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# Effect of metham-sodium on potato cyst nematode.

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DEPARTMENT OF AGRICULTURE  
PLANT PATHOLOGY BRANCH  
EXPERIMENTAL SUMMARY 1986

J.M. Stanton  
Plant Pathologist

EFFECT OF METHAM-SODIUM ON POTATO CYST NEMATODE

LOCATION: Munster, south of Perth

AIM: To determine the effect of fumigation with metham-sodium on potato cyst nematode (PCN).

TREATMENTS: Three properties were fumigated twice with 500 kg/ha metham-sodium incorporated to 25 cm with a rotary hoe. Because of quarantine measures it was not possible to include a control.

METHOD: Numbers of PCN at site 2 were so low that meaningful data could not be obtained. That site was fumigated but no further samples taken. Infested patches on the other three sites were mapped. At each sampling time (Table 1) about 5 kg of soil was taken from

Table 1. Fumigation and sampling dates

Site	Sampling			Fumigation	
	1	2	3	1	2
1	18/11/86	25/11/86	13/1/87	19/11/86	26/11/86
3	18/11/86	25/11/86	13/1/87	21/11/86	28/11/86
4	18/11/86	8/12/86	13/1/87	1/12/86	11/12/86

infested areas on each site using a pogo stick sampler. The soil was air dried and cysts floated off in water in a Fenwick can. At the first sampling, all cysts and apparently live eggs in about 3 kg soil were counted (Table 2). To test fumigation, 100

Table 2. Cumulative hatch from 100 cysts in 0.3 mM picrolonic acid for 18 days (figures in parentheses show % reduction due to each fumigation)

Site	Sampling			Total reduction (%)
	1	2	3	
1	1,213	298 (75)	261 (12)	79
3	-	1,037 (-)	39 (96)	96
4	2,398	402 (83)	70 (83)	97

cysts in four replicates at each sampling were placed in 0.3 mM picrolonic acid, an artificial hatching agent. Hatched juveniles in each treatment were counted. Hatching had not ceased at the time of writing this report but Table 3 shows results to date.

Table 3. Population data before and after fumigation

Site	Pre-fumigation		Live eggs/ ml soil	Post-fumigation
	Live eggs/ cyst	Cysts/ 100 ml soil		Live eggs/ml soil
1	232	45	105	22
3	229	21	51	2
4	188	84	159	5

COMMENTS: Without a control, it cannot be determined whether the reduction in live eggs was due to fumigation or to environmental factors such as temperature. Also, it is not possible to be sure that all apparently live eggs prior to fumigation were in fact alive. This might be checked using a vital stain. However, most cysts were produced in 1986 so it can be assumed that the pre-fumigation live egg counts were approximately correct. The data show that one fumigation was not sufficient to reduce nematode numbers to very low levels. Even after two fumigations at site 1, a large population remained. This site will be re fumigated.