Research Institute of Organic Agriculture FiBL
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ENGAGEMENT.
BIOBREEDING
EUROPE

Organic breeding

OPTA workshop - 05 May 2021

OPTA Organic Processing and Trade Association Europe

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www.biobreeding.org

@FiBLBreeding

Program

10.00	The need for organic animal and crop breeding and implications of the provisions in the new organic regulation • Mariateresa Lazzaro, FiBL Organic Plant breeding team
10.20	The benefits of organic breeding for the organic value-chains. Direct experiences by organic breeders • **Amadeus Zschunke**, organic plant breeder, director Sativa Rheinau AG • **Wytze Nauta**, organic animal breeder, Dutch Organisation for Organic Breeding
10.50	Involvement of the value chain in organic breeding • **Gert-Jan Lieffering**, Quality Development Manager at Eosta BV / Nature & More
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The need for organic animal and crop breeding

- *implications of the provisions in the new organic regulation*

Mariateresa Lazzaro, Monika Messmer, FiBL plant breeding team

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Great Chances for Sustainable food production

- Increase organic farming to 25% of total farmland by 2030
- Circular bio-based economy, reduction of nutrient losses by 50%
- Reduced pesticides and antibiotics by 50%

Any risk of indigestion?

Great Challenges for Organic sector Growth

Growing **organic market with high demands on** quality and integrity of production, regional production, diverse and nutritious food

Why does the organic sector need organic breeding?

The vast majority of organic food today is derived from conventional breeding

- conventional varieties account for around 90% of organic crop production
- not better in the livestock sector

We need to separate two aspects:

Organic seed [plant reproductive material]

- *use of organic seed (compulsory even though too high use of derogations for non-chemically treated conventional seeds still ongoing)*

Organic breeding

- *type of varieties from which the seeds derive (that can be conventional breeding also for seed just reproduced under organic management)*

Current situation in conventional breeding

the integrity of the organic sector is at stake

Why does the organic sector need organic breeding?

- Decrease of access to genetic diversity by farmers
- Patents
- Dependence on a few global breeding companies

Why does the organic sector need organic breeding?

- Large conventional breeding companies work on a few economically important crops with a **focus on high input conventional agriculture**
- Conventional varieties very often diverge from the demands of organic producers for sustainable production

Why does the organic sector need organic breeding?

- More and more methods used in conventional breeding do not comply with the IFOAM guidelines for organic farming (e.g. cell fusion, gene editing)

How does the organic sector benefits from organic breeding?

Organic breeding selects varieties that are robust, yield stable, locally adapted and tasteful

- Genetic diversity (within cultivar, mixed cropping, cultivar mixtures)
- Prohibition of GMOs (including cytoplasm fusion, gene editing)
- Conservation and free access to GMO-free genetic resources

Implications of the provisions in the new organic regulation

- 100 % organic seed
- databases

→ Organic seed*

- Definition of organic breeding
- Organic Varieties
- Organic heterogenous material

→ Organic crop breeding

- databases

→ Organic animals

- use adapted breeds

→ Organic livestock breeding

* Plant reproductive material

Plant reproductive material - categories

Plant Reproductive Material (PRM)

- Seeds
- Seed potatoes
- **Vegetative propagating material**

Options for Plant Reproductive Material (PRM) available for organic farmers:

- **Organic Plant Reproductive Material** (PRM)

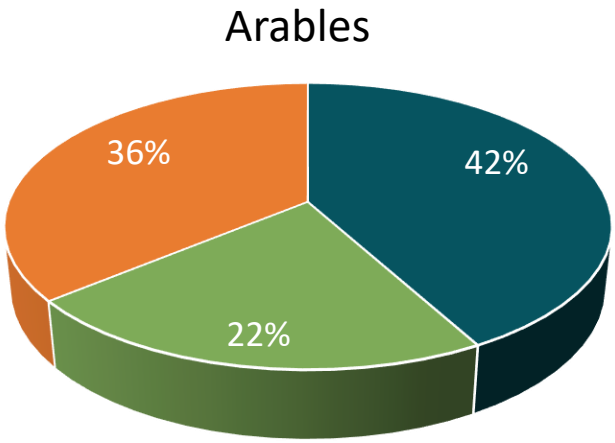
- **In-conversion** Plant Reproductive Material, if conversion period of 12 moths respected (not from 2037).

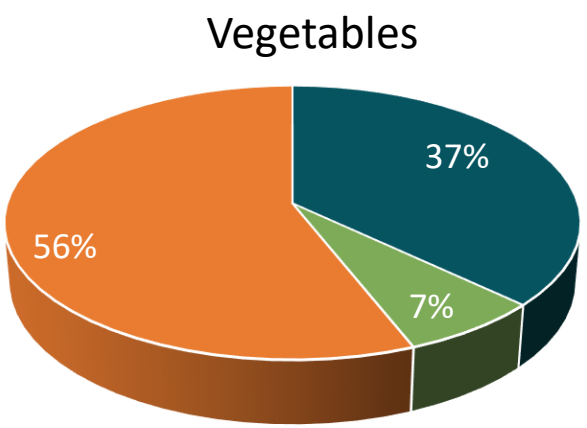
- Untreated non-organic Plant Reproductive Material, if a derogation is granted & no in-conversion material available (not from 2037).

Definition

'*plant reproductive material*' means plants and all parts of plants, including seeds, at any stage of growth that are capable of, and intended for, producing entire plants;

Organic plant reproductive material

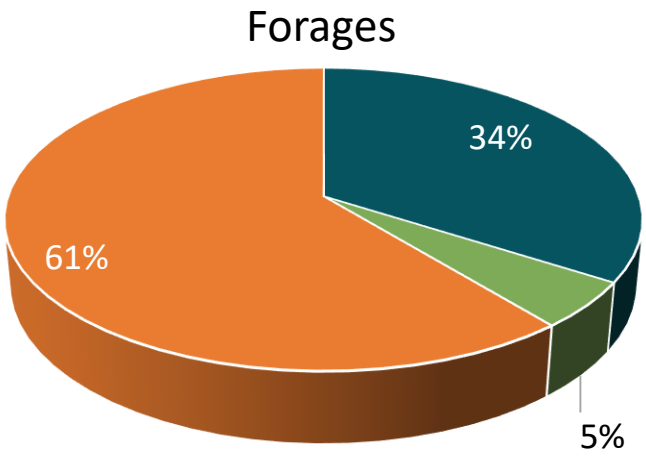


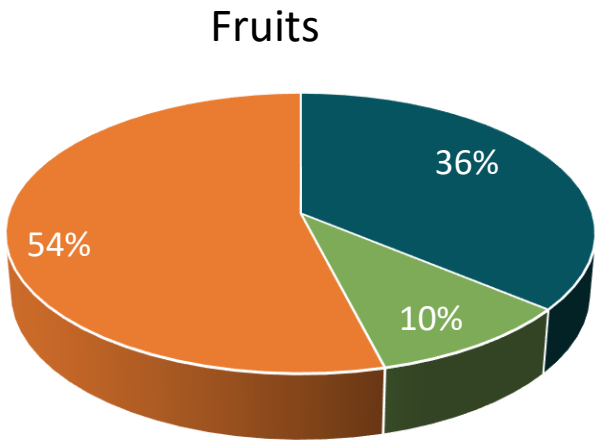


ORGANIC SEED SUPPLY

NON-ORGANIC SEED SUPPLY *

ORGANIC FARM SAVED SEED



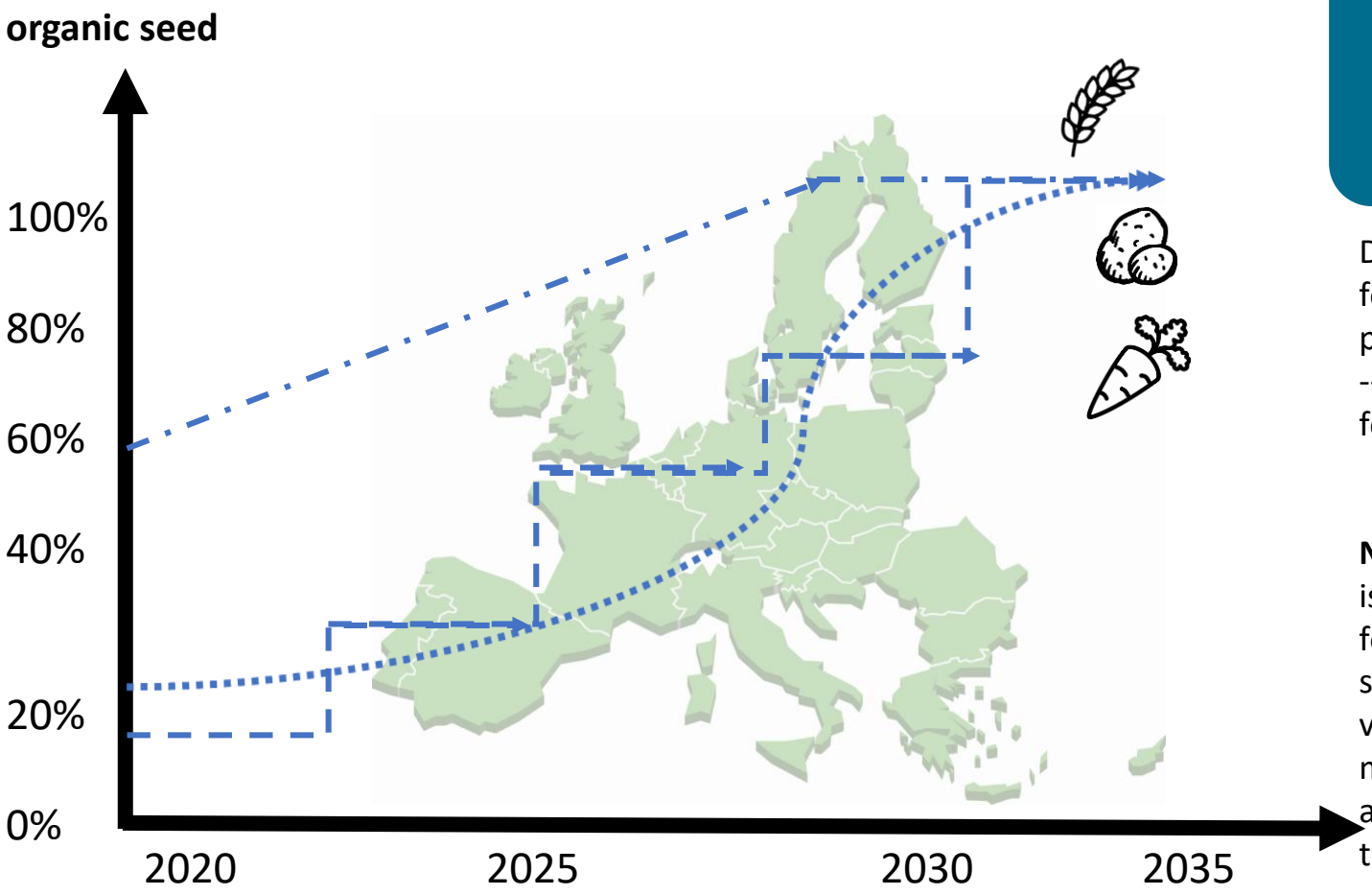


Validated data on supply and demand of seed used in OF in EU +CH

LIVESEED

This project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727230.

Organic plant reproductive material



Seed Database

Database
for organic and in conversion plant reproductive material
--> for derogation --> visibility for organic PRM

National Annex
is a national list of (sub) crops for which
sufficient organic seed or vegetative propagation material is
available on the national territory.

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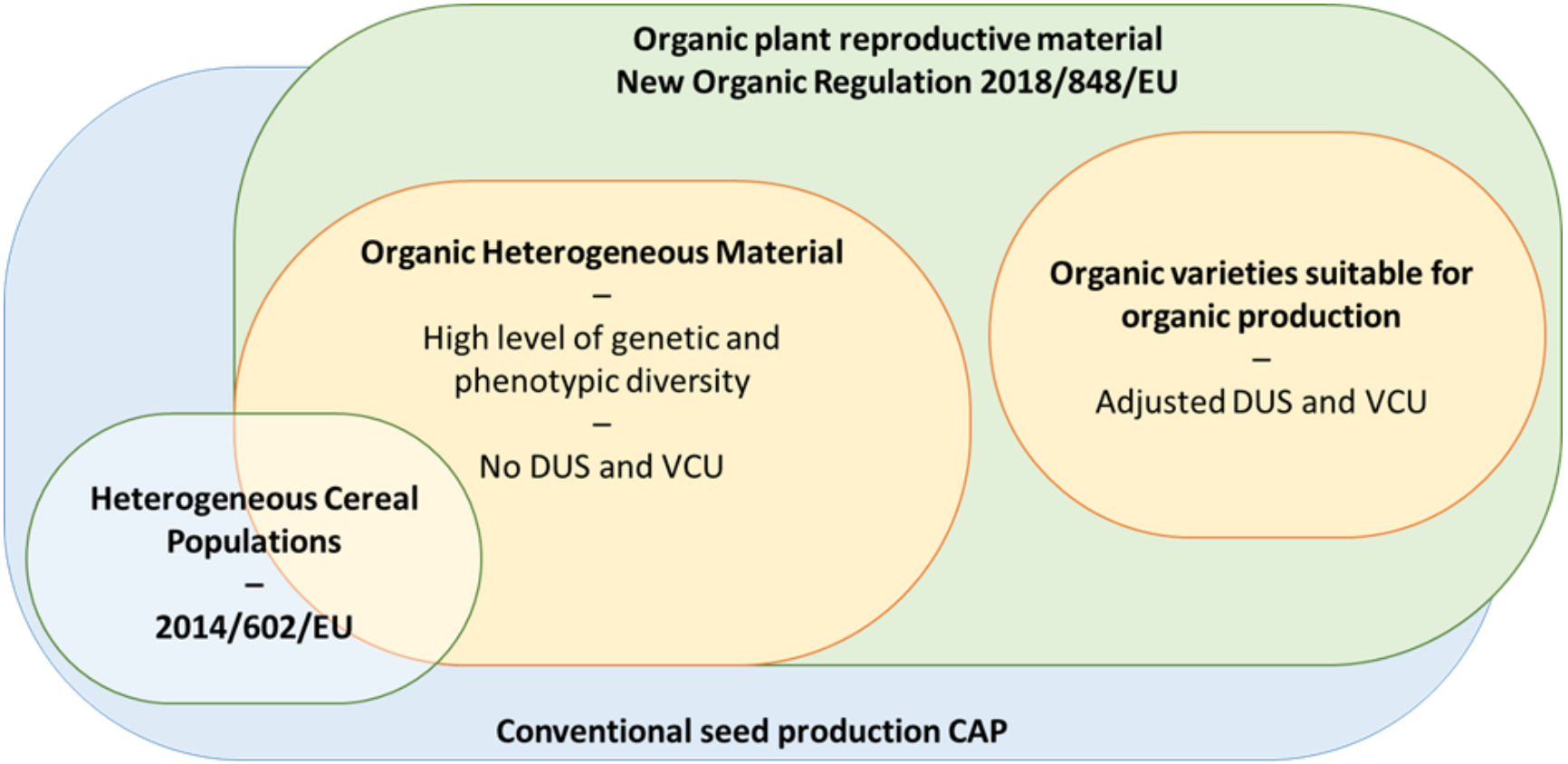
Non-organic vegetative material

The rules regarding the allowed use of plant protection inputs will be sharpened

•Non-organic vegetative material shall not be treated after harvest with plant protection products other than those authorised, unless chemical treatment has been prescribed for phytosanitary purposes by MS authority(Implementing rules)

Organic breeding - New organic regulation - Novel Cultivar Types



- Definition of organic plant breeding - New organic regulation 2018/848

Article 3 – Definitions

(19) '**organic variety suitable for organic production**' means a **variety** as defined in Article 5(2) of Regulation (EC) No 2100/94 which:

(a) is characterised by a high level of genetic and phenotypical diversity between individual reproductive units; and

(b) **results from organic breeding activities** referred to in point 1.8.4 of Part I of Annex II to this Regulation

Annex II: 1.8.4. For the production of organic varieties suitable for organic production, the organic breeding activities shall be conducted under organic conditions and shall focus on enhancement of genetic diversity, reliance on natural reproductive ability, as well as agronomic performance, disease resistance and adaptation to diverse local soil and climate conditions.

All multiplication practices except meristem culture shall be carried out under certified organic management.

Preface

(39) In order to meet the needs of organic producers, to foster research and to **develop** **organic varieties suitable for organic production**, taking into account the specific needs and objectives of organic agriculture such as enhanced genetic diversity, disease resistance or tolerance and adaptation to diverse local soil and climate conditions, **a temporary experiment** should be organised …. for a term of seven years,… It should help to establish the criteria for the description of the characteristics of that material and to determine the production and marketing conditions for that material

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New organic regulation - Novel Cultivar Types - OV

Gebhard Rossmanith (ECO-PB, Bingenheimer Saatgut) & Abco de Buck (LBI)

at CPVO- MEO Dec 2020

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New organic regulation - Novel Cultivar Types - OHM

OHM is broadly defined in the New Organic Regulation 2018/848/EU as 'material with a high level of genetic diversity, intended for the market and for which DUS criteria (Distinctness, Uniformity and Stability) are not applicable.'

More detailed provisions have been discussed and the delegated act on heterogenous material (article 13) is not published yet on EUR-Lex, but changes are not expected at this stage: EUR-Lex - Ares(2020)6136023 - EN - EUR-Lex (europa.eu).

New organic regulation - Novel Cultivar Types - OHM

LIVESEED

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New organic regulation - animals

- Member States database for organic animals and organic aquaculture juveniles

database

- in the choosing of animal breeds, having regard to a high degree of genetic diversity, the capacity of animals to adapt to local conditions, their breeding value, their longevity, their vitality and their resistance to disease or health problems;

adapted breeds

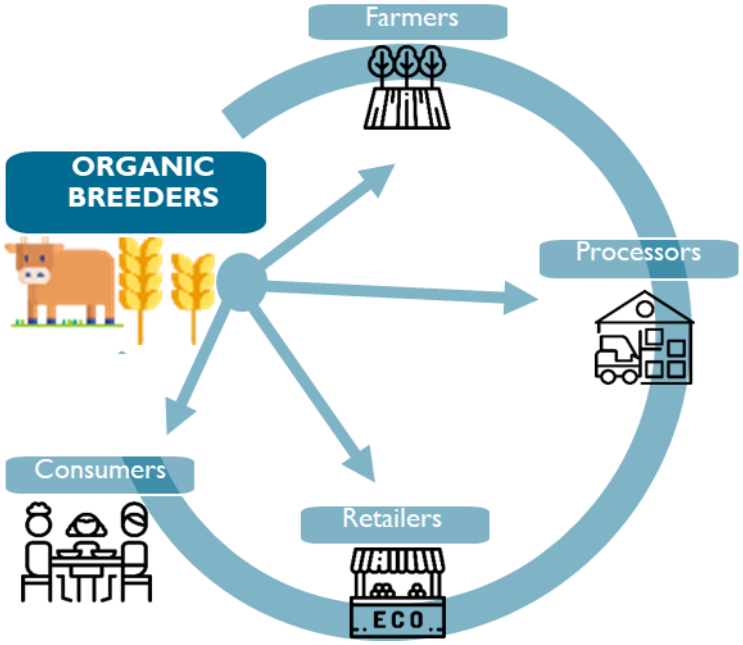
With regard to the breeding of organic animals:
(a) reproduction shall use natural methods; however, artificial insemination shall be allowed;
(b) reproduction shall not be induced or impeded by treatment with hormones or other substances with a similar effect, except as a form of veterinary therapeutic treatment in the case of an individual animal;
(c) other forms of artificial reproduction, such as cloning and embryo transfer, shall not be used;
(d) the choice of breeds shall be appropriate to the principles of organic production, shall ensure a high standard of animal welfare and and shall contribute to the prevention of any suffering and to avoiding the need for the mutilation of animals.

The derogations from the use of organic plant reproductive material and from the use of organic animals…

…shall expire on 31 December 2036

Organic Breeding must be strongly promoted

A call for joint action of the value chain



Integrating organic breeding into value-chain partnerships to ensure the integrity of organic products and strengthen consumers' confidence

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