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TWA/45/13 Add.2
ORIGINAL: English
DATE: July 8, 2016

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

Forty-Fifth Session
Mexico City, Mexico, July 11 to 15, 2016

SECOND 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 the Office of the Union

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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" to be made by an expert from France at the forty-fifth session of the Technical Working Party for Agricultural Crops (TWA).

Abbreviations:

CPVO	Community Plant Variety Office of the European Union
GEVES	Variety and Seed Study and Control Group
OSR	Oilseed rape

[Annex follows]

ANNEX

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

Presentation by Ms. Virginie Bertoux, Head of the National Office for Plant Breeders' Rights (INOV), Variety and Seed Study and Control Group (GEVES), France

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

GEVES
Expertise & Performance

Summary

I. Former, new rules and reasons for changing

II. Example of oilseed rape

III. Example of cauliflower

IV. Conclusion

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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 and UPOV (in the majority of test guidelines) 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 → 3rd 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:

Type	Off-types 1st cycle	threshold 1st cycle	Off-types 2nd cycle	threshold 2nd cycle	Σ off-types 1st and 2nd cycle	threshold sum 2 cycles	Decision with new rules	Decision with former rules
HYB	55	39	55	37	110	70	Refusal	Refusal
HYB	50	39	71	39	121	72		
HYB	46	45	50	40	96	79		
LI	29	11	25	8	54	17		
LI	21	11	14	8	35	17		
LI	Global heterogeneity	13	Global heterogeneity	10	Global heterogeneity	10		
HYB	43	35	18	24	61	54	3rd cycle	
HYB	37	42	50	37	87	74		
LI	10	11	13	9	23	17		
LI	12	12	11	10	23	19		
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:

Type	Off-types 1st cycle	threshold 1st cycle	Off-types 2nd cycle	threshold 2nd cycle	Σ off-types 1st and 2nd cycle	Threshold sum 2 cycles	Decision with new rules	Decision with former rules
HYB	45	30	30	21	75	47	Refusal	Refusal
HYB	48	36	29	27	77	58		
LI	10	8	10	7	20	13		
LI	12	9	9	8	21	14		
LI	13	9	8	7	21	13		
LI	Global heterogeneity	8	Global heterogeneity	7	Global heterogeneity	14		
LI	39	9	25	8	64	15		
LI	14	8	10	7	24	13		
HYB	33	39	24	20	57	55	3rd cycle	
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		
HYB	34	36	23	22	57	54		
HYB	14	37	21	20	35	53		Uniform
HYB	26	34	30	29	56	59		

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 1st cycle	Conclusion cycle 1	Off-types observed during the 2nd 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	2	<threshold→ OK	*n/a*		OK, Uniform	4	=threshold	OK, Uniform
3	=threshold →OK	3	=threshold→ OK	*n/a*			6	>threshold	Non-Uniform
2	<threshold → OK	4	>threshold→ 3rd cycle	3	=threshold → OK		6	>threshold	
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 → 3rd cycle allows to strengthen the decision
(if the discordance is high, 3rd cycle increases reliability of observations)

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Thanks for your attention

[End of Annex and of document]