

The pipe at the end of the lateral is smaller than the pipe at the beginning on account of the ever diminishing quantity of water flowing through the pipe owing to the flow through the nozzles. This decrease in the size of the pipe towards the end allows the water to be kept up to the same pressure to the end. The water is evenly distributed from these laterals over the ground for the full distance that the spray will reach and on completion of the watering of one side the position of the nozzles is reversed so that the other side for a distance of thirty to forty feet may be watered. These lateral pipes are connected to the main by a special valve which allows of the pipe being turned in either direction to the right or to the left so that either side may be watered. By means of this valve the water may be thrown high or low depending on the direction and velocity of the wind, and how far it is desired to throw the water. This can easily be regulated after a few moments of trial.

A SIMPLE OPERATION

Applying the water is not difficult, but it requires some practice. The chief difficulty in the way of prospective irrigation is the source from which to obtain water and the best method of bringing it to the land. If the water is to be applied by gravity it must be brought from a point higher than the land that is to be irrigated. There should not be any very low places over which the water is to be carried as this adds to the expense of building ditches or wooden flumes. There may be a few cases where it is possible to get water under pressure direct from mains, but these cases would only be near cities or towns, and likely on very high priced land.

MAKING DITCHES

In carrying the water through open ditches, the ditches, in ordinary land, may be opened with a plow. Thus very little shovelling of earth will be required. The banks of ditches may also be built over low places by means of the plow. Some water will be lost through soaking away, and in very sandy or gravelly soils it may be difficult to carry water on account of this loss, but very few soils will be as open as this.

Probably the best method to adopt, especially in the Niagara District, would be to bring the water in sufficient quantity to the land through open ditches and then pump it into pipes to be distributed from overhead. Pumps are now made that will handle water containing considerable quantities of fine sediment, but of course it is desirable to have as much of the sediment as possible removed. This can be done by bringing the water to a standstill in a large basin, constructed after the principle of a silt-basin, so that the sediment will settle to the bottom. This water can then be handled by the pumps without causing trouble in the nozzle.

There are a number of places, such as the Welland Canal, which runs through a part of the Niagara District, where water could easily be obtained by gravity. If, however, a near source of water cannot be found from which the water may be obtained by gravity, it can be lifted to a height of fifty to one hundred feet without great expense and then carried through pipes direct to the land. Of course, it costs money to lift the water this height, but after the engine and pump has been installed the cost of power will be small.

POWER NEEDED

The power required to irrigate an acre of land by the overhead method is about three and a half to four horse-power. The power required per acre decreases with an increase in acreage so that twenty-five horse-power will supply enough water for about twenty acres. The Skinner Company, of Troy, Ohio, are the pioneers in this system of irrigation. They issue several very complete bulletins on the subject of irrigation, any one of which is well worth reading by one interested. The total cost of the equipment necessary to irrigate from three to five acres by this system is from two hundred to two hundred and fifty dollars an acre. Properly handled it would be a paying proposition for many growers. The method of irrigation to be adopted would have to be worked out by each person, and would depend on the kind of crop, the soil, the source of water, and the capital required.

TWO CROPS POSSIBLE

Irrigation would be particularly valuable for strawberries, raspberries, and vegetables, especially vegetables for the early market, or vegetables planted late in the season, such as late crops of cabbage or cauliflower, as the soil is usually dry at the time they are planted. Again, irrigation will enable the grower to get two crops of some things from his land in one season, whereas if irrigation was not practised he would obtain only one crop.

Irrigation prevents frost from injuring such crops as strawberries and early tomatoes, as on a frosty night irrigation will prevent injury even when the temperature is from three to seven degrees below freezing point. Growers can thus afford to push these crops without being at the mercy of frosts.

Irrigation, to be effective, requires a large volume of water, especially when applied by gravity, as this is a wasteful method of applying water and should be used only where there is an abundant supply. The Ontario Vegetable Growers' Association have already become interested in irrigation, and it will not be long before growers of small fruits will be adopting irrigation with a view to increasing their returns. It is a question requiring careful study and thought and those first to adopt it will be the first to reap the benefits.

Co-operation by Fruit Growers

One of the most helpful bulletins dealing with cooperation by fruit growers yet issued is one distributed by the University of Missouri Agricultural Experiment Station. It is Bulletin Number ninety-seven. Besides explaining why cooperation is necessary and the causes which have led to the failure of many cooperative associations, the bulletin gives a history of various successful organizations and publishes copies of the by-laws and regulations.

The bulletin shows clearly the high standards called for by some of the leading fruit growers associations, notably the Hood River Apple Growers' Union.

ADVICE TO GROWERS

Included in the advice given by the Hood River Union to its members is the following:

The union will notify you by mail when a variety is to be picked. Upon receipt of such notice, pick, wipe and sort the apples, and get everything ready for packers as follows: Packing boxes, paper, packing table, nail machine, nails, and so forth. Notify the office or the field inspector when you are ready for packers. The field inspector will then call on you, and if in his judgment the job is ready for the packers, he will arrange to put the packers at work. If not he will advise you how to proceed.

If the weather is hot, pick during the cool part of the day. Do not allow packers to pull off fruit spurs, nor bruise apples by dropping them into buckets or boxes. Apples should be placed in the baskets or boxes, and not dropped into them. The stems of the apples should not be broken off. Haul the apples from the orchard to the packing house daily; do not allow them to stand in the orchard or in the sun.

WIPING AND SORTING

Wipe the apples just enough to make them clean and get off the spray. Do not polish them. Sorting should be done when the apples are being wiped. In sorting keep the fancy grades in boxes themselves, the choice grades by themselves and the culls separate. Put the tier apples and larger together, and a half-tier and smaller together. Fancy Spitzenburgs should always be graded for color, seventy per cent. more good red color. Keep the Spitzenburgs separate from the reds. Special advice will be given on other varieties for color as sold.

Do not fill the boxes too full of apples for piling in your warehouse. The apples will be bruised by the box placed on top. If boxes should be too full, either take some out or place cleats between the boxes. No boxes should be placed on top of a box of apples so full as to cause pressure on the apples in the under box.