

and parts of New Brunswick reports indicate that the situation which has resulted from the infestation of these insects, is a very grave one. The warm weather early in the season caused the eggs to hatch and the trees to leaf out rather earlier than usual, with the result that conditions became ideal for the development of caterpillars.

When stringent remedial measures have been adopted the damage has not been so great, but either through ignorance of these means of control or through lack of the necessary equipment, many growers have been unable to cope successfully with the invasion of caterpillars which has taken place during the last month, and in these cases much loss has been sustained.

Even at this date, if the trees are sprayed with a solution of four pounds of lead arsenate (or 6 ounces of Paris green and at least 12 ounces of lime) to 40 gallons of water, and the trunks banded with "Tanglefoot," much will have been done to check the spread of the insects. All tents should be destroyed, preferably towards the cool of the evening or in the morning when the caterpillars are within them. Only concerted effort on the part of the growers in a badly infested neighborhood will bring relief. Wild plum or cherry trees should be destroyed, whether in old fence rows near the orchard or in uncultivated land.

Mice have not been bad during the past winter, but protection is necessary each year, as their ravages are periodic and no one can tell when a serious outbreak may occur. Weeds and rubbish which harbors them should be destroyed.

Canker is reported from Nova Scotia and black knot is bad on cherries and plums in Nova Scotia and Quebec.

Fruit prospects in the United States and Great Britain are reported as excellent.

One correspondent says in the report "Markets in 1912 were no good for apples. Three-quarters of the crop was left to rot on the ground." Commenting on this the report says:

"This correspondent must be considered as speaking only for a very limited area in giving the quantity of apples left to rot, yet the truth remains that throughout Western and Southern Ontario in 1912 large quantities of apples were sold at an exceedingly low price or not sold at all.

"The reasons for this are not far to seek. First and foremost was the complete breakdown of the old system of itinerant buyers who, since the inception of the apple trade, have been the recognized means of disposing of the crop in Ontario. This failure of the itinerant buyers to appear upon the ground was caused partly by the Old Country firms refusing to make large advances which they had always done in former years, leaving these buyers without money to finance their purchases. Second, even in the case of buyers having funds, the co-operative associations have become so numerous that they cover the ground especially in the better apple districts, leaving only the inferior orchards for the outside buyer. Third, there was a distrust in the minds of many of the old buyers with reference to the condition of the apple market. The net result was that in many districts, where there are comparatively few large orchards and where the orchards for the most part are very poorly cared for, no buyer deemed it worth his while to visit them. Canadian apple dealers, with capital of their own, preferred to deal directly with the co-operative associations, where they could purchase large quantities of fruit of uniform grade, and with the grade marks guaranteed. It is not at all likely that any buyer with capital of his own to risk will, in the future, care to handle the small, ill-kept orchards, containing many varieties, of the ordinary farmer engaged in mixed farming. With individual selling it is not probable that these orchards will ever again become really worth while.

"The remedy lies in co-operation among these small orchardists, which would result, of course, in better care of the orchards and an absolute certainty of sale. In this connection, the publication of Bulletin No. 38, 'Co-operation and Fruit Growing,' of the Dairy and Cold Storage Commissioner's series, is timely. This bulletin contains specific information with reference to the formation of co-operative associations, as well as the general principles which underlie their successful operation. It points out how these small orchards may be handled successfully, proving not only good money-makers but, at the same time, attractive features in the home life."

Bulletin No. 38 may be obtained free on application to the Publications Branch, Department of Agriculture, Ottawa, or to the Fruit Division, Dairy and Cold Storage Commissioner's Branch, Ottawa.

## Growing Cucumbers.

To produce cucumbers profitably, says a Michigan agricultural leaflet, by W. Postiff, requires a location near a good-sized town or a salting station, and where enough help to do the picking can be secured. If planted on soil that is inclined to be light and also deficient in humus, the yield may be shortened unless rain is plentiful during July, August and September. If planted on heavy clay, the plants may suffer in a wet year from the soil becoming hard and packed, caused by tramping while picking the cucumbers. A clay loam that is well supplied with humus or decayed vegetable matter is very satisfactory. If it is tile drained, so much the better for at picking time, one must get on the ground to pick no matter how wet the soil may be.

A clover sod plowed early, worked down and harrowed occasionally until planting time, makes a good seed bed. Timothy sod handled in the same way is also suitable if it is not too badly infested with cut worms. In fact, any soil intended for cucumbers should be plowed early, and kept well worked till planting time. Such a method of handling pays for several reasons:

It helps rid the soil of weeds. Keeping the soil well worked conserves moisture and enables the seed to germinate, no matter how dry the weather may be at planting time. Early plowing and frequent harrowing will put the soil in such a physical condition that it will not pack and bake after every rain. It will become loose, mellow and friable; rain falling upon it will drain away, leaving it in practically the same condition as it was before the rain, while a rain upon freshly plowed ground is quite likely to cause a crust to form. If seed has just been planted, or if the young plants are just up, such a crust will be very injurious.

Early plowing and frequent harrowing makes the plant food in the soil more available, and plant food must be in solution before plants are able to use it.

Cucumbers are not hard on the soil, but to be a successful crop the soil should be quite rich. They are quick growing plants, and have not the time to rustle for a living, nor can the grower afford to have them do so. The thing to do is to provide them with an abundance of plant food so that they may grow, as it were, at high pressure. On the average land, they should not follow sugar beets, cabbages, potatoes or oats, unless the land has, in the meantime, received a liberal application of barn-yard manure or commercial fertilizer.

No fertilizer material gives better results than well rotted stable manure. If it is plentiful it may profitably be spread broadcast and plowed under, but if the supply is limited, it will be most economical if applied in the hills.

Unless manure is to be used in the hills, a corn marker with teeth six feet apart is all that is necessary to mark the rows. Six by four feet is the ordinary distance when planting in hills is practiced, and if it is desired to cultivate both ways, simply mark both ways and plant at the intersections of the marks. When manure is to be used in the hills, mark in the same way, but the rows six feet apart will have to be furrowed out with a walking plow. Throw a forkful of manure in the furrow at each intersection, and cover with a hoe after having first packed the manure with the feet or the back of the hoe. The manure should be put in the hills as early as possible, but in harrowing the soil after they are made and before planting, care should be taken not to entirely fill the furrows so as to obliterate the rows.

When a large acreage is grown, the practice is to double furrow the row, that is, plow a dead furrow every six feet. In this furrow distribute the manure with a manure spreader, using the attachment to narrow up the discharge. Cover the manure by plowing a back furrow upon it. Roll as soon as possible, and drag the ridge with the rest of the field, dragging lengthwise of the rows. The seed may be planted in hills upon this ridge or a garden drill may be used, and a continuous row sown. There should be a plant every two or three inches, and these should be thinned to a foot or eighteen inches as soon as all danger from the cucumber beetle is over. A continuous row has some advantages over hill planting, but if the ground is inclined to crust, the young plants will have more difficulty in breaking through than if they were planted in hills. The ground is more evenly occupied, and the roots are not so crowded. Such a row is also easier to pick especially if, when the vines have run about two feet, they are placed at right angles to the row. Cucumbers should be cultivated to destroy weeds, and to maintain a dust mulch. Any cultivator suitable for corn will do the work, but the teeth should be set more shallow for cucumbers than for corn. It is better not to work too close to the plants with the cultivator, and if the soil crusts and there are weeds in the hills, they will

need one or two hand hoeings. Maintain a dust mulch.

Boston Pickling, Chicago Pickling and Snow's Perfection are the three varieties that are usually grown under contract. They are prolific yielders, producing their cucumbers in clusters. When cucumbers are grown to be sold direct to the consumer or to a retail grocer, some strain of the White Spine is generally grown. This is a prolific variety which yields fine, straight cucumbers, but which are a little too large in diameter to be suitable for bottling. This is also a good variety to grow when it is desired to produce early "slicers." Slicers are the large cucumbers suitable for slicing, and are eaten fresh.

Some of the Long Green strains will produce "slicers" of better quality, but not so early in the season as White Spine. They are freer from seeds and the flesh is firmer, and, when well grown, they will compare favorably with hot house cucumbers.

Usually cucumbers are planted about June 1st and picking will begin the latter part of July or the first of August, depending upon the thriftiness of the vines. The first two or three pickings will hardly pay for the gathering, but it is very necessary to remove them for the good of the vines. The fewer the cucumbers that are allowed to become full brown, the better will the vines bear. Very few growers realize what a bad effect it has upon vines to allow the cucumbers to become over-grown or the injury that may be done in careless picking, which results in tearing and breaking the vines. In average growing weather, forty-eight hours may intervene between pickings, and, later in the season, seventy-two hours may not be too long. One acre of vines that is kept well picked will produce more bushels, and, therefore, a much greater net profit than will two acres of as equally good vines which are only indifferently picked.

There are three or four insects which feed on the cucumber vine or its fruit. The striped cucumber beetle (*Diabrotica vittata*) attacks muskmelons and early planted cucumbers, but does not work extensively in the main or late crop plantings. Most growers plant four or five times as many seeds as they desire plants, which allows the beetles to take some without ruining the stand. If the beetles work too badly, the vines may be dusted, preferably while the dew is on, with nine parts air slacked, or still better, hydrated lime and one part arsenate of lead powder. Paris green should not be used, as it may burn the vines. Coating the plants with a spray of six pounds arsenate of lead paste to fifty gallons of water, makes them distasteful to the insects.

There is a plant louse which attacks cucumber vines. It is a sucking insect, so cannot be destroyed by applying a stomach poison, but must be killed by a contact spray if killed at all. If the first few hills affected are buried, vines and all, it will do much to control the pest. Keeping the vines thrifty is also a decided help, since the louse always prefers to feed on sickly and stunted hills. Eight pounds of whale oil soap to forty gallons of water makes a good spray, usually the enemies of the louse will hold it in check.

The Downy Mildew of the cucumber is a fungous disease (*Plasmopara cubensis*) which is most prevalent during a season of excessive rainfall, like the one of 1912. It is first noticed as small brown spots on the oldest leaves. These spots increase in size until nearly the entire leaf is affected, becoming dry and dead. The injury results from the plants losing more or less of their foliage. Spraying with a dilute solution of Bordeaux mixture, made of two pounds of copper sulphate and four pounds of lime to forty gallons of water, will control the disease to some extent, but the treatment must be thorough and is preventive rather than curative. Commence spraying when the vines have runners a foot long, and spray once a week until it is impossible to drive through the rows. In an average season, the loss from the mildew has not been serious, even when spraying is not practiced.

To make a success of growing pickles, observe the following conditions: Fit the ground thoroughly, use enough well rotted manure to produce thrifty, strong-growing vines; plant intensively rather than extensively; and aim by clean picking to prevent the forming of large cucumbers.

## Fruit Growing in Alaska.

At the Sitka (Alaska) Experimental Station a hardy strawberry has been produced by crossing the cultivated variety with a wild native Alaska plant. The new variety appears to be well adapted to the climatic conditions of that region and gives far greater yields than either of its parents.

In the apple orchard which was planted ten years ago, ripe fruit was produced for the first time in 1911, possibly due to the exceptionally fine weather during September and early October