



Boulder County Small Acreage Management Newsletter

Spring 2008

<http://www.extension.colostate.edu/boulder/AG/smallacreage.shtml> - 303-678-6238

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From the Extension Agent

Small Acreage Management Coordinator Hired

I am pleased to announce that Sharon Bokan will start April 7 as the Boulder County Extension Small Acreage Coordinator. Sharon is familiar with Extension programs and knowledgeable with small acreage management. She has volunteered as a 4-H Leader and Master Gardener in our office and currently volunteers as a Wildlife Master and Small Acreage Management volunteer. Sharon will be taking on more of my small acreage responsibilities and will work as a primary contact in our office for small acreage clientele. Please call 303-678-6238 with SAM questions.

Past BOCO SAM Newsletters Online

View via the SAM link above.

SAM Email Listserv

If you are receiving this newsletter for the first time and are not subscribed to the boco_small_acreage@colostate.edu listserv, you may request subscription on the SAM website (linked in header above). This quarterly e-newsletter and other timely info will be distributed via this email listserv.

Subscribers may use the listserv also as a SAM info gathering mechanism. For example, you may inquire about who is available in the area supply hay, to perform swathing/baling, etc.

The listserv is not a marketplace, however. Because it is hosted on the CSU server, **NO COMMERCIAL EMAILS ARE ALLOWED. DO NOT ATTEMPT TO SELL ANYTHING VIA THE LISTSERV – THANKS.** Use the newsletter ad section for these purposes.

Currently, there are 176 subscribers to the listserv (up from 171 last quarter).

CART Manual Available

The Country Acres Resource Team (composed of Extension, NRCS, etc. colleagues in Northern Colorado) have released their "[A Manual for Success](#)" for purchase.

New Vaccination Guidelines

New guidelines for vaccines for horses has been issued by the Infectious Disease Committee of the American Association of Equine Practitioners (AAEP). The complete document and an easy reference chart are available on the AAEP website at www.aaep.org/vaccination_guidelines.



Adrian Card
Agriculture/Natural Resources Extension Agent
CSU Extension, Boulder County

Grazing Made Easy

By Deniece Hopkins, SAM volunteer

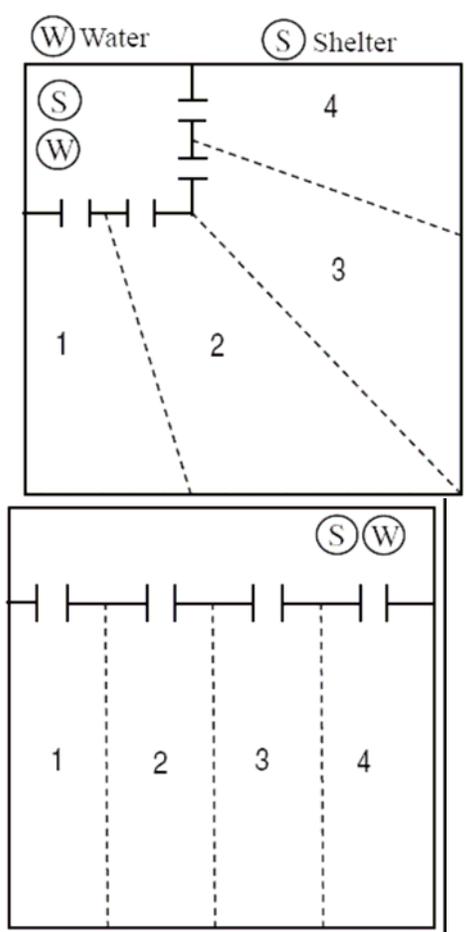
Are you a grass farmer, a weed farmer, or a dirt farmer? Too often this question answers itself based on grazing management. Oftentimes, people may start out with good intentions—and for a long time do really well with their pastures—but forget to alter their management based on current climate conditions.

As a drought or even a very wet season comes along, grazing management must be altered to protect your pastures. The intent of this article is to simplify grazing so you can make the decision to graze based on what you see, rather than what the calendar says.

One of the first things you must do—and probably the hardest—is to throw away all your preconceived notions of what has “always worked” or worked in the past. Then, you should divide your grazing area into cells. It’s best not to make these permanent divisions since you might need to make slight alterations to the size as you gain more experience. Temporary fences

(fiberglass or plastic step in posts) are excellent for these purposes; and not very expensive.

The minimum number of divisions for this to work is four. This can be effectively used even for 1-2 acre pastures. You must also include a “sacrifice” or “dry lot” area to place horses any time your pasture doesn’t meet the 6-8” grazing height criteria. This sacrifice area needs to be large enough to provide the horse with sufficient room for exercise, as they will probably spend a majority of their time in this area. A sacrifice area is truly that: it will go to dirt; but will save the rest of your pasture.



Pastures divided into grazing cells

Using this grazing system, horses are allowed in only one cell at a time. As the cell is grazed down to 3-4” inches, or 7 days, whichever comes first. An important rule of grazing management is “take half and leave half”—only allow the

horses to take half of the forage they start with in that cell, then move the horses to the next cell (provided the next cell has reached the 6-8" grazing height).

The previously grazed cell will now have time to rest and recover from not only the removal of grass, but also the pressure and damage made by horse traffic. On irrigated pastures, recovery may take 30 to 60 days; whereas dryland pasture may not recover for the entire season, leaving that cell unable to be grazed for the rest of the season. This is a key piece of information: it is very typical for dryland pasture to only be able to be fully grazed once during a calendar year. There are many articles written to help you divide your land into cells and help you understand all the scientific reasons for doing so. Please note that a few are listed at the end of this article.

**See "At a Glance
Grazing Calendar" on
page 17**

Now that your pasture is divided into cells, and you understand the basics of cell grazing during the grazing season which mid-April—mid-Sept, refer to your "At a Glance Grazing Calendar." The yellow indicates caution so you need to look at your pasture to determine if it meets all the necessary criteria for grazing: is it tall enough, is it dry, etc.

There are 2 times of the year that you must not graze or even have your horses on the pasture. These times are indicated in red on your "At a Glance Grazing Calendar." These would be approximately mid-February thru mid-April and mid-September thru November.

The first period, February thru April, is when the grass is coming out of dormancy. It is easy to tell this time of year, by walking your pasture and looking for the green coming up from below the dead grasses. These are the new grass leaves growing out of the grass plant crowns. It is necessary for them to grow undisturbed so they can replace their carbohydrate reserves in the crown and roots used for late winter thru early spring growth and for growth throughout the

grazing season. To graze now would prevent the grass from obtaining the necessary leaf surface to photosynthesize and replace the root energy reserves used for the first growth of the year and after grazing. Hoof damage to the crowns will also stop growth and stress grass significantly; and the damage may not be immediately evident, but the following year the pasture will be significantly less. Damage in the fall and winter to grass buds on crowns will diminish grass vigor the next spring.

It is best to wait to initiate spring grazing until the grass reaches the 6"-8" grazing height. This will require you to walk your pasture and measure your grass height. Grazing too soon in the spring is probably the No. 1 grazing management mistake, and will have a long-term negative impact on your pasture—and in our arid environment can quickly turn a beautiful pasture into a dirt farm.

The second period is September thru November. This is the time when grass is going into dormancy and is again building energy reserves for the dormant period. Four to eight inches of leaf area must remain in order for grass to sufficiently store needed root energy to survive the winter and come back the following spring.

After grasses have browned and gone completely dormant is a safe time to graze (indicated by the green area on your calendar). As long as the pasture is dry, the horses can cause little damage to your grass. The remaining brown grasses also contain some residual nutritional value to the horse, but is mostly an energy source. However, there is possibility of some damage to grass crowns due to trampling and excessive removal of mulch material during the period, so heavy use of the pasture is not recommended.

Note the stop sign on your calendar, which indicates no grazing when pasture is wet. Any

time, in any season, when the soil is wet from snow, rain or irrigation, a horse will cause extreme damage to your pasture grasses by causing excessive compaction and root and crown damage. Avoid having any animals on wet pasture at any time.

It takes a very short time of poor grazing management to do years worth of damage to your pasture. By monitoring your pasture closely for signs of the grass growth cycle, and following the guidelines above (and available from other CSU Extension publications), you will be able to protect your pasture for the pitfalls of over grazing; and provide a pasture suitable for happy horses.

ADDITIONAL READING:

Pasture Management for Horses on small acreage. By P. Aravis
<http://www.ext.colostate.edu/pubs/livestk/01627.pdf>

Grazing Strategies for Horse Pastures. By Lori K. Warren PhD
<http://www.coopext.colostate.edu/boulder/AG/GrazingStrategies.pdf>

Grass Growth in Response to Grazing. By M.J. Trlica
<http://www.ext.colostate.edu/pubs/natres/06108.pdf>

Small Pasture Management Guide for Utah (very applicable for Colorado)
<http://www.coopext.colostate.edu/boulder/AG/Utah%20pasture%20guide.pdf>

Spring 2008 Weather and Water Outlook by Sharon Bokan, SAM coordinator

As we all know, the weather in Colorado can rapidly change. So, what can we expect for weather for the next three months. According to the National Oceanic and Atmospheric

Administration's (NOAA) three month outlook, there is a greater than normal chance of above average temperatures in most of the western and southern United States. Their map indicates that the southwest part of Colorado will experience the best chance to be above normal with chances decreasing to the state's northeast corner. They indicate that there is a probability of below average precipitation in the southwestern United States. The precipitation map indicates a pattern similar to the temperatures with southwest Colorado being the driest decreasing to the northeast corner.

For snow pack and water information, we turn to the Natural Resources Conservation Service. Although November was dry, the last three months have had above average snowfall in the mountains. This means that water availability is the best it has been in the last ten years. Currently, the statewide snow pack is at 135% of average. However, there are several basins along the Front Range that are below 100%. Since there are still several wet months ahead, those basins may yet recover and reach 100%.

All basins except for the South Platte (at 90%) and the Arkansas (at 94%) are storing average amounts in reservoirs. The statewide storage is at 98% of normal. The northern Front Range snow pack is between 90 – 130% of average. The St. Vrain watershed is at 95% of average. Boulder Creek snow pack is at 104% of average. Both the St. Vrain and Big Thompson Rivers are expected to have below average stream flows. These basins remain vulnerable to a dry spring that would limit water supplies through the summer.

Even with the above average snow pack in most areas, we could still have water issues if the snow pack melting and runoff do not occur slowly. This was an issue last year when the melting and runoff occurred quickly and adequate precipitation did not continue to fall. The ideal situation would be a long, slow runoff.

For long range weather forecasts:

National Oceanic and Atmospheric Administration website

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead01/off_prpcp.gif

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead01/off_temp.gif

For current snow pack and water information:
Natural Resources Conservation Service website
www.co.nrcs.usda.gov/snow/fcst/state/current/monthly/data/reportselection.html

How to Assess Hay for Quality

By Meg Sitarik, SAM volunteer

In today's uncertain economic state it is tempting to cut costs on the care and feeding of our animals. In the long run this is not a wise business decision. Feeding poor quality hay means you will have to compensate for the lack of nutrients in the poor hay by supplementing with additional feeds. This can be more expensive than paying the higher price for good hay.

The most accurate way to evaluate hay is by having samples analyzed. This process involves taking core samples of multiple bales and sending them to a lab for testing. For a variety of reasons most folks are not going to do this. Therefore we need to rely on our five senses to assess the quality of the hay we purchase.

- Sight
- Taste
- Touch
- Smell
- Hearing

These are the six characteristics to evaluate.

- Color
- Maturity
- Number of leaves versus stems
- Presence of weeds or foreign material
- Moisture content
- Palatability

Sight

Look for a natural green **color** that is associated with higher vitamins, minerals and proteins. More mature hay and/or hay that's been rained on, after cutting, will be a yellow to brown color indicating a sub-bleaching and leaching of nutrients.

To evaluate **maturity**, look at the number of leaves versus stems, there should be more leaves than stems. The leaf contains most of the protein and the highly digestible fiber that is easily converted to energy. The younger plants have a higher percentage of leaves to stem. Lignin, a component of plant fiber, is not digestible, as the plant matures the amount of lignin increases causing the digestibility of the plant to decrease. Another clue to hay maturity is the presence of long leaves and the presence of seed heads. Seed heads indicate very mature hay with lower energy and protein values.

Weeds and **Foreign Material** are easy to spot. Expect to see a few weeds; however, an abundance of weeds is unacceptable. Weeds are low in nutritional value and some are toxic to animals. For more information:

<http://www.vth.colostate.edu/poisonousplants>

Foreign material is a huge clue that the hay has not been managed well. The occasional twig or other natural item is fine. Baling twine, fast food wrappers, wire, nails etc. are major problems and this hay should not be purchased. Insects also affect the quality of hay. Blister beetles contain a toxin that is severely irritating to the gastrointestinal and urinary tracts of animals. For more information on blister beetles go to: www.ipm.iastate.edu/imp/icm/1998/9-14-1998/blisterb

or www.insects.tamu.edu/fieldguide/bimg/67

Moisture Content can be assessed by sight. If the hay is baled while it is too wet there is a risk of mold growing within the bale. Dark wet places are ripe for mold growth. Mold will lower the protein and energy, may release toxins that can cause abortion, colic and other nasty problems. Moldy hay also generates heat and

can become combustible. The only way to find out if a bale is moldy is to break it open since the mold may not be visible from the outside.

Touch

Another problem can be hay that has been dried too much. In this case the leaves will be so brittle that by the time you walk from the hay stack to the feed bunker most of the leaves will have crumbled. I once opened a bale of alfalfa and when I removed each flake it crumbled so badly that I was left standing in the hay room with an armful of stems.

Taste, the animals not your!

Palatability is the animals desire to eat the hay. This is easy to assess, all you have to do is look to see if your animals are eating the hay. Younger plants which are higher in protein and energy are much more palatable than older plants.

Smell

This is my favorite of the senses. Hay should smell clean and fresh, like a beautiful spring day, is the only way I know how to express this. If it you smell mold, dust or a burnt smell it is not good quality hay.

Hearing

Pay attention to what the vendor is saying. Are they happy to answer your questions? Or are they being vague and making excuses for the product? Someone who produces good quality hay is proud of the hay product and willingly answers your questions. This brings up an issue I wrote about last year. Find a good reliable source of hay and treasure that resource. Establish a friendly working relationship. Repeat customers are an asset to the vendor as well. I have found that in times of shortages repeat customers will usually be taken care of before a person who constantly shops around.

In summary poor quality hay is not a sound financial decision. Yes it saves you some cash in

the short run but in the long run it will cost you more money and jeopardize the health of your animals. Chemical analysis is the most accurate assessment tool but it is not always practical. At www.utextension.utk.edu/publications/spfiles/SP437-A you will find, on page 6 of the article, a user friendly worksheet called the Score Card for Visual Hay Quality Evaluation. Another source for more in-depth information is from Washington State University Extension Agency, www.smallfarms.wsu.edu/animals/BuyingHay

Mountain Pine Beetles Update

By Kim Wolinski, SAM Volunteer

There are lots of “pests” around our properties and in our forests and trees – squirrels, raccoons, mosquitoes, wasps, unsavory birds and more – but hands-down, the mountain pine beetle (MPB) is the most important insect pest of Colorado's pine forests today.



Top view of

In the Rocky Mountain states, MPB may account for about 3/4 of all mortality in pines, accounting for millions of trees. MPB is a native insect that is always present in pine forests. Outbreaks of MPB in the high country is blamed on warmer temperatures and not as many cold snaps as we had 20 years ago, which will naturally controls them. They once developed from egg to adult

over the course of two years, but are now developing in one year due to extended warm temperatures.

Over half of the 753 square miles of Boulder County are forest. In 2006, U.S. Forest Service scientists found 1,800 MPB affected acres in Boulder County. MPB are and will affect the natural and historic visual beauty of our magnificent trees, fair county and state, wildlife habitat, and more in the near future and in the years to come.



Actual size of MPB, 1/8 to 1/3 inch

While it may seem that mountain pine beetles are only a problem for mountain dwellers, the attacks will impact lowlanders as well. MPB move downhill with water, in the reservoir from upstream fires in fallen trees and ash as well as in firewood brought down from the forest.

What Can Be Done?

To move from fear and frustration, to action and management, it's important to know the facts about the MPB and what you can and can't do to make this infestation livable starting today.

The ABC's of the MPBs

1. MPB Life Cycle and Seasons of MPB Activity

Mountain pine beetle has a one-year life cycle in Colorado.

- **SUMMER:** The great majority of beetles exit trees during late July (lodgepole pine) and mid-August (ponderosa pine). After beetle emergence, small round emergence holes will be present in the bark and densely scattered over the bole of the tree.
- **SUMMER through FALL:** Females find live trees, attract males and bore into tree trunk to lay their eggs, producing about

75 eggs. The eggs transform into larvae, tunneling away from the egg gallery, producing the characteristic patterns. They grow into pupae in June and July. Emergence of new adults can begin in mid-June and continue through September.

- **WINTER:** MPB spend the winter under the bark. They tunnel into the trunk of trees. You will see popcorn or bubble-gum-

shaped masses of resin, called "pitch tubes," on the trunk where beetle tunneling begins. Pitch tubes may be brown, pink or white.

- **SPRING:** They continue to feed.

The double-headed pest and many-headed danger: A key part of this cycle is the ability of MPB to transmit bluestain fungi. Spores of these fungi contaminate the bodies of adult beetles and are introduced into the tree during attack. Fungi grow within the tree and assist the beetle in killing the tree. The fungi give a blue-gray appearance to the sapwood. The dead trees create a major fire danger.

2. Signs and Symptoms of MPB Attack

- In fall and winter, look for the masses of resin "pitch tubes," on the trunk where beetle tunneling begins. In July and mid-August, look for boring dust in bark crevices and on the ground immediately adjacent to the tree base where MPB has exited the tree.
- Evidence of woodpecker feeding on trunk. You'll see patches of bark removed and bark flakes on the ground below tree.

- Tree foliage turning yellowish to reddish throughout the entire tree crown. Unfortunately, this usually occurs eight to 10 months after a successful MPB attack. Over time trees will appear gray and have hard, brittle pitch tubes, although many of the pitch tubes will likely have fallen off by then.
- The most certain indicator of infestation is the presence of live MPB (eggs, larvae, pupae and/or adults) as well as galleries/tunnels under bark. Use a hatchet for removal of bark to check trees, and at more than one point around the tree's circumference to blue stained sapwood.



MPB Pitch Tube

3. Which Trees Are Affected and How Quickly?

- In general, MPB prefers stands of dense, large-diameter, mature and overmature pines, particularly ponderosa, lodgepole, Scotch and limber pine. Bristlecone and pinyon pine are less commonly attacked.
- Large trees (8 to 10 inches in diameter) that are stressed or weakened due to lightning strikes, breakage of crown or bole, drought, fire damage, disease, old age, presence of Armillaria root rot, and previous attack by MPB and other bark beetles. When favorable conditions exist, populations can quickly increase to epidemic proportions. MPB rarely attacks trees under 8 inches in diameter,
- As beetle populations increase, all targeted trees, including healthy ones are at risk.

- MPB live and breed in the trees, boring holes into the core of the tree. Generally, the brood from each infested tree will successfully attack eight to 10 new trees the following year.

4. Management Solutions

Timing means everything. Infested trees must be treated by an approved method before the beetles exit to attack new trees. Once MPB infests a tree, nothing practical can be done to save that tree.

- Natural: Extreme cold and woodpeckers will eliminate the beetles. During outbreaks and

warm winters these natural controls often fail.

- Cut down all dead trees and clean up dead wood. Logs should be hauled to 'safe sites' a mile or more from susceptible tree hosts. It should be milled prior to adult MPB emergence in late July and early August. Do not bring firewood from the forest without checking for MPB infestation. They will spread from your pile of wood into trees.
- Solar: Solar treatments for cut wood that raise the underbark temperature to lethal levels also will reduce beetle populations. This can be done with or without plastic and requires six to eight weeks of warm weather. A thinned, healthy forest will help prevent outbreaks of the mountain pine beetle, improve mountain views, and reduce fire hazard.

- Short-term Chemical Controls and small infestations: especially in or adjacent to developed sites, currently-infested trees can be felled and treated by burning, peeling the bark, chipping the logs, or drenching with an appropriately registered insecticide prior to beetle emergence in July. Preventive sprays can protect green, unattacked trees. If you have “high-value” trees near your home, preventively spraying them is a good idea. This should be done annually between April 1 and July 1, which however can be quite costly over a 10-year outbreak.
- Long-term Controls: thin susceptible stands. Leave well-spaced, healthy trees. To lower susceptibility in green and infested stands, thinning and harvesting strategies are generally recommended. In general, MPB are less attracted to stands where tree crowns are not touching and light is able to penetrate to the forest floor.



The appearance of a forest thinned to help prevent MPB.

If the “long-term” control, i.e. “thin your trees” isn’t appealing, there are good reasons to do this beyond MPB control – you can improve mountain views and reduce fire hazard. (See article *Creating Wildfire-Defensible Zones* <http://www.ext.colostate.edu/PUBS/NATRES/06302.html>)

5. Community Action

Check with your city government and extension agency to find out what services and opportunities lie ahead for property owners and others affected by the infestation. Cities across Colorado are having forums and area wide meetings to offer up-to-date facts about MPB’s to provide the public with an understanding of

what to expect, what is being done in each specific area, what new legislation is responding to the issue and more.

Allenspark is a good example: residents saved many of their ponderosa trees during the 1970s MPB outbreak by working together to deal with affected trees, and they’re trying to do it again. The Allenspark Beetle Control (ABC) began meeting in May 2007.

6. Good Uses for MPB Infected Felled Trees

The MPB is expected to leave a large amount of dead wood in Colorado forests, and forestry officials are seeking ways to use the dead timber.

- A new source of lumber: The fungus the beetles carry stains the wood blue, but structurally, the wood remains sturdy. Some woodworkers are taking advantage of the wood’s color to make intriguing blue-tinted cabinets, hardwood floors and decorative items.
- Everyday woodstove use.
- Wood pellets to heat buildings.
- Kremmling will have its first pellet plant online this summer.
- Cut lodgepole pines become fuel for the wood-burning boiler at Boulder County Parks and Open Space in Longmont. The county saved \$30,000 last year by switching to the new boiler.

Sources for this article:

<http://www.ext.colostate.edu/pubs/insect/05528.html>

<http://www.ext.colostate.edu/ptlk/1424.html>

<http://csfs.colostate.edu/iandd.htm#mpb>

Other sources include:

http://www.getboulder.com/visitors/articles_w07/pinebeetles.html

http://www.reporterherald.com/news_story.asp?id=15622

http://www.timescall.com/News_Story.asp?id=7266

Resources:

Seedlings: Colorado State Forest Service Annual Seedling Sellout Line: 970-491-8453

Trees and spray information. Colorado State Forest Service Boulder District: Sale of trees to plant, 303-823-5774

“Organic” versus “Synthetic” Pesticide Safety the debate continues by Sharon Bokan, SAM volunteer

In the Fall 2007 Small Acreage Management newsletter, we started looking at the safety of both “organic” and “synthetic” pesticides. This article will review what we have learned to date. This will be a continuing project, as we will add information to the database as it becomes available. The information that has been reviewed is from both the product or chemical Material Safety Data Sheet (MSDS) and the product label.

If used properly and by the label instructions, “synthetic” pesticides can be used safely and with minimal impact on humans and other aquatic and terrestrial life forms. They should be used in conjunction with other Integrated Pest Management (IPM) practices to minimize their use. Pesticide user’s need to carefully read the labels as there are restrictions on use around water and other plants and crops. I found it interesting that several pesticides have restrictions listed on their label that they couldn’t be used in certain Colorado counties.

Because “organic” pesticides are made from natural chemicals/ingredients, we assume that they are safer and this is not necessarily the case. One thing to consider is that “organic” pesticides are usually in a more concentrated form or higher percentage than you would normally use. For example, Alldown (as referred to in the fall article) is 20% acetic acid while normal vinegar is 5% acetic acid. Cinnamon powder used for baking does not appear harmful but cinnamon oil is a skin and eye irritant. Some of the “organic” pesticides contain silica, which can cause silicosis a lung disease. Pyrethrins and nicotine are both harmful even though they are naturally occurring. Many “organic” chemicals/products indicate that they are eye, skin or inhalation irritants, or that they may cause allergic reactions in some people. Some are or may be harmful to aquatic life or honeybees, or are not to be applied near water. These are the same cautions used for “synthetic” pesticides.

Now what have I learned by reviewing many MSDS and product labels? First of all there is significantly more information for the “synthetic” pesticides. Between the MSDS and the product label, you can find information on the effects on humans and other life forms, the potential effects on future generations, half lives in soil and water, restrictions on use near water and other plants, the proper personal protective equipment and application rates. The “organics” have limited information on the effects on humans, aquatic and terrestrial life forms, potential effects on future generations and use near water and other plants, and protective equipment.

Consider whether you use a “synthetic” or “organic” chemical or product, you intend to eliminate the pest. According to the Federal Insecticides, Fungicide, and Rodenticide Act, an economic poison (pesticide) “means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, or weeds, or any other forms of life declared to be pests; and any substance or mixture of substances

intended for use as a plant regulator, defoliant, or desiccant.” If that is the intended action, why would any “organic “ or “synthetic” chemical/product not potentially harm other organism? With either “organic” or “synthetic” pesticides, the user should read and follow the label directions. The application rates are the minimum that will control the pest while doing the least harm to the environment. Using more pesticide will not control the pest any better and will cost more, have a higher potential to harm the environment, and could lead to the pest building up resistance.

So what’s the answer to whether “organic” or “synthetic” is safer? To make a fully informed decision, we need all the facts and we don’t have all the facts. So the debate will continue. I don’t mean this to avoid answering the question. I think that there has not been enough research into the potential effects of “organic” pesticides especially the potential for allergic reactions and the effect on other life forms. Will this stop me from using an “organic” pesticide? No, but I will treat it the same as a “synthetic” pesticide. As the use of the organics continues, hopefully research will continue to determine the missing information.

For me whether the chemical/product is organic or synthetic, it should be treated with respect and used according to the label. Use of any pesticide should be in conjunction with IPM (cultural and mechanical methods) practices. Don’t rely on the pesticide alone to control the problem. Identify the problem and determine an integrated plan using all appropriate methods not just pesticides for optimal control. And always “Read and follow the label!”

References:

MSDS and product labels obtained from the producers Internet site
“The Standard Pesticide User’s Guide”, Dr. Bert L. Bohmont, Pearson Education, Inc., Prentice Hall, 7th Edition.

Spring Weed Management in Colorado by Nancy Berton and Linda Garcia, SAM Volunteers

Farmer Frank bought an old farm wanting to turn it into a country paradise. The fields were taken over by weeds, the farmhouse was falling apart, and the fences were broken.

When the restoration was starting, the preacher stopped by to bless the man's work, "May you and the Lord work together to make this the farm of your dreams!"

Over a year and half later, the preacher stopped by. Lo and behold, he saw a transformed farm! The house was rebuilt, livestock were happily munching in green pastures, and healthy crops filled the fields. "Amazing!" the preacher said. "Look what the Lord and you accomplished together!"

"Yes, reverend," said the farmer, "but remember what the farm was like when the Lord was working it alone!"

"Mother Nature takes care of my pasture, but she doesn't weed it!"

So, what steps did the farmer take to restore his land? The first important step was to make the decision. An *Integrated Weed Management Plan* was developed with several weed-control methods at different times of the year.

*** Make the commitment today ***

Early detection and fast response are the key to success. Most weeds on the Colorado plains start making their presence known in April and May. Some of the most common weeds that are emerging are kochia, thistles, and bindweed. As Shakespeare put it, "Sweet flowers are slow and weeds make haste." Stop them as soon as you can.

Tolerate, control, or eradicate?

Identify the weed, then decide whether you can tolerate, control or need to eradicate it according to the Colorado Noxious Weed List¹. They may

look like a flower and grow like a flower, but don't let that fool you. They just might be noxious weeds that can harm wildlife, livestock, and crops. On the other hand, many so-called "weeds" are beneficial to livestock. Thus, it's crucial to identify weeds that adversely affect your land.

Only after the plant is identified can you plan how to manage it because different species respond differently to control methods. Plenty of websites^{1,2} can help you ID the plant. And you can take a very fresh sample to the [Boulder County Extension Office](#)² for them to identify. Contact the Extension Office at 303-678-6238 for instructions on how to prepare your weed sample. They'll be happy to suggest methods to manage your weeds, too.

A goal of several weed management methods, such as mowing or hand pulling, is to prevent the weed from going to seed. Musk thistle, diffuse knapweed, and other biennials can be effectively controlled by preventing them from seeding as part of your weed management strategy.

**** AN INTEGRATED WEED MANAGEMENT PLAN WILL HELP TO EFFECTIVELY CONTROL THE WEEDS OVER TIME. GOOD CULTURAL PRACTICES ARE THE NUMBER ONE DETERRENT TO A WEEDY PASTURE.**

The weed control methods that you'll use, such as mechanical, chemical, cultural, or biological, will depend on the level of weed infestation among other factors. If you'll restore your land, then you might need a tractor and till for mechanical methods, herbicides and sprayer for chemical control or eradication, water and mulch for cultural methods as well as a well-thought out weed management schedule.

An *Integrated Management Plan* includes scheduling more than one management technique. The timing depends mostly on the climate, not the calendar. *E.g.*, organic chemicals such as [acetic acid](#) or [clove oil](#)¹⁰ are effective above 65°. The grass must be at least 6" tall before it's grazed. Some herbicides require a

**Prevent the weed
From going to seed.**

certain moisture content to work. Be aware that the soil needs to be dry enough before heavy equipment can be on the pasture for mechanical control methods.

Mechanical Control methods, physical removal or disruption of unwanted plants, can start in early spring. To break up extensive root systems, hoeing, disking or plowing can be done as soon as the ground allows. Perennial taproots should be cut 8" below the surface and biennials to 6".

Right after cutting taproots, desiccant herbicides can be used every other week to inhibit growth and deplete carbohydrates. Desiccants are nonspecific and can damage any plant. Choosing the right herbicide at the right time in combination with other methods can effectively restore your land.

Chemical Control with Herbicides have a designated time of application depending on the type of weed (annual, biennial, perennial) and its stage of growth (*e.g.*, rosette, bud, pre-seed).



The Oxeye Daisy is on Colorado's B List of noxious weeds because it quickly takes over and chokes out desirable plants. It reproduces by seed and rhizomes (root). Landowners must take measures to stop the spread of this daisy, and it's illegal to sell this plant or seed in Colorado.

Weeds in a slow or dormant stage of growth may not readily take up herbicides. Drought stressed weeds are often resistant to herbicides. Redstem filaree has slow emergence at soil temperatures of 77-86⁰³: spring mitigation with 2,4-D is the time to apply the herbicide to redstem filaree.

In the spring, many weeds are in a young growth stage which is susceptible to herbicides. Herbicides are effective on *perennials* while they are budding or in the early-blooming stage. The *biennial* spring rosette stage is very susceptible to herbicides. *Annuals*

are best treated with herbicides when they are seedlings or less than 8" tall.

Annuals. The *winter annuals* are now showing their growth. Some winter annuals you'll see at this time of year are flixweed, blue & tumble mustards, cheatgrass, and redstem filaree.



Beyond the cotyledon stage, this redstem filaree is already flowering near Fairview High School in late March, 2008.

The [University of Wyoming](#)⁸ showed that the redstem filaree, a winter annual, "is more sensitive to herbicide injury at the cotyledon stage than at the two-leaf stage."

April is the time to mitigate the winter annuals. The [Winter 2008 BOCO SAM Newsletter](#)² outlined some herbicides that can be used through April.

Last fall's seeds from *summer annuals* such as kochia, Russian thistle and puncturevine are currently germinating. Now is the time to hoe the puncturevine before it seeds. It's easier to kill the plants before mid-June with postemergent herbicides such as glyphosate and/or 2,4-D for puncturevine or dicamba plus surfactant for kochia, rather than waiting.

[Did you know that some biotypes of kochia are resistant to 2,4-D or dicamba](#)⁹?

Rotating herbicides can reduce the proportion of plants tolerant to these herbicides. Vista[®]/Starane[®] (Fluroxypyr 1-methylheptyl ester) with surfactant is effective on kochia. Livestock will graze kochia until it matures, and tillage or hand pulling can be done.



Blanket of silver-green kochia emerging in SE Boulder county in late March. It's time to spray!

Biennials to be concerned about in Colorado include [diffuse knapweed](#); musk, bull, and Scotch thistles; and teasel. They usually end their reproductive stage by the end of June, so you need to control them while still in the rosette stage.

Curtail[®] (2,4-D, clopyralid), Milestone[®] (Aminopyralid), Tordon[®] (picloram), and Transline[®] (clopyralid) are just a few herbicides that can control diffuse and spotted knapweeds as well as the biennial thistles at the rosette to early-bolting stage in the spring.

Perennial weeds already dispersed their seeds from last year. These plants can also propagate from their root systems or buds. Some of the perennial weeds in Colorado include Canada thistle, [field bindweed](#), hoary cress and [dalmatian toadflax](#).

Perennials are best managed with methods to prevent flowering and seeding. Some methods

you can consider include frequent mowing now through fall, then applying fall herbicides. Burning is not advised because the heat is not intense enough to kill some seeds and the underground rhizomes.

Canada thistle. In the spring, Vanquish[®]/Clarity[®] (dicamba) can be applied to the rosette stage. After the C. thistle plants have emerged, Curtail[®] (2,4-D, clopyralid) can be effective. Then Telar[®] (chlorsulfuron) as they bloom. Tordon[®] (picloram) is good any time after the weed has emerged.

Frequent mowing prevents the survivors from going to seed.

Mowing weeds is beneficial when the desired plants are shorter than the mowing height. After that, mowing should be done only on the concentrated areas of weeds. If your land has

seed-producing weeds such as thistle, plan to mow every other week before seeds develop, not when your spouse tells you to.

Cultural Control. Done properly, selected plant growth can be encouraged by rotating grazing areas to avoid damage to good plants from overgrazing; by seeding bare spots; and by irrigating the desired plants.

Good spring noxious weed management means patience. Wait until the ground is firm enough to withstand horses romping and chomping so that the plant roots aren't damaged. Wait for the right time to apply chemicals. Wait until the grass is at least 8" tall before allowing livestock to graze, otherwise the new tender growth will be eaten away allowing weeds to spread.

[Livestock will graze some weeds in the spring before they become unpalatable](#)^{7a}. In a pasture with both cool and warm season grasses, cattle will eat weeds along with cool-season grasses that are growing in springtime before the warm-season perennial grasses emerge.

Biological Weed Control. Insect release is possible for large areas, and spring is a great time to release the bugs. This method isn't advised for eradication, but to enhance other methods because it isn't 100% complete.

You can contact the [Colorado Department of Agriculture](#)⁴ in Palisade to acquire some biological control agents for the following weeds.

1. [Bindweed mites](#).
2. Diffuse and spotted knapweed agents (*Larinus minutus* and *Cyphocleonus achates*).
3. Puncturevine weevils (*Microlarinus lareynii*, *M. lypriformis*).
4. Musk thistle crown weevils (*Trichosirocalus horridus*).
5. Dalmatian toadflax stem weevils (*Mecinus janthinus*).

Think about renting goats to help control weeds. Other grazers are effective as long as you don't allow any grazer to overgraze your land.

One can tell the amount of weed management a landowner does by how the pasture and fields look. It's never too late to start a weed management plan. The successful plan is well-thought out and performed with patience. Contact your County Extension Agent² to help you to develop a good weed management plan for the future.

A weed is but an unloved flower.

- Ella Wilcox

A flower is an educated weed.

- Luther Burbank

REFERENCES

1. [Noxious Weeds of Colorado](#), 9th ed. Colorado Weed Management Association. S. Anthony, *et al.*, eds. 2007. www.CWMA.org.
2. Boulder County CSU Extension Office, Ag Weeds. 303-678-6238 www.coopext.colostate.edu/boulder/AG/agweeds.shtml
3. Montana State Weed Science. <http://weeds.montana.edu/crop/redstem.htm>
4. Palisade Insectary, 970-464-7916 or 1-866-324-2963.
5. Colorado Department of Agriculture (DoA), www.AG.STATE.CO.US
6. "The Biology of Canadian Weeds", Stahevitch, A.E., C.W. Crompton, and W.A. Wojtas. 85 *Euphorbia cyparissias* L. [Canadian Journal of Plant Science](#) 68:175-191.
7. Kansas State University Research and Extension 7a. [Rangeland Weed Management](#), www.oznet.ksu.edu/library/crpsl2/samplers/mf1020.asp
- 7b. [Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland](#), www.oznet.ksu.edu/library/crpsl2/srp994.pdf
8. "Redstem Filaree Control in Sugarbeets with Micro-rate Herbicide Treatments" [Plant Management Network](#). 26 August 2004. www.plantmanagementnetwork.org/pub/cm/research/2004/filaree/

9. Washington State Noxious Weed Control Board.
www.NWCB.WA.gov/weed_info/Kochia_scoparia.html

10. "Field Bindweed Control Alternatives", Preston Sullivan, NCAT Agriculture Specialist, Aug. 2004. ATTRA Publication #CT103/SLOT#150
<http://attra.ncat.org/attra-pub/bindweed.html>

The Relationship of New Spring Grass to Gas Colic and Nutritional Laminitis in the Horse by Meg Sitarik, SAM volunteer

Every spring we are hit with a deluge of articles on the dangers of letting horses eat too much young spring grass because it may cause colic and/or laminitis in equines. Have you ever wondered why?

The equine digestive system is set up to handle a "grazing diet" a small amount of forage consumed continuously over a period of time. Horses and their kin get into trouble when too many carbohydrates, grains and young grasses, are ingested in large amounts in a short period of time. Two examples are a horse that has gotten into the grain supply and a horse turned out on fresh spring grasses for an unlimited amount of time. Each will eat large quantities in a short amount of time. This is called carbohydrate overload.

A brief overview of the horses' digestive system will help you understand the relationship between carbohydrate overload, colic and laminitis. This overview is brief and very simplified. The horse is classified as a non-ruminant herbivore, a plant eating animal with a simple stomach. The digestive system starts at the horse's mouth and ends at the rectum. The first half is called the foregut: mouth, esophagus, stomach and small intestine. The second half is called the hindgut: cecum, large colon, small colon and rectum. Each half digests different

nutrients. The foregut utilizes enzymes to digest the majority of carbohydrates, proteins, fats, minerals and vitamins. The hindgut is like a big fermentation vat that uses microbes such as bacteria and protozoa, to digest the fibrous carbohydrates that cannot be digested by enzymes in the foregut.

At the base of esophagus (food pipe that connects mouth to stomach) are strong muscles that keep the food from traveling back towards the mouth. These muscles prevent the horse from vomiting or belching. The horses' stomach is small relative to the size of the horse. Food travels through the foregut fairly rapidly compared to the hindgut which is much slower.

The fibrous structural parts of mature plants are digested in the hindgut. New spring grass is not the same as mature grass. New grass is made up of more of the type of carbohydrates that are digested in the foregut.

How does this all work? What the heck does eating have to do with the feet?

Sally Sobright has turned out ol' Wiz Bang on a lush green spring pasture. Like any of his equine pals he is grazing with enthusiasm. His foregut is working hard to keep up with all the young grass being ingested. After a while the foregut is over loaded and since a horse can't vomit to relieve the back-up or belch to relieve pressure, food that should be digested in the foregut spills into the hindgut. In the hindgut, which is like a big fermentation vat, microbes are working hard to digest the excess material. A large portion of this food is not usually digested by microbes. As the microbes are working fast and furiously they are rapidly producing large amounts of acid and gas causing changes in the balance of the microbial population causing some of the microbes to die and a change in the acid balance. Poor ol' Wiz Bang now has gas colic. As the microbes die and acid levels change endotoxins are released into the blood stream triggering a cascade of events within the circulatory system that eventually disturb blood flow in the hoof. This leads to interruption of the blood flow that

supplies the lamina, which connects the hoof to the horse. Interruption of blood flow causes inflammation and pain. Now ol' Wiz Bang has nutritional laminitis.

I must point out that even with all the research done on laminitis the exact cause is not known. There are studies that point to a sugar called fructan, found in some grasses that in high concentrations may be a causative agent. There is also an enzymatic theory based on lamellae MMP activation. These theories agree that endotoxins do play a role in laminitis they just may not be the initial cause.

Keep in mind that what I have described above is extremely simplified.

The physiology of digestion is very complex. My goal for this article is to give you a very basic understanding of why these things happen and perhaps pique your interest in further reading about the anatomy and physiology of the horse.

Sources:

Ann Rodiek, PhD, California State University, Fresno; Physiological Function of Equine Nutrition (Carbohydrates and Fats)

Karen Hansen, Assoc. Prof, Dept of Animal Science, University of Wyoming; Practical Nutrition and Feeding Management.

www.extension.org/horses

Christopher Pollitt, BVSc, PhD, School of Veterinary Science and Animal Production, University of Queensland, Australia; Equine Laminitis: A Revised Pathophysiology.

www.horseshoes.com

www.safegrass.org Are You Feeding Your Horse like a Cow?

DW Freeman, PhD, OSU Extension Equine Specialist, C McAllister, DVM, Oklahoma Cooperative Extension Service; Understanding Colic in Horses.

www.osuextra.com

Notes from Equine Disease Management class
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At a Glance Grazing Calendar

Grazing Year

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Dead grass, ok to graze	Watch for green	Coming out of Dormancy Building energy reserves		Only graze if grass has reached 6-8" tall. Best to use cells and move horses when grass is down to 3-4" tall OR 7 days whichever comes first.				Going Dormant, building energy reserves		Dead grass, ok to graze		



Never graze a pasture with wet soil!

Two Essential Rules of Grazing Management

- 1) Avoid grazing until plants have reached an average height of 6 to 8 inches.
- 2) Remove horses and rest pastures when plants have been grazed down to 3 to 4 inches.

