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**IDENTIFICATION AND DISTINCTNESS**

Document prepared by experts from France

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IDENTIFICATION AND DISTINCTNESS

The study of the distinctness of a new plant variety depends first of all on pinpointing the differences in relation to the varieties in the reference collection. This initial condition is then supplemented by requirements of uniformity and stability.

Beyond the question of the quality required for each of the observed differences (clarity and consistence), numerous discussions have already taken place within the Technical Working Parties and the Technical Committee of UPOV on the matter of how to use them in determining the distinctness of varieties. The content of those discussions may be summed up schematically by the two words:

**identification and distinctness.**

Depending on the approach adopted for determining distinctness between two varieties, identification and distinctness may be synonyms or, on the other hand, may have a different meaning.

The aim of this paper is to show how and why the matter is today assuming ever greater significance and to identify a number of elements that may help in finding a solution.

Remaining strictly within the context of plant variety protection, it may be interesting to examine the evolution of the wording in the successive texts of the UPOV Convention so far as definition of variety is concerned:

To begin with, in the 1961 text, the word "variety" applied to any cultivar, clone, line, stock or hybrid which was capable of meeting the DUS requirements. A variety, whatever the origin of the variation from which it resulted, had to be clearly distinguishable by one or more important characteristics from any other variety.

In the 1972 text, it is specified that the characteristics could be of either a morphological or physiological nature.

In the 1978 text, the meaning of the word "variety" was no longer specified; mention was simply made of "important characteristics," whereby distinctness could be based on one or more of those characteristics, and it was specified that the characteristics, whatever their nature, had to be capable of precise recognition and description.

In the 1991 text, a definition of variety was inserted on a conceptual basis, and the concept was not limited to protectable varieties alone.

No mention was made of the nature of the characteristics, but it was, however, specified that the description concerned the phenotype, that is to say the expression of the genotype.

This rapid description of the successive texts of the Convention as regards the definition of the subject matter of protection and its characterization, shows the difficulties that were encountered in resolving the problem of distinctness: reference to the capability of being grown or not, the nature of the characteristics used, the importance of the characteristics, the difference based on one or more characteristics. The Convention finally gives a tautological definition: "A variety is deemed distinct if it is clearly distinguishable."

However, Article 1, item v, and Article 7 of the 1991 text, taken together, clearly show the will of the drafters not to confuse difference and distinctness: a difference in at least one characteristic of the phenotype suffices to identify a variety, whereas clear distinctness is required to grant a title of protection; this new wording implies a more general view of a variety.

It is important to note that, along with developments in the UPOV Convention in this matter, the tools and methods for describing varieties also developed.

- To begin with, it is clear that, naturally and unconsciously, we may note a tendency to consider ever finer differences in order to solve the question of distinctness.

This tendency is of course more or less accentuated depending on the species, but it is very strong for those species where the genetic variability used by breeders is low and the aims of breeding have low diversity.

It is accentuated by the development of distinctness examination protocols that are ever more complex, particularly where they contain improved provisions on observation and collection of data.

Moreover, the pressure from the breeders, who are continually seeking new possibilities for distinguishing their varieties, which are always original in their view, is also a factor of constraint.

- In addition, technical developments mean that an ever larger number of characteristics are taken into account.

For the reasons given above, new characteristics are inserted into the examination protocols with an increased possibility of discerning very large variability.

Without disregarding the constraints introduced at this level by the criterion of uniformity, such developments are likely to increase potential distinctness considerably. The development of new methodologies capable of revealing variability that may be used for distinguishing varieties is a very rapid process. The tools of molecular biology open up extremely broad prospects.

- Finally, for reasons of efficiency, but also in view of the growing international exchange of variety descriptions, it becomes ever more important to look for variety characteristics that are independent of the environment in which the variety is established. The eventual effect will be to accentuate the consideration of characteristics close to the expression of the direct product of the genes, or even of the characteristics of the genotype itself, with observations carried out under standardized conditions.

### Implications for the creation and protection of new varieties

It is interesting to identify the implications that the developments mentioned above may have on variety breeding activity and on the quality of protection that breeders will enjoy.

To begin with, as far as variety creation is concerned, the increase in the number of characteristics used in studies of distinctness, and the ever increasing possibility of evidencing small differences, is an incitement to breeding varieties that are genetically ever closer. This tendency may be reflected in the concept of genetic convergence in terms of relationship.

This consequence and the inherent risk for the breeder of a truly original variety are even more important where the creation of a new variety does not result from an ex nihilo construction, but most frequently from the attempt to improve an existing genetic assemblage by the accumulation of favourable alleles, by highlighting new recombinations or even, tomorrow, by inserting genes identified at molecular level.

Further, continued increases in genetic convergence, accompanied by uniformity rules that tend to standardize the individuals comprising a variety, represent a potential risk both for the exploitation of varieties and for the availability of genetic variability.

As far as the quality of the protection afforded to breeders is concerned, it is clear that an increasing degree of "genetic convergence" will result in the definition of an area of protection that is increasingly unreliable.

This uncertainty in protection will be greater where the consideration of characteristics in establishing distinctness is independent of their nature and of their connection with the growing value of varieties.

Eventually, in the knowledge that one cannot envisage drawing up a limitative list of the characters observed and that the reliability of examination methods is increasing, it is not unreasonable to hold that it will always remain possible to find a clear and consistent difference between two varieties.

On the basis of the new version of the Convention, this could lead to the breeders' rights being exercised mainly on the basis of a concept of dependency.

### What solutions may be envisaged?

The establishment of a limitative list of characteristics would seem excluded as a solution. It would be arbitrary and in no case capable of application, whatever the species.

In many cases, a new characteristic resulting from the use of a new technology is essential to demonstrate the distinctness of a variety which itself indeed represents true progress.

What is more, experience shows that, within one species, the genetic basis and the aims of breeding change, variety typology changes and characteristics that were useless for distinctness yesterday now become extremely useful and vice versa.

Indeed, the general principles governing the elaboration of DUS examination guidelines lay down the conditions for taking new characteristics into account.

A further solution would be to set a minimum difference that is sufficiently large for each characteristic and beyond which compared varieties would be deemed insufficiently distinguishable.

This approach has been discussed frequently within the working parties and in the Technical Committee without a satisfactory solution having ever been found.

This is hardly surprising if one looks at the various factors liable to exert an influence on such minimum differences.

Such is not the subject of this paper, but beyond that finding, it is important to emphasize that the difference between two varieties is not a simple juxtapositioning of differences observed in a number of characteristics, but a combination of those differences together with their interplay.

If two varieties are clearly distinguishable it is sufficient, by selecting characteristics that provide a good illustration of the variability, to describe a number of them to explain the observed difference. On the other hand, in numerous cases, the experts have recourse to a whole set of characteristics in order to determine the distinctness of a variety and each of those characteristics shows a small difference which is lower than the minimum distance which would have been set for each characteristic taken individually.

This may be summarized by the following notion: "The whole is not equal to the sum of its parts."

Our analysis therefore shows that the concept of minimum distance has to be applied, in fact, to the considered variety as a coherent plant entity and not to each individual characteristic.

What direction should be taken?

To begin with, it has to be emphasized that the new text of the UPOV Convention makes it possible, since it no longer speaks of at least one characteristic or of important characteristics, to apply this notion of minimum distance at the variety level which may be established on the basis of one or more characteristics in order to meet the "clearly distinguishable" requirement.

The text does not go any further in defining distinctness and that is doubtlessly preferable since it would not be possible to give a single reply to that question. It is for the experts to interpret the text correctly to ensure that the distinctness that has been determined is a help to real protection.

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In order to successfully accomplish their task, the experts must bear in mind the following aspects:

- to develop a distinctness approach by species or by group of species. An attempt at generalization would be an obstacle to the consideration of specificity and to the exploitation of the in-depth knowledge they may have on a given species for resolving the problem.
- to integrate within the approach their knowledge of the genetics of the species, which is the basis of plant breeding, and thus establish a more objective basis for distinctness.
- to utilize tools that enable the differences observed in several characteristics to be combined. At the present state of the art, distance indices may be constructed that are more or less elaborate, in the attempt to achieve ever more precise assessment of the genetic distance between two varieties.

### Conclusion

The changes observed at the present time in the field of variety characterization will no doubt have considerable implications for their application in the field of plant variety protection.

With a view to strengthening breeders' rights, the recent revision of the Convention defined a framework adapted to this new scientific, technological and economic context in the breeding of varieties.

Nevertheless, inconsiderate use of the results of new technologies for characterizing varieties could have the opposite effect.

Although the introduction of the notion of dependency represents a kind of recourse for the initial breeder, is it really necessary to take cover behind this possibility on the grounds that any new approach to distinctness is likely to be more complicated and not generalizable.

Furthermore, without mixing up the grant of a certificate and the examination of dependency, to be unwilling to approach this matter of minimum distance between varieties for assessing distinctness would be tantamount to passing on the problem to the experts who will certainly be questioned on the matter of essentially-derived varieties.

The question of minimum distance with respect to characteristics examined one-by-one has never been resolved and there are many reasons for that. At present, the development of knowledge and the availability of new tools allows us to perceive solutions within a more general approach to a variety:

**Is that not the prospect for defining the function that links distinctness and identification?**

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