Kerosene emulsion as a sheep dip and as a destroyer of parasites upon domestic animals

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**Remedy.**

The remedy for either of these borers, as well as for the Imported Currant-borer, *Sesia tipuliformis*, which does so much harm in states farther east, is to trim out infested stems and burn them during the winter or early spring. This remedy if faithfully attended to once a year, will prove effectual unless there are negligent neighbors who are breeding the pests year by year, to restock your bushes, in which case it will be necessary to induce them to join you in your efforts to keep these enemies of the currant under control.

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**Kerosene Emulsion as a Sheep Dip and as a Destroyer of Parasites upon Domestic Animals.**

C. P. GILLETTE.

It should not be necessary for me to urge upon him who owns sheep the importance of ridding his flock of ticks or other parasitic insects that annoy them. There seems to be a common but mistaken opinion that only poor unprofitable animals will get “lousy.” There are many insects, those that feed upon plants as well as animals, that seem to have decided individual preferences. It is not uncommon to see a tree or plant seriously injured year after year by some insect that does little or no harm to other trees or plants of the same species growing near. The same is true in the case of animal parasites. Certain individuals in a flock or herd, on account of a tender skin, or other peculiarities are preferred by the ticks or lice, as the case may be, and in consequence, they congregate upon these animals in large numbers, constantly biting them and sucking their blood, causing them to become poor even with the best of care. The first step necessary to be taken to get such an animal in good condition is to free it of parasites. This can be so cheaply and easily done by the use of kerosene emulsion, a mixture of kerosene, soap and water, substances that are always at hand, that it seems entirely inexcusable for a man to allow his domestic animals and his pocket book as well to suffer from these causes.
I have already shown by experiments (See Bull. 5 and 7 of this station) that kerosene emulsion is a most cheap, effectual and desirable remedy for the destruction of lice that infest cattle and hogs. During the past summer I was enabled through the kindness of Professor L. P. Smith, who allowed me to experiment with the sheep upon the State Farm, to test kerosene emulsion as a sheep dip. It has been customary each year just after shearing to treat the sheep upon the farm with one of the standard sheep dips sold upon the market, so the sheep were very free from ticks. But as there can be no doubt as to the power of the emulsion to kill the ticks, it was thought to be well worth while to determine whether or not it could be safely applied to sheep as well as to cattle and hogs for the destruction of parasites.* Forty large full-blooded Shropshire sheep and eighteen early lambs were treated. The applications were made June 23, at which time the wool upon the sheep was a half inch and the wool upon the lambs fully one and one-half inches in length. These conditions made the test a severe one, as the chances of removing the fleece or otherwise injuring the sheep were far greater than if the treatment had been made at shearing time. The emulsion was also made strong, eight per cent. of the whole being kerosene. This is probably twice as strong as is necessary to kill ticks on sheep.

During the treatment a man stood in the dipping vat with the emulsion nearly waist-deep to begin with, and he thoroughly drenched every sheep put into it.

On account of the men being ready to dip the sheep before the emulsion was prepared, the latter was made rather too hurriedly and it was noticed that a thin layer of free oil rose to the top of the emulsion before the first sheep was put in which with a good emulsion, would not have occurred. The old sheep were dipped first and the lambs afterward. The result was that three or four of the first sheep put in lost patches of wool from their backs and sides, amounting, in all, as near as I could estimate, to one half of the wool of one sheep. Aside from this no harm was done. The lambs with fleeces heavy enough to be sheared, lost no wool whatever. The man who stood in the vat to dip the sheep experienced no unpleasant results from having stood in the emulsion for an hour. The actual amount of the dip used in

*Since writing this paper my attention has been called to an article in the American Agriculturist for October, 1889, p. 490, where a Mr. Joseph Harris has used kerosene emulsion as a sheep-dip. The strength recommended by Mr. Harris is about six per cent. kerosene. He says nothing of any bad effect from its use.
treated these fifty-eight sheep and lambs was about eighty gallons, the cost of which was $1.11. This would be an average of a little less than two cents for each sheep. Had the sheep been treated at shearing time, much less material would have been used. A five per cent. emulsion would undoubtedly be strong enough to destroy ticks or other parasites upon sheep. Such an emulsion, with kerosene at fifteen cents per gallon and soap at ten cents a pound, would cost eighty-seven and one-half cents for 100 gallons. This would make the cost of the emulsion, when used as above, one and one-fifth cents per sheep. The expense of this as compared with one of the standard commercial dips, as for example McDougall’s, is less than one-fourth of the latter when prepared as recommended by the manufacturers, namely: by putting two gallons of the dip in 100 gallons of water, the dip costing two dollars per gallon.

**Conclusions.**

The emulsions to be drawn from the above experiment are, that a good kerosene emulsion of sufficient strength to kill parasitic insects can be used safely upon sheep without removing or injuring the fleece, but that an emulsion of poor quality should not be used, as it would probably cause the sheep to lose much of their wool.

The emulsion should always be tested before being put into the vat by diluting a small quantity in a dish. If the kerosene should rise to the top the whole should be put in a vessel and heated to boiling and again emulsified. This boiling had best be done out of doors where there would be no danger from fire if the kerosene should ignite.

Prepare the emulsion in the following manner: Dissolve one half pound of common hard soap in one gallon of water by boiling; while boiling hot remove from the fire and immediately add two gallons of kerosene and agitate the whole briskly for a few moments when a creamy frothy mass will be formed that can be diluted to any extent with water without oil rising to the surface. The emulsifying is best done with a small force pump by pumping the material violently back into the vessel that contains it. In small quantities, nothing is better than an ordinary egg-beater to emulsify the soap and kerosene.

I wish to say a few words in this connection in regard to the effects of kerosene emulsion upon the hair of horses, cattle or other animals. Owners of fine stock seem to fear that
kerosene emulsion will leave the coat in a greasy or otherwise unsightly condition. I have made a large number of applications to the different domestic animals including horses, cattle and hogs, and in every case the coat has been either unchanged in appearance or made more sleek and glossy and the skin is left clean and soft.

Last May I treated a herd of cattle, part with kerosene emulsion and part with a strong decoction of tobacco, for Mr. C. J. Kogle, living a few miles from this station and requested him to take particular notice as to the effects that the two substances had upon the hair of the animals treated. About ten days afterwards, Mr. Kogle wrote me a letter in which he said, ‘I can not see that the tobacco has had any effect upon the hair whatever, but the kerosene and soap have had a glossy effect, a tendency to brighten the color of the hair.’ Mr. Kogle also said that the kerosene emulsion was more effectual than the tobacco decoction in destroying the lice which were very abundant on some of his cattle. The emulsion was ten per cent. strong and the tobacco wash was prepared in the proportion of one pound of tobacco to two gallons of water.

I must say that after repeated experiments with kerosene emulsion along with other substances commonly recommended for the destruction of vermin upon domestic animals, I feel certain that it is far ahead of anything I have tried when cheapness, effectiveness, ease of application and freedom from possible bad effects are taken into account.

CAUTIONS.—There is no danger of animals becoming poisoned from applications of kerosene emulsion as there would be in case of many of the commercial sheep-dips and other insecticides, but there are two cautions that should be borne in mind when this substance is to be used. In preparing the emulsion care should be taken not to bring the kerosene too near the fire, and when the emulsion is to be used as a sheep-dip, care should be taken not to use a poor emulsion, one from which the oil separates and rises to the top.
To His Excellency Horace Boies:

I have the honor to submit herewith the third annual report of the Iowa Agricultural Experiment Station as required by law.

THIRD ANNUAL REPORT.

A large share of the Director's time last winter was occupied in work at farmer's institutes; stock meetings, and horticultural meetings in different parts of the state, and in preparing for the Station work of last summer.

We hauled 420 loads of manure last winter from Ames to the poorest parts of the Experiment Station grounds. The sowing of the different kinds of grain and grass seeds was the first field work which was performed last spring. Some of them were sowed early and others late. On a part of the plats they were planted thick and on others thin. And the preparation of the plats for the seeds varied much, as a part of them were plowed nine inches deep; while others were plowed only four inches, and a few of them were only well scratched with cultivators and harrows at seeding time. The number of kinds of grain which we planted were as follows: Oats thirty; spring wheat nine; barley eight; rye two, and field peas two. For the purpose of finding better fodder plants than many of the common kinds if possible, we planted twenty four kinds of field and garden bush beans, and twenty one kinds of peas; but the beans proved partial failures on account of drought, and the peas were ruined by rust. We planted five of the best kinds of dent corn and an equal number of varieties of sweet corn; as well as dent and sweet corn which was obtained by crossing kinds which had the most desirable characteristics in 1889. We planted also for trial fifty two kinds of potatoes, and many different varieties of sorghum, sugar beets, mangolds, carrots, tomatoes, etc.

Early in the spring we planted a large collection of grass seeds from India and the northern part of Germany, as well as some untried grasses of this country. In September we