

Definition of organic plant breeding

This paper refers to the definition of organic plant breeding, not to the propagation of organic seeds from conventional varieties.

General principles:

Organic plant breeding and variety development is sustainable, promotes genetic diversity and maintains full natural reproductive capacity. Its aims are new varieties and populations that are particularly suitable for organic production systems. Organic plant breeding is creative, collaborative and open to science, intuition and new knowledge. Organic plant breeding is a holistic approach that respects natural crossing barriers. It is based on fertile plants that can establish a sustainable relationship with the living soil. Organic varieties are obtained through an organic plant breeding programme.

Organic varieties originate from organic breeding. All breeding steps are carried out under certified organic conditions from the beginning. For cross breeding this means from the crossing and in the case of selective breeding selection under certified organic conditions must take place over a period of at least 4 years for annual crops and 6 years for perennial crops. The requirements for the starting material and the method are defined below.

Requirements:

1. Selection environment: in order to develop organic varieties, cultivation and selection in the breeding process must take place under organic farming conditions. All breeding steps, with the possible exception of meristem culture, must be carried out under certified organic management.

2. Source material: plant breeders may develop organic varieties only on the basis of genetic material that is also approved as seed and planting material in organic agriculture and has not been modified by genetic engineering or other methods based on direct technical interventions below the cellular level.¹

3. Transparency: Organic plant breeders disclose the breeding methods used. Plant breeders must make information about the methods used to develop an organic variety available to the public no later than the start of marketing of the seed of that variety.

4. Methods: Genome and cell are respected as indivisible units.

The natural reproductive capacity of a plant variety is respected and preserved.

The use of methods that are not allowed in organic farming is prohibited. Only inputs that are approved for organic farming are permitted.

Direct technical interventions into the genome of plants are not allowed (e.g. genetic engineering; Crispr/Cas; chemical mutagenesis; ionizing radiation; transfer of isolated DNA, RNA or proteins). Direct technical interventions in an isolated cell, such as on an artificial

¹ Exceptions apply to genetic material modified by classical mutagenesis techniques ("history of safe use", chemical mutagenesis and ionizing radiation).

medium, are not allowed (e.g., destruction of cell walls and nuclei for cytoplasm fusion and protoplast fusion). Techniques that reduce or inhibit germination or fertility in subsequent generations are prohibited (e.g. terminator technologies, non-restored CMS).

5. Patents: organic varieties and the techniques used must not be patented.

6. Maintenance breeding of organic varieties must also take place under certified organic conditions (with the exception of meristem culture for recovery, if applicable).

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