

TWC/34/27

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## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

#### TECHNICAL WORKING PARTY ON AUTOMATION AND COMPUTER PROGRAMS

### Thirty-Fourth Session Shanghai, China, June 7 to 10, 2016

PRACTICAL EXPERIENCE OF ASSESSING UNIFORMITY BY OFF-TYPES ON OILSEED RAPE AND CAULIFLOWER

Document prepared by an expert from France

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The Annex to this document contains a copy of a presentation on "Practical experience of assessing uniformity by off-types on oilseed rape and cauliflower" that will be made at the thirty-forth session of the Technical Working Party on Automation and Computer Programs (TWC).

#### Abbreviations:

CPVO Community Plant Variety Office of the European Union

GEVES Variety and Seed Study and Control Group

OSR Oilseed rape

Anne-Lise Corbel, DUS head of oilseed rape, crucifers, flax and hemp, Groupe d'étude et de contrôle des variétés et des semences (GEVES)

[Annex follows]

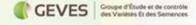
#### **ANNEX**

Practical experience of assessing uniformity by off-types on oilseed rape and cauliflower



## Plan

- Former, new rules and reasons for changing
- II. Example of oilseed rape
- III. Example of cauliflower
- IV. Conclusion



### I. Former, new rules and reasons for changing

#### Former rules:

Addition of off-types between the 2 growing cycles

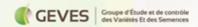
I.e. Approach 3: Combining the results of two growing cycles

But one of the CPVO requirement is: 2 independent growing cycles needed to establish DUS of a variety

→ New rules: (for 3 years)

Change to Approach 1: Third growing cycle in the case of inconsistent results (between the two first DUS cycles)

Observations of each cycle are analyzed independently If inconsistent → 3<sup>rd</sup> growing cycle



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### II. Example of oilseed rape

For most agricultural species in GEVES: 2 DUS testing locations = 2 independent growing cycles

OSR: 70% self pollinating. Candidates: parental lines + hybrid varieties
In 2014, 182 varieties were in 1st year of study, among them, 170 were uniform
and 12 were concerned by uniformity problems:

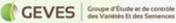
Decision

Decision

Туре	Off-types 1 <sup>A2</sup> oyole	threshold 1 <sup>42</sup> oyole	Off-types 2 <sup>nd</sup> oyole	threshold 2 <sup>nd</sup> oyole	Σ off-types 1st and 2nd cycle	threshold sum 2 oyoles	with new with former rules rules	
HYB	55	39	55	37	110	70	ר רו	
HYB	50	39	71	39	121	72		
HYB	46	45	50	40	96	79	_Refusal	
LI	29	11	25	8	54	17	Refusal	
LI	21	11	14	8	35	17	Refusal	
LI	Global heterogeneity	13	Global heterogeneity	10	Global heterogeneity	10	L CREIUSAI	
HYB	43	35	18	24	61	54		
HYB	37	42	50	37	87	74	3rd	
LI	10	11	13	9	23	17	-	
LI	12	12	/ 11	10	23	19	├cycle _	
LI	5	10	11	9	16	16	Uniform	
LI	3	10	9	7	12	15		

6 varieties out of 182

For the others (176 out of 182) the decision is the same



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## II. Example of oilseed rape

In 2015, 195 varieties were in 1st year of study, among them, 179 were uniform and, 16 were concerned by uniformity problems:

Туре	Off-types 1 <sup>A2</sup> oyole	threshold 1st oyole	Off-types 2 <sup>nd</sup> oyole	threshold 2 <sup>nd</sup> cycle	Σ off-types 1st and 2nd oyole	Threshold sum 2 oyoles	Decision with new rules	Decision with former rules
HYB	45	30	30	21	75	47		
HYB	48	36	29	27	77	58		
LI	10	8	10	7	20	13		
LI	12	9	9	8	21			
LI	13	9	8	7	21	13	Refusal	
ш	Global heterogeneity	8	Global heterogeneity	7	Global heterogeneity	14		
LI	39 9		25 8		64	15		Refusal
LI	14	8	10	7	24	13		
HYB	33	39	24	20	57	55		I
HYB	39	37	22	26	61	58		
LI	19	8	1	6	20	13		
LI	12	11	6	8	18	16		
LI	7	9	10	8	17	15	3rd cycle	
HYB	34	36	23	22	57	54		
HYB	14	37	21	20	35	53		Uniform
HYB	26	34	30	29	56	59		- Cimolini

Great difference between the 2 cycles → 3rd cycle seems to be necessary

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# III. Example of cauliflower

Threshold per cycle: 3 off-types If sum cycle 1+cycle 2, threshold = 4 Hybrid varieties, 60 plants / cycle

Off-types observed during the 141 cycle	Conclusion cycle 1	Off-types observed during the 2 <sup>nd</sup> cycle	Conclusion cycle 2	Off-types observed during the 3rd cycle	Conclusion cycle 3	Decision with new rules	Sum OT 2 cycles	Conclusion If sum 2 cycles	Decision with former rules
2	<threshold → OK</threshold 	2	<threshold-> OK</threshold->	1	v/a		4	-threshold	OK, Uniform
3	=threshold →OK	3	-threshold-> OK		1/a	OK, Uniform	6	>threshold	
2	<threshold → OK</threshold 	4	>threshold-> 3 <sup>rd</sup> cycle	3	=threshold → OK		6	>threshold	Non-Uniform
4	> threshold	4	>threshold	n/a		Non- Uniform	8	>threshold	

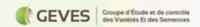
Most of the candidate varieties are in the 1st or the last case, In the advantage of the applicant when close to the thresholds



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### **IV. Conclusion**

- → From our experience, the new method permits us to better **meet the requirement of independency** of the growing cycles
- → Only a few varieties are concerned by the change of rules (most of the candidates are very uniform or very non-uniform)
- → Varieties for which we observe discordance → 3<sup>rd</sup> cycle allows to strengthen the decision (if the discordance is high, 3<sup>rd</sup> cycle increases reliability of observations)



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