

# Kansas State Agricultural College.

## EXPERIMENT STATION.—Circular No. 4.

---

DEPARTMENT OF ENTOMOLOGY.

T. J. HEADLEE, Entomologist and Zoologist in Charge.

---

### **Prairie-Dog Situation.**

BY

THEO. H. SCHEFFER,

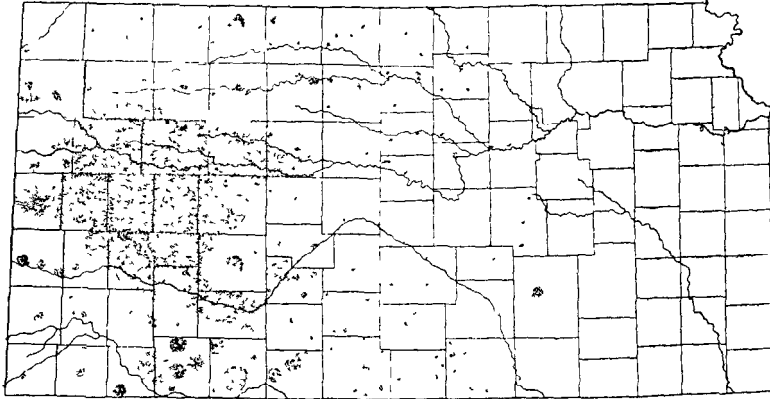
*Assistant in Zoölogical Investigation.*

---

#### HISTORY OF THE WORK.

IT is now a little more than four years since the work of preparing and distributing poison for the destruction of prairie-dogs was relegated to the Department of Entomology and Zoölogy at the Experiment Station. Previous to that time—July, 1901, to July, 1905—this work was in charge of a special field-agent appointed by the regents of the Agricultural College in accordance with the provisions of legislative enactments in 1901 and 1903. This field-agent, Mr. D. E. Lantz, now with the Department of Agriculture at Washington, carried the war into the prairie-dog territory in a series of vigorous campaigns, which have since been followed up by attacks all along the line. During the time Mr. Lantz was in charge a number of publications on the subject were issued by the Station, beginning with Press Bulletin No. 97. This was followed in a few months by Press Bulletin No. 108, and that a year later by a regular Station Bulletin No. 116. During the legislative session of 1903 Press Bulletin No. 119 was sent out. The supply of this bulletin having become exhausted, Press Bulletin No. 130 appeared in January, 1904. The most of these publications gave also some space to a consideration of the pocket-gopher. The Lantz series was concluded in 1905 by a general treatise on Kansas mammals in their relation to agriculture—Station Bulletin No. 129—in which the prairie-dog was given special attention. About a

PRAIRIE-DOG SITUATION.



Distribution of the prairie-dog in Kansas, as indicated by sales of poison. The number of dots clustered about the various shipping-points or country post-offices in the state represents the number of quarts of prairie-dog poison sent out by the Station to these places. This is a rough index of the local occurrence or absence of the pest in destructive numbers.

year later Prof. E. A. Popenoe prepared a short statement for the press under the title of Press Bulletin No. 153.

RECENT INVESTIGATIONS.

For a number of reasons it has seemed desirable to publish again on the subject at this time. All supplies of the above bulletins that were available for distribution to those interested have become exhausted. Then, too, a number of new and interesting phases of the work in its present stage of progress are worth presenting. The writer has just completed an extended and careful survey of the prairie-dog territory of western Kansas lying between the Union Pacific railroad on the north and the Santa Fe line on the south. Over most of this extensive scope of country the prairie-dog is no longer a factor to be reckoned with by the farmer and stockman. To such an extent has the little animal become a thing of the past in many localities that the occasional isolated "dog-town" is now looked upon by the residents as a matter of interest and old-time association rather than as a nuisance. On the other hand, in several quarters of the West, particularly along the flats and breaks adjacent to the Smoky Hill river, the prairie-dog has yielded ground but slowly and still constitutes a serious menace to stock grazing and dry-land farming.

LEGAL PHASE.

Three special legislative acts have given impetus and direction to the work of destroying prairie-dogs. The first law,

passed in 1901 organized the campaign by providing for experimentation and the appointment of a special field-agent. Under its provisions township auditing boards were authorized to act on petition. They were limited, however, to an expenditure of \$100 per year, except by consent of two-thirds of the residents of the township. The act of 1903 made it the duty of the township trustee to inspect all lands infested by prairie-dogs and to report to the county commissioners the estimated cost of putting out the poison or using other measures for exterminating the pests. Based on these estimates the commissioners were authorized to make a special levy not exceeding five mills on the dollar. Supervision of the work was left to the trustee, who might employ such help as he needed. At the last session of our legislature (1909) this law was repealed, but its main provisions were reenacted into a new law, with an additional clause imposing a fine upon trustee or commissioners for non-fulfilment of the law's provisions and raising the maximum levy to seven mills. As matters now stand any resident whose lands are infested by prairie-dogs can compel the proper officers to take steps for their eradication.

THE STATION'S METHOD OF COMBATING PRAIRIE-DOGS.

After a few months of experimentation in 1901, Mr. Lantz adopted poisoning as the cheapest and most easily applied method of ridding our western lands of prairie-dogs. The right to use a certain formula, protected by letters patent, was purchased for the state, and we have ever since followed this formula pretty closely in the preparation of our poison mixture. That it probably does the work as efficiently and as thoroughly as any substance or means which might be discovered or devised is attested by the almost universally favorable reports on its use and by the disappearance of the hordes of prairie-dogs from the farms and cattle ranges of the West.

The poison mixture is in the form of a syrup, prepared as follows :

INGREDIENTS FOR ONE QUART OF SYRUP.

- 1 oz. *strychnia sulfate* (powdered).
- 1 oz. *potassium cyanide*.
- 1 ½ ozs. *alcohol*.
- 1 pt. *syrup*.

*Preparation.*

*One ounce of green coffee-berries is mixed with the white of one egg and allowed to stand at least fourteen hours.*

*The strychnia is dissolved in a half-pint of boiling water. The potassium cyanide is dissolved in a quarter-pint of hot water and allowed to cool.*

*Add a little warm water to the mixture of coffee and eggs and mix it with the potassium cyanide. Then strain this mixture through a coarse sieve into the mixing vessel and add the syrup. Mix the alcohol with the hot solution of strychnine and add it to the other mixture. Stir all thoroughly.*

This mixture is put up in cans of two sizes—quart and half-gallon. It is intended to be used with wheat or Kafir-corn as bait.

HOW TO OBTAIN THE POISON.

The preparation and sale of the prairie-dog poison is not a commercial proposition with the College, as the work is carried on in pursuance of the policy of the institution to extend its usefulness along as many lines as possible to the classes of people who helped to create it. We put a price upon the poison which is intended to cover approximately the cost of materials and preparation. At present the poison-syrup sells at \$2 per half-gallon can, or \$1.10 per quart can. Orders may be sent directly to the department or simply addressed to the College, but all remittances, except in currency, should be made payable to Miss Margaret Butterfield, secretary of the College. As there is no margin of profit in the business there must likewise be no loss, so we cannot undertake to send poison to persons unknown to us unless the order is accompanied by remittance. We make an exception to this rule in the case of orders sent in by the proper officers.

HOW THE POISON IS SHIPPED.

Single cans of poison are securely wrapped and sent, usually, by express. Two cans may be wrapped together and sent in the same way, but larger orders are boxed. Shipment of poison by mail is contrary to postal regulations. The purchaser should always state whether he wishes the poison sent by express or freight. If left to us we ordinarily send the small shipments, at least, by express. In ordering poison give both your post-office address and nearest shipping-point. We advise you by mail the day that shipment is made. If there is

delay in receiving shipment or if any of the cans are damaged and leaking write us at once.

#### MIXING AND PUTTING OUT THE BAIT.

Failure to get good results can be traced in every case to carelessness or neglect of specific and simple directions in using the poison. The following directions for use are printed on the label of every can:

##### *Directions for Use.*

*"For every quart of syrup take a half-bushel of clean wheat or Kafir-corn in a large metal tub. After thoroughly shaking and stirring the contents of the can, pour it over the grain and stir until every part is thoroughly wet with the poison. Then stir in two or three pounds of fine corn-meal, to take up the extra moisture. Let the mixture stand in a shed over night and put it out early the next morning if the weather is fine. Place half a tablespoonful or less of the bait in two or three little bunches at the outside of each burrow occupied by prairie-dogs. Only occupied burrows should be poisoned. A half-bushel of grain should poison from 500 to 600 holes."*

STIRRING THE SYRUP.—Special pains should be taken to see that the contents of the can are thoroughly mixed before being poured over the grain. The two poisons, strychnia and potassium cyanide, are insoluble in the presence of each other and settle to the bottom of the can like the lead in mixed paints. When used in cool weather, as is usually the case, the cans should be set in hot water for a short time and then shaken thoroughly while in an inverted position. It may even be necessary in some cases to stir the contents of the can with a stick.

WHEN TO POISON.—While some degree of success may be attained by putting out our prairie-dog poison at any season of the year, we do not advise its use except in winter and early spring. When fresh grass or other vegetation is to be had the little animals do not take the poison bait readily. Any bright sunshiny day in January, February or March is favorable for poisoning operations, provided it warms up enough to bring the "dogs" out for an airing. The very best time is a period of thaw following stormy weather, especially when the latter was accompanied by snow. When the thaw succeeds the storm the prairie-dogs wake up and crawl out "hungry as bears" and ready to eat anything in sight. The person who has the poisoning in charge must use his judgment as to fa-

avorable days for work. It is of no use to put out poison when the "dogs" will not come out. Much money has been wasted in certain townships by keeping a gang of men steadily at work poisoning for two or three weeks at a time, when some of the days were rainy or stormy. Under such conditions the potassium cyanide rapidly deteriorates and, if rainy, the strychnia is also dissolved out and lost. Then, too, for the sake of our valuable birds the poison ought not to be put out except at times when it is likely to be quickly taken by the animals for which it is intended.

#### TOWNSHIP METHODS.

DUTIES OF THE TRUSTEE.—In all townships infested by prairie-dogs the trustee is required by law to purchase poison and to have the oversight of putting it out, or to use such other materials and appliances as he may deem necessary to destroy the "dogs." He is allowed \$2 per day for this supervision, and may hire as many helpers as he needs, paying them \$1.50 per day. In the exercise of this latter function the trustee ought to use the same judgment and care that he would in hiring men to work for himself. The writer listened to many complaints recently from taxpayers who stated that young boys or irresponsible men were sent out to do work that requires the maximum of care and judgment. The poison bait is often disposed of in any way to get rid of it instead of being deposited carefully in little piles about the entrance to the prairie-dog burrows. Not only this, but it is left in situations where the lives of valuable birds and domestic animals are constantly endangered.

GIVING OUT THE POISON.—In some townships the trustee adopts the plan of distributing the cans of poison among the residents of his township and letting them put it out on their own lands without compensation. This plan is hardly within the contemplation of the law, but it has some advantages—as well as disadvantages. It enables the scattered settlers in large townships to clear the prairie-dogs off their own lands and adjoining borders of the lands of non-residents. Some of these western townships are very large—twelve miles square, or even twelve by twenty-four miles in extent—and trustees claim that the expense of hiring men to put out poison over such an extensive tract would more than bankrupt their treasury. Another advantage of the plan lies in the fact that men will ordinarily exercise more care in putting out the

poison on their own lands than might be expected of persons hired by the trustee. Objections to the plan are, first, that the lands of non-residents are left as breeding-grounds for the prairie-dogs. Sometimes these lands constitute the bulk of the territory in a township or county. Again, by giving out a half-gallon can of poison to each landowner who requests it, much of the poison is wasted or allowed to stand around for years to deteriorate. Often the few "dogs" on an individual farm could be destroyed by the use of a pint of the poison, or even less.

GIVING OUT THE BAIT.—If the plan of giving out the poison to residents of the township is followed, it would be well to order some cans of the smaller (quart) size. A few trustees have told me, however, that they can get more and better results for the township's money by carefully mixing the poisoned bait themselves and giving it out ready for use to those who need it.

ORGANIZING THE WORK.—In the case of several large townships that were badly infested by prairie-dogs the trustees have organized the campaign against them by appointing an overseer of the work in each road district—sometimes the road overseer himself. These overseers were then authorized to secure as much help as they severally needed. In distributing the bait the men worked back and forth over their districts, taking as wide a strip each time across as they could conveniently cover.

#### USING THE POISON FOR GROUND-SQUIRRELS.

The little striped ground-squirrel or spermophile, *Spermophilus tridecemlineatus*, is very troublesome in most sections of the West, and the practice of using some of the prairie-dog poison for destroying these little pests has become very general. In case any considerable quantity of poison is needed for destroying spermophiles we would advise the purchase of our specially prepared pocket-gopher poison. This syrup lacks the potassium cyanide, and has been found by experience to be better adapted to destroying rats, mice and ground-squirrels than the prairie-dog poison. It is put up in quart cans only and is sold at the same price as the smaller cans of prairie-dog poison.

Approved:

ED. H. WEBSTER, *Director.*