

Complete and Partial Resistance to *M. exigua* in *C. arabica* Modified Pre-existing Field Nematode Populations

E. ALPIZAR, H. ETIENNE, P. LASHERMES, B. BERTRAND

Team IRD/CIRAD ‘Genomics and coffee breeding for sustainable production’, Genetrop,
IRD, 911 Av. de Agropolis, BP 5045, 34032 Montpellier, France

SUMMARY

Nematodes represent a major threat in all major coffee-growing (*Coffea arabica* L.) areas throughout the world. Chemical control by nematicides is only effective in the short term, expensive to use and hazardous to the environment and human health. Growing nematode-resistant coffee trees constitutes so far the most promising option to control the pest. In most coffee regions of Costa Rica, commercial cultivars are infested by two damaging nematode species, *Meloidogyne exigua* and *Pratylenchus* sp. In this study we evaluated if the introduction of new genotypes with complete or partial resistance to *M. exigua*, could modify the competition pre-existing in the roots between the two nematode populations. *M. exigua* and *Pratylenchus* sp. populations were recorded every month during one year on roots of susceptible, partial and complete resistant *C. arabica* genotypes to *M. exigua*. High number of both eggs and juveniles of *M. exigua* with few *Pratylenchus* sp. were present in roots of the susceptible genotype. In contrast, a high number of *Pratylenchus* sp. with none *M. exigua* was observed in complete resistant genotype. Interestingly, a low density of both nematode populations was recorded within intermediate resistant genotype. The results obtained confirm that the introduction of partial or complete resistance to *M. exigua* modified the pre-existing competition between the two populations in field conditions. Since mixed populations nematodes are highly frequent in most coffee fields in Latin America, it seem necessary to make previous studies before doing massive commercial diffusion of nematode resistant genotypes.