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Food product innovations with grain legumes: which products for which markets?
Global overview from MINTEL-GNPD 2010-2019 data

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The Leg Value project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 727672.
➢ Very low legumes consumption in Europe, as many other countries: 4 kg/year/pers. Europe (see Weindel et al., 2020)

➢ Consensus for increasing such consumption for healthy and sustainable diets: from 11 kg/year/pers. for Europe in 2050 (see Poux and Aubert, 2018) to 18 kg/year/pers. (Weindel et al. 2019)

➢ But technological lock-in is still strong, reducing legume uses (see Magrini et al., 2018, 2019)

Example:
Most frequent protein ingredients in Meat Substitutes market;
MINTEL-GNPD data, global scale 2000-2016
From RADOBANK 2017 study

Few food product innovations with pulses compared with major crops
➢ To give a **first deep analysis** of the food product innovations with legumes launched on markets

➢ **Available for all**, especially small and medium firms that do not have sufficient financial resources to get such data analysis (market information asymmetries)

➢ **Available for public policies**, to identify « motor » markets to be fostered as drivers of the relaunch of legumes in food, particularly for pulses (ie. to reverse technological lock-in).

**Which are those motor markets ?**

➢ Do these food product innovations with legumes contribute to healthy and sustainable diet expectations ?

➢ Do the legume species more and more used are the ones progressing in cultivation to secure supply chains ?

➢ Which co-evolution with scientific advancement in Food Science and Technology ?
MINTEL-GNPD dataset
A shopper networks in more than 80 countries to track food product innovation launched on markets

5 types of Food product innovation for each firm
- New product
- Range extension
- Reformulation
- Repackaging
- Relaunch

Market segments
- Claims on the packaging

Retrieval of date at global scale
- Over 2010-2019

Focus on UE28

Use of natural language processing (N.L.P) methods to unpack ingredients lists

Over the decade
- 5 millions of food product innovations in the world
- + 500 000 contain wheat

Keywords queries to download datasets
- Delineation of datasets to European Union (EU) countries
- Parsing step: unpacking the ingredients list
- Species filtering according to main expressions from Catalog of Life
Main Results – World Scale

Food innovations containing soy are more numerous than with legumes, even in Europe.
First type of product innovations is **RANGE EXTENSION** ⇒ choice of security?

More « new » than « renew » a **young dynamic market**
• **Meat substitutes** market segment little invested by pulses.
• « Tofu » is part of the « meat substitutes »
• Europe driven by a dynamic of innovation based on sustainability/environmental and healthy issues.

• Environmental dimension is more marked for pulses.
Main Results – UE28 Scale

Graph showing the number of innovations from 2011 to 2019.
A strong growth of chickpeas and lentils, with their identity as a basic ingredient asserting itself, while peas remain more in a functional ingredient logic.
• Use of fractions or pulses extracts remains minor.
• Deepen caracterisation of innovatives markets concerning pulses: compute nutriscore/processing score to help support desirable forms of innovation for sustainability and health,

• « Routinise » parsing methods used and constituted ontologies,

• Make a focus on innovations products concerning « bakery, pastry & confectionery », it’s also a trending topic in FS&T(Food Sciences &Technology),

• Analyse sciences/markets co-evolution/Identify innovatives ecosystems (clusters) based on the identification of firms carrying these innovations.