

Plant Parasitic Nematodes of Alfalfa in the United States.

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A total of 33 plant parasitic nematodes have been reported to either parasitize or be associated with the alfalfa plant. Most of these nematodes feed ectoparasitically on roots while a few are endoparasites of roots or shoots. Monoculturing of alfalfa has increased soil populations of parasitic nematodes resulting in greater plant injury. Injury and death of seedlings, as well as established plants occurs from the continuous feeding of one or more species. Damage to the plant is usually classified as 'chronic' rather than 'acute'. Reduction in yield occurs both from reduced plant stand, as well as reduced yield of the remaining parasitized plants caused by the slow drain of plant nutrients. The eventual death of these plants is usually from a combination of nematode parasitism and one or more biotic or abiotic factors resulting in an 'accumulated stress load' (Leath, 1989). Only a few of the total nematode species have been studied sufficiently to validate economic injury to the alfalfa plant in the field. Of those studied, the stem nematode, *Ditylenchus dipsaci*, the root-knot nematode, *Meloidogyne hapla* and *M. incognita* and the root lesion nematode, *Pratylenchus penetrans* appear to cause the most damage to alfalfa. Recent studies in the western USA have shown the foliar nematode; *Aphelenchoides ritzemabosi* is a co-habitant in the alfalfa plant with the stem nematode and often is responsible for the plants demise (Gray et al., 1994). Laboratory studies indicate cultivars with reported stem nematode resistance may also have resistance to the foliar nematode as well. Resistance to one or more of these major nematode parasites has been incorporated into many of the available certified cultivars. Plant genotypes with resistance to these nematodes have been found in various sources and resistance is usually conditioned by one or more genes with varying degrees of dominance (Elgin et al., 1988). Most recently, one certified cultivar was released with resistance to the lesion nematode and others are currently being developed. Multiple resistance to nematodes, diseases and insect pests and adaptability to local environmental conditions, should result in increased persistence of alfalfa stands in the USA.

References

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