Definition of Organic Plant Breeding for registration of Organic Varieties suitable for organic production

Illustrated by explaining different breeding strategies

KEY POLICY RECOMMENDATIONS

- Organic farmers need access to a large portfolio of cultivar types that are well-adapted and suitable for organic conditions and diverse local contexts. Suitable varieties for the organic sector can be developed through different breeding strategies, such as "conventional plant breeding", "breeding for organic" and "organic plant breeding".

- "Organic Varieties suitable for organic production" (OV), as defined in the Organic Regulation (EU) 2018/848, may have higher phenotypic or genetic diversity than common varieties. The current adapted protocols for variety registration created by Implementing Directives (EU) 2022/1647 & 2022/1648 [1st July 2023 – 31st Dec 2030] must be perpetuated and expanded to all species to facilitate OV registration and integrated in the new EU Plant Reproductive Material (PRM) Regulation.

- The possibility to notify Organic Heterogeneous Material (OHM), which by definition does not qualify as a plant variety, must be ensured for all species across EU Member States.

- Adopting a clear, consistent definition of organic plant breeding is essential to distinguish it from other breeding strategies. This will help ensure the unambiguous implementation of Implementing Directives (EU) 2022/1647 and 2022/1648, which concerns the registration of "Organic Varieties suitable for organic production" (OV) derived from organic breeding activities (EU 2018/848, Annex II 1.8.4).

- The definition shall recognise organic plant breeding as an approach conducted exclusively under organic farming conditions, producing cultivars well-suited for organic farming systems. By respecting natural crossing barriers and fostering manifold interactions between plants and living soil, this approach is fully in line with the general organic principles and makes a substantial contribution to expanding the organic sector and facilitating the broader transition towards sustainable food systems.

LiveSeeding ECO-PB European Consortium for Organic Plant Breeding

Introduction

Organic production is an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources and the application of high animal welfare standards and high production standards in line with the demand of a growing number of consumers for products produced using natural substances and processes (EU 2018/848[2]).

Organic plant production systems need plant reproductive material which is able to adapt to disease resistance, diverse local soil and climate conditions and to the specific cultivation practices of organic agriculture contributing to the development of the organic sector. Therefore, it is important to develop organic plant reproductive material suitable for organic agriculture. From 2037 onwards, all plant reproductive material (PRM) used in organic farming must be produced in compliance with the requirements applicable to organic production. Namely, they must remain free from genetically modified organisms (GMO; EU 2018/848 Art. 5f (iii)).

To effectively meet the needs of the organic sector, it is crucial to develop high-quality cultivars - including varieties and populations - that are well-adapted to organic production and diverse local environments and markets. This requires ensuring access to a broad genetic base for future breeding efforts.

To better understand the needs of the sector and to facilitate the registration of OV, as ruled out in the Implementing Directives (EU) 2022/1647[3] & 2022/1648[4], clear definitions of different breeding approaches are essential. While there is a clear distinction between organic plant reproductive material (PRM) and non-organic PRM, through the process of official organic certification of PRM, the differentiation between Organic Varieties and non-organic varieties requires further clarification and communication, particularly regarding the organic breeding program from which they originate.

The European Organic Agriculture Regulation (EU) 2018/848, which entered into force in 2022, marks a significant step forward by promoting the development of "Organic Varieties suitable for organic production" in order to address the need of the organic sector for enhanced genetic diversity, disease resistance or tolerance and adaptation to diverse local soil and climate conditions. The current DUS (Distinctness, Uniformity, Stability) criteria, which are the basis for variety registration, were not designed for this type of material. Specifically, the "Uniformity" standard can be a major obstacle for varieties with a high degree of genetic and phenotypic diversity. The regulation acknowledges this conflict and allows for a crucial change. It enables variety examination protocols to be adjusted and adapted for specific species to better fit the needs of organic farming.

This means that it should be possible to register varieties that are not perfectly uniform but are well-adapted and resilient, opening the door for new types of plant material to reach the organic market. While this regulation provides a solid foundation by outlining key concepts and rationale, certain aspects require further clarification for the implementation. These include the selection of parental material, requirements on the initial stage and duration of breeding programs, and the range of acceptable breeding techniques.

In response to this need, the well-established network of organic breeders "European Consortium for Organic Plant Breeding (ECO-PB)" has published a position paper 'Definition on Organic Breeding and Organic Varieties' proposing a clear and unambiguous definition for the legal term "Organic Varieties suitable for organic production" (OV)[5]. This definition is intended to support both breeders engaged in OV development and examination offices in the effective implementation of OV registration procedures across EU Member States. It was approved at the LiveSeeding Annual Meeting in September 2024.

2 European Parliament and Council (2018) Regulation (EU) 2018/848 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007

3 European Commission (2022) Commission Implementing Directive (EU) 2022/1647 amending Directive 2003/90/EC as regards a derogation for organic varieties of agricultural plant species suitable for organic production

4 European Commission (2022) Commission Implementing Directive (EU) 2022/1648 amending Directive 2003/91/EC as regards a derogation for organic varieties of vegetable species suitable for organic production

5 Eco-PB & LiveSeeding (2025) Definition on organic breeding and organic varieties. ECO-PB_proposal for legal definition of OV_5th March 2025_v8_clean.docx.

Alongside OV, the European Organic Regulation also introduced the concept of "Organic Heterogeneous Material (OHM)" (EU 2018/848, Art. 13). Characterised by high genetic and phenotypic diversity, OHM does not qualify as a plant variety and can be marketed through a simple notification procedure since January 2022 (Delegated Regulation (EU) 2021/ 1189[6]).

As of September 2025, 49 OHM for seven agricultural crops (wheat, durum, barley, faba bean, maize, rye, pea), and nine vegetable species (e.g., tomato, pepper, lettuce, common bean, zucchini, chard) have been notified in nine EU countries.[7] This represents a rapidly growing market. In addition, more OHM will be ready for notification as soon as procedures are implemented in all EU Member States.

This policy brief leverages the scientific expertise of LiveSeeding partners to clarify the definition of organic plant breeding and create a clear framework for distinguishing between different breeding strategies. It analyses the legal framework for the incorporation of this clear and unambiguous definition. This definition shall ease the implementation of the Implementing Directives (EU) 2022/1647 & 2022/1648 for the registration of "Organic Varieties suitable for organic production" [1st July 2023 – 31st Dec 2030].

Background

The relevance of organic plant breeding can be illustrated by over 100 organic plant breeding initiatives across Europe[8] covering many different vegetable, agricultural species as well as fruits and forage crops. Organic Varieties and Organic Heterogeneous Material are gaining increasing importance within the EU's organic farming sector. The market share for varieties derived from organic plant breeding is growing, with some estimates pointing to a significant presence in specific markets.

For instance, organically breed wheat and spelt varieties are estimated to have a market share of over 10% in Germany[9]. While until 2023 there was no official EU-level registry for Organic Varieties, private initiatives, such as Bioverita, have stepped in to fill the gap. This private label and certification system was created in 2011.

According to their data, they have recognized around 46 registered varieties for agricultural species[10] and around 194 varieties for vegetable species[11] as products derived from organic plant breeding. These figures demonstrate a clear demand for organic varieties specifically suited to organic farming and underscore the need for a comprehensive legal framework to support their registration.

The first legal term "Organic Variety suitable for organic production" (OV) was introduced in the new Organic Regulation (EU) 2018/848 followed by two temporary derogations for the facilitated registration of OVs valid from July 2023 until Dezember 2030. They allow more tolerance with respect to uniformity in the Distinctness, Uniformity and Stability (DUS) test and in case of agricultural crops that the performance testing to assess the Value for Cultivation and Use (VCU) to be conducted under organic farming.

However, the current system is limited, allowing for the registration of OVs for only four agricultural species (wheat, barley, rye, maize) under Directive (EU) 2022/1647 and two vegetable species (carrot, kohlrabi) under Directive (EU) 2022/1648. To accelerate the availability of OVs for farmers, this list should be expanded to more crop species and integrated in the upcoming EU PRM Regulation. In the time being, varieties derived from organic plant breeding of other crop species can be only registered under the seed marketing directives, if they pass the DUS test and for agricultural crops also the VCU test.

6 European Commission (2021) Commission Delegated Regulation (EU) 2021/1189 supplementing Regulation (EU) 2018/848 as regards the production and marketing of plant reproductive material of organic heterogeneous material.
7 GEVES (2025) List of notified Organic Heterogeneous Materials in Europe added by information of LiveSeeding partners. https://www.geves.fr/variety-seed-expertise/organic-agriculture/organic-heterogeneous-material/ [accessed 22.9.2025]. The completeness of the list cannot be guaranteed as the official consolidation of EU OHM list is not managed by the GEVES but will be included in the CPVO variety finder database "Other Registers (ZZZ)" and the European Organic Seed and Plants Router Database https://www.seeds4organic.eu/rdb
8 Biobreeding (2025) Mapping of organic breeding initiatives in Europe. https://www.biobreeding.org/breeding.html [accessed 22.9.2025]
9 Estimation made by BioSaat GmbH
10 Bioverita (2023) Cereal, maize and fodder plant varieties. List as of 6/04/2023. Cereal, maize and fodder plant varieties | bioverita – Bio von Anfang an! [accessed 22.9.2025]
11 Bioverita (2025) Vegetables varieties. List as of 14/02/2025. Vegetable varieties | bioverita – Bio von Anfang an! [accessed 22.9.2025]

Different breeding strategies

Conventional breeding is generally seen as the status quo, where selection takes place under mainstream farming conditions with the application of seed treatments, herbicides and optimal nutrient supply.

Breeding for organic could be described as a 'product oriented' strategy, where the breeding goals are aligned with the needs of the organic sector (e.g., selection for resistance to seed borne diseases, weed competition) and some selection steps may take place under organic conditions. To be used in organic farming, varieties derived from both breeding approaches must comply with the existing EU Organic Regulation, which prohibits genetic engineering.

Organic plant breeding could be described as 'process oriented', meaning all breeding activities (crosses, selection, maintenance and multiplication of plant reproductive material) are conducted under certified organic conditions. Furthermore, all applied techniques in organic breeding must be disclosed and comply with IFOAM Position paper (2017)[12] specifically excluding GMO, NGT, or genetic engineering techniques transmitting isolated DNA, RNA, or proteins into the plant genome. It also prohibits cell fusion, artificially induced mutations and in-vitro culture – apart from meristem culture - or any other gene technological intervention below the cell level.

Stepwise approach for different breeding strategies

Figure 1 illustrates the different pathways for obtaining plant reproductive material (PRM) used in organic agriculture derived from different breeding strategies ranging from conventional to fully organic breeding. Under the current European legal framework, all of these options are still permitted in organic agriculture. Although the use of organically multiplied PRM is mandatory in organic agriculture, farmers can still obtain derogations to use non-organic seed and planting material (i.e., conventional untreated PRM) under specific conditions. The use of organically propagated PRM varies significantly between the crop and geographic region.

Current situation until 2036

Breeding process	Targeting conventional PRM	PRM propagation under organic conditions only	Breeding for organic	Organic plant breeding
Plant breeding:	Conventional breeding	Conventional breeding	Conventional breeding	Organic plant breeding
Selection environment:	Conventional	Conventional	Organic / Conventional	Organic
Variety testing (for registration):	Conventional	Conventional	Organic / Conventional	Organic
PRM propagation:	Conventional untreated PRM	Organic (and in conversion) PRM	Organic (and in conversion) PRM	Organic PRM

Only organic PRM from 2037

Figure 1: Stepwise approach of different breeding strategies with information on plant reproductive material (PRM) than can be used by organic growers until 2036 with derogations for non-organic PRM and after phasing out derogations by 2037.

12 IFOAM – Organics International (2017). Position Paper on Compatibility of Breeding Techniques in Organic Systems. https://www.ifoam.bio/sites/default/files/2020-03/Breeding_position_paper_v01_web_0.pdf

While organic standards require all plants and crops to be grown from organically produced PRM, finding suitable sources and adapting to regional conditions can present challenges. The availability and suitability of organic plant reproductive material may differ across crops, with some crops being more readily available and adapted than others. Research findings indicate that the share of non-organic seed use granted through derogations varied in 2018 between 48.5% in Eastern EU regions, 38.1% in Southern EU regions, 33% in Northern EU regions and 18.6% in Central EU regions. Crop sector differences with the highest use of non-organic PRM associated with the farms grouped into fruit production (41.9%), followed by forages (35.6%), arable (29.8), and vegetables (24.6%).[13]

The phasing out of non-organic PRM in EU organic production, as mandated in Regulation (EU) 2018/848, is primarily addressed in Article 26 and Annex II, Part I, point 1.8.5 of the Regulation. From the year 2037 onwards, derogations for the use of non-organic PRM will no longer be possible.

As illustrated in Figure 1, the use of organically propagated PRM deriving from "conventional breeding", "breeding for organic" or "organic breeding" remains possible after the year 2037, as long as they remain free from genetically modified organisms (GMO) and new genomic techniques (NGT).

The current reliance on conventional sources is significant, with an estimated 95% of organic production using varieties originally developed and registered for conventional systems. As a result, these varieties may not always be optimally adapted to the specific needs and challenges of organic farming.[14] [15]
Both "Organic Varieties suitable for organic production" as well as "Organic Heterogeneous Material" originate from organic plant breeding programmes. They can be registered as Organic Variety suitable for organic production and notified as OHM, respectively.

Variety registration for vegetable and agricultural crops

A variety can be registered in the national list of individual EU Member States or at the EU level. Registration is necessary for the trade of seed on the national or EU market. It is based on the test for Distinctness, Uniformity and Stability (DUS) in the field and/or in greenhouses. It can take around two to three years for agricultural and vegetable varieties and up to five to six years for fruit and grape varieties.

Additional to DUS, the registration of agricultural crops requires the testing of the Value for Cultivation and Use (VCU). To pass this test, the new varieties have to outcompete the reference varieties in multi-location field trials conducted under conventional farming practice for 2-3 years. The registration of a variety is the precondition for commercialization of its PRM in Europe.

Plant Variety Protection (PVP), also known as Plant Breeders' Rights (PBR) or Plant Variety Rights (PVR), is an intellectual property right that grants the breeder exclusive control over a new plant variety for usually 25 to 30 years. To obtain plant variety protection, a variety must be new, distinct, uniform, and stable.

Plant breeders' rights can be granted at EU level as Community Plant Variety Rights (CPVR) by the CPVO or as National Plant Breeders' Rights (PBR) by individual Member States, provided they are members of the UPOV Convention. PBR gives breeders the exclusive rights to produce, sell, import, and export the plant's propagating and harvested material, incentivizing innovation and investment in plant breeding. Varieties already on the market or registered without DUS test, such as conservation or amateur varieties, and OHM cannot obtain Plant Variety Rights.

13 Solfanelli, F., Ozturk, E., Dudinskaya, E.C., Mandolesi, S., Orsini, S., Messmer, M., Naspetti, S., Schaefer, F., Winter, E., Zanoli, R. (2022) Estimating supply and demand of organic seeds in Europe using survey data and MI techniques. Sustainability 14, 10761. https://doi.org/10.3390/su141710761
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Variety registration for vegetable crops

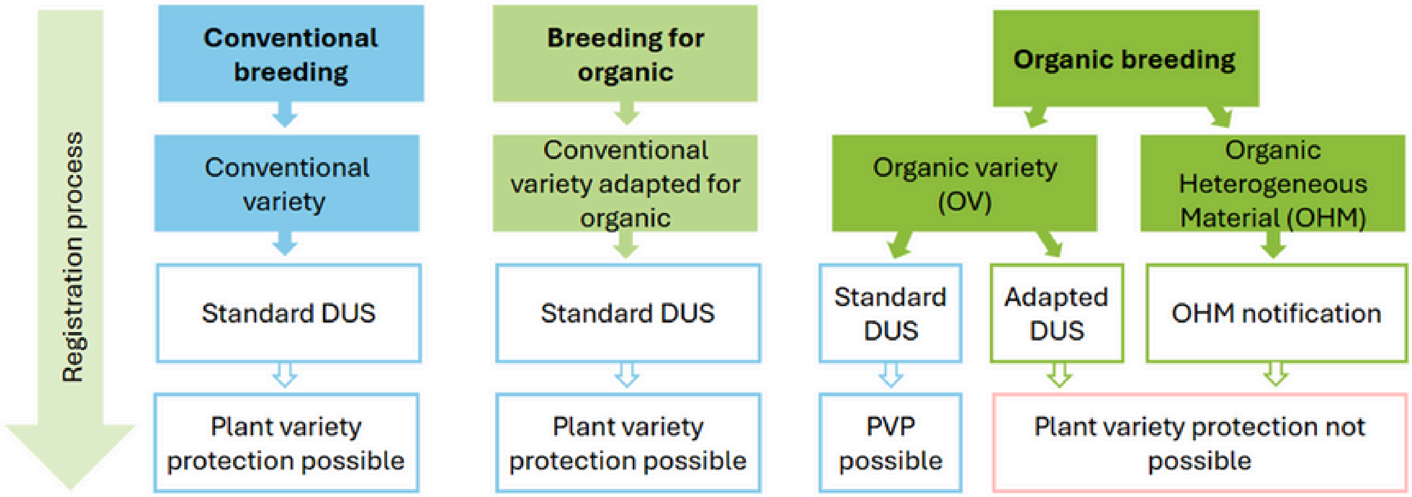

Figure 2: Variety registration and OHM notification processes for vegetable crops

Organic Varieties suitable for organic production with a higher degree of diversity may not be fully compliant with the Uniformity standards of common varieties. Therefore, registration of these OV requires adapted DUS protocols with more flexibility as indicated in the Directives (EU) 2022/1647 and 2022/1648. The adapted DUS protocol for OV foresees that all characteristics of a crop species-specific CPVO protocols are assessed, but the decision rules on uniformity are changed in such a way that more heterogeneity is allowed for certain characteristics. However, these adapted DUS protocols do not permit Plant Variety Protection (PVP).

As a result, organic breeders were first hesitant to apply for OV registration. However, it has been clarified that breeders aiming for PVP may still choose the standard DUS protocol for their OV registration, while others will opt for the adapted DUS protocol — as illustrated in Figure 2 for vegetable crop species.

For the registration and commercialization of agricultural crops, there is in addition to the DUS test a mandatory Value for Cultivation and Use (VCU) test required (Figure 3). Based on the Directives (EU) 2022/1647, the examination of OV for VCU shall be conducted under organic conditions.

This is a big achievement, as OV breed under organic conditions might not be able to outcompete conventional varieties under conventional farming conditions as they were selected for a different target environment.

Under the 7 years derogation for OV registration (2023-2030), there is only a short list of species allowed (kohlrabi, carrot, wheat, barley, rye, maize) under adapted DUS, resulting in few registrations. In order to test the novel registration rules for OV and to foster market access of OV, the Implementing Directives should be amended for more species.

In the scope of the LiveSeeding project suggestions for adapted DUS protocols are developed in collaboration with breeders and examination offices on a larger number of crops (e.g., onion, leek, chicory, fennel, cauliflower, broccoli, zucchini, lupins). This is an ongoing process. These draft DUS protocols shall be shared with the European Commission, examination offices and seed experts to advance the uptake in the legal framework.

As detailed in the first LiveSeeding Policy brief[16], it is essential that VSCU should be conducted under real-life conditions, preferably at certified organic farms or within other sustainable farming systems. This approach allows for a comprehensive assessment of

16 LiveSeeding (2024) EU reform on seed marketing regulation from the perspective of organic breeders. Harmonizing science and policy to ensure stakeholder inclusion. Policy Brief, April 2024 (adjusted September 2024). LS Policy Brief April 2024 final

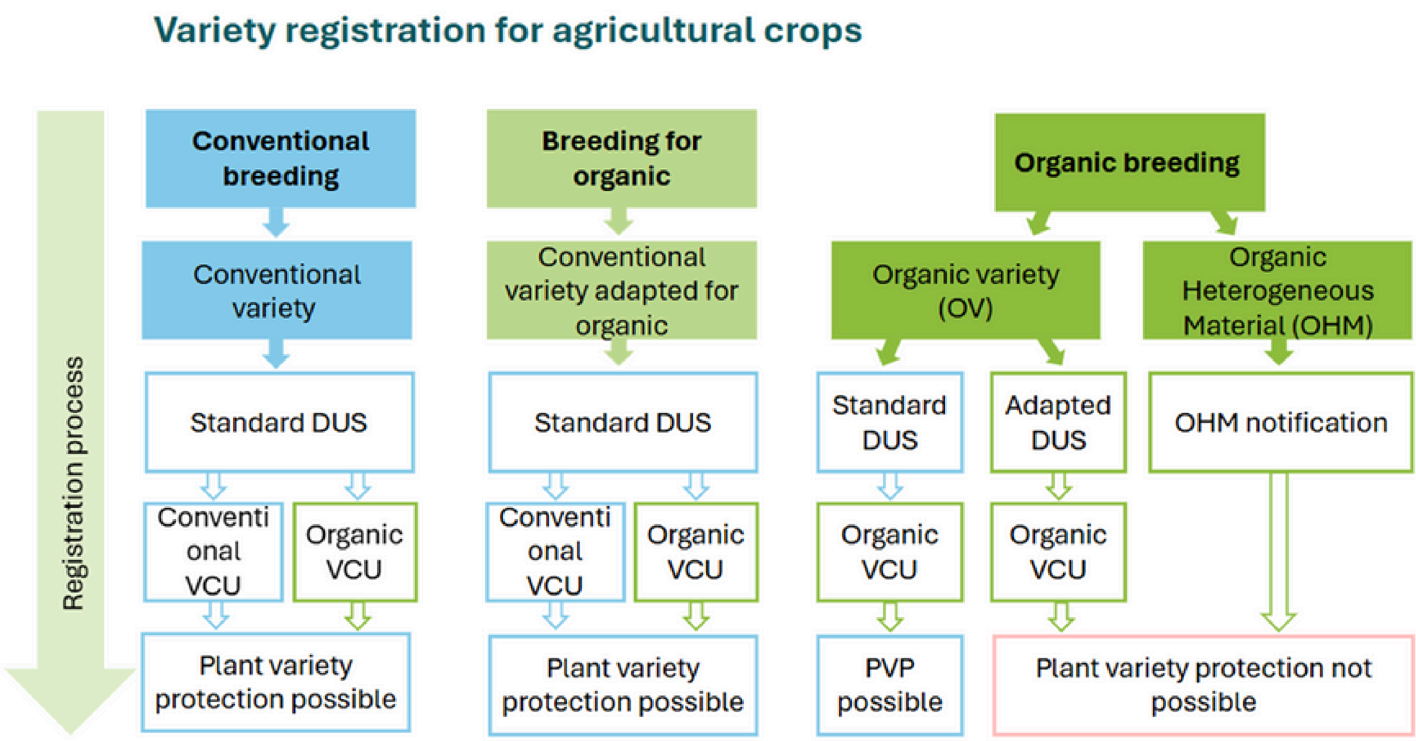

Figure 3: Variety registration process for agricultural crops

a variety's sustainability, rather than relying on the evaluation of single genes or traits.

To ensure the process is cost-effective, testing can be carried out under the supervision of the examination office by organic certified operators, and the results of voluntary, post-registration, on-farm cultivar testing should be taken into account.

Difference between OHM and OV

Different cultivar types show a typical degree of uniformity (see Figure 4). Conventional varieties are the most homogeneous cultivar type, especially for species where F1 hybrids dominate the markets. Organic Varieties suitable for organic production may have a high degree of diversity. Conservation varieties and amateur varieties may also be characterized by more heterogeneity.

However, they are restricted by geographical area and package size, respectively, under the current PRM regulation. OHM, which could be composite ross population, dynamic populations and farmers selection derived from landraces, are aiming for a very high degree of diversity between the reproductive units.

As a result of adaptation to the environment, the genetic composition will change over generations, and hence, populations are not stable.

Organic Plant Breeding definition

The precise, clear, and unambiguous definition of organic plant breeding was established through a two-step process. It began with a survey conducted by the European Consortium for Organic Plant Breeding (ECO-PB) in May 2024. Following the survey, the definition was discussed among ECO-PB members and ultimately approved by the majority of the LiveSeeding consortium in September 2024.

This unambiguous definition will assist national authorities and examination offices to differentiate between OV and OHM derived from Organic Plant Breeding (OPB) programs and conventional varieties derived from Breeding for Organic (BfO). OV derived from OPB shall be able to enter registration in the scope of the temporary derogation 2023-2030 with adjusted DUS evaluation and organic VCU testing as described in more detail in the implementing acts (EU) 2022/1647 & 2022/1648. They shall be labelled as “Organic varieties”.

Varieties derived from Breeding for Organic (BfO) are of great value to the organic farming sector, but do not meet the legal definition on an OV as outlined in EU Organic Regulation 2018/848 (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”). Consequently, these varieties are not eligible for the adjusted DUS temporary derogation and cannot be labeled as an "Organic Variety."

To enlarge the portfolio of varieties tested under organic production, it is therefore proposed that breeders of these varieties should be offered the choice to undergo VCU testing under either conventional or organic conditions. This practice is already in place in certain EU Member States (e.g., Germany, Austria) and is independent of the variety's breeding history.

STARTING AND CROSSING MATERIAL FOR ORGANIC PLANT BREEDING

Any plant reproductive material authorised for use in organic production (EU 2018/848) may serve as starting or crossing material in organic plant breeding programmes. The reliance on natural reproductive activity, i.e. the ability to reproduce in . species specific manner, and the natural species-specific crossing barriers must be respected in organic breeding activities.

TRANSPARENCY ON PLANT BREEDING TECHNIQUES USED IN OPB

All techniques used in organic breeding must be fully disclosed and must comply with IFOAM Position paper (2017)[17]. Techniques explicitly forbidden include GMOs, new genomic techniques (NGTs), and any form of genetic engineering involving the introduction of isolated DNA, RNA, or proteins into the plant genome. Additionally, cell fusion, artificially induced mutagenesis, in vitro culture (with the sole exception of meristem culture) and any other gene technological intervention below the cell level are not permitted.

CONDITIONS AND DURATION OF ORGANIC BREEDING PROGRAMS

For organic plant breeding programs, all breeding activities (crosses, selection, maintenance and multiplication of plant reproductive material) are conducted under certified organic conditions, starting:

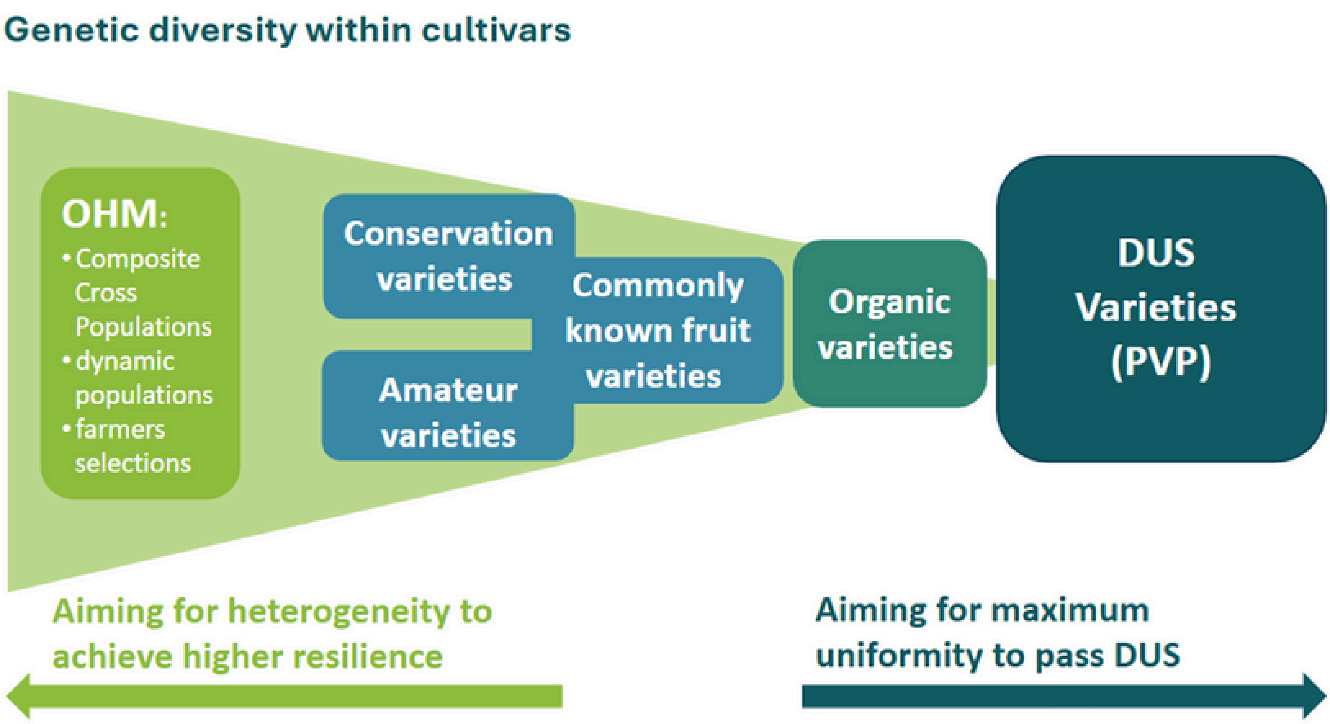

Figure 4: Different types of plant reproductive material according to the objective to achieve

17 IFOAM – Organics International (2017). Position Paper on Compatibility of Breeding Techniques in Organic Systems. Op. cit

- in case of mass selection, with the beginning of selection,
- in the case of crossbreeding, with the crosses,
- in the case of hybrid breeding, with the development of parental lines, and
- in case of clone breeding, with the crosses.

The breeding process continues until the organic variety is registered.

Certain exemptions from certified organic production are permitted, as laid out in the ECO-PB position paper.[18]

- Non-organic PRM of parental material to start organic breeding programs as mentioned under 1.8.4.1;
- Parental material used for crosses which might be kept in pots under documented organic conditions;
- Crossing activities to be conducted by public or non-profit research institutes in the framework of a collaboration or service for organic breeders / farmers without respective resources. Such crosses might be performed under non-certified but documented organic conditions with organic fertilization and organic plant protection;
- Screening for resistance against certain pests or diseases which are under quarantine regime (e.g. requirement of a security green house or growth chamber);
- Cases of mandatory phytosanitary treatment (e.g., quarantine pest and diseases) or emergencies to rescue the genetic resources and breeding material during the breeding or maintenance process, a non-organic treatment can be granted by a temporary derogation followed by a conversion period of at least 3 years before this breeding material can be registered as OV.

All selection steps must be conducted under certified organic conditions for:

- At least 5 years and at least 5 sexual generations (from seed to seed) in case of annual seed propagated crop species (e.g., wheat);
- At least 3 years and at least 3 vegetative generations (from cutting to cutting, from grafts to grafts, or other form of vegetative multiplication steps) for annual vegetative propagated crop species (e.g., potato);
- At least 8 years and at least 4 sexual generations (from seed to seed) in case of biennial and perennial seed propagated crop species (e.g., carrot);
- At least 4 years for biennial vegetative propagated crop species (e.g., strawberry);
- At least 8 years for perennial vegetative propagated crop species including fruit observations in case of fruit bearing perennials (e.g., apple, grapes).

TRANSITION PERIOD BEFORE FULL IMPLEMENTATION

A transition period of 4 years (till Dec 2028) is foreseen for implementing the necessary changes in the running organic breeding program to fully comply with this definition, i.e. all steps are under certified organic conditions.

INTELLECTUAL PROPERTY RIGHTS

Cultivars created through organic plant breeding, namely OV and OHM, should not be covered by patent restrictions. The patenting of living organisms, their metabolites, gene sequences, traits, or breeding methods should be explicitly excluded. Breeder’s exemption and farmer’s privilege for the species for which derogations apply must be guaranteed.

In case an OV complies with the species- and variety-type-specific standard DUS protocol —following the registration procedures outlined in Implementing Directives (EU) 2022/1647 and 2022/1648, including adjusted DUS criteria and, where applicable, organic VCU protocols — the organic breeder(s) may apply for national or EU-level Plant Variety Protection under Council Regulation (EC) No 2100/94 of 27 July 1994 on Community Plant Variety Rights.

18 Eco-PB & LiveSeeding (2025) Definition on organic breeding and organic varieties. Op. Cit.

Conclusion

Organic plant breeding differs from other breeding approaches by conducting all breeding activities under certified organic conditions.Additionally, it explicitly excludes techniques that do not comply with the IFOAM principles of Organic Agriculture. This approach enables the development of varieties that are well-suited to organic farming systems and organic principles. Adopting a clear and consistent definition - such as the one proposed in this paper - is essential for distinguishing between breeding strategies and facilitating the implementation of Implementing Directives (EU) 2022/1647 and 2022/1648 concerning the registration of Organic Varieties Suitable for organic production.

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ABOUT THIS POLICY BRIEF

This brief is part of a series aiming to provide recommendations to policymakers based on technical and socio-economic research findings, consulted through LiveSeeding partners, ECO-PB members and IFOAM Organics Europe Seed expert group. This brief does not necessarily reflect the views of each LiveSeeding project partner.

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Authors: Monika Messmer (FiBL-CH), Caroline Formont (IFOAM OE), Freya Schäfer (FiBL-DE), Ilsa Philips (IFOAM OE), Gebhard Rossmanith (BSAG), Abco de Buck (LBI), Carl Vollenweider (DFH), Frederic Rey (ITAB)

Designed by: Anamarija Ćorić

Editing: Mariano Iossa

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(contact: IPS Konzalting, info@ips-konzalting.hr)

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