DIP TO PREVENT SCAB

Precaution Still Necessary to Continued Freedom of Flocks From the Disease

Sheep owners should continue for some years to come to dip their flocks at least once a year as a precaution against sheep scab according to specialists in the department of agriculture. During the past ten years systematic efforts to eradicate this disease have been so successful that there is a tendency on the part of many flock masters to believe that all danger of loss from this cause is at an end. This, however is the opinion of the department, is not the case. It is true that the economic losses from the disease at the present time are insignificant, but scab has not been completely eradicated, and it is necessary for the protection of the industry that dipping be continued for some time to come.

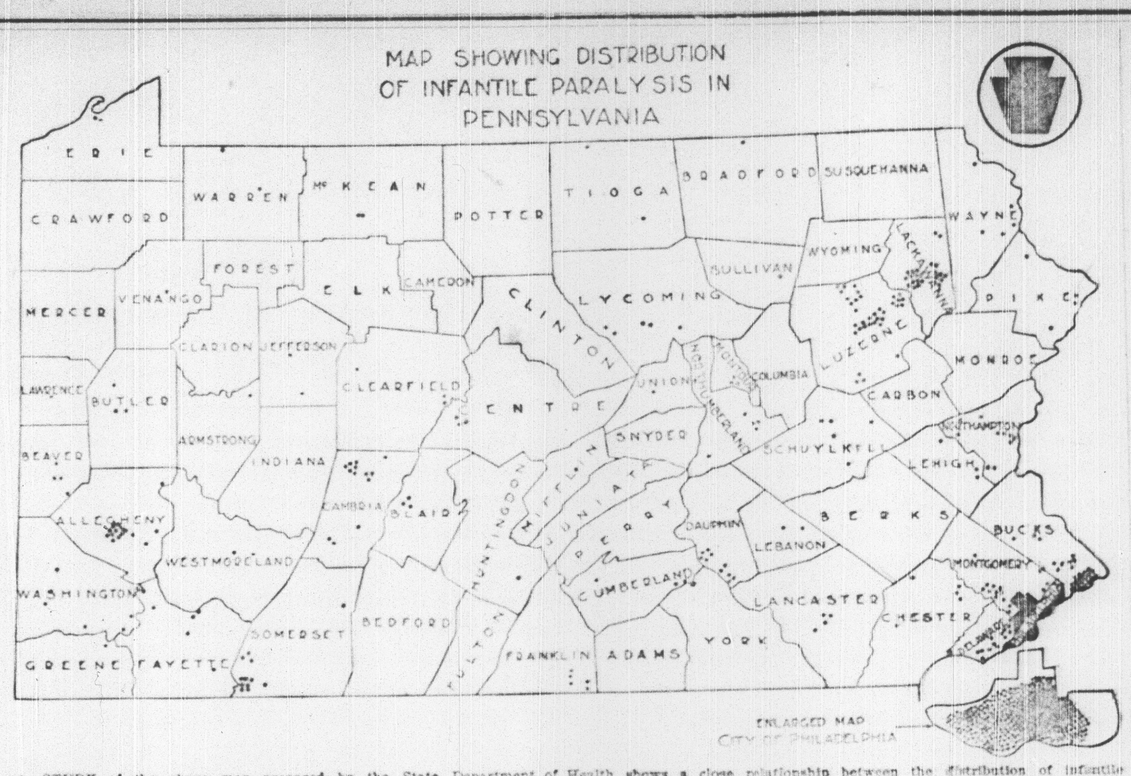
Two dippings from ten to fourteen days apart are necessary in order to insure the complete destruction of all the mites which cause the disease. The first dipping should kill all those that are hatched but may not destroy the eggs that have been laid in the wool. These hatch in about ten days, and the mites which result will succumb to the second dipping.

Common sheep scab is caused by a minute parasite, which is just large enough to be seen under favorable circumstances by the naked eye. These parasites deposit their eggs in clumps on the skin at the base of the wool fibers. They multiply with such extraordinary rapidity that if a few mites gain a foothold on one or two sheep, in a short time their descendants will be numerous enough to infest and injure seriously an entire flock. The damage consists not only in the death of a large number of infected sheep out in decreasing the quality of the wool produced by those which survive and in a general loss in weight and condition. The first symptoms to be noticed are restlessness on the part of the affected animals and a tendency to bite and scratch themselves. If the affected parts are within reach of the mouth, the wool is likely to be pulled out. Elsewhere it is scratched or rubbed so that it assumes a discolored and ragged appearance. As the disease advances, larger and larger areas are entirely stripped of wool. When the presence of scab is suspected, it is sometimes possible to discover the live mite by suddenly parting the wool around the affected area. With the aid of a magnifying glass, or even with the naked eye, the mites can then be seen moving away from the light. Scrapings may also be taken from the outer edges of the affected areas with a blunt edged knife. In warm sunlight the mites on these scrapings will become active, and they may be seen as minute gray bodies moving against a dark background. Well advanced cases are easy to recognize, but the disease should never be allowed to become far advanced. Any condition which causes the sheep to bite and scratch should be investigated at once. Occasionally the trouble may be found to be due to sheep ticks, common ticks, and lice. Both ticks and lice are much larger than scab mites and can easily be found on examination. It must be remembered, however, that their presence does not mean that the sheep are not also infested with scab mites.

TEST FOR WIRE FENCING

By the process of manufacture now in use, the length of service of wire fencing depends largely upon the quality and quantity of galvanizing on the wire. A common test that may be easily applied to determine the relative amount of galvanizing, or spelter, on a woven wire fabric, as given in a recent department bulletin, No. 321, "Cost of Fencing Farms in the North Central States," is as follows:

Make a saturated solution of copper sulphate by dissolving 36 parts of copper sulphate to 100 parts of water by weight. Not less than a quart of the solution should be used in the test, and to make a quart of the saturated solution requires approximately 11 1-2 ounces of copper sulphate, or, as it is commonly called, blue vitriol. Slightly more than this amount should be used, however, as there should be a small excess of the copper sulphate. This may be either left in the solution or the solution may be strained off from it. The wire to be tested is immersed in the prepared solution which should be at a temperature of 60 to 70 degrees F., and left for one minute, at the end of which time it should be removed and wiped thoroughly dry. This operation should be repeated until the wire shows a deposit of metallic copper. The copper will not be deposited on the wire until the galvanizing is removed, and a well galvanized wire should stand at least three immersions in the copper sulphate solution without showing copper deposits on it. Some specially galvanized wire will withstand four immersions without showing copper. This wire is known as four minute wire, and may be had at a slight advance in price. When the common comercial copper sulphate is used in performing the test there is very slight excess of acid present in the copper sulphate solution, which, if not neutralized, may cause the solution to act more strongly on the wire than it should. The acidity may be neutralized by adding a small amount of cbpper oxide; 2 ounces to a quart of solution should be sufficient. On account of the nonsolubility of the copper oxide it must be added a long time—at least a month—prior to the time the solution is used.



A STUDY of the above map prepared by the State Department of Health shows a close relationship between the distribution of infantile paralysis in Pennsylvania and the direct lines of travel between this State and New York City, where the epidemic has reached large proportions.

It is evident that those sections of the State which are in close contact through the intercourse of travel have by far the largest number of cases. This demonstrates the necessity for the quarantine which has been ordered to protect the children of the Commonwealth from the unfortunate fate of thousands in neighboring States.

Commissioner of Health Samuel G. Dixon has asked the help of all thinking people in making this quarantine effective.

STATE COLLEGE NEWS

Two-Year Course Makes Practical Farmers

The two-year course in agriculture which was established at The Pennsylvania State College in 1907 is producing men who are achieving a large success in farm management and many other lines of agricultural work. Instances of highly successful graduates might be multiplied. Last year two hundred and two students, the largest number on record, were enrolled in this course.

The two-year course is designed to fit students for practical country life and more particularly for those who are not prepared and cannot prepare for the four-year courses, but who intend to make farming their life work. To enter the course an applicant must be eighteen years of age or over and must satisfy the dean of the School of Agriculture that he is sufficiently well prepared in secondary school subjects to be able to pursue the work with profit. One full year of farm experience or its equivalent is required.

Persons seeking admission to this course or desiring further information should write to the dean of the schoo lof agriculture for application blank

College Courses Get New Leader

The growth in the number of students taking the two-year and winter short courses in agriculture at The Pennsylvania State College has been such as to warant the appointment of a special leader to assist with these students.

Mr. W. W. Wood, a graduate of the class of 1916 at State College, has been chosen to head this work. Both by temperament and natural ability Mr. Wood is admirably fitted to undertake this new work. He brings to the position a broad vision and a sympathetic viewpoint gained from a large experience in handling men while occupying the position of student leader in college.

While Mr. Wood's work will include the general supervision and guidance of the students in the two-year and short courses, it will have in mind also the larger purpose of linking up the graduates of these courses with various lines of agricultural extension in their several communities.

College Orchard Work Is Markedly Successful

Apple and peach orchards located in different sections of the State, which were taken in charge for demonstration purposes last Spring by The Pennsylvania State College, are all showing the effect of wise treatment. As a result of proper pruning, spraying and cultural treatments early in the season, two of the three apple orchards have set a full crop, the exception being an orchard planted sixty years ago, on which the tops were cut back twenty feet, and which even this year under such severe pruning has set some fruit.

The college plans to hold harvesting and packing demonstrations in these orchards later. Mechanically-operated grading and sizing machines will be used and box and basket packing will be demonstrated. Announcements concerning the time and paces for these demonstrations will be made beforehand.

As the crops in all the peach orchards were injured by cold the work in these orchards must be confined o preparing them for fruiting another season.

The results secured in all orchards have been unusually satisfactory. The college is to have charge of the orchards for three years. The work is being supervised by A. F. Mason, in charge of extension work in horticulture. The demonstrations have been staged in Allegheny, Beaver, Erie and Westmoreland counties.

Pennsylvania is Sixth in Potato Production

Extension Circular 45 of The Pennsylvania State College School of Agriculture and Experiment Station, entitled Potato Culture, has just been issued. It is intended to present the most important points to be observed in the culture of potatoes and the suggestions contained in it are based upon the results of investigations instituted by the various experiment stations as well as the practices of the most successful commercial growers.

This circular, which was prepared by Prof. C. E. Noll of the department of experimental agronomy, states that no particular soil series in Pennsylvania can be defined as "the potato soil." In the ten counties leading in percentage of improved land devoted to potato culture not less than five soil series are represented and as a rule but one of these series predominates in each county.

When it is remembered that for the five years ending in 1914 Pennsylvania has averaged fourth in the total average devoted to potatoes, sixth in total production and second in the total value of the crop, the importance of correct cultural methods will be appreciated.

The circular treats soil requirements, rotations, soil preparation, fertilization, plowing, cultivation, harvesting and variety improvement. Any resident of Pennsylvania may have the circular upon request.

A New Wheat Disease Discovered in Pennsylvania

During the past season there has come to the attention of the botany department of The Pennsylvania State College School of Agriculture and Experiment Station a destructive disease of what, which appears to be quite prevalent throughout the State. In several fields which were inspected, from 25 to 35 per cent of the stalks were diseased and the kernels were very poorly developed. Where the disease occurs the wheat heads fail to fill out, or if they do the kernels are much shriveled. Accompanying this condition is a browning of the joints. The straw just beow the joints shows brown, watery streaks also.

This condition of the stalks appears to be due to a fungus which works internally. This parasite, also, may be responsible for the failure of wheat to fill out properly. It is desired to know the extent and destructiveness of the disease in the State and remedies measures are to be tested as soon as possible. Wheat growers who have observed this condition in their fields are requested to correspond with the botany department at State College. This department is making a study of the disease.

THREADWORMS

Parasites Infecting the Gullets of Sheep and Cattle Caused by Swallowing Insects

Sheep and cattle very frequently have threadworms in the gullet. These worms are seen in the lining of the gullet beneath the surface in a rather striking wavy pattern similar to that formed by a snake as it travels over a smooth surface. The worms are slender and threadlike, but as they measure from over an inch to 6 inches in length and raise up the surface of the lining of the gullet to form slender wavy ridges, they are readily located when an infested gullet is slit open and examined. So far as known, the damage occasioned by the presence of these parasites in sheep and cattle is rather slight, though it has been determined that a closely related parasite is intimately associated with if not the casual agent of cancer in the stomach of rats.

It has been shown by investigations and experiments in the Zoological division of the Bureau of Animal Industry that various species of dung beetles are the source from which sheep and cattle become infested with the gullet worm. These dung beetles may be found in almost any manure deposit, except during the winter in cold climates. The beetles usually crawl under the manure deposit, enter from the bottom, and feed on the inner portion of the deposit as long as it remains moist. When the beetles eat the manure they swallow the gullet worm eggs which have passed down the esophagus through the stomach and intestine and out in the manure of the infested sheep or cow. As soon as the manure becomes too dry and hard to work the dung beetles abandon it and crawl into the ground or fly to other and fresher deposits. In about a month the eggs which were eaten by the beetles have hatched and developed into an encysted stage in the body of the beetle, ready to continue their development when the infested beetle is swallowed by a cow or sheep.

The opportunity for sheep and cattle to swallow these beetles comes when the beetles fly from one manure deposit to another. The flight usually ends by the beetles landing on the pasture somewhere near a manure deposit, and as they crawl about through the grass toward the manure, attracted by the odor, they are commonly swallowed by grazing animals. The beetles are no doubt eaten unconsciously as a rule, but as sheep and cattle eat large numbers of insects, since practically every plant is the permanent home or temporary resting place of a number of insects, it is perhaps a matter of more or less indifference to them if they are conscious of the presence of insects in a mouthful of food. This is especially true of cattle, since cattle are noted for eating foreign objects, such as nails, wire, bolts, knives, rubbers, etc. Among the various kinds of insects picked up by sheep and cattle during the course of a day, dung beetles are likely to be more or less numerous, and of these some are likely to harbor larval stages of the gullet worm, now ready for the next step in development. In the digestive tract of the cow or sheep the beetles undergo partial digestion, releasing the larval worms, which make their way to the gullet and burrow into its lining. Here the worms become mature and in time the female deposits eggs which pass down the gullet and out in the manure to carry on the life cycle.

It was found that under experimental conditions the eggs of the gullet worm would develop to an infective larva in croton bugs as well as in dung beetles; but since croton bugs do not breed in manure and are house dwellers, it is evident that they do not play any part in the natural transmission of the parasite. It is interesting to note, however, that Danish scientists have found a worm, similar to the gullet worm of sheep and cattle which develops as a larva in croton bugs, cockroaches, and mealworm, and which occurs in nature in the gullet, mouth, tongue, and first portion of the stomach of rats. This worm is extremely interesting from the fact already mentioned that its development in the rat is followed by the appearance of cancer of the stomach, a fact of great importance from a scientific and medical standpoint.

While there is now a general recognition of the importance of biting insects as carriers of such diseases as malaria and yellow fever, and of such insects of the fly as carriers of the germs of typhoid fever and other bacterial diseases, the facts cited above show that insects have an importance not yet generally recognized as carriers of parasites. From such parasitic infection man himself is not immune. It has long been known that infestation with a certain kind of tapeworm only occurs as the result of eating the fleas or lice of dogs, and the list of cases of the occurrence of this tapeworm in man, and especially in children, indicates only too well that dog fleas and lice are swallowed by human beings not altogether rarely. In the case of sheep and cattle the swallowing of insects is practically unavoidable, but man can guard himself against swallowing dog fleas and lice and its rather unpleasant as well as dangerous consequences by observing greater care in his relations with pet animals, particularly by excluding them from his household, which is the only certain way of preventing the scattering of their external parasites in places from which children and even grown persons are liable to swallow them.