



Lassen

Farm Advisor's Update

A PUBLICATION FOR FARMERS, RANCHERS AND FRIENDS OF AGRICULTURE • COOPERATIVE EXTENSION •

Hopefully the growing season treated you well, and that the transition to fall isn't coming too early. Crisp, cool nights with warm days are one of the reasons this is my favorite time of the year. I am writing today to give a quick update on some of the projects I have been working on and to share some information. As always, please feel free to stop on by the office, give me a call, or shoot me an email (530-251-2650 or tjgetts@ucanr.edu).

Tom Getts

In the future, if you would prefer to receive hard copies of the newsletter, please let Mary Ann in the Cooperative Extension office know your preference by emailing her at mgollnick@ucanr.edu, or by calling her at 530-251-2601. The newsletter is posted on our Cooperative Extension website at celassen.ucanr.edu.

Fall is a Good Time to Think about Weed Control

Tom Getts, UCCE Advisor, Lassen, Modoc Sierra and Plumas Counties

Fall is a great time of year...the days are getting shorter and nights turn crisper, which, in turn, gives plants the cues they need to shut down. Many perennial species begin the process of mobilizing sugars from their leaves and sending them down to be stored in the roots over the winter. Sugars are sent to areas like the crown of the plant, or root buds where regrowth will occur the following year. Fall herbicide applications can take advantage of this movement of sugar.

Perennial weeds are typically very hard to control because the roots need to be killed, and often the most effective way is with herbicides. However, not just any herbicide will do the trick. There are herbicides which do not move in plants and only kill what they touch like Gramoxone, Shark, or organic oils/acids. These products are not a good choice because they only kill the plant's leaves, not the roots. Systemic herbicides are absorbed into plants and move within the vascular system of the plant down to the root. Certain weeds can be targeted with systemic herbicides in the fall, as the movement of the chemical is assisted by the natural flow of sugars to roots and reproductive tissues within the plant. It is important to treat weeds which are still actively growing, as plants which are very drought stressed can become

"hardened off" and not be controlled by chemical applications. Additionally, it is important to spray before it gets too cold, because dead plant tissue killed by a hard frost will not be able to absorb and move the herbicide down to the roots. Certain herbicides do not have activity once they hit the soil, like Roundup or Gramoxone. Other soil-applied herbicides can cause injury to plants for weeks or months, which is called soil residual activity. Choosing herbicides with soil residual activity (Milestone, Telar, etc.) can also be a good choice for applications to weeds in the fall, as roots and root buds can absorb the product from the soil.

Canada thistle is one perennial species where fall applications of either Milestone or Transline can be effective, especially if plants were previously mowed during the season. Other herbicides which can be used for Canada thistle in the fall but may not be as effective are 2,4-D and Dicamba. It is important to make the applications before a hard freeze while leaf material on the plant is still mostly green. Russian knapweed is another perennial weed to target with fall herbicide applications. Research has shown that applications of Milestone, Transline, Curtail, Perspective or Telar can all be effective options. Root buds of Russian knapweed continue to form underground throughout the later months of fall. Research has shown on soils with low organic matter, late-fall or early-winter applications can be effective for Russian knapweed, as soil residual herbicides will be absorbed by the root buds. Short whitetop is another perennial weed species that can be effectively controlled with fall applications of either Telar or 2,4-D. However, do not confuse short whitetop and tall whitetop. Research has shown tall whitetop is most effectively controlled with applications of Telar or 2,4-D at the bud stage in the spring.

Perennials are not the only weeds that can be targeted during the fall. Many biennial weeds can be targeted as well. Biennial plants are those that take two years in order to grow and make seeds, and northeastern California has a variety of biennial weed pests. These plants typically grow as a basal rosette low to the ground for the first year of growth, and during the second year, they "bolt" sending up a vertical shoot with flowers where seeds are produced. Fall can be a good time to target the weed in the "basal rosette" growth stage before the plants have a

chance to make seeds. Regardless if the plants are being dug or sprayed, they are easier to control when they are small. Finding these basal rosettes can be difficult because they are low to the ground. So one way to locate them is to look for the old dead plants from the previous growing season and you will find the basal rosettes around them. Scotch thistle, bull thistle, musk thistle, spotted knapweed, and diffuse knapweed, are some biennial weeds that can be targeted in the fall. Control of biennial plants can be as easy as severing the basal rosette



Scotch Thistle Rosette

from the root with a sharp shovel. These plants will not sprout if no leaves are left attached to the root. In large patches, herbicides can be a more economical alternative for effective control of these biennial weeds. There are always too many things to do in the spring, so get out and control some of your weeds this fall!

Cleaning and Winterizing Spray Equipment

Based on the previous article, hopefully you have time to get out and kill some of your weeds this fall. It is important to maintain and winterize your equipment before winter comes, as equipment is expensive and well worth protecting. Maintaining equipment such as sprayers will help it last, but also ensures that it functions correctly when you need it again. If your sprayer is not properly stored, it might need repairing in the spring in order to function. Repairs take time, and could possibly lead to missing the optimal growth stage of the target pest during the busy spring season.

I have pulled together some general recommendations on sprayer winterization from various extension publications. However, manufacturers often have their own list of maintenance requirements. So, if you have your sprayer manual, follow that first.

With winter comes freezing temperatures and increased precipitation, which can cause wear on all equipment, especially if stored outside. Winterization of sprayers can help improve the life of equipment, and ensure functionality when you are going to be relying on it in the spring.

Cleaning the sprayer is the first step. Whenever working around pesticides, it is important to wear proper protective equipment (PPE), and this applies also when performing sprayer maintenance. It is important to know what types of pesticides you have used, because the label will tell you what PPE is required.

Next, rinse the sprayer. This includes spraying off the outside and then rinsing the tank and flushing the rinsate through the hoses and pump. When you rinse a sprayer out, multiple small rinses are better than one "full" rinse. Most labels indicate disposing of the rinsate by spraying it out on the site labeled for the pesticide application. Increasing nozzle size can help increase the speed of spraying out the rinsate.

After the sprayer is rinsed, it is important to clean the tank with a detergent. There are many commercial products available; however, household ammonia works well for many pesticides (1 percent solution). Fill the tank with water and add the chosen detergent. Agitate the solution and run the sprayer to flush the hoses and pump with the solution. Then let the solution stand in the system for a few hours. Spray the detergent solution through the boom after letting it sit. Next clean all nozzle screens and filters.

*SU herbicides, such as Telar, will become more water soluble in high pH water after you add ammonia. Never mix chlorine bleach in sprayers which have been cleaned with ammonia or been used to apply fertilizers containing ammonia. Deadly chlorine gas can be formed by mixing chlorine bleach with any ammonia product!

Finally rinse the entire system again with clean water to remove the detergent from the sprayer. As you spray out the detergent rinsate, look for an irregular spray pattern. If you observe an irregular pattern, check your nozzles for wear, as nozzle orifices are one of the most important aspects of making accurate pesticide applications. Accurate applications are important to ensure you are not over or under applying expensive pesticides.

Now that the sprayer is clean, it is important to protect it against freezing temperatures. The idea behind winterization is to get all of the water out the pumps and lines to prevent damage. Antifreeze can be used to assist with this process. There are two types of antifreeze that can be used: automotive antifreeze and RV antifreeze. Both have their pros and cons. RV antifreeze can be somewhat corrosive to seals and pumps and can gel in extremely cold temperatures. However, RV antifreeze is cheaper and can be disposed of on the ground. Automotive antifreeze is not as corrosive to seals and pumps, but is more expensive and needs to be disposed of properly as it is poisonous to wildlife and humans.

Remove pressure gauges to store them inside over winter and put caps on their openings. Strainers, screens and nozzles can be removed. Cap all of the nozzles on the

boom except the ones on the ends (nozzle caps can be purchased cheaply from the nozzle manufacturers). Small metal parts can be stored in vegetable oil to prevent corrosion over the winter.



Capped Nozzle

Fill the tank with a 50% solution of water and antifreeze (or according to label directions). Circulate this solution throughout the entire system to coat the inside of the pumps and hoses. Cap remaining nozzles once the boom is full of the solution (catch the antifreeze if automotive antifreeze is chosen). Leave the antifreeze solution within the pumps and hoses over winter to ensure things do not freeze. The idea of filling up the sprayer system with antifreeze is to remove all of the water and air within the system which could cause damage to the sprayer.

Now the sprayer should be ready to store for the winter.

Parker 3-Step: Digging Way Back in the Files for Range Trends

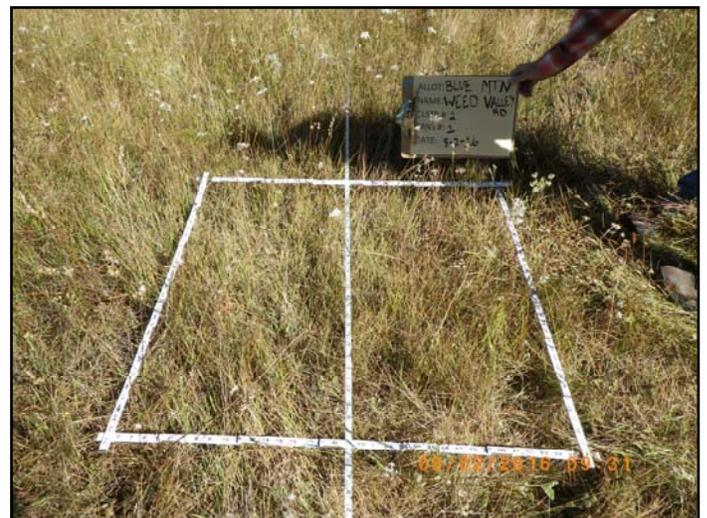
By: Laura Snell, UCCE Range and Natural Resource Advisor, Modoc County

As forests in Northern California prepare for forest plan revisions, land managers started thinking, what kind of long term range trend data do we have? That question has foresters across Northern California going way back in their files and to an old sampling method looking for answers.

In 1948, the USFS started implementing the Parker 3-Step method. This “new” method collected both quantitative and qualitative data and provided scores for resource conditions. Parker believed that range management was a “cooperative undertaking between the FS and livestock grazing permittees and both parties should take part in order to secure a better mutual understanding of just what has occurred.” He saw a need for trend in range condition and the importance of using ecological knowledge in answering range problems.

The first step of the Parker 3-Step is to create permanent marked transects of 100 feet and read the plant composition and soil cover every foot using a $\frac{3}{4}$ inch loop. This loop is about the size of a small keyring. If vegetation covered over half of the ring, it was counted. There were 3-6 transects permanently placed in each ecological location. The second step is to summarize the field data for each location. This “scoring” of the site helps managers visually assess forage density and train the manager to assess the entire pasture or allotment based on the sampled site. The third step consists of two photographs, one of the general landscape and a close up of a 3' x 3' ground plot.

By the end of the 1950s, permanent Parker 3-Step plots had been established across USFS and BLM land across the Western US. When it came time to re-read the plots every decade, forests and districts offices varied in their commitment. Supervisors and regional directors changed and although some forests continue to re-read the Parker 3-step plots to this day, most offices stopped sometime in the 80s or switched to other sampling protocols.



Frame Used for Sampling

This past summer, a crew of Farm Bureau, UCCE, and USFS staff ventured out to find the Parker 3-Step permanent transect lines on the Devil’s Garden in Modoc County. Not sure of what they would find, they used pictures and old compass headings to find all 22 plots. Not all of the t-posts were found, but enough to find all of the permanent transects. Most of the t-posts had been in the ground for over 60 years. Eleven sites were chosen across the Devil’s Garden to be re-read and re-established if they needed new markers. All of the sites were read using the original Parker 3-Step protocol and also a newer method called line point intercept.

Although this is only a preliminary look at the wealth of information that Parker 3-Step might provide, transects across grazing allotments in the Modoc, Klamath, and Lassen National Forests look promising. Next spring

more transects will be found and sampled and the results will yield information on the changes that have occurred on the forest over the last 65 years. The old paper sampling records are being digitized and analysis of the samples will continue over the next year. The USFS Region 6 range monitoring handbook characterizes Parker 3-Step well stating, "although this method is no longer a standard in any Forest Service Region, much legacy data remains and is an invaluable asset in understanding past range conditions."

Intermountain Alfalfa Weevil Resistance to Pyrethroid Insecticides Confirmed

This growing season, alfalfa weevil resistance to pyrethroid insecticides was confirmed in Siskiyou County. I wanted to include a link to this article written by Steve Orloff, *et al.*, posted on the UC Alfalfa Forage and News blog. It is a great article which explains what they were seeing and how they went about confirming the weevils were resistant: <http://ucanr.edu/weevil>.

I personally didn't hear about poor weevil control or suspected resistance in this part of the Intermountain Region (please let me know if you did), however, resistance to pesticides is always something to keep an eye out for. The authors make good points about the need to rotate pesticide mode of action and management practices to help prevent the evolution of a resistant population. Once pesticide resistance develops, that tool may be lost to control the pest. If resistance develops in one area, there is potential for it to spread to neighboring areas as well, which is of concern. There are not as many new pesticides being released/registered as there have been in the past. Therefore, it is important to use best management practices to conserve the tools we have, and delay pesticide resistance development. I wanted to put the issue of insecticide resistance on your radar, and I hope you are able to pull up the article sometime.

Current Research Projects

There are numerous small-scale field trials I have been working on over the past growing season. This winter I will post a full report of the initial results gathered during the past growing season:

- Winter Annual Weed Control in an Alfalfa Orchardgrass Mix
- Weed Control in Alfalfa Grown for Seed
- Young Juniper Control
- Roundup Ready Alfalfa Injury
- Medusahead Control and Revegetation
- Drizzle Method Tall Whitetop Control



Upcoming Events:

Moonlight Fire Invasive Weed Workshop

Greenville Community Hall, October 12th
8:30 am- 4:30 pm (register by October 7th)

Plumas County Continuing Education Day

Plumas County Fairgrounds, November 9th

California Alfalfa and Forage Symposium

Reno, Nevada, Peppermill Hotel and Casino,
November 29th - December 1st

Don't miss out on the **California Alfalfa and Forage Symposium** from November 29th to December 1st at the Peppermill Hotel and Casino in Reno this year. It should be a good time! A lot of great topics will be covered. The first day will be focused entirely on pest management! Days two and three will cover topics regarding exports, economics, market trends, irrigation efficiency, fertility management, and the future of genetics in alfalfa. You can find registration information and the agenda online at: <http://calhay.org/symposium/>.

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Tom Getts: Weed Ecology/Cropping Systems
Farm Advisor— (530) 251-2650

Mary Ann Gollnick: Layout and production

707 Nevada St.
Susanville, CA 96130

<http://celassen.ucanr.edu>

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