

TRADE AND AGRICULTURE DIRECTORATE
COMMITTEE FOR AGRICULTURE

OECD Seed Schemes

DISCUSSION ON CERTIFICATION STANDARDS FOR HYBRID VARIETIES OF TRITICALE

This paper, prepared by the OECD Co-ordinating Centre, is circulated to Delegations, National Designated Authorities and Observers for discussion and recommendation at the Standing Working Group Meeting [under item 14 of draft agenda TAD/CA/S/A(2013)1/REV1] to be held in Paris, France, on 29-30 January 2013.

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1. The original discussion document was prepared by the Co-ordinating Centre for consideration at the meeting of the Technical Working Group (TWG) in July 2012 [see TAD/CA/S/WD(2012)5]. Germany has been conducting a national consultation with breeders and carrying out observations during 2012. This work will continue for one or two more years. At the meeting of the TWG this work was known of, but information from it was not available for the original paper.

2. This document repeats the information in the original paper and includes the proposals arising from initial consultations for hybrid triticale from Germany as well as the current OECD standards for hybrid wheat, barley, oats, and rice for comparison and discussion. The proposals from Germany have no force at present and do not alter the existing EU requirements for isolation of triticale which are observed for seed crops.

3. In the 2012 Rules and Regulations of the OECD Seed Schemes, crop isolation standards and varietal purity standards for triticale are specified in Appendix 1A of the Cereal Seed Scheme (pages 101 to 103; Section 2 and Section 6) and are summarized in Table 1 and Table 2 below:

Table 1. Triticale isolation requirements

Seed crops triticale (*x Triticosecale* Wittm.) shall be isolated from all other crops of triticale by:

	Basic Seed	Certified seed
Mainly cross-pollinating varieties of triticale	300 metres	250 metres
Self-pollinating varieties of triticale	50 metres	20 metres

Table 2. Triticale variety purity

Number of plants of the same species which are recognisable as being not true to the variety

	Mainly self-pollinating varieties	Cross-pollinating varieties
Basic Seed	99.7%	1 in 30 sq. m
Certified Seed first generation	99.0%	1 in 10 sq. m
Certified seed second generation	98.0%	1 in 10 sq. m

4. A new table has been added to this paper to show the purity standards in currently place for other cereal species (Table 5) for comparison with proposed standards for hybrid triticale. Germany has also been conducting a consultation with breeders on proposals for purity and isolation distances for hybrid triticale crops. The first set of early proposals from this consultation (Tables 3a, 4a and 5a) are presented for comparison with the current OECD triticale standards below.

5. The current standards do not specifically include triticale hybrids, although rye hybrids are allocated special isolation distances. Hybrids utilise a production method which ensures the resulting progeny contains genetic material from each parental line. This transfer is achieved by ensuring pollen from one parent is used to pollinate the other seed bearer line. A triticale hybrid created from two parental lines must involve pollen transfer and by definition will be cross-pollinated. Under current arrangements, this would be covered by the category “mainly cross-pollinating varieties of triticale” with isolation distances for Basic Seed and Certified seed of 300 metres and 250 metres, respectively.

6. These distances are intended for a variety in which all the parental plants are capable of producing pollen which can fertilise other plants within the crop. A hybrid variety where the crop area is divided between seed bearers and pollen producers produces proportionately less fertile pollen, because there are plants within the crop which are solely seed bearers. In other species where this system is used, the isolation distances are often increased to compensate for the fact that only part of the planted area is producing fertile pollen.

7. Cross-pollinating varieties of triticale share the same field and seed standards as the related species rye (*Secale cereale*). Therefore, it would be consistent to use the standards for hybrid rye as a starting point for considerations of hybrid triticale standards, as long as the same system of hybridisation is in use for both and parental lines with broadly similar reproductive botany are employed. The maintenance method used for parental lines would also be relevant when considering the isolation distances to be applied.

8. In the current OECD Rules for rye the comparison between non-hybrid and hybrid is as follows:

Table 3. Rye and triticale, current isolation standards

Seed crops shall be isolated from all other crops of rye and triticale respectively by:

	Basic Seed	Certified seed
Mainly cross-pollinating varieties of (triticale and) rye	300 metres	250 metres
Rye hybrid using male sterility	1000 metres	500 metres
Rye hybrid not using male sterility	600 metres	-

Table 3a. Hybrid triticale isolation requirements – From consultation in Germany

Seed crops triticale (*x Triticosecale* Wittm.) shall be isolated from all other crops of triticale by:

	Basic Seed	Certified seed
Hybrid triticale	150 metres	75 metres

Table 4. Rye and triticale, current varietal purity standards

Number of plants of the same species which are recognisable as being not true to the variety

	(Triticale and) Rye cross-pollinating varieties	Rye hybrids
Basic Seed	1 in 30 sq. m	1 in 30 sq. m
Certified Seed first generation	1 in 10 sq. m	1 in 10 sq. m
Certified seed second generation	1 in 10 sq. m	n/a

Table 4a. Hybrid triticale variety purity – From consultation in Germany

Number of plants of the same species which are recognisable as being not true to the variety
Assessed in a minimum of two field inspections per crop

	Hybrid triticale varieties	Notes
Basic Seed	5 in 150 sq. m (1 in 30 sq. m)	Maximum permitted
Certified Seed	15 in 150 sq. m * (1 in 10 sq. m)	Maximum permitted
Certified Seed	16 - 40 in 150 sq. m *	Accepted only if official post control plot identifies a varietal purity of 90% - 100%
Certified Seed	>40 in 150 sq. m *	Certification not permitted.

Table 5. Hybrid wheat, barley, oat and rice;

Minimum varietal purity standard in seed crops and post-control plots

	Percentage
Fields to produce Basic Seed (of parental lines)	99.9%
Fields to produce Certified Seed (of the hybrid variety)	99.7%
Post-control plots of Certified Seed (of the hybrid variety)	90.0%

Table 5a. Hybrid triticale variety purity – From consultation in Germany

Varietal purity standards to be met in post-control tests

	Number of off-types (reject figure)	As percentage
Basic seed – male component	10 in 1000 plants	99.4%
Basic seed – female component	28 in 1000 plants	98.0%
Certified Seed	116 in 1000 plants	90.0%

9. The similarity of treatment of the non-hybrid crops of rye and triticale may indicate that the two crops share similarities in their pollination and seed production. Based on the similarities of the non-hybrid crops, it would be reasonable, in the absence of technical evidence to the contrary, to adopt the standards for hybrid rye to include hybrid triticale.

10. In considering this proposal, it is customary to take advice from countries which have experience of the crop techniques and where there is existing expertise. Germany has provided a copy of their early consultations to the OECD Seed Schemes Secretariat, and these are now included in this paper as tables 3a, 4a and 5a.

11. Delegates should take note of the following when considering German standards from their early stages of consultation:

- a) The work is at an interim stage and the figures quoted have no acceptance for the production of certified seed. There are one or two more years of work to be carried out before firmer proposals are produced.
- b) The isolation distances are considerably shorter than those in the OECD Scheme for non-hybrid triticale. This may lead to the situation where two crops of triticale to produce certified seed are grown at a separation distance where the hybrid crop (75m isolation) would be acceptable, but a cross-pollinating crop of triticale (250m isolation) would not be acceptable for isolation.
- c) The area standards are set for an assessment area of 150 sq. m. Although the acceptance figures equate to the OECD standard of either one in 30 sq m or one in 10 sq. m, the crop inspection assessment area under consideration would be a minimum of 150 sq m.
- d) The parental line varietal purity standards quoted for post control tests are less stringent than those already in place as crop standards for parental lines of the species *Triticum aestivum*, *Avena spp.*, *Hordeum vulgare* and *Oryza sativa* (Remark: this is due to a recent change of the uniformity requirements for DUS testing of Triticale agreed at EU level by the CPVO)

12. In order to produce a recommendation for the 2013 Annual Meeting of the OECD Seed Schemes, delegates are invited to compare and consider the merits of:

- a) the proposals from Germany;
- b) applying the precautionary principle by using the hybrid rye isolation distances for hybrid triticale;
- c) producing another defined course of action.