

it down between the rows. This will preserve the moisture and ensure a good crop of berries even in a dry time. The season of ripening may be prolonged a week or more by leaving a portion of the patch covered for a longer time in the spring. When once planted, strawberries will bear fruit for several years, but the longer they are left the more numerous become the weeds and the fewer and the smaller the berries. As planting out a new lot is much easier than keeping the old one clean, it is found that we get better berries with less labor by planting out a new lot every spring, and plowing up the old one after it has fruited once or, at the most, twice.

The varieties that will give the best results can be determined only by experiments for each locality. It is advisable to start with a few varieties such as Haverland, Wilson, Buback, and Beder-Wood, which have established a reputation for themselves in other places, and then test from time to time with these a few of the other varieties which may prove productive or may be valuable for extending the season by ripening very early or very late. To ensure the fertilization of the blossoms and the setting of fruit, varieties with imperfect blossoms, like the Haverland and Buback, should always be grown in adjacent rows to those bearing perfect blossoms, like the Wilson and Beder-Wood.

Raspberries.—Next in order of ripening come raspberries. These begin to ripen before the last of the strawberries are gone, and, with a good collection of varieties, extend the season of fresh fruit another month or six weeks. Raspberries should be planted in rows about five feet apart. The plants may be set two or three feet apart in the row, so that they will in time make a close hedge row, but it is a much better plan to arrange the raspberries, blackberries, currants, and gooseberries in a block, in rows five feet apart each way, so that horse cultivation may be given both ways. In this way much hand labor will be saved, and the small fruits may be cultivated as cheaply as corn in hills. The cultivation should be thorough. Keep all weeds down and keep the surface soil loose and mellow; it will then act as a mulch to retain the moisture. Three inches of surface soil well stirred is better than plowing twice as deep. If the cultivator is started early in the spring and used often enough to keep all weeds down there is no necessity of plowing among the bushes at any time.

Pinching back the tops of the new canes in the summer is advisable in all parts of the country except where the canes have to be laid down in the fall for winter protection. This pinching back should be done as soon as the canes reach two and a half or three feet in height. It causes them to branch out and grow stout and strong, so that they will bear their load of fruit without requiring to be staked up to keep it off the ground. The regular annual pruning may be done at any time in the fall after the fruit is picked. It consists in cutting out all the old wood that has borne fruit and leaving only four or five of the strongest new canes to each hill. Raspberries begin bearing in a couple of years from planting, and with good care will bear profitable crops for ten or twelve years. A new plantation should be set out, however, as soon as the old one shows signs of failing. The following named varieties have proved their excellence in many parts of the country, and make up a collection of the late and early varieties of the different colors: Red—Marlboro and Cuthbert; black—Souhegan, Hillburn, and Gregg; purple—Shaffer; yellow—Golden Queen.

Blackberries.—The large blackberry, or bramble, as the wild species are called, is not grown as generally as it should be. Some dislike growing it on account of the sprawling growth of the canes and the stout, hooked prickles which they bear. These objectionable features may be overcome by nipping back the young canes when they reach a height of three feet and wearing a leather glove while cultivating them. The blackberry requires much the same attention and pruning as the raspberry. The fruit begins to ripen after the raspberries are gone and keeps up a succession of fresh fruit for the table. The Snyder and Stonis Hardy are hardy varieties which will succeed where some of the finer varieties, such as Agawam and Taylor, cannot be grown.

Currants and Gooseberries are perhaps not so much prized in their season as raspberries and strawberries, yet they have a place which cannot well be filled by any other fruit. I can well remember, from experience, that these fruits, in the form of jellies and jam, often make the most interesting portion of schoolboys' lunch. Like raspberries, they require clean, shallow cultivation and are always benefited by liberal applications of wood ashes scattered evenly over the surface of the ground. A mulch of some kind, scattered under the bushes before the fruit begins to ripen, answers the double purpose of retaining the moisture and keeping the fruit free from being splashed with soil during heavy rains.

Currants and gooseberries may be grown in either bush or tree form. In the bush form about six branches should be allowed to form the bush. Train these up from the ground, keeping the bush symmetrical. The annual trimming had better be done early in the spring and consists in removing a couple of the oldest branches that have fruited for two or three years and allowing a couple of the strongest new shoots to replace them. Shorten in the new wood where necessary to keep the bush symmetrical.

The worms common to both currant and gooseberry bushes must be watched for and attended to as soon as they make their appearance. They can easily be killed by spraying the bushes with Paris green at the rate of one-quarter pound to a fifty-gallon barrel of water. A pail of lime water added lessens the liability of the Paris green to injure the foliage. The following named varieties should give good results in most localities: Currants—Victoria, Fay's Prolific, White Grape, and Black Naples; gooseberries—Houghton, Downing, and White Smith.

So far we have mentioned only the small fruits which go to make up a well-stocked fruit garden. In addition to these, enough of the larger fruits (such as grapes, cherries, plums, apples, and, when the climate will permit of it, peaches, pears, and quinces) should be grown to provide an abundant supply for home use. Time will not permit me to speak of the management of each of these in detail, but in conclusion I would like to give a few general directions applicable to these and most other kinds of fruits:—

GENERAL DIRECTIONS.

(1) Cultivate thoroughly, repeatedly, and as soon as possible after every heavy rain. Surface cultivation about fruit trees and bushes is preferable to deep plowing.

(2) Apply fertilizers liberally. Unleached wood ashes is one of the best fertilizers for fruit trees, vines and bushes, and may safely be applied at all times. Barnyard manure should be withheld where there is a tendency to excessive wood growth. Scatter all fertilizers evenly as far as the roots extend.

(3) Prune every year without fail. For trees, currant and gooseberry bushes, the best time to prune is early in the spring before the buds start. Vines may be pruned in the autumn as soon as the leaves have fallen, and berry bushes in the summer as soon as the fruit is picked.

(4) Keep a vigilant watch for injurious insects and fungous diseases. The Bordeaux mixture applied in a fine spray is one of the chief and most effective means of preventing nearly all fungous diseases affecting fruits. A simple formula for making this is four pounds of copper sulphate, four pounds of lime to forty gallons or a barrel of water. As a combined insecticide and fungicide, four ounces of Paris green should be added to a barrel of the mixture.

(5) In conclusion, do not expect an abundance of fruit without making an intelligent effort to grow it. But rest assured that with proper management the fruit garden will yield more profit and pleasure than any other equal area on the farm.

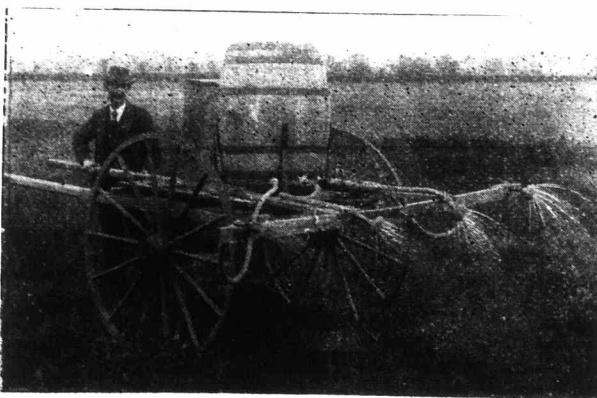
THE HELPING HAND.

Handy Farm Contrivances and Methods.

Upon almost every farm there are some handy original devices, or improved methods and practices not generally known, which, if given to the public, could be utilized by others in rendering farm management more economical and remunerative. This department is intended to bring out such information for the benefit of our readers, and is to be maintained by them in holding out a helping hand to their fellow-workers by the interchange of descriptions of labor-saving tools and contrivances, particular ways of management, original and successful experiments tried, or any other feature in connection with farming not generally known.

To encourage subscribers to contribute to this department of the FARMER'S ADVOCATE, we offer a cash prize of \$2 for the best, and a second prize of \$1 for the next best, contribution received prior to the 15th of each month. These and other contributions deemed of sufficient merit will be published as rapidly as our space will permit, but will not necessarily appear in order of merit. Compensation according to our standing offer for accepted matter will be allowed for suggestions published but not awarded a prize. The decision in every instance will be final. Descriptions must be written upon one side of the paper with pen and ink, and must bear the contributor's full signature and address. They must be as short and concise as possible, 100 words being just as good or better than 500 if they tell the same story. Where an illustration will assist in making a description clearer, a rough pen sketch should accompany it on a separate sheet from the written matter. Every contributor must be a subscriber to the FARMER'S ADVOCATE. These contributions must not be mere reproductions of what have been published elsewhere. What we want is *original matter*. Plan sufficiently ahead so that the contributions will be as seasonable as practicable. The following illustrates one class of articles suitable for this department:—

A Homemade Potato Sprayer.



The accompanying illustration represents the sort of sprayer used in the Central Dominion Experimental Farm potato field, at Ottawa. The wheels and axle of an old buggy, or even of an old cultivator, will answer well, or the barrel may be loaded into a farm cart. The four lines of rubber hose are attached to the barrel over pieces of gas pipe entering bored holes. Upon the outer end of

the hose are fastened roses of watering-cans. The solution may be stirred occasionally by a hand dasher. The sprayer represented has springs beneath the barrel, but the farm foreman, Mr. Fixter, recommended the absence of these, which would tend to keep the mixture stirred up in the barrel. The distance between the nozzles can be adjusted by tying them upon the cross-piece at the back the desired distance apart. It disposes of four rows of potato bugs at one sweep.

APIARY.

Wintering Bees.

An understanding of the best method of carrying bees through the winter without loss and in good condition is desired by every one who owns one or more swarms. To this end there are certain conditions agreed to by all apiarists with any considerable experience, while other important points receive different lines of treatment at the hands of different people. A requisite, however, is the presence of a good queen not over two years old and showing no signs of failure. It is also important that we have a good cluster of healthy bees, bred the latter part of the season; that is, of sufficient numbers so that when closely clustered during quite cool weather late in October or November, not less than six spaces between the brood combs, and preferably eight or nine spaces, should be occupied by a good number of bees, or that the cluster shall be at such a time not less than eight, and preferably ten to twelve, inches in diameter. The stores should consist of thirty pounds of well-ripened honey or thick sugar syrup stored and mostly sealed over. The colonies must also have free access of pure air, but without the creation of draughts; hence the entrance should be indirect or screened in some manner. The ventilation should permit the gradual passing away of the moisture-laden air of the hive, but not the escape of heat; hence six to ten inches, in the coldest portions of Canada, of dry, porous material, soft and warm-retaining, should be on all sides of the cluster and near to it, the whole being protected by waterproof walls from any access to outside moisture. Fig. 1. shows the sort of hive much in use for

Outdoor Wintering.—It is double-walled, made of 3-inch lumber, having packing space between walls—from two to six inches, according to the temperature and exposure—packed with dry chaff, ground cork, or dry sawdust.

The subject of ventilation has received much attention during the last few years. At the 1896 Bee keepers' Convention several expert bee-keepers related their

experience. Mr. Gemmell, of Stratford, left no ventilation on top, and his bees came through in excellent condition. Mr. Pettit, of Belmont, emphasized the necessity of having plenty of bottom ventilation. He said: "Last year I experimented with seven different colonies. In the first place there is a vertical entrance. You can keep a vertical entrance open very much better than you can a horizontal entrance, and that vertical entrance is made in a box that sets under the hive—not in the hive. These boxes were three inches deep and there were two vertical entrances the whole depth of that front, pretty well towards the corner of the hive—each of them three inches from the center. These vertical entrances were three-eighths of an inch, and that would be quite sufficient if they would stay open, but lest they might get partly choked the boxes had, around the sides, other holes for ventilation (two inches by three-eighths), one in the south and one in the east and west. Now, you will see, taking these together, it makes a lot of ventilation, and that was a great success. It is a great factor in wintering outdoor hives to let the bees have plenty of air from the bottom, and then they do not want any above. I say they are better without it. These openings around the hive were covered with straw six inches deep, held there by binder twine wound around the hive. That keeps the snow away and insures them being open all winter. The bees come through in fine shape. They were not completely covered with snow. The top of the hive had about six inches of packing on it. This straw that I spoke of being around the sides came up to the top of the hive and came out about six inches above, and then there were chaff cushions on top of them. There was six inches of packing on top."

Mr. Pringle [deceased] stated that hives could be hermetically sealed at the top if you are careful of the lower ventilation. In such a case the hives must be attended to after a snow storm. Mr. Hall, Woodstock, has no top ventilation, but leaves the front bottom opening some four or five inches wide. Mr. Hall uses, for packing, dry leaves—three and a half inches at the sides and six inches on the top. The leaves should be tightly packed, and a water-tight cover is necessary. Some of the members believe in securing the benefit of solar

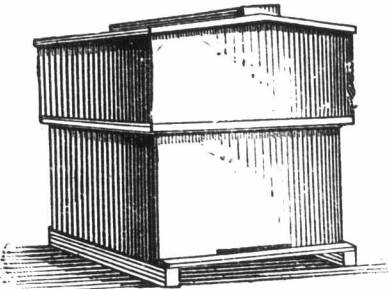


FIG. 1.