

Evaluation of Sharpen Herbicide in Dormant Alfalfa

Alfalfa and Forage Meeting
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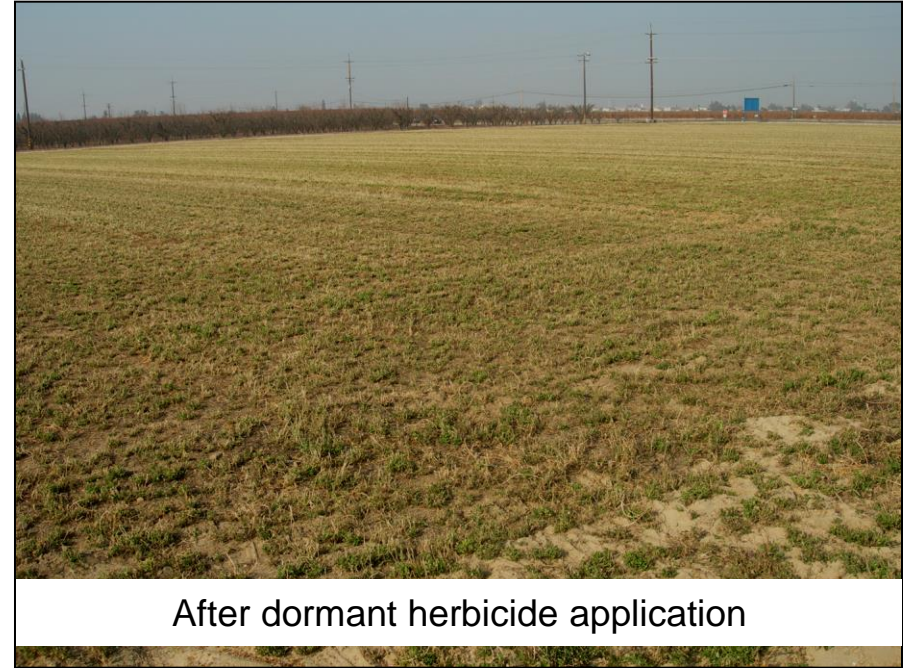
Why we need weed control in alfalfa:

- ▶ Stand development
- ▶ Yield
- ▶ TDN
- ▶ Palatability
- ▶ Poisonous
- ▶ Off-flavoring

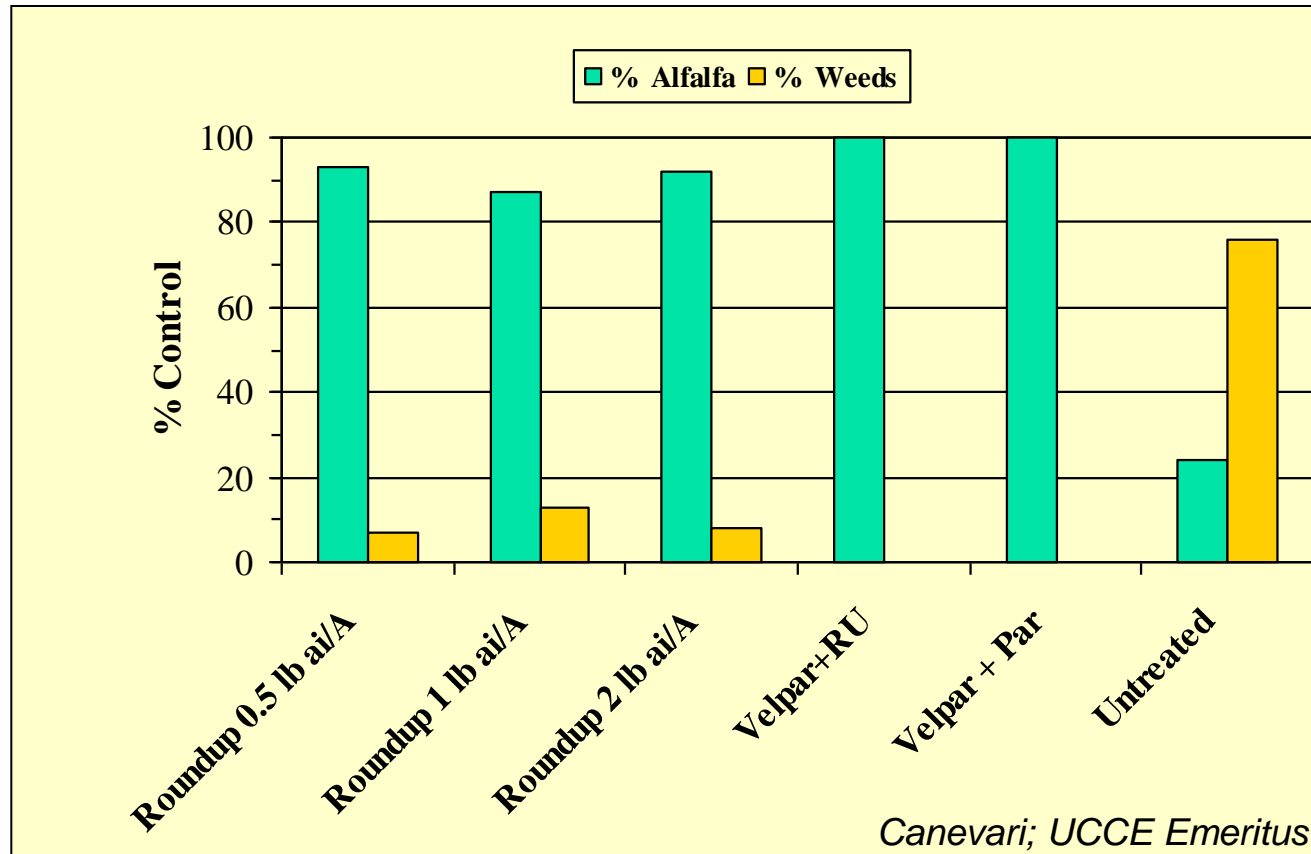
Cheeseweed
Dodder
Fiddleneck
Groundsel
Hairy fleabane
Henbit
Horseweed
Junglerice
Knotweed
Nettle
Nightshade
Sprangletop
Swinecress
Nutsedge
Yellow foxtail



Herbicides are usually needed during the dormant period:



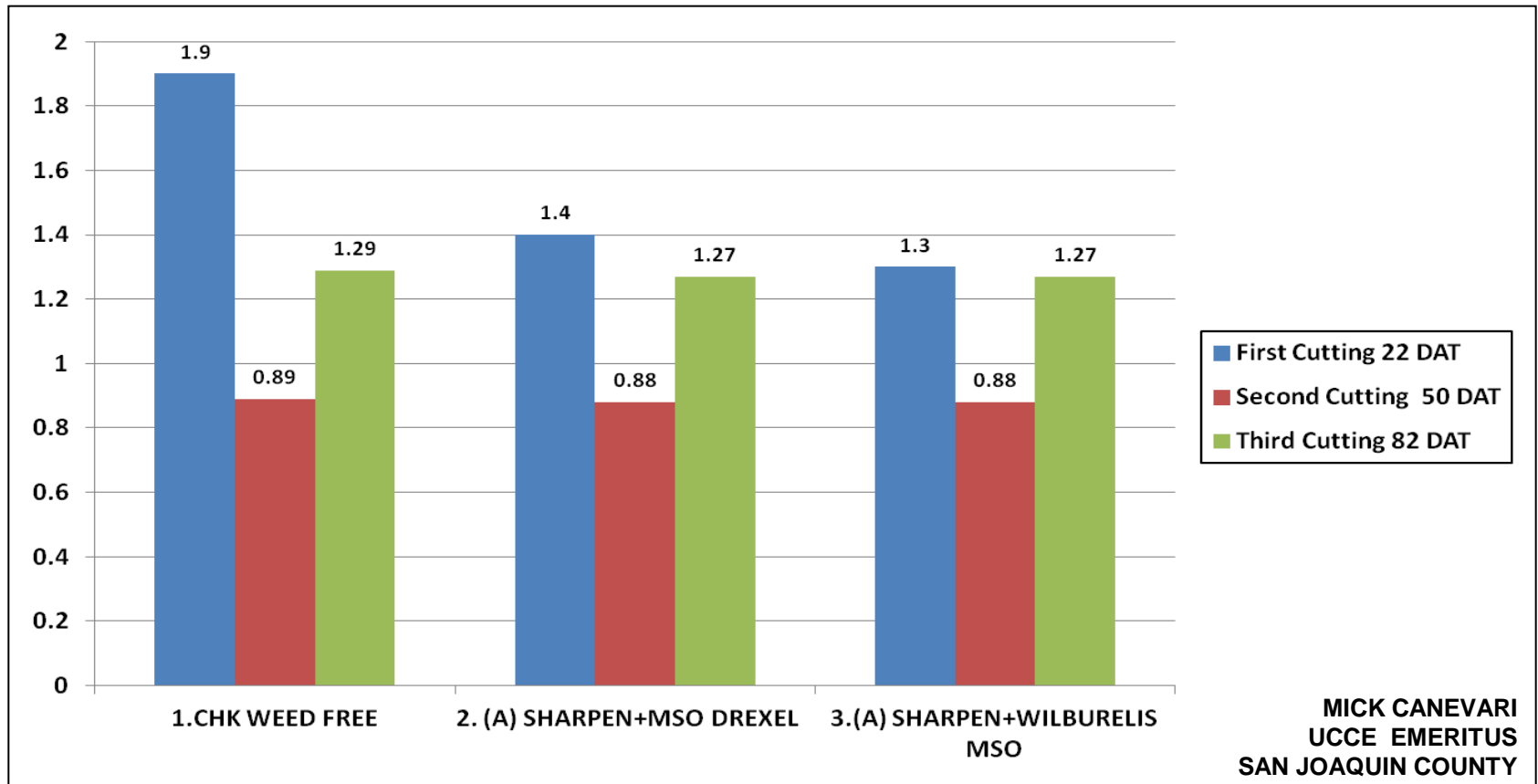
Previous work in dormant alfalfa:



The untreated treatment had annual sowthistle, chickweed, burning nettle, malva, annual bluegrass.

ALFALFA SHARPEN TOLERANCE BETWEEN CUTTINGS - 2013

TONS/ACRE



Appl. A = 5/28/13; Sharpen @ 0.0445 lba/A.; All additives @ 1.0% V/V; All treatments AmmoSulfate @ 8.5lb/100gal

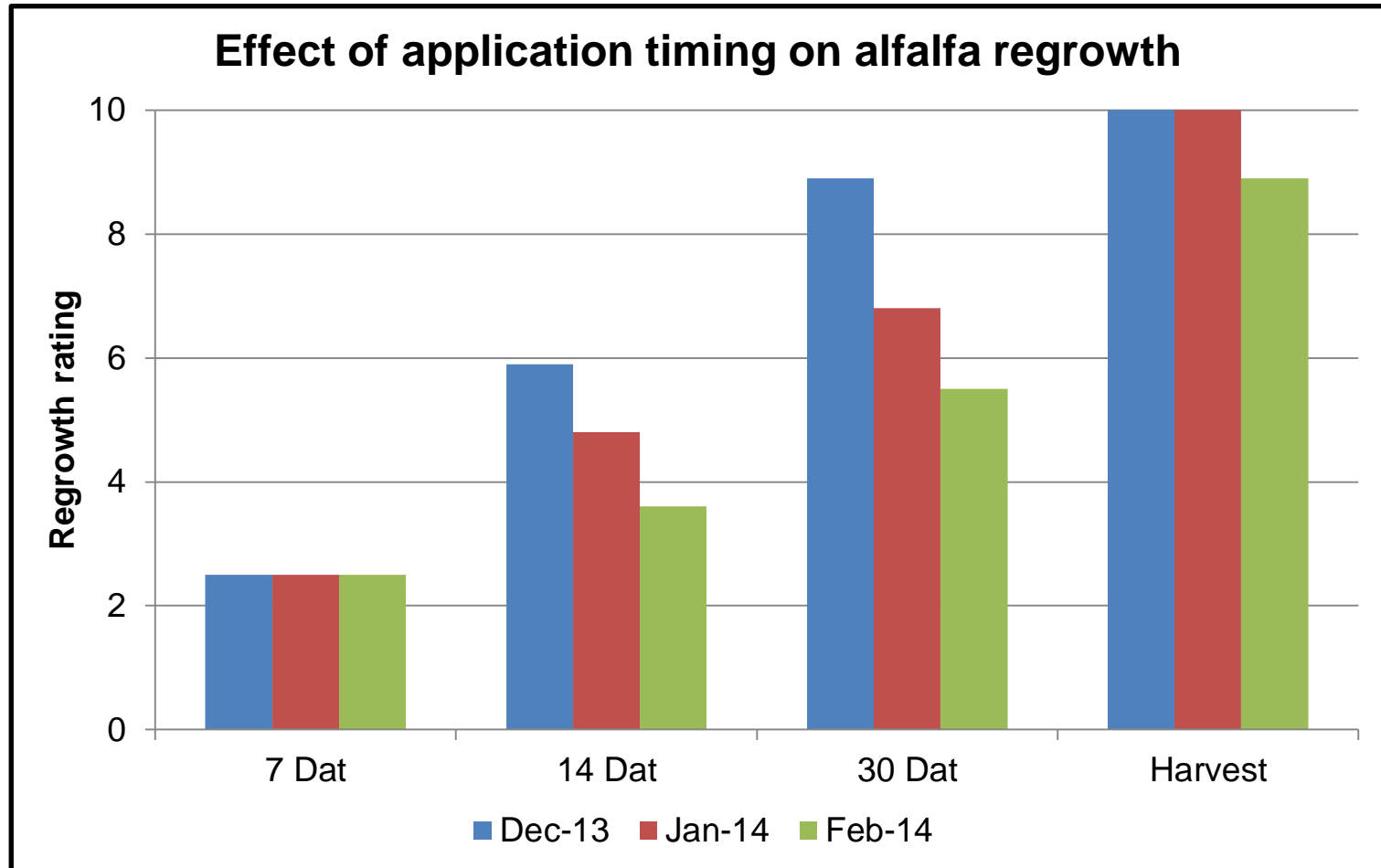
We conducted a field trial in 2013/14 to evaluate the effect of dormant treatments of saflufenacil (Sharpen) on alfalfa growth response.

Note: Sharpen was not registered in alfalfa in California at the time of this trial.

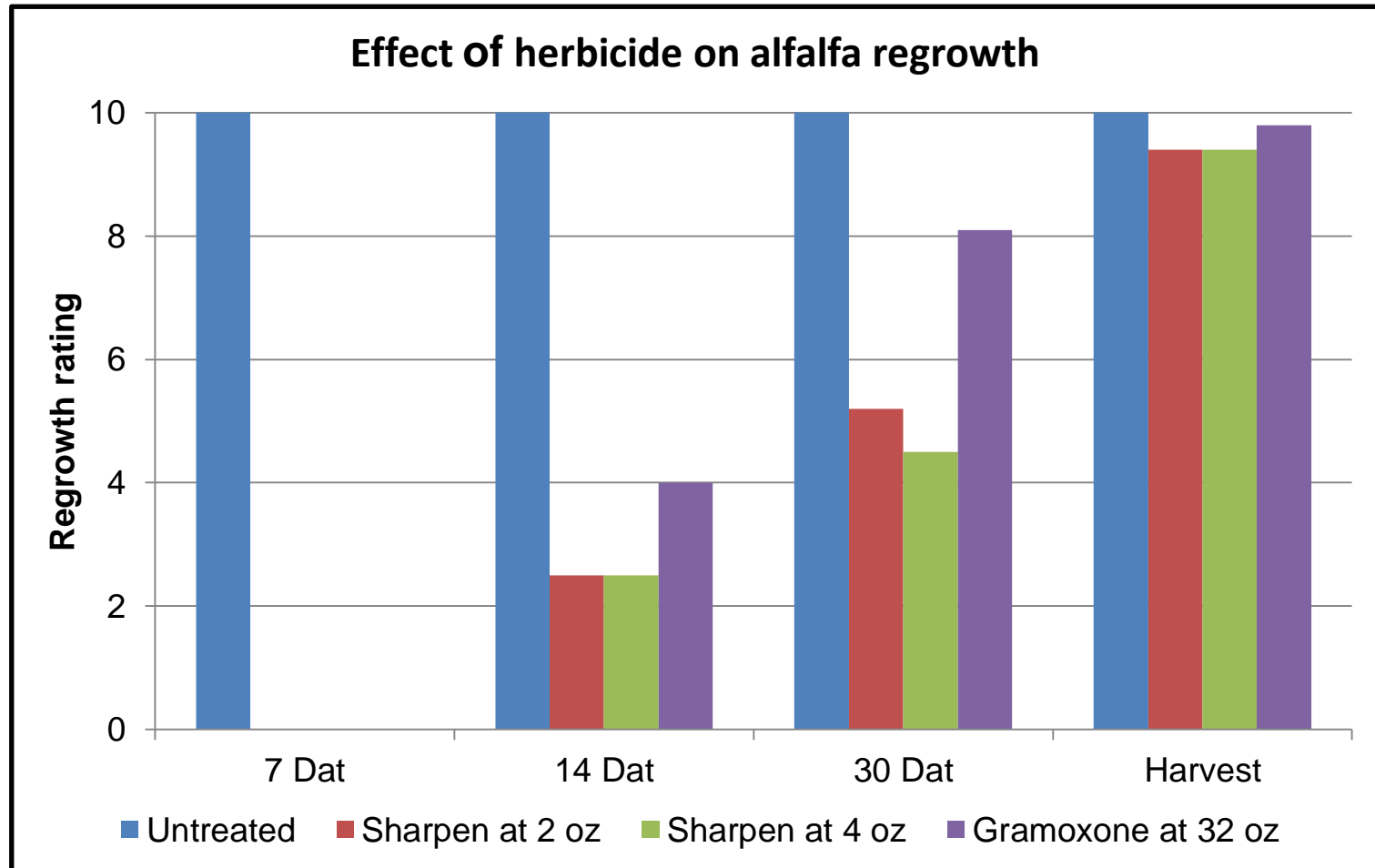
Basic trial information:

- ⇒ Location: UC KARE in Parlier, CA
- ⇒ Alfalfa: 3-yr old stand (Roundup Ready)
- ⇒ Split-plot design with 4 replications:
 - Main plot was treatment timing (Dec 13, Jan 14, Feb 14)
 - Sub-plot was herbicide (Unt., Sharpen 2 & 4 oz, Gramoxone 32 oz)
- ⇒ Sub-plots were 14 feet wide and 25 feet long
- ⇒ CO2 back-pack sprayer; TT11002 (4); 2 passes/plot
- ⇒ Spray volume of 23.8 gpa at 40 psi
- ⇒ Evaluations included:
 - crop recovery, stem count, height, and yield, plant composition, weed control

Results:



Results:



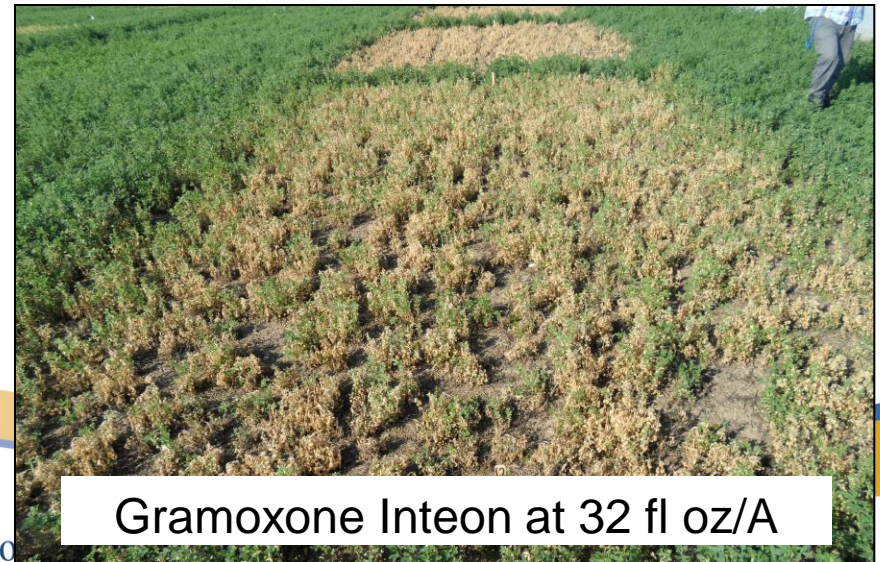
Alfalfa recovery

(Treated with Sharpen; 2 weeks after Feb app.):



Alfalfa recovery

(2 weeks after Feb application):



Alfalfa recovery (2 weeks before harvest):



Treated Dec 2013



Treated Jan 2014



Treated Feb 2014

Alfalfa recovery (prior to 2nd cutting):



Results:

Effect of application timing on alfalfa stem count, height, and yield

Timing	Stem count ¹ (at harvest)	Harvest ² weight (lbs)	Crop height ³ (2 nd cutting)	Crop height ³ (3 rd cutting)
1. A (Dec 13)	43.8 a	41.1	22.8 a	31.5
2. B (Jan 14)	44.1 a	40.8	21.8 a	31.2
3. C (Feb 14)	40.9 b	37.5	20.0 b	30.9
CV (%)	8.58	13.70	8.97	6.26
LSD ($p=0.05$)	2.65	<i>n.s.</i>	1.39	<i>n.s.</i>

¹Number green, productive stems in a 1 ft² area, and based on three samples per sub-plot.

²Wet weight in pounds, using a Cater plot harvester, swath 6 ft wide by 25 ft long.

³Measured in inches from soil line to top of plant, and based on three samples per sub-plot.

Results:

Effect of herbicide on alfalfa stem count, height, and yield

Herbicide	Rate/A	Stem count ² (at harvest)	Harvest ³ weight (lbs)	Crop height ⁴ (2 nd cutting)	Crop height ⁴ (3 rd cutting)
1. No herbicide	0	44.5 a	43.6 a	22.8	30.1
2. Sharpen ¹	2 fl oz	44.0 a	39.4 ab	21.2	31.5
3. Sharpen ¹	4 fl oz	40.1 b	39.6 ab	21.1	32.0
4. Gramoxone ¹	32 fl oz	43.2 ab	36.7 b	21.0	31.2
	CV (%)	8.58	13.70	8.97	6.26
	LSD ($p=0.05$)	3.06	4.53	<i>n.s.</i>	<i>n.s.</i>

¹ AMS added at 8.5 lb/100 gal + MSO at 1% v/v.

²Number green, productive stems in a 1 ft² area, and based on three samples per sub-plot.

³Wet weight in pounds, using a Cater plot harvester, swath 6 ft wide by 25 ft long.

⁴Measured in inches from soil line to top of plant, and based on three samples per sub-plot.

Results:

Effect of app timing and herbicide on weed control and plant composition

Herbicide	Rate/A	Timing	Weed cntrl 30 DAT	Weed cntr at harvest	Alfalfa DW (%)	Weed DW (%)	
1. No herbicide	0	A (Dec-13)	0.0 b	0.0 b	96.10	3.90	
2. Sharpen	2 fl oz	A (Dec-13)	10.0 a	10.0 a	100.00	0.00	
3. Sharpen	4 fl oz	A (Dec-13)	9.9 a	9.8 a	99.56	0.44	
4. Gramoxone	32 fl oz	A (Dec-13)	9.9 a	9.8 a	99.83	0.17	
5. No herbicide	0	B (Jan-14)	0.0 b	0.0 b	97.47	2.53	
6. Sharpen	2 fl oz	B (Jan-14)	9.9 a	9.9 a	99.82	0.18	
7. Sharpen	4 fl oz	B (Jan-14)	9.9 a	9.8 a	99.82	0.18	
8. Gramoxone	32 fl oz	B (Jan-14)	9.9 a	9.9 a	100.00	0.00	
9. No herbicide	0	C (Feb-14)	0.0 b	0.0 b	99.37	0.63	
10. Sharpen	2 fl oz	C (Feb-14)	10.0 a	10.0 a	100.00	0.00	
11. Sharpen	4 fl oz	C (Feb-14)	10.0 a	9.9 a	100.00	0.00	
12. Gramoxone	32 fl oz	C (Feb-14)	9.9 a	9.9 a	99.89	0.11	
<i>Statistical notation</i>			<i>CV (%)</i>	<i>1.02</i>	<i>2.22</i>	<i>1.25</i>	<i>182.68</i>
			<i>LSD (p=0.05)</i>	<i>0.13</i>	<i>0.28</i>	<i>n.s.</i>	<i>n.s.</i>

Weed control (after Jan treatment):



No herbicide



Sharpen at 2 fl oz/acre

Summary

- ▶ Alfalfa regrowth was reduced 24-38% at 30 DAT when treated in Jan and Feb, while only the Feb treatment timing continued to reduce regrowth (11%) at 1st cutting.
- ▶ Sharpen-treated plots reduced regrowth by 50% at 30 DAT and by 11% at 1st cutting.
- ▶ Stem counts were lower in Feb-treated plots or where Sharpen was used at the highest rate tested (4 fl oz).
- ▶ Herbicide timing or herbicide type did not appear to result in reduced yields.
- ▶ All herbicides tested gave excellent weed control under a “lower-than-normal” rainfall year.
- ▶ Applying Sharpen to dormant alfalfa later than December in the southern San Joaquin Valley delays alfalfa recovery and may be too risky to use that time of year. Treating with Sharpen after final cutting or clipping (no later than Dec) would be safer.

I want to acknowledge James Schaeffer (SRA) who did most of the heavy lifting in this trial.



<http://cefresno.ucdavis.edu>



The screenshot shows the website for the University of California Cooperative Extension Fresno County. The header includes the UC logo and the text "University of California Cooperative Extension Fresno County". Below the header is a navigation bar with "UCCE Fresno" and "Contact Us". A sidebar on the left contains a menu with items: Home, Powerpoint Presentations, Website Links, Weed Identification, Weed and Herbicide Topics, Weed Herbicide Charts, and Research Reports. The main content area is titled "Weed Management" and includes a sub-section "About my Program". This section contains text describing the impact of weeds on crop production and land values, and a photograph of a field with tall weeds. A portrait of Kurt Hembree is shown on the left side of the main content area, with his name and title "Weed Management Farm Advisor" below it. In the top right corner of the main content area, there are links for "EMAIL" and "PRINT".

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Weed Management

About my Program

Crop and non-crop areas alike are impacted by weed growth to one degree or another. Weeds affect crop production in several ways; weeds delay or reduce stand establishment, affect crop growth and development, reduce food quality and yield, compete for resources like water and soil nutrients, reduce irrigation uniformity and efficiency, harbor rodents and other destructive pests, increase the risk of frost hazard in temperature sensitive crops, and increase the cost of production. In non-crop settings, weeds may be poisonous to people and livestock, interfere with water recreation and water transport, cause potential traffic hazards, pose a fire hazard, are unsightly, and reduce land values.

To effectively manage weeds, one must be able to correctly identify the weeds present, develop a broad understanding of weed growth and survival, become familiar with the tools (both chemical and non-chemical) available, and implement a strategy that is both economically and environmentally sound. This is sometimes referred to as "Integrated Weed Management".



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