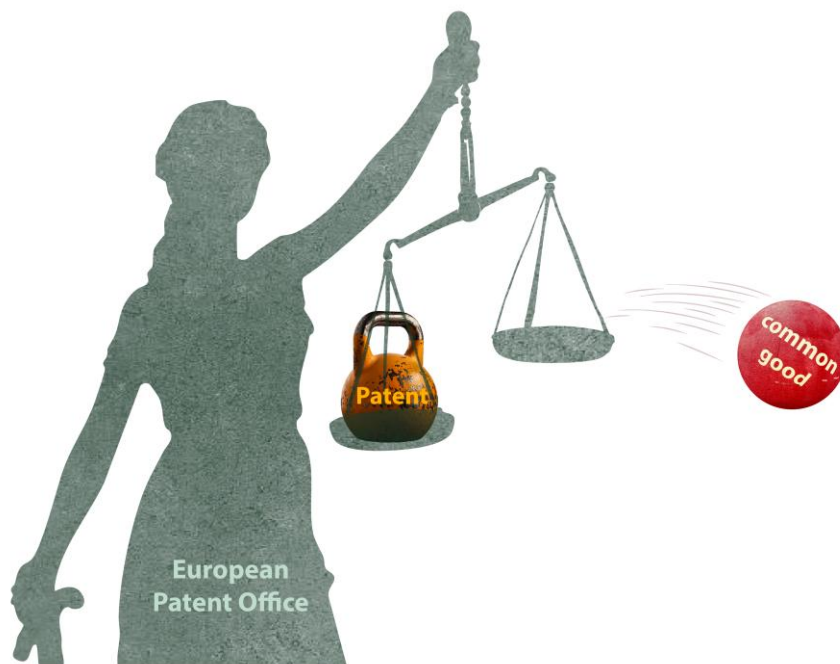




Patents on classical plant breeding under Rule 28 (2), EPC

The European Patent Office is still granting patents on plants
obtained from and used in conventional breeding



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Summary

The European Patent Office (EPO) is still granting patents on conventionally bred plants¹ that allow industry to circumvent the new Rule 28 (2). This new Rule prohibits patents on plants obtained from crossing and selection.

The EPO, however, continues to grant exclusive rights to plants and traits that should be freely available for plant breeding in Europe. Currently, patent holders are using specific phrasing to bypass the new Rule 28 (2). There are several patterns of claims, which are summarised below:

- Identification of gene variants in existing plant populations and the selection of respective plants.
- Analysis of plant composition.
- Growing plants from seed.
- Reproducing pre-existing genes through random mutagenesis or new genetic engineering (NGTs).

This report considers four such patents on maize, broccoli, tomato and endive and explains general patterns behind how Rule 28 (2) is circumvented by including further examples. Once a patent is granted, the holder gains exclusive rights to the plants and seeds originally developed through conventional breeding or found in natural populations. These rights include most uses of such plants for breeding. These patents therefore contradict the legislative intent of the European legislator: conventionally bred plants and their traits should be freely available for plant breeding under the European Plant Variety Protection (PVP) law. This intention is also reflected in the provisions of the European Patent Convention (EPC).

Access to biological diversity needed for conventional breeding must be considered a common good. If access is blocked or hampered, the future of small and medium plant breeders as well as agrobiodiversity and food production will be under threat. Therefore, European policy makers have to act urgently, by taking into account the legal solutions proposed in this report.

¹ Conventional, classical and traditional plant breeding are used as synonyms.

1. Introduction

Rule 28 (2) was introduced in July 2017 following an EU initiative and a subsequent amendment voted on by the EPO Administrative Council. It was incorporated into the European Patent Convention (EPC) to prohibit patents on plants and animals obtained from 'essentially biological processes'. The rule is an additional clarification of Article 53(b) of the EPC, according to which 'plant varieties' and 'essentially biological processes' for the breeding of plants and animals are excluded from patentability. Accordingly, neither conventional breeding processes nor the resulting plants (or animals) may be patented. Following a decision of the Enlarged Board of Appeal (G3/19) confirming the new Rule, the restriction came into force for patent applications filed after 1 July 2017.

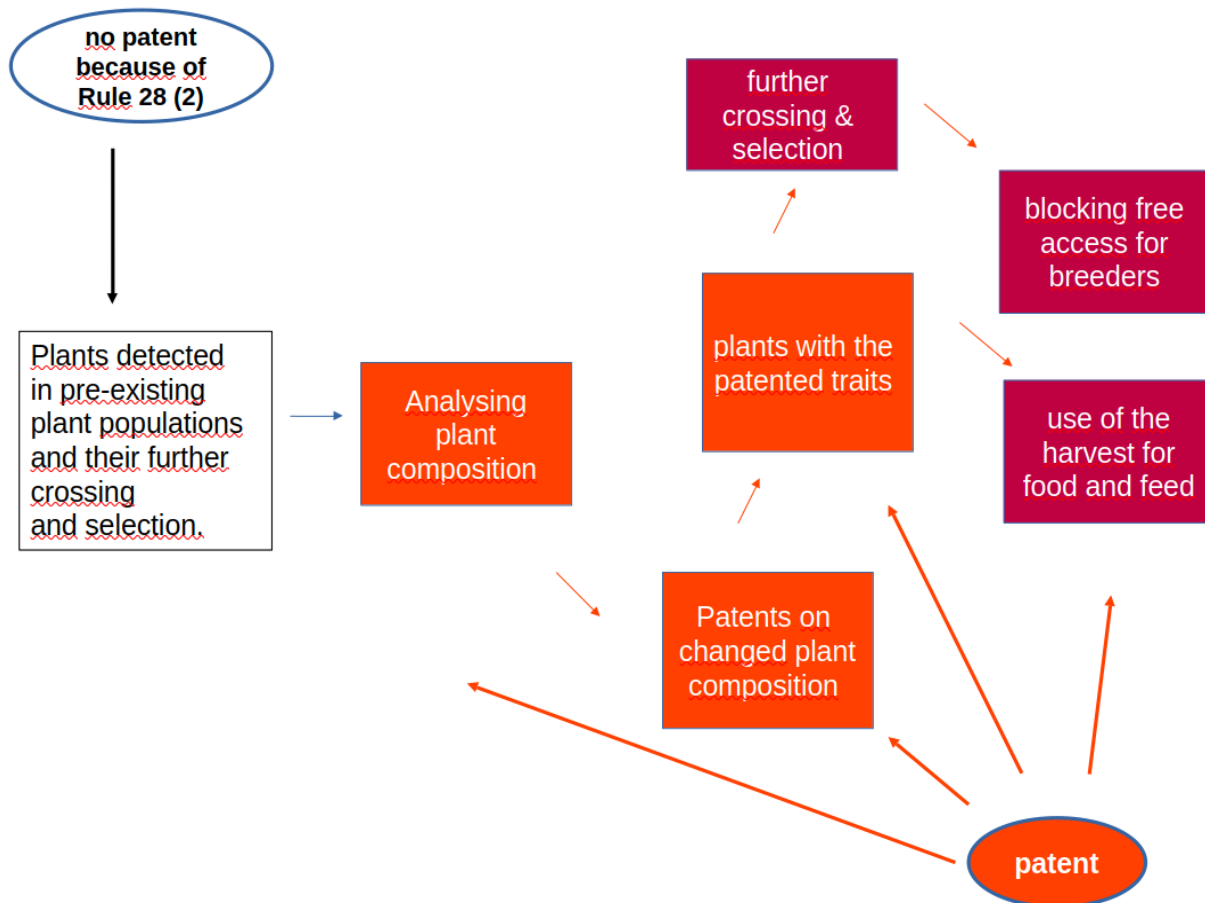
As we show below, the EPO is nevertheless still granting exclusive rights to plants obtained from crossing and selection. The plants are derived from certain 'workaround' methods such as gene selection or analysis of plant composition. From a legal perspective, the patented plants are identical to those which are meant to be excluded from patentability under Rule 28 (2). This legislative practice therefore effectively nullifies the intention of Rule 28 (2). EU policymakers must now act to ensure that the new Rule and the prohibitions in Article 53 (b) are actually enforced.

2.2 Broccoli with an enhanced concentration of healthy compounds

In May 2026, the EPO granted a patent to Sakata covering broccoli plants (EP3821703) with enhanced concentrations of healthy compounds. According to the patent, the company simply planted pre-existing parental lines and hybrid varieties of broccoli, and then assessed the concentration of S-methylmethionine, which is thought to have positive effects on health. They found that some breeding lines exhibited a higher concentration of the compound. Subsequently, they produced a new variety with a high S-methylmethionine content.

These plants would not be patentable under Rule 28 (2). The EPO nevertheless granted a patent claiming the use of the plants and their parts (including the harvest) for the production of S-methylmethionine. As a result, breeders cannot use this trait without a licensing agreement from the company, even though the plants were obtained from crossing and selection. As far as the EPO was concerned, it was sufficient to perform a standard biochemical analysis of the plant components to circumvent the prohibitions in Art. 53 (b) and Rule 28 (2).

Figure 2. General pattern of patenting practice behind the example of broccoli with changes in plant composition

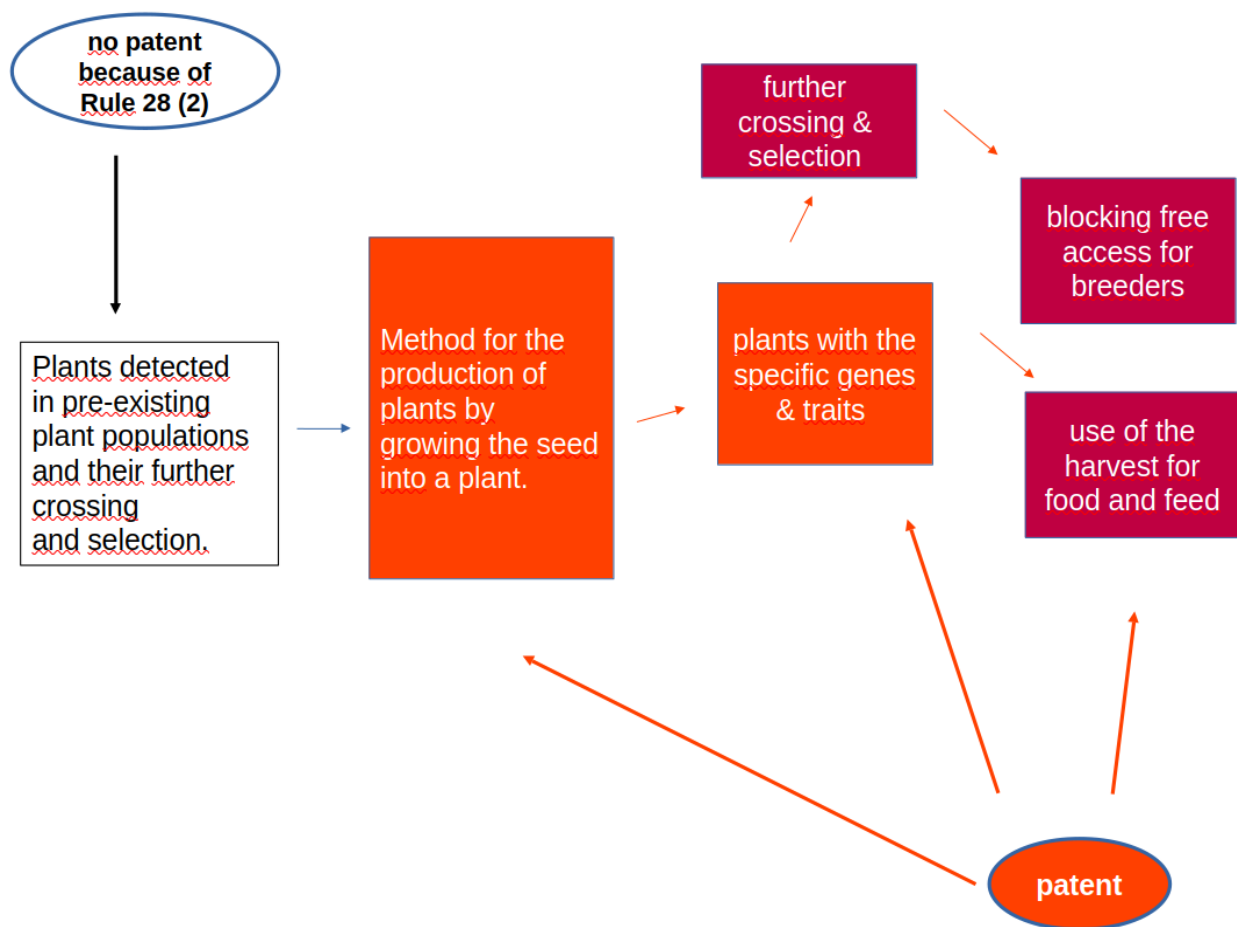


2.3 Tomato plants grown from seed

In February 2026, the EPO granted Rijk Zwaan a patent on tomatoes (EP3720272) that are supposedly resistant to the tomato brown rugose fruit virus (TBRFV). The plants were obtained from crossings and selection with a wild tomato species.

Under Rule 28 (2) these plants are not patentable. Nevertheless, the EPO granted a patent claiming the production of these plants grown from seed. The claims include patent protection for the resulting plants. This means that no other breeder can use this trait for further breeding without a licensing agreement from the company, despite the fact that the plants were simply derived from crossing and selection.

Figure 3. General pattern of patenting behind the example of tomatoes produced by growing plants from seed

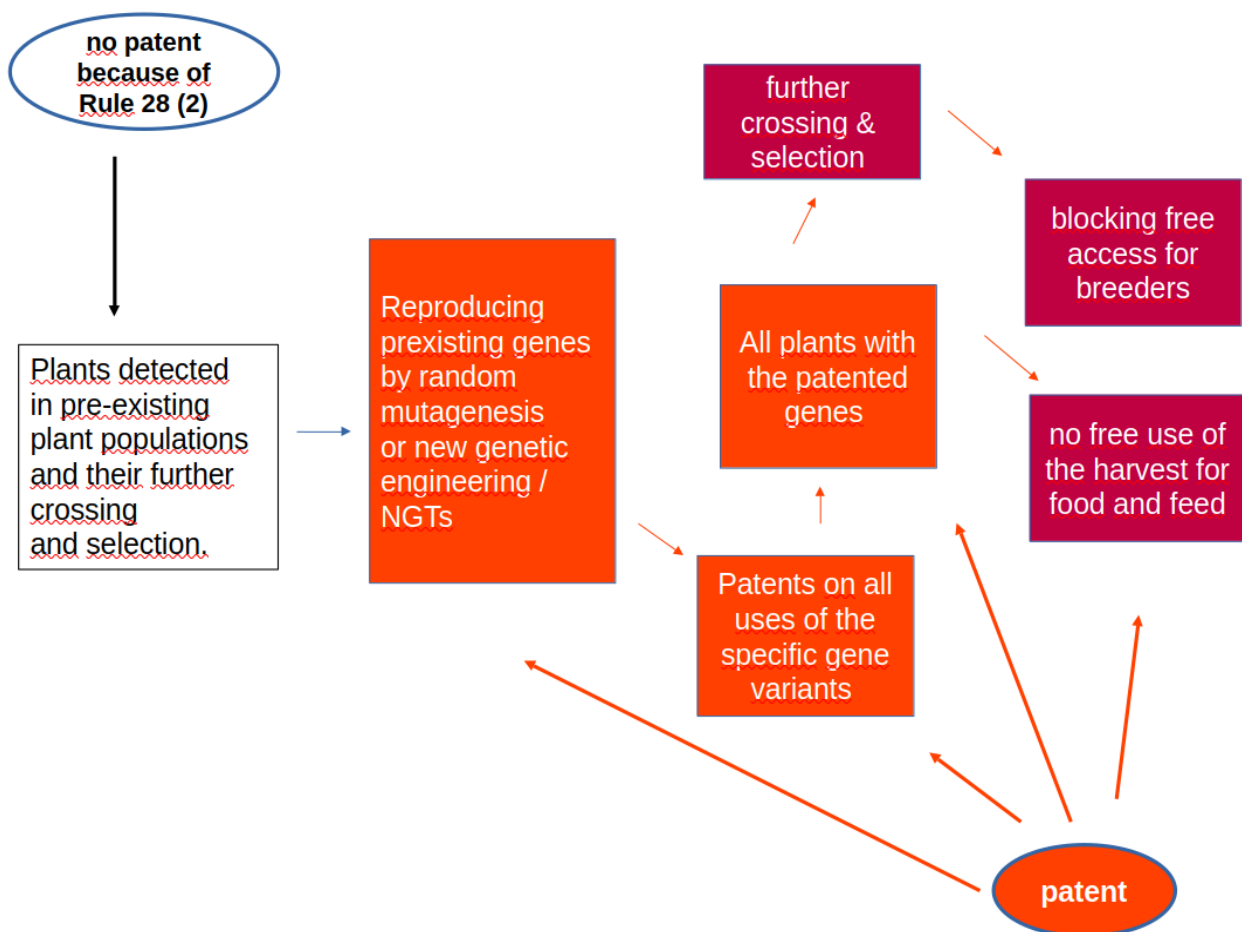


2.4 Non-browning Endive

In June 2026, the EPO granted Rijk Zwaan a patent on endive with reduced browning (EP 3427575). The plants were selected through random mutagenesis. The scope of the claims includes the use of the gene variants even if they occur in natural populations.

The EPO interprets Rule 28 (2) in a way that permits patents on plants obtained from random mutagenesis. It does not distinguish them from plants obtained from new genetic engineering (NGTs). Furthermore, the claims are not restricted to gene variants obtained from random mutagenesis. Rather, the Rijk Zwaan patent claims all usages of the identified genes, including the usage of the gene variants for the selection of plants from natural populations as well as plants inheriting those gene variants if selected accordingly.

Figure 4. General pattern of patenting behind the example of endive with mutations



3. The general problem

As Table 1 shows, the four examples are not stand-alone cases. At least nine patents, most of them granted very recently, are granted in a way which circumvents the prohibitions in Rule 28 (2) by following the patterns shown in the charts.

Table 1: Patents granted on food plants under Rule 28 (2) impacting traditional breeders

Number Company Date of grant	Content of the patent	How rule 28 (2) is circumvented
EP3560330 KWS 15.06.2022	Maize with improved digestibility was obtained through crossing and selection from existing breeding populations. Natural gene variants were used as a tool to select plants ('marker genes').	Selection / gene analysis
EP3911147 Enza Zaden 16.07.2025	Tomatoes with resistance to a plant virus (TBRFV). The plants are obtained from crossings and selection with a wild tomato species.	Selection / gene analysis
EP3975697 Bejo Zaden 24.09.2025	Spinach with resistance to downy mildew. The plants are obtained from crossings and selection with a wild spinach species.	Selection / gene analysis
EP3797582 Semini 17.12.2025	Lettuce with resistance to aphids. The plants are obtained from crossings and selection with a related species.	Selection / gene analysis
EP3720272 Rijk Zwaan 11.02.2026	Tomatoes with resistance to a plant virus (TBRFV). The plants are obtained from crossings and selection with a wild tomato species.	Production of plants by growing the seed
EP3797582 Enza Zaden 18.02.2026	Lettuce with resistance to downy mildew. The plants are obtained from crossings and selection with a related species.	Selection / gene analysis
EP 3821703 Sakata Seed 13.05.2026	Use of broccoli with enhanced concentration of compounds with beneficial health effects. The plants were detected in existing plant populations.	Analysis of plant composition
EP 3427575 Rijk Zwaan 10.06.2026	Endive plants with reduced browning. The plants were selected after random mutagenesis. The scope of the claims on gene variants includes their occurrence in natural populations.	Selecting plants from mutated seeds and gene analysis
EP 3512330 Rijk Zwaan 17.06.2026	<i>Cucumis melo</i> with whitefly resistance. The plants were selected from existing plant populations.	Selection / gene analysis

It is evident that current EPO practice is more or less the same as it was before Rule 28 (2) came into force. Under the new Rule, some claims have so-called disclaimers to exclude plants obtained from crossing and selection. However, these disclaimers do not serve their intended purpose if the patents are granted including claims as described above.

Basically, EPO practice does not align with the prohibitions in Article 53 (b) or Rules 26, 27 and 28 of the EPC. Article 53 (b) and the respective Rules exclude patents on plants varieties and 'essentially biological' breeding processes. The EU Patent Directive 98/44/EC permits an exemption from these prohibitions only for patents on technically produced plant material, such as transgenic plants. The reason for this exemption was that technically generated plant material, - isolated from its natural context and transferred via technical means - cannot be protected under PVP law.

However, traits found in existing plant populations, which are not isolated or transferred via technical means, can be fully protected by the PVP law². This law provides exclusive rights to specific varieties, but also keeps the traits within the public domain (breeders' exemption). Therefore, these traits can be used to further augment diversity in conventional plant breeding needed for future food production, also in the context of climate change.

Granting patents on traits that are used in conventional breeding means that the EPO is in effect nullifying free access to the respective plant varieties. It is ignoring the intention of the European legislator, who only wanted to allow patents on plant material if it is considered to be a technical invention that cannot be protected under PVP law.

EPO legislative practice appears to be based on a misinterpretation of the prohibitions in Art. 53 (b). The EPO considers these prohibitions to be interpreted narrowly. Unless explicitly prohibited by the exact wording of the relevant articles and rules, patentability is permitted - for everything else, patentability is assumed as long as inventiveness can be demonstrated.

However, this interpretation of patent law is unacceptable in regard to the protection of the general public, as set out in the articles on morality (Article 53(a)), or plant breeding (Article 53 (b)). If the biological diversity of existing plant populations is no longer considered a common good that can be used for plant breeding, it will endanger the future of small and medium plant breeders as well as agrobiodiversity and food production.

² European plant breeders should have free access to all conventionally bred varieties or naturally occurring plants in order to develop and market new varieties. This right is known as "breeder's privilege" in the context of plant variety protection and is of utmost importance for innovation in plant breeding. It must not be restricted by patent law. After all, free access to the largest possible gene pool is the basis of all breeding.

4. The way forward

No Patents on Seeds! proposes solutions developed in consultation with other organisations and experts aiming to amend EU Patent Directive 98/44/EC. There are several approaches that can be taken by the Administrative Council in cooperation with the institutions of the European Union which is currently establishing a working group.

1. Clarifying the definition of ‘essentially biological processes’.
2. Introducing specific prohibitions.
3. Defining patentable technical inventions.
4. The inclusion of a full breeder’s exemption.

All these solutions would allow the use of the plant material obtained from conventional breeding without licensing agreements and prevent the patent holders from extending the scope of the patent to the use of the harvest for agricultural purposes. Table 2 provides an overview of the various proposed formulations. These are not mutually exclusive; rather, when combined, they can actually create greater legal certainty.

Table 2: Proposals for amending the EU Patent Directive 98/44/EC

Definition of “essentially biological processes”
Article 2 (2) is amended by <i>“2. A process for breeding of plants or animals is essentially biological, if it consists entirely of conventional breeding techniques such as crossing, selection, or the use of randomly or naturally occurring genetic variations.”</i>
Effective prohibitions for patents on conventional breeding and natural genetic resources
Article 4 (1) is amended by: <i>“1. The following shall not be patentable:</i> <i>(a) plant and animal varieties,</i> <i>(b) plant material and parts thereof, as well as genetic information contained therein, which have been obtained by non-targeted mutagenesis.</i> <i>(c) essentially biological processes for the production of plants or animals as well as plants or animals, breeding material, parts thereof and genetic information exclusively obtained by means of an essentially biological process and the genetic information contained therein.”</i> <i>(d) the use of naturally occurring gene variants for screening and selecting of plant and animal varieties.</i> <i>(e) plant material and parts thereof, as well as genetic information contained therein which have been obtained just by selection from existing breeding material.</i> <i>(f) plant material and parts thereof, as well as genetic information contained therein which have been obtained by targeted mutagenesis if the result is not going beyond what was previously available for breeding.”</i>
Definition of patentable technical inventions in plant breeding
Article 4 (2) is amended by: <i>“Inventions which concern plants or animals or their genetic material shall only be patentable if the genetic material is changed directly and in a targeted way, and to an extent previously not available for breeding, and if the technical feasibility of the invention is not confined to a particular plant or animal variety.”</i>
Introduction of a full breeders’ exemption
Article 11 para. 4 (new) <i>“By way of derogation from Articles 8 and 9, the protection conferred by a patent on a biological material possessing specific characteristics as a result of the invention shall not extend to</i> <i>a) biological material possessing the same characteristics that is obtained independently of the patented biological material and from essentially biological processes,</i> <i>b) biological material obtained from such independently obtained material through propagation or multiplication, or on biological material obtained through patented processes of selection.</i> <i>2.c) the use of that biological material for the purposes of</i> <i>(i) breeding, discovering and developing of a new plant variety or other plant reproductive material that is eligible for marketing under EU legislation for food and agriculture and</i> <i>(ii) the multiplication, offering and placing on the market of that new plant variety or other plant reproductive material, and</i> <i>(iii) using that new plant variety or other plant reproductive material for any purpose in food and agriculture.”</i>