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METHODS OF OBSERVATION IN FRUIT CROPS

Document prepared by an expert from South Africa

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The annex to this document contains a presentation “Methods of observation in fruit crops”, to be made by an expert from South Africa, at the fifty-seventh session of the TWF.

[Annex follows]

METHODS OF OBSERVATION IN FRUIT CROPS

By
LUVUYO KHOZA
DIRECTORATE: GENETIC RESOURCES
Luvuyok@nda.agric.za



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BACKGROUND

➤ Qualitative Characteristics

- Are those that are expressed in discontinuous states (e.g. sex of plant: dioecious female (1), dioecious male (2), monoecious unisexual (3), monoecious hermaphrodite)
- The states of expression of qualitative characteristics are not influenced by the environment.
- The difference between two varieties may be considered clear if one or more characteristics have expressions that fall into two different states.
- Example (qualitative characteristic): Leaf: variegation, with the states absent (Note 1); present (Note 9).
- Tree: type



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➤ Quantitative Characteristics

Are those where the expression covers the full range of variation from one extreme to the other. The expression can be recorded on a one-dimensional, continuous or discrete, linear scale. The range of expression is divided into a number of states for the purpose of description (e.g. length of stem: very short (1), short (3), medium (5), long (7), very long (9)).

E.g: one year old shoot:
Position of vegetative bud
In relation to shoot.



1 abpressed



2 erect



2 semi-erect



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BACKGROUND

➤ Pseudo-qualitative Characteristics

- The range of expression is at least partly continuous, but varies in more than one dimension (e.g. shape: ovate (1), transverse elliptic (2), circular (3) and cannot be adequately described by just defining two ends of a linear range.

Ovate



Transverse elliptic



Circular



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BACKGROUND(CONTINUE)

- The expression of characteristics can be observed visually (V) or by measurement (M).
- **Visual observation (V)**
 - is an observation made on the basis of the expert's judgement.
 - Visual observation refers to the sensory observations such as smell, taste, touch or reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts.
- **Measurement (M)** is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts



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Type of expression of the characteristic

- **Qualitative (QL) characteristics:** are in general, observed visually. For visually assessed qualitative characteristics, different states of expression in direct comparisons are generally sufficient to assess distinctness.
- In most cases, therefore, no statistical methods are needed for the interpretation of the results.
- **Quantitative (QN) characteristics:** can be measured or visually observed.
- **Pseudo-qualitative (PQ):** are in general observed visually. The General Introduction, explains that The use of statistics for the assessment of pseudo-qualitative characteristics depends on the individual case.



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Type of records for the purposes of distinctness

- observations can be recorded as a single record for a group of plants or parts of plants (G),

(E.g) Fruit: pattern of overcolor:



Or may be recorded as records for a number of single plants or parts of plants (S).

- In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.



Methods of observation as recommended BY UPOV TG`s

- **M**: to be measured (an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, dates, counts, etc.);
- **V**: to be observed visually (includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. colorcharts). "Visual" observation refers to the sensory observations of the expert and, therefore, also includes smell, taste and touch.
- Type of record(s)
 - **G**: single record for a variety, or a group of plants or parts of plants;
 - **S**: records for a number of single, individual plants or parts of plants



Relevant UPOV Documents used as references

- TGP/9 Examining Distinctness
- TG/1/3 General introduction
- Apple TG/14/10
- Sweet Cherry TG/35/8



Evaluation centre in Stellenbosch



Evaluation centre in Roodeplaat



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Thank you



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