



TWO/39/9

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**TECHNICAL WORKING PARTY FOR ORNAMENTAL PLANTS
AND FOREST TREES**

Thirty-Ninth Session

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CRITERIA FOR DETERMINING OFF-TYPE PLANTS

Document prepared by the Office of the Union

1. At their thirty-eighth and thirty-sixth sessions, in 2007, the Technical Working Party for Ornamental Plants and Forest Trees (TWO) and the Technical Working Party for Fruit Crops (TWF), respectively, considered document TWF/36/7-TWO/38/9, prepared by Mr. Chris Barnaby (New Zealand). The TWO also considered document TWO/38/10, introduced by Mr. Ton Kwakkenbos (European Community) with an additional visual presentation.
2. The TWO noted that the presence of transposons in some varieties resulted in all the plants of a variety having a similar range of variation (including no phenotypic effect), even after repeated propagation, whereas in other cases the presence of transposons could result in different ranges of expression in different plants and in different generations. Therefore, it was not possible to develop a single recommendation on whether to accept or reject varieties where transposons were known to be present. It was also noted that, at least in some respects, similar effects to those produced by transposons could be seen with aneuploids and chimaeras. The TWO agreed that any guidance or criteria for determining off-types should seek to address the effects resulting from the presence of transposons.
3. The TWO agreed that guidance on the determination of off-types would be an important part of TGP/10 "Examining Uniformity" and agreed to try to develop such guidance. With regard to the "Guide for identifying off-types (for consideration)" in paragraph 13 of document TWF/36/7-TWO/38/9, the TWO proposed as follows:

(i) there should be an introduction to the guide, including the definition of an off-type from the General Introduction (document TG/1/3), which should explain the issues and the value of harmonization;

(ii) the guide should provide examples of different types of off-types in different circumstances, in order to try to identify where harmonization was achievable;

(iii) to have an item on how to verify whether the cause of atypical plants was genetic or environmental (including disease), e.g. by propagating the atypical plants, requesting more plants from the breeder, visiting the breeder to view a larger number of plants etc.;

(iv) item 8: to be placed before item 2

4. The TWO also agreed that the guide might be extended to cover the number of plants to be examined. That aspect would, for example, cover whether more plants might be appropriate for the examination of varieties which were more likely to contain off-types (e.g. varieties resulting from mutation, variegated varieties, varieties known to contain transposons), in order to allow a suitable assessment of potential off-types. It might also address the selection of the number of plants in relation to the number of off-types allowed in different sample size ranges.

5. In order to incorporate guidance within TGP/10, it was recognized that the document would need to be substantially advanced before the thirty-ninth session of the TWO and that that would only be possible by the establishment of a sub-group (Off-type Subgroup) which would comment on interim drafts. The TWO agreed that Mr. Chris Barnaby (New Zealand) should be responsible for preparing drafts with the assistance of the Office where requested. A first draft would be circulated to the Off-type Subgroup before the end of 2005, with comments to be made by the end of January 2006. A second draft would then be circulated by the end of May 2006 with comments to be made by the end of June 2006, followed by preparation of a draft for the thirty-ninth session of the TWO. Offers to participate in the Off-type Subgroup were received from Australia, Canada, Denmark, European Community, France, Germany, Israel, the Netherlands and the United Kingdom. Mr. Barnaby invited all participants to send comments on document TWF/36/7-TWO/38/9 to assist in the preparation of the first draft.

6. The TWF agreed that the genetic background should be added as note (d) in paragraph 7 of document TWF/36/7-TWO/38/9. With regard to the guide for identifying off-types proposed in paragraph 13, it was agreed that it was necessary to ensure that any atypical expression had a genetic origin and was not an exclusively environmental effect. It was also noted that the DUS trial environment might trigger the development of atypical expression, which might not occur in the normal propagation environment.

7. The TWF discussed whether parts of plants showing atypical expression (e.g. one branch of a tree bearing atypical fruit, some leaves of a variegated plant without variegation etc) might be considered to be an off-type or to be lacking stability. It was noted that particular care would need to be taken with regard to considering whether a variety was unstable. For example, the method of propagation might ensure that atypical parts of the plant would not be propagated and, therefore, the characteristics of the variety would remain unchanged after repeated propagation.

8. Discussions took place in the TWF on whether it would be appropriate to define a proportion of the plant having atypical expression which could be disregarded in the consideration of whether a plant was an off-type. It was noted that caution would be needed with such an approach because the proportion of the atypical part of the plant might increase over time.

9. The TWF noted that the type of off-types under discussion only occurred rarely and had not caused any significant problems when taking an overall perspective of the DUS examination. However, whilst the difficult situations were rare, it was recognized that when such situations occurred it could be beneficial to have some practical guidance available. On that basis, it was agreed to seek to develop guidance as far as possible and to propose to include that guidance in TGP/10 "Examining Uniformity". As a next step, it was agreed that France, New Zealand and other members of the Union would prepare presentations on their experiences of plants with partial off-type expression for discussion at the thirty-seventh session of the TWF.

10. At the forty-second session of the Technical Committee (TC), held in Geneva, from April 3 to 5, 2006, document TGP/10/1 Draft 3 was discussed. There was a good level of agreement on that document and the TC proposed that TGP/10 might be considered for adoption in 2007. In order for a guide for identifying off-types to be included in TGP/10, and with the agreement of Mr. Barnaby, it was agreed that a section on the determination of off-types should be included in the subsequent draft of TGP/10/1, to be considered by all Technical Working Parties in 2006. The draft guide is included as Section 4.2 "Determination of Off-Types by Visual Assessment" in document TGP/10/1 Draft 4.

11. During their sessions in 2006, the Technical Working Party for Vegetables (TWV), the Technical Working Party on Automation and Computer Programs (TWC) and the Technical Working Party for Agricultural Crops (TWA) have made comments on document TGP/10/1 Draft 4, including some comments on Section 4.2 "Determination of Off-Types by Visual Assessment" (see document TWO/39/3, Annex II). With regard to the possible adoption of document TGP/10 in 2007, the TWA made a number of proposals concerning document TGP/10/1 Draft 4 at its thirty-fifth session in July 2006 and proposed that the adoption of document TGP/10 should be delayed and that it should be considered again by the Technical Working Parties in 2007.

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