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GENEVA

**TECHNICAL WORKING PARTY
FOR
AGRICULTURAL CROPS**

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PROCESS FOR ESTABLISHING DISTINCTNESS

Document prepared by experts from France and the Netherlands

PROCESS FOR ESTABLISHING DISTINCTNESS

During the TWA session in Ottawa (in 1999), the group had a detailed discussion about the process for establishing Distinctness of a candidate variety. It has been agreed that a paper describing the main steps of this process would be prepared by France, the Netherlands and Australia.

The description of the process is essentially based on a chronological enumeration of the main steps on which the Distinctness assessment is based upon.

Different situations have to be considered depending on the species (way of reproduction, genetic structure of the varieties, crop cycle, etc.), the way reference collections are managed and on the DUS testing organization (centralized testing or on the basis of breeder's description).

In the preliminary paper a rather simple process was described based on the case of an annual species, with homogeneous varieties and a large reference collection which did not need systematic observation each year. The preliminary paper was discussed at the TWA in Uppsala (in 2000) where it was decided to extend the paper with a description of the more complicated case of a perennial species, with heterogeneous varieties.

Considering this new case it was found more appropriate to describe all cases possible in order to cover the process completely.

The process is described in a table with description of the main steps and the conditions which can improve/hinder the efficiency.



Process for establishing Distinctness

for different categories of varieties/lines and a large reference collection

MAIN STEPS	<u>DESCRIPTION</u>	CONDITIONS
<p>In the office</p> <p>Pre-DISTINCTNESS</p>	<ul style="list-style-type: none"> - Study of the Technical Questionnaire (TQ) - Use of grouping characteristics - Selection of a set of comparable varieties 	<ul style="list-style-type: none"> - Full information on the origin and the structure of the variety - Correct description of all requested characteristics - Reference to well-known varieties - Any additional information on a specific trait of the variety - Possible use of a morphological distance combining the TQ characteristics . Depending on the species, possibility to consider firstly the reference varieties which are largely used or known as having good performance in the area where the application is made . Possible structuration of reference collection using additional tools like molecular markers

VARIETY CATEGORY	CROP CYCLE	INDEPENDENT GROWING CYCLE				BASIS FOR DISTINCTNESS ¹⁾		
		0 (pre)	1	2	3	Main Type of Char. Assessment	Criterion for Distinctness	Population standards on Uniformity (acc. prob.)
Vegetatively propagated	Annual	-	Obs	(Obs)	-	Visual	1 class	Fixed tolerances
Self-pollinated	Annual	-	Obs	Obs	-	Visual (and M)	1 class	Fixed tolerances
Inbred line / hybrid (homogeneous)	Annual	-	Obs	Obs	-	Visual (and M)	1 class	Fixed tolerances
Partly self-pollinated	Annual	-	Obs	Obs	(Obs)	Measured (and V)	lsd (COYD)	Relative tolerances (COYU)
Cross-pollinated ²⁾	Annual	-	Obs	Obs	(Obs)	Measured	lsd (COYD)	Relative tolerances (COYU)
Vegetatively propagated	Perennial	Planting	Obs	(Obs)	-	Visual	1 class	Fixed tolerances
Self-pollinated	Perennial	Planting	Obs	Obs	-	Visual (and M)	1 class	Fixed tolerances
Inbred line / hybrid (homogeneous)	Perennial	Planting	Obs	Obs	-	Visual (and M)	1 class	Fixed tolerances
Partly self-pollinated	Perennial	Planting	Obs	Obs	(Obs)	Measured (and V)	lsd (COYD)	Relative tolerances (COYU)
Cross-pollinated ²⁾	Perennial	Planting	Obs	Obs	(Obs)	Measured	lsd (COYD)	Relative tolerances (COYU)

¹⁾ Basis for distinctness describes the generalized situation. Deviating and more detailed guidance may be found in the crop specific Test Guideline.

²⁾ Including any other heterogeneous variety / line (e.g. heterogeneous inbred lines, hybrids and synthetic varieties)

Obs = observation cycle; (obs) = optional additional observation cycle.

Perennial crops usually need a planting period before full crop establishment. Juvenil characteristics may be observed during this planting cycle (preceeding each independent growing cycle)

Uniformity standards are included in this table as they are linked to the criteria for distinctness.

MAIN STEPS	<u>DESCRIPTION</u>	CONDITIONS
<p>First growing cycle</p> <p>DESCRIPTION</p> <p>In the office</p> <p>DISTINCTNESS</p>	<ul style="list-style-type: none"> - First official full description of the variety based on UPOV guidelines plus national characteristics if relevant - Check of the breeder's description - Study of the first official description - Comparison with the reference varieties: <ul style="list-style-type: none"> . grown in the same cycle . not grown in the same cycle - Elimination of the clearly distinct varieties - Selection of the closest varieties - Organisation of the next cycle lay-out 	<ul style="list-style-type: none"> - Good trials with 2 locations when possible - Observation of any particularity of the variety along the cycle - Possible use of a morphological distance - Rejection (or new first cycle) for any variety with a wrong TQ description - Contact with the applicant to get any information on the distinctness from the closest varieties

MAIN STEPS	<u>DESCRIPTION</u>	CONDITIONS
<p>Second growing cycle</p> <p>DESCRIPTION</p> <p>DISTINCTNESS</p> <p>In the office</p> <p>DISTINCTNESS</p> <p>DECISION</p>	<ul style="list-style-type: none"> - Second official description as for the first cycle plus any additional characteristic mentioned by the applicant - Direct comparison of the candidate and the closest varieties - The variety is clearly Distinct (plus U and S) <ul style="list-style-type: none"> . positive report . final description - The variety is not clearly distinct from one or several reference varieties <ul style="list-style-type: none"> . With no difference observed and no claim from the applicant → rejection . With no difference observed and claim from the applicant with additional reliable information → third growing cycle . With a set of small differences but not consistent over the two first cycles and experts convinced that the candidate variety is original <ul style="list-style-type: none"> . If supporting evidence → acceptance . If no supporting evidence → third growing cycle 	<ul style="list-style-type: none"> - Possible use of specific lay-out to compare the varieties (side by side, row plots, ...) - Possible use of a panel of experts - Visit of the trials by the applicant

MAIN STEPS	<u>DESCRIPTION</u>	CONDITIONS
<p>Third growing cycle</p> <p>DISTINCTNESS</p> <p>DESCRIPTION (complement)</p> <p>In the office</p> <p>DECISION</p>	<ul style="list-style-type: none"> - Direct comparison of the candidate and the similar reference varieties - If clearly distinct based on <ul style="list-style-type: none"> . consistent differences among the 3 cycles . or a set of small differences + positive judgement of experts + “supporting evidence” characteristics <ul style="list-style-type: none"> → acceptance - If none of these conditions <ul style="list-style-type: none"> → rejection 	<p>As for the second growing cycle :</p> <ul style="list-style-type: none"> - Direct comparison in different locations - Possible use of mixtures and coded samples in the applicant’s premises - Possible use of morphological distance - Possible use of “supporting evidence” characteristics - Contact with other DUS services

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