



PEAR
DESCRIPTORS

DESCRIPTOR LIST FOR PEAR (PYRUS)

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4. PLANT DATA

4.1 VEGETATIVE

4.1.1 *Propagation method

Suitable method(s) employed for multiplication (0 = No, + = Yes)

- 4.1.1.1 Grafting (including budding)
- 4.1.1.2 Hardwood cuttings
- 4.1.1.3 Softwood cuttings
- 4.1.1.4 Stool beds
- 4.1.1.5 Layering
- 4.1.1.6 Micropropagation
- 4.1.1.7 Seed
- 4.1.1.8 Other (specify in NOTES descriptor, 11)

4.1.2 *Chromosome number

4.2 INFLORESCENCE AND FRUIT

4.2.1 *Harvest maturity

Season mature to pick

	Reference
1Extremely early	Kruidenier, Doyennè d'Etè
2Extremely early/ early	Beurrè Giffard
3Early	Clapp's Favourite, Prècoce de Trèvoux
4Early/intermediate	Williams' Bon Chrètien
5Intermediate	Beurrè Hardy
6Intermediate/late	Conference
7Late	Anjou, Doyennè du Comice
8Late/extremely late	Comtesse de Paris
9Extremely late Passe Crassane, Kieffer	

4.2.2 *Maximum storage life

Maximum number of days storage in air under the best commercial conditions

4.2.3 Number of loculi

Typical number of loculi in core of fruit

4.2.4 Persistency of calyx

+ = Persistent in mature fruit

0 = Absent in mature fruit

x = Persistent/absent depending on environment

6. PLANT DATA

6.1 VEGETATIVE

SCIONS GRAFTED ON ROOTSTOCKS OR TREES ON THEIR OWN ROOTS

6.1.1 Tree habit (of branches)

Natural habit of an untrained, non-juvenile tree

	<u>Reference</u>
1Extremely upright	Delbias, President Heron, General Lelerc, Kieffer
3Upright	Beurré Clairgeau, Doyenné du Comice, Williams' Bon Chrétien
4Upright/spreading	Conference
5Spreading	Glou Morceau, Magness
6Spreading/drooping	Beurré Papa Lafosse
7Drooping	Beurré Alexandre Lucas, Clapp's Favourite, Mac
9Weeping	NY 4885

6.1.2 Tree vigour

Based on height and spread measurements of adult trees on their own roots, or relative to reference cultivars on the same rootstock (use reference cultivars or species on a common rootstock for each site)

	<u>Reference</u>
1Extremely weak	
3Weak	Dr. Jules Guyot
5Intermediate	Louise Bonne d'Avranches
7Vigorous	Doyenné du Comice
9Extremely vigorous	Beurré Hardy

6.1.3 Affinity to quince

Specify the quince rootstock cultivar in the NOTES descriptor 11, if it differs from descriptor 5.4.

	Reference
0 No affinity	some P. ussuriensis
1 Extremely poor	Clapp's Favourite, Gieser Wildeman, Beurré Bosc, Triomphe de Vienne, Winter Rietpeer
3 Poor	Dr. Jules Guyot, St-Rémy, Epine du Mas
5 Intermediate	Louise Bonne d'Avranches, Précoce de Trévoux, Williams' Bon Chrétien
6 Intermediate/good	Conference
7 Good	General Leclerc, Old Home
8 Good/extremely good	Curé
9 Extremely good	Passe Crassane, Beurré Hardy, Doyenné du Comice

ROOTSTOCKS AND/OR INTERSTOCKS (restricted to Pyrus)

6.1.4 Suckering tendency

The tendency of the rootstock to produce suckers (adventitious shoots) under normal field conditions

	Reference
0 Absent	
1 Extremely low	Old Home x Farmingdale
2 Extremely low/low	Williams' Bon Chrétien seedlings
3 Low	
5 Medium	
7 High	
9 Extremely high	

6.1.5 *Dwarfing

Direct growth controlling effect of the rootstock or interstock on the cultivar

	Reference
3 Invigorating	OHxF 69, OHxF 87
5 Intermediate	OHxF 51, OHxF 333
7 Dwarfing	

6.1.6 Yield efficiency

A high yield efficiency is defined as the induction in the scion of a high yield of fruit relative to the cross sectional area of the trunk

	Reference
1 Extremely poor	
3 Poor	
5 Intermediate	
7 Good	
9 Extremely good	

6.1.7 Best method of propagation

- 1 Hardwood cuttings
- 2 Softwood cuttings
- 3 Stool beds
- 4 Layering
- 5 Micropropagation
- 6 Seed
- 7 Easily propagated by more than one method (specify in the NOTES descriptor, 11)
- 8 Other (specify in the NOTES descriptor, 11)

6.1.8 *Ease of propagation

Using the method indicated above

	References
1 Extremely poor	
3 Poor	
5 Intermediate	
7 Good	
9 Extremely good	

6.1.9 Anchorage

	Reference
3 Poor	
5 Intermediate	
7 Good	

6.1.10 *Induction of precocious bearing in scions

	Reference
3 Poor	
5 Intermediate	
7 Good	

6.2 INFLORESCENCE AND FRUIT

SCIONS GRAFTED ON ROOTSTOCKS OR ON THEIR OWN ROOTS

6.2.1 Season of flowering

Date of full flower	Reference
1Extremely early	P. serrulata
2Extremely early/early	Directeur Hardy, Beurré Alexandre Lucas,
3Early	Passe Crassane, Précoce de Trévoux, Louise Bonne d'Avranches, Kieffer
5Intermediate	Conference, Williams' Bon Chrétien
7Late	Triomphe de Vienne
8Late/extremely late	Doyenné du Comice
9Extremely late	Poirier Fleurissant Tard

6.2.2 Duration of flowering

In days (average of at least 4 years)

6.2.3 Regularity of flowering

	Reference
1Extremely irregular	Gieser Wildeman
2Very irregular/irregular	Magness
3Irregular	Surecrop
5Intermediate	Louise Bonne d'Avranches, Anjou
7Regular	Conference, Williams' Bon Chrétien, Beurré Bosc
9Extremely regular	Packham's Triumph, Kieffer

6.2.4 Secondary flowering

	Reference
1Extremely rare	Beurré Hardy
2Extremely rare/rare	Conference
3Rare	Doyenné du Comice, Kieffer
6Intermediate/frequent	Williams' Bon Chrétien
7Frequent	Clapp's Favourite, Durondeau, Triomphe de Vienne, Laxton's Superb
9Extremely frequent	Passe Crassane, General Leclerc, Abbé Fétel

6.2.5 Parthenocarpic tendency

	Reference
3 Rare	Doyenné du Comice,
5 Occasionally	Williams' Bon Chrétien
7 Often	Passe Crassane, Conference, Beurré Hardy, Triomphe de Vienne
9 Always	Belle de Bruxelles, Précoce de Trévoux (4x)

6.2.6 Precocity of bearing

Precocious trees are defined as ones which start to crop at an early age relative to other varieties on the same rootstock

	Reference
1 Extremely low precocity	Doyenné du Comice, Magness
3 Low precocity	Williams' Bon Chrétien
5 Intermediate	'Mailing' Beth, Devoe
7 High precocity	Delbias, Kieffer
9 Extremely high precocity	P. calleryana

6.2.7 Cropping efficiency (Productivity)

Yield per unit area of land relative to other cultivars on the same rootstock, under the same management system and at the same site

	Reference
1 Extremely low	Magness
3 Low	Doyenné du Comice, Anjou
5 Intermediate	Williams' Bon Chrétien
7 High	Pierre Corneille, Kieffer

6.2.8 Fruit size

Average size after commercial grading of all fruits. Information on the uniformity of size can be recorded in the NOTES descriptor, 11

	Reference
1 Extremely small	P. calleryana
2 Very small	Doyenné d'Eté
3 Small	Moscatellina, Seckel
4 Small/intermediate	Tyson, Beurré Giffard
5 Intermediate	'Mailing' Beth, Clapp's Favourite
6 Intermediate/large	Conference, Anjou, Williams' Bon Chrétien

7	Large	Passe Crassane, Aurora, Merton Pride
8	Very large	Parburton, Yakimo, Pitmaston Duchess

6.2.9 Fruit attractiveness








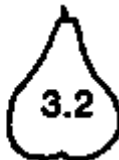




Varying between regions and between experts


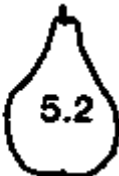

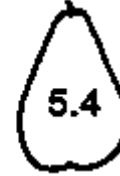

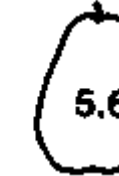

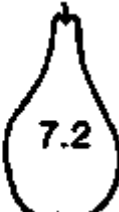
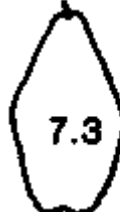
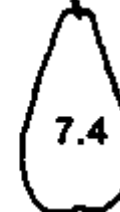
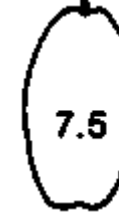
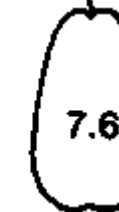
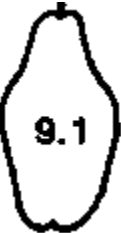
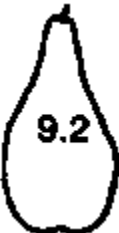
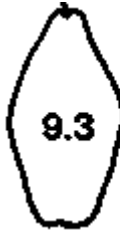
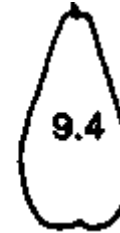
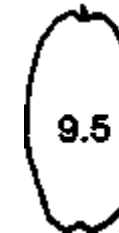
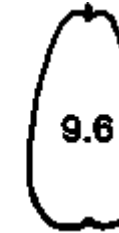
	Reference	
1	Extremely poor	Harbin
3	Poor	Old Home
5	Intermediate	Seckel
7	Good	Williams' Bon Chrétien
9	Extremely good	Devoe

6.2.10 Fruit shape

Reference varieties will vary between sites and sometimes between years. Insert the shape number from the outlines in Figure 1.

Figure 1. Fruit shape (shape/length relative to the maximum diameter and position of the maximum diameter)

Fruit length max. diameter	Relative position of the maximum diameter					
	Towards the middle of the eye		Towards the middle of the eye		Towards the middle of the eye	
very short < 1.1						
short 1.1-1.25						
intermediate 1.26-1.50						

						
elongate 1.51-1.80						
very elongate >1.80						
Profile	concave		straight		convex	

6.2.11 Length of fruit stalk

	Reference
1 Extremely short	Passe Crassane, Anjou
3 Short	Doyenné du Comice, Seckel
5 Intermediate	Williams' Bon Chrétien
7 Long	Moscatellina, Beurré Giffard
8 Long/extremely long	Beurré Bosc
9 Extremely long	P. calleryana

6.2.12 Ground colour

Ground colour of the skin of fully mature fruit

	Reference
1 Red	Red Clapp's Favourite
3 Yellow	Passe Crassane, Williams' Bon Chrétien
5 Green-yellow	Conference, Moonglow
7 Green	Anjou

6.2.13 Over colour

Over colour of the skin of fully mature fruit. Additional information can be recorded in the NOTES descriptor, 11

	<u>Reference</u>
1 Mostly absent	Moonglow
3 Pink	Williams' Bon Chrétien
5 Bright red	Red Clapp's Favourite, Devoe
7 Dark red	Max Red Bartlett

6.2.14 Russet amount

High season-to-season variability can be recorded in the NOTES descriptor, 11

	<u>Reference</u>
1 Extremely low	Moonglow, Clapp's Favourite
3 Low	Packham's Triumph
4 Low/intermediate	Williams' Bon Chrétien
5 Intermediate	Kieffer
7 High	Conference, Aurora
8 High/complete russet	Beurré Bosc
9 Complete russet	Russet Bartlett

6.2.15 Harvest maturity

Season of maturity for picking. A repeat of 4.2.1 but at a further evaluation site

	<u>Reference</u>
1 Extremely early	Doyenné d'Eté, Kruidenier
2 Extremely early/early	Précoce de Trévoux, Beurré Giffard
3 Early	Clapp's Favourite
4 Early/intermediate	Williams' Bon Chrétien,
5 Intermediate	
6 Intermediate/late	Conference
7 Late	Anjou
8 Late/extremely late	Comtesse de Paris, Doyenné du Comice
9 Extremely late	Passé Crassane, Kieffer

6.2.16 Maximum storage life

Maximum number of days storage in air under the best commercial conditions. A repeat of 4.2.2 but at a further evaluation site

6.2.17 *Eating maturity

Time fruit ripe for eating following storage in air at optimum commercial temperature, and ripened for one week at 18 degrees centigrade

	Reference
1Extremely early	4x Mirandino Rosso
2Extremely early/early	Beurré Giffard, Précoce de Trévoux
3Early	Clapp's Favourite
5Intermediate	Williams' Bon Chrétien
6Intermediate/late	Conference
7Late	Doyenné du Comice, Anjou
9Extremely late	Passe Crassane, Kieffer

6.2.18 Eating quality

Combined assessment: flavour, acidity, sweetness, aroma and astringency (at optimum eating time, if necessary following storage in air under the best commercial storage temperature). A subjective factor, also varying with site and season

	Reference
1Extremely poor	Old Home
3Poor	Kieffer
5Intermediate	Moonglow
7Good	Magness, Anjou
9Extremely good	Williams' Bon Chrétien, Doyenné du Comice

6.2.19 Breakdown rapidity

	Reference
1Extremely slow	Kieffer
3Slow	Anjou
5Intermediate	Conference
6Intermediate/fast	Williams' Bon Chrétien
7Fast	Clapp's Favourite
9Extremely fast	Beurré Giffard

6.2.20 Bruising susceptibility

Susceptibility to bruising (fully mature fruit); condition of sample in storage tray

	Reference
3Low	Passe Crassane
5Intermediate	
6Intermediate/high	Williams' Bon Chrétien
7High	Doyenné du Comice

6.2.21 Firmness

The firmness of the flesh of the fruit when ripe

	Reference
1 Extremely soft	Beurré Giffard, Doyenné du Comice
3 Soft	Aurora, Seckel
5 Intermediate	Conference, Williams' Bon Chrétien
7 Firm	Anjou
9 Extremely firm	Kieffer

6.2.22 Texture

The texture of the flesh of the fruit when ripe

	Reference
1 Extremely coarse	Old Home
3 Coarse	Pitmaston Duchess, Kieffer
5 Intermediate	Anjou
7 Fine	Passe Crassane, Williams' Bon Chrétien
9 Extremely fine	Doyenné du Comice, Aurora

6.2.23 Amount of grit cells

3 Low (very light)	Ananas de Courtrai, Williams' Bon Chrétien
5 Intermediate (medium)	Beurré Bosc
7 High (heavy)	Kieffer, Old Home

7. STRESS SUSCEPTIBILITY

Based on the 1-9 scale, where

- 1 Extremely low susceptibility
- 3 Low susceptibility
- 5 Medium susceptibility
- 7 High susceptibility
- 9 Extremely high susceptibility

7.1 LOW TEMPERATURE

Additional information concerning type of susceptibility can be recorded in the NOTES descriptor 11, i.e. minimum temperature without damage, differences in bud and wood susceptibility etc.

7.1.1 Low temperature - late autumn/early winter

7.1.2 Low temperature - mid-winter

	Reference
1	Harbin, John
3	Magness, Moe, Old Home
5	Williams' Bon Chrétien
7	Beurré Bosc

7.1.3 Low temperature - spring

Especially at critical stages in relation to flowering

7.2 HIGH TEMPERATURE

7.3 DROUGHT

7.4 HIGH SOIL MOISTURE

7.5 CHLOROSIS

Induced by high lime content of the soil

8. PEST AND DISEASE SUSCEPTIBILITY

Based on a 1-9 scale of general field susceptibility, where

1 Very low susceptibility

3 Low susceptibility

5 Medium susceptibility

7 High susceptibility

9 Very high susceptibility

If the race is known record in NOTES descriptor, 11

8.1 PESTS

8.1.1 Psylla pyricole pear sucker/psylla

	Reference
2	Phillips, Harbin, Taitdropmore
3	Honeysweet
5	Seckel, Sierra, Maxine, Beurré Bosc
7	Anjou, Kieffer, Magness, Williams' Bon Chrétien
9	Old Home

8.1.2 Psylla pyri pear psylla

8.1.3 Cvdi pomonella codling moth

8.1.4 Eriosoma pyricola woolly pear aphid

8.1.5 Aspidiotus perniciosus San Jose scale

8.1.6 Eriophyes pyri pear leaf blister mite

8.1.7 Pratylenchus spp. root lesion nematode

8.1.8 etc.

8.2 FUNGI

8.2.1 Fabraea maculata leaf spot

8.2.2 Venturia pirina scab

8.2.3 Nectria galligena canker

8.2.4 Phytophthora cactorum collar rot, root rot

8.2.5 etc.

8.3 BACTERIA

8.3.1 Erwinia amylovora¹ fire blight

	Reference
1	P. ussuriensis
2	Old Home
3	Kieffer
5	Anjou
7	Williams' Bon Chrétien
9	Aurora

¹The 1-9 scale corresponds to the Van der Zwet scale and the portion of the tree blighted as follows:

	Van der Zwet scale	Portion of tree blighted
1	10+9	0-3%
2	8	4-6%
3	7	7-12%
4	6	13-25%
5	5	26-50%
6	4	51-75%
7	3	76-88%
8	2	89-99%
9	1	100%

8.3.2 Pseudomonas syringae bacterial blossom blight, blossom blast

8.3.3 etc.

8.4 VIRUS AND MYCOPLASMA

8.4.1 Stony pit

8.4.2 Pear decline

8.4.3 etc.

9. ALLOENZYME COMPOSITION (and other fingerprinting methods)

These may prove to be useful tools for identifying duplicate accessions

10. CYTOLOGICAL CHARACTERS AND IDENTIFIED GENES