



New Mexico State University

Extension Plant Sciences

Alfalfa Market News

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Hay Prices for New Mexico

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County	Contact	Premium Hay (\$/ton)	Top Quality Hay (\$/ton)	Other Hay (\$/ton)	Condition/ Market Activity/Cut Complete
Chaves	Sandra Barraza, County Agent	\$180-210 large delivered; \$230 small in barn	Same as Premium	All quality but black between \$180 and \$210.	2 weeks from 1 st cut; All of last year's crop sold; Market moderate for current crop – Much speculation; Dry & windy
Eddy	Woods Houghton, County Agent	N/A	N/A	N/A	No market activity at this time; 2010 crop still in the barn
Lea	Wayne Cox, County Agent	\$200-210 large; \$9.00 small	\$185-195 large; \$7.00-8.00 small	\$150 and less large low quality	2-3 weeks from 1 st cut
Luna	Jack Blandford, County Agent	\$210-220 large; \$7.00-7.50/bale small	N/A	N/A	1 week from 1 st cut; High demand on all classes; Warm, dry, windy.
Roosevelt	Patrick Kircher, County Agent	\$200 large	N/A	N/A	2 weeks from 1 st cut; Market slow, some interest; Heavy insects
Valencia	Kyle Tator, County Agent	\$6.00-7.00/bale small	\$5.00-6.00/bale small	\$4.00-5.00/bale for cow hay	2010 supplies remain; Dry/windy; Evaluating Feb. freeze damage; Moderate aphid/weevil pressure

N/A = prices not available at this time

Adjusting Alfalfa Cutting Schedule Based on Economic Conditions

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Overview

The cutting schedule a grower imposes strongly impacts the overall profitability of an alfalfa operation due to its direct effect on yield and forage quality. The existence of a yield-quality tradeoff has been well documented over the years in field trials and through grower experience. Within reason, fewer cuttings per season generally results in higher yield per season but at the expense of forage quality. However, determining the optimum cutting schedule is challenging due to ever-changing weather and price conditions. Using University of California field research conducted in the Central Valley and the Intermountain area on cutting schedules, we used hay market data over the last 10 years to assess gross profitability for different cutting schedule strategies. The most profitable strategy depends on hay prices and more importantly on the price spread between the different hay quality categories. In general, it appears that over the past 10 years, the market largely did not adequately compensate alfalfa producers for the yield penalty they suffered to produce top quality hay. Gross returns were greater for strategies that produced higher yield (the 6-cut schedule in the Central Valley and the 3-cut schedule with a delayed second cutting in the Intermountain area). However, marketability of high-yield but low-quality hay may be challenging, except as small square bales for the horse market. Still, it is clear that high yield is more profitable in high price years and high quality is more important in low price years. We recommend a flexible and diverse approach which produces a combination of high yield (medium quality) for the horse

and beef cow-calf market and high quality hay for the dairy industry, so that a grower can respond to market conditions in real time.

Economic Importance of the Yield-Quality Tradeoff

Forage yield and quality are among the most, if not the most, important factors influencing the overall profitability of an alfalfa operation. Cutting frequency, or more precisely the maturity of the alfalfa when it is cut, determines forage quality and yield. This is under the grower's control and is the primary mechanism by which growers can respond to changing market conditions. Forage yield and quality are inversely related. As the alfalfa plant matures, yield increases but forage quality decreases. This phenomenon is the scourge of the alfalfa producer and is a major source of frustration. It is often referred to as the yield-quality tradeoff. It is possible to achieve either high yield or high quality, but ordinarily not both. It is typically difficult to produce an alfalfa cutting of over 1.5 to 2 tons per acre and still meet "dairy quality" standards. In some environments and under summer conditions, dairy quality alfalfa is often unachievable at reasonable yield levels and alternative markets must be explored.

Although genetic solutions have been proposed to this quandary, the yield-quality tradeoff is largely unavoidable and presents a real challenge for the alfalfa producer. *Is it more profitable to aim for high quality or to sacrifice some quality for higher yield?* This can be a perplexing decision given the dynamic nature of the alfalfa market. Not only can the price vary considerably from year to year, the price differential between hay quality grades fluctuates significantly from year to year as well. Generally speaking, the price premium for high quality hay is greater in low-price years than high-price years.

Six, Seven and Eight-cut Systems

Research was conducted where typical seven-cut systems are made per year at around 28-day intervals for the majority of the season. This cutting frequency was compared with a more aggressive cutting schedule where the alfalfa was cut every 24 to 26 days for a total of 8 cuttings per year, and also with a less frequent cutting interval (32 to 33-day cutting interval) with six cuttings per year.

To our surprise, the 6-cut schedule resulted in the highest gross returns each of the ten years and averaged almost \$150/acre higher than the 7- or 8-cut schedules. This illustrates the importance of total seasonal yield to gross returns. It also lends credence to the argument put forth by many growers – that growers are not sufficiently compensated for quality. The value of the yield reduction incurred with frequent cutting quite often exceeds the price premium ascribed to high quality hay. However, it may be difficult, if not impossible, to market the rank "stemmy" hay that resulted from the 6-cut schedule, especially in a low price year. So, in many cases such

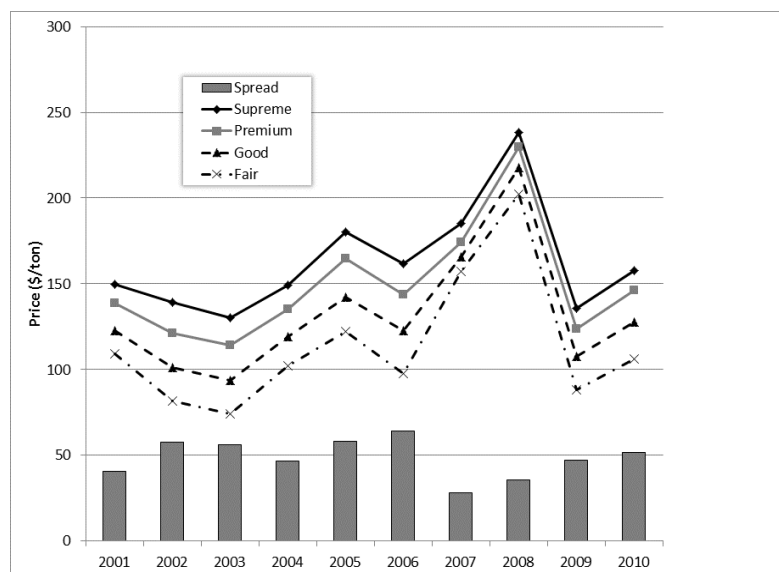


Figure 1. Average annual alfalfa hay price in the Central Valley. Price spread between *Supreme* and *Fair* quality alfalfa hay is shown in the bars.

as the southern, warmer regions of the state, growers must choose between the 7- or 8-cut schedules, unless marketing to classes of livestock that do not require the plane of nutrition that high-producing milk cows need (e.g., horses and beef cattle). Averaged over the 10 years, there was only a \$3 per acre difference between the 7- and 8-cut schedules in gross returns (minus harvest costs) in favor of the 7-cut schedule.

It is important to note that while the gross returns over the 10 years were almost identical for the 7- and 8- cut schedules, there was a fairly significant difference in profitability in individual years (Figures 1 & 2). This difference is not trivial. For example, in high price years with less monetary spread between top and bottom grades, seven cuttings was more profitable (\$67 and \$86 per acre increase in 2007 and 2008, respectively). However, in low price years where there was a wide spread between quality grades (i.e., 2002, 2003, and 2006) eight cuttings were more profitable than seven cuttings by nearly \$40 per acre (Figure 2). This dollar amount multiplied over many acres is a significant amount of money.

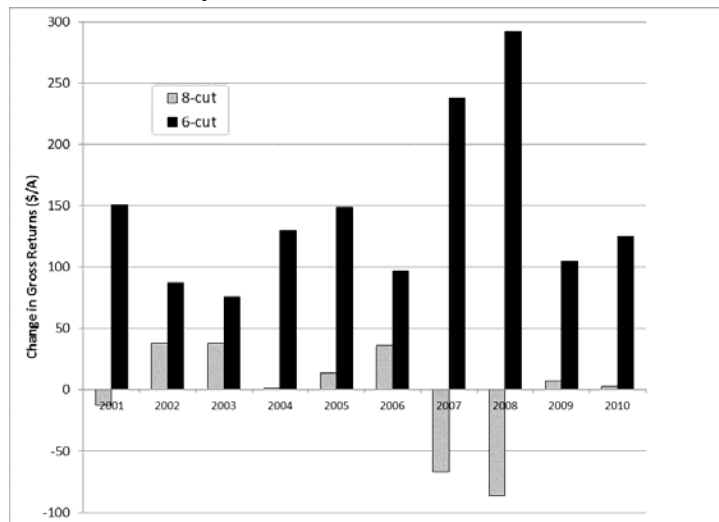


Figure 2. The differences in gross returns over the past 10 years for 6-cut and 8-cut schedules compared with a 7-cut schedule. The baseline, or a zero value, is a 7-cut (28 day) schedule.

Three and Four-cut Systems

In the cooler, mountainous regions, 3 and 4-cut systems were evaluated along with two variations on the 3-cut system (equal intervals vs. delayed second cut). A 3-cut system with a delayed second cutting resulted in the highest returns each year. This approach had the highest production for the season, and delaying 2nd cutting improved the forage quality of the 3rd cut, thereby increasing the price for that cutting without reducing yield too much. Whether the standard 3-cut schedule or the 4-cut schedule was more profitable depended on market conditions each year, but averaged over the 10-year time span they were almost identical. In an extremely high-price year like 2008, with little price spread between quality designations, the most profitable approach was clearly to lengthen the cutting interval and aim for high yield. A 4-cut schedule was \$90 and \$140 less profitable than the standard 3-cut system and the 3-cut delayed schedule was much better still. However, in a low price year with a large price differential between quality grades, more frequent cuttings (4 cuts) was more profitable than the standard 3-cut schedule. Under intermountain growing conditions, a 4-cut schedule resulted in *Supreme* quality hay for all the cuttings, whereas, the 3-cut schedules resulted in a mix of *Supreme*, *Premium* and *Good* hay. Delaying second cutting improved the quality of the third cut because the growing time was reduced and with the delay more of the growth period occurred when summer temperatures had cooled.

Yield vs. Quality

Yield data from the University of California-Davis trial are presented in Figure 3. Fewer cuttings per year resulted in higher yield per cutting and higher total seasonal yield but lower forage quality. Total seasonal yield for the 6-cut, 7-cut and 8-cut schedules averaged over the 3 years of the study was 11.45, 9.92, and 9.32 tons per acre, respectively. However, the amount of supreme quality hay dropped from 59 percent to 29 percent to 16 percent when the number of cuttings was reduced from eight down to seven and six. Still, the lower quality hay has value for the horse market, which often brings a higher price per

ton for small square bales. These results further illustrate the existence of the yield-quality tradeoff mentioned above.

Finessing Market Conditions, A Mixed Strategy

Among the more moderate cutting schedules (7 vs. 8 cuts in warmer regions or a standard 3-cut schedule vs. a 4-cut schedule in the mountainous areas), the more profitable approach depends on market conditions. Simply put, it is typically most profitable to go for quality in a low price year and in a high price year to go for yield. Ideally, the grower's cutting management schedule should

be flexible enough to adjust to changing market conditions. The best overall approach to cutting management is likely a mixed strategy, not purely cutting for yield or solely cutting for quality. What these data point to is that a 'one size fits all' (e.g., 28 day schedule) may not be the best economically—it too often results in compromised quality and compromised yield, and fails to maximize returns, compared with a more mixed strategy. If growers are not compensated for the supreme quality hay, then they are taking a loss and paying in yield. Consider the season of the year and the ease of making dairy quality hay—high quality alfalfa is far easier to produce in spring and fall than in summer. Mixed strategies, which assure a supply of both high and medium quality hay in response to market conditions, may be reasonable to sustain profitable alfalfa production over time. For example, the mixed strategy for the mountainous areas, where the timing of second cutting is delayed, is a logical approach. In 7-8 cut systems, allowing one-to-three of the summer or late spring harvests to 'go long' to maximize yields and replenish root reserves makes sense, with the frequency depending upon the market conditions. In either system, there are times when waiting longer to cut makes sense, especially if targeting for the horse market. Even if growers more commonly harvest 5 or 6 times per year, the principles described here are the same and delaying harvest to match the market should be considered. One concern about lengthening the regrowth period during summer is that it would also likely lead to increased blooms that attract blister beetles, which are highly toxic to horses and can be to cattle. Alternating the number of cuttings taken from fields and from one year to the next may be a wise practice to allow plants more time to replenish root reserves and extend stand longevity.

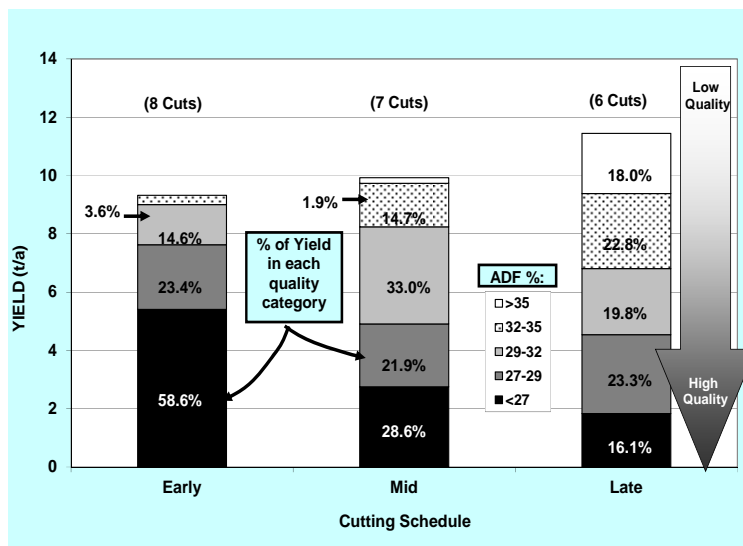


Figure 3. The effect of cutting schedule on yield and quality. Davis, CA (Average 2002–2004).

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