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#### THE FARMER'S ADVOCATE.

40 gallons of water. Apply this spray to the whole orchard, in warmer districts about July 1 and in cooler localities about July 10 or 12. Another spray of the the same kind should be given in two weeks time if the weather has been rainy, but if it has been dry the spray may be delayed another week. These two sprays will control the worst orchard but spraying for one year only is not sufficient because a certain percentage of the pupae remains in the soil for two years instead of

The cherry fruit flies are very similar to the apple maggot and are the worst cherry insect pest in Ontario. They yield readily to exactly the same kind of treatment as is given for apple maggot. When spraying for this pest a fungicide may be used with the poison in order to control brown rot.

The pear and cherry slug has been bad for the last two years, but is easily controlled by regular spraying. Its chief injury comes through defoliation of the trees before the wood has ripened so that they are very easily killed by a severe winter following. Many hundred of cherry trees have been pulled out recently because of injury from this cause. Sometimes defoliation occurs before the fruit is ripe. believes that all cherry growers should spray cherries Professor Caesar regularly, the same as apples and he doubted if anything they could do would pay them better. The first spray, just before or as the buds are bursting, should not be omitted, but for sweet cherries Black Leaf 40 should be added to the lime-sulphur to kill aphids. Lime-sulphur is used 1 to 7 or 8 where San Jose Scale is present and 1 to 20 where it is not. Use Bordeaux for later cherry sprays except on sweet cherries where lime-sulphur is much safer. The second spray comes when the little fruits are almost free from the shrivelled blossoms and the third spray just before the fruit begins to turn red. Use a posion with either spray to control slugs, fruit flies and plum curculio. One pound of arsenate of lead or arsenate of lime may be used as for

#### PEACH DISEASE.

Leaf curl is a very serious disease on peaches and frequently causes enormous damage, often due to the fact that growers cannot get the spraying done soon enough in the spring because of weather conditions. The only new thing in the control of this disease is the fact that the experience of the last 3 years has shown it possible to control peach leaf curl by fall spraying as well as by spring spraying.

The situation with respect to Yellows and Little Peach is satisfactory in most townships of the Niagara district, but in two townships-Grantham and Niagara the appointment of inspectors has been neglected so that there is a good deal of infection in these townships. There have already been three outbreaks of yellows in Ontario and if conditions were again to become favorable, another serious outbreak might easily occur.

#### THE STRAY GUN & BOON.

The spray gun has been a great boon to the fruit grower in the control of San Jose Scale," said Professor "One must not stand on the tank when spraying for San Jose Scale, because it is impossible to do a thorough job. It is impossible to reach the under sides of the widespreading branches and besides, the driver may easily drive too far. I prefer 30 or 35 feet of hose and like to stand on the ground." All makes of spray guns are not equally good, but on the whole they have been of great value. A spray gun saves one man because one gun will do as much as two spray rods and four nozzles. It is cleaner, takes less mixture and does away with the need of a tower. It requires other spray outfit and has one drawback in that if spraying with a coarse nozzle close to the tree it is almost sure to cause considerable burning. It is adapted only for power outfits, although there new and fairly satisfactory gun now on the market that is adapted for hand spraying outfits. The best practice is to stand well back from the tree and use a fine mist for the parts of the tree nearest you.

no expense from a few pieces of lumber and an old window sash. The following size of hot bed is large enough for ordinary farm use

On the South side of a building with a good sunny exposure, dig a pit six feet long and three feet wide, and about one foot deep. Board up the back on the (North side) about eighteen inches high and leave the front about six inches lower. This will incline the sash toward the South. Then close in the ends. Tramp in firmly horse manure that has lain in a pile for a short time until it is about six inches above the level of the ground. Over the manure spread about four inches of good garden soil. Nail cleats around the frame to support the ash. An old window sash with glass may be used. It is advisable to measure the sash first and then make the frame to fit it. The outside of the hotbed should be well banked with manure. Do not plant the seeds in the hotbed at once, but wait for two or three days till the intense heat, generated by the decomposing manure, has subsided. It would be well to hang a thermometer in the hotbed to take the temperature of the soil. When the temperature drops to about  $80^{\circ}$  F. the seeds may be planted. To facilitate the work of transplanting most of the seeds, like cucumpers, melons, tomatoes, may be planted in containers. These can be made from strawberry boxes or tin cans with the bottoms melted off, filling them with good garden soil. Plant cabbage seeds in drills in the hotbed.

On warm sunny days the sash of the hotbed should be lifted off and also for a short time each day for ventilation. Throw an old rug or piece of burlap over the hotbed on a very cold night. Water the plants in the morning with a watering can. This gives them a chance to dry off before night and so lessens the danger of freezing. The plants may be transplanted to the graden in the first week in May, or as soon as all danger from frost is over. Dufferin Co., Ont.

N. E. S.

# POULTRY.

## Eggs That are Fertile Will Hatch.

Not long ago a poultry keeper asked us if we knew how to tell a fertile egg before it was put in the incubator for hatching, and went on to say that hatching chickens was a very discouraging business. A friend of his had just had a hatch of five dozen come off, and the net result of it was eight chicks. A few days ago, while at the Ontario Agricultural College, we went over to the poultry department and asked Professor W. R. Graham what he knew about the hatchability and fertility of eggs. "Well," he said, "we have a bunch of eggs hatching now in a day or two, but I wouldn't venture to tell you the percentage of live chicks we will get from them. However, there are some things which always look bad, and one can guard to a certain extent against poor hatches. There are several factors that influence the fertility and the hatchability of eggs, among which are the age of the bird, her breed, breeding, mating, feeding, environment and condition, as well as the season in which the eggs are laid and the care that is given them after they are laid. The difficulty of securing good hatches is a very real and serious one, and the most we can do is to put into practice the result of observation and experience. We always tell those who buy eggs from the O. A. C. not to expect more than forty-five per cent. of a hatch. Moreover, many poultrymen consider it necessary to et one pullet. This is based on the assumption that the number of live chicks hatched will be fifty per cent. of the number of eggs set, also that half the live chicks will be pullets and that the mortality among the live chicks will be twenty-five per cent. There will also be a little leeway for culling out some of the poorer pullets. At the College here we do get hatches that yield more than seventy-five per cent, of live chicks, and we do have mortality among the live chicks as low as ten per cent, or less, which means that under favorable conditions we get one pullet from three eggs. Many hatcheries charge five cents per egg for hatching, which means that where you get one pullet out of six eggs set, means that where you get one punct out of six eggs set, the cost for hatching a pullet and a cockerel is thirty cents, fifteen cents of which is the cost of hatching the pullet. It is easy to see that if you can get one pullet from every three eggs you reduce the initial cost of there be any confusion as to exactly what is meant by the terms 'fertility' and 'hatchability' it may be well ried to date that is reasonably sure of delivering both "Erv and harchability. The best information we is that, generally speaking, fertility is largely available of thing, while batching power seems p The a good percentage of natenarousy the points must supply all the factors leading to terrist set, in addition to the nacessary breading."

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The breeding of the idividual birds has also an influence. Some people think that hens that are bred for high egg production, and are thus themselves capable of laying a great many eggs in a given period, are likely to produce eggs low in fertility and hatchability. may be," said Professor Graham, "a very slight influence due to this cause, but in my experience it is not appreciable. So long as the hen is fed well enough and is physically fit her ability to produce should make no difference in hatchability." At this point the record of a difference in hatchability." At this point the record of a pullet was brought in, which showed that since last fall she had laid more than 150 eggs. This is an exceptionally good record, and the fact that eight of her eggs were set and all proved fertile, indicates that high egg-laying ability is not necessarily a detriment to fertility. Her mother showed the same ability to produce fertile eggs last year, and her sire's mother also. Other hens, whether good or poor layers, may produce eggs that are all infertile, even when bred to the same male, and kept under exactly the same conditions, Not only is this true, but it has also been the experience of Professor Graham that a pen of birds will go off in

hatching power for a short time, and then go back again, As regards the age of the birds, late-hatched pullets are the worst offenders. By late-hatched is meant the month of June, and probably nearly the whole month of May. Pullets hatched at these times ordinarily give more trouble in getting eggs from them that are reasonably fertile than those hatched at any other time. Not only is this so, but the eggs from these pullets that are fertile usually hatch poorly, and, in addition to this, there is possibly a higher mortality among the chicks hatched from these eggs. "Usually," said Professor Graham, "we do not care to breed from latehatched pullets, and do not care to recommend that others breed from them. The pullet I would like best to breed from would be a February-hatched pullet that would molt in December and January. A bird of this kind, after she has come back into laying, looks the best to me from the standpoint of the fertility and hatchability of eggs. Unfortunately, there are very few of these birds to be found-possibly there might be three hundred in the Province of Ontario, I would like to mate a pullet of this kind with a March or April

It is usually considered that the best kind of a mating is to mate yearling hens with March-hatched cockerels. This, however, is a question, the answer to which is not clear. "Our experience," said Professor Graham, "is that early-hatched pullets mated to earlyhatched cockerels will give the poultryman the best hatches and the best ferility, particularly early in the season." It is no good to mate one male bird with It is no good to mate one male bird with fifty females. Ordinarily, also, the older the male bird the fewer the females per male. females to one male is probably fair. An average of fifteen

One of the factors which influences the fertility of eggs is the season in which the eggs are laid. Ordinarily the best fertility and hatchability is secured in the natural breeding season, which occurs when the grass is green, the sun shines regularly, and when there are plenty of slugs and other natural feeds for them. In other words, the hens feel good at this time and have plenty of vitality. Although high-producing hens may produce good hatching eggs, Professor Graham thought that the eggs they would lay in May might show a considerable decline in hatchability, but he could not tell why. He also said he would not be surprised if-the hatchability of eggs goes down when production goes

#### **MARCH** 18,

endeavor to p exercise, so the Eggs for h

dark place, at five degrees F the albumen of should be rea one-third to after the shell hen. This ent osmosis, and the white will it will have t thinner. Thus kept in a dark of the white o sary in order breaking down active. Clean

explanation. good for a ma kept at a lowe storage of egg away from n that can happ quickly, and baby chicks a mold.

# FAR

#### The Onta Starts If anvone w

in the unique and its proba the fifteenth would surely unprecedentee ceremonious day, March 9 visitors' galle was struck; b packed and Outside, hund from getting the chamber to gather fas the next two crowds at leas occasion durin Government was character farmers and t with as much cated city cou Ministers who in the assemb since by eithe nothing by con

Of the cere the reason that tradition and ference and understood b of the degree a nation with theless equal which guides of the repres Majesty in The cloud o the Assembly understandal of the House spectability as would se Forms of pro person of Mr nominee of choice by Parliament, Government to the cause qualified him perform. The Spee Government is, of course. each sessio elected. In of the new Le previously selection, reading of t mony of t Governor n and read th indicated a-After ca connection w that the proparture from the Speech of the Prov ment, and subject the increases in t

### DUSTING NOT ALTOGETHER PROVEN,

Professor Caesar's conclusion regarding the general value of dusting seems to be that in a bad season in the apple orchard, dusting cannot be relied upon to give as good results as liquid spraying. In most seasons, if well applied, however, dusting will give satisfactory results against scab, codling moth and biting insects So far there does not seem to have been developed a satisfactory dust for pear psylla, San Jose Scale or aphids. However, dusting is a mighty good thing in large orchards and to help out in rush seasons when the spraying must be done in a short time. It saves a great deal of time, although the materials are expensive For large, old, trees dusting may be cheaper than liquid spraying, but for young trees it is usually more expensive. Professor Caesar's parting suggestion was that if one needed only one sprayer, get a liquid outfit

### Hotbeds for Farm Use.

EDITOR "THE FARMER'S ADD Almost every farm has its

the rush of other work the gardtill after seeding, and in some a of a reserved drill in the mangel or t. farmer leaves it to his city friends to tables the first vegetables of the season, of market.

To have early vegetables in a good game bed is indispensable. Only those who can appreciate its value. It can be made with Eacot according to professor to another to a Lence on the hatchability of eags. This is evide the fact that ordinarily a Leghern will optical ek by five or ten per cent. While this is the fact standard which the Leghern possesses ever the 1 勢

one hundred hens may lay from sixty to seventy eggs per day in April, and from then on lay fewer throughout May, June, July and August. Professor Graham's idea is that during these latter months the hatchability is possibly lower than when production is at its height.

The condition of the birds and the environment are very closely related and affect fertility to a marked extent. Damp houses, lack of air, and bad feeding, each tend to put the hens out of condition and influence the fertility of eggs adversely. It has been mentioned previously that Leghorns will normally out-hatch Rocks by five to ten per cent. So far this year this has not held true at the College, since the Leghorns have not done as well as the heavier breeds. There are two factors which Professor Graham thinks may account for this which Professor Graham thinks may account for this unusual condition. In the first place the Leghorn males were not so rigidly selected for hatching power, and in the second place it may be due to the iousing conditions of the Leghorns. They have not had quite so much fresh air, and because of the fact that they are a very active breed, this factor may mean considerable. In any case, a bird must be in good physical condition before the fertility and hatchability of eggs can be kept up.

Feeding is an important factor. "The birds should aid Professor Graham. "Care should be taken to hed them enough. Give them whole grain, with plenty of green stuff, such as cabbage or sprouted oats. byer hay and mangels, the latter especially, will ovide sacculence in the ration. It is a good plan, Such a mash should be supplemented by sour to drink, or, about fifteen per cent. of high-grade not give both milk and beef scrap at the same time. in a shes are supposed to reduce the fertility of eggs allse of a tendency to over-stimulate the egg-laying of the body. The effect of the wet mash, how depends upon the kind of a mash that is used. In that is sloppy and high in beef scrap, pepper, or at, has a tendency to reduce fertility more than introduces it is harder, however, to keep the hens be with a wet mash than with a dry one. One should