

The Pre-Cooling of Fruit

MUCH interest was taken in a discussion on the pre-cooling of fruit which took place at the recent Dominion Fruit Conference held, Sept. 2 to 4, at Grimsby, Ont. The delegates having investigated during the afternoon the splendid pre-cooling plant erected at Grimsby by the Dominion Government under the direction of Cold Storage Commissioner J. A. Ruddick, were prepared to discuss the subject to advantage.

Mr. Ruddick led the discussion. "We first heard of the pre-cooling of fruit," he said, "through the establishments erected in California by the railway companies. These were large plants and cooled the fruit in several cars at one time. This led at first to the impression that all fruit was pre-cooled in this way. This is not the case, as most of the plants to-day are smaller and cool the fruit before it is loaded.

"There are a number of objections to the car-cooling plant. Such plants must be large, and therefore are expensive to operate. There is a considerable wastage of the cold air, also in adjusting the ducts between the plant and each car. It is difficult to so adjust them that either more cold air than is needed is let rush into the car or too much warm air from outside is taken into the plant. Then also considerable time is wasted in adjusting the air ducts to each car. This is an important consideration.

"In our small plant here in Grimsby we can cool fruit for shipment in twenty-four hours. Such plants are useful also for the purpose of holding fruit over periods of temporary gluts, or on occasions when there may be delays in the jam factories. Thousands of dollars can often be saved in this way.

"These plants can be used also for the storage of apples in the winter season.

"Our plant is operated on the gravity brine system. Mechanical refrigeration is the other system, often called the ammonia system. There has been some objection to this system on account of the danger of explosions from the gas. Improvements in the methods have largely overcome this objection.

"There is not much difference in the cost of installing the two systems. Our plant cost us \$17,300 for the building and \$6,100 for the cold storage equipment, with some extra charges for carpentry work, the figures for which I have not obtained as yet. We spent also \$250 for electrical thermometers, which are most important and a great convenience. We are able to cool three to four carloads a day.

"When considering the cost of operation, the ice supply is the first consideration. We obtained ours in Burlington Bay. The cost of hauling was quite an item. We have put in about seventy-five tons of sea grade rock salt, which cost us about six dollars a ton laid down in Grimsby. As the control of the temperature is largely dependent on the supply of salt it is most important to have an ample supply of good quality.

"As far as effectiveness is concerned, a mechanical plant has a larger reserve of power than the gravity brine. One system is as dry as the other.

"Dampness in a plant may be due to an improper circulation of the air or to a leakage which allows warm air to come in from the outside. Where the air circulates properly the moisture congeals on the cold surface of the pipes and is drawn off.

"We obtain a temperature of twenty degrees. I have seen a temperature of fifteen degrees. It is now realized that it is more important to hold the fruit

longer than twenty-four hours if necessary to ensure its being cooled to the proper degree of temperature. An extra few degrees of temperature may make a great difference in the shipping qualities of the fruit. I don't think much is to be gained, however, by cooling the fruit much lower than the temperature of a refrigerator car. In one of our rooms to-day I noticed that the temperature was thirty-eight degrees. A temperature of forty degrees is a pretty good one for a refrigerator car. We have a canvas cover that we fasten closely around the door of the building and of the car, which prevents a leakage of air while we are loading the fruit.

PROPER LOADING

The proper loading of a car is just about as important as the pre-cooling. We use a rack, costing about eight dollars a car, which allows a good circulation of air from the ice bunkers. Some growers load so carelessly that instead of facilitating they prevent the proper circulation of the air.

"This plant is largely experimental. It is intended to show us if it will be practical for growers to erect similar plants elsewhere in the fruit districts. In addition, this plant is going to give me a chance to conduct experiments in the marketing of fruit held at different degrees of temperature and with fruit picked and kept at different stages of maturity.

"We are charging the growers one cent for an eleven-quart basket and three-quarters of a cent for a six-quart basket, as well as eight dollars for the framework used in the car. The railways refund three dollars of the cost of putting the flooring in the car."

Q.—"How many barrels would your plant hold?"



Prominent Fruit Growers and Government Officials from all Parts of Canada Who Attended the Dominion Fruit Conference at Grimsby, Ont. September 2nd to 4th.