

Orchard and Berry Patch.

FERTILIZING FRUIT BLOSSOMS.

Many of the common varieties of pears require cross-pollination, being partially or wholly incapable of setting fruit when limited to their own pollen. Some varieties are capable of self-fertilization. Self-pollination takes place, no matter whether foreign pollen is present or not. The failure to fruit with self-pollination is due to sterility of the pollen, and not to mechanical causes, the impotency being due to lack of affinity between the pollen and ovules of the same variety.

Varities that are absolutely self-sterile may be perfectly cross-sterile. The normal typical fruits, and in most cases the largest and finest specimens from both the so-called "self-sterile" and "self-fertile" varieties, are crosses. Self-fertilized pears are deficient in seed and the seeds produced are usually abortive. The crosses are well supplied with sound seeds.

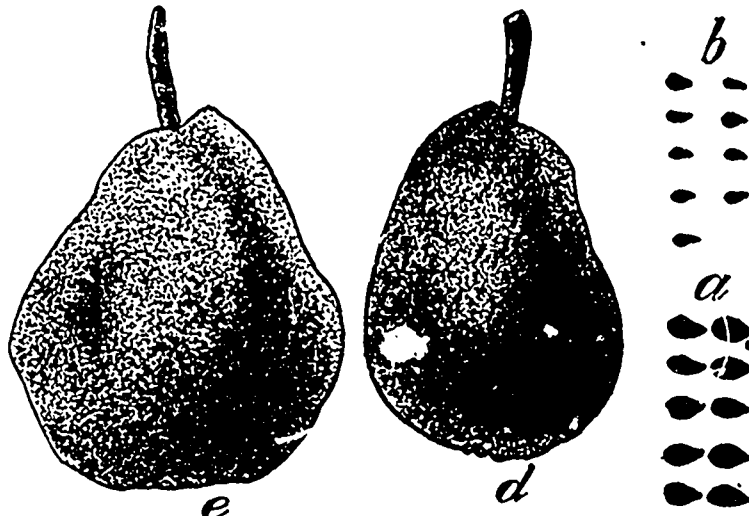
Prof. Walte of the U. S. dept. of agri. as a rule found a decidedly better development of the blossom end of the fruits of those cross-pollinated than those self-pollinated. He found also a disposition or tendency in self-pollinated late varieties of pears to wither before ripening, while those resulting from crosses ripened perfectly. Fig. c shows a Bartlett pear crossed with pollen of Easter pear. Fig. d shows a self-pollinated Bartlett pear. Seeds under a, from cross-pollinated Bartlett pears; under b, seeds from self-pollinated pears. About three-fifths of the varieties of pears experimented upon appear to have been wholly self-sterile, or were greatly benefited by cross-pollination. Even with those varieties capable of self-fecundation, the pollen of another variety is prepotent (more powerful), and unless the entrance of foreign pollen is prevented, the greater number of fruits will be affected with it. Results with apples were similar to those obtained in experiments with pears. The division of the varieties into self-sterile and self-fertile sorts was not nearly so well marked.

Crossing gave decidedly better results in all cases than self-pollination. The Baldwin, which was experimented upon freely, may be cited as a variety that comes as near being self-fertile as any, and yet even this is far from being entirely so; for in the best trees the percentage of fruit resulting from self-pollination was not more than a fourth of that which resulted from crossing. Some of the Baldwin trees, in fact, seemed to be self-sterile, and all the varieties occasionally set self-pollinated fruit.

Among the varieties of pears found more or less completely self-sterile are the Bartlett, Anjou, Boussock, Clairgeau, Lapp's Favorite, Sheldon, Louisa Bonne de Jersey, and other common sorts. Still less would it be possible to classify apples. A variety may be self-fertile this year and quite the reverse next year, or in one section of country and not in another. The weather during the blooming period exerts both a direct and indirect influence on the setting of fruit. Even when not injured by frosts, the blossoms are often chilled by the cold to such an extent as to interfere with fecundation. Moderate cold renders the self-fertile trees self-sterile and severe cold renders them sterile to cross-pollination as well. Warm and sunny weather at this time indirectly aids the fertilization by favoring insects in their work of cross-pollination.

Apples resulting from some of the experiments were collected and studied and the results were found to be parallel with those obtained in the experiments with pears, the crosses being larger, more highly colored and better supplied with seed. The hand-crossed Baldwin apples were highly colored, well matured and contained abundant seeds, while the self-fertilized were only slightly colored, were but one-fourth to two-thirds the regular size and seedless. The crosses were, in other words, like the better specimens of apples not bagged from the same tree, and the self-fertilized fruits corresponded with the undressed and poorly colored specimens from the same trees.

The number of insect visitors in any orchard determines to a great extent the amount of cross-pollination carried on. The pollen of the pear and apple is not produced in sufficient quantity, nor



Result of Perfect Fertilization of Fruit Blossoms.

is it of the right consistency, to be carried by the wind, and the pollination of these trees is, therefore, dependent on the activity of insects. If there is no apiary in the neighborhood, therefore, each large orchardist should keep a number of hives of bees. Honey bees and other members of the bee family are the best workers in cross-pollination.

Plant not more than three or four rows of any one variety together, unless the variety is known to be perfectly self-fertile, and be sure there are enough bees in the neighborhood or within two or three miles, to visit properly the blossoms, and when possible, to favor the bees by planting in a sheltered situation or by planting wind-breaks.

SPRING NOTES.

Where strawberry beds are not mulched, surface hard and crusty or weedy and grassy, they should be worked shallow in early spring so as not to cut the roots. If well mulched, soil mellow, I find it best not to cultivate until after berries are picked. Well fertilized pistillate strawberries will yield better than hermaphrodite varieties. Manure berry beds during winter and early spring, and rains will carry the fertilizer straight to the roots and keep the surface mellow. Don't burn crab grass and other trash from over strawberry beds, it answers as a mulch for winter and keeps berries clean. It should be done immediately after berries are picked, before they form new crowns and fruit buds.

To grow big berries, grow them in hills or stools and keep off all runners that growth may be thrown to the crown and berry. All old canes and weeds should be cleaned out of blackberries and raspberries before they leaf out. If done after they leaf out, some fruit spurs are liable to break off. Burn mulch in a gutter or washout. The blackberry season can be lengthened seven weeks. Early Harvest ripens 15 days before wild varieties. Kittaninny begins ripening the middle of the season and has the longest period of fruiting.

Trees shipped with roots almost dried, bury in moist, mellow ground about 10 in deep, roots and top, and leave about 10 days before planting. The best time to plant apple and most other trees is after the leaves are killed by frost and during winter when ground is not frozen until spring before leaves start. How long can roots of trees and plants be exposed to sun out of the ground? Five minutes may kill raspberries, strawberries and some other fine roots. Rhubarb and other plants of like nature will endure several days' exposure. Apples and most other trees two to eight hours in their dormant state before the leaves start and evaporate sap out of limbs and body.

Plum trees in an apple orchard are beneficial. The curculio prefers the plum to any other fruit. Stung plums will fall to the ground. Many insects can be kept from trees by washing bodies with a mixture of soft soap and carbolic acid diluted in hot water, at the time the bloom opens.—[Jacob Faith, Mo.]

Black and Rasp Berries—As climatic conditions and soil requisites are nearly the same for both these berries, I

have also encountered about the same difficulty in their cultivation. My plot for berries was taken from brush land near the creek, where irrigation could be had. Blackberries were planted in rows 8 ft apart, and 3 ft apart in the row, never allowing them to spread in width, but have become closer in the rows. Land being rich and well irrigated, canes will grow 8 to 10 ft high, if allowed freedom. I top down to 4 ft and it often becomes necessary to clip the laterals also. Allow only sufficient new canes to grow to supply bearing stock for the next year. Always allow early plants to grow and cut out all weak and late shoots. Blackcaps are planted in rows 6 ft apart and kept inside of a trellis and clipped at about 4 to 5 ft. Red raspberries planted in rows 6 ft apart and clipped at about 4½ ft will stand up well and are simply confined in the row by cultivation and cutting out scattering plants.—[A. W. Phillips, Walla Walla Co, Wash.]

To Prevent Trees Splitting at a fork.



band it securely.—[Peter Shehan.]

Insecticidal Sprays are not used to nearly the extent which their usefulness warrants, but on the other hand there seems to be a pretty well founded opinion that many who do spray are apt to overdo the good work, especially in the first enthusiasm which marks their introduction of the new process, and before experience has taught them that there is a danger line in "much spraying," as well as in multiplied numbers of bugs. Many men who have suffered from such an experience have become settled skeptics upon the whole subject of spraying, and are distrustful of any measures of this character; others have suffered in the same manner from no assignable cause, the sprays having been applied as moderately and intelligently as was possible in our present state of knowledge, and these men have naturally joined the contingent who condemn the practice.—[Prof H. A. Gosard, Fla Exper Sta.]

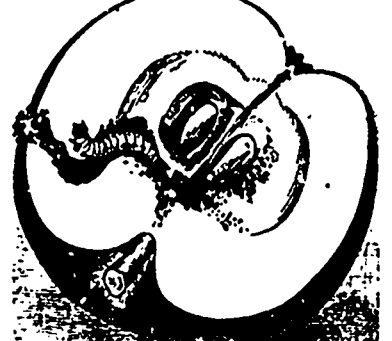
Bright Prospect for Fruit Trees—So far as now apparent this is promising. Apple orchards as a rule came through the winter in good condition, so with pears, plums and cherries. Peaches irregular, bright prospects in the south, fairly good in the middle and central states, considerable damage to fruit buds in N. E. Unless mid-April brings damaging frosts a heavy bloom is almost sure. But of course this does not mean a big crop, with vicissitudes of insect and fungous pests and climate to come.

The Hard Work of the Dairy can be very greatly reduced for both men and women if a separator is used and old-style practices abandoned. In fact, no

dairyman having eight or more cows can afford to be without one, as it saves money every day in the year, while the machine is of heavy metal and will last practically a lifetime. One of the most reliable separators on the market is the De Laval, made by the De Laval Separator Co, 74 Cortlandt street, New York. After many years of experience the De Laval Co feel warranted in making the claim that De Laval separators make an annual average saving of \$10 per cow. This is done by saving 10 to 50 per cent in skimming, saving 5 to 10 per cent in churning, and increasing butter value 5 to 10 per cent. The separator also saves time, labor, ice and water; insures purity of product and removes disease germs. Calves and pigs may be fed fresh, warm, separator skim milk, which will have much to do with preventing sickness and scour. By using a separator, the buying of a multitude of utensils is made unnecessary, as well as their daily washing and cleaning. F & H believes separators are one of the greatest helps to the dairyman that have been invented the past century, and advises its dairymen readers to send to the De Laval Co for its beautifully illustrated catalog, which shows the various sized machines in all their parts.

SPRAYING FRUIT TREES.

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