

DATE Ripening Controlled Beneficially by Using Special Kinds of Pollen

The time of ripening of all fruits has been believed to be entirely a matter of variety as affected by environmental relations of climate, soil, and culture. It is now known that in the case of the date palm there is, within certain limits, a direct effect of pollen on the time of ripening of the fruit.

Conclusive proof of this new and unexpected influence of the pollen parent on the fruit tissues belonging to the mother plant was obtained in 1925. This effect has been called *metaxenia*.

The experiments have since been continued in commercial date gardens in the Coachella Valley in California and in the Salt River and Gila Valleys in Arizona, always with the same results. The effects of the pollen of more than 100 different male date palms have been studied in this way. Most of these male palms produced pollen causing the fruit to ripen in midseason. A few males caused very early ripening of the crop and a very few late ripening.

In most plants such an influence would have only scientific interest and value, but in date culture artificial pollination is commonly practiced, owing to the fact that the pollen is produced on a different plant from the one that produces the fruit. Very early in the evolution of date culture there developed the practice of maintaining only a few male palms, the pollen of which suffices for a large number of females.

Pollen from a male date palm known to cause early ripening was applied in 1930 to one group of Deglet Noor palms and that causing late ripening to another comparable group, and a record was kept of the fruit as picked from each. At the United States Experiment Date Garden at Indio, Calif., the difference in time of ripening was 15 days at the beginning of the season, increasing to 20 days when 98 per cent of the crop was ripe. At the Indian Wells district, a few miles away, where the normal ripening is somewhat later, there was a difference in time of ripening of 21 days at the beginning of the season, increasing to 37 days when 98 per cent of the crop was ripe.

Practical Value of the Discovery

As would be expected from this record, it has proved possible to utilize pollen causing early ripening to insure the ripening of late varieties in regions having too short or too cool a summer to permit the dates to mature properly. On the other hand, pollen causing late ripening is used to delay ripening of dates in regions having an excess of summer heat when the crop tends to ripen too early, as in the hotter parts of the Coachella Valley in California, now the chief date-producing region in the United States.

Date palms in the Southwestern States produce from 8 to 20 flower clusters over a period of 8 to 10 weeks in early spring, and the ripening period of the fruit bunch extends about 6 to 10 weeks, depending on the variety and on the temperature prevailing during the ripening season.

A new application of the effects of pollen in controlling the time of ripening of dates was tested in 1930. Pollen from two different male palms known to exert very diverse effects on the time of ripening of the fruit was used on a single bearing date palm. This differential pollination, as it may be called, was carried out by applying pollen known to cause late ripening to the first flower clusters to open in spring, and

pollen known to cause early ripening to the later blooms. The effect of this method of pollinating was to shorten decidedly the ripening season of the dates. When the two kinds of pollen were applied in reverse order, viz, early-ripening pollen to the first blooms and late-ripening pollen to the late blooms, the reverse effect was secured and the ripening season was decidedly lengthened.

Late Ripening Beneficial in Some Areas

The fruit of the Deglet Noor variety, the chief commercial date in this area, which matures during the extreme heat that prevails during the latter part of August and the first three weeks in September, is distinctly inferior in keeping quality and in flavor to fruit maturing in October and November, when the weather is much cooler and ripening less rapid. In most parts of the Coachella Valley a considerable proportion of the crop is harvested by the last of September, and under such conditions the exclusive use of pollen that causes late ripening is beneficial. However, in the Indian Wells district, the custom of using pollen that causes late ripening delays the beginning of the harvest until about the first of October, but the exclusive use of such pollen here throws the ripening of the latter part of the crop into December and January, and even into February. Prolongation of the ripening season into winter greatly increases danger from rain, as most of the precipitation occurs at that season; and because of the slowness with which fruit ripens in cold weather such prolongation results in a decided slowing up of the harvest with consequent greater expense in handling the fruit. The use of differential pollination to shorten the ripening period thus becomes of particular practical significance in date culture in this district, eliminating undesirable early fruit on the one hand and speeding up the ripening of the later fruit on the other hand, so as to reduce substantially the loss from late rains and a prolonged harvest.

The reverse form of differential pollination, which lengthens the ripening season by the use of pollen known to cause early ripening on the early blooms and late-ripening pollen on the late blooms, promises to prove advantageous in regions where sudden autumnal rains injure or destroy all dates in the final stages of ripening.

In marked contrast to most technical improvements in agriculture, differential pollination entails no extra cost to the grower. All that needs to be done in order to reap the advantages that have already been demonstrated is to change from one kind of pollen to another when about half of the flower clusters have opened.

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DOGS and Cats May Be Kept Off Flower Beds by Nicotine Sulphate

Dogs and cats sometimes become obnoxious about certain premises by running over flower beds, ruining shrubbery, and invading areas where they are not wanted. It is not always possible to drive away the intruders before damage has been done, and fencing is often undesirable. Many persons appeal every year to the department for some harmless means of repelling the animals without injuring either them or the shrubbery and flower beds.