

## Our Poultry Corner

If you have some things you do not understand in connection with your poultry and want some information, state your case briefly and to the point, writing on one side of paper only, and address it to THE MONITOR PUBLISHING COMPANY LIMITED, we will submit it to Prof. Landry, and when his answers are received we will publish them withholding your name if you so desire it.

### QUESTION BOX

#### HENS HAVE THROAT TROUBLE

Outram Annapolis Co

Aug. 10, 1916.

To Editor of Poultry Corner:

I have hens that have a disease I would like to find out about. At first the hen acts as though she had something in her throat, squeals. Later we thought she was trying to crow. It seems to be in the throat. I gave her salts, sulphur, and kept her bowels healthy. One hen's head turned pale, the other didn't.

K. J. BANKS.

#### Answer

K. J. Banks, Esq.  
Outram, N. S.

Dear Sir:—Your fowls may be suffering from some foreign substance which is causing irritation in the throat. Open the fowls' mouth and look down the throat for the cause of the irritation, which may be removed by use of a small pair of pliers or a pair of small scissors.

If the fowls are suffering from roup, use a syringe and disinfect the throat with a weak solution of carbolic acid (1% solution) twice each day. Clean out all puss from the nostrils with a little wooden spatula and use the syringe in the nostrils. Wash the throat with cotton wadding which has been attached to a split stick and dipped in a little peroxide of hydrogen. This disinfecting should be done twice or three times during one week. If the fowls do not show improvement after one week they are not worth spending much more time or expense on, and the badly affected had best be killed and buried or burned. Keep all the healthy fowls in a dry warm place, and give good attention to the proper feed, and clear, fresh water for drinking.

J. P. L.

#### THE VENTILATION OF POULTRY HOUSES

The importance of maintaining a dry atmosphere in poultry houses is recognized by all authorities and successful poultrymen. In view of its importance, and the constant development of the poultry industry, there has been here brought together the views and experiences of the chief poultrymen at a number of the Canadian agricultural colleges and schools.

#### THE MANITOBA AGRICULTURAL COLLEGE

(By M. C. Herner, Professors of Poultry Husbandry)

(Continued from last issue.)

In connection with the ventilation of poultry houses in this province we have found the use of the curtain on the south side and the straw loft with the slatted ceiling to be the most satisfactory method of ventilating a poultry house. The gable roof house has given better satisfaction than the shed roof and we recommend the former for Western conditions. The volume of air in the house in proportion to the surface exposed to outside weather conditions is greater than that in the shed roof house, and besides in these gable roof, straw loft poultry houses there are practically two distinct volumes of air, that is, the one below the ceiling in the pens and that above the ceiling in the loft. We use about two feet of straw on the slatted ceiling. The slats should be four inches wide and may be placed from four to six inches apart. With two feet of straw on top of the ceiling there is a gradual interchange of air going on, and in addition to this interchange of air, the straw helps to absorb the moisture. In our long house we have a ventilator sixteen inches in diameter coming through the peak of the roof about a foot and entirely open at the bottom. In the winter time we put a bran bag over this opening to prevent too rapid a circulation of air but in the summer time this is open entirely, and gives us almost ideal ventilation. In place of this ventilator for a house 30 feet long and 14 feet wide we recommend openings about a foot square in the peak of each of the gable ends of the house and a curtain frame fitted into this. This system works out to good advantage in the winter season, and in the summer the frames can be taken out entirely.

A house for fifty hens can be built on a similar plan, making it probably only twelve feet wide and twenty feet long, with the same system of curtain on the south side and the

same type of ceiling. We find that a shed roof house is inclined to be damp and too cold in the winter time and also too hot in the summer time. This is not the case with the gable roof, straw loft house. The arrangement in the south side is four by four curtains and the same sized windows placed alternately the entire length of the house. The windows are stationary, and the curtains are hinged at the top and swing inwards and upwards. The curtains are opened up on bright sunny days, if the temperature is not lower than zero, or a little lower probably. We like to have the curtains open during such days for an hour or so at the time when the sun is warmest. By this method of ventilation we keep the temperature in the house almost uniform throughout the twenty-four hours. We recommend about one square foot of curtain for every square foot of floor space and also the same amount of glass for the same area of floor space.

We recommend houses from twelve to sixteen feet wide, but prefer a fourteen foot house and the height from the sill to the plate to be six feet clear. The windows and curtain frames are placed about eighteen inches from the sill, thus bringing them within six inches of the plate. We guard against running down the eave trough too far to obstruct the light from shining in the pens through the windows and curtain openings.

The length of the house will depend of course, upon the number of hens in the flock. We allow from four to six square feet of floor space for each bird. I think a house for fifty hens should not be more than fourteen feet. I consider sixteen feet almost too wide for our Western conditions in that the house is inclined to be somewhat dark during the short winter days, if it is too wide. We have a solid partition every twenty feet in order to break any draught that might occur by opening the curtains at each end at one time.

In connection with the walls of the house we recommend four-inch studding in order to get a dead air space. On the inside we prefer one thickness of building paper and tongue and grooved lumber nailed on the studding on top of this paper. On the outside ordinary siding would be quite satisfactory unless the poultry house is very exposed, when we recommend one thickness of building paper on the outside of the studding as well, and the siding nailed on top of this. The south side does not require this extra thickness of paper. I believe in fresh air and lots of it.

In order to provide comfortable roosting quarters we have a drop curtain coming down in front of the roosts at night time whenever the temperature goes lower than 10 below zero outside. These roosting chambers are ventilated through the straw in the loft and also through a small opening between the joists at each end of the chamber.

While the shed roof is considerably cheaper than the gable roof house here described, still for an all round satisfactory house for this country we cannot recommend the shed roof house as being equal to gable roof for the reason aforementioned. I do not think that there is any system of ventilation that can be installed in a poultry house that will be as satisfactory as the one described for the gable roof house. The idea is to prevent the house from heating up during the day time. This can be done by having the ventilation system as here described. In the shed roof house there is a tendency for the house to be warmed up during the day time, and the moisture holding powers becoming increased considerably. At night time the air cools off, the water holding capacity decreases, and, of necessity, the moisture will be condensed on the walls and on the floor, thus causing what is claimed as a damp, cold poultry house, and one which is entirely unsatisfactory for this climate.

We have not done any experimental work or any special investigation work in connection with ventilation, except what observations we have made in comparing these two types of houses in our every day poultry work, the results of which are as above outlined.

Unless you are raising a particular stock of chickens of which you have only a few hens you cannot afford to keep the old hens as layers. A hen is not profitable after her third summer as a layer. Selling the old hens and using the incubator for hatching is the best plan for the small poultry man.

## The Orchard

### SPOT DISEASE OF THE APPLE CAUSING MUCH GENERAL CONFUSION

(By Charles Brooks and D. F. Fisher U. S. Department of Agriculture.)

There is so much confusion in regard to the nature, cause and methods of treatment of the various spot diseases of the apple that it has seemed desirable to present a progress report of our studies of these diseases. While we still have very much to learn about these various troubles, it is hoped that what we have already found out may prove of value to the horticulturist and help him to distinguish between the different diseases, that he may shape his control measures accordingly. The disease known as bitter pit is referred to under various names. The Germans were the first to describe this disease and called it "stippin." This name is now in quite common use in New York State. In the United States the disease was first referred to as Baldwin Spot, since the Baldwin was found particularly susceptible to it in New England. This name was first used in Vermont and is in quite general use throughout the country.

This disease has been referred to in New Hampshire and Oregon publications as "fruit pit." In England, South Africa and Australia the disease is known as "bitter pit." This term has also been quite generally used in the correspondence of the U. S. Department of Agriculture. The term "pit" seems much better suited to describe the disease than that of "spot," since it is set off from a number of fruit spots by a definite pitting or depression of the apple surface. It also seems desirable to eliminate the word "Baldwin" since to use it conveys the impression that the disease might be confined to the Baldwin variety whereas the Grimes, Northern Spy, Yellow Bellflower and other varieties are just as susceptible as the Baldwin. This disease has received more attention in recent years than formerly, partly because the other diseases have been brought largely under control by spraying, partly because there is a greater demand for high grade fruit of good keeping quality and partly because the methods adopted for producing extra fancy apples tend to increase rather than decrease this particular trouble. It has been extremely difficult to find out the cause of the disease. In the first place it is of physiological nature, and its occurrence is determined by the general condition of the tree and fruit, and such general factors as these are hard control in a way to get definite data.

Secondly there has been a great deal of confusion in regard to the disease because there are a number of very similar spots that have been referred under the above names, but which differ from one another in nature, cause and means of control. This makes any general statement in regard to the disease of questionable value unless there is a careful description given of the trouble under discussion. Among these similar spots are the "Fruit Spot," "Jonathan Spot," "Stigmonose," true bitter pit, and corky pit, or so called "drouth spot." The fruit spot is characterized by hard, sunken, green or red spots with numerous black specks scattered over the sunken area. It is a fungus disease and is really controlled by spraying with fungicides. It has never been reported west of the Rocky Mountains and so far as Washington State is concerned, the disease can be left out of consideration. In spite of the fact, some of the orchardists in the West have carried on extensive spraying work for the control of bitter pit, following up the Eastern directions for fruit spot and thinking they were fighting the same disease.

Jonathan spot is the name applied to very shallow black or brown spots in the skin of the apple. In late stages the spots may become sunken and part of the adjacent flesh involved. Various fungi may gain entrance and hasten the enlargement of the spots. In the West the disease is not generally confused with bitter pit. In some quarters it has been attributed to arsenical spray injury, but this theory of the cause of the trouble has been definitely disproved by the extensive spraying experiments conducted in the State of Delaware in 1910 and 1911. Blocks of Jonathans were spraying with different amounts of Lead Arsenate to see if the prevalence of the disease could be correlated with the amount of lead arsenate used in the spray. Data was secured on the disease both at the time of picking and after several weeks in storage. No correlation whatever could be found between the arsenate of lead and the disease. In many cases there was more disease on fruit which had not been sprayed

at all than upon that which had received the heaviest application of lead arsenate. The disease is of a physiological nature, and is essentially a storage trouble, and therefore is not controlled by spraying. It is greatly reduced by hastening the fruit to cold storage. Our experiments with this disease seem to indicate that factors similar to these involved in the cause and control of bitter pit are closely paralleled in the case of Jonathan spot. These will be taken up in more detail in the consideration of bitter pit. Jonathan spot does not seem to be a desirable name for this trouble, since it implies that the disease is largely confined to the Jonathan variety, whereas Spitzenberg, Yellow Newton and other varieties are often as badly affected. In the interest of clearness it would be desirable to eliminate, if we could the name of any particular variety of fruit from the names of the diseases. The term "freckles" has been applied to Jonathan spot, but it has not come into general use, so it will perhaps be best to adhere to the commonly accepted name of the disease.

A great deal more confusion has arisen in regard to the other diseases mentioned above: the true bitter pit, the corky pit or drouth spot, and the stigmonose. These troubles resemble one another very closely in some cases. The true bitter pit appears on mature, or nearly mature fruit, either on the tree or in storage. When found on the surface it causes hemispherical depressions, usually rather circular and uniform in shape. Beneath the skin brown dry spots are found, and this brown tissue may extend down through the flesh of the apple along the conducting vessels, giving the flesh a streaked appearance. Pits may also be found at a depth in the flesh when there is no outward indication of their presence. The pitting is generally confined to the lower or calyx end of the apple.

The corky pit or drouth spot usually has a fairly large area of dead brown tissue. These spots may be near the surface or at a considerable depth. They may appear at any stage in the growth of the apple, but usually become more evident later in the season. At first they are large, irregular shaped, water-soaked spots, often stained a reddish color and usually covered with drops of a yellowish, sticky ooze which is sweetish to the taste. In late stages of the disease the fruit is much misshapen, the spots become very hard and sunken, while the flesh is brown and corky like an old bruise. In 1913 this disease was first produced experimentally at Wenatchee by subjecting Winesaps to a sudden and severe drouth. In every case since observed it has been found that this condition prevailed before the appearance of the trouble. It was at first thought that these spots might possibly be due to water being turned on suddenly after the drouth, but later observations have shown that they developed before irrigation was again resumed. There is no question but that a sudden shortage of water is the direct cause of the spots. It is probable that the character of the soil may have a modifying influence. The disease is most common on Winesaps, although Staymans and Ben Davis are often affected. Varieties other than these have been subjected to the same circumstances and the fruit reduced to a decidedly shriveled condition without those spots appearing. In the East the Ben Davis seems to have suffered more than other varieties from this trouble. The best remedy that can be offered with our present knowledge is that of uniform watering. There is another form of corky pit that occurs on shallow soils in some sections of the East and West. It is common where there is hardpan at a slight depth, and also where there are peculiar soils outcropping. This disease is quite generally associated with rosette. The remedies that have been suggested are such as tile drainage, blasting and turning under cover crops.

Stigmonose is a term used to refer to insect injuries to plants. It is used here to refer to the effects produced on apples by sucking insects. The gross characteristics of stigmonose are very similar to those of bitter pit. The spots, however, are more irregular in size and outline than those of bitter pit, and instead of having a rather smooth, hemispherical depression of the skin the stigmonose is usually a roughened and irregular depression. It appears earlier in the season than bitter pit and is usually found particularly abundant on those branches where aphids are of most common occurrence. It is not confined to the middle or calyx end of the apple, as is usually the case with true bitter pit. It also differs from bitter pit in that it is not found deep in the flesh and that there is no streaking beneath the spots. Our first years work in Washington State was practically

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wasted, so far as results on bitter pit were concerned, because experiments were outlined for this disease and carried out in orchards which it had been reported to us were badly affected with bitter pit, but which we later found were affected with stigmonose and not true bitter pit. Within the last year in certain orchard sections of the East, large blocks of Yorks and other varieties have been so badly affected with stigmonose that the owners, thinking they had some physiological trouble, were planning to either top work their trees or cut them out, as they despaired of ever controlling the disease. Upon examination it was found that the disease was not bitter pit but a bad case of stigmonose. While the bitter pit and stigmonose are so much alike in appearance the manner of control is entirely different. Stigmonose is due to sucking insects. Its occurrence runs parallel with that of the aphids, particularly the rosy apple aphid. It is sometimes found on the small gnarled apples on the inside limbs of the tree, which have been damaged by the early attacks of the rosy aphid, but it also occurs on other apples which are near these, as well as those in other parts of the tree, and to which the aphids spread later in the season. It has to be controlled by controlling the sucking insects. In order to carry out bitter pit experiments with stigmonose eliminated we have found it necessary to spray our experimental trees for the control of aphids. This control was accomplished this past season through the co-operation of Mr. E. J. Newcomer of the Bureau of Entomology, who has been associated with us in the stigmonose experiments. We found in one of our experimental orchards, where rosy aphid was particularly abundant, that spraying with Black Leaf 40, diluted 1-1000 plus lime sulphur testing four degrees Beaume, and applied just as the terminal buds were becoming green, reduced the amount of stigmonose from 16 to less than 1 per cent. True bitter pit does not usually appear until the fruit is nearly mature, and often develops in storage, particularly where improper methods are used. It is worse on large apples and on fruit from young trees. Irritation is a very important factor in its control. In our experiments on the disease it has been found that heavily watered trees, particularly those watered late in the season, have a much greater percentage of diseased fruit than those receiving medium or light watering.

The following data, showing the percentage of bitter pit present, has been obtained in experiments of the past year on Grimes variety, counts being made twelve days after picking.

Heavily watered through the season . . . . . 45%  
Medium supply of water throughout the season . . . . . 17%  
Medium supply of water until Aug. 1, then heavily watered . . . . . 49%  
Lightly watered throughout the season . . . . . 14%  
After six weeks in cellar storage the amount of disease (bitter pit) had increased to the following percentages:

Heavily watered throughout the season . . . . . 73%  
Medium supply of water throughout the season . . . . . 54%  
Medium supply of water until Aug. 1, then heavily watered . . . . . 81%  
Lightly watered throughout the season . . . . . 40%

These results are graphically presented on the accompanying chart, where the soil moisture is expressed in per cent of soil saturation as determined by frequent tests throughout the summer. It might be noted in a consideration of the above figures that the results were obtained from five years old trees of a very susceptible variety. Practically the same contrasts were obtained in another similar experiment using Jonathans of Grimes. Our results in this case differed from the above only in the relative smaller amount of disease occasioned by the differing susceptibilities of the varieties. The productivities of Jonathan spot, so far as has been thus far determined, closely parallels that of bitter pit in these experiments. It is evident that bitter pit can be largely reduced in irrigation sections by the proper handling of the irrigation water. There are other factors concerned, however, but our experiments do not justify a report on these at the present time. In

storage the disease is partially prevented or at least delayed in appearance, by prompt cooling. This report on these diseases is not given as a final statement on the subject, as there is yet much to be found out, but there are things of practical importance that can be definitely stated. The fungus fruit spot of the East does not occur in Washington, and sprays for spot and pit troubles are unnecessary. Jonathan spot is a skin disease of a physiological nature. It appears most often after the fruit has gone into storage and is not controlled by spraying. Stigmonose is of common occurrence, has been much confused with true bitter pit, and can be controlled by controlling the sucking insects. The control of corky pit or drouth spotting should be attempted along lines of soil improvement and maintaining a uniform water supply. True bitter pit can be greatly reduced by proper handling of irrigation water, that is, by avoiding excessive irrigation, especially late in the season, and by hastening the fruit in to cold storage.

—From BETTER FRUIT.

#### HARVESTING THE CLOVER SEED CROP.

Agricultural Department  
Truro, N. S.

The most important consideration in harvesting the clover seed crop either from the first or second growth is that the major portion of the crop should be ripe. This can be ascertained by the flower head being almost black, and may be further tested by shelling out a few heads in one's hands and observing the stage of maturity of the seed.

The harvesting is best accomplished with the self-rake reaper, though a binder with the twine removed answers equally well. A mower and horse rake are occasionally used, and this method is unsatisfactory. If the mower is used, since the fields in Nova Scotia are not very large, we would strongly recommend the use of the hand rake to gather the clover up into bunches. A table attachment for the mowing machine can be had from manufacturers, which is quite satisfactory when followed by a man with a hand rake who takes the swath off in bunches.

In any case the bunches must be frequently turned to attain quick drying. The turning of the bunches should be done while they are still damp with dew to prevent shattering of the seed.

Threshing can be accomplished by means of the ordinary threshing mill by closing up a portion of the feed space, and also back of the cylinder with strips of board, thus causing the hay to pass through more slowly. However, this method only secures a portion of the seed and even then it is in none too clean a condition.

The Clover Huller is the one satisfactory means of threshing clover. During the coming winter it is planned to place the Clover Huller, owned by the Nova Scotia Department of Agriculture at Berwick, Kings County, Lawrencetown, Annapolis County, Truro, Colchester County, Bridgewater, Lunenburg County, Antigonish, Antigonish County, and in the district from River John to Tatamagouche in Pictou and Colchester Counties. Further particulars may be had by writing to either S. J. Moore, Dominion Seed Inspector, Truro, who has already done considerable work in interesting farmers in clover seed growing, or to the Agricultural College, Truro, N. S.

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