

A Dairy Question.

BY S. P. BROWN.

There is a question relative to the dairy which is attracting not a little attention, and one which, I think, is closely allied to the one, "Can we feed fat into milk?" and this it is as I have seen it: "Why does a given quantity of my cream yield from one to two and sometimes even three pounds less butter one time than at another?"

I have had such experience several times this winter, and I think I have found out one or two causes for it. We use a hand-power separator altogether, so the cream is even of more uniform density than it is liable to be by a skimming process. This fact caused me to make very close observations in all my work to find the cause of trouble. I was satisfied that the wanting butter must be in the buttermilk, though for want of time I did not test it. I had tested enough to know the reason why cows gaining in the flow of milk, as on improved feed or flush pasture, would put more fat into a given quantity of cream each successive churning till a maximum is reached. On the other hand, when they are falling off in the flow of milk, from any cause whatever, for a length of time together, the pounds of butter per gallon of cream will proportionately fall off.

I account for this from the fact that such milk is harder to separate from the cream than that from flush feed, and, while in the skimming process more cream is left in the milk, the separator takes all the cream out, but puts more milk with it than with that from flush milk. Now this, it appears to me, accounts for the idea many have that they can feed fat into milk.

They have two facts which confirm the idea, viz., that their cows are gaining in milk yield, and that they got more butter from the same bulk of cream, but they lack the one essential to show the true percentage, namely, the percentage test.

Now, to answer the question I started out with, as I have concluded it to be answered, the cause lies in the management of the cream—too high a stage of acidity is developed. During the very cold weather in the past winter I set the cream, forty-eight hours before, expected to churn, where and so it would ripen slowly, and in that time it would attain a great density; but sometimes it would hardly get thick in that time, then would wait till it just began to thicken and then churn. I found every time that this occurred I got more butter; and now I manage it so as to churn just as it begins to thicken, or before rather than after it has become livery, with better results.

VETERINARY.

Micro-Organisms in Health.

Some very startling facts have lately been discovered with regard to the part played by micro-organisms in plants and animals in health and disease. New thoughts, new ideas, lead to experiment, and sometimes the results are disappointing; on the other hand, it is never the expected that happens in nature. Within the past year a decided advance has been made in investigating the question, as to whether the inexhaustible store of nitrogen in the air could be utilized by plants, and, if so, by what process this nitrogen was made available as plant food.

For many years experiments in micro-organisms have shown that some particular kinds of plants have the power to acquire and fix in the soil, by means of these organisms, the store of nitrogen from the atmosphere (the root tubercles of most of the leguminous crops, pea family more especially); and that there are a great number of different organisms which accomplish the work for different kinds of plants was well known. Thus, if we wish to produce tubercles on the roots of lupines, we must grow the plants in soil which contains the lupine bacteria or micro-organism, for a rootlet requires at the spot where it touches the soil a most minute quantity of food, but it is necessary to its functions and its very existence that this minimum be found exactly at this spot.

Already it has been shown in a few trials that an increase in the yield of leguminous crops can be caused by spreading small quantities of soil from fields where legumes have previously been grown over ground where another crop of the same kind of legumes was to be grown.

The bacteria or micro-organism in one soil were thus transmitted or infected to another, to aid in supplying the new crop with nitrogen from the air.

In inoculation of the soil with these bacteria we seem likely to have another means of increasing the growth of crops. These results have been obtained by the investigations of the bacteriologists in searching out the micro-organisms of diseases and methods of prevention. In attempting to find a specific organism they have stumbled on another quite unexpectedly, and likely to be of as much importance to the agriculturist as to the physician.

A number of the diseases of plants have also been traced to minute organisms or fungi; new

species have been discovered, and the life history of many formerly known have been traced out. These diseases are soft rot, black rot, stem rot, white rot, dry rot, potato scurf, leaf blight, leaf mould, finger and toe of turnips. These diseases and the fungi which caused them have been fully investigated, methods of prevention and cure suggested.

Clover rust was found to invade only a second crop, and known under the generic term of clover sickness. It was found that while an early crop is not likely to suffer, when the second crop was used as a fertilizer, the fields should be carefully watched, and the crop plowed under if rust appears ever so slight.

Experiments have been made in treating large quantities of wheat for stinking smut. The seed to be treated was immersed in hot water, at a temperature of 131° F. The object to be attained is to thoroughly wet and bring every grain into contact with the hot water. The details are unimportant. The loose smut of oats has been treated in this way with success, and it not only destroys the smut, but also gives a greater yield than would be expected from merely removing and replacing the smutted wheat with sound seeds. The remarkable circumstances about all these organisms is that they are unable to withstand extremes of heat or prolonged cold. There is, however, some difficulty in accounting for the mode of operation, as in many diseases of animals we see exactly the same process as transplanting the mould for propagating the growth of leguminous seeds. Of all the contagious diseases to which animals are liable tuberculosis is most widespread; even reptiles are known to be subject, whilst it is common among the birds. There is, perhaps, no animal that so commonly falls a victim as the milch cow. From recent investigations, and an intimate knowledge of animals of the farm, we are desirous of again and again warning our authorities of the importance of this matter—to point out the danger of using unboiled cow's milk—one of the most favorite and nutritious articles of diet consumed by the public, although it is to be devoutly wished that the recent experiments to discover a general method of obtaining a curative substance, which has been done in some other of the malignant diseases, will be successful.

Dr. Behring, of Koch's Institute, Berlin, has discovered a principle by some experiments that the blood serum of an animal protected against a certain infectious disease possesses a curative power against this very disease in other animals. Thus, when an animal is rendered immune, "that is to say, when the animal has once had an attack of a contagious disease, he is proof against a second attack"; a quantity of the blood of the immune animal exerts a curative influence, not preventive, on another animal which has been inoculated with, or already suffers from, a contagious disease, so that we may hear very shortly that a method has been discovered of treating tuberculosis on the same lines.

The study of micro-organism seems to point in the direction of cause and cure of almost every known phase of animal and vegetable disease. When we study the system of life, we are instantly brought face to the problem: How very dependent one form is upon the other; that parasites and parasitic forms of life are essentially the manifestations of animal and vegetable organism: the birth, growth, reproduction, decay and death are only the stages.

Veterinary Questions.

ANSWERED BY W. A. DUNBAR, V. S., WINNIPEG.

I have lost two pigs out of a litter with the same symptoms; they first appeared short of breath, then ran round in a circle squealing, and died in about half an hour. The sow is in fair condition; little pigs three weeks old, and in very good condition. Would bleeding do them any good, and if so where is the proper place to bleed them?

THOS. GOSNEY, Miami.

The trouble is evidently in connection with the digestive organs, and is probably caused by improper food, such as frozen wheat, etc. Give to small pig two tablespoonfuls of castor oil, and one teaspoonful of laudanum. Bleeding is unnecessary.

Please give some simple remedies, if there are any, for the cure of foot and mouth disease; something that can be procured fifty miles from a drug store. Is there any means of preventing the disease from spreading in a herd? SUBSCRIBER.

The animals and their surroundings should be kept clean. The litter should be light and dry, and changed at least twice a day. Among the various lotions recommended to relieve irritation in the mouth, the following is the most simple and effective:—Borax and alum, of each one ounce; water three pints. This solution should be poured into the mouth from a bottle twice a day, and about half a pint used each time. The feet should be kept clean by washing gently once or twice a day with water containing two ounces of alum and one ounce of carbolic acid to the quart.

I found eight large worms like the one that I have sent you, and also a number of others about the size of a darning needle, in the small intestines of a pig which weighed 168 pounds. Would you let me know through your valuable paper the name of these worms, what harm they do, and also what is best remedy to use? Yours truly,

THOS. FISHER, Riverside, Assa.

The specimen you have sent in is an intestinal worm (lumbricus). This kind of worm is frequently found in the small intestines of various animals, but unless they are numerous they are not considered very injurious to health. For full grown swine, half a teaspoonful of sulphate of iron (pulverized) put in food morning and evening for a week or ten days, will be found a simple and effective remedy. For younger animals give a proportionately smaller dose.

A four-year-old mare got her hind leg cut on a road scraper last summer, and not having much knowledge on the treatment of such cases, I tried to do as everyone told me, and now the mare is worse than at first; leg is swollen to twice the natural size, with a large lump of raw flesh, like the half of a goose egg, and every time she lifts her leg the middle of this lump (a piece about an inch in diameter) pulls in. She is very lame just now, though sometimes she can run as though nothing was the matter with her; have tried several different treatments, and two V. S.'s have failed to cure her; am now using Butter of Antimony. Can you tell me how to cure it?

JOHN KILPATRICK, Killarney, Man.

You do not mention what part of your mare's leg is injured, but I think it must be the back part, just above the fetlock, and "the piece that pulls in" is probably the end of a tendon; if this is so, the case is somewhat serious, and should receive the attention of a good veterinary surgeon. If you are not within reach of a qualified man, you may try the following treatment:—Apply flaxseed meal or bran poultice to the part for forty-eight hours, changing the poultice twice a day, and then dust on to the raw part once a day a powder composed of equal parts of iodiform and boracic acid. Remove scab as soon as it becomes loose, and apply powder to the raw surface. The leg will remain enlarged, but after the sore is healed a course of blistering would probably reduce it to some extent.

Please answer the following questions through the ADVOCATE: Is there any way of detecting tuberculosis or lumpy jaw (which I understand is the same thing) besides the lump on the jaw, and is a lump on the jaw always an indication of it? Is there not danger to human life and health from using the flesh, milk or butter of such diseased animals? Is it safe to breed from a bull affected with this disease? Is there any law to compel a man to destroy animals so diseased?

"SANDY," Suthwyn, Man.

Tuberculosis and "lumpy jaw" (actinomycosis) are different diseases, produced by widely different causes. Tuberculosis is an infectious disease of cattle, and of many other animals, including man, and is developed from a germ called *bacillus tuberculosis*. This disease is more or less prevalent among cattle, especially in milch cows, in almost every civilized country, and is at the present time the subject of scientific investigation and research by the medical and veterinary professions in Europe and America. The governments of several countries, including that of our own Dominion, are also becoming aroused to action, and are taking the initiatory steps to stay the ravages of this scourge of man and beast. The first noticeable symptom of this disease, when the lungs are involved, is a low, short cough. As the disease advances the cough becomes longer, hoosier and very annoying to the animal. The disease is frequently in progress for a considerable length of time before the animal fails much in condition, but sooner or later the flesh begins to disappear, and continues to do so until (if the animal is allowed to live) nothing will apparently remain except the bony frame and hide. The flesh and milk of tuberculous animals are unfit for human food, being dangerous to life unless boiled or otherwise well cooked. Animals suffering from this disease should not be allowed to propagate their species.

Actinomycosis ("lumpy jaw") is caused by a vegetable fungus (actinomycosis), and appears as hard tumors on the upper or lower jaw and other parts of the head and face. Although this disease is chiefly localized in the region of the head and face, it is occasionally observed on other external parts of the body. The tongue is, in some countries, frequently the seat of actinomycosis, and the lungs and other internal organs are sometimes involved. Unlike tuberculosis, this disease has been proven by competent and careful investigators not to be infectious nor very contagious. The question as to where and how animals take this disease has not yet been satisfactorily decided, but it is generally believed by interested observers that the fungus enters the system through the food. According to the latest reports of European and American scientists, the flesh of animals suffering from actinomycosis is fit food for man or beast, providing it has not been in connection with the diseased part, and the animal was in good condition and giving no signs of constitutional disturbance. It is also stated in the reports mentioned that the iodide of potassium, in from one to two drachm doses twice a day for a week or longer, is a reliable remedy for this hitherto supposed almost incurable disease. For information regarding the disposal of animals suffering from infectious or contagious diseases, inquire of the Department of Agriculture, Statistics and Health, Winnipeg.