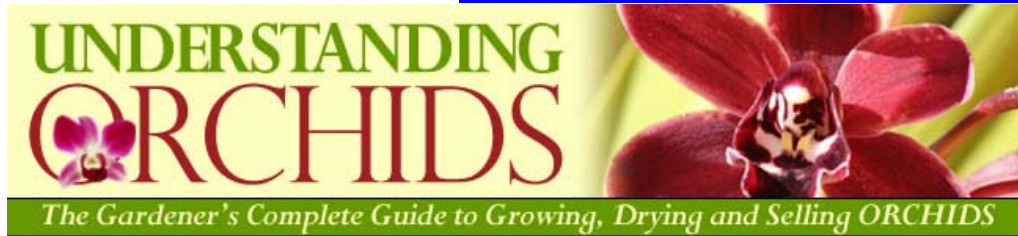


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Understanding Orchids

by Terry Ploughman

The Gardener's Complete Guide to Growing, Drying and Selling ORCHIDS

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Part-I: Orchids in Your Life

1. What is An Orchid?

Orchids are beautiful and captivating plants.

William Cattley was the first person to cultivate orchids commercially in the eighteenth century. Before that, orchids were a rare, luxury indulgence for the rich merchants and royalty. This rarity led to widespread harvesting of orchids from forests and consequently many species faced extinction. Today, several countries have laws banning the commercial exploitation of orchids.



Orchids thrive in all types of environments except the cold Antarctic. There are more than thirty thousand known species of orchids with probably more varieties awaiting discovery. An orchid flower is delicate and captivating at the same time. It comprises three distinct parts; the labellum, the actual flower consisting of three petals and the three sepals.

The orchid flowers pollinate by various methods. Some orchids give off a distinct and attractive scent to attract insects like bees or flies. Other orchids imitate the shape of butterflies to attract them for pollination.

Some orchids have a slippery interior, which ensures that the insect touches the pollen while exiting through the orchid. Small birds, mammals and wind also pollinate orchids. The different species have petals and scents that they depend on to attract their agent of pollination.

It is now possible to grow them in farms, especially for export. However, every variety needs different levels of humidity, temperature, and watering to thrive.

2. What Makes An Orchid An Orchid?



An orchid is an exotic and beautiful flower. There are several thousand types of orchids and a number of hybrid varieties with dazzling colors. The brighter colored orchids have more commercial value. Orchids come in all shapes and range from a few centimeters to several feet tall.

They have small leaves and the thickness of the leaves varies widely. Orchids with thick leaves need maximum sunlight. It is possible to identify different orchid varieties just from the color and shape of their leaves.

An orchid flower has a unique structure comprising of three petals and three sepals around a central structure. This structure is where both the male and female reproductive organs are present. The third petal is in the shape of a lip that permits easy entry of insects for pollination.

Orchid roots are a good indicator of the amount of watering required for the plant. White roots with green ends indicate that the plant needs spacing between watering. Silver roots imply more frequent watering and brown roots indicate regular or daily watering may be needed. Also, check for flower buds on the plant stem and go for stems that have more flowers.

Every orchid variety thrives in a particular temperature and humidity range. It is important to monitor these parameters if cultivating orchids on a commercial scale.

3. Orchid Species - Common Types of Orchids



There are literally more than twenty thousand orchid species in the world. Several thousand more varieties may await discovery, but let us restrict the discussion to common orchid varieties that one can cultivate at home.

There are more than a hundred thousand registered hybrid species of orchids grown for commercial and decorative purposes.

Orchids are the most adaptable flower species and found in almost all climates. Some bloom in the tropical climates and the cold climate, except in Antarctica. Orchids come in many colors and shapes. They have three sepals, three petals and a labella. The third petal is lip shaped to attract insects for pollination. Some orchids take the shape of bees and moths while other orchid varieties have distinct smells to attract butterflies and insects for cross-pollination.

Orchids are of two main types; those that grow on the ground like Cattleya and those that grow on trees like Cymbidium. Some species grow on waste matter, but are not beautiful. Again, there are two main sub-types depending on the method of propagation. Some orchids can multiply by lateral growth like the Cattleya. The second method is by an atypical multiplication like in the Vanda plant.

Orchid plants grow well under the right temperature and light. They need proper watering and humidity to flower and need repotting every two years. The common orchids are Cattleya, Phalaenopsis, Paphiopedilum, Cymbidium, Dendrobium, Oncidium, and Vanda. Cattleya, Dendrobium and Oncidium need less water, while Vanda can grow well with little watering. Paphiopedilum and cymbidium need constant watering throughout the year.

Cattleya orchids are the most beautiful and in demand for decorative purposes. They come in a riot of colors like orange, green, and red. These orchids have interesting variations named Lemon Chiffon and Hawaii Peach. They grow in the

jungles of South America. Their popularity, unfortunately, lead to widespread harvesting and the species are now on the list of protected plants.

The Dendrobium genus has about a thousand species of orchids. The flowers take different shapes, and colors like white and purple and yellow. These orchids bloom in the warm tropical climate of India, Australia and Polynesia. These orchids grow well but do not bloom frequently.

The Cymbidium orchids are very popular in floral decorations. They grow easily in the home environment and flower regularly. These orchids grow in abundance in Japan, Australia, and China. They come in several colors, including white and green.

Vanda blooms have striking colors like red and yellow and the flowers last for weeks. These orchids grow easily. A single flower can have more than ten spikes. The flowers are flat and all petals are of similar size, unlike other orchids.

Another orchid species, the Phalaenopsis - commonly found in the Philippines - come in rich hues of pink and yellow. Their varieties come in a combination of colors like white with red dots, orange with pink and so on. They grow easily and find widespread use in wedding bouquets and decorations.

A unique orchid species is Paphiopedilum. It resembles a delicate slipper. The petals are of different hues with stripes or dots on them, giving the flower a distinct appearance. Oncidium orchids are slipper shaped as well and some varieties have a sweet smell. Other varieties of this genus come in vivacious shades like yellow and maroon, white and brown and so on. This variety needs about six hours of sunlight each day and two months to bloom.

4. Basic Culture of Orchids



Orchids are exotic plants, but easy to grow if given appropriate conditions. Important factors that determine their success include light, water, temperature, humidity, air circulation and the potting material. Orchids only bloom under specific conditions, so it is important to familiarize yourself with these factors.

Remember to never submerge orchids in water since they mostly absorb water from the atmosphere and through their roots. Orchids cannot stand in dissolved salts. So, always drain water away from the roots when watering them. The frequency and quantity of watering depends on the orchid variety, the weather, the potting medium, the pot size, the exposure to wind and the rate of growth of the plant.

A good way to schedule watering of orchids is by observing the condition of the roots. White roots with succulent, green tips imply healthy roots. Never water orchids excessively as the roots will turn brown and rot.

Another important factor that determines growth is temperature. Orchids grow best in the house between the temperature ranges of fifty to eighty degrees Fahrenheit. Some orchid varieties need a marked difference between day and night temperatures for blooming. For orchids that grow in a warm climate, you can provide a variation by decreasing the watering. Similarly, for varieties that grow in slightly cooler environments, you may water frequently and improve air circulation in the area where the plants are.

The right amount of sunlight determines the orchid's growth and flowering pattern. Remember that orchids make food and store it in their roots. This determines their blooming cycle to an extent. On the other hand, excessive light can lead to dry leaves. Examine the color of the leaves to find out if the orchid is getting too much or too little sunlight. Light green is a healthy leaf color, and the leaves take a dark hue with excessive sunlight. When the leaves turn dark, with plum colored striations, it indicates that the plant will flower soon.

If the leaves turn yellow or develop orange areas, it implies excessive sunlight. The leaves will burn and get some discolored patches due to the strong sun. Shield the plant from the strong light by placing it in the shade. Dark green leaves indicate the plant requires more light, so shift it to a sunnier location near a window so that it develops flowers.

Orchids need proper air circulation for healthy growth. You can achieve this by placing a fan in the area near the orchid plants. This also helps reduce the temperature and prevents spotting of the leaves. Orchids grow under medium humidity, so you will need a humidifier in the house. You can provide optimum humidity by placing the orchids in a humidity tray.

Take a tray large enough to hold your plant, place a few pebbles on it and half-fill it with water. Place the plants on the pebbles (and not the water as mentioned earlier). As the water evaporates, the plants will grow in the improved humidity.

The right potting material will ensure proper growth for the orchid. The main aim of the potting medium is to hold the plant and retain moisture for the roots between watering intervals. Consult the local nursery for advice on the optimum potting material, depending on the type of orchid you wish to grow. Some common potting materials are bark chips, moss, charcoal, fir bark and coconut fiber. Choose the potting material depending on the frequency of watering for optimum results.

Some orchids need fertilizer on a regular basis for better growth. Always drain the pots frequently after fertilizing to avoid salt accumulation in the roots. Orchids need repotting only if the plant overgrows its pot. The ideal time to repot is before the flowering season, so that the plant can take root in the new pot. Do the repotting carefully with clean tools and the best potting media for best results. It is important to keep ALL these things in mind when cultivating orchids at home.

Part-II: Getting Started**5. Growing Orchids – Beginner's Advice**

It is possible to grow orchids as houseplants with the right amount of water, light, and tender care. Orchids thrive at the right temperature and humidity and it is not difficult to grow them.

Keep the following things in mind when growing orchids.

The amount of water needed varies among different orchid species. To determine the frequency of watering check the roots as they store water. Species like Dendrobium need less watering and dry out in between. A good way to water some orchids is in the sink for a few seconds. However, let all excessive water flow away from the plant before returning it to its pot.

Some species like to be more or less dry before they need water. For this, check the roots with your finger. If they feel squishy but not very dry, it is time to water them. Other species need bi-weekly watering. So, learn to check the roots properly before submerging the orchids in water.

Orchids need medium humidity of about fifty percent. If the house is less humid, humidify the area where the orchids are kept using mist. Alternately, use a plastic tray filled with water and pebbles to create humidity. Place the orchid plant on the pebbles and not the water for optimum effect.

Orchids need optimum light for good growth. A few varieties need intense light for growth but not direct light. Keep them in a sunny area for the major part of the day. Some species need four hours of sunlight while others may need up to six hours of sunlight. So, it is important to place orchid plants near a window or open area of the house.

Another important factor that determines the orchid growth is the temperature. Orchids grow well when the temperature varies within a specific temperature ranges. Hence, novices should acquaint themselves with the appropriate temperature range needed for different varieties of orchids.

Orchids grow easily within the house if maintained at the right temperature, humidity and light.

6. Most Popular Orchids for Beginners

When you cultivate orchids at your home, opt for *Odontoglossums*, *cymbidiums* and *Phalaenopsis*. These three varieties are among the easiest to grow. Follow the instructions about light and temperature as well as the watering frequency to get a good bloom.

Odontoglossums come in various colors and flower every nine months for up to four weeks. You must keep them in a cool area away from the sun. Grow them inside the house.

They need repotting only once every two to three years. The plant bears small flowers in a bunch that look extremely beautiful.

Odontoglossums may flower twice a year under optimum conditions. Once the bloom withers, trim the stem off right down to the base. A new set of flowers will develop from the next pseudo bulb (a bulblike fleshy, thickened stem located above the ground in an orchid) that the plant makes.

The plant will flower again from a new bulb that develops from this cut base. These plants need a temperature of ten degrees Celsius in winter and about thirty degrees Celsius in summer. They only need a little sun during the overcast winter months. The plant needs regular watering in the spring and summer. Take care to drain water from the roots to remove mineral deposits that can harm the plant. Check the potting material for dampness before watering and add fertilizer every fortnight to the plant for good growth.

Another popular orchid that is ideal for beginners is *Phalaenopsis*. The orchid flowers several times a year from a single stem. The flowers last for several weeks and come in a wide array of colors and designs. This plant grows well in a warm environment and can withstand some dryness.



Phalaenopsis grows from the apex and develops several airborne roots in the growing season. For reflowering to occur, cut the stem from the highest point before the flowers fall off. The plant then produces a new branch with buds that will bloom and then fall off. Repeat the cutting process described above for several flowering cycles until you reach the base of the stem. You may then repot the plant in a proper potting medium so that it can grow further.

Phalaenopsis requires dim light and less water. Keep the plant in the sun only during the bleak winter months. Always drain water from the roots and water only every two weeks after checking the roots for moistness. You may add some fertilizer every two weeks throughout the year for best results. These orchids need a temperature between eighteen degrees Celsius (64.4 degrees Fahrenheit) at night and thirty degrees Celsius (86 degrees Fahrenheit) during the day.

Cymbidium orchids are very popular and bloom every winter for six to eight weeks. They do not need much sun, but do need regular watering. They come in an array of colors and may grow to a huge size. You must repot it once every two years. These plants thrive in a cool environment, so keep them in the sun in winter.

Keep them in the sun only for a few hours in summer as extreme sunlight can stop flowering. For reflowering to occur, trim the plant to the base from where a new bulb will develop in the next season.

Cymbidiums require a temperature range between eight degrees Celsius in winter and thirty degrees Celsius in summer for best growth. Keep the plant in a potting material like bark that retains moisture, essential during the blooming season. Always drain water away from the roots to wash away accumulated salts that can harm the plant. Never put the plant in water as it can result in rotting of the roots.

Add some fertilizer every fortnight around the year for optimum growth. If you keep these tips in mind, you can have a thriving collection of healthy orchids in your home.

7. Selecting the Right Orchid for You



It is easy to grow orchids in the home if you take adequate care. When buying an orchid plant, choose carefully after a thorough examination of the leaves and roots of the plant. Buy orchids from a credible orchid grower or nursery. This ensures a good quality plant and the experts can help you with tips on nurturing and maintaining your orchid.

Talk to the orchid grower about the type of orchid you want and describe the home environment. This is important, as orchids need proper light, humidity and temperature for optimum growth. You can choose from varieties that live in cool temperatures to those that live in warm temperature. Choose a plant in bloom to get the color of your choice.

Check the plant's leaves for spotting. The leaves must be a healthy light green and not dark green that might indicate exposure to excessive sunlight. Avoid spotted plants as it indicates exposure to extreme temperatures that is harmful to the plant. Mild spotting is usually alright.

The leaves and pseudo bulbs must be spongy and not dry. Ensure that the apical leaf is growing and healthy as this ensures future growth of the plant. Do not cut the crown of the plant, as it will not survive.

The roots must be healthy, white with green ends. Avoid a plant that has excessive water and brown rotting roots. You can see the roots as most orchids have aerial roots that spill over the pot. Buy an orchid with some bloom and a few buds so that flowers last for a longtime.

Before buying the orchid, ensure that it sits firmly in the potting material. Replace the material with moss or bark chips that are a more suitable repotting material. Also, inquire about the frequency of repotting and the fertilizer suitable for the plant. Check the leaves for insects and buy only healthy plants.

If you buy an orchid in bloom, avoid plants with stale looking flowers since the flowers will soon fall off and the plant may not survive.

Always ask the nursery owner details about the amount of light required the frequency of watering and the right temperature for the orchid plant you purchase. Place the plant in a proper area within the house with sufficient light and air circulation to ensure its optimum growth. You can choose from orchid varieties like Dendrobium, Oncidium and Phalaenopsis that are easy to maintain and grow in the house. You can choose from different hybrid orchid varieties that come in a range of colors.

Do not compromise on the quality of the plant as a good orchid plant can last for years with good care.

8. Buying Tips for Orchid Plants

It is important to examine all parts of an orchid plant carefully before making a purchase. Never compromise on the quality or look for a bargain when buying orchids. Discounted orchid plants may be of poor quality or damaged in transit, so never buy them. Remember that money spent on a good plant ensures you enjoy the plant's beauty for years to come while a cheap plant from a bargain store may die in a few days. Stay away from online stores that promise to deliver orchids to your doorstep. Such plants are over-watered and may be badly damaged by the time you receive them. So preferably, choose a reputable neighborhood nursery or orchid grower to get a good orchid.



It is important to know how an orchid reaches a store near you. Orchid cultivators select the top quality plants and mass-produce them for the market. They remove apical cells from the crown and then culture other plants under controlled conditions. Orchid growers buy developing plants and nurture them to flowering stage. Again, nurseries buy semi-blooming orchids and then sell them to you in your neighborhood.

Buy fresh orchids from the orchid grower and ask how long they have been at the store. Keep away from withered plants or plants in full bloom. Buy an orchid with a few buds on its stem and a few flowers so that you know the color of the orchid you are buying. The flowers must look healthy and free of fungal growth. The leaves should be spongy and healthy green, without spots. The plant should be free of insects that are harmful to its health and growth.

The roots should be healthy white with green tips. You can easily check the roots as most orchids have aerial roots. The plant must sit securely in the potting material. Remove any paper wrapping in the store and check to ensure that the roots are not brown or rotting due to excess water. Ask the nursery staff to guide on proper care of the plant, including guidance about the light, temperature and humidity conditions. Ask about the fertilizer required and the frequency of watering. Learn

about the humidity required and how to provide the optimum humidity. This will ensure optimum growth and conditions that ensure proper flowering of the exotic plant. You can read up tips on helpful websites and share the experiences of other orchid owners.

Keep the following tips in mind to get healthy plants. Buy mature plants rather than young plants to ensure survival. Talk to the orchid grower about conditions in your home and ask him to suggest an orchid that will grow in that environment. You cannot modify light or humidity conditions beyond a point to suit the plant and this is detrimental to the orchid's health. So, choose the right variety keeping in mind conditions you can provide for the plant to thrive.

The potting mix that comes with the plant is to retain moisture over the long shipping period and is not suitable for growth of the plant. Once you buy an orchid plant, take care to transfer it to a proper container with the right potting mixture. Take care not to break the roots as this can damage the plant. In general, keep the orchid plant in a well-lit area with proper air circulation. Water it only as required and add fertilizer once a fortnight for optimum results.

9. The Easiest Orchids to Grow?



Contrary to popular belief, it is possible to grow orchids in the house. You can choose any of the hardy varieties that can grow in a normal house environment. Usually orchids require a specific light intensity and temperature for flowering. Some varieties prefer warm temperatures with intermediate light while some varieties need cooler temperatures for better growth. The temperature must vary between sixty-five degrees Fahrenheit in the night to ninety degrees

Fahrenheit in the day. In the cold winter, months provide a cooler night temperature to initiate blooming.

Orchids need proper air circulation so place a fan in the area where the plants are. Ensure proper humidity and use humidity trays to get the optimum humidity for the plant. To make a humidity tray, take a large tray and fill it with gravel and half with water. Place the orchid on the gravel and not the water. Drain regularly to wash away salts that can damage the plant.

When watering your orchids touch the roots for sponginess, and water accordingly. However, do not wait so long that the roots dry out before watering. Over watering will result in rotting roots. Therefore, the best method is to water the plant all around and in the morning. The frequency of watering depends on the weather and the temperature. Use water at room temperature to avoid trauma to the plant's roots.

Orchids need proper potting material of bark chips or moss that retains moisture between watering. Mostly all orchid plants need repotting once every two or three years. Orchids need fertilizers every two weeks. Use a complete fertilizer comprising major and minor elements once every three months for optimum growth.

Here are a few species that are easy to cultivate in the house. This includes Phalaenopsis orchids that last for up to three months. The flowers are large and a

new spike develops when you cut the old one, thus paving the way for a fresh bloom. Hybrid orchids are more suited for a home environment and these include hybrids of *Odontoglossum* and *Oncidium*. Other suitable varieties for the home include *Bulbophyllum*, *Dendrochilum*, *Vanda*, *Dendrobium*, *Epidendrum*, and *Aerangis*. These varieties grow well under indirect light and do not need extra care during the cold winter months.

Oncidium and its hybrids come in a profusion of colors suitable for corsage decorations. The plants are robust and can adjust to the environment in the home. *Dendrobium* and its hybrid varieties bloom in to a bunch of white flowers that last for several days. The plant reflowers after a year when you cut the apical stem after the flowering season.

Vandas are epiphytes that grow on trees; so most people grow them outdoors. These orchids come in a variety of colors but grow slowly. Another easy to grow orchid is the *Epidendrum* that is reed like in appearance and produces several small flowers. You can multiply the plant by taking tip cuttings with some airborne roots.

Paphiopedilums grow well under fluorescent tubes and produce beautiful flowers shaped like lady slippers. You can easily grow their hybrid varieties, as they do not require special care. Some varieties like *Phalaenopsis* produce long lasting flowers. These plants need special potting of bark chips that does not make the roots soggy. These two orchid species need extra humidity in the cold winter months. You can place them in humidity trays described above or use room humidifiers for best results.

To counter problems like bugs, use an alcohol swab to wipe the leaves or ask the local nursery for a mild pesticide. Besides this, you may have to adjust the light levels, depending on the color of the leaves. Once you take the proper care, it is quite easy to cultivate orchids.

10. Tips for Growing Orchids Successfully



Orchids are resident of the warm tropical climate, but many species can adapt to grow in cooler climates. Here are a few tips on how to grow orchids successfully. Learn to recognize the species that you have or want to own. Orchids grow on land or on trees, so place the plants accordingly.

Choose the plant after discussing the temperature and humidity conditions of your home with the orchid grower. Based on your feedback he will suggest a plant that can thrive in the home environment. Do not choose an exotic species that you cannot maintain, simply for aesthetic purposes. This is because every orchid variety needs different light, temperature, and humidity conditions.

Choose species like Phalaenopsis that can flower in the cold winter months. The flowers last for about two months after which cut the apical tip so that the plant reflowers in the next two months. These orchids require high humidity that you can ensure by using a humidity tray. For this, you need a large tray to hold the plant. Fill it with gravel and some water. Let the plant sit on the gravel and not the water. While watering drain away, the salts from the roots as their accumulation can harm the plant.

Find out the amount of light the orchid needs. Some varieties like Vanda and Cymbidium need direct sunlight. Others like Epidendrum need medium light while orchid saplings and species like Miltonia need more shade. Accordingly, place the plants in a sunny or shaded area. Do not expose them to the strong afternoon sun at any time. Excessive sunlight can cause leaf spotting and discoloration.

Some varieties thrive in warm temperatures between fifty to seventy degrees Fahrenheit while others grow between sixty to eighty degrees Fahrenheit. However, most orchids grow in the medium temperature range available in most homes. Some varieties like Dendrobium need cool temperatures for blooming. During warm summer, months you can place species like Cymbidium outdoors and take steps to protect them from excessive wind.

Take care to water the plant every week after checking the condition of the roots for turgidity. Another method is to check the weight of the pot. It is time to water if the pot feels light. Excessive watering causes the roots to turn brown and rot. The frequency of watering varies with the climate, temperature and compost used in the pot. Water in the morning and use water at room temperature so as not to shock the roots. Never use soft water for watering as it harms the plants by depriving them of essential nutrients.

Use a good orchid fertilizer from the local nursery every two weeks. Use fertilizer twice a month during the blooming season as it promotes good growth of the plant. This is necessary to maintain good soil quality that is essential for optimum plant growth. Use proper potting material like moss or bark chips for orchids and repot once a year when the bulb outgrows the pot. Choose the proper size pot, or else the orchid will not grow properly. Sterilize the potting tools for every plant to avoid the spread of any infections.

Orchids grow well in fresh air. So, maintain proper air circulation in the area where you place them by means of a fan, if necessary. However, maintain optimum humidity by using a spray mist or by using a room humidifier. If you follow the above tips, you are sure to have healthy and beautiful orchids in your home.

Part-III: Growing Beautiful Orchids

11. Provide the Perfect Environment

Orchids are excellent indoor

plants. There are different species and hybrids of orchids. Some are easy to grow in a windowsill while some require special conditions. You can choose the type that you can grow

according to available conditions at home. You can choose a type that can help you maintain an orchid garden at home with blooms all year. Orchids bloom the best between December and April.



Paphiopedilum or Slipper Orchids, Phalaenopsis, or moth orchids, Ludisia, and other jewel orchids need less light and can grow in fluorescent light too. Cattleyas, Dendrobiums, Ascocendas, Miltonia or Pansy orchids, and Oncidinae intergenerics grow best in eastern windowsills. Vandas, Phragmipediums, Cymbidium, Oncidium, and Brassias require bright sunlight to bloom, though not necessarily direct sunlight.

Environmental Factors for Growing Orchids

In the natural environment, orchids do not grow directly in soil. Instead, orchids cling to trees and their branches with the help of their thick roots. This way, they absorb whatever water and air is available. Hence, orchids have natural adaptation abilities to survive without water for long, as they store sufficient supply in their thick stems, leaves, and roots.

Therefore, to create a similar atmosphere at home, plant orchids in pots filled with tree fern, stones, bark chips, and similar loose materials. This helps water to drain away fast. It is more than sufficient to water your orchids once a week. Always allow it to dry slightly before watering.

Light

Orchids require good sunlight for around six hours a day. Sufficient light increases flowering potential of orchids. Lack of sufficient light may not hinder growth of orchids, but will definitely affect its blooming capacity.

The leaf color of orchids indicates if available light is sufficient or insufficient. Dark green leaves indicate lack of sufficient light while glassy green with tinges of yellow indicate sufficient light. You can place your orchid pots in the south and east facing windows of your home. North facing windows lack sunlight while west facing windows could become extremely hot in the afternoons. This will bleach orchid leaves and would cause a slow death of your orchid plant.

If you do not have the perfect surroundings, you can use Mylar sheets for reflective light. Otherwise, you can move the pots away from sunlight, if in excess. You can provide artificial light by placing four fluorescent tubes of four feet each at a distance of six inches from one another. The special grow lights could prove very expensive, although they provide good results. You can provide additional light through fluorescent bulbs at windows receiving little sunlight.

Humidity and Fertilizers

Orchids require humidity of more than fifty percent. Normal home atmosphere does not offer such humidity levels. Hence, increase humidity levels around orchids by operating a humidifier. Alternatively, place orchid pots on a tray with many soft black pebbles and cover the pebbles with water to make the environment more humid. However, provide sufficient ventilation to avoid influx of bacteria. You can use a spray water bottle to occasionally spray water and provide the necessary humidity to orchid plants.

Orchids do not require huge amounts of fertilizers. Use a weak fertilizer solution once a week. Use a blossom-booster fertilizer in autumn. You can scrap away insect pests gently from the orchid plant. Otherwise, use horticultural fine oil or a natural insecticidal soap available at drugstores. However, use these strictly according to the instruction labels.

12. Growing Orchids at Home

Orchids have an exquisite and

attractive look. Orchids bloom easily in the home environment. They do not require extensive facilities. The three main requirements for growing orchids at your home are proper light, temperature, and humidity levels.

Specific orchid species have specific requirements of light and temperature. Therefore, select the species that can adapt to the prevalent environment at your home.



Where to Buy Orchids

The simplest species of orchids that grow easily are Phalaenopsis hybrids and Dendrobium hybrids. You can buy these at any mega-stores or supermarket like K-Mart, Wal-Mart, Target, or other homeowner supply stores like Lowes and Home Depot. Some florists also sell them, although you need to take greater care of such plants.

These orchid species are available in colors like white, lavender, pink, or purple. Some could have spots or stripes on them. Yellow or orange orchids are costlier. Small pots with Dendrobiums in bloom are available for around five dollars. Blooming Phalaenopsis could cost from eight dollars onwards. It is best to have many small orchid plants than few big ones to provide necessary humidity to all the pots. Do not pay more than twelve dollars when starting to grow orchids at home. You can buy and take care of rare and costlier orchid species after you gain little more experience. You can then have orchids bloom all-round the year at your home.

Ideal Locations

You have to decide the place for keeping orchids at home before buying them. Phals and Dendrobiums bloom the best in medium light, although Dendrobiums also bloom well in bright light. They adapt fine to temperatures that are similar to your requirements. The best variations are between 18C and 13C.

Humidity as available in bathrooms or near bathrooms is essential. Alternatively, place orchid pots in a tray covered with wet gravel. Keep orchid soil beds moist and not dripping wet. After orchid blooms finally fade, do not cut away the long bloom spike. Just remove the spike after it is dry and brown. New spikes could rise from the roots and grow new ones. If there are several branches and spikes in single pot, try to remove few of them slowly and repot into another pot.

13. Growing Orchids in a Greenhouse

Greenhouses present an artificial set-up of the ideal environment for growing plants. You control temperature, light, humidity, and water levels within the greenhouse. You can grow orchids in a greenhouse provided you adhere to certain basic requirements. This will help you have orchid blooms all through the year.



Greenhouses differ in shape, size, and cost too. Most greenhouses use wooden frames while some others use aluminum, as it can sustain vagaries of nature. Greenhouses can be huge or a small cute one to fit into your kitchen too.

A greenhouse of 14 to 20 feet length and 14 feet width is the best for growing orchids. Although it may look huge at first, later as your orchid blooms grow larger in number, it would be fine. A larger greenhouse will prove less expensive than adding a new greenhouse.

Ideally, place your greenhouse on a north-south axis to provide essential sunlight for your orchids all through the day. If you opt for an attached greenhouse, do not place it in the north. Similarly, remain away from the shade of nearby buildings or huge trees.

Greenhouses need a proper foundation, which can be of brick, poured concrete, or cinder. It should be well below the frost line if you live in a cold place. The floor of a greenhouse should be of leveled earth. Avoid concrete floor, as these lack proper and sufficient drainage, which is very essential for blooming of orchids.

Alternatively, you can try a clay-earth floor with many inches of gravel or cinder.

Benches inside the greenhouse should be of treated lumber, steel, or aluminum. The top surface should be of redwood or cypress strips to provide essential aeration. Orchids cannot survive in cold temperatures. They are best in cool temperatures. You can therefore provide essential heating through ducted hot air, steam, circulating hot water, or natural gas. Refrain from using ethylene gas, as it is deadly to orchids.

If you live in very warm climate, you need a cooling system for orchids. Opening of side and roof vents with continuous running of fans can ensure free air circulation within the greenhouse at all times.

14. Grow Orchids on Trees



You can grow orchids on trees. Orchids are not parasitic and therefore, do not cause any harm to trees. The trees only provide structural support to the growing orchids. Trees allowing adequate light are the best for growing orchids. Such trees include citrus, oaks, bottlebrush, calabash, palms, and schefflera.

Trees with rough bark are ideal for growing orchids. These trees should have a permanent bark. Trees that shed bark will shed off the epiphytic orchid roots too. Roughened bark is the best, as it retains more surface water essential for orchid growth. The small interstices in the roughened bark provide perfect the location for lodging orchid seeds too.

How to Propagate

Most orchids produce roots all year. You can place these roots at anytime on trees. Some species like *Cattleya skinneri* produce roots during the potting time. January and February are the ideal months for placing such orchid roots on trees, as they flower in March and April. *Cattleya bowringiana* grows roots in autumn after blooming is over.

You can try attaching established orchid plants, seedlings, or plant divisions too. Back pseudo bulbs of *Cattleyas* adapt very quickly to the bark of a tree. Set the plant directly on a branch or the main trunk. You do not have to use any attaching medium like sphagnum moss. This could induce rotting as the surface becomes very wet. Roots then grow in the medium and do not cling onto the tree, as is necessary.

How to Attach

The simplest way to attach orchid roots to tree is with the help of a cotton string. The string falls of by itself soon and does not cause any change or harm in the

environment. The orchid roots mingle very well with the tree bark and develop strong roots within a few weeks.

You can use plastic fibers or monofilament to tie roots to the tree bark. However, these attaching mediums do not fall away by themselves. It is therefore essential for you to loosen the hold as orchid starts developing. Finally, you have to remove them after orchids form full-grown roots. Another option is to apply a little glue on the bulbs and hold it tightly against the tree bark for few minutes.

Caring for Orchids Growing on Trees

The initial few months, after attaching the orchids onto tree barks need a lot of care. Provide adequate water, albeit gently as mist through a hose or use a sprinkler line up the tree. You can use lightweight PVS pipes too. Once your orchid plants form deep and strong roots, you can adhere to periodic applications of fertilizers and water supply. These thereafter last for many years. However, if you prune trees with orchids growing on them, be careful not to harm the epiphytes.

15. The Easy Way to Pot Orchids

Before potting orchids,

choose the specific type of soil or potting material. The most suitable medium is fibrous, coarse, and porous substance. An acid reaction of medium level can ensure the ideal environment without excessive decomposition of the potting material.



Tools for Potting Plants

You require simple gardening tools for potting orchids. Such tools include a screwdriver for freeing compost and loosening it. It helps you push and settle compost within the tiny orchid seedlings. Shears with curvy and pointed blades and sharp knives also prove very useful.

A piece of hardwood of around twelve inches length and thickness of 1½" to 1¾" with one sharpened edge helps in packing the potting medium firmly. Some prefer a metallic tool, as it helps exert more pressure. You can use a rubber hose over one end to protect your hand from the metallic edge of the tool.

Ideal Pots for Potting Orchids

The ideal pot for potting orchids depends on your choice and suitability of the orchid plant. Cattleya, Cymbidiums, and Cyripediums grow best in pots. Certain species like Phalaenopsis grows best in baskets or small pots.

Fern or half pans suit humid climates in coastal regions. Deep pots suit orchids growing in hot and dry climates. Oncidiums and Wanda coerulea species grow best in blocks of wood. These roots need a lot of free air and therefore, you can tie potting material to the base of the plant to help it grow easily.

Obviously, a large and healthy plant requires a large pot while a small and slow growing orchid requires a smaller pot. Confining a sick orchid to a small pot can boost its growth. Choose a clear plastic pot to understand and see the growth of orchid roots within. Your pot should be able to sustain the growth of the orchid for another two to three years.

Compost

Well-drained compost suits most orchids. Use open compost if you can water your orchid regularly. Otherwise, make your compost more water-retentive by mixing orchid grade bark chippings. Use small chippings for orchids with small roots and big ones if roots are thick. Mixing rock wool with compost can help flush away salt deposits in roots. Ordinary garden potting material cannot ensure a healthy orchid plant.

The Potting Process

Place some crocking material at the bottom of the pot for drainage. Put the compost on top and keep it loose. Place your orchid bulb amidst the compost with enough growing area in the front. This is essential, as growing bulbs require space, air, and light to grow healthily. Spread the roots of the orchid plant in the compost.

Fill in with fresh bark, holding plant firmly in place. Use your potting stick to firm down the compost in the pot. If the compost is loose and wobbly, the orchid root can develop well and the root will not grow firm. This will make your orchid plant wobbly too.

A simple test to check if your potting is firm is to turn the pot upside down. Your orchid plant or your compost should not come pouring down. However, you need sufficient practice to ensure this. Fill the compost to the rim of the pot. Thereafter, give a thorough watering to your orchid plant.

You can use bamboo or redwood stakes as a support for weak and growing orchid bulbs. You can tie them with galvanized wire to prevent any decomposition in damp weather.

16. When and How to Repot Orchids



Repotting orchids is to remove orchids from their original pot and thereafter potting them into other pots. Although it is easy to say, repotting involves various processes and lot of thinking too.

When to Repot Orchids?

Repotting orchids becomes essential in the following conditions -

- When orchids outgrow their pot. New bulbs and smaller plants coming up do not have adequate space to grow.
- Roots of some orchids rot. Clean them up and repot them.
- When the potting medium of orchid starts decaying and breaking down.
- If you can see build-up of salts on the potting medium.

The best time to repot orchids is after they complete blooming and start producing new growth. These new roots should be around ½" in length. Never repot a blooming orchid. If you postpone repotting to the next year, the flowers in the next season would definitely be less than the earlier years. Sometimes, it may not flower at all.

How to Repot

Choose your pot which could be either clay or plastic. You can also use a special orchid pot with holes on the sides. These holes allow roots of the orchid plant to grow out. The chosen pot should be bigger than the original pot.

Next, hold the top of the orchid plant carefully and try pulling it out gently by tilting the pot. Otherwise, gently tap the pot and loosen the soil. If need be, you can break the pot too.

Next, remove all medium from the roots to loosen root ball. You can use your fingers to separate roots. However, if potting medium is rocks, it requires extensive

work to loosen the root ball and make it free of all potting material. You can use tweezers to remove excess compost from in between the root bulb without causing any injury to the orchid plant.

Some orchids have a single huge root ball while some have many roots, although not tangled together. Cut off dark brown and black roots with sharp scissors. Also, trim away thin roots. Dust all cut areas with sulfur. Keep only the healthy roots, which are white or light tan-brown in color.

Place the roots well in place in the new pot. Hold on to the orchid plant while you put in the potting material all round the roots. Use fir bark as a growing medium for orchids. These bark pieces help orchid roots get the required amount of air. If the new plant is slightly wobbly, place an anchor or a support to give it necessary support and a firm hold in the new pot.

Water the orchid plant thoroughly. The water should ideally flow down the bottom of the pot.

Keep the repotted orchid plant in bright sunlight initially for the first few days.

While repotting, you should be aware of the direction of growth of the orchids. Some grow upward while some grow outward. Hence, sometimes, new leaves sprout from the top of the stem. In some cases, it sprouts from the stem sides before developing new stems. At the time of repotting, place the upward growing orchid in the middle of the new pot. The sideway-growing orchid requires you to put the oldest part of the orchid stem against one side of the pot.

17. Choosing the Right Potting Medium

The main aim of the

potting medium is to support the plant and to provide moisture to the roots between regular watering. A good potting media should permit air to move freely between the



roots. The choice of potting medium depends on the orchid variety, so consult the orchid nursery before selecting the potting.

Moss is the best potting medium for varieties that need to remain moist. Other potting media include cork, bark chips, tree fiber, coconut fiber or chips, charcoal and clay pellets. The smaller in size of the potting material, the greater is its moisture retention. Therefore, moss retains the maximum moisture while rock wool retains the least amount of moisture. You can use more than one type of potting material for best results.

You can place the orchid in different types of pots ranging from plastic to terra-cotta. You can hang outdoor species from baskets or can grow others in glass terrariums. All pots made from any material must have drainage holes to prevent water logging. They must be strong and retain moisture between watering intervals.

Terra-cotta pots are ideal for epiphytes as they are big enough to permit the growth of roots in large varieties like Cymbidium. This is important as epiphytes store water and nutrients in their aerial roots. You can place wide-spreading orchids in large mesh baskets. This permits proper air circulation and retains water, while letting roots grow. Always tie the orchid to the potting medium for proper support before placing it in the pot. Repot all orchids once every two or three years only. Thus choosing the right potting medium ensures proper growth of the orchid.

Part-IV: Caring for Your Orchids

18. Caring Tips for Popular Orchids Species

Orchids adapt well to your home

environment but need careful attention to thrive. Here are general tips regarding light, water, temperature, humidity and other care required by different orchid species.



Phalaenopsis orchids are quite common and easy to maintain. The flowers are moth shaped and some hybrid varieties have a scent. The flowers stay in bloom for up to eight weeks. These orchids do not need direct sunlight, but need a humid atmosphere for optimum growth. In summer, it is advisable to spray mist them every alternate day.

Phalaenopsis grow well in temperatures between fifty five to eighty degrees Fahrenheit. They need a temperature difference of ten degrees Fahrenheit in the blooming season to develop buds. These orchids need proper watering, as they do not have bulbs to retain moisture. Check the weight of the pot before watering. A light pot indicates the need for watering. Do not over water and let the water run all around the plant. Use orchid fertilizer every fortnight and every week in the blooming season for best results.

Cattleya orchids are epiphytes and have aerial roots. They grow in the forests of South America and hence need a lot of humidity and bright, indirect sunshine for good growth. Diffused sunlight helps them develop pseudo bulbs that retain nutrients and moisture. Maintain these orchids in a humidity tray if necessary as they thrive under high humidity conditions in the forest. For this take a large tray, fill it with gravel and some water. However, let the plant stand on the gravel and not in the water, as the roots will rot.

Cattleya can withstand a wide range of temperature between fifty degrees Fahrenheit to ninety degrees Fahrenheit in the summer. These orchids need good air circulation so place them in a well-ventilated area, or place a fan for the same. Water the orchids twice a week in a way to wash the dissolved salts from the roots.

Check the pseudopods for turgidity before doing so. During the winter blooming season, water them once a week. Use a good fertilizer once a fortnight and use a good nitrogen fertilizer during the blooming season.

Dendrobium and its hybrids is another common orchid that grows well in the house. They are epiphytes with airborne root and pseudo bulbs. These orchids need bright sunlight and can grow under fluorescent lights as well. They grow well in temperatures of sixty degrees Fahrenheit in the night and ninety degrees Fahrenheit in the day, with a ten-degree temperature difference between the two.

These orchids need repotting only once every two years. Use good potting material like bark chips that provide good support and drain water freely. Dendrobium plants need frequent watering in the growth stage and the watering frequency decreases as the plant grows. It thrives in humidity between fifty to sixty percent. You can use humidity trays for providing extra humidity. Use orchid fertilizer once a week for best growth.

Vanda needs frequent watering and more sunlight. It needs high humidity and night temperature of sixty degrees Fahrenheit and a day temperature of ninety degree Fahrenheit. This orchid variety needs a good balanced fertilizer regularly for optimum growth. Oncidium needs the same temperature range as Vanda and can grow indoors in minimal light. They need less humidity but proper watering and more fertilizer during the blooming season.

Miltonia needs more sunshine and high humidity to thrive. It needs more water and frequent use of balanced fertilizer. It grows well in night temperature of fifty degrees Fahrenheit and day temperatures of eighty-five degrees Fahrenheit. Bulbophyllum orchids need little light and frequent watering. They grow in a temperature range of fifty-five to ninety-five degrees Fahrenheit. They need high humidity and fertilizer twice a month for good growth.

Phaius orchids need little sunshine and high humidity. They grow well in a temperature range of fifty to ninety-five degrees Fahrenheit. You need to water them frequently since they do not have pseudo bulbs. Use a good orchid fertilizer for optimum growth and repot them once every two years. If you care for orchids properly, they will grow in to beautiful plants that give you pleasure for years to come.

19. Why Your Orchid Did Not Bloom

Orchid plants adapt to the home environment but outwardly, healthy plants may not bloom for a variety of reasons. Orchids need optimum light, temperature, and humidity to flower. So first, recognize the orchid species you own and then learn about the specific light and temperature required for its flowering. Accordingly, adjust the plant's location within the house so that it gets proper light and temperature.



A healthy orchid plant has plenty of green shoots and growing root tips. Check the leaf color to judge the amount of light needed. Dark green leaves indicate the plant does not have sufficient light. The ideal leaf color must be light green. You must then shift the plant closer to the window, so that it gets sufficient light. Move the orchid gradually as sudden overexposure to bright sunshine can burn the leaves.

Some species like Cattleya need bright light; Oncidium needs medium sunshine, while others need diffused light. Some varieties can grow even under artificial fluorescent light. A healthy orchid will not have dark spots and will be fleshy, if watered regularly. Place orchids in a little shade if the summer months are very hot.

Orchids need good fertilizer, especially during the blooming season. Fertilize then once in two weeks and more frequently in the flowering season when they need extra nutrition for growth. Fertilize them only once a month during the rest period in between flowerings. You can use a good orchid fertilizer available at the nursery or use a diluted normal plant fertilizer. Remember to drain accumulated salts from the roots once every month as these can damage the plant.

Temperature is another important factor that affects blooming. Most orchids need a ten-degree variation between day and night temperatures to bloom. With a fall in temperature expose the orchids to cooler air and they will flower within four weeks. However, protect them from the cold breeze with a curtain. If temperatures fall

below fifty-five degree Fahrenheit, move the orchids to a warmer location. You can keep a small thermometer to monitor the ambient temperature and move the plant accordingly. If you take these precautions, the orchids are sure to bloom.

20. Pruning Your Orchid Plants

Once the flowers fall off, it is time to prune the orchid so that it can flower again in the next season. Pruning involves removal of dry and wilted stem and leaves. You must prune plants every year, just at the second nodule from the base of the stalk. Use proper and sharp tools so that you do not damage the plant stem. It helps give shape to the plant and promotes new flower and leaf growth. Orchids usually produce new buds and shoots after pruning that need repotting when they develop new roots, to give new orchids.



You must take great care to prune at the right place so as not to harm emerging blooms. Use proper pruning tools to cut the stem at a distance of one inch from the last flowering node. You should ideally cut the stem when it turns brown, but you may even cut a green stalk. Another pruning method involves cutting the flowering stalk just enough so that it can flower again. In this method cut the stem a quarter of an inch above the nodule so that it can regrow in the next season.

You must usually cut the stem at an angle to get a bloom within a few weeks. The ideal time for pruning is autumn, because winter is the flowering season. If you prune in winter you will lose blooming buds and end up with no flowers. You must also prune the roots and remove all dead roots. Lift the plant carefully from the potting medium cut the roots and then transfer to another pot with the proper potting medium.

Once you prune the orchid, water it once a week and check the roots before watering. If they are spongy, do not water as excessive watering can damage them. Use good orchid fertilizer during the flowering season and the pruned orchids will definitely bloom into beautiful flowers. Therefore pruning orchid plants is essential for the plant's propagation.

21. Orchid Stem Propagation



It is possible to propagate orchid species like *Cattleya* easily while some others like *Phalaenopsis*, need special cultivation techniques. Stem propagation of such species helps develop good quality plants resembling the mother plant, but needs careful nurturing. New plants that develop from stem propagation bloom in a year's time.

Tools for Stem Propagation.

A large plastic tray, toothbrush, culture tubes, cotton to seal the tubes, tube rack, blades, spray bottle, flasks to place the cuttings, a good pair of tweezers, and an autoclave to sterilize the instruments. You need good bleach and a cleaning agent to wash the implements, agar, distilled water and stem propagation media.

Keep a certain area of the house or garden with specific light and temperature conditions to grow the orchids. The first step is to make the propagation medium as per instructions. Then, put this mixture in the culture tubes and boil them for about twenty minutes. Then produce a mixture of water and bleach in the ratio of 3:1 and put a few drops of cleaning agent. (Do not mix bleach and ammonia!) Put this mixture on the plastic tray and fill the spray bottle. Produce a second mixture of water and bleach in a ratio of 9:1 and put two drops of cleaning agent. (Do not mix bleach and ammonia!) Put this mixture in the flasks that will hold the cuttings.

When preparing samples for stem propagation, take care to sterilize the working area before you start. This will remove any traces of dirt and spores that can harm orchids. Next, place all the ready flasks, tweezers, culture tubes, blades, and cotton in the flasking case. Now choose the orchid that has just had flowers and cut the stem with the blade. Put the cut stem in the plastic tray with the bleach solution described above. Clean the cut stem gently with the toothbrush and place it back in the tray. Then replace the tray in to the flasking case.

Next, cut a one-inch portion of the stem and remove the bud with the blade. Put this stem in the flask with the second mixture for about twenty minutes and shake

it periodically. Take out the stem from the flask, cut one-eighth of an inch, and then put the stem in the culture tubes at room temperature. The stem should be in contact with the medium and then seal the mouth of the tube with the stopper to avoid infection.

Label the tubes with the name of the orchid species and place them in a rack in the prepared growing area. If the propagation is successful, buds appear in a few weeks. Once the leaves are about half an inch and the roots are one and a half inches long, place each plant in a small pot with the proper potting medium. Water them regularly and see them blossom in to beautiful flowers in a few weeks.

22. Food, Fertilizers and Nutrition



Orchids need well-balanced food, fertilizers, and nutrition for optimum growth. In the wild, they get these components from the atmosphere and the bark of trees on which they grow. When cultivated in the house, you need to give them these materials in the right doses regularly, to promote growth and flowering.

Orchids make their food from carbon dioxide and water vapor in the presence of sunlight. The synthesized food gets stored in the green leaves. You can increase the amount of carbon dioxide by using a slow release gas cylinder or by burning natural gas or propane near the orchid plant. You can provide water vapor by spray misting the plants regularly or drenching the floor where the plants are. You must place the orchid in an area with optimum light or provide artificial sources of light. Orchids survive in a temperature range between 50 and 104 degrees Fahrenheit or between ten to forty degrees Celsius. So, take care to maintain the ambient temperature at these levels.

Orchids need good fertilizer regularly. You can use orchid fertilizer from the local store bimonthly. Water the plant before fertilizing and be sure to drain away accumulated salts from the roots frequently. Orchids need diluted fertilizer once a week in the flowering season and less frequently in the resting season. A good fertilizer has the right mix of nitrogen, phosphorus, and potassium along with trace elements.

Nitrogen aids growth of leaves, shoot, and hence give it in the beginning of the blooming season. Lack of nitrogen may result in stunted growth, light colored leaves, and early hardening of new leaves. Too much nitrogen results in dark foliage and less blooms. Epiphytes that grow on trees need fertilizer with more nitrogen. Feather meal is a good source of nitrogen.

Phosphorus helps flowering, so alter the concentration of the fertilizer to increase its content in the autumn. Mix feather meal with dicalcium phosphate, a good source of phosphorus for orchids. Lack of phosphorus may lead to impaired growth while too much phosphorus results in limp, lifeless plants. Potassium determines the growth of flowers and fruits. Lack of potassium may result in short-stature plants. You can spray liquid fertilizer on the orchids or use greensand that is a good source of potassium for the orchids. Give these elements towards the end of the blooming season. Reduce the amount of fertilizer after the flowering, until the new leaves appear.

Sulfur is important for protein synthesis and a lack of sulfur can result in underdeveloped plants. You can add sulfur to water before using it on the plants and keep the pH balance of the solution between five and six. Do not add sulfur in summer as it can burn the leaves and cause swelling in exposed aerial roots. Calcium is another element important for cell wall growth. You can add calcium to the water or add bone meal, marble chips to the soil for the same. Lack of calcium can result in short plants and inhibits growth of new roots.

Orchids need iron for manufacturing chlorophyll, essential for photosynthesis. You can add ferrous sulfate to the plant for the same. Orchids need magnesium to regulate respiration. You can feed plants magnesium diluted in water two times a year. Another element is zinc that helps synthesis of the growth hormone. However, orchids need only occasional inputs of zinc that is available in most fertilizers. You need to add trace elements and micronutrients in small quantities, but only after consulting an orchid grower for advice.

When using orchid food, mix it thoroughly with water and then feed it to the plant. Dilute the feed in water, with a pH of about six, for best results. Use the proper food depending on the orchid variety. Always water the plant before feeding it. Do not water excessively as the roots will rot.

Orchids cultivated in the home need nutrients, as they cannot source them from their growing medium. The types and quantity of feed depends on the orchid variety, the growth stage, and the weather. Organic nutrients are preferable as they result in healthy plants compared to inorganic nutrients that pollute the water. You can get best results with a little experimentation and experience.

23. Pests, Problems and Pesticides

Orchids do not have many problems if they are looked after well. However, they may be subject to an attack by insects from time to time. Learn to identify the pests, their symptoms, and treatment to get rid of them.



If the orchid leaves have holes, and irregular leaf borders, it indicates the presence of weevils. Spray the leaves with a good insecticide like Bifenthrin every five days for three weeks to resolve the problem.

Slugs and snails leave a silver-colored trail on the plant and create holes in the leaves, flowers, and stems. A slug liquid like metaldehyde or aluminum sulfate works well to eliminate them.

Scale is a hard brown insect found on the underside of the leaves of the phalaenopsis plants. Use methylated spirit or malathion to wipe the leaves. A second option is to use a systemic insecticide that the plant absorbs and then kills the insect that encounters its surface. However, use the prescribed dose only as excess of this insecticide can harm the plant.

Cattleya is also prone to a potent scale named boisduval scale that is flat and round. It first produces a white scale on the ventral surface of the leaf and can multiply rapidly if not removed immediately, damaging the plant. A mixture of insecticide and fungicide or sulfur and fatty acid mixture can cure the plant from the scale.

Some new shoots may have a cotton wool ball around the leaf axils that is actually a mealy bug. Use a good fungicide or wipe the surface clean with a cloth soaked in methylated spirit. Other agents like malathion or an insecticidal soap also help remove mealy bugs.

Other insects that afflict orchid plants are spider mite that makes the underside of leaves silvery, thrips, and black fly. Bifenthrin or malathion works well to eliminate spider mites. Spider mites thrive in dry conditions, so water the plant, or place it in a clear plastic bag for a few days without damaging it to kill the spider mites. Presence of greenfly results in honeydew on the leaves. Using insecticidal soap or dimethoate can eliminate greenfly from the plant. Wiping the affected area with methylated spirit removes these bugs and their eggs. A good homemade insecticide is a mixture of vitamin C powder, and non-ionic plant-safe washing powder in a ratio of 2:1 in a pint of water.

If the plant sports dark spots with a light-colored ring around them, it indicates a fungal infection. Good fungicides or cinnamon powder application can cure orchids suffering from fungal infections like mildew, and leaf rot. Viral infections cause patches on flowers and striations on leaves, but have no known cure.

Dull and lifeless leaves may indicate root problems in phalaenopsis. Hence, you must remove the dead roots and repot the plant if necessary. Do not water the plant excessively as this results in rotting roots that damage the plant.

Excessive sunlight can result in brown leaves with white areas. In that case, place the plant in a shaded area. If the plant blooms, but has very light green leaves, it is in too much sunshine. On the other hand, exposure to less sunshine results in dark green leaves and no blooms. A traumatized plant will develop buds that become yellow and fall off. This may be due to sudden temperature or humidity changes. Identify the cause and take steps to remedy the situation. Using excessive fertilizer can result in leaves with brown ends. In this case, wash the roots to remove accumulated salts periodically.

Hence, it is best to use sterilized tools for repotting each plant. Provide for good light and humidity in the area where the orchids are and provide for air circulation to remove stagnant air. Identify the pest and then ask for a specific pesticide depending on the orchid variety. Use pesticides only in the prescribed dose and frequency to avoid harm to the plant.

Buy only certified pesticides from credible nurseries. Use proper protection in the form of gloves and overalls when using pesticides, as they are harmful to humans. Always wash hands carefully before eating, smoking, or drinking after fertilizing orchids. Taking these precautions will ensure healthy plants, free from pests.

24. Orchid Ailments – What the Flowers, Leaves, and Roots can Tell You



remedial steps.

If your orchid has an ailment, the respective part sends out simple signals. These signals appear as something unusual in the particular part. A deformed flower, spotting of flowers, blackened leaves, and similar others are examples of ailments. You can address the ailment by taking necessary

Symptoms in Orchid Flowers

Orchid flowers are normally very beautiful. Ailments can appear as:

Spots on Petals: Some orchids develop spots in light brown or pink. This is due to fungus or mold. You can remove the affected flower and improve air circulation.

Punctured Flowers: This is due to infection by insects. Use a Malathion spray. Wear a facemask while spraying.

Deformed Flowers: Deformed flowers can be due to high temperatures, low humidity levels, virus infections, or any other unexplained bud deformity. Isolate the plant if due to virus infections.

Sudden and fast sagging of flowers: A sudden drop in temperature can make your orchid sag. Provide the necessary moderate temperatures for orchids to get back to normal.

Flowers losing color: This occurs due to a color-losing virus. Either isolate or destroy the plant.

Battered Flowers: If the bruise is mechanical, it will not spread. If it is due to cockroaches or slugs, use Sevin or Diazinon on the plant and around the plant and the pot. Use Malathion spray if the ailment is due to red aphids.

Symptoms in Orchid Leaves

Leaves are a very important part of any plant and in orchid plants too. Leaves provide lot of information about the health of your orchid plant. They indicate the presence of any serious diseases well ahead of time.

Blackened, yellow, or shrunken leaves: Blackened leaf tips indicate excessive exposure to bright sunlight. Remove from direct sunlight to help leaves regain their health. If blackened spots grow bigger, it could be due to fungal or bacterial disease. You can cut off the affected leaves and use fungicide like natriphene.

Sometimes, the black tips could be due to the minerals in the soil and water. Normally, well-water contains more minerals. Yellow leaves could be the normal withering process of orchid plants. Otherwise, it could be due to low temperatures or even loss of roots. Remove orchid plants from Northern sills in winter. Excess humidity could cause fungal infections too. Low humidity could cause shriveling of leaves.

Symptoms in Orchid Roots

It is difficult to locate any root diseases in orchid plants. However, root disease can cause problems in all parts of the orchid plant itself. Excessive watering is a major ailment for roots. If the potting material is old, roots suffer. Use distilled water for watering or treat water with metaldehyde. Bugs in the orchid plant could cause a black or gray mass underneath the leaves. Use Malathion spray carefully to remove infection.

25. Care of Winter Orchids

Winter orchids are orchids blooming

in winter. Common ones include Cymbidiums, Oncidiums, Phalaenopsis, and Zygopetalums. These orchids have distinct requirements of light, temperature, and watering. Provide the ideal conditions and enjoy the beautiful blooms.



Cymbidiums grow better outdoors if temperatures are well within 32F and 100F. You can place them in the south and west facing windows as they enjoy the warmth. You can keep them outdoors if there is no frost. Otherwise, keep them in containers within greenhouse or in deep overhangs. These normally bloom from September to February. These plants can tolerate freezing temperatures, if you provide proper shelter. Although packaged potting mix is good, use fir bark too. Refrain from excessive watering and keep soil moist during the growing season from March to September.

Some species of Oncidiums are very fragrant. These orchids prefer bright daylight albeit indirectly. Temperature should range between 55F to 70F. Use normal potting mix or use fir bark in the potting material too. Keep soil moist during blooming. These require high humidity levels available through morning mist or place watered pebbles underneath and around the pot.

Phalaenopsis orchids are very simple to grow. These have a long life and bloom very often. They require high humidity levels and hence grow best near kitchen sinks and bathrooms. These orchids do not require direct sunlight and you can add charcoal and perlite to the potting mix. Keep the potting mix moist at all times but do not make it soggy. If need be, increase humidity through artificial means.

Zygopetalums look excellent with striped green and maroon upper petals and violet-lined white lower petals. These have a special fragrance too. This orchid species cannot withstand very cold temperatures. Place them on a south or west-

facing window to get a bright shade throughout the day. Ideal temperatures are 50F to 60F. Provide adequate shelter during hot summers. Keep the potting mix moist at all times but allow it to dry for around two to three weeks around the end of summer.

26. Maintaining Orchid Health



Maintaining healthy orchids is a continuous process and starts from the time you purchase the orchids. Proper care right from the start can provide a healthy start and life to your orchids. Regular monitoring can help you detect any ailments from the beginning.

When purchasing, look for any black or yellow marks in the green leaves. The potting mix should be firm and not very mushy or dry. Keep new purchases separate for around two weeks and monitor their growth. If they carry any diseases, such isolation will prevent diseases from spreading to your other collection.

Your orchid garden should be clean. Keep it free of dead and faded flowers. Always water your orchids early in the day so that the plant and flowers become dry by night. There should not be any water accumulation in orchid pots. Use moderate amount of fertilizers. Provide adequate circulation of air through open windows or you can operate fans.

Protection from Insects

Insects affecting orchids include mealybugs, aphids, scale, thrips, and spider mites. Some of these are visible to the naked eye while others require a magnifying lens. Gather sufficient information about life cycles of such insects and understand their symptoms. Mealybugs often cause deformed leaves. Use fertilizers at appropriate periods to avoid any destruction through these insects.

A humid and warm environment with insufficient ventilation helps growth and development of bacteria and fungi. This causes rotting of roots, sunken leaves, and soft spots on leaves too. Sometimes, orchid flowers develop speckles due to *Botrytis cinera*.

Protection from Viruses

Viruses cause flowers to be abnormal and deformed. Some cause streaking of flowers in vague and dark colors. It is best to destroy virus infected orchid plants, as they can infect other healthy plants in the vicinity.

Viruses are due to insufficient hygiene. Use proper sterilization techniques on your cutting tools, recycled pots, and clips. Pass the cutting blade through a flame or dip it in alcohol before use. Always use disposable gloves on every individual plant.

Part-V: Drying Orchids

27. How to Dry and Preserve Orchids



It is common to dry orchids to preserve them. You can use dried orchids in various simple floral arrangements and preserve them for longer periods too.

How to Dry Orchids

The best way to dry orchids is by freeze-drying them. Although this is an expensive option, yet it is the best way. Your orchids remain frozen in the same way as you kept them while freezing.

Another option is to use a flower-drying agent. Various craft stores sell different types of flower drying agents. The most popular flower-drying agent is silica gel powder. Place orchids in an airtight container and cover them with silica gel powder completely. Seal the container and look it up after two days. Sometimes, it could need some more time for drying.

Some use air-drying for drying orchids. It could take a month for orchids to dry in open-air. Rather, with this method, orchids start decaying due to open and unprotected exposure to air. They become brown and start shriveling slowly. This method of drying orchids is inadvisable. It is better not to use this method for preserving or drying orchids.

Growing and Harvesting Flowers for Drying

The best time to cut flowers for drying is the early morning hours, soon after dew evaporates from the orchid plants. Cut and group orchid stems into bunches placing them within rubber bands. Keep them away from sunlight immediately. Try to pick orchid flowers that have not opened fully, as most flowers continue opening during the drying process. Therefore, it attains the perfect full-grown bloom stage at the time of starting your drying and preserving process.

If you cut orchids blooms that are in the early stages of blooming, it will not attain the perfect bloom while drying. Full-grown orchids will start shedding by the time you start the drying process. Hence, you cannot use these dried flowers later in floral arrangements.

Preservation of Orchids

After removing orchids from the stems, you have to preserve them in dark places like a barn. Keeping them away from sunlight can help in maintaining their original color easily. You can hang orchid flower bunches in places within the barn that provide the basic conditions of good airflow, cool air in circulation, perfect humid levels, and an overall dark region.

During drying, you need to remove the water content present in the orchid stem. If water remains in the stem, it causes discoloration of the orchid flower. However, if you place a dried flower in sunlight, fading of color is less, as it has to reabsorb moisture and react with the available light present. Some orchids dry within twenty-four hours. Some take a longer time. A well-dried flower should remain stiff and dry. It should not be damp or feel limp.

Do not preserve damp flowers. Again, do not keep dried flowers in damp places like basements. Similarly, do not place them in very dry places too like attics. The best way to preserve dried flowers is to wrap them in newspapers and place them in cardboard boxes.

If you have forced heating within your house, keep dried flowers away from the source of dry heat. The garage could prove to be the ideal place for preserving dried flowers. If you store dried flowers outside, keep them safe from rodents and moths. Many are of the wrong opinion that you should not store dried flowers outside. This is not so. You should take adequate precautions if storing dried orchids outside.

Part-VI: Selling Orchids**28. Selling Orchid Flowers**

Flowers prove to be an ideal gift for any occasion. Orchid blooms prove to be an excellent gift. You can purchase orchids according to your budget, needs, and choice. There are various agencies and florists selling orchid flowers.



Limited Service Flower Shop: These types of shops are within grocery shops and provide a supply of cheap orchid flowers. These are the best for impulsive purchases.

Full-Service Retail Florists: These shops are convenient retail outlets. You can spend some time at these shops and decide on the specific type of bouquet you intend purchasing. Besides selling orchid flowers, these outlets also provide guidance for growing orchid plants and sell other orchid flower-related products too. You can even order over the phone.

Flower and Plant Nurseries and Shops: These shops sell a multitude of freshly cut orchids, orchid bunches, bouquets, and potted flowers and plants. You can choose and select the type of bouquet or orchid flower basket you want to buy.

Wholesale Flower Markets: These markets and florists sell orchids to retailers and other florists at wholesale prices. Even ordinary people can purchase orchids from such markets. Normally wholesalers sell at wholesale prices and discount rates too.

Contract Designers: These sell orchid flowers according to the nature of their contract. Such contract could be for a single flower or a huge event. Such contract designers are expensive options.

Postal Companies, Internet, Mail order: These offer an economical way of ordering and purchasing orchids. These companies deliver flowers all over the globe through courier or mail services. These are more popular for long-distance deliveries. However, check on the charges and methods of delivery before ordering any orchid flowers through such agencies.

Farmer's Markets: You can purchase fresh orchids from such markets, as you get them directly from the growers. These orchids are excellent and remain fresh for a longer time too.

You can sell orchid flowers if you have a regular and dependable supply. Sell on the weekends as people often purchase flowers for their homes then.

29. Build a Collection to Have Flowers All Year

With a little planning and forethought, you can build up a collection of orchids that bloom all year through. You can have an orchid bloom each day of the year.



Tips for Building an Orchid Collection

Orchids are seasonal flowering plants.

However, every orchid variety or their hybrids have a different blooming season. Extensive breeding helps you have an orchid bloom at any time of the year. Rather, these flowers stick to their blooming seasons. If you buy or have a blooming orchid in the month of April, purchase your next orchid bloom around June. This helps you build up your orchid collection.

Orchid plants bloom at a young age. Instead of dividing them at a tender age, allow orchid plants to grow and mature. Such full-grown and mature orchid plants produce the best orchids at considerably frequent intervals. These plants have more spikes and produce more flowers on a spike too. Remove such spikes after your blooms fade away. However, do not remove any old and dead stems on Dendrobiums. These often bloom again and give rise to young plants at the tips. You can remove and plant them elsewhere too.

While purchasing orchids, buy those having long lasting blooms. Thicker and waxier flowers last long and remain fresh for a considerably long time. Some orchids like moth orchids or Phalaenopsis remain fresh without fading for as long as three months. Slipper orchids of the tropics can stay fresh for six to eight weeks. Cymbidiums are winter orchids and remain in bloom for long periods in winter. Forming a collection of such specific orchid types can ensure you have a year-round collection of orchids.

You can purchase special species of orchid seeds from reputable orchid dealers. Some of these are plant grown while some seeds germinate and form plants in

laboratories. Another way of building up your collection is to look for the species that are growing best presently. Trace their parent species and collect some more of them. This can ensure a good supply. However, always cultivate orchids in their natural conditions.

30. Florists Marketing Tips



A florist is a person proficient in making different arrangements of flowers. They are also popular as floral designers. This art of making different flower arrangements in bowls, vases, and bouquets is

flower arranging or floristry. You can use various herbs, cut flowers, ornamental grasses, foliage, or similar botanical things to make floral arrangements.

Floristry is the business of selling flowers or marketing flowers. Often florists are people at the retail level selling such floral arrangements to the common man. The Internet has now made it possible to sell flowers online too. You can place orders for your floral requirements by telephone. It is possible to purchase from garden supply stores, supermarkets, filling stations, flower-only outlets, and similar others.

As a florist, you should have a deep knowledge of preserving flowers. You should also gain an insight into customer requirements and preferences. Have a thorough knowledge of various ways of making wreaths, bouquets, and other intricate arrangements too. Use different stock plants too while making wreaths and bouquets to give it a different look and appeal.

Flowers are highly perishable and therefore, you should have a distinct system for purchasing and selling flowers. This can help you earn more profits. If you keep and display many cut flowers, you may have to suffer losses due to withering of flowers. Often, seasonal flowers are in abundant supply at florist shops.

Although you should have more of the local varieties, you should also bring in blossoms from across the world. This lends variety and elegance to your floral arrangements and obviously, increases your clientele.

As a florist, you should have deep knowledge of the meaning of flowers in different cultures. This cultural meaning has a large say in your floral arrangements. A red

rose symbolizes love while others do not find any great significance in it. Asians associate the white color with death. However, American and European cultures consider white as a symbol of innocence and purity. Hence, you should keep such divergent views in mind while making bouquets of white flowers.

Part-VII: Orchids FAQ

31. Frequently Asked Questions

Is it essential to have a greenhouse to grow orchids?

No. You can grow orchids in pots, as indoor plants, in greenhouses, or on trees too.

How long does an orchid bloom remain fresh?

Different types of orchid blooms remain in bloom for different periods. Cattleyas remain in bloom for over a month while Cymbidium and Phalaenopsis remain in bloom for two or three months too. Again, some orchids bloom many times in a year while some orchid species bloom once a year. There are orchid species that bloom all through the year too.

How fragrant are orchids?

Fragrance of orchids differs extensively. Some are extremely fragrant while some others have a subtle fragrance. Some smell like citrus fruits while some orchids have a plain flowery fragrance.

What is the ideal temperature for growing orchids?

Orchids are best in normal temperatures. The daytime temperature should be around 75 to 85°F while nighttime temperature should be around 60 to 65°F. Few cooler or winter orchids like Miltonia, cymbidiums, and odontoglossums prefer cool temperatures like daytime temperatures of 60 to 80F and nighttime temperatures of 50 to 55F.

When should I use fertilizers on orchids?

Orchids require fertilizers regularly. Use a good fertilizer every alternate week. If potting medium is dry, pre-water orchids before applying fertilizer solution.

How often should I water orchids?

Orchids do not require extensive watering. It depends on your climate. Orchids potted in bark need weekly watering or even fortnightly. In summer, you should water orchids once in four or five days. Never leave orchids in standing water. Ideally, water orchid plants early in the day so that by night, they are dry.

Which soil is the best for orchids?

Orchids do not grow in soil and therefore, there is no best soil for orchids. Orchids grow on trees, in the wild under the tree canopy. Grow orchids in orchid pot mix or bark mix. Orchid plants should have efficient drainage, as water should never accumulate at the roots. Water accumulation cuts off air circulation at the roots, which is harmful for the growth of orchids.

When should I repot my orchids?

Repotting of orchids should be done immediately after flowering. Normally, you can repot orchids every two years.

Why doesn't my orchid bloom?

Orchids may not bloom due to insufficient light. Placing in proper sunlight can initiate blooming. If you purchase a new orchid plant, observe its blooming season. Different orchids have different blooming seasons. Some orchids bloom in alternate years too.

How to fix the yellow leaves on my orchid?

Old leaves of orchid plants turn yellow and fall off. This is a normal process. If new leaves of your orchid plant turn yellow, it is a matter of concern. This could be due to lack of sufficient nutrition or excess light too. Sometimes very low temperatures affect development of roots and thereby cause yellowing of leaves.

What causes the black areas on some parts of my orchid leaves?

The black areas on orchid leaves could be due to bacterial disease or even sunburn. Do not expose your orchids to direct and bright sunlight, as orchids cannot bear strong sunlight. Mid-afternoon sun from late spring to fall proves harmful for orchids. Place orchids in shady areas and keep them in places receiving little sun.

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