

INTERESTING AGRICULTURAL FEATURES FOR OUR COUNTRY READERS

HORTICULTURE

PRODUCE BETTER FRUIT

How to Make Good Fruit Trees from Poor Ones.

It is surprising to notice how many people everywhere are contented even in small gardens to allow trees to be doing no good to secure valuable space. It is a little trouble to "barren" a tree so that it will not produce. Why should it be? Why need it continue to be barren? One of the causes may be that it is neglected, or poor varieties, or else it has been neglected from its youth up.

There are only two ways of dealing with trees that produce fruit of only poor quality. First, cut them into kindling wood, or else graft good varieties upon them. Why should you not get as much fruit as your neighbor? There is a great deal of fascination and pleasure in grafting, and it is not as difficult as many people imagine.

It is strange yet true that a graft will really grow even though the grafter does not use the term in the good sense. It is not passed an examination in pomology, and it really is quite unnecessary to be put on just when the moon is at full.

New moon time is just as good. When you have your trees already in the garden, you have no choice as to the stock upon which to place the graft. It is a fact that, providing proper care is taken, you can graft on anything made of wood. I have had pear grafts growing on apple trees, just as a curious fact of course, and with no idea of increasing the sweetness of the fruit; and it might be quite possible to get a scion going on a fence post, providing the latter was not too long dead. But it should be remembered in grafting upon old trees, say upon an old seedling apple, there must be lots of vigor and healthy wood as a basis for operations. There is always the disadvantage also in working upon an old tree that the fruit from your new grafts will be away up in the etheral blue.

In commencing operations do not cut all the top of the old tree away. Leave enough branches and foliage for breathing purposes, otherwise "tuberous" may cause. Be moderate in the amputation of the limbs.

The new scions or slips should be taken from the good variety early in the spring. Pick off vigorous shoots some three or four inches long for scion making, and laying them in a moist cool shady place until wanted. Head back the old tree as high as you wish, clearing the branches away in good time, before the sap begins to rise, thereby preventing unnecessary bleeding, and facilitating the actual operation when the proper time comes.

It is necessary then to saw off one or two inches to get to fresh wood, and the tree is ready for grafting. The actual work had better be done early in the morning.

Personally I prefer cleft grafting. It makes things scarcely necessary. In this operation the stump is split to a depth of about one inch. Then a scion, which is a heavy blade across the centre, and giving a sharp tap with a mallet. The blade is removed, and the cleft held open by inserting a small wedge of wood. A portion of wood is cut out of each edge at both sides so as to form a wedge-shaped space, and the scion which is two to four inches in length is cut to

fit it. By slightly depressing the chisel the scion can be got well in, and directly the chisel is withdrawn the cut pieces come together, and hold the graft tight. As so much of the success of grafting depends on excluding the air, it is necessary to cover the stump, especially the cut with grafting wax. The following is an excellent recipe: Melt together in a pan on the stove, with care, four parts of resin, two parts of beeswax and one part of tallow. When all are thoroughly melted add mixed potash a handful at a time into a pan of cold water. Grind the hand and pull like taffy, until light colored.

An old broken sickle makes an excellent grafting knife. I have an old wild pear growing in my garden, which I have successfully grafted, and the new grafts are now in full bearing, four years after the saws were placed on the tree. The illustration shows the young grafts overgrown with blossoms.

If the trees are of a good variety, and yet are not doing their duty, it is probably due to one of three causes. First, the graft is not properly secured, or the soil needs attention. You cannot starve or neglect a tree and get good results. Try it on yourself if you don't believe it.

See that your varieties, if you are thinking of planting, are such as will suit your neighborhood. Don't force trees to grow which are unsuitable to your locality. Give them a fair chance. See that the drainage is good. Apple trees are not water-er liers.

If trees are often treated, when heavy croppers, as if they were light bearers. Poor soil is left alone just as though it were richly stored with nutriment, and the corner of the tree doesn't need any fertilizer to show him or any writer to tell him that he is wrong. Here is a splendid fertilizer for unsatisfactory trees: Eight parts of superphosphate, six parts of bone meal, four parts of basic slag, four parts of potash, four parts of sulphate of lime. Mix and use at rate of four ounces per square yard as soon as the frost is out of the ground.

The thinning out of trees is most important. Let in air and light and to stimulate the remaining fruiting branches. It must be done with care. Don't butcher the poor tree. Err on the side of leniency. Remove small branches growing inwards and all the sprouting suckers from the main limbs.

Rough pruning must be done with care. I only attempt it on one side of the tree each year when it is necessary. It is the fibrous root that is fruit-producing and the object of rough pruning is to create more roots by removing some of the heavier roots whose tendency is to produce wood. In cutting away the roots, remove them with a sharp saw leaving no jagged edges.

Geo. W. Webb.

PRUNING ROSES

Directions in Detail for Trimming and Training All the Classes.

Rose bushes should not be pruned until the growth buds have begun to show. It is then an easy matter to distinguish between the dead wood and the live wood. This is not such an easy matter if they are cut back earlier. Even to an expert rose-grower, it is difficult to pick out the wood that is partially or wholly dead very early in the season. Pruning should be done, however, before

the growth buds really burst into leaf. It must not be delayed too long. Remove all of the main dead branches first. Then cut out the small weak shoots that start from near the ground. These should be cut off close to the ground, as small weak main shoots are of no use either to produce roses or to replenish the growth of the tree. After these have been removed, the remaining growth may be thinned out so as to secure the proper density of growth. It is seldom, however, that many of the main stems have to be taken out. If any are cut out, remove the very old ones, and leave, if possible, strong young canes or shoots that have started right from the ground or near to it. The lateral or side shoots of last season's growth on the main stems should now be pruned. These should be cut off about three or four inches from the main stem or branch, removing as a rule, about two-thirds of the length of each lateral shoot. The top or terminal growth of the main stems should now be pruned. The shape of the tree may be kept to one of three classes in this operation. Most rose bushes can usually be pruned into a dome or balloon-shaped bush, or possibly the natural habit of the bush may be maintained to a conical or pyramidal shape. Do not attempt to make any radical change in the natural contour of the bush. And do not prune so as to have a symmetrical bush. In this operation, most rose bushes can usually be pruned into a dome or balloon-shaped bush, or possibly the natural habit of the bush may be maintained to a conical or pyramidal shape. Do not attempt to make any radical change in the natural contour of the bush. And do not prune so as to have a symmetrical bush.

Again, if the blue thus produced are mated together, blacks and whites will again appear among their offspring, every four birds, on the average. The blue alone will rid them of the black and white blood, which will crop out at every generation, although blue birds only are mated every time.

As a matter of fact, when blue Andalusians are mated together, according to A. D. Darbishire in his book, "Breeding and the Mendelian Discovery" (Casell), the result of three types of color are produced in the three following proportions: One black, two blue Andalusians, and one white in every four birds, on the average. And while the whites are found to breed true, the Andalusians, when mated together, produce these three types in the same proportion.

On the other hand, the result of crossing a black and a white bird is a blue Andalusian, and the blue birds obtained in this way, when mated together, produce again these three types in the same proportion.

This phenomenon of breeding forms one of the most striking illustrations of what is known as the Mendelian theory—the doctrine that in the second and later generations of a hybrid the combinations of the parent characters occur in a definite proportion.

Here is another remarkable instance of recurrence in breeding which Mr. Darbishire mentions. A very few people know one of the characteristics which distinguish the various breeds of poultry is the form of the comb. The commonest type is the single comb, and is done frequently, if not always, by the bird's own efforts. The comb is a rule, quite as hardy as the hybrid perpetual type of rose.

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POULTRY

CURIOSITIES IN BREEDING

Some Important Discoveries in the Mating of Pure-bred Fowls.

It is quite a common belief that if the pure bred mated with the pure bred the progeny is bound to be pure. Such a result, however, does not naturally follow, every four birds, on the average. The blue alone will rid them of the black and white blood, which will crop out at every generation, although blue birds only are mated every time.

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"Walnut" comb, three "rose" comb, three "pea" comb, and one single, although no single was put into the cross. Yet another striking curiosity in breeding is furnished by the cross-breeding of mice. If an ordinary albino mouse, with the pure white coat and pink eyes, is mated with the so-called Japanese waltzing mouse, which also has pink eyes, the hybrid produced is something like an ordinary house mouse, with jet-black eyes, and without the waltzing movement, which gives the Japanese mouse its peculiar name. It makes no difference to the result whether the albino is the male and the Japanese mouse the female, or vice versa.

Curiously enough, if two of these hybrids are mated they produce a generation consisting of practically three kinds of mouse—the albino, the Japanese, and the hybrid.

GENERAL

INSECTS AND DISEASE

Important Pests of Farm Crops—Habits and Treatment.

Hessian Fly.—This insect attacks wheat, rye and barley, and is often very destructive to wheat. The key to the control of this pest is moderately late sowing of the wheat crop. This measure is in successful operation on many farms across the country, and is the only satisfactory means known of preventing the development of this insect.

Root Louse of Corn.—This pest is present before plowing and frequent digging before planting the corn.

Grain Smut.—Of the fungi attacking farm crops this class of fungous foe is about the only one that can be reached by any of the measures mentioned. There are quite a number of smuts attacking grains and grasses, some species of grain supporting at least two kinds of smut. Generally speaking, these fungi are quite destructive, and probably reduce the annual yield of grain by 15 per cent. They are largely controlled by seed disinfection. This is accomplished by dipping seed grain in various antiseptic solutions, such as formalin, bicarbonate of mercury, lysol, copper sulphate solution, etc.

One of the most satisfactory methods for treating seed grain for smut is that known as the Jensen hot water treatment. This consists in dipping the seed in water at a temperature of 122 to 135 degrees F.

Provide a large vessel, each of 20 gallons capacity. The first is kept at a temperature of 110 to 120 degrees F.; the second is kept at 122 to 135 degrees F. A thermometer is kept in the second vessel and the temperature is closely watched. A pail of cold water and another of hot water are kept near at hand to raise or lower the temperature of the second vessel as required.

The seed is placed in the first vessel and is made of wire cloth and is never entirely filled. The volume of water should be six to ten times that of the seed. Dip the basket in warm water for a minute or so, then submerge it in hot water, leave there ten minutes, frequently plunging and giving the basket a rotary motion. Watch the temperature, keeping 120 to 125 degrees; after ten minutes take out the seed and immerse in cold water, after which it is spread out to dry.

For loose smut of wheat and for barley smut, soak the seed in water four hours before treatment, and leave it in hot water but five minutes. Barley seed should not be dipped in water over 122 degrees F.

Grain Rust.—The "red and black" rusts of wheat are different stages of the same disease. This rust attacks many of the grains and grasses. The barberry plant is a complementary host of the fungus, and the presence of their plant along fence rows or hedges greatly increases the danger of an attack of rust. The presence of the barberry is not necessary, however, to the persistence of the disease, since it may be carried over on the grain plant.

The disease is especially difficult to control. Judicious rotation of crops and good sanitation on the farm are the most effective means of reducing its attack.

Weevil in Stored Grain.—Weevils cause a great deal of damage to corn, peas, beans and wheat that are stored during the summer. Usually they are not noticed until they have infested the grain and are found in the bin, leaving small holes about the size of pin heads in the seeds. The best treatment is to allow carbon bisulphide to evaporate over the bin of grain. This gas forms by the evaporation of the liquid is heavier than air and will penetrate all through the pile. The liquid, which may be secured at the drug store, may be simply placed in an open vessel in the top of the grain, and the bin then closed tight. It is effective, the bin must be made as nearly air-tight as possible, with blankets or boards. One ounce of carbon bisulphide to each 100 bushels of grain is usually sufficient and the treatment should be repeated every four or five weeks during July, August and September.

Ergot.—This disease, which appears as a hard, black substance in heads of grain, sometimes occurs on rye, and where the attack is general it may render the crop unfit for food. When diseased grain is used as food it produces "ergotism," often results in the death of farm animals. Crop rotation is sufficient to control this pest. It is not very common in this country.

General Treatment.—There are many other serious insect pests and diseases of grain and grasses. They are usually held in check by good farm practices, such as clean farming, fall plowing, destruction of rubbish after harvesting, etc.

Although crop rotation is one of the most successful means of avoiding injurious insects and diseases, yet this measure must be carried out with intelligence to be successful. The grower is often defeated in his purpose when using this preventive. Insects which are common to grasses and the various grain crops are very likely to be specially numerous when a sod is turned under in the spring and are followed immediately by corn or other cultivated grain crop. Insects driven to the starving point by the removal of their preferred host plant are apt to become destructive on corn or other crops of the same class. The land should be followed for a sufficient period to starve out such pests before planting. This is probably one of the chief advantages of fall plowing.—H. L. Price.

BRINGING BEES OUT OF CELLARS

No two beekeepers seem to agree as to the proper time for bringing the bees out of the cellar. I believe that it is best for one to consider existing circumstances and use his judgment. It may be very well to wait until nature has provided a supply of pollen, if the bees remain quiet, or if they become uneasy and fly from the hive, it will be best to bring them out. One must exercise care in bringing them

out or he will do considerable damage. The day before they are to be brought out, open the doors and windows so that the air in the cellar will become purified. If this is not done the bees will, when brought into the purer outside air, come out with a rush. It is well to take the smoker into the cellar and smoke the bees well before bringing them out. Reducers should be placed in the entrance so that, after the hives are placed in the stands, only a few bees can come out at a time. If this is not done they will come out with a rush, falling to mark their own hive, and thus returning to the wrong one, with the result that some hives will be over-populated, while others will be almost deserted. Avoid bringing out on a windy day, for the bees will be driven to leeward side of the apiary and the hives on that side will be over-populated.

After a little experience a person can tell by the weight of the hives whether or not, the bees have a good store of food. For convenience it will be well to set those hives that may need feeding to themselves. If the bees in any hive have died, see that they are placed in the entrance so that, after the hives are placed in the stands, only a few bees can come out at a time. If this is not done they will come out with a rush, falling to mark their own hive, and thus returning to the wrong one, with the result that some hives will be over-populated, while others will be almost deserted. Avoid bringing out on a windy day, for the bees will be driven to leeward side of the apiary and the hives on that side will be over-populated.

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