, pest and disease management. It is thought to be possible to make this viable. It is very commonly used in other global regions, although not common in the UK;
- There may be practical difficulties to produce grain legumes in Ireland and forage options may be better suited;
- Regional policy should include breeding for suitability to the environment, and to plug gaps in regional rotations. UK plant breeding companies are breeding for UK conditions and this is essential to improve production. Reinstitute public breeding programs. Intensive selection for specific environments is already happening.

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Annex

Annex I - ELIN program

Tuesday, 12th December

From 18:00 Informal Social Mixer

Wednesday, 13th December

SESSION I: Introductions

10:30 Registration & Refreshments
11:00 Welcome

Roger Vickers, CEO, PGRO, UK

11:10 Background to the TRUE project and key project partners working on legume markets, policies and co-innovation

Pete Iannetta, TRUE Coordinator, James Hutton Institute, UK

11:30 Activity I

All participants introduce themselves and their legume interest

13:15 Lunch

SESSION II: Perspectives on Supply Chain Markets Innovation using Legumes

14:00 A Production Perspective
14:20 Feed Technology and Nutrition
14:40 Food Technology and Nutrition
15:00 Food Retailing
15:20 Consumers Persepctive

15:40 Refreshment Break

SESSION III: Markets Workshop: Production, Processing, Retailing and Consumers

16:00 Breakouts

17:00 Summary & Discussion

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19:00 Drinks Reception and Evening Meal (Legume Focused Menu)

Thursday, 14th December

SESSION IV: Policies for Legume Workshop

09:00 Welcome & Briefing on Day 2 Activities

Pete Iannetta, TRUE Coordinator, James Hutton Institute, UK

09:15 EU Legume Focused Policis: Environment, CAP, Diet, Health and Nutrition, a role for GMs and beyond

Geoff Squire, James Hutton Institute, UK

09:45 An Overview on Policies to Enable Sustainable Food Systems

Pete Iannetta, TRUE Coordinator, James Hutton Institute, UK enabled by Bálint Balázs, Environmental Social Science Research Group, Hungary

10:30 Refreshment Break

11:00 Breakouts

12:30 Summary & Discussion

12:30 Closing Remarks

Roger Vickers, CEO, PGRO, UK and Pete Iannetta, TRUE Coordinator, James Hutton Institute, UK

13:00 END OF WORKSHOP & LIGHT LUNCH

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Annex II - Participants

	Organisation Type							
Stakeholders	**University**	**SME**	**Consultant**	**Farmer**	**Policy**	**Educational charity**	**Research organisation**	**Commercial Enterprise**
Advisor					1		5	
Agroecologist	2						1	
Agronomist				1				1
Breeder		2						
Business Manager		4	1				1	6
Chemical Engineer		1						
Director		3					1	
Grassroot Campaigner		1				1		
Journalist								
Nutritionist								
Professor	4							
Researcher	4	1					1	
Student								
Other					1			

Table 1: "What is your market?" Participants' main focusses as populated by each participant

	local	national	intern.	conv.	organic	food	feed	other
peas	7	8	6	8	5	7	7	3 (arable silage)
beans	8	9	7	6	6	7	7	4
soya	1	2	3	2	1	2	5	0
chickpeas	2	4	5	3	3	4	2	1 (policy)
lupins	0	3	2	2	2	2	2	0
lentils	1	4	5	3	2	3	2	0
clover	3	4	3	2	3	1	6	2
Alfalfa/Lucerne	2	3	3	2	2	1	5	1 (industrial)

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