West Greeley Conservation District Board of Supervisors:
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Pam Wright—Community Outreach/Education Technician
Paul Conklin—Houston Gardens Manager
WGCD Programs
- Cost Shares
- Educational Workshops
- Equipment Rentals
- Scholarships
- Seedling Tree Sale
- Youth & Teacher Education

Resources
- **Colorado Department of Agriculture** - brand inspections, private pesticide licensing, State Veterinarian, meat processors and handling carcasses, conservation services, etc: http://www.colorado.gov/ag
- **Colorado Division of Parks & Wildlife** - http://wildlife.state.co.us/Pages/Home.aspx
- **Colorado Division of Water Resources** - http://water.state.co.us/Home/Pages/default.aspx
- **Natural Resources Conservation Service** - http://www.co.nrcs.usda.gov/
- **Small Acreage Management** website - http://www.ext.colostate.edu/sam/
- **Weld County CSU Extension** - http://www.co.weld.co.us/Departments/CSUEXTENSIONWeld/index.html
- **Weld County Weed Division** - site visits and cost share programs: 970-304-6496 x3770/ http://www.co.weld.co.us/Departments/PublicWorks/WeedManagement/index.html
- **West Greeley Conservation District** – 970-356-8097 x3/ www.wgcd.org

If you are interested in receiving the small acreage message of the month, please contact Megan Lowery at 970-356-8097 x3 or megan.lowery@wgcd.org.

For more information on programs offered by West Greeley Conservation District, please visit our website at www.wgcd.org.

**Vision Statement:** The WGCD will be a leader in natural resources education and outreach. The WGCD will also be the primary provider of natural resources information and service to the citizens and stakeholders of the WGCD.

**Mission Statement:** The WGCD will combine education and landowner support to:
- Fully support conservation planning that promotes local, agronomic, and economic sustainability through wise land use;
- Provide quality experience for stakeholders;
- Conduct fundamental implementation of the mechanisms associated with natural resource systems through cost share and educational programming;
- Provide innovative outreach to citizens and stakeholders;
- Investigate, record, and disseminate information about WGCD’s natural resources;
- Promote a comprehensive conservation ethic for the effective and appropriate management and sustainable use of natural resources;
- Actively participate in local forums designed to promote comprehensive resource management within the WGCD.
debris accumulate in lawns. North-facing lawns, shaded areas, snow plow deposits, and areas where drifting occurs are more commonly affected.

The fungus is active in temperatures just above freezing but as the lawn dries out, the fungal growth slows. A circular patch with a moldy appearance indicates an actively growing fungus. With the exception of young seedlings, the disease rarely kills lawns and fungicide applications are not needed.

To speed your lawn’s recovery, simply remove dead and matted material by lightly raking the area to improve air flow and promote drying. A light spring nitrogen fertilization will speed growth of new grass, however if you have a weed problem be wary to nitrogen fertilization as this may just promote your weed issue. Lawns that appear slow to recover may benefit from aeration in the spring.

2014 Conservation Messages

January: Firewood Collection & Storage

Brrrrrr... It’s cold out. I don’t know about you, but I would sure like to curl up on the couch by the fire with a good book. A real fire with that lovely wood smoke scent... But this time of the year, we are often plagued by firewood pests. In most cases, insects in Colorado firewood aren’t capable of infesting household furnishings and won’t survive indoors. The best way to keep these pesky critters from entering your home is simply to store your firewood outdoors until it is needed. Outdoor storage will also greatly slow insect development during the winter. It is recommended that firewood piles be located at least 30 feet from your home and other structures and preferably uphill for fire protection. More often the threat is from infested firewood infecting nearby healthy trees.

The purchase or collection of firewood from local sources will greatly help in preventing the spread of insect pests. In addition to Colorado insects, exotic pests such as emerald ash borer, gypsy moth, Asian longhorned beetle, Sirex woodwasp, and the water mold which causes sudden oak death can be transported on or in firewood. Therefore it is important to purchase firewood from a local source as we want to keep these pests out of Colorado. If you must transport firewood, then allow for an adequate drying time (at least one year). This not only improves the quality of the firewood but also helps to kill insects and pathogens.

Wood borers are the most commonly observed insect infesting firewood. These insects are more a nuisance than a threat to you or your property. The larvae produce a chewing noise and piles of sawdust that can be

December: Snow Mold in Lawns

“Do you want to build a snowman?” I recently told my daughter that we could build a snowman...as soon as it snows. Although it took a while for a good snow, it finally came. While we may appreciate a warm winter with little snow, our trees, plants, and lawns may not appreciate the lack of moisture. But what happens when the snow stays around too long?

Gray snow mold is common in lawns along the Front Range. It is caused by the fungus Typhula incarnate. Snow mold occurs following long periods of snow cover or where leaves and

hoof inflammation.

Finally, a horse’s respiration can indicate problems. A normal range of breaths per minute is 10-18. Observe the flaring of the nostrils or the rise and fall of the animal’s chest and count the breaths taken in 30 seconds then multiply by two to determine breaths per minute. An elevated respiratory rate may be the cause of pain, shock, lung problems, or heat exhaustion while a low rate may be due to shock, hypothermia, good physical condition, or the effects of drugs.

It is important to keep records on each of your animals so you know what is normal and abnormal for each individual. Horses are just like us, there is a normal range of variability and proper record keeping will help you determine if and when there is a problem. Also keep track of each animal’s vaccinations, medications, deworming schedule, farrier care, feed, etc. Also log any injuries and illnesses, noting when they occurred and how long it took the animal to heal. Proper record keeping will give you intimate knowledge about the health of each of your animals.

Especially loud and frequent sounds may mean the animal is suffering from mild colic caused by the accumulation of gas or intestinal spasms. Note, intestinal sounds may be loudest just before feeding time so schedule your check accordingly.

The color of a horse’s gums can show signs of proper blood circulation. A horse’s gums should be light pink or yellow-pink in color. To check an animal’s gums, lift the animal’s upper lip and look at the tissue just above the teeth. Gums white in color are a sign of anemia or shock. Gums dark in color may be the result of severe shock or toxemia meaning the heart is not pumping properly or blood is pooling in the gum’s blood vessels.

While checking an animal’s gums, you can also check the animal’s capillary refill time. This is done by raising the upper lip and pressing firmly on the gums above the teeth. Once you remove pressure, count the seconds for the gum to return to its normal color. In a healthy horse, this should take no more than three seconds. A slow capillary refill time can indicate that an animal’s circulation isn’t functioning properly.

Another indicator of general health is the resting heart rate. This depends on your horse’s fitness level and ranges between 28-44 beats per minute. To determine heart rate, place a stethoscope against the animal’s chest under the left elbow. For 15 seconds, count the number of beats then multiply by four to get the beats per minute. Heart rate can be an indicator of shock, poisoning, and hypothermia among other health conditions.

An animal’s pulse can indicate a disruption of blood flow or hoof inflammation. To check a horse’s pulse, place three fingers on the inside of the animal’s fetlock joint and rest your thumb on the outside of the joint. Then apply gentle pressure and slide your fingers around until you feel a small cord like structure slip under your fingers. A weak pulse is probably nothing to worry about, however a strong pulse indicates an abnormality. The stronger the pulse, the higher probability of suggestive of termites which is obviously disconcerting. Furniture and other seasoned woods are not suitable for wood borer attack, thus there is no threat. In all actuality, borers help to speed up the drying process and promote better burning of your firewood.

People are also often concerned with the introduction of ants and termites with firewood. Carpenter ants nest in rotting, water damaged wood. These types of logs are rarely utilized as firewood; therefore carpenter ants do not pose a threat. Termites in Colorado nest underground and under natural conditions rarely infest firewood and timber products. Additionally, the low humidity in Colorado homes would quickly dry out and kill any rogue termites found in your firewood. As a side note, Colorado termites do not produce sawdust.

A couple of species that can infest structural wood and household products include powderpost and anobiid beetles. This is not a common problem in Colorado; rather most problems are associated with infested wood products from the Eastern states. Signs of an infestation include fresh piles of fine sawdust and small round holes (1/32- 1/8 inch diameter).

Bark beetles are often found in dead and dying trees and thus end up in firewood. Bark beetles include the well know mountain pine beetle, elm bark beetles, and Ips beetles. The threat here is from infested firewood infecting healthy nearby trees. If you have journeyed to the mountains in the last few years, then you have observed that Colorado is currently in a severe mountain pine beetle epidemic. Mountain pine beetle has infected many trees east of the mountains and foothills, often from the transport of firewood. You will be happy to know that bark beetles cannot reproduce and infest household wood products.

To reduce insect infestations in firewood, stack wood to allow air flow through the pile. Well dried wood will discourage bark beetle attack plus the drying process will kill many of the
developing bark beetles already present. When using firewood known to harbor mountain pine beetle or other undesirable species, it is best to burn the wood before the beetles emerge in mid-July (mid-May for elm bark beetles). When choosing trees to utilize as firewood, it is best to choose trees that have been dried for at least one year or that have noticeably loose bark. This will help to limit collecting and transporting infested wood.

Another way to limit the insect population of your wood pile is to cover small piles located in the sun with a clear plastic tarp. The tarp will generate high temperatures killing many of the insects. Control will be effective at the top of the pile but may be ineffective in the lower logs. Hence smaller piles generate more effective control. A more effective means of killing firewood insects is to remove the bark. Debarking the logs will also prevent re-infestation and speeds the drying process.

You should also be aware of wildlife and wildlife trees when collecting firewood. Many dead trees or snags are beneficial for wildlife for perching, nesting, dens, and as a food source. These wildlife trees can often be identified by the presence of cavities.


scrubs. Pumpkins can also be utilized in decorations other than the traditional jack-o’-lantern. A cleaned out pumpkin works great as a vase or drink bowl just insert a container inside the pumpkin and fill with water or ice respectively. Pumpkins can be made into floating candles or air fresheners.

Additionally, pumpkins are often fed to livestock and domestic animals. Canned pumpkin is often recommended for cats and dogs as a dietary supplement as the high fiber content aids in proper digestion. Raw pumpkin fed to poultry in the winter helps maintain egg production during the cold months.

The uses of pumpkins are endless and this is the perfect time of year to utilize this vibrant vegetable!

November: Equine Vital Signs

It’s cold and flu season and illness is running rampant in our schools and places of work. But what about the health of our animals? Do you know how to gage the health of your livestock, particularly horses?

It is important to be familiar with your animal’s vital signs. There are seven vital signs that you as a horse owner should be familiar with in order to better detect abnormalities or illness. Temperature is an easy vital sign that you as an owner can take regularly. The normal temperature for a horse ranges from 99.5-101.5°F. A low temperature can indicate hypothermia due to exposure or shock, while a high temperature may indicate heat exposure, infection, pain, or exertion.

Those rumbles and gurgles coming from your horse’s gut can actually tell you a lot about the animal’s digestive condition. On average, you should hear 2-4 small gurgles per minute and one large rumble every 2-3 minutes. It is best to use a stethoscope and listen at the four locations on the horse’s flanks for at least a minute. A lack of intestinal sounds may mean there isn’t any gut movement indicating severe colic or shock.
**October: Pumpkins**

It’s October and I have pumpkins on my mind. I love this time of year when the colors change and the holiday season is upon us (for me it starts with Halloween). There are so many great things to do with pumpkins, you can carve them or paint them, bake them into all sorts of wonderful treats, or roast the seeds.

Pumpkins are a warm season vegetable that need a lot of room to grow and full sun. Pumpkins do well in Colorado’s climate and can be a fun vegetable to grow for the whole family. Pumpkins are a deep rooted plant needing infrequent, deep watering. Pumpkins should be planted in late May and will be ready for harvest when the skin has toughened and the stems are dry. Pumpkin crops may suffer with lack of water or cold temperatures. However, pumpkins are a relatively hardy plant and will regenerate growth if portions of the plant are damaged.

The vibrant orange color of pumpkins signifies the presence of beta-carotene. Beta-carotene is a powerful antioxidant which can reduce the risk of cancers, heart disease, and promote eye health. Pumpkin is also a low calorie, low carbohydrate, good fiber food. Pumpkins are versatile when it comes to cooking as most parts of the pumpkin are edible, including the shell, the seeds, the leaves, and the flowers.

Often the pumpkins which make the best jack-o-lanterns are too stringy and watery to make a good pie filling. However, these pumpkins are perfect for seed roasting. Pumpkin seeds are an excellent source of protein, magnesium, copper, and zinc. When we think about cooking/baking pumpkin, we often just think about pies but pumpkin can be used in cakes, cookies, breads, dips, spreads, soups, and so much more. You can even turn your pumpkin into a crock pot for stuffed pumpkin recipes.

Other fun uses for pumpkins include skin care. Pumpkin is great for skin clarity and can be added to lotions, masks, and

**February: Raising Pigs**

Pork is the most widely eaten meat in the world, so why not raise your own pigs for meat? Raising just two hogs a year would provide enough pork for meat purposes to support a family of four. Raising pigs is relatively easy and can be a fun family project. When done right, you can put pork in the freezer cheaper than grocery store costs plus you get the added satisfaction of producing your own meat.

As with any animal, food, water, and shelter are the primary requirements to raising healthy pigs. Pigs don’t require much space, just six square feet inside and six square feet outside for a single growing/finishing pig. While this is a minimum, pigs should be given more room to roam if possible. Shade is very important for pigs! Pigs only have sweat glands on their snouts, will sunburn easily, and over heat quickly, thus shade is vital. In very hot weather, it may be necessary to wet your pigs down to avoid heat exhaustion.

It is best to provide self-feeders for food and water so pigs have access to food and water at their convenience 24 hours a day. A pig will drink approximately 1-2 gallons of water each day so keep an adequate supply of water available to your pig. Again a self-water or automatic water is best as an open water bowl, trough, or bucket will likely be up turned and become a toy. Be prepared that feed costs will represent 70-75% of a hog’s production costs. Mixed feeds are available for the various stages of growth (i.e. starter, grower, finisher). Your pigs will also welcome table scraps and garden waste, but do not feed raw meat to your pigs. It is important to note that table scraps should not be a substitution for commercial feed rather a treat. In approximately 100 days with constant access to feed, a 50 pound pig will reach market weight (~250 pounds).

As with all livestock, fencing is an important consideration. Pigs are clever and will take any opportunity to
escape especially as they are natural excavators. A permanent woven wire fence with a board at the bottom to discourage digging is a suitable option but other options such as electric fencing work too. Contrary to belief, pigs are actually pretty clean animals. They will designate areas within their pens for eating, sleeping, and manure and a dry, clean pen will reduce odors.

When selecting a pig to finish, purchase a weaned pig, eight weeks old, weighing approximately 40-50 pounds. Lighter pigs tend not to do so well in cooler weather. For a finisher pig, you want a gilt (young female pig) or a barrow (castrated male pig). Avoid an intact boar (male) as they often produce a ‘boar taint’ or an off taste to the meat. It is best to raise at least two pigs at a time. They need friends just like the rest of us and tend to not grow as well when raised alone. There are many commercial carcass breeds of hogs available (i.e. Hampshire, Duroc, Berkshire, Poland China, and Spotted). Carcass breeds are considered to produce higher quality meat but most breeds can be raised for meat.

When your pig is about six months old or weighs approximately 220-280 pounds then it is ready for market. Be prepared to transport your pigs to market, a horse trailer works well for this task. When moving pigs, patience is the key as they don’t like to be pushed. It is always a good idea to check the availability of your meat processor. It may be necessary to book a processing date for the projected date as opposed to waiting until the animal actually weighs market weight due to your meat processors busy schedule. On average a 250 pound market hog will translate into approximately 140 pounds of meat for your freezer. Pork it’s what’s for dinner!


however it will prevent weed growth. The black plastic can be laid down once the clear plastic has been removed to get the benefits of both. Other types of mulch can also be implemented including straw, bark, or wood chips.

Late in the season, many forms of temporary protectors can be utilized to extend the season. A portable greenhouse with no bottom can be set over small gardens to insulate the air and maintain the soil temperature. Any covering system should be well ventilated to prevent overheating. Smaller protectors can be used for small individual plants. Transparent waxed paper or empty plastic milk jugs are common household items that can be used for individual plants. Always remove these implements on warm, sunny days to prevent overheating. Windscreens and light reflectors can also be utilized for wind protection and concentrating the sun’s light and heat in a given area.

Water is an excellent insulator and releases heat slowly. You can bury the bottom of a gallon jug of water on the north side of each plant. During the day, the water will warm and at night the heat will be released into the soil and the air surrounding the plant. Heavy solid objects, such as bricks, concrete blocks, and rocks will also absorb heat in the day and release it back into the soil during the cool nights. Again the key to extending the life of your garden is to keep the soils warm!


growing season. The soils, warmed by the sun and daytime heat, are the main protection against frost and moist, smooth soils absorb more heat.

Before the growing season even begins, it is important to know your local climate and vegetables. A small increase in temperature can have a big impact because plant growth doubles in speed for every 18°F increase in temperature. Thus special attention should be given to selecting a garden site. If possible, it should be protected from wind, unshaded, and on the south side of a building or wall to reflect the light and heat. Another important consideration should be given in selecting vegetable species and varieties as certain varieties and species are better adapted to our climate. You wouldn’t expect bananas to produce well in Colorado, but lots of other species do very well, including tomatoes, peppers, squash, carrots, potatoes, and so much more.

The tried and true method of covering your plants with sheets or blankets is an excellent, cheap way to extend your plant’s life. This method works well as long as the material remains dry. In addition, the covering must be removed during the day to recharge the heat in the soils. Floating row covers are another option. These are lightweight fabric covers which transmit light thus they don’t require removal for recharge. Clear plastic coverings are another option, however the plastic must be kept off the plants. Plants will freeze wherever the plastic touches them, therefore some sort of frame is required to prevent contact.

Mulching is another simple technique you can implement to extend the growing season as the mulch warms or retains heat in the soil. To get a head start on the growing season, you can mulch your garden with a clear polyethylene film early in the spring. The film retains the sun’s warmth and can raise the soil temperature 10-15°F in just a few days. You simply remove the film when you are ready to plant. A black plastic mulch can also be used but it won’t warm the soil as much as the clear plastic.
1/8 inch wide. The larvae are a flathead borer, pale in color, and feed by chewing the cambium of trees. The cambium is the layer beneath the bark and is responsible for the growing thickness of a tree. The larvae creates a tunneling system in the cambium which produces girdling wounds that interfere with the movement of water and nutrients vital to the trees health. Following transformation from larvae to the adult form, the borer chews through the bark to emerge from the tree making a D-shaped exit hole. This D-shaped exit hole is unique to metallic wood borers, of which the emerald ash borer belongs, and may be the best indication of a possible infestation.

The borer has a life cycle which takes one year to complete. Eggs are laid on the surface of an ash tree and hatch in approximately a week’s time. The newly hatched larvae then burrow into the bark and feed on the tissues beneath the bark. The larvae create meandering galleries as they feed until they prepare to overwinter by tunneling even deeper into the tree. In spring the larvae will transition to the pupal stage in which it will morph into an adult. The adult emerges from the tree forming a D-shaped exit hole in early to mid-May with peak emergence in June. After a week of feeding on ash leaves, the beetles will mate and the cycle begins again.

The adult beetle can fly very short distances to several miles during favorable winds. However, transport of infected firewood or other ash wood materials will hasten the spread. This is likely the cause of the Boulder outbreak. National quarantines of ash wood materials from infested counties are in place to prevent or decrease the human assisted spread of emerald ash borer.

The big questions with the impending arrival of the pest to northern Colorado are: can your trees recover from the emerald ash borer and can you prevent the pest from infecting your trees? Up to a point, trees can recover from emerald ash borer damage. As long as the tree is still relatively healthy, Visual barriers made from burlap or windrows have been shown to slow the spread of expansion but can be costly in construction and maintenance. Shooting can be effective in February and March as it disrupts the reproductive activities of the prairie dogs however shooting alone is not an effective option for elimination but serves more for recreation. There are several options available for poisons and baits, however most of these pesticides are restricted use pesticides and should be applied by a professional. Poisons and baits are restricted to avoid the unintentional killing of other wildlife species.

Unfortunately the elimination of prairie dogs does not guarantee the recovery of a system to a productive rangeland. To speed the recovery of a prairie dog town to a natural landscape, it is best to level the mounds. It is important to exclude grazing animals from the area for at least one growing season in order to allow the grass and root system to recover from the disturbance. You may also need to reseed the area depending on the amount of bare ground and how well established the prairie dog community was. Generally prairie dogs won’t thrive in tall grass or well vegetated areas, thus it is important to maintain a healthy plant community through proper grazing management to avoid reinvasion of prairie dogs.


September: Extend Your Growing Season

The days are getting shorter and the nights are getting colder; fall is fast approaching. This means that our growing season and all those fresh fruits and vegetables from our home gardens will soon end. However, there are ways to extend the
There are three species of prairie dog found in Colorado: black-tailed prairie dog on the eastern plains, Gunnison prairie dog in the southwestern portion of the state, and the white-tailed prairie dog in the northwest portion of the state. Prairie dogs are large burrowing ground squirrels that form colonies or prairie dog towns. They live in burrows approximately 10 yards apart, 3-14 feet deep, and 10-100 plus feet in length. A mound at the entrance of the prairie dog’s home prevents water from rushing into the burrow and serves as a lookout station. A prairie dog’s burrow will have one to three entrances.

Prairie dogs are only active during the day. The local black-tailed prairie dog is the only species in Colorado which does not hibernate. Rather the black-tailed prairie dog will stay below ground for several days in inclement weather. Prairie dogs have one litter annually in March or April with 3-8 pups. In late spring, year-old juveniles and some adults migrate looking for new homes. Generally prairie dogs travel less than two miles when searching out a new home but can migrate up to six miles.

Prairie dogs serve an important component in the ecosystem. Prairie dog burrows serve as important habitat for several species including burrowing owls, cottontail rabbits, rattlesnakes, and others. Prairie dogs are also a major food source for many predators including the endangered black-footed ferret, badgers, coyotes, foxes, prairie falcons, ferruginous hawks, eagles, and owls. In addition, it is stated that the burrowing action of prairie dogs decreases soil compaction, increases water intake, aerates the soil, and promotes soil formation. However, prairie dogs also damage the productivity of rangelands and can harbor the bubonic plague.

There are several methods for prairie dog control including trapping, barriers, hunting, poison baits, and fumigants. Prairie dogs can be captured with cage traps, flushed from burrows with soap and water, or vacuumed from their burrows; however these are all relatively expensive removal methods.

Emerald ash borer control using insecticides can be effective. If more than 30-50% of the canopy has already been lost, then it is probably too late to save the tree. Control of the borer on a large scale is problematic, however damage to individual ash trees can be limited with the use of insecticide treatments. These insecticide treatments must be applied on an annual or biannual basis and are applied to the soil for root uptake, as a spray on the lower trunk, or injected into the base of the tree. These insecticides work systematically meaning that the insecticide must be transported throughout the tree in order to impact the larvae as they feed.

If you decide to treat your trees to protect them from the borer, then the next question is when should you begin treatment? This is mostly an educated guess based on the location of the current known infestation. Based on known information in 2014, the borer has only been found within the city of Boulder and the overall population still appears to be low. Thus for 2014, areas within a five mile radius of the infested area are recommended for treatment of individual trees. As treatment is an annual application, there is not much benefit in treating trees prior to the arrival of the pest in your area. To keep informed of the spread of the emerald ash borer check www.eabcolorado.com on a regular basis.

Unfortunately, once the emerald ash borer becomes established in an area, it will remain as long as ash trees remain. Thus continued treatment will be necessary for the remainder of the tree’s life span. At this point, as ash trees perish either naturally or from the emerald ash borer outbreak, it is probably a good idea to plant a new species in place of the ash.

It is extremely important to identify new locations in which the emerald ash borer is found. If you suspect an emerald ash borer population contact your local conservation district, city forestry personnel, Colorado State Forest Service office, or CSU Extension office for confirmation. There are several insects that
resemble the emerald ash borer in appearance or that damage ash species in Colorado so it is important to contact these agencies for confirmation. Check out the Colorado emerald ash borer website (www.eabcolorado.com) for current information and assistance regarding this new pest.


April: Stinging Insects: Bees & Wasps

It is starting to get nice outside and the bugs are stirring. Throughout the summer months bees and wasps can be a nuisance, but not all bees and wasps are equal. Some are beneficial in pollination and predator control of pest insects. It is important to know which kinds of bees and wasps you have in your area.

Honey bees (Apis mellifera), see photo to the right, is generally what comes to mind when one mentions bees. The honey bee produces a persisting colony which survives the winter. Honey bees are exceptional pollinators and are vital instruments in the agricultural community. The honey bee is not an aggressive species however they will readily defend their colony. A honey bee swarm can be ominous in appearance. A swarm occurs when a colony has grown too large and subdivides to establish a new colony. Most swarms occur on sunny

Some weeds species that goats will eat include: Canada thistle, cheat grass, Dalmatian toadflax, knapweeds, leafy spurge, loco weed, musk thistle, poison ivy, purple loostrife, scotch thistle, yellow star thistle, and many more. The anatomy and special enzymes in the goat’s stomach allow them to consume plants that are poisonous to many other grazing animals. Another advantage is that goats eat year round but control timing will depend on the species you are trying to control. For example, the best time to control Canada thistle with goats is when the plants are in full bud stage before they flower.

Depending on your operation, goats may be the answer to your weed control problems. Due to the small stature of goats, they are often a great resource for weed control in tight spaces where you may not be able to access with a tractor, mower, or four-wheeler. Thus goats are a great control measure on many small acreages.


August: Prairie Dog Control

Earlier this month we had a prairie dog visit our temporary office. The door was propped open and the little guy just ran right in the door. Love ‘em or hate ‘em, prairie dogs are a common occurrence in Weld County and across the state. These little guys provoke strong opinions in many across the state.
mow the weeds down but this takes time and energy on your behalf. And let’s be honest who wants to mow acres upon acres in the heat of the summer? Goats for weed control may be a viable option.

Goats are browsers meaning they eat many non-grass plants (forbs, shrubs, even trees). Many of the weedy species land managers wish to control are forbs. Thus goats are a great resource for controlling weeds. Goats can be a more sustainable alternative to weed control compared to chemical use. However, when utilizing goats as a management tool, proper timing and management is important to avoid a headache. Similar to mowing, goats control weeds via continued defoliation. But unlike mowing, a goat will first eat the flower head then pick off the leaves, leaving the main stalk unimpacted. A plant will become stressed following defoliation if not given time to recover. The idea is to stress the plant forcing it to use its root carbohydrate reserves. With repeated defoliation, the plant utilizes all its resources to continue to grow green leafy material and try to produce seed, which seriously stresses the plant and increases the chance of mortality. This is the same concept with any grazing animal and all plants, except here we are trying to stress the plant. Just like all grazing management plans, proper timing and stocking rates are vital to the success of the plan. Because you are trying to stress a plant, a higher stocking rate for a short period is more effective. As with most biocontrol options, several years of grazing is often needed for goats to fully control the weeds.

Goats are pretty wily critters, thus fencing is a very important consideration. Other factors will impact whether a goat will eat the targeted weeds, such as age, size, and personal preference. If available, the older males prefer such species as Russian thistle, Russian olive, and elm tree while young goats will often pick field vine weeds first. Thus a successful operation will have various sizes and ages of goats.

afternoons in May and June. If you see a swarm do not approach it but rather call the Northern Colorado Beekeepers Association swarm removal hotline at 970-213-3099. Most honey bee stings occur when people step on foraging bees or when bees become trapped in clothing. Unlike other bee and wasp stings, the honey bee has a barbed stinger. When the bee withdraws the stinger, a poison sac is left behind and the bee will die. In recent years, the Africanized honey bee has drawn much attention for its aggressive behavior. This is a tropical species and is poorly adapted to cooler climates thus it is unlikely to ever establish in Colorado.

Other bees include bumble bees and solitary bees. Bumble bees (Bombus spp.) are larger than honey bees and are very fuzzy. Bumble bees are often found in abandoned rodent burrows and other small hollow spaces. Bumble bees are often feared simply due to their large size. Solitary bees include leafcutter bees, digger bees, acute tongued burrowing bees, and sweat bees. These solitary bees use existing holes, dig burrows in the ground, or excavate holes in rotten wood or plant stems. Solitary bees are not aggressive and stings are mild. The most common stings occur when sweat bees are swatted. Sweat bees as the name implies are attracted to moisture and sweat.

Several wasp species are social insects, producing a colony. Colonies begin very small early in the season and grow rapidly throughout the summer. They produce nests made of paper and consume insects thus they are not important pollinators. Wasps produce a painful sting, but do not leave the stinger embedded as does the honey bee. Yellowjackets, hornets, and paper wasps are all social wasps. Hornets (Dolichovespula spp.) produce large conspicuous paper nests in trees, shrubs, and building eaves. Paper wasps (Polistes spp.) make open cell paper nests generally under building overhangs. The European paper wasp, see photo to the left,
(Mischocyttarus flavitarsus) often nests in many locations around the yard (i.e. outdoor grills and metal gutters and poles). This habit of nesting in man-made sites has increased the incidence of stings. In addition to social wasps, several species are solitary including hunting wasps (Sphecidae family) and spider wasps (Pompilidae family). With the exception of spider wasps, the sting of solitary wasps is relatively mild.

Yellowjackets (Vespula spp.) are often mistaken for honey bees as both are banded yellow/orange and black. Yellowjackets generally nest underground in existing hollows with a small and inconspicuous entrance. The western yellowjacket (Vespula pensylvanica), see photo to the right, is estimated to cause 90% of ‘bee stings’ in Colorado. The western yellowjacket scavenges dead insects, earthworms, and other carrion including garbage. This scavenging habit is often the cause of human conflict.

If wasps are not causing a problem, then it may be best to wait until the nest is abandoned in the fall. Active nests that cause problems can be controlled using an insecticide. Insecticide applications are most effective when applied in the late evening or cool periods in the early morning when most wasps are in the colony and don’t readily fly. Ground nesting yellowjackets can be difficult to control due to a small nest entrance hole. Repeated applications of insecticide is generally required for a well-established nest site. Control is best accomplished early in the season when colonies are still small. The commonly sold wasp traps are only effective against yellowjackets. These traps can be helpful early in the season (June and early July) when colonies are not fully established.

If stung, it is important to know what stung you. Only the honey bee will leave the stinger embedded in the skin. If stung by a honey bee, remove the stinger as soon as possible as additional advantage in establishing a grazing program. Depending on the size of your operation, you could graze a single pasture twice in a growing season to utilize both types of grasses. Or in larger operations you could seed separate pastures to warm and cool season species. In the early spring you would utilize the cool season pasture/s and in the heat of the summer you would use the warm season pasture/s.

No matter your grazing plan, it is vital that enough photosynthetic material remain for regrowth. If heavy defoliation occurs, a plant’s regrowth potential is diminished and root growth is negatively impacted. This makes a plant less competitive and more susceptible to drought. Grasses can withstand greater defoliation during early and rapid growth stages because with a rest period they have an opportunity for regrowth. The take half, leave half principle is a common method for determining when to move your animals. But it is important to always leave approximately four inches of grass to allow for adequate regrowth opportunity. Thus wait until your grass is 8 inches before grazing or if you graze at 6 inches then pull the animals off once they have grazed 2 inches, leaving 4 inches.

It is important to have a flexible grazing management plan that allows for rest following grazing and movement of animals through pastures. Each year’s conditions are unique as the result of precipitation, climate, insects and wildlife, and number of grazing animals. Always base your decisions on on-the-ground monitoring results, not on a predetermined date.


July: Goats as Weed Control

Weed control is generally accomplished in the spring or fall months with chemical. So how do you control your weeds in the heat of the summer? Many people simply
Cool season grasses or \( C_3 \) species are those that grow during cooler times of the year. These include many wheatgrasses, needlegrasses, brome species, and bluegrasses. Cool season grasses grow when temperatures are 40-75°F. Thus they begin growth in early spring as soon as the soil temperatures are above freezing and daytime temperatures are conducive to growth. These grasses produce high quality forage early in the growing season. During the hot midsummer period, these species do not produce much growth and often become semi-dormant. Depending on species and temperatures, a plant may grow again in the fall as temperatures cool and late summer rains replenish soil moisture.

Warm season grasses or \( C_4 \) species grow during warmer periods when temperatures reach 70-95°F. Common warm season grasses include blue grama, buffalograss, and bluestems. Warm season species utilize soil moisture more efficiently than cool season species and are thus generally more drought tolerant. They also have a different leaf cellular structure which causes them to be more fibrous, contain more lignin, and be less digestible. Therefore, livestock generally prefer cool season species. However, because cool season species are entering the reproductive stage at the time that warm season species are beginning new growth, livestock will seek out the warm season species.

No matter which type of grass you have, new foliage or regrowth is always more digestible than more mature growth. This new growth or regrowth is often referred to as ice cream. Livestock will continue to graze a single plant to get at the tasty ice cream/new growth. Hence smaller pastures in which animals are rotated through the pastures is beneficial in protecting the health of your grasses.

A rangeland or pasture with both warm and cool season species has a longer season of green, palatable vegetation. Knowing your grasses and their physiology can be utilized to your advantage. The overall goal in soil management is to increase the organic content 4-5% over several years. This is often accomplished by adding organic matter (i.e. compost, manure, peat moss, straw, fall leaves). Organic matter encourages beneficial soil microbial activity and reduces soil compaction. In sandy soils, organic matter aids with water and nutrient retention. In clayey soils, organic matter glues the tiny clay fractions together.

May: Soil Amendment & Fertilization

Have you planted your garden yet? Have the recent snows & daily rain showers kept you from planting? Prior to planting your summer vegetable garden it is important to manage the soils for tilth and fertilization. Tilth is the physical condition of the soil related to its suitability to support plant growth. You may add compost or manure to improve tilth but you would still need to add fertilizer to improve nutrient availability for plants.

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particles into larger aggregates, increasing pore space. Increased pore space will increase soil oxygen levels and improve drainage.

When applying organic matter it is best to cultivate the amendment into the top six to eight inches of the soil. Anything less can lead to a shallow rooting system. Don’t leave compost in chunks as this will interfere with root growth and water movement. Do not plow woody material into your garden as it could result in nitrogen depletion. As the organic content builds over the years with repeated applications, the application rate should be reduced. A soil test is recommended every four to six years to establish a baseline content. Because manure and compost can be high in salts, it is best to add a maximum of one inch per season. Fresh manure should only be applied in the fall after crops are harvested due to health issues concerning *E. coli* contamination and fresh produce.

Nutrient release from manure or compost is very slow, often taking years. Due to the low levels of nitrogen in organic matter, the actual nitrogen release is not enough to support crop growth. Thus a fertilizer application is often needed in addition to the organic matter amendment. Nitrogen is the nutrient most needed in large quantities by vegetable plants. Thus in products containing multiple nutrients, the application rate is based on the nitrogen content. The application rate is important, because too little or too much will directly impact crop growth. The standard nitrogen application rate for a home vegetable garden is two pounds per 1,000 square feet (.2 pounds actual nitrogen per 100 square feet). Nitrogen needs vary with crop species so it is important to know which crops you will be planting. Beans, peas, tomatoes, and vine crops (i.e. cucumbers, squash, melons, etc.) have lower nitrogen requirements. Whereas potatoes, corn, and cole crops (i.e. broccoli, cabbage, kale, etc.) have high nitrogen requirements and need supplemental nitrogen applications throughout the growing season.

Phosphorus and potassium are also important nutrients for plant growth. Again, a soil test is the best way to determine the need for phosphorus and potash. Phosphorus and potash fertilizers are best applied in the spring or fall when they can be incorporated into the soil. Phosphorus and potassium levels are generally adequate in most established soils in Colorado. Deficiencies may occur in new gardens in which the organic content is low. Phosphorus deficiencies can also occur in more alkaline (pH 7.8-8.3) soils and potassium deficiencies can occur in sandy soils. Routine application of compost or manure will likely supply the crop phosphorus and potassium requirements. Excessive applications of phosphorus and potash can cause other nutrient deficiencies and increase the salt content in the soils.

The health, tilth, and fertilization of your garden soils will greatly impact the outcome of the crops you grow. A little bit of soil preparation work can greatly influence your crop yields so get a soil test and evaluate your soils!


### June: Warm vs. Cool Season Grasses

Grasses are the dominant species in any forage-based enterprise. Thus it is important to know a little about grasses to fully understand your hay and forage pastures. Various species of grasses are better suited to grow during different times. There are three important factors which affect grass response to grazing (frequency, intensity, and season). As grazing pressure increases, grass productivity typically declines.