UPOV

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ADDENDUM TO COMPILATION OF EXPLANATIONS ON METHODS FOR PRODUCING VARIETIES DESCRIPTIONS FOR MEASURED CHARACTERISTICS, AND CLARIFICATION OF DIFFERENCES

prepared by an expert from the United Kingdom

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The Annex to this document contains a copy of a presentation on "Compilation of explanations on methods for producing varieties descriptions for measured characteristics, and clarification of differences", made at the thirty-sixth session of the Technical Working Party on Automation and Computer Programs (TWC).

[Annex follows]

ANNEX

COMPILATION OF EXPLANATIONS ON METHODS FOR PRODUCING VARIETIES DESCRIPTIONS FOR MEASURED CHARACTERISTICS, AND CLARIFICATION OF DIFFERENCES

Presentation prepared by an expert from the United Kingdom

Compilation of explanations of methods for producing variety descriptions for measured characteristics

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Background

35th TWC considered explanations of methods to transform measurements into notes for quantitative characteristics

- 2 methods from France (TWP/1/15, Annex III)
- 1 method from Japan (TWC/35/12)
- 2 methods from UK (TWC/35/15)

The methods were compared in TWC/35/9
(Practical Exercise Results)

TWC requested a document compiling the explanations using the same format and clarifying the differences (& heed to TWC/35/5)
…

Why the methods are needed?

In general, for measured quantitative characteristics that vary within varieties, distinctness is by comparing variety means (statistical analysis over years/growing cycles)

Data are quantitative, so the variety means also are quantitative, eg measured in mm, ie not on 0 - 9 scale

To get variety descriptions, the variety means must be converted (transformed) into notes – different methods used…

The methods

- Method explanations are in Annex I-III of TWC/36/2
- Summary

COUNTRY		Method : description	Example varieties	Crop expert judgment	Equal-spaced state
France	1	Combined use of example varieties and reference collection	x	x	
	2	Adjusted means from COY program + linear regression method calibrated with example varieties	x	x	
Italy#		Average range of historical means + median used as "reference point" + partitioning into equal spaced states + calibration with crop expert judgment and example varieties	x	x	x
Germany*		Adjusted mean from COY program + partitioning based on example varieties and crop expert judgment	x	x	
Japan		Adjusted Full Assessment Table (FAT) : states determined with historical data of example varieties	x		x
UK	1	Range of expression of the over-year means for the reference collection varieties (for the past 10 years) divided into equal spaced states			x
	2	Crop experts define delineating varieties, in conjunction with example varieties, whose over-year means are used to delineate each state	x	x	

For all methods:-

Objective is to transform candidate variety means to notes for a characteristic

Done by:-

- Calculate the range of expression
- Divide the range into states (each state relates to a note)
  ie calculate the characteristic values equivalent to the limits of the states (notes)
- Compare each candidate variety's mean with these limits and decide on the candidate variety's note

The methods differ by:-

- The numbers of varieties and years used in the calculations and when subdividing the range of expression…
- How the limits are calculated…

The aim of all methods…

Is to produce notes for a candidate variety that don't change over time relative to the notes of other varieties

As methods are used on crops and characteristics where varieties produce different values over years and locations (GEI), so…

- use one permanent location as official DUS test location
- use means over several years, ie for
  - means used to calculate & divide the range of expression
  - the candidate means

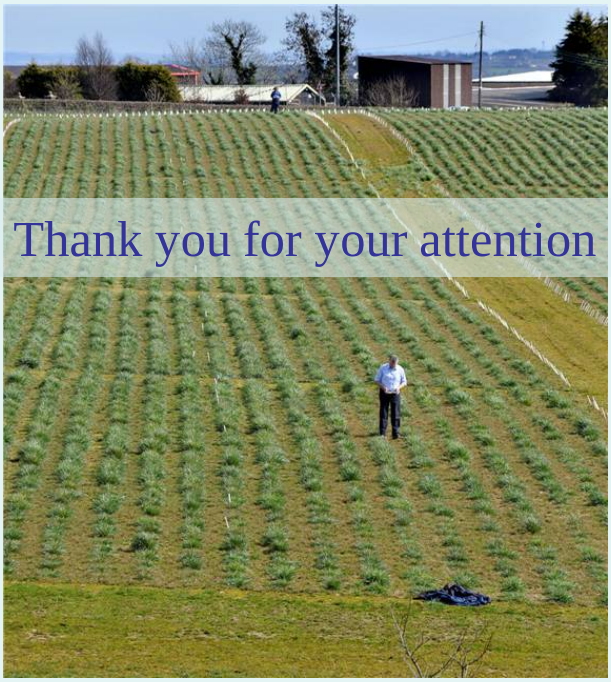
Also, can adjust for year effects – ie more comparable.

- More years gives less GEI effect, so the candidate variety's note is less likely to change over time relative to the notes of other varieties

The numbers of varieties and years used in calculations, and how the limits are calculated…

COUNTRY & Method		Calculations (range of expression of the characteristic, and the characteristic values equivalent to the limits of the states/notes) are based on	Number of years the candidate variety's mean is based on
France	1	Range and limits based on current-year means of all reference varieties given each note in the previous year	current year
	2	Range based on 5-year means for a set of example varieties. Limits based on coefficients of regression of their notes on these.	2 (3?) years
Japan		Range based on 10-year means of example varieties. Limits adjusted proportional to the current year mean of an example variety relative to its 10 year mean	current year
UK	1	Range and limits based on means over any years where reference varieties have been tested	2 (3?) years
	2	Range and limits based on 10-year means of (delineating) reference varieties	2 or 3 years

Country & Method	Equation for the characteristic value U_i equivalent to the upper limit of state/note *i*	
France 1	$U_i = \frac{\bar{x}_{i,n-1}}{2} + \frac{\bar{x}_{i+1,n-1}}{2}$	Where $\bar{x}_{i,n-1}$ is the current-year mean of all reference varieties given note *i* the previous year
France 2	$U_i = \frac{i + \frac{1}{2} - \hat{a}}{\hat{b}}$	Where $\hat{a}$ is the intercept from the regression of notes for a set of example varieties on their 5-year means And $\hat{b}$ is the slope from the regression of notes for a set of example varieties on their 5-year means
Japan	$U_i = U_{i.} \times \frac{\bar{x}_{A,n}}{\bar{\bar{x}}_A}$	Where $U_{i.}$ is the characteristic value equivalent to the upper limit of state/note *i* in the fundamental assessment table (FAT) And $\bar{x}_{A,n}$ is the current year mean of example variety A And $\bar{\bar{x}}_A$ is the 10 year mean of example variety A
UK 1	$U_i = \bar{x}_{min} + \frac{i \times (\bar{x}_{max} - \bar{x}_{min})}{N}$	Where $\bar{x}_{max}$ is the maximum over year reference variety mean And $\bar{x}_{min}$ is the minimum over year reference variety mean And N is the number of notes
UK 2	$U_i = \bar{x}_i$	Where $\bar{x}_i$ is the 10-year mean of the delineating reference variety for note *i*



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