



TRansition paths to sUustainable  
legume-based systems in Europe

## Impact Plan Recommendations

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**Work Package:** 9, Coordination

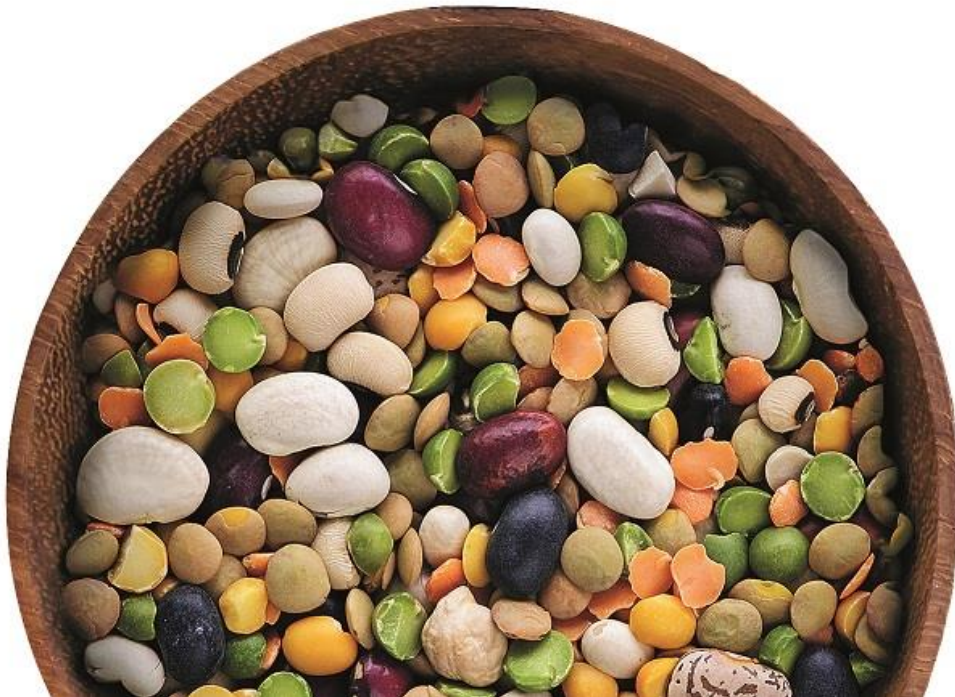
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**Lead Editors:**

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**Submission Date:** March 8<sup>th</sup> 2020





## Deliverable Description & Contributors

- Due date: 31<sup>st</sup> March 2020
  - Actual Submission Date: 8<sup>th</sup> March 2020
  - Project Start Date: 1<sup>st</sup> April 2017
  - Duration: 48 months
  - Work Package: WP9, Coordination
  - Work Package Leader: Pietro P.M. Iannetta (JHI)
  - Deliverable Title: Impact Plan from Stakeholder Advisory Board
  - Deliverable Number(s): D9.8 (D56)
  - Nature of Deliverable: Report
  - Dissemination level: PU, Public
- **Deliverable Description.** Impact Plan: this Deliverable report is directed by feedback from TRUE's Stakeholder Advisory Board (SAB, the commercial partners), and also from other multi-actors engaged via the ISAB (Intercontinental Science Advisory Board), and including operatives of the European Legume Innovation Network (or 'E-LIN') workshops, existing relevant H2020 research projects, and successful RUR (rural renaissance) projects. This direction will help ensure research complementarity, synergy and science excellence. The aim of this report is to define the best routes to impact.
  - **Contributors:** Stakeholder Advisory Board Members\*; WP-Leaders<sup>†</sup> and -Deputies<sup>‡</sup>; and, members of the International Scientific Advisory Board (ISAB)<sup>∞</sup>.

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## Purpose of this Deliverable report

As outlined above (in the Deliverable Description), the main aim of this report is to help improve the impact of the TRUE-Project, and specifically to respond to the perspectives and suggestions of the TRUE-Project, ‘*Stakeholder Advisory Board*’ (SAB; which comprises the non-academic beneficiaries or partners). This report also draws upon feedback from other aspects of TRUE-project operations including the TRUE-Project [Intercontinental Science Advisory Board](#) (or ISAB), the [European Legume Innovation Network \(E-LIN\) workshops and outputs](#), Executive Committee (WP-Leaders and -Deputies) meetings, Management (Coordinating Institution) Committee meetings and General Assembly discussions.

## Introduction

### Background to the 1<sup>st</sup> SAB Report

The SAB met formally for the first time on July 11<sup>th</sup> 2019 during the 3<sup>rd</sup> TRUE-Project General Assembly, which took place at the Catholic University of Portugal in Porto. In advance of this meeting and in accordance with the Grant Agreement, the Coordination team provided a ‘*SAB Guideline Document*’ (see, Appendix I) to help guide proceedings and to focus SAB discussions.

The SAB meeting allowed the non-academic partners of the TRUE project to: meet privately; appoint a Chairperson and Rapporteur; review and agree the function of the SAB; and, to help coordinate discussions with a view to providing a formal written report.

The meeting attendees are listed in Table 1, and SAB Chairperson and the Rapporteur were elected (Martha Walter and Nora Löhrich, respectively, both IGV). Immediately after the SAB meeting, verbal feedback and discussion on the general focus of SAB discussions was provided to the wider consortium.



**Table 1.** A list of representatives who attended the 1<sup>st</sup> TRUE-SAB meeting at the 3<sup>rd</sup> TRUE General Assembly at the Catholic University of Portugal (Porto).

Institution	Present	Apologies
<b>Agri Kultí (AK)</b>	Gábor Bertényi, Attila Králl	
<b>Arbikie (ADL)</b>	Kirsty Black	
<b>ESSRG</b>	Eszter Kelemen, Bálint Balázs	
<b>Eurest (EUR)</b>	Elisete Varandas	
<b>PIRED</b>	Magdalena Trstenjak	
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<b>IGV</b>	Nora Löhrich, Martha Walter	
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<b>PRGO</b>		Roger Vickers, Becky Howard
<b>Solintagro</b>		Eleonora Barilli
<b>STC</b>		Jennifer Banfield-Zanin

In the two months after the event, a formal written report was also drafted and revised by the Chairpersons (IGV) *via* collective input from all the SAB members (including those who were unable to attend the 1<sup>st</sup> formal meeting in Porto). The final written report was provided to the Coordination team by the IGV representatives on September 4<sup>th</sup> 2019 (less than 2 months after the initial meeting). The final written report is treated as confidential to TRUE Partners only, staff of the EU funding authorities (e.g. Project- and Policy-Officers) and/or their appointed representatives (e.g. Periodic Report Reviewers). A copy of the 1<sup>st</sup> SAB Meeting Report is freely available for all partners to access via the secure TRUE-SharePoint (document sharing platform). Excerpts from the report are provided unedited in the summaries and action points which follow.

To help meet their ‘impact planning’ objectives, the SAB identified a series of key questions, identified here at the start of each of the sub-sections below. Readers will also find that the SAB report addressed several aspects of the TRUE project, and that the recommendations made relate to ongoing internal and external project operations which are directed at achieving impact both within and outside the TRUE-Project. The structure of the impact plan below therefore lists a range of suggested activities and foci which reflect these two different (internal- and external-operational) aspects.





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## Recommendation-pathways to impact

### 1. Harmonising academic and commercial objectives

*Q1: How can we ensure that the academic and commercial objectives are addressed and harmonised?*

A common feature of the 1<sup>st</sup> SAB report is the perceived disharmony and even possible conflict of interest that exists between the academic (fundamental understanding), commercial (achieving new products with specific USPs (unique selling points) and social objectives (actually realising greater uptake of locally-grown legume based diets for humans and livestock). Specifically, the SAB identified a requirement to realise the opportunity to, "**take stock and reflect on the[se] fault-lines**".

To begin to address this potential non-alignment a good balance should be achieved between commercial, societal and academic needs at conferences, workshops whose aim is to engage multiple-stakeholders address objectives which occupy a disciplinary-interfaces. Research Fora are often dominated by academic agendas, and this is not specific with respect to the multi- and trans-disciplinary meetings organised by TRUE, but research meetings more generally. Additionally, greater focus needs to be placed on discerning the most effective implementation mechanisms on how to improve the appeal of, and interest in legumes, plus legume-based cropping systems and products - to ensure that consumption does actually help realise increased production in more sustainable cropping-systems locally (and abroad).

#### Action Points:

- During the final year of the project, specific opportunities should be promoted in workshops such as LINs and/or General Assemblies to **discuss and reflect upon potential 'science-to-business' (S2B), 'science-to-society' (S2S) and science-to-policy (S2P) disharmony**, and *vice versa*.





- Continue to ensure that all scientific results are communicated in a manner which is specifically tailored for the recipient group of potential end-users. As we near the end of the project, the number of salient Deliverables and outputs is set to increase greatly. This is also true for summary-narratives which will emerge from the Case Studies. Case Study partners should look to identifying a targeted list of potential end-users of their insights (to be captured and prioritised by WP2, and perhaps WP4 (in “blueprints” – see below). This is especially important i.e. the potential impact can be greatest when the target group comprises non-science stakeholders.
- Accommodate greater discussion and practical translation of insights from Case (or Pilot) Studies, and with a view to **developing improved mechanisms for translation of scientific findings to greater uptake** (i.e. encouraging behaviour or cultural change).
- Where inter- and/or trans-disciplinary workshops take place, participants need to be provided with a full explanation of: 1, how the outputs gathered will be used; and 2, how their use has (or is expected to) impact.
- LIN workshops should also include, as usual practice, improved feedback mechanisms which are standardised according to the specific objectives of different stakeholders and value-chain sectors. This information will help ensure better targeting of the workshop itineraries and identification of science-to-practice (i.e. translation) mechanisms, improving the likelihood that they are strategically designed for specific target communities and cultures.
- Ultimately, a critical evaluation of different stakeholders’ objectives may be necessary where they cannot be resolved. In this context, **a 'priority framework for delivery', may also be helpful** - though this framework would also be contextual, with priorities being determined by the needs of specific stakeholders or end-users. Nevertheless, from a policy perspective this could be especially informative and might serve to highlight those sectors/objectives impacted by any specific policy shift. This could be developed in a targeted transdisciplinary workshop at a future General Assembly (June 2020).





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## 2. Quality and risk management

*Q2: How can we provide an oversight on quality and risk management issues?*

Commodities, such as organic lentils, may command good potential for large gross margins in their whole and raw forms. However, it is more common that added value is achieved by processing. Especially where processing is carried out at large-scales, and to ensure consistency of product **it is important that raw (legume) crops offer high consistency with respect to key traits** – and it should be noted that the salient traits vary depending on the processes and end-product concerned. Satisfying such consistency criteria can be achieved in various ways, for example via: better aggregation (mixing) of large volumes, breeding and agronomy; or/and, pre-processing to standardise the raw material. In these contexts, and considering the innovations within TRUE, there is scope within many of the Case Studies to assess these (consistency) aspects.

Looking towards value-chains in general TRUE should continue aiming for a more complete understanding of the factors which underpin trait variability in raw commodities. TRUE could be directing stakeholders (including policy makers) towards **more complete documentation of all factors** relating to commodity qualities. Examples of such may include: growing environment and agronomy; seed-harvesting, -drying, -dressing, -storage and -transportation; and, nutritional analyses that extend beyond simple assessments of yield (total seed weight and moisture content) and standard, or superficial, nutritional parameters (such as protein, amino acids and starch content) - as there are many non-nutritionals that are essential for good health and well-being. Greater understanding in this regard should extend to risk mitigation by clearly identifying the desired acceptance level and/or tolerance limits for key commodity attributes – and including a full range of important nutritional (and non-nutritional) components.

It is again highlighted, however, that aspects such as ‘acceptance levels’, or ‘tolerance limits’, are currently more likely to reflect commercial values – and those which are down-stream of production units (farms), or those of the environment or society. For example, such ‘levels’ or ‘limits’ are geared to maximise profitability as opposed to guarantee that locally grown legume crops are used, or that holistic crop rotations have been encouraged. In this context, it is important to ensure that







transparency and accountability are encouraged among all the stakeholders concerned, not least as increasingly these aspects are used as unique selling points to improve marketing and consumer re-purchasing. However, it is stressed that safeguards should be exercised to ensure that farmers' profitability is not unfairly disadvantaged, and it may be that farmers should take these safeguards themselves via a short supply chain, and even adopting on-farm processing to ensure sufficient gross margins and direct consumer ties.

### 3. Improving dissemination of outputs

*Q3: How can we assist in disseminating outputs of TRUE to a very wide stakeholder audience, that reaches beyond the immediate sphere of influence of the consortium itself?*

The SAB identified that there may be a need to **develop a strategy whereby existing stakeholder networks may be used to help circulate TRUE project outputs more effectively**. As TRUE nears the end of its project term, the *ad hoc* use of social media may be superseded by a strategic campaign undertaken in a collaborative venture involving all partners. This could include establishing a list of media outlets (in addition to the E-LIN stakeholder networks) who would receive notification of key publications and/or newsletters *etc.*, and with a view to identifying key outputs for targeted articles and associated press releases. These could be linked to key events such as product launches, and journal on-line publication dates.

- Trade fairs can be an effective route to the communication of legume-specific business affairs. However, no such legume-focused Europe-wide organisation currently exists. To address this gap, **the TRUE-LIN which to be established in partnership with the [www.legvalue.eu](http://www.legvalue.eu) project could represent the first such step towards a legume-innovation centred trade organisation**. The legacy-LIN platform could also engage value-chain stakeholders within the [Crop Diversification Cluster](#). This could extend to building of new 'business-to-business' and 'science-to-business' networks within and between EU countries for the promotion of legume-trade and -innovation.





## 4. Alignment of work package and project objectives

*Q4: Are all Work Packages (WPs) developing well and are they in-line with project objectives?*

### *Work Package 1 - Knowledge Exchange and Communication*

Knowledge exchange, communication and dissemination are critical project elements, and the establishment of a diverse and active community (or network) of legume-focused actors is essential. In this context, **the E-LIN workshops play that central role and going-forward the legacy potential of the networks should be promoted strongly**. It is also predicted that among the legacies of the LINs will be that they have generated (directly or indirectly) new research and development projects – and that such impacts are recorded.

- It may also be that **'new project development'** could be an ambition or focus of the final last General Assemblies, LIN workshops and via the launch of the TRUE-Project 'legacy-LIN'<sup>1</sup>.

**Dissemination of all project outputs should be communicated to all partners more regularly and immediately upon submission**, including the LIN outputs. While it is acknowledged that outputs (Deliverables mainly) are circulated widely including the TRUE website, Xenodo, ResearchGate and social media. However, the following is suggested.

- **Regular partner-specific emails** succinctly detailing the latest project output will help with more effective and immediate dissemination. This approach should also be adopted for Case Study news (see WP2 below).
- Also, the **TRUE-Newsletters** are an powerful and accurate summary of all the latest project outputs, though consider circulating these with greater frequency, and **quarterly is kindly requested**.

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<sup>1</sup> Originally termed 'Pulse Europe' (in the Grant Agreement), this structure is now renamed as 'Legume Innovation Network' (LIN), since the original 'Pulse Europe' term did not address the equal importance of forage legumes. In addition, the LIN (or 'legacy LIN'), builds upon the existing TRUE-Project E-LIN stakeholder networks. The legacy LIN is scheduled as a Deliverable of the TRUE-Project (WP1), whose founding membership and structure is led by PGRO in partnership with all partners.





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### Work Package 2 – Case Studies

**Produce a Case Study ‘map’ in an easily understood and plain English format** to help communicate their framework and findings. The map could also be included or published in an e-book that captures the outputs of each Case Study, and with respect to the sustainable development indicators (and goals). This should be linked to the capture of Case Study summary-narratives and identification of ‘transition-path priorities’, this may also help inform the development of commercialisation, or other impact, ‘blue-prints’ (WP4).

**The suggestion of a ‘Case Study News’ email message is proposed** (as already highlighted for WP outputs above). The success of this approach depends on full participation of the Case Study Leader(s) communicating any interesting developments to the WP1 & 2 Leaders regularly. This approach might also encourage cross-Case Study communication and innovation.

- **A regular ad hoc partner-specific email ‘Case Study News’**, could be launched which details very succinctly specific (singular) news items from the Case Studies.

### Work Package 3 - Nutrition and Product Development

**Communicating the strategic relevance of the novel legume-based products developed by WP3 should remain a high priority.** Future communication on these products should also clearly establish whether they are developed only as academic models for use during the project (or beyond), and/or whether there are also longer-term commercial ambitions. If the answer to the latter is, ‘yes’, then discussion should also extend to addressing: how will the product development continue after the project term? And, how the role of partners will be maintained and IPR (Intellectual Property Rights) respected? Resolving these matters will also demand a detailed examination of the WP- and Case Study-Report forms, since such innovations (product or know-how), are already listed there. These should be identified in a product-by-product format, and with specific reference to the other TRUE partners or/and other associated stakeholders involved for each innovation.





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- The WP3 Update Report Form should detail fully (as denoted above) each novel food and feed innovation, and the ambitions for that product over the longer term, the partners involved developing the product and any associated IPR considerations.

#### *Work Package 4 - Markets and Consumers*

**There is scope to use the insights gained via the WP4 Deliverables into a common framework or “blue-print” for sustainable legume-based business development.** Key in this regard is the implementation of a ‘co-operative’ or ‘co-innovative’ approach to marketing, whereby the producers (and/or processors) of legumes or legume-based commodities engage directly with consumers to ensure better consumer appreciation or understanding of the legume products concerned. Such development and insights are very important to help ensure more effective targeted marketing of such products. The development of **shared food literacy** via direct consumer contact would represent a novel and even necessary sales concept for legumes which seem to suffer from consumer barriers which are characterised by a lack of legume knowledge, and where this does exist a negative image dominates.

**The links between WP4 (markets) and WP6 (economics) could be developed more strongly** and it appears logical that there should be focus on developing marketing strategies (WP4) based on detailed knowledge of how future economic scenarios (local-to-global) may be realised (WP6). As some of WP6 Deliverables are delivered at the end of the third project year, the last project year could be used for WPs 4 and 6 to develop an approach by which marketing may encourage one or other of the more desirable scenarios – which ensure higher levels of home-grown legume cultivation and use in Europe. This should be scoped as a priority for the next General Assembly meeting (in Stuttgart, UHOH).

- Develop the insights gained from the WP4 and WP6 Deliverables to establish the basis of “legume-marketing and -business development blueprints”, to help ensure greater consumer uptake of home-grown legumes and home-grown legume-based products.





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### Work Package 5 - Environment<sup>2</sup>

Life Cycle Assessments of the form undertaken by the TRUE-Project are complex, product specific and represent the leading edge of the state-of-the-art for this form of scientific investigation. **Increasingly, the value of LCA is becoming appreciated by those wishing to market more sustainable foods and feeds.** In addition, **simple infographics (of the LCA in question) are also of great help** to quickly identify where the main gains and losses of the impact assessment are.

The LCA based approaches are also developed within TRUE to realise more impactful 'LCA-of-diet' metrics to help encourage consumer behaviour in favour of home-grown legumes and legume-based products – though whether the data will be used within the project to test the LCA-data's capacity to drive consumers purchasing behaviour is not clear.

Furthermore, it is possible to develop the LCA approach to accommodate other ecosystem services (in addition to nutritional provision) too. In this way, impact assessment could relate products to the specific gain (or loss) for key system functions such as soil organic matter content or bulk (water-holding) capacity. LCA approaches have clear marketing potential, and as such are a powerful means by which home-grown legume-based products (or approaches) may be valorised and popularised.

- Establish clearly how the LCA approaches developed may be exploited by partners and stakeholders after the end of the project as this will help ensure they are fully exploited.

As with WP3, it should be noted that there are IPR matters to consider relation with regards to LCA. It has already been established that existing members of the TRUE-Project team wish to develop project-related know-how into a spin-out commercial enterprise. For example, offering legume-based product 'nutri-footprinting' services for (novel) legume-based food and feeds. This approach is not limited to legumes and could be used to valorise any new product based on more sustainable use of, or impact upon, natural resources and ecosystem services.

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<sup>2</sup> Environmental LCA and nutrient quality assessment of legume-cropping and -products





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- The SAB, ISAB and legacy-LIN should be used to help play an active role supporting the greater uptake of the LCA tools (and results) within the business community – perhaps via dedicated workshops.

### *Work Package 6 - Economics<sup>3</sup>*

**It is hoped that the economic perspectives generated via WP6 will also be important to encourage ‘rethinking’ by stakeholders throughout value-chains,** since their behaviours can influence price-formation. Such potential is not exclusive to consumers as price formulation of commodities could more accurately affect the environmental benefits, or costs, of a commodity.

- Upon their completion, the WP6 Deliverables should be assessed with a view to their potential in influencing consumer behaviour in favour of home-grown legumes, and home-grown legume-derived products and in partnership with other WP Leaders – especially WPs 3, 4 and 7. The insights that this process generates could help the formulation of the policy briefs planned by WP7.

### *Work Package 7 - Policy and Governance*

The SAB widely acknowledges that specific policies favouring legumes are rare or non-existent, and where legumes are characterised in strategic documents the ambitions appear incoherent and supportive of dominant and unsustainable food- and feed-system. Nevertheless, the challenge of identifying a series of interdependent ‘policy enablers’ has been identified in the course of the LIN meetings, and associated Case Studies.

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<sup>3</sup> An economic assessment of sustainable and profitable legume production and consumption.





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- The policy enablers should be summarised in a series of dedicated policy briefs for policy makers and legume-industry stakeholders during a two-day meeting to be held in Brussels in late 2020. These should also form the foundation of strategic press-releases and associated social media activities in a wide range of languages.

**Outreach to policy makers is essential for achieving impact and policy makers should be regarded as a wide target audience.** However, **this stakeholder group has yet to be formally defined in detail.** Furthermore, mechanisms by which project partners may outreach to policy makers are not clear.

- The transdisciplinary and multi-actor approach needs to be extended to ensure that policy (and governance) stakeholders are also fully engaged in project activities and/or outputs, and that the mechanisms to ensure such interactions are widely known.
- The ‘policy making’ and ‘governance’ stakeholder groups need to be formally defined to better implement the dissemination of important information from other stakeholders.

It would also be reassuring to record statistics whenever policy makers or governors access a project report or Deliverable. This would serve as a utility or impact indicator for the reports. Such recording practice is standard for citations in the published academic literature and is also an opportunity to foster deeper discussion or to capture feedback. However, a project report’s impact in the policy sphere is less transparent.

- Develop (or identify) the necessary foundation knowledge and implementation mechanisms to engage policy makers as equal stakeholders in project co-design and pathways to impact processes.
- The EU funding authorities should develop a capacity whereby policy makers or governors’ access to policy-reports or -briefs have their access recorded. This capacity should extend to reporting such access (who and when) to the report authors, encompass a facility to





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provide easy and rapid feed-back, or communication, from the policy maker or governor to the consulting author.

### *Work Package 8 - Transition Pathways*

**It is important that the DSS (Decision Support System) to be designed by WP8 is easy to use for a clearly defined group of target users** – and this target group should consist of policy makers wishing to understand and manage the trade-offs that inevitably exist between the various sustainable development indicators of economic, environmental and social well-being. Equally, it is likely that the DSS will also be of utility to researchers such as agroecologists and other policy focused academics.

Since effective agri-food policies are most commonly implemented with respect to local socio-economic factors, it is envisaged that the DSS will be of greatest utility if regional conditions can be integrated into its relational framework.

- Ensure that the ‘easy to use’ capacity of the DSS is extended to the parameterisation of factors for local (or regional) conditions.
- Ensure that the DSS is showcased at the planned legacy-LIN launch and policy-briefing event (late 2020).







## 5. Other recommendations

- Establish WP-specific working-groups whose aim is to develop a cross WP-specific pathways to impact plan to maximise impact.
- Where TRUE partners and external stakeholders are gathered in a collaborative venture that leads to a specific product, this should be marketed wherever possible use the trademark (CoolBeans™) which has already been registered by WP9. This may be used without charge and under licence by TRUE project partners.
- Where new projects, whether academic or commercial ventures, have emerged directly or indirectly for the project partners these should be highlighted (KE data captured) as a project impact.
- **Develop legumes as ‘key- or corner-stone species’.** This term is normally associated with wild plants which are essential for habitat and biodiversity conservation or restoration. The term should be extended and popularised for legumes too - to help realise more sustainable food and feed systems.
- Are there already recognised ‘legume-champions’ in Europe? It is suggested that TRUE partners work to identify and engage such a suite of individuals to help realise success of the legacy-LIN.





## 6. Closing comments

All work packages are developing well in terms of content and task processing and are on schedule.

- “We [the SAB] agree that all work packages are developing well in terms of content and task processing and are on schedule”.
- “... [it is] the actions that are taken by the recipients of the final report, which can be most realistically held to account for impact ...”, since “... the purpose of the project is to show those who can legislate change, policy makers, the alternative ways they can influence the uptake of legume production and accelerate the market...”.

The bullet point highlights that the **final report is critical** if impacts are to be realised in fact. **New markets can be created with impressive speed if there is a suitable policy change.** This has been seen most recently in the response of governments globally to the threat of plastics. Yet, the less visual threat of reactive nitrogen is generally treated with less urgency. However, the recent ‘[Launch of the UN Global Campaign on Sustainable Nitrogen Management](#)’, calls for more-coordinated and strategic action.

- **Legumes should be acknowledged and encompassed more fully within EU policy position documents** such as the European Commission’s ‘[Development of plant proteins in the EU](#)’, plus [Green Deal](#) and [Farm-to-Fork](#) initiatives – since they have a key-stone role to play combating climate and eutrophication. Such inclusion should clearly define the pivotal role legumes and their good management in sustainable nitrogen planning plus nutritional provision for food, feed and the maintenance of optimised soil function.





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In doing so, it also needs to be acknowledged that an “*...image change [for legumes]...*” is **necessary**.

- **Modern- and smart-marketing approaches for legumes need to be identified and adopted, and probably by professional (as opposed to academic) contractors.** Such approaches would form an important component of any “blue-print” for improved ‘innovation landscapes’ (where all stakeholders may harmonise their objectives), and to facilitate greater uptake of home-grown legumes and legume-based products.

The key challenges here are also to ensure that the necessary breadth of stakeholders across all sectors are communicated to and that the content is dynamic, consistently appealing to these audiences and so ensuring their continuous engagement. Also, **there is evidence that simply presenting facts can harden unsustainable locked-in practice.** Therefore, the facilitation of stakeholders across value chain sectors to ‘draw upon’ knowledge should be prioritised over the “pushing” of scientific insight. This would then emphasise the importance of legume business dedicated networking- and knowledge-portals (digital innovation hubs), which can be used by stakeholders to help realise success for their legume-based systems and products.

- **The role of legumes as ‘bio-based’ commodities which are central to helping realise the circular (biorefining) economy has not been widely recognised.** Trees are widely recognised and utilised as a defining biorefining feedstock and many tree-focused industries have emerged (e.g. ‘Paper Province’; ‘Ligno City’). Legumes could be a defining feedstock feature of sustainable arable systems, were more legume-focused industries to be established.
- With respect to the above, bio- or eco-technology pipelines for the commercialisation of wood and wood-based products have been created. If legumes are to be mainstreamed in the same way, such facilitative commercialisation pipelines could be important drivers. Such capacities are common in certain spheres, including for other crops (e.g. soybean and wheat). **Why not work towards realising a ‘legume-commercialisation pipeline’ as a large-scale (EU project funded) facility?**





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## Appendix I:

### Agenda for the 1st SAB Meeting

#### SAB Meeting Agenda - July 11th 2019

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## Introduction to the Stakeholder Advisor Board (SAB)

The Scientific Advisory Board (SAB) comprises all the non-academic partners within the TRUE project as detailed below.

Partner Institution	Partner's name
	Gábor Bertényi and Attila Králl
	Kirsty Black
	Eszter Kelemen and Bálint Balázs
	Beatriz Oliveira and Elisete Varandas
	Alfredo Sendim and Ricardo Silva
	Karen Hamann
	Nora Löhrich and Martha Walter
	Roger Vickers and Becky Howard
	Magdalena Trstenjak
	Claudia Nathansohn
	Eleonora Barilli
	Jen Banfield-Zanin

SAB members highlighted in green attend the 1<sup>st</sup> SAB meeting held at the 3<sup>rd</sup> TRUE General Assembly in Porto (July 2019).





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## The function of the SAB

### Advice and steerage

The aim of the TRUE-SAB is to provide advice and steerage for the project and ensure that the academic and commercial goals are properly focused and harmonised.

The SAB's role is to:

- advise the TRUE Consortium at strategic level on measures and methodologies that will **maximise the outcomes and impacts** of the TRUE project;
- provide an **oversight on Quality and Risk Management** issues;
- **facilitate additional stakeholder input** into the work of TRUE; and,
- **assist in disseminating the outputs** of TRUE to a very wide stakeholder audience that reaches beyond the immediate sphere of influence of the consortium itself.

### Inform the development of TRUEs Quality Management Plan

Reports from the SAB will inform TRUE's Quality Management Plan (QMP). The QMP helps define end-user needs across the spectrum of deliverables and objectives, and states how those quality assurances will be achieved. The TRUE's QMP monitors and measures performance, and these measures will be included in the closeout report. Quality Control (QC) will be undertaken using an objective mechanism comparing the finished product against a specification to confirm acceptability. Each WP will have associated acceptance criteria relating to products or services. Pareto Analysis, process control charts, walkthroughs, inspection and measurement techniques (including SAB reports) will be used to help inform and develop TRUEs Risk Register and Risk Log.





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## Initial objectives for the 1st SAB meeting

### *Ahead of the 1<sup>st</sup> SAB meeting in Porto*

As indicated above, the SAB is expected to help improve quality assurance with respect to the data or evidence gathered to fulfil TRUE's Deliverables and ultimately TRUE's stated impacts. **It is therefore important that the SAB is familiar with TRUE's declared impacts (Objectives) and Deliverables which are either already published** (available on SharePoint [here](#)), **or forthcoming**. In addition, the SAB should be aware of Work Package and Case Study outputs which have been achieved, and which are expected.

### *Guideline itinerary for the first 1st SAB meeting in Porto*

#### *Appointment of a Chairperson and Rapporteur*

To start the 1<sup>st</sup> SAB meeting, the first step would be to **elect a Chairperson and a Rapporteur**.

#### *SAB operational structure and reporting*

No specific operational structure has been defined for the SAB, and the Board is free to define how they would like to operate. Therefore, after the appointment of the Chairperson and Rapporteur the next stage *may be* to **decide the preferred 'meeting structure'** (will there be a fixed agenda?). This could focus on the quality and outputs (e.g. Deliverables), or/and on more general aspects of the project's *modus operandi*.

**The SAB should provide written reports of its meetings to the Project Manager and Project Coordinator. These SAB reports are critical to guide Deliverable D9.8 Impact Plan, due from the SAB in partnership with WP9 (Coordination). This is to be submitted by JHI (i.e. from WP9) in March 2020.** Therefore, it is important that SAB decides:

- how initial verbal feedback will be communicated, either to all partners (at the General Assembly), or only to the Executive Committee (ECOM); and,
- who will take responsibility to collate the formal written report (Chair or Rapporteur), and the role of *all* SAB members in drafting that report?

The content of the initial written report by the SAB will be considered as a 'report in draft'. That is, the final report is to be agreed by iteration with the ECOM. In addition, and once finalised, the ECOM will retain freedom to operate with respect to the final report, and any specifically identified or inferred actions raised.





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## Appendix II:

### Primary Objectives of TRUE

Taken from the Grant Agreement, each objective number relate to the TRUE Work Package of the same number. To be used as a guide to direct considerations of the SAB.

**Objective 1:** To facilitate knowledge exchange between project partners, participants, and production and food chain actors. Methods include participatory research, stakeholder meetings concentrated on Atlantic, Mediterranean and Continental pedo-climatic regions of Europe and a website developed as a virtual platform for knowledge exchange. Delivered primarily by UHOH and linked to WP1: Knowledge Exchange and Communication (Primary Impact 4 & 5; Additional 6, 7, 8, 9).

**Objective 2:** To determine and demonstrate the factors that contribute to successful transitions using a network of stakeholders among farming, food producers and consumers. Methods include characterisation of food and feed chain networks through a set of Case Studies, forming Regional Clusters covering Europe's pedo-climatic zones. Most effective transition paths will be identified to derive principles for wider application. Delivered primarily by AUA and linked to WP2: Case Studies (Impact 1 & 5; Additional 7, 8, 9).

**Objective 3:** To develop novel food and non-food uses for legumes by screening and processing a range of ingredients and formulations appropriate for regional production systems and historical culture. Raw materials from the farm Case Studies will be used to create nutritional profiles, explore best practice for processing and test prototypes for taste, texture and nutritional elements, ultimately for new markets, including aquaculture. Delivered primarily by UCP and linked to WP3: Nutrition and Product Development (Impact 2 & 5; Additional 7, 8, 9).

**Objective 4:** To investigate international markets and trade for legumes and legume products. Approaches include understanding existing markets, gauging consumer perception, mapping the infrastructure for trade in legumes and quantifying quality chain pricing structures. Delivered primarily by IFAU and linked to WP4: Consumers and Markets (Impact 2 & 5; Additional 7, 8, 9).

**Objective 5:** To produce new inventory data on the environmental intensity of different legume production systems. Methods will incorporate study site data from WP2 and nutrition elements from WP3 using Life Cycle Analysis to derive sustainability indicators (WP8); environmental footprint will be related to costs in growing, manufacture and purchase. Outputs are relevant to the EU's 'Healthy Diet for a Healthy Life' (<http://www.healthydietforhealthylife.eu/>), and 'Healthy Ageing' (<http://www.healthyageing.eu/>) initiatives. Delivered by TCD and linked to WP5: Environment).

**Objective 6:** To determine the economic performance of legumes at the Farm-, Farm Network (regional), and EU levels in conventional and organic production systems. Data from Case Studies will be used to derive economic and trade indicators at a range of spatial scales for comparison with Sustainability Indicators (WP8) to give an overall appraisal of the potential for legume-based systems. This objective will be delivered primarily by SRUC and is linked to WP6: Economics (Impact 1 & 4; Additional 6 & 9).





**Objective 7:** To analyse and enable policies, legislation and regulatory systems for the promotion of legumes. Initial stakeholder analyses will identify key issues to be investigated that will generate a range of policies to exploit the productivity, economic viability and environmental sustainability of legume-based systems. Delivered primarily by ESSRG and linked to WP7: Policy & Governance (Impact 1, 4 & 5; additional 7 & 9).

**Objective 8:** To enable the leveraging of legume incorporation into future farming, co-operative, feed industries, food chains and quality chain businesses across Europe. An overarching multi-criteria tool will be developed for assessing the economic, environmental and social sustainability of legume-based farming systems. Delivered primarily by JSI and linked to WP8: Transition Pathways (Impact 1, 3, & 5; Additional 6, 7, 8, 9).

**Table.** Summary of Impacts addressed by the stated Objectives.  
Further details are provided in Section 2 (p.26 of the Grant Agreement)

Objective	1	2	3	4	5	6	7	8
<b>Primary Impact</b>								
1. Development of sustainable legume-based cropping and grassland systems and agri-food and feed chains		X			X	X	X	X
2. Increase the competitiveness of legume crops from farm to agri-food and -feed chains			X	X	X			
3. Reduced environmental impacts of agricultural activities (greenhouse gas emissions and water pollution)					X			X
4. Integrated scientific support for relevant EU policies (Common Agricultural Policy, Water Framework Directive, climate change objectives)	X					X	X	
5. Strengthening of transdisciplinary research and long-lasting implementation of the results through the implementation of the multi-actor approach	X	X	X	X			X	X
<b>Additional Impacts</b>								
6. Contribute to optimising water use and reducing nutrient losses in agricultural systems, thereby also reducing the environmental impact of agricultural activities, in particular with regard to water quality	X				X	X		X
7. Enhance innovation capacity (by developing innovations meeting the needs of EU and global markets, and, where relevant, by delivering such innovations to the markets)	X	X	X	X			X	X
8. Create new market opportunities, strengthen competitiveness and growth of SMEs partners	X	X	X	X				X
9. Other environmental or social impacts (Benefits for society)	X	X	X	X	X	X	X	X





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## Appendix III:

### Expected-, Additional- and Legacy-Impacts of TRUE

**Expected Impact 1:** Development of sustainable legume-based cropping and grassland systems and agri-food and feed chains.

**Expected Impact 2:** Increase the competitiveness of legume crops from farm to agri-food and -feed chains.

**Expected Impact 3:** Reduced environmental impacts of agricultural activities (greenhouse gas emissions and water pollution).

**Expected Impact 4:** Integrated scientific support for relevant EU policies (Common Agricultural Policy, Water Framework Directive, climate change objectives).

**Expected Impact 5:** Strengthening of transdisciplinary research and long-lasting implementation of the results through the multi-actor approach.

**Additional Impact 6:** Contribute to optimising water use and reducing nutrient losses in agricultural systems, thereby reducing the environmental impact of agriculture, in particular about water quality.

**Additional Impact 7:** Enhance innovation capacity by developing innovations meeting the needs of EU and global markets, and, where relevant, by delivering such innovations to the markets.

**Additional Impact 8:** Create new market opportunities; strengthen competitiveness and growth of SMEs partners.

**Additional Impact 9:** Other environmental or social impacts (Benefits for society).

**Additional Impact 10 (Legacy):** Establishment of a single European Legume Innovation Network (LIN), and a co-innovative industry-science-society-policy interface.





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## Appendix IV:

### Background to the TRUE-Project

#### TRUE Project Executive Summary

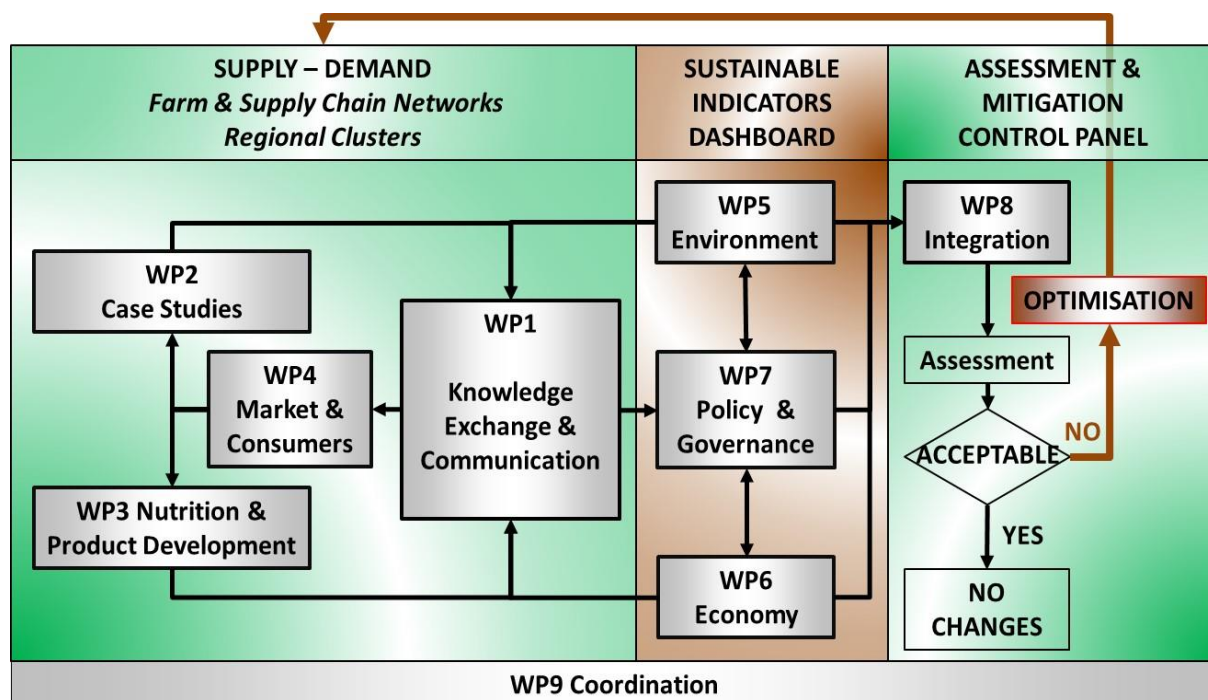
TRUE's perspective is that the scientific knowledge, capacities and societal desire for legume supported systems exist, but that practical co-innovation to realise transition paths have yet to be achieved. TRUE presents 9 Work Packages (WPs), supported by a *Intercontinental Scientific Advisory Board*. Collectively, these elements present a strategic and gender balanced work-plan through which the role of legumes in determining 'three pillars of sustainability' – 'environment', 'economics' and 'society' - may be best resolved.

TRUE realises a genuine multi-actor approach, the basis for which are three *Regional Clusters* managed by WP1 ('*Knowledge Exchange and Communication*', University of Hohenheim, Germany), that span the main pedo-climatic regions of Europe, designated here as: *Continental*, *Mediterranean* and *Atlantic*, and facilitate the alignment of stakeholders' knowledge across a suite of 24 Case Studies. The Case Studies are managed by partners within WPs 2-4 comprising '*Case Studies*' (incorporating the project database and *Data Management Plan*), '*Nutrition and Product Development*', and '*Markets and Consumers*'. These are led by the Agricultural University of Athens (Greece), Universidade Catolica Portuguesa (Portugal) and the Institute for Food Studies & Agro Industrial Development (Denmark), respectively. This combination of reflective dialogue (WP1), and novel legume-based approaches (WP2-4) will supplies hitherto unparalleled datasets for the 'sustainability WPs', WPs 5-7 for '*Environment*', '*Economics*' and '*Policy and Governance*'. These are led by greenhouse gas specialists at Trinity College Dublin (Ireland; in close partnership with Life Cycle Analysis specialists at Bangor University, UK), Scotland's Rural College (in close partnership with University of Hohenheim), and the Environmental and Social Science Research Group (Hungary), in association with Coventry University, UK), respectively. These *Pillar WPs* use progressive statistical, mathematical and policy modelling approaches to characterise current legume supported systems and identify those management strategies which may achieve sustainable states. A *key feature* is that TRUE will identify *key Sustainable Development Indicators* (SDIs) for legume-supported systems, and thresholds (or goals) to which each SDI should aim. Data from the *foundation WPs* (1-4), to and between the *Pillar WPs* (5-7), will be resolved by WP8, '*Transition Design*', using machine-learning approaches (e.g. *Knowledge Discovery in Databases*), allied with *DEX* (*Decision Expert*) methodology to enable the mapping of existing knowledge and experiences. Co-ordination is managed by a team of highly experienced senior staff and project managers based in The Agroecology Group, a Sub-group of Ecological Sciences within The James Hutton Institute.



## Work Package Structure

Flow of information and knowledge in TRUE, from definition of the 24 case studies (left), quantification of sustainability (centre) and synthesis and decision support (right).





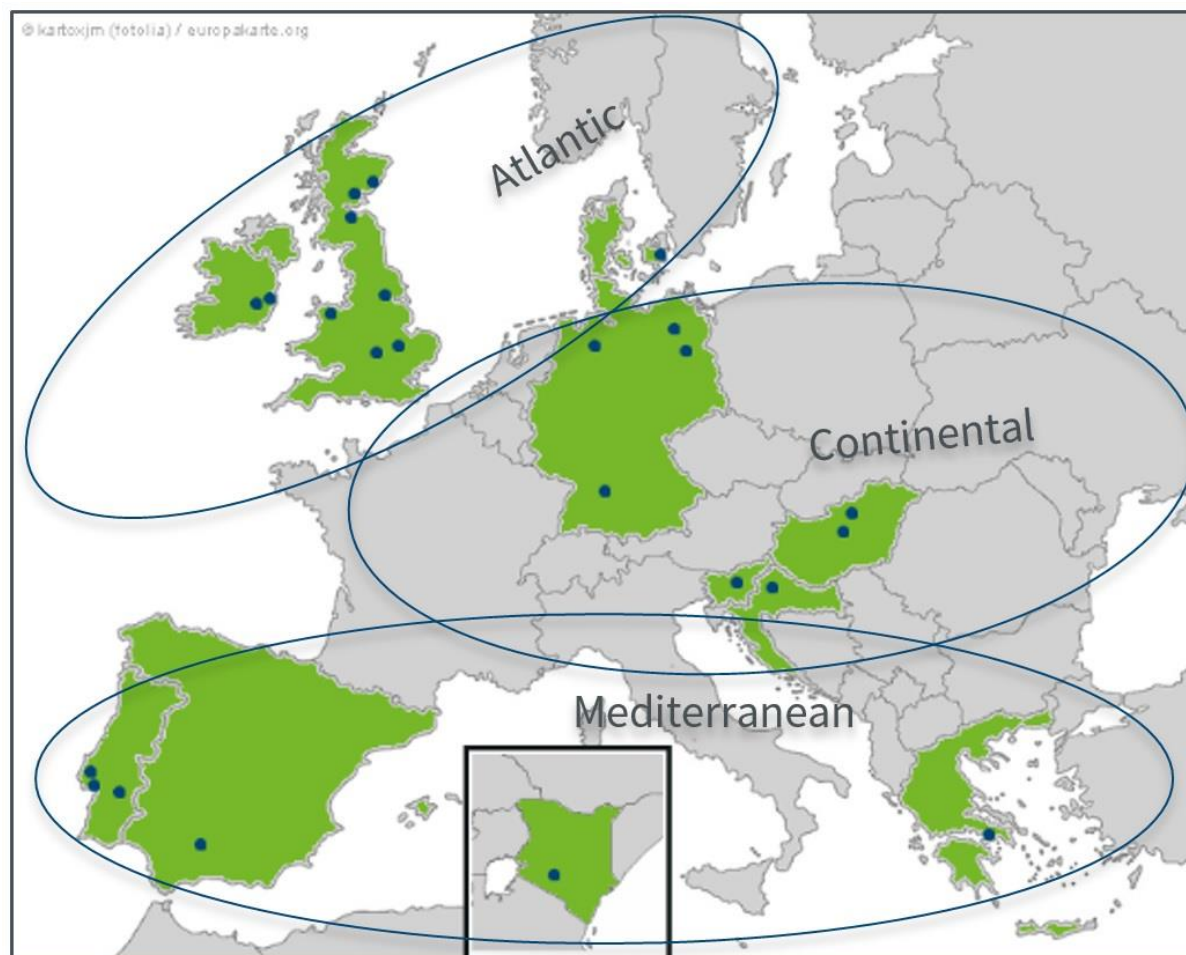
## Project Partners

Nº	Participant organisation name (and acronym)	Country	Organisation Type
1 (C*)	The James Hutton Institute (JHI)	UK	RTO
2	Coventry University (CU)	UK	University
3	Stockbridge Technology Centre (STC)	UK	SME
4	Scotland's Rural College (SRUC)	UK	HEI
5	Kenya Forestry Research Institute (KEFRI)	Kenya	RTO
6	Universidade Catolica Portuguesa (UCP)	Portugal	University
7	Universität Hohenheim (UHOH)	Germany	University
8	Agricultural University of Athens (AUA)	Greece	University
9	IFAU APS (IFAU)	Denmark	SME
10	Regionalna Razvojna Agencija Medimurje (REDEA)	Croatia	Development Agency
11	Bangor University (BU)	UK	University
12	Trinity College Dublin (TCD)	Ireland	University
13	Processors and Growers Research Organisation (PGRO)	UK	SME
14	Institut Jozef Stefan (JSI)	Slovenia	HEI
15	IGV Institut Für Getreideverarbeitung GmbH (IGV)	Germany	Commercial SME
16	ESSRG Kft (ESSRG)	Hungary	SME
17	Agri Kulti Kft (AK)	Hungary	SME
18	Alfred-Wegener-Institut (AWI)	Germany	RTO
19	Slow Food Deutschland e.V. (SF)	Germany	Social Enterprise
20	Arbikie Distilling Ltd (ADL)	UK	SME
21	Agriculture And Food Development Authority (TEAG)	Ireland	RTO
22	Sociedade Agrícola do Freixo do Meio, Lda (FDM)	Portugal	SME
23	Eurest - Sociedade Europeia De Restaurantes Lda (EUR)	Portugal	Commercial Enterprise
24	Solintagro SL (SOL)	Spain	SME
25	Public Institution for Development of Medimurje REDEA (PIRED)	Croatia	Development Agency

\*Coordinating institution



## Legume Innovation Networks



Knowledge Exchange and Communication (WP1) events include three TRUE European Legume Innovation Networks (ELINs) and these engage multi-stakeholders in a series of focused workshops. The ELINs span three major biogeographical regions of Europe, illustrated above within the ellipsoids for Continental, Mediterranean and Atlantic zones.





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Available online at: [www.true-project.eu](http://www.true-project.eu).

