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period, or the early period of infection of May 15th to 17th, and were covered with the spray. Thus the new crop of spores that in earlier sprayed or in unsprayed orchards developed on the unprotected leaves and bloom was here prevented and when the next period of wet weather came, May 21st to 23rd, there was not the same abundance of spores to inoculate the fruit and leaves. His third spraying was put on the early apples, May 23rd, I think, and on the other May 28th. This may not seem very convincing, but the fact that the fruit on his check trees were almost totally scabby shows that he got the spray on at the right time to prevent the scab.

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No blame, in my opinion, should be attached to the imajority of those who failed to control scab in these districts. The peculiarity of the season caused a long period of fully three weeks, twice the ordinary period, to elapse in most districts between the opening and falling of the bloom and in this period the scab got a start. I have no record in my own experience of a season of this nature, one where thorough spraying; at the recommended times failed to control scab. Jas. E. Johnson, of Simcoe, told me that in all his previous experience he had never seen a similar case, or a failure to control the scab. It is not likely we shall have another spring like this for many years.

THE SPRAY USED NOT TO BLAME.

So far as I can see, there is no reason to blame lime-sulphur for the scab. I doubt very much whether the same careful spraying with Bordeaux would have given better results on the That lime-sulphur can and does control whole. scab when put on before the spores get a chance to germinate has been proven this year by the fact that it was this mixture that was used in all the really clean orchards I saw. I have tested this mixture on all sorts of trees and in various districts of the Province .for four or five consecutive years, including the present and have never got less than 95 per cent. of scab-free apples, even on Snow trees. Bordeaux has not done any better than this. I have no brief for lime-sulphur. Let the man who prefers Bordeaux mixture, use it if he wishes.

Many think that a fourth spray, about two weeks after the blossoms fell; would have helped greatly to control the scab this year. I do not think so, except in the districts where the weather during the first half of June was wet. By that we should never give a fourth application in June 13th the days were quite hot and in hot weather, unless exceptionally wet, we get no development of scab. I do not mean by this that we should never give a fourth application in June. It all depends on the weather. If the prospects about eight or ten days after the Codling moth spray is done point towards cool, wet weather, it will be very advisable to spray at once. Do not, however, spray apples when they are in about this stage of development with lime sulphur on a hot, calm day, as many of those exposed to the sun's rays will be badly sun-scalded by the spray. This forms a large, hard,

brown area on the side exposed to the sun. In late August and September we occasionally have another outbreak of scab, but only if the weather is wet and cold as it was last year. In such seasons a spray applied as soon weather begins in August and, if necessary, repeated in September, will save great loss, especially to varieties very subject to scab. As 1 intend to discuss apple scab more fully at the fruit growers' meeting in Toronto during the Horticultural Exhibition, I shall be very pleased to get any data readers of this article can give me in the meantime and to receive their criticisms and questions. L. CAESAR.

THE FARMER'S ADVOCATE.

to that used in baskets. This is stood around the tree and made fast with a string. A little dirt banked around the bottom will help to make it firm and less likely to collapse. The wire would not score as much protection against the peach tree borer. The veneer is sometimes used, but ordinary papers are more in vogue. Banked at the bottom with soil and tied at the top, newspapers will prevent the insect laying its eggs on That is an operation to be put into the tree. execution in the spring, but it would be a good idea to save up a quantity of daily newspapers for that purpose. The prevention of girdling by mice or rabbits is timely at this season, and if any damage exists it should not be disregarded.

POULTRY.

Sprouted Oats for Winter Green Feed.

The feeding of green food to poultry in winter has been much practiced by experienced poul-The chief function of such food is probtrymen. ably largely in the nature of a digestive stimulant rather than as an addition to the actual food constituents of the ration. In recent years sprouted oats have been very widely used as a green food for poultry. Experience at the Maine Experiment Station indicates that in order to make a satisfactory product the oats must be grown very quickly and this requires plenty of warmth, moisture and sunlight. Where the right combination of these factors can be gotten, oats may be satisfactorily sprouted for poultry-feeding purposes.

At the Maine station use was made of a small room in connection with the station poultry plant. This room is provided with a three-inch pipe connected with the water-heating system.

To provide a place in which to sprout oats, the back part of this room was partitioned off as oats grow the flats are moved to different posi-



Quack! Quack! Quack! Ducks delight in such pools.

a closet, inclosing the three-inch hot-water pipe. sure that all the birds will have an opportunity

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contend is the matter of mold. There is always a tendency for the cats to mold in the sprouting The only way in which it has been process. found possible to control this mold is by thoroughly cleaning the flats after each time when they are used. After a flat has been emptied it is thoroughly scrubbed with a 50 per cent. solution of formalin (that is, equal parts of commercial formalin and water). This scrubbing is very thoroughly done and sufficient formalin is used to soak the flat thoroughly. With this precaution, and if the oats are further made to grow rapidly, the mold does not give any trouble whatever.

The actual method of sprouting the oats is as follows : Clean and sound oats are soaked in water overnight in a pail. The next morning flats are filled to the depth of about two inches' and put into the sprouting closet. At the beginning freshly-filled flats are placed near the top of the closet so as to get the maximum amount of heat, and in that way get the sprouts started at once. During the first few days, until the sprouts have become from a half to three-quarters of an inch long, the oats are thoroughly stirred and raked over at least two or three times during the day. This stirring insures an even distribution of moisture throughout the mass of oats in the flat. After the sprouts become sufficiently long so that the oats form a matted mass it is not desirable to stir them, or to disturb them in any way. Stirring at that time will break off and injure the sprouts and the green portion above the mass will not grow so well. The matter of prime importance in growing the oats successfully has been found to be sufficient moisture. The tendency at first is to use too little moisture. The oats should be kept quite wet. The aim here is to keep condensed moisture standing on the glass doors which form the front of the closet at all times. In order to do this it is found necessary to wet the oats three times a day. This is done with an ordinary greenhouse sprinkling can, with very little expenditure of time or labor. As the

tions in the closet. The taller the green material gets the nearer the flats are moved toward the floor, because the growing grain then needs less heat. This procedure leaves the desirable places in the closet for the grain just beginning to sprout, where high temperature is needed.

The oats are fed when they are from four to six inches in height. They are fed at the rate of a piece of the matted oats and attached green stalks about six or eight inches square for each 100 birds per day. In feeding, this six to eight inch square piece is broken into smaller pieces and scattered

O. A. C., Guelph, Ont.

Fortify Trees Against Vermim.

It is not uncommon to have the most healthy trees in the young orchard completely ruined by mice or rabbits during the winter months. The bark of the young peach or apple tree is very ap-petizing to this kind of vermin in cold weather, and damage from them is sometimes quite ap-In certain instances cover crops have preciable. been impossible on account of the harbor they furnish for the mice.

The rabbit does not do all his damage with his teeth. Oftentimes it reaches for the small under branches, and, in so doing, steadies himself against the trunk with his paws. His slipping down and climbing up often injuries the tree more than his chewing amounts to. Some growers have found it useful to cut off some of the tender twigs that would naturally come off with next spring's pruning and throw them on the ground or snow. This serves to attract their attention from the tree, as they get their requirements from the slender shoots upon the ground. A small piece of closely woven wire bent around the tree will last for several years and costs about seven cents per tree. This does not cost so much when one considers it extended over a number of years. Perhaps the most generally advised protective agency is veneer, similar closet consists of glass doors, made from regular storm-window sash, hinged so as to swing open as an ordinary door does. These glass doors face toward the south side of the building, which has a window directly in front of the doors. Throughout the day the closet gets plenty of light. The dimensions of the sprouting closet are as follows : Length, nine feet three inches ; depth, two feet six inches ; height, six feet.

The place of shelves in this closet is taken by large, square greenhouse flats, made of seveneighth-inch stuff. These flats have the following dimensions : Length, two feet five inches (inside); breadth, two feet five inches (inside); depth, two inches (inside).

The length of the closet is such as just to accommodate three tiers of these flats, which slide on supports so they can be moved in or out or turned around to suit the convenience of the operator and the needs of the sprouting grain. These flats sit 15 inches apart (that is, vertically). There can be accommodated four rows of flats, three in a row, in the closet at one time. - A number of holes are bored in the bottom of each one of the flats in order to drain off the surface moisture which comes with the wetting of the oats. .

The advantage of the closet arrangement described is that it enables one to control the three necessary factors of heat, moisture and light quite completely. In this closet it is easily possible to maintain a temperature which does not run at any time below 70 degrees. The closet being perfectly tight, it is possible to saturate the air with moisture quite easily and virtually convert the whole space into a great moist cham-With this arrangement one is able to grow oats from four to six inches high in one week's

to get some. Fed at the rate indicated, this material has never caused any bowel trouble among the birds.

It should be clearly understood that the purpose for which green sprouted oats are find is their tonic and stimulative influence on the digestive organs. They are not fed for the food value of the oats themselves. If one wishes morely to feed oats they can be most economically not sprouted. The point of sprouting is to furnish fresh, succulent, green food during the winter months.

FARM BULLETI

Market Timothy Seed Early.

Large shipments of American timothy seed of the 1912 and 1913 crops are being handled by the Toronto market. It is probable that the Canadian supply for the ensuing season will be approximately 50% of the 1912 and 50% of the 1913 crops. In an average year nearly three-quarters of the timothy seed used in Canada is obtained from Chicago, and is American grown. Because of the unfavorable weather in Western Quebec and Eastern Ontario last spring, little timothy seed was saved this year. Considerable has been held over and is still in the farmers hands; their knowledge of local conditions induce them to hold out for higher prices.

The farimers of Eastern Canada do not, as a rule, market their timothy at the most oppor-During the last few years retail tune time. dealers in the Ottawa and St. Lawrence Valleys have purchased their supplies from agents of American firms before any considerable quantity time. The only difficulty with which one has to ago farmers could thresh their seed in April and of local seed had been threshed. Seven years