

These were now planted in early spring, some in double rows on the north and west sides of the farm yard, rows being one-half rod apart and trees the same distance apart in the rows, and the trees in one row being opposite the spaces in the other row. The remainder were planted along the fence rows over the far on the west and north sides of the fields at distances of one rod apart. I firmly believe that this is not too much space to allow Norway spruce for general farm planting, as this will allow each tree to develop pretty fully before interfering with its neighbors, thus ensuring better thrift and longer life.

Out of the entire seven hundred left only seven or eight have died; the best of the trees being now fourteen or fifteen feet high. For a few years after permanent planting they grow rather slowly, but once established rapid growth is made, three feet being not uncommon in a favorable year.

Trees planted in farm fence rows cannot, as a rule, be given cultivation, therefore, it is of prime importance to have trees with a good strong root system and stocky top from eighteen inches to two feet in height, as only thus equipped will they be enabled to hold their own against grass and weeds.

While the foregoing deals principally with the treatment of nursery propagated exotics, I have also found that equally good results are to be obtained in the handling of the native species of spruce. By securing small seedlings of the common variety, which may easily be done in any spruce forest, as trees of one foot or under may be safely pulled without destroying many roots, and cultivating and transplanting for two or three years in the nursery row much better results may be obtained with less labor than if the usual plan is followed, that of transferring larger specimens direct from the forest to the wind-break. Where it can be conveniently secured the native spruce should be planted in preference to the Norway, as, although it is of somewhat slower growth, its manner of growth is much more dense and wind resistant. It is also longer lived than the imported species. Tree planting is very pleasant, interesting work, and withal profitable as the outlay in time and money need not be large, if plan outlined above be followed, and once the thing is done the value of the farm will increase with the growth of the trees.

In this Georgian Bay district, famed for the color and quality of its Northern Spies, many fine orchards otherwise well cared for are rapidly dying out largely through lack of protection against the fierce winter winds which gather momentum as they sweep over the vast ice-covered expanse of the Bay; and continue practically unimpeded across the now forest-denuded prairie-like lands of northern Simcoe.

Nor is the orchard the only crop to suffer. The high drying winds of spring and early summer are far from beneficial to the starting cereals. If the farmers generally could be induced to take up this hobby of tree planting, I believe the benefit to the country would be greater than that of almost any other line of work that could be taken up.

Simcoe Co., Ont. W. J. GALBRAITH.

Vegetable Growers' Executive Meet.

The annual meeting of the Directors of the Ontario Vegetable Growers' Association was held in the office of the Secretary, J. Lockie Wilson, Parliament Buildings, Toronto, on February 4th. Delegates from the different branches were present, and were enthusiastic over the work being done by the Association.

The report given by the Purchasing Agent, W. J. Kerr, was listened to with interest. Mr. Kerr stated that the co-operative buying had been a financial success, and that he was perfectly satisfied with the work that had been accomplished during the year. The last bulletin issued to the members contains quotations on flower seeds, fertilizing and spraying materials, as well as on vegetable seeds. It was unanimously decided to continue the vegetable Field Crop Competitions in onions, tomatoes and celery.

A vegetable tying machine was on exhibition during the afternoon, and after the delegates had examined the work done by this machine, they passed the following resolution:

"That the tyer exhibited and operated at our annual meeting is a labor saver, and would be of material assistance to vegetable growers, and as these machines cost \$90.00 in the United States and the duty is \$26.00, we would respectfully recommend that the duty be removed from tying machines until such time as they are manufactured in this country.

There was a pleasant break in the routine of business when the delegates presented Thos. Delworth, of Weston, with a gold watch as a token of their appreciation of the practical interest he had taken in the work of the Association. The Secretary, J. Lockie Wilson, was also the recipient of a token of the esteem of the representatives present.

The following officers were re-elected by acclamation for 1914:—President, C. W. Baker, Lon-

don; 1st Vice-President, W. J. Kerr, Woodroffe; 2nd Vice-President, F. F. Reeves, Humber Bay; Sec.-Treas. and Editor, J. Lockie Wilson, Toronto. Representative to Canada National Exhibition, Thos. Delworth, Weston. Representatives to Horticultural Exhibition, Messrs. J. W. Rush; F. F. Reeves; Thos. Delworth, and James Dandridge.

Dusting Instead of Spraying.

In past years experiments have been conducted to determine the feasibility of using a dust on fruit trees instead of spraying with some solution. The results have been negative, but for material, dry Bordeaux and Paris green were used, which, to some extent, explains the failure of the venture. In more recent years, and especially in 1913, the Experiment Station at Ithaca has been conducting trials with powdered sulphur and dry arsenate of lead, with the following results:

| -Plots. | Per Cent. Scabby. | Per Cent. Bud Moth. | Per Cent. Codling. | Per Cent. Curculio. |
|--------------------------|-------------------|---------------------|--------------------|---------------------|
| Check | 80 | 39 | 12 | 1 |
| Lime Sulphur Solution .. | 21 | 23 | 1 | .48 |
| Dust | 33 | 4 | .4 | .14 |

There is some difference in favor of the solution when considering the number of scabby apples, but the results are estimates, and if the results of the spray are too low and those from the dust estimated too high they might be somewhere near equal in the control of scab. In the control of insects there is a marked advantage in favor of the dusting.

The Sulphur used was very fine, even finer than Flowers of Sulphur, and with this was mixed arsenate of lead, to the amount of 20 per cent. The Station is now of the opinion that 10 per cent. of arsenate of lead would be sufficient to control the insects. The great saving is in the time required in the application, as four times as many trees can be covered by dusting as by spraying in the same length of time.

At the best, it is yet an experiment, but something may come from it that will be of a decided advantage to fruit growers.

Is Fertilization Profitable?

A few years ago fruit growers were startled by the statements from a leading United States Experiment Station to the effect that orchards did not require any special fertilization. At a recent meeting of the New York Horticultural Society, Dr. J. G. Lipman, Director of the New Jersey Experiment Station, came out very strongly in favor of fertilizing orchards. Several experiments were the basis of his arguments, and, one particularly, situated in Vineland, N. J., where a peach orchard had been used for experimental purposes. In one part of the orchard commercial fertilizers had been applied containing a moderate amount of nitrates. In the other part no fertilizers had been added. Up to three years no difference could be observed in the wood growth or the general health of the trees, but in the sixth and seventh years after the trees had been producing fruit, there was a noticeable difference, and a marked advantage accruing from the use of nitrate of soda.

Lime also seems to be the pivot about which all other fertilizers revolve. There may be unlimited amounts of phosphoric acid and potash in the soil, but, due to the absence of lime, these particular elements do not come into such a condition that they are valuable for plant food. Consequently a little lime may bring into use large amounts of fertilizers already existing in the soils.

In the case of phosphates there is an advantage over and above that which they actually supply as plant food. It is generally understood by scientists that phosphates stimulate the activity of soil bacteria, and soluble phosphates are more serviceable than the others in this direction. Dr. Lipman referred briefly to bone meal and basic slag as well as ground rock phosphate as sources of phosphoric acid, yet he showed much more partiality to the soluble kinds, such as acid phosphate or super-phosphate.

There is an apparent inconsistency in the analysis of fertilizers recommended for different kinds of crops, and this is generally most noticeable in the amount of phosphoric acid which they recommend, when we compare it with the

quantities consumed by the crop under ordinary conditions. This arises from the fact that some elements circulate more readily through the soil than others, and owing to this those which circulate most freely are applied more scantily in a fertilizer than are those which are slow and sluggish in their movements. Phosphoric acid is the element of the three most important ones which must be considered in this way. Its movements are slow. Plants have more difficulty in obtaining it, and consequently fertilizers require a larger percentage in their composition than one would think warranted, judging from the composition of the crops to be grown from it.

An advantage accruing from the use of potash over and above that of giving color to the fruit, which is generally attributed to it, is that plants growing on soils deficient in potash are more subject to fungous diseases, and, as a general thing, are sickly and unhealthy in appearance. There are circumstances which should be taken into consideration in the use of potash, as heavy-clay soils are usually better supplied with potash than are those of the lighter kind. Heavy soils come from rock rich in potash, while the lighter kinds come from the disintegration of rock which contains very little. Therefore, the character of the soil should be taken into consideration before any quantity of potash is applied.

It was the opinion of the growers assembled that peaches could not make too much wood-growth the first two or three years, and that if apple trees were only making the scanty growth of two or three inches they undoubtedly were lacking in some form of fertilizer, and any kind supplied that would increase the wood-growth and general vigor of the trees would be profitable in the extreme.

It has been the practice of those growers who are getting annual crops to supply fertilizer from year to year, and not all in that year when they expect their crop. This storehouse of food upon which the trees may draw from year to year encourages the production of fruit buds during the summer, and assures more nearly an annual crop.

Should Peach Trees Be Severely Pruned?

It has been the theory of many and the practice of a few peach-growers in Ontario to continue the pruning of their peach plantation till they are four years old, and even after that not to spare the limbs. The reason for this action is to raise a tree with good crotches, strong main branches and a good top. Is there not something in the argument presented by George Friday, of Coloma, Mich., to the New York growers assembled at Rochester? His practice has been to form the top the first year, and allow the tree to develop as much wood as possible the next two or three years. After the crops of fruit begin the trees are topped back to a convenient height, and, as a general thing, seven-eighths of their peaches are gathered without the use of ladders. The chief advantage in this system, Mr. Friday claims to lie in the early age at which the trees begin to bear. It is peaches we all want, and a few years' advantage in bearing might return more in dollars and cents than an orchard pruned in such a way as to look good and strong.

Fruit only appears on wood which grew the previous year, and severe winter pruning is always followed by excessive wood growth and foliage the ensuing season. This tends to smother out the buds and growth on the interior of the tree, where the fruit will first begin to appear. The result of this method of pruning is to delay production, which is uppermost in the minds of most growers.

Under the lenient method the trees bear at an earlier age—in Mr. Friday's case, at least—and give a couple of crops before heavily pruned trees begin to produce. Several cases have come under our observation where the young trees never saw a knife or saw after they left the nursery, and bore a small crop at three years of age. In spite of this, we adhere to the system of shaping the trees when set out and the following spring. Poor crotches give rise to many losses in trees breaking under a heavy crop of fruit and admitting disease and insects. It was also noticeable in the winter of 1911 and 1912 that trees split or weakened in the crotches easily succumbed to the extreme cold; consequently, there is good reason for shaping the tree at first.

Just what effect early bearing might have on the productiveness of an orchard as a whole it is difficult to say, but when an individual tree, for some unexplainable reason, bears at an exceptionally early age, that tree is not injured for life. In fact, it is hard to distinguish any difference between it and its less precocious neighbors in after years. Now, more than ever before, are we after quick returns on our investments, and anything that will promise an early revenue deserves consideration.