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NEMATODES ASSOCIATED WITH WHEAT IN QUEENSLAND

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A preliminary survey of nematodes in Queensland wheat fields was carried out in the spring of 1964.

Soil samples were taken from four areas regarded as below average in growth on each of 53 farms in the Biloela, Dalby, Goondiwindi, Kingaroy, Theodore and Toowoomba districts. The numbers of farms in each district were 3, 8, 11, 12, 11 and 8 respectively. A sample consisted of approximately 2 lb of soil around the roots of five randomly selected plants.

Nematodes were extracted by the inverted flask method (Seinhorst 1956).

Data on infestations exceeding 50 per lb for the ectoparasitic stunt nematode *Tylenchorhynchus brevidens* Allen and the endoparasitic root-lesion nematodes *Pratylenchus neglectus* (Rensch) (syn. *P. minyus* Sher and Allen), *P. thornei* Sher and Allen and *P. zeae* Graham, which are recognized parasites of wheat, are presented in Tables 1-4.

TABLE 1

DISTRIBUTION OF *Tylenchorhynchus brevidens*

District	Locality	Maximum Infestation (per lb)	Variety
Dalby	Dalby	64	Mengavi
	Jimbour ..	191	Mendos
	Kuyura ..	870	Kenora
Goondiwindi ..	Goondiwindi ..	6,496	Glenwari
Toowoomba ..	Boodua ..	343	Spica
	Brookstead ..	1,330	Festiguay
	Cecil Plains ..	529	Mengavi
	Norwin ..	104	Multiline
	Norwin ..	400	Spica
	Yandilla ..	1,157	Mengavi

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TABLE 2

DISTRIBUTION OF *Pratylenchus thornei*

District	Locality	Maximum Infestation (per lb)	Variety
Toowoomba ..	Boodua ..	93	Spica
	Brookstead ..	2,857	Festiguay
	Cecil Plains ..	1,394	Lawrence
	Cecil Plains ..	1,321	Mengavi
	Norwin ..	3,857	Spica

TABLE 3

DISTRIBUTION OF *Pratylenchus neglectus*

District	Locality	Maximum Infestation (per lb)	Variety
Dalby	East Jandowae	1,800	Spica
Goondiwindi ..	Goondiwindi ..	1,981	Glenwari

TABLE 4

DISTRIBUTION OF *Pratylenchus zeae*

District	Locality	Maximum Infestation (per lb)	Variety
Kingaroy	Merlewood ..	334	Mengavi

Langdon, Struble, and Young (1961) reported that *T. brevidens* was associated with general stunting, chlorosis, reduced tillering and lower yields of wheat and barley in Oklahoma. In glass-house experiments this nematode reduced the growth of wheat and increased its susceptibility to the root rot fungus *Olpidium*.

Benedict and Mountain (1956) reported that *P. neglectus* was associated with *Rhizoctonia* in a root rot of wheat in Ontario, Canada. Growth was improved when either pathogen was controlled but the increase was doubled when both were controlled.

Thorne (1961) reported that *P. thornei* was responsible for severe stunting of wheat in Utah, U.S.A.

Endo (1959) demonstrated that *P. zeae* reproduced on wheat under glass-house conditions.

Root-knot of wheat due to *Meloidogyne javanica* Treub was reported by Colbran (1964) from sandy soil at Beerwah, where the crop was being grown as a green manure, but was not found in the course of the 1964 survey.

Nematodes found in addition to *T. brevidens, P. neglectus, P. thornei* and *P. zeae* are given below with the number of farms on which they were present indicated in brackets.

Parasites of Spermaphytes

Helicotylenchus spp. including *H. dihystera* (Cobb) (8). Bungunya and Goondiwindi (Goondiwindi district); Moura and Theodore (Theodore district).

Meloidogyne hapla Chitwood* (2). Wooroolin.

Pratylenchus brachyurus (Godfrey)* (3). Wooroolin and Chelmsford (Kingaroy district).

Trichodorus minor Colbran (3). Gibber Gunya (Theodore district), Goondiwindi.

Tylenchorhynchus ewingi Hopper (2). Brigalow (Dalby district).

* *Meloidogyne hapla* and *Pratylenchus brachyurus* were found where peanuts had been grown as the preceding crop. Both species are important pests of peanuts in the South Burnett.

Few specimens of *Helicotylenchus* spp., *Tylenchorhynchus ewingi* or *Trichodorus minor* were present in any sample.

Nematodes Which Feed on Fungi and/or Root Hairs

Aphelenchoides spp. (51).

Aphelenchus avenae Bastian (46).

Ditylenchus spp. including *D. myceliophagus* J. B. Goodey (46).

Basiria graminophila Siddiqi and *Psilenchus* species including *P. tumidus* Colbran (15).

Paurodontus spp. (1).

Stictylus spp. (2).

Tylenchus spp., predominantly *T. exiguus* de Man (53).

Predators

Dorylaiminae (52).

Results of the survey indicate that heavy infestations of species of root-lesion and stunt nematodes involved in poor growth and root-rot complexes of wheat overseas are present in Queensland and may be of economic importance in some areas.

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