



TWC/18/8

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

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

**Eighteenth Session
Kyiv, June 12 to 15, 2000**

COMMENTS ON THE SIXTH SESSION OF THE WORKING GROUP ON
BIOCHEMICAL AND MOLECULAR TECHNIQUES AND DNA PROFILING IN
PARTICULAR (BMT), ANGERS, FRANCE, MARCH 1 TO 3, 2000

Document prepared by experts from the United Kingdom

SUMMARY

A strong NIAB presence attended the 6th Session of the UPOV BMT Subgroup participating in the many debating issues. NIAB staff contributed to at least 3 presented papers. Posters (designed for the ISHS conference) were displayed and generated considerable interest.

The main 'themes' discussed were based on the requests made at the 5th BMT.

Information on assessment of within-variety variation was dealt with by a number of authors across a range of crops (including sugar beet, ryegrass, maize, oilseed rape and wheat). Molecular tools now exist which can clearly quantify the levels of within-variety variation. Statistical tools are also being developed to support the molecular biologists in the assessment of within-variety variation.

The roles of pedigree; mapped vs un-mapped markers; expressed vs non-expressed regions continued with no clear global conclusions. Reports were given on the progress of both national and multi-national funded research initiatives in the DUS/minimum distance and EDV area.

It was argued that a number of techniques are at the 'technology transfer' stage where they could be considered as tools for DUS and the management of reference collections. The formal ASSINSEL position on the use of molecular markers for DUD testing is maintained. However, their discussion paper was clearly considering how to deal with a potentially new testing system, and with interim arrangements. The view that markers should be used for EDV determinations is well accepted.

It was decided to proceed on a crop by crop basis where issues such as 'potential use' would be debated in the respective crop working groups. The crops are oilseed rape, maize, rose, wheat and tomato. NIAB has interests in all of these through MAFF and/or EU projects.

Very useful visits (including CPVO and INRA (IHI)) complemented the stimulating debate.

It was agreed that the 7th BMT be held in 19 months time in Hanover.

John Law
Bob Cooke

March 2000

Items of particular interest to the UPOV TWC Working Party

A verbal report was given of discussions at the 17th TWC meeting relating to the work for the BMT sub-group.

Work is proposed to proceed on a 'crop by crop' basis which will again be discussed at the next BMT meeting. The role of the crop technical working parties was stressed. Priority will be given to papers reporting problems and solutions in five key crops - namely wheat, rose, oilseed rape, maize and tomato. Work on other crops will also be accepted.

A 'formal' request has been made to ASSINSEL for suitable 'data' to add to the library of data sets, which will allow statistical tools to be tested. The use of simulated data was considered rather problematic.

It was proposed that the four areas of work requested of the TWC should remain active but with a change of emphasis. Top priority should now be given to development of methods to 'combine' information for different marker systems, pedigree, map-linkage and other data types. The second priority should focus on effective graphical representations and visualisations of molecular data. Comparisons of molecular and morphological data and the quantification/improvement in the precision of estimated genetic distances are still required but with a slightly lesser priority than assigned previously.

The following papers were presented at the recent 6th session of the UPOV BMT subgroup (Angers, France). *{Copies of these can be obtained, by request, from the UPOV office.}*

BMT6/2 - Most similar variety comparisons in Chrysanthemums

BMT6/3 - Assessment of distinctness, uniformity and stability of sugar beet varieties based on AFLP data.

BMT6/4 - Uniformity and stability of microsatellite markers in wheat.

BMT6/5 - Variability within maize inbred lines determined with SSRs

BMT6/6 - DUS testing: Phenotype vs genotype

BMT6/7 - Assessing genetic conformity between varieties of ryegrass

BMT6/8 - RAPDs mathematical analysis to establish reliability of varietal assignment in vegetatively propagated species.

BMT6/9 - Usefulness of AFLP markers to estimate homogeneity of rapeseed inbred line varieties

BMT6/10 - The GEVES software package for estimating genetic distances between varieties, with or without linkage map information, and analysing the genetic diversity of a collection of varieties through molecular data

BMT6/11 - Microsatellite markers of *Pyrus* spp: identification of Pear accessions by Apple SSRs and similarity between Pear and Apple.

BMT6/12 - Standardisation of molecular marker systems for variety testing.

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