

**Role and Importance of Phenotype/Genotype for the Granting of  
PVP and EDV-Status  
Dr. Gert Würtenberger**

**2023 UPOV Seminar PVP & Plant Tech**

With every intellectual property right, the question of the specific subject matter of protection arises. The subject matter of protection is not only decisive for the question of the justification of an exclusive right, but also decisive for the determination of the scope of protection of the granted property right. Due to the interdependence of subject matter of protection and scope of protection a precise identification of the subject matter of protection is required.

**1. Subject matter of protection**

The UPOV Convention obliges the contracting parties to grant and protect breeder's rights in fact for all plant genera and species.

The requirements for protection are summarized in Art. 5 of the UPOV Convention:

"The breeder's right will be granted when the variety is

- i) new,
- ii) distinct,
- iii) uniform and
- iv) stable."

As a formal requirement, there is moreover the variety denomination according to Art. 20 UPOV 1991. According thereto, the variety must be identified with a variety denomination as a generic name.

The granting of the breeder's right may not be dependent on other requirements, Art. 5 (2) UPOV 1991.

Art. 1 (vi) UPOV 1991 defines a variety as

"... a plant grouping within a single botanical taxon of the lowest known rank which, regardless of whether it fully meets the requirements for the granting of a breeder's right,

- by means of which the characteristics resulting from a certain genotype or a certain combination of genotypes can be defined,

- can at least be distinguished from any other plant grouping by the expression of one of the characteristics mentioned and

- in view of their suitability to be propagated unchanged, can be seen as a grouping ...".

Art. 5 (2) of Regulation (EC) No. 2100/94 of the Council of July 27, 1994 on Community Plant Variety Protection takes up this definition.

As an interim result, it follows from these regulations that the subject of plant variety protection is plant material, which is characterized by specific external characteristics, but which can be traced back to the genotype or a combination of genotypes, i.e., not determined by external factors. The expression of the characteristics must allow a clear objective differentiation between the varieties of a plant genus. Finally, such characteristics must enable the granting authority to describe the same in a clear manner.

The subject matter of protection is therefore the genetic structure as far as it expresses external characteristics which may allow to users distinctness and thus clear description.

## **2. Distinctness (Art 7 UPOV)**

The most important material requirement to obtain protection for a new breeding achievement is that the same

"... is clearly distinguishable from any other variety whose existence is a matter of common knowledge at the time of the filing of the application."

As follows from Art 1 (vi) UPOV 1991 the requirement of distinctness is linked to

"the expression of characteristics resulting from a genotype or a combination of genotypes ...".

Since DNA can nowadays be described, it is, in theory, possible to determine the subject matter of protection of a plant variety right by analyzing the genome.

However, although the DNA is the protected object, the protection is, and must be linked, to external characteristics, expressions of which can be traced back to the genome. These can be qualitative, quantitative and pseudo-qualitative characteristics. They are described in the variety description that is attached to the grant of the plant variety right.

The connection to external characteristics is due to the fact that the granting of an exclusive right requires an advantage over the previously known. In plant variety right law, this is the case when the breeding activity leads to an enrichment of the flora. Such progress, however, does not already exist when the genetic structure has been changed in any way, but when this change becomes apparent in an external characteristic which not only reflects a progress in breeding, but which is significant enough to justify grant of an exclusive right . This is emphasized by Art. 7 UPOV 1991 as cited above.

### **3. Conclusions**

Plant variety protection is granted for new breeding results if, among other things, they are clearly distinguishable from any other plant grouping in at least one decisive characteristic.

A basic prerequisite for the use of molecular biological methods in the examination of distinctness would be a reliable connection between the marker and the expression of the characteristic. In many cases, however, it is not yet been possible to establish a connection between the characteristics to be used for the grant of the property right and the corresponding markers in the genome.

Even if such a link could be established the mere examination of distinctness with regard to the genome cannot serve as a justification for the granting of a property right. Exclusive rights require justification. This justification was and has always been connected with the idea of reward. Only those who create progress should be rewarded with an exclusive right of exploitation for a limited period of time. However, more or less large differences in the genetic structure of plants do not mean progress. Rather, this must have advantages over the previously known, because, for example, the disease resistance is significantly increased, the shelf life of fruits is improved without additional technical effort or the durability of cut flowers is significantly extended. Progress must therefore become manifest.

The idea of reward leads to the question as to which characteristics must be relevant in order to justify protection if there are differences between the candidate variety and the previously known varieties of the same species.

As the genetic structure as such does not indicate which properties a breeding result has, which may be of desirable advantage, it is the phenotype which is the only means which allows to decide whether a breeding result deserves an exclusive right or not. This is equally valid for determining whether a new variety should be independent of a protected initial variety or qualified as an EDV. The original idea of the EDV concept was to avoid copy breeding. If a new variety shows only marginal differences in comparison to the initial variety which fulfill the distinctness requirement but have to be regarded only as minor variations of it (catchword: minimal distances) there is a justification to regard the new variety as an EDV. But to allow to judge whether the difference is sufficient the phenotype is the only means to determine whether a new variety deserves to be independent of the rights vested in the initial variety. As with regard to EDVs one needs to find the right balance between the breeder's exemption and the need to protect the breeders of initial varieties to safeguard that they will be rewarded properly for having created the same. Just looking at the genetic structure of the new breeding result and granting an independent right for it as long as there is sufficient distance in the genetic structure, by no means would safeguard that each breeder must be properly rewarded for his investments and intuition to find a new variety which represents a rewardable breeding progress.