UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

FIELD CROP NOTES

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In this Issue:

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Pigweed and lambsquarters in established alfalfa

The summer annual weeds pigweed and lambsquarters have been a common problem in seedling alfalfa but not in established alfalfa stands. It is easy to understand why these weeds are problematic in spring-planted seedling alfalfa. They emerge the same time as the alfalfa in a spring planting. If not treated they contaminate the first cutting and to a lesser degree the following cuttings for the remainder of the season.

The question is why these two summer weeds (especially pigweed) are becoming more prevalent in established alfalfa than before. Generally pigweed and lambsquarters are not considered problem weeds in established stands. An adequate alfalfa stand usually out-competes these weeds. These weeds are detrimental because they regrow after cutting and reduce the palatability of the hay, especially pigweed. I think that the main reason these weeds are more of a problem relates to irrigation management. If the surface soil remains moist between cuttings these summer annual weeds can become established.

In an irrigation cut-off trial I have in Tulelake, there was considerable pigweed in the fully irrigated plots. However, in the treatments where the number of irrigations was reduced, no pigweed was present. The grower had irrigated close to a cutting, which allowed the pigweed to take a foothold. Many growers have converted their irrigation systems over to center pivots. Growers can irrigate much more frequently with pivots than with other systems and the surface soil is not drying out enough to prevent these

weeds from becoming established. The occurrence of rainfall right before, during, or right after a cutting also favors pigweed and lambsquarters establishment but nothing can be done about that.

The next obvious question is how to best deal with lambsquarters and especially pigweed in established alfalfa. Soil residual herbicides (Velpar, Karmex, and Sencor) that are applied during the dormant season typically do not persist long enough to control these summer annual weeds.

A between cuttings application of a foliar herbicide such as 2,4-DB, Raptor or Pursuit is another option to consider. These herbicides would have to be applied before the weeds got too large to be effective. Timing would be difficult. These weeds are usually not a problem in the hay until 3rd or 4th cutting. Applying after first cutting may be too early and the weeds may be too large by the time of second cutting. 2,4-DB has a pre-harvest interval (PHI) of 60 days, making between cutting applications infeasible. Raptor and Pursuit have shorter PHI's (20 and 30 days, respectfully) but may not control larger weeds, especially lambsquarters. Weed resistance to the herbicides may also become an issue if these two herbicides are used repeatedly.

An application of trifluralin granules (such as Treflan TR-10) may be the most effective treatment. The problem with this treatment, or any of the herbicide treatments mentioned for that matter, is one of economics. Since pigweed is usually only a significant problem in the last cutting of the year, it is difficult to recover the cost of the herbicide in a single cutting. A Treflan application would likely be warranted if bristlegrass (*Setaria* spp.) is also a problem but probably not if the field only has pigweed.

The best and most cost effective approach is probably through water management. Allowing the soil surface to dry out more between cuttings should help reduce the presence of these weeds, especially pigweed. While this approach sounds simple, use caution. Alfalfa is most severely impacted by moisture stress when it resumes growth after a cutting. The key is to have sufficient deep moisture so that the deep-rooted alfalfa is not stressed after a cutting but to minimize surface moisture, which favors the weeds. It may be advisable to allow more days between the last irrigation before a cutting and the cutting date. Or, in the case of a pivot, consider slowing down the pivot so the field is irrigated less frequently but with more water per revolution. I would only consider employing these practices in fields where pigweed and lambsquarters are a problem. In fields where these weeds are not a problem, I would not want to risk stressing the alfalfa for moisture when it is regrowing after a cutting.

In conclusion, I don't believe there is a simple solution for controlling pigweed and lambsquarters in many fields. Water management is probably the best approach but has drawbacks. Try to avoid stressing the alfalfa which will reduce yield, and irrigation close to a cutting still may be beneficial to help provide ground moisture for better baling conditions. In the future Roundup Ready alfalfa may help provide a management tool to control these summer annual weeds between cuttings.

USDA Crop Acreage Report Shows CA Alfalfa Hay Acres Down in 2004 May 1 hay stocks up from a year ago, but...

By Seth Hoyt Senior economist with the California Agricultural Statistics Service

For the second consecutive year, the USDA National Agricultural Statistics Service (NASS) crop acreage report shows a decline in alfalfa hay acres in California. The 2004 NASS report issued June 30 estimated alfalfa hay acres at 1,050,000, down 4% from 2003. Alfalfa hay acres in the seven western states were estimated at 4,225,000, down 3% from last year.

While it appears that alfalfa hay acres converted to cotton in the Central Valley are less than the

industry predicted last fall, the decline in alfalfa hay acres in the southern desert made up for it. The Imperial Irrigation District reported alfalfa hay acres on June 14, 2004 at 135,373, down nearly 20,000 acres from 2003. Alfalfa hay acres in the Palo Verde Valley (Blythe area) in June were reported at 42,338, down 10,000 acres from June 2003. The proposed water agreement between the Palo Verde Irrigation District and Metropolitan Water District is expected to dry down 26,000 acres of farmland this fall.

Hay Stock Analysis

May 1 hay stocks in California were estimated at 300,000 tons, up from 200,000 tons on May 1 of last year. The 10-year average on May 1hay stocks in California is 284,000 tons. Hay stocks in the seven western States on May 1, 2004 were up 11% from a year ago. The higher May 1 hay stocks in California are a little misleading. First, it appeared that most of the excess hay on May 1 was in the Imperial Valley and northern mountains, according to sources. Unsold inventories of old crop, dry cow alfalfa hay in the Imperial Valley declined substantially in May due to strong demand from Southern San Joaquin Valley dairies. Secondly, due to the **poor** financial situation in the dairy industry the first half of 2003, many dairies used up old crop hay supplies and were not as aggressive in buying new crop hay. Consequently, it appeared that old crop hay supplies on May 1, 2003 at the dairies were lower than normal, making for a poor year-to-year comparison.

Good First Half

The alfalfa hay market in California the first half of 2004 was much improved from the first half of 2003. The strong hay market was driven by sharply higher milk prices and profitability in the dairy industry. According to Market News, Supreme alfalfa hay delivered to Tulare in May averaged $172.14, up $26.50 per ton from May 2003. The biggest year-to-year increase was seen on Good quality alfalfa hay, which increased $37.50 per ton and averaged $148.55 delivered. Fair quality (dry cow) alfalfa hay in May averaged $112.22 per ton delivered to Tulare, up $15.06 from May of last year. Ample supplies of old crop, dry cow alfalfa hay in the southern desert tempered the year-to-year price increase on Fair quality alfalfa hay.

Second Half Factors

When analyzing what the alfalfa hay market could do the second half of 2004, there are probably more factors indicating that the price will hold rather than weaken. If there is any weakness it may be in the middle quality hay in some areas. Several exporters have gone out of business in recent years and export demand for "Good" quality alfalfa hay is down compared to past years. It doesn't appear that the top quality alfalfa hay market will soften.

The biggest bearish factor in the hay market the second half of the year is the projected drop in milk prices. (On July 8, Milk Futures prices on the Chicago Board of Trade for July thru December ranged from $12.35 to $14.85 cwt., down from prices of a few months ago). Sources indicate the lower milk prices are due to buyer resistance to the record high dairy product prices. Additionally, milk production in California in May was up 2% from 2003. While input costs for dairy producers have increased, it appears the dairy industry could still be profitable the second half of the year, barring a further decline in milk price projections and/or increased production costs. A positive for dairy producers is a 25% drop in corn prices since early April. Unless Corn Belt weather deteriorates in the coming weeks, projections are for a record corn harvest in 2004. Corn exports the past month were below expectations.

Other bullish factors in the alfalfa hay market include lower production in California and lower availability of milk cow quality hay in the West. One area that may see the biggest year-to-year decline in alfalfa hay production is the southern desert. With the early start to the 2004 season, alfalfa yields are running ahead of 2003 in some areas. However, yields were disappointing in June in north central California and with the uncertain water picture, yearly production could be negatively impacted. Some Central Valley growers are concerned about

water supplies for late season irrigation. The levee break in the Stockton-Delta and the availability of water from mountain runoff made irrigation supplies more questionable. One source in the north central area indicated that TDN tests in June were above normal, but yields were lower than normal. This source also reported that alfalfa hay inventories in growers' hands on July 1 in his area were significantly below the same time last year. He said growers were moving large volumes of hay to aggressive dairy buyers.

Rain in the northern mountains of California caused damage or reduced TDN tests on some first cutting alfalfa. Many northern California dairies purchase milk cow quality alfalfa hay from this area in the summer. Additionally, the amount of high quality new crop alfalfa available in some other western states, particularly Utah and Idaho, was down due to spring rains. One source reported that if the hay didn't get rained on, it was less than milk cow quality because growers delayed harvest.

Alfalfa hay shipments into California from out-of-state in the January thru May 2004 period were up 18% from the same period last year. However, the key to summer shipments depends on available supplies of high test, new crop alfalfa hay in Utah and Nevada. The June shipment report should give us an indication.

Another positive for hay growers was a 25% reduction in dairy cow slaughter in April and May compared to a year ago due to high milk prices and a very strong springer heifer market. Dairy producers will probably return to more normal culling in the coming months. The current slaughter cow market is very strong and could prompt some additional culling near term. A partial offset to heavier culling is that placements of heifers into herds the first half of the year was up from last year. In the January thru May period, 25,000 more milk replacement heifers were shipped into California than the same period last year, a 53% increase. Due to uncertainties in milk prices in the coming months, the top of the springer heifer market at one central valley auction was $1,800 to $2,100 per head in early July, down $200 to $300 from their highs in April and May.

Conclusion

The outlook for alfalfa hay prices in the coming months continues to be filled with many variables. The bright spots for hay growers are the return of profitability in the dairy industry and the fewer acres of alfalfa hay in California and the West. With dairy producers accounting for approximately 80% of the outlet for alfalfa hay in California, profitability in the dairy industry will be key to the alfalfa hay market in the months ahead.

Intermountain Research & Extension Center 2004 Annual Field Day

The annual Intermountain Research and Extension Center Field Day will be held Thursday July 29th in Tulelake. The field station is located right off the highway in downtown Tulelake. You can't miss it. This year's program focuses on irrigation management. It should be an excellent program and I hope that you can attend.

8:00 a.m.	Registration - Coffee, Juice and Donuts
8:40	Irrigation scheduling - General Comments/Introduction
8:55	Potato Irrigation Scheduling
9:15	Onion Irrigation Scheduling
9:25	Drip Irrigation of Onions
9:40	Deficit Irrigation of Alfalfa
10:15	Break
10:30	Irrigation scheduling with High Perched Water Tables
10:45	Demonstration of Soil Moisture Monitoring Methods
11:10	Sprinkler Irrigation Uniformity -The Good, The Bad, The Ugly
11:40	Crop Water Use Web Page
11:50	Irrigation Short Course Video
Noon	Lunch
1:00 p.m.	Irrigation Trade Fair

A Simple Method to Measure the Dew Point Temperature

Developed from an article by Rick Snyder

Adequate moisture for baling can be a problem especially in the summer. Dew, or at least high relative humidity, is needed to soften the leaves to prevent excessive leaf loss. Fortunately, this is not anywhere near as problematic in the intermountain area as it can be in portions of the high desert where I previously worked as a Farm Advisor. In portions of the high desert, early morning conditions can include temperatures in the high 80's or 90's, a breeze or even wind, and relative humidity around 30-40 percent. Under these conditions, leaf retention is a huge problem and we worked on watering the windrows to simulate natural dew. Fortunately conditions here are not that severe and natural dew is usually enough. The key can be predicting if and when there may be sufficient natural dew.

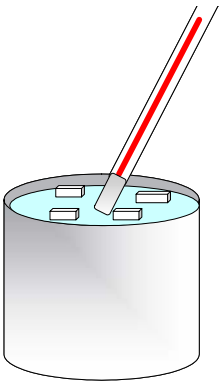
The dew point indicates the amount moisture in the air. The higher the dew point, the higher the moisture content of the air at a given temperature. Dew point temperature is the temperature to which the air would have to cool (at constant pressure and constant water vapor content) in order to reach saturation. When the surface temperature reaches the dew point temperature, dew will form. Dew does not fall from the sky. Water vapor, like other gases, moves at sonic speeds and continually strikes the surface. When the surface temperature is at the dew point, more water molecules will condense onto the surface than evaporate from the surface. Hence, dew forms when the number of water molecules striking the surface is bigger than the number of molecules leaving as a gas.

Knowing the dew point temperature can help the grower predict if and when there will be adequate dew for baling. Rick Snyder, Biometeorology Specialist at UC Davis developed a method to estimate dew point temperature in a particular field to predict whether the dew point will be reached the following night.

The Ice-Water Can Method to Measure Dew Point

Based on the definition, a simple method to measure the dew point temperature involves cooling a surface until water vapor begins to condense on the surface. A simple, inexpensive method involves using a shiny can, a thermometer, and ice water as shown below.

Slowly add ice cubes to the water in a shiny can to lower the can temperature. Stir the water with a thermometer while adding the ice cubes to insure the same can and water temperature. When condensation occurs on the outside of the can, note the dew point temperature.



Two hours after sunset and while in the field, fill the can with water. While stirring, add an ample amount of ice. Continue stirring. Record the water temperature the instant condensation forms on the outside of the can. This reading will be the predicted temperature at which dew will form in that particular field.

Using a forecast for the minimum temperature the next morning, the grower can predict whether or not there will be dew. If you have an idea when during the night that temperature may be reached you can predict the time when dew will form. Rick Snyder has a program that predicts temperature change from 2 hours past sunset until the minimum the next morning. It works well as long as there is not a big change in the weather. Of course, the program assumes the forecast is correct. It is not too difficult for growers to develop a correction for their fields if they are willing to monitor the temperature and compare their field temperature with the temperature at the "base" station for which the forecast was developed. If any growers are interested in trying this for their fields, let me know and I can get you the program to predict the temperature change over the night.

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DATED MATERIAL

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