

ALFALFA PRODUCTION IN THE INTERMOUNTAIN REGION OF NORTHEASTERN CALIFORNIA

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Keywords: alfalfa, varieties, harvest schedule, market, pest control, history

History Alfalfa culture in Northeastern California had its roots in producing forage for on-farm feeding of livestock since the 1950's when vernal alfalfa was the only new variety around. In the 1950's much of the crop was wild flooded with variable yields. Yields greatly improved in the 1960's with development of sprinkler systems and improved management practices including fertilization with sulfur. During the 1970's an export market to dairies in Northern California and the North Bay area developed and was supported by improved transportation systems. Many farming systems switched from a livestock base to an entire alfalfa hay production base. However, the farm crisis of the 1980's brought an abrupt halt to this expansion and by the end of that decade, the survivors were the businesses with high operating efficiency and low debt.

Now, as the 1990's begin, alfalfa producers are experienced professionals who are entirely mechanized and very efficient. Growers know yield potential, fertility programs, weed and insect control and energy management. Their farm is as much a business as a lifestyle. They put up their hay with precision and care, knowing both their costs of production and the needs of their customer. Their product is a uniform 3-strand bale, mechanically handled from field to market and made to order for the customer who is equally demanding in product requirements. Some characteristics of the Northeastern California alfalfa hay industry in 1991 are summarized below:

Production and Harvest Schedule Throughout Northeastern California, dormant and semidormant alfalfa varieties are grown because of the short growing season. One quarter to one half of the acreage is harvested with four cuttings and the remainder is harvested with three cuttings depending upon the market and the season. Alfalfa stands have traditionally lasted six to eight years, but with multiple pest resistant varieties, improved management and interseeding of old stands, stand longevity seems to be on the increase. As a rule of thumb, it is easy to get the first, third and fourth cutting to test (55 or above TDN) and the second cutting will test if the cutting schedule is shortened. If, as in the 1991 production season, a premium is paid for quality hay and the grower wants that premium, a shorter harvest schedule will be selected. In addition, the grower may also select younger fields for harvest which will be more likely to have fewer weeds and higher stand densities which will promote finer stems and better quality hay. Sometimes an early or late spring, or rain damaged first cutting hay will force a grower to choose a harvest schedule. On the other hand, many growers have looked at their harvest costs and markets, and choose to harvest on three cuttings for lower cost of harvest and to target a market such as horse or dry cow which has little interest in TDN.

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Variety Selection The regional variety trial held at the InterMountain Research and Extension Center in Tulelake has a large influence on variety selection by growers in Northeastern California. The Certified Seed Council listing of alfalfa varieties along with regional trial data is a common set of documents used by growers as a basis for selection of an variety to plant. This information is easily obtained from local Cooperative Extension offices in Northeastern California.

Historically only dormancy groups one and two were recommended, but trials have shown that dormancy groups three and four also do well. Disease resistance to bacterial wilt, Phytophthora root rot, anthracnose, fusarium wilt and more recently stem nematode are recommended. Although verticillium wilt has not yet been found in Northeastern California, resistance to it is also recommended. Information developed in the Fall River Valley in the mid-1980's has shown that a new variety will produce about 1/4 more ton per cutting than the old standard Vernal. Growers are cautioned that yield potential must be high to realize the yield benefits of a new variety.

Irrigation Irrigation is a major issue in Northeastern California alfalfa production because yield is directly related to applied water, about 4.5 inches is needed for every ton of hay. Irrigation costs are variable depending on utility company and water source. Energy costs are high in the Fall River Valley in Eastern Shasta County at the end of the Pacific Gas and Electric system and in the Honey Lake Valley of Lassen County where many growers have switched to diesel pumping. Other areas have electric costs which are sometimes half of these high rates. Variation also exists where neighboring growers may have riparian river rights and flood irrigation next to deep well pumps and sprinkler irrigation. Increasingly growers are laser-leveling fields to convert sprinkler systems to flood and cut energy costs in half. Recently, water purchase by the State of California to the Lassen County line in the Fall River Valley have tempted growers to accept a check instead of growing alfalfa hay.

Soils The soils of Northeastern California are quite variable. Many are shallow or have hardpan layers restricting root growth and need periodic ripping which is done in the course of crop rotation. A more limiting factor is plant nutrient deficiency. Sulfur deficiency is common followed by phosphorus, potassium, boron and now molybdenum deficiency at some locations.

Pest Control Surprisingly little pest control is needed in alfalfa in Northeastern California. In 1976 the blue alfalfa aphid appeared and extensive treatment was needed for it's control. Since that time, little or control has been needed for aphids in alfalfa. Occasionally control is needed for alfalfa weevil and only on first crop alfalfa. No resistance to pesticide by alfalfa weevil has been reported so growers usually use low rates of low cost pesticides with minimal impact on beneficial insects.

Alfalfa in Northeastern California is serving an important role in increasing populations of the seven-spotted ladybird weevil, a potential biocontrol agent for the Russian Wheat Aphid. This parasite was released in Northeastern California by Don Dougherty of the USDA APHIS program and recovered in the Susanville area in 1990 and the Fall River Valley in 1991. The Russian Wheat aphid was discovered in the Fall River Valley in 1990. Growers hope that this parasite will prove effective in helping control Russian Wheat Aphid damage in Northeastern California.

The use of chemicals in weed control is common and assisted greatly by the long (up to 45 day) cutting schedules. Growers occasionally use preplant herbicides, and usually only in the first few years of a stand. Increasingly, herbicides are used less in older stands; growers are choosing the option of interseeding with oats or a perennial grass such as orchardgrass or timothy and selling the hay into the horse or dry cow market. Also, Northeastern California is not immune to new weed problems it has escaped in the past by its isolation. For example, green foxtail appeared in the Fall River Valley in 1991.

Marketing The best marketing tool in the area for growers is a good reputation. Other marketing tools include traveling to visit dairies horse shows or feed stores, putting ads in papers, sending postcards to a buyer list put together by the InterMountain Hay Growers Association, or advertising in a grower directory put out by the InterMountain Hay Growers Association. The grower directory is free, just drop a note to InterMountain Hay Growers Association, P.O. Box 66, McArthur CA 96056 or call 916 336-5784 for a copy. A copy of gummed labels of the hay buyer list is \$5. Membership in the organization is \$30 per year.

The hay market in 1991 was a surprise to Northeastern California hay producers. The spring market reached \$120/ton and the demand was so high, hay was coming in from Idaho into Northeastern California. Lower cattle and sheep numbers in California coupled with spring rains and good production of forage in the valley have lowered the summer prices for non-test hay to \$80-\$90 and sometimes lower. But, the value of test hay has held up in the \$100-\$105 range. The better markets in the 1991 season seem to be the horse hay markets. Livestock demand, beef, sheep and dairy seems to have weakened. However, growers with good product and reputation have kept customers and found them willing to pay a good price for a quality product from a stable supply source. Buyers who "shop around" may find it difficult to find hay supplies if they again become short. Current supplies are high as growers wait for traditional increasing fall prices. Unknown factors which will have major impacts upon this market will be the presence or absence of drought conditions and the livestock demand situation during the winter and spring of 1991-92.

Future The future of the Northeastern California alfalfa hay industry will be related to the farm economic picture and environmental issues. Current production costs in the Fall River Valley of Eastern Shasta County show true costs of production of alfalfa average \$118 per ton. Growers are taking a close look at their ranch resource and looking to potatoes, garlic, onions, sugar beets and a number of other crops to provide higher net income per acre. If they stay into forages, they are looking to timothy and intensive grazing of livestock as an option to alfalfa. Nevertheless, alfalfa is most likely to stay as a rotation crop to control weeds in other crops, fix nitrogen cheaply and build the soil. Only price will cause a significant increase in Northeastern California alfalfa hay acreage in the future. Such a price increase would have to be significant and prolonged to convince growers to abandon other commodity options.