High on the Desert Cochise County Master Gardener Newsletter

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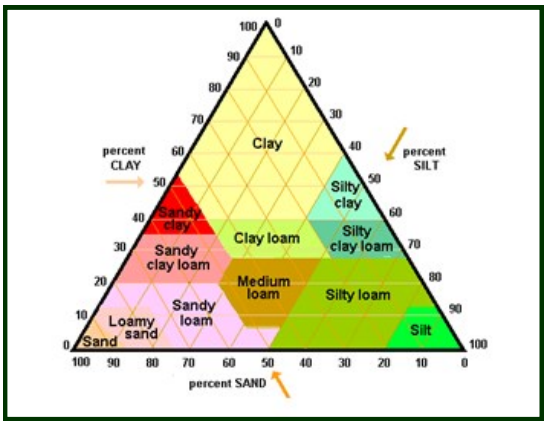
The University of Arizona and U.S. Department of Agriculture Cooperating

The Virtual Gardener —All the Best "Dirt!"

The Extension Agent that taught my Master Gardener class explained the difference between dirt and soil this way: Soil is what your plants grow in; dirt is what you wash off your hands and clothes. This month we're going to talk about soil and amendments that can be used to alter its properties.

For starters, let's quickly take a look at the functions provided by soils and other planting media. First and most obviously, the media provide a foundation and anchor for the plant, but they also provide much more: chemical nutrients the plant needs to grow; water to keep the plant from wilting, keep it cool on hot summer days, and facilitate the chemical reactions that sustain its life; oxygen that the plant needs to produce energy when the sun isn't shining; and an environment that makes nutrients available to the plant.

Garden soils are classified into one of twelve categories according to the fractions of sand, silt, and clay they contain, where sand, silt, and clay are precisely defined according to their particle sizes. Sand has the largest sizes (.05-2.0 mm) and clay the smallest (less than .0002 mm). Silt lies between. The soil texture classification scheme is portrayed graphically on a soil texture triangle such as shown here. Medium loam is considered to be near ideal for growing many plants.



Nutrients, organic materials, and inorganic materials are often added to soils to "improve" them. Nutrients are added to make up for deficiencies in the natural nutrient content of the soil—nitrogen, potassium, phosphorus, and other elements. For example, our desert soils are frequently deficient in nitrogen, so nitrogen fertilizers are added to provide the quantities of this element the plants require. Other nutrients may also be

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Cooperative Extension
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Cochise County Cooperative Extension
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necessary to provide the proper "food" for our plants. Because these added nutrients are consumed by the plants as they grow, they must be regularly replenished. Note, however, that native plants have evolved to thrive in native soils and do not usually require fertilization. Only vegetables and other exotic plants may require additional nutrients. For more information on fertilizers, check out my MG newsletter article ***Managing Fertilizers*** in the June 2017 issue.

Our desert soils also often have textural problems. If they are too sandy, they drain too fast and plants dry out quickly and dehydrate. Conversely, if the soil has too high a clay content, it may not drain fast enough causing plants to drown. Or, surprisingly, the clays may adsorb water and hold on to it so tightly that plants can't extract it, causing them to die of thirst. Organic and inorganic amendments may be mixed into the soil to help solve these problems.

Sandy soils that drain too quickly can be improved by mixing in organic materials such as finely screened sphagnum peat moss or compost or using the inorganic mineral product, vermiculite, to improve the water-holding capacity.

Soils high in silt are best improved by adding coarser materials, including peat, coir, coarser compost, bark, straw, or wood chips or another inorganic mineral product, perlite. These products promote aeration and improve drainage of heavy soils.

When adding uncomposted materials such as wood chips and sawdust, care should be taken to avoid creating a nitrogen deficiency in the soil. As microorganisms digest wood products, they steal nitrogen from the soil to use in the digestion process. Although the nitrogen is ultimately returned when the decomposition is completed, it may be tied up by the organisms for weeks or months and not be available to the plants during that time. Perlite is an inorganic alternative that can also be used to improve silty soils.

The acidity/alkalinity of soil is an important characteristic that plays a role in making mineral nutrients available to the plants. This characteristic is expressed by a number called pH that lies on a scale running from zero at one end to 14 on the other. Lower pH values indicate acidity and higher ones indicate alkalinity. Soil with a pH of 7, is considered "neutral" and preferred by most plants. Our desert soils are usually alkaline.

Some gardeners believe they can alter the pH of soil by adding amendments. This is a myth. The quantity of chemicals required to lower the pH of alkaline soils is enormous and the effect is only temporary at best. A good discussion of this can be found in this **article** on garden myths in the November 1995 issue of the Master Gardener newsletter.

For more information about soils, check out the chapter on soils and fertilizers in the first edition of the Arizona Master Gardener Manual. The manual was revised and republished in July 2017 and the new edition is no longer available on line. But the first edition can still be accessed at this **link** through the Internet Archive.

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
virtualgardener@cox.net

Cuttings 'N' Clippings

❄ The Master Gardener Christmas Food Fest will be held on **Thursday December 14 from 5:30 to 8:30**. For CCMGA information contact Valerie at: **valerieda-vidson@email.arizona.edu** or the Cochise County Master Gardeners web site at: **http://cals.arizona.edu/cochise/mg/**

❄ Check out the Water Wise web site for their 2018 schedule at: **http://waterwise.arizona.edu/**

❄ Remember **Wednesdays**, **December 6 and 13, 10:00 AM—1:00 PM** the plant clinic in the UA Sierra Vista Discovery Gardens Pavilion will be held. The Seed Library is open only by appointment for winter and will convene regular hours in February. Everyone welcome!

❄ AZ Native Plant Society meets, **Friday, December 15**, **5:00 PM**, Cochise County Community Development Office, 4001 E. Foothills Drive, (Corner of Highway 92 and E. Foothill Drive) Sierra Vista. This will be the Holiday Members' Night and individual members will discuss their botanical adventures during 2017. For more information, follow AZ Native Plant Society on their web site: **http://www.aznps.com/chapters/cochise/cochise.htm**

You can bury a lot of troubles digging in the dirt.

-Author Unknown

Winter Gardening Checklist

You have finished a busy spring, summer, and fall gardening season. You might think it's time to rest. Maybe for others, but not for us gardeners! Here's a checklist of things to do for your winter gardening chores…many for the health of your garden, some in preparation for spring, and some for just plain enjoyment.

~ **Trim all broken, torn, and dangling branches**. Don't prune heavily for new growth yet, just clean up the broken, dead or dying material from trees and shrubs. The jagged edges of broken or dead branches are perfect entry ports and breeding grounds for pests and disease to set in.

~ **Clear fallen, collected debris from around shrubs and perennials.** Folks often think this material makes good winter mulch, but, no. This material harbors insect eggs and fungal spores which will winter over and become active in the spring. If the debris is thick, it will also invite rodents to winter over and nest.

~ **Manage the Mulch.** If you do have a formal mulch around trees or shrubs, be sure to keep it aerated or fluffed up in the winter to keep it from becoming compacted. Mulch should also be kept at least 2 inches away from trunks or stems to prevent moisture, insects, and pathogens from being in constant contact with bark tissue.

~ **Perform Irrigation Maintenance**. This is the perfect time to turn on your irrigation system and walk around to 1) check for leaks, 2) check for emitters which are not working, and 3) check for placement and quantity of emitters around plants which have grown larger since last year.

~ **Don't forget to Water!** Folks often think that winter is a time of dormancy and that plants do not need water. Not so. Especially with the evergreen plants which do not lose their leaves. While metabolism has slowed down, evergreen plants still need a drink through the winter months, especially if our winter rains do not arrive. Deciduous plants also need to keep their roots hydrated even though they're resting. If weather is warm and dry, evergreens could stand a thorough drink once every 3 weeks or so, and deciduous trees and shrubs, especially younger ones, should be well watered at least once a month through the winter months. **Another important point to remember: if a hard freeze is expected, well-hydrated trees, shrubs, perennials, and even bedding flowers are much more resistant to freeze damage than plants with thirsty roots. This is not true for cacti and succulents, however.**

~ **Empty the water from your hoses if a hard freeze is expected.**

~ **Winter is the best time for moving and transplanting** existing trees and shrubs, as they are 1) less disturbed in their dormancy, and 2) cooler temperatures do not challenge their water needs so severely.

~ **Winter is the perfect time to divide bulbs and perennials** during dormancy and cooler temps.

~ **Eliminate any remaining weeds** from the summer and fall. While many of the weeds look dead and inactive, they are still harboring seeds ready to throw around for spring growth, and some of them are waiting for warmer temperatures to start regrowth themselves.

~ **Continue to add to your compost pile** so you have plenty of material to start cooking when spring temps begin to warm.

~ **Clean, repair, and store your tomato cages and trellises**. This might even be a good time to add a fun color of spray paint!

~ **Tool Maintenance**. This is a great time to sharpen and clean your garden tools. Brush rust away from metal and give a coat of mineral oil. Sand rough wooden handles and brush with linseed oil. Martha Stewart taught us a great trick long ago…store metal tools in a bucket or large pan full of sand with used (or new) motor oil. The sand is abrasive to clean the tool, and the oil prevents rusting and keeps the metal looking nice.

~ **Reflect on last year's gardens.** What thrived? What disappointed? What new things would you like to try? Cold days are a great time to shop catalogs early for ideas and seed selection. Have fun planning next year's designs, flower beds, and crops.

~ **Shop clearance sales** in the nurseries who are clearing out for the season. Winter is still a great time to plant most trees and shrubs in the High Desert.

~ **Plan for Bare Root Season**…a great winter activity, and good way to take advantage of increased varieties and lower prices.

~ **Keep your winter birds happy**. Continue providing fresh wa-

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Organic Farming—Part III Continued from November 2017

What if "organic" producers cheat today?

Now the National Organic Program (NOP) director can issue civil penalties up to $11,000 per violation and or suspend or revoke a farm or business' organic certificate[9]. Also, a suspended or revoked operation can't sell, label, or represent its products as organic until the end of a specified waiting period[10]. Later, if the operation can demonstrate full compliance with the NOP rules, it may request reinstatement. These new rules are very important to the credibility of an organic business and its financial success. A suspension could put a small producer out of business and damage the reputation of a large producer so much that the big box store buyers and chains will look elsewhere for organic products.

But how do consumers (or more likely other organic producers who don't want to have to compete with cheaters) complain when they suspect that produce or products labeled organic are really conventionally grown or produced? There's a little flow chart in a handout you can find if you Google: *How to File a Complaint about Violations of the Organic Standards*. You'll end up at: **http://www.ams.usda.gov/services/enforcement/organic/**

Consumers who are really concerned can gather all the who, what, where, and when information available to them. Then they can email it to: **NOPCompliance@ams.usda.gov.**

Consumers can also call the compliance folks at (202) 205-7808. Or they can write to them at: USDA Agriculture Marketing Service, NOP Compliance and Enforcement Branch, 1400 Independence Avenue S.W., Room 2648-S Stop 0268, Washington, D.C. 20250-0268.

Many folks rely on organic products to protect them from allergens. Or they just don't want to be subjected to chemicals they can't pronounce or figure out the health consequences of. So, what is the bottom line for consumers in Arizona who want to make sure food and products certified or marketed as organic really are organic? We don't have an inspection service like some other states have. Consumers have to be their own advocate. If you are concerned about whether something being sold as organic really is organic, ask to see the paperwork. A certified producer selling at a farmer's market should have a certificate that he or she can show you. The grocery store should have documents that show what they are selling is actually organic. A company who makes a product that carries the "USDA certified organic" logo should be able to send by email, fax, or snail mail, their relevant documents as well.

Some small producers can call their products "organic" without going through the certification process because they don't make enough money to pay for the inspection fees. However, they must still follow the NOP rules and regulations and they aren't allowed to use the "USDA certified organic" logo. So c*aveat emptor*: buyer beware. A small producer may know the NOP regulations better than folks at the NOP. A really good organic small producer will be able to list all the inputs they use and discuss the pros and cons of various products and growing techniques. And, they are great teachers for those who want to learn more about how to grow their own fruits, vegetables, and livestock. Then again, small producers may think they are "organic" simply because they limit the chemicals they use. Unless you know a small grower without a certificate pretty well, you won't really know what has happened on a farm or in a backyard.

Terrie Gent[1]*, Master Gardener*

[1]Terrie is a Master Gardener and used to be a certified organic crop inspector.
[9]Id., at page 2 of 3.
[10]Go to this website for a list of currently suspended operations **https://organic.ams.usda.gov/Integrity/Search.aspx?sta=3+7**

Sustainable Agriculture Producers' Forum

Cochise College Benson Center
Wednesday, December 13 - 8:30 AM to 4:00 PM

Featured Keynote Speaker: Dr. Gary P. Nabham

Topics covered: Organic Production & Certification + Soil Health + Specialty Crops Direct Marketing + Grass-Fed Meat Production + Integrated Pest Management + Much More!
$20 includes materials & lunch
RSVP: valeriedavidson@email.arizona.edu
(520) 458-8278, Ext. 2141

At a Glance Box

It's a Bloomin' Cochise County Native Plant of the Month

Plant: COMMON NAME, **Lemmon's Milkweed**
BOTANICAL NAME, ***Asclepias lemmonii***
Learn more: Cochise County Herbarium, http://www.cochisecountyherbarium.org/plant.php?cat=dbsn&item=805 and SEINet – Arizona Chapter Projects, http://swbiodiversity.org/seinet/taxa/index.php?taxon=3763
For an in-depth article, see below.

Karen LeMay, Guest Author, Founder of Pollinator Corridors Southwest (a new nonprofit supporting native plant habitats and their pollinators)
www.PoCoSouthwest.org


Umbels of Lemmon's Milkweed flowers

Asclepias lemmonii- Lemmon's Milkweed

The more I observe and learn about milkweeds, the more fascination and respect I have for this group of plants. This year Bob and I set out to photograph the 18 species of milkweed plants we know of in Cochise County. We succeeded in locating 16 of them. This journey took us to the grasslands of the San Pedro Valley, to the Madrean oak woodlands of the Huachuca Mountains, to the limestone cliffs of the Mule Mountains, to the conifer forests of the Chiricahua Mountains, and to the cottonwood understory of the San Pedro River. (Note: we live in an incredibly beautiful and biodiverse area of the world!)

The largest Cochise County milkweed is Lemmon's Milkweed (*Asclepias lemmonii*). While it is not the most colorful, it is one of the most spectacular members of the genus. Reaching five feet in height with leaves up to 12 inches long. these rare plants are easily spotted summer through fall growing in the understory of Madrean oak woodland habitats in southeastern Arizona at an average elevation of 5300-7000 feet. There are visible stands of these roadside plants in the Huachuca and Chiricahua Mountains. An easy place to see these plants is from the short hiking trails starting at the Carr House. The large, tropical-looking leaves stand out among native grasses in the understory of Madrone and oak trees.


Lemmon's Milkweed up to 5' tall

Along with the plant's height, the tight pompom shape of its umbel of flowers distinguishes this milkweed species from others. The numerous white blossoms provide abundant nectar for native butterflies, bees, wasps and flies. In addition to milkweeds being the caterpillar host plant for Monarch and Queen butterflies, they are an important food plant for many pollinators.

The plants die to the ground in winter but by late spring are growing rapidly. As a permit-holding collector of native plant seeds for Borderlands Restoration's propagation program, I have handled the large seed pods. Each pod produces about 100 seeds attached to white, silky hairs known as the coma. When the pods break open, the seeds are carried away by its coma in the wind to hopefully begin another generation of plants.

Native plant nurseries are beginning to make available more milkweed species to gardeners. Desert Survivors (Tucson) occasionally has this plant for sale. Borderlands Restoration (Patagonia) is currently growing this plant for habitat restoration projects in southeastern Arizona burned by wildfires or destroyed by monsoon flooding.

Equally fascinating as Lemmon's Milkweed is, the woman the plant was named after, Sara Plummer Lemmon, the namesake of Tucson's Mount Lemmon. She was a 19th century self-taught botanist, native plant artist and explorer who spent a majority of her life with her husband, John Lemmon, discovering and docu-

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menting plants. They are credited with describing and naming 110 species of Arizona plants. Read about the Southwestern Legacy of Sara Lemmon by Wynne Brown, an author living in Portal: **https://www.arizonahighways.com/blog/southwestern-legacy-sara-lemmon**

Karen LeMay, Guest Author, Founder of Pollinator Corridors Southwest (a new nonprofit supporting native plant habitats and their pollinators)
www.PoCoSouthwest.org
Photos: Robert A. Behrstock

Editor's Note: For more on *All Those Plants Named Lemmonii,* please see Page 2 of the **October 1996** Master Gardener Newsletter article by Maggi Crist.

Lemmon's Milkweed plant leaves are up to 12" long.

The pollinia sacs carried on this European honeybee may fertilize another flower.

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ter. Offer black oil sunflower seeds, thistle, peanuts, good mixed seed, fruit, and suet cages for winter feeding.

~ Add hardscape for winter interest. Add colored pots, bird baths, colorful trellises with evergreen vines, a freshly painted fence or garden gate, or a fun piece of garden art.

~And don't stop planting! For example, Pansies in pots are always a bright spot in any winter garden. They are tough in the cold! Many evergreen shrubs will offer winter interest, such as the Nandinas, Parney's Cotoneaster, and Pineapple Guava. There are numerous possibilities, but that's another article!

Jan Groth, Master Gardener Program Coordinator

Master Gardener

Cochise County Master Gardener Newsletter Editor Carolyn Gruenhagen

SAVE THESE DATES!

The 25th Annual Master Gardener High Desert Gardening & Landscaping Conference will be held Thursday-Friday-Saturday, **March 15, 16, & 17, 2018**, in the Student Union Building of Cochise College, Sierra Vista.

Saturday, April 21. The 4th Annual Master Gardener Spring Plant Sale will run in conjunction with the 2nd UA Family Day on UA Sierra Vista campus, sponsored by the Cooperative Extension family and Water Wise.

Watch for details on the Master Gardener Web site: **www.cals.arizona.edu/cochise/mg/**