the treatment. After the first growing season, however, juveniles were again found at low densities at both levels in the soil suggesting that eggs had survived the fumigation. Females were not found again until the autumn of 1982. Thereafter, the densities increased rapidly and at the end of the experiment they were similar to, or slightly higher than those of the control plots. There was no significant difference between the final nematode densities of the two dosage treatments. At first harvest (second growing season) the plots treated with 300 and 400 l Di-Trapex/ha yielded 40 and 50 % more respectively than the control plots (15 and 16 t/ha compared with 11 t/ha). During the following two years the fumigated plots yielded 80-90 % more than the control plots. Berries from the treated plots were larger and of higher quality than those from the control plots.

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Barooti, S. - *Occurrence of* Bacillus penetrans *as a parasite of nematodes in Iran.*

During a five year survey of plant parasitic nematodes over 600 soil samples were collected throught the country. In only two samples were plant ectoparasitic nematodes observed to be parasitized by bacteria. The bacterium was isolated and identified as *Bacillus penetrans. Bacillus penetrans* Mankau, 1975, previously described as *Duboscqia penetrans* Thorne 1940, is a candidate agent for biocontrol of nematodes. The ability of *B. penetrans* to inhibit nematode reproduction and kill root-knot nematodes, as well as several other pest nematode species has been demonstrated. The distribution of this bacterium was limited to Tehran and Gholpaighan where it was found on *Helicotylenchus pseudorubustus* and *Merlinius microdorus* from the periphery of the roots of weeds and tobacco plants. This is the first report of these nematodes as hosts for *B. penetrans.*

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Baujard, P. - *Écologie des nématodes dans le bassin arachidier du Sénégal.*

Le biotope est caractérisé par l'absence de relief, des sols sableux, l'alternance d'une saison pluvieuse (juillet à octobre) avec une saison sèche (novembre à juin). Les nématodes identifiés se répartissent dans trois ordres regroupant 95 % des espèces présentes : Tylenchida (26 espèces), Rhabditida (22 espèces), Dorylaimida (28 espèces). Les espèces phytoparasites (*Ditylenchus* sp., *Tylenchorhynchus mashhoodi, Neodolichorhynchus gladiolatus, N. sulcatus, Dolichorhynchus elegans, Telotylenchus ventralis, T.* sp., *Trichotylenchus falciformis, Pratylenchus brachyurus, P. loosi, P. sefaensis, Scutellonema cavenessi, Hoplolaimus pararobustus, Helicotylenchus dihystera, Aphasmatylenchus variabilis, Senegalonema sorghi, Heterodera* sp., *Meloidogyne* sp., *Criconemella curvata, Paratylenchus* sp., *Xiphinema* sp., *Longidorus* sp., *Paratrichodorus minor, Trichodorus eburneus)* sont associées aux cultures : *Arachis hypogea, Pennisetum typhoides, Sorghum vulgare, Vigna unguiculata,* jachère. Les espèces végétales présentes et le taux d'humidité du sol influent sur la structure des populations : le mil, le sorgho, le niébé ou les plantes sauvages sont hôtes de ces espèces; *D. elegans, N. sulcatus, T. ventralis* et *S. cavenessi* sont les seules espèces capables de se multiplier sur l'arachide. La plante cultivée conditionne la répartition verticale des nématodes dans le sol pendant la saison sèche; les espèces migrent dans les couches superficielles du sol pour entrer en anhydrobiose, à l'exception de *S. sorghi, Xiphinema* sp., *Longidorus* sp. et les Trichodoridae répartis jusqu'à 50 cm de profondeur. Au laboratoire, la plupart des espèces de tylenchides se développent avec des températures du sol de l'ordre de 35°; *N. gladiolatus, D. elegans, Pratylenchus* spp. et *S. sorghi* sont incapables de se multiplier à des températures supérieures à 30° alors que *H. pararobustus* et *Paratylenchus* sp. ne se multiplient pas à des températures égales ou inférieures à 30°. *S. cavenessi* peut se multiplier toute l'année au laboratoire; son développement exige de fortes températures du sol (35°), et un taux d'humidité du sol élevé; l'hôte sur lequel il a accompli son cycle précédent influe sur ses capacités de multiplication. Au champ, ce nématode est incapable de survivre sans s'alimenter pendant l'hivernage, au cours duquel il se multiplie aux dépens de l'arachide, du mil, du sorgho, du niébé et des plantes sauvages avec des taux de multiplication fonction du taux de population initiale, de la culture pratiquée, du précédent cultural et du taux d'humidité du sol. Pour survivre pendant la saison sèche, il est obligé d'entrer en anhydrobiose, migrant dans les horizons superficiels du sol au fur et à mesure que celui-ci se déssèche. La saison sèche provoque une forte mortalité (50 %), conduisant parfois à annuler la multiplication survenue pendant la saison des pluies.

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B'Chir, M. M. - *Histopathological changes induced by* Tylenchulus semipenetrans *in citrus root.*

Slow decline caused by *Tylenchulus semipenetrans* is very common in citrus-growing countries. The cytological mechanism of its action on the host plant and their consequences on fungi infections of citrus root-stocks is not very well known. This work, based on observations of longitudinal sections by light microscopy and transmission electron microscopy (TEM), shows the importance of nematode-induced changes in the nursers sites at the cortical tissue of the root. Each site is formed by 5 to 10 cells which undergo profound modifications : the cytoplasm becomes dense, the nucleus grows in length before forming nuclear vesicles by pleuromitosis, where apparently preferentiel DNA sequences get multiplied. There is also one of two nuclear pleuromitotic vesicles per cell depending on its length. Ultrastructural cell transformations induced by *T. semipenetrans* in host root cortex are spectacular on nucleus, cytoplasm and cell wall level. Special intracellular organelles associed with an intercellular tubules net are described for the first time. The transformed cells loose an important part of its genetic potential and become very sensitive to any metabolic disequilibrium. Considering the extent of the histological changes induced, pathological action of this nematode can be easily understood. The « nurse cells » are highly specialized in view of these transformations. *T. semipenetrans* seems to be one of the most developed plant parasitic nematode. The host quality of the different root-stocks will be then linked to the stability of this equilibrium in the transformed cells. The secondary infection of *Fusarium solani* in association with a *Bacillus pimulus* can break this new equilibrium in cells this causing necrotic lesions at the citrus roots. The succession of *T. semipenetrans, F. solani, B. pimulus* in roots could be one of the citrus blight causes.

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