

## Five-year test of

# Planting Dates

with five varieties of beans

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The best dates for planting bean varieties have been studied at Davis for five years. Five varieties of beans were planted at dates varying from early spring to late summer.

In 1954, the five varieties were planted four times, at monthly intervals from April 20 through July 20. Four replications were made of each variety at each planting date. Yields increased from the first to the third planting, and declined in the last one.

In 1955, 1956, 1958, and 1959 the experiment was expanded to six replications per planting, and the number of planting dates was expanded to eight, at two-week intervals from late April to late July. The yield data for the four-year period were combined into one statistical analysis and the major results of the four years, with the eight planting dates, are reported. The statistical analysis showed no significant differences between the six replications. Each replication consisted of 160 plots. The average yield of Replication No. 1 was 1,670 pounds per acre; No. 2, 1,674; No. 3, 1,696; No. 4, 1,654; No. 5, 1,648; and No. 6, 1,716 pounds per acre.

There were 192 plots of each variety. Differences were highly significant between varieties. The average yield for California Red was 1,965 pounds per acre; Sutter Pink, 1,873; Pinto, 1,714; Red Kidney, 1,632; and Small White, 1,197 pounds per acre.

In each year there were 240 plots. The analysis showed highly significant differences between years, though not significant between 1955 and 1958. Average yield for 1955 was 2,035 pounds per acre; 1956, 1,673; 1958, 2,000; and for 1959, 996 pounds per acre.

The yield at each date of planting was based on 120 plots. Differences were highly significant between some planting dates. Planting No. 1 was significantly the lowest. The difference between plantings 2 and 8 was not significant nor were the differences between Plantings 4, 5, and 7. The average yield of Planting 1 was 1,085 pounds per acre; 2, 1,430; 3, 1,686; 4, 1,860; 5, 1,983; 6, 2,064; 7, 1,815; and Planting 8, 1,486 pounds per acre.

There were significant interactions between dates and varieties; dates and years; and dates, varieties, and years. One of the chief contributors to these interactions was the yield of Small White. Its yields were relatively higher than the other varieties in the first plantings, and considerably lower in the last plantings.

Four varieties behaved similarly throughout the season, but Small White showed significant deviation. To obtain a model, the percentage figures obtained from the four-year average of four varieties were multiplied by the seasonal average of the variety. For each variety, the planting date, and the year of the

observed yield, and the calculated yield were compared.

Red Kidney and Sutter Pink showed no significant variations from the calculated yield for any planting date in any year. California Red had two significant deviations from the calculated yield, in the first planting in 1956 and in 1958. In 1956 the observed yield was lower than the calculated yield, and in 1958 it was higher. The Pinto variety showed three significant deviations from the calculated yields. In 1956 the first planting was lower than expected, and in 1959 the first and third were lower. In Small White, five significant deviations were obtained in the eight dates in both 1955 and 1956. In 1958, seven of the eight dates deviated significantly from the model, and in 1959 two were significant. The accompanying graphs show how well four-year average yields of the five varieties at the eight planting dates compared with the model.

The results of the studies indicate that Small White, which is grown commercially in the Salinas Valley, is not adapted to the Sacramento Valley. High temperatures in July and August reduced seed production. Late-maturing, Small White failed in the last planting in each of four years, and in one year the seventh planting gave very low yields.

The other four varieties increased in production between late April plantings up to mid-June and early July, when yields were maximum. The yields of the late July plantings declined in all varieties.

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Effect of Planting Date of Five Varieties of Beans in Five-Year Test  
Yields in pounds per acre

Planting	1	2	3	4	5	6	7	8	Ave.
Red Kidney	1086	1354	1533	1687	1957	1935	1908	1595	1632
% of ave. yield	67	83	94	103	120	119	117	98	100
Sutter Pink	1231	1467	1844	1957	2128	2189	2240	1932	1873
% of ave. yield	66	78	98	104	114	117	120	103	100
California Red	1201	1558	1830	2066	2144	2425	2492	2001	1965
% of ave. yield	61	79	93	105	109	123	127	102	100
Pinto	928	1413	1557	1810	1945	2153	2099	1808	1714
% of ave. yield	54	82	91	106	113	126	122	105	100
4 varieties	1112	1448	1691	1880	2043	2176	2184	1834	1796
% of ave. yield	62	81	94	105	114	121	121	102	100
Small White	979	1357	1668	1780	1744	1618	336	97	1197
% of ave. yield	82	113	139	149	146	135	28	8	100

