



TWC/30/6 Add.

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

**TECHNICAL WORKING PARTY ON AUTOMATION
AND COMPUTER PROGRAMS**

**Thirtieth Session
Chisinau, Republic of Moldova, June 26 to 29, 2012**

ADDENDUM

VARIETY DESCRIPTION DATABASES

Document prepared by an expert from France

The Annex to this document contains a copy of a presentation, prepared by an expert from France for the thirtieth session of the Technical Working Party on Automation and Computer Programs, concerning reference collections and grouping characteristics, using the example of Pea.

[Annex follows]



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Reference Collection and grouping characteristics

Example of the Pea species

1





Groupe d'Étude et de contrôle
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Background

Collection & Characteristics

Answer & Results

Conclusion

Monterey (USA, 2011) :

- TWV/45/24 “Partial Revision of the Test Guidelines for Pea (TG/7/10)”,
- TWV/45/6 “Variety Descriptions Databases”
- TWV/45/13 “Concept of a Database Containing Pea Variety Descriptions”

Goals :

- to define the **theoretical collection** of varieties of common knowledge
- to collect a maximum of **descriptions** of these varieties
- to define **reliable characteristics** for use as excluding characteristics

↳ = strong and discriminant characteristics

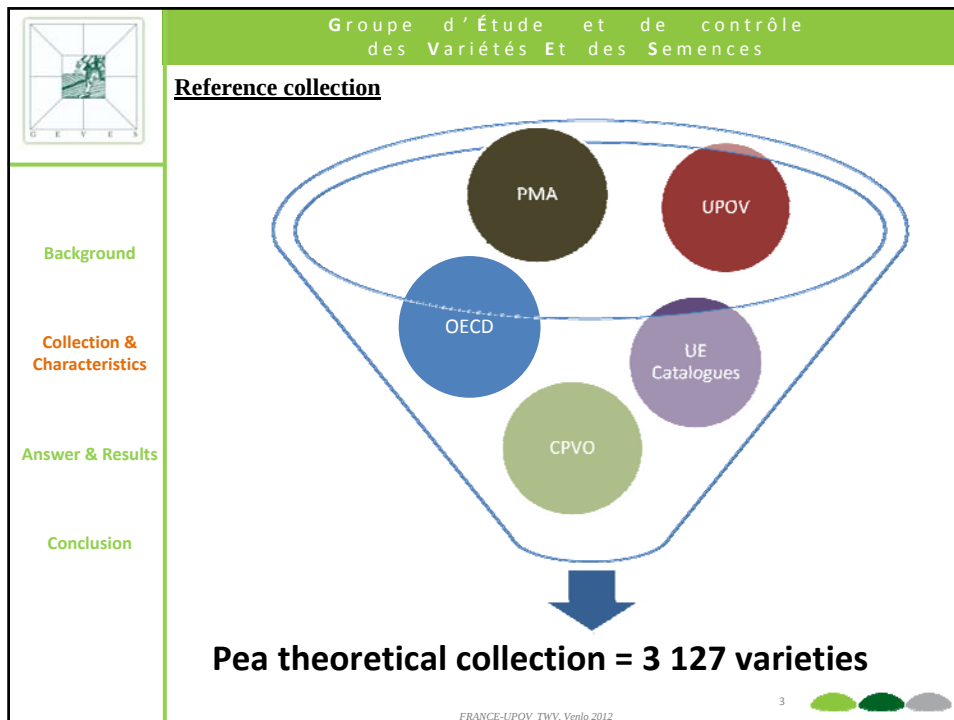
Aim : To obtain a Common Working Data Base

Helpful to use reference varieties in DUS examination.

2



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Characteristics envisaged for excluding

- Current grouping characteristics
i.e. anthocyanin coloration, number of nodes up to and including first fertile node, hilum color ...
- New potential grouping characteristics
i.e. fasciation, time of flowering, resistance...

➔ **2 excel files have sent in order to know**

Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	

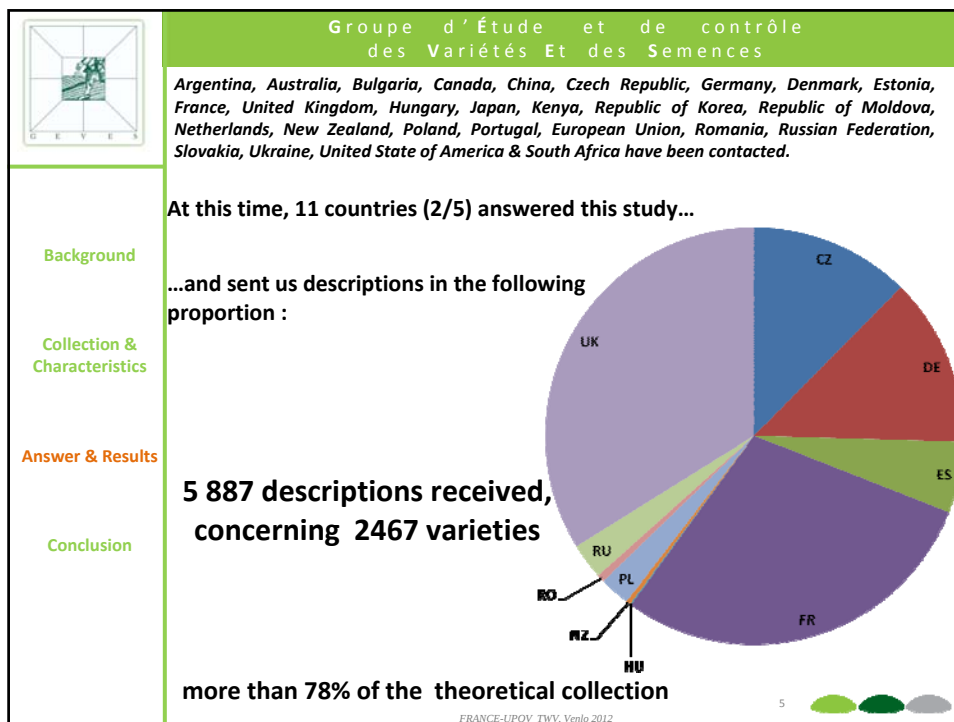
If the variety should appear in the technical collection,
If description or/and seeds are available.

Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	

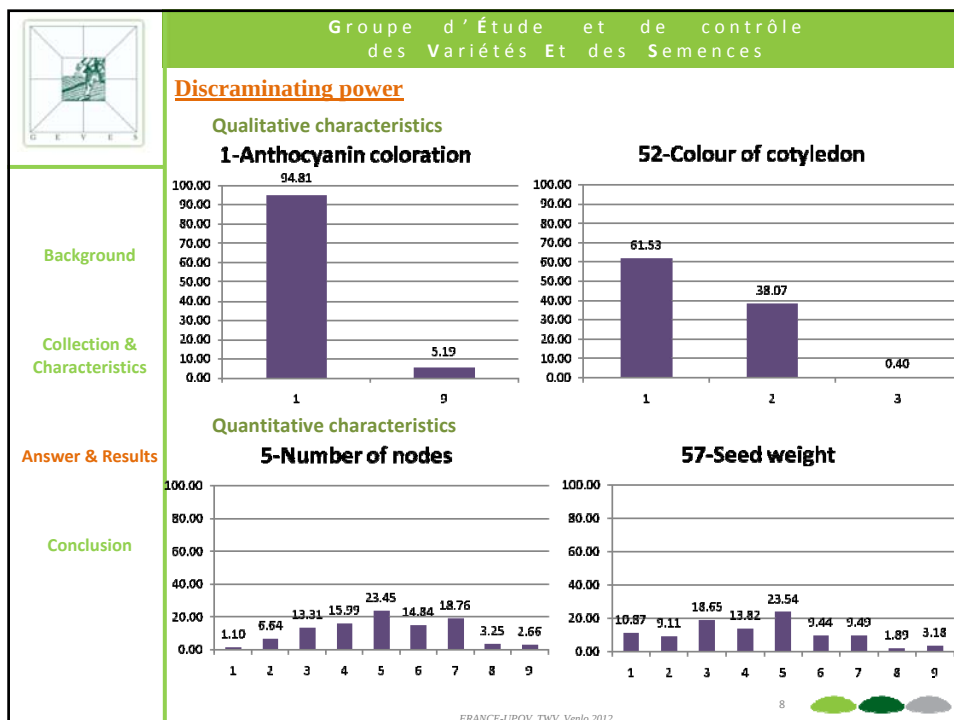
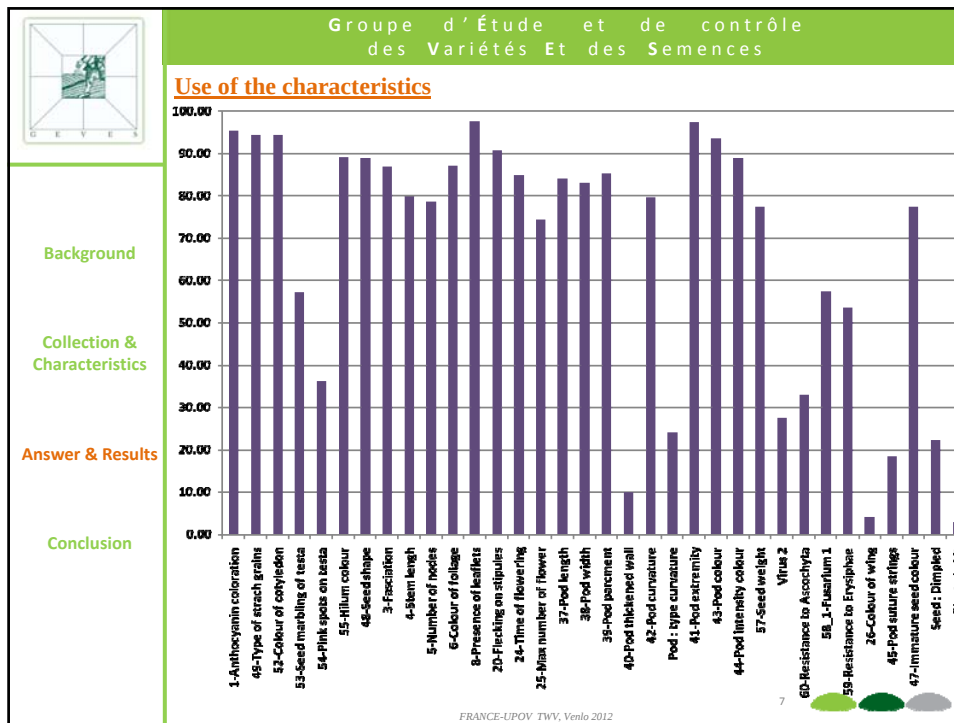
The note of each characteristic for each variety.

4

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	<u>Properties of individual characters</u>
Background	➤ Use Number of time this characterisric is described / total number of described varieties
Collection & Characteristics	➤ Discriminating power % of excluded varieties on the basis of the character
Answer & Results	➤ Distortion Number of differences between descriptions concerning the same variety
Conclusion	



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Distortion (1/2)

Analysis performed only on varieties for which we received more than one description.

Qualitative characteristic	Number of varieties with # notes	Total number of varieties	Percentage of distortion
1-Anthocyanin coloration	11	1798	0.61
52-Color of cotyledon	149	1784	8.35
8-Presence of leaflets	33	1796	1.84
41-Pod extremity	108	1784	6.05
58.1-Fusarium 1	81	1126	7.19
60-Resistance to Ascochyta	12	328	3.66

Obviously, some differences are due to errors in notes transcriptions, using wrong guidelines or observations of wrong variety.

Contact will be made to clarify some issues

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9

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Distortion (2/2)

	Quantitative characteristic	Number of varieties with # notes	Total number of varieties	Percentage of distortion	Difference between varieties		
					1 note	2 notes	3 notes
Background	5-Number of Nodes	1271	1378	92.24	900 65.31	369 26.78	93 6.75
	4-Stem length	1206	1381	87.34	805 58.29	409 29.62	174 12.60
Collection & Characteristics	42-Pod curvature	1110	1351	82.16	511 37.82	174 12.88	44 3.26
	57-Seed weight	1135	1383	82.07	660 47.72	260 18.80	92 6.65
Answer & Results	47-Immature seed color	830	1255	66.14	473 37.69	104 8.29	50 3.98
	25-Number max of flower	457	1325	34.49	164 12.38	60 4.53	31 2.34

For these continuous characteristics, special attention must be paid in term of distances between varieties

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10

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To conclude, it's possible to characterize each character to help the experts to choose the best... <i>For official grouping characters</i>			
	Use	Discriminating power	Distortion
1-Anthocyanin coloration	95.26	95/5	0.61
5-Number of nodes	78.51	54 ->4/5/6	26.78*
8-Presence of leaflets	97.50	39/61	1.84
20-Flecking on stipules	90.69	2/98	3.09
39-Pod parchment	85.17	7.5/92.5	14.04
40-Pod thickened wall	9.80	84/16	4.57
41-Pod extremity	97.21	24/76	6.05
43-Pod color	93.49	0.2/98/1	2.83
47-Immature seed color	77.36	33 ->4/5/6	8.29*
49-Type of strach grains	94.24	51/49	3.63
52-Color of cotyledon	94.36	62/38	8.35
53-Seed marbling of testa	57.09	97/3	1.16
54-Pink spots on testa	36.03	91/5/4	14.58
55-Hilum color	89.08	98/2	1.60
58_1-Fusarium 1	57.19	80/20	7.19

Background

Collection & Characteristics

Answer & Results

Conclusion

Use	Discriminating power	Distortion
>75%	< [60-40]	< 10
40%-75%	[60-40] / [80-20]	10-20
<40%	>[80-20]	>20

*2 notes
11

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<i>For candidate grouping characters</i>			
	Use	Discriminating power	Distortion
3-Fasciation	86.80	99/1	0.57
4-Stem length	79.65	49 ->4/5/6	29.62*
6-Color of foliage	86.90	2/93/5	8.07
24-Time of flowering	84.75	68 ->4/5/6	10.07*
25-Max number of flower	74.20	17 ->4/5/6	4.53*
26-Color of wing	4.09	80/20	5.43
37-Pod length	83.90	16 ->4/5/6	14.66*
38-Pod width	83.01	55 ->4/5/6	42.21*
42-Pod curvature	79.45	27 ->4/5/6	12.83*
44-Pod intensity color	88.77	46 ->4/5/6	13.80*
45-Pod suture strings	18.33	95/5	2.37
48-Seed shape	88.74	37/45/4/14	44.91
57-Seed weight	77.34	47 ->4/5/6	18.80*
59-Resistance to Erysiphe	53.47	87/13	3.39
60-Resistance to Ascochyta	32.87	80/20	3.66
Plant : habit	2.84	70 ->4/5/6	0*
Pod : type curvature	23.95	98.9/1/0.1	1.89
Seed : Dimpled	22.12	75/25	44.34
Virus 2	27.45	60/40	15.00

Background

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Use	Discriminating power	Distortion
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<40%	>[80-20]	>20

*2 notes
12

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Among 3127 varieties present in the theoretical collection, 667 ones are without description after this study :

- **103 from the EU catalogues including 48 non-withdrawn ones**
 ↳ *countries in charge of the admission should be contacted*
- **13 from CPVO**
- **415 from UPOV (PLUTO database)**
- **108 from OECD**
- **21 are EU Provisional Market Authorization**

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13




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How to go on...

What is it possible to do ?

Relation for number of nodes between UK and FR on 875 varieties ...

Number of nodes (Difference UK/FR)	Percentage of varieties
-6	0.11
-5	0.11
-4	1.03
-3	16.46
-2	49.83
-1	29.60
0	2.63
1	0.11
2	0.11

)
) 80 %
)

Except for some errors, (to be clarified), more than 80 % of the varieties have one or two notes less in UK than in FR.

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14