

Technical Working Party for Ornamental Plants and Forest Trees **TWO/53/7**

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PROCEDURES FOR GROUPING VARIETIES USING UPOV CODES AND RELEVANT INFORMATION SOURCES

Document prepared by an expert from the Netherlands

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The annex to this document contains a copy of a presentation “Use of variety groups in the UPOV system”, to be made by an expert from the Netherlands, at the fifty-third session of the Technical Working Party for Ornamental Plants and Forest Trees (TWO).


[Annex follows]



Use of Variety Groups in the UPOV system

From taxonomical and DUS perspective


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Reason for this presentation

- Discussion withing UPOV for introduction of an extra category within the UPOV-code: Variety Group (see also TWP/5/4)
- Provide taxonomical background information
- Is it useful in our DUS examination?
- Naktuinbouw project 'Variety Groups' on behalf of the Dutch Board for Plant Varieties (2021)


> In this presentation focus on Ornamentals



Terminology

Variety Group	Group	Horticultural class
Type	Cultivar Group	Grouping of varieties
Variety type	Hybrid Group	Series
	Hybrids	

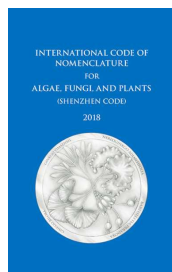
> Do we mean the same or are there differences?



Taxonomical perspective

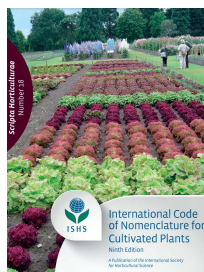
Two taxonomical codes for nomenclature

ICN (1867>)



Taxa for wild plants:
Genus, species, subspecies, etc.

ICNCP (1953>)



Taxa for cultivated plants
Cultivar/variety & **Group**

- The ICN is insufficient for cultivated plants
- ICNCP is additional to the ICN (extra rules & ranks for cult.plants)


What is a group according the ICNCP?

ARTICLE 3: THE GROUP

3.1. The formal category which may comprise ~~cultivars~~, individual plants or combinations thereof on the basis of defined character-based similarity is the Group. The Rules for forming Group names are laid out in Art. 22 of this Code.

3.2. ~~Criteria for forming and maintaining a Group vary according to the required purposes of particular users.~~ All members of a Group must share the character(s) by which that Group is defined.

- The (variety) group is a formal category for cultivated plants
- Based on shared characteristics
- Based on needs and purposes of users



Group versus botanical taxa


ICNCP

3.3. A taxon previously recognized as a species or lower rank under the *ICN* may be designated as a Group, if such a designation is considered more appropriate and has utility.

Ex. 5. If *Hosta fortunei* is no longer recognized as a species, the epithet “fortunei” may be used to form *H. Fortunei* Group, if it is thought that individual cultivars and plants previously assigned to that species continue to need to be so assembled.

Ex. 6. If *Brassica oleracea* var. *sabauda* (published by Linnaeus in 1753) is no longer recognized as an infraspecific taxon at the rank of *varietas* (var.) within the species, it may be referred to as *Brassica oleracea* Sabauda Group.


- For cultivated plants botanical ranks can be replaced by groups if useful (e.g. *Hosta fortunei* > Fortunei Group)
- The level of the Group is directly under the genus or under the species



Group versus botanical taxa (2)

Fundamental difference

- Traditional botanical taxa are hierarchical and based on **genetical relationships**
 - Driven by natural selection: **evolution**
- Groups are not hierarchical and based on **user criteria** (e.g. double flowers, variegated leaves, dwarf habit, etc.).
 - Driven by human selection: **breeding**




Examples of groups

Under level of genus	Under level of species
<ul style="list-style-type: none">• <i>Tulipa</i> Double Early Group• <i>Narcissus</i> Trumpet Group• <i>Lilium</i> Asiatic Group• <i>Iris</i> Germanica Group• <i>Paeonia</i> Lactiflora Group• <i>Weigela</i> Variegata Group	<ul style="list-style-type: none">• <i>Hydrangea macrophylla</i> Lacecap Group• <i>Brassica oleracea</i> Cauliflower Group• <i>Taxus baccata</i> Fastigiata Group

➤ The varieties can be classified in these groups accordingly:

- *Tulipa* ‘Homerun’ (Double Early Group)
- *Hydrangea macrophylla* ‘Eisvogel’ (Lacecap Group)

➤ Group names can be derived from botanical taxa or have fancy names



Group and related terminology


ICNCP 3.3, Ex 6

Note 1. Authors may have used other designations such as “sort”, “type”, “selections”, or “hybrids” as terms equivalent to the word “Group”; such terms are to be replaced by the word “Group”.

➤ Related terms used in practice maybe replaced by Group

➤ Then the meaning should be in accordance with the ICNCP

➤ Many other terms are not formally defined




Groups in botanical registers

- Most botanical registers are focused on wild plants (not on cultivated plants)
 - GRIN databases doesn't use groups (primary start of group names recently, e.g. in *Brassica oleracea*)
 - Plants Of the World Online (POWO) sometimes mention groups (e.g., in case of *Brassica oleracea*)

➤ Traditional botanical names that rely to our (cultivated) groups more and more become synonyms (E.g. *Zea mays* var. *saccharata* and *Beta vulgaris* var. *conditiva*)

➤ For wild plants those taxa don't work and the meaning for cultivated plants is not recognized



Groups in horticultural registers

- Horticultural registers are focused on cultivated plants
- The use of groups is common practice
 - In common databases: PlantScope, RHS Plant Finder, KAVB bulb database and the Naktuinbouw List of names of woody plants and perennials, EU Common Catalogue and SKUD.
 - In specialized databases: International Clematis register, The Paeonia database of the APS, etc.

➤ Group classification is flexible in time and follows new trends in breeding (new groups can be proposed and accepted)

➤ If useful varieties can be applied to more than one group

➤ Groups develop in practice

Need for Group classification

Intensification of
breeding



- More varieties
- Complexity of genetic ancestry
- More domestication




Limitation of botanic
classification




**More need
for groups**

Use by UPOV

- UPOV works with cultivated plants, so it is logical to implement the Group category in the UPOV Code
- If UPOV uses Groups, the meaning should be in accordance with the ICNCP
- A new version of the ICNCP can be expected within 2 or 3 years, so harmonization be discussed and realized.



DUS perspective



Project Variety Groups in DUS

- Use of Groups discussed at Naktuinbouw and Dutch Board of Plant Varieties
- Project expects to be finished end 2021
- Discussion for all sectors (ornamentals, vegetables, agriculture and fruit)
- In this stage preliminary results and conclusions


Logical to use groups: Vegetables

- If there is need for classification of varieties and the traditional botanical classification is not satisfactory
- Logical situation: **Crops with own protocol**
 - E.g. Grouping of *Brassica oleracea*
 - E.g. Grouping of *Beta vulgaris*

Groups in EU common catalogue

- 9.1 [*Beta vulgaris L.*](#) – Garden Beet Group (Beetroot, including Cheltenham beet)
- 9.2 [*Beta vulgaris L.*](#) – Leaf Beet Group (Spinach beet or Chard)
- 10 [*Brassica oleracea L.*](#)
 - 10.1 [*Brassica oleracea L.*](#) – Kale Group
 - 10.10 [*Brassica oleracea L.*](#) – Tronchuda Group(Portuguese cabbage)
 - 10.9 [*Brassica oleracea L.*](#) – Palm Kale Group
 - 10.2 [*Brassica oleracea L.*](#) – Cauliflower Group
 - 10.3 [*Brassica oleracea L.*](#) – Broccoli Group (Calabrese type and sprouting type)
 - 10.4 [*Brassica oleracea L.*](#) – Brussels Sprouts Group
 - 10.5 [*Brassica oleracea L.*](#) – Savoy Cabbage Group
 - 10.6 [*Brassica oleracea L.*](#) – Capitata Group - White cabbage
 - 10.7 [*Brassica oleracea L.*](#) – Capitata Group - Red cabbage
 - 10.8 [*Brassica oleracea L.*](#) – Kohlrabi Group

- This classification is used in our Dutch Variety register and supported by Naktuinbouw
- Used in EU legislation (also phytosanitary)
- It is useful to use these names to indicate the crop/group




Logical to use groups: Ornamentals

Pelargonium has different protocols

REGAL PELARGONIUM	ZONAL PELARGONIUM, IVY-LEAVED PELARGONIUM
UPOV Code: PELAR_GRD; PELAR_DOM; PELAR_CRI; PELAR_CDO	UPOV Code: PELAR_ZON, PELAR_PEL (PELAR_PZO, PELAR_ZPE, PELAR_ZTO)
<i>Pelargonium grandiflorum</i> (Andrews) Willd.; <i>P. ×domesticum</i> L. H. Bailey; <i>P. crispum</i> (P.J. Bergius) L'Hér. and <i>P. crispum</i> x <i>P. ×domesticum</i>	<i>Pelargonium</i> Zonale Group, <i>Pelargonium peltatum</i> (L.) Hér. and hybrids between those species and other species of <i>Pelargonium</i> L'Hér. ex Ait.


- Limits of botanic classification; groups would be useful !
- Zonale Group is already used in the protocol (but in Genie and CPVO database as *P. zonale* (L.) L'Hér. ex Aiton)
- Variety Groups are used in practice



Groups to replace botanical species


- There is a main species and other species are involved in the ancestry of the varieties
- Examples (only few mentioned!)
 - *Aster/Symphotrichum novi-belgii* > Novi-belgii Group
 - *Iris germanica* > Germanica Group
 - *Chrysanthemum indicum* > Indicum Group
 - *Rhododendron molle* > Mollis Azalea Group
 - *Begonia* × *hiemalis* > Elatior Group (own test guideline!)

- Many varieties of these groups are not 100% the species
- Also used in practice (important condition!)



Groups that are already used in TG

- In some Test Guidelines groups are already mentioned
- Examples vegetables: Lettuce, Melon
- Examples ornamentals: *Narcissus*, *Dianthus*, *Lilium*, *Rosa*
- Why useful?:
 - To have the information in PBR-databases (e.g. Genie/Pluto)
 - to find similar varieties more efficiently



Example vegetables: Lettuce

UPOV Test Guideline

Type	Example varieties
Butterhead type	Clarion, Maikönig, Sartre
Novita type	Norvick
Iceberg type	Great Lakes 659, Roxette, Saladin, Vanguard 75
Batavia type	Aquarel, Curtis, Funnice, Felucca, Grand Rapids, Masaida, Visyon
Frisée d'Amérique type	Bijou, Blonde à couper améliorée
Lollo type	Lollo rossa, Revolution
Oakleaf type	Catalogna, Kipling, Murai, Salad Bowl
Multi-divided type	Curletta, Duplex, Jadigon, Rodagio
Frillice type	Frilett
Cos type	Actarus, Blonde maraichère, Pinokkio
Gem type	Craquerelle du Midi, Sucrine, Xanadu
Stem type	Celtuce, Guasihong

- Group classification is logical and international used
- Having this information in PLUTO would be very useful

No group information at this moment

CPVO - Applications and titles in force


AA- AA+				
Other services	Tobefree	Lactuca sativa L.	33292	Terminated Right
Public search	Freestar	Lactuca sativa L.	33293	Terminated Right
Access to documents	Mozart	Lactuca sativa L.	31371	Granted
	Gurdie	Lactuca sativa L.	31446	Terminated Right
	Aitrai	Lactuca sativa L.	31601	Terminated Right
	Souprai	Lactuca sativa L.	31447	Granted
	Lozano	Lactuca sativa L.	31448	Granted
	Foliata	Lactuca sativa L.	31449	Terminated Right
	Descartes	Lactuca sativa L.	32681	Granted
	Friendly	Lactuca sativa L.	32461	Terminated Right
	Adorale	Lactuca sativa L.	31453	Terminated Right
	Orville	Lactuca sativa L.	32682	Terminated Right
	Seguros	Lactuca sativa L.	30373	Terminated Right
	Bratova	Lactuca sativa L.	30374	Terminated Right
	Philana	Lactuca sativa L.	30375	Granted
	Sivna	Lactuca sativa L.	30376	Granted
	Furtasia	Lactuca sativa L.	30377	Granted
	Furfix	Lactuca sativa L.	30621	Granted
	Zelkova	Lactuca sativa L.	30378	Terminated Right
	Estival	Lactuca sativa L.	33914	Granted
	Journey	Lactuca sativa L.	32685	Granted
	Rull	Lactuca sativa L.	31990	Terminated Right

Example ornamentals: Narcissus

05 . 03 . Horticultural Classification of daffodils (according to Annex 1 of the UPOV document Tg/87/2) *

- 1 - Trumpet daffodils of garden origin One flower to a stem, trumpet or corona as long as or longer than the perianth segments
- 2 - Long-cupped daffodils of garden origin One flower to a stem; cup or corona not less than one-third the length of the perianth segments
- 3 - Short-cupped daffodils of garden origin One flower to a stem, cup or corona not more than one-third the length of the perianth segments
- 4 - Double daffodils of garden origin Double flowers
- 5 - Triandrus daffodils of garden origin Characteristics of Narcissus triandrus predominant
- 6 - Cyclamineus daffodils of garden origin Characteristics of Narcissus cyclamineus predominant
- 7 - Jonquilla daffodils of garden origin Characteristics of the Narcissus jonquilla group predominant
- 8 - Tazetta daffodils of garden origin Characteristics of the Narcissus tazetta group predominant
- 9 - Poeticus daffodils of garden origin Characteristics of the Narcissus poeticus group predominant
- 10 - Species of wild forms and wild hybrids All species of wild or reputedly wild forms and hybrids. Double forms of these varieties are included
- 11 - Split-Corona daffodils of garden origin Corona split for at least one third of its length
- 12 - Miscellaneous daffodils All daffodils not falling into any one of the foregoing divisions

- Group classification is logical and international used
- Having this information in PLUTO would be useful
- Some of them are not groups according the ICNCP (10, 12)



Example ornamentals: Rosa


UPOV Test Guideline

6.4 *Example Varieties*

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic. The type is indicated in brackets after the name of the example variety as follows:

- (C) cut-flower type
- (G) garden type
- (P) pot type


- Very useful for DUS in EU (outside EU?)
- Can the groups/types be characterized morphological?
- In practice another system is used: Climber, Hybrid Tea, Floribunda, Miniature, etc. (See 'Modern Roses', ARS)
- The systems partly overlap



Groups used in Horticulture


- Some crops have group classifications in horticulture, but not mentioned in UPOV test guidelines
 - Clematis, Hydrangea macrophylla, Paeonia, Iris, Rhododendron, Weigela, etc.

- For next revisions of the UPOV Test Guidelines, Group classification could be considered.



Conclusions (in this stage of the project)

- Naktuinbouw is positive about the use of Groups in the UPOV code; also for ornamentals
- The need very much depends on the crop
- The number of groups per crop should be limited
- Only useful when the botanical system is not suitable anymore and there is need for classification of varieties.
- In important basis for UPOV could be:
 - Crops/groups with an own Test Guideline
 - Crops with classification systems in the Test Guideline or TQ



Recomendations

- Implement groups in UPOV code (GENIE)
- Start with clear and easy crops; further implementation will follow when the benefits appear
- Drafters of test guidelines should be encouraged to implement group classification if useful
- Work in accordance with the ICNCP
- Deviate from GRIN if necessary and/or encourage GRIN to adapt their system for cultivated plants



Quality in Horticulture

[End of Annex and of document]