

YU, M. H., USDA, Agricultural Research Service, 1636 East Alisal St., Salinas, CA 93905. - Root-knot nematode and susceptibility of Beta plants to infection.

Meloidogyne spp. are plant parasites that cause root gall symptoms, and severely reduce sugarbeet yields and quality in many production regions. To learn root-knot nematode parasitism in sugarbeet, an investigation on root penetration, post-infection development, gall formation, and nematode reproductivity on specific hosts was conducted. Infection generally occurs at root tip area. After the second-stage juvenile (J2) has entered sugarbeet root it migrates and finds a suitable feeding site near the root vascular tissue in the endodermis. Nematode feeding stimulates formation of giant cells, hence root galls; meanwhile, juveniles undergo dimorphic development. The females reached the adult stage earlier than males. There was a positive association between levels of gall formation and nematode reproduction. Susceptibility of Beta plants to specific species/races of nematode varied noticeably by the number of root galls and eggs or J2 reproduced. Among inoculated plants from Beta germplasm that generally formed 10 to >100 galls, accessions which segregated plants with no root galls and low M. incognita reproductivity also were identified.