Nematodes

N 1

SURVEY OF NEMATODES ASSOCAITED WITH CORN ROOTS RHIZOSPHER IN SOME SYRIAN REGIONS. Sobhia Al Arabi and Maymona Al Massri, General Commission for Scientific Agricultural Research, P.O. Box 113, Damascus- Syria, E-mail: protlib@mail.sy

Soil and Root samples were collected from 76 fields cultivated with corn from 7 regions in Syria. The results indicated that 16 species of free-living nematodes and 15 plant-parasitic genera were found at different levels, varying from 1 to 36%. The two genera of plant-parasitic nematodes, *Pratylenchus* sp. and *Ditylenchus* sp. were commonly recovered from Corn plants. The frequency distribution of these two genera was 66% in soil and 44% in roots, 51% in soil and 79% in roots, respectively. Three species of lesion nematodes: *P. brachyurus*, *P. penetrans* and *P. zeae* were identified.

N 2

AN OVERVIEW OF NEMATODE PROBLEMS AND RESEARCH IN LIBYA. Mahmoud E. M. Ehwaeti, Omar-Al-Mokhtar University, Agriculture College, Department of Plant Protection, P.O. Box 119, El-Beida, Libya.

In Libya, nematode problems has been recognized as one of the threats to the agricultural production, especially vegetables. Surveys conducted by different workers have revealed that root-knot, citrus nematodes and lesion nematodes are common and cause damage to their respective host plants. The status of plant parasitic nematodes in Libya (genera, species, and host plants) and the damage they cause on some crops is recently described. Temik, Vyadate and indigenous nematicides were used for nematode control in fields severely infested with root knot, citrus and lesion nematodes, and others on tomato, potato and citrus. The use of nematicides produced marked reduction in the nematode population and significant increase in crop yield. In addition, cultural practices, organic amendments, and plant extracts also proved to be effective in nematode control. Tissue culture technique to maintain pure cultures of nematode species was used to study the life cycle and for testing varieties for nematode resistance.

N 3

HISTOPATHOGENESIS OF ROOT-KNOT NEMATODE, *MELOIDOGYNE INCOGNITA* AND GROWTH OF FOUR BANANA CULTIVARS AS AFFECTED BY DIFFERENT INOCULATION LEVELS. A.M. Kheir[1], A.W. Amin[1], H. Hendy[2] and M.S. Mostafa[2]. (1) Department of Agriculture Zoology and Nematology, Faculty of Agriculture, Cairo University, Egypt; (2) Plant Protection Department, Desert Research Institute, Nematology Unit, Cairo, Egypt.

The influence of four inoculation levels (100, 1,000, 5,000 and 10,000) of *Meloidogyne incognita* on the nematode behaviour and growth response of four banana cultivars were studied under greenhouse conditions. In general, the nematode final population was proportionally increased with the initial inoculation. On the other hand, the rate of build up of the nematode negatively correlated with its population initials. Comparatively, banana cv Grande-Naine had remarkable final population when inoculated with 100 or 10,000 juveniles of root-knot nematode; while Maghraby sustained high populations with all tested inocula. Contrary, cv Basrai harbored the lowest nematode final population at any of the inoculum levels. Also, the nematode population level was low or moderate on banana cv Williams, when inoculated with the above mentioned inocula. All nematode inoculation levels tested suppressed the plant growth of the four banana cultivars. Regardless of the cultivar, the growth reduction was increased when inoculum level was increased. Histopathological observations of infected banana roots, showed anatomical alterations in root tissues typical to those caused by *M. incognita* infection. Juveniles penetrate the cortical layers via vascular tissues feeding on cellular contents. Hyperplasia and hypertrophy in stele tissue were noticed in close vicinity to nematode bodies. A cluster of 3-5 of giant cells with thick cell wall and granulated cytoplasm were formed around the anterior region of the nematode. Root damage resulted from break down in stele elements and compactness in cortical layers due to nematode development and giant cells formation was observed.

N 4

HISTOPATHOLOGY OF SUGAR CANE ROOTS INFECTED WITH THE ROOT LESION NEMATODE, *PRATYLENCHUS ZEAE*. F.F. Moussa[1], S.A. Montasser[2], A.B. Aboul-Sooud[1], M.M.A. Youssef[1] and M.M.M. Mohamed[1]. (1) Nematology Laboratory, Plant Pathology Department, National Research Centre, Dokki, P.O. Code 12311, Cairo, Egypt, (2) Department of Agricultural Zoology & Nematology, Faculty of Agriculture, Al-Azhar University, Cairo, Egypt.

Longitudinal sections in roots of sugar cane cv. GT54-9 infected with *Pratylenchus zeae*, the root lesion nematode, showed that this pest penetrated the cortex causing considerable cell-wall damage, hyperplasia, collapse of cell contents

and thickness of cell walls. The presence of *P. zeae* in stele region apparently caused the formation of cankers.

N 5

DAMAGE THRESHOLD OF *MELOIDOGYNE INCOGNITA* TO SUGARBEET UNDER GREENHOUSE AND FIELD CONDITIONS. Ahmed M. Korayem, Plant Pathology Department, National Research Centre, Dokki, Cairo, Egypt.

The root –knot nematode especially *Meloidogyne incognita* is known as a sugar beet pest in many regions of Egypt. The tolerance limit (the level of the initial nematode population below which damage is not measurable) as well as estimating of yield losses caused by *M. incognita* on sugar beet were not determined under field condions of Egypt. Accordingly, two sugar beet cultivars "Oscarpoly" and "Raspoly" were tested under greenhouse and field conditions. In the greenhouse test, no relation between plant growth or total soluble solids (TSS) and nematodes inoculum level was found for both cultivars, up to $10J_2$/g soil, when infestation occurred 30 days after germination. Under field conditions, the two cultivars tolerated nematode infestation up to 10 J_2 /g soil, when infestation occurred 30 days after germination. At an infestation level of 15 J_2/g soil, the growth parameters were significantly decreased for cv "Oscarpoly" but not for "Raspoly", but the TSS (%). was not affected in both cultivars .

N 6

OCCURRENCE OF CEREAL CYST NEMATODE ON WHEAT AND BARLEY IN SYRIA. Hussam Abidou[1], Ahmed El-Ahmad[1], Amor Yahyaoui[2] and Roger Rivoal[3] .(1) Plant Protection Department, Faculty of Agriculture, University of Aleppo, Aleppo, Syria, E-mail: A.Yahyaoui@cgiar.org; (2) International Center for Agricultural Research in the Dry Areas (ICARDA), P.O. Box 5466, Aleppo, Syria; (3) Institut National de la Recherche Agronomique (INRA), UMR BiO3P, BP35327, Le Rheu, France.

Cereal cyst nematode (CCN) is one of the most important cereals root pests in the Mediterranean basin especially in rainfed areas, and studies on this pest are still few in Syria. The objective of this study was to survey the cereal cyst nematode in Syria at random in the wheat and barley growing areas. Eighty wheat and 63 barley fields were surveyed during three growing seasons (2000–2003). A two kg soil sample was collected from each field and washed in Fenwick can to extract the cysts. The population density of cyst per 100 grams of soil was evaluated. The CCN was found in 63.8% wheat fields and 77.8% barley fields. The highest population density was recorded in two barley fields in Hama and Aleppo provinces (319 and 181 cysts/100 g soil, respectively). Mean population density of

cysts in 100 g soil was 88 and 51 in Hama, 62 and 20 in Aleppo, 56 and 15 in Idleb, 40 and 1 in Raqqa, on barley and wheat, respectively. In other areas, the population density was no more than 15 cysts\100 g soil (Damascus, Daraa and Hasakeh) and the minimum was recorded in Lattakia, Tartus, Homs and Der Ezzor. Species identification was done according to some morphometrical characters of perineal pattern of the vulval cone of the cysts. *Heterodera latipons* Frank. was the most dominant species in both wheat and barley fields, whereas, *Heterodera avenae* Woll. was recorded on barley in Aleppo in two locations (Bayaeh and Bouider) and on wheat in Hama in one location (Musyaf). In another location (Gandura) in Aleppo, a different species was recorded on barley and its morphometrical characters were close to that of the species *Heterodera filipjevi* Madz, which belongs to the *H. avenae* group of the cyst forming nematode on cereals.

N 7

EFFECT OF *MELOIDOGYNE JAVANICA* AND *MELOIDOGYNE INCOGNITA* ON RESISTANCE OF MUSKMELON CULTIVARS TO FUSARIUM WILT. Ihssan Naji and Walid Abu-Gharbieh, Plant Protection Department, University of Jordan, Amman, Jordan, E-mail: abugharb@ju.edu.jo

A growth chamber experiment was conducted to study the interaction between *M. javanica* and/ or *M. incognita* and the Fusarium wilt fungus *F. oxysporum* f. sp. *melonis*, using three muskmelon cultivars differing in their resistance to the fungus. Treatments included inoculation with the fungus alone 14 or 28 days after transplanting; root-knot nematodes alone inoculated singly or concomitantly at transplanting or 14 days after transplanting; and combinations comprising the nematodes and the wilt fungus. At termination all muskmelon cultivars with different degrees of resistance to Fusarium wilt, almost completely lost their resistance in presence of *M. javanica*, but to a lesser extent by *M. incognita*. Wilting reached 100% in the resistant and moderately resistant cultivars inoculated with *M. javanica* 14 days earlier than the fungus alone. Also, *M. javanica* was more severe on plants than *M. incognita*. Considering all three cultivars, both root-knot nematode species exhibited early expression of plant wilting. It took 12.1, 14.8 and 12.4 days to show wilting in plants inoculated with *M. javanica*, *M. incognita* and both species, respectively, compared to 22.7 days in the Fusarium alone treatments. Furthermore, it took 9.0-13.3 days for expression of wilting when nematode preceded *F. oxysporum* f. sp. *melonis* inoculation by two weeks compared to 16.7-19.7 days when both disease causal agents were simultaneously inoculated 14 days after transplanting; indicating plant preconditioning by the nematode.

N 8

A FIELD SURVEY OF PLANT PARASITIC NEMATODES IN LENTIL FIELDS IN ALEPPO AND IDLEB PROVINCES, SYRIA. M. F. Ismaiel, M. H. Al-Zainab and A. El-Ahmed, Faculty of Agriculture, Aleppo University, Aleppo, Syria.

A Field survey of plant parasitic nematodes in lentil fields were conducted in Aleppo and Idleb provinces to determine its importance during the 2000-2001 growing season. The survey covered 161 lentil fields in 36 villages, from which soil and roots composite randomized samples were taken during pod stage. Cyst nematodes were isolated by decanting and sieving method. Migratory nematodes were isolated from soil by Bermann funnel, and also roots were stained by Lactophenol seurefuxin method to determine the presence of endoparasitic nematodes. Results indicated the distribution of several nematode species in 91 % of lentil fields. The chickpea cyst nematode *Heterodera ceceri* and root lession nematode *Pratylenchus* sp. were the most common (66%) in root and soil samples. Results also indicated the presence of *Tylenchorhynchus* sp., *Aphelenchoides* sp., *Aphelenchus* sp. and to a lesser extent *Hilicotylenchus* sp. in soil samples.