# Preceding Crops on Alfalfa Land

Treatment	Yield Per Acre
Alfalfa	1025 12.
Cantaloupes	1670
Spring Wheat	1024
Corn for ensilage	1174
Summer fallow	2009
Difference required for significance - 341	

### CONCLUSIONS:

From the harvest results of the sugar beet seed crop several rather interesting comparisons can be made.

The preceding crops planted on cotton land as compared to summer fallow show rather conclusively the amount of plant food that they have taken away from the following sugar beet seed crop. Also in the case of the treatment of Sudan grass, in addition to utilizing plantfood, it has left the soil in a rather toxic condition, which is evidenced by the extremely low yield of sugar beet seed following Sudan grass.

The growing of the annual green manure crops on land previously in cotton did not increase sugar beet seed yields. It is believed that the reason for this is that the green manure crops were not turned under early enough to add their benefits to the sugar beet seed crop.

In the case of the preceding crops on alfalfa land, consideration must be given to the effect of the previous alfalfa history on the summer fallow treatment. This summer fallow treatment is in reality alfalfa turned under in the fall preceding the sugar beet seed crop, allowing the alfalfa to thoroughly decompose and give the soil the benefits of green manure. The alfalfa treatment was turned under several days before the beet seed crop was planted and therefore did not have time to thoroughly decompose and add its benefits to the sugar beet seed crop.

Cantaloupes, which is the second highest yielding crop on the alfalfa series, appears to be a very desirable preceding crop as it does not seem to be a highly soil-depleting crop and a large amount of green succulent material can be turned under after the cantaloupes are harvested.

### SEED PRODUCTION CONSIDERATIONS IN CALIFORNIA

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The observations made in this paper are limited to experience gained in the pure sugar beet seed district of Riverside County, California, a district set aside by law for the growing of seed from only those varieties of sugar beets resistant to curly-top. It is situated on the coastal side of the coast range of mountains near the foot of Mount San Jacinto, near Hemet. The elevation of this seed growing valley and its being surrounded by mountains gives the area a much different climate than the coastal plain.

The first consideration in seed production is termed "seed consciousness." This means that the producer of sugar beet seed must have uppermost in his mind the farmer who is to plant the seed and the sugar mill that is to process the beet crop, for seed is the starting point of beet sugar production. Every effort should be made by the producer to place in the hands of the sugar company for distribution to the beet grower a seed of high viability, of uniform size, and free from noxious weeds.

Sugar beet seed production succeeds when the right thing is done at the right time.

Not every farmer can adapt himself to the exacting practices necessary to produce a profitable crop of seed. Choice of proper soil type in the proper rotation is a primary essential that must be given study and attention. Sugar beet seed does best when planted within a very limited time. Records show that fields planted between September 1 and 20 yield on the average 500 to 600 pounds more per acre than those planted between September 20 and 30. The production dropped very markedly when for any reason a field got in as late as October, the yield being about 900 pounds per acre below the early planting dates. The very late planted fields always show a lower germination and a much heavier cleanout. Bolting percentage is, of course, higher in the fields planted in proper time.

Reasonable thickness of stand plays its part in production and bolting. All other factors being equal, results show that when stands fall below 6 plants per foot of row the percentage of bolters drops and the yield is reduced as much as 500 pounds per acre. Much attention has been given in the Hemet territory toward securing good stands of beets planted between the dates of August 25th and September 15th.

Fertilization has been given much attention in the experiments of the Department of Agriculture near Hemet, and in the commercial fields. Excellent results are obtained with manure plowed under four weeks or more before planting plus the addition of nitrogen as a side dressing during the growing periods of the crop.

Consistent and regularly timed irrigation must be practiced to secure good stands and harvest a crop of high viability. Too much water can be used and certainly too little will show distinct unfavorable results. It has been clearly demonstrated that ample moisture is needed during the blooming period so that no wilting will take place and as a further aid to mature a well filled seed ball.

The moisture requirements of the beet seed plant during April, May, and June must be heavy when it is taken into consideration that the growth is rapid and the leaf and stalk area becomes very large and heavy. Bolting starts the first week of April, and during the following six weeks the seed stalk makes a growth of 72" to 84" with a corresponding leaf development. The total green material from a representative field harvested this past summer has been measured by the 5 to 1 ratio, that is, one pound of dry material equals five pounds of green matter. This field of 21 acres produced 124 tons, 147 pounds, of dry straw, seed and screenings. This gives us a total of 620 tons, 735 pounds, green matter or 29 tons, 1082 pounds per acre. It is obvious that to provide moisture and humidity for such a mass, irrigation must be consistently regular, and mother nature must aid by providing some air humidity.

#### TREATMENT OF SUGAR BEETSEED

## A. W. Skuderna American Beet Seed Company

Treatment of sugar beetseed had been practiced in the Arkansas Valley in Colorado from 1919-1928, when all of the seed used for commercial beet plantings in the territory served by the American Crystal Sugar Company was treated with formaldehyde gas. This method of treatment proved practical and inexpensive, and was generally productive of some increase in sugar per acre yield.

During recent years, the Division of Sugar Plant Investigations experimented with dust treatment with beetseed. As a result of this work treated seed is extensively used in Minnesota, where farmers treat their seed requirements using dusts such as Ceresan at the rate of 3 to 4 ounces to 20 lbs. of seed. The stand count results in the great majority of cases have been in favor of the treated seed. (1)

In 1937, Drs. G. H. Coons and J. E. Kotila of the Division of Sugar Plant Investigations, Bureau of Plant Industry, U.S.D.A. sent 4 dusts to a number of companies for treatment of sugar beetseed. A series of well replicated plots was requested, the results from which were to be reported at the meeting of the American Society of Sugar Beet Technologists. The dusts used were:

- 1. 1937 "Ideal" a 1:1:1 mixture of copper carbonate, merchloride and urea, ground to a fine powder. Dosage 4 ounces to 15 pounds seed.
- 2. Copper carbonate --- Dosage 4 ounces to 15 pounds seed.
- 3. Ceresan (2% Ethyl Mercuric Chloride). Dosage 4 ounces to 15 pounds of seed.
- 4. Ceresan 2 parts, copper carbonate 1 part. Dosage 3 ounces to 15 pounds seed.

The seed was mixed with required dosage of dust in a barrel churn for 5 minutes and following treatment planted in 5 replicated series in 8 row plots, some 300 feet in length. The results are shown in Table 1.