HEALTHY FOOD SYSTEMS • HEALTHY ENVIRONMENTS • HEALTHY COMMUNITIES • HEALTHY CALIFORNIANS

University of California
Agriculture and Natural Resources
Making a Difference for California
Cooperative Extension Sutter-Yuba Counties

Ranch Update

August, 2012

IN THIS ISSUE

Produced by:

Glenn Nader
UC Farm Advisor
UCCE Sutter, Yuba, and Butte Counties
ganader@ucdavis.edu

Milestone (Aminopyralid) Applied Preemergence can Control Medusahead

Joseph DiTomaso-UCCE Weed Specialist, Guy Kyser–UC Davis Specialist
Josh Davy – Livestock and Range Farm Advisor

Medusahead (*Taeniatherum caput-medusae*) is one of the most problematic invasive grasses on many California rangelands. It is difficult to control selectively in grasslands. Prescribed burning, grazing, and herbicides have been tested with some success but are not practical in all situations. The selective herbicide Milestone (aminopyralid), normally used for control of certain broadleaf species such as thistles, suppresses some annual grasses when applied pre- or early postemergence. We tested the efficacy of the aminopyralid for medusahead control in preemergence applications at three foothill rangeland sites in northern California. Treatments were applied in early fall 2009 and we evaluated the plots in May 2010.

Medusahead
(*Taeniatherum caput-medusae*)

Our results indicate that high label rates of aminopyralid applied in fall, before medusahead emergence, can help to suppress this weed in annual grasslands of California. Medusahead control at the highest rate (14 oz product/acre) of aminopyralid was consistent across the three sites, averaging 89% reduction in cover. Aminopyralid also provided some selectivity among grasses, resulting in increased cover of more desirable annual forage species, such as slender oat (*Avena barbata*) and Italian ryegrass (*Lolium perenne* ssp. *multiflorum*) at both 7 and 14 oz product/acre.

Though our study showed that control was less effective at the 7 oz product/acre rate, studies in other areas of California have shown this rate to also be effective. The key to optimum results is the timing of application, which should be made in late summer prior to rains and seed germination in order to provide the best possibility of suppression or control. Grass control results will be poor if any of the winter annual grass seeds have germinated prior to application. Thus, aminopyralid has potential utility for

suppressing medusahead and also cheatgrass, also called downy brome (*Bromus tectorum*), based on other studies. This may be a particularly effective management strategy if a target site is also infested with yellow starthistle or other problematic members of the Asteraceae (sunflower family), which are also highly susceptible to aminopyralid. In many cases, aminopyralid applications that already being made to control starthistle can simply be applied prior to fall rains instead of during winter with the added advantage of medusahead in addition to starthistle control.

However, the most effective rate (14 oz product/acre) is registered for use only as a spot application. In situations where this rate can be justifiably used, it would be expected to give season-long control of medusahead, as well as longer-term control of thistles and some perennial species. This treatment may be a useful management tool in situations requiring intensive management, such as small infestations and revegetation projects.

Figure 1. Treated area on the right with annual ryegrass, non-treated on the left with medusahead.

We are currently testing these results on a larger scale to determine how long the effects will last and provide an insight into the economics of this weed control measure for range managers. Additionally, aminopyralid plots are also being combined with other control methods such as burning to determine if eradication is possible.

2011/12 Northern California Winter Pasture Experience Varies

Larry Forero—Shasta/Trinity Livestock Farm Advisor
Glenn Nader—Sutter/Yuba Livestock Farm Advisor

Forage production on California annual range is highly variable. The 2011/12 forage year was an especially difficult year to predict. The timely fall rains coupled with a dry warm January and February and then a favorable spring rainfall in some areas resulted in better than average forage production in a Redding Area plot and below average results in Marysville area. Figure 1 represents long term plot data on a ranch located near the Redding Airport with an average annual production of about 1500 lbs/acre. The 2011-2012 annual production is estimated at about 120% of normal.

Figure 2 shows the average monthly and seasonal production at the UC Sierra Foothill Research and Extension Center near Marysville. The forage produced on a monthly basis last year was below the average across the entire growing season. The late season rains pushed up the forage total to about 82% of average. This situation was common across northern California. Many producers made arrangements and removed livestock from annual ranges and the rains that came in some areas after cattle were removed resulted in additional dry forage to ship back to in the fall. If we fast forward to the 2012/2013 forage year, the residue from the previous forage year (2011/12) resulted at least a comfortable start to

the grass season in some areas. Other areas the rain was too little, too late. The problem many ranchers are faced with is inadequate stock water. The lack of rainfall in the 2011/12 forage year has left many reservoirs and seasonal streams dry. Some counties have initiated drought relief program. The USDA drought monitoring group is watching the situation and updating the precipitation maps weekly. It can be seen at http://droughtmonitor.unl.edu/. The local Farm Services Agency is charged with the responsibility of administering disaster programs and these programs tied to these maps. Check with your local USDA-Farm Services Agency to discuss your specific situation. Your local FSA staff are interested in hearing about range conditions. Take the time to get acquainted with them and how these programs work now so that should they become necessary, you will be better prepared if the dryer conditions continue.

Figure 1.

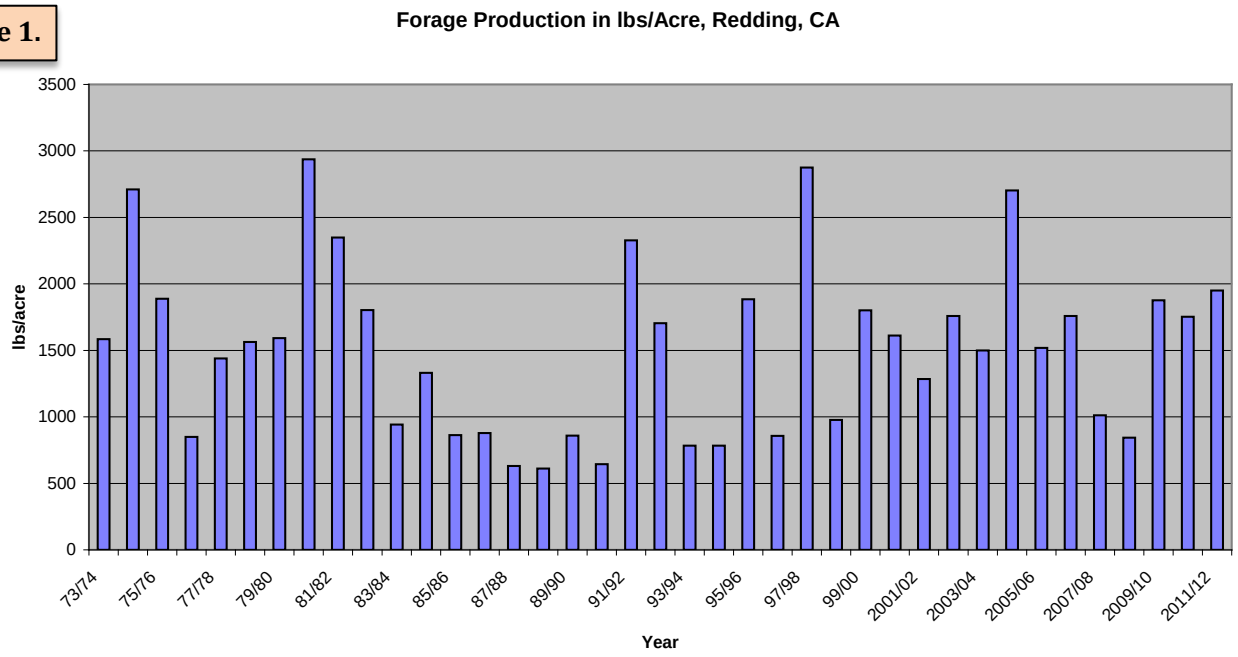
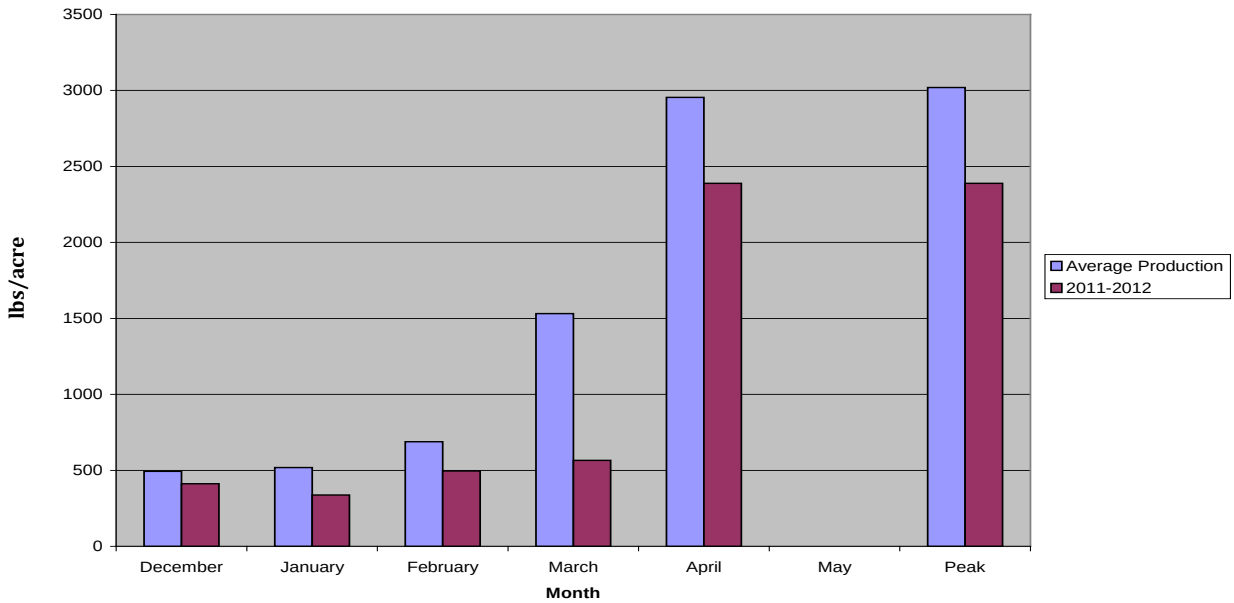


Figure 2. **Average and 2011/2012 Season Monthly Annual Forage Production at the UC Sierra Field Station**



Important Facts to Know about the Herbicide: Glyphosate

Brad Hanson and Glenn Nader
University of Calif. Cooperative Extension

Not all glyphosate herbicides are equal

Producers need to compare price and application rates of glyphosate herbicides based on the acid equivalent per gallon. Various glyphosate products have different formulations (e.g. "salts") which affects the concentration of glyphosate acid in the formulated material. Since it is actually the acid form of glyphosate that binds to the plant enzyme and stops amino acid formation and kills the plant, glyphosate rates are often expressed as lbs "acid equivalent" per acre rather than lbs "active ingredient".

Should I Add Adjuvants?

There are three primary types of adjuvants that are sometimes used with glyphosate herbicides: surfactants, water conditioners, and buffering agents. Most glyphosate formulations contain an adequate concentration of surfactants, except if applying it to weeds with dense hairs or thick cuticles on their leaves or to woody plants.

Table 1. Glyphosate Product Comparisons[1]

	Fomulated	Concentration[b]
Trade Name	Salt[a]	lb ae/gal
Roundup Original	IPA	3
Roundup Original Max	K	4.5
Roundup Weather Max	K	4.5
Touchdown	DA	3
Touchdown Total	K	4.5
Touchdown Hi Tech	K	5
Durango	IPA	4
Glyphomax XRT	IPA	4
Most Generics	IPA	3

1Glyphosate is generally formulated as one of the following salt molecules: IPA = isopropylamine; K = potassium; DA = diammonium; or TMS = trimethylsulfonium.

[b] The concentration of glyphosate salts can be expressed in terms of either pound of glyphosate salt (ai) per gallon or pound of glyphosate acid (ae) per gallon. Because the various salts have different weights, comparing glyphosate on an acid equivalence (ae) basis provides a better comparison of the herbicidal component of the different salts.

Water conditioning agents such as ammonium sulfate fertilizers are commonly used to increase glyphosate efficacy in two ways. First, one of the major causes of a reduction in effectiveness of glyphosate is from mixing it in "hard" water high in sodium, potassium, calcium or iron. These positively charged ions bind to the negatively-charged glyphosate molecule (think of two magnets with opposite polarity) in the spray tank and this new molecule cannot be absorbed by the plant. One of the most effective and inexpensive methods of reducing this problem is to add dry ammonium sulfate (AMS) fertilizer with formulation numbers on the bag of (21-0-0-24) at .085 to .17 lb per gallon of water before adding the glyphosate. The ammonium in the AMS also helps with glyphosate absorption through the leaf and increases transport to the roots in some weeds which can increase efficacy.

Plant and Environment Conditions

Plants that are covered in dust or are under significant environmental stress (water, heat, cold, physical damage) do not absorb or transport glyphosate effectively to growing points. For optimal weed control with glyphosate, weeds should be actively growing and free of dust at the time of application. Consider applying when nighttime frosts are not occurring and the daytime temperature is above 60 degrees. Excess leaf moisture from a heavy dew or rainfall too close to the application can also reduce glyphosate

performance due to herbicide runoff. Although it is not well understood, it seems that when light intensity is higher at the time of application performance is often greater.

Timing of Application

Annual weeds (plants that grow from seed each year) are best controlled when they are small; however,glyphosate only kills emerged growing plants, not seeds or newly germinated seedlings so time application(s) accordingly. Young annuals have relatively smaller root systems then and require less glyphosate to kill the plant. In contrast to annuals, perennials (plants that grow each year from the same roots and have a larger root structure than annuals), like scotch broom, are best controlled later in the season when the plant is in the bud stage immediately prior to flowering. This is when perennial plants are moving sugars, along with the more glyphosate, to their larger root system for winter storage and glyphosate performance is typically much better.

Adapted from University of California Statewide Integrated Pest Management Program publication. For a complete copy of the report go to http://www.ipm.ucdavis.edu/PDF/PUBS/miller-glyphosatestewardship.pdf

Electronic Newsletter Delivery

Due to limited resources, we are strongly encouraging clientele to change their newsletter delivery method from US Mail to E-Mail. When a new issue is posted online, an email is generated to each subscriber, allowing them access to the latest information and all previously published newsletters and E-mail Extra Alerts. Please call the office at 530-822-7515 to have your subscription changed to email delivery. *The mail list derived from the return of a renewal is used expressly by the Sutter/Yuba UCCE Office. Our lists are not given or sold to other UCCE Offices, the University of California or companies wishing to sell or advertise their products.*