



## Pollination of the Date Palm

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## POLLINATION OF THE DATE PALM

By Larkin Fitch

The date palm is one of the most interesting of cultivated trees. It is endogenous, that is, its growth takes place in the center of the trunk, there being no lateral growth. This prevents it from being propagated by grafting and budding. Off shoots are the only suitable means of propagation.

The date palm is also diecious, that is, the male flowers are born upon one tree and the female flowers upon another tree. Therefore, it is necessary to pollinate the female trees artificially.

With the ancient Assyrians, the practice of artificial pollination of the dates was connected with religious ceremonies. Every year at the time the flower clusters were in bloom, the natives held feasts and dances among the palm groves. These ceremonies would last for days and during this time the natives carried the staminate or male flowers on sticks, and in waving them, would throw the pollen into the air. They did not know why they did this, but they knew that if it were not done, they would not get a good harvest. As time went on they came to appreciate artificial pollination and finally abolished the religious ceremonies and used mechanical means of pollination.

Even if they did not know the principle of pollination, they were taught by sad experience what would happen if they neglected artificial pollination.

At Medina, which has always claimed to be the center of the science of date growing, the prophet Mohammed announced that, "artificial impregnation of the palm was an unnatural practice, and in the future would be unlawful for his followers." The people were loyal to the prophet and abstained, but to their sorrow, for there were but few dates that fall. The citizens called upon the prophet for an explanation. As a result the great Mohammed stated in effect: "You are weak in spiritual knowledge, but are worldly wise; therefore, in the future I will confine myself to the governing of your spiritual welfare only." The next year the palms were artificially pollinated and the crop was above average.

However, trees can be pollinated by wind and insects carrying the pollen, but this is insufficient to produce a



ARABS AT TOZEUR, TUNIS, HARVESTING DATES BY PASSING THE BUNCHES FROM HAND TO HAND DOWN THE TREE.

good crop. Therefore, artificial pollination is necessary.

In the old country, artificial pollination is carried on everywhere. Even clumps of palms in isolated oases in the desert are usually pollinated by nomad Arabs who claim them as their property.

In the date growing regions of the United States, the method of pollination is similar to that of foreign countries.

The male flower cluster is composed of a central stalk bearing a great number of short branches, four to six inches long. Upon these branches there are from twenty to fifty flowers, each of which contain six anthers full

of pollen. The whole cluster is enveloped in a brown sheath which bursts open as the flowers approach maturity. Then the flowers open and give off pollen. The female flower cluster is borne similar to the male cluster, inside a closed sheath which splits at the time the flower is receptive to pollen. At this stage the pollen must be supplied, for if but a few days elapse, the flowers are no longer receptive.

The common practice in pollinating is to cut the male clusters off just before the sheath opens in order to conserve pollen. By observing the sheath, the time of opening may be determined by size, color and touch. These clusters are dried and the pollen





A DATE HARVEST IN TOZEUR, TUNIS. QUITE A CONTRAST TO OUR IMPROVED WESTERN PRACTICE.

is ready for use. When the flowers of the female dates are just breaking through, the sheath is pulled back, the branches having flowers upon them are loosened, and the pollen is permitted to fall upon them. Then several branches bearing male flowers are tied, bottom side up, in the cluster with a weak string. If the string is not broken by the growth within two weeks, it should be cut. As all flowers do not become receptive at the same time this procedure insures that pollen will be present when they do become receptive.

Since all pollen is not of the same quality it is not possible to select

pollen at random. Pollen must be of the best quality, in suitable quantities, and mature at the proper season.

As flower clusters mature at different times it is often necessary to keep pollen on hand from season to season, especially in cases where the first female cluster is receptive before the male. Pollen may be kept several seasons without becoming sterile if gathered, dried, and stored in paper bags in a dry place. Pollen can not be used when the atmosphere is damp as the pollen grains will mold and become impotent. If rain occurs within 24 hours after pollination, the process should be repeated.

### POISONOUS GASES FORMED IN SILOS

Farmers are warned by the United States Department of Agriculture that poisonous gases formed in silos overnight while in process of being filled are deadly. Freshly cut silage in a partially filled silo produces a poisonous gas. If there is no circulation of air, this gas remains in considerable volume. Death may result from entering a silo containing the gas.

As a precautionary measure it is recommended that the blower of the ensilage cutter be run for a few minutes before anyone enters the silo.

Prof. Stanley: "Name three products high in starch value."

Froeh: "Two cuffs and a collar."

### GOOD FARMING PREVENTS PESTS

An ounce of prevention is worth a pound of cure as truly in the control of insects as of any other evil. To be of most value, sprays should be applied before the injury is apparent. The careful rotation of crops, fall, winter and early spring plowing, frequent cultivation; general cleaning up of roadways, fence corners, and trash about the fields, care as to time of planting, proper use of fertilizers, use of trap crops and frequent examination of young plants for possible insect pests—each of these practices is in itself a big step in the right direction for the control of our insect pests.

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### POULTRY MANURE AS A FERTILIZER

Regarded as a fertilizer, fresh poultry manure is richer in nitrogen than it is in phosphates and potash. It contains about two and one-half times as much nitrogen and phosphate as an equal weight of farmyard manure, but only about the same amount of potash. The bulk of the nitrogen is present in an easily fermentable form. The manure is therefore quick acting, and care must be taken in storage or much of the valuable ammonia will be lost.

### KEROSENE EMULSION

Kerosene emulsion is usually prepared as a stock solution and diluted, as used, to the desired strength for spraying.

Wale oil soap, one-half pound; water, one gallon; kerosene, two gallons.

Dissolve the soap in boiling water. Remove from the fire and add the kerosene, stirring vigorously. The solution must now be agitated until it assumes a thick creamy consistency that does not separate on cooling. This conditions is most readily brought about by the use of a small bucket pump, forcing the solution through the hose and back into the container.

About a 7% solution will serve for most ordinary soft-bodied insects. In some cases a heavier dosage is necessary, and in a few cases a weaker solution is advisable. The following dilutions will probably serve all ordinary purposes. The figures are given on the basis of one gallon of the stock solution:

To obtain a 4% solution, add fifteen and two-thirds gallons of water.

To obtain a 7% solution, add eight and one-half gallons of water.

To obtain a 12% solution, add four and one-half gallons of water.

To obtain a 15% solution, add three and one-half gallons of water.

Kerosene emulsion is particularly effective against the aerial form of the woolly aphis and when properly prepared is a very effective contact insecticide.

Summer applications of oil sprays are best applied on bright sunny days when there is a light breeze blowing.