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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

TECHNICAL WORKING PARTY FOR VEGETABLES

Fiftieth Session

Brno, Czech Republic, June 27 to July 1, 2016

ADDENDUM TO

REVISION OF DOCUMENT TGP/10: NEW SECTION: ASSESSING UNIFORMITY BY OFF-TYPES ON
THE BASIS OF MORE THAN ONE GROWING CYCLE OR ON THE BASIS OF SUB-SAMPLES

Document prepared by an expert from France

Disclaimer: this document does not represent UPOV policies or guidance


The Annex to this document contains a copy of the presentation "Practical experience of assessing Uniformity assessment by off-types Reject after the 1st cycle on the official DUS seed lot" to be made by an expert from France at the fiftieth session of the Technical Working Party for Vegetables (TWV).

[Annex follows]


ANNEX

PRACTICAL EXPERIENCE OF ASSESSING - UNIFORMITY ASSESSMENT BY OFF-TYPES
REJECT AFTER THE FIRST CYCLE ON THE OFFICIAL DUS SEED LOT
BY AN EXPERT FROM FRANCE

**Practical experience of assessing
Uniformity assessment by off-types
Reject after the 1st cycle
on the official DUS seed lot**

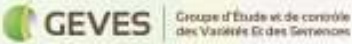


Actual case
- 2016 Curly endive DUS
- GEVES Cavaillon



2016 Endive DUS trial- U assessment

- Sowing in Petri dishes: 2016, Feb 15 / Transplanting: 2016, Feb 17
- Planting: 2016, March 21
 - 4 replications of 20 plants=80 plants
 - Example of the variety 2016.01 - Curly endive
- **Final DUS observations: May 2016**
 - Uniformity **report** :
 - rep1 : **3 HT**: clearly more erect larger plants, with darker leaves
 - rep2 : **uniform**
 - rep3 : **2 HT**: idem
 - rep4 : **2 HT**: idem



03 novembre 2015

U assessment - Resultats

- **80 observed plants**
- **7 clear off-type plants**, showing the same phenotypal typology

- METHOD OF UNIFORMITY ASSESSMENT ON THE BASIS OF OFF-TYPES
 - Population Standard = 2%, Acceptance Probability $\geq 95\%$

n=sample size	k=maximum number of off-types
1 to 2	0
3 to 18	1
19 to 41	2
42 to 69	3
70 to 99 (80 plants)	ONLY 4 off-type tolerated
100 to 131	5
132 to 165	6
166 to 200	7

U assessment – Reject of a variety for lack of Uniformity after the 1st cycle

TGP/8/2: PART II : 8 :
THE METHOD OF UNIFORMITY ASSESSMENT ON THE BASIS OF OFF-TYPES

8.1.7 Method for more than one single test (year)

8.1.7.1 Introduction

[...]

(b) Use the result of the **first year** to see if the data **suggests a clear decision (reject or accept)**. If the decision is not clear then proceed with the second year and decide after the second year. (A two-stage test).

[...]

8.1.7.4 Sequential tests

The two-stage test mentioned above is a type of sequential test where the **result of the first stage determines whether the test needs to be continued** for a second stage.

U assement – Reject of a variety for lack of Uniformity after the 1st cycle

- **Enforcement of the Decision recorded in the minutes of the French Registration Authority (2015)**
 - case of a species studied
 - in potentially two cycles with the same DUS seed sample
 - whose uniformity is assessed on the basis of the off- types number
 - if the number of HT after the 1st cycle is “well above” the norm,
 - **possibility** to reject from the 1st cycle .
- FR meaning of "well above" the norm**
- above the norm of a *simulated second DUS trial*,
 - with the simulated *strength of a single trial*
 - which corresponds to a *doubled number of observed plants*.

U assement – Some theoretical rules...

The use of **INDEPENDANT GROWING CYCLES** is *strategic* to assess the *Distinction* of a application and define its closest example varieties. We need to identify the interaction $G \times E$, included in the observed Phenotype, at an identified place and date.

- The assesment of Uniformity (*when it is not RELATIVE uniformity*) based on the **counting of the Off-types**, has no link with the Environement but to the expression of a different Genotype. An « easy » way to reach a « better » uniformity assesment is to act on the **number of assesed plants**, with as good as possible **statistical models**.
- The use of the **statistical tables** included in the **TGP/8/2**, defined on the base of a **Population standard** and **Acceptance probability**, allows to take a decision regarding the Uniformity of a **SINGLE sample**, which has to be representative of a variety in its holeness.
- The interest here, is **NOT** in the **REPETITION** of an other cycle (*which is not statistically independent, because realised on the same seed sample*), **BUT** in assesing the Uniformity in a **THEORETICAL BIGGER SAMPLE**, potentially more representative of the variety.

U assement - Conclusions

– **Theoretical sample size = twice the size of the 1st cycle**

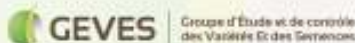
- In this case = 80 plants x 2 = 160 plants

– Number of tolerated off-type in **this case**

Population Standard = 2%, Acceptance Probability $\geq 95\%$

n=sample size	k=maximum number of off-types
132 to 165 (160 theoretical plants)	6

- Even in this **theoretical circumstances**, the **actual number of off-types (7 plants)** is **higher than** the **tolerated threshold (6 plants)**.
- So, at this stage, a **second DUS cycle** (even without off-types) would have no impact on the conclusion. **The variety can be rejected for lack of uniformity.**
- if the applicant **appealed this decision**, a 2nd cycle could be completed possibly a third cycle ...).



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Thank you
for attention

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