



Boulder County Small Acreage Management Newsletter

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<http://www.extension.colostate.edu/boulder/AG/smallacreage.shtml>

From the SAM Coordinator

After a dry winter and several 90° days, the recent rains are very welcome and great for the pastures and gardens. The pastures I've visited so far appear to be doing well. Unfortunately, so are some of the weeds. There are quite a few mustard family weeds doing quite well such as hoary cress aka whitetop (the plant you see around the county less than 1 foot tall with the white flowers on it now) and the most common weed brought to the office for identification, kochia. Now is the time to be out controlling weeds or at a minimum keeping the early ones from going to seed by mowing, pulling, spraying and planning your strategy for the perennials.

The first step in weed control is to know what the weed is so that you can use the correct control strategy on it. To help with this we will be offering 2 Weed management and ID workshops again this year (see page 2). Our Small Acreage Volunteers are also ready to help in taking your small acreage question phone calls and identifying your weeds and providing you with control options.

Sharon Bokan

Small Acreage Coordinator

SAM Newsletters Online

View previous newsletters 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 190 subscribers to the listserv (up from 171 last quarter).

Weed ID and Management Workshops

Boulder County Weed Coordinator, Steve Sauer and CSU Extension Small Acreage Coordinator, Sharon Bokan will be offering two Weed Identification and Management workshops. The workshops will be offered on June 16 and August 18 from 6:00 pm to 8:00 pm in the Clover Building on the Boulder County Fairgrounds. We will be identifying weeds that participants bring in and offering management options for control. Each date is a separate class so you need only attend on one date. A minimum of 10 participants is required to hold each class and there is a \$10 cost payable at the class. Currently we have 4 participants for the June class and none for the August class.

Creating an Heirloom Vegetable Garden

By: Jennifer Tucker, Small Acreage Coordinator
Adams County Extension

There has been a sudden interest in Heirloom gardening. Hopefully this article will explain what heirloom gardening is, and some facts related to growing these special vegetables.

What is an Heirloom?

Heirlooms are an open pollinated variety that has history tracing back 50-100 years... or more! Heirlooms are considered plants that were created before 1951, which is when hybrid and other genetically controlled plants first made an appearance. Many of these seeds have been saved by families for their annual garden, while others, are a widely known variety commercially available, but still fitting of Heirloom description. Some of the varieties of Heirlooms are not something you will see on store shelves. They lack the "perfection" of modern varieties. Colors may be different, they may be odd shaped, and they may have a different taste! Heirloom Gardeners relish this change from the norm. One of the major advantages of Heirloom plants is that the seeds are "save-able", meaning

that a gardener can collect their seeds and grow them the following year.

Tomatoes are by far the most popular Heirloom. Gardeners love the options of the wild colors ranging from yellow, to purple and striped varieties to boot! Peppers can be found in the typical colors as well as wild ones, and many other vegetables are found in odd shapes and sizes, with memorable flavor. Going into many garden centers, Heirloom varieties are found in seed packets as well as live plants!

Often times, the heirloom varieties require more care and protection of their precious bounty. Without the aid of modern advances, they are sometimes susceptible to diseases, insects or other adversities that standard, modern varieties are able to combat. However, these old blood originals have the advantage of genetic diversity, which cannot be touted by modern varieties. Heirlooms may indeed hold the secret key if modern varieties are stricken by a pest or problem that they have not had centuries to adapt to.

Locating heirloom seeds can be quite simple, especially this year, with the popularity of heirlooms. Seed companies completely devoted to odd varieties are showing record sales all over the country! Seeds may also be found thru local sources, and often, heirloom gardeners become involved in seed trading to keep their varieties out there, and in new plots of ground!

When considering varieties of heirlooms, keep in mind that just as conventional vegetables, some type and varieties of plants do better in specific soil and moisture conditions. These considerations are still important, although heirlooms are known to be a bit more adaptable to conditions. Heirlooms are often more leafy with less production value per plant, however growers are willing to give up production value for the pure flavor of old-time vegetables that they remember growing up with.

As mentioned above, Heirloom seeds can be saved for next year. There are a few

considerations with seed saving. Seeds have a different life in storage schedule based upon their type. Typically, most seeds do best if saved in a sealed glass jar in a cool dry location. Many seeds will maintain viability for 5 or more years if kept in the refrigerator, with silica in the jar to absorb moisture.

For more information, please review the following websites:

Clemson University

<http://www.clemson.edu/extension/hgic/plants/vegetables/gardening/hgic1255.html>

The Heirloom Vegetable Gardener's Assistant

<http://www.halcyon.com/tmend/heirloom.htm>

Vegetarian's in Paradise

<http://www.vegparadise.com/heirloom.html>

The Seed Saver's Exchange

<http://www.seedsavers.org/>

Heirloom Tomatoes, CSU Fact Sheet

<http://www.ext.colostate.edu/PUBS/columngw/gr090221.html>

The Impact of Weeds

By Sharon Bokan, Small Acreage Coordinator

Have you ever stopped to consider the impact of weeds? Not just the flat bicycle tire or the cost of an herbicide to kill the weed or your time to go out and deal with the ones in your pasture or garden. The impact goes much further than that.

Weeds also

- Increase crop production and processing costs
- Increase equipment wear, tear and fuel costs
- Increase seed cleaning costs
- Reduce product/crop quality
- Add to the amount of water and nutrients required for crop production
- Act as alternate hosts for insects and diseases
- Increase animal production costs and product quality
- Decrease land values
- Affect human and animal health (allergies, poisonings)

- Decrease wildlife habitat
- Increase soil erosion by wind and water
- Decrease water quality and damage watersheds and systems
- Decrease recreational opportunities
- Displace native, threatened and endangered species (both plant, animal, insects)
- Increase costs for transportation due to control and asphalt damage
- Increase fire danger
- Increase costs at industrial and utility sites (costs to control weeds)

Only about 10% of the earth's 33 billion acres are arable. If you start reducing that 10% by millions of acres infested with non-productive weeds along with other crop destroying pests, you begin to decrease the land available for food production. It was reported in 1967 that 9.7% of the world's crop production was lost to weeds. This doesn't account for other crop losses due to insects, animals, disease, drought, weather and other methods. Least we think that in the U.S. we are immune to the problem, also in 1967 8% of the potential U.S. crop production was lost to weeds. Over the last 30 years the estimates for total losses due to weeds range from \$6 to 18 billion per year. Currently in the United States there are 100 million acres infested with noxious weeds and this is growing by at least 8% each year. In 1993, \$3.6 to 5.4 billion was lost in direct costs (chemical costs, labor, equipment wear and tear) with an additional \$1 billion in indirect costs to control the weeds. This cost includes yield reduction, chemical control, equipment and labor, animal losses or health care. Of the thousands of plants that have been introduced in the U.S., only about 1400 are designated scientifically as pests and 94 as Federal Noxious Weeds and a few more listed on state noxious weed lists.

For example, leafy spurge can decrease the carrying capacity (how many animals can graze in an area) by up to 50%. This translates into lost revenue and jobs. Increases in crop yield from 40% to 100% have been seen with properly timed weed control (all methods of control not

just chemical). Economic impact of spotted knapweed infested areas both directly and indirectly are \$42 million, which translated to 518 jobs in South Dakota.

Within a square meter there are between 30,000 and 350,000 seeds/m² and 120 million to 1.4 billion seeds per acre. Even if only 2-10% of these seeds germinate every year you still have a lot of weeds coming up. Weeds seeds also have a tendency to be able to survive in the soil for many years (in the case of bindweed 30 years or more). Most weeds have traits that allow them to out compete native vegetation such as earlier growth in spring, more extensive root systems or higher seed production. The weeds that start growing earlier in the spring get a head start on utilizing the water and nutrients thus causing more water and fertilizer to be applied. The mustard family plants and Cheatgrass can germinate in the fall and over winter or during the winter and be ready to start taking up nutrients and water before even our cool season grasses are growing. Plants in the mustard family need 2 times the nitrogen and phosphorus and 4 times the potassium and water than oats.

Weeds and especially noxious or invasive weeds have more of an impact than just on the agricultural community. They can alter the environment in several ways such as reducing the plant biodiversity, animals, insects and microorganisms. They can create monocultures, which are undesirable habitat for the native plants, animals, insects and other microorganisms. Even if they don't create a monoculture they can eliminate certain species critical to other species survival. The monoculture can increase wind and water erosion, alter water movement in the soil and alter nutrient cycling. Per Bret E. Olson "weeds alter the structure of ecosystems by altering soil properties, environmental and economic systems"

Soils in weed-infested areas tend to have less organic matter due to increased erosion by both water and wind. This reduces water infiltration and availability to other plants. Nitrogen,

phosphorus and potassium can be reduced by 40-90% in spotted knapweed infested areas.

Noxious weeds have different growth habits and growth structures that can alter how wind, rain, etc. are handled. Grass structures absorb rain energy preventing erosion plus their fibrous root systems hold soil. In spotted knapweed areas, runoff is 1.5 times higher and sediment loss is 3 times higher than in uninfested areas.

They also alter plant community composition for wildlife by reducing forage, altering thermal (due to reduced canopy) and escape cover, altering water flow and availability to wildlife and may reduce territorial space available for wildlife survival. Animal communities are also altered as preferred vegetation is reduced.

Noxious weeds cause more extreme soil temperatures due to lower water levels, exposure of soil to sunlight (reduced canopy), poorer soil aggregation and organic material content. They may have root systems that take longer to decompose than the fibrous roots of grasses and forbs. In riparian areas, native plants reduce stream bank erosion by absorbing and dissipating floodwater energy and also filtering water along with providing wildlife habitat. Some weeds (i.e. Tamarisk) can utilize more water thus reducing water available for wildlife, municipal and agricultural use.

Other ways in which weeds impact us are by reducing product quality. Either the crop grown has received less water and nutrients due to competition from weeds and is therefore lower in quality or quantity or the crop has been infected with a disease carried by the weeds or damaged by insects that live in the weeds. Milk from cows that eat certain weeds can develop an off taste and may not be sellable. Weeds also affect the health of many people and animals every year from mild allergies to poisonings. Land prices are also known to drop over 50% if the property is infested with a noxious weed.

Some weeds are thought to have an allelopathic effect on the soil. This is when the roots or other

plant parts exude a chemical that prevents other plants from growing in the area. Litter from noxious weeds may leach compounds that inhibit germination of other seeds. For example, tamarisk accumulates salt in the foliage, which falls to the ground, and the salt is leached into the ground making the soil too salty for most desirable seeds to germinate. Weeds also alter other historic cycles such as fires (i.e. Cheatgrass). The native plants are not capable of surviving the more frequent or more intense fires.

Utility and transportation costs are increased due to weed control and damage to roads and utilities. For example, kudzu in the south is known to cover utility poles until it weighs them down and they have to be replaced. Other utility areas must be kept weed free to keep equipment operating or to keep animals out. Weeds can grow in cracks of asphalt and eventually damage the asphalt. Also, roadside and utility right of ways must be kept free of noxious weeds.

Lest you think that the cost is only a problem for farmers and ranchers. The weed problem should be of concern to everyone. Control costs in agricultural and utility areas are passed along to the consumer in the price of your food, clothing, etc. Hunters, anglers, hikers, landscape contractors, building contractors and other outdoor enthusiasts should also be aware of and practicing good control practices such as not spreading seed or vegetative matter by their animals, clothing, and equipment and reporting any suspected noxious weed infestations. Monoculture weedy areas are not nearly as interesting or contain as much wildlife as areas with a variety of flora and fauna. When infestations get established in large parks and wilderness areas, the control is much more difficult and more expensive.

So what can the average person do and how can weeds be controlled? Here are some steps to help limit their spread.

1. Control or limit seed dispersal

Clean equipment when leaving known infested areas. From Montana State University, a vehicle driven through spotted knapweed for just a few feet can pick up 2000 seeds. Ten percent of the weed seeds were still on the vehicle 10 miles later. Animals grazing in areas containing noxious weeds should be contained for 2 weeks in a dry lot before moving to a new uninfested area.

2. Control or contain existing infestations
Use integrated weed management techniques to get infestations under control or eradicated. To control an infestation, Start at the outer edges and work inward; always monitor roadsides, railways and waterways.
3. Minimize soil disturbances
Disturbed soils encourage germination of weed seeds
4. Detect and control new infestations early
Be aware when you are hiking, walking your property, etc., look for weeds and report suspected ones to local weed control agencies. Start a routine monitoring program to detect infestations early.
5. Establish competitive vegetation
Areas lacking vegetation are prime areas for weeds to get established, keep pastures healthy. Established grasses and forbs can compete with weeds in most cases.
6. Manage the existing vegetation properly
Develop and use good grazing management practices to keep existing vegetation healthy. Don't overgraze, grasses are designed to be grazed but not over grazed.

References:

“Fundamentals of Weed Science”, Second edition, Zimdahl, R. L., Academic Press, 1993, pp. 30-35
“Biology and Management of Noxious Rangeland Weeds”, Sheley, R. L., Petroff, J. K., Oregon State University Press, 1999, pp.4-15. pp. 44-84

“Economic Analysis of Containment Programs, Damages, and Production Losses From Noxious Weeds in Oregon”, Oregon Department of Agriculture, Plant Division, Noxious Weed Control Program, 11/2000

Bureau of Land Management websites:

http://www.nv.blm.gov/Resources/noxious_weeds.htm

Minnesota Department of Agriculture website:

<http://www.mda.state.mn.us/plants/badplants/noxiousweeds.htm>

Utah State University website:

<http://extension.usu.edu/weedweb/nweeds/status.htm>

“Economic impacts of noxious weeds, other weeds, and tree growth, on agricultural production in the New England Tablelands, New South Wales”, Townsend, J., Sinden, J. A., No. 99-5, May 1999, University of New England Graduate School of Agricultural and Resource Economics

“Assessing the Economic Impact of Noxious Weeds: The Case of Leafy Spurge”, Bangsund, D. A., Leistriz, F. L., Department of Agribusiness and Applied Economics, North Dakota State University, Leafy Spurge Forum Proceedings, January 16-17, 2003

Reseeding

For those of you who were planning on reseeding this spring, unless you are planting a warm season grass it's best to wait now until winter to plant. All grass seed has a preferred soil temperature at which it will germinate. Since most of the grasses planted in this area are cool season grasses, they prefer to germinate when the soil is cooler. Our soils are now warming up past the ideal temperature for cool season grasses. Most grasses and especially native grasses have a built in survival mechanism known as dormancy. The grass seed that is “dormant” needs a trigger to break the dormancy so that it will germinate. In most cases that's a cold cycle such as winter. By planting in November, December, or early next year, you can actually raise your germination percentage in the first year. If you plant grass

with dormant seed in the spring, only that seed that isn't dormant will germinate the first year. The seed that is dormant will germinate in the second year after going through a cold cycle.

All is not lost for this year though. You can use the summer to get the area prepared for reseeding in the winter. If you have weed issues, they are best addressed before you reseed so that the weeds are not competing with the grass as it gets established. If you already have the seedbed prepared, consider planting a sterile millet or oats as a cover crop. They are both annuals. You can mow them before they go to seed and they will provide you with stubble that you can plant into. The stubble will trap and hold any snow we get, shade the soil and protect against wind damage.

90-day weather outlook

From the National Weather Service, the 90-day weather outlook is similar to what we have seen over the course of the last few years. There is a weak La Nina system that is predicted to keep Colorado warmer and drier than normal.

The temperatures will be above normal in all parts of the state with it being warmer towards the southern and western two thirds. The northeast one-third section is indicated to be slightly less above normal.

The precipitation across the entire state is expected to be below normal. The northwest section of the state is expected to be the worst.

You can access NOAA's maps and find more information on their predictions at http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

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