



**EUROPEAN UNION**

**COMMUNITY PLANT VARIETY OFFICE**

**PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS**

*Pyrus communis* (L.)

PEAR

UPOV Species Code: PYRUS\_COM

**Adopted on 27/03/2003**

## **I SUBJECT OF THE PROTOCOL**

The protocol describes the technical procedures to be followed in order to meet the Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV Guideline TG/15/3 dated 04/05/2000 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to fruit varieties of *Pyrus communis* L.

## **II SUBMISSION OF PLANT MATERIAL**

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

A sub-sample of the material submitted for test will be held in the variety collection as the definitive sample of the candidate variety.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. Immediately after the closing date for the receipt of plant material the Examination Office should inform the CPVO whether acceptable plant material has been received or not. However if unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

Survey of final dates for request for technical examination and sending of Technical Questionnaire by the CPVO as well as submission date of plant material by the applicant.

	Request of examination	Plant material	Plant material requirements
FRANCE	28/02	31/03	8 virus-tested one year-old trees grafted on Cognassier (BA29).
GERMANY	28/02	31/03	10 virus-tested one year-old trees on Quince A rootstock with Beurre Hardy interstock.
UNITED KINGDOM	28/02	31/03	10 virus-tested one year-old trees grafted on Quince A rootstock with Beurre Hardy or Comice interstock.

Quality of plants:

Should not be less than the standards laid down in Council Directives 77/93/EEC and 92/34/EEC and their implementing measures. The plant material must be free from :

**Insects, mites and nematodes at all stages of their development**

- *Anarsia lineatella*
- *Eriosoma lanigerum*
- Scale insects, in particular:  
*Epidiaspis leperii*, *Pseudaulacaspis pentagona*,  
*Quadraspidiotus perniciosus*

**Bacteria**

- *Agrobacterium tumefaciens*
- *Pseudomonas syringae* pv. *syringae*
- *Erwinia amylovora*

**Fungi**

- *Armillariella mellea*
- *Chondrostereum purpureum*
- *Nectria galligena*
- *Phytophthora* spp.
- *Rosellinia necatrix*
- *Verticillium* spp.

**Viruses and virus-like organisms**

All

Chemical treatment:

The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given.

- Labelling of individual plants in the sample :
- Species
  - File number of the application allocated by the CPVO
  - Breeder's reference
  - Examination office's reference (if known)
  - Name of applicant
  - The phrase "On request of the CPVO"

### III CONDUCT OF TESTS

#### 1. Variety collection

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a variety collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

The composition of the variety collection in each Examination Office depends on the environmental conditions in which the Examination Office is located.

Variety collections will be held under conditions which ensure the long term maintenance of each accession. It is the responsibility of Examination Offices to replace reference material which has deteriorated or become depleted. Replacement material can only be introduced if appropriate tests confirm conformity with the existing reference material. If any difficulties arise for the replacement of reference material, Examination Offices must inform the CPVO. If authentic plant material of a variety cannot be supplied to an Examination Office the variety will be removed from the variety collection.

2. Material to be examined

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties. Examination Offices should therefore make efforts to co-ordinate the work with other Offices involved in DUS testing of pear. There should be at least an exchange of technical questionnaires for each candidate variety, and during the test period, Examination Offices should notify each other and the CPVO of candidate varieties which are likely to present problems in establishing distinctness. In order to solve particular problems Examination Offices may exchange plant material.

3. Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the Annex 1. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted. In the latter case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N° 1239/95, to insert additional characteristics and their expression in respect of a variety.

4. Grouping of varieties

The varieties and candidates to be compared will be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characters used for grouping could be the following:

- a) Fruit : position of maximum diameter (characteristic 40)
- b) Fruit : size (characteristic 41)
- c) Fruit : ground colour of skin (characteristic 44)
- d) Time of beginning of flowering (characteristic 64)
- e) Time of maturity for consumption (characteristic 65)

5. Trial designs and growing conditions

The minimum duration of tests (independent growing cycles) will normally include at least two satisfactory crops of fruit. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows

Each test should be designed to result in a total of, at least, 5 trees for varieties resulting from crossing and 10 trees from varieties obtained from mutations.

In varieties resulting from crossing, unless otherwise indicated, all observations determined by measuring or counting should be made on 2 parts taken from each of 5 plants. In varieties resulting from mutation, unless otherwise indicated, all observations determined by measuring or counting should be made on 1 part taken from each of 10 plants. All observations on the fruit should be made in minimum on 10 typical fruits, selected from 5 trees.

Unless otherwise stated, all observations on the tree and on the one-year-old shoot should be made during winter on trees that have fruited at least once. The length of the internodes should be observed in the middle of the shoot.

Unless otherwise stated, all observations on the flower should be made on fully developed flowers at the beginning of anther dehiscence.

Unless otherwise stated, all observations on the leaf should be made in summer on fully developed leaves from the middle third of a well developed current season shoot.

Unless otherwise stated, all observations on the fruit should be made on fruits at the time of maturity for consumption.

6. Special tests

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

7. Standards for decisions

a) **Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation No. 2100/94.

b) **Uniformity**

A candidate will be considered to be sufficiently uniform if the number of off-types does not exceed the number of plants as indicated in the table below. A population standard of 1% and an acceptance probability of 95% should be applied.

A candidate will be considered to be sufficiently uniform if the number of off-types does not exceed the number of plants as indicated in the table below. A population standard of 1% and an acceptance probability of 95% should be applied for varieties resulting from a crossing, and a population standard of 2% with the same acceptance probability for mutants.

Table of maximum numbers of off-types allowed for uniformity standards.

Number of plants	off-types allowed
$\leq 5$	0
6-35	1

c) **Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

#### **IV REPORTING OF RESULTS**

After each recording season the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after two fruiting periods but in some cases three fruiting periods may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

#### **V LIAISON WITH THE APPLICANT**

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report as well as the final report shall be sent by the Examination Office to the CPVO.

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## ANNEXES TO FOLLOW

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## **ANNEX II**

Technical Questionnaire

## ANNEX I

### TABLE OF CHARACTERISTICS TO BE USED IN DUS-TEST AND PREPARATION OF DESCRIPTIONS

CPVO N°	UPOV N°	Characteristics	Examples	Note	
1.	1.	<b>Tree: vigour</b>	weak	Précoce de Trévoux	3
			medium	Williams' Bon Chrétien	5
			strong	Beurré d'Amanlis	7
2.	2.	<b>Tree: branching</b>	absent or very weak	Jeanne d'Arc	1
			weak	Louise Bonne d'Avranches	3
			medium	Conference, Pitmaston Duchesse d'Angoulême	5
			strong	Alexandrine Douillard, Packham's Triumph	7
			very strong	Oliver de Serres	9
3. (+)		<b>Tree: habit</b>	fastigate	Jeanne d'Arc	1
			upright	Beurré Clairgeau, Doyenné du Comice	2
			semi-upright	Colorée de Juillet, Nojabrskaja	3
			spreading	Madame Ballet	4
			drooping	Beurré Diel, Beurré Six	5
			weeping	Armida, Beurré d'Amanlis	6
4.		<b>One-year-old shoot: growth</b>	straight	Passe Crassane	1
			wavy	Beurré Bosc, Épine du Mas	2
			zig-zag	Laxton's Superb	3
5.		<b>One-year-old shoot: length of internode</b>	short	Conference	3
			medium	Beurré Hardy, Jeanne d'Arc	5
			long	Pitmaston Duchesse d'Angoulême, Santa Maria	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
6.		<b>One-year-old shoot: predominant colour on sunny side</b>	grey green	Mirandino rosso, Nojabrskaja	1
			grey brown	Concorde	2
			medium brown	Beurré Superfin, Précoce de Trévoux	3
			orange brown	Eva Baltet	4
			brown red	Beurré Hardy, Louise Bonne d'Avranches	5
			brown purple	Nordhäuser Winterforelle	6
			dark brown	Jeanne d'Arc	7
7.		<b>One-year-old shoot: number of lenticels</b>	few	Triomphe de Vienne	3
			medium	Williams' Bon Chrétien	5
			many	Beurré d'Amanlis, Doyenné d'Alençon	7
8.		<b>One-year-old shoot: shape of apex of vegetative bud</b>	acute	Conference	1
			obtuse	Passe Crassane	2
			rounded	Jeanne d'Arc	3
9.		<b>One-year-old shoot: position of vegetative bud in relation to shoot</b>	adpressed	Williams' Bon Chrétien	1
			slightly held out	Passe Crassane	2
			markedly held out	Conference, Épine du Mas	3
10. (+)		<b>One-year-old shoot: size of bud support</b>	small	Nordhäuser Winter-forelle, Santa Maria	3
			medium	Beurré Alexandre Lucas, Comtesse de Paris	5
			large	Beurré Hardy, Jeanne d'Arc	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
11.		<b>Young shoot: anthocyanin coloration of growing tip (during rapid growth)</b>	absent or very weak	Clapp's Favourite, Poire de Charneu	1
			weak	Doyenné du Comice	3
			medium	Beurré Hardy	5
			strong	Red Bartlett	7
			very strong	Liegels Winterbutterbirne	9
12.		<b>Young shoot: intensity of pubescence (upper third)</b>	weak	Concorde	3
			medium	Beurré Giffard, Williams' Bon Chrétien	5
			strong	Beurré Hardy, Comtesse de Paris	7
13. (+)		<b>Leaf blade: attitude in relation to shoot</b>	upwards	Citron des Carmes, Précoce de Trévoux	1
			outwards	Curé, Doyenné du Comice	2
			downwards	Beurré Giffard, Pitmaston Duchesse d'Angoulême	3
14.		<b>Leaf blade: length</b>	short	Joséphine de Malines, Pierre Corneille	3
			medium	Beurré Hardy, Conference	5
			long	Passe Crassane, Triomphe de Vienne	7
15.		<b>Leaf blade: width</b>	narrow	Olivier de Serres	3
			medium	Williams' Bon Chrétien	5
			broad	Curé	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
16.		<b>Leaf blade: length/width ratio</b>	very small	Curé	1
			small	Président Drouard	3
			medium	Conference, Williams' Bon Chrétien	5
			large	Louise Bonne d'Avranches, Triomphe de Vienne	7
			very large	Beurré Lebrun, Monchallard	9
17. (+)		<b>Leaf blade: shape of base</b>	acute	Beurré Giffard	1
			right-angled	Santa Maria, Grand Champion	2
			obtuse	Général Leclerc	3
			truncate	Doyenné du Comice	4
			cordate	Président Drouard	5
18. (+)		<b>Leaf blade: shape of apex (excluding pointed tip)</b>	acute	Conference	1
			right-angled	Williams' Bon Chrétien	2
			obtuse	Beurré Clairgeau	3
			rounded	Curé, Pitmaston Duchesse d'Angoulême	4
19.		<b>Leaf blade: length of pointed tip</b>	absent or very short		1
			short	Curé	3
			medium	Comtesse de Paris	5
			long	Beurré Giffard	7
			very long	Santa Maria	9
20. (+)		<b>Leaf blade: incisions of margin (upper half)</b>	absent	Beurré Giffard	1
			crenate	Beurré d'Amanlis	2
			bluntly serrate	Alexandrine Douillard	3
			sharply serrate	Général Leclerc	4

CPVO N°	UPOV N°	Characteristics	Examples	Note	
21.		<b>Leaf blade: depth of incisions of margin</b>	shallow	Précoce de Trevoux, Williams' Bon Chrétien	3
			medium	Beurré Diel, Olivier de Serres	5
			deep	Pitmaston Duchesse d'Angoulême	7
22.		<b>Leaf blade : curvature of longitudinal axis</b>	weak	Précoce de Trévoux	3
			medium	Beurré Hardy, Louise Bonne d'Avranches	5
			strong	Beurré Lebrun, Triomphe de Vienne	7
23.		<b>Petiole: length</b>	short	Épine du Mas	3
			medium	Beurré Hardy, Louise Bonne d'Avranches	5
			long	Beurré Lebrun, Triomphe de Vienne	7
24.		<b>Petiole: presence of stipules</b>	absent	Monchallard	1
			present	Doyenné du Comice	9
25. (+)		<b>Petiole: distance of stipules from basal attachment of petiole</b>	short	Doyenné du Comice, Pitmaston Duchesse d'Angoulême, Oliver de Serres	3
			medium	Beurré Bosc, Beurré Diel	5
			long	Conférence, Beurré Giffard	7
26.		<b>Shoot: location of flower bud</b>	mainly on spurs	Beurré d'Anjou, Beurré Hardy	1
			mainly on long shoots	Curé, Williams' Bon Chrétien	2
27.		<b>Flower bud: length</b>	short	Beurré Alexandre Lucas, Williams' Bon Chrétien	3
			medium	Louise Bonne d'Avranches	5
			long	Beurré Bosc, Beurré Hardy	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
28.		<b>Flower: sepal: length</b>	short	Triomphe de Vienne, Olivier de Serres	3
			medium	Beurré Hardy, Doyenné du Comice	5
			long	Curé, Pitmaston Duchesse d'Angoulême	7
29.		<b>Flower: attitude of sepals in relation to corolla</b>	adpressed	Président Drouard	1
			spreading	Doyenné du Comice, Pitmaston Duchesse d'Angoulême	2
			recurved	Beurré d'Anjou, Beurré Giffard	3
30.		<b>Flower: position of margins of petals</b>	apart	Beurré Bosc, Passe Crassane	1
			touching	Doyenné du Comice, Jeanne d'Arc	2
			overlapping	Conférence, Docteur Jules Guyot	3
31.		<b>Flower: position of stigma in relation to stamens</b>	below	Bergamotte Esperen, Jeanne d'Arc	1
			same level	Alexandrine Doulliard, Beurré Hardy	2
			above	Beurré d'Amanlis, Beurré Giffard	3
32.		<b>Flower: size of petal</b>	small	Sierra, Highland	3
			medium	Williams' Bon Chrétien	5
			large	Concorde, Dita	7
33.		<b>Flower: shape of petal (excluding the claw)</b>	circular	Comtesse de Paris	1
			broad ovate	Beurré Hardy, Doyenné du Comice	2
			ovate	Beurré Bosc	3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
34.		<b>Flower: shape of base of petal (excluding the claw)</b>	cuneate	Beurré Bosc, Beurré Hardy	1
			rounded	Comtesse de Paris, Doyenné d'Hiver	2
			truncate	Beurré Diel, Précoce de Trévoux	3
			cordate	Delfrap	4
35.		<b>Flower: length of claw of petal</b>	short	Williams' Bon Chrétien, Madame Verté	3
			medium	Triomphe de Vienne, Madame Favre	5
			long	Beurré d'Anjou, Louise Bonne d'Avranches	7
36.		<b>Immature fruit: colour of sepals (early summer)</b>	green	Beurré Hardy, Dessertnaja	1
			green-brown	Pitmaston Duchesse d'Angoulême, Poire de Charneu	2
			brown	Comtesse de Paris, Olivier de Serres	3
			red-brown	Concorde, Doyenné du Comice	4
			red	Conference, Nordhäuser Winterforelle, Santa Maria	5
37.		<b>Fruit: length</b>	short	Oliver de Serres	3
			medium	Williams' Bon Chrétien	5
			long	Abbé Fétel	7
38.		<b>Fruit: maximum diameter</b>	small	Abbé Fétel	3
			medium	Williams' Bon Chrétien	5
			large	Jeanne d'Arc	7



CPVO N°	UPOV N°	Characteristics	Examples	Note	
39.		<b>Fruit: length/ diameter ratio</b>	very small	Oliver de Serres, Passe Crassane	1
			small	Beurré d'Ahrenberg	3
			medium	Beurré Clairgeau, Williams' Bon Chrétien	5
			large	Conference	7
			very large	Abbé Fétel	9
40. (+)		<b>Fruit: position of maximum diameter</b>	in middle	Bergamotte Esperen	1
			slightly towards calyx	Beurré Alexandre Lucas, Doyenné du Comice	2
			clearly towards calyx	Conference	3
41.		<b>Fruit: size</b>	very small	Petit Muscat, Précoce de Cassano	1
			small	Citron des Carmes, Doyenné de Juillet	3
			medium	Docteur Jules Guyot, Épine du Mas	5
			large	Doyenné du Comice, Passe Crassane	7
			very large	Margarete Marillat	9
42.		<b>Fruit: symmetry (in longitudinal section)</b>	symmetric	Passe Crassane	1
			slightly asymmetric	Beurré Bosc,	2
			strongly asymmetric	Beurré Clairgeau, Nouveau Poiteau	3
43. (+)		<b>Fruit: profile of sides</b>	concave	Abbé Fétel, Beurré Bosc	1
			straight	Beurré Giffard	2
			convex	Doyenné d'Hiver, Olivier de Serres	3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
44.		<b>Fruit: ground colour of skin</b>	not visible	Grand Champion, Uta	1
			green	Nouveau Poiteau	2
			yellow green	Beurré Giffard, Beurré Hardy	3
			yellow	Président Drouard, Williams' Bon Chrétien	4
45.		<b>Fruit: relative area of over colour</b>	absent or very small	Passe Crassane, Président Drouard	1
			small	Précoce de Trévoux	3
			medium	Nordhäuser Winterforelle	5
			large	Beurré Clairgeau	7
			very large	Starkrimson	9
46.		<b>Fruit: hue of over colour</b>	orange	Précoce de Trévoux	1
			orange red	Duchesse Elsa	2
			pink red	Belle Angevine	3
			light red	Nordhäuser Winterforelle	4
			dark red	Starkrimson	5
47.		<b>Fruit: relative area of russet around eye basin</b>	absent or very small	Liegels Winterbutterbirne	1
			small	Nordhäuser Winterforelle	3
			medium	Packham's Triumph	5
			large	Conference	7
			very large	General Leclerc, Madame Verté	9
48.		<b>Fruit: relative area of russet on cheeks</b>	absent or very small	Liegels Winterbutterbirne	1
			small	Beurré Alexandre Lucas	3
			medium	Comtesse de Paris	5
			large	Général Leclerc	7
			very large	Madame Verté	9

CPVO N°	UPOV N°	Characteristics	Examples	Note	
49.		<b>Fruit: relative area of russet around stalk attachment</b>	absent or very small	Curé	1
			small	Nordhäuser Winterforelle	3
			medium	Packham's Triumph	5
			large	Beurré Hardy	7
			very large	Madame Verté	9
50.		<b>Fruit: length of stalk</b>	short	Beurré d'Anjou, Beurré des Enfants	3
			medium	Alexandrine Douillard, Beurré Hardy	5
			long	Beurré Bosc, Curé	7
51.		<b>Fruit: thickness of stalk</b>	thin	Beurré Bosc, Concorde	3
			medium	Beurré Hardy, Williams' Bon Chrétien	5
			thick	Beurré d'Anjou, Clapp's Favourite	7
52.		<b>Fruit: curvature of stalk</b>	absent or very weak	Président Drouard	1
			weak	Curé	3
			medium	Conference	5
			strong	Beurré Bosc	7
53.		<b>Fruit: attitude of stalk in relation to axis of fruit</b>	straight	Bonne de Beugny, Doyenné de Juillet	1
			oblique	Beurré Clairgeau, Doyenné du Comice	2
			right-angled	Abbé Fétel, Margarete Marillat	3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
54. (+)		<b>Fruit: depth of stalk cavity</b>	absent or very shallow	Beurré Giffard, Conference	1
		shallow	Louise Bonne d'Avranches	3	
		medium	Épine du Mas, Précoce de Trévoux	5	
		deep	Doyenné d'Hiver, Passe Crassane	7	
		very deep	Oliver de Serres	9	
55. (+)		<b>Fruit: attitude of sepals (at harvest)</b>	converging	Beurré Alexandre Lucas, Le Lectier	1
		erect	Conference, Passe Crassane	2	
		spreading	Comtesse de Paris, Curé	3	
56.		<b>Fruit: eye basin (at harvest)</b>	absent	Espargne, Sommer-Eierbirne	1
		present	Olivier de Serres, Passe Crassane	9	
57. (+)		<b>Fruit: depth of eye basin (at harvest)</b>	shallow	Précoce de Trévoux, Comtesse de Paris	3
		medium	Beurré Giffard, Beurré Hardy	5	
		deep	Doyenné du Comice, Passe Crassane	7	
58. (+)		<b>Fruit: width of eye basin (at harvest)</b>	narrow	Épine du Mas, Williams' Bon Chrétien	3
		medium	Beurré Clairgeau, Beurré Hardy	5	
		broad	Doyenné du Comice, Passe Crassane	7	
59.		<b>Fruit: relief of area around eye (at harvest)</b>	smooth	Passe Crassane, Président Drouard	1
		slightly ribbed	Alexandrine Douillard, Williams' Bon Chrétien	2	
		embossed	Beurré Clairgeau, Le Lectier	3	

CPVO N°	UPOV N°	Characteristics	Examples	Note	
60.		<b>Fruit: texture of flesh</b>	fine	Beurré Hardy, Grand Champion	3
			medium	Beurré Bosc, Président Drouard	5
			coarse	Curé, Tongre	7
61.		<b>Fruit: firmness of flesh</b>	soft	Jeanne d'Arc	3
			medium	Beurré Hardy, Poire de Charneu	5
			firm	Comtesse de Paris, Nordhäuser Winterforelle	7
62.		<b>Fruit: juiciness of flesh</b>	dry	Mirandino rosso, Timpurri de Voimesti	3
			medium	Williams' Bon Chrétien	5
			juicy	Conference, Grand Champion	7
			very juicy	Doyenné du Comice, Robert de Neufville	9
63.		<b>Seed: shape</b>	round	Madame Favre, Jeanne d'Arc	1
			ovate	Beurré Giffard, Williams' Bon Chrétien	2
			elliptic	Alexandrine Douillard, Épine du Mas	3
			narrow elliptic	Docteur Jules Guyot, Curé	4
64.		<b>Time of beginning of flowering</b>	very early	Beurré Alexandre Lucas, Pitmaston Duchesse d'Angoulême	1
			early	Delfrap, Louise Bonne d'Avranches	3
			medium	Packham's Triumph, Williams' Bon Chrétien	5
			late	Doyenné du Comice, Jeanne d'Arc	7
			very late	Frangipane	9

CPVO N°	UPOV N°	Characteristics	Examples	Note	
65.		<b>Time of maturity for consumption</b>	very early	Mirandino rosso, Doyenné de Juillet	1
			early	Précoce de Trevoux	3
			medium	Coscia	5
			late	Beurré Hardy, Doyenné du Comice, Jeanne d'Arc	7
			very late	Doyenné d'Hiver, Nord- häuser Winterforelle, Président Drouard	9

## EXPLANATIONS AND METHODS

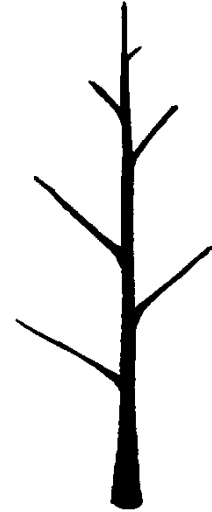
### Ad 3: Tree: habit



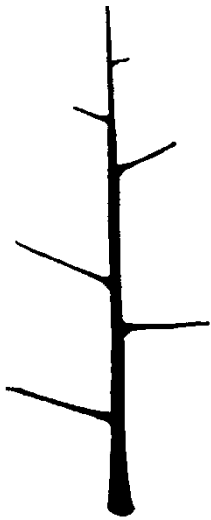
1  
fastigate



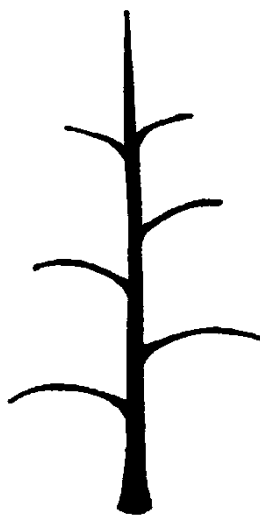
2  
upright



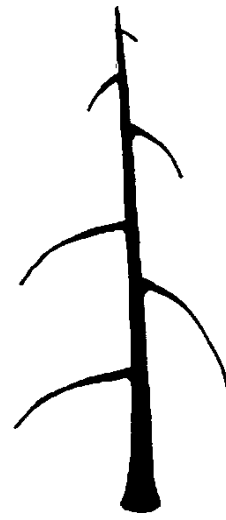
3  
semi-upright



4  
spreading

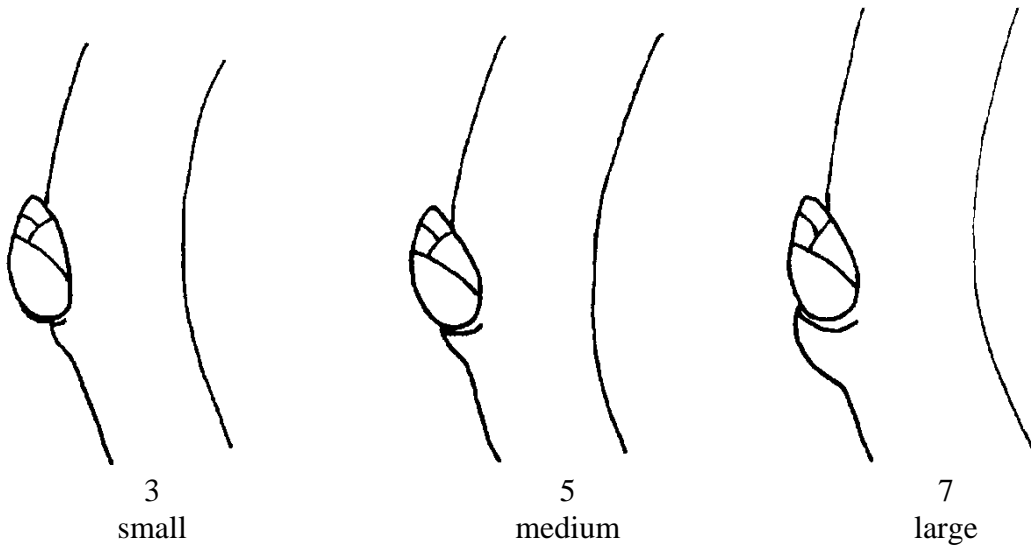


5  
drooping

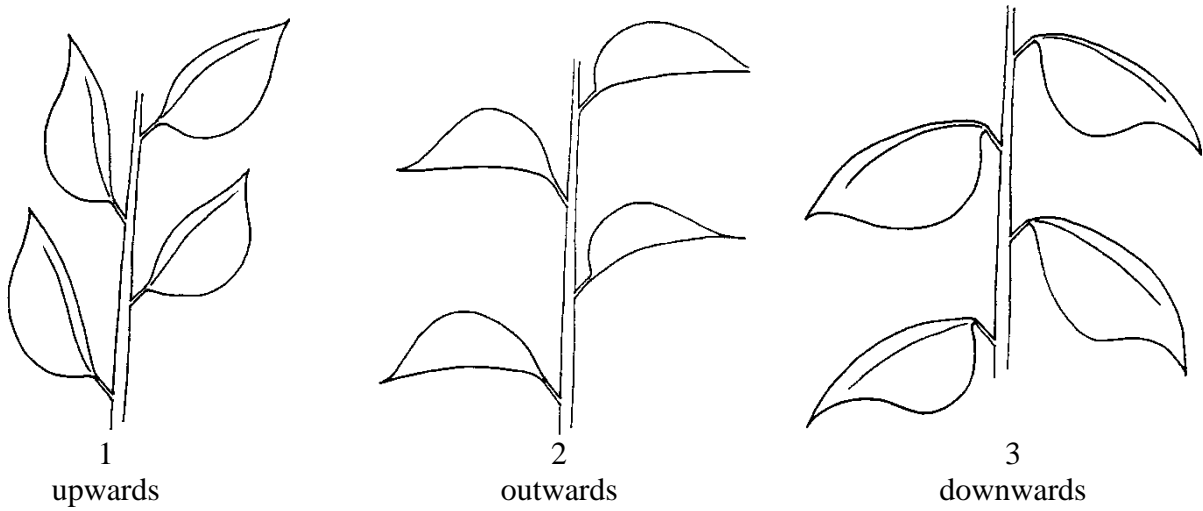


6  
weeping

Ad 10: One-year-old shoot: size of bud support

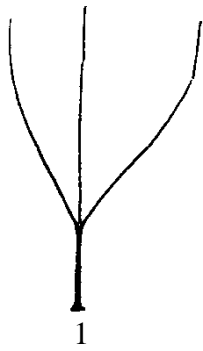


Ad 13: Leaf blade: attitude in relation to shoot

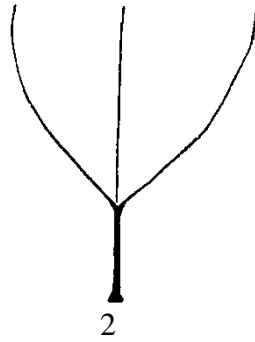




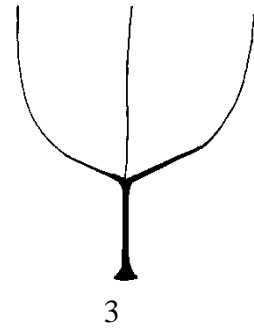
Ad 17: Leaf blade: shape of base



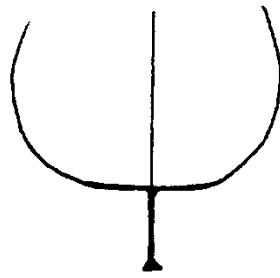
1  
acute



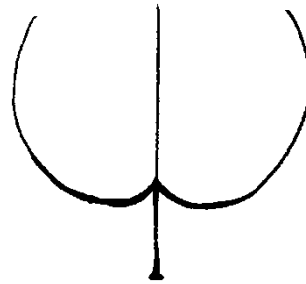
2  
right-angled



3  
obtuse

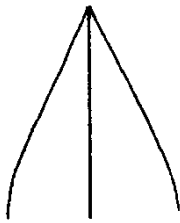


4  
truncate

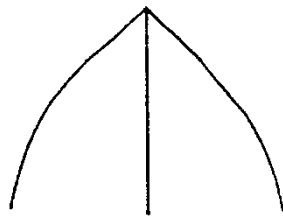


5  
cordate

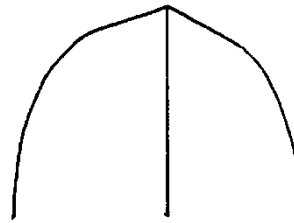
Ad 18: Leaf blade: shape of apex (excluding pointed tip)



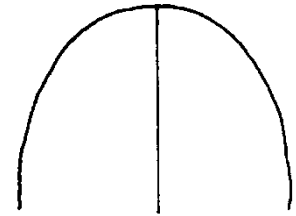
1  
acute



2  
right-angled



3  
obtuse



4  
rounded

Ad 20: Leaf blade: incisions of margin (upper half)



1  
absent



2  
crenate

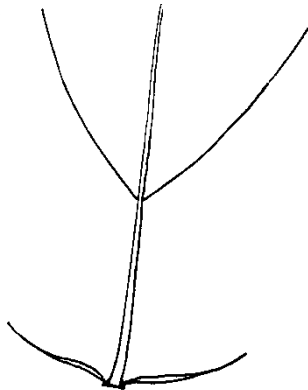


3  
bluntly serrate

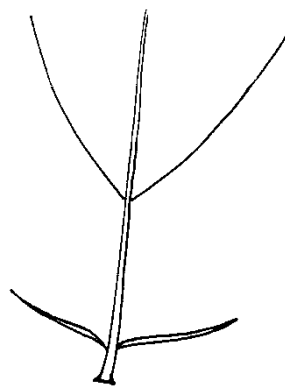


4  
sharply serrate

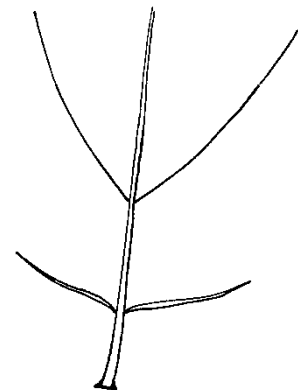
Ad 25: Petiole: distance of stipules from basal attachment of petiole



3  
short

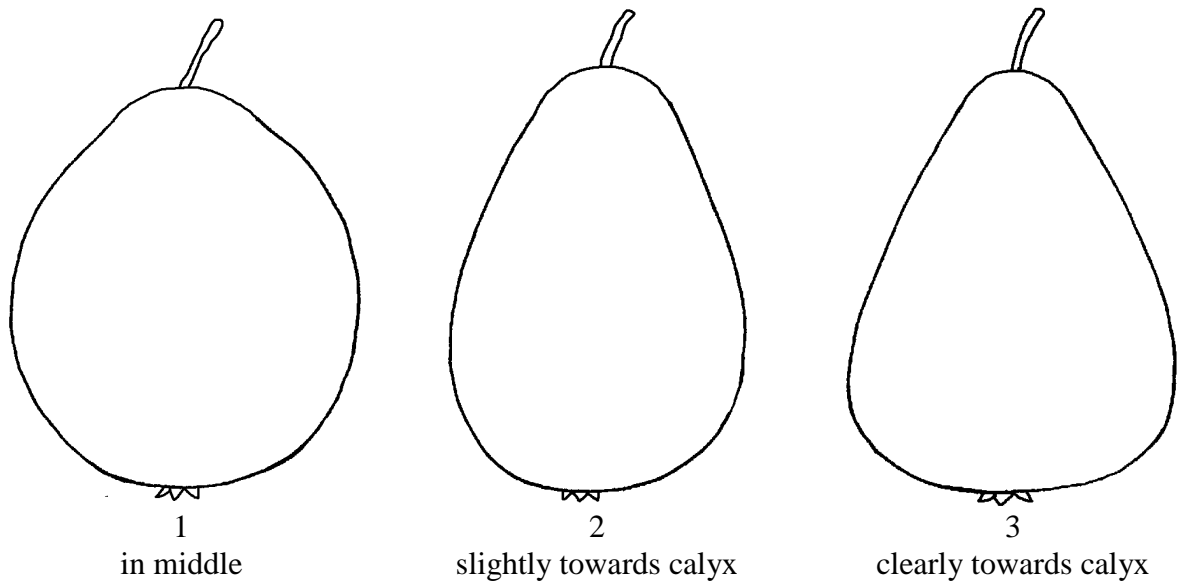


5  
medium

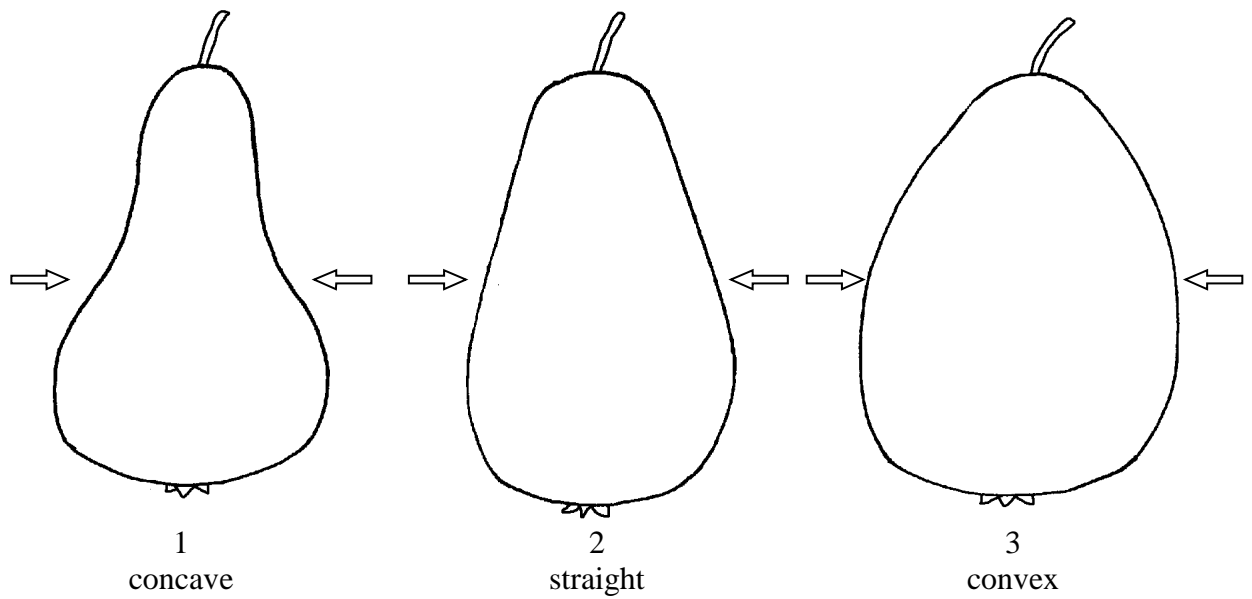


7  
long

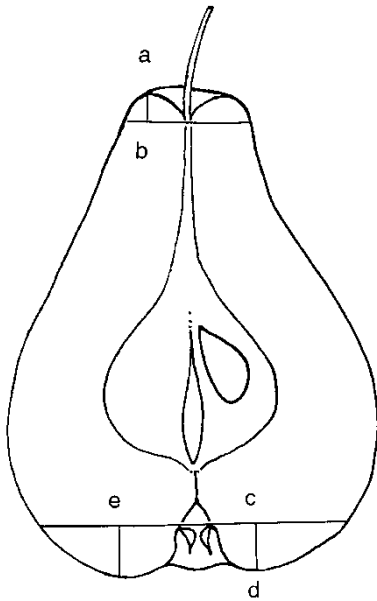
Ad 40: Fruit: position of the maximum diameter



Ad 43: Fruit: profile of sides



- Ad 54: Fruit: depth of stalk cavity
- Ad 57: Fruit: depth of eye basin (at harvest)
- Ad 58: Fruit: width of eye basin (at harvest)

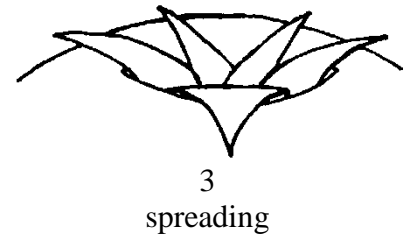
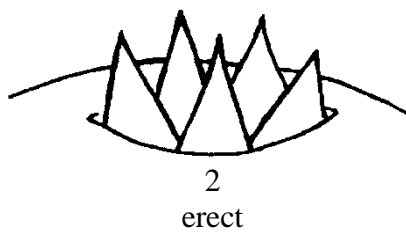
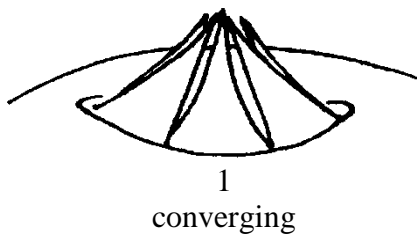


ab = depth of stalk cavity  
(characteristic 54)

cd = depth of eye basin  
(characteristic 57)

ce = width of eye basin  
(characteristic 58)

- Ad 55: Fruit: attitude of sepals (at harvest)



Synonyms of the example varieties:

Example Varieties	Synonym(s)
Abbé Fétel	Abate Fétel
Belle Angevine	Schöne Angevine
Bergamotte Esperen	Esperens Bergamotte
Beurré Alexandre Lucas	Alexander Lucas, Mantecosa Alexandre Lucas
Beurré Bosc	Bosc's Flaschenbirne, Kaiser Alexander, Mantecosa Bosc
Beurré Clairgeau	Clairgeaus Butterbirne
Beurré d'Amanlis	Amanlis Butterbirne
Beurré Diel	Diels Butterbirne
Beurré Giffard	Giffards Butterbirne, Mantecosa Giffard, Cañella
Beurré Hardy	Butirra Hardy, Gellerts Butterbirne
Beurré Lebrun	Lebruns Butterbirne
Beurré Six	Six Butterbirne
Beurré Superfin	Conseiller de la Cour, Hochfeine Butterbirne
Citron des Carmes	Sommermagdalene
Clapp's Favourite	Clapps Liebling
Colorée de Juillet	Bunte Julibirne
Comtesse de Paris	Gräfin von Paris
Conférence	Konferenzbirne
Curé	Espadón de Invierno, Pastorenbirne, Vicar of Winkfield
Docteur Jules Guyot	Jules Guyot, Limonera
Doyenné d'Alençon	Alencons Dechantsbirne
Doyenné d'Hiver	Decana d'Inverno, Pastorale, Winterdechantsbirne
Doyenné de Juillet	Doyenné d'Été, Julidechantsbirne
Doyenné du Comice	Decana del Comizio, Decana del Congreso, Vereinsdechantsbirne
Duchesse d'Angoulême	Herzogin von Angoulême
Duchesse Elsa	Herzogin Elsa
Épine du Mas	Colmar, Herbstdorn
Espargne	Sparbirne
Jeanne d'Arc	Jungfrau von Orleans
Joséphine de Malines	Josephine von Mecheln
Liegels Winterbutterbirne	Beurré d'Hiver de Liegel
Louise Bonne d'Avranches	Buona Luisa, Gute Luise, Louise Bonne of Jersey
Mirandino rosso	Bella di Giugno
Monchallard	Belle Epine Fondante, Epine d'Été de Bordeaux
Nouveau Poiteau	Neue Poiteau
Passe Crassane	Edelcrassane, Passa Crassana

Example Varieties	Synonym(s)
Pitmaston Duchesse d'Angoulême	Pitmaston Duchesse, Williams' Duchesse
Poire de Charneu	Bürgermeisterbirne, Köstliche von Charneu, Légipont
Précoce de Cassano	Frühe von Cassano
Précoce de Trevoux	Frühe von Trevoux
Red Bartlett	Max Red Bartlett, Rote Williams, Williams Roja, Williams Rouge
Santa Maria	Marienbirne
Starkrimson	Red Clapp's Favourite, Rote Clapps Liebling, Super Red
Tongre	Beurré Durandea, Durondeau, Tongern
Williams' Bon Chrétien	Bartlett, Buen Cristiano Williams, Williams Christbirne

## LITERATURE

- Arbury, J., 1997: "Pears." Wells & Winter, Mereworth, Maidstone, GB
- Bocek, O., 1954: "Pomologie." Statni Zemedelske Hakladatelstvi, Praha, CZ
- Bordeianu, T., *et. al.*, 1963: "Pomologia Republicii Socialiste Romania." Vol. 1-8, Editura Academiei Republicii Socialiste, Bucuresti, RO
- Brozik, S., Regius, J., 1957: "Termesztett gyümölcsfajtáink. Almatermesűek, Körte es birs." Mezőgazdasági Kiadó, Budapest, HU
- Cifranic, P., *et al.*, 1978: "Pomologia." Priroda, Bratislava, CZ
- Dahl, C.G., 1943: "Pomologia del II – Pären och Plommon." Albert Bonniers Förlag, Stockholm, SE
- Hedrick, U.P., 1921: "The pears of New York – Report of the New York Experimental Station for the year 1921." J.B. Lyon Company, Albany, US
- Kessler, H., 1948: "Birnsorten der Schweiz." Verlag Verbandsdruckerei AG, Bern, CH
- Krümmel, H., Groh, W., Friedrich, G., 1964: "Deutsche Obstsorten." Bd. 1-3. Deutscher Landwirtschaftsverlag, Berlin, DE
- Leroy, A., 1867: "Dictionnaire de pomologie I,II – Poires." Principales Librairies Agricoles et Horticoles, Angers, FR
- Morettini, A., Baldini, E., Scaramuzzi, F., Mittempergher L., 1967: "Monografia delle principali cultivar di pero." Consiglio nazionale delle ricerche, Centro Miglioramento Piante da Frutto, Firenze, IT
- Nicotra, A., Cobianchi, D., Faedi, W., Manzo, P., 1979: "Monografia di cultivar di pero." Ministero Agricoltura e Foreste, Roma, IT
- Nilsson, A., 1989: "Våra päron-, plommon- och körsbärssorter." Karlebo Forlag AB, SE
- Petzold, H., 1989: "Birnsorten." Verlag J. Neumann, Neudamm, Melsungen, Berlin, Basel, Wien, DE
- Seitzer, J., Schüle, H., Wenck, F., 1957: "Farbtafeln der Birnsorten." Verlag Eugen Ulmer, Stuttgart, DE
- Tomcsanyi, P., *et al.*, 1979: "Gyümölcsfajtáink, Gyakorlati pomologia." Mezőgazdasági Kiadó, Budapest, HU
- Van der Zwet, T., 1982: "The Pear." Horticultural Publishing, US
- Votteler, W., 1993: "Verzeichnis der Apfel- und Birnsorten." Obst- und Gartenbauverlag, 3. Auflage, München, DE

Yamagata-ken, 1980: "The report on the characterization and classification of pear varieties."  
Yamagata Horticultural Experiment Station, JP



## **ANNEX II**

The Technical Questionnaire is available on the CPVO website under the following reference:  
CPVO-TQ/015/1