

## INTRODUCTION

Some thoughts on the past and the future  
of the UC Forage Program

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Since it appears to be traditional that the Forage Extension Agronomist introduce the California Alfalfa Symposium, this year the honor and duty falls upon me as the newcomer to that position. For many years, of course, this was the role of Dr. Vern Marble, the founder of the symposium some 23 years ago. It is a tribute to Dr. Marble that this symposium continues to be a healthy and vital component of the alfalfa industry in California. I hope that you will agree that the program planned for this year by the program committee aptly continues this proud tradition.

Plans for this conference were progressing long before I arrived on the scene, and the organizing committee for this year should be complemented for their efforts. This committee included Carol Frate, Farm Advisor for Tulare Co., and Bruce Roberts, Farm Advisor for Kings Co. who acted as co-chairs, Mark Brady from Simplot, Inc., Tim Hayes from Evergreen Farm Supply, Ron Vargas, Farm Advisor for Madera Co., Marsha Campbell, Farm Advisor for Stanislaus Co., Marvin Vierra, PCA from Tulare Co., Shannon Meuhler, Farm Advisor from Fresno Co., Steve Orloff, Farm Advisor for Siskiyou Co., and Larry Teuber, Professor, University of California, Davis. Quite a few others including the secretarial staff at UC Davis assisted. Many thanks to all of you.

## A LOOK AT THE PAST

This is perhaps a good opportunity to look back at where we've been. This past year has been a relief to many producers, since in most parts of the state the drought is over, and the pressures on water-use seem to be easing considerably. The prices for high quality hay in the Fall of 1993 were excellent, leading to a somewhat more optimistic year than the past 6 years which were characterized by the worries over water, pests, hay quality, and other concerns. New plantings appear to be significantly higher than in previous years.

Alfalfa has come a long way in California. I was able to put together the data in Figures 1-3 from old records from the Department of Agricultural Statistics at the California Department of Food and Agriculture in Sacramento. Figure 1 shows the acreage of alfalfa in California according to official records. Note that there were increases in the 1920s but a sudden decline in the 1930s, presumably because of the depression. However, acreage has increased dramatically from the mid 1930s to about 1960. This probably corresponds to the opening of new areas to irrigated alfalfa in several parts of the state, as well as to the increasing importance of the dairy industry in the state. The acreage of

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alfalfa has actually declined slightly since the decade of the 1960s. Acreage in 1992 was 960 thousand compared with a high of 1.2 million in 1971, according to official records. However, total acreage seems to have altered very little since about 1978, with annual changes due more to temporary market and weather conditions rather than long-term trends. This relative stability is interesting given that total acreage of all field crops has declined about 1 million acres over the past 20 years.

Figure 2 shows the changes in alfalfa yields during this same period (1919-1992). Alfalfa growers in California have been able to increase yields steadily from about 3.5 t/acre in the 1920s to about 6.7 t/acre in the 1990s (average statewide yields). This amounts to about 1/2 ton/acre every ten years. Furthermore, although there was some slight levelling off in the late 1980s, perhaps due to the drought, this trend appears to be fully linear throughout this period. That is, alfalfa yields have increased at a constant rate year by year, and there is no sign as of this date of a "yield plateau" for alfalfa in California. This is surprising in some respects, as one would have expected to see such a plateau coming after the major innovations (new irrigation systems, tillage equipment, improved varieties, pesticides, equipment) were initially introduced in the 1950s-60s.

At any rate, this represents a phenomenal accomplishment of the California alfalfa producer. Remember that this data includes the southernmost regions (a 10 cut crop) as well as the northern regions (a 3+ cut crop), high and low producers, and many different environments. This steady increase in yield per unit area has meant that total production (Figure 3) has increased about 270% between 1920 to 1990. Total production has remained approximately constant from the 1970s-1990s in spite of a reduction in total acreage during this latter period. This is due to more efficient production per unit land area and growers should take pride in this accomplishment.

#### SOME THOUGHTS ON THE FUTURE

It is probably unwise to do too much prognosticating and to believe one knows what will happen tomorrow much less next year. However, it is perhaps a good opportunity to "crystal ball" the future a little to see what direction we are heading in the Forage Research and Extension group at the University of California.

Since coming here in August, I have been travelling through many of the alfalfa-growing areas in California to try and assess what the needs of the crop are in the state, and what course of action we should be taking. I have spoken with growers, farm advisors, and marketing people from Scott Valley to Imperial Valley, and several important issues have come to the forefront:

**Forage Quality.** One of the big changes in alfalfa over past 20 years is an increased emphasis on forage quality in the marketing of the crop. It is clear from the above discussion that growers in California are fully capable of achieving high yields.

However, it is not so much a question of maximizing tonnage, but in delivering a high quality product. Sometimes growers simply cannot sell low quality hay. I have heard many growers lament their frustrations with 'making test' especially during certain cuttings. In terms of research, I would like to work closely with animal scientists to better understand the production practices (crop variety, cutting and harvest management, pest control, soil fertility, etc.) which impact forage quality. Some growers have expressed frustrations and questions about the way in which forage quality is measured. At issue is the variation from lab to lab, and the differences among quality determination methods. Forage quality is clearly the number one issue among growers, judging from the many comments I received.

**Water.** Although California may feel slightly more at ease this year because of the end of the drought, water is clearly the most limiting factor for alfalfa production in the state. The issue will obviously not go away in the future. Conflicts between urban and rural water rights will not disappear. Although I think we could make a case that alfalfa is one of the most efficient users of water, total yearly use of water by alfalfa remains high. Alfalfa will probably be pointed to as the agricultural "culprit" by those who have little interest in the production of the crop. This fact, and the increased costs of water application in many areas give us adequate incentive to address water application management, plant efficiencies, variety differences, methods of summer dry-down, soil tillage, and other factors to increase efficiency of water use in alfalfa. While much work must be done, we should not let the public forget that the almost doubling of alfalfa yields over the past 70 years has come with only slight changes in the total amount of water applied on a per acre basis.

**Pest Problems.** There are many weed, insect, and disease problems which occur on a regular basis in alfalfa, and there are others which are relatively new and of special concern. In the Imperial Valley, the silverleaf whitefly is of particular and immediate concern. Specific disease, insect and weed pressures have shown up in other parts of the state. I am looking forward to working with plant pathologists, weed scientists, entomologists, and Farm advisors to try and address some of these problems.

**Crop Management.** The variety evaluations which have been conducted in California will continue to be important to growers and the seed industry. However, one can affect performance only a certain percentage with improved varieties; agronomic practices such as planting date, harvesting management, fertilizers, and stand establishment are of key importance. I feel that particular focus on management methods which influence forage quality is warranted.

**New Uses/Alternative Forages.** We should not limit our thinking on alfalfa to the traditional uses for the crop but should continually explore and examine new uses and new markets for the crop, in areas which we may not have previously imagined. Examples

may be: export niche markets, and use of alfalfa as a multiple-use crop (energy, feed). In addition, many alfalfa forage growers have expressed interest in exploration of alternative forages, either for domestic or export use.

#### **FUTURE CHALLENGES**

These are some ideas for the future direction for the UC Alfalfa Forage research and extension. There is obviously a full platter, and we cannot expect to do it all, especially with dwindling resources. With the severe budget cuts around the state, I think it has sometimes been hard to keep a sense of optimism, especially for the Farm Advisors in the counties which have been especially hard hit. At UC Davis, we are very much feeling the loss of Walt Green (SRA for Larry Teuber's alfalfa breeding project), and Judy Stone, who has managed the details of the Alfalfa Symposium for many years. UC has not been able to replace plant breeder Bill Lehman who made so many contributions to California alfalfa production, especially in the Imperial Valley. It is unclear at this point how or whether these individuals will be replaced.

However, in spite of the stresses which have been put on the UC system and the forage group in particular, I feel optimistic about the future. California milk production is apparently this year surpassing any other state including Wisconsin, and prices are good. There are a number of farm advisors, researchers and extension people around the state with a strong interest in alfalfa and are enthusiastic in their support of the crop. I have been quite impressed with this group who as a whole take a highly professional and activist approach to meeting the needs of this industry. It is with pleasure that I am able to introduce the 23rd California Alfalfa Symposium.

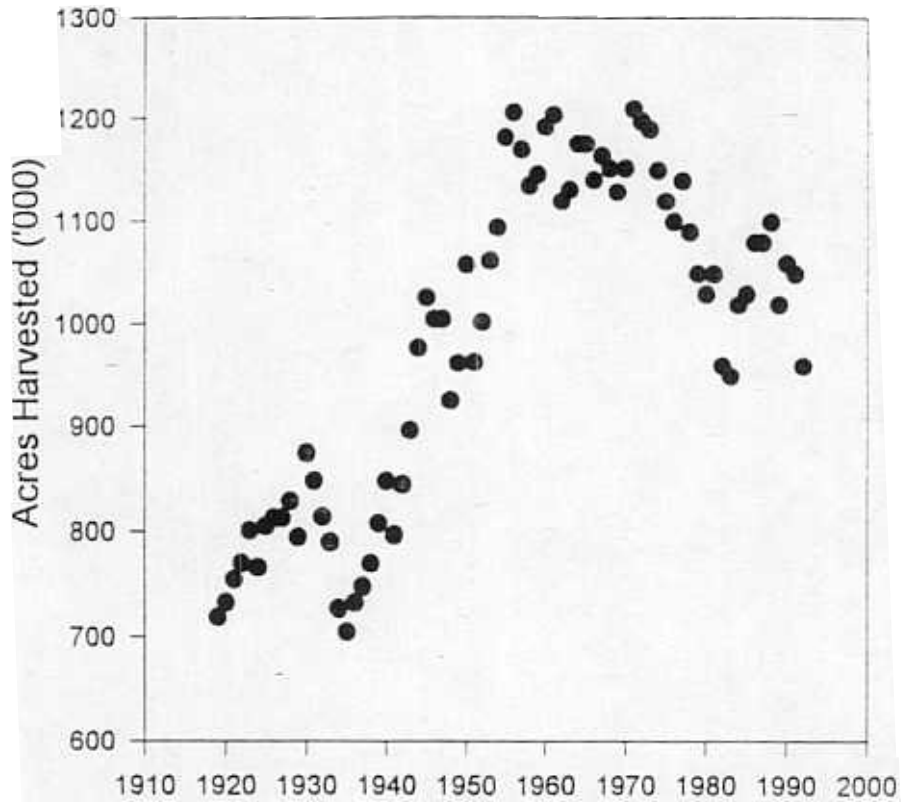


Figure 1. California Alfalfa acreage (1919-1992)

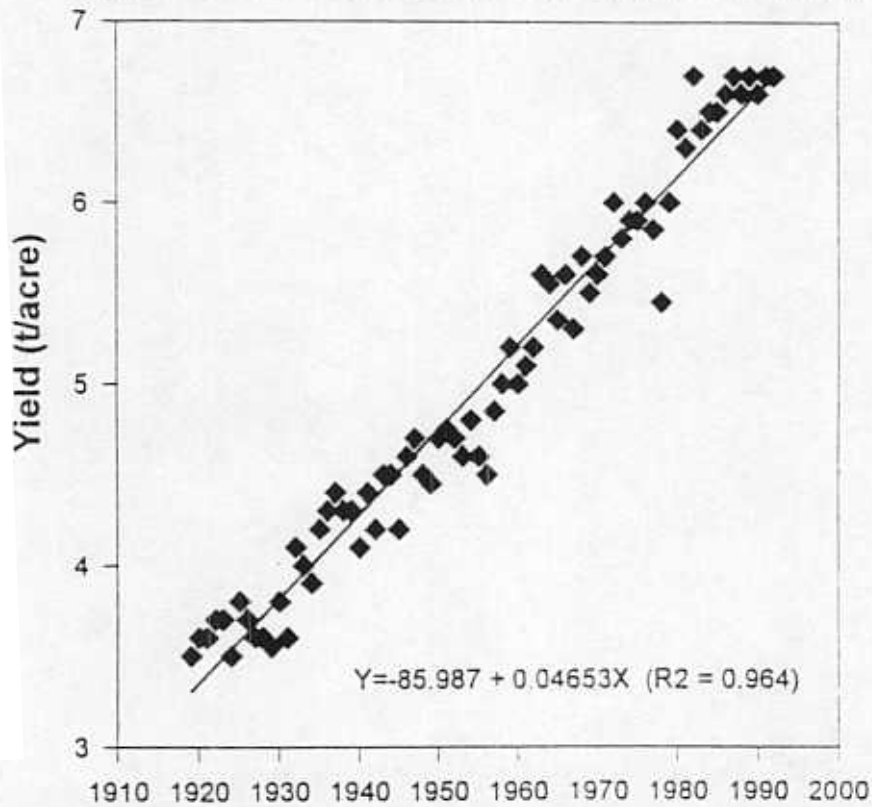
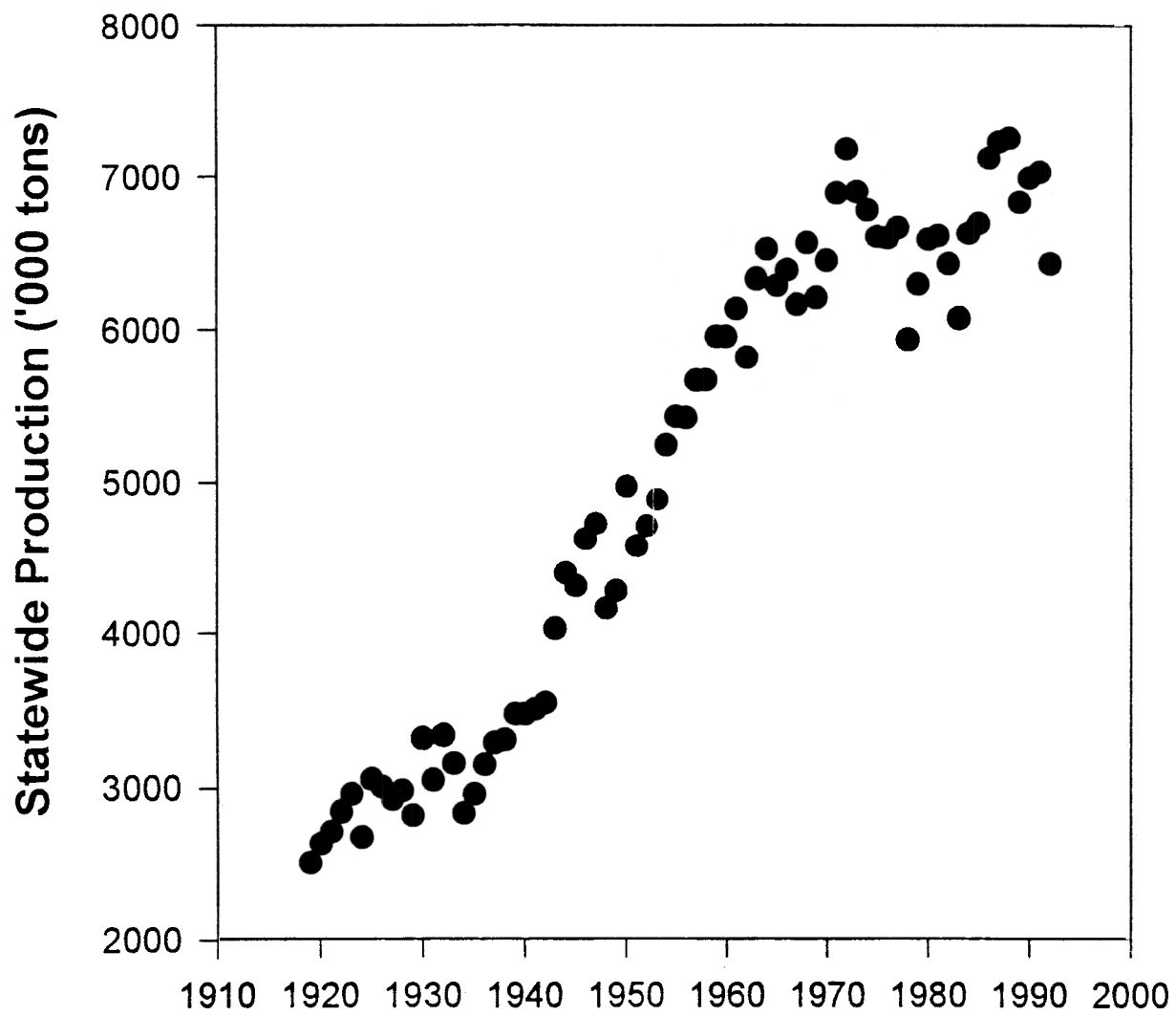


Figure 2. Increase in California Alfalfa Yields (1919-1992)



**Figure 3. California Alfalfa Production (1919-1992)**