



WIREWORM CONTROL ON POTATOES

Crop rotation is an important tool in controlling wireworms. Wireworms tend to increase rapidly in red and sweet clover, small grains (particularly barley and wheat), or truck crops. On the other hand, a thrifty, clean stand of alfalfa that is maintained for 3 to 4 years tend to reduce wireworm numbers, because extreme dryness of soil is harmful to most wireworms, and alfalfa serves as a soil-drying crop. Moreover, if alfalfa fields are allowed to dry during the season in which they are out of production, further reduction in wireworm populations can be expected.

Biological Control. Birds feeding in recently plowed fields destroy many wireworms. However, the overall pest population is not reduced below economic levels in seriously infested fields. Field tests with entomopathogenic nematodes in wireworm infested fields show that they have not provided effective control of wireworms. Entomopathogenic nematodes show promise for control of flea beetle larvae and mature larvae of Colorado potato beetle. There are no known parasites or biological insecticides known to be effective in controlling wireworms.

Sampling Procedures: The best way to reduce wireworm damage to potatoes is to take preventative measures by treating the field before or at the time of planting. However, the type of treatment applied depends on the population of wireworms present in the field; the higher the population, the more severe the treatment should be. The best way to determine wireworm population is by soil sampling.

The sampling procedure is relatively simple and well worth the time spent. The equipment needed includes: a 2.5 gallon bucket to collect samples, a posthole auger 6.75 inches diameter, and a soil-sifting devise. The best time to sample is late summer; the next best time is spring when the soil temperature at the 6-inch depth is 45 F or higher. Each sample should be taken to a depth of at least 18 inches.

The number of wireworms per square foot then can be determined using the graph in Figure 1. To use this graph, place a ruler on the number of samples taken and on the number of wireworms found in the samples. Extend the ruler to the scale on the right, which will indicate the density of wireworms per square foot. Using the number of wireworms per square foot, refer to Figure 2. Enter this graph from the bottom line and draw a straight line up to the diagonal line and then to the left side of the graph. This will indicate the percent damage that can be expected from the wireworm levels present.

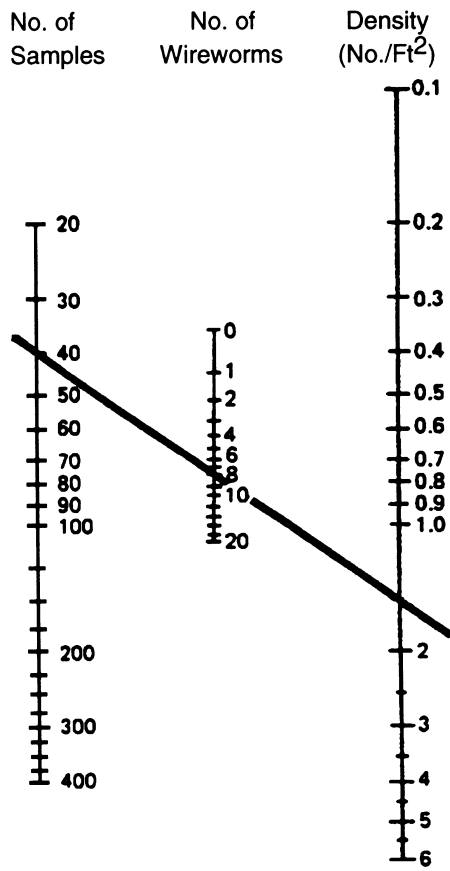


Figure 1. Nomograph used to convert the number of wireworms found in a given number of 1/4 square foot samples to the number per square foot. See text for details.

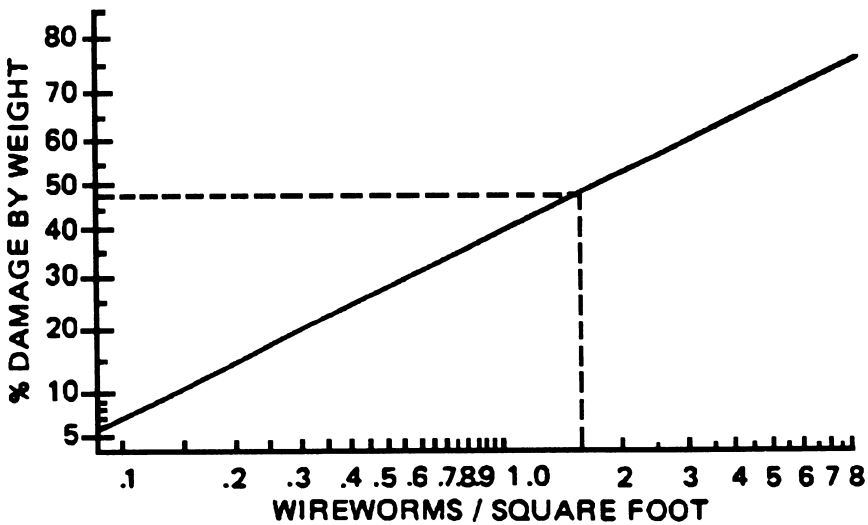


Figure 2. Graph used to estimate the damage to potatoes, which a given density of wireworms can cause. See text for details.

To determine what control actions should be taken in potato fields, refer to Table 1. For acreages not shown, use the next higher figure. The number of wireworms found in the required number of samples determines the type of treatment needed to give control in that field. When the number of wireworms

found approaches the upper limit of the ranges given, use the more severe treatment. If sidedress and broadcast treatments should be used, use two different insecticides. See the [Table of Registered Insecticides](#) for wireworm control.

Table 1. Recommendations for controlling wireworms based on acreage and number of wireworms found in sampling.

Acres in Field	No. of Samples	No. Wireworms for Sidedress*	No. Wireworms for Broadcast or Broadcast and Sidedress*	No. Wireworms for Broadcast and Sidedress* or Fumigation	No. Wireworms for Fumigation and Sidedress* or Fumigation and Broadcast	No. Wireworms to Plant Alternative Crop
0	30	0-1	2-6	7-10	11-14	15
14	35	0-1	2-7	8-11	12-16	17
18	40	0-1	2-8	9-13	14-18	19
22	45	0-2	3-9	10-15	16-21	22
28	50	0-2	3-10	11-16	17-23	24
40	60	0-2	3-12	13-20	21-28	29
55	70	0-3	4-14	15-23	24-32	33
71	80	0-3	4-16	17-26	27-37	38
90	90	0-4	5-18	19-30	31-42	43
110	100	0-4	5-20	21-33	34-46	47
134	110	0-4	5-22	23-36	37-51	52
160	120	0-5	6-24	25-40	41-56	57

* Furrow applications of phorate can be used in place of "at planting time sidedress."

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