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Nematodes

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Down Under

Red Alert on the Plant-parasitic Nematodes of Banana

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A mutant of 'Grande Naine', the cultivar MA13 (*Musa* AAA, Cavendish subgroup) has been selected in the field in Martinique for its good horticultural characteristics (hardiness, bunch conformation, productivity...). This peculiar cultivar always demonstrated significant lower susceptibilities to the burrowing nematode *Radopholus similis* and to the lesion nematode *Pratylenchus coffeae*. In addition, the cv MA13 exhibited singularly redder pseudostem as compared to others Cavendish clones. On the basis of these observations, we selected in field conditions some others 'coloured' mutants among different banana subgroups: cv MA13_Green (*Musa* AAA, Cavendish subgroup), cv dwarf Mossi_Green (*Musa* AAA, Red subgroup) and cvs 920_Red, 920_Green and 921_Red (*Musa* AAA, CIRAD hybrids). The susceptibility to nematodes of classic cultivars and associated mutants was evaluated under controlled conditions in a growth chamber on Andosol (volcanic ash soils representative of the French West Indies banana production area), at 24-28°C and 80% RH. Forty-five days after inoculation of each banana clone with 400 *R. similis* or *P. coffeae* per plant, the entire root system was carefully collected and weighted, and nematodes were extracted. *In vitro* micropropagation has no effect on the colour stability of the pseudostem. Reproductive factors and root infestations showed consistent trends, with an increase in *R. similis* root infestations for green mutants (up to 54 %) and a decrease for red mutants (up to 61%) compared to classic cultivars. Surprisingly, the opposite consistent trend was observed for *P. coffeae* root infestations, with a decrease for green mutants (up to 43 %) and an increase for red mutants (up to 76%) compared to classic cultivars. These results provide first evidence that colour criterion, representative of the anthocyanins content, could be a good and fairly simple indicator of nematode susceptibility in selection process.

Nematode Control and Other Benefits of Resistant Trap Crops

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Regular, proper cultivation of resistant intercropping is not only an indispensable measure for controlling nematodes and other plant diseases but guarantees also soil quality with lasting effect and significantly contributes to the guarantee and the increase of yield and thus to the profitability and sustainability of crop cultivation.

Nematode control: P. H. Petersen is a breeding company which is highly specified in designing nematode controlling trap crops. Starting with the first fodder radish (*Raphanus sativus*) cultivar PEGLETTA which is able to reduce the sugar beet cyst nematodes (*Heterodera schachtii*) population about 80 % and a special developed mustard (*Sinapis alba*) cultivar MAXI the reduction capacity of the newest varieties is meanwhile more than 90% with the use of resistant varieties like COLONEL, CORPORAL or ACCENT. Also against *Meloidogyne* sp. P. H. Petersen selected fodder radish varieties (DEFENDER, COMET) that suppress multiplication of these nematodes. In potato crop rotations special varieties like