

of rennet and it can be made to last longer by reducing the quantity used in a vat and adding some pepsin. Cheese made using 1½ ounces of rennet and one dram of pepsin to 1,000 pounds of milk proved to be slightly better than pepsin alone. The pepsin solution can not be made up in quantity and held for a time. It must be dissolved fresh every morning as it will not keep even over night.

The large abattoirs in the country make a considerable quantity of pepsin. At present the market is fairly well supplied and it is believed that the demand can easily be met, so that cheese makers and milk producers may allay their fears regarding the necessity of closing factories for want of extracts to set the milk. While rennet is to be preferred if it can be secured pepsin will make a satisfactory substitute. The Dairy Department are doing all in their power to see that factories are supplied with information regarding the use of pepsin, and they are also in a position to aid in securing it. Full information may be obtained from J. A. Ruddick, Dairy Commissioner at Ottawa.

A number of butchers are beginning to save rennets and it is believed that sufficient of the extract could be manufactured in Canada if the rennets of all calves slaughtered were saved for this purpose. In a short time cheese makers may be able to secure a Canadian product in sufficient quantities to meet all requirements. When this time comes the industry will be independent of foreign countries, but until then pepsin may be used to take its place.

The Department is experimenting with other materials which, in case of emergency, might be used to help out the other substances. While preliminary tests have proven favorable no recommendations can be made until further work has been done and the effect on the cheese observed throughout the season. Anything that would injure the quality would have a serious effect on the cheese industry.

HORTICULTURE.

Growing Onions by the Carload.

On the map of Ontario where the counties of Kent and Essex join there is a finger of land pointing southwards into Lake Erie. The extreme end of the finger is known as Point Pelee, and farther north where the land broadens there is an area which has been reclaimed from the lake and called the Pelee Marsh. A high dyke stands on duty between land and sea, while two huge pumps lift the water from the enclosed area and cough it over to the lake on the other side of the embankment. At first 4,000 acres were reclaimed, but it was later found necessary to cede 800 acres of this land back to Lake Erie. A part of the 3,200 acres is now producing crops. The muck soil on top varies in depth, but ranges, according to those who cultivate and drain it, from 1½ to 5 feet. Beneath this black cloak of decayed and decomposing vegetable matter is to be found the good, old-fashioned clay. The reclaimed area is, naturally, lower than the water level of the lake. The water which falls as rain and that which gravity causes to run down from the land above is pumped out over the dyke. There are two pumping plants which serve the eastern and western drainage systems respectively. Both were purchased to have a capacity of 30,000 gallons each per minute. Upon these and the dyke the dwellers on the marsh depend to keep them high and dry. Farther to the south and at the finger's end is a natural haven for bird life. Many of the feathered tribe winter there, and naturalists come long distances to study them in their winter quarters. As seen from the map it is an insignificant, little point of land that should have been smoothed off, but when one sees what is being produced thereon he must appreciate the existence of a small but productive territory where between 400 and 500 carloads of onions are grown each year in addition to other vegetables. There are enough onions produced on Pelee Marsh each season to supply one-third of the families of Canada with about one-half bushel of onions each year.

How the Onions are Grown.

Onions are looked upon as a staple rather than a luxury, and this renders their culture all the more interesting. We shall describe methods we found in vogue on the farm of J. A. Campbell on the marsh, who this year has 26 acres under onions, and if they differ in detail from the practice of his neighbors it will be in minor matters only.

Soil of the kind found on Pelee Marsh requires some late-fall treatment in order that it may come through the winter and be workable early in the spring. Clay soil is usually left ribbed or with a roughened surface, but in this instance we find the reverse to be the practice. In the fall the land is plowed, harrowed and rolled. The packing and levelling are done to prevent the penetration of frost to any great depth, and when this is accomplished planting can usually begin early in the spring. Before seeding, the soil is harrowed; then it is levelled and once more it is rolled. Five pounds of onion seed per acre are sown in drills 15 inches apart. This season seeding started on April 8, and finished soon afterwards. The wheel-hoes are started the same day seeding commences, and they follow close on the seeders. The fact that weeds grow more quickly in packed soil than in loose encourages the growers to keep the hoes going and the ground thoroughly loose and open. No thinning is done, but frequently the fields are weeded five times. Last year this amounted to \$10 per acre, and that was considered exceedingly low.

The wheel-hoe work and the weeding are important factors in the culture of onions. As may be seen by the accompanying illustration the weeding is done by boys. They average around twelve and thirteen years of age. Being small of structure and lithe of limb they can work between the narrow rows without injury to the crop. With a number of men and boys in his employ Mr. Campbell finds it necessary to keep a check on each one's work. This applies particularly to the weeding, for it is possible to make good time by covering instead of pulling the weeds, and although the poorly-weeded row may appear all right when first done a few days later the neglect becomes apparent. In a short time the covered weeds are through again, and the work must be repeated. The rows are numbered, and as each weeder finishes a row he is credited with it, and a record is made in a small book. Later this information is transferred to a card which can be taken to the field when an inspection is made. Then at any later date if a row is discerned upon which poor work has been done, it is easy to ascertain the careless worker and call his attention to it.



Cultivating Onions.

When the harvest season comes around four rows are pulled and thrown into one. The correct way to make these windrows is so the tops will cover the bulbs and prevent sun-scald, but in the haste of pulling this point is often neglected. The crop is then left in the field in this condition for from 5 to 10 days.

Topping is done both by hand and by machine. The capacity of a mechanical topper varies from 500 to 2,000 bushels per day, and they are now quite common. After topping the bulbs are stored in crates, preferably in a common storage house, and they are mostly marketed in the fall. They should be allowed to remain for 30 days in the crates to cure if they are to be stored later. Six hundred bushels per acre is considered a good crop, but 400 to 500 bushels is about the average. Speaking broadly, one carload per acre is a fair estimate of the yield on Pelee Marsh. One field adjoining Mr. Campbell's farm produced 900 bushels per acre, which was considered an exceptional yield. Last year the acreage of onions on Pelee Marsh was 550; this year it is nearer 400 acres.

The question is frequently asked: "Does frost injure onions?" In reply to this query Mr. Campbell said, "Frost will injure the keeping quality of onions, and they should be used as soon after thawing as possible. When they become frosted they should be maintained in that condition until used."

A Sub-Irrigation System.

Vegetable gardeners are finding it profitable to pump water from its many sources and sprinkle it on their crops through long over-head pipes of many types and descriptions. Mr. Campbell has a rather unique system almost ready to put into operation. It is unique in that the water will come from below upwards rather than from above. Fifty acres are tiled with four-inch tile laid 8 rods apart and about 3 feet deep. These subterranean water courses are connected up with Lake Erie, the water level of which is about 12 inches higher than the surface of the land shut off from it by the dyke. A 10-inch lead pipe conveys the water from the lake to the far end of the field where it connects with a 6-inch main running the entire width of the 50 acres. The field tile join this supply line, and all can be plugged and only

those opened which serve that part or those parts of the field which require water. The lower end of the field tile must, of course, be plugged when they are supplying water, but in the spring or fall or after heavy rains they may be opened in order to drain the field of excessive moisture. It is at the same time a drainage system and an irrigation system. As previously stated the water in the lake stands 12 inches above the surface of the land inside of the dyke, and the tile are placed, on the average, 3 feet below the surface. A valve in the lead pipe can be opened and closed, and with this head of water there should be no scarcity of supply. The two commendable features of the scheme are: first, the system is all under ground, out of the way of teams or workers; and second, gravity will force the water throughout the field, doing away with the necessity of motor power for pumping. The success of this scheme will offer suggestions to many who have a water supply on a level higher than their drained fields.

POULTRY.

Canada Increasing Egg Output.

To anyone who has not carefully followed the direction of poultry development in Canada, an understanding of the status which the poultry industry has now reached must constitute a distinct surprise. Whether viewed from the standpoint of the farmer or of the produce trade, it is now one of the best organized and most progressive of any of our live-stock industries. Co-operation amongst farmers in marketing is improving the product and realizing for them a higher price than they have hitherto been able to obtain. The reorganization of methods by the trade is providing against loss in handling, is assuring to the consumer a better article and establishing our export business upon a firm basis.

It is estimated that Canada and Cuba, during the last twenty years, received from the United States about three-fourths of all the eggs exported by that country during that period. This situation, however, has now changed. As against an importation in 1913 of 13,240,111 dozen, we imported in 1915 not more than 3,783,952 dozen. On the other hand, while in 1913 we exported only 147,149 dozen, in 1915, we exported 7,898,322 dozen. This constitutes a net increase in production, in two years, of at least 17,100,000 dozen. Practically all of these exports went to the United Kingdom.

Notwithstanding the surplus in Canada which these figures indicate, prices during March, April and May have remained at an extraordinary high level. For the first quarter of the year 1916, the price to producers, selling co-operatively, has been at least 4c. in advance of the price received, for the same period, in 1915. For the month of March, it was at least 5c. in advance and for the month of April at least 3c. in advance of last year's price for these respective months. The demand for eggs for local consumption, for storage purposes and for immediate export, has rarely been so keen as at the present moment. This situation is clearly reflected in the prices just quoted. Heavy domestic consumption in the face of the high price for meats, partly explains this condition. Confidence in the export demand, on the part of the produce trade, confirms it from another direction. Notwithstanding increased production, the egg and poultry business in Canada is in a very strong position at the present time.

Under these circumstances, we believe that it will be a very wise practice to raise as many chickens as it is possible or practicable to handle. Early hatched chicks make good winter layers. Rough grains will probably be produced in abundance in Canada this year and the feeding of poultry at a profit should be materially assisted from this source. Eggs, at winter prices, are a paying proposition in any event. Poultry, alive or dressed, under present and prospective market conditions, can unquestionably be reared and finished at a decided profit. A good flock of poultry, if carefully handled, will serve to prevent waste on the farm and promote economy in living expenses, such as is particularly necessary when all farm products are becoming so marketable and so dear.

JOHN BRIGHT,
Live Stock Commissioner.



A Group of Boys Weeding Onions.

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