

# REGULATIONS

on the procedure and the conduct of tests for **distinctness, uniformity and stability (DUS)** of new varieties of plants for the purpose of granting the Breeders' Right

Zagreb, May 2000.

Based on Article 18 paragraph (6) and Article 18a (4) of the Plant Variety Protection Law ("Official Gazette" No 131/97 and No 62/00), the Minister of Agriculture and Forestry issues the following

## REGULATIONS

on the procedure and the conduct of tests for **distinctness, uniformity and stability (DUS)** of new varieties of plants for the purpose of granting the Breeders' Right.

### I. BASIC PROVISIONS

#### Article 1

These Regulations determine the procedure and the conduct of tests for distinctness, uniformity and stability (hereinafter: *DUS*) of new varieties of plants for the purpose of granting the Breeder's Right and the period for providing the material required for the purpose of examination in the case when the right of priority has been claimed and when the first application has been rejected or withdrawn.

## II. PROCEDURE FOR THE CONDUCT OF TESTS

### Article 2

The Procedure of DUS testing of new varieties includes testing in the trial field and laboratory that must be conducted according to general procedural guidelines and in accordance with requirements of the International Union for the Protection of New Varieties of Plants (hereinafter: *UPOV*). The Technical Guidelines for conducting the DUS testing for those species tested by the Institute for Seed and Seedlings (hereinafter: *Institute*), are published in the Official Gazette of the Institute.

DUS-testing of the varieties in the trial field and laboratory are conducted by the Institute or competent institution (hereinafter: *Examiner*), determined by the Institute.

For the conduct of DUS tests of new varieties the Institute can also determine the examiner in a foreign signatory country, that has signed international agreements or conventions, that the Republic of Croatia has also signed and become member. That is the case only when the examiner has already been named for that by the national authorities for the protection of new varieties in that country. In the case of the DUS testing of new varieties in a foreign country, the Institute must previously determine, if agroecological conditions in the country where testing are going to be conducted is comparable with agroecological conditions in the Republic of Croatia.

Mutual responsibilities and cooperation between the Institute and the examiner shall be determined by the Contract.

The Institute shall sent to the examiner a copy of the Technical Questionnaire and the application for the protection of the new variety.

### Article 3

In the case when the Institute for a new variety cannot determine the examiner for DUS testing in the Republic of Croatia or in a signatory country, the applicant or someone else authorised by the applicant can organise DUS testing for a new variety at the Institutes' request.

Where neither practical testing experience nor national test guidelines are available in other countries for the species or variety grouping concerned, the Institute should develop its own testing procedures (Technical Guidelines) in accordance with the principles set out in the General Introduction. The Institute should inform UPOV of these developments. In addition, the Institute should published Technical Guidelines and approve the examiner before the DUS testing of a new variety.

#### **Article 4**

The Institute should inform the applicant when, where and in what quantity and quality the plant material required for testing the variety is to be delivered to the examiner. The applicant submitting material from a State other than the one in which the testing takes place must make sure that all customs formalities are completed.

In the cases when the right of priority has been claimed and when the first application has been rejected or withdrawn, the material required for the purpose of examination should be delivered within 6 months, for agricultural plants, and one year, for trees and vine, claimed from the day of rejection or withdrawing in the country of first application.

#### **Article 5**

The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

#### **Article 6**

The minimum duration of tests should normally be two similar growing periods. The test period may be extended into a third year to resolve distinctness.

The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

The trial for DUS testing consists of new varieties in tests (hereinafter: candidate varieties) and varieties of reference collections. Candidate varieties are compared with varieties of reference collections for the purpose of determination of distinctness.

The reference collection consists of:

1. varieties grown in the Republic of Croatia,
2. any other variety of common knowledge grown in comparable geographical area,
3. varieties nominated by the applicant as close controls,
4. in the case of hybrids all parental lines of common knowledge,
5. other varieties in tests,
6. UPOV example varieties.

#### **Article 7**

A variety is defined by its characteristics and those characteristics are therefore the basis on which a variety can be examined for DUS. DUS-tests determine those characteristics of new varieties (listed in the Technical Guidelines) that are important for determination of distinctness or distinguish one variety from another and for examination of uniformity and stability, not considering characteristics for value for cultivation and use.

After the first year of testing the examiner produces a Preliminary Report of testing of distinctness, uniformity and stability. The Preliminary Report gives information of results from DUS test after the first year and possible problems in conducting of trials. The form of the Preliminary Report (PI-DUS Form) is published with these Regulations and it is an integral part.

At the end of the test period, a Final Report is produced by the Institute based upon the UPOV model which, if positive, contains a variety description in the annex. The form of the Final Report (I-DUS Form) is published with these Regulations and it is an integral part.

If the examiner is someone else, not the Institute, the examiner is obliged to deliver the Report and the description of the variety to the Institute as soon as possible as DUS testing is finished.

### **III. CONDUCT OF DUS TESTING**

#### **Article 8**

The conduct of DUS tests for new varieties is based on visual assessments, giving marks and measuring of certain characteristics of a variety.

Environmental influences can more or less influence and modify the expression of genetic conditioned qualitative and quantitative characteristics. Normally, it should be determined on which environmental influences have the smallest influence.

A list of characteristics, that are observed are listed in the Technical Guidelines published by the Institute in the Official Gazette. The Technical Guidelines for certain species and plant groups are based on the UPOV Test Guidelines.

The mandatory and additional characteristics are listed in the Technical Guidelines. An applicant could require additional characteristics to be determined by written request and explanation. The Institute will decide whether those characteristics shall be determined.

#### **Article 9**

Visually assessed and measured characteristics, determined by DUS testing of new varieties are qualitative and quantitative characteristics.

Qualitative characteristics are those that are expressed in discontinuous states. These states are self-explanatory and independently meaningful. All states are necessary to describe the full range of characteristics, and every form of expression can be described by a single state. The states do not have any logical order. As a rule, the characteristics are not influenced by environment. The state of expression of certain characteristic is determined in comparison to example varieties and similar varieties.

Quantitative varieties are those, which are measurable and those that show continuous variation from one extreme to the other. The range of expression is divided into a number of states of expression for the purpose of description. Number of states of expression is determined.

Qualitative characteristics are normally recorded visually, whereas quantitative characteristics can be measured. If measuring of quantitative characteristics, especially sensory observation like taste and smell, is demanding, those characteristics can be determined as qualitative ones on the basis of recording.

### **Article 10**

To enable varieties to be tested and a variety description to be established, the characteristics in Test Guidelines are subdivided into their different states of expression, or “states” for short, and the wording of each state is attributed a numerical “Note”. Where appropriate, example varieties are provided in the Test Guidelines to clarify the states of expression of characteristics.

Characteristics which are assessed separately may be subsequently be combined, for example the length/width ratio. Combined characteristics have to be assessed in the same way as the other characteristics.

### **Article 11**

Two varieties have to be considered distinct if the difference:

- has been determined at least in one testing place,
- is clear, and
- is consistent.

### **Article 12**

In the case of true qualitative characteristics the difference between two varieties has to be considered clear if the respective characteristics show the expression which fall into two different states. In the case of other qualitatively handled characteristics an eventual fluctuation has to be taken into account with respect to year and testing place in establishing distinctness. Varieties should not be considered distinct for a qualitative characteristic if they have the same state of expression.

### **Article 13**

When distinctness depends on measured characteristics the difference has to be considered clear if it occurs with one percent probability of an error, on the basis of the suitable statistic method.

### **Article 14**

If normally visually observed quantitative characteristic is the only distinguishing characteristic in relation to another variety, in the case of doubt, it should be measured if this is possible with reasonable effort. For determination of clear distinctness of varieties, direct comparison between two similar varieties is used. In each comparison it is acceptable to note a difference between two varieties as soon as this difference can be seen with the eye and can be measured.

### **Article 15**

The differences are consistent, if they occur with the same sign in two consecutive, or in two out of three, growing seasons.

The simplest criterion for establishing distinctness is that of consistent differences (significant differences with the same sign) in pair-wise comparisons, provided that they can be expected to recur in the following trials. The number of comparisons has to be sufficient to allow a comparable reliability as for measured characteristics.

### **Article 16**

If it is the is case that for two varieties differences may be observed in several separately assessed characteristics, and if combination of such data is used to establish distinctness, it should be ensured that the degree of reliability is comparable with those provided in Articles 13, 14 and 15 of these Regulations.

### **Article 17**

The variety must be sufficiently uniform, having regard to the particular features of its sexual reproduction or vegetative propagation. To be considered uniform, the variation shown by a variety, depending on the breeding system of that variety and off-types due to occasional mixture, mutation or other causes, must be as limited as necessary to permit accurate description and assessment of distinctness and to ensure stability. This requires a certain tolerance which will differ according to the reproductive system of the variety-vegetatively propagated, self-fertilized or cross-fertilized. The number of off-types appearing, that is, plants which differ in their expression from that of the variety, should not -- unless otherwise indicated in the appropriate Test Guidelines—exceed the tolerance indicated in the following Article.

### **Article 18**

For vegetatively propagated varieties and truly self-pollinated varieties the maximum acceptable number of off-types in samples of various sizes is the following:

Number of plants in the sample	Maximum number of Off-Types
$\leq 5$	0
6 - 35	1
36 - 82	2
83 - 137	3

The sample size for certain plant varieties is different and defined in the Technical Guidelines.

### **Article 19**

Mainly self-pollinated varieties which are not fully self-pollinated but which are treated as such for testing, a higher tolerance is required and the maximum number of off-types allowed in the table of Article 18 for vegetatively propagated varieties and for truly self-pollinated varieties is double.

### **Article 20**

Cross-pollinated varieties including synthetic varieties normally exhibit wider variations within the variety than vegetatively propagated or self-pollinated varieties and it is sometimes difficult to distinguish off-types. Therefore, no fixed tolerance can be determined but relative tolerance limits are used through comparison with comparable varieties already known.

In the case of measured characteristics a variety is considered not to be uniform if variance of measured characteristics exceeds 1.6 times the average of the varieties used for comparison.

Visually assessed characteristics have to be handled in the same way as a measured one. The number of plants visually different from those of the variety should not significantly (on the level of 5 % probability) exceed the number found in comparable and similar varieties.

#### **Article 21**

Single cross hybrids have to be treated mainly as self-pollinated varieties referred to in Article 19 of these Regulations.

Other categories of hybrids have to be treated according to species and breeding methods. Allowed aberration for certain hybrids considering species and breeding methods are published in the Technical Guidelines for DUS-testing.

#### **Article 22**

Stability of a variety can be determined by careful observation of maintaining the variety in next years comparing it with the first year and with the sample kept in the Institute.

Stability of a variety can be determined with lower reliability than distinctness or uniformity. Normally, once the sample shows uniformity, material can be considered as stable.

If it is necessary, stability can be determined with parallel sowing of the new sample and the sample that has been kept in the Institute with the purpose of confirmation whether both samples show the same characteristics.

#### **Article 23**

In the Official Gazette, the Institute should published Technical Guidelines for DUS testing for certain plant varieties not later than 30 days after applying for the first Application for variety protection.

Technical Guidelines followed the UPOV Test Guidelines.

Until the publication of Technical Guidelines for DUS testing of the Institute in the Official Gazette, UPOV Test Guidelines should be used.

#### **Article 24**

This Regulations shall enter into force on the day of their publication in the Official Gazette.