

STARTING AN ORCHARD.

The orchard is not receiving the attention that it really should from the average farmers. They think the work is going to be overdone, but this is a wrong idea. The consumption of apples is increasing faster than the supply. Good Baldwins will never go begging for a market.

First, let us start the orchard; many farmers will put out an orchard of fine trees and then leave them to shift for themselves and then look for a bountiful return. But this method will not do for the first 12 or 14 years at least, as that period is the most critical period of a tree's existence.

Trees are very much like animals, let them once get stunted and they never fully recover from it.

Selecting the ground. To get the best flavored Baldwins we need a moist, cool, deep soil, the deeper the better. The best possible preparation that can be given is to thoroughly rot the old sward and fertilize until a good start of red clover can be secured, seed down to cats as a cover crop for the clover, the next year take off two crops of clover hay and turn the sward under in the fall, the next spring set out the trees and work in nice pulverized soil around the roots; a few old bones thrown into the bottom of the hole will be found to be a good investment; tramp the soil hard enough to hold the tree upright and firm.

At this point your work and care just begin. They need to be looked after very closely the first season to keep down all worthless sprouts and adventitious buds on the stock.

Form in your mind the top you would like to see on your trees and always prune for that form. Prune close and often; two small wounds will heal quicker than one large one. During July look out for all foliage diseases, at its first appearance take off all the affected leaves and burn them; spray with some good fungicide.

In August and the early part of September look sharp for borers; an ounce of prevention is worth several pounds of cure. A shovel full of wood ashes banked around the stock every summer will defeat the efforts of the moth from depositing her eggs, as they have a great abhorrence of all alkali substances; nevertheless eternal vigilance is the price of success.

At the approach of cold weather take some wide mosquito netting and whole width, roll this around a hoe, cut strips eight inches long across the handle; then put it round the stock and jam down on to the soil and this will stop the ravages of field mice and rabbits.

The ground around the trees can be fertilized and planted every year for many years, with an occasional seeding down for two or three years at a time.

TO KILL PEACH PEST.

Carrying twigs under his clothing in order that the heat of his body might deceive the worms buried in them into imagining that the summer months had come, Warren T. Clarke, as assistant entomologist at the California State University, was able to solve the problem of exterminating the peach worm, which around Newcastle, Cal., alone, has in the last four years destroyed over \$1,000,000 worth of fruit. Clarke returned to Berkeley yesterday from Newcastle, where he had gone to complete his studies of the life history of the worm.

He comes back with data fully establishing the theory upon which he has been working. The treatment which Clarke recommended, based upon his theory of the habits of the worm, has succeeded in reducing the average loss from 50 to 60 per cent. to 1½ per cent.

With the successful completion of Clarke's studies, Professor Woodworth consented yesterday to tell something of the way in which the discovery had been made.

"During the winter months," he said, "the worm burrows into the bark of the tree, where it surrounds itself with a silk-lined covering. Mr. Clarke attempted again and again to kill the worm with a spray at this time, but each attempt proved unsuccessful. He had heard, however, that in a few cases orchardists had been successful in destroying the pest by using sprays, and he decided that the time of using the spray was the key to whole secret. He took twigs in which the worms had burrowed and carried them around for days beneath his clothing. He then noticed that under the influence of the warmth the worm broke its covering and left the twigs. At this time, he argued, the spray should be applied.

"Through notices published in the press and grange meetings, he advised the ranchers of the district to defer their spraying until the first warm weather of early spring should come. Fully 80 per cent of the peach growers of the district followed his advice, with the result that the devastation caused by the worm last year was, compared to other years, remarkably slight.

"The spray caught the worm at a time when it was least protected, immediately after it had broken its silk cover and was emerging from the twig.

"The peach worm belongs to the same family as does the potato bug. There are two generations each year. On emerging from the twig the worm first attacks the bud. It then changes into a moth, which lays its eggs on the young twigs. The eggs hatch into bud worms. These worms in turn become moths and these moths lay their eggs on the fruit. The worms hatched are fruit worms and are responsible for the great damage and devastation to the peach orchards of the district. Mr. Clarke's discovery is of the utmost importance both from a scientific and a practical point of view.

AN OUTFIT FOR PICKING APPLES.

We use two ordinary farm wagons, with front wheels twenty-four inches and hind wheels thirty inches high. These wheels are of steel, with cast iron hubs and very cheap and durable. On each of these is built a platform fifty inches wide and sixteen feet long, made of two-inch pine or fir lumber. On the side and ends of these platforms we spike two by four joists to hold the boxes in. These platforms are just above the hind wheels and just high enough in front for the front wheels to turn under. This brings the platform to an easy height for the men to empty the fruit into the boxes set thereon.

Next we make boxes twenty-four inches long, eight inches deep and sixteen inches wide. The ends are seven-eighths inch and the sides of three-eighths inch lumber of any light kind that will hold nails—fir or cottonwood will do. We obtain these boxes from a factory, ready to nail together, with handholds cut in at end, at about

fourteen cents each. They hold from fifty to sixty pounds of apples. Each wagon platform holds twenty-two of these boxes. Next comes the sack or basket in which to put the fruit while picking. We have tried everything that came along, but settled on the old seamless sack with a bottom and top corner fastened together with a hook and eye.

The essentials for a good receptacle to hold apples while picking are: First, one that will cause the least amount of bruising; second, one that can be readily fastened to the body of the picker and allow both arms perfect freedom; third, one that can be easily emptied into the boxes on the wagon with the minimum amount of bruising; fourth, one that is durable and not expensive. Next we procure from four to six ladders twelve to sixteen feet long, thirty inches wide at the bottom and six inches at the top. This, I believe, completes our outfit for field work. We then hitch a team to each wagon and drive to the field with from ten to fifteen pickers and a foreman. The foreman's business is to keep the team up even with the pickers; see that the men do not muddle up and interfere with each other; see that they do not get too far away from the wagon; see that they do their work correctly and to keep the time of the men.

When the wagon is loaded, it is driven to the packing house and the other wagon takes its place. Our men pick all the way from thirty to seventy five bushels each a day. Our trees are headed so low that five-sixths or more of the fruit is picked from the ground. Last year on a block of 270 acres of six-year-old trees our men averaged seventy-one bushels a day during the entire season. We pick our apples, large and small, good and bad, clear from the trees at one picking and do all the sorting at the packing houses. We have tried sorting direct from the trees, but it never gave satisfaction and we always had to sort again. Sorting is the most particular work we have to do and requires great care in selecting help for this purpose.—Field and Farm.

PREPARING BEES FOR WINTER.

Bees should have plenty of time to get their stores located to suit them and to have all sealed. If any colony is not strong enough to cover four frames, unite it with another. This uniting should not be left until late. If the bees are to be wintered outdoors, twenty to thirty pounds of honey will be needed, say four to six frames of sealed honey. For the cellar, three or four well-filled frames may do. Be sure to have enough. Some colonies may not consume half the amount indicated but we may not know which colonies they are and it will not be wasted if they have too much. Just as well have something left over so they can begin the sooner in the surplus apartment as to have them wait to fill up the brood-chamber with alfalfa honey before they begin in the supers. If colonies are lacking in stores, give frames of sealed honey if at hand. If not give granulated sugar and water, equal parts, using a feeder or the crock-and-plate plan.

This kind of feeding is better than to give less water with the sugar, for it is more like the thin nectar the bees gather and there are changes made in it by the bees which they cannot make so easily on the thicker syrup. They must have plenty of time, however, to evaporate and ripen this food and if

M. J. SHIELDS & CO.

Growers and Importers of all kinds of

GRASS AND FIELD SEEDS.

Dry ground, deep-rooting grass seeds that we will guarantee to grow on ground that will not produce cereals or any other kind of grass. Will make crop of hay and pasture all seasons of the year. Address,

M. J. SHIELDS & CO., Moscow, Idaho.

they cannot have it while warm weather yet lasts then the thicker syrup should be given. If one should be so unfortunate as not to get them fed in time to allow them to seal the syrup, then use candy. Better take pains, however, not to be late about feeding. As an extra inducement to this, it may be mentioned that the earlier feeding with the thinner material tends to make the queen lay, thus having a larger force of young bees to endure the winter and be ready for spring work.

For wintering outdoors, the entrance of the hive should not be more than three-eighths of an inch by eight inches for strong colonies and less for weaker ones. To keep out mice, close the entrance with wire cloth having three meshes to the inch. This will allow the bees to pass but not the mice. With so small an entrance there is danger of clogging and this must be guarded against by cleaning out the entrance if it needs it. Some put under the hive a rim an inch or two deep with the entrance at the top of it, and with this there is much less danger of clogging. The hives should not be in a windy place, but sheltered especially from north and west wind. Let them face south or southeast and put some kind of packing about the hives without closing the entrance, even if nothing more than corn stalks piled up against them. Some use the old-fashioned bee sheds of our grandfathers.

Success will be more sure if straw is packed behind and between the hives. Some put over each hive a box large enough to cover it and leave a space of three to six inches all around between the hive and box, packing this space of three to six inches all around between the hive and box, packing this space with chaff, dry leaves, planer shavings or something of the kind. Of course the entrance must be kept clear. One of the things that is bad in winter is too much moisture in the hive. The bees are constantly breathing out moisture, which settles on the cold walls like the moisture of the air on a pitcher of ice water on a hot day. This may form icicles directly over the bees and when it melts it will fall upon the bees to their serious injury. Provision may be made for the escape of this moisture elsewhere than at the entrance. Put burlap or some kind of cloth over the top bars with a corn cob under it, so that the bees can cross from one frame to another, then cover with three to six inches of leaves, chaff or shavings and put on the cover. This will allow the moisture to escape slowly upward.

A. B. C. of Bee Culture is the best book on the management of bees ever written. The regular price is \$1.25. The Ranch has a few copies on hand which we will close out, postpaid, for \$1.00 per copy.

Talk up The Ranch.