

Orchids: A Beginner's Guide

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Orchids: Nature's Most Amazing Flowers

- More than 27,000 species and 600 genera
- Most closely related to Iris family (Monocots/grasses)
- Huge range of flower shape, color, size



Spiranthes vernalis,
Spring lady's tresses

Even in Kentucky!

Found in many climates

40+ Kentucky species

And 'most pampered' cultivated plants



Fringeless purple orchid



Large whorled pogonia



Lady's slipper

What's In a Name?



- Named by Greek philosopher and naturalist Theophrastus (370-285 BC) because many species have paired underground tubers resembling male anatomy
- Greeks thus held the mistaken belief that orchids were aphrodisiacs, and eating their tubers might "provoke Venus" and thus beget male children

More About Orchids

- ▣ Most orchids are perennial herbaceous plants with simple, grass-like leaves.
- ▣ Many are *epiphytes* (soilless, growing in trees)
- ▣ Some are *terrestrial* (roots growing in soil)
- ▣ Some *saprophytes*, leafless



Epidendrum magnoliae
in live oak tree

Epiphytic Orchids



 *Pleione hookeriana*, an epiphytic orchid from the Himalayas

These orchids anchor themselves in moss, sloughed bark, leaves, etc., usually on trees in humid climates

Terrestrial Orchids

Terrestrial orchid roots grow in soil. This one, the Chinese Ground Orchid, *Bletilla striata*, will grow outdoors here.



A Native Terrestrial



Kentucky Ladyslipper Orchid,
Cypripedium kentuckiense

- ▀ Our native Ladyslipper Orchid can be grown in home landscapes.
- ▀ ***Do not purchase nursery grown or wild dug plants, buy nursery propagated plants.***
- ▀ ***Wild orchids should never be dug up***
- ▀ ***Wild orchids don't transplant well***
- ▀ If you find mature plants for less than \$50, these were most likely wild dug—it takes 5 to 7 years from seed or tissue culture to produce their first blooms.

Saprophytic Orchids



- Wister's coral-root
(*Corallorrhiza wisteriana*)
- Native to Kenton County
- Saprophytic and/or hemi-parasitic/myco-heterotrophic
- Live mostly below ground, doesn't photosynthesize, gets nutrients (via mycorrhizae) from decaying organic matter (Homoya 1993).



Early Orchid Collecting

- ▣ Most cultivated orchids native to humid tropical forests in Asia and the Americas
- ▣ Early European collectors found orchids ill-adapted to temperate climates, most died
- ▣ 1821 First orchids grown commercially in Hackney, (London) England
- ▣ 1852 First hybrids in cultivation (England)
- ▣ 1913 Orchids grown for cut flowers (Singapore)

What About Seeds?



- ❖ Many orchids are self-sterile
- ❖ Seeds germinate very slowly
- ❖ Seedlings in the wild get nutrients from a companion soil-borne fungus
- ❖ Seeds sown in nursery beds require long time to germinate; any disturbance to soil or physical environment can destroy the whole population

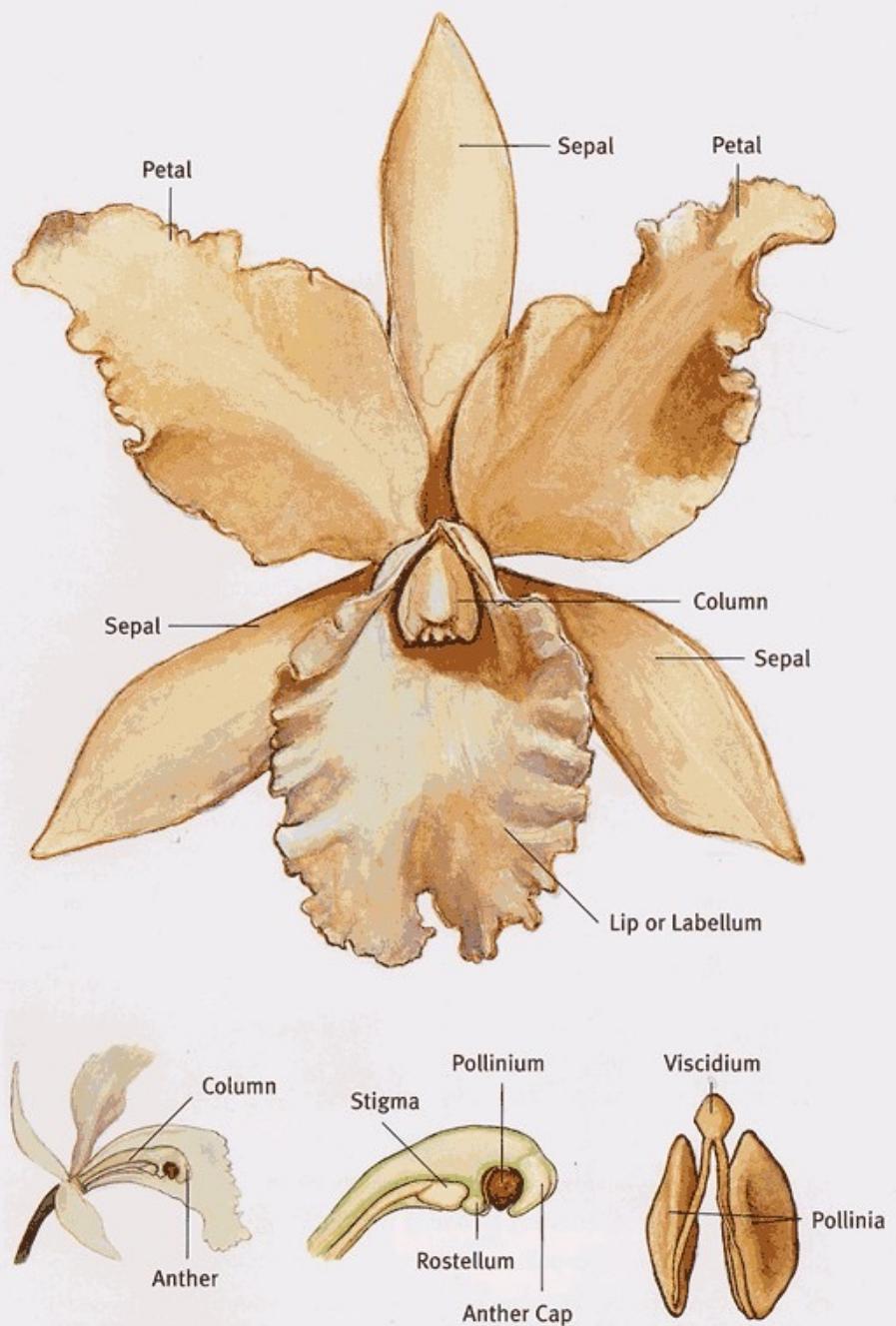
Orchid Biology

- Orchids are evergreen or deciduous perennials.
- Most have thick, strap-like leaves
- Leaves alternately arranged on the stem
- Some orchids grow more upright, some more sideways
- Propagated by seed (difficult), division or offshoots, meristem culture (lab)

Orchid Flowers

Orchid flowers are unique among flowering plants

Have floral structures not found in other plants



Orchids Need Cross-Pollination

- ▣ Each type of orchid has certain pollinators
- ▣ As a group, orchids are pollinated by insects, birds, bats and butterflies
- ▣ Insects are attracted to the flowers by color, scent, nectar, and shape
- ▣ Some orchid flowers mimic specific female insects to attract the males– who pollinate the flowers while looking for their mates

How Do Orchids Attract Pollinators?



Colors

Comparettia falcata uses bright colors to attract *Amazilia* hummingbirds.



Scents

Stanhopea tigrina provides fragrant chemicals that male euglossine bees collect to attract females.



Mates

Sexually deceptive orchids, like *Ophrys mammosa*, mimic female *Andrena fuscosa* wasps visually and chemically.



Nests

Cypripedium macranthos mimics nesting sites to attract female bumble (Bombus) bees.



Treats

Angraecum sesquipedale offers a nectar reward to the only pollinator that can reach it; *Xanthopan morganii praedicta*.

Floral Deceit

- ▀ Insect-like features on Australian orchids (*Chiloglottis spp.*) match females of their respective male wasp pollinators in size and color,
- ▀ South African orchid releases scent of putrid meat to attract carrion flies, left.



What Is This?

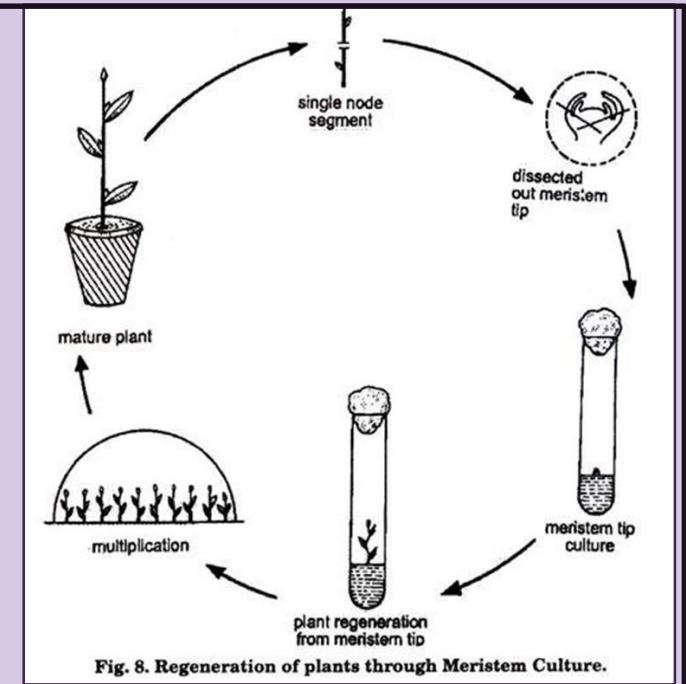


Ophrys spp. orchids

- ▀ The lower lip is shaped like, smells like and feels like a female wasp.
- ▀ Pollination is by pseudocopulation
- ▀ Only a few insect species will do



Cultivation Today



Unique Orchid Cultivation: Vanilla Orchids



One Million Orchids

▀ A five-year project to re-introduce Florida's native orchids into Miami-area landscapes



at the Fairchild
Botanical Gardens



Grow Them at Home

Dendrobium orchid, Bill Reis



– Mimic their natural environments— it's easier than it sounds

Grow Them at Home



Lighting for Orchids

- ❖ Orchids need sufficient light in order to bloom
- ❖ If light is too weak, they may grow but not bloom



Lighting for Orchids

How much light is enough?

- ▣ 5,000 – 10,000 foot candles: Full sun (early to high noon)
- ▣ 4,000 – 5,000 fc: Bright but not direct outdoor light
- ▣ 1,800 – 4,000 fc Dappled sunlight
- ▣ 1,000 – 1,800 fc: Cloudy day, no shadow, light shade/indoors with exceptional exposure
- ▣ Under 1,000: Deep shade/inside, good window light
- ▣ 30-40 fc: Inside an office

Light for Orchids



Orchids are classed by light needs

- High light needed, 3,000+ fc
- Medium light, 2,000–3,000 fc
- Low light, 1,000 –2,000 fc

*Orchids getting too little light have leaves that
are a dull, dark green*

Lighting at Home

Full time under lights:

- Fluorescent (shop) lights, 1 cool:1 white bulb or Gro-lights



Temperature

Classed by winter night temperature needs

- Warm: Nights no lower than 60 °F
- Intermediate: Nights down to 50-55 °F
- Cool: Nights of 45-50 °F

Cold-hardy: Can be placed outside

Daytime temps in the 70s or 80s

Provide night temps 10 °F lower than day

This is why windows can work well

Watering

The #1 way to kill indoor plants: overwatering!



- Let the growing medium dry out in between watering
- Check frequently; the pot becomes lighter
- Estimate once or twice a week
- The point of a sharpened pencil, when inserted into the medium, will darken with moisture if the plant has enough water*

Watering Tips

- Use room temp or lukewarm water
- Tap water is ok; if it smells of chlorine, let it sit out overnight first
- Do not use ice cubes (too cold)
- Do not use water that's been softened with salts
- Place orchid in sink and pour water on the medium (15 sec or so) until water drains out the bottom of the container
- Water the medium, not the flowers or leaves

Humidity

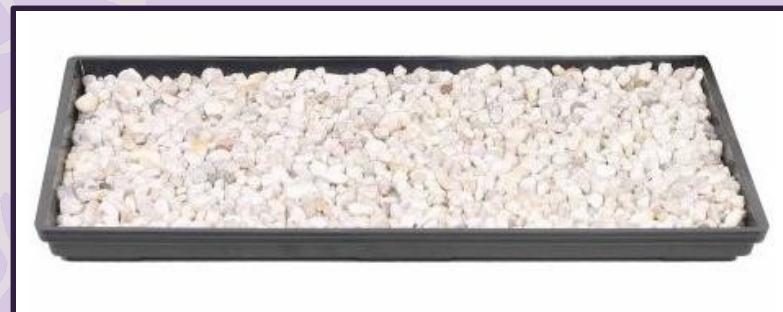


Orchids love humidity!

- Place several plants close to increase humidity
- Place plants on pebble/gravel trays; add water to the tray but not high enough to water the orchid
- Keep away from heater vents, fans, etc.
- Use a humidifier in winter, optional

Humidity Trays

- ❖ Trays can be constructed of various materials
- ❖ The idea is to increase humidity without putting the container in water.
- ❖ Some trays are advertised as for Bonsai



Air Circulation

- ❖ Orchids like a little air flow
- ❖ Most house air circulation is fine
- ❖ Avoid stuffy, closed-up rooms
- ❖ Since they also need humidity, don't place them near heater vents

Containers



Containers should allow for good drainage

- ❖ Plastic containers readily available, found in many sizes, but must have sufficient drainage
- ❖ Clay containers dry out more quickly, need more frequent watering; are heavy and breakable; may need to be broken during re-potting
- ❖ Ceramic containers are decorative but must have lots of drain holes

Growing Media

- Potting media is selected to mimic characteristics of the plant's native 'soils'
- Good media hold moisture while allowing air circulation to the roots
- Good media will not break down too quickly
- Organic media ingredients include coconut fiber, fir bark, peat moss, osmunda
- Inorganic media ingredients include lava rock, perlite, vermiculite, baked clay bits, rock wool, gravel

Media Examples



Clockwise from one-o-clock: tree fern, lava rock, Aliflor, sphagnum peat moss, osmunda, rock wool and fir bark in the center

A Media Recipe

- ▀ Many orchid growers make their own potting medium.
- ▀ There are many recipes
- ▀ Missouri Botanical Garden's mix for growing *Cattleya* orchids: 5 parts fir bark, medium grade ($\frac{1}{4}$ to $\frac{1}{2}$ inch chunks) (NOT landscape mulch) to 1 part horticultural charcoal (not BBQ charcoal)
- ▀ Charcoal is extremely important—it neutralizes fertilizer salts

Fertilizers

Orchids grow wild in nutrient-poor areas ...but need help in our indoors

- Water the orchid first
- Fertilize once a week during the summer
- Fertilize every two weeks during fall and winter
- Use fertilizers no more than HALF strength or follow directions for orchid fertilizers
- Observe your plants

What Kind of Fertilizer?

- ❖ For Cattleya, Oncidium, Phalaenopsis in bark-based media, use a liquid fertilizer with trace elements; highest number first (30-10-10 etc.)
- ❖ For Dendrobiums or general-purpose feeding, a balanced (10-10-10 or 20-20-20) fertilizer is fine
- ❖ Newer research suggests picking a fertilizer with different forms of nitrogen
- ❖ If in doubt, buy a general purpose orchid fertilizer and try it out

Labels

- ▀ N-P-K (20-14-13) (Nitrogen, phosphorus/phosphate, potassium/potash)
- ▀ Different forms of nitrogen are good
- ▀ Trace minerals are important
- ▀ This label is from an Orchid Fertilizer product



Repotting Orchids



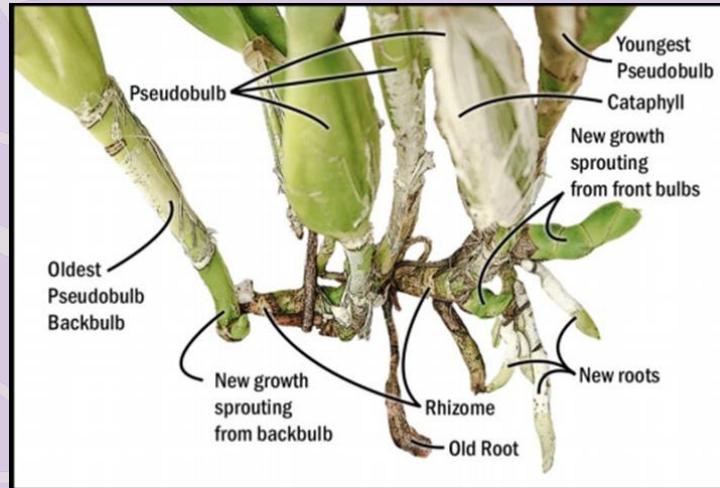
Orchids growing in soil-less mixes
must be repotted in order to:

- Increase soil nutrient-holding capacity
- Replace decomposed media or media that is no longer porous
- Divide the plant or get rid of old, non-flowering stems

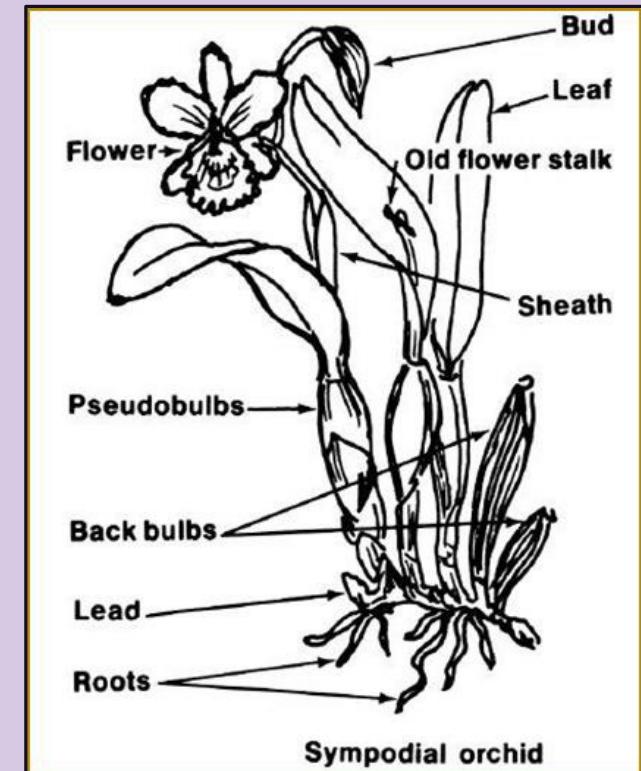
Wait until after bloom to repot or divide

Use sterile tools

Two Growth Habits: Sympodial and Monopodial

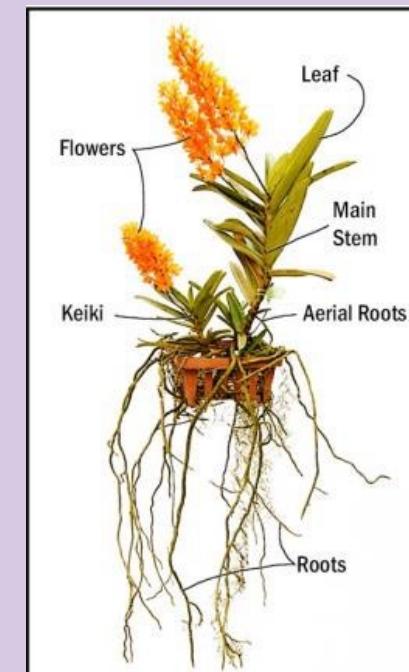
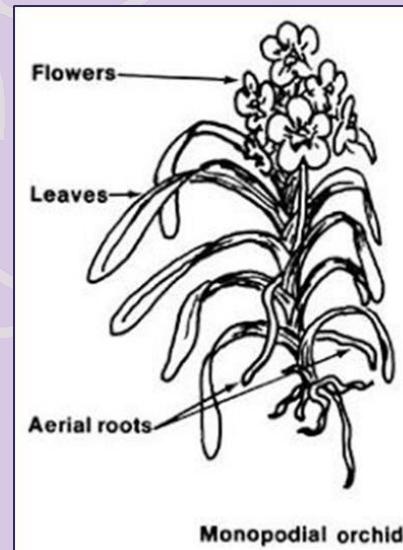


– Sympodial orchids grow more or less sideways, and have pseudobulbs

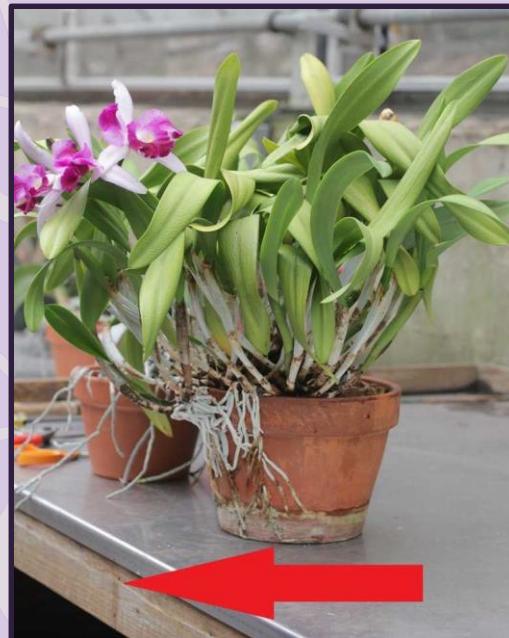


Monopodial Habit

Monopodial means 'one foot'. Monopodial orchids grow upwards and have aerial roots; offshoots are keiki



Repotting Sympodials



An overcrowded Cattleya,
above

Here's how to do it

<http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/visual-guides/repotting-cattleya-and-other-sympodial-orchids.aspx>

Repotting Monopodials (Phalaenopsis and others)



Here's how to do it

https://www.youtube.com/watch?v=1NJh_V9I7E&t=207s

Orchids for You

- Cattleya
- Dendrobium
- Oncidium
- Phalaenopsis

These four groups of orchids are among some of the easiest for beginners to grow

Cattleya



- ▣ Love east-facing window sills
- ▣ Temps 70-85 F during the day
- ▣ Temps 55-60 during the night
- ▣ Epiphytic
- ▣ Grow in fir bark type media
- ▣ Dry thoroughly in between waterings
- ▣ Sympodial; lots of aerial roots
- ▣ Can grow on a slab

Dendrobium

Dendrobium demo by Bill Reis



- Epiphytic
- Love bright light
- Day temps 75-86 F
- Night temps 65+
- Fertilize weekly during periods of active growth, $\frac{1}{4}$ - $\frac{1}{2}$ strength
- Likes a crowded pot
- Repot every 2-3 years
- Use coarse, porous media

Oncidium



- Epiphytic
- Likes very bright light
- Day temps 80-85
- Night temps 55-60
- Fertilize 2x month
- Requires less humidity than many others
- Thicker-leaved plants can handle more light

Phalaenopsis (Moth Orchid)

- Can flower more often than other types
- Bright window light
- Day temps 75-85
- Night temps above 60
- Should never completely dry out– no water storage in roots
- Likes higher humidity



Phalaenopsis Media

- ❖ Needs porous media
- ❖ Good media for Phals include at least some medium fir bark, peat moss, perlite and rock wool

Your Miniature Phal

Phalaenopsis
'Flirtation'
(hot pink)



Find your orchid at: <http://www.cosmicplants.com/>

Care video: <http://www.cosmicplants.com/>

Let's look at how to care for these

Local Orchid Groups

- [Blue Grass Orchid Society](#), Lexington. Meeting Schedule:
7:30 p.m. 1st Tuesday each month
- [Kentucky Orchid Society](#), Louisville. Meeting Schedule:
7:30 p.m. 2nd Wednesday each month
- [Greater Cincinnati Orchid Society](#), Cincinnati. Schedule:
7:30 p.m. 1st Tuesday each month except July and August
- [Krohn Conservatory](#), Cincinnati. Orchid Show &
Competition: Mar 10 @ 10:00 am – Mar 11 @ 5:00 pm

Where Can You Buy Them?

Many companies sell orchids

Check 'The Garden
Watchdog' if you are unsure

<https://davesgarden.com/products/gwd/>



**Lc Orchid Irene Finney
'Springs Best' AM/AOS
(*Laelia* x *Cattleya* hybrid)**
Renowned as one of the best spring blooming orchids, 'Springs Best' has very large, 6-7" lavender flowers with a deep lavender lip that has a touch of yellow in the throat. These fragrant, florist-quality flowers usually have 3-4 blooms per spike and the flowers last 2-4 weeks.
6" pot.
A2642-6 Reg. \$49.95
Sale: \$39.95

[Order Now](#)



**Blra Orchid Marfitch
'Howard's Dream'
AM/AOS
(*Brassavola* x *Cochlioda* x *Miltonia* x
Odontoplaeum hybrid)**
This Award of Merit winner from the American Orchid Society has stunning, lightly fragrant flowers. The large 5" blooms are dark grape-purple with white spotting throughout the petals and yellow in the throat. Flower spikes have 6-12 blooms each. Blooms in fall.
4" pot.
A2654-4 Reg. \$39.95
Sale: \$29.95

[Order Now](#)



**Blc Orchid Mahina Yahiro
'Mishima' AM/AOS
(*Brassavola* x *Laelia* x *Cattleya*
hybrid)**
This Award of Merit winner from the American Orchid Society has large, 6" flowers with pink petals and a deeper pink ruffled lip with yellow and red highlights in the throat. It blooms in spring and summer and the flowers last 2-3 weeks. The flowers have a delightful fragrance.
4" pot.
A2672-4 Reg. \$39.95
Sale: \$34.95

[Order Now](#)



**Blc Orchid Purple Ruby
'#15'
(*Brassavola* x *Laelia* x *Cattleya*)**
Fragrant, 5-6" flowers are deep purple with a frilly lip that has magenta and yellow highlights. It blooms in fall and the flowers last 2-3 weeks. This is an easy grower that's recommended for even beginning orchid enthusiasts.
4" pot.
A2655-4 Reg. \$39.95
Sale: \$34.95

[Order Now](#)



**Alcra Orchid Pacific Nova
'Butter Buds'
(*Brassia* x *Miltonia* x *Oncidium*
hybrid)**
Bright yellow, star-shaped flowers have dark purple spotting on the petals and white markings on the long, frilly lip and throat. The flowers are 3-4" long and there are usually 6-12 flowers per spike that last 2-3 weeks. Blooms in fall. 4" pot.
A2661-4 Reg. \$39.95
Sale: \$29.95

[Order Now](#)



Veg Ledge Shelf
Need more space to grow your plants? The Veg Ledge is an easy-to-use window shelf that provides more growing space. The Double Shelf measures 15" l x 6" w and holds up to 10 lbs. Extra Stability Legs add an additional 5 lbs of carrying weight per shelf of 2.
K7262-2 Double Shelf
Reg. \$27.95 Sale: \$22.95
K7262-3 Extra Legs
Reg. \$11.95 Sale: \$9.95

[Order Now](#)

Questions?
