

## EFFECIENCY OF BIOLOGICAL AND CHEMICAL PRODUCTS IN THE MANAGEMENT OF MELOIDOGYNE EXIGUA IN ARABICA COFFEE

### EFICIÊNCIA DE PRODUTOS BIOLÓGICO E QUÍMICOS NO MANEJO DE MELOIDOGYNE EXIGUA EM CAFEIEIRO ARÁBICA

Íris Petronilia Dutra\*<sup>1</sup>; Adriane Baudson do Nascimento; Milena Barbosa Parreira da Silva<sup>1</sup>; Rayla Vieira Frangilo<sup>1</sup>; Caio Portes Deorce Pimenta<sup>1</sup>; Fábio Ramos Alves<sup>1</sup>

<sup>1</sup>Universidade Federal do Espírito Santo, Departamento de Agronomia, Alegre, ES, Brazil.

\*Corresponding author: iriisdutra@gmail.com

#### Abstract

The objective of this work is to evaluate the isolated and combined effect of two biofertilizers (Vitaflex and Maxfert) and a low-toxicity nematicide (fluensulfone) in the management of *Meloidogyne exigua* in arabica coffee in a cultivated field in the region of Iúna, southern Espírito Santo. The experimental design was randomized blocks, with 9 treatments and four replications. Each experimental unit consisted of 8 plants and the evaluation was carried out in the six central plants. The following treatments were tested: T1- Control (negative control); T2- Rugby (15 L/ha) (Positive control); T3-Nimitz (1.0 L/ha); T4- Vitaflex (10 L/ha); T5- Maxfert (20 L/ha); T6- Vitaflex 10 L/ha + Nimitz (1.0 L/ha); T7- Maxfert 20 L/ha + Nimitz 1.0 L/ha; T8- Vitaflex 10 L/ha + Maxfert 20 L/ha; and T9- Vitaflex 10 L/ha + Maxfert 20 L/ha + Nimitz 1.0 L/ha. Each product was applied following the respective technical recommendations. Before starting the experiment, soil and roots were collected to quantify the initial population of *M. exigua* present in the area. At 45 days, soil and root samples were taken from 0 cm to 30 cm deep in the rhizosphere region, totaling 1 kg of soil and 200 g of roots for each sample. These were identified and packed in plastic bags for processing, extraction and quantification of juvenile *M. exigua*. The extraction of nematodes from the soil was carried out according to the method of Jenkins (1964) and from the roots by the technique of Hussey and Barker (1973), as modified by Bonetti and Ferraz (1981). To meet the ANOVA assumptions, the data were transformed to  $x-1$  and analyzed using the R statistical software. The means of the data were compared by the Scott-Knott test at 5% probability (R Development Core Team, 2009). All treatments reduced the number of *M. exigua* in the root system and the soil. The isolated application of Nimitz, Vitaflex, and Maxfert caused a greater reduction of the nematode population in the roots, while the isolated application of Maxfert and the combination between Vitaflex + Maxfert promoted greater reduction of the nematodes in the soil. The combination between Vitaflex + Nimitz and Maxfert + Nimitz also presented satisfactory results in comparison with the control, indicating the good potential of the combined use nematicides and biofertilizers for the management *M. exigua*. We conclude that both the isolated and associated use of chemical and biological nematicides proved to be efficient in reducing the population of *M. exigua* in arabica coffee grown in the field. This information strengthens the possibility of managing this pathogen, which in some cases has been causing large damages to this crop.

#### Keywords

Biological control, *Coffea arabica*, Chemical control, Root-Knot Nematode.