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MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

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Poisoned Bait For the Control of Cutworms

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During the spring of 1925 about 15% of the tomato plants in the Crystal Springs trucking section were killed by cutworms. Many other crops were also attacked. In many fields where no control measures were used, losses of from 75% to 90% were sustained. The writer's attention was called to one field where the grower used over 14,000 plants in attempting to secure a stand of tomatoes on one acre that would require about 5,000 plants to give a perfect stand. The severe injury usually occurred on land that had formerly been in sod or in poorly cultivated fields. The cutworm that caused most of the damage is known as the Dingy Cutworm, *Feltia ducens*, according to Mr. H. W. Allen, who has identified many specimens collected in this part of the State.

Poisoned bait has been recommended for a number of years for the control of cutworms but has not been generally used in this state. In view of this fact, some preliminary experiments were conducted during the spring of 1925 at the Raymond Branch Experiment Station to test the value of poisoned bait for the control of cutworms attacking tomatoes. The bait used in these experiments was made according to the following formula:

*Wheat shorts	5 pounds	Molasses.....	½ pint
Paris Green.....	1 ½ ounces	Water.....	1 gallon

*Other investigations have shown that Wheat bran is as effective as Wheat shorts for the control of cutworms.

The shorts and Paris green were thoroughly mixed while dry; and then wet with the mixture of molasses and water until damp enough to be of such consistency that it would fall in small lumps, about the size of oat grains, when sown.

One experiment was conducted to determine the value of the bait upon land where no vegetation occurred. Screened cages 3' x 3' and 18" high were used. In two cages, poisoned bait was applied broadcast over the surface of the soil and two cages were left untreated for checks. The results of this test are given in Table 1.

TABLE 1
INFLUENCE OF POISONED BAIT ON CUTWORMS ON LAND FREE OF VEGETATION

Cage No.	Treatment	Norms per cage	Dead worms in 48 hours	
		number	number	percent
1	Untreated	50	4	8
2	Poisoned bait	50	43	86
3	Untreated	50	5	10
4	Poisoned bait	50	45	90

The second experiment was conducted to determine the value of poisoned bait for cutworms where the crop had been planted. This test was also conducted under screened cages. Sixty-four young tomato plants were set under each of four cages and fifty cutworms placed therein. Two of the cages were treated with a small quantity of bait placed near each plant and two were left untreated. Readings were made each morning for four days and the results are given in Table 2.

TABLE 2
INFLUENCE OF POISONED BAIT ON CUTWORMS ATTACKING TOMATOES

Cage No.	Treatment	Plants per cage	Plants cut each night				Plants cut in four nights
			1st	2nd	3rd	4th	
			number	number	number	number	percent
1	Untreated	64	12	10	16	23	95.32
2	Poisoned bait	64	3	2	1	0	9.38
3	Untreated	64	10	10	18	25	98.44
4	Poisoned bait	64	2	1	0	0	4.69

Data were taken on a simple field test where a grower left one long row of tomatoes across his field and poisoned all of the others. Here a small quantity of the poisoned bait was placed near each plant. Readings were made on the untreated row and on the two rows adjoining this row on each side. The outline of the experiment and the results therefrom are given in Table 3.

TABLE 3

INFLUENCE OF POISONED BAIT ON CUTWORMS ATTACKING TOMATOES
IN THE FIELD

Row No.	Treatment	Plants per row	Plants cut each night		Plants cut in two nights
			1st	2nd	
		number	number	number	percent
1	Poisoned bait	150	0	0	0
2	Poisoned bait	145	0	1	.07
3	Untreated	148	16	19	23.65
4	Poisoned bait	140	0	0	0
5	Poisoned bait	153	0	0	0

SUMMARY

1. In an experiment with cages free of vegetation 88% of the cutworms were killed where poisoned bait was applied broadcast and 9% died in the checks (probably from injuries obtained in handling.)

2. In a cage experiment where young tomato plants were growing, 7% of the plants were cut in the poisoned cages compared with 96.88% cut in the check cages.

3. In a simple field test, poisoned bait was applied in small quantities near each plant and one row was left as a check. Less than 1-10 of one per cent of the plants were cut on the treated rows compared with 23.65% in the check.