

winter season, regard the silo as almost a necessity; in fact, it is as John Gould has said: "When it comes to milk production, we have not found any plant that compares with the corn, either as a green food, dry fodder if made presentable, or as silage; the latter being now the dairyman's sheet anchor in winter dairying." I can add that from my four years' experience managing a winter creamery, the patrons that were provided with ensilage and fed from forty to fifty pounds per day, six to eight pounds of meal, and a feed of clover hay, have been better pleased with winter dairying, as their cows gave more milk at less cost than on any other feed. This is fully borne out by the fact that four years ago we had two silos, this winter we will have thirty-five or forty, and the milk has always been of uniformly fine quality. As there are still a large number not provided with ensilage, cut fodder corn and mangels is the next best thing. Turnips should never be fed if we are to have a good reputation for our winter butter.

I might mention a fact that came under my notice this fall at the Harrietsville, Ont., factory. A number of the patrons started feeding turnips. The milk was put into a vat and made up separately, and a dividend struck according to the output. It took 12.70 pounds milk to make a pound of cheese from it, while the other milk supplied to the factory only took 11.07 pounds milk to a pound of cheese. They soon got tired of being separated from the other patrons, and discontinued feeding turnips and started feeding corn. In every case there was an increase in their milk, showing clearly that it would have been more profitable to have fed corn, and the corn would not have effected the flavor so that the cheese had to be sold for one cent per pound less. Now, this applies with a great deal more force in winter buttermaking, as we could not even get within a cent a pound for butter with a turnip flavor that we could for fine flavored butter.

All dairymen should unite in doing everything possible to secure the best reputation for our winter butter, and absolutely discontinue feeding turnips to milk cows.

To those who have not an abundant supply of some succulent food, I would recommend them to try giving their cows all the skim milk they will drink while it is warm and sweet, as a number of our patrons have done so with good results. Do not forget to always keep a supply of salt in every cow's manger, so that she can help herself, and, if possible, have an abundant supply of pure water before them in the stable at all times.

Care of the Milk.—As everything connected with milk should be scrupulously clean, have the stables cleaned just before milking, milk with dry hands, strain the milk through a double piece of clean cloth, thoroughly aerate, not in the stable, but where the air is pure, by putting through an aerator or by dipping and pouring, and do not forget that it is important to aerate the milk even in winter to make fine flavored butter. Set the can containing the milk in some place where the air is pure and the temperature will not fall low enough to freeze it, and stir at intervals to prevent the cream from rising, so that the maker will be able to get a representative sample when it arrives at the creamery.

Milk Contamination in the Stable.

While it may be unwise to dwell mentally upon all the obnoxious matters known to exist in different sorts of food, yet when we are brought face to face with the fact that large quantities of foreign substances which get into milk may be hindered from doing so by the application of a little extra care, surely the necessary caution is in keeping with good judgment. Gosta Grotenfelt, President of the Mustiala Agricultural College, Finland, in his work on dairy practice points out that as the impurities which get into the milk, even during the milking itself, play such an important part in the infection of bacteria, it is important to learn their origin. The microscopic examination gives a good indication of their origin. He reports having actually found the following appalling list of impurities in unstrained milk fresh from the cow:—

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| 1. Manure particles (numerous). | 9. Small wooden pieces, shavings and pieces of fir leaves. |
| 2. Fodder particles. | 10. Woollen threads. |
| 3. Molds and other fungi. | 11. Linen threads. |
| 4. Cow hair (numerous). | 12. Soil particles (rather frequent) and moss particles. |
| 5. Particles of skin. | 13. Fine threads, most like cobwebs, etc. |
| 6. Human hair. | |
| 7. Parts of insects. | |
| 8. Down from birds. | |

It is reasonable to suppose that a great many of these substances frequently get into milk in the ordinary stable conditions in winter. The more careless the milkers and other attendants are the greater will be the proportion of contamination. No doubt the milking machine, if it ever comes into ordinary practice, will prevent the access of some of these external substances, but even without that, by the scrupulous care of attendants and others having to do with the cows and the milk these contaminating substances can be largely prevented from entering. Well-groomed cows, clean udders and litter, and good ventilation will do much in the way of keeping the milk pure, but with all these conditions the milk should not be allowed to stand in the stable for any length of time after it has been drawn from the cows. The sooner it is strained—and strained thoroughly too—the better.

On many farms the milk strainer is a most carelessly used utensil—often out of order and not half cleaned. Examine it at once. We were astonished to learn that this season some cheese factory patrons in — County had been found dumping the milk into the cans without straining! No wonder the factory strainer looked as though the whole of the above collection had become entangled in its meshes. Honestly, we could hardly credit the story that there was still alive a Canadian patron whose ideas of cleanliness in dairying were in so primitive and deplorable a condition. If we are to make a success of winter dairying we must first of all be clean.

VETERINARY.

Swine Fever—Its Nature and Suppression.

(SPECIALLY PREPARED FOR THE "FARMER'S ADVOCATE.")

At the fourteenth general meeting of the National Veterinary Association, which was held at Great Yarmouth, London, England, the principal topic dealt with was swine fever, known in America as hog cholera. A very able and exhaustive paper was prepared by J. McFadyean, M. R. C. V. S., Principal of the Royal Veterinary College, London, and issued to the members of the Association one week before the time of holding the meeting, which accounted for the exhaustive discussion which followed. The following is a compilation of Prof. McFadyean's paper and the discussion which followed:—

Swine fever is a specific disease which, in natural circumstances, is transmitted to no other animal than the pig. Like glanders in horses and tuberculosis in cattle, swine fever is a purely contagious or infectious disease, and the germ which causes it would cease to exist if the porcine species became extinct. In natural cases of the disease the bowel and the mesenteric glands constitute its most constant seats. Owing to its minute size and the fact that its shape is in no way characteristic, a microscopic search for the parasite is of little or no value for diagnosis. On the other hand, its mode of growth in some artificial media is so characteristic as to make its isolation and identification an easy task in the laboratory when the carcass is fresh. It is killed by complete desiccation at 100° F., and in the moist state it does not stand exposure to a temperature of 140° F. for more than a few minutes.

How Spread.—Probably all the cases of natural infection take place by the ingestion of bacilli voided from the intestine of a previous subject of the disease. It is probable that the disease is sometimes spread by human beings and other intermediary agents, but the all-important factor in the diffusion of swine fever is the sale of apparently healthy hogs that have in reality received the infection or have the disease in a mild form.

Period of Disease.—The interval that elapses between the reception of the infection and the development of distinct symptoms of illness is very variable, its length partly depending upon the amount of infective material taken into the system and partly on the degree of susceptibility of the animal. A susceptible subject infected with a large quantity of material may show symptoms of illness the following day and be dead within 48 hours. As a rule, however, a pig infected with swine fever will in about eight or ten days exhibit symptoms of ill health sufficiently pronounced to attract the attention of its attendant.

The Symptoms usually exhibited in a moderately severe case of swine fever are somewhat as follows: Slight but gradually increasing dullness and loss of appetite; the pig comes less readily than usual to be fed, and in the intervals between meals it does not move about much, but inclines to lie buried among its litter and invariably drops its tail. As the disease advances the appetite for solids becomes almost lost, but thirst is present, and any liquid given with the food is greedily sucked up. Diarrhoea may or may not be present. When it is the faeces are grayish in color and unusually offensive in smell. In the last stages the pig lies persistently, and when made to move its gait is uncertain, resembling partial paralysis. The skin may show a red or livid discoloration, especially in the under aspect of the body. Death occurs quietly and without convulsions. There are cases of swine fever, however, which present little or no external symptoms, except dullness and dropping of the tail.

Post-mortem Revelations.—In dealing with the morbid anatomy of the trouble, reference was made to twenty post-mortem examinations conducted by Prof. McFadyean. The first case mentioned is of a pig about two months old, infected by feeding with artificial culture of the swine fever bacillus. It died on the second day. A post-mortem showed slight livid skin discoloration on under aspect of the abdomen. The mesenteric glands and those of the large intestine considerably congested. The mucous membrane of the large intestine was intensely bright red. The small intestine was moderately congested throughout. The mucous membrane of the stomach intensely inflamed. The spleen, liver, kidneys, thoracic organs, tongue, throat, and body lymphatic glands were in normal condition. With slight variations, the above are the conditions met with in the twenty cases operated upon. With part of the cases the disease was produced by feeding with swine fever bowel, when death usually occurred in from twelve days to three weeks, when peritonitis, and in some cases

swelling of the lungs, was present. In some cases of long standing the kidneys were intensely congested, and the liver showed abnormal, small, grayish points. The tongue occasionally showed small ulcers, and the lungs numerous hemorrhages about the size of split peas.

From what has already been given, and a great deal in the paper not referred to here, it is quite evident that the disease of swine fever is mainly confined to the stomach and intestines, the other organs being affected from these by a spreading of the inflammation and congestion. Wherever pneumonia or pleurisy was present, the Professor attributed it to a complication of troubles and not to the swine fever.

Fighting the Disease.—The paper contained a table showing the number of outbreaks in England, by months, between November, 1893, and May, 1896. Of these months the first mentioned had the fewest outbreaks, numbering 252; the highest being 709, in October of last year; while in May of this year there were no less than 638 outbreaks of the disease, which proves conclusively that the measures being adopted are failing utterly to stamp out the disease in England. These numbers do not represent swine attacked, but only herds or, perhaps, districts.

The British Board of Agriculture has machinery in operation dealing with swine fever in the same manner as pleuro-pneumonia, but this, as is being carried out, was very emphatically condemned by a number of prominent speakers during the discussion, as being too lax to be ever expected to do away with such a pernicious and persistent malady. The main cause of the failure is attributed to the unexpected difficulty in following up the sources of infection and in diagnosing the disease in the living subject. This difficulty, it is claimed, can be overcome in only one way, viz., by imposing severe restrictions on the movement of pigs in every district in which swine fever is known to exist. The time has come for letting those who are interested in the breeding and rearing of pigs know that they must choose between severe restrictions on movement and abandonment of the efforts to stamp out swine fever.

During the course of the discussion a number of gentlemen claimed to have observed that quickened respiration and cough, together with consolidated portions of lungs, usually accompanied the disease. Mr. J. D. Overed, in speaking of the necessary means of eradication, said: "I am quite of opinion that isolation is necessary, combined with slaughtering, and I am also further of the opinion that disinfection is essential, but these matters, to be effectual, must be carried out promptly and fully."

As a means of conveying the contagion, it was generally claimed that the castrator and dealer were to blame for much of the spread that could not be accounted for in any other way.

At the close of the meeting the following resolution was introduced and agreed to: "That in the opinion of the National Veterinary Association the enforcement of severe restrictions on the movement of swine in every district in which swine fever is known to exist is absolutely necessary for the eradication of the disease."

POULTRY.

Poultry Require Green Food in Winter.

BY J. E. MEYER, WATERLOO CO., ONT.

If we are to obtain the greatest return from our poultry during the coming winter we must have a good supply of vegetables on hand to feed them. Apples are very plentiful and cheap this fall, and they will be much enjoyed occasionally during the winter by our fowls. They may be fed whole and raw, but you must be careful not to feed them when frozen. Put away all the poorly headed cabbages for them, and give them one occasionally to pick at during the winter. A very good way to feed cabbages is to hang them up where they can be reached easily. Some hang them so high that the birds have to jump up to reach them for exercise, but we prefer giving our fowls exercise scratching for their grain. We do not believe they were ever intended to exercise by jumping. [NOTE.—Friend Meyer evidently does not see any need of erecting a gymnasium in which to exercise his hens.—Ed.]

Ducks are very fond of cabbages and you should get in a good supply for them. We know of no green food that they relish more in winter or that is better for them. It is even more necessary that they should be well supplied with green food than your hens. Turnips and mangolds make splendid green food.

Mangolds are better food than turnips and are excellent for wintering geese on. We feed our roots mostly raw and pulped put in troughs. If there is no danger of freezing, a whole mangold or a turnip may be left for them to pick at. We sometimes cook pulped roots and mix with chopped grain or middlings and feed.

Potatoes should always be cooked and mixed with grain. No better use can be made of your small potatoes than feeding them in this way occasionally to your poultry.

If you have never made a practice of feeding green food to your poultry try it this coming winter and you will be astonished at the results in health, egg production, and the saving of grain.

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