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***Alfalfa Meeting
UC Kearney Ag. Center
Parlier, CA
8:00 a.m. - 12:00 noon
(agenda enclosed)***

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Weed Free Forage, Hay, Straw and Mulch

Beginning in January of 2003 all public lands in California (National Forest Service, Bureau of Land Management, and National Park Service) will require the use of certified Weed Free Feed and Forage when horse camping, packing or staying on federal lands for periods of time. The purpose of the Executive Order is to prevent the infestations of public lands with invasive, non-native weed species. Although California public lands do not have as severe a weed problem as found in the Rocky Mountain, the invasion of yellow starthistle is a prime example of why a weed free program is being implemented in California. Thousands of acres of range and public lands have been rendered useless for recreational activity and/or reduced in grazing value.

Weed free feed or forage is all baled hay, grasses, alfalfa or any baled combination plus straw and mulch. Cubed hay used on public lands will also have to be processed from field that have been certified as weed free. The term "weed free" is defined as being free from propagative plant parts, such as rhizomes, stolons, tubers, and seed of noxious weed species as listed in the California Code of Regulations.

The list of noxious weed is quite comprehensive, including several annual and perennials, some very common, and others not so common or found at all in the Central Valley hay producing areas. Common weeds that would have to be absent (at least absent of vegetative reproductive structures and seed) to be certified include: dodder, ground cherry, nightshade, perennial sowthistle, white horenettle (silverleaf nightshade), knotweed, yellow and purple nutsedge, bermudagrass, field bindweed, johnsongrass, puncture vine, Russian thistle (tumbleweed) and yellow starthistle.

What Does This Mean to the Hay Producer?

Growers that voluntarily choose to participate in the certification program may be able to produce hay that can be sold at a premium. Application for certification shall be made by the producer to the County Agricultural Commissioner. Fields will be inspected no more than 5 days prior to harvest which will include surrounding ditches, fence rows, right of ways and buffer zones. Once approved, a designated color-coded twine will be used to identify the certified weed free hay. Fees may be charged for inspections and certificates. More information on this program can be obtained from websites at <http://www.weedfreefeed.com> or <http://picdfa.ca.gov/weed/wff/finalcert.htm>.

WEED MANAGEMENT OPTIONS IN LAST YEAR OR DECLINING ALFALFA STANDS

The decision to maintain or remove an old stand of alfalfa depends upon crop rotation plans, profitability of rotational crops, the alfalfa stand density and weed infestations present.

Over time, alfalfa stands decline due to natural thinning, disease, winter injury, machinery traffic, frequent cutting, heat stress, and rodents. Stand viability is evaluated by measuring the number of plants or stems per unit area. When alfalfa populations fall below 3 to 5 plants per square foot (32-54 per sq. m), yield begins declining. Table 1 shows the suggested plant density for alfalfa in the seedling and subsequent production years. Stem density is usually more important than plant density, since the number of stems per unit area also affects competition with weeds. Stem densities above about 55 stems per square foot (about 600 per sq. m) have been found to be adequate to maintain yields (Table 2).

As stands decline, weed control becomes increasingly difficult, because weeds invade areas left open due to dying alfalfa. If the decision is to continue to harvest the aging stand for another year options available for extending stand life and control of weeds include herbicides and overseeding.

Table 1 - Minimum Stand Density Required to Maintain Optimal Alfalfa Yields

Production Year	Stand Density (plants/ft ²)
Seedling stand	>25 (range 25-80)
End of year 1	15-25
End of year 2	10-15
Year 3 or 4	6-10 (consider overseeding)
Following years	<3-5 (replace stand or overseed)

Table 2 - Stem Density Recommendations for Evaluating Alfalfa Stands

Stem density (stems/ft ²)	Action
>55	Stem density not limiting to yield
40-55	Some yield reduction
<40	Consider replacing standing

Source: Understander et.al. 1994

Herbicides

The use of herbicides in a last year stand is limited to the foliar herbicides, paraquat, 2,4-DB and Prism or Poast. 2,4-DB will only control small broadleaf winter annual weeds. Applications need to be made to young seedling weeds that are actively growing. The use of 2,4-DB is restricted between March 15 and October 15, so treatments need to be made early winter. Applied in the dormant winter period, Paraquat or Gramoxone Extra will control a variety of winter annual broadleaves and grasses. It has to be applied before the alfalfa has 2 inches of growth and cannot be cut within 60 days of applications. Both of these herbicides provide contact activity only, making them well suited for use in the last year of an alfalfa stand. If summer grasses become a problem Prism or Poast, selective grass herbicides, will provide effective control when applied to actively growing grass no more than 4 to 6 inches tall. The alfalfa cannot be cut within 15 days of application.

Grasses can also be controlled preemergence, with the short residual herbicide, EPTC (Eptan). This practice requires uniform metering of the herbicide into irrigation water. Application needs to be made before emergence and one application will provide control for 30 to 45 days.

Overseeding

Overseeding another forage species into a last year or depleted alfalfa stand can reduce weed populations, extend the stand life and improve the yield and marketability of the hay. However, the overseeded species and the harvest schedule must match market needs and be compatible with alfalfa for use as greenchop, silage, or hay. Potential overseeded forage species include annual and perennial grasses and legumes.

The species selected for overseeding can affect yield, forage quality, and the suitability of the forage for the end market. Factors to consider are the desired time to keep in production (annuals or perennials, or number of harvests or years), climatic conditions, and the end-market user.

Overseeding grasses into alfalfa usually creates a mixture of hay that has a lower nutritional value than alfalfa hay alone. This hay is generally not suitable for lactating dairy cows but is acceptable for dry cows and appropriate for horses or other livestock. Grass-alfalfa mixtures generally provide sufficient energy and protein for most pleasure horses. Also, grass-alfalfa mixtures, especially mixtures with cereals, produce higher yields than legume-alfalfa mixtures.

Overseeding legumes into declining alfalfa stands creates a different forage product than overseeding grasses. Most clovers are comparable to alfalfa in nutritional value and therefore may be better suited for lactating dairy animals. Tests have shown the crude protein and fiber content of clover to be similar to dairy-quality alfalfa when cut at an appropriate stage. Clovers are not affected by the Egyptian alfalfa weevil and can withstand poorly drained, saturated soil conditions that are detrimental to alfalfa.

More information on overseeding can be obtained from Agriculture and Natural Resources Publication #21594 "Overseeding and Companion Cropping in Alfalfa."

Factors to consider when selecting the most appropriate species and cultivar for overseeding in alfalfa:

Yield and quality. Use variety trial results or local experience to determine the yield and quality characteristics of the different species. Fine-stemmed, leafy varieties are generally preferred as forage.

Disease management. Select species and cultivars that are known to withstand diseases.

Harvest compatibility. The first harvest of berseem clover or ryegrass may need to be green-chopped due to poor weather and hay making conditions. Choose species that are compatible with harvest equipment.

Market. Consider forage quality, appearance, and the requirements of a specific market (i.e. dairy, horse, or

RAPTOR - New Herbicide Registered for Use in Alfalfa

California Department of Pesticide Regulation has registered Raptor, a BASF product, for use in alfalfa. Raptor (imazamox) is a post emergence herbicide that can be used in both seedling and established alfalfa. Raptor controls a broad spectrum of broadleaves and grasses including chickweed, henbit, knotweed, mustard, purselane, London rocket, shepherdspurse, barnyardgrass, yellow foxtail and volunteer cereals. In seedling alfalfa, Raptor can be applied at the two trifoliolate leaf stage of alfalfa when the weeds are 1 to 3 inches. Raptor can be applied to established alfalfa in the fall, winter or spring, or between cuttings. If applied between cuttings there is a 20 day pre-harvest interval. Raptor can be tank mixed with other herbicides including 2,4-DB, Buctril and Prism or Poast. Rotational guidelines are 3 months for wheat and alfalfa, 8-9 months for field corn, oats, rice and onions.

Visit us on the web at
<http://www.cemadera.ucdavis.edu>

Sincerely,

Ron Vargas
Farm Advisor

ALFALFA MEETING
Wednesday, August 28, 2002
UC Kearney Agricultural Center
9240 S Riverbend Avenue, Parlier, CA
8:00 a.m. - 12:00 noon
AGENDA

8:00 a.m. **Registration**
8:30 a.m. **Depart for field stops:**

Variety Selection - Does It Pay?

Dan Putnam, Extension Specialist, UC Davis

New Research with Roundup Ready Alfalfa

Kurt Hembree, UC Cooperative Extension Farm Advisor, Fresno County

Alfalfa Irrigation: Scheduling and Monitoring Soil Moisture

Blake Sanden, UC Cooperative Extension Farm Advisor, Kern County

New Hay Sampling Certification Program - Field Demo

Dan Putnam, Extension Specialist, UC Davis

Indoor Presentations:

New Hay Sampling Certification Program - Test Preview

Dan Putnam, Extension Specialist, UC Davis

Empoasca Leafhoppers in Alfalfa - Do I Need to Treat?

Charlie Summers, UC Entomologist, Kearney Ag Center

Raptor - A Newly Registered Herbicide for Alfalfa and Last Year Weed Management Options

Ron Vargas, UC Cooperative Extension Farm Advisor