



Driving sustainability -

how EU PRM rules can contribute

EU Advisory Group on the Food Chain; 18.02.2022



Who we are

34

National member associations from EU Members States and beyond, which in turn represent many thousand seed businesses across Europe.

67

Direct company members from family businesses to multi-nationals, including seed related industries.

Euroseeds has members also in other parts of the world: e.g. in the USA, Canada etc.



Mission:

Maintaining the EU's global leadership in seed exports by keeping clear and workable rules and market access conditions;

Providing a broad range of high-quality seed products for all types of agriculture, including organic, as a result of innovative and diverse breeding and seed production programmes;

Fostering future plant breeding innovation in the EU by assuring investment in plant breeding and protecting inventions and plant breeders' rights.

The EU seed sector

EMPLOYMENT:
approx.

52.000

**ANNUAL R&D
SPENDING:**

up to: **20%**

(of the companies'
turnover)

**R&D
STATIONS:**

750

SEED MARKET IN THE EU:

**COMMERCIAL
SEED MARKET**
value: **€ 10 bn***

**FARM
GATE** value
of agricultural
products:
> € 100 bn

**PROCESSED
AGRICULTURAL
PRODUCTS**
value:
> € 1.000 bn

**Source: OECD (2018), Concentration in Seed Markets: Potential Effects and Policy Responses, OECD Publishing, Paris.*

Guardians and creators of biodiversity

3.500 NEW
VARIETIES

of agricultural and vegetable
species come to the
EU market **EVERY YEAR***.

42.000 DIFFERENT
VARIETIES

of agricultural and vegetable
species are available to EU
farmers **TODAY***.

Source: **Source: EU common catalogues of varieties of agricultural plant and vegetable species*




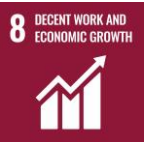


Commission Questions: seed and sustainability






- What is the current practice and what are the breeders' expectations in relation to variety testing for characteristics that contribute to a sustainable agri-food chain?
 - This could include an overview of current/future orientations of the industry e.g. in the framework of VCU testing,
 - the assessment of sustainability characteristics of varieties of other crops not subject to VCU testing,
 - specific needs that the EU PRM legislation would need to cater for.



- **11 out of 17 UN SDGs are supported by the continual genetic improvement of new plant varieties and by the use of authentic seeds with minimum quality standards**



	<ul style="list-style-type: none"> ● Affordable food locally produced in Europe from locally adapted plants ● European production providing food for people in less sustainable production environments worldwide
	<ul style="list-style-type: none"> ● Breeding plants overcoming continually evolving plant pathogen virulence ● Seed quality that can reliably establish crops
	<ul style="list-style-type: none"> ● Plant varieties resistant to fungal pathogens containing toxins and allergens ● Continued genetic adaptation of plants with improved nutritional quality and reduced anti-nutritional factors
	<ul style="list-style-type: none"> ● Plant varieties adapted to production systems with improved conditions for workers ● Local adaptation of crops to optimize farmers incomes & protect rural economy
	<ul style="list-style-type: none"> ● Plant bioscience as a key economic resource for the European economy ● Plant genetic innovation supporting increased consumption of plant-based foods
	<ul style="list-style-type: none"> ● Plant genetic gain for land use efficiency, water use efficiency ● Genetic resilience to pre and post harvest waste in field and crop storage

	<ul style="list-style-type: none"> ● Plant breeding for productivity and low emissions per unit of production ● Crop adaptations to low emission crop rotation
	<ul style="list-style-type: none"> ● Plant breeding for nutrient use efficiency enabling less fertilizer use & pollution ● Breeding for pest and disease resistance enabling reduced pesticide use
	<ul style="list-style-type: none"> ● Adapting crops for low tillage production systems protecting soil health ● Productive crops sparing land for wildlife and natural habitats
	<ul style="list-style-type: none"> ● Protection of users from fraudulent claims of seed quality, identity and adaptation ● Achieved through registration, certification, labelling
	<ul style="list-style-type: none"> ● Transparent information for farmers, food producers across the entire food system ● Trustworthy food sources for European citizens

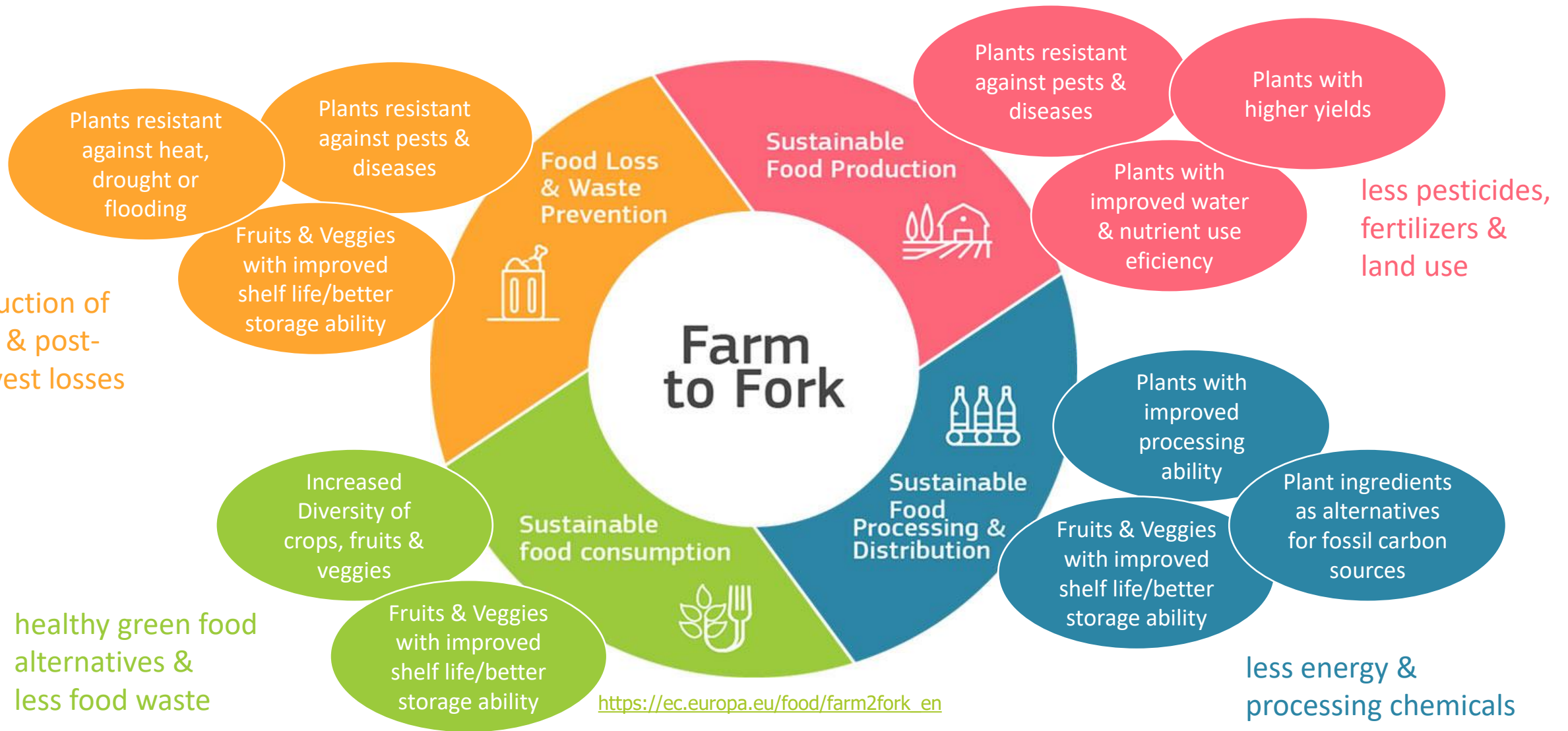
for more information, visit [Euroseeds seed sector brochure](#)

EU Green Deal and plant breeding & seeds

- EU Farm to Fork Strategy focusses on reduced emissions, land use efficiency, reduction of fertilizer and pesticides, reduction of waste.
 - **Plant breeding drives socio-economic and environmental sustainability with increased yields, more affordable food and higher farm income while avoiding additional land use and greenhouse gas emissions.**
- EU Biodiversity strategy focusses on curbing biodiversity loss and preserving and restoring Europe's ecosystems.
 - **Plant breeders in Europe are committed to:**
 - maintain and sustainably use existing plant genetic resources
 - create new biodiversity by developing improved varieties.
 - **Genetic diversity is the basis of all plant breeding!**

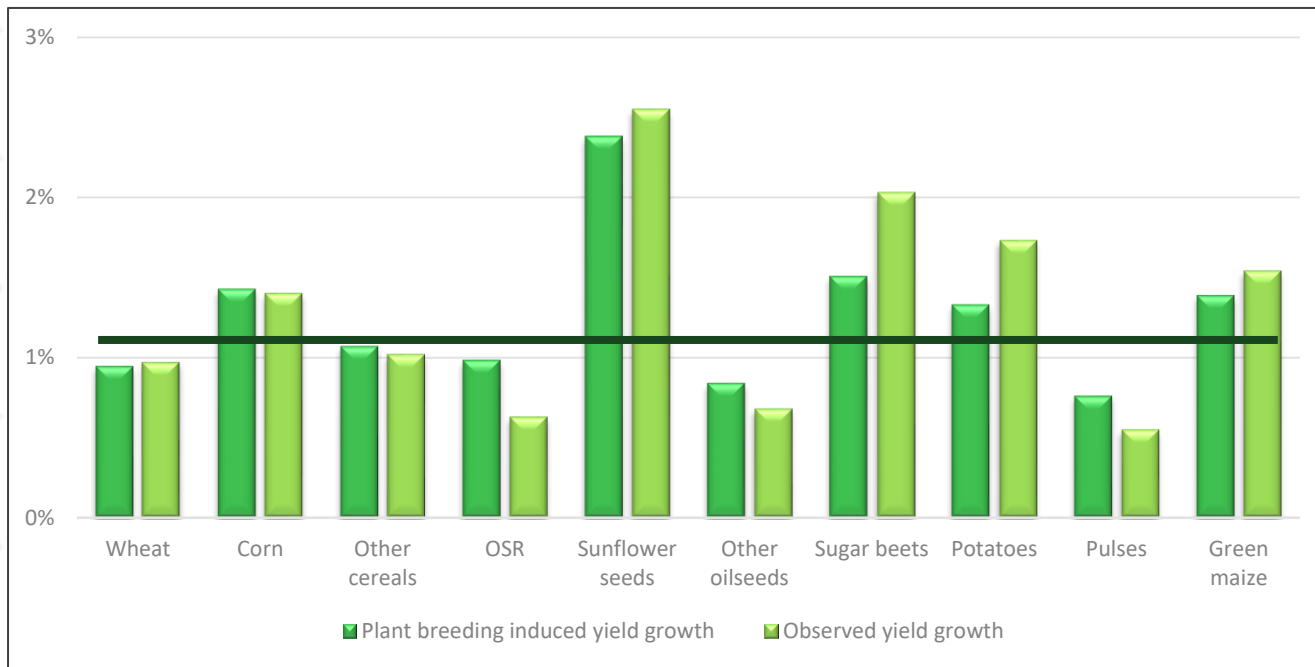


F2F: how can breeding & seeds contribute?



Plant breeding is responsible for approximately 66% of annual productivity growth

Plant breeding induced vs. real yield growth



- Shares of plant breeding in innovation-induced yield growth are between 59 and 75 percent.
- On average, weighted by hectare:
 - **1.16 percent per annum** productivity growth through plant breeding.
- Plant breeding has a tremendous impact on EU arable farming.

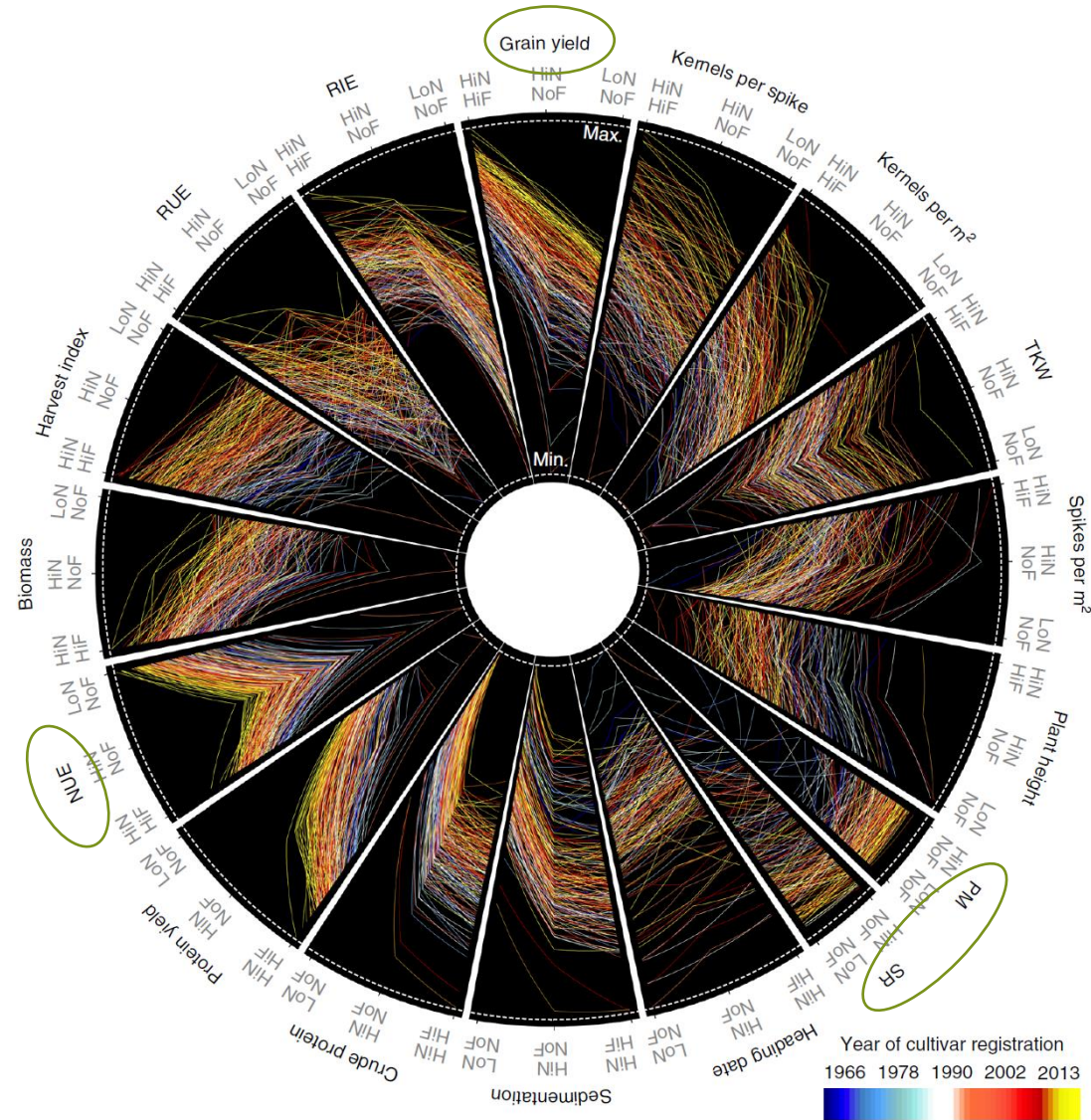
→ Without 20 years of plant breeding in the EU yields would be **more than 20 percent lower**

The multiple sustainability effects of 20 years of Plant Breeding in the EU

- Without 20 years of EU plant breeding progress...
 - arable farmers would have a considerably lower income (about minus 1/3)
 - the EU would become a net importer in all arable crops including wheat and other cereals
 - 22 million hectares of additional land would be needed (territory of Romania)
 - almost 4 billion tons of additional GHG would have been emitted (~ yearly GHG emissions of The Netherlands)
- 20 years of EU plant breeding progress helped to avoid significant biodiversity losses (~ compensation of 11 years of deforestation and savannah loss in Brazil)

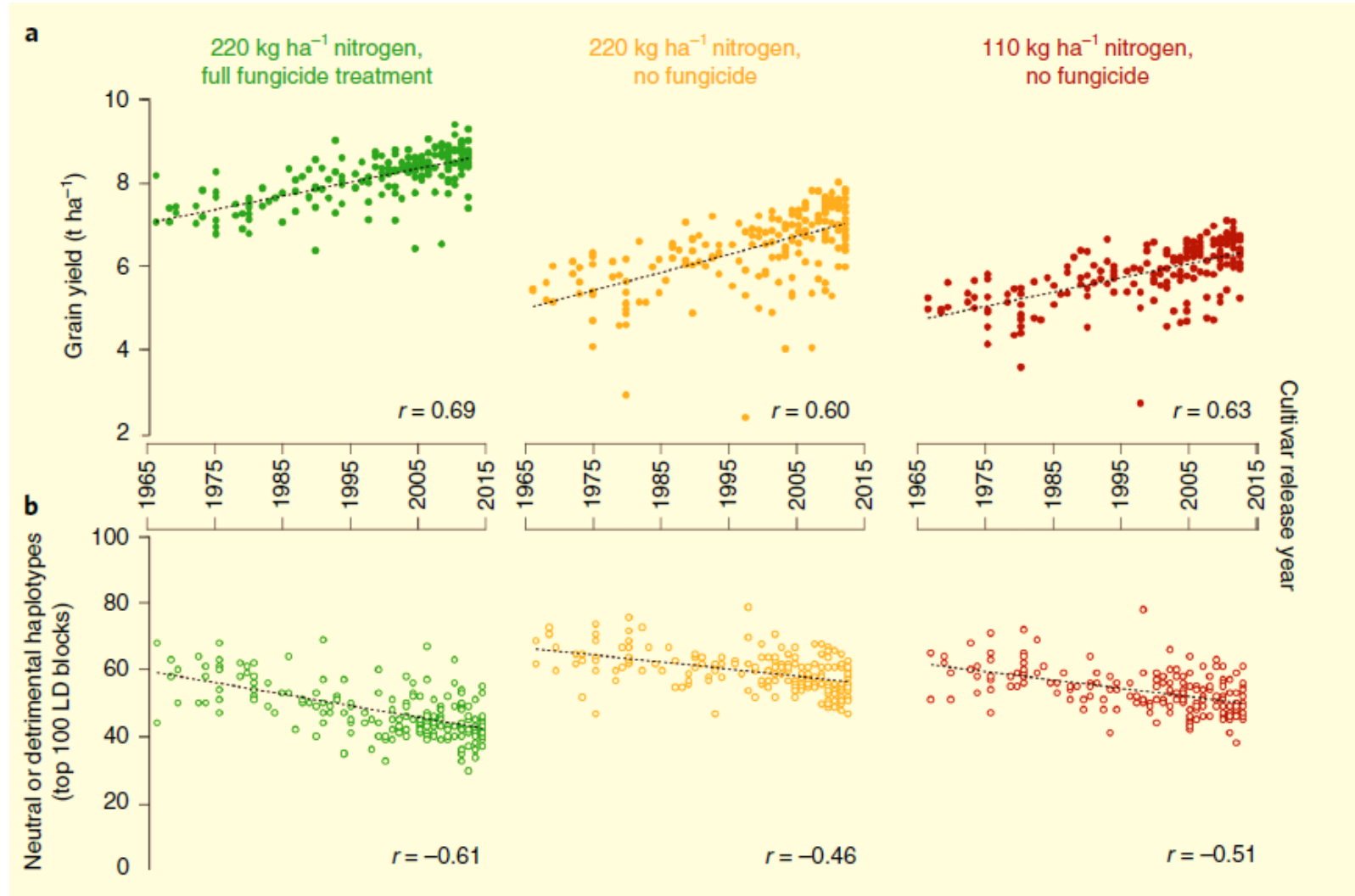


50 years of breeding progress in European winter wheat



- ❖ 191 wheat cultivars (1966-2013), six locations over two years.
- ❖ Three agrochemical treatment intensities, with high/low nitrogen fertilization and/or fungicide application.
- ❖ Plots show trait values for grain yield, yield parameters, disease resistances, grain quality and physiological traits measured across cultivars released during the past five decades.

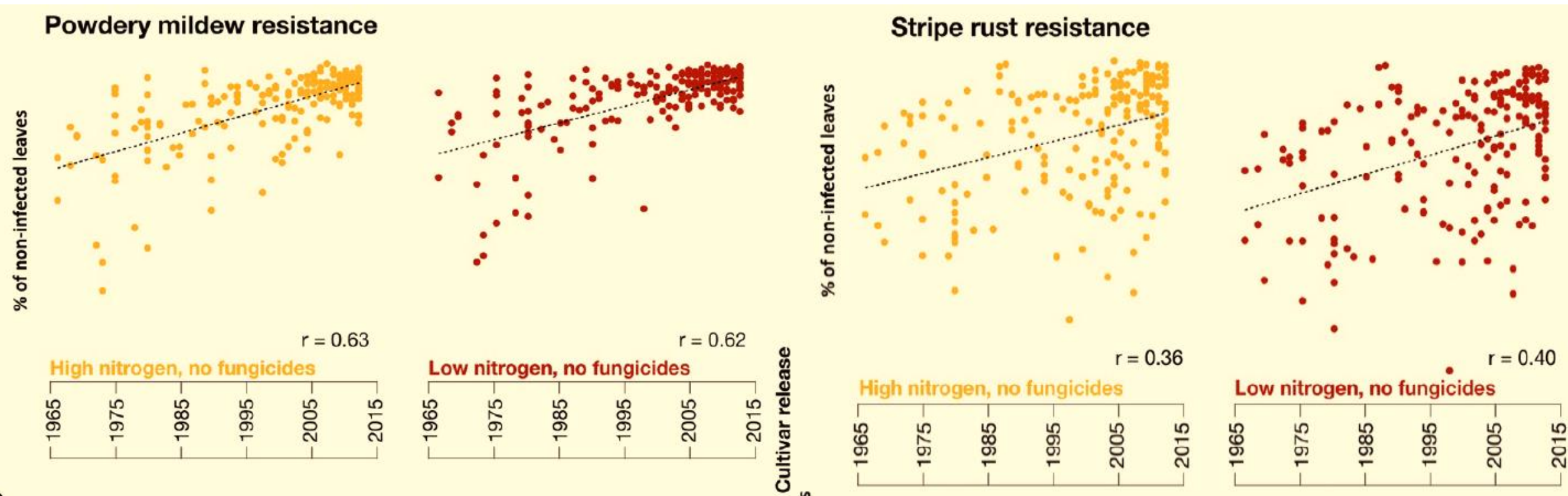
Breeding improves Low Input Productivity: Assessment of winter wheat cultivars released during the past 50 years in western Europe, particularly Germany



Modern cultivars outperform older cultivars under both high input and low-input scenarios.

Plant Breeding has incrementally eliminated negative genetic factors over time

Breeding improves Disease Resistance: Assessment of winter wheat cultivars released during the past 50 years in western Europe, particularly Germany



Modern varieties show a better disease resistance, both under high and low input scenarios (nitrogen) – helping to safeguard yields and allow for less pesticide use & reduced carbon footprint

Source: Breeding improves wheat productivity under contrasting agrochemical input levels, Nature 5, pages706–714 (2019); Supplementary Information: <https://doi.org/10.1038/s41477-019-0445-5>

How the genetic potential of a variety to perform on-field is decisive for sustainability effects of seed

- **Identity** assurance achieved through appropriate **labelling: know what you buy**
- Minimum **performance standards: know what you can expect from the product you buy**
- Legal text: 'Clear improvement... of characteristics/qualities taken as a whole... in a **particular region**... for **intended use**' : **know what you buy does in YOUR field**

Therefore:

- **VCU testing must integrate many criteria related to sustainability** through evaluation of varieties performances under relevant biotic and abiotic stresses
- **Varieties are tested in many locations, under different soil and climate conditions, and for several years** : allows to identify the most performant and resilient varieties



How seed qualities are relevant to the practical on-field contribution of a variety to sustainability

- Authentic identity as the variety chosen by the user
- Free from contamination with unintended varieties
- Free from pests
- Free from pathogens
- Free from harmful weeds
- Germination sufficient to reliably establish a crop
- Age and vigor sufficient to reliably establish a crop



How official information can support choices for sustainable varieties and seeds

- Register of **marketable varieties**
- Registered **description of the variety** enabling its identification
- **Transparent** information for users linking variety name & characteristics
- Register of **responsible operators**
- Register of **responsible maintainers**

TRANSPARENCY
INFORMATION
COMPLIANCE



Conclusions (1/2)

- Truly **sustainable** EU agriculture and food system must focus on **environmental** AND **economic** aspects.
- Effective guarantees of
 - **identity (DUS/ORD),**
 - **performance (VCU** for defined species/markets),
 - **quality (certification** for defined species and high-quality standard seeds)
 - **health of seed products (phytosanitary** assurances)are **all** required together to support greater sustainability **on-field**.
- **Food security** and **food quality, identity assurance, performance confirmation** (and plant health) must therefore remain the principal goals of the PRM legislation. These are **fully aligned to the Green Deal** and its **related strategies**.
- **Environmental, fair trade, economic, food security** and **food sovereignty** aspects of sustainability for the EU can **all** be positively influenced by an **appropriately modernized PRM** legislative framework

Conclusions (2/2)

- Sustainability criteria need to be **measurable, repeatable, science-based and non-discriminatory to protect users** from fraud and guide informed sustainability decisions.
- **Climate adaptation** is a key characteristic and largely expressed by the combination **quality** and **yield** under practical growing conditions.
 - Such adaptation needs to be **regionally assessed under relevant conditions**
- The criterion of a variety's VCU assures that every new variety of **agricultural crops** constitutes a **relevant improvement** to the comparable existing ones with a view to its use. VCU criteria need to respond to challenges of **sustainable agriculture, food security** and **consumer demands**.
- The 'clear improvement' criterion of VCU assures that **every new variety** of agricultural crops constitutes a **step forward** for sustainable agriculture taking account of its **use and local adaptation**
- Exemptions and/or adapted rules and standards may well be established where specific growing conditions (e.g. greenhouses), markets (e.g. amateur gardeners) or users (e.g. conservation networks) justify this provided that:
 - they don't result in parallel **unregulated PRM markets**
 - **sustainability** is not **compromised**
 - **transparent comparable information** is provided for usersby such exemptions or rules.



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#EmbracingNature

