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n a young lay-out, or t each way n the rows, modifications, e profitable prevented is planted e rows are in the row, d between ble under not afford o bearing, producing Weldwood e orchard trees. The lifting the shoots or ip of land cultivated er, if some

crop is being grown near the trees, which does not require too much moisture, they should thrive on what cultivation is afforded them on account of the crop. When trees are set in rows only 20 feet apart, and from four to six feet of a strip is left on each side of the row, it can easily be seen that there is not a great deal of land left to crop. However, when the trees are set only 20 feet apart each way, one can afford to crop the land less, for the early bearing trees will soon be yielding some revenue. P. E. Angle, Superintendent of Lynndale Farms, in Norfolk County, where approximately 400 acres of young orchard are being developed, recommends the following system of intercropping: Assuming that we have a good clover sod turned down the previous fall, the land should be prepared as it would be for a good crop of oats. The trees are planted early in the season and some crop put in. Early potatoes are advised as suitable for the first season; they are harvested early and the land can be sown with clover, or a mixture of rye and vetch. One might follow this with strawberries, which would occupy the land for two years at least. Strawberries, however, should be kept away from the trees; in a young plantation at least a four-foot strip should be left between the first row of trees and the berries. Beans instead of strawberries might be grown the second year. During the second season of a strawberry plantation, it will no doubt become somewhat grassy. When plowed down, it should make an excellent field for cabbage. This again could be followed with rye and hairy or winter vetch. Factory corn has done well on Lynndale Farms, when grown as an intercrop. With all crops except potatoes a strip should be left along the row of trees, which is seeded down sometime in July, according to the season, with turnips, rape, clover, or rye and vetch. White turnips might be sown on the strip and harvested late in the fall. Three or four pounds of seed per acre is about the right quantity to use. There is such a thing as seeding too thickly. Where the orchard is fertilized and some manure is added, a liberal quantity of chicken feed might be grown on the vacant strips by sowing buckwheat.

The function of the narrow strip left beside the trees is no doubt well understood. That land should be cultivated early in the season to induce a good, healthy, vigorous growth in the trees. After mid-season, generally speaking about the first of July, some crop should be sown on it that will utilize the moisture, check the growth of the trees, and harden them so as to prevent winter injury. Mr. Angle speaks very favorably of the system of planting advocated in the preceding paragraph, namely planting 20 feet apart in rows 40 feet apart.

A test of different methods of developing young orchards in the State of Pennsylvania, showed a practice, uncommon with us, to be quite successful. The orchard in question was seeded to alfalfa, but not close to the trees, and the bare land was mulched with the crop. The alfalfa produced all the mulching material required and some surplus besides, especially in the earlier years. The mulching was always heavy enough to keep down practically all growth immediately above the majority of the feeding roots of the trees. This is probably essential for best results, with this plant as the permanent cover, because of its special affinity both for moisture and soil nitrogen. "In a good alfalfa soil," the State College reports, "it is possible to give an abundant mulch of this sort and still have a considerable surplus of good hay besides. In other words, this particular method gives us a mulch and something of an intercrop at the same time, without any tilling and without any apparent injury to the trees, where mulching and protection against mice are both sufficient." This, it will be observed, is a relatively new idea in orchard development, and the method or some modification of it is evidently very well adapted for large acreage, or for places where tillage and intercrops are not available. The trees grown in the experiments carried on by the Pennsylvania State College according to this system did exceptionally well in the first seven years, and ranked No. 1 among the trees grown according to several different methods.

The orchardist can judge for himself what system will be best for him to follow under his own peculiar circumstances. If canning crops are in demand, they can be grown quite successfully in a young orchard. On a holding where mixed farming is followed, feed for stock will likely be required, and a goodly quantity can be produced between the rows of trees without injury to them. It should always be borne in mind, however, that crops should not be allowed to rob the trees of plant food and moisture during the growing part of the season. After the latter part of June and the first of July it is necessary to check growth and harden the wood. Where a strip is left on both sides, this can be cultivated and later sown to a cover crop that may be plowed down or harvested to provide chicken feed, or feed for live stock. Any crop that must be dug from the soil during September or early October is not advisable. Working the land at that season is liable to encourage late growth in the trees, which may result in winter injury.

Pruning Young Orchards.

The subject of pruning young orchards could be discussed at great length, or passed over with the remark that excessive, or too severe pruning, is inadvisable. There are cross limbs that should come out, but when one starts in to prune the tree with the intention of keeping it low or correcting ill-shaped heads, he can go by. Healthy trees on fertile land will throw a large amount of wood growth after pruning. The more severe the pruning the greater will be the growth of

the limbs and branches. Some orchardists, experienced in developing young orchards and who are working on a commercial basis, do very little pruning until the trees begin to bear. They claim the trees come into bearing at a younger age when handled in this way and the expenses of pruning are slight. Such growers as the Dempseys of Hastings County, the Fishers of Halton County, and P. E. Angle of Norfolk County, advise taking out only the cross limbs and allowing the tree to develop normally. With them it is a business proposition. It costs them money to prune, but they do not forego pruning simply because it costs money. In their judgment the trees do very well without any great amount of pruning, and when the trees are left alone they require less.

In the spring of 1913 the young orchard at Weldwood was pruned by two men in less than half a day. The following year more severe work was done in an attempt to keep the heads low and well thinned out. This seemed to encourage the growth of more branches and shoots, and the time required to prune the orchard in the spring of 1915 was quite in excess of the time required in 1914. However, the man who was doing the work persevered in his endeavor to top the trees back and keep the head thinned out. The result is that new shoots have appeared on the limbs and branches which must be cut out this season, and the time required to prune the orchard will be much greater than in any previous year. This would be expected in a growing orchard, but the development of new shoots making the head quite thick would lead one to believe that the trees had been pruned too much. The reader should understand, however, that the trees have not been abused. The method of pruning was really a modification of the system that has been advised for years. Limbs were allowed to remain that expert pruners would, no doubt, have removed. Each tree was studied and handled as leniently as possible, but according to modern teaching. The forms of the heads are as near correct as was possible to make them, but in the endeavor to prune them properly a quantity of unnecessary wood was encouraged which must be taken out this year, and the removal of that will, no doubt, encourage the growth of still more. The trees are all right and growing well, but the question arises: is it wise to prune too much? The writer recently saw the trees on Lynndale Farms in Norfolk County, which have had practically no work expended on them so far as pruning is concerned. A few cross limbs were taken out, but otherwise they remain untouched. The form and character of the heads was all one could desire. The matter is worthy of consideration, and the grower should use his own judgment as to what pruning should be done. Some trees cannot be put into the best form without the use of the saw and clippers, but those trees that are tolerably well-shaped might be left alone until they begin to bear.

Hot-bed Weeds.

EDITOR "THE FARMER'S ADVOCATE":

Supplementing the excellent hot-bed plan and directions in your issue of February 24, I have found, in the course of several year's experience, that it saves a lot of subsequent trouble, after firming well the surface of the soil put into the bed, to leave it long enough to germinate the crop of weed seeds which are lurking there ready to make trouble later on. When they show green, overhaul them with a fine rake or hoe, and then re-settle the surface. Having cleared the trenches of the first band of enemies, the vegetable and flower seedlings will have a fair field to grow. The few days required to do this will not be lost time.

ALPHA.

POULTRY.

Co-operation to Produce Better Eggs.

EDITOR "THE FARMER'S ADVOCATE":

It seems to be a general impression amongst business men that there will be some remarkable changes in trade after the war, and good opportunities open to those who are able to take advantage of them. One of these opportunities will come to Canada in the poultry business, and it might be well if we farmers would realize this and prepare to take full advantage of the situation. A large part of Europe must now be entirely devoid of poultry. There can be none left where fighting has taken place or troops have been quartered. Already, Canadian eggs are finding their way into the British market, and by a recent trade bulletin we learn what is needed that we may reap the full benefit open to us. I find in this bulletin that eggs were bringing the following prices, according to the country from which they were imported:

Danish, per 120	\$5.95
Irish per 120	5.84
Canadian per 120	4.38
U. S., per 120	4.14

I have given in each case the highest price. It will be seen, at a glance, that while Canadian eggs bring 24 cents more per 10 dozen than eggs from U. S., that the Danish eggs bring \$1.57 per 10 dozen more than the Canadian, or almost 16 cents per dozen. I see also by the daily papers that American eggs are being imported into Canada, regraded and ship-

ped to Britain. It seems to me that the course to be adopted is a simple one. We must be absolutely sure of the quality of eggs that are to be shipped. To accomplish this co-operative egg circles should be formed wherever possible. All eggs should be stamped and carefully candelled and graded. To overcome the difficulty of American eggs being sold as Canadian, it would be well if the United Farmers of Ontario would take charge of exporting, adopt a trademark of their own, and have all the co-operative egg circles ship only through the association. The British market is always willing to pay for quality, and it will pay us to use the means to get our eggs up to the Danish standard. To do this we must adopt the Danish methods of co-operation. If we are willing to do this then we can go to work and increase our flocks as fast as we like, and cannot start at it too soon. Personally, I already have 400 eggs in my incubators. The demand for dressed poultry is also very great, and it should be no trouble to meet the requirements in this line also. There was not enough to meet the demand for home consumption this last season and prices were good.

Lincoln Co., Ont.

PETER BERTRAM.

THE APIARY.

Work for Beekeepers in Spring.

EDITOR THE FARMER'S ADVOCATE:

March is here upon us and with it come the thoughts of spring, but, from the standpoint of beekeeping, May and fruit-blossoming time look to be still far away; and, should there be a failure of the honey flow from this quarter, the middle of June, with clover bloom, is yet farther from us.

However, what is the use of crossing our bridges before we come to them? Why look at the dark side of the question? Rather let us change our view and look at the bright side. Perhaps we are rather depressed from the fact that we have had two poor honey crops in succession, but that is only the more reason why we should have a bumper crop this year. That reminds us of the question: "Are we ready for a good honey crop? Have we made our hives and supers, or if we intend buying them, are they ordered and our supplies purchased? If not, it is time to think and also to act, for remember it is March and the winter is going, with the busy season coming on.

In regard to the question of the beekeeper buying his hives ready-made or of making them himself, I would like to make a few remarks. If the beekeeper has plenty of cash and is very particular about his hives, but has not the necessary time to make them himself, then I would say: buy them. It is an undoubted fact that in a factory equipped with up-to-date and modern hive-making machinery the hives are extra well made; but—and here is the pinch—you pay for them.

Figure it out for yourself, at the price of lumber nearest you, and you will find, I am sure, that you can make them cheaper than they can be bought from a supply dealer.

To make one eight-frame hive with cover and bottom board, but without frames, it will take one ten-foot board, ten inches wide and planed on both sides. The best material for beehives, especially for this part of the country, is, I think, white pine. However, where other light, spongy woods, such as cedar or poplar, are more easily obtained and are cheaper than pine, then these will do equally well. Whatever kind of lumber is used, have as few knots as possible. Knots should be avoided as much as possible, as they are difficult to work up, and also because it is hard to paint them, and when the boards become very dry and shrink, they often fall out.

When the beekeeper makes his own hives, considerable care must be exercised in making the corners. As most experienced beekeepers know, the corners are the first to decay in beehives. The most suitable method of making the corners by hand is by halving the boards. This style, when painted before putting together and nailed both ways, makes a very watertight and durable corner. Another very good way that is easier to make, and yet just as substantial as the former method, is by cutting a seven-eighths inch groove (the width of the board) in the ends of the hive and fitting the sides into this.

When making the frame rests in the hive, do not forget to make them deep enough for a metal frame rest to be put on. This device, which is simply a piece of folded tin as long as the hive is wide and tacked on above the wooden frame rest, is very handy where propolis is much used, as it prevents the bees gluing the frames to the hive.

The frames of the hive should be purchased ready made. The ordinary beekeeper, who has not special machinery, cannot, with the common tools, make his frames straight and true enough to give satisfaction. Those who have a foot or hand power circular saw can, however, make the stapled Langstroth or old-style Langstroth frame themselves, but those who use the self-spacing Hoffman frame must buy them, as it requires special machinery for the manufacture of the end bars and self-spacing device of this frame.

Regarding the style of frame to use, this is a matter for the beekeeper to decide for himself. The Hoffman frame is used extensively, but some apiarists object to this frame on account of the bees gluing them together. The new metal spacing device used on the Langstroth frame overcomes this difficulty, and this seems to be getting very popular. However, many