POLLINATION IN ORCHARDS.

Varieties which are often self-sterile.

SELF-STERILITY is not a constant character with any variety. It is influenced by the conditions under which the tree is grown, as are the size, shape and color of the fruit. The adaptation of a variety to soil and climate has much to do with its self-sterility, and if a tree is poorly nourished it is more likely to be infertile with its own pollen. No one can separate varieties of fruit into two definite classes, the self-sterile and the self-fertile. Thus Bartlett and Kieffer are often self-sterile, but there are orchards of both which are self-sterile. The same may be said of many other varieties. The best that can be done, therefore, is to give a list of those varieties which *tend* to be more or less self-sterile and which it would be unsafe to plant alone.

Following is a conservative list of these risky varieties, drawn both from experimental work and from the reports of over five hundred fruit growers, who have favored me with their experience. *Pears :* Angouleme (Duchess), Bartlett, Clapp, Idaho, Kieffer, Nelis. *Apples :* Bellflower, Primate, Spitzenburg, Willow Twig, Winesap. *Plums:* Coes' Golden Drop, French Prune, Italian Prune, Kelsey, Marianna, Miner, Ogon, Peach, Satsuma, Wild Goose, and according to Waugh and Kerr, all other varieties of native plums except Robinson. *Peach :* Susquehanna. *Apricot :* White Nicholas. *Cherries :* Napoleon, Belle de Choisy, Reine Hortense. Most of these varieties are self-fertile in some places, but the weight of evidence shows them to be uncertain.

It must not be inferred that all other varieties are always able to set fruit when planted alone. There are some, however, which have exceptionally good records for faithfulness when planted in solid blocks, other conditions being favorable. Among these are : *Apples :* Baldwin, Ben Davis, Fallawater, Janet, Oldenburg, Rhode Island Greening, Red Astrachan, Smith Cider. *Plums :* Burbank, Bradshaw, DeSoto, Green Gage, Lombard, Robinson and some of the common blue Damsons.

All this goes to show that the problem of self-sterility is as much a study of conditions as of varieties. We can set no limit ; we can only indicate tendencies.

Many large blocks of Kieffer are being planted with no other varieties intermingled, and it is an important point to know whether this practice will give the best results. Eight blocks of Kieffer in New Jersey and Delaware have been reported as completely or partially unfruitful because of self-sterility, and there are also many solid blocks of Kieffers in the same States which bear well. Kieffer is unreliable, especially on the Delaware peninsula. A large block of Kieffer may be productive, but it does not pay to take the risk, particularly since the pollen of other varieties is likely to give better fruit, as will be seen later on.

Selecting the Pollinizer.

Let us suppose that we intend to plant a large block of an uncertain variety, as Kieffer, because it has distinct merits as a market sort. We wish to plant with it some other variety to make it fruitful. There are two points to be considered when selecting a pollinizer for Kieffer or for any other self-sterile variety ; the choice should not be indiscriminate. These are simultaneous blooming, and mutual affinity.

The first and most important point is that the two shall blossom together, since the only way in which a pollinizer can make a self-sterile variety fruitful is by supplying it