



Pinal County Cooperative Extension Garden & Landscape Newsletter September 2009



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GROWING YOUR OWN VEGETABLES CAN BE REWARDING

Let's put seed in the ground. The time for fall gardens is here!

Well, okay, I agree that it is a month too early for root crops like carrots, turnips, and radishes, and for the leaf crops like lettuce and spinach. However, August 15th is the day that we can begin planting sweet corn, cauliflower, and broccoli! These need just a little longer to mature plus they can take the heat that is going to linger around for a while.

Why should we grow gardens? Fruits and vegetables straight from the garden taste much better than produce that has been sitting in refrigerated boxes or placed on a grocery shelf for a period of time. Another reason is nutritional value. The fresher the produce generally the higher the nutritional value because vitamins and minerals begin to degrade as soon as produce is harvested.

Home grown produce provides other positive benefits. Not only is it tasty and nutritious, you also know how it was grown and treated after harvest. Plus, growing part of our own food supply gives us reassurance that we could get by if there were, for one reason or other, a breakdown in the food supply.

As far fetched as it might seem, there is always the possibility that a crop failure could occur from

drought or plant disease. Transportation of food from the growing areas to supermarkets could be interrupted by cost of fuel or damage to the highway infrastructure. The US Department of Agriculture is well aware of, and continually planning for, bioterrorism. While all of these events are not likely, they are not unheard of. A home garden, like the victory gardens of World War II, can be a buffer in an uncertain world.

For these and other reasons, I believe that it is always a good idea to have a home grown vegetable garden. A garden does not have to be big and elaborate. It can be as simple as a planter box outside the back door. It can be in raised beds or planted directly into the native soil. In my opinion, everyone should be growing something, just for the fun of it. So drag out the gardening tools, pick your style and your spot and let's go to work! Let me share a few tips that you might find helpful.

Soil preparation is critical to enjoying success in the garden. Before planting, the soil should first be well tilled with a mechanical tiller, or by spading. Make sure that all of the clods are broken up and that the soil is leveled to allow irrigation water to flow evenly between the plants.

A heavy application of compost or decomposed steer manure during soil preparation will improve

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CALICHE CAN STUNT PLANTS

It is an all too common scenario in the landscape, but a discerning eye can pick it up and get it right just about every time.

The scenario goes something like this. There are several trees, usually close together, planted just about the same time in just about the same way. Every tree but one is doing just fine. They all have green leaves and are growing well. The one that is doing poorly is stunted and displays yellow leaves that die back far too soon. Sound familiar? Unfortunately in the desert, this is a very common complaint.

Stunted, stressed plants in the midst of neighbors planted at the same time and treated in the same way usually is a dead giveaway that there is a layer of caliche below the surface of the soil. It is a silent, invisible troublemaker that can cause real problems. In most cases, you will never know it is there until the plants start screaming for help.

Caliche is usually a cemented soil layer containing large amounts of calcium carbonate, or lime. It binds sand and gravel together so hard and tight that roots and water have a difficult time getting through. It is light in color and it is difficult to dig through. Anyone who has tried to dig through caliche will never forget the experience. The clincher in identifying caliche is to sprinkle a few drops of vinegar or some other acid onto the surface of the layer. If it is caliche, it will fizz or bubble as soon as the drops hit the caliche.

Caliche does not necessarily have to be in layers. It can also be found in lumps or even granules within the soil. The vinegar test is the best way to tell for sure if it is there. Caliche can be close to the surface of the soil, on top of the soil or far below. It can run anywhere from a few inches to many feet thick. There can even be more than one layer!

Iron chlorosis is one of the common problems of plants in or near caliche. The pH of the soil is high enough to cause iron to become unavailable to the plants. The usual symptoms are yellowing, dark veins, and untimely leaf drop.

A second problem is the lack of water and root penetration. Even if the layer is loose, roots may still not penetrate.

A third problem is drainage. The soil must be allowed to drain to insure adequate levels of oxygen for root growth. A yellowing or type of chlorosis may be seen if the root zone does not have enough

oxygen. Overwatering can also cause a similar yellow symptom.

The best way to avoid damage to plants from caliche is to try to keep plant roots out of the caliche zone. Obviously, this is easier said than done. One way to do this is to dig the tree or shrub hole early and test for drainage by filling the hole with water and seeing how long it takes to empty. If the water level drops four inches or more in four hours, caliche is probably not present and the drainage should be all right.

If caliche is present, if possible, remove the caliche and replace it with soil similar to that which is in the area before planting. Do not try to reclaim the caliche with soil amendments. Unless there is just a small amount of caliche present, acid soil amendments, organic matter and other treatments will work so slowly that it may take years to see any difference. Just dig it out and get rid of it.

The planting hole is also important in managing caliche. It should be large enough to accommodate the root system of mature trees and shrubs. This means that the planting hole should be up to five times the diameter of the container in which the new plant comes from the nursery. The hole need not be deep, because most desert-adapted trees and shrubs, like mesquite and *Cassia*, are relatively shallow rooted under normal landscape conditions. In all cases, however, the hole, or at least a small chimney, must extend down through the caliche layer to avoid drainage and resulting salinity problems.

If it is not possible to dig down through the caliche layer and remove it, then it will be important to avoid it. Choose another location that is free from caliche, or construct a raised bed to elevate the plants above the caliche layer sufficiently high to provide good drainage. Someone I know had to deal with an extremely thick caliche layer that was close to the soil. He solved the problem by purchasing railroad ties and stacking them up to waist high and then filling the new box with planting soil. Into this construction he planted full-sized citrus trees which flourished in a spot where otherwise they would have struggled.

Caliche is very common throughout Pinal County in desert soils. If we can find a way around or through a caliche layer so that salts and excess water can drain through to a more absorbent layer of soil below, in many cases affected plants will quickly recover and catch up with their neighbors.

DEALING WITH DODDER IN LANDSCAPE PLANTS

White or orange strands of threadlike vines growing up through and over plants are almost always the telltale sign of the parasitic plant, dodder.

Dodder infestations can become a huge problem in gardens and landscapes. Fortunately, occurrences are not all that common. However, if it gets started, it can cause great havoc to plants and frustration to gardeners. If you've got it, here are a few facts about dodder that may shed some light on this weedy pest.

Dodder is a parasitic, rootless, leafless, annual vine that is closely related to field bindweed and annual morning glory. Each of these can be relentless pests in gardens, landscapes and agricultural fields.

Dodder is a parasite because it is dependent upon a host plant for all of its nutritional needs. Its stems contain little or no green chlorophyll to capture the energy of the sun and manufacture food reserves. It has no roots to pick up water and nutrients from the soil. In a real sense, it is, quite simply, a thief.



It lives by stealing water, nutrients and food supplies from its host.



Upon germinating, the long, slender dodder seedling lives off of food supplies stored in its own seed. At this stage of growth, it is quite vulnerable. If it cannot quickly locate and invade a host plant, it will soon die. However, if it is fortunate enough to find a susceptible host as it coils and snakes about, it will attach itself to the host through numerous suckers and begin extracting life-giving food and nutrients.

The stems of the dodder plant grow quickly and branch easily. This allows it to spread quite rapidly from limb to limb, from stalk to stalk and from plant to plant. The more vines there are, the more energy is removed from the host plant.

Obviously, this invasion will harm the plant to which it is attached. Individual branches or even the entire host plant can die over time, but the only part of the weed that will die will be the parts which are attached to the dead wood of the host. In this way, one dodder seedling, left unrestrained can end up damaging more than one plant in a single year.

Removal of essential nutrients is not the only way dodder can cause damage to plants. Because it produces many strands, it is possible for dodder to form a thick mat over the top of its host plant and shade it out. Shading and removal of nutrients can cause significant damage to host plants.

The biggest challenge of all may be the seeds. All flowering plants produce seed. Since dodder is a flowering plant, its white or cream-colored, bell-shaped flowers will produce thousands of seeds which, when mature, fall to the soil below. These hard-coated seeds wait in the soil for just the right conditions before sprouting. Dodder seeds can out wait droughts, heat and cold; sometimes laying dormant for years. When it comes to getting rid of dodder infestations, it is the seeds that cause the greatest headache.

Unfortunately, there are not any simple, sure ways to eliminate dodder. This makes prevention all the

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PLANT PROPAGATION: MAKING NEW PLANTS FROM CUTTINGS

If you are looking for a gardening project that is fun for people of all ages, consider growing new plants from old by taking cuttings.

Growing new plants from parts or pieces of older plants has long been used as a means of increasing plants for landscape purposes. Cuttings are a simple tried-and-true method of acquiring new plants to plant in our own landscapes or for sharing with friends. It is so simple, even children can have a great time helping with the project.

Cuttings involve rooting a severed piece of the parent plant and planting it into soil in such a way that new roots begin to grow and new leaves start to sprout. Some types of plants are easy to propagate by cuttings, while others are more difficult. For those that would like to try out their green thumb, follow these basic steps.

Many types of plants, both woody and herbaceous, are frequently propagated by cuttings. A cutting is a vegetative plant part which is cut from the parent plant in order to regenerate itself into a completely new plant. Most gardeners who have propagated new plants have started cuttings from plant stems, roots, or leaves. Stem cuttings are of three types: softwood, semi-hardwood, and hardwood; depending upon the maturity of the wood at cutting.

Softwood cuttings are taken from wood actively growing in the spring until late summer that is near the growing tip of the plants. They are some of the easiest and quickest-rooting of the stem cuttings. The wood should be actively growing, soft, succulent, flexible new growth. Plants that are well adapted to softwood cutting are coleus, Euonymus, chrysanthemums, rosemary, ivy, philodendron, and pothos.

Semi-hardwood cuttings are taken after the active growing season or after a growth flush, usually in summer or early fall. Wood appropriate for propagation will be firm enough that a sharply bent twig snaps; if it just bends, it is too mature for satisfactory rooting. Pyracantha, monks pepper, viburnum and lantana propagate well from semi-hardwood cuttings.

Hardwood cuttings come from mature, dormant wood produced during the previous year's growing

season. Generally, wood with a stem diameter of one-fourth to one-half inch is best. Hardwood material will be located some distance back of the terminal ends of the branches. Hardwood cuttings may take longer to root and start growth than softwood cuttings, so it is important to place the hardwood cuttings where they can remain undisturbed. Try using hardwood cuttings on roses, grapes, pomegranate, oleander, and fig.

Another type of cutting that works for some types of indoor plants is the leaf cutting. African violet, sansevieria, jade plant and begonias can all be propagated using leaf blade cuttings. Rubber plants can be propagated using leaf bud cuttings.

Potting medium is important in getting cuttings to root. Indoors, a clay or plastic pot, six to eight inches in diameter with drainage openings in the bottom, is an ideal size. Outdoors, flat plastic trays with bottom drainage works well. The media used in the containers should be porous and sterile. Horticultural vermiculite or concrete sand are ideal for this purpose. If sand is used, run tap water through it to flush out any salts and any excess silt. After washing, let it air dry for several days in direct sunlight to reduce the chance of disease.

It is also important to keep cuttings at a uniform temperature. Indoors or out, place the container in an area where it will receive morning sun, and bright, indirect light the remainder of the day. Covering the containers with clear plastic will help keep humidity and temperature constant; but, it is important to make sure that the plastic does not touch the tender plants or completely seal off the container. Good air exchange is essential.

Stem cuttings should be taken from healthy, vigorous plants for best rooting results. The healthier the plant, the healthier and more vigorous will be the new plant. Cuttings should be taken with a sharp blade to reduce injury to the parent plant and to provide a smooth surface for new growth on the new plant. It is a good idea to disinfect the cutting tool in rubbing alcohol or a mixture of one part bleach to nine parts water to prevent transmitting diseases from infected plant parts to healthy ones. All flowers and flower buds from cuttings should be removed to allow the

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water penetration, soften the soil and reduce the number of clods that have to be dealt with later on. It is also a good idea to add one half pound of ammonium phosphate (16-20-0) fertilizer before tilling the soil to ensure plenty of nutrients for the tender young plants once they begin to grow.

It is essential that germinating seeds and young seedlings not be stressed for water during their early stages of growth. Regular, light irrigations with a misting hose attachment or with a sprinkler will apply water uniformly to the garden without washing out the seeds. Later it will be important that the entire root zone of established plants be flushed with sufficient water to dissolve the salts so prevalent in our desert soils and flush them down below the root zone. For most garden plants this should be between eighteen and twenty-four inches. Irrigate frequently enough to keep the plants fresh, but not so frequently that the soil stays sloppy wet all the time. The roots need oxygen from the air as much as they need water.

If you are wanting to save water and minimize your water bill, plan on using tried and proven drip irrigation technology. Most garden stores carry the parts needed to install a good drip irrigation system and can provide the knowhow so that you can do the work yourself.

All seeds should be planted following the instructions on the seed packets. Many vegetable and flower plants have different planting depths. Placing seed at the correct depth is critical to the success of all gardens.

Insect and weed pressures can be a problem during the fall garden season. Aphids and other piercing-sucking insects can be a problem. Make sure that you check your garden plants often for these pests and either wash them off with a strong stream of water or treat them with a garden insecticide. Do not use a systemic insecticide, one that is absorbed into the plant, on edible plants. You really do not want to be eating the stuff yourself, but systemic insecticides are excellent in controlling aphids on ornamental plants, like flowers.

You will need to also remove any weed seedlings early on. Do not let them hang around for long because they will end up stealing the water and

nutrients from your garden plants. When they are small, at the seedling stage, they are easy to pull up by the roots or cut with a hoe or knife. Herbicides will not work well in vegetable gardens because most, like glyphosate, is broad spectrum, meaning that it will kill any plant that is green, the good and the bad. A hoe, knife or fingers are the best way to control weeds in the garden.

The fall is also a great time to plant trees and shrubs. The high temperatures of summer can cause a young plant to give off more water through the leaves than the young roots can provide. This effect often throws the plant out of balance and leads to a condition known as >transplant shock=. Once the summer heat starts to melt away to the up and down temperatures of September and October, however, trees and shrubs in containers can usually be planted with good success.

A major benefit to planting trees and shrubs during the fall growing season is the chance the additional time they have to establish a good root system before the winter dormancy period. Then, in the spring, the plants still have plenty of time to continue root and top growth before the onset of the hot, dry temperatures of early summer.

If a plant is to survive the difficult climatic challenges of June, it will be because there is a root system sufficiently large enough to provide water and nutrients during that stressful time. A root system that is too small will not be able to provide sufficient water to prevent damage or death to the young plant.

Gardening does not have to be backbreaking or painstaking. With proper care and good timing, fresh, homegrown vegetables can provide a healthy addition to the dinner table. Most perceived obstacles can be easily overcome with a little knowhow, and, it is possible to work smarter, not harder. This will translate into fun for all ages. So, come on! Even if it is just one seed in one pot, let's plant a fall garden today!

If you have questions, or desire a fall vegetable planting guide, please contact the Cooperative Extension office, 820 E. Cottonwood Lane, Building C, in Casa Grande. The telephone number is (520) 836-5221.

more important. Make sure that all plants, seeds and slips are free of the pest before you bring anything home. Most reputable sources of propagating material take great pains to keep their product free of diseases and insects. Nevertheless, it is always a good idea to check all plants carefully for any signs of problems before purchasing.

Sometimes, in spite of all our caution, dodder just shows up. Birds will carry in a seed or two, or some other natural event out of one's control will occur and all of a sudden, there it is.

If dodder appears in your landscape, absolutely without fail, do not let it produce seeds. At first sign of dodder, pull it off, put it into a plastic garbage bag and get rid of it. Do not let it flower. Once dodder goes to seed, it has become a long term problem. Check the infestation site often because the weed may quickly regrow. Keep pulling and discarding the plant material.

Because dodder plants complete their life cycle in only one year, this continual process of pulling and discarding can prevent a dodder problem in future years, if, and only if, no seeds are produced during that year. However, prevention of seed takes constant vigilance and care, because dodder can easily come back from just a tiny strand that might have been missed during the pulling process. Once you get to wintertime temperatures, you can take a deep breath and start to believe that you may have won the battle.

Unfortunately, sometimes dodder grows on a thorny bush or in another inaccessible place. Sometimes we go on vacation and when we return it has already gone to seed. In these situations, it will be important to hold to a systematic, comprehensive plan involving several control methods. Even with a good plan, it may take several years to clean up an infestation.

An effective control plan will continue to rely on prevention of seed as previously described. In addition, it will be important to use a soil active, preemergent herbicide like oryzalin that, when added to the soil under the infested plants, will

kill the germinating seed before they even emerge from the soil. This will need to be done spring and fall for several years in a row to make sure that all of the seeds have been killed. However, keep an eye out for new dodder plants because you never know when that one extra-dormant seed is going to sprout.

If the infestation is completely unmanageable, removal of the host plant with its attached dodder may be the easiest procedure. Do not try to compost the plant material. Put it all in a plastic bag and throw host and parasite away.

Unfortunately, there are no good post emergent herbicides that will kill living dodder without also damaging or killing the host plant.

Dodder is not common in landscapes, but it can cause real headaches if it does get started. Vigilance and care are essential in protecting valuable garden and landscape plants.

Trade names used in this publication are for identification only and so not imply endorsement of products named or criticism of similar products not mentioned.

cutting to use its energy and food for root and shoot formation rather than for fruit and seed production.

With all cuttings, it is best to remove all of the leaves from the branches, except for one or two near the growing tips. It is absolutely necessary that the new cuttings be correctly oriented in the container. This means that the portion of the stem that was closest to the roots should be placed in the potting medium and the part that was closest to the tip of the branch should be the part that points up into the air. Upside down cuttings will not grow.

An easy way to remember which end is which, especially for semi-hardwood and hardwood cuttings, is to cut the bottom end that will go into the soil straight across, while the end which will go into the air, at an angle. That way, there will be less chance for error.

Before making the cuttings, fill the container with the vermiculite or sand and water it thoroughly. Prepare the cuttings and use a blunt knife to make openings in the rooting media. These prepared openings will prevent any possibility of breaking the cuttings when inserting them into the media. Stem cuttings root best when they have been dipped in a rooting hormone powder before inserting into the medium. Stem cuttings should be placed at least two inches into the soil mix.

Leaf cuttings should be set in the medium so that only the petiole and a portion of the leaf blade is buried. The Sansevieria is an exception in that the long, slender leaves should be cut into four inch lengths and placed bottom end down into the medium about two inches, similar to the stem cuttings.

The cuttings should be watered once or twice each day after they have been placed in the rooting medium. Apply sufficient water so that a small amount drains out of the pot at each watering.

Each plant requires a specific time period to initiate roots; some will form roots in three weeks and others will take longer. After a period of four or five weeks, gently remove a cutting from the container and examine it for presence of roots. If the cutting has four or five roots, it can be removed and planted in a container with a good soil mix. If roots are not present, place the cutting back into the original pot.

Rooted cuttings should be placed in an area without drafts or other drastic changes in climate. They should receive morning sun and shade in the afternoon. After all signs of wilting have disappeared, they can be exposed to more sun if they are of the type which can tolerate full sun. House plants do not need this conditioning.

Indoors or out, propagating new plants through cuttings can be a fun hobby and an opportunity to obtain new plants for gardens and landscapes.

If you have questions about this newsletter or any plant related problems, please call (520) 836-5221 x204 and leave a message for a Master Gardener or stop by at 820 E. Cottonwood Lane, Bldg. C in Casa Grande. gibsonrd@ag.arizona.edu is the author's email.

This newsletter is available to view on our website at: www.cals.arizona.edu/pinal.

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