Helpful Resources for the Not-So-Green Thumb

Includes information on House Plant Care, Planting and Growing Vegetables, Propagating Plants, and Common Plant Diseases

All About Common Plant Diseases

Protect your plants from debilitating diseases. Learn to recognize the symptoms and practice prevention.

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LUSH, HEALTHY PLANTS ARE THE NORM. GARDEN PESTS STRIKE ONLY WHEN CONDITIONS ARE FAVORABLE.

Diseases are caused by bacteria, fungi, and viruses. These active organisms have a way of thwarting all gardeners from time to time. It's important to have a good understanding of diseases before you can efficiently send them packing—and get back to the joy of gardening. Let's get started!

Disease science 101

DELIVERING WATER DIRECTLY TO THE BASE OF A PLANT KEEPS FOLIAGE DRY AND PREVENTS DISEASE DEVELOPMENT.

Bacteria are single-celled organisms that live on various kinds of organic matter. Unable to survive in the open, bacteria live inside plants and are transferred plant to plant by insects, water, and hands. Fungi are minute organisms that live on plants and cause visible symptoms. They spread most often via water, wind, and insects. Viruses are the smallest of disease vectors and the most difficult to control. Insects typically spread diseases, but some diseases are spread by seeds and tools.

Generally for a disease to occur, organisms must be transported to a susceptible host, such as a stressedplant. Ideal conditions (humid, dry, cloudy) make it possible for the disease to thrive.

Notorious diseases

LEAF SPOTS CAUSE CONCERN BUT ARE RARELY DESTRUCTIVE.

Leaf spots are one of the most common symptoms of disease, whether caused by bacteria, fungi, or viruses. Other symptoms of disease include sudden wilting, ragged or curling leaves, deformed flowers or fruit, generally discolored or mottled foliage, and poor growth.

Bacterial spot

BACTERIAL SPOt Most common in damp, humid weather, the disease can be controlled by avoiding working among wetplants. Bacterial spot symptoms vary but generally they discolor a leaf by producing a dark brown lesion that is surrounded by a yellow halo.

Black spot

BLACK SPOT

Especially common on roses, the fungal disease causes dark splotches on leaves and leaf drop. Black spot grows rapidly during extended periods of wet weather. Provide good air circulation around plants to encourage foliage to dry quickly. Also, when watering plants deliver water to the base of the plant, keeping the foliage as dry as possible.

Mosaic virus

MOSAIC VIRUS

Peonies and other plants affected by this or other viruses should be destroyed to prevent spread of the incurable disease. Symptoms include yellow or green mottled patterns on the infected leaves. Leaves may also be distorted, cupped, or curled.

Powdery mildew

POWDERY MILDEW

A fungus resembling white powder on foliage thrives during dry, humid weather. Prevent powder mildew by spacing plants adequately during planting. Ample space between plants will allow for air circulation, discouraging the growth of powdery mildew.

Rose rosette

ROSE ROSETTE

This viral disease spreads by a minuscule mite. It cannot be prevented or cured. The best course of action is to remove infected plants. Symptoms include thick, reddish new stems that have many times the normal number of thorns. There is often a large flush of growth at the end of the infected stems.

Rust

RUST

Spread by several fungus species, rust deforms leaves with orange, gold, or brown-red spots and weakensplants. Rust is largely cosmetic and control is usually not warranted. Promote healthy growing conditions and plants will overcome a rust outbreak.

Prevention is key

Prevention is the best defense against pathogens. Above all, start with disease-resistant plant varieties and practice garden hygiene. A disease-prevention strategy includes these:

- Site plants far enough apart to allow air circulation.
- Manage susceptible plants, growing them in the recommended amount of sun, keep them well watered, and don't over- or underfertilize.
- Spray healthy leaves of susceptible plants with a homemade fungicide made by combining 1 teaspoon of baking soda and 1 teaspoon of horticultural oil in a quart of water.
- Remove and trash affect plant parts

Basic Propagation

You can enlarge your houseplant collection inexpensively by propagating the plants you already have.

Starting Seed

Buy seed from a reputable company. For best germination, use fresh seed. If you have to store seed, keep it in dry containers in a cool, dark place.

Sow seeds when the seed packet directs. Plant on a small or large scale. A 6-inch pot easily accomodates from 1 to 100 seedlings, depending on the plant grown. Use trays or flats for large quantities.

Instructions:

STEP 1

1. Fill tray or pot with sterile medium, mist with water, then top with 1/4 inch of milled sphagnum moss. Press moss with book. Sprinkle seeds across moss surface or into shallow rows.

STEP 2

2. Cover larger seeds with a sprinkling of moss. Pat small seeds into moss. Mist again. Cover tray with glass or plastic; place on heating pad or refrigerator. Place in light suggested on packet. Mist when moss begins to dry.

STEP 3

3. Remove glass when seedlings pop through moss. Move seedlings to brighter light. Transplant when second set of leaves develops. Dig seedlings up gently, holding by one of the leaves, not the stem.

STEP 4

4. Give each seedling its own small pot, filled to within 1/2 inch of top with light soil. Firm the soil around the base of each stem, making sure not to bury the leaves.Water immediately. Move plants steadily into brighter light.

Dividing Roots

Many plants produce several stems with roots attached to each stem. Each of these rooted stems can be divided from the parent plant to make a new plant.

Instructions:

1. Remove the plant from its pot. Early spring generally is the best time to divide plants. Press your thumbs into the middle of the plant, grab the plant with both hands, and tug it apart. If that fails, cut the plant with a knife.

2. Keep a large clump of roots with each division. Immediately pot the new plants in potting soil.

3. Keep the soil evenly moist the next few weeks to help heal the injured roots. Place plants out of direct light until they start to grow. Move them into brighter light over a period of 10 days.

Tip Cutting

The growing tips of many plants will produce vigorous new plants when cut and rooted properly.

STEP 1

1. To propagate new plants from most multistemmed plants, try rooting tip cuttings. First, cut 4 to 6 inches from the tip of the main

stem or side branch. Cut just below a node (where leaf and stem meet).

STEP 2 2. Remove the lower leaves and any flowers. Dust cut ends with rooting hormone powder, then plant in moist rooting medium (half peat moss, half perlite works well); keep leaves above soil. Or, skip powder and place in water.

STEP 3

3. Provide indirect light and bottom heat. When cuttings resist tugs, they are taking root. Dig up gently, check root growth, and pot up. Move cuttings in water to another rooting medium as soon as roots sprout; pot up as above.

Leaf Cutting

Leaf cuttings produce new plants much the same way stem cuttings do, except a leaf stalk rather than the central stem is used. Depending on the plant, use either the whole leaf or parts of the leaf. Generally, for small-leaved plants, use the entire leaf; for large-leaved plants, leaf sections.

AFRICAN VIOLET

To propagate an African violet, take at least an inch of stem with each leaf. Insert the stems into water or a peat-based mix. Pot leaves that have been in water as soon as roots form. Pot others when roots are established.

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REX BEGONIA

To propagate a rex begonia, set a healthy leaf, top side up, on moist growing medium. Sever a few of the veins. Pin the leaf down so the cuts come in contact with the medium. Keep moist. Pot the plantlets that grow from each cut.

SNAKE PLANT To propagate a snake plant, cut a leaf into sections; indicate with angled cuts which end is bottom. Dip bottom ends in rooting powder; insert in moist rooting medium. Pot new plants that form to sides of leaf sections.

House Plant Care

How to Grow and Care for the Plants in Your House

Most house plants are hybrids of plant species that grow wild, _somewhere_ in the world
A good rule of thumb for keeping your house plants healthy is to try to match the same environment from which they originated.
You may not be able to match _every_ criteria for your house plant, but every small step
you take to ensure the plants comfort will be a giant step towards keeping them healthy.
The most important elements needed for indoor plant health are water, light and fresh air.
Most plants have dormant and active cycles, and their watering and fertilizing requirements will differ greatly from season to season.
A little research should be done for each of your House Plants to understand their individual needs.

Watering Your HousePlants

Most House Plants should be thoroughly soaked as soon as the soil dries during periods of active growth.
Some plants, however, must never be allowed to dry out completely.

There are no hard and fast rules to watering, because every situation is different,
due to temperature variations, humidity and soil types etc.
It is better to keep an indoor plant on a slightly dry side than over watered.
More houseplants die from over watering than any other cause! Never allow your House Plant to stand in a saucer of water for more than an hour or two!

City water is treated with chemicals for your safety, however most House Plants don't like chlorine or fluoride, so it's a very good idea to allow the water to sit in an open container for at least 24 hours prior to using it for watering.
This is enough time for the chemicals to dissipate and evaporate from the water and bring the water up to room temperature. Even though my water comes from a mountain spring, I still keep a couple of gallon milk bottles filled for watering, so it is warmed to room temperature before I use it.
Personally, I don't like cold water dumped on me... *Do you?*

Lighting Requirements for Your House Plants

The amount and the intensity of the light that the plant receives dictates much of a plant's life cycle.
Even though a plant species that may have originated in a jungle where it thrives in the shade of trees, appears to be getting plenty of light, the intensity of the light indoors may be much lower than what the plant actually needs.
Insufficient light usually manifests itself with paler foliage, lanky growth, and general lack of luster.
When this happens you must do whatever you can to increase the light intensity for that plant.
This can usually be rectified by moving the plant closer to the window,
or moving it to another room with different light exposure.
When you change the light drastically for a house plant, do it gradually to accustom them to the brighter light. Plants will sunburn if they are put into too bright of a light after their skins have become tender from lack of light.
Plants should never be placed between a curtain and the window if the nights are cold,
even if they are sun lovers. It is better to have a sheer curtain that will admit the light,
and have the plant in the heated area.

Growing HousePlants Under Artificial Grow Lights

It isn't necessary for your plant to even know that it is winter. You can dictate many of your plants functions by giving them supplemental, artificial light. There are 'grow lights' on the market today that successfully imitate the same light spectrum of natural sun.
These flourescent lights aren't perfect, and if they are the sole source of lighting, it will be necessary to have them on for 12-16 hours each day. It is a good idea to have them set on a timer so that the light hours are regular.
If your intent is just to fool your plant into thinking that it is a certain season for blooming or whatever reason, you can set the timer to come on as the light begins to fade, and make your house plants day as long as you'd like.

Many flowering and foliage plants actually grow and look better indoors when grown under artificial lights.
Keep in mind that plants like to rest now and then too, so if you are using growing lights,
cut back the hours now and then and let your plants have a temporary period of dormancy.

Most House Plants Require a Period of Dormancy

Plants sense the natural shortening of daylight hours and may go dormant as they would in their natural habitat.
This is usually a time when the amount of watering is decreased.
On the other hand, many plants actively begin to grow or bloom, so they must have more water, and be fed.
While plants are dormant they should only receive a minimum amount of water each time
and only then if the soil becomes dry to the touch an inch below the surface.

Temperature, Humidity and Fresh Air Requirements

Proper lighting and watering are, by far, the most important criteria for the health of your house plants,
but temperatures and humidity will drastically affect your plants health as well.
House plants, even though they may be of a tropical nature would rather sacrifice a few degrees of temperature in the home than the moisture in the air which they need to survive.
Even though your plant may *prefer* a warmer situation, it sometimes comes down
to accepting the lesser of two evils; *cool temps or lack of humidity*.
Heated rooms, by nature tend to be dry rooms, especially if they are heated with forced air, or fire.
Even rooms that have steam or hot water radiant heat will be somewhat dryer.
If you want your plants to succeed, keep your temperatures as low as possible, while still remaining comfortable for yourself, but never below 50°.
Generally, tropical plants enjoy a relative humidity of 50%-70% and warm temperatures.
Unfortunately, when temperatures in the home rise above 67° F., the humidity drops drastically,
so it may be necessary to sacrifice a few degrees of warmth in lieu of an increase in the humidity.
Provide additional humidity by setting the plants on shallow trays filled with moistened pebbles,
a humidifier or aquarium, especially during the winter months. Frequent misting will help considerably.
Keep in mind that because glass is a poor insulator, the temperature near windows will be considerably colder.
At night, be sure to close the drapes or move the plant to a warmer part of the room.

Some Exceptions to the Rules

Succulents being the most notable exception, in that they prefer warmer and drier conditions.
At temperatures below 60°, African Violets will stop blooming, Poinsettias may drop their leaves, and the leaves of Gardenias may turn yellow.
I recommend reading **Diagnosing HousePlant Problems** and **The Bug Page**
for more tips about keeping your house plants happy and healthy!

http://www.thegardenhelper.com/houseplants.html

How to Plant and Grow Your Own Vegetable Garden

There are few things that are as satisfying to a home gardener, than to wander out to the vegetable garden, harvest and consume the fruits of their labor. Successful vegetable gardening involves far more than just popping a few seeds into the ground and waiting for a tomato to appear. Planting is only the third step of the three 'P's.
***Planning* your garden, *Preparing* the soil, and *Planting* your vegetables!**
As you sit down to plan your garden, please consider adding a few extra plants and donate a little of your bounty to your
local food bank or *second harvest* organization. Give a helping hand to those who may not have the opportunity to grow their own.

Choosing Which Vegetables to Grow

Your choice of vegetables will be largely determined by the likes and dislikes of your family. If you expect to consume large quantities of a type of vegetable, it is usually more cost effective to start your plants indoors, from seeds.
Some types of plants resent transplanting and must be sown directly into the garden where they are to be grown.
In other instances it is best to purchase bedding plant starts to extend the growing season long enough to insure the maturity of the crop.
When planning your garden, consider what and how much you will plant. It is better to have a well maintained, small garden than a large one neglected and full of weeds.
The information on Vegetable Growing Tips page will help you plan and map out your vegetable garden.

Usually, the garden should be surrounded by a sufficiently high fence with close mesh to keep out dogs, rabbits, and other animals.
A fence also can serve as a trellis for beans, peas, Tomato plants and other crops that need support.
It is helpful to draw a diagram of your prospective garden, mapping out each row according to height, plant requirements and other criteria. The direction of the rows isn't necessarily critical, but often it is a good idea to have them running east-west, thereby allowing you to plant your tallest vegetable crops on the north end of the plot, and successively shorter crops in front. This helps prevent shading of the shorter plants.
If you must plant your garden on a hill, cut your furrows on a contour *with* the land, so that the water won't run quickly down the hill, taking with it the valuable topsoil, and the nutrients needed for your plants.
Perennial vegetables such as Rhubarb and Asparagus should be planted off to the side where they won't interfere with future plowing. Early producing crops like Lettuce, spinach, radishes, carrots, beets and onions should be grouped together with extra space for successive plantings. After they are finished for the season, this will allow you to easily rework the area for later season crops.

Preparing the Soil for Planting

Fertile, well prepared soil is necessary for a successful garden. The exact type of soil is not so important as that it be
well drained, well supplied with organic matter, reasonably free of stones, and moisture retentive.
The subsoil also is very important. Hard shale, rock ledges, gravel beds, deep sand, or hardpan under the surface
may make the development of garden soil extremely difficult or impossible.
On the other hand, infertile soil that has *good physical properties* can be made productive by tilling in organic matter,

lime, commercial fertilizer, and other soil improving materials. Soils should not be plowed or worked while
it is very wet unless the work will certainly be followed by severe freezing weather.
If the soil sticks together in a ball and does not readily crumble under slight pressure by the thumb and finger,
it is too wet for plowing or working, because in this condition it will *cake* as it dries, making it unsuitable for young plants.
If your garden has already been cultivated and used in past years, there is little to do other than to plow in
additional organic material, and fertilizers. The fertilizer may be in the form of composted manure or any good
commercial *complete* plant food distributed at a rate of 3 or 4 pounds for every thousand square feet
of vegetable garden. Infertile soil will often benefit from even larger proportions of chemical fertilization,
but care must be taken not to add too much because of the danger of fertilizer burn. When manure is added to the soil,
it must be composted prior to planting, because fresh, *hot* manure will also burn your plants.

Testing and adjusting your Soil pH

Different types of vegetables require varying degrees of soil acidity.
The acidity or alkalinity of the soil is measured by pH, and must be tested and adjusted according
to which crop will occupy that area. Generally, soils in moist climates are acid and those in dry climates are alkaline.
A soil with a pH lower than 7.0 is an acid soil and one with a pH higher than 7.0 is alkaline.
You can buy an inexpensive pH test kit at most nurseries, and many good garden centers will gladly test

a soil sample for you. Once you have determined the pH, you can amend the soil as needed.
The pH requirements of different garden vegetables will determine what steps must be taken next.
Only after the site has been prepared, and the soil and conditioners mixed, watered well and settled
should you test the pH of the soil. The tested soil should be dry. If a soil test reveals that you need to
make corrections to your soil pH, you can use materials commonly available at your local garden center.
If your soil needs to be more acidic, sulfur may be used to lower the pH. For raising the pH, lime is most commonly used.
The amount of either material used will depend on the amount of change you need to make.
The recommendations provided on the product label will help you determine how much to use.
A general rule of thumb is to add 4 lbs. of lime per 100 sq. ft. of garden for every pH point *below* 6.5,
or 1 lb. of sulfur per 100 sq. ft. for every pH point *above* 7.5.
Sawdust, composted oak leaves, wood chips, peat moss, cottonseed meal, and leaf mold *lower* the pH,
while ashes of hardwoods, bone meal, crushed marble, and crushed oyster shells *raise* the pH.
The best way to adjust pH is gradually, over several seasons.
Most garden vegetables do best on soils that are slightly acid and may be injured by the application of excess lime.
For this reason lime should be applied only when tests show it to be necessary.
If the soil is *excessively* alkaline, you may find that you are better off to
build a raised planting bed using topsoil purchased from a nursery.
Once your soil structure, fertility and pH have been established, the soil should be tilled one last time, and then raked smooth.

Planting Your Vegetable Garden

Using your garden layout map which you created in the planning stages, use stakes to mark out where different rows will be planted.
Build your trellises or set in stout stakes for climbing plants such as peas and beans.
Create mounds on which you will put in the vining plants such as cucumbers, pumpkins and melons.
Don't forget to establish your pathways early so that you won't be walking across areas which will be planted.
You don't want to be compacting the soil which you have worked so hard to *fluff* up.
You are now ready to sow your seeds, and to put in your vegetable bedding plants.
Planting depths and spacing are critical, so don't crowd to many plants into the allotted space or you may end up
with spindly plants and no food. Be sure to place a tag or marker on each row or area so that you will know what to
expect will sprout there and *when*! Water your garden thoroughly the day before you intend to plant.

Sowing Vegetable Seeds in the Garden

Stretch a string between the two stakes you set to mark the row, or use a straight piece of lumber,
and use it as a guide to open a 'V' shaped furrow with the corner of your hoe.
Set the depth to the recommended requirements on the seed packet.
Tear the corner of the seed package off and use your finger to tap the package lightly as you move down the row,
carefully distributing the seeds evenly. Larger type seeds may be placed individually in the row.

You will want to plant extra seeds in each row to allow for failed germination, and for thinning.
Cover the seeds with fine soil (no clods or rocks).
Firm the soil over the seeds to insure good moisture contact, and to help retain the moisture in the soil.
Water thoroughly using a gentle spray so that you don't disturb or uncover the seeds.
Seeds need moisture to germinate, so it is important to keep the soil evenly moist until the seedlings are sprouted and growing.
When the seedlings have emerged and developed their second or third set of *true* leaves,
thin them as needed so that you keep the strongest plants, leaving the remaining ones spaced as
directed on the seed package. It is best to thin while the seedlings are still small, so that you aren't
disturbing the roots of the plants which will remain.

Vegetable Bedding Plants

If you purchased bedding plants, or started your seeds indoors in pots dig a small hole which is
slightly wider and deeper than the root ball of the new plant.
Water the plant thoroughly prior to planting it out in the garden to lessen the shock of transplant.
Gently tap the pot to loosen the roots and remove the new plant.
If the root ball is tangled and compacted, use your finger tips to gently loosen the outer roots.
Set the plant into the hole *sightly* deeper than it was growing in the pot, and firm the soil in around it,
making certain that there is good soil/root contact. **Water thoroughly!**

Maintaining your Vegetable Garden

- During dry periods, vegetable gardens need extra watering. Most vegetables benefit from an inch or more water each week, especially when they are fruiting.
- Mulching between the rows will help to control weeds, conserve moisture in the soil, and provide you with pathways to access your plants. Black plastic may be used, or you can utilize grass clippings, straw, wood chips, or garden debris.
- Throughout the growing season be vigilante against insect pests. Discovering a bug problem early will make it much easier to take appropriate action and eliminate the pests. Do not use pesticides once the plants have fruited unless it becomes an absolute necessity, and be sure to follow the manufacturers recommendations.
- Weeds rob your vegetables of water, light and root space. Keep them pulled out regularly *(try to get the entire root)* and the job isn't too bad. If they are allowed to go to seed, you may be dealing with thousands of weeds instead of a few.
- Once you have harvested your crop, put the spent plant and other vegetable matter into your compost pile so that it can be recycled into your garden again, next spring.