BROODING METHODS

(Experimental Farms Note)

If less than 100 chicks are to be brooded the old natural means will answer: if more, the artificial means are to be preferred.

NUTURAL BROODING

Some hens never make good mothers. If the sitting hen is not suitable, transfer some of the eggs before hatching to one that is, if you have her.

Free from lice: Treat the mother hen for lice several times before the chicks hatch, and make sure there are no mites.

Double up: Have the chicks come out several broods at a time, and double up the chicks, giving 15 to 18 to each hen.

Cooping: Small "A" coops to accommodate one family are good. Where hens agree, larger coops or colony houses may serve the purpose for several hens and their broods. Keep the broods away from the general flock. Move the coop frequently. Don't let the hen out when the chicks are small, and especially early in the morning.

ARTIFICIAL BROODING

Of artificial brooders there is quite a variety both good and bad. Any brooder should provide a temperature of 90 to 100 degrees under the hover. It should have good ventilation, no draughts, and it should be easily cleaned.

Individual brooders: So called out-door brooders are not always satisfactory, being too small and lacking ventilation. Indoor brooders are better, as the house accommodation can be made to suit conditions. Where there is too much wind or the lamp outside, try it inside the coop. The indoor electric hover gives the best of satisfaction. Cold brooders are satisfactory, if not used too early and the number of chicks is limited.

Emergency brooders: There are times when even the best managed plant is short of brooder space, and emergency quarters have to be arranged. Sometimes the services of several broody hens can be utilized at such a time. This, however, cannot always be depended upon, and a lantern or a hot water bottle placed in a box and covered over with sacking will sometimes help one over a hard place. Small coal-oil stoves and electric heaters may also be used for this purpose, or one can resort to the cold brooder.

Room or stove brooders: One of the best brooders for large quantities of chicks, and especially when the chicks are all same age, is the room or stove brooder. This is a small stove which burns coal and is automatically regulated. For brooding on a fairly large scale, not too early in the year, these brooder stoves are very satisfactory. They can be placed in an ordinary colony house that is used for other purposes during the rest of the year. There are also stoves of this description which burn oil instead of coal. We have tried both kinds. The oil is quite satisfactory, except for the extra cost of fuel.

Pipe brooders: For larger plants and earlier hatching the pipe brooder is probably the most satisfactory. It is more expensive to install, but the heat can be so regulated that the best of conditions are available. There are a number of systems of pipe brooders on the market, most of which are satisfactory providing the bottom heat is not too great.

CLEANLINESS ABOVE ALL THINGS

In brooding, whether natural or artificial, absolute cleanliness must be observed. Brooding quarters cannot be kept too clean, and there is nothing that will kill off a bunch of young chicks more quickly than lack of cleanliness.

Healthy chicks, put into clean brooders, fed judiciously, should live. This year, more than ever, care should be taken that the chicks which are hatched should be given every chance. Provide them with suitable brooding quarters, feed sparingly on dry feeds, and keep everything scrupulously clean.

POINTS ON THE CULTIVATION OF SOME VEGETABLES MOST DIFFICULT TO GROW

(Experimental Farms Note)

Cauliflower, although one of the most delicious vegetables, is one of the hardest to grow in many parts of Canada. It damps off easily in the hot-bed, is often badly affected by root maggot, and frequently does not head well. In raising plants, transplant them from the seed row, pot, or flat to a distance of about two inches apart each way as soon as possible after the seed germinates. This permits a freer circulation of air between the plants and makes the danger of damping off much less. Root maggots are bad nearly every year in many places in Canada and often prevent practically all the plants from heading. Eggs are laid on the ground near the plant which soon hatch into maggots which eat into the roots and thus cut off the supply of sap. To prevent injury from these, a tar felt disc should be placed around each plant close to the ground at the time of planting. It will be too late otherwise. Full particulars in regard to the use of the disc can be obtained from the Department of Agriculture, Ottawa. If the first planting of cauliflower is a failure, a second planting should be made, as cauliflowers are much easier to grow in late than in earlier summer, as the maggots are not so troublesome at that time and there is usually an abundant supply of moisture. If the soil in which cauliflowers are growing is dry, they will not head well, as they need lots of moisture and must be kept growing without a check from start to finish.

The onion is another rather difficult vegetable to grow. It requires a long season of growth, and very often the seed is sown too late; and if the summer is cool and wet the onions will not ripen and will run to thicknecks. The seed should be got in the ground as early as possible in the spring, so that the onions will mature while the warm weather continues, thus ensuring a thorough ripening and curing of the bulbs. To hasten the development of bulbs, especially in places where the season is short, young plants are set out instead of the seed being planted. Onion sets will ensure good bulbs also, where the warm season is short. Root maggots often do much harm in the onion plantation. Watering the rows every four or five days with hellebore and water, in the proportion of two ounces of hellebore to one gallon of water, while the insects are most troublesome, will control them to a considerable extent.

Except in the warmest parts of Canada melons require considerable care to ensure the ripening of many of them. The warm season is too short. To overcome this, melons should be started in hot-beds and kept under glass until there are warm nights in June or even July. Melons require heat below and heat above, hence the necessity of keeping the soil warm by having a good bed of manure. They will not succeed in cold soil even if the air above ground is warm. Melons require a plentiful supply of moisture in the soil to give the best reaults. Much watering, however, should be delayed until the ground is sufficiently warmed up so that heavy watering will not cool it too much.

Brussels sprouts do not develop well in hot, dry weather and, unless the autumn is a long one without severe frost, they are not satisfactory. It is important, therefore, to plant varieties that will be most likely to develop where the season is short, and the dwarf ones have been found the most satisfactory.

"I am unworthy of you," he murmured "Stick to that idea," said the girl, "and we'll get along fine."—*Louisville Courier-Journal.*

TREATMENT OF FRUIT TREES WHICH HAVE BEEN INJURED BY MICE OR RABBITS

(Experimental Farms Note)

As mice or rabbits have, doubtlessly, injured many trees in Canada during the past winter, the following information is given in regard to the treatment of the trees in order to save them. If a tree is badly girdled by mice or rabbits it usually dies if left untreated. If, as soon as the wound is noticed, it is cleaned and covered with grafting wax or some paste, such as sulphur, cowdung, and clay, and wrapped with cloth to exclude air and prevent the wood from drying out, there is a possibility of saving the tree if the girdle is a small one, as the sap which rises through the wood will continue to do so, and returning through the inner bark in an elaborated condition will cause growth to be made all around the upper part of the wound, and if the latter be not too large there is a chance of its healing over. If, however, the wood becomes dry before the bandage is put on, the tree will almost certainly die, although it may continue to grow throughout the season. When the wax and bandage are applied the tree should be headed back considerably to lessen the amount of transpiration of moisture, as there will not be as much sap rise as if the tree were uninjured, and the wood will thus dry out sooner than if it were headed back. If the girdle is near the ground, in addition to covering the injured part with wax or cowdung and clay, it is advisable to mound up the soil about the tree to cover the wound and thus help to prevent the wood from drying out. The mound should be up about six inches above the wound and be about two feet across at the base.

Girdled trees are frequently saved, and more surely saved than by the above method, by connecting the upper and lower edges of the girdle with scions, which are inserted about an inch apart all around the trunk. This is known as bridge grafting. The more scions that are used the more quickly they will grow together and form a new trunk, but two or three scions successfully grafted on a small tree will carry enough sap to keep the tree alive. A slanting cut is made at each end of the wound in the uninjured wood in which the ends of the scions are to inserted. Strong, plump scions of the previous season's growth—not necessarily from the same tree, nor even the same variety—cut a little longer than the distance between the slanting cuts, are made wedge-shaped at each end. They are made a little longer than the distance between the cuts in order that when inserting the ends into the cuts it will be necessary to bend them, and thus have them under pressure which helps to keep them in position. After inserting, some of the inside bark of the stock should remain in contact with the inside bark of the scion, as it is here, or at the cambium layer, where union takes place. As soon as the scions are all placed, the wound, especially about the ends of the scions where inserted in the stock, is covered with grafting wax. The ends are also at the same time bandaged with a piece of sacking around the trunk to aid in keeping the scions in place and to exclude the air. The tree should then be well headed back. The scions, if properly made and inserted, should soon unite with the stock and then carry the sap to the top of the tree.

One of the most satisfactory methods of utilizing the badly girdled tree is to cut it off close to the ground and insert a scion of some good variety. This graft should grow at least three feet in height the first season and make a nice young tree.

A young tree may sometimes be saved when the girdling is well above the graft by cutting the tree back so as to remove all of the injured part. Under such conditions young trees will usually make new growth and the strongest shoot may be selected to form a new trunk and top for the tree. This method is not usually very satisfactory if the injury occurs more than two years after the tree has been planted.

NEWOUNDLAND CALLS UP MEN

St. John's Nfld., April 27—The Legislature opened on the 23rd. At the preliminary sitting held at noon, Mr. William Higgins, member for St. John's East, was elected Speaker of the Assembly, succeeding Mr. John Goodison, member for Carbonear, who accepted public office some months ago.

In the afternoon the Governor officiated. His Speech from the Throne announced bills for enacting selective conscription; extending the life of Parliament; and raising a local loan for war purposes. The conscription measure is based in its main principles on the Canadian measure, but renders all men from nineteen to forty, unmarried, or childless widowers, liable for military service save for certain limited exceptions.

All men liable are divided into four classes each covering five years of the twenty, and the youngest classes are to be called first. The first category is expected to yield one thousand men. The only exemptions are men who have served in the Empire's naval or Allied military forces, clergymen, and those exempted under the Military Service Act.

THE MANURIAL VALUE OF CLOVER

(Experimental Farms Note)

The amount of semi-decomposed vegetable matter or humus present in our cultivated soils—sandy and clay loams—bears an intimate relation to their productive capacity. Humus not only fulfils the mechanical function of rendering soils porous and more retentive of moisture, but furnishes also the essential medium for the activities of the bacteria which liberates plant food in the soil. Furthermore, humus constitutes the chief natural source of the soil's nitrogen supply.

Applications of barnyard manure may be considered the chief means employed in the maintenance of humus in the soil. Supplementary means are the growing and ploughing in a green cover-crop such as rye, buckwheat, rape, vetches, or clover. Of these, clover—where conditions are conductive to its satisfactory growth—is generally to be preferred. By means of its deeply ramifying roots, clover disintegrates and aerates the lower soil layers and brings up therefrom plant food supplies unattainable by other more shallow rooted crops.

An additional advantage which clover, in common with all members of the legume family, possesses, is that of its ability to assimilate the free nitrogen of the soil atmosphere by means of minute bacterial organisms living and operating in small nodules on its roots. Thus clover gathers the greater part of its nitrogen from the air, and its phosphoric acid, potash, and lime largely from soil depths beyond the reach of the roots of ordinary crops, consequently enriching the surface soil with these constituents for the benefit of succeeding crops.

How does clover compare with manure as a fertilizer? Barnyard manure of good average quality contains approximately 10 pounds nitrogen, 5 pounds phosphoric acid, and 10 pounds potash per ton. Therefore 10 tons of barnyard manure would furnish about 100 pounds nitrogen, 50 pounds phosphoric acid, and 100 pounds potash.

Experiments conducted at the Central Experimental Farm, Ottawa, have shown that a vigorous crop of clover will contain, at a moderate estimate, in its foliage and roots, from 100 to 150 pounds nitrogen, 30 to 45 pounds phosphoric acid, and 85 to 115 pounds potash per acre.

A good crop of clover from one acre if it were turned under may, therefore, be deemed equal, in fertilizing value, to an application of ten tons of barnyard manure.

In the experiments referred to, 10 pounds per acre of common red clover was seeded down with various grain crops, while adjoining plots were seeded with grain alone. In no instance did the growth of clover depress the yield of grain with which it was seeded.

In the following year, fodder corn (Leaming) prodduced 8 tons, 480 pounds, more after wheat with clover than after wheat without clover. After barley and oats, increases of 11 tons, 1280 pounds, and 5 tons, 1440 pounds, respectively, of corn, per acre, were obtained on the clover plots.

With potatoes the results were equally striking. After wheat, barley, and oats with clover the increases were, respectively, 43 bushels, 20 pounds; 29 bushels, 40 pounds; and 24 bushels of potatoes, per acre, as compared with the yields from adjoining plots without clover.

The full benefits from clover will as a rule be noticeably persistent for several years.

On soils which are deficient in lime, a satisfactory growth of clover will be encouraged by an application of, say, two tons of ground limestone per acre. As a phosphatic fertilizer, designed to benefit both the grain and the clover, 300 pounds of superphosphate or 500 pounds of basic slag, per acre, may be recommended.

Unleached wood ashes contain, on an average, from 4 to 6 per cent. of potash, about 2 per cent. of phosphoric acid and from 20 to 30 per cent. of lime. They are eminently suitable as a fertilizer for clover and, when procurable at a reasonable price, should be applied at the rate of from 25 to 40 bushels (1000 to 1600 pounds) per acre.

"So you got mad at him for kissing you?" "No; I got angry at him for saying he was sorry he did it, when I pretended I was angry."—*Houston Post.*

"How did you first learn that you loved me, sweetheart?" "I found that I got very angry whenever I heard anybody calling you a brainless idiot."—*Puck.*