

APPROACHES TO BREAKING YIELD AND QUALITY BARRIERS IN CALIFORNIA- San Joaquin Valley

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INTRODUCTION

The San Joaquin Valley is the southern half of the Central Valley of California and extends from the delta area around Stockton to the Tehachapi Mountains in the south, a distance of approximately 240 miles. On the east it is bordered by the Sierra Nevada mountain range and on the west are the ranges of the coastal mountains. Fresno, located in the center of the valley, is on approximately the same latitude as the Colorado/New Mexico border and the southern borders of Kentucky and Virginia with the northern borders of Tennessee and North Carolina. Fresno County produces a greater agricultural product than many states of the US. Average rainfall, which occurs almost entirely between the months of October through April, is about 18 inches in the north and less than 6 inches in the south. About 50% of the state's alfalfa is produced in the San Joaquin Valley. All alfalfa is irrigated, mostly by flood but sprinklers are used in some areas. In the northern part of the valley, alfalfa varieties of dormancy types 5 - 8, with some 4s, are planted with an average of 6 to 8 cuttings per year taken between March and October. At the southern end of the valley, usually varieties of dormancy 8 or 9 are planted with 8 or 9 cuttings per year including a winter grazing or greenchop harvest. There are some major dairy producing counties in the Valley and dairies are the major market for alfalfa hay. Tulare County in the southern part of the San Joaquin Valley, produces more milk than any other county in the United States. In addition, alfalfa is imported from other areas. Alfalfa grower Joseph Ribeiro from Tulare County, located in the southern half of the San Joaquin Valley, was interviewed by UCCE Farm Advisor Carol Frate 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). My family owns and operates a 1500 milking cow dairy in San Joaquin Valley of California (Tulare County). We also farm 700 acres: 300 in alfalfa hay and 400 in a wheat forage/corn silage rotation. Working with our father, my older brother manages the dairy, my younger brother is responsible for feeding the cows, and I work with the crops. Everything we grow is used on our dairy. In addition we purchase milk cow-quality hay and some corn silage.

On our farms, alfalfa is typically grown in a 3 year rotation and occasionally a 4 year rotation. Depending on weather, we usually get a total of 8 cuttings per year starting in late March. The first, second, and last cuttings are put up as haylage to avoid risk of rain damage and are fed to milking cows. The rest of the cuttings are cubed with the third cutting also going to milking cows, while the remaining cuttings are for dry cows. Calculated as alfalfa hay, our average yield for all cuttings is 9.5 tons per acre.

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). I believe stand establishment and irrigation timing are two of the most important factors for good production and good quality alfalfa. We strongly believe in the value of early planting in the fall. We strive to have our alfalfa planted and up by the end of September. To do this, we harvest silage corn in mid-August and immediately work up the ground, prepare the borders, and pre-irrigate. As soon as the ground is dry enough we plant to moisture and, at that time of year, have emergence in 3 to 4 days and a stand within 7 days. Unless the year is exceptionally wet, in mid-February we irrigate both established and new fields to fill the soil profile for deep root growth and a reservoir of water and nutrients for mid-summer when it is hard to keep up with the water demand by the crop. In a relatively dry year, we may irrigate twice in the winter.

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? Cutting schedules are determined by stage of growth and scheduling arrangements with a custom harvester. We also factor in the quality we want. The first two cuttings are not difficult to get milk quality feed. To get high test hay from the third cutting, we harvest at 26 days. In subsequent cuttings, which are for dry cows, we stretch the cutting interval to 30 to 34 days because we are after tonnage more than quality. This delay in cutting also allows plants to recover from the early harvest in the third cutting. The fall cutting is cut around 30 days and, because of weather, tends to be milk quality alfalfa. So in short, we maximize quality in the first three and the fall cuttings and maximize yield in summer for dry cows.

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? Because we use our own alfalfa, quality testing is for utilization purposes rather than for marketing. My brother Michael, who manages the feeds at the dairy, has all feed for milk cows tested. We don't bother to test our dry cow hay.

PEST CONTROL

What are your most important pest control problems and how do you address them? Egyptian alfalfa weevil and worms such as the alfalfa caterpillar are our main insect pests and in some years require insecticide applications. We have an independent crop and pest control advisor who tells us when to spray. We apply Velpar when alfalfa is dormant for winter weed control and TR-10 in February for summer weed control. During wet years we have problems with Sclerotinia stem and crown rot, also called white mold, in both our new and established fields. In part because of this disease, we grow semi-dormant varieties instead of non-dormant varieties which are more commonly grown in our area. The reduced winter growth of the semi-dormants helps to minimize humidity in the canopy and seems to reduce Sclerotinia. We also feel that we get higher quality alfalfa and more stand persistence with a semi-dormant variety. Other disease considerations are Phytophthora root rot and root knot nematodes. We manage these problems by variety selection, choosing varieties with root knot resistance for our sandy soil fields and varieties with Phytophthora resistance for clay or clay loam soils. Good water management also reduces the possibility of problems due to Phytophthora.

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? In terms of avoiding harvest losses we allow hay to wilt to 65 % moisture more or less before bagging. The dry cow hay is cubed and not baled but this is for convenience of feeding rather than for reducing harvesting losses.

OTHER IMPORTANT FACTORS

Are there any other important factors to maximizing yield, quality, or profitability on your ranch? Other practices that we feel are important are soil testing prior to harvest and tissue testing during the life of the stand for nutrient analysis. When needed we apply additional fertilizer, which in our part of California is often phosphorus. We don't use manure on fields prior to alfalfa because we don't want additional weed problems to what is already present. We also apply soil sulfur (500 pounds/acre) prior to planting for to lower soil pH and for crop needs.