Mimeographed Circular M-289 June, 1957

Flowering Habits of Pecans in Oklahoma

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Pecan growers often experience difficulty in getting trees to set fruit. Research workers have suggested that part of the difficulty can be explained by a variation between the time pollen is shed by the staminate flowers (male portion of the plant) and the time pistillate flowers (female portion of the plant) are ready to receive pollen. This condition is called dichogamy. Some trees shed pollen before pistils are ready to receive pollen, and others shed pollen after the pistils have passed the receptive stage.

When these conditions occur, a single tree cannot set fruit unless another source of pollen is available when the pistillate flowers are open. This may explain why a tree grown by itself sometimes fails to produce properly. It may also explain fruiting difficulties in orchards having only one variety, where all trees follow about the same pattern in shedding and receiving pollen.

In order to learn more about this problem, the Oklahoma Agricultural Experiment Station has undertaken a study of the flowering habits of a number of pecan varieties grown in Oklahoma. Forty-six varieties were studied in 1956.

Some of the varieties used in the study were recently introduced and were just coming into bearing. In some cases, the data were taken from one tree and the number of catkin and pistillate flowers were limited. During the period of observation, the temperature was higher and the humidity lower than normal. It was evident that hot winds during the period May 8 to 13 had a drying effect on the stigmas and shortened the receptive period. These conditions also hastened the shedding of pollen.

There was considerable variation in staminate and pistillate flowering among varieties. In slightly more than half of the varieties (26), the pistillate flowers were ready to receive pollen from one to seven days before the pollen was shed. This condition is called protogyny. The flowering time for this group is shown in Figure 1.

The blossoming of the staminate and pistillate flowers of Stuart, T-130 and Love varieties were sufficiently close together to assure self-pollination; while Kincaid, Robson 5031 and Niblack were dependent on other varieties for pollen.

Fifteen of the varieties shed pollen one to four days before the pistils were ready to receive it. This condition is called protandry. This group is shown in Figure 2. Five varieites, Robson 5006, San Saba, San Saba Improved, Squirrel and Success shed pollen on the same day that pistillate flowers were receptive. This group is also shown in Figure 2.

Observations will need to be made for several years to determine the extent of dichogamy (variable blooming time of staminate and pistillate flowers) of pecans in Oklahoma. Based on the results to date, it appears that pecan orchards should be planted to two or more varieties which complement each other as far as time of pollen production and receptivity are concerned.

Examples of Protogyny in Various Degrees in 1956

A-93, Robson 5031 and %-130 have not been named and are referred to by their selection number.

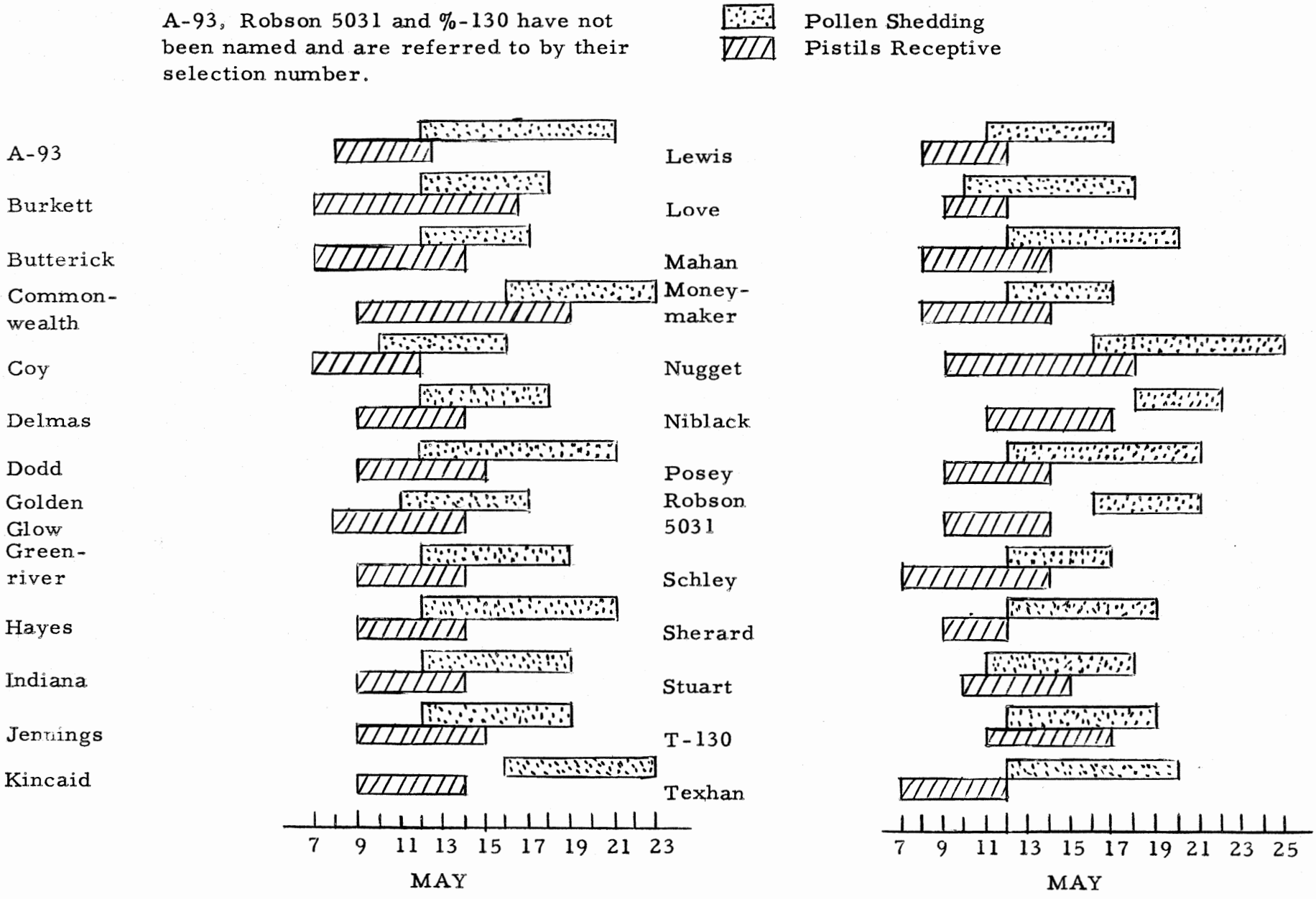

Figure 1

Examples of Protogyny in Various Degrees in 1956

Robson 5006 and T-5 have not been named
and are referred to by their selection number.

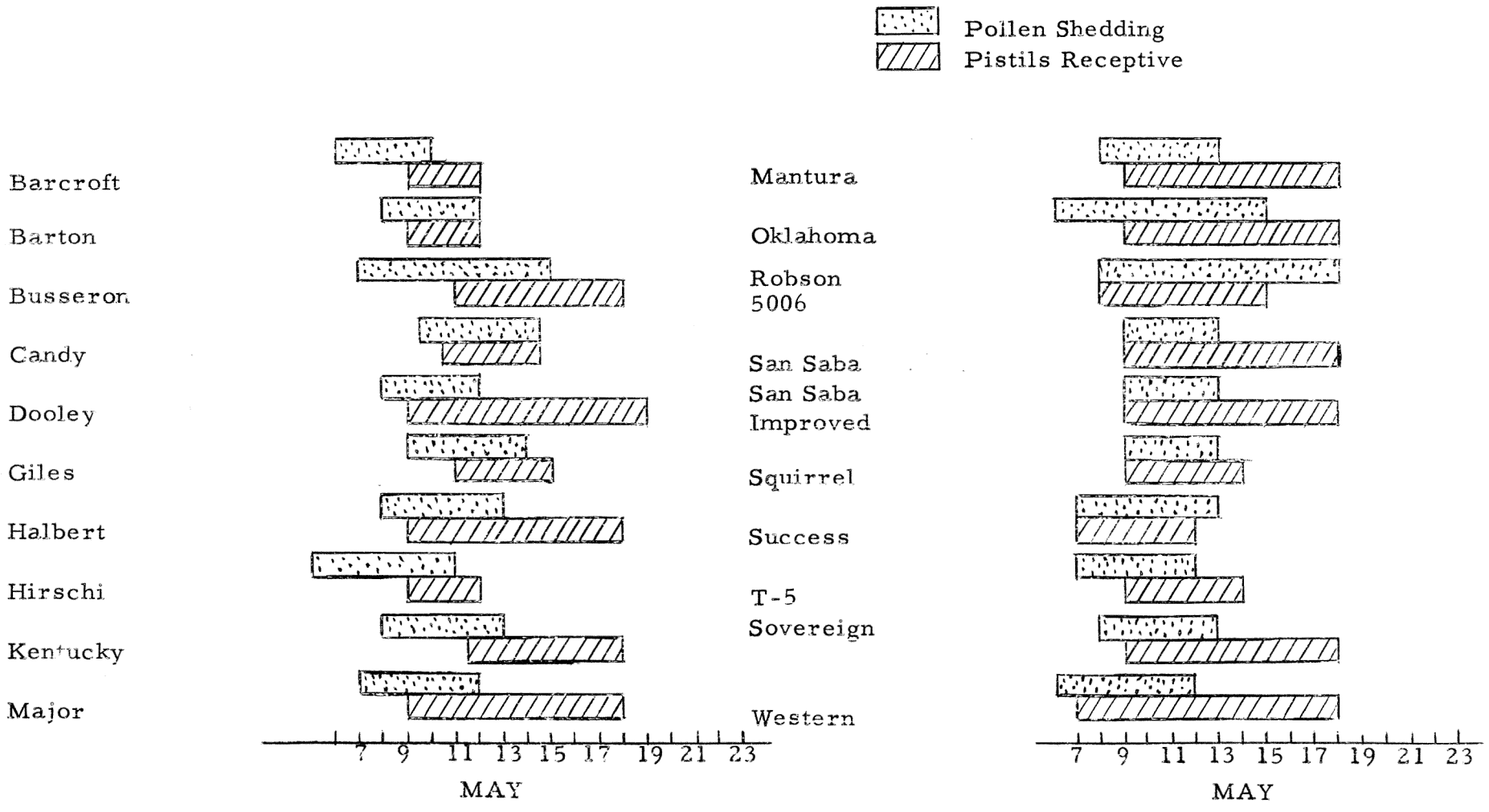

Figure 2