

The background of the cover is a collage of microscopic images of nematodes. At the top, a large, detailed image shows the head and anterior part of a nematode with its characteristic cuticle and internal structures. Below this, several smaller, more delicate images show different stages or parts of nematodes, including what appears to be a leaf with a nematode-induced gall. The overall aesthetic is scientific and detailed.

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Nematodes

5ICN

Down Under

Addressing Root-knot Nematodes in Horticulture: Diagnostics Resistance and Integrated Management Practices in Turkey

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Root-knot nematodes are the most important nematode species for the both protected vegetable, horticulture and potato cultivation in Turkey. When root-knot nematodes is not controlled, they cause significant yield losses (between 50% and 80%) every year. Identification of root-knot nematodes on various groups has been achieved by using morphological, host reaction and molecular techniques. *Meloidogyne incognita*, *M. javanica* and *M. arenaria* are the common species found in Turkey. *Meloidogyne incognita* race 2 and *M. javanica* race 1 are widespread in vegetable growing areas eastern Mediterranean Region of Turkey. Recently a new finding of *Meloidogyne chitwoodi* on potato has been identified in the middle Anatolian region.

With the phase out of Methyl Bromide in Turkey by 2008, a large integrated project supported by World Bank and UNIDO in Mediterranean region of Turkey enabled alternative management practices to be investigated in greenhouse horticultural production systems. A number of treatment and treatment combinations were investigated including Solarization + Trichoderma, Solarization + Dazomet, Solarization + Fresh Chicken Manure, Solarization Fresh Cow Manure, Grafting and Resistant varieties to control root-knot nematodes. The most cost effective alternatives to methyl bromide were Solarization + Trichoderma and Solarization + Organic Manures. Also, other treatments were found to be viable and cost effective alternatives to methyl bromide in greenhouses. Another management strategy was backcrossing breeding to incorporate Mi-1 resistant gene into a commercial fresh cultivar of tomatoes. The effective transfer of the gene was validated by using MAS (Marker Assisted Selection). However, one of the challenges with Mi-1 gene is the resistance has not been effective in several locations, and also other resistance cultivars have broken down in the West Mediterranean Region. In order to address this further research on tomatoes is being carried out on the Mi-gene breaking population of virulent root-knot nematode on tomatoes in West Mediterranean Region supported by TÜBİTAK.

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