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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY
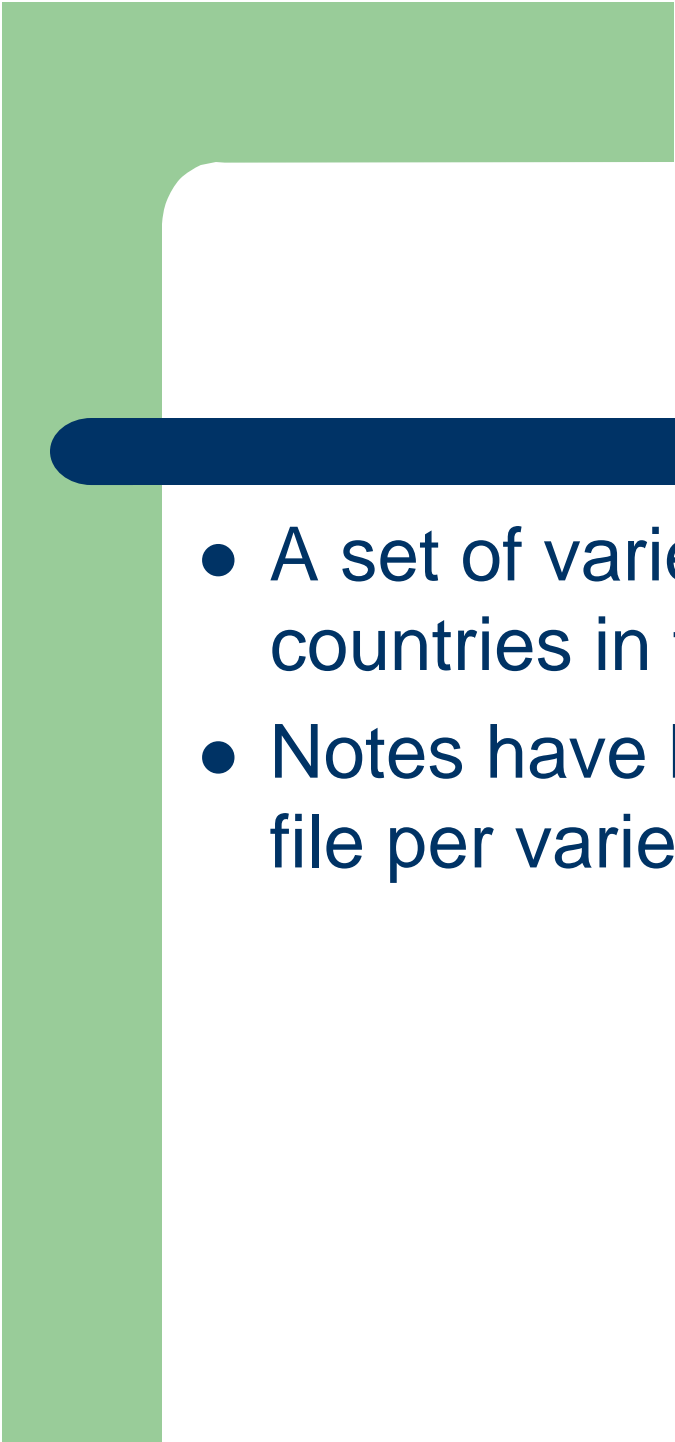# ON
AUTOMATION AND COMPUTER PROGRAMS

Twenty-Third Session
Ottawa, June 13 to 16, 2005

DESCRIPTION OF VARIETIES IN DIFFERENT UPOV COUNTRIES

Document prepared by experts from France

Description of varieties in different UPOV countries

Prepared by experts from France with data provided on barley via

J Guiard and

G Deneken

- A set of varieties has been described by 13 countries in the year 2003
- Notes have been summarised in one Word file per variety

Collection of Data on Spring Barley Varieties

VARIETY: DINARAC

No. UPOV	Characteristics (TG/19/10, 94-11-04)	BU	DE	HU	CR	DK	AT	EST	HR	YU	RO	FR	PL	CZ
(*) 1.	Plant:grow habit		4		3	4	3	-			4		3	-

Collection of Data on Spring Barley Varieties

VARIETY: DINARAC

No. UPOV	Characteristics (TG/19/10, 94-11-04)	BU	DE	HU	CR	DK	AT	EST	HR	YU	RO	FR	PL	CZ
(*) 1.	Plant:grow habit		4		3	4	3	-			4		3	-
(*) 2.	Lowest leaves: hairiness of leaf sheaths		1		1	1	1	1			1		1	
(*) 3.	Flag leaf: anthocyanin coloration of auricules		-		1	9	-	9			-		9	
(*) 4.	Flag leaf: intensity of anthocyanin coloration of auricules		-		-	8	6*	-			-		6	
5.	Plant: frequency of plants with recurved flag leaves		4		2	6	8	7			4		7	
6.	Flag leaf: glaucosity of sheath		7		6	7	6	9			9		7	
(*) 7.	Time of ear emergence (first spikelet visible on 50% of ears)		5		8	4	3	3			6		5	
(*) 8.	Awns: anthocyanin coloration of tips		-		1	9	-	-			-		9	
(*) 9.	Awns: intensity of anthocyanin coloration of tips		-		-	9	7	8			-		7	
(*) 10.	Ear: glaucosity		6		7	8	3	5			5		5	
11.	Ear: attitude		5		5	5	4	-			4		4	
(*) 12.	Plant: length (stem, ear and awns)		6		2	6	8	9			7		6	
(*) 13.	Ear: number of rows		1		1	1	1*	1			1		1	
14.	Ear:shape		5		3	5	3	-			5		5	
(*) 15.	Ear:density		4		3	4	4	-			3		4	
16.	Ear:length (excluding awns)		4		5	7	7	-			7		7	
(*) 17.	Awn: length (compared to ear)		5		7	3	5	6			7		7	
18.	Rachis: length of first segment		5		5	3	3	-			3		5	

No. UPOV	Characteristics (TG/19/10, 94-11-04)	BU	DE	HU	CR	DK	AT	EST	HR	YU	RO	FR	PL	CZ
19.	Rachis: curvature of first segment		6		5	5	5	-			7		5	-
20.	Median spikelet: length of glume and its awn relative to grain		2		3	3	-	3			-		2	
21.	Median spikelet: length of glume and its awn relative to grain		2		2	2	2	2			3		3	
22.	Grain: rachilla hair type		2		2	2	2	2			3		2	
(*) 23.	Grain: husk		9		9	9	9	9			2		9	
24.	Grain: anthocyanin coloration of nerves of lemma		7		-	3	1	7			9		3	
25.	Grain:spiculation of inner lateral nerves of dorsal side of lemma		1		1	2	1	7			6		3	
(*) 26.	Grain: hairiness of ventral furrow		1		1	1	1	1			1		1	
27.	Grain: disposition of lodicules		2		2	2	2	2			1		2	
28.	Kernel: colour of aleurone layer		1		1	1	1	1			2		1	
(*) 29.	Seasonal type		3		3	3	3	3			3		3	

All data have been entered in an Access database

Microsoft Access

Fichier Edition Affichage Insertion Format Enregistrements Outils Fenêtre ?

desc var : Base de données (format de fichier Access 2000)

notes per country : Table

name	Upov nn	character	country	note	cara
ALFA	25.	Grain:spiculation of inner lateral nerves of dors	YU	3	25
ALFA	25.	Grain:spiculation of inner lateral nerves of dors	RO	4	25
ALFA	25.	Grain:spiculation of inner lateral nerves of dors	DK	3	25
ALFA	25.	Grain:spiculation of inner lateral nerves of dors	AT	1	25
ALFA	25.	Grain:spiculation of inner lateral nerves of dors	BU	1	25
ALFA	25.	Grain:spiculation of inner lateral nerves of dors	CR	1	25
ALFA	11.	Ear: attitude	RO	3	11
ALFA	11.	Ear: attitude	CR	4	11
ALFA	11.	Ear: attitude	AT	4	11
ALFA	11.	Ear: attitude	BU	8	11
ALFA	11.	Ear: attitude	DK	6	11
ALFA	14.	Ear:shape	DK	5	14
ALFA	14.	Ear:shape	AT	3	14
ALFA	14.	Ear:shape	BU	5	14
ALFA	14.	Ear:shape	CR	5	14
ALFA	14.	Ear:shape	RO	5	14
ALFA	14.	Ear:shape	YU	5	14
ALFA	16.	Ear:length (excluding awns)	RO	6	16
ALFA	16.	Ear:length (excluding awns)	DK	7	16
ALFA	16.	Ear:length (excluding awns)	CR	3	16
ALFA	16.	Ear:length (excluding awns)	YU	7	16
ALFA	16.	Ear:length (excluding awns)	BU	7	16
ALFA	16.	Ear:length (excluding awns)	AT	8	16
ALFA	18.	Rachis: length of first segment	CR	5	18
ALFA	18.	Rachis: length of first segment	RO	7	18

Summary of dataset available

Number of variety descriptions by country and by characteristic (maximum 28 varieties)

character	*	Upov nn	AT	BU	CR	CZ	DE	DK	EE	FR	HR	PL	RO	YU	
Plant:grow habit	Y	1	22	13	26	12	24	23	11	24		23	24	23	202
Lowest leaves: hairiness of leaf sheaths	Y	2	22	13	26	12	24	23	12	24		20	24	23	200
Flag leaf: anthocyanin coloration of auricules	Y	3		13	26	12		23	12	24		22	1	21	133
Flag leaf: intensity of anthocyanin coloration of	Y	4	22	4	17	12		19	10	19		18	1	18	122
Time of ear emergence (first spikelet visible on 5	Y	7	22	1	25	12	22	22	12	1		22	20	21	159
Awns: anthocyanin coloration of tips	Y	8		13	25	12		23	11	24		23	2	22	133
Awns: intensity of anthocyanin coloration of tips	Y	9	23	11	16	12	1	17	11	19		22	3	15	135
Ear: glaucosity	Y	10	23	13	26	12	24	23	12	24		23	20	11	200
Plant: length (stem, ear and awns)	Y	12	23	13	26	12	24	23	12			23	20	12	176
Ear: number of rows	Y	13	22	13	26	12	24	23	12	24		23	20	23	199
Ear:density	Y	15	23	13	26	12	24	23	11	24		23	20	23	199
Awn: length (compared to ear)	Y	17	23	13	26	12	24	23	12	24		23	20	23	200
Median spikelet: length of glume and its awn relat	Y	20	8	8	20	9	16	16	10	1		16	14	18	118
Grain: rachilla hair type	Y	22	22	13	26	12	24	23	12	24	1	23	20	23	200
Grain: husk	Y	23	14	13	26	12	24	23	12	24	1	23	20	23	192
Grain: hairiness of ventral furrow	Y	26	21	13	25	11	23	22	11	23	1	22	18	22	190
Seasonal type	Y	29	21		12	11	23	22	11	10	1	22	11	22	144
Plant: frequency of plants with recurved flag leav	N	5	23	13	26	12	24	23	12	24		23	20	23	200
Flag leaf: glaucosity of sheath	N	6	23	13	26	12	24	23	12	24		23	20	12	200
Ear: attitude	N	11	23	13	26	12	24	23	11	24		23	20	13	199
Ear:shape	N	14	23	13	26	12	24	23	11	24		23	20	23	199
Ear:length (excluding awns)	N	16	23	13	26	12	24	23	11	24		23	20	23	199
Rachis: length of first segment	N	18	23	13	26	12	24	23	11	23		23	20	23	198
Rachis: curvature of first segment	N	19	22	13	26	12	23	23	11	24	1	23	19	23	197
Median spikelet: length of glume and its awn relat	N	21	22	13	26	12	24	23	12	23	1	23	20		199
Grain: anthocyanin coloration of nerves of lemma	N	24	19	13	13	1	24	23	12	24	1	22	20	21	172
Grain:spiculation of inner lateral nerves of dorsa	N	25	22	13	26	12	24	22	12	24	1	23	19	21	198
Grain: disposition of lodicules	N	27	21	13	25	11	23	22	11	22	1	22	18	22	189
Kernel: colour of aleurone layer	N	28	21	13	25	11	23	22	11	21	1	22	18	22	188
			576	336	697	330	586	644	331	594	10	644	492	592	

the number of data points per character is less Variable **118-202**

The number of descriptions is different from country to country **10-697**

Coloured bars in a country are the different characters

Number of varieties described in each country

Aim: Compare the description of the same variety in the different countries

- The 28 varieties are not compared, they are distinct
- Only the descriptions of the same variety coming from different countries are compared
- A couple (comparison) = comparing 2 descriptions on a given variety

	BU	DE	HU	CR	DK	AT	EST	HR	YU	RO	FR	PL	CZ
BU													
DE													
HU													
CR													
DK													
AT													
EST													
HR													
YU													
RO													
FR													
PL													
CZ													

From 2 to 29 common characters (from 29 in the list)
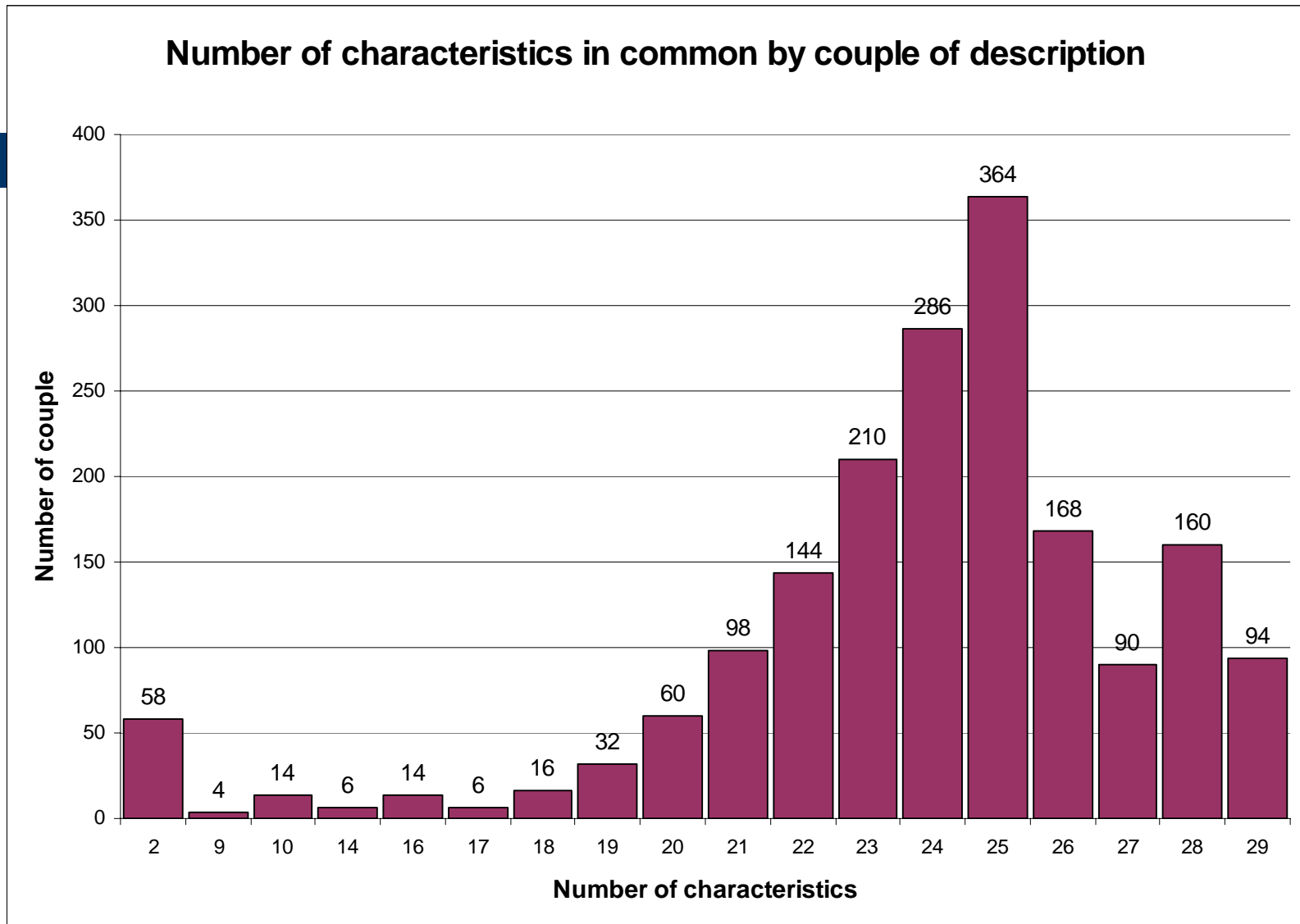
No description is identical in any couple of countries for any variety

- Data have been entered in GAIA software and the descriptions from different countries compared
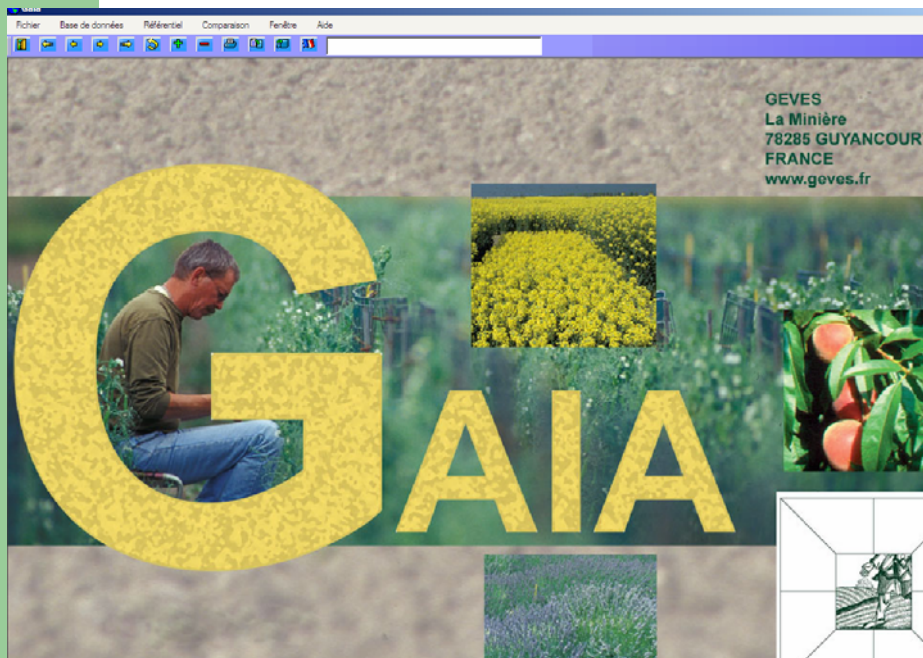
A difference on a characteristic is weighted 1

- all countries all characters

- all countries (*) characters

- DE DK FR (*) characters

A difference on a characteristic is weighted 1 if the notes differ from 2 (unless 2 notes 1-9 or 1-2)

- all countries all characters

A difference on a characteristic is weighted 1 all countries all characters

Phenotypic distances obtained for all couples of descriptions of barley after analysis by GAIA on all characteristics
(29 characteristics with a weighting of 1 for each difference observed)

D* = Gaia distinct varieties because described in only one country

| REKS |
| CRISTAL |

A difference on a characteristic is weighted 1 all countries (*) characters

Phenotypic distances obtained for all couples of descriptions of barley after analysis by GAIA on mandatory characteristics

(17 characteristics with a weighting of 1 for each difference observed)

D* = Gaia distinct varieties because described in only one country

REKS
CRISTAL

A difference on a characteristic is weighted 1 DE DK FR   (*) characters

Phenotypic distances obtained for couples of descriptions of barley (described in FR, DE and DK) after analysis by GAIA on mandatory characteristics
(17 characteristics with a weighting of 1 for each difference observed)

D* = Gaia distinct varieties because described in only one country

	reks
	cristal
	korca
	terova
	alfa

A difference on a characteristic is weighted 1 if the notes differ from 2 (unless 2 ie notes 1-9 or 1-2)

Phenotypic distances obtained for all the couples of descriptions of barley after analysis by GAIA
(29 characteristics with a weighting of 1 for a difference of 2)
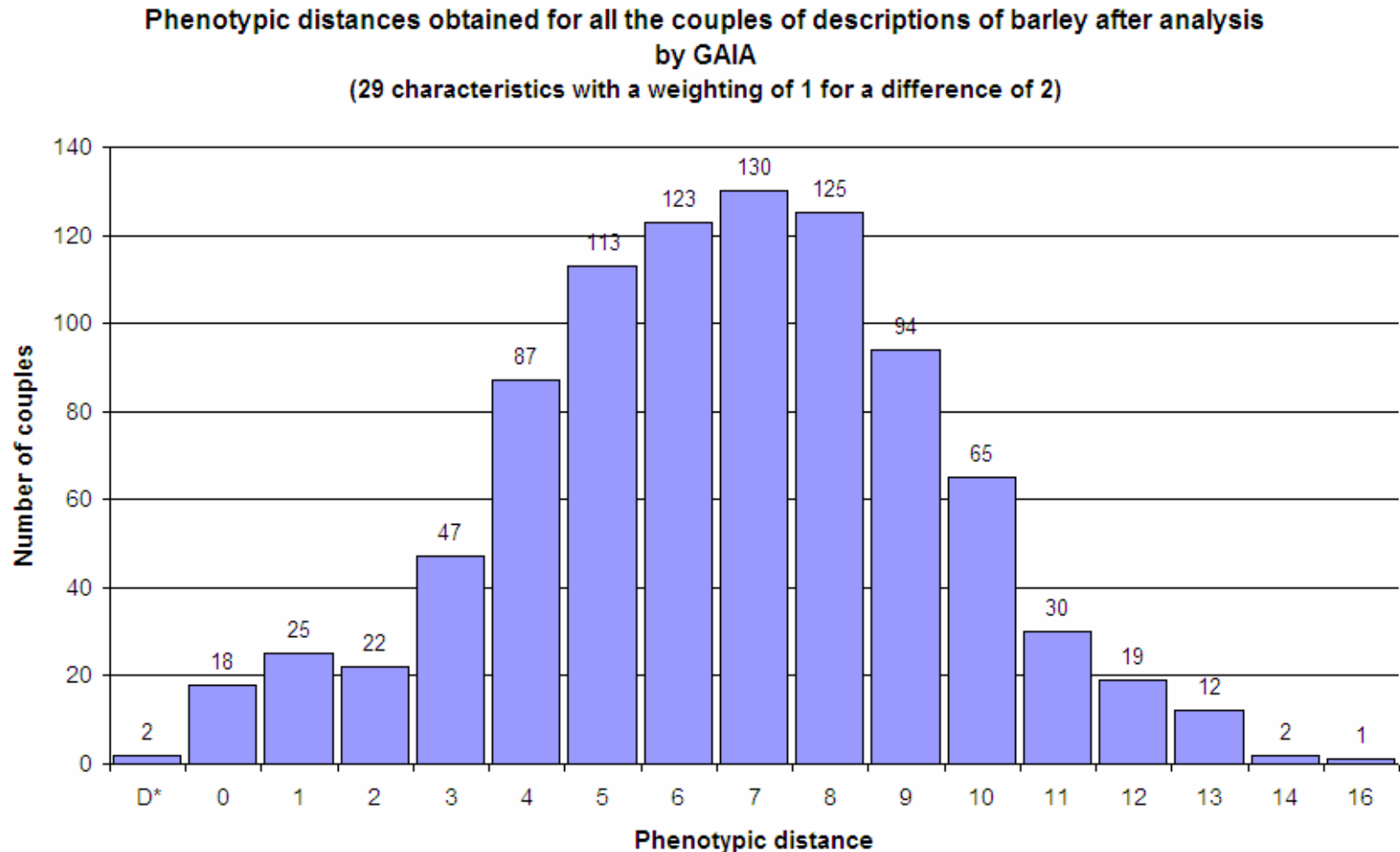
D* = Gaia distinct varieties because described in only one country

0 = no coincidence of characters, or only 1 common character

Example of useful comparison

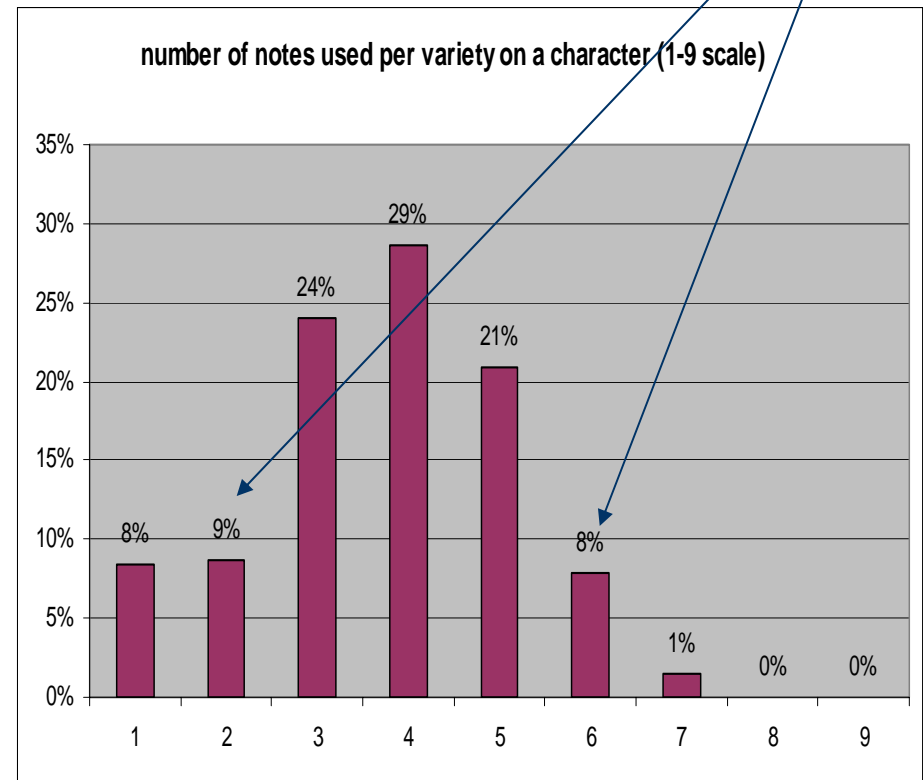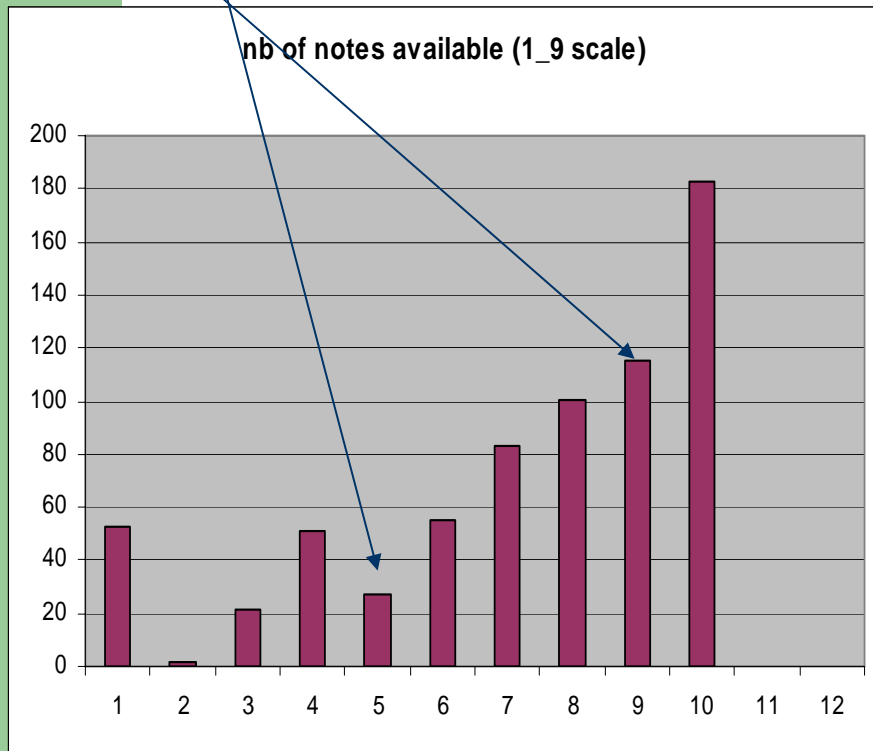## 11 characters in common, 8 <>, 3 =

Example where no comparison is possible

Variability is different on different varieties,
and also differs from character to character

	cara	name	de country	name	1	2	3	4	5	6	7	8	9
2	1	plant growth habit	5	ALFA		1	2	1	1				
3	1	plant growth habit	10	ANNABEL				1	4	3	1	1	
4	1	plant growth habit	9	ARTIST	1	1			1	3	3		
5	1	plant growth habit	10	BARKE				2	5	3			
6	1	plant growth habit	10	BINAL					9	1			
7	1	plant growth habit	9	CAMERA	2	1			2	2		1	1
8	1	plant growth habit	10	CICERO			3	1	6				
9	1	plant growth habit	1	CRISTAL				1					
10	1	plant growth habit	6	DINARAC			3	3					
11	1	plant growth habit	9	ESTEREL			2	1	5	1			
12	1	plant growth habit	10	FRAN	2	8							
13	1	plant growth habit	9	GIL			2	1	4	1	1		
14	1	plant growth habit	10	HERIS			1		5	3	1		
15	1	plant growth habit	7	JESSICA					2	1	4		
16	1	plant growth habit	9	KH AGRIA			2	1	5	1			
17	1	plant growth habit	10	KOMPAKT			2	1	5	2			
18	1	plant growth habit	4	KORCA			2		2				
19	1	plant growth habit	9	MANRICA		1			4	3	1		
20	1	plant growth habit	10	MARIA		2	6	2					
21	1	plant growth habit	10	MESSINA				1	7	2			
22	1	plant growth habit	9	NOVOSADSKI			3	1	1	2	2		
23	1	plant growth habit	9	OBZOR			1	1	1	2	4		
24	1	plant growth habit	9	ORIZONT			1	2	2	1	3		
25	1	plant growth habit	10	PRISMA			1	1	5	2	1		
26	1	plant growth habit	1	REKS					1				
27	1	plant growth habit	4	TEROVA			2		2				
28	1	plant growth habit	10	TIMOCANIN		6	3	1					
29	1	plant growth habit	6	ZLATKO			1	4	1				

Often 3 to 5 notes within the range are found for a given variety   (Characters on 1-9 scale)

5	ALFA		1	2	1	1				4
10	ANNABEL				1	4	3	1	1		5
9	ARTIST		1	1		1	3	3			5
10	BARKE				2	5	3				3
10	BINAL					9	1				2
9	CAMERA		2	1		2	2		1	1	6

nb of notes available (1_9 scale)

number of notes used per variety on a character (1-9 scale)

8%   9%   24%   29%   21%   8%   1%   0%   0%

Some notes are unexpected

				V1	V2	V3	V4	V5
13	ear number of rows	6	ALFA	6				
13	ear number of rows	10	ANNABEL	10				
13	ear number of rows	9	ARTIST	9				
13	ear number of rows	10	BARKE	10				
13	ear number of rows	10	BINAL	10				
13	ear number of rows	8	CAMERA	8				
13	ear number of rows	10	CICERO	10				
13	ear number of rows	1	CRISTAL		1			
13	ear number of rows	7	DINARAC	7				
13	ear number of rows	9	ESTEREL		9			
13	ear number of rows	10	FRAN	10				
13	ear number of rows	9	GIL		9			
13	ear number of rows	10	HERIS	10				
13	ear number of rows	7	JESSICA	6		1		
13	ear number of rows	8	KH AGRIA	8				
13	ear number of rows	10	KOMPAKT	9		1		
13	ear number of rows	4	KORCA		4			
13	ear number of rows	8	MANRICA	8				
13	ear number of rows	10	MARIA	10				
13	ear number of rows	10	MESSINA	9				1
13	ear number of rows	9	NOVOSADSKI		9			
13	ear number of rows	9	OBZOR	9				
13	ear number of rows	9	ORIZONT		9			
13	ear number of rows	10	PRISMA	9		1		
13	ear number of rows	1	REKS		1			
13	ear number of rows	4	TEROVA	4				
13	ear number of rows	10	TIMOCANIN		8	1		
13	ear number of rows	5	ZLATKO	5				

Some notes are unexpected

```
(*) 22.  Grain: rachilla hair    80-92     short          courte          kurz          Barberousse; Atem   1
    (+) type
                                  VS        long           longue          lang          Pastoral; Alexis    2

         Grain: type de pilo-
         sité de la baguette

         Korn: Behaarung der
         Basalborste
```
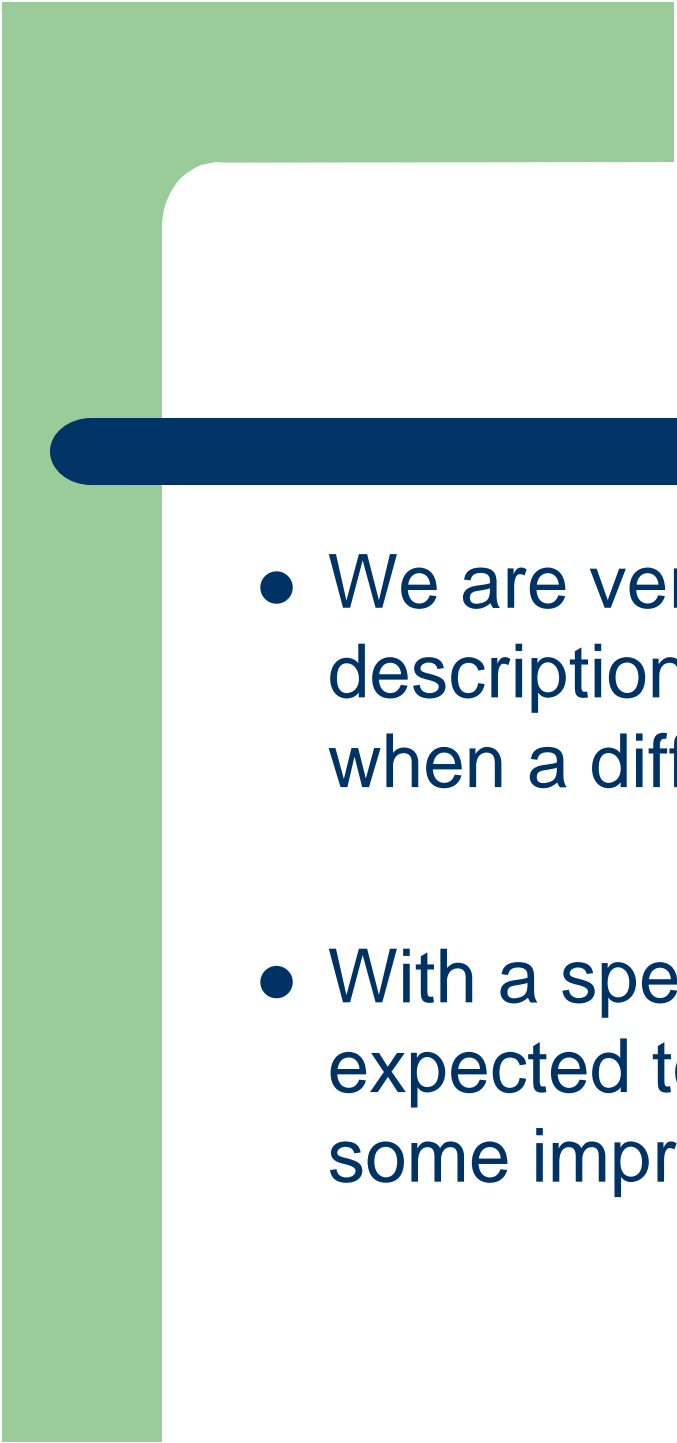
	Variety	Note	Variety	short	long			red
22	ALFA	6	ALFA		5			1
22	ANNABEL	10	ANNABEL		10			
22	ARTIST	9	ARTIST		9			
22	BARKE	10	BARKE		10			
22	BINAL	10	BINAL	2	8			
22	CAMERA	8	CAMERA	7	1			
22	CICERO	10	CICERO		10			
22	CRISTAL	1	CRISTAL					1
22	DINARAC	7	DINARAC		6	1		
22	ESTEREL	9	ESTEREL		9			
22	FRAN	10	FRAN		10			
22	GIL	9	GIL		8			1
22	HERIS	10	HERIS		10			
22	JESSICA	7	JESSICA	5	1			1
22	KH AGRIA	8	KH AGRIA		7			1
22	KOMPAKT	10	KOMPAKT		10			
22	KORCA	4	KORCA		4			
22	MANRICA	8	MANRICA		7			1
22	MARIA	10	MARIA		10			
22	MESSINA	10	MESSINA		10			
22	NOVOSADSKI	9	NOVOSADSKI		8			1
22	OBZOR	9	OBZOR		8			1
22	ORIZONT	9	ORIZONT		8			1
22	PRISMA	10	PRISMA		10			
22	REKS	1	REKS		1			
22	TEROVA	4	TEROVA		4			
22	TIMOCANIN	10	TIMOCANIN		10			
22	ZLATKO	5	ZLATKO		5			

- We are very far from equivalent descriptions in different countries, even when a difference of 2 notes is used

- With a specific exercise, the data set was expected to be good , the study suggest some improvements can be achieved