University of Tennessee, Knoxville
TRACE: Tennessee Research and Creative Exchange

Home Garden, Lawn, and Landscape | UT Extension Publications

3-2000

PB1634-Growing Orchids in the Home

The University of Tennessee Agricultural Extension Service

Follow this and additional works at: https://trace.tennessee.edu/utk_agexgard

 Part of the Plant Sciences Commons

Recommended Citation

"PB1634-Growing Orchids in the Home," The University of Tennessee Agricultural Extension Service, PB1634-1M-3/00 E12-2015-00-083-00, https://trace.tennessee.edu/utk_agexgard/27

The publications in this collection represent the historical publishing record of the UT Agricultural Experiment Station and do not necessarily reflect current scientific knowledge or recommendations. Current information about UT Ag Research can be found at the UT Ag Research website.
This Gardening - Interior is brought to you for free and open access by the UT Extension Publications at TRACE: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Home Garden, Lawn, and Landscape by an authorized administrator of TRACE: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.

Agricultural Extension Service
The University of Tennessee
PB1634

Growing Orchids in the Home

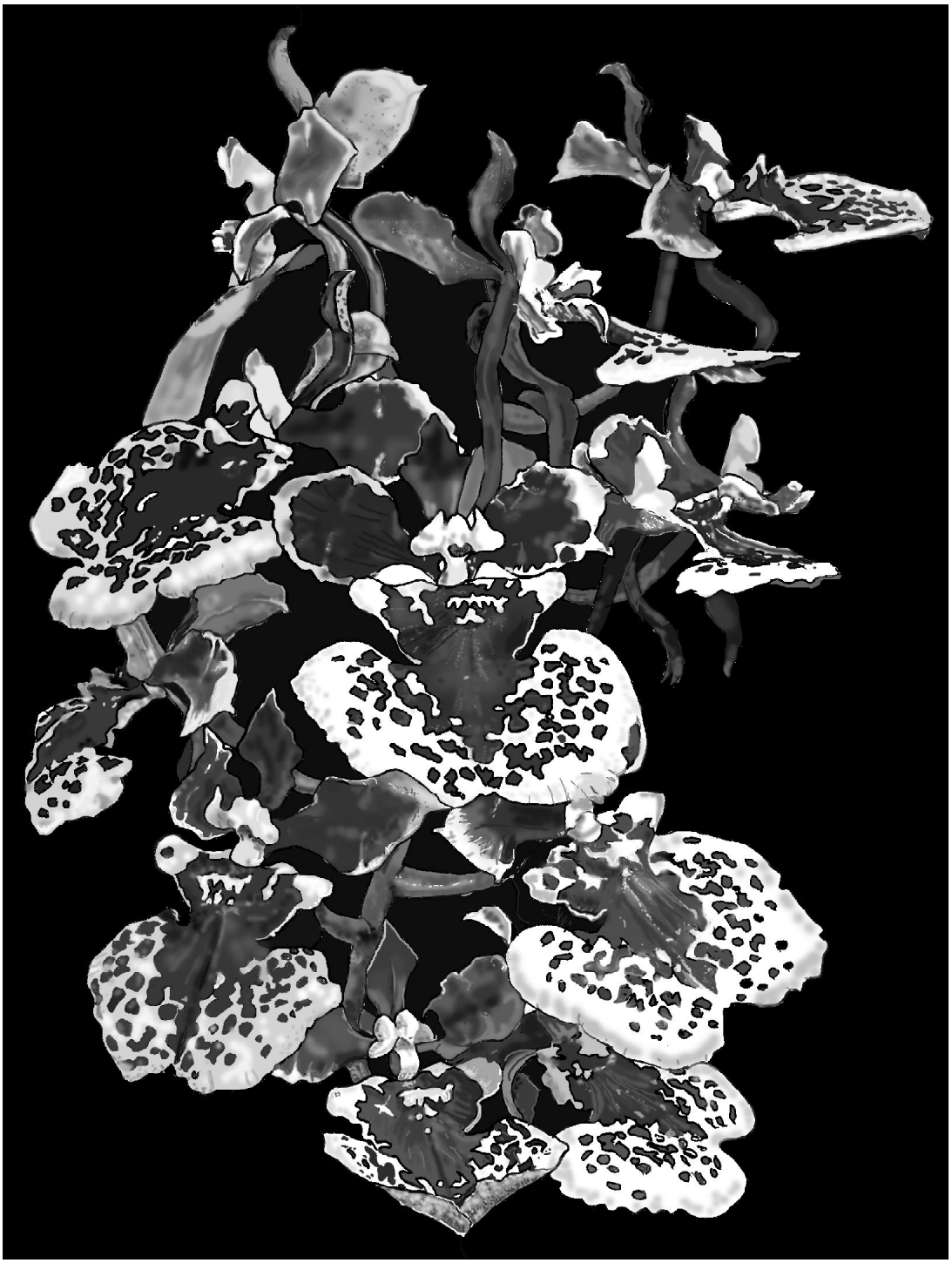


Table of Contents

General Orchid Culture 4
- Light 4
- Temperature 5
- Water 5
- Humidity 5
- Air circulation 6
- Fertilization 6
- Growing Media 6
- Repotting 6
- Containers 6

Pests and Diseases 7
- Insects 7
- Fungal and Bacterial Disease 7
- Viruses 7
- Pest Control 7

Easy-to-Grow Orchids *8*
- Cattleya 8
- Phalaenopsis 8
- Paphiopedilum 9
- Oncidiums 9

Buying an Orchid 10
Sources 11

Growing Orchids in the Home

Linda M Seals, Graduate Research Assistant
Paul D. Fortsch., Undergraduate Student
Susan L. Hamilton, Assistant Professor
Department of Ornamental Horticulture and Landscape Design

Orchids are becoming increasingly popular as flowering houseplants due to improved cultivars and affordability. Once considered a rich person's hobby, orchids are now more affordable, thanks to recent advances in propagation techniques. Since the first attempt to grow orchids in the mid-1700s, they have had a reputation for being difficult to grow; however, many orchids are as easy to grow as houseplants. Orchids are quite resilient, and can survive many years in the home with proper care.

Orchids are in the family *Orchidaceae* (or-kid-ACE-ee-ee). The orchid family includes more than 900 genera and about 25,000 species, making it one of the largest families of flowering plants in the world. Orchids can be found in nearly every environment in the world. Most of the orchids grown in the home are native to the tropical and subtropical areas of South America. They are usually epiphytic, meaning they grow on the sides of trees, or lithophytic, meaning they grow on rocks. Orchids originating from temperate regions of the world are generally terrestrial, meaning they grow in the soil.

Orchids are valued mostly for their exquisite flowers, which are available in a vast array of colors from tints of blue, yellow, white, orange and red to almost black. Some blooms are striped or spotted with intricate combinations of color. The blooms can last from one week to four months, depending on the species. Given the proper growing conditions, some orchids may bloom continuously throughout the year, while others may bloom only once per year.

The foliage is usually a medium-green, but some orchids have beautiful leaves with intricate mottling and variegation. Many orchids are fragrant. While some may smell like rotted meat, others have more pleasant fragrances like lemon, orange, chocolate, hyacinth, cinnamon, wintergreen, watermelon and coconut.

General Orchid Culture

The cultural requirements within the orchid family vary greatly. The following information is a general guide for plants in the orchid family. Cultural requirements for specific genera may differ slightly.

Light

The most common reason an orchid fails to flower is inadequate light. The plant may grow and appear healthy, but if there is not sufficient light, it probably will not bloom. In the horticulture industry, light intensity is measured in footcandles (fc). A bright sunny day outdoors might yield 10,000 footcandles. A window indoors, with northern exposure, might yield as little as 100 fc. Orchids are classified into three groups according to their light requirements: high light (3,000 or more fc), medium light (2,000-3,000 fc) and low light (1,200-2,000 fc).

The best place to grow orchids in the home is on a windowsill. A south-facing window is the ideal location for optimum results. An east-facing window would be next, then west and finally a north-facing window. If a windowsill does not provide sufficient light, artificial lighting may be used. For optimum light transmission, clean the windows frequently, and clean the foliage of dust as needed.

The plant itself is the best indicator of proper light levels. If you have not been successful in getting your orchid to bloom, your first suspicion should be too low light. Orchids that are not getting sufficient light will be a dull, dark green. Plants that are receiving sufficient light will have light to medium green leaves. Although orchids do not generally receive too much light in the home environment, they may become sunburned if placed outdoors in direct sun. Sunburn may appear as blackened or yellowish leaves, or leaves which are tinged red.

Temperature

Temperature is a critical element in forcing orchids to bloom. Orchids are divided into four categories according to temperature preferences: warm-growing orchids that prefer winter night temperatures no lower than 60F, intermediate-growing orchids that prefer a winter night range of 50 - 55Fs, cool-growing orchids that prefer temperatures no lower than 45-50F and hardy orchids that can be grown outdoors year round.

A 10-degree drop in temperature at night is critical to flowering in most orchids. Plants that are grown under constant temperatures will not grow or flower as well as those grown with fluctuating temperatures. If the plants are grown outdoors in the summer, the temperature will drop naturally. For indoor plants, place the plants in a windowsill where a natural drop in temperature will occur. Plants grown under artificial lighting will naturally receive the temperature drop as the lights are turned off in the evening.

Water

The number one cause of death in houseplants is overwatering. Orchids are no exception. Most orchids prefer the growing media to dry between waterings. There are several methods to determine when a plant needs watering. Insert your finger about 1 inch into the soil near the center of the container. If the soil feels dry, the plant needs water; if it is wet, wait. You can also pick up the pots to compare the weight of a dry pot versus a wet pot. The pot will be lighter when it is dry. It is better to soak the plant thoroughly and occasionally than to water frequently with small amounts of water. To thoroughly water an orchid, place it in a sink and add lukewarm water until the water runs freely from the bottom of the pot. Avoid using cold water (below 50F), since this can damage roots and can kill root hairs. About twice a year, put your plants in the shower, and run warm water over them for several minutes to clean the dust off the foliage.

Humidity

Orchids love humid conditions. They prefer a range of 50-70 percent relative humidity. There are several ways to increase the humidity in the orchid's environment. The simplest method is to place several plants close together to increase the humidity of the air surrounding the orchids. Plants can also be placed on trays containing a layer of pebbles or small gravel (Figure 1). Fill the tray with just enough water to fill the spaces between the gravel particles. The water in the gravel will increase the humidity. Never allow orchids to sit directly in water, since this can cause root disease. You can also increase the humidity by placing the plants in a bathroom window, by using plastic containers instead of clay pots, or you can

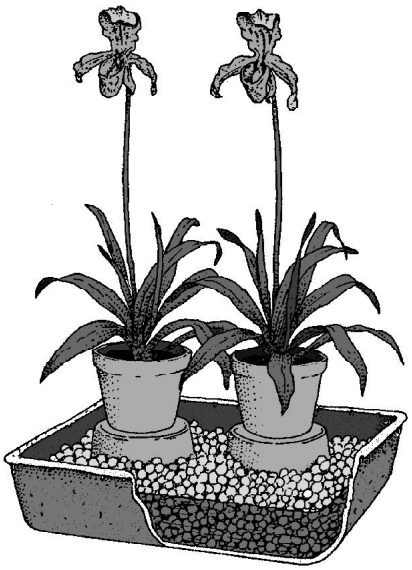


Figure 1. Increase the humidity surrounding a plant by placing it on a tray of gravel. Fill the tray with enough water to fill in the spaces between the gravel.

purchase a humidifier. Air conditioners and heaters dry the air, so avoid placing orchids near vents or ducts.

Air Circulation

Air movement is also important to grow orchids successfully. Air movement helps to decrease the incidence of fungus diseases and bacteria, and it aids in supplying carbon dioxide, which is necessary for the plant to photosynthesize. Most orchids placed in a windowsill will receive adequate air circulation.

Fertilization

Fertilizer requirements for orchids depend largely on the type of plant being grown, and the type of growing media in which the orchid is growing. A good general rule is to apply fertilizer once a week while the plant is producing new growth. As the new growth begins to mature, decrease fertilization. Discontinue fertilizing entirely when the plants become dormant, or stop producing new growth. A good practice is to water at least once a month with plain water to prevent root burn from over-fertilization.

Specially formulated orchid fertilizers are available that are already diluted. Follow the label directions exactly when using orchid fertilizers. Equally balanced fertilizers such as 10-10-10 or 12-12-12 can also be used, but these fertilizers must be diluted to one-quarter strength before application. Orchids planted in bark require higher nitrogen rates than plants in other growing medias, so a ratio of 20-10-10 or 30-10-10 fertilizer is recommended.

Growing Media

Drainage and aeration are the two most important factors to consider when choosing a growing mix. Special blended media can be purchased at most retail garden centers for growing orchids. These mixes contain fir bark, peat moss and either perlite or vermiculite. Many orchid growers prefer mixing their own growing mix. There are several types of growing media to choose from, such as tree fern, redwood bark, cork, sphagnum peat moss, Osmunda, charcoal, Rockwool, polystyrene foam, rock culture and sand. The growing media used is a personal preference, depending upon growing conditions and environmental factors of the grower.

Repotting

Most orchids should be repotted every one to two years, although some varieties can go years without repotting. Timing is the most critical element in repotting orchids. If orchids are not repotted at the correct time, flowering may not occur until the next year. Nearly all repotting should be done between February and June. This is the time when most orchids produce new growth and new roots. This usually occurs just after the plant flowers. (Plants that grow actively year round can be repotted anytime.)

While the plant is out of the container, clean away all the old growing media and rinse the roots under tepid water. Before repotting, trim off any dead roots, dead or yellowed foliage, dead flower spikes and dead or rotting psuedobulbs (a thickened stem on some types of orchids that is used to store water). Replant the base or the crown of the orchid at the same level it was growing prior to repotting. To avoid spreading pests and disease, use a clean workplace, sterile pots, sterile growing media and never transfer soil from one plant to another.

Containers

Drainage is one of the most important factors to consider when selecting containers for your orchids. Containers designed especially for orchids have slits down the side for added drainage (Figure 2). Some containers have drainage holes in the bottom of the pot. If these holes are too small, they can be enlarged. Clay and plastic are the most popular materials for



Figure 2. Orchid container with side slits for added drainage.

orchid containers. When choosing a container, consider what type of orchid you are growing and the growing environment. Plants in plastic pots are more susceptible to root rot, so they should be allowed to dry out between waterings. Plants in clay pots will dry out quicker and will require more frequent waterings. Clay pots breathe better than plastic, which is good for plants that prefer well-aerated soils, such as *Cattleya* orchids.

Pests and Diseases

The presence of pests or disease on orchids is an indication that something is wrong with the orchid's environment. Perhaps the plants are placed too close together, preventing adequate air movement, or dead leaves and other plant debris are littering the area. Plant stress may also lead to pests and diseases. The plants may be stressed from improper watering, over-fertilization, low humidity, incorrect potting mix, lack of light or extreme temperature changes. These factors should be considered when a pest or disease is identified and corrected to prevent further problems. For assistance in identifying and controlling pests and diseases, contact your county Extension agent.

Insects

Insects do not present significant problems in growing orchids. The most common insect pests are mealybugs, scale, aphids, thrips, spider mites, fungus gnats, slugs and snails. If an infestation is spotted early, the insects can be hand picked off the plant. A cotton swab dipped in rubbing alcohol can also be effective. Horticultural oils and insecticidal soaps are effective against larger infestations. More potent chemical insecticides should be used as a last resort, as they are often very expensive, they may kill beneficial insects and they can damage many other orchid species. Be sure to follow label instructions when using any pesticide.

Fungal and Bacterial Disease

Fungal diseases are usually easy to control. *Phytophthora* root rot and *Pythium* root rot are among the most common fungal diseases of orchids. *Botrytis* blight is a common fungal disease that causes discoloration of the flowers. Fungal diseases can be identified by brown-to-black, ringed spots on foliage. The best way to control disease is by prevention. Keep the growing area free of plant debris, avoid wetting the foliage and eliminate standing water. When a disease is present, remove and destroy the effective foliage. Fungicides may be used as a last resort, but as with any other potent chemical pesticide, be sure to follow label instructions.

Soft, black, water-soaked spots on the foliage indicate bacterial diseases. Bacterial diseases cannot be cured with fungicides; therefore, plants with bacterial diseases should be destroyed.

Viruses

Unfortunately, viruses are very difficult to identify. The most common symptoms are deformed flowers, streaking foliage, veinal discoloration, yellowing, stunted growth and death. Viruses cannot be cured. Any orchid with a virus should be destroyed to prevent its spread to other plants. Viruses may be prevented by keeping the growing area clean, using sterile pots and growing media, sterilizing all pruning instruments and keeping your plants free of aphids, since they can transmit viruses.

Pest Control

Integrated Pest Management (IPM) is a program designed to minimize (not eliminate) the use of chemical controls in the environment. IPM is not only a benefit to the environment, but it is also economically beneficial, since chemical pesticides and fungicides are often expensive. The success of IPM relies on frequent monitoring and inspection of plants. By carefully monitoring and inspecting, most pests and diseases can be identified at a manageable stage; therefore, the need for potent chemicals is eliminated or reduced. Once a pest or disease has been identified, the first response is to hand-pick the insect, or cut away diseased tissue. Traps, soaps and oils are the second alternative. The last resort recommended would be the use of botanical pesticides/ fungi-

cides and then chemical pesticides/fungicides.

Easy-to-Grow Orchids

The most common mistake beginning orchid growers make when choosing their first orchid is to purchase the showiest plant. Unfortunately, the showiest orchids are often the most difficult to grow. Four of the most popular orchids are Cattleyas, Phalaenopsis, Paphiopedilums and Oncidiums. These orchids are not only beautiful, but they are among the easiest to grow.

Cattleya

Cattleya (CAT-lee-uh), or Corsage Orchid, is the most commonly grown orchid in the home (Figure 3). These epiphytic plants originate from Mexico to Brazil, where they are often found growing on trees. They come in a wide array of colors ranging from lavender to white, red, yellow, orange, green and blue. *Cattleyas*, or "catts," as they are sometimes called, are often fragrant. Catts require bright light and some sun to flower. An east or west window is ideal, or a slightly shaded south window can be used. Artificial lights may also be used. Four 40-watt fluorescent bulbs and two incandescent 40-watt bulbs placed 8 inches above the plants will provide sufficient light. Dark green, limp foliage or poor flowering indicates insufficient light. Catts require a 15 to 20 degree difference in night and day temperature. Day temperatures ranging from 70-85F with night temperatures ranging from 55-66F are recommended. *Cattleya* orchids possess a psuedobulb that stores water, so they must be allowed to dry between waterings. They need 50 to 60 percent humidity in the home. Place the plants on trays of moistened gravel or use a humidifier to increase the humidity. Catts should be fertilized weekly with a one-quarter to one-half diluted 10-10-10 or 12-12-12 fertilizer. Repot *Cattleyas* every two to three years in the spring. Select a container that is slightly larger than the root system so the plant can grow without repotting for another two to three years. Good aeration and drainage are essential to successfully growing *Cattleyas*.

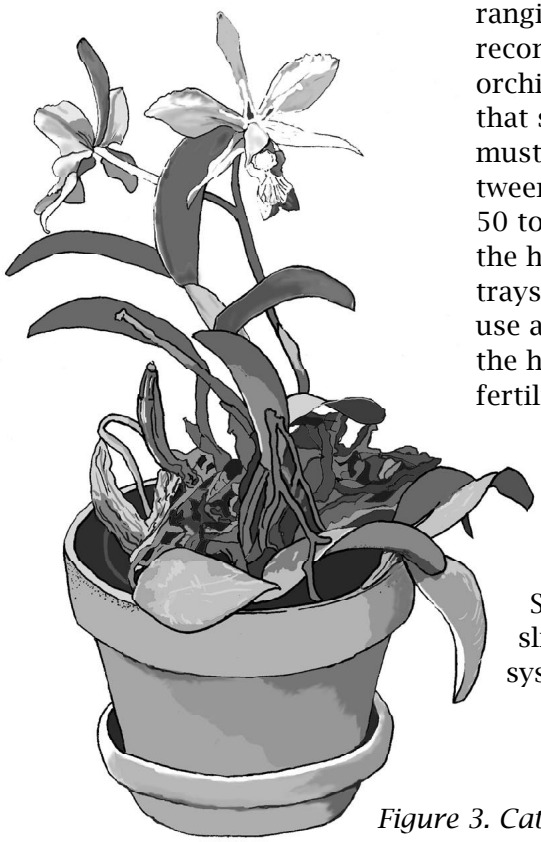


Figure 3. Cattleya or Corsage Orchid.

Phalaenopsis

Phalaenopsis (Fal-en-OP-siss), or Moth Orchid, is the most popular and one of the easiest plants for beginners (Figure 4). Most of the 44 species in this genus originate from the Philippines. They range in color from white, pink, yellow and red to green. They may also be striped or spotted. *Phalaenopsis*, also called phals, send up long, arching sprays that may contain as many as 20 to 30 blooms. They are long-blooming plants, sometimes blooming for up to four months. Keep phals flowering longer by cutting the spike back to the second or third node after the plant has finished blooming. The plant will probably produce a lateral spike with more flowers from this node. Phals make excellent cut flowers also, lasting up to one week in water.

Phals are low-light plants (1000-1,500 foot candles). Phals will sunburn if placed in a south or west-facing window, so placing them in an east-facing window is ideal. If a window does not provide adequate light, artificial lighting can be used. This is accomplished by placing four 40-watt fluorescent bulbs and two 40-watt incandescent bulbs 8 inches above the plant, and setting a timer for 14 hours per day. If the foliage becomes dark green and limp, the plants require more light.

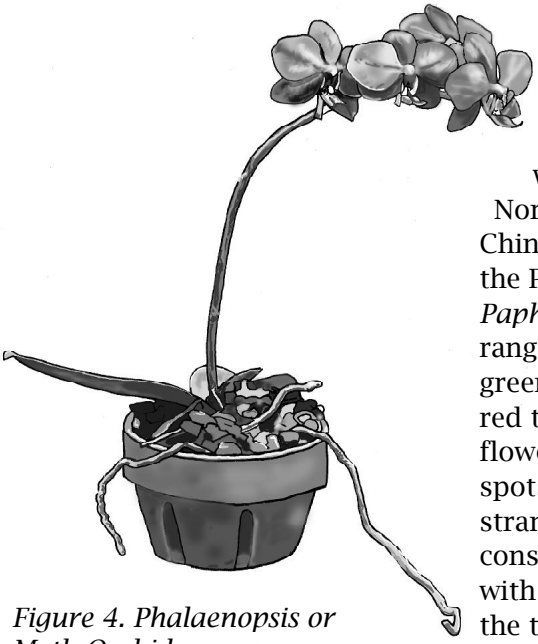


Figure 4. Phalaenopsis or Moth Orchid.

Phals require 70-85F day temperatures and no less than 60F nighttime winter temperatures. A potting mix consisting of 60 percent medium fir bark, 20 percent perlite and 20 percent chopped sphagnum moss is recommended. A one-quarter, diluted 10-10-10 or 12-12-12 fertilizer should be applied weekly. Phals need about 60 to 70 percent humidity. In the home, place orchids on a tray of gravel filled with water, or a humidifier can be placed near the plants. Phals prefer an evenly moist soil, and they are sensitive to drying out. Repot *Phalaenopsis* every one to two years in late spring or after the main flowering season, and select containers that match the root size, not the plant size.

Paphiopedilum

Paphiopedilum (paf-ee-oh-PED-ih-lum), or Slipper Orchid, is also an excellent choice for the beginner (Figure 5). The most unusual, yet beautiful flowers in the orchid family can be found in this genus of nearly 60 species. They originate within a range from Northern India to Southern China and Southeast Asia and the Philippines. *Paphiopedilums*, or paphs, range in color from white to green, yellow, brown, pink and red to almost black. The flowers are often mottled with spots, stripes, hairs and other strange growths. The flowers consist of a pouch-like sac with one large, showy sepal at the top. In some species, the foliage is beautifully mottled.

Paphs, like *Phalaenopsis*, are low-light plants (1,500 foot candles). As with *Phalaenopsis* orchids, four 40-watt fluorescent bulbs and two 40-watt incandescent bulbs placed 8 inches above the plant, and setting a timer for 14 hours per day can be used to add sufficient light. Generally, mottle-leaved Paphiopedilums are warm-growing plants, preferring temperatures in the 80s during the day and in the 60s at night. Plain-leaved paphs prefer cooler temperatures, low 80s to high 70s during the day, and 50s at night. Nighttime winter temperatures should range from 55-60F. Paphs require a humidity range of 60 to 70 percent. In the home, place the plants on a tray of gravel filled with water, or use a humidifier to increase the humidity. Paphs should be watered thoroughly, and they should never be allowed to dry out. Paphs should be grown in narrow, deep plastic containers. A growing mix consisting of 50 percent medium-to-fine fir bark, 25 percent coarse quartz sand and an equal amount of course perlite and milled leaf mold or chopped sphagnum moss. Fertilize weekly with one-quarter strength 10-10-10 or 12-12-12. Paphs should be flushed with plain water monthly. *Paphiopedilums* can be repotted anytime of year, and they should be repotted every one to two years.

Oncidiums

Oncidium (on-SID-ee-um), or Dancing Lady Orchids are more difficult to grow than *Phalaenopsis*, *Paphiopedilum* or *Cattleya* orchids, but their abundant sprays of yellow

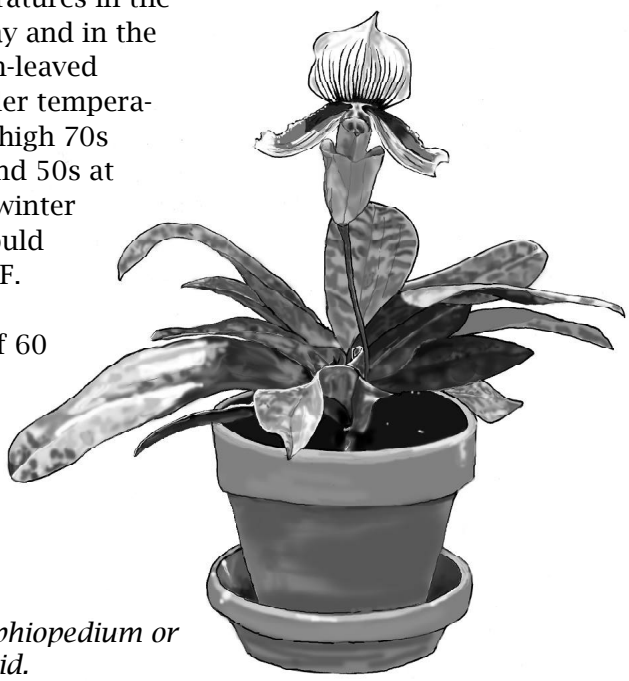


Figure 5. Paphiopedium or Slipper Orchid.

flowers make them worth the effort (Figure 6). Oncidiums are becoming increasingly popular as new and easy-to-grow hybrids are developed. Some of the new hybrids include *Oncidium* Grower Ramsey, *Oncidium* Sweet Sugar and *Oncidium* Taka. The genus *Oncidium* includes about 600 species of epiphytic plants that are native to the New World Tropics.

Oncidiums are high-light orchids, requiring more than 2500 foot candles. Most *Oncidiums* perform best with one to several hours of sunlight daily, but plants with thick leaves can tolerate more light than those with thinner leaves. A bright south-facing window is ideal for these plants. To grow *Oncidiums* under artificial light, place four 40-watt fluorescent tubes supplemented with incandescent lights 6-12 inches above the plant. Metal halide and sodium-vapor bulbs can also be used, but they should be placed farther away from the plant. They prefer daytime temperatures in the 80s. Nighttime winter temperatures should be a minimum of 55F. *Oncidiums* require less humidity than many other orchids, ranging from 30 to 60 percent. Humidity levels in the home can be increased by placing the plants on water-filled trays of gravel, or by placing a humidifier near the plant. Plants with thick, fleshy leaves need less frequent watering than those with thin leaves. All *Oncidiums* should be allowed to dry between watering. Thick-leaved *Oncidiums* can be grown on slabs of cork bark or tree fern, or in pots filled with course materials such as charcoal. *Oncidiums* in a bark-based potting medium should be fertilized twice a month with a one-quarter strength diluted 30-10-10 fertilizer. For plants in other growing media, fertilize with a 20-20-20 fertilizer. Repot *Oncidiums* in the spring or when new growth is one-half mature.



Figure 6. Oncidium or Dancing Lady Orchid.

Buying an Orchid

Before buying an orchid, inspect the plant carefully for any signs of pests and diseases. A healthy orchid will have medium-green leaves, new growth and white roots. Avoid plants that seem sick or dying, since they may be infested with pests or diseases that can be transmitted to other orchids or houseplants. Orchids are generally priced according to their size. Be aware that seedling orchids may not bloom for several years, so you may want to purchase a larger plant that will bloom sooner.

Sources

Orchids can be purchased at retail garden centers, mass merchandisers, orchid nurseries and by mail order catalog. Orchid shows are an excellent source for plants. The plants are usually healthy and vendors are eager to share cultural information and growing tips.

Many excellent reference books on how to grow and care for orchids are available. Local orchid clubs and societies are excellent sources for information. Further information can be obtained from:

The American Orchid Society
6000 South Olive Ave.
West Palm beach,
Florida 33405
(561) 585-8666
http://orchidweb.org

Memphis Orchid Society, Inc.
(4th Sunday, 2 pm, monthly)
Adrian Giles
6712 Arnett Dr.
Millington, TN 38053
(901) 872-6546

Orchid Society of
East Tennessee
(2nd Sunday, monthly)
Leonard Passmore
822 Lizbeth Dr.
Johnson City, TN 37604
(423) 282-5126

Orchid Society
of Middle Tennessee
(3rd Tuesday, monthly)
Alan F. Bachrach
PO Box 50701
Nashville, TN 37205
(615) 356-6567
Fax (615) 865-7499

Smoky Mountain Orchid
Society
Angela Snow
3559 Fountain Park
Knoxville, TN 37914
(423) 523-5032

Tennessee Valley
Orchid Society
(3rd Monday, monthly, 7:30 pm)
Robert M. Martin
1105 Crownpoint Rd. W.
Signal Mountain, TN 37377
(423) 886-2104
E-mail bobbobbobm@aol.com

Visit the Agricultural Extension Service Web site at:
http://www.utextension.utk.edu/

PB1634-1M-3/00 E12-2015-00-083-00

The Agricultural Extension Service offers its programs to all eligible persons regardless of race,
color, national origin, sex, age, disability, religion or veteran status and is an Equal Opportunity Employer.
COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture,
and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914.
Agricultural Extension Service
Charles L. Norman, Dean