# Green Expectations: Plant Sciences and the Food Industry

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# The Food Sector is under Pressure

- Dietary Diseases
- Malnutrition
- Environmental pollution
- Biodiversity loss
- Resource scarcity
- **Climate change**
- Land-use conflicts
- Animal welfare

Cause

Effect

Affect

- Health
- Sustainability
- Affordability
- Accessibility
- Diversity
- Inclusiveness
- Power balance
- Competitiveness

# European Technology Platform ‘Food for Life’

| | | |
|---|---|---|
| TURNOVER<br>**€1,192 billion**<br>Largest manufacturing sector in the EU | VALUE ADDED<br>**2.1%**<br>of EU gross value added | CONSUMPTION<br>**13.8%**<br>of household expenditure on food and drink products |
| EMPLOYMENT<br>**4.72 million people**<br>Leading employer in the EU | NUMBER OF COMPANIES<br>**294,000** | R&D EXPENDITURE<br>**€2.9 billion** |

**Four global key challenges**

Consumer engagement

Demographic changes

Food security

Sector maturity

ETP Food for Life’s answer to these tremendous challenges:

- **Develop** a sound R&I strategy,
- **Implement** the strategy,
- **Mobilize** all relevant actors
- **Monitor and guide** the implementation

**A collaboration of industrial and academic experts**

# Our Ambition:  Help build Tomorrow's Food Systems

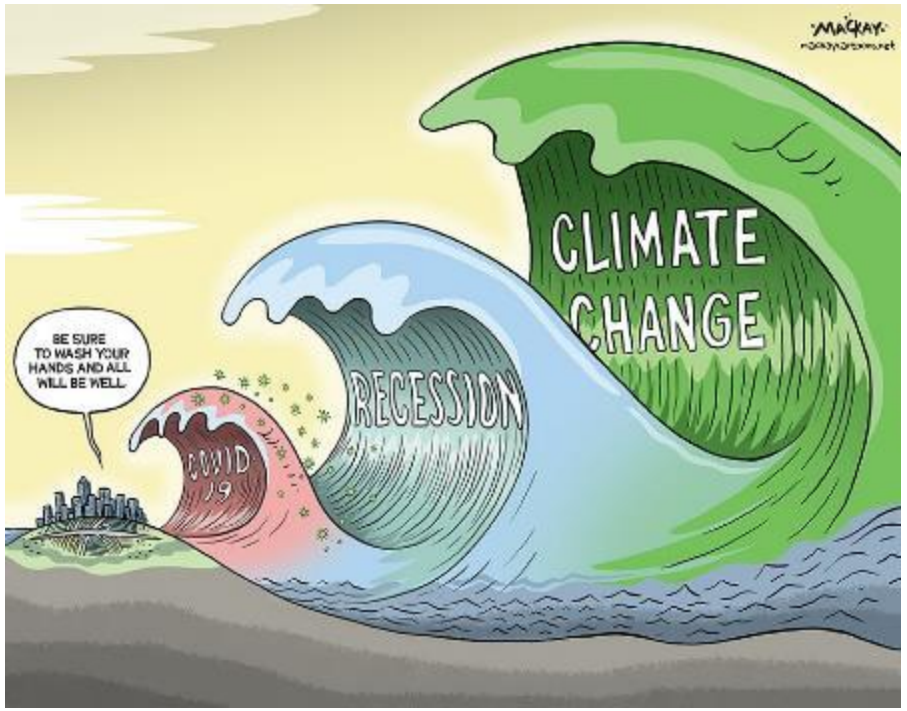
**Key characteristics:**

- **Resilient** through flexibility
- **Vibrant** through engagement
- **Sustainable** through resource stewardship
- **Fully transparent** and accessible to all

**Implementation principles:**

- Consumers and industry working in **partnership**
- Bridging modern **social and natural sciences**
- System-wide (**systemic**) approaches

# How does our Ambition fit now?






**Step-changing the innovation power and impact of the European food and drink industry to the benefit of a sustainable food system**

# Translating the Green Deal into Practice: Research and Innovation Opportunities for Sustainable Food Systems (1/2)

## 1. Environmental performance toolbox

Catalogue and improve crop + livestock performance; multi-year/cropping scale; sustainable + mixed agricultural practices.

## 2. Smartly reducing pesticide use

- Investigate pest and disease resistance in plant genetic resources;
- Improve and broaden farm management practices;
- Develop and optimize new digital monitoring technologies;
- Identify and develop environment-friendly pesticides.

# Translating the Green Deal into Practice: Research and Innovation Opportunities for Sustainable Food Systems (2/2)

## 3.Improve consumer knowledge and choice regarding healthy and sustainable diets

- Understand the drivers and barriers for consumer choice associated to healthy, diverse and sustainable diets;
- Determine how to promote best consumer education and awareness;
- Implement harmonized and effective communication with citizens and consumers;
- Advance traceability and transparency regarding the sustainability and health impact of food products throughout the value chain.

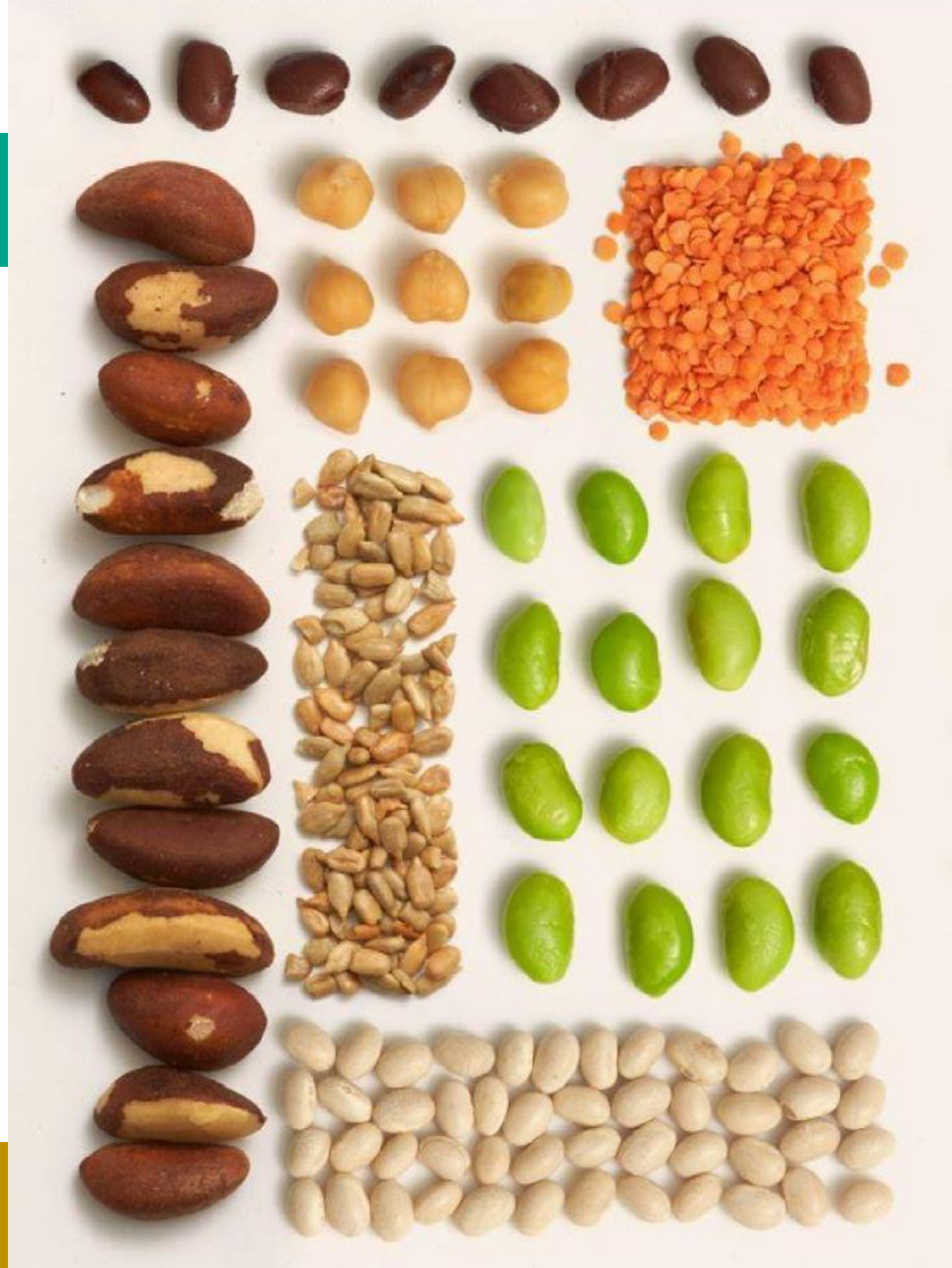
## 4.Diversify farming systems for diverse diets

- Explore and improve alternative protein sources, including plant-based protein;
- Improve livestock breeding and management (including feed characteristics) for mixed farming systems with a lower environmental impact;
- Develop new varieties of existing crops, reintroduce and domesticate niche and heirloom crops, and develop and introduce new or underutilized crops;
- Develop and scale up new crop rotations and new intercropping techniques.

# Industry Perspective on Plant-Based Alternative Proteins (Pulses & Others)

- Food safety
- Yield → Protein
- Fit with sustainable food systems
- Protein quality
- Sustainable supply chain
- Consumer acceptance


- Tuna = endangered!
- UPF?
- 100% plant-based
- Environmentally OK?



# Consumers Needs &  Consumption

**Who, Why, How, When**

FLEXITARIAN
LIFESTYLE

# Vegans Focus still on Ethics and Sustainability
# Flexitarians Attracted by Health and Variety

## Sustainability & Ethics

- Animal welfare
- Lower carbon footprint
- Kosher
- Halal


## Variety Seeking

- Lack of added value in traditional milk
- Flavor Variety
- **Nut / Pulses derived**


## Healthy Living

- Lactose-free
- No growth hormones
- No antibiotics
- No GMO
- Natural ingredients
- Less sugar
- Low-cholesterol
- Gluten-free

## Health

- Digestion
- Obesity
- Cardio-vascular diseases
- Cancer

# Plant-Based Products – An alternative to … Milk & Meat

**Innovation**
Product Development

**Nutrition & Health Benefits**

**Sensory properties**
Green notes, bitterness, astringency, texture

**Cost & Local Sourcing**

**Functionality**
Floculation, foaming, etc.

**Clean Label**

# Peas anyone? Yes please, but yellow!

- 80% used for animal feed (vs. 100% green pea 10 years ago)
- Selection of varieties based on field performance only
- One of the cheapest crops

\+ Promoted as new source of plant-based protein for food application

\+ High protein quality & great functionality in final product

\+ Shift from green to yellow peas for human consumption

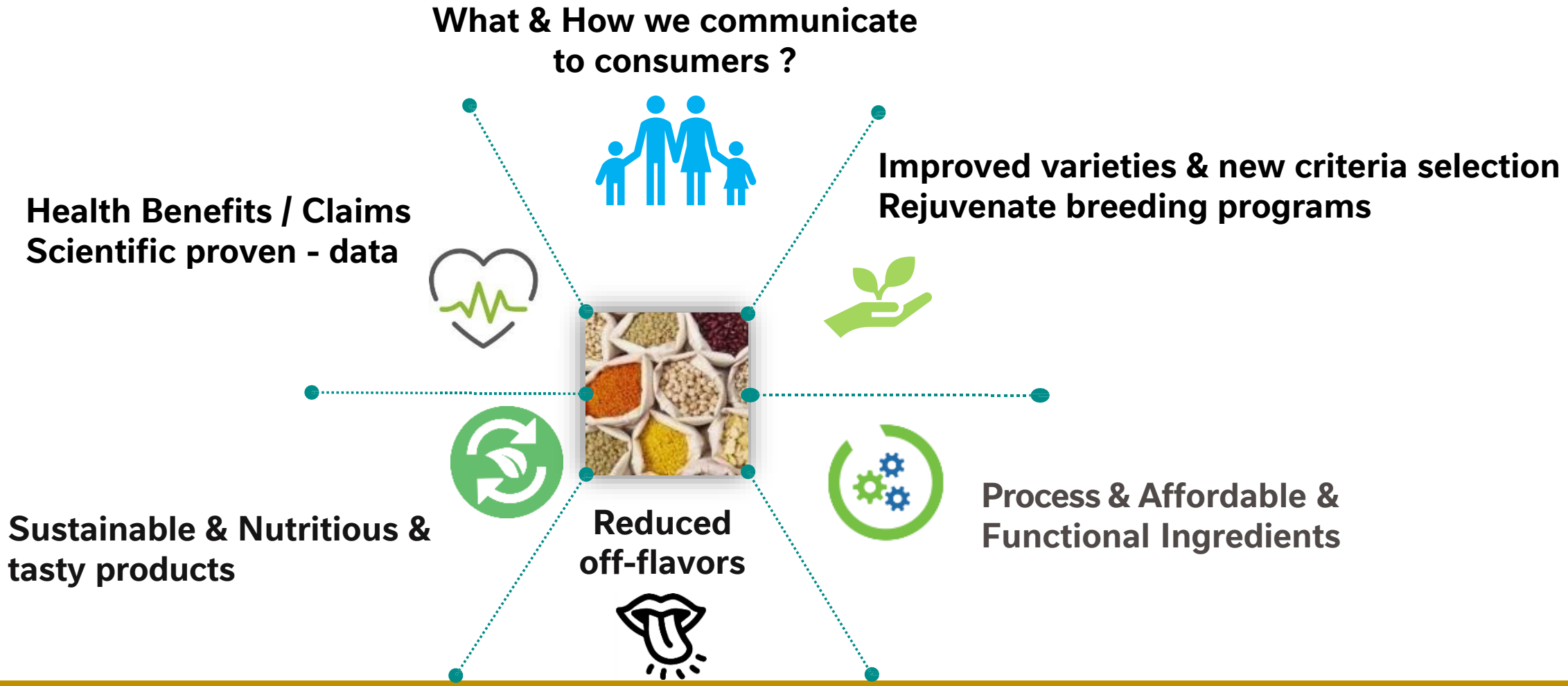
\+ Extracted yellow pea proteins reduced off-taste

\+ Yellow pea natural mutant of green pea

\+ In less than 5 years, yellow pea has become the only source used for pea protein production for food application

✓ Include new selection criteria and promote diversity

# Pulling the entire Supply Chain - From Farm to Fork



# THANK YOU!