



TRansition paths to sUustainable
legume-based systems in EEurope

EU H2020 project TRUE - Research on legume based food and feed chains

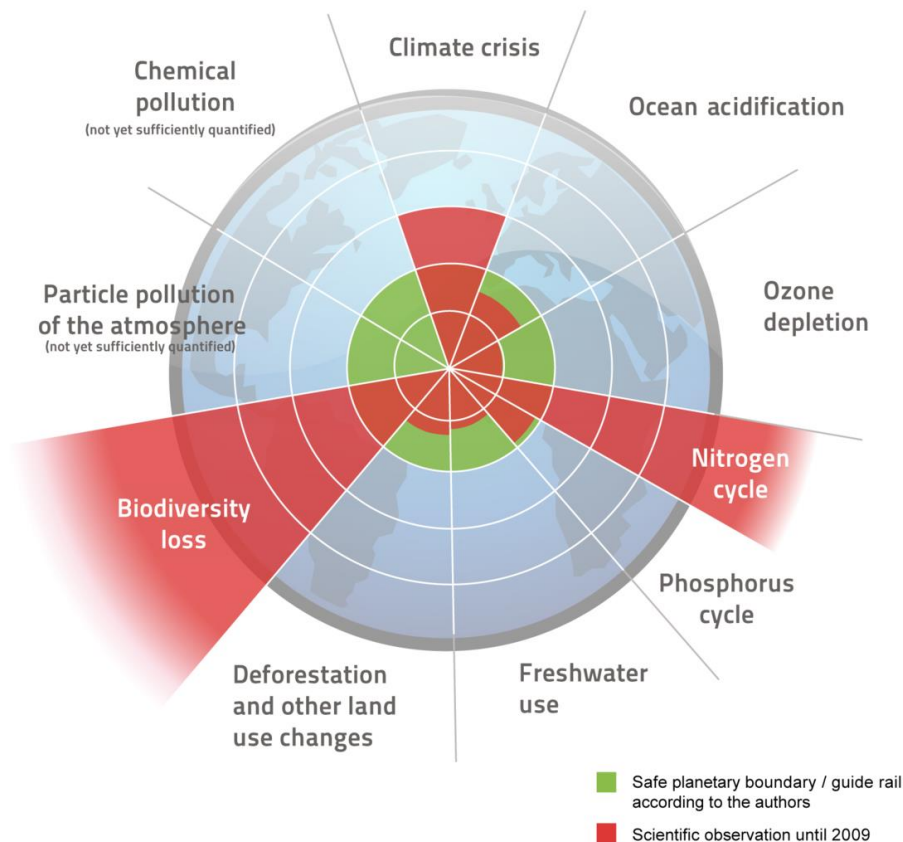
09/10/18 Lunch debate – Give peas a chance, Brussels



We have gone beyond the planetary boundaries

Planetary Boundaries

after Johan Rockström, Stockholm Resilience Centre et al. 2009

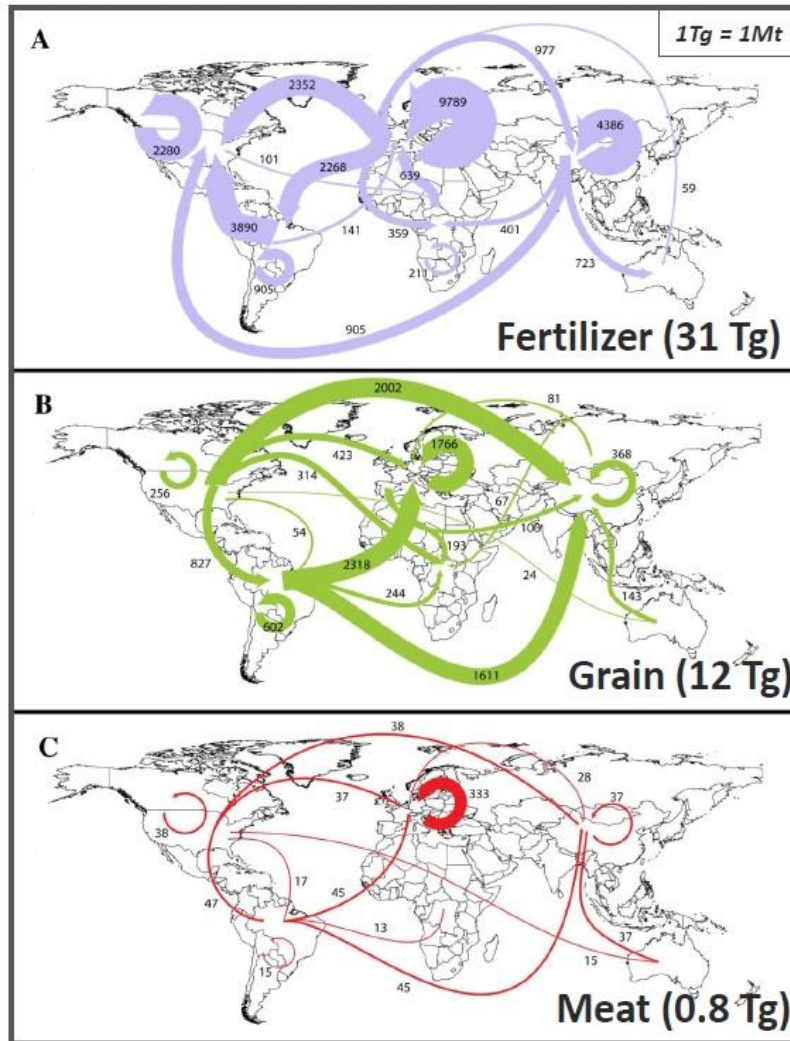


Rockström et al., (2009). A safe operating space for humanity. *Nature* **461**, 472.

Illustration: Felix Müller (www.zukunft-selbermachen.de) Licence: CC-BY-SA 4.0



The nitrogen-crisis is also a protein crisis



Un-healthy EU27 dependencies

- **N fertiliser use = 10m t y⁻¹**
- **23% of N fertiliser is imported**
- **Imported protein = 70% (42Mt, 2009)**
- **N demand set to increase**

- Large inequality in N-fertiliser use

Galloway *et al.*, (2008). *Science* **320**, 889.

Erisman *et al.*, (2008). *Nature Geosci.* **1**, 636.

Seufert *et al.*, (2012) *Nature* **485**, 229.



Previous EU projects on legumes

2010-2014 on sustainable cropping systems:



2012-2015

on new fodder legumes:



2013-2016

on legume by-product use:



2014-2017 on sustainable cropping systems:



‘Crop diversification’ cluster of Horizon2020 funded EU projects



- Collaboration between projects to
 - share information, methods and results
 - increase the overall impact on crop diversification uptake
 - sustain activities and infrastructures into the future.





SFS-02-2016: Teaming up for good:
Exploiting the benefits of species
diversity in cropping systems



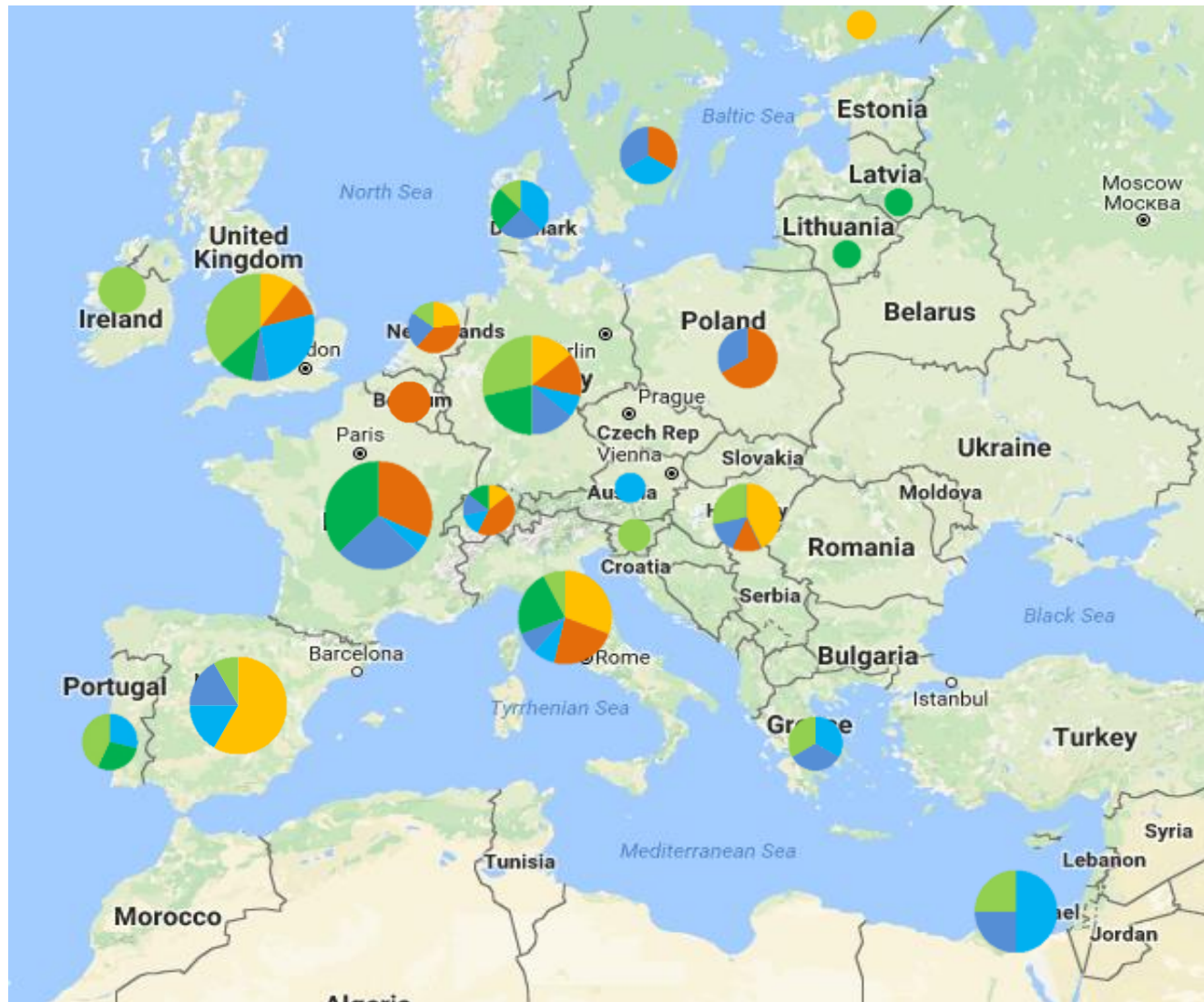
SFS-26-2016: Legumes - transition paths
to sustainable legume-based farming
systems and agri-feed and food chains



RUR-06-2016: Crop diversification systems
for the delivery of food, feed, industrial
products and ecosystems services – from
farm benefits to value-chain organisation



Geographical spread of partners



DIVERFARMING
DIVERIMPACTS
DIVERSIFY
REMIX
LEGVALUE
TRUE



NB			
AUT	1	IT	11
BE	6	LU	1
CH	3	LV	1
DE	13	NL	8
DK	6	OTHER	4
ES	11	PL	3
FL	3	PT	7
FR	16	RO	2
GR	3	SE	4
HU	7	SL	1
IRL	2	UK	14



Basic Project Information

- **EU Programme:** Horizon 2020
- **Call:** SFS-26-2016 (Legumes - transition paths to sustainable legume-based farming systems and agri-feed and food chains)
- **EC objectives:** **Reducing EU dependencies on imported protein (soy) and synthetic nitrogen fertilizers**
- **Duration:** April 2017 – March 2021 (48 months)
- **Overall budget:** 5 Mio. €
- **Coordination:** Dr. Pietro Iannetta, James Hutton Institute, Scotland, UK, email: true@hutton.ac.uk



Objectives of the TRUE project

- Identify “transition paths” to **increase sustainable legume cultivation and consumption** across Europe
- Include the **entire value chain** of legume feed and food
- Develop innovative legume products and practices
- Develop a **decision support tool** for primary producers, agronomists, processors, associated businesses and decision makers
 - help to determine a range of options for successful transitions
 - include a variety of legume species and processing approaches
 - match the pedo-climatic zones and farm network types.

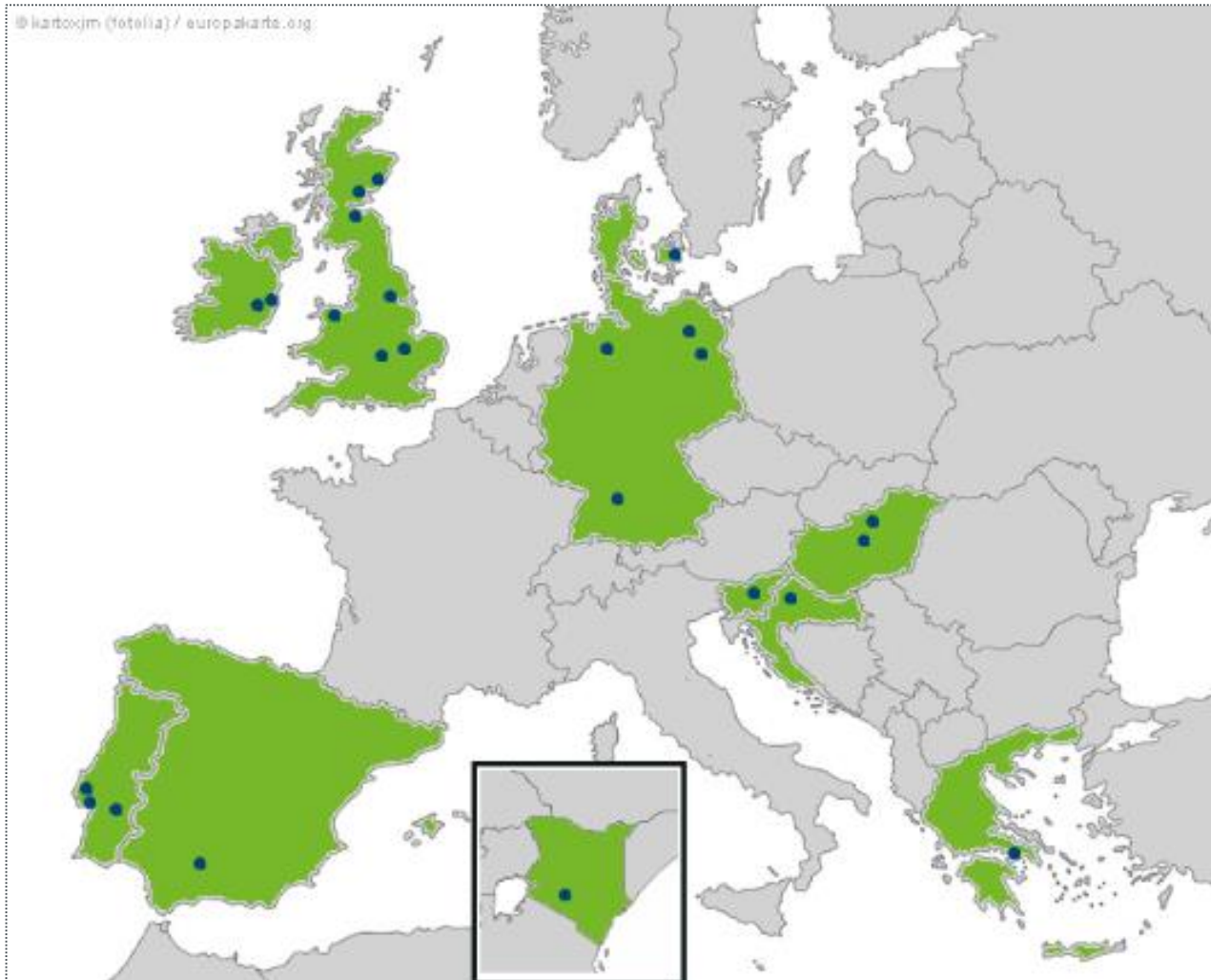


TRUE consortium: 24 members, 11 countries





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Croatia (1)
Denmark (1)
Germany (4)
Greece (1)
Hungary (2)
Ireland (2)
Kenya (1)
Portugal (3)
Slovenia (1)
Spain (1)
United Kingdom (7)

(=)number of project members

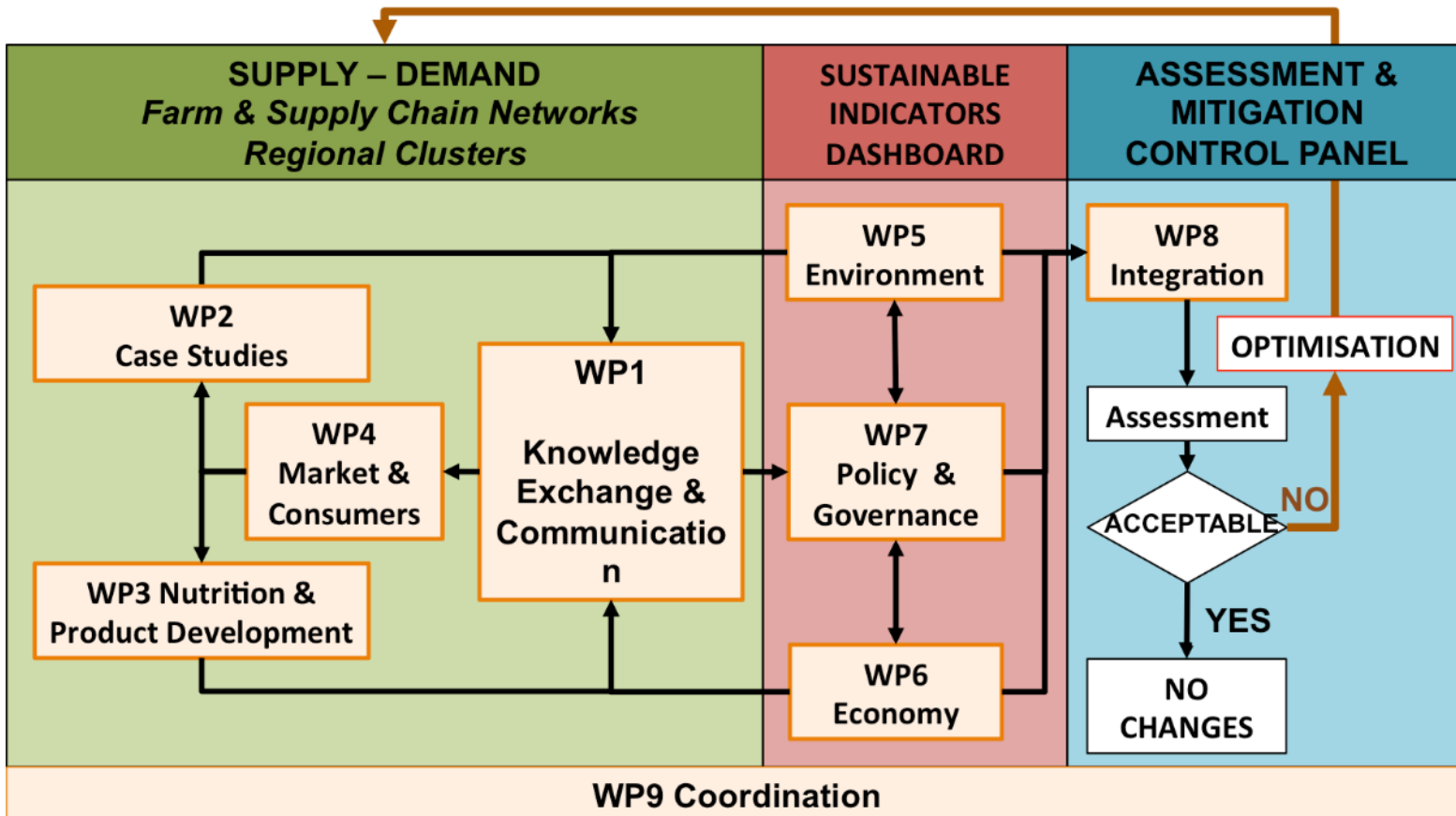


Work Packages

- WP1:** Knowledge Exchange & Communication
- WP2:** Case Studies
- WP3:** Nutrition and Product Development
- WP4:** Markets and Consumer
- WP5:** Life Cycle and Nutrient Quality Assessments of Legume Cropping and Legume Products
- WP6:** Economic Assessments of Legume Production and Consumption
- WP7:** Policy and Regulations
- WP8:** Transition and Decision Support Tool
- WP9:** Co-ordination

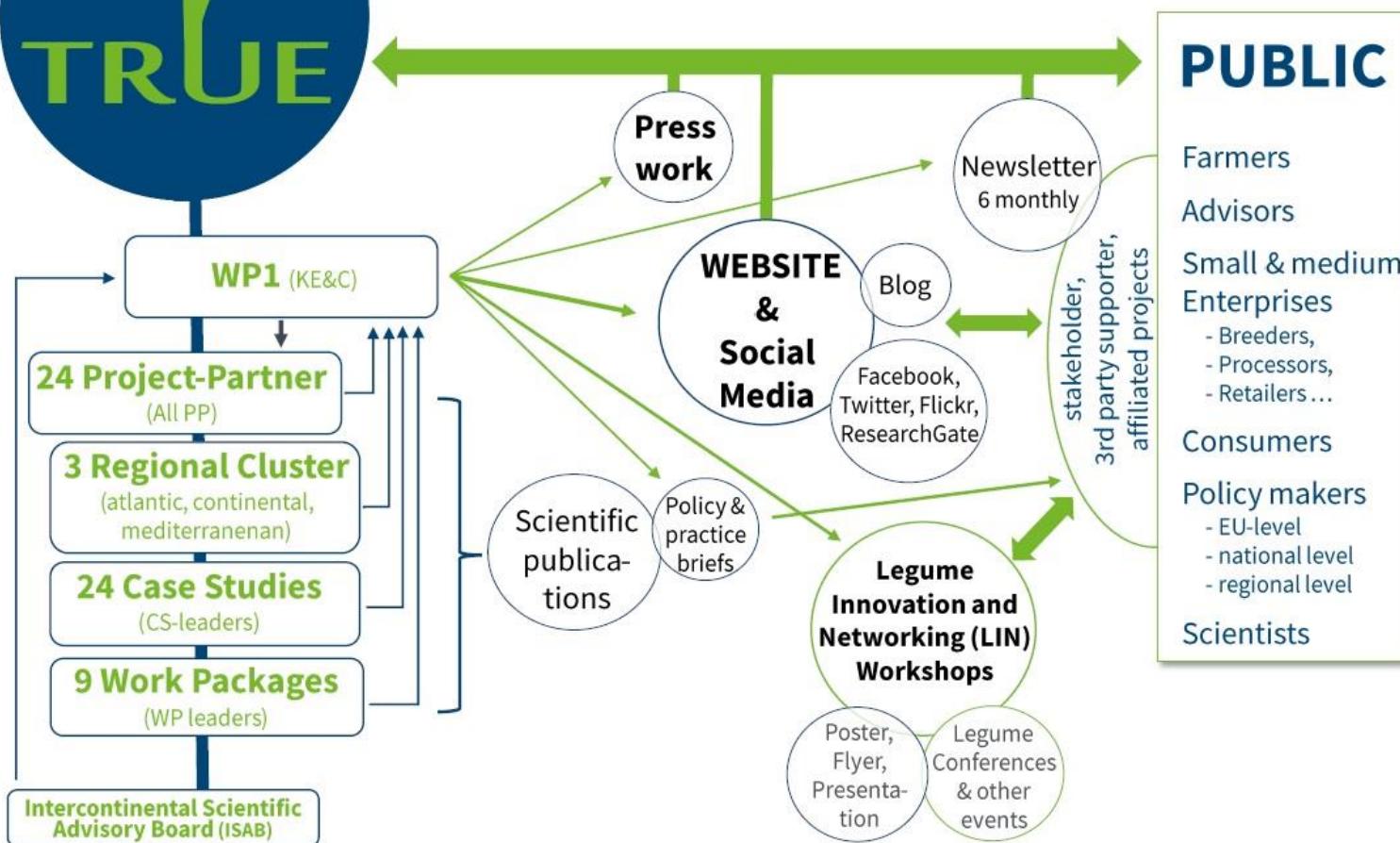


Work Packages





Communication Strategy





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Work Packages

LIN - Workshops

Blog "Notes from the field"

General project information

Interviews

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Case study reports

Work package updates

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CASE STUDY REPORTS - 20. March 2018

Legumes within dairy systems

The use of legumes and leguminous by-products within dairy systems is compared at Crichton Royal Farm: Home-grown feed, which is not purchased except minerals against fully purchased feedstuff - contrasting technical performance as well as GHG emissions and nutrient use efficiencies are expected to arise from the diets, genotypes and housing systems containing leguminous co-products or legumes grown in the UK.

[Read more...](#)



WORK PACKAGE UPDATES - 12. March 2018

Indicators of sustainable legume-based systems

The development of sustainability indicators for assessment of legume-based systems in Europe should follow the conceptual model of information and knowledge through the legume quality chain. A suite of indicators covering environmental, economic and policy pillars, as well as their interactions (bearability, viability and equitability), should be developed for each node in the quality chain.

[Read more...](#)



CASE STUDY REPORTS - 05. March 2018

Teagasc clover group

Despite their clearly demonstrated benefits for pasture-based farms legumes they are rarely used on Irish grassland farms. To promote the wider use of legumes on grassland farms dairy and beef farmers have been selected as demonstration farmers. Discussions and farm visits are facilitated by Teagasc.

[Read more...](#)



TRUE blog

"Notes from the field"

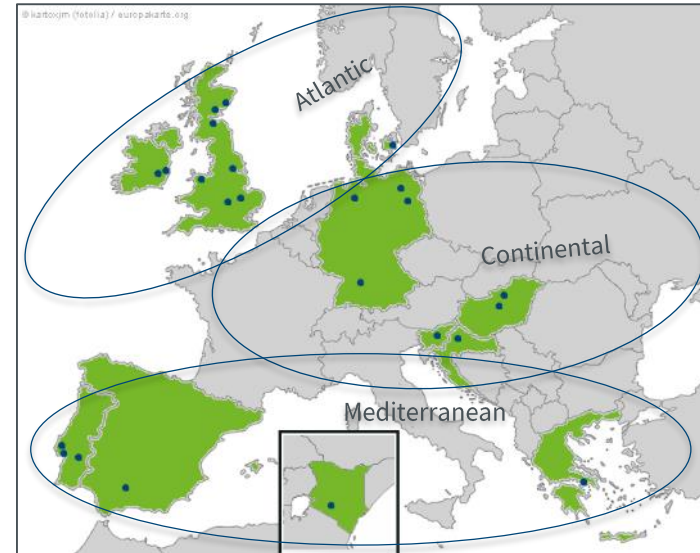
with project updates
from case studies and
work packages



Regional Cluster and Case Studies



In the **24 Case Studies** many different legumes are involved. The text size is related to the number of Case Studies with this legume.



The Case Studies are spread across three **Regional Cluster** according to the different pedo-climatic conditions



Regional Cluster and Case Studies

FOOD FEED

Atlantic Cluster - Case Studies

- CS 1: Expanding legume based pasture uptake
- CS 2: Clover-sward reliant organic production
- CS 3: Intercrops for food & feed
- CS 4: Self-sufficiency - novel rotation
- CS 5: Legume intercrops for forage or biomass
- CS 6: Precision Agriculture Technologies: living mulches for cereal production
- CS 7: Heritage varieties for enhanced human and beneficial insect nutrition
- CS 8: Using legumes as a source of fertility in organic protected cropping systems
- CS 9: Retailer-producers quality chain length
- CS 10: Market model development for organic pork
- CS 11: Characterise vegetarian foods quality chain
- CS 12: Vegetarian food formulation

Continental Cluster - Case Studies

- CS 13: Assess structure/profit short supply chains - grain products
- CS 14: Assess structure/profit short supply chains - Tofu, feed
- CS 15: Organic lupins for aquaculture feeds
- CS 16: Policy for sustainable development
- CS 17: Sustainable short supply chains delivering novel legume products to reconnect producers and urban consumers

Mediterranean Cluster - Case Studies

- CS 18: Ancient & heritage variety screening for higher nutritive value
- CS 19: Consumers - legume dishes
- CS 20: Processors - snack and convenience foods
- CS 21: Novel grafted types - high yield
- CS 22: Elite inoculum - inc. yield & profit
- CS 23: Breeding for high production and NUE Mediterranean agroecological pedoclimatic stresses
- CS 24: Silvo-arable production & quality chain characterisation





- Network with stakeholders from all parts of the value chains
- Exchange new ideas and results
- Collect hindering and facilitating issues
- Identify leverage points for change



Leverage points

Production

- Regional Legume Networks
- Monetary incentives
- Communication
- Research
- Education and extension services
- Agroecology as fundament for sustainability
- Building producer groups

Markets

- Consumer education
- Consumer habits
- Transparency
- Marketing
- Processing
- Production
- Market supply
- Feed market
- Infrastructure
- high volume trading

Policies

- Education
- CAP (change or remove)
- Resource policy
- Research policy
- Organic & small scale farming
- Nutrition & Diet
- Climate adaption
- Policy coherence
- Market policy



Forthcoming ELIN workshops:

- Atlantic: Jan. 2019, Denmark & June-July 2020, Ireland
- Continental: Sept. 2019, Slovenia
- Mediterranean: July 9th 2019, Portugal, 2020 Spain

See www.true-project.eu for detailed reports on ELIN findings, and register for the TRUE-newsletters to receive project updates and invitations to the forthcoming ELIN workshops.

Online Stakeholder Survey:



<https://www.true-project.eu/lin-workshops/stakeholder-survey/>

Share your ideas and experiences about

- **Changes needed** for an increase of legume cultivation and consumption
- **Indicators to measure sustainability** of legume-based value chains



General contact information

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Facebook/Twitter: [@TrueLegumes](#)



TRansition paths to **s**ustainable legume-based systems in **E**urope (**TRUE**) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727973

