

Variety descriptions and the role of plant material, including minimum number of growing cycles for DUS examination

UPOV Technical Committee March 2016 - France GEVES



March 2016 TC UPOV Workshop

- (a) **Variety descriptions and the role of plant material, including minimum number of growing cycles for DUS examination**
- (b) Quality parameters for DUS examination
- (c) Facilitating development of databases
- (d) Minimum distance between varieties





March 2016 TC UPOV Workshop

Variety descriptions and the role of plant material

Minimum number of growing cycles for DUS examination

Prospective: can we evolve on minimum number of DUS growing cycles ?



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Variety descriptions and the role of plant material

The role of (living) plant material = basis of the PBR

→ high value, no modification, to be kept as long as the variety is protected and after in the living reference collection (seeds or in vivo)
and consider new tools to check conformity for the renewal of the material :
molecular identification, DNA...

Variety descriptions = only an element of the PBR

Several levels

- UPOV Official descriptions = a descriptive form established by an EO → never modified
- Working descriptions (reevaluated regularly in the DUS reference collection, reevaluated when modification of guideline...) → can be modified
- Applicant's descriptions (in the TQ) → must be conform to the material (can be modified if no consequence on the DUS examination)

.... → Variety Descriptions are just the expression of the phenotype
in a DUS site at a given period



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Minimum number of growing cycles for DUS examination

Today:

- field crops 2 DUS cycles
- vegetables 2 DUS cycles
- fruits 2 DUS cycles + opening to 1 DUS cycle (cost)
- ornamentals 1 DUS cycle + species with 2 DUS cycles

The logic ?

- .Better controlled conditions under glasshouse ? **Not really**
- .Sexual/Vegetatively reproduced ? **A lot of exceptions**
- .Autogamy/Allogamy ? **Too many significant exceptions**



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Minimum number of growing cycles for DUS examination

The notion of independance

TG/53/7 Rev. for peach

“The minimum duration of tests should normally be two **independent** growing cycles.”

- Why?
- What?
- How? With the same trees?



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Minimum number of growing cycles for DUS examination
Check **Uniformity**

For some species we assess U based on the off-type approach
.....it exists UPOV tables which take care of the risks
(especially the risk to exam on a unique sample)
→One cycle is enough

But, for species or varieties not suitable for the off-type
approach, for candidate varieties where there are doubts,
continue the U examination
→Additional cycle(s) needed
Descendance or ear rows to be considered

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Minimum number of growing cycles for DUS examination
Check **Stability**

TGP11 " (...) experience has demonstrated that, for many
types of variety, when a variety has been shown to be
uniform, it can also be considered to be stable. (...)"

→One cycle is enough
→Additional cycle(s) needed ?

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Minimum number of growing cycles for DUS examination

Check **Distinctness**

Providing the EO has prior good quality informations (TQ, photos, pre visits, DUS databases, complete living collections, expertises, close contact with applicants and users...)

For « Distinct + » and innovant candidate varieties, what is the purpose of additional growing cycles?

→One cycle is enough

But, for candidate varieties where there are doubts, continue the D examination

→Additional cycle(s) needed



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Minimum number of growing cycles for DUS examination

Release of a reliable **phenotypic variety description**

The phenotypic variety description has a relative value

$$\text{Phenotype} = \text{Genotype} + \text{Environment} + \text{GxE}$$

→One cycle is enough ?

→Additional cycle(s) needed ?



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Minimum number of growing cycles for DUS examination

CONCLUSION

We want a reliable DUS examination
 A quick DUS examination, Less expensive

The one cycle DUS examination can be an option
Consider the help of Molecular markers
Consider participation of the applicant in the DUS
With Additional cycle(s) when needed

**Consider a unique DUS examination for the community of EOs
 based on [plant material + phenotypic description +
 molecular description + DNA] [and the use of cooperative
 shared DUS databases]**

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Minimum number of growing cycles for DUS examination

A prospective approach

For woody species with long DUS examination, phytosanitary issues for
 introduction of plant material into the reference collection

**A prospective for a quicker DUS examination with the help
 of molecular markers**

Identify the materials and check the conformity

**1/ as soon as the plant material is received, describe the
 candidate with a molecular identification and
 characterize it with genetic distances**

**2/ complete it with an official phenotypic description on
 living material at the end of the examination**

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Thanks for your attention

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