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From the Ground Up

A Gardening and Native Plants Quarterly

Colorado State University Extension-Pueblo County
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KNOW YOUR NATIVES

NATIVES FOR HONEYBEES

By Marge Vorndam, Colorado Master Gardener, 1997, and Native Plant Master, 2007

Bees of Colorado are represented by commercially-managed introduced European (aka Western) Honeybees (*Apis mellifera*), and native bees including mason bees, leaf-cutter bees, sweat bees, squash bees, and bumble bees. Bee species may live solitary lives, or colonial lives together in hives as is the case for the honeybee. Bees are plant pollinators because their nectar-gathering and pollen-gathering activities result in the fertilization of flowers, which lead to fruit and seed production. Pollination thus benefits both the bee and the flower. Here, we will be discussing the activities of the Honeybee specifically, but the listed native plant Genera attract other types of bees, also.

Honeybee on clover flower

Honeybees are kept by Apiary owners in constructed hives which are managed to produce honey for human consumption. Hives are annually rotated to various fields of crops that are in bloom, such as to fruit tree orchards, to aid in pollination of the trees. In Colorado, honeybees are used to pollinate 30% of our commercial crops including apples, cherries, peach trees, alfalfa, pumpkins, tomatoes, and melons, among others.

Colorado native plants also provide sources of nectar and pollen for honeybees. Not all native plants will attract honeybees, however. So, when considering supplemental native plant sources for bees, an apiarist and those of us interested in promoting honeybees as pollinators at our own locations are confined to selecting specific plants that provide food for them. The following list presents a variety of Colorado native plant genera that can be used to attract honeybees. These genera each represent several species of plants (see native plant guides and the references below for details on specific plant species). The genera listed are already growing in Prairie-type Colorado landscapes, so the majority will adapt well to xeric gardens in our area. For example, two bee-friendly shrub species of the genus, *Rhus*, exist in Colorado, *Rhus trilobata* (skunkbush sumac) and *Rhus glabra* (smooth sumac).

Sources of bee-attracting native plants include nursery businesses that specialize in them. See http://extension.colostate.edu/docs/pubs/natres/sources-native-plants.pdf or your local Yellow Pages under Nurseries for access to a variety of choices. If you choose to grow your own natives, the Rawlings Library houses the All Pueblo Grows Seed Lending Library which features seeds from many native bee-friendly plants.

Continued on page 2

INDEX

PUEBLO COUNTY
COLORADO STATE UNIVERSITY EXTENSION

Continued from page 1

Representative Genera of Native Plants That Attract Honeybees	
Acer sp. – Box elder, Maples	*Prunus* sp. – Plum
Agastache sp. – Hyssops	*Prosopis* sp. – Mesquite
Apocynum sp. – Dog bane	*Ribes* sp.— Currants
Asclepias sp. – Milkweeds	*Rhus* sp. – Sumacs
Chamerion sp. – Fireweeds	*Robinia* sp. – Locust
Cleome sp. – Spiderflower, Caper	*Rubus* sp. – Raspberries
Dalea sp. – Prairie clovers	*Rudbeckia* sp. – Coneflowers
Erigeron sp.— Fleabane	*Salix* sp. – Willows
Helianthus sp. – Sunflowers	*Solidago* sp. & *Euthamia* sp. – Goldenrods
Penstemon sp.— Penstemons	*Symphyotrichum* sp. – Asters
Physocarpus – Ninebark	*Verbesina* sp. – Wild Daisies

Honeybee enjoying a native bloom

Resources:
Lady Bird Johnson Wildflower Center, nd. Special Collections: Special value to honey bees. https://www.wildflower.org/plants/combo.php/start=60&distribution=CO&fromsearch=true1&pagecount=10
Seedland. 2020. Bee friendly wildflowers & flowers, http://wildflowermix.com/info/bee-pollinator-wildflower/bee-flowers-perennials.html
Colorado Native Plant Society, nd. Low-water native plants for Colorado Gardens: Prairie and Plains. http://extension.colostate.edu/docs/pubs/native/PrairieSm.pdf

INTERESTING INSECTS

THE BUZZ ON BEES AND WASPS

By Sherie Caffey, Horticulture Agent, CSU Extension-Pueblo County

Most people know that bees are good. There are, however, those who are still afraid of bees, and, of course, those who are afraid of wasps. Surprisingly, many don't know the difference between the two. Bees are typically not aggressive whereas wasps are more likely to sting. We have many species of both here in Colorado, and they differ in many ways.

Western Yellowjacket

We have many wasp species that are social and form colonies. These colonies are small in the Spring, and grow throughout the summer. Most wasps feed on live insects, and are important in balancing out pests like caterpillars. Western Yellowjackets, however, are scavengers and feed only on dead insects and garbage. Some male wasps will occasionally eat nectar from flowers, but they are not generally considered to be important pollinators.

Yellowjackets are often mistaken for honeybees, but they are not hairy and are more intensely colored. They usually nest underground and their colonies are not usually seen. The Western Yellowjacket is the most concerning stinging insect in Colorado.

Continued on page 3

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Available in paper and electronic formats.

Continued from page 2

European Paper Wasp

They become a nuisance around outdoor picnics and garbage. It is estimated that 90% of Coloradans who believe they have been stung by a bee, were actually stung by a Yellowjacket.

If you have seen a papery, open celled wasp nest under your eaves, in your gutters, or even your grill, it is probably the nest of the European Paper Wasp. They are more slender-bodied than the Yellowjackets, but some have very similar coloration. They feed on live insects, many of which are pests. The fact that they nest in many locations around homes has increased the incidents of stings associated with this wasp.

If you have a wasp nest on your property, and it is not causing an immediate issue, the best course of action is to wait until fall or winter, when the nest will be abandoned, and safely remove it then. You can also take a proactive approach by sealing all openings that allow access to hollow tubes or similar spaces. Active nests that are a nuisance can be sprayed with an insecticide labeled for use on wasp nests. Spray the nest during late evening when the wasps are not flying and most foragers have returned home for the night. Excluding food sources such as open garbage cans or pet food will deter Yellowjackets. They also make traps that will attract Yellowjackets, these are best used in June when colonies are still establishing.

Bees do not feed on insects, only nectar and pollen. One problem we see with honeybees is swarming on sunny afternoons in May and June. Swarming occurs when a colony gets too big and part of it splits off in search of a new home. This is when you will see a mass of bees gathered on a branch or somewhere similar. If you have a swarm, a beekeeper will gladly come remove it for you so they can get a new colony. Call the Extension office at 719-583-6566 and we can find a beekeeper to come to your aide. It is not advised to kill honey bee swarms.

WICKED WEEDS

TUMBLEWEEDS AND DROUGHT

By Marcia Weaber, Colorado Master Gardener 2005, Native Plant Master, 2007

Kochia seedlings

Even in a drought the weeds that become "tumbleweeds" can be problematic. A little bit of rain can encourage their seeds to germinate. Vigilance is required to detect these plants before they reach several inches with developed root systems. If allowed to grow, they pile up in the fence corners, catch in evergreens, clog wind breaks and sometimes build up against buildings to the eaves. If you live in southeastern Colorado, it can be a constant battle to manage these mature windblown weeds.

Kochia (*Bassia sieversiana*) and Russian thistle (*Salsola collina* and *S. australis*) are two alien species weeds that become "tumbleweeds". Both are annual, broadleaf weeds, with tiny flowers. These plants are opportunistic. They can grow in areas in the yard with little or no vegetation, or in areas where vegetation is stressed as with drought, or after soil disturbance from construction, or cultivation of the ground in preparation for a lawn.

The characteristics that make Kochia and Russian thistle so problematic are their ability to germinate in many different environments, continuous seed production for as long as the growing season permits, high seed output in a variety of environments, and their ability to compete aggressively with other plants. Growth is rapid from germination to flowering and continuous seed production results in over 1,000,000 seeds per plant.

Continued on page 4

Continued from page 3

Russian thistle seedling

What can the home gardener do to control Kochia and Russian thistle? Planttalk script 2116 recommends a three-pronged approach: prevention, cultural, and chemical control. Prevent weeds by encouraging the rapid establishment of ornamental plants or a dense, healthy lawn. The use of weed barriers and mulch may help to keep large areas of your yard weed free. However, blowing dirt will limit the effectiveness of the weed barrier and mulch. Cultural control of the weeds includes mulching, mowing, hand-weeding and cultivating. Mulching limits light required for weed establishment. For mowing to be effective, it must be done when flower heads are produced.

Frequent hand removal on annual weeds, especially during this drought, is a time consuming but effective tool if done before flowering. Post emergence herbicides kill weeds present at the time of application. The weeds must be actively growing when the chemicals are applied. A drought will probably limit herbicides effectiveness because the plants will not be actively growing. Many will thicken their external cuticle to preserve moisture thus preventing absorption of the chemical. Before using any chemical product, correctly identify the weed and read the product label. If populations are intensively managed for two to three years to prevent seed production and no new weeds blow in, the weeds can be eradicated because seeds are short-lived.

As annoying as Kochia and Russian thistle are, they are an important food source for animals, especially during a drought. Cattle and sheep can eat Russian thistle in early growth form, and is a minor component in the diets of elk and deer until it flowers and becomes spiny. Pronghorn readily eat the weed as do prairie dogs. The seeds are eaten by birds, including scaled and Gambel's quail, as well as small mammals. Because both are nitrate collectors, they can become more poisonous to sheep and cattle as drought continues and the plants become more mature, so it is not recommended as a primary food source.

DIGGING DEEPER

HIDDEN LIFE OF TREES BY PETER WOHLLEBEN

Reviewed by: Ed Roland, Native Plant Master, 2009

It may be an understatement to say that Peter Wohlleben, the author of this book and a forest ranger in southern Germany, is intimate with his subjects: trees, individually and collectively.

He writes to bring you along, to ask you to accompany him as he visits places where trees live, thrive, and sometimes suffer and die.

He takes you there because, above all, he wants to convince you that trees deserve respect for the lives they lead. He recounts how trees can remember past events for decades, how -- when under attack by herbivores -- they warn near-by neighbors to preemptively bolster their defenses, how -- with the help of mycorrhiza -- they share food (in the form of sugars) to help a sick neighbor recover. Even how, among trees of the same species in the same habitat, some stand out because of their superior "character."

The writing style of this book reminded me of the 1953 natural science classic, "Those of the Forest" by wildlife manager Wallace B. Grange. It has the same matter-of-fact familiarity with its subject that can, at times, catch you off-guard, creating doubt whether what's being related as first-hand knowledge can really be true.

Continued on page 5

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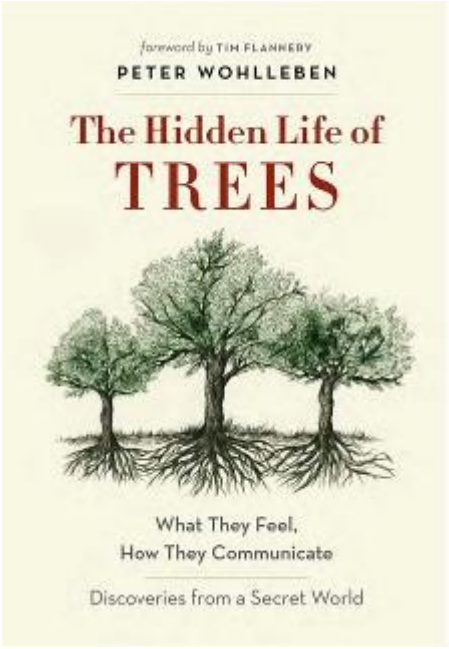
STEAM 4-H Youth Development

Continued from page 4



With Grange, the doubt is about how animals use what can only be called "value judgments" to cope with the vicissitudes of their existence. (Research in animal intelligence has since validated many of Grange's observations.)

With Wohlleben and trees, it's about "what they feel" via something akin to a nervous system and, what's more, how they communicate these feelings in a kind of arborescent social network.

Trees with feelings that have "friends" may be climbing out on a limb a bit too far for many, but the scientific rigor of the book is enthusiastically endorsed in an epilog by Dr. Suzanne Simard, Professor of Forest Ecology, University of British Columbia, who considers many of Wohlleben's insights to be "ground-breaking."

As a professional forester, Wohlleben takes space in his book to review the characteristics of many of the species in his domain; but his ultimate admiration is for the European Beech (*Fagus sylvatica*). Among its many attributes, he particularly extols this species as a tough competitor and survivor that demands significantly less from its ecosystem. Due to its frugality, he says, it's not only surviving, but "marching north" as the planet warms.

(While we have several of its oak relatives in the Fagaceae family, beeches are relatively rare in Colorado. A few American Beeches -- native in eastern states and Utah -- are found on the Western Slope, and European varieties survive and even thrive in Colorado as introduced landscape trees, including a "Champion" tree in the Denver Botanic Garden.)

Wohlleben argues, in essence, that we have an anthropocentric bias in the way we see life around us as background for our own existence and objectives. He says human intervention in the lives of trees, by growing and harvesting them as a monoculture, by planting them in confined urban corridors, by clear cutting old growth forests, and even by using isolated specimens in the landscape, should be re-thought.

We've been seeing trees as "things," he says, largely because they react slowly, often over tens and even hundreds of years. As he suggests throughout the book, to see what's really happening you have to take the occasional "walk in the forest."

In my view, Wohlleben's underlying proposition is that the deeper our understanding of "tree behavior" and of how these diverse organisms contribute to the ecological health of our planet (especially in this time of climate change), the more profound will be our respect for the lives they lead.

I think he has it right. If, after reading this book, you decide to take that walk in the woods, it's very likely you'll see both the forest and the trees as you've never seen them before.

All Pueblo
GROWS
Seed Lending Library

Join us the last Saturday of every month for a free educational seminar and to help prepare seed for the library. The fun starts at 9:30 a.m. in the Thurston room on the first floor of the Rawlings Library. All seed donations welcome!

COLORADO STATE UNIVERSITY
EXTENSION

Girdling Roots

By Penelope Hyland, Apprentice Colorado Master Gardener, 2018

Above ground girdling root

A part of the studies in the Colorado Master Gardener program included learning about trees and their root systems. The term "girdling roots" began to come up more and more often as a threat to the life of a tree. A girdling root refers to a root at the base of the tree that encircles the trunk of the tree to the point where water and nutrients are cut off from the rest of the tree. Unchecked, a girdling root can cut off the life of the tree and it will die.

Girdling roots often develop from planting a tree too deep which causes roots to surface in search of air and water. In doing so, they begin to encircle the base of the trunk. Also, plants that spend an extended amount of time in small containers can become root-bound and start to circle around. Correct planting methods are the best way to prevent girdling roots. In addition to planting at the correct depth, also check the roots as you remove the plant from the container and gently straighten out any large roots that are already circling.

When I learned about girdling roots as an apprentice in the CMG program, my first response was to go home and check out my trees. Fortunately, most of my trees are very old and doing very well, but I had a couple that I had just recently planted so I decided to check on their progress.

The first tree is a purple leaf sand cherry. It appeared to be healthy and doing well. There was no flattening of the trunk which is a sign of girdling. We had also learned how to apply mulch correctly so I pulled back some of the mulch from the base of the trunk to about 6 inches. While I, fortunately, had not "volcanoed" my mulch around the tree, I had placed it right up to the trunk which can lead to disease. As I pulled back the mulch, I noticed a very small root that was starting to circle around the base of the tree. This root was smaller than a pencil, so I very gently eased it back and placed it in the direction it should travel out from the tree. Then I covered it lightly with dirt and placed a large piece of mulch to prevent it from returning to the circle direction. I made sure the tree was watered and fertilized appropriately and have been watching for further developments. A sucker started to grow up from the root which I pruned off. So far, the tree continues to be healthy and the root is growing in the proper direction. There are now beautiful dark purple berries on the tree!

Below ground girdling roots

The second tree I checked is a Japanese Black Pine which is just gorgeous! I had planted it in an area that had not been cultivated and had heavy clay soil. The tree appeared to be healthy without any indications of a girdling root. I carefully checked down about an inch into the soil around the base of the tree, and to my amazement, found a well-developed girdling root about the size of a nickel in diameter and touching the trunk of the tree. I could easily see that this root would cause problems for my beautiful tree. This root was too large to simply move and it was already attached to the trunk. Using a small, sharp knife, I cut the girdling root at the point where it had attached to the trunk and removed it completely. I was careful not to cut the trunk itself. I watered and fertilized appropriately and hoped that the tree would heal. I made sure the mulch did not go right up to the trunk but kept the root zone covered to help maintain moisture. Often roots will grow right back, so I have kept a careful watch. So far the tree continues to look healthy and is putting out new growth. Hopefully, I caught the girdling root in time.

When the girdling roots are small, you can attempt to correct the problem yourself, or contact a local arborist for help, especially if the root is large.

If you need any special accommodation(s) to participate in any Colorado State University Extension event, please contact CSU Extension-Pueblo County at 719-583-6566. Your request must be submitted at least five (5) business days in advance of the event. Colorado State University, U.S. Department of Agriculture and Pueblo County cooperating. Extension programs are available to all without discrimination.

Preserving the Harvest

Food Preservation Class Series 2018

For ALL Food Preservation Classes:

Location: CSU Extension - Pueblo County, 701 Court Street, Suite C Pueblo, CO 81003

Fee: $10.00 per class, limited space

Contact: Laura or Christine at 719-583-6566 for more information.

To register with cash or check only: Mail or bring check or cash only to CSU Extension-Pueblo County. Make check payable to: Pueblo County Extension Program Fund.

To register online by credit card go to: pueblo.extension.colostate.edu/canning

Jams and Jellies
Thursday, August 2, 2018
1:00 pm-4:00 pm or 6:00 pm-9:00 pm
Learn the role of pectin in gelling and get hints and tips to get the right consistency. Receive recipes for canned jams and jellies as well as freezer/refrigerator jellies. Register by 7/26.

Water Bath Canning
Wednesday, August 8, 2018
1:00 pm-4:00 pm or 6:00 pm-9:00 pm
This workshop will hone your canning skills using the water bath method for high acid fruits. Register by 8/1.

Pressure Canning
Wednesday, August 22, 2018
12:00 pm-4:00 pm or 5:00 pm-9:00 pm
This workshop will teach pressure canning skills for low acid foods. Learn ways to prevent spoilage and illness. Register by 8/15.

Classes involve hands-on activities in the kitchen. Please dress casually and comfortably.

Pickling
Wednesday, September 12, 2018
1:00 pm-4:00 pm or 6:00 pm-9:00 pm
Making and canning your own pickles is one of the easiest things you can do with produce! This class will cover: Pickling fruits; Pickling vegetables; Pickled relishes. Register by 9/5.

Fermenting
Wednesday, September 26,2018
1:00 pm-4:00 pm or 6:00 pm-9:00 pm
Learn how to make and preserve sauerkraut, kim chee, and other products. This class will cover equipment needed, acceptable processing methods, and how to preserve fermented foods. Register by 9/19.

Freezing and Dehydrating
Wednesday, October 10, 2018
1:00 pm-3:00 pm or 6:00 pm-8:00 pm
Learn how to freeze fruits and vegetables quickly and safely for high quality product. Learn how to dry fruits, vegetables, herbs and meat. Register by 10/3.

If you have a disability for which you seek an accommodation, please notify CSU Extension at 719-583-6566 at least five (5) business days in advance of the event.
Colorado State University Extension, U.S. Department of Agriculture and Colorado counties cooperating. Extension programs are available to all without discrimination.

Keeping Container Plants Watered While You are Away

By Kerry Caruselle, Colorado Master Gardener, 2015

Keeping your potted plants watered while you are away can be stressful. There are some strategies that will ensure you come home to the beautiful plants that you left behind. First, the easiest, but the most unreliable, is to have family or friends water for you while you are away. It's the easiest because it only requires a telephone call and perhaps a batch of homemade cookies or a few ripe vegetables upon your return. It is the most unreliable, however, because people tend to forget or they get too busy. There is always tomorrow and your designated waterer knows you won't be back for maybe a few days. Meanwhile, your plants are cooking without a drop in sight. If you decide to go this route, leave written instructions on how often and how much water each pot needs. I like to count the number of seconds I leave the hose on each plant. Also, don't forget to remind your waterer that the excess water in the saucers needs to be drained.

Wine bottle watering method

If possible, before you leave, move your potted plants away from the direct sun and group them in sets of required watering needs. This will help preserve the plants and lessens the time it will take to complete the watering while you are away. Water your plants thoroughly and pick any ripe vegetables before you leave on vacation. Be sure to pass the favor on to your waterer and bring them back a souvenir. I hesitate to recommend this solution as it usually does not work out so well for the plants.

The second method is a little more complicated than a telephone call, but it could be a lot more fun. A day or two before you leave once again group the plants according to watering needs and take them out of the direct sun. Next, take a glass bottle with a long neck and drain the contents in a pre-vacation party - we are talking wine or beer here. Be sure to wash the bottle thoroughly. Next dig a hole a few inches deep next to the base of your plant. Water your plant thoroughly. Fill the bottle with water at least to the neck, place your thumb over the opening and invert it into the pot.

Continued on page 8

Continued from page 7

Remove your thumb, be sure the neck of the bottle is buried in the soil. The bottle can be placed at an angle, just be sure it is buried deeply enough so that it won't turn over. Make a mark with a piece of masking tape or marker as to where the water level is on the bottle. Check back the next day to be sure the bottle's water level is going down. If it hasn't changed, something may be blocking the opening. You can either just dig a new hole and try again or place a piece of screening over the mouth of the bottle to prevent any debris from blocking the water. This method will work pretty well for about a week. Perhaps you should practice the draining of the bottle several times in advance before you try this plan. You can also buy self-watering globes at a gardening supply store which work very well. However, they are not nearly as much fun as the draining of the bottles as described above. I have had varying degrees of luck with this method. Plants that were more shaded did very well, while some that were in partial sun did okay, and the ones in the sun barely survived.

Home made watering wicks

The third idea is fairly simple. Fill a clean bucket or other large liquid container with water. Try to have at least one bucket for every three plants. Move the plants from the direct sun. Group them according to watering needs. Tear cotton cloth into long strips, making one long strip for each pot. The idea is to make a wick. Place the water bucket out of the direct sun and above the plants' soil level, you can set it on an upside down empty pot or a block, place the wicks inside of the bucket and soak them with water. Now place the end of the wick so that it touches the bottom of the bucket. Take the other end of each wick and bury into the soil of the plant at least three inches deep. The wick must be able to carry the water from the bucket to the plant. Be sure to keep the wick out of the direct sun so it won't dry it out. This is a very reliable method of watering plants, but it is difficult to judge how many water buckets you will need for your plants. It is probably a good idea to try this out for a few days before you leave on vacation. The water level in the bucket will go down very quickly. You can buy cotton wicks at a gardening supply store, or you can make your own from old sheets or t-shirts, they should be able to reach from the bottom of the bucket to your plant without any knots. I have used this method for both inside and outside plants. I am always surprised how much water is siphoned to the plants.

The fourth solution for watering your terra cotta potted plants while you are gone (for about three days or less) is to use a kiddie pool or something similar. You can place stones or inverted pot saucers in the bottom of the pool. Place the pool out of the direct sun. All you have to do is water your plants thoroughly, then place them in the pool. The bottoms can either rest on the stones or on their overturned saucers. Fill the pool up to the top of the lowest pot. You may have to ask a family member or friend to refill the pool after day three if you aren't back. Of course, there is always one plant that does not like being water soaked (I am talking to you geraniums!). When you get back home, just trim off any yellowed leaves and go back to your regular routine. The plants should perk up in a few days. I have used this method many times here in Colorado, and it is very reliable for about three days in our hot, dry climate but the plants should be potted in terra cotta.

As you can see, with a little foresight and some planning, your plants can survive until your return. Be sure to call the CSU Extension Office at (719) 583-6566 if you have any questions. A Master Gardener will always be happy to help you with any problems or inquiries.

Garden Tip: Don't forget to mulch!

Mulch is important on these hot, dry summer days. Things such as bark or grass clippings will keep your soil moist for longer, and will stabilize your soil temperature. This is also important over the winter when freezing and thawing can disturb plants.

Water Wise Vegetable Gardening

By Maureen Van Ness, Colorado Master Gardener, 2015

We appear to be entering another season of drought, perhaps facing water shortages and challenges to keep our gardens watered. Vegetable gardens are one of the first gardens we set aside, thinking they take too much water. But, there are alternatives to how we water that will enable us to continue to grow vegetables.

Veggie garden in large containers

You will not find tomato on any list of xeric plants. However, in *Every Day in Tuscany*, Frances Mayes (she also wrote *Under the Tuscan Sun* – the books are much better than the movie), says the Italians are very careful not to overwater their tomatoes, as it dilutes the flavor. So, perhaps, our perspective of tomatoes as a water hog is incorrect, and we could get by with much less water.

If we apply the seven principles of Xeriscape gardening to growing our vegetables, we discover that many vegetables will do well with much less water, and there are ways to limit our watering, enabling us to grow vegetables with water smart skills.

A quick review of the seven principles of Xeriscape: Plan and Design, Soil Improvement, Limit and Edit (related to lawns), Irrigate Efficiently, Mulch, Use Appropriate Plants, and Maintenance. Some would add, keep your sense of humor as an eighth point. I'll take each of these points and relate them to growing vegetables. Adopt the mindset of a Xeriscape way of thinking and learn creative ways to grow water wise vegetables (yes, sometimes through trial and error).

Planning and Design

Containers simplify the use of all the seven principles. They offer us efficient use of space and water. We can design a pleasant spot, with a convenient and comfy place to sit and enjoy our container plants. Know your north, east, south and west. Vegetables like sun – about six hours a day – however, here in our intense sunlight, leafy crops appreciate some afternoon shade. Containers allow flexibility in how they are arranged: on a patio or deck, closely combined for convenience, or quickly moved under cover from that impending hailstorm.

Soil Improvement

Containers provide the ability to control the soil you use. Much simpler than amending the top soil, you can create your own perfect soil for the container. The best mix is 1/3 homemade compost, 1/3 vermiculite, and 1/3 peat moss. Making your own compost is the best way to avoid the salt build up in most commercial composts. This soil mix is very light, an advantage for containers you may wish to move, and it provides a soil with plenty of space for oxygen, water, roots and nutrients to work together. Barbara Damrosch, who, with Elliot Coleman, runs the year-round Four Seasons Farm in Maine, says, "Organic matter, decomposed in the compost process helps the soil become more drought resistant." Exactly what we are trying to accomplish. Soil that will hold water but not become saturated, soil that allows room for roots to expand, and soil that is easily worked and weed seed free makes the gardeners work easy.

Limit (Edit)

In a water-wise landscape, we limit the amount of lawn area to what we need or want. If we have pets, children or grandchildren, most of us want a little bit of lawn. We can carefully choose the type of grass to make a water smart choice. With vegetables, we want to be smart with our choices. Grow only what we will eat. If your family hates beets, skip those. If they love beets, read the seed packet and choose the 54-day variety, not the 80-day, seed to harvest. Less time in the soil means less water used for that plant. Another factor easily accomplished in containers is to eliminate the concept of rows for vegetables. Plant densely, providing a living mulch. David Salman, from High Country Gardens, says about growing water wise vegetables, to follow three key ideas: Use water harvesting (I'll cover this more under irrigation), improve the soil and its water holding capacity, and use containers with high density planting for high efficiency and production (we'll go over that under mulch). An edited, simplified arrangement of containers, growing what you will eat and including pretty flowers for pollinators and beauty, will provide you with food and function, right outside your door.

Continued on page 10

Continued from page 9

Irrigate Efficiently

Efficient watering is not wasteful, it's keeping the water available to the plants. Vegetables like soil that is consistently moist, rather than extremes of dry or soaked. Drip irrigation kits can be purchased or designed to use in containers. Self-watering options can be purchased or made at home. I have several nested five-gallon buckets with a water reservoir at the bottom and a channel for the soil to wick the water up into the plant's roots, where it needs it most. Water is poured into a PVC pipe tube that goes directly into the reservoir, ready to be absorbed by the plants. These make it convenient to water less frequently, and leave home a few days, knowing your plants will be consistently watered. With the right soil, and wise methods, we avoid the waste of over-watering. Water harvesting can be achieved through rain barrels or catching rain water. I also like to think of all the ways we waste water in the house. A pan of dish rinse water? Carry it outside to the containers. Water left in someone's glass? Pour it on the container right outside the back door. Pasta water or water from the vegetable steamer (no salt!) can be cooled and poured on the plants, or at least dumped in the compost. Think of water waste in your home, and ways that can be harvested.

Mulch

Did you know four inches of mulch equals one inch of rain? In the summer heat, when our plants look like they desperately need a drink, perhaps what they need most is a layer of mulch to prevent evaporation and drying out. Wind desiccates plants quickly, and a deep layer of mulch helps them retain the moisture they need. Also, in containers, the mulch materials are less likely to blow away. The best mulch is homemade compost, but you can also use straw, pine needles (they won't decompose into the soil for a very long time, so they are useful as a top-of-the-soil mulch), dried leaves, grass clippings (watch out for matting, stir them to loosen up and allow oxygen through), and moistened peat moss or coir. Close, densely grouped vegetables shade the soil for each other, creating their own little micro climate of protection.

Mulch in the vegetable garden

Appropriate Plants

We already touched on this, choosing plants with the shorter seed to harvest times. Some seed packets will specify lower water use, watch for that. Put the time and water use into plants that you will eat. When growing leafy greens: lettuce, spinach, chard, leafy cabbages, kale or sorrel, plan to eat the baby leaves. At two, three or four inches, the leaves are tender and sweet, and if you cut just the outer leaves, new leaves will grow in their place. Tomatoes and peppers do very well in self-watering buckets. Grow appropriate to the season. Cool weather plants do well in early spring or fall and are a challenge in summer heat. Warm season crops struggle to survive in spring and late fall when our variable temperatures are too much for them. CSU Extension Garden Notes #720, Vegetable Planting Guide, and # 724, Vegetable Gardening in Containers, are good resources as you choose your plants. And, always, remember to plant some flowers in with them. Annuals like marigolds, alyssum, nasturtium, pansies, violas, and herbs like basil and borage provide pleasing scents as you sit and enjoy your containers. They also provide food for pollinators and health for your veggies. Tami Hartung, from Desert Canyon Farms, says, "We have almost no squash bugs or flea beetles because of the wide variety and large quantity of plants that attract pollinators and birds." This can be achieved in containers, too, if you remember to always plant flowers with the vegetables.

Maintenance

This is the simplest task. With soft soil, weed seeds are easily plucked when they are tiny. More importantly, you may not have any weed seeds, as the soil is not harboring weed seeds that last "forever." Daily tasks involve clipping the lettuce or spinach or tiny chard and a tomato for your daily salad. Don't forget sitting in your comfy patio chair, a mug in one hand (of whatever you choose), recipe plans in your head, listening to the birds sing and the wind rustle the leaves.

Sense of Humor

Audrey Hepburn said, "To plant a garden is to believe in tomorrow." I love that quote, full of hope and confidence and courage. Not everything, though, will succeed. Plants will struggle or fail. But if we keep an attitude of adventure and experimentation, we discover new methods, new plant varieties, and a fun perspective toward growing our food, and being water-smart while we do.

Fire Restrictions

By Tom Laca, Agriculture and Natural Resources Agent, CSU Extension-Pueblo County

The persistence of warm dry weather throughout the winter and spring not only lead to multiple fires in the area, but also the imposing of fire restrictions to try and limit the potential for human caused fires. These fire restrictions may be confusing at times as to what is allowed and what is not, but just remember they are there to protect all of us in a time of high fire danger.

Heavy fire damage, complete destruction

Currently, all fire restrictions have been lifted in Pueblo County. With that said, the fire danger still remains very high and caution should be used whenever you are working around flammable materials. Even with the recent moisture we have received the moisture levels in many of the fuels remains quite low. Activities that create a spark or involve any type of flame should be done with extreme caution.

The County Sheriff for each county is, by statute, the Fire Marshal and has jurisdiction over all fire bans. Any decision made by the sheriff is normally done under the advisement of the local Fire Chiefs. Statewide most of the fire restrictions put into place will follow those of the Colorado State Division of Fire Prevention and Control.

Continued on page 12

Continued from page 11

Cows in a burned area

restrictions and spread to be the third largest fire in acres burned in Colorado history. This is just another reminder of just how dangerous fire can be in these conditions. I have included a few pictures of the destruction that I witnessed while touring the burn area. Please be careful with fire and have a safe remainder of your summer.

They have a great web page explaining the stages of fire bans and what is not allowed. That web page is: www.colorado.gov/pacific/dfpc/fire-bans-and-restrictions

I recently had the opportunity to go and assist the Extension Agent in Huerfano County with damage assessments following the Spring fire. This fire is reported to have started by an illegal burn under the burn

Post fire run-off following a small rain shower

CSU Extension in Pueblo County will be taking applications this fall for the 2019 Colorado Master Gardener training class!

- Classes start in January
- 10 week training class (half in person on Thursdays, half online)
- Volunteer track is $185 and 50 volunteer hours (background check and references required)
- Colorado Garden Certificate (no volunteering) track is $530
- Contact us to get on our email list and stay informed on when applications come out

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