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PECAN IRRIGATION TRIALS IN 1956

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This publication reports results of pecan irrigation trials conducted by the Oklahoma Agricultural Experiment Station in 1956.

How Trials Were Conducted

The Station's pecan variety test orchard near Stillwater was used for the trials. A two-acre plot of trees on a clay loam soil was irrigated, and a similar plot was maintained without irrigation to serve as a check on results. The irrigated plot contained 35 trees spaced 42.5 feet apart. The check area included 25 trees. Both irrigated and non-irrigated plots contained the varieties Mahan, Moneymaker, Oklahoma, Squirrel, Stuart, and Success. Each plot contained two or more trees of each variety.

The trees were irrigated on April 6 to 10 (when the buds started to swell), July 10 to 13, August 17 to 20, and September 20 to 22. Water was applied with rotating sprinklers which were in 60-foot rows and spaced 30 feet apart in the rows. For the first two irrigations, a two-inch supply line was used, and the sprinklers were operated for 24 hours per setting. A three-inch supply line was used to supplement the two-inch line for the third and fourth irrigations, and the irrigation time was reduced to eight hours per setting. The depth of water penetration was checked with a soil tube at several locations. These observations indicated that moisture penetrated to a depth of 4 to 5 feet with each irrigation.

The total rainfall at Stillwater during 1956 was 16.68 inches. From January to October, when the trees use large quantities of water, the rainfall amounted to 10.94 inches. Rainfall distribution by months in 1956 follows:

January	0.43 inches	July	1.09 inches
February	0.98 inches	August	0.91 inches
March	0.59 inches	September	0.20 inches
April	0.42 inches	October	2.17 inches
May	4.53 inches	November	1.90 inches
June	1.79 inches	December	1.67 inches

Results

The effect of irrigation was determined on the basis of the number of pecans required to weigh a pound, a measure of their size (Table 1). Pecans from both irrigated and non-irrigated plots were generally smaller than customary, but the nuts from irrigated trees were two to three times larger than those from non-irrigated trees. The

greatest difference in size occurred with the varieties Stuart, Moneymaker, and Oklahoma. The nuts of Stuart and Success from the irrigated trees were about the same size as customary in years of normal rainfall. The nuts from the irrigated trees were well filled and kernels were high in quality, while the nuts from the non-irrigated trees were poorly filled and the kernels were low in quality.

TABLE I. -Size of Pecans from Irrigated and Non-irrigated Trees.

Variety	Number of nuts per pound	
	Irrigated Trees	Non-irrigated Trees
Mahan	60	112
Moneymaker	68	177
Oklahoma	83	194
Squirrel	87	138
Stuart	53	182
Success	49	101

These results can be considered typical only for the unusually dry season of 1956. It is quite likely that such outstanding differences caused by irrigation would not occur in seasons of adequate rainfall.