

ble for the large per cent. of infertile eggs that we get. We are, all of us, anxious to have the very finest male bird we can obtain, and often this very desire for fine quality is the undoing, if we are so fortunate (?) as to become the owner of a blue-ribboner of several shows. "What!" do I hear some of our first beginners say, "a first-prize male a failure in the breeding pen!" Yes, more prizewinners than we think are failures as breeders.

Perhaps the exposure incident to journeys to and from shows, confinement for a week at a time in the close quarters of the exhibition coop, often in an overheated room, and the continual noise and excitement of the show-room, may be responsible for impaired utility and loss of vigor. A more probable explanation of infecundity is the more or less close inbreeding by which many fine specimens are produced. Too often the winner is purchased at the scene of his conquest (some late show), and immediately taken to his destined place in the season's breeding pen, where great hopes center in the new purchase. No time is given him to recuperate, and great is the disappointment when so few fertile eggs are obtained from the fine pen. Again, the fault of infertile eggs may, by careful observation, be traced to some of the females in the pen. Some hens seldom lay a fertile egg, and, no matter how fine is the quality of such a Biddy, she should be sacrificed as soon as her failure as a breeder becomes known. A hen may produce infertile eggs, but through no fault of hers. It may be that crowded, unclean quarters are the cause of many infertile eggs, or eggs of weak germs, that fail to hatch. Females that are lice-infested cannot possess the strong vitality necessary for strongly-fertilized eggs.

In early spring, if eggs are not gathered very soon after being laid, they become so chilled that they will not hatch. A poor hatch may be caused by saving the eggs too long before setting them. Eggs hatch better by being set very soon after gathering them, but, if it is necessary, in order to obtain a sufficient number for the incubator, to keep some of them ten days or two weeks, they should be turned at least every other day, and every day would be still better, and kept some place where the temperature is about sixty degrees.

Often, at the close of a hatch that is anything but a success, we find, on breaking some of the eggs remaining, chicks just ready to break the shell, but, for some reason, they died before emerging therefrom. Many different explanations have been given for chicks dying in the shell, and I think various causes may be responsible for the untimely deaths. Often, at some critical time during incubation, the temperature in the egg-chamber runs up so high that the vitality of the embryos is so weakened that many of them have not strength to get out of the shell. I think opening the machine and keeping it open too long at a time, when chicks are hatching, often causes the death of unhatched chicks; and, because of such opening of incubator doors, many a would-be good hatch has turned out a failure. It is very natural for one to want to see how things are working out behind those incubator doors, but I believe we should restrain our longing and cultivate patience.

At the first testing of the eggs in the incubator or under the hen, the infertile eggs should be saved for the baby chicks, fed either raw or mixed with breadcrumbs, or boiled hard and crumbled up at meal time.

Some seasons the complaint of poor hatches will be quite general, and perhaps no one is able to give a reason for the many failures.

During the hatching season, the fowls in the breeding pens should have the best of care. They should be fed regularly, and a varied diet in which a germ food and meat in some form should be included. The droppings should be often removed from the house, and every precaution taken to prevent lice and mites from making life a burden to the fowls.

Water enters largely into egg formation, and is one of the requisites of good health, so should be given in clean vessels twice daily.

The breeding birds will keep in better condition, prove better layers, and a larger per cent. of eggs will be fertile, if the stock can have large, roomy yards in which are trees to afford shade. If it can be so arranged that each pen have two yards, one can be plowed up and planted to rye, oats or some other green food, while the birds occupy the other yard, the pen will prove more profitable. This last season we had abundant shade in our yards, and for their pleasant surroundings they furnished us abundant eggs.

LADDIE.

Any body can easily get eggs in January and February from any ordinary healthy flock of pullets, and from nearly any flock of hens. To force extra-early or heavy production is another matter, but rational treatment can scarcely fail to produce a moderate supply of winter eggs.

GARDEN ORCHARD.

Mushrooms.

1. What is mushroom spawn or spores?
2. From what and how is it originally produced?
3. Where and at what seasons can such productions be obtained (I don't mean purchased from dealers)?
4. How to distinguish between good and bad quality.
5. Having obtained the proper quality, how to proceed to raise mushrooms?

INTERESTED READER.

Mushrooms are propagated by spores and spawn, usually the latter. Spawn is the mycelium. It may be dried, and will resume growth when congenial conditions are given. It will keep for a number of years in a cool, dry place. Dryness is essential. This spawn may be secured from any place in which mushrooms are growing. The soil or manure containing the mycelium is broken into large lumps or flakes, and is planted in the desired place; the mycelium spreads through the bed, and in time bears the fruiting stage or mushroom. Formerly, the spawn was gathered as needed, but since about 1830 it has been made or produced as a commercial product. For this purpose the spawn is grown in some prepared material, which may be dried and transported. The making of the spawn is a business of itself. The English make and use the spawn mostly in brick-like masses of earth and manure. The French use also a spawn borne in a loose, litterlike material, although not all of the French spawn is made in France. The English or brick spawn comprises nine-tenths of the spawn used in America. The brick is made of a mixture in about equal parts of horse manure, cow manure and loam. These are wet and mixed until the material has the consistency of mortar. The material is then spread on a floor, and is allowed to dry until it can be cut into pieces or "bricks." While the bricks are still moist, a hole the size of a walnut is made in the brick, and fresh spawn is inserted. The bricks are then placed under cover or in a mild hotbed, where they are given such conditions as will cause the mycelium to penetrate them thoroughly. When the mycelium has ramified throughout the mass, and the surface has a cloudy look, the brick is dried and stored. This brick may be likened to a yeast cake.

Expert mushroom-growers believe that spawn which is made over and over again from the mycelium tends to become weak and to produce small crops of thin-fleshed mushrooms. They believe that the spawn now and then should be inoculated afresh from the spores. Spawn made directly from the spores is known as "virgin spawn." It is made by incorporating the abundant spores of ripe mushrooms with the material of which spawn is made. It is probable that many of the large, thick mushrooms which come up in odd places in the greenhouse arise from spores.

To grow mushrooms, prepare the beds on a cellar floor, or under benches of a greenhouse, by making rough boxlike enclosures of plank about 15 inches in depth, and held in place by scantlings. The beds should be three or four feet in width, and the floor and wall at the side may be used to save planks. If success is assured, several tiers of beds may be built one above another, the floor of each tier being at least one inch in thickness. The cellar should have some ventilation, but there should be no air currents crossing the beds. The best material for the beds has been found to be horse manure, without much coarse straw. The manure should be piled in some sheltered place in a pile from three to four feet deep, and should be allowed to heat, but not to burn—a condition which will be shown by its turning white inside. If this whiteness should show signs of appearing, the pile should be turned. In any case, after it is well heated, it should be turned once in two or three days; if the heating proceeds very rapidly, every day. If it should get too dry, water should be sprinkled on it to make it moist. In 15 or 18 days it should be ready for the beds, but should not be put into them till the temperature is down to 100 degrees. The manure may now be put into the beds, the more strawy material in the bottom. As each layer is put in, it should be thoroughly tramped down; finally, a layer of about 1½ inches of soil—rotted sod is best—is placed over the top. The spawn must not be planted at once, as the temperature is likely to rise. It should not be placed in the bed until the temperature has fallen again to 70 or 75 degrees. Pieces of spawn are planted from 8 to 10 inches apart in the bed, and about one or two inches below the surface, the manure removed in making a hole for the piece being placed over the top and packed down hard. The beds may now be covered loosely with straw to prevent too rapid evaporation. The mushrooms should begin to appear in about six or seven weeks.

Potatoes Scarce in the States.

Replics to inquiries made by the United States Bureau of Statistics among growers and dealers in the principal potato-growing sections of the United States indicate that, on January 1st, 1912, about 33.1 per cent. of the crop raised in 1911 for market (in the sections investigated) was in the hands of growers, and 8.6 per cent. in the hands of dealers, as compared with 40.2 per cent. and 10.9 per cent., respectively, on January 1st, 1911; and 41.2 per cent., and 9.9 per cent., respectively, on January 1st, 1910. The total potato crop for the United States in 1911 was 292,737,000 bushels; in 1910 it was 349,032,000 bushels, and in 1909 it was 389,195,000 bushels.

Assuming that the same proportion of the potato crop is marketed each year, it is estimated that on January 1st growers held 31.3 per cent. less than they did on January 1st, 1911, and 41.4 per cent. less than on January 1st, 1910; while dealers held 34.3 per cent. less than on January 1st, 1911, and 36.3 per cent. less than on January 1st, 1910. In other words, with a total crop in the past year about 16 per cent. smaller than in the preceding year, and about 25 per cent. smaller than two years ago, the stocks on hand January 1st appear to be about 32 per cent. smaller than a year ago, and 41 per cent. smaller than stocks on hand two years ago.

THE FARM BULLETIN.

King Donald Ban.

By Peter McArthur.

"Well, John, I am feeling ashamed of myself," said Donald Ban with a deep sigh, as he laid aside his paper and took off his glasses.

"Why, what is the matter?" asked his son, looking up hastily.

"I have just been looking over the paper to see what I have been doing lately, and, to tell you the truth, I am ashamed."

"What have you been doing? I didn't see any mention of you in the paper."

"Of course, you didn't. That is where our system is all wrong. We are doing things all the time without knowing it. But I can tell you it would be different if the papers reported things in the right way. Just think of the interest I would take in public affairs if we had them reported in this way:

"This afternoon, Donald Ban, through his representative in Parliament, voted a million dollars to subsidize the building of baby carriages. Wouldn't I raise a rumpus if I happened to be one of those old-fashioned people who believe that mothers should carry their babies in their arms? Yet we are doing just that sort of thing every day. We have government of the people by the people in this country, and you and I and every other voter are responsible for everything that is done. We send men to Parliament to act for us and carry out our will, and if they do not do it properly, we are to blame. When I think of some things that have been done in our name, I feel ashamed."

"I suppose you are right, in a way," said John, "but what can we do about it?"

"There you go," said Donald Ban, testily. "That is the way everyone looks at the matter. We have taken power away from our kings, and can't seem to get it through our heads that we have the power ourselves, and should be responsible for the use we make of it. Even at election times, people can't seem to understand that they are really sovereign voters, and that the act of voting is the act of a ruler. I have been giving the matter a lot of thought lately, and have come to the conclusion that the whole trouble is due to the fact that we did not take the title when we took the power. If I were King Donald and you were King John, and Bill Hyse was King William, and Jim Cook was King James, we would go about things in a different way. We would feel that we had to live up to our titles, and would be careful of the power we gave to politicians by our votes. I tell you, John, there is nothing like a title to make a man careful. You never find a school trustee or township councillor going off at half-cock on public questions. He remembers the dignity of his position and his title, and considers carefully before he passes an opinion on anything. Take the case of Jim Kennedy. Many's the time I have heard him talking about such things as the Georgian Bay Canal, and saying how the government should spend millions to put it through. You'd think that in public matters millions didn't mean anything to him. But when he got elected school trustee, things were different. When John Jameson's wife got after him to buy a tin cup for the school pump, so that the children wouldn't have to drink by putting their hands under the spout and squirting water in their faces, he looked serious, and said he'd think about it, and perhaps bring the question up at the next meeting of the board of trustees."