



Understanding Plant Names

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Figure 1. Plants are typically sold with a label or tag. These *Echeveria* plants have labels inserted in the soil. Each label includes the name of the plant and growing advice.

Having the correct name for a plant is important. A name is key to finding information about a plant from the internet or reference books. Is the plant native to Arizona? Is it toxic? Can it withstand freezing? How big can it grow?

Naming a plant is the process of assigning a scientific name to a plant new to science.

Identifying a plant is finding the correct scientific name for a plant that is new to you.

Identification guides and dichotomous keys are tools for identifying plants (Walters & Keil, 1988). Phone apps now offer assistance. The apps vary in reliability. They continue to improve. Your best tool for horticultural plant identification is the label or tag which came with the plant when you bought it (Figure 1).

Bearing the Name

Don't lose your name tags! Plant names may come printed on labels stuck in the soil in the pot. Names may be printed on tags attached to branches of trees. Names may appear on stickers on the side of pots (Figure 2). It is easy to lose a label

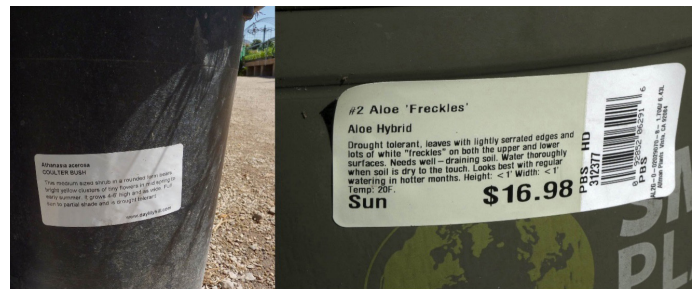


Figure 2. Plant names may be found on a sticker on the side of a pot.

when the plant is removed from its pot. Labels stuck to a pot can rarely be removed and used in a new location. Pots are often discarded together with their plant labels. Labels may fade in the sun or shatter with age. Making a digital photo archive of your plants photographed together with their name is a good practice.

Serious gardeners are vigilant, providing plants with fresh labels. Horticultural labels come in many colors (Figure 3). Various sizes and configurations are available for different



Figure 3. Horticultural plant labels are available in a variety of colors useful for conveying information or helping with organization.



Figure 4. Different styles of blank plastic horticultural plant labels.



Figure 5. Metal tags designed to be written on with a pointed tool, embossing writing into the metal.

needs (Figure 4). Plastic labels may last some years in the sun, sometimes decades in shaded sites before turning brittle. Writing with pencil is preferred over marker, as pencil will not fade in the sun as marker can. Very serious growers may utilize metal foil plant tags which are written on with a pointed tool, embossing the name into the foil (Figure 5). These metal tags often have a wire tie allowing them to be twist-tied around a small branch (which should be done loosely, permitting the branch to expand with growth). Metal tags can be inserted into the soil of a pot and are designed not to rust.

Most plants are sold with a tag or label offering a name for the plant. Unfortunately, the presentation of the name may be confusing. Sometimes a label indicates only a common name, a cultivar name, or a trade name. The proper

scientific name for a plant may be left off or abbreviated. The following discussion of plant names will help with understanding how to use and write plant names, and interpreting what is written on plant labels.

Common Names for Plants

The elephant tree is a small tree native to Arizona, California, and Mexico (Figure 6). It is sometimes used in Arizona landscaping or grown in containers. The elephant tree's name may be presented with capitalization, as Elephant tree or Elephant Tree. In Mexico it is known as torote, torote colorado or copal. Its scientific name is *Bursera microphylla* (Turner et al. 1995). The elephant tree does not grow in the Old World and it has no connection with elephants. The tree has a thick lower trunk which may be likened to an elephant's foot.

Common names are popular with the public. These names can be descriptive and intuitive. They may be easier to spell and pronounce than scientific names.

- Popular and well-known plants may have several different common names in use.
- A rare or little-known plant may have no common name and is typically referred to by its scientific name.
- Many common names are not specific to a certain species. The name "elephant tree" has been used for several different species of plants in different plant families.
- Names like "barrel cactus" may refer to plants of a general form belonging to more than one genus.



Figure 6. The elephant tree, *Bursera microphylla*, growing in Sonora, Mexico.

- Plants often have different common names in different languages, and they may not be direct translations.
- Plant families have common names too. The plant family Solanaceae may be referred to through a variety of common names such as the Tobacco Family or the Potato Family or the tomato family.

Common names follow no consistently used rules for capitalization, spelling, or hyphenation (Walters & Keil, 1988). When writing about plants, be consistent with capitalization and hyphens throughout the text. Rules do apply to the proper use of scientific names and cultivar names. This should be kept in mind if repurposing or borrowing a scientific name to use as a common name. The word *adenium* makes a fine common name for the plant genus *Adenium*. The word *adeniums* may be used as a plural of *adenium*, but it should not be italicized. Nor should *adeniums* be capitalized unless starting a sentence. This helps to avoid confusing common names with scientific names.

The USDA Plants Database website can be referenced for standardization of common names, however this site only catalogs plants native or weedy in North America (USDA NRCS, 2023). It is not comprehensive of plants found in gardens and landscapes, or plants of other continents.

Many common names for plants have been around a long time and are well represented in botanical texts. Anyone may create a plant common name. Those that stick are the ones which succeed as memes. Common names are a free-for-all. To achieve consistency, accuracy and brevity, the system of scientific names was developed.

Scientific Names

The branch of botany concerned with naming, describing and classifying plants is called **plant taxonomy**. **Nomenclature** is a system of constructing and applying names. All plants described by science have been given a **scientific name**. These names are also called **Latin names** as the system uses word construction methods from the Latin language (Walters & Keil, 1988).

A scientific name for a **species** consists of two essential parts, the **genus name** and the **specific epithet**. This is known as **binomial nomenclature**, a naming system developed by Carl Linnaeus in the 18th Century (Walters & Keil, 1988). Understanding the basics of scientific names is valuable for gardeners, naturalists, and writers on all things natural. The binomial nomenclature system is used for names of plants, animals, fungi, bacteria, viruses and fossils. The fundamentals are the same for names of all life. There are somewhat different conventions used for animals vs. plants, and for unusual organisms such as lichens (a symbiotic partnership of fungi and algae).

Parts of a Name

Let's look at the scientific plant name for the elephant tree:
Bursera microphylla A. Gray

What are the parts of this plant name?

Bursera microphylla is the name of the plant species.

Bursera is the genus name.

microphylla is the specific epithet, not the species name itself.

A. Gray is the abbreviated name of the author of this plant species.

A **species** is a key concept in biology. In nature, individuals of a species reproduce together and produce more of that species. Reproduction between different species is uncommon and often impossible. Species are the “basic unit” of classification, representing the commonly distinguished “kinds” of plants and animals we recognize.

A set of related species (plural: species) makes up a **genus**. **Genera** (plural of genus) are groups of closely related species believed to have a common ancestor. While genera are taken to be natural groups, their delineation is in part a human construct.

Related genera (plural of genus) are grouped into a **family**. Like genera, families are delineated around what we understand to be natural groups. Families are grouped into orders, and orders are grouped into higher hierarchies of organization. These higher levels are not parts of the binomial nomenclature used in scientific names.

The construction of a scientific name follows well defined rules. Plant names are governed by the International Code of Nomenclature for algae, fungi, and plants (Turland et al. 2017). Animal names are governed by the International Code of Zoological Nomenclature. Other international codes govern the naming of bacteria, archaea and viruses. The codes follow similar rules and differ between them in small matters of historical convention and necessities of differing biology.

All species of plants, fungi, and algae must have unique scientific names. However, the same name may co-occur between plants and animals. The name *Sida* is used for a genus of plants in the cotton family. The name *Sida* is also used for a genus of crustaceans.

What does the Name tell you?

Bursera microphylla A. Gray

What does this name tell you?

According to the conventions of plant taxonomy:

Bursera microphylla is a species. From the name alone you cannot know if this species is a plant or animal. If you know the Latin root of the word *microphylla* means “small leaves,” this is a good hint this is a plant name.

This plant belongs to the genus *Bursera*. If you are familiar

with other *Bursera*, such as *Bursera fagaroides*, you can be assured *Bursera microphylla* is a relative. It likely shares similar characteristics and may be vulnerable to the same pests and diseases. *Bursera microphylla* is more closely related to every other *Bursera* species than to species in any other genus.

While it is not indicated in the above name, there is a plant family named Burseraceae. The family Burseraceae must contain the genus *Bursera*, though the bursera family may also contain other genera (and it does).

Someone by the name A. Gray (Asa Gray, an American botanist) was the **author** of the **scientific description** of this species. Author names are often abbreviated, sometimes as only a single letter. The abbreviation for the name Carl Linnaeus is L. Author name abbreviations are standardized and governed by other nomenclatural texts, to avoid duplication of author names.

What does the Latin mean?

I often hear people say they wish they had taken Latin in school because they imagine knowing the language would unlock a wealth of understanding of plants. While knowing Latin has its benefits, the information content in the root of Latin names is limited. Knowing the root meanings of parts of a plant's Latin name is not enough to identify a plant.

Bursera microphylla A. Gray

What can you know from the Latin in the name?

The word *microphylla* means "little leaf." This is not very useful for identifying the plant.

The name *Bursera* is not based on a Latin word. It is an honorific name for a Danish botanist, Joachim Burser. This isn't helpful for understanding the plant. Honorific names are very common, especially among older plant names. The

author of the plant name has honored someone by naming a plant after them. Very often the author will choose to honor the person who discovered the plant in the wild. But the author might choose to honor a friend or benefactor. It is also common for the specific epithet to refer to where the plant grows or a general characteristic of the plant.

A comparison of Scientific Names

Bursera microphylla

Common name: elephant tree

Compared with:

Parkinsonia microphylla

Common name: little leaf palo verde

The two trees are compared in Figure 7

Are these two plants related?

They are not, despite similarities in their names and some similarities in appearance. Understanding of the names reveals the plants are not closely related. Both plants share the same specific epithet *microphylla* and both have small leaves. Desert plants often have small leaves. Both plants are desert trees which grow in the Sonoran Desert. They may be seen growing side-by-side on South Mountain in Phoenix, Arizona.

These two species have different genus names. The scientific names indicate the trees belong to different genera, so they are not very closely related. The two genera happen to belong to different families. The palo verde is closer related to a string bean or a peanut than to the elephant tree. Not all of this is communicated in the scientific name itself, but the scientific name is the best reference to a wealth of information available on a species.



Figure 7. *Bursera microphylla* (left) and *Parkinsonia microphylla* (right).

How to write Scientific Names

Actaea arizonica (S. Watson) J. Compton

Scientific names should be in *italics* (or underlined) but not both. Underlining of scientific names is an older convention used when the underscore was available for typewriters and italics were not. Today italics are enabled by word processing software.

Genus names must start with a capital letter.

Specific epithets should never be capitalized, even when named after a person or a place name.

Author names are not written in italics, nor are they underlined.

The species name *Actaea arizonica* may be shortened to *A. arizonica*. This is only done when the genus *Actaea* has been spelled out earlier, and when shortening the genus to *A.* does not cause confusion with other genera under discussion in the text. Abbreviating the genus is not done when the genus name is the first word in a sentence.

Subdivisions of Species

Species are the basic unit of biological classification. Species are grouped into genera, genera into families, and families into orders. The system of binomial nomenclature does not encode higher levels of relationship above species. However, it does have capacity to indicate subdivisions of species, also called **infraspecific taxa** (a taxon is any nomenclatural unit at any level).

A plant species may be divided into subspecies or varieties, or both. **Subspecies** and **varieties** are not synonymous. The subspecies is a higher level of distinction, closer to being separate species (Steussy, 2009). Many scientific name changes involve raising a taxon from subspecies level to species level, or back down again. The practice of grouping together formerly distinct species into subspecies of one species is referred to as “lumping.” The practice of elevating subspecies of one species to distinct species of their own is referred to as “splitting.” These changes in scientific names are a point of perpetual frustration for horticulturists and naturalists.

Lupinus aridus ssp. *lenorensis*

Common name: desert lupine

Subspecies are the first level below species.

Subspecies are indicated with a connecting term **ssp.** or **subsp.** These are not capitalized or italicized. Do not confuse these terms with **sp.**, an abbreviation for species (singular), or **spp.**, an abbreviation for species (plural).

The subspecies *lenorensis* has been described as a significantly different kind of plant from *Lupinus aridus*, yet not different enough to warrant classification as a different species. The description of the subspecies *lenorensis*

necessitates that a subspecies *aridus* is automatically conceived to represent the plants originally described as *Lupinus aridus*. The name *Lupinus aridus* ssp. *aridus* is an autonym, an “automatic” consequence of the description of the *lenorensis* subspecies for this species.

Abies lasiocarpa var. *arizonica*

Common name: corkbark fir

Varieties are a level below subspecies. A subspecies may sometimes be subdivided into varieties, or varieties may stand alone as seen here. Variety is indicated with **var.** This is not capitalized or italicized. Subspecies and varieties are not the same thing, they are not interchangeable. However, plants may be reclassified between the levels of species, subspecies and variety.

Lophocereus schottii forma *monstrosus*

Common name: totem pole cactus

Forms (forma) are minor variants seen in wild plants. Forms are the lowest hierarchy, existing below variety (Steussy, 2009). Forms are indicated with the connecting term **forma** or **f.** These connecting terms are not capitalized or italicized. Many forms are named after single character state changes such as white-flowered forms of plants normally with colored flowers. Forms can occur as few or single individuals among normal populations (Steussy, 2009). Being based on single character states, there is little assurance that character expression represents a shared common ancestry between populations. They may be an expression of recessive characteristics in the homozygous state. The botanical description of forma has fallen out of fashion with the understanding of these shortcomings (Steussy, 2009). The exceptions are for certain plants of economic value or dramatic forms which could otherwise be mistaken for unique species, such as in *Lophocereus schottii* forma *monstrosus*, the totem pole cactus. Many unusual forms seen in nature are better described as cultivars if they are propagated for horticultural value.

Hybrids

A **hybrid** plant is the result of the mixing of genes between two different types. Hybridization is more likely between closely related plants. Hybrids are not uncommon between subspecies or varieties within a species. Hybrids are rarer between species within a genus. Hybrids are very rare between species belonging to different genera. Hybrids are more common among plants than animals. The mule is a result of hybridizing (crossing) a male donkey with a female horse. The mule is famously sterile. But sterility is not a regular condition in hybrid plants. Many plant hybrids are fertile and can reproduce with the parent species (backcrossing) or can reproduce with other hybrids, creating complex hybrid offspring.

Hybrid Names

Hybrid plants are known in nature and may be represented with a hybrid formula.

A plant hybrid resulting from a cross between *Agave chrysantha* and *Agave toumeyana* var. *bella* may be represented as *Agave chrysantha* × *Agave toumeyana* var. *bella* or as *Agave chrysantha* × *A. toumeyana* var. *bella*. This is a hybrid between species (an interspecific hybrid). The multiplication symbol × is used to indicate the hybrid cross. This is preferred over using the letter x.

A rare wild agave plant was once described as *Agave arizonica*. This plant was later discovered to be a natural hybrid between *Agave chrysantha* and *Agave toumeyana* var. *bella*. The name *Agave arizonica* was changed to *Agave* × *arizonica* (a hybrid name or nothotaxon) to reflect its hybrid origin. A multiplication symbol has been added before the specific epithet. Once thought to be an endangered species, *Agave* × *arizonica* is now understood to be an infrequent natural hybrid occurring where the two parent species grow together.

The chitalpa is a small ornamental tree occasionally used in Arizona landscaping. Its scientific name is ×*Chitalpa tashkentensis*. The multiplication symbol before the genus name indicates the chitalpa is a rare hybrid between different plant genera (an intergeneric hybrid). The chitalpa is an artificial hybrid between the desert willow, *Chilopsis linearis*, and the catalpa tree *Catalpa speciosa*. The nothogenus name ×*Chitalpa* has been formed from the words *chilopsis* and *catalpa*. The multiplication symbol × is often left off in casual usage of the name.

Hybrid plants in cultivation may be described as cultivars, without employing a hybrid formula.

A special naming convention known as the grex is used for the naming of complex hybrids. The grex system is only used for the naming of orchids.

A grafted plant is not a hybrid. The name given to a grafted plant is the name of the scion, the desirable plant stem supported by the rootstock. Horticulturists should keep track of the name of the rootstock used, if it is known. The rootstock type can influence the size, vigor and disease vulnerability of the grafted plant. Rootstock identification is of particular significance for grafted citrus.

Name Changes

Scientific names are not arbitrary, though much latitude is permitted for word choices for authors of species descriptions. The organization of scientific names communicates the relationships among organisms. All species in a genus are more closely related to one another than to species belonging

to other genera. All genera in a family are more closely related to one another than to genera placed in other families. These relationships were rarely self-evident. Discovering these relationships required study and evaluation. Generations of discovery and analysis have built our current phylogenetic classification system. More continues to be learned. When new data conclusively show a new classification is needed, scientific names must be changed to reflect the new understanding of species relationships.

Scientific names are used by scientists around the world. The same names are used, even in languages written in different character sets. The standardization of scientific names has been a huge benefit to understanding and communication among scientists. Scientific names may seem official, but they are not eternal.

Changes in scientific names are a point of perpetual frustration for horticulturists and naturalists. However, name changes are intended to reflect updates in our understanding of plant relationships. The International Code of Nomenclature governs when and how name changes are made. Name changes are not sanctioned to craft better descriptive epithets or even to correct misleading ones. Scientific names are not to be changed out of desire to erase honorifics from people who have fallen from contemporary favor.

Author Names

The author name is employed in technical botanical writing. It is best left out of writing for general audiences and most horticultural writing. Still, it is good to understand the underlying function of the author name when it is encountered.

Properly describing and applying a name to a new organism is a complicated process. It is governed by the International Code of Nomenclature for the organism. The name of the author (or authors) who wrote and published the scientific description establishing the new name will be written after the scientific name. Usually it is an abbreviation of the author's name. Observant readers may notice the author name may be abbreviated differently in some works, as there are different abbreviation conventions which are allowed.

Actaea arizonica (S. Watson) J. Compton

This name indicates a species concept for *Actaea arizonica* as described and named by author J. Compton. This species concept is different from the prior description of this plant as *Cimicifuga arizonica* by S. Watson. The change in species concept is indicated through the convention used in the species' author name.

Pronouncing Scientific Names

“How they are pronounced really matters little provided they sound pleasant and are understood by all concerned.” – William T. Stearn, *Botanical Latin*, 4th edition, 1996.

While comprehensive rules govern the application and presentation of scientific names, there is no consensus around the world for the pronunciation of these names (Walters & Keil, 1988).

- Pronunciation of scientific names does not follow strict rules.
- Pronunciation does not exactly follow Latin pronunciation guides.
- Pronunciation can be expected to differ somewhat in different countries.
- Try to pronounce each syllable in the word, ie. *Bursera microphylla*: Bur-Ser-ah My-Cro-Phyll-ah.

Names for Cultivated Plants

The system of binomial nomenclature is used to name and describe the diversity of wild organisms in nature. Another code, the International Code of Nomenclature for Cultivated Plants (the Cultivated Plant Code) has been developed to govern the naming of plants selected or modified in cultivation (Brickell et al. 2016). This naming system is intended to name and distinguish outstanding cultivated varieties which are likely to be encountered in cultivation. The Cultivated Plant Code helps to keep the same name from being used for more than one kind of plant, and to keep the same plant from circulating under multiple names.

The Cultivated Plant Code builds on the conventions established in The International Code of Nomenclature for algae, fungi and plants. Cultivated plants are named as belonging to existing plant species, or genera, or hybrids. Our ability to manipulate plant genetics has not yet produced organisms totally artificial and divorced from namable origins.

Plants in cultivation may be unchanged from wild plants. This is desirable for plants cultivated to display a natural appearance, as well as those grown to support wild plant conservation. These plants retain the names applied to the same plants in nature (Brickell et al. 2016).

More often, plants in cultivation are different from wild plants. This difference is deliberate. It is selected for. Certain plants are selected because they have bigger or more numerous flowers, larger or more flavorful fruit, better hardiness in cold, or a more graceful branching form. These improved plants may have been selected from the natural variation in wild populations. They may have arisen spontaneously in nursery production where thousands of plants are grown

and the odd individual stands out. Cultivated plants may be the product of deliberate breeding efforts or hybridization. They may be produced by genetic manipulation.

The Cultivated Plant Code governs the naming of **cultivars**. A cultivar is a cultivated variety (not to be confused with the infraspecific rank of variety). Not every cultivated plant is a cultivar. A cultivar must be deliberately named, propagated in numbers, and distributed widely (typically sold). The Cultivated Plant Code describes additional naming conventions for cultivar groups, grexes and plant chimaeras.

Establishing a cultivar name requires more than selling a plant under a name or printing a name on plant labels. A cultivar name is established by publication on printed, duplicated and distributed material such as horticultural magazines or trade catalogs. The name must be accompanied by a description of recognizable characteristics of the cultivar, and how it is distinguished from previously named plants (Brickell et al. 2016). Ideally, a cultivar description should describe the means of propagation which will maintain the characteristics of the cultivar. Many cultivars must be propagated asexually. Heirloom varieties of cultivated plants may specify open pollination to preserve genetic diversity and avoid inbreeding.

Cultivar Names

Manfreda undulata ‘Chocolate Chips’

- A cultivar epithet (cultivar name) follows after a scientific name for the species (or the genus, if the species is not defined).
- The cultivar epithet is included within single quotes, not double quotation marks.
- The cultivar epithet is not italicized.
- A new cultivar epithet should be consistent with modern words and not be in Latin form.
- More complex rules exist for dealing with international cultivar epithets named in other languages.
- The use of the connecting term cv. within the cultivar name is no longer legitimate.
- Cultivar epithets are not the same as a common name, but often are integrated into a common name for the plant. A possible common name for this plant would be: chocolate chips manfreda.
- A cultivar name is different from a trade name.

The Cultivated Plant Code governs naming plants for agriculture, forestry and horticulture. It has found greatest acceptance and use for perennials with longstanding horticultural heritage, such as azaleas, daffodils, dogwoods, irises and roses. The proliferation of names among these popular plants required stability and organization. To handle the complexity of names for these plant groups,

International Cultivar Registration Authorities manage the cataloging of names and application of the Cultivated Plant Code (Brickell et al. 2016). Other groups of plants may have seen less adherence to the Cultivated Plant Code and will lack Cultivar Registration Authorities until effort is put forth to establish them. The Cultivated Plant Code has been less consistently employed for the naming of annuals and vegetable crops. Agricultural crops and restoration work may use alternate naming conventions. Confusion between cultivar names and trade names makes for additional complication (Avent, 2022).

Trade Names

Scientific names and cultivar names are intended for universal public use. Trade names or trade designations often are applied to cultivated plants. These names are trademarked and are proprietary names. For this reason, trade names are not considered legitimate names for plants under the Cultivated Plant Code (Brickell et al. 2016). Unfortunately, trade names are often presented as if they were proper plant names on plant labels and other marketing. This has created confusion for the public (Avent, 2022). Trademarks are owned by a company. They are intended to designate product origin and not to be used for individual items. Cultivar names cannot be trademarked, they are for public use. Some plant labels will emphasize a trade name in large print while relegating the scientific name or cultivar name to tiny print, or worse leaving these names off the label altogether.

Timeless Beauty[®] *Chilopsis linearis* ‘Monhews’

- A trade name is indicated with an [®] or [™] and no quotation marks.
- The [™] should be in superscript, just like the registered trademark symbol is presented before it.
- A trade name is not a component of a scientific name or cultivar name. It may be printed before or after the scientific name, or on a different line.
- The cultivar name should be indicated on the nursery label, but it may be found apart from the trade name.
- A trade name should be indicated with a different font type than the scientific name and cultivar name.

This trade name is a registered trademark of Monrovia Nursery for *Chilopsis linearis* ‘Monhews’ which is a cultivar of desert willow. When used correctly a trade name such as **Timeless Beauty[®]** should be applied to a set of different plants representing the breeding output of a company. Monrovia also sells a **Timeless Beauty[®]** *Magnolia grandiflora* ‘Monland’. The trade name **Timeless Beauty[®]** should not be treated as an alternate name for the cultivar *Chilopsis linearis* ‘Monhews’. Other nurseries may sell *Chilopsis linearis* ‘Monhews’ under a different trademarked name (unless the plant is

under patent protection). All instances of *Chilopsis linearis* ‘Monhews’ are the same regardless of the trade name used by the company selling the plant.

Plant Patents

A registered trademark is registered with the U.S. Patent and Trademark Office. However, a trademarked name for a plant does not necessarily mean the plant itself is patented. A new and original kind of plant which is propagated asexually can be patented by the U.S. Patent and Trademark Office. Plant cultivars may be patented (Geer, 2007). Look for the abbreviations PP (Plant Patent) or USPP (U.S. Plant Patent) followed by the patent number. Or look for PPAF (Plant Patent Applied For) on the plant label. These indicate the plant material is under patent protection and unauthorized propagation is prohibited. Plant patents last for 20 years. After expiration they cannot be renewed (Geer, 2007).

Mangave ‘Spotty Dotty’ PPAF

- This *Mangave* cultivar ‘Spotty Dotty’ has been entered into the plant patent process (Plant Patent Applied For) and may not be propagated except under license of the patent holder.

Plant patents cover plants which are propagated asexually. Seeds may also be patented, but they are handled as utility patents, a different patent category. There are additional complications to intellectual property rights and patenting of plant material, which extend outside the scope of plant names.

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