



Disclaimer: unless otherwise agreed by the Council of UPOV, only documents that have been adopted by the Council of UPOV and that have not been superseded can represent UPOV policies or guidance.

This document has been scanned from a paper copy and may have some discrepancies from the original document.

Avertissement: sauf si le Conseil de l'UPOV en décide autrement, seuls les documents adoptés par le Conseil de l'UPOV n'ayant pas été remplacés peuvent représenter les principes ou les orientations de l'UPOV.

Ce document a été numérisé à partir d'une copie papier et peut contenir des différences avec le document original.

Allgemeiner Haftungsausschluß: Sofern nicht anders vom Rat der UPOV vereinbart, geben nur Dokumente, die vom Rat der UPOV angenommen und nicht ersetzt wurden, Grundsätze oder eine Anleitung der UPOV wieder.

Dieses Dokument wurde von einer Papierkopie gescannt und könnte Abweichungen vom Originaldokument aufweisen.

Descargo de responsabilidad: salvo que el Consejo de la UPOV decida de otro modo, solo se considerarán documentos de políticas u orientaciones de la UPOV los que hayan sido aprobados por el Consejo de la UPOV y no hayan sido reemplazados.

Este documento ha sido escaneado a partir de una copia en papel y puede que existan divergencias en relación con el documento original.

UPOV**BMT/3/17****ORIGINAL : English****DATE : September 25, 1995****INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS****GENEVA****WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES
AND DNA-PROFILING IN PARTICULAR****Third Session****Wageningen, Netherlands, September 19 to 21, 1995****STATISTICAL ASPECTS OF DNA-PROFILING INCLUDING ANALYSIS
OF RESISTANCE: HARMONIZATION OF STATISTICS**

*Collection of transparencies used by the
expert from France for his presentation
during the third session of the BMT*

How to harmonize statistics for BMT within UPOV?

in answer to a question from the
chairman during the meeting
situation, need, ways to proceed

(transparencies prepared during BMT meeting)

BMT Wageningen 20/09/95

A "starting point" difficulty

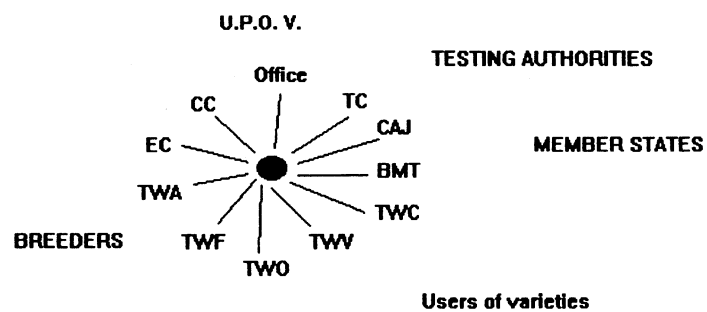
- usually existing UPOV procedure
 - improve
 - knowledge
 - efficiency
 - take into account technical considerations
- BMT no UPOV procedure
 - define everything
 - no experience of the impact of procedures
 - accept/reject flow
 - creation/maintenance on these "characteristics"

A lot of elements to consider

- many different methods (RAPD, RFLP, AFLP, mic.sat.,...)
- many different crops (genetic structures) lucern, maize, potato, pinus,...
- many questions to answer (essential derivation, identification, ...)
- pbms of cost/availability (patents, lab. equipment, additive work+cost)
- pbms of reproducibility (reproducible decision more than same results)
- political background (why, when, to use BMT; incidence on PBR=?)
- **Goal= P.B.R. POWER of Breeder's Rights**

BMT Wageningen 20/09/95

a UPOV challenge



what are the needs ?

- UPOV recommendation
 - written, clear, practice
 - objective
 - protocol
 - sampling
 - decision rule
- UPOV knowledge = be ready
 - to use in some cases
 - to answer questions
 - to introduce
 - to harmonize

BMT Wageningen 20/09/95

How to proceed ?

- crop by crop
 - C1 gen. map. + Cov()
 - C2 isoenzymes + Chi2
 - C3 RAPD + dendrograms
 - C4 RFLP and microsatt.
 - ...
 - + **EASIER**
 - **few guidance for new cases**
- situation by situation
 - Distance on lines
 - E. derivation on mutants
 - Uniformity on vegetatively propagat.
 - ...
 - + **CLEAR when established**
 - **more difficult**

How to define a situation?

- the type of species (or genetic structure)
- the type of question to answer
- the type of data used/available

BMT Wageningen 20/09/95

type of species (genetic structure)

- mutants
- vegetatively propagated
- lines
- hybrids
- synthetic varieties
- populations

type of question

- distinctness *1 variety <-> all others*
- uniformity *1 <-> all, 1 <-> some, 1/a limit*
- stability *(not enough generations to work)*
- essential derivation *1 original <-> 1 derived*
- identification *find the one among existing*
- most similar variety
- description etc...

BMT Wageningen 20/09/95

type of data used/available

- Expert knowledge (memory, genetic map...)
- qualitative, visually assessed
- quantitative, measured
- image analysis, shapes, colours
- BMT tables presence/absence, patterns

By solution:

permits to know where we are for each type of data
one cell of the table = a solution
for which we have (or we do not have yet) a method for some given crops

question to answer→	Dist	Unif	Stab	Ess Deriv	Most Similar	identific ation	descript ion	...
gen structure								
MUTANTS								
VEGETV PROPAG								
LINES								
HYBRIDS								
SYNTHETIC								
POPULATIONS								
...								

BMT Wageningen 20/09/95

An example on classic characteristics

	Distinction	Uniformity
VEGETV PROPAG		<i>max nb of off-types</i> I have only 6 plants
AUTOGAMOUS	can we use COYD? do we need COYD?	<i>max nb of off-types</i> which limit, which sampling? for my crop
ALLOGAMOUS	<i>COYD</i> forrage crops recommended sugar beet studied ananas comosus?	<i>COYU</i> forrage crops recommended
SYNTHETIC VAR.		

For each situation we can look at the recommended methods, to which crop they apply, the questions pending...

Does the by solution method multiply the work to do?

- No, sometimes for more than one solution
 - the same data can be used
 - COYD and COYU use the same data set
 - the same computer program can be used
 - LCLM study for quantitative qualitative electrophoretic characters alone or combined
 - the same method can be used
 - max nb of off-types used for vegetatively propagated + allogamous species

BMT Wageningen 20/09/95

In all cases PUT TECHNICAL CONSIDERATIONS AHEAD soon and with determination

- It avoids complete screening of methods
- It avoids inappropriate choices
 - example 1: little varieties might be more uniform than tall ones
=> recommended COYU take this into account
 - example 2: depending on technical conditions a pattern for a genotype abbc can show
3 bands (ab,bb,bc) or 5 bands (aa,ab,bb,bc,cc)
=> with different bands we want to be sure that the two patterns are declared as identical for the genotype abbc.

What to do know?

- BMT: think, evaluate, listen => choose proposals
- TWC:
 - interest and limits of dendrograms?
 - use of Analysis of MOlecular VAriance?
 - next meeting HANNOVER june 1996
 - Van Eeuwijk (Assinsel ED tomato) present

BMT Wageningen 20/09/95

BMT is NEW and DIFFERENT

- Usually
 - character by character with Distinctness and Uniformity clearly linked
- BMT
 - Multidimensional approach for essential derivation, will it be used for dist+unif?
- Image Analysis between BMT and classical
 - IA= new technique to substitute in a situation
 - BMT= additional information, for which cases?