

## Who Am I?: Plant Identification®

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*“What’s in a name? That which we call a rose  
By any other name would smell as sweet.”*  
(from William Shakespeare’s *Romeo and Juliet*)

### INTRODUCTION

I want to talk to you today about plant nomenclature. A good word that is nearly as hard to pronounce as many of the plant names we have to use. It literally means a system of plant names. In reality it is a complex process whereby everyone in the world can talk about plants with some level of assurance that they are discussing the same thing. The subject is far too big for me to cover in my short time today. Indeed it is big enough for a whole course at university level or theme for a whole conference.

The system we use today is in two parts. One comes from work done by Carolus Linnaeus in writing his *Species Plantarum*. In 1753, he developed the system we basically use today as the International Code for Botanical Nomenclature. The other comes from work done in the early nineties which resulted in the International Code of Nomenclature for Cultivated Plants. These two pieces of work give structure to our industry.

I intend to give a brief overview of what makes up a plant name and the rules that govern it. I want to then talk about why the correct naming of plants is important to us as professional plant propagators. Finally I will give you some examples of what can go wrong and the possible consequences.

### THE PLANT NAME

Over time we have developed a structured system for our own names. In the west we basically have a binomial; a surname and a christian name. Originally these were based on who we were, what we did, or where we lived. For example my name was that given to those who looked after the larks for the local lord. Other names are on relationships, e.g., Harry Richardson — Harry who was Richard’s son. Unlike plants though, many of us have the same name, which sometimes gives rise to real confusion and even very negative consequences.

Plants can also be identified using characteristics such as whether they are a tree, shrub, or vine. Possibly using how they grow; evergreen, deciduous, annual, or perennial. Another option is where they come from, by country, region, or environment. These word descriptions are useful but not comprehensive in separating one plant from another. Many quite different plants could be a vine. We would then need to add more words to give more accuracy. We could say “Purple flowering, cold tolerant, evergreen vine from Australia” as the name for *Hardenbergia violaceae*. The problem is this is very cumbersome and still not unique.

In the 18th century some hard work was done by Carolus Linnaeus in developing the current binomial system. It combines the genus and species epithet to make a two part name called the species name or plant binomial. The two names

are Latinized words which often have a level of description within them. This may refer to where the plant comes from or was first described. For example, one of the great Australian trees is the massive river redgum. The Latin name is *Eucalyptus camaldulensis* — *Eucalyptus* comes from the Greek *eu* meaning well and *calyptos* meaning covered referring to the covered flower bud. The species epithet comes from Latin — *ensis* referring to where the plant was first described, and Camalduli a small region in Italy that is famous for its monks. They may refer to the color, *alba*, *nigra*, or the height, *nana*, leaf/flower shape, *longifolia*, *deltaphylla*, *grandiflora*, or simply used to honor the discoverer or another famous person, *muelleri*, *banksii*.

Latin is an old language that is not spoken and rarely even taught, so why don't we use English? Well, although we would like to think otherwise, the whole world does not speak English. Secondly, the work was done originally in Latin and it would not be practical to change to another language. Finally, Latin has a solid set of grammatical rules that doesn't have more exceptions than not — unlike English.

The generic name is based on a group of plants that all share a similar set of characteristics within a broader grouping called a family. The species epithet covers a subsector of that group with one or more unique characteristics that make that plant quite different from the others.

As there are many species that have developed differences within their range that are regular and repetitive a system of naming has developed for sub-species and varieties. These plants are consistent over generations of naturally occurring progeny and the variations are different from the "type." The "type" is the original plant that was first described. It may be a preserved sample, a drawing or maybe only a written description. Upon classifying a subspecies or variety it will take the subspecies name that is the same as the species epithet. For example there are several forms of *Lavandula pedunculata* that have now been given a sub-species rank. *Lavandula pedunculata* subsp. *sampaiana* is distinctively different plant from the species. The original form that was first used to describe *L. pedunculata* is now called *L. pedunculata* subsp. *pedunculata*.

There are higher ranks (Family, Class) and lower ranks (form), but basically the botanic name stops here and is governed by the rules of The International Code for Botanic Nomenclature. This is reviewed and maintained on a regular basis; the last full review was done in 1999. There was another done in 2005, which is yet to be implemented.

The next stage is the cultivar. This is the level where most of us in industry work. The cultivar names are governed under the rules of The International Code of Nomenclature for Cultivated Plants. This is also reviewed regularly and has been described as an attempt by the horticulture industry to self-regulate.

The word "cultivar" was first coined in 1923 by L.H. Bailey from the words: CULTIVated VARIety. There have been many attempts since then to define what a cultivar is. This has been a dynamic process with a great deal of debate. One description that works well is that of W.T. Stern in 1986 (his book *Botanical Latin* is an excellent reference for understanding plant names): "By cultivated plants is meant plants raised in cultivation which differ sufficiently from their wild ancestors or, if taken into cultivation from the wild, are worthy enough of distinction from wild populations for horticultural purposes to merit special names."

Basically, a cultivar is a plant that exists due to the intentional involvement of man and would most likely fail to retain its specific characteristics if returned to the wild.

Finally there are strict rules governing the writing of plant names. With the modern word processors there is no excuse for not abiding by them. They make it clear to the reader what part of the name is at what rank:

Genus: In italics with first letter in upper case.

Species: In italics, all in lower case

Subspecies, variety, and form: In italics, all in lower case

Cultivar: In normal font, the first letter of each word in upper case, enclosed in single quotes (") or preceded by cv.

### **WHY DO WE NEED A PLANT NAME?**

Why do we need a plant name? Many home gardeners, who after all are our main customer, really do not care what a plant is called. All they are interested in is what it does and where it grows. For them, a common name is fine. The problem is that many of our fellow nurserymen feel the same.

All the work done in creating the two systems has been to promote stable nomenclature. This enables plant growers to know that what they are growing will exhibit certain characteristics, which in turn helps nursery owners to understand their products. Plant breeders can relate knowledge of a plant's genetics to their breeding program and what they wish to achieve. Retailers can have more confidence in the information they disseminate, and the gardening public can make their purchases with regard to information in books, magazines, and on the internet.

For commercial growers this can be of critical importance. Again, relating to the lavender industry, the actual cultivar is critical. A farmer wants to buy 5000 plants of *L. × intermedia* for a commercial oil farm to produce medium camphor lavandin oil. The farmer would require the cultivar *L. × intermedia* 'Grosso' to get the best return for investment. If the farmer were supplied with the cultivar *L. × intermedia* 'Super' the difference would not be known until the plants were 3 years old and the oil distilled. Even then the grower might not be sure but if the lavender disease "shab" (*Phomopsis lavandulae*) were to hit the farm all stock would die. If the farm had 'Grosso', none would die — thus making the mistake a significant cost.

### **SO!**

There are many other plant industries with similar taxon issues. I spend a lot of time with lavender and am acutely aware of the hurt some small farmers have suffered due to, at best ignorant, but more likely immoral nursery operators. They have been supplied with completely wrong plants and have lost several years of income, plus the initial purchase cost.

This brings me to the main point of this presentation. We as plant propagators are the guardians of plant identity. It is our responsibility to ensure that plant names are correctly used. That they are not changed or given made up "nice sounding" names, and that at each stage in the production system the plant name is secure. I personally believe that the processes used in a propagation nursery must ensure that plants cannot get mixed up. For a nursery to receive any form of quality assurance it must be able to trace a plant and its name right through the whole production cycle. I also feel there should be an embedded code of ethics that nursery industry members agree to abide by — including the two nomenclature codes and following a set guideline on plant labeling.

The Australian industry has been working on these issues for several years and has developed a set of guidelines. They have also been looking at the issues surrounding plant breeder's rights, plant patents, and trademarks. These are complex issues which can quickly get growers agitated. With cool heads and some serious effort, we can sort out all the naming issues without affecting business profitability.

We are a regular importer of plants. Due to Australia's strict quarantine regulations plant importing is a specialized business with only a limited number of people participating. Unlike Europe and U.S.A., we tend to import only one or two plants of a taxon. If they survive the importing process, these then become the source from which the whole country will eventually be supplied. Hence it is critical at this point that plants are correctly named and true to type. A couple of examples where this has been messed up are:

- *Schinus molle* vs. *S. areira*. For many years Australian botanists and nurserymen have struggled to reconcile the descriptions of *S. molle* in the texts with what we have been growing. Eventually it was determined that the original importer received the source plants incorrectly identified, and we were actually growing *S. molle* var. *areira*.
- *Lavandula angustifolia* 'Bowles Early' (syn. *L. × intermedia* 'Miss Donnington') vs. *L. angustifolia* 'Bowles Early'. The latter is a synonym for the plant called *L. angustifolia* 'Miss Dunington'. When it was imported into Australia the name got labeled incorrectly as 'Miss Donnington'. To add real confusion the plant that was then mass distributed across the trade was an incorrectly labeled *L. × intermedia* and not *L. angustifolia*. When a book was written about successful farm diversification, a small lavender grower was highlighted. Unfortunately the plant she used was the original 'Miss Donnington'. Of course all the entrants to the industry started buying up and planting out 'Miss Donnington'. The extent of the problem only became apparent when the industry matured and started to look at what was being produced. To give an idea of the variance it is like a vineyard planting out with Riesling grapes, only to find 3 years later that the wine they are producing is a Shiraz.

Finally there is the current practice of giving plants a breeding name and then when they are imported into a new country, or put into mass commercialization — they are given another name. The growers then use the new name as though it is the correct cultivar name, while there are still plants out there with the old name. Hence we have several names for the one plant, which is returning us to the problem of common names! According to the rules a plant's correct name is the one it is first given.

We have imported many plants under a specific name then years later find someone else has also imported the plant (before or after us) under a different name. Sometimes this is accidental, but it is often intentional. Having a different name means it can be marketed as a "new release." This causes confusion and lowers us in the eyes of the gardening public and horticultural media, particularly when they grow the two together and see them as the same.

With a push to control the spread of plant diseases and weeds around the world, this practice makes quarantining difficult and also brings about a sense of distrust from quarantine and government of our industry. This may result in greater

restrictions of across-border plant movement. This hurts the honest operator by making their life harder and making the rewards for the unethical one, greater. When people start smuggling in plants under different names, we then run the risk of diseases and weeds becoming a real problem.

With some plants, government regulation comes into affect — but in most cases we, as the industry, must regulate ourselves. We are not doing a very good job of it. We all need to (using an Americanism) “step up to the plate” and do right in our own businesses.

At Larkman Nurseries we take this very seriously. I will not enter a new plant into our database until I am sure of the correct nomenclature and as sure as I can be that it is true-to-type. Secondly, at every stage of production the plant (seed, cuttings, or plant) is fully and correctly labeled. We take our responsibility very seriously and have dismissed staff for not following procedures.

## **SUMMARY**

In summary, we have a system that allocates a unique name to each and every plant. This system is governed by a set of comprehensive and regularly reviewed rules. The decision to abide by these rules, is in general, a personal one with very little regulation by government and only in a few cases any degree of market pressures. As an industry we do not have a particularly good record in this area and are not trusted by many authorities. I have spent time with nurseries in Australia, New Zealand, South Africa, U.K., Germany, and Holland and do not believe any region is any better or worse.

The repercussions from poor plant identification can be both expensive and long term and it is we, the propagators, who are best able to ensure plants are correctly identified. So please, take the time to look at how you address the issues of plant naming. If you do not have a full understanding of plant nomenclature, do some research. Google “Plant Nomenclature” and you will find numerous web sites that will provide you with some good reading. Finally, check-up on what you are growing. Are you using the correct name?