

**TWA/34/13 Add.****ORIGINAL:** English**DATE:** November 18, 2005

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**TECHNICAL WORKING PARTY
FOR
AGRICULTURAL CROPS**

**Thirty-Fourth Session
Christchurch, New Zealand, October 31 to November 4, 2005**

ADDENDUM TO DOCUMENT TWA/34/13

PROJECT TO CONSIDER THE PUBLICATION OF VARIETY DESCRIPTIONS:
BARLEY

Document prepared by the Office of the Union

At the thirty-fourth session of the Technical Working Party for Agricultural Crops held in Christchurch, New Zealand, from October 31 to November 4, 2005, Mr. Gerhard Deneken (Denmark), Coordinator for the Model Study for Barley, made a presentation concerning the Model Study for Barley, as reported in document TWA/34/13. A copy of that presentation is presented as an Annex to this document.

[Annex follows]

Harmonisation of Descriptions of Barley Varieties Summary/conclusions



- 12 characteristics from TG/19/10 are considered to be harmonised.
- 5 of 18 asterisk characteristics are considered to be non harmonised.
 - maintenance of example varieties
 - routinely ring tests between testing offices
- Potential of the discriminative power depends on
 - the selected characteristics and
 - the estimated minimum distance.
 - A reduction of the minimum distance increases the discriminative power, but also increases the chance of declaring a variety distinct against itself.
- Using the grouping characteristics eliminate approximately 58% of all unnecessary variety comparisons.

Example of Harmonisation Evaluation Selected characteristics of Meltan



char_no	CHAR_TYPE	CHAR_TXT	var_id	prov_disc	Stage of expression									freq_notes	range	std
					1	2	3	4	5	6	7	8	9			
1	*-g	PQ Plant: growth habit	MELTAN	6			1	1	3	1				4	4	1,03
2	*	QL Lowestleaves: hairiness of leafsheaths	MELTAN	5	5								5	2	5	1,63
3	*	QL Flag leaf: anthocyanin coloration of auricles	MELTAN	6									5	2	5	1,63
4	*	PQ Flag leaf: intensity of anthocyanin coloration of auricles	MELTAN	6						1	2	2	1	4	4	1,05
5	PQ	Plant: frequency of plants with recurved flag leaves	MELTAN	5	1				1		3			3	7	2,61
6	PQ	Flag leaf: glaucosity of sheath	MELTAN	6							4	2		2	2	0,52
7	*	QN Time of ear emergence (first spikelet visible on 50% of ears)	MELTAN	6		1	1	2		2				4	5	1,6
8	*-g	QL Awns: anthocyanin coloration of tips	MELTAN	6									6	1	1	0
9	*	PQ Awns: intensity of anthocyanin coloration of tips	MELTAN	6			1		3	2				3	4	1,1
10	*	PQ Ear: glaucosity	MELTAN	6					5	1				2	2	0,41
11	PQ	Ear: attitude	MELTAN	6		1	3	1	1					4	4	1,03
12	*	QN Plant: length (stem, ear and awns)	MELTAN	5	1	1	1		2					4	5	1,79
13	*-g	QL Ear: number of rows	MELTAN	6	6									1	1	0
14	PQ	Ear: shape	MELTAN	4					3					2	4	1,5
													total 2871 records			

Harmonised recordings



char_no	Char_type	CHAR_TXT	no_var	recordings	avg_freq in notes	avg_range	avg_std
2	g	QL Lowest leaves: hairiness of leaf sheaths	100	331	1,00	1	0
13	g	QL Ear: number of rows	100	408	1,00	1	0
27	g	PQ Grain: disposition of lodicules	99	328	1,02	1	0
22	g	QL Grain: rachilla hair type	100	396	1,03	1	0
29	g	PQ Seasonal type	100	391	1,03	1	0
26	g	QL Grain: hairiness of ventral furrow Median spikelet: length of glume and its awn relative to grain	100	395	1,02	1,2	0,1
21	g	PQ Flag leaf: anthocyanin coloration of auricles	99	358	1,22	1,3	0,1
3	g	QL Awns: anthocyanin coloration of tips	100	412	1,07	1,5	0,3
8	g	QL Sterile spikelet: attitude (in mid-third of ear)	100	403	1,08	1,6	0,3
20	g	PQ Kernel: colour of aleurone layer	89	348	1,64	1,6	0,3
28	g	PQ Grain: husk	100	393	1,43	1,8	0,4
23	g	QL	100	403	1,17	1,9	0,4

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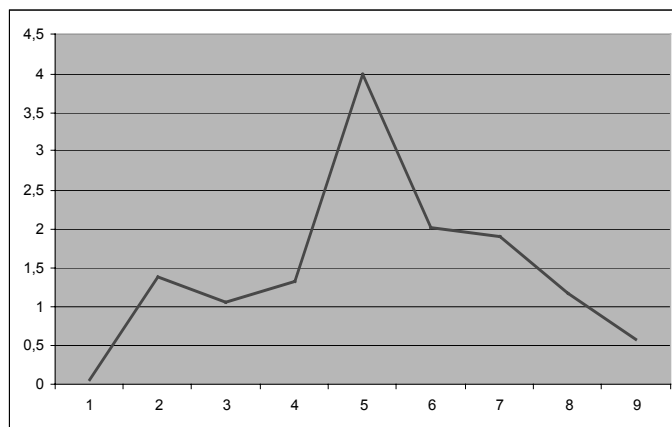
Acceptable Harmonised Recordings



char_no	CHAR_type	CHAR_TXT	no_var	recordings	Avg notes	avg_range	avg_std
		Grain: spiculation of inner lateral nerves of					
25	PQ	dorsal side of lemma	100	385	1,65	2,3	0,6
6	PQ	Flag leaf: glaucosity of sheath Time of ear emergence (first spikelet visible)	100	402	2,22	2,5	0,7
7	QN	on 50% of ears)	100	387	2,28	2,5	0,7
18	PQ	Rachis: length of first segment	99	328	1,97	2,3	0,7
1	PQ	Plant: growth habit	100	407	2,30	2,5	0,7
15	PQ	Ear: density	100	398	2,24	2,5	0,7
16	QN	Ear: length (excluding awns)	100	341	2,11	2,4	0,7
14	PQ	Ear: shape	100	345	1,79	2,4	0,8

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Average standard deviation between descriptions of characteristic 25 'Grain: spiculation of inner lateral nerves of dorsal side of lemma



Acceptable Harmonised Recordings



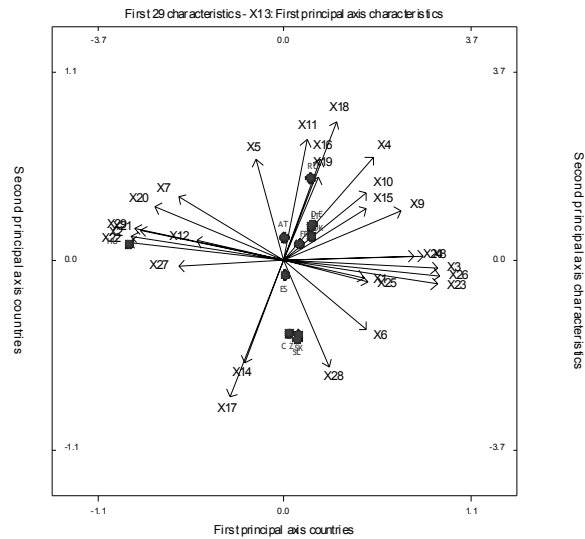
char_no	CHAR_type	CHAR_TXT	no_var	recordings	Avg notes	avg_range	avg_std
Grain: spiculation of inner lateral nerves of							
25	PQ	dorsal side of lemma	100	385	1,65	2,3	0,6
6	PQ	Flag leaf: glaucosity of sheath	100	402	2,22	2,5	0,7
Time of ear emergence (first spikelet visible)							
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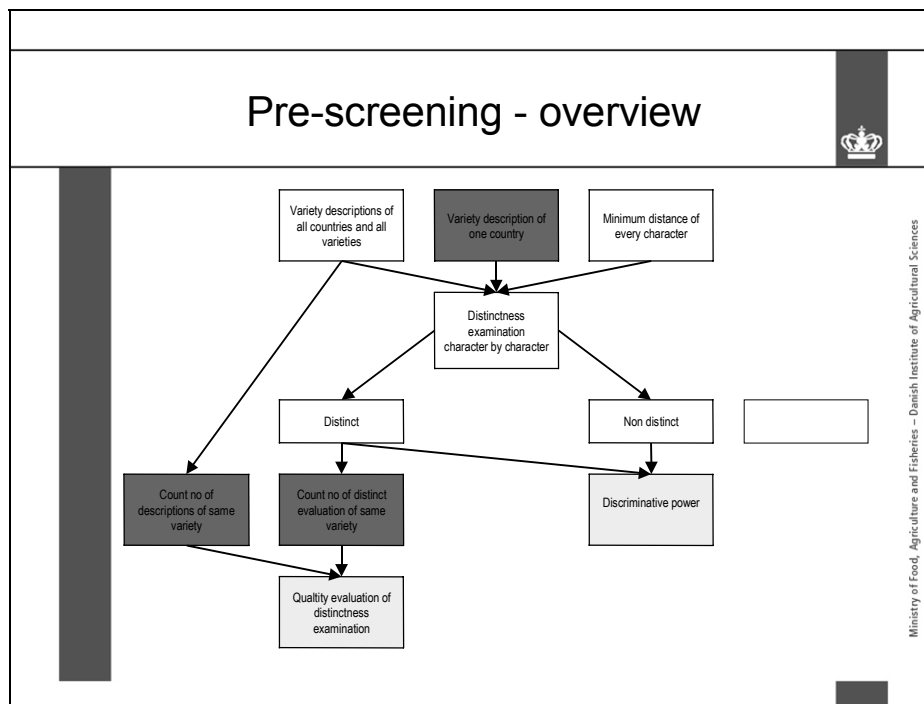
No Harmonised Recordings



char_no	CHAR_type	CHAR_TXT	no_year	recordings	avg_notes	avg_range	avg_std
12	QN	Plant: length (stem, ear and awns) Flag leaf: intensity of anthocyanin	100	354	2,31	2,7	0,9
4	PQ	coloration of auricles	93	370	2,42	2,9	0,9
19	PQ	Rachis: curvature of first segment Grain: anthocyanin coloration of nerves of	99	325	2,17	2,7	0,9
24	PQ	lemma	100	388	2,56	3,1	1
10	PQ	Ear: glaucosity Awns: intensity of anthocyanin coloration	100	405	2,57	3,3	1,1
9	PQ	of tips Plant: frequency of plants with recurved	93	369	2,77	3,6	1,3
5	PQ	flag leaves	100	381	2,68	3,8	1,4
17	QN	Awn: length (compared to ear)	100	395	2,69	3,9	1,4
11	PQ	Ear: attitude	100	402	2,79	4	1,4

Variation between countries and characteristics

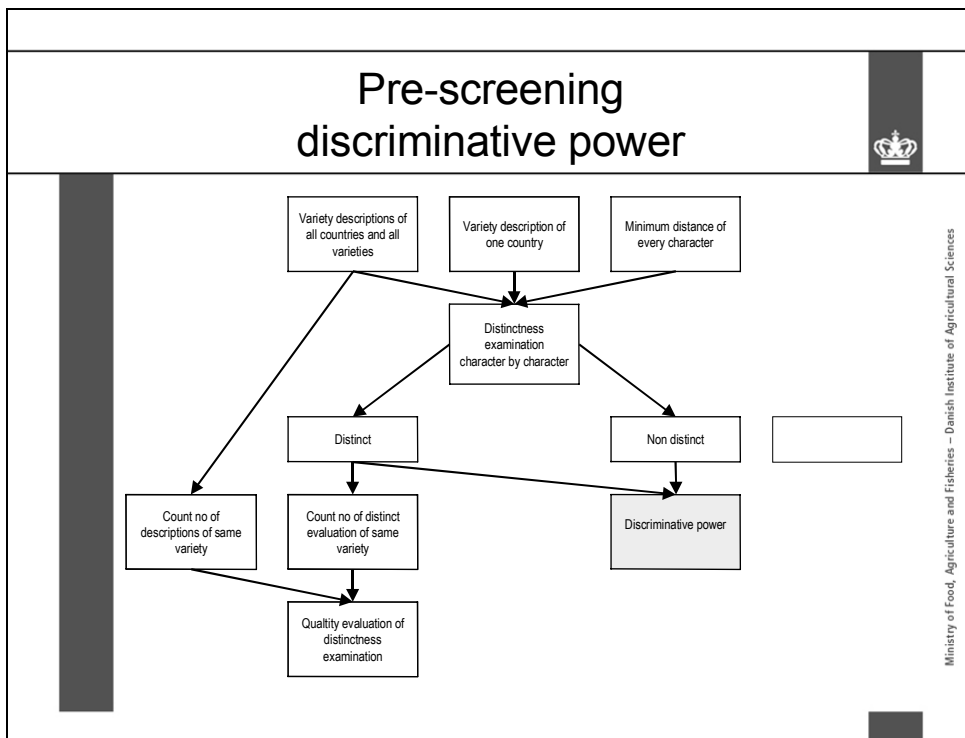




Pre-screening – example acceptable harmonised characteristics

No	Characteristic	Scale	Type	MD level 1	MD level 2
1	Plant: growth habit	1-9	* PQ	3	4
6	Flag leaf: glaucosity of sheath	1-9	PQ	2,5	3,5
7	Time of ear emergence (first spikelet visible on 50% of ears)	1-9	* QN	2	2,5
14	Ear: shape	1-9	PQ	2,5	3,5
15	Ear: density	1-9	* PQ	2,5	3,5
16	Ear: length (excluding awns)	1-9	QN	3	3,5
18	Rachis: length of first segment	1-9	PQ	2,5	3,5
25	Grain: spiculation of inner lateral nerves of dorsal side of lemma	1-9	PQ	2,5	3,5

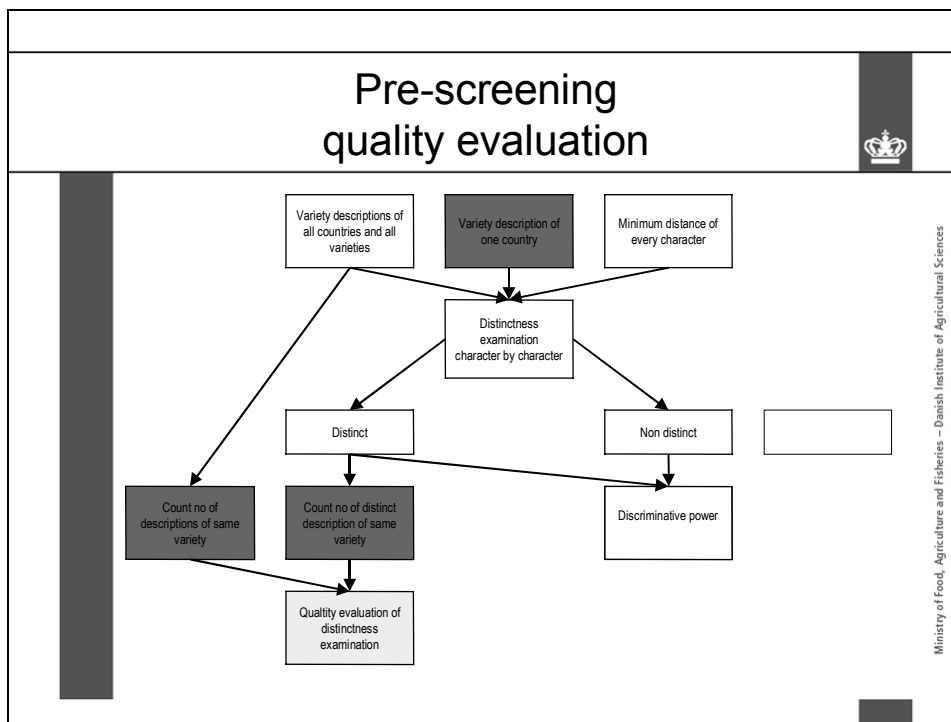
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Distinctness evaluation - Apex

no	characteristic	CZ	DE	DK	ES	EST	HR	SK	MD
15	Ear: density		6	4	5	5	4		2.50
16	Ear: length (excluding awns)		5	5	4	6			3.00
18	Rachis: length of first segment			5	3	4	5		2.50
20	Sterile spikelet: attitude (in mid-third of ear)		2	3	2	3	3	3	1.10
23	Grain: husk	9	9	9	3	9	9		8.00
25	Grain: spiculation of inner lateral nerves of dorsal side		1	1	1	8	1		2.50
26	Grain: hairiness of ventral furrow		1	1	1	1	1		8.00
29	Seasonal type	3	3	3	3	3	3		0.90

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Discriminative power of morphological descriptions from different sources

	% distinct	% mistakes
Grouping	58	6
Harmonised - level 2 of min distance	65	13
Harmonised - level 1 of min distance	65	13
Asterix - level 2	68	11
Harmonised and acceptable harmonised 2-level of min distance	73	19
All characteristics - level 2 of min distance	74	19
Asterix - level 1	81	25
Harmonised and acceptable harmonised - level 1 of min distance	82	29
All characteristics - level 1 of min distance	87	34

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- 12 characteristics from TG/19/10 are considered to be harmonised.
- 5 of 18 asterix characteristics are considered to be non harmonised.
 - maintenance of example varieties
 - routinely ring tests between testing offices
- Potential of the discriminative power depends on
 - the selected characteristics and
 - the estimated minimum distance.
 - A reduction of the minimum distance increases the discriminative power, but also increases the chance of declaring a variety distinct against itself.
- Using the grouping characteristics eliminate approximately 58% of all unnecessary variety comparisons.

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