

## **APPROACHES TO BREAKING YIELD AND QUALITY BARRIERS IN CALIFORNIA- Intermountain Region**

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### **INTRODUCTION**

The Intermountain Region of California is located in the northeastern corner of the state at about 42° N latitude. The area is well known for its natural beauty and wildlife. The environmental conditions are unique, setting this area apart from the rest of the state. Alfalfa is the most extensively grown crop in the region, produced in high-elevation valleys ranging from 2,500 to 5,000 feet. Each valley has distinct physical and climatic characteristics due to differences in elevation and topography. Most soils of the region were formed from alluvium derived primarily from volcanic rock. Soils range in texture from loamy sands to heavy clay loams. Organic matter content varies from less than 1 percent to more than 12 percent in the Tulelake Basin. Most alfalfa is sprinkler irrigated (primarily by wheel lines and center pivots); however, flood irrigation is used in some of the more level valleys with heavier soils. The most distinctive characteristic of the Intermountain Region is the short growing season (90 to 160 days). Coupled with the growing season are large fluctuations in temperature, both from day to night and from summer to winter. Because of the climate, dormant alfalfa varieties prevail (fall dormancy groups 2 to 4). Growers obtain 2 to 4 cuttings (3 is most common) between May and September. The weather and short growing season limit yields; annual hay production averages 5 tons per acre. However, the weather conditions also lead to some of the highest quality alfalfa in the state. "Mountain hay" has a well deserved reputation with dairy producers throughout much of California and southern Oregon. David King, experienced hay grower from the Tulelake area was interviewed by UCCE Farm Advisor Steve Orloff, from Yreka, CA, for this proceedings.

### **DESCRIPTION OF FARMING OPERATION**

*Briefly describe your farming operation (i.e. location, crops grown, role of alfalfa in farming operation, approximate alfalfa acreage).* I live in northern California just a few miles south of the Oregon border on the eastern slope of the Cascade Mountain range. The town of Tulelake, population 500, elevation 4020 feet, is world famous for its duck hunting and is where I was born and raised. I raise alfalfa, sugar beets, barley and wheat. The rotation on my farm is 4 to 5 years in alfalfa followed by wheat, sugar beets, barley, sugar beets and then back into alfalfa. In order to maintain a 400-500 acre sugarbeet base I usually have between 800 to 1000 acres in alfalfa.

### **MOST IMPORTANT FACTORS**

*From your experience, what are the two most important factors used to maximize yields or profits? (please consider such issues as stand establishment, variety selection, pest management, irrigation, or any other factors).* To maximize yields in my area I feel the two

most important factors are water and fertilizer. Water is definitely the most important factor because without water none of the other issues come into play such as stand establishment, variety selection and pest management. I have so many soil types that it is important to pay attention to water in the soil profile so as not to over-or under-irrigate the crop. Fertilizer is also very important. Time and time again \$25 to \$30 spent on fertilizer will return ½ to ¾ of a ton of \$100 hay, sometimes more. In establishing an alfalfa stand I look for uniformity more than for high population density. Because my alfalfa is in for only 4 or 5 years I don't feel there is the return on spending the extra money for high population.

## **CUTTING SCHEDULES & MARKETS**

*What system do you use to schedule harvests (i.e. when the neighbor starts cutting, calendar basis, growth stage of the alfalfa, etc.)? Do you aim to maximize yield or maximize quality? What is your desired market (i.e. dairy market, horse market, or stock hay market). Is the market the same for all cuttings?* In the Tulelake area the average number of cuttings is three, sometimes four if you push it. First cutting my goal is to always produce dairy quality hay, therefore, I'm always looking at the stage of growth to determine cutting date. We must remember that Mother Nature always has something to say in the matter as well so it doesn't always work out. Typically our first cutting starts in the first two weeks of June and finishes up the last week of June. Second cutting is generally put up for retail or compressor. To achieve any tonnage on second, the plant is generally over-mature and won't make dairy quality. We typically start cutting the third week of July and finish up the first week of August. I don't try for dairy quality hay on 2nd cutting because I would have to cut much earlier and produce less tonnage and almost ensure taking a fourth cutting, which is very risky in our area. Third cutting for me is dictated by my sugarbeet harvest. I need to be done by the second week in October so I just work the mathematics backwards of curing and cutting time to establish my start date on third cutting. Third cutting is always dairy quality even with some light rains because the TDN is always so high.

## **HAY TESTING AND MARKETING**

*Do you have a lab analyze your hay prior to selling it? How important is the lab test to the marketing of your hay?* I usually test the first few lots of hay during first cutting to get a feel for what the whole crop will test. I always have the buyer test the hay at his lab with his core sample so that there will be no questions as to the integrity of the test. Second cutting is generally for retail therefore quality testing doesn't come into play. Third cutting always tests well for dairy quality so I leave it to the buyer's discretion if he doubts the quality of the hay.

## **PEST CONTROL**

*What are your most important pest control problems and how do you address them?* Pests are pretty easily controlled in our area. First cutting we usually have an outbreak of weevils with a few cutworms mixed in. Usually the hardest decision is figuring out whether to cut early to avoid spraying or to go ahead and spray and time it properly with the cutting schedule. Generally my experience says to spray early and continue with the original cutting schedule. Second cutting we

usually get an aphid flight and generally find it necessary to spray. I generally spray even if there are only a few aphids because populations can explode so fast in a matter of days and we also have much less problems with honeydew buildup in the machinery making for a smooth and trouble-free harvest.

### **HARVESTING METHODS**

*Some loss in forage quality during harvest operations is unavoidable. However, are there any special harvesting techniques you employ or areas you pay particular attention to in order to minimize quality losses of the hay through the harvesting process?* To maximize the quality of our first cutting we are fully curing our hay so that we can rake and bale with ample dew so as retain as much leaf as possible. Second cutting which is targeted for retail must have as much color retention as possible so I tend to rake only 1 or 2 days before baling and keep the window tight, not laid out flat behind the swather. Third cutting is just a waiting and turning game to get the hay cured because of the harsh weather we commonly get in September. I am also considering switching to inline balers to increase efficiency and reduce damage to hay during the curing process.

### **OTHER IMPORTANT FACTORS**

*Are there any other important factors to maximizing yield, quality, or profitability on your ranch?* Presentation of product is a very important factor to add to profitability. If you take care to put up neat clean stacks and pick up broken bales and show that you are taking care of your commodities, chances are you will receive a better price for your product. Spll