

Barley Seed

produces no effect on yield

Armen V. Sarquis, Bill B. Fischer, Frank G. Parsons and Milton D. Miller

Field-scale trials conducted over a three-year period in the Coalinga area of Fresno County show geographic source of California grown barley planting seed of the same variety has no significant effect on yield, if the quality is otherwise equal. Certified planting stock grown each year at three different geographic locations—Davis, Coalinga, and El Centro—was obtained and planted annually in replicated trials and harvested during 1958, 1959 and 1960.

Purpose of the trials was to determine whether planting seed grown at a more southern latitude held any yield advantage over seed of a more northern origin.

Each year's trials were conducted on Panoche loam soils prepared by accepted tillage operations and pre-irrigated with an average of 15 acre-inches of water. Each planting followed at least two years of seed alfalfa. Each trial received a pre-plant injection of about 50 pounds of actual nitrogen per acre in the form of anhydrous ammonia, except in 1959 when the fertilizer was applied by means of basin irrigation. Spring irrigation was through sprinklers.

All planting seed was graded to uniform size and fungicide treated. Seed used was of either the certified, registered, or foundation class of certified

California Mariout barley. Through certification records it was possible to determine that seed from each source had been grown at that source for two or more generations.

Each year the trials—five replications per seed source—were planted during late November or early December. Planting rate was 55 pounds per acre in 1958 and 65 pounds per acre in 1959 and 1960. A standard grain drill was used for planting. Each source replication was 30' wide and one-half mile long, except in 1960 when the plots were one-quarter mile long. Yield determinations were made by harvesting the center 14' through the full length of each source replication, by use of a standard combine. The barley from each was then transferred to individual bins and weighed. Plots were harvested in late May or early June each year.

Although there appeared to be a trend toward higher production from El Centro seed in the 1958 results, statistical analysis of the data from each year's trial revealed no significant difference in yields. Excessive moisture, barley scald, and increasing incidence of loose smut disease caused 1958 to be a poor barley year. Yields in 1960 were comparatively low due to lack of sufficient spring irrigation.

An analysis of the three years' trials for the three seed sources revealed no statistical differences in yield performance.

The study clearly showed that as long as seed of the same variety and of the same high quality is planted, source of the barley seed will not be a factor in determining the yield. However, there may be other reasons for planting seed from southern sources rather than locally

grown seed. During recent years in some of the areas north of the Techachapi Mountains there has been a relatively high incidence of loose smut disease of barley. Ordinary seed treatment methods are not effective in controlling loose smut. It is difficult to grow loose smut-free seed in some districts of the state because the seed is infected at flowering time by windborne spores. In the Imperial Valley, probably because of climate, the disease rarely expresses itself. Hence seed from that area is apt to be relatively free of loose smut. Therefore, most of the supplies of foundation barley planting seed produced for distribution to growers under the certified seed program are being grown in Imperial Valley.

During the 1959 trials and under the same conditions, a similar source of seed trial was established, using the barley variety Arivat. Noncertified seed from Woodland and Coalinga, California, and Yuma, Arizona, was used. Results from the five replications in this trial showed average yields—in pounds per acre—for the three sources as follows: Woodland—3966, Coalinga—4137, and Yuma—3909 pounds per acre. Source of planting seed in this trial resulted in no significant difference in yields of Arivat barley.

Armen V. Sarquis is Farm Advisor, Fresno County, University of California.

Bill B. Fischer is Farm Advisor, Fresno County, University of California.

Frank G. Parsons is Specialist in Agronomy, University of California, Davis.

Milton D. Miller is Extension Agronomist, University of California, Davis.

Waldo W. Weeth, Weeth Ranch, Coalinga, cooperated in the above reported trials.

The above progress report is based on Research Project No. 1819.

CALIFORNIA AGRICULTURE

Progress Reports of Agricultural Research, published monthly by the University of California Division of Agricultural Sciences.

W. G. Wilde.....Editor

Articles published herein may be republished or reprinted provided no advertisement for a commercial product is implied or imprinted.

Please credit: University of California Division of Agricultural Sciences.

California Agriculture will be sent free upon request addressed to: Editor, California Agriculture, 207 University Hall, 2200 University Avenue, Berkeley 4, California.

To simplify the information in California Agriculture it is sometimes necessary to use trade names of products or equipment. No endorsement of named products is intended nor is criticism implied of similar products which are not mentioned.



Yields of Field-Run Barley in Three-Year Trials

Seed Source	Year*			3-yr. Ave.
	1958	1959	1960	
Davis	2199	4291	1764	2751
Coalinga	2356	4291	1930	2859
El Centro	2439	4257	1903	2866

* Differences not significant at 5% level.