

CRA SCS - Council for Agricultural Research



# Guidance for Development of Varieties Descriptions

The Italian experience

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# Method:

## Progressive partitioning of expression range into states

(Turfgrass and Forage varieties)



# The Italian experience



This presentation is based on our experience that is in progress.

At present this method is used together with the previous one based on experience and example varieties.



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# Total Range of Expression

The total range of expression of a quantitative characteristic includes the range of values seen during past trials.

It is the difference between the largest and the smallest item in past data and it gives the possibility of knowing the dispersion of observations.

Historical data do not cover all the possible range and different phenological characteristics could be expected in the future.

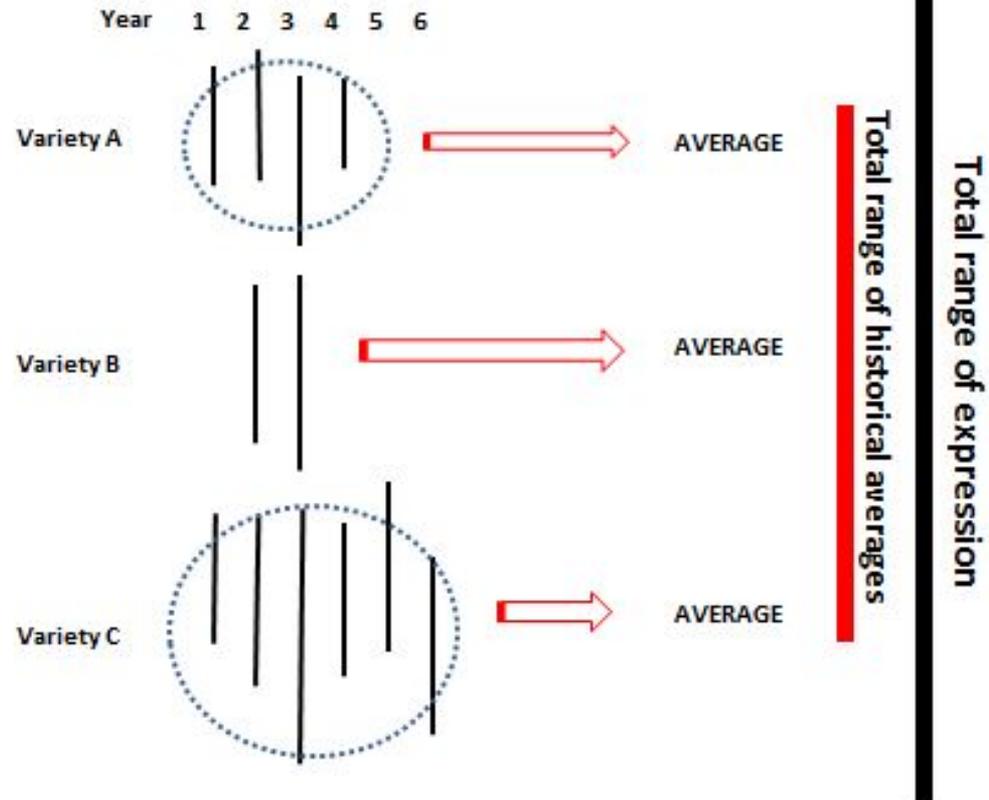
# Total range of historical averages

Reference and candidates varieties can be tested over two or more years, producing two or more means.

Because each variety must contribute equally only the average of its past means must be used.

Range of historical averages covers the mid part of total range of expression. Using averages is easier than using a large amount of data.

# Total range: equal contribution of each variety



# Total range: future expansion

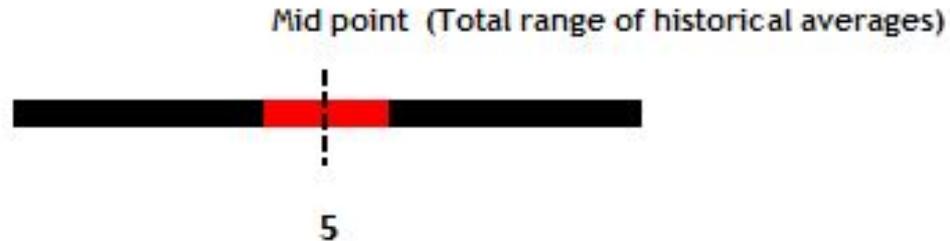
The partitioning into notes of the total expression range, calculated from historical data, is in accord with leaving free space to extremes of the range for a possible future expansion because of breeding progress.



# Mid reference

The midpoint of total range of historical averages for each characteristic is considered a good reference for the purpose of dividing all the range.

Midpoint of note 5 coincides with midpoint of historical averages range.



In case of strong skewness median use might be better than average use.

# Partitioning of total expression range into notes



The goal of the method is to divide the total range into spaces of equal width (notes).

The first step is the division of total range calculated into notes; it is an arbitrary choice since the operation can lead to different intervals (3 notes ... 9 notes).



# Basic rules to divide total range into notes

- Midpoint (note 5)
- Equal spaces for each note
- Notes for possible future expansion
- (Past varietal descriptions and example varieties)

Problem: how to calculate width of notes  
(experience)

# Transformation of varieties means into notes

For each quantitative characteristic the average of past trials means of each variety is transformed into note in accord with values that limit each note.

5	18,0 cm
	20,9 cm



**Candidate variety  
19,2 cm.**

# Example of equal contribution of CEBIOS variety

## Ryegrass

(UPOV car. 14 - Flag length)

(Trials Data 2009-2013)

Variety	Trial plants	Year	Mean (cm)
CEBIOS	80	2009	22,6
CEBIOS	80	2010	22,0
CEBIOS	80	2011	17,6
CEBIOS	80	2012	21,6
CEBIOS	80	2013	24,4

Average 21,6



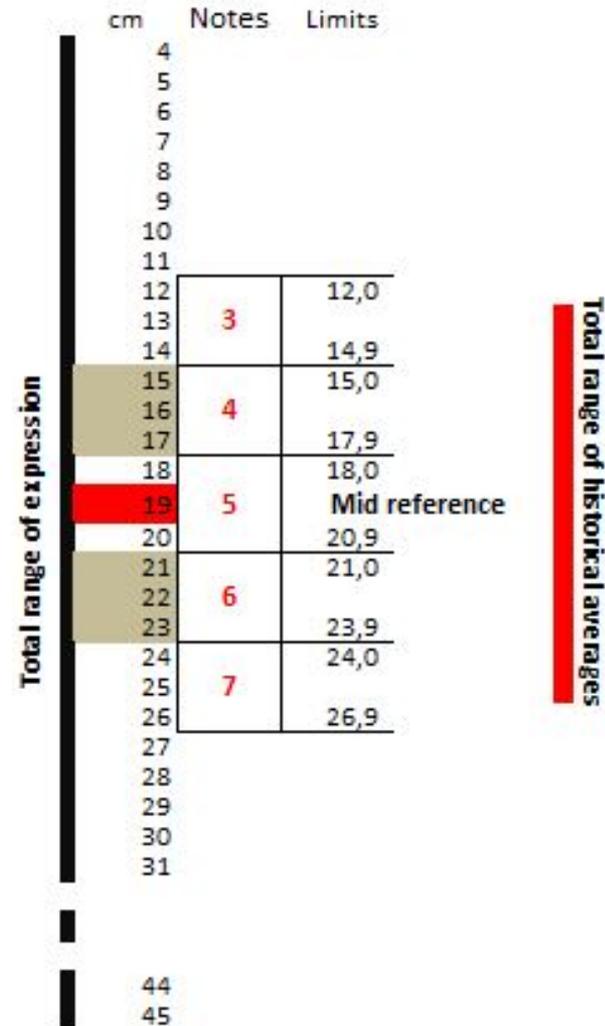
Equal contribution to total range of historical averages

# Example of partitioning of total range of historical averages into notes

## Ryegrass

(UPOV car. 14 - Flag length)

(Trials Data 2009-2013)



# Example of transformation of varieties means into notes

## Ryegrass

(UPOV car. 14 - Flag length)

(Trials Data 2009-2013)

RYEGRASS: Car. 14: Flag length

Type	Variety	Averages of 2 or more years	Note
LMW	SARLT	13,9	3
LMW	NUSPRINT	14,4	3
LMW	GREENLINK	15,1	4
LMW	FLYING A	16,7	4
LM	ALTAIR	17,2	4
LM	NIBBIO	17,4	4
LM	CERTO	18,0	5
LMW	LIFLORIA (F)	18,5	5
LMW	DIAMOND D	18,5	5
LMW	ESMERALDA	18,5	5
LM	KARTETRA	19,1	5
LM	GALACTICO	19,1	5
• LM	OCALA	19,2	5
LMW	TAMTBO	19,6	5
LM	DAYTONA	21,1	6
LM	CEBIOS	21,6	6
• LMW	DS MARINA	21,6	6
LMW	TAURO	22,5	6
• LMW	ATTAIN	22,7	6
LM	BARMULTRA	23,7	6
• LM	JUNGLE	24,5	7

• new entries

LM Italian ryegrass

LMW Westerwolds ryegrass

# Update of total range

The total range of expression and the total range of historical averages could be updated (for example every “n” years).

In this case the mid reference (midpoint) and some varietal descriptions could change slightly.