

## Orchard Cultivation\*

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Stop cultivating and sow a cover crop before the season's growth stops in mid-summer. From that time trees begin to get ready for the winter by ripening their wood, consequently all work tending to promote growth must stop so as to allow the trees sufficient time to mature properly. By means of cover crops the roots will be protected from frost. The ground will better hold the snow and allow its water to penetrate instead of washing off the surface soil in spring rains. These requirements, together with that of checking the growth of the trees in summer, are fulfilled by sowing a crop about the middle or end of July, which by winter will cover the ground, forming a mulch of vegetable matter. Besides these advantages it benefits the trees by improving the physical condition of the soil and enriching it in plant food when plowed under to form humus early in spring.

### WHAT KIND OF COVER CROPS

It remains to be determined what crop to sow after cultivation has ceased. This is a local question, and the fruit grower will have to use his own judgment for the choice. The experimental farms, however, have experimented with a number of crops, and can tell the advantages that each will give in certain soils and under given climatic conditions. From these the grower can choose those he thinks will answer the purpose best. He can also do that from his own field crops of which he possesses knowledge and with which he has had experience. Clovers, peas, vetch, oats, rye, buckwheat, or rape may be used. The clovers, peas or vetch are to be preferred as they enrich the soil in nitrogen. Crimson clover at the rate of twenty-five pounds per acre or vetch at the rate of one and a half bushels per acre give two of the best cover crops. These are sown broadcast and harrowed in at the last cultivation early in July.

### TILLAGE VS. SOD

It might at first glance appear that it does not pay to give the orchard that attention which involves all the afore described operations and that satisfactory results can be obtained by allowing the trees to grow in sod. While some growers in special conditions have received fairly good returns from such orchards, the general experiments point to the fact that tillage gives the best results. Just in what particular points it gives better results can be best illustrated by quoting an experiment conducted near Rochester, N.Y., by Mr. W. D. Auchter in an orchard of nine and a half acres of Baldwin trees.

The orchard was divided into two plots, of which one was left in sod, the

other tilled and seeded with an annual cover crop. The trees in both plots received as nearly as possible identical treatment as to pruning, spraying, fertilizing and all other orchard operations except the system of culture.

The results after five years are summarized as follows:

The average yield on the sod plot was for the five years 72.9 barrels per acre; for the tilled plot 109.2 barrels; difference in favor of tilled plot of 36.3 barrels.

Actual count showed 434 apples per barrel on the sod land, weighing 5.01 ozs. each, and 309 apples per barrel on the tilled plot, weighing 7.04 ozs. each. The advantage of tillage over the sod mulch in the matter of uniformity of

trees and crops is marked. The trees in sod showed abnormalities in foliage, branches, roots and particularly in fruit bearing and in fruit characters.

Among a number of other differences in favor of the tilled plot was the dark rich green color of foliage of the trees in the latter, indicating that they were in the best of health. On the other hand the yellow color of the leaves of the sod trees told at once that something was amiss.

The average cost per acre for the two methods, not including harvesting, was \$17.92 for the sod and \$24.47 for tillage, giving a difference of \$6.55 in favor of the sod. The average net income per acre for the sod was \$71.52, for the tilled plot \$110.43, a difference of \$38.91 in favor of tillage, an increase of 54 per cent. for tillage over the sod mulch method of management.



A Typical Unpruned Tree. Fig. 1.

## Training Neglected Suckers on Apple Trees

A. McNeill, Ottawa

An apple tree that has been pruned back severely, and in consequence has developed a rank growth of suckers which have not been properly pruned and trained as they developed, forms after three or four years a very serious problem in pruning. Merely to thin out the suckers will not do, because those that are left have long naked shanks with the new growth and bearing wood if any has developed, many feet in the air.

Perhaps the best general advice that can be given is to thin the suckers, and make grafts close back to the large wood on those that it is desirable to use as the foundation for the new head. In no other way can we be sure of getting the bearing wood low down and close to the heavy supporting wood. When the grafts

have made a growth of one year they should be cut back as previously described and the remainder of the suckers may then be cut away altogether, and the growth from the grafts will take their place.

It is quite possible, too, if the suckers are not too large, the new growth if cut back severely, will develop dormant buds, and a new top can then be developed from these, care being taken to prune back the new growth, and thus not repeat the error that one is striving to correct.

Whether the method by grafting or trusting to dormant buds would be the better, can only be determined by actually seeing the tree. But, speaking generally, it can be advised that if the suckers have grown to a diameter of three-quar-

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