

HORTICULTURAL NOTES

—BY F. WALDEN—

Fruiting Imperfectly Done.

Prof. H. E. Van Deman.

Some of our leading varieties of fruits have the serious faults of either being deficient in pollen or their pollen is not effective on the anthers of their own flowers. This is often the cause of failure to bear abundantly and in some cases the fruit may be abundant enough but lacking in development.

The comparative sterility of the Wild Goose plum is well known by those who have been growing it without near proximity of some other variety having flowers that would pollenate it. This was the first of our common fruits that drew special attention to this subject. It was found that without the presence and influence of other pollen very little fruit set and matured, and wherever there were other plum trees of our native species blooming at the same time there was almost sure to be a good crop of Wild Goose, provided other conditions were favorable. Experiments and observations have proved that some varieties were much better pollenizers than others, and of these Newman seems to be one of the best.

The Bartlett and Kieffer pears are far from satisfactory when planted alone, especially in large blocks. They are both in a measure self-sterile, their pollen not being nearly so potent upon their own flowers as it should be, and, consequently, the fruit is correspondingly scarce and lacking in development. Where the Anjou, Sekel and some other varieties are planted near the trees of the Bartlett they are usually very fruitful and the pears have perfect seeds and attain their normal size and shape. They also taste better than those that have not been properly pollinated when in bloom and consequently could not attain their normal development.

The Kieffer behaves in a like manner, only that it seems to be even less fruitful when the trees are situated so that their flowers cannot be affected by the pollen of other varieties that bloom at the same time. The Garber is an excellent pollenizer for the Kieffer, and trees scattered through an orchard of it will have a marked effect on the fruitfulness. Setting a few grafts of Garber in the tops of Kieffer trees here and there will have the same effect.

The Winesap apple is not so strong in its pollen as it should be, and there are some complaints of lack of fruitfulness in large orchards of this variety, although it often overbears. Experiments in pollinating the flower of Winesap with its own pollen and that of the Stayman and other seedlings of that type, separately and by crossing, have proved that all of them are weak in this respect. There are other varieties that produce pollen that is potent on the Winesap and its seedlings, of which York Imperial and Ben Davis are among the best. Those who are troubled with lack of fruitfulness of the Winesap and others of the same type, under certain conditions, might do well to plant or graft in York Imperial or Ben Davis, to furnish better pollen.

There are varieties of the strawberry, grape, fig, orange and many other fruits that require the aid of cross-pollination to insure perfect fruitage, as we all know, or ought to know. The entire subject is in a rather crude state as regards positive information, but the little that we do know should be put into practice.

The American apple growers' congress has recommended the adoption of a box for apple packages with dimensions $11\frac{1}{2} \times 11\frac{1}{2} \times 20$ inches inside measure. This box will contain 2,645 cubic inches which is nearly one-fifth more than a standard bushel and is thus greatly in favor of the purchaser.

The original standard apple box held just 2,150 cubic inches which is exactly a bushel. The box recommended by the Colorado horticultural society is $11\frac{1}{2} \times 11\frac{1}{2} \times 18\frac{1}{4}$ inches inside measure which equals 2,413 $\frac{1}{2}$ cubic inches or one-eighth more than a bushel.

In a large part of Iowa the crop of cherries has been much larger than usual. Plums, peaches and blackberries are much below the average in condition. Raspberries and gooseberries, quite fair crops.

Clarkston, Wash., produced 45,000 boxes of cherries this year, 35,000 of which were shipped to Chicago by the Fruitgrowers' Association and netted the growers 4 1-2 cents per pound. There will also be shipped about 60 carloads of peaches from the same locality.

Kendrick, Idaho, dispatches say that reports from the orchards on American, Bear and Texas ridges and the Big Potlatch are to the effect the apple and prune crop will be unusually good. Farmers are expecting some difficulty in securing hands to harvest their various crops.

It is essential to the health of the tree that the dead limbs should be kept cut out, that they should be cut off close to the body of the tree, and that whatever time this or any other pruning is done, the cut surfaces should always be painted. The paint serves both as a protection against weathering, and as a preventative against the attacks of fungi.

Prunes to the extent of 90,000,000 pounds were produced in Santa Clara county, California, in 1902. This one county produced half of all the prunes in the United States and in addition to this a larger amount of apricots and cherries than any other county in California. In the beautiful Santa Clara Valley, a picture of which is shown at the World's Fair, in the Santa Clara exhibit, in the Palace of Agriculture, are four million and a half of prune trees whose flowers in April make the Santa Clara valley appear like a sea of white blossoms when viewed from the tops of the adjacent mountains. The crop is picked during the latter part of August and September, and the fruit is laid out to dry before it is packed and shipped. In the Santa Clara exhibit prunes are daily dispensed to thousands of visitors and demonstrations of the method of cooking prunes are also given. For awhile the rush was so great that fresh box of prunes had to be opened every fifteen minutes. The pavilion of the exhibit is covered with dried fruit, prunes, peaches and apricots, and is surrounded by a model of the famous Lick Observatory in California.

What can be done to develop fruit buds? It is a matter of common observation that on a tree making excessive wood growth fruit spurs or buds are not developed in corresponding degree. It has been observed also that anything that checks the wood growth will develop fruit spurs. This is the theory of root pruning, girdling and growing in sod. Diminish the vigor of the wood growth and nature makes an effort to perpetuate herself through the fruit. It is doubtful, however, whether any of these methods are to be recommended upon commercial grounds. Every species of tree has its period of maturity. It is possible by some such methods as have been indicated to throw it into fruit before this period of maturity is reached but only at the expense of the vitality of the tree. There is another method that has shown good re-

sults. If the terminal bud of a fast-growing shoot is cut off the effect is to develop all the remaining buds to greater or less degree. The upper buds will shoot forward with wood growth. Those lower down will often develop fruit spurs. This work should be done about the middle of the growing season. Cutting away in the spring one-half or two-thirds of the previous year's growth is good practice where there is excessive wood growth. It increases the tendency to develop fruit and brings on the bearing period.

T. Greiner, in Farm and Fireside, says: "Some plants can stand spraying with stronger solutions of copper sulphate than others, but the difficulty seems to be that we don't know as yet the strength of the solutions that are safe in each particular case. I sprayed the strawberry patch at first with a solution of one pound of sulphate to four gallons of water, which is much stronger than recommended for killing weeds, especially mustard, in grain fields. This solution scorched the chickweed and some other weeds to some extent, without, however, killing any of them entirely, while the strawberry plants were in no way affected. A few days ago I tried a solution of one pound of the copper sulphate to about two gallons of water. This gave the chickweed and other weeds, even plaintains and docks, quite a setback, yet did not appear to hurt the strawberries. I will have to keep on trying but have to do it carefully at this time, as I do not wish to endanger the strawberry plants. The field seems to be promising, but exact and systematic experiments are needed, so that we shall know what we are about. We must find out how strong solutions our strawberries, celery and other cultivated crops can stand, and then we may be able to fight the weeds in a wholesale and perfectly safe way. The very weak applications will hardly answer the purpose. Possibly the plants may be differently affected when wet with dew or rain and when dry. We must try and find out all these points before we can go ahead intelligently and safely."

The peach is perhaps one of the easiest of all trees to bud and any bright boy or girl ought to be able to grow the most desirable and hardiest budded varieties. Pits of the peach are saved in August and September from ripening fruit and ought to be stratified in moist soil, or should they be allowed to lie considerable time and become dry it is considered wise to let them stand in very moist soil or stratified earth for some little time before planting. Then they should be planted in soil that has been so carefully prepared that it is not likely to dry out during the succeeding dry winter. The kernel of the pit should be plump enough with moisture so that the frosts of winter expanding the moisture of the pit should rupture the shell and allow germination the following spring. These pits should be planted three inches apart in nursery rows $3\frac{1}{2}$ feet apart. With good cultivation they will attain a height of from two to five feet the first season, depending on the character and quality of the soil and the amount of rainfall and cultivation. From the 10th to the end of August these little trees should be budded at the surface with matured leaf buds, not with fruit buds, from other trees of desirable varieties. Using a very thin and sharp knife a cross cut is made just through the bark, a slit an inch or more in length below it, allowing the insertion of the bud cut from the twig in such manner that there is the slightest possible film of wood and bark one-half to three-quarters of an inch in length. This bud is tucked in this open slit of bark and then tied in, using three or four wraps below the bud and as many above,

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