

will be done after this design and according to this plan. But on our remaining acre as the most promising of all fruits we would most decidedly wish to be planted with grape vines, 12 by 8 ft., or say 460 plants, and these after a few years good growth and in full bearing will at a very moderate calculation yield 20 pounds of fruit per plant, or 9,200 pounds. But 9,200 pounds of grapes at 2½c. per pound are worth \$230. But our plot of one acre contains 43,560 square ft., the square root of which is 208½ ft. and this measured by 12 ft. the distance apart of the trellises gives 17 trellises. But between these 17 trellises may be planted 17 rows of Red Currants, 4 ft. apart=900 currant bushes. These at an average of 5 quarts per bush, mean 4,500 quarts at 3c. each=\$135. But \$135 plus \$230 for grapes makes \$365 as the whole amount of product of one acre of our rich and fertile soil.

Now I will not attempt to sum up the entire product of every acre thus of our five acre plot. I am sure you will gladly and carefully work this out, every man for yourselves in your own individual experiences, but I am persuaded and can testify if required that here is a line of work that can be made adequate to occupy the attention and employ the best energy of the men of our age both young and old. Aside from this there is scarcely any problem of our time that is so important in its practical bearing upon this age and upon the ages yet to come for all time.

May the appreciated and timely labors of this Association of Canadian Fruit Growers as it has in the past, yet much more in the near future, more sensibly and materially help to work out a problem so very influential and so deeply concerning the whole population of this young and growing country and through them the whole race of sensitive living men.

FERTILIZERS FOR THE ORCHARD AND GARDEN.

By T. G. RAYNOR, ROSEHALL.

This is a very important subject to both the orchardist and gardener, for it has to do with the home end of his business. The wise application of fertilizers may often lower the cost of production to an extent as will greatly increase the profits, or at least make a margin on some products which have not paid the producer very well in the past. We all want to make a profit on what we grow, and the larger it is the more gratifying.

From a practical standpoint many of you know much more about this subject than I do. It is not then with a view of telling you something new that I have prepared this paper, but my object is more to excite discussion which may be of profit to all.

In discussing fertilizers every one should form an acquaintance with three simple elements, called in agricultural science, nitrogen, phosphoric acid, and potash, which are found in all fertile soils.

Of these three elements nitrogen is most expensive and most likely to escape from our grasp, both in its management and application. It occurs in all vegetable and animal composition, and in many of the salts occurring in nature, as nitrate of soda, etc. Phosphoric acid is found to a considerable extent in the bones of animals and as a mineral in the form of apatite. Potash, the least expensive of the three, is found largely in the composition of wood ashes.

The productiveness of our soils depends upon the quantity of these three elements present in them. If any one of the three be absent or not present in sufficient quantities for the development of any particular crop, by so much is that soil said to be unproductive.

There are two things to guide us in the use of fertilizers, (1) the nature and conditions of the soil and (2) the kind of crop grown. Soils vary much in composition, from light leachy ones to very heavy ones. Thus it is evident that we should understand their powers for retaining these three elements, to some extent at least, in applying