

TECHNICAL NOTE.

ROOT-KNOT NEMATODE CONTROL IN TOBACCO SEEDBEDS.

The root-knot nematode *Meloidogyne javanica* (Treub) Chitwood is a serious pest of tobacco in Queensland. Smith (1957) has shown that the use of tobacco seedlings with trace infestations of root-knot nematode can cause serious crop losses, and a high level of control in the seedbed is therefore essential.

For many years effective seedbed sterilization has been obtained by burning either antbed (the inner woody material of termite mounds) or wood. The shortage of these materials in some areas has led to a demand for chemicals which will control both nematodes and weeds without retarding the growth of tobacco seedlings. Haney (1950) compared the use of DD, "Cyanamid," a "Cyanamid"-urea mixture and termite material. Since that paper EDB has come into widespread use for nematode control in field crops, methyl bromide has been employed in small quantities for nematode and weed control in seedbeds, and experimental supplies of "Vapam 4-S" (3 lb. sodium N-methyl dithiocarbamate per 40 U.S. gal. water) have become available.

The two trials reported in this note were set out in the Lower Burdekin district during 1956, as randomised blocks with 4 replicates and a plot size of 16 sq. ft., to test the value of these materials for tobacco seedbeds. The EDB used was made from a concentrate with Sp.G. $\frac{25}{25}$ 2.170.

Trial 1.

This trial, on a fine sandy loam at Clare, was seeded on Aug. 23-24 and benzol treatments (see Pont 1956) were commenced four weeks later. Weed counts in each plot were made weekly for three weeks by taking four 6 in. square quadrats at random within 2 ft. x 3 ft. datum areas. On Oct. 16, seedlings from six 8 in. square quadrats within the datum areas were pulled, cleaned and weighed, and examined for nematode infestations.

The treatments were:—

- (1) Antbed closely packed 6 in. high, and burnt on Aug. 22.
- (2) EDB 12½ per cent. v/v injected 6 in. deep at 9 in. spacings at the rate of 2 ml. per hole on Aug. 8.
- (3) Methyl bromide; 2 x 20 ml. ampoules per plot (i.e., at the rate of 95 lb./100 sq. ft.) applied under plastic covers on Aug. 21. The covers were removed after 24 hours.
- (4) Treatments 2 and 3 combined.
- (5) Control.

The results are given in Table 1.

Table 1.
RESULTS FROM TRIAL 1, CLARE.

Treatment.	Weeds per Datum Area (mean number).	Green Weight of Seedlings (g./quad.).	Percentage of Seedlings Nematode Infested.
Antbed	2	350.74	0
EDB	400	71.57	0
Methyl bromide	27	262.4	0
EDB + Methyl bromide	20	305.016	0
Control	532	52.82	35.2
Differences necessary for significance	} 5% 1%	95.26	..
		67.59	..

Trial 2.

The methods used in this trial, which was set out on a sandy loam at Rita Is., were similar to those in the Clare trial. Seedlings were pulled on Dec. 28.

The treatments were:—

- (1) Wood 1–2 in. in diameter closely stacked 2 ft. 6 in. high, and burnt on Nov. 10.
- (2) EDB 12½ per cent. v/v injected 6 in. deep at 9 in. spacings on Oct. 16, 2 ml. per injection.
- (3) Methyl bromide, 2 x 20 ml. ampoules per plot applied under plastic covers on Nov. 8. The covers were removed after 24 hours.
- (4) Treatments 2 and 3 combined.
- (5) “Vapam 4-S” applied at the rate of 2 quarts per 100 sq. ft. (i.e., 364 ml. per plot) on Oct. 19.

The results are given in Table 2.

Table 2.
RESULTS FROM TRIAL 2, RITA ISLAND.

Treatment.	Weeds per Datum Area (mean number).	Green Weight of Seedlings (g./quad.).	Percentage of Seedlings Nematode Infested.
Burnt timber	24	397	7.3
EDB	192	91	4.2
Methyl bromide	60	290	1.3
EDB + methyl bromide	60	260	.1
“Vapam 4-S”	60	292	40.7
Control	172	46	46.3
Differences necessary for significance	} 5% 1%	127	..
		92	..

The results from these trials show that sterilization by burning either antbed or wood is still the most effective method of seedbed treatment for tobacco. Methyl bromide fumigation, which gave good control of both nematodes and weeds, may prove a satisfactory substitute. The seedlings from methyl bromide treated plots, however, were inferior in size to those from the burnt plots. The economic significance of this difference is now being studied in related seedbed and field trials.

EDB at the rate used controlled nematodes but not weeds.

“Vapam 4-S” gave satisfactory weed control but did not control nematodes.

REFERENCES.

- HANEY, T. G. 1950. Chemicals for the control of weeds and nematodes in tobacco seedbeds. *J. Aust. Inst. Agric. Sci.* 16: 109.
- PONT, W. 1956. Tobacco diseases in Queensland. *Qd Agric. J.* 82: 635-640.
- SMITH, W. A. 1957. Root-knot nematode control investigations in tobacco in Queensland. *Qd J. Agric. Sci.* 14: 155-165.

R. C. COLBRAN and G. W. SAUNDERS, Entomology Branch.

ERRATA.

“A Survey of the Incidence of Copper Deficiency in Dairy Cattle in Coastal Queensland South of Brisbane.”

Owing to misinterpretation of the legend of a map, an error appeared in the above paper published in Vol. 14, No. 1 of this Journal.

The first paragraph under “IV. Discussion” on page 25 should read as follows:—

“Skerman (1952) mapped the alluvia of streams in south-eastern Queensland. These are shown as rising in the tertiary basalts of the hinterland but the alluvium is highly siliceous, being derived mainly from old metamorphics, mesozoic sediments of sandstone type, or redistributed marine sands of recent age. These soils are periodically inundated by floods and drainage is a serious problem. Due to their origin they are generally of low fertility and acid to strongly acid in reaction. This, together with poor pasture management, has led to the invasion of sown pastures of paspalum (*Paspalum dilatatum*) and white clover (*Trifolium repens*) by narrow-leaved carpet grass (*Axonopus affinis*). White clover has persisted rather more than paspalum, but both are now dominated by the more aggressive carpet grass. This is particularly true in the alluvial areas towards the mouths of rivers, where drainage is a major problem.

“Toxicity of the Leaves of *Macrozamia* spp. for Cattle.”

Line 27 on page 51 of Vol. 14, No. 2, of this Journal should read:

“reported here the horn was not affected, and it is thought that in the field damage”.