

HORTAX

PLANT NAMES

A Guide for Horticulturists, Nurserymen,
Gardeners and Students

Written by the Horticultural Taxonomy Group – HORTAX

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PREFACE

The provision of a simple guide to the giving and correct use of plant names has been one of the aims of Hortax for some time. This version is provided online in the hope that those reading it may feel inspired, or perhaps even compelled, to contact Hortax with corrections, additions and further examples.

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1 INTRODUCTION

Plant names of various sorts are used by almost everybody on a daily basis, whether for wild plants, garden plants, or fruit and vegetables in markets and shops. Most people who use common names probably do so with few problems, though they may occasionally be puzzled or frustrated by plants that seem to have several common names, e.g. Cuckoo-pint or Lords and Ladies, Aubergine or Egg-plant and Mock-orange or Syringa, the last being particularly puzzling as it is also the scientific name of lilac (*Syringa vulgaris*) (see section 3.1). Conversely there are also many common names that apply to more than one plant, such as bluebell, laurel, hemlock and cedar. Those who use scientific names, also referred to as botanical or Latin names, are employing a strictly regulated and much more precise system, governed by two Codes of Nomenclature, whose primary aim is to provide a single “correct” name for every plant. These scientific names provide a unique and unambiguous label for each plant which can be used and understood all over the world, regardless of what language may be spoken locally. Such precision inevitably comes at some cost, in this case the need to have some understanding of how scientific names are correctly given and applied. The two Codes of Nomenclature, the *International Code of Botanical Nomenclature* (ICBN or “Botanical Code”) and the *International Code of Nomenclature for Cultivated Plants* (ICNCP or “Cultivated Plant Code”), though very carefully drafted, are complex legalistic documents, and it takes time and perseverance to become familiar with them. Having been involved in recommending changes and additions to both Codes, the members of the Horticultural Taxonomy Group (Hortax) are keenly aware of the need for an up-to-date concise digest, which provides a reference to the essentials of plant nomenclature. The result, this online booklet, is aimed at those who have more than a passing interest in plant names, particularly of plants in cultivation, and we hope it will be useful to professional and amateur horticulturists, students in various fields, foresters, plant breeders, conservationists and gardeners.

One point that often causes confusion is the remit of the two Codes and how they relate to each other. Superficially one might think that the Botanical Code applies to wild plants and the Cultivated Plant Code to plants in cultivation. While it is true that the Botanical Code governs the names of plants in the wild, its rules also apply to cultivated plants where ranks such as family, genus, species and subspecies are concerned. What the Cultivated Plant Code does is to provide two extra categories, Group and Cultivar, with which to classify plants that are brought into or selected in cultivation. The recognition and documentation of this variation is often of considerable commercial importance in vegetable and ornamental crops. Because of commercial pressures and marketing needs, yet another suite of names has arisen; these commercial names, or trade designations, are not governed by either Code, although the Cultivated Plant Code does make recommendations designed to avoid confusion between commercial names and those governed by the Codes. Similarly, the Codes are not concerned with the granting or registration of Plant Breeders’ Rights or trademarks.

Overall responsibility for the Botanical Code is vested in the International Union of Biological Sciences (IUBS), though this is delegated to the International Commission for Botanical Nomenclature, which meets every six years during International Botanical Congresses. At these meetings, proposals to amend the Code are considered and voted on, the result being a new edition, usually published in the year following the Congress. The Cultivated Plant Code is the responsibility of a different IUBS commission, the International Commission for the Nomenclature of Cultivated Plants. In the past this has met less often, though the pace of change in the taxonomy of cultivated plants, combined with similar changes in the commercial field, suggests that these meetings will need to be held more frequently in the future. As both Codes are subject to change, it is very important to consult the most recent edition. While the

Botanical Code is available online (see Chapter 12), this is not yet the case for the Cultivated Plant Code. It should also be noted that neither of these Codes of Nomenclature has any legal standing.

There are myriad sources of information on plant names, and the members of Hortax cast their net very widely when gathering information for this booklet. The most important sources were, not surprisingly, the Codes of Nomenclature themselves, but much was also gleaned from *The RHS Plant Finder* (consultant editor Tony Lord), *Plant Names* by Peter Lumley and Roger Spencer, *An Introduction to Plant Taxonomy* by Charles Jeffrey, *Plant Taxonomy and Biosystematics* by Clive Stace, and our own lecture notes and experience.

2 COMMON OR VERNACULAR NAMES

There are no rules governing the use of the **common**¹ (or vernacular) names of plants as there are for scientific names. Many common names are of great antiquity and are inextricably linked with folk-lore and folk-history. A frequently asked question is “Why can’t we just stick to common names?” While this may seem an attractive proposition, there are many reasons which make it quite impractical. One problem is that many plants have been moved from country to country and may not have common names in the area they’ve arrived in. Although common names may be introduced along with the plants, in whatever language, acceptance of such “foreign” names is often resisted, and the necessity of transliterating names from different scripts, such as Russian, Japanese or Hebrew, is a further complication. Frequently there is more than one name available, and no way of deciding which to use. In Britain for example, *Caltha palustris* has over 50 common names, including Marsh Marigold and Kingcup. Many species have a plethora of common names of very local usage, even within a small country, and widespread plants have common names in many languages. At the opposite extreme, there are many plants which have no common name in any language.



Caltha palustris

Common names are quite often invented, sometimes on the insistence of publishers who may want every plant in a book or other work to have both common and scientific names, even when plants are already well known by the latter. This has been done extensively in the United States. With no system to regulate or standardise them, confusion may arise, especially if common names do not reflect plant relationships. For example, “Fragrant Himalayan Champaca”, “Banana Shrub” and “Jack Fogg Michelia” are the common names given in a recent catalogue for *Michelia champaca*, *Michelia figo* and *Michelia* ‘Jack Fogg’ respectively. These are three closely related plants whose scientific names not only identify them precisely but also reveal their relatedness, while their common names draw upon parts of the scientific names that do not indicate relatedness. Conversely, relatedness may be implied where none exists. *Trientalis europaea*, commonly called Chickweed Wintergreen in Britain, is neither a chickweed (*Stellaria* spp.) nor a wintergreen (*Pyrola* spp.) but a member of the family *Primulaceae*.

¹ Words highlighted in **light bold** are defined in the glossary (Chapter 14, p. 28).

Similar confusion has occurred with the name of a very familiar European plant, the dandelion, *Taraxacum officinale*. The common name, derived from the French “dent de lion” (lion’s tooth), was possibly introduced to Britain by the Normans. However, in France they give the name Dent de Lion to *Leontodon*, which in Britain is called hawkbit.

Familiar and well-loved common names also tend to get used for more than one plant. A classic example in the English-speaking world is bluebell, which refers to *Hyacinthoides non-scripta* in England and Ireland, *Campanula rotundifolia* in Scotland, *Sollya heterophylla* in Australia, *Wahlenbergia* in South Africa and New Zealand, and species of *Mertensia* in North America. The scope for confusion is enormous.

Common names may be romantic (e.g. Love-in-a-mist, Angels’ Tears, Forget-me-not, Loves-lies-bleeding) or more down to earth (e.g. Bastard Balm, Chicken Gizzard, Giant Hogweed); they are a simple, often charming or evocative, way of referring to plants. Furthermore, they often have historical, geographical or other associations that it would be a pity to lose. For these reasons they have a much greater general appeal than the apparently difficult scientific names.

Most people don’t think twice about using “rhododendron”, “chrysanthemum” or “fuchsia” as the common names for three large and popular groups of plants, but these are also their scientific genus names (see sections 3.1 and 3.4). The fact that they have passed into common usage neatly demonstrates the great strength of scientific names: they are universal. When a genus name is used as a common name it must not be italicised and the first letter should be lower case, unless it happens to be the first word in a sentence. Genus names in the plural should also be treated this way, e.g. “Most rhododendrons flower in the spring”.

3 NAMES OF WILD PLANTS – THOSE GOVERNED BY THE BOTANICAL CODE

3.1 Scientific names (binomials)

A scientific name, such as *Malva moschata*, consists of two parts and is known as a **binomial**. The first part (*Malva*) is the name of the **genus** (see section 3.4); the second (*moschata*) is the **species epithet** (see section 3.5). Together they make up the species name. Informally, the species epithet (in this case *moschata*) is sometimes referred to as the species name; this is technically incorrect and has to be avoided when precision is required.

GENUS NAME (e.g. *Malva*) + SPECIES EPITHET (e.g. *moschata*)
→ SPECIES NAME (*Malva moschata*)



Malva moschata

There is a similar technical distinction between the terms “cultivar name” and “cultivar epithet” which is explained in section 4.1.

Genus and species names should always be italicised unless the rest of the text is in italic, when they should be in normal Roman script. If handwritten they should be underlined.

Scientific names are often referred to as Latin names, but this is slightly misleading. While it is true that the rules governing their formation and spelling are based on Latin, any word, in any language, can form the basis of a scientific name. Thus many plant names

commemorate people and places or are derived from common names used in the country of origin. These are indiscriminately mixed with Latin and Greek words, all of them “Latinised” according to the rules of Latin grammar.

Occasionally Latinisation has resulted in some confusion between scientific and common names. One such case involves “*Syringa*”, the correct scientific name for lilac, but sometimes used as the common name for *Philadelphus coronarius* (Mock-orange). This ambiguity can be traced back to ancient Greece, when both *Syringa* and *Philadelphus*, having hollow stems, were used to make musical pipes for which the Greek is “syrinx”. In mediaeval times, though they were distinguished by flower colour as the “blew pipetree” and the “single white pipetree”, the word *syrinx* still applied to both, and it was later taken up as the scientific name for lilac by Linnaeus, while still being used popularly for *Philadelphus*.

Another example is the common misuse of the name “geranium” for plants in the genus *Pelargonium*. *Geranium* is a northern hemisphere temperate genus, while *Pelargonium* species are almost all from southern Africa and being tender are cultivated under glass in temperate regions. Although they belong to the same family (*Geraniaceae*) they are morphologically distinct.

The species epithet of some common garden plants is sometimes incorrectly used alone without being attached to the name of a genus. We sometimes hear people talking about “montana” for *Clematis montana* and “japonica” instead of *Chaenomeles japonica*. In general conversation this may not matter but it should be remembered that there are many thousands of plants with the species epithet *japonica*, but only one *Chaenomeles japonica*.

The process of formally naming wild plants is governed by the *International Code of Botanical Nomenclature* (ICBN or Botanical Code), which is revised every six years; the most recent was published in 2006. A brief summary of the rules in the Botanical Code is given in Chapter 9. However, newly selected variants of plants in cultivation are named according to the *International Code of Nomenclature for Cultivated Plants* (ICNCP or Cultivated Plant Code). This is also revised periodically, the most recent being Brickell *et al.* (2004). For a summary of the rules in the Cultivated Plant Code see Chapter 10.

3.2 The taxonomic hierarchy

To understand how scientific names are applied, it is necessary to describe briefly how plants are classified, since the units into which they are separated determine the structure of their names.

All living things are classified into Kingdoms, examples being *Animalia* (animals), *Mycetae* (fungi), *Bacteria*, *Monera* (blue-green algae), *Protista* (other algae including diatoms) and *Plantae* (green plants). Within the Plant Kingdom there are several major Divisions which will be familiar to most people, including *Bryophyta* (mosses and liverworts), *Pteridophyta* (ferns and their allies), *Gymnospermae* (conifers and their allies) and the *Angiospermae* (flowering plants). The flowering plants are further divided into two Classes: the Monocotyledons, with strap-like, parallel-veined leaves, and the Dicotyledons, the remainder. These two are then further subdivided into Orders and then Families such as *Malvaceae*, *Rosaceae* and *Amaryllidaceae* (see Fig. 1). These successive levels at which organisms are classified are generally referred to as **ranks** or categories. For further information on this topic see Jeffrey (1982).

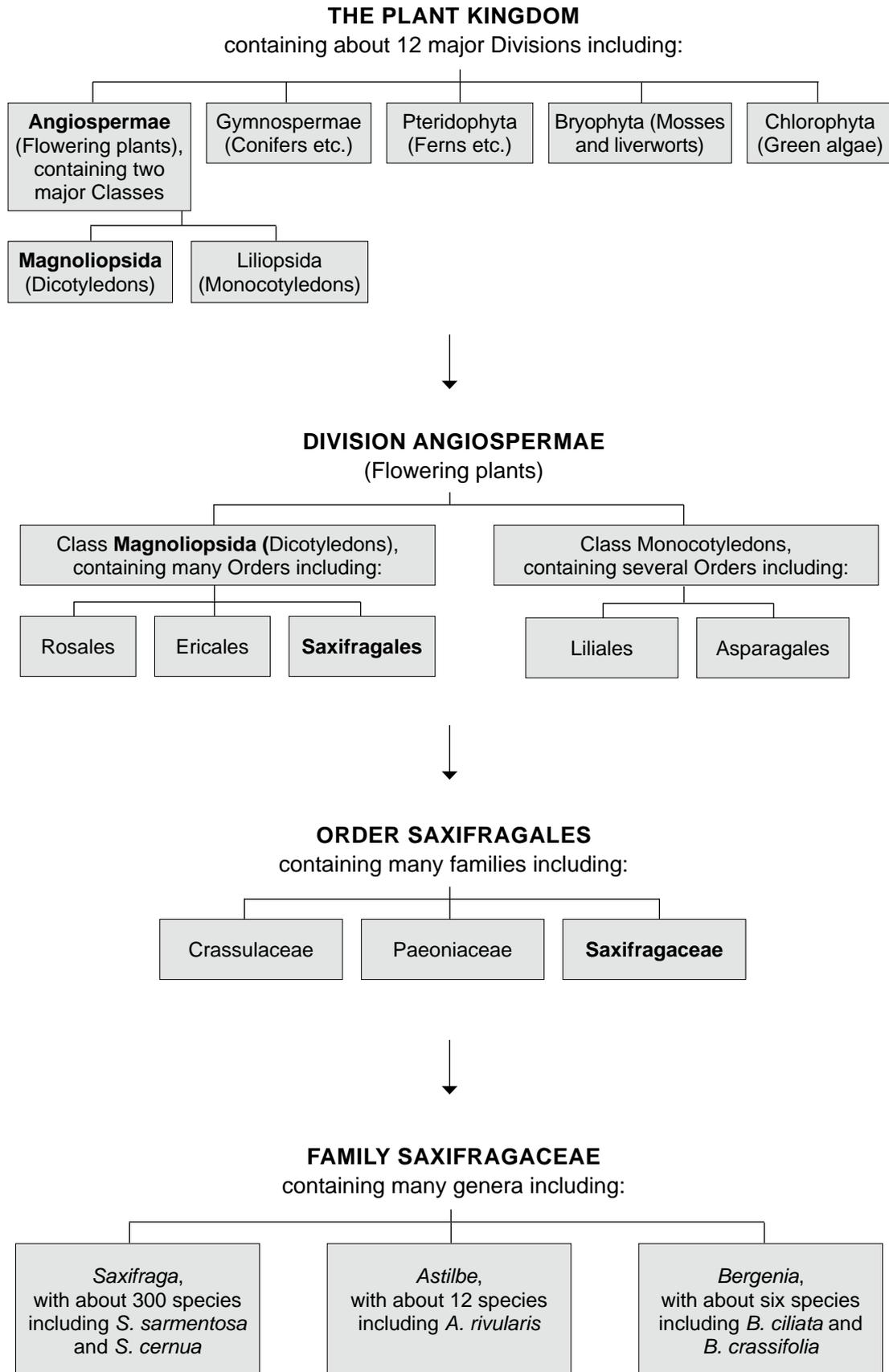


Figure 1 The taxonomic hierarchy

3.3 Families

Some families are easily recognised, others less so. Although families may appear to be of only academic interest, knowledge of family characters is often the springboard to identifying plants and sometimes gives an indication of the conditions required for successful cultivation.

The names of most families end with the same group of letters, *-aceae*, and are based on the name of a genus within that family. This neatly distinguishes family names from genera and other ranks in the hierarchy. However, eight well-known families also have older descriptive names which are still in use and are approved by the Botanical Code:

Traditional name	Modern name	Common/vernacular name
<i>Compositae</i>	<i>Asteraceae</i>	Daisy family
<i>Cruciferae</i>	<i>Brassicaceae</i>	Cabbage family
<i>Gramineae</i>	<i>Poaceae</i>	Grass family
<i>Guttiferae</i>	<i>Clusiaceae</i>	St John's Wort family
<i>Labiatae</i>	<i>Lamiaceae</i>	Mint family
<i>Leguminosae</i>	<i>Fabaceae</i>	Pea family
<i>Palmae</i>	<i>Areaceae</i>	Palm family
<i>Umbelliferae</i>	<i>Apiaceae</i>	Carrot family

Family names are not immune to changes resulting from research and increased understanding of plant relationships. In 1985 the well-known family *Liliaceae*, containing about 300 genera and over 4500 species, was split into about 20 smaller families (see section 8.2.1.1). One confusing aspect of such a split is that because families take their names from a genus within them, there is now a much smaller family called *Liliaceae*, which contains just a few genera, including *Lilium*. To distinguish between two such uses of the same name botanists add the letters *s.l.* (*sensu lato*, in the broad sense) after the name when using it in the wider, more comprehensive sense and *s.s.* (*sensu stricto*, in the narrow sense) when it applies only to the smaller family, e.g. *Liliaceae s.s.*

3.4 Genera

Families are divided into **genera** (singular “genus”), which vary greatly in size, some containing a single species, others a few thousand. The characters of a genus are often quite easy to recognise, making this a useful identification level for practical purposes. For example, it is quite common for a mallow to be referred to as “*Malva* sp.”, without indicating which particular species it is, “sp.” (plural “spp.”) being the abbreviation of “species”. Once a genus has been mentioned in a piece of text it may be abbreviated to its initial letter when part of a species name, unless confusable with another genus beginning with the same letter. In a paragraph about *Malva* for instance, it is usual to refer to species as *M. verticillata*, *M. sylvestris*, etc. For the use of genus names as common names see Chapter 2.

3.5 Species

Genera are divided into **species**, the basic unit of plant classification. Note that the word “species” is both singular and plural. A species can be defined as a group of interbreeding individuals producing more-or-less similar offspring and differing from other similar groups

in certain observable and constant characters. To avoid confusion each species in a genus must have a different species epithet, e.g. *Malva verticillata* and *M. sylvestris*. Species epithets should never be abbreviated.

3.6 Ranks below species level: subspecies, variety and form

When wild plants have a wide distribution, populations may acquire slightly different characters in different geographical areas, especially if isolated. Such populations may be distinguished as **subspecies** within the one species. Thus *Malva sylvestris* subsp. *mauritanica* differs from typical *M. sylvestris* in having a more robust habit and larger, deeper purple flowers with darker veins. This morphological difference is correlated with geographical distribution. “Subspecies” is usually abbreviated to “**subsp.**”, though not to “ssp.” which might be confused with “spp.”, the abbreviation for species in the plural.

Distinct populations and individuals occurring sporadically within the geographical range of a species or subspecies may be recognised as varieties and forms (technically **varietas** and **forma**, abbreviated to **var.** and **f.** respectively). These may occur throughout the range of a species or subspecies, but are not usually correlated with geographical distribution. So *Malva alcea* var. *fastigiata* differs from typical *M. alcea* in its upright habit (among other characters) and *M. moschata* f. *alba* simply has white rather than mauve flowers. Botanically, these may not seem very significant differences, but in the garden they can be very important.

Although these ranks (**subspecies**, **variety** and **form**) tend to be used somewhat erratically, they are ranked in order and a plant may have a name at each rank, e.g. the diminutive daffodil *Narcissus romieuxii* subsp. *albidus* var. *zaianicus* f. *lutescens*. The five parts of this name give very precise information about the characters and relationships of this plant. However, such



Narcissus romieuxii

complex names are not often used in full and the shorter version *N. romieuxii* f. *lutescens* provides a perfectly precise reference, assuming that there is no other f. *lutescens* anywhere in the genus *Narcissus*. For use of cultivar names within these ranks see section 4.1.

Sometimes in catalogues and other plant lists the species epithet is followed by a third epithet with no indication of rank, e.g. “*Acer palmatum dissectum*”. This is known as a **trinomial**. If originally published in this manner, the third epithet is not acceptable

under the Botanical Code because no rank is given. Often these names were in fact correctly published but have since been wrongly cited. Sometimes the rank of the third epithet may not be known or it may turn out to be a **cultivar**. This is an unsatisfactory situation which often requires considerable research to resolve.

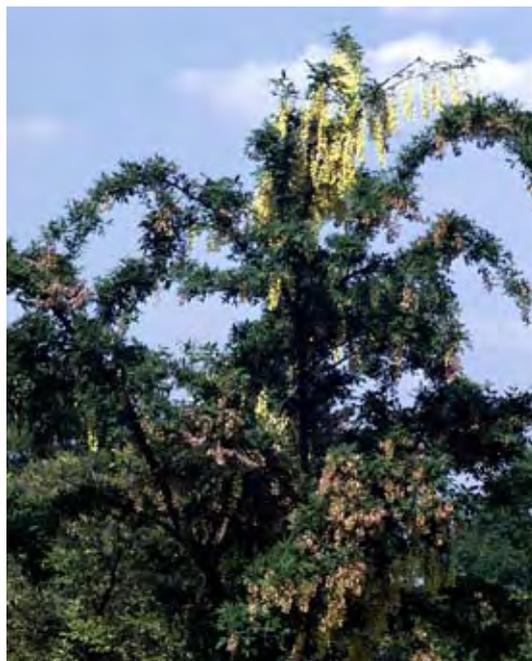
3.7 Hybrids

Some species, when growing together, either in the wild or in gardens, may spontaneously interbreed or may be deliberately crossed. The resulting offspring are known as **hybrids** and mostly occur between species in the same genus (or between subspecies or varieties within the same species). For example, hybrids between *Erica ciliaris* and *E. tetralix* have been given the hybrid name *Erica* × *watsonii*, the multiplication sign indicating hybrid origin. Such hybrid names are treated like species names. Not all hybrids have been given hybrid names and are

referred to by simply quoting the names of the parent species linked by a multiplication sign, e.g. *Drosera pulchella* × *D. nitidula*. This is called a **hybrid formula**. If a multiplication sign is not available an “x” may be used instead.

Hybrids between genera are given new hybrid genus names, e.g. the hybrid between *Crataegus* and *Mespilus* is called × *Crataemespilus*, with the multiplication sign preceding the name. If more than one species in either genus has been used to make different crosses, each resulting hybrid is treated as a different species in its own right. Thus the hybrid *Cupressus lusitanica* × *Chamaecyparis nootkatensis* has the name × *Cupressocyparis ovensii* while the cross between *Cupressus arizonica* and *Chamaecyparis nootkatensis* is called × *Cupressocyparis notabilis*.

There are also a few special cases called graft hybrids (technically **graft-chimaeras**) where the tissues of two plants become physically combined as a result of grafting rather than through fertilisation. These are indicated by a plus sign, e.g. the graft-chimaera between *Laburnum* and *Cytisus* is called + *Laburnocytisus*.



Laburnocytisus adamii

3.8 Authors (authorities)

When a scientific name needs to be used with precision, the name (often abbreviated) of the person who first named the species, for example, is given after the species epithet. This is the **author** of that scientific name. *Malva moschata* L., for instance, was named by the prolific Swedish botanist Linnaeus, whose own name is abbreviated by international convention to L. Much of the time, this information is irrelevant, but it becomes important in cases of nomenclatural complexity where the same name may have been given to more than one species in the same genus, usually by different people (see section 8.1). Although only one of these names is correct, if both can be found in books and catalogues, adding the author's name is the only way to be sure which plant is being referred to. The same applies not only to genera, subspecies and varieties but also to **cultivars**. Although authors' names are not usually given for cultivars, citing the author's (or originator's) name in such cases may be the only way to be certain which plant is being dealt with.

4 NAMES OF CULTIVATED PLANTS – THOSE GOVERNED BY THE CULTIVATED PLANT CODE

4.1 Cultivar

In cultivation, variation within species or resulting from hybridisation often needs to be recognised and named. Plants exhibiting desirable characters such as flower colour, habit, size, variegation, fruit colour, flavour, disease-resistance, earliness, etc. may be recognised as **cultivars** (from cultivated variety) and given **cultivar epithets**; they may be propagated vegetatively (clonally) or from seed. A cultivar should be distinct, uniform and stable in its defining characters, and if propagated by seed it must retain its defining characters.

Cultivars arise, and may be selected, from various processes and sources:

- selection in the wild or in cultivation
- breeding and artificial hybridisation
- spontaneous or induced mutation.

The cultivar epithet, when attached to the **binomial** or genus name, forms the full cultivar name. The term “cultivar epithet” refers only to the final element of this name, i.e. the word or words enclosed in single quotation marks. The term “cultivar name” refers to this epithet preceded by the genus, and usually the species as well.

GENUS NAME (e.g. <i>Malva</i>) + SPECIES EPITHET (e.g. <i>moschata</i>) + CULTIVAR EPITHET (e.g. ‘Pink Perfection’) → CULTIVAR NAME (<i>Malva moschata</i> ‘Pink Perfection’)

There is a similar technical distinction between “species name” and “species epithet” which is explained in section 3.1.

As there is no other cultivar called ‘Pink Perfection’ in the genus *Malva*, it is acceptable to shorten this to *Malva* ‘Pink Perfection’ or *M.* ‘Pink Perfection’ once it is clear which genus is being discussed. The cultivar epithet may also be used with the common name of the genus, e.g. mallow ‘Pink Perfection’. Similarly, where cultivars are recognised within ranks below species level, it is not generally necessary to cite every rank but sufficient to give the cultivar epithet after the species name, or even the genus name if there is no possibility of confusion with other cultivars. For example, *Malva moschata* f. *alba* ‘Pirouette’ can be referred to as *Malva moschata* ‘Pirouette’, *Malva* ‘Pirouette’, *M.* ‘Pirouette’ or mallow ‘Pirouette’, as long as the name ‘Pirouette’ has not been used elsewhere in the genus.

To distinguish cultivar epithets from the scientific part of a name, they are enclosed in single quotation marks, or apostrophes, and should never be written in italics (e.g. *Malva sylvestris* ‘Primley Blue’; *Magnolia* ‘William Watson’). They should not be preceded by the abbreviations cv., var. or f.

Cultivar epithets should not be repeated within their **denomination class** (usually a genus or **Group**; see section 4.2), although there are examples where this has occurred.

Cultivars are often referred to as “varieties”, especially in the world of seed-testing and legislation. This practice is contrary to the Cultivated Plant Code as it can result in confusion with the botanical rank **variety**, especially where cultivar epithets are, or appear to be, in Latin. Consistent use of the term cultivar is recommended in the interests of clarity.

4.2 Group

When dealing with genera where there are many cultivars or where a well-known cultivar has given rise to many others through plant breeding, it has been found useful to use a collective name, the **Group** epithet, to encompass cultivars which share certain defined characters, though it should be noted that a Group does not have to contain, or be solely composed of, cultivars. *Rhododendron* Naomi Group, for instance, contains several unnamed seedlings as well as cultivars. Group names always include the word “Group” and, when used with a cultivar name, are put in parentheses (curved brackets), never in single quotation marks. For example, *Solanum tuberosum* (Maincrop Group) ‘Desirée’ is a cultivar within a Group of potatoes called Maincrop. The botanical ranks species, subspecies, variety and form may also be treated as Groups, and their scientific names may then be given as **synonyms** (see section 8.1) under the Group. This equivalence of Group to a botanical rank can be particularly useful where the rank is no longer recognised botanically, though still worth distinguishing in gardens. For example, while *Rhododendron scintillans* is no longer recognised as a distinct species, having

been combined with (“sunk into”) *R. polycladum*, it is still recognised in cultivation as *R. polycladum* Scintillans Group, with the scientific name *R. scintillans* as a synonym. If necessary a cultivar may be assigned to more than one Group, and *Solanum tuberosum* ‘Desirée’ can also be included in Red-Skinned Group.

4.3 Grex

In orchids, where complex groups of hybrids may result from repeats of a particular cross, the Group system is further refined. Each Group is given a **grex** name (= flock in Latin) which covers all offspring resulting from crossing those particular parents, however different the progeny may be from one another and however many times the cross is made. Individual cultivars within the grex may then be named and must be propagated only by division or micropropagation. Although a grex is similar to a hybrid in principle, **backcrossing** a member of a grex to one of its parents results in a new grex, with a new name, whereas backcrossing a hybrid distinguished purely by a scientific name results in progeny which still bear the same scientific hybrid name. In contrast to Group, parentheses are not used with grex names, and grex is abbreviated to **gx**. For example, *Pleione* Shantung gx ‘Muriel Harberd’ is a cultivar within *Pleione* Shantung grex.



Pleione Shantung gx ‘Muriel Harberd’

5 COMMERCIAL NAMES AND TRADEMARKS – THOSE NOT GOVERNED BY EITHER CODE

Cultivar and Group (including grex) are the only ranks covered by the Cultivated Plant Code for describing variation in cultivated plants; however, some additional terms are used commercially. Aggressive international marketing has resulted in an increasing number of additional names known as **trade designations**, and the word **Series** is becoming ever more widely used as an informal category. In addition, the marketing of plants using **trademarks** has also added complexity.

5.1 Trade designations

While the cultivar name is usually used on labels at point-of-sale, there are various reasons why a plant may also have one or more selling names or **trade designations**. Cultivar names may for instance be code or nonsense names, which do nothing to promote sales, or a more attractive name may be chosen for commercial reasons. Trade designations sometimes resemble cultivar epithets and are often presented as such, but they should not be enclosed in single quotation marks and whenever possible should be printed in a typeface which contrasts with the cultivar epithet, usually small capitals. They should always be cited together with the true cultivar name. The cultivar *Choisya ternata* ‘Lich’ is marketed under the trade designation SUNDANCE. If both epithets appear together the trade designation should follow the cultivar name, e.g. *Choisya ternata* ‘Lich’ SUNDANCE.

A second type of trade designation involves cultivar names originating in foreign languages. In many countries there is resistance to using foreign cultivar names, especially if they can easily be translated or given an alternative name. For the sake of stability, the form in which such a name was originally published is regarded as the correct cultivar name, and any translations are regarded as trade designations. In *The RHS Plant Finder* (Lord *et al.*, 2006), such translations are cross-referenced to the correct cultivar names, in the same way as synonyms, e.g. *Hamamelis* × *intermedia* MAGIC FIRE = ‘Feuerzauber’.

5.2 Cultivated Plant Series

Use of the word “Series” has become increasingly popular, for both seed-raised and vegetatively propagated plants, particularly those produced in large numbers for use as bedding plants, pot plants or cut flowers. This should not be confused with the formal botanical rank “series”, an optional subdivision of genus. **Cultivated Plant Series** are primarily artificial marketing devices and are often given **trademarks**; they are thus not governed by the Cultivated Plant Code. Such Series usually, though by no means always, link morphologically similar plants differing in a single character such as flower or leaf colour. The individual members of a Series may be known by:

- the Series name with an attached descriptor such as “red with white eye”;
- a cultivar name, which cannot include the Series name if the latter is a trademark;
- a trade designation, which might or might not include the Series name and/or be used for a particular cultivar. However, it is common practice for the same trade designation to be applied to different cultivars, for instance if the original plant bearing the trade designation is superseded by one deemed to be better or easier to produce.

The same plant can be included in more than one Series simultaneously. The complexities of nomenclature and trademark law make it difficult to style the names of Series and their individual members with certainty or consistency, even with the help of the originator of the plant.

Though there are no rules governing the styling of names of Series or their members, these may be treated in a similar manner to Group names. The Series name may be placed in parentheses before the cultivar name or trade designation, if for instance it is helpful to list all the members of a Series alphabetically, e.g. *Impatiens* (Paradise Series) PAPETE (‘Kipete’), where Papete is the trade designation and ‘Kipete’ the cultivar name. Alternatively, the Series name may be added in parentheses after the cultivar name and/or trade designation as additional information, e.g. *Petunia* DOUBLOON BLUE STAR (‘Dandbblst’) (Doubloon Series).

5.2.1 Formula mixes

Cultivated Plant Series can change from year to year as new components are added or removed, and mixtures based on such Series can vary in proportions of individual members of the Series. Even in a “formula mix”, the seed-house responsible can often change the formula from one season to the next. Such mixtures can be referred to by giving the Series name followed by an appropriate descriptor, e.g. *Aquilegia vulgaris* Barlow Series, mixed (not *Aquilegia vulgaris* ‘Nora Barlow’s Relatives’).

5.3 Trademarks

Trademarks are proprietary signs that must be used in accordance with trademark law and may, if relevant, be accompanied by either the TM or [®] symbols; the latter is for registered trademarks only. Trademarks are marketing tools and are not equivalent to – nor can they be

substituted for – cultivar names. Technically they serve only as brand names to identify the source or origin of the plant, not the plant itself, and are nothing to do with nomenclature. In practice, however, many cultivars are initially released with only a trade designation or trademark, the cultivar epithet appearing some time later, perhaps when **Plant Breeders' Rights** are applied for or granted. To comply with the Cultivated Plant Code, trademarks should not be cited as part of a name and should never appear in single quotation marks or in italics. To lessen confusion it is preferable to refer to plants only by their botanical and cultivar epithets. However, if there is some compelling reason to include a trademark, it should be clearly distinguished from the actual name, e.g. *Magnolia grandiflora* 'Monlia' Majestic Beauty™, *Sequoia sempervirens* 'Monty' Majestic Beauty™, or *Rosa* Cherry Brandy® which applies to several rose cultivars. Trademarks used in conjunction with, or apparently *as*, cultivar epithets cause particular problems when deciding which words constitute a cultivar name and which are a marketing device.

6 HOW TO NAME A NEW CULTIVAR

The procedure for naming a new cultivar has to strike a balance between the originator's need for a pleasing name which fits their purposes and the necessity of avoiding confusion, for instance with other similarly named cultivars. The originator will usually be the breeder or discoverer of the plant in question. Here we cover some general fundamental points; full details can be found in Article 19 of the Cultivated Plant Code.

Before thinking about suitable names you must be sure that you are justified in naming a new cultivar.

- Firstly it must meet the basic definition of a cultivar, i.e. it must be clearly distinct, uniform and stable in its characters and must retain those characters when appropriately propagated, whether vegetatively or from seed.
- Secondly you need to be sure that the cultivar is either truly new or has never been named; it cannot be the same as a cultivar which already exists. If you have raised a seedling or propagated a variegated sport, for instance, you need to be sure that a similar sport or seedling has not already been named.
- Thirdly the cultivar must be yours to name. Again, if you bred it there will be little doubt about this, but if you acquired it by other means, this may need careful investigation. The actual originator may already have named the cultivar or be in the process of doing so. It is not acceptable to name a cultivar without the knowledge and agreement of the originator.

If the answer to these three questions is clearly positive you may then consider suitable names, but you should also take into account anything else which might limit your choice. For instance, if you intend to apply for Plant Breeders' Rights, or any other form of intellectual property protection, you should consult the relevant regulations, such as those of the Plant Variety Rights office in the territory where you intend to apply, as these regulations may legally overrule the requirements of the Cultivated Plant Code.

If no rights are being sought then you will probably have more freedom. At this stage it is advisable to think of several suitable names rather than become too fixed on one that may later have to be rejected. When choosing or designing a name you should read through Article 19 of the Cultivated Plant Code to make sure that your name fulfils all the necessary criteria. Cultivar epithets should be reasonably short (30 characters at most) and not contain excessively long words. They may consist of existing words or be invented.

Note that the term “cultivar epithet” refers to the final element of the name, i.e. the word or words enclosed in quotation marks; the term “cultivar name” refers to this epithet preceded by the genus name, and often the species epithet as well. See section 4.1 for more details.

GENUS NAME (e.g. *Malva*) + SPECIES EPITHET (e.g. *moschata*) + CULTIVAR EPITHET (e.g. ‘Pink Perfection’)
→ CULTIVAR NAME (*Malva moschata* ‘Pink Perfection’)

The first letter of each word is in upper case except for conjunctions and prepositions, unless they are the first word of the name. In hyphenated epithets, the first letters of words following hyphens are in lower case, unless custom demands otherwise (e.g. *Crocus chrysanthus* ‘Eye-catcher’; *Narcissus* ‘Commander-in-Chief’). Cultivar epithets coined since 1959 should follow the rules set out in the Cultivated Plant Code (see Chapter 10) and be in a modern language, i.e. they should not be in Latin or Latinised, as many were in the past, unless they are established phrases or sayings such as “Cum Laude” or “Ipso Facto”. Cultivar epithets must not be misleading or include superlatives, common descriptive phrases such as “Large White” or “Double Red”, or technical words such as “variety”, “form”, “hybrid” or “selection”. A fuller summary of the more important rules concerning the styling and formation of cultivar epithets is given in Appendix 1. In commercial breeding programmes where cultivars may be produced in huge numbers, they are often given code names to avoid having to coin large numbers of epithets. These codes may also serve as cultivar epithets when Plant Breeders’ Rights (PBR), Plant Variety Rights (PVR) or Plant Patents are being applied for. Rose growers started the trend for coded cultivar epithets, but with the rapid expansion of PBR these can now be found attached to many kinds of plant.

Once you have some pleasing and satisfactory ideas the next step is to check some references, such as *The RHS Plant Finder* and any appropriate Registers or Checklists, and also use internet search engines to make sure that your name has not already been used in the same genus (or **denomination class**; see section 4.1). You should also contact the appropriate **International Cultivar Registration Authority (ICRA)**, who will have records of all the cultivar names that have been used in that denomination class. If your proposed name is already in use, it can be used again only in exceptional circumstances (see section 8.1, and Article 27 of the Cultivated Plant Code).

7 HOW TO DESCRIBE, PUBLISH AND REGISTER A NEW CULTIVAR NAME

A new cultivar name is easier to describe and publish than a new species name, the main difference being that it can be done in catalogues and seed-lists as well as in books and journals. It cannot however be done on seed labels or in electronic form. The description, which should clearly distinguish the new cultivar from others, can be in any modern language. In practice, some cultivar epithets are published, without descriptions, in Statutory Lists², which may be in electronic form only, though the relevant descriptions may be available on application to the appropriate authority.

² These include Monthly Gazettes, National Lists, the EU Common Catalogue and the Community Plant Variety Office (CVPO) Gazette.

The Cultivated Plant Code strongly discourages re-use of cultivar names within the same **denomination class**. As with species and genera, the naming of cultivars is usually based on **priority** of publication, the oldest **valid** name generally being the **accepted** one. For many ornamental plant groups there is an **International Cultivar Registration Authority** (ICRA), who regulates the process of giving new names by requiring their submission and registration; they also regularly publish lists of new cultivar names. For example, there are over 23,000 registered cultivars of daffodil listed in *The International Daffodil Register and Classified List 1998*. Such lists aim to prevent the confusing use of duplicate names.

Note that technically a single plant cannot be a cultivar, and while cultivar names based on single plants are sometimes registered by ICRA, at least 10 individuals must be provided if Plant Breeders' Rights are being applied for.

7.1 Nomenclatural Standards and Standard Portfolios

It is strongly recommended that a **Nomenclatural Standard** be designated by the originator for every new cultivar. This will generally be a selected herbarium specimen to which the name of the cultivar is permanently linked. In some cases an illustration, such as a print, slide or painting, may be designated as a Standard if the essential characters are better represented in this form. For some crop plants, the relevant statutory document containing the description will act as the Nomenclatural Standard (see Appendix 2).

Nomenclatural Standards should be deposited in recognised herbaria such as at the Royal Horticultural Society's Garden, Wisley, Woking, GU23 6QB and the Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR, in the UK.

Additional material relating to a cultivar may, together with the Standard, comprise a **Standard Portfolio**. This may include extra herbarium specimens or illustrations, a full description including all diagnostic characters, details of registration and parentage, relevant nursery catalogues, and DNA data or samples. These need not all be stored together, but their location and any other important information should be recorded with the Nomenclatural Standard. Details of the various elements in the Standard Portfolio and where they are held should accompany the description of the new cultivar name.

Since 1 January 2004 special provisions have applied to the designation of Nomenclatural Standards for clonal or seed-raised cultivars whose names are established under statutory legislation (e.g. Plant Breeders' Rights, Plant Patents). For clonal cultivars, the Standard must be prepared from the same stock as that originally tested by the authority. For seed-raised cultivars the Standard must be prepared from plants grown from seed deposited in and maintained by nominated seed collections.



Nomenclatural Standard of
Delphinium 'David Mannion'

8 PROBLEMS WITH PLANT NAMES

8.1 Synonyms, homonyms and priority

Although ideally each species or cultivar will have only one name, there are very many situations where one plant may have two or more names (**synonyms**), or where two or more plants have received the same name (**homonyms**). In each case, only one name can be regarded as correct.

One of the major tasks of the Botanical Code is to provide guidance in cases where there are duplicated or superfluous names. This is set out in the Principle of **Priority** which declares that the earliest **validly published** name (since 1753) is generally correct and also that where the same name has been applied to different species only the earliest use is correct. This is basically sound but has resulted in unfortunate changes of some familiar, technically incorrect names, through the unearthing of names that being earlier are thus technically correct.

A similar Principle of Priority applies to cultivars, which may acquire extra names just as species do and may even be granted Plant Breeders' Rights under different names in different countries. The later names are synonyms according to the Cultivated Plant Code, though legally only the registered name is correct in any particular country. In the interests of stability **International Cultivar Registration Authorities** (ICRAs) have authority to designate as accepted a technically incorrect cultivar name. Though *Chamaecyparis* 'Green Pillar' is a later name (1960) for *Chamaecyparis* 'Jackman's Variety' (1947), the former, being in general use, was designated as the **accepted name** by the ICRA for conifers. Extra "selling names", names given when an original cultivar name is felt not to promote good sales, are mostly **trade designations** (see section 5.1).

Though re-use of cultivar epithets is strongly discouraged by the Cultivated Plant Code, it is technically permissible in certain circumstances. In genera where there are very many cultivars, such as *Fuchsia* and *Pelargonium*, re-use of cultivar names has proved difficult to avoid, and commercial firms may be keen to re-use particularly successful names for different material. In these cases re-use must be sanctioned by the appropriate ICRA and re-used names should be qualified with the name of the raiser, the date of publication or other information which pinpoints their true identity. For example, two tulip cultivars with the same epithet can be distinguished as *Tulipa* 'Liberty' [Krelage pre-1926] and *Tulipa* 'Liberty' [Vooren 1988].

8.2 Why plant names are changed

There are three main reasons why plant names are changed: taxonomic research, incorrect nomenclature, and misidentification.

8.2.1 Taxonomic research

In the past it was generally accepted that plant classification should reflect morphology, and that species with similar characters should be in the same **genus**. Conversely genera were defined so that they did not contain **species** morphologically very different from one another. As more research is done and more data are gathered, the ideas that botanists have about similarities and differences may change. There is now an increasing belief that the ways that plants are grouped together should reflect evolutionary relationships. Whether the emphasis is on morphology or on evolution, the results of taxonomic research may suggest (among other things) that:

- a genus should be split into smaller genera
- two or more genera should be combined ("lumped") to make a larger genus
- one or more species should be moved from one genus to another.

In each case name changes will result as some species will end up in different genera from where they were before.

8.2.1.1 Splitting genera

When a genus is split, it is necessary to make a new genus name for those species that have been removed. The English bluebell was first described as *Hyacinthus non-scriptus* by Linnaeus in 1753. When later workers realised that the genus *Hyacinthus* contained some rather different plants, it was split into several parts, and in 1849 the bluebell was placed in the genus *Endymion* by Garcke. However, many species in this genus were later considered to belong in the genus *Scilla*, and in 1934 it was again divided up, with the bluebell being moved into a third genus, *Hyacinthoides*. *Hyacinthoides non-scripta* (L.) Chouard ex Rothm. is the name it carries today. Similarly *Geranium*, *Pelargonium* and *Erodium* were all included in *Geranium* by Linnaeus. Later botanists split the original genus as more species were discovered and opinions changed as to which characters were important in defining the new genera.

8.2.1.2 Combining genera

When two or more genera are lumped, the new enlarged genus will generally take the oldest name of the genera involved. A few years ago it was proposed that the genera *Gaultheria* and *Pernettya* were too similar morphologically to be regarded as distinct. This entailed combining them into a new enlarged *Gaultheria*, the older of the two names. *Pernettya pumila* then became *Gaultheria pumila*, and *P. macrostigma* became *G. macrostigma*. A complication sometimes arises when the epithet of a species being combined has already been used in the older genus. When *Azalea* and *Rhododendron* were combined it was necessary to rename all azaleas as rhododendrons. However, *Azalea pontica* could not be called *Rhododendron ponticum* because that name was already in use. *Azalea pontica* was thus renamed *Rhododendron luteum*.



Rhododendron luteum

8.2.1.3 Changes at species level

Splitting and lumping also happen at species level. *Salix hibernica* was described by Karl Rechinger in 1963 from a tiny population on a mountain in the west of Ireland. However, the plant scarcely differs from a species of willow found throughout northern Europe from Denmark to Arctic Russia, described by Linnaeus as *S. phylicifolia* more than 200 years earlier in 1753. *Salix hibernica* Rech.f.³ is therefore now regarded as a synonym of *S. phylicifolia*. *Francoa sonchifolia* was thought to be one of a number of closely related species including *F. appendiculata*, *F. glabrata* and *F. ramosa*. They are now generally considered to comprise the single, highly variable species *F. sonchifolia*, with the other names being synonyms, though some people still regard them as distinct.



Francoa sonchifolia

³ In abbreviated author names, “f.” is short for filius, the Latin for “son.” This distinguishes the Karl Rechinger in question from his father, for whom the abbreviation is “Rech.”

8.2.2 Incorrect nomenclature

One problem which leads to name changes and the creation of **synonyms** is often misunderstood and requires some explanation. In the past, in particular during the nineteenth century when a huge amount of botanical exploration was taking place, it was possible for different botanists to describe and name the same species in different parts of the world, unaware that they were duplicating each others' work. With improved communication this rarely happens now, but it frequently led to cases of a single species with two or more names or conversely two or more species with the same name. When a taxonomist starts to research a group of plants in detail it is highly likely that some species will be found to have received more than one name. This confusion is sorted out by applying the Principle of Priority as set out in the Botanical Code; in essence this gives **priority** to the name published first. All other names then become synonyms of that name.

Some years ago gardeners and horticulturists were annoyed to learn that the plant they had long known as *Viburnum fragrans* Bunge was to be renamed *V. farreri* Stearn. When von Bunge named his species in 1833 he was unaware that the name had already been used by the French botanist Loiseleur in 1824 for a quite different species. When two or more species have been given the same name, the different usages of the name, in this case *V. fragrans* Bunge and *V. fragrans* Loisel., are said to be **homonyms**. When this came to the attention of William Stearn well over 100 years later, he knew that strict application of the Botanical Code meant that von Bunge's plant would have to be given a new name. He was however reluctant to do this because of the general inconvenience it would cause, and he tried to find a solution that would not involve any renaming. Unfortunately at the time this was not possible and in 1966 he reluctantly renamed the species *V. farreri* Stearn, with *V. fragrans* Bunge as a synonym.

As such changes can have a destabilising effect, a much more pragmatic view is now taken, and well-known species names, even if technically incorrect, can now be **conserved**. For example, the name of the popular heather *Erica carnea* was saved from being changed to the older name *E. herbacea*. Similarly the genus name *Freesia* has been conserved against the technically correct *Anomatheca*. The International Seed Testing Association (ISTA) has published a list of "stabilised names" down to species level.

Recently the familiar genus name *Chrysanthemum*, which includes the common garden and cut flower "chrysanth", was in danger of being lost because of strict application of the Principle of Priority. A researcher discovered that in 1855, *Chrysanthemum indicum* had been transferred to the genus *Dendranthema*, and as a result the latter name began to appear in catalogues and nursery lists in the 1990s. However, most horticulturists continued to ignore the name, which is just as well because at the 1999 International Botanical Congress the name *Chrysanthemum* was successfully conserved and *Dendranthema* rejected.

8.2.3 Misidentification

Plants in cultivation or in the wild may be misidentified and subsequently referred to by one or more wrong names. If a **valid** name already exists then once the situation is realised the true name will have to be used. If the species turns out never to have been properly named, then a new name will have to be published.

Sutera cordata was first brought to Britain from South Africa in mid-1992, and for a while was marketed under two incorrect names, *Sutera diffusa* and *Bacopa* 'Snowflake'. *Sutera diffusa* is a made-up name that has never been published and *Bacopa* is a quite different genus. As this species already had the valid name *S. cordata*, it was clear what it should be called.

Culinary rhubarb, originally grown for its medicinal properties and with a complex hybrid origin, was variously known as *Rheum rhabarbarum*, *R. rhaponticum* and *R. undulatum*, though

all three names actually belong to other species. Under the impression that it had no name, Thorsrud & Reisaeter named it *R. × cultorum* in 1948. However, this was invalid as they did not provide a proper description, and the plant turned out to have the much older valid name *R. × hybridum* Murray, published in 1775.

9 THE INTERNATIONAL CODE OF BOTANICAL NOMENCLATURE

The *International Code of Botanical Nomenclature* (ICBN or Botanical Code) sets out the rules for giving and using the scientific names of plants at all ranks in the taxonomic hierarchy including the familiar family, genus and species (see section 3.2). The scientific names of plants in cultivation are also governed by the Botanical Code, though they may also have additional epithets (Cultivar and Group) governed by the Cultivated Plant Code (see sections 4.1 and 4.2). A revised edition of the Botanical Code is published within a year after each International Botanical Congress, these being held every six years. The most recent (McNeill *et al.*, 2006) followed the Vienna Congress in 2005. The rules are summarised in six major principles:

1. Independence from zoological nomenclature. (Though *Pieris* is the genus name both of the Cabbage-white Butterfly and of a widely cultivated shrub the risk of confusion is minimal as the organisms come under different Codes. Both uses are thus legitimate.)
2. Use of **nomenclatural types** (see section 9.2).
3. Operation of the Principle of Priority, the baseline publication being Linnaeus's *Species Plantarum* (1 May 1753).
4. Provision of one correct name per **taxon**, generally the earliest **legitimate name** with **effective** and **valid** publication.
5. Use of Latin form for scientific names regardless of origin.
6. Retroactive application of rules unless stated otherwise. (Latin descriptions, for example, became mandatory in 1935 but this rule is worded so that it does not apply back in time to all previously published names.)

9.1 Naming new species and other taxa

When taxonomists name and describe a new **taxon** they must follow the rules set out in the Botanical Code. For a new species these rules require:

- provision of an **epithet** that has never been validly used before in that genus;
- provision in Latin of a full description or a shorter **differential diagnosis**;
- designation of a **nomenclatural type** (herbarium specimen) which must be deposited at a recognised institution.

9.2 The type concept

For every named species of plant there is usually a **nomenclatural type**. This is not necessarily a typical or even average example of the species, but simply a representative. When a species is first described, a dried herbarium specimen is selected as the **type specimen**. In the past living plants or illustrations could be selected as type specimens but this is no longer acceptable.

When a taxon, such as species, genus or family, is divided into two or more parts, the original name stays with the part containing the type specimen. This ensures that a name is fixed to a particular taxon and is not open to different interpretations. The type specimen literally acts as the name "carrier". Ideally all the type specimens associated with a genus should be studied

in order to determine the correct name for each species. In practice this is not always possible. The type of a species or any lower taxon is usually a single herbarium specimen, though there may also be other duplicates.

Note that there are several different sorts of type specimen, differentiated by prefixes attached to the word “type” (e.g. holotype, lectotype). These are explained fully in Article 9 of the Botanical Code.

10 THE INTERNATIONAL CODE OF NOMENCLATURE FOR CULTIVATED PLANTS

The *International Code of Nomenclature for Cultivated Plants* (ICNCP or Cultivated Plant Code) is simpler and shorter than the Botanical Code and sets out the rules for giving and using epithets in two special categories (Cultivar and Group) designed for recognising and naming variation within species or resulting from hybridisation. Note that the scientific names of plants in cultivation (e.g. family, genus, species and subspecies) are still governed by the Botanical Code, whether or not the plants have also been given cultivar names. Revised editions of the Cultivated Plant Code have in the past been published less often than for the Botanical Code, though rapid changes in cultivated plant taxonomy and related areas suggest that they will be needed more frequently in the future. New editions are the work of the International Commission for the Nomenclature of Cultivated Plants; the most recent (Brickell *et al.*, 2004) followed meetings of the Commission in Edinburgh (1998) and Toronto (2002). The Code is summarised in eleven major principles, including:

- Promotion of uniformity, accuracy and stability in the naming of cultivated plants.
- Operation of the Principle of Priority for Cultivars and Groups, each bearing only one **accepted name**.
- Free availability and use of Cultivar and Group names, which should not be used as trademarks.
- Regulation of the correct procedure for giving and using Cultivar and Group names.
- Support for the practice of registering Cultivar and Group names with **International Cultivar Registration Authorities** (ICRAs) and the publication by them of lists of registered names.
- The importance of selecting, preserving and publishing **Nomenclatural Standards** for Cultivar and Group names.
- Retroactive application of rules unless stated otherwise. (This is similar to Principle 6 in Chapter 9.)

Though the Cultivated Plant Code mentions and discusses scientific names, common names, trade designations and trademarks, it is made clear that they are not governed by this Code.

11 REFERENCES AND FURTHER READING

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12 WEBSITES

Horticultural Taxonomy Group (HORTAX)

<http://www.hortax.org.uk/>

International Cultivar Registration Authorities (ICRAs)

<http://www.ishs.org/icra/>

International Society for Horticultural Science (ISHS)

<http://www.ishs.org/>

Nomenclatural Standards

<http://www.rhs.org.uk/research/standards.asp>

International Seed Testing Association (ISTA): List of Stabilised Plant Names

The list is hosted by the Germplasm Resources Information Network (GRIN) and gives names which are stabilised down to species. The work is the product of the ISTA Nomenclature Committee, chaired by John Wiersema.

<http://www.ars-grin.gov/~sbmljw/istaintrod.html>

Searchable World Wide Web Multilingual Multiscript Plant Name Database

Site based at the University of Melbourne, Australia. Contact is Michel Porcher.

<http://www.plantnames.unimelb.edu.au/Sorting/Frontpage.html>

Other sites which may be of interest in terms of cultivars registered and protected for Plant Breeders' Rights (PBR):

Community Plant Variety Office (CPVO), Angers, France

Lists applications for European Community Plant Variety Rights and cultivars which have current PBR in Europe.

<http://www.cpvo.eu.int/>

International Union for the Protection of New Varieties of Plants (UPOV)

International Convention for PBR; guidelines and characteristics for DUS (Distinct, Uniform and Stable) tests for PBR.

<http://www.upov.int/>

UK Plant Varieties and Seeds Gazette

Lists cultivars which are currently registered with PBR in the UK.

<http://www.defra.gov.uk/planth/pvs/gaz.htm>

13 APPENDICES

APPENDIX 1: THE STYLING AND FORMATION OF CULTIVAR EPITHETS

1. Styling of cultivar epithets

- a. Cultivar epithets are indicated by enclosing them in single quotation marks, e.g. *Bellis* 'Dawn Raider'. It is not acceptable to use double quotation marks or the abbreviations cv. (cultivar) or var. (variety) for this purpose.
- b. Each word of a cultivar epithet must start with a capital letter unless against linguistic custom.
- c. The multiplication sign must not be used before a cultivar epithet even if that cultivar is believed to be of hybrid origin.
- d. There is a generally observed convention that scientific names (i.e. those governed by the Botanical Code) are printed in italic, whilst Cultivar and Group epithets are in ordinary Roman letters.

2. Formation of cultivar epithets

- a. With a few exceptions cultivar epithets formed on or after 1 January 1959 should not be in Latin form. The exceptions include those based on previously published names at a rank governed by the Botanical Code, as well as Latin words that are in current use in a language other than Latin, for example as terms, common phrases, personal names or place names.
- b. Cultivar epithets should be as short as practical and should not contain excessively long words that may be difficult to write or pronounce. On or after 1 January 1996 they must consist of no more than 30 characters (Roman letters, numbers and permitted punctuation marks and symbols), excluding spaces and the demarcating single quotation marks.

- c. Cultivar epithets do not have to consist of existing words but may be novel inventions.
- d. After 1 January 1959 cultivar epithets must not include superlatives relating to the merits of the cultivar (e.g. 'Earliest of All'); these could become confusing through later introduction of cultivars of similar (or better) qualities.
- e. After 1 January 1959 cultivar epithets may not contain the words "form" or "variety" or their abbreviations or equivalents in other languages.
- f. After 1 January 1996 cultivar epithets may not contain the following words: "cultivar", "grex", "group", "hybrid", "maintenance", "mixture", "selection", "sport", "series" and "strain" or the plural of these words, or the words "improved" and "transformed", or their equivalents in any language.
- g. Accents and other diacritical marks (apart from the **diaeresis**) should be included in cultivar epithets and may also be added to existing epithets published without them, if linguistic custom is better served.
- h. Cultivar epithets or parts of them should not be abbreviated with the exception of words or forms of address normally abbreviated by linguistic custom. The use of such abbreviations is optional and if desired the abbreviated word may be spelled in full, the two variants being treated as equivalent epithets. If an epithet is established using initials of personal names these may not subsequently be spelled out in full.
- i. After 1 January 1996 cultivar epithets must not contain the Latin or common name of the genus to which the cultivar is assigned.
- j. Only in exceptional circumstances should cultivar epithets be re-used within a genus (or **denomination class**, or group of similar genera), nor should they be so similar to any existing epithet as to be likely to cause confusion. Nevertheless it is now permissible under the Cultivated Plant Code to re-use a cultivar epithet if this is unlikely to cause confusion and if the epithet has only rarely been used in publications. In addition the International Cultivar Registration Authority should be satisfied that the original cultivar:
 - i) is no longer in cultivation
 - ii) has ceased to exist as breeding material
 - iii) may not be found in gene or seed banks
 - iv) is not a known component in the pedigree of other cultivars.

In the world of seed-testing and seed marketing legislation, cultivar epithets may be re-used if the original cultivar has not been in commercial existence for several years, even though it may still exist in genebanks or germplasm collections. To avoid confusion between cultivars with the same epithet, especially in databases, citation of a breeder's reference, application number or year of first registration is strongly recommended.

- k. Cultivar epithets should always be used in association with at least a genus name in Latin form, or the common name of the genus if this is unambiguous, e.g. *Bellis* 'Dawn Raider' is just as acceptable as *Bellis perennis* 'Dawn Raider', but Daisy 'Dawn Raider' is potentially ambiguous as many other genera are loosely referred to as "daisies".
- l. Cultivar epithets may not be translated into different languages. Where this has happened the translation is to be regarded as a **trade designation**. The transcription or transliteration of epithets is permitted, e.g. from Japanese to English (transcription) or from Russian to English (transliteration).

Epithets at the rank of Group are formed according to similar rules. However, they should never be placed within single quotation marks and should always contain the word "Group" as the first or last word of the epithet (or its equivalent in other modern languages). Epithets for the special version of Group used in orchid nomenclature, the **grex**, are formed in a similar way although there are several exceptions to their presentation. See the Cultivated Plant Code (Articles 19 & 20) for details.

APPENDIX 2: STATUTORY TESTING OF AGRICULTURAL AND VEGETABLE CROPS IN THE UK

Definitive reference samples

For DUS (Distinct, Uniform and Stable) testing of seed-propagated cultivars, there is a need to store a reference collection of seed samples to allow comparison of all cultivars within the same Group.

A seed sample received into the reference collection for testing a new cultivar is considered to be *definitive*. This seed will be used to grow and describe the new cultivar and will be used to represent that cultivar if grown in future tests. The definitive seed sample has a direct link with the cultivar description.

To be considered definitive, any replacement seed samples must:

- not be clearly different from the definitive sample
- conform to the description.

Legal status of cultivar descriptions

When a cultivar has been tested and found to be Distinct, Uniform and Stable (DUS), it will be described according to characters defined in international or national technical guidelines. The description will be compiled from data recorded on trials grown for the DUS test, and will distinguish each cultivar from any other cultivar whose existence is a matter of common knowledge at the time of the test application.

A cultivar must remain true to its description over repeated reproduction or multiplication to meet the requirement for stability.

The description of the cultivar is therefore the legal basis for registration on a National List or for granting an award of Plant Breeders' Rights.

National Lists

National Lists are lists of cultivars of the main agricultural and vegetable species which are eligible for certification and marketing. Seed of cultivars cannot be marketed if those cultivars are not registered on a National List.

A cultivar can be added to a National List if it is distinct, sufficiently uniform and stable (DUS), and for agricultural crops, has a satisfactory value for cultivation and use (VCU). Genetically modified cultivars and material intended for use as food or a food ingredient have additional requirements.

Plant Breeders' Rights

A Plant Breeders' Right (PBR) is a form of intellectual property right granted to the breeder of a new cultivar. According to this right, certain acts concerning the exploitation of the protected cultivar require the prior authorisation of the breeder. This is a unique form of protection, tailored to protect new cultivars, and has certain features in common with other intellectual property rights.

Once a right is granted (under the 1991 Act of the UPOV Convention), it is valid for a minimum of 25 years in the case of trees and vines and for 20 years in the case of other crops in the territory where it was granted.

A cultivar will be granted protection if it is distinct, uniform, stable and novel (see Appendix 3), and has a name (technically a "variety denomination") acceptable under the appropriate legislation.

APPENDIX 3: WHAT IS MEANT BY DISTINCTNESS, UNIFORMITY, STABILITY AND NOVELTY?

A. Distinctness

A cultivar is *distinct* if it is clearly distinguishable by one or more characters, which are capable of a precise description, from any other cultivar whose existence is a matter of common knowledge at the time of application for test.

“Common knowledge” means that a cultivar:

- is or has been entered in an official register, such as a National List, in any country;
- is or has been the subject of a Plant Variety Right in any country;
- is under consideration in any country as an application for Plant Breeders’ Rights or for entry in an official register, provided the application is subsequently successful;
- is or has been in cultivation, has been exploited for commercial purposes, is held in a recognised reference collection or has a precise description in any publication.

B. Uniformity

A cultivar is *uniform* if it is sufficiently uniform in those characters which are included in the examination for distinctness, subject to the variation that may be expected from its propagation.

C. Stability

A cultivar is *stable* if those characters which are included in the examination for distinctness, as well as others used for the description, remain unchanged after repeated propagation, or in the case of a particular cycle of propagation, at the end of each cycle.

D. Novelty

A cultivar is *novel* if propagating or harvested material has not been sold or otherwise disposed of, for the purpose of exploiting the cultivar, with the consent of the applicant:

- earlier than 1 year before the date of application in the UK;
- earlier than 4 years (6 years in the case of trees and vines) before the date of application outside the UK.

14 GLOSSARY

Accepted name: the correct name for any taxon, in accordance with the rules in the Codes of Nomenclature.

Article: a collection of associated rules and recommendations in a Code of Nomenclature; rules are binding.

Author: the person to whom a name or publication is attributed. The authors of plant names are sometimes referred to as “authorities”.

Author abbreviation: an abbreviated author’s name used in an author citation, e.g. L. for Linnaeus.

Backcross: the cross between a hybrid and one of its parents.

Basionym: the original name in which an epithet was first published. The species epithet *non-scripta* was first applied to the English bluebell as *Scilla non-scripta*, which remains the basionym even though the species is now called *Hyacinthoides non-scriptus*.

Binomial: the scientific name of a species, consisting of two words. The first word is the name of the genus and the second is the epithet given to that species to distinguish it from others in the genus. In the binomial (species name) *Rosa canina*, *Rosa* is the genus name and *canina* is the species epithet.

Clone: a number of genetically identical individuals resulting from asexual reproduction.

Code: one of the International Codes of Nomenclature. It is important always to consult the most recent editions.

Common (vernacular) name: the non-scientific name of a taxon in a modern language.

Conserved: a name contrary to the rules in either Code may be conserved if adopted as correct by ruling of the body responsible for such decisions (see section 8.2.2).

Conspecific: describes plants belonging to the same species.

Convar (convarietas): an informal category for cultivated plants sometimes placed among the ranks of the taxonomic hierarchy. It is not recognised by either of the Codes of Nomenclature.

Cultigen: a taxon believed to have originated in cultivation.

Cultivar: a taxon of cultivated plants that is clearly distinct, uniform and stable in its characters and which, when propagated by appropriate means, retains those characters.

Cultivar epithet: the final element of a full cultivar name, enclosed in single quotation marks to distinguish it from the scientific name that precedes it.

GENUS NAME (e.g. *Malva*) + SPECIES EPITHET (e.g. *moschata*) + CULTIVAR EPITHET (e.g. ‘Pink Perfection’)
→ CULTIVAR NAME (*Malva moschata* ‘Pink Perfection’)

The abbreviation “cv.” is no longer approved under the Cultivated Plant Code.

Cultivated Plant Series: a collective category used as a marketing device, which usually (though by no means always) links morphologically similar plants differing in a single character such as flower or leaf colour. Being strictly commercial and often given trademarks, they are not governed by either Code of Nomenclature. Not to be confused with the botanical rank “series”, an optional subdivision of genus (see section 5.2).

- Denomination class:** a genus, species, Group or other taxon within which identical or similar cultivar names should not be used.
- Diaeresis:** a diacritical sign (¨) placed over the second of two consecutive vowels to indicate that they are to be pronounced separately.
- Diagnosis:** a short statement, usually in Latin, which specifically describes how a new taxon differs from similar, previously described taxa. Can stand in place of a full Latin description for a new taxon.
- Effective publication:** (for names governed by the Botanical Code) publication in a printed, widely distributed, publicly available book or journal. Names governed by the Cultivated Plant Code are described as “published” if they appear in books, journals or trade catalogues.
- Epithet:** the final element of a species, Group or cultivar name when considered alone. In the species name *Malva moschata*, the specific epithet is *moschata*; in the Group name *Solanum tuberosum* Maincrop Group, the Group epithet is Maincrop Group; in the cultivar name *Malva moschata* ‘Pink Perfection’, the cultivar epithet is ‘Pink Perfection’.
- Establishment:** publication of a Group or cultivar name which is in accordance with the rules of the Cultivated Plant Code. See Chapters 6 and 7, and Article 24 of the Cultivated Plant Code.
- F₁ hybrid:** the first generation resulting from crossing different plants or taxa; used more strictly in plant breeding for the result of a repeatable single cross between two pure-bred lines.
- F₂ hybrid:** a plant-breeding term for the result of self-pollination within an F₁ population.
- Family:** the main rank into which related genera are grouped.
- Forma (f., plural formae):** the rank below varietas (variety) in the taxonomic hierarchy, often informally referred to as “form”.
- Genus (plural genera):** the main rank between family and species in the taxonomic hierarchy.
- Graft-chimaera:** a plant consisting of tissue from two or more species in intimate association resulting very infrequently from grafting.
- Grex (gx, plural greges or informally grexes):** a special type of Group, now used exclusively in orchid nomenclature, applied to the progeny of an artificial cross between known parents.
- Group (Gp):** a category governed by the Cultivated Plant Code encompassing plants (usually named cultivars) which share certain defined characters. A Group does not have to contain, or be solely composed of, cultivars (see section 4.2).
- Homonym:** when two or more taxa have been given the same scientific name, these names are described as homonyms. The first name published will normally have priority (see section 8.2.2).
- Hybrid:** the result of crossing different plants or taxa (see section 3.7).
- Hybrid formula:** the names of the parents of a hybrid linked by a multiplication sign, e.g. *Solanum nigrum* × *S. physalifolium* (see section 3.7).
- International Cultivar Registration Authority (ICRA):** an organisation or individual responsible for registering Cultivar and Group names for a particular taxon, usually a family, genus, species or other denomination class. There are for example ICRA’s for conifers, *Orchidaceae*, *Narcissus*, *Rhododendron* and *Prunus mume*, among many others.

Legitimate name: a name published in accordance with the rules set out in the Botanical Code.

Line: a plant-breeding term used to describe plants resulting from self-fertilisation, inbreeding or repeated selection.

Nomenclatural Standard: a herbarium specimen, seed sample, illustration or other reference material to which the name of a cultivar or Group is permanently attached. Such material should be maintained to demonstrate the diagnostic characters of the cultivar in question.

Nomenclatural type: under the Botanical Code a specimen on which the formal description of a taxon is based. This is usually a herbarium specimen and serves as the defining reference point for the correct application of the name in question (see section 9.2).

Plant Breeders' Rights (PBR): a form of intellectual property (IP) rights granted to the breeder of a new cultivar for a certain period, if the cultivar meets certain clearly defined criteria.

Plant Patent: a form of intellectual property (IP) rights similar to *Plant Breeders' Rights*.

Plant Variety Rights (PVR): a form of intellectual property (IP) rights similar to *Plant Breeders' Rights*.

Priority: an important principle of nomenclature whereby the earliest valid publication of a name takes priority over later names (see section 8.1 and Chapter 9).

Rank: one of the hierarchical categories used in plant classification (see section 3.2).

Registration: the act of registering a Cultivar or Group name by the appropriate International Cultivar Registration Authority.

Selling name: see *Trade designation*.

Sensu lato (s.l.): in the broad sense (see section 3.3).

Sensu stricto (s.s.): in the narrow sense (see section 3.3).

Series: see *Cultivated Plant Series*.

Species (sp.; plural species, spp.): the main rank below genus in the taxonomic hierarchy.

Species epithet: the second part of a binomial, the first part being the genus.

Standard Portfolio: the Nomenclatural Standard together with any additional material such as extra herbarium specimens or illustrations, descriptions, details of registration and parentage, nursery catalogues, and DNA data or samples (see section 7.1).

Subspecies (subsp.): the main rank below species in the taxonomic hierarchy.

Synonym: a valid name for a taxon that is not currently accepted, usually through application of the Principle of Priority (see section 8.1).

Taxon (plural taxa): a taxonomic group at any rank, e.g. genus, species, subspecies, variety, Group or cultivar.

Trade designation: a name used to market a plant when the original cultivar epithet is considered unsuitable for selling purposes; not recognised by either of the Codes of Nomenclature. Also known as a *selling name*.

Trademark: a sign, usually made from words, letters, numbers or symbols, that identifies the goods of a particular enterprise, distinguishing them from the goods of its competitors.

Trinomial: a binomial followed by a third epithet with no indication of its rank (see section 3.6).

Type specimen: see *Nomenclatural type*.

UPOV (Union Internationale pour la Protection des Obtentions Vegetales): the International Union for the Protection of New Varieties of Plants is an intergovernmental organisation whose objective is the protection of new varieties (cultivars) of plants by intellectual property rights.

Valid name: a name published in accordance with the rules set out in the Codes of Nomenclature.

Variant: an informal term for a plant or group of plants which shows some character differences from others in the same taxon.

Varietas (var.): the main rank between species and forma in the taxonomic hierarchy.

Variety: an informal term for varietas (q.v.) but sometimes also used instead of cultivar. The distinction between varietas and cultivar is an important one (see section 4.1).

Variety denomination: a cultivar epithet designated by a statutory authority.