

## MANAGEMENT OF *Meloidogyne exigua* IN ARABICA COFFEE WITH BIOFERTILIZERS, CHEMICAL AND BIOLOGICAL PRODUCTS

MANEJO DE *Meloidogyne exigua* EM CAFEEIRO ARÁBICA COM BIOFERTILIZANTES, PRODUTOS QUÍMICOS E BIOLÓGICOS

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### Abstract

The objective of this work was to verify the effect of two biofertilizers, two biopesticides and a chemical nematicide in reducing the population of *Meloidogyne exigua* in arabica coffee, and consequently increase the productivity of the coffee plants. The following treatments were used: T1 - Vitaflex (10 L/ha in Dec/2018 + 10 L/ha in Dec/2019); T2 - Vitaflex (10 L/ha in Dec/2018 + 10 L/ha in Feb/2019) + Vitaflex (10 L/ha in Dec/2019 + 10 L/ha in Feb/2020); T3 - Vitaflex (10 L/ha in Dec/2018) + Maxfert (20 L/ha in Dec/2019); T4 - Quartzo (300 g/ha in Dec/2018 + 300 g/ha in Dec/2019); T5 - Trichodermil 1,5 L/ha in Dec/2018 + 1,5 L/ha in Dec/2019); T6 - Nimitz (1,5 L/ha in Dec/2018 + 1,5 L/ha in Dec/2019); T7 - Nimitz (1,5 L/ha in Dec/2018 + 1,5 L/ha in Feb/2019) + Vitaflex (10 L/ha in Dec/2019 + 10 L/ha in Feb/2020); and T8 - Control. The experiment was carried out in a field of *Coffea arabica* cv. Catuaí with naturally occurring *M. exigua* in a randomized block design in an 8 x 6 factorial scheme (8 treatments x 6 collection periods) with four replications for a total of 192 plots, each one consisting of eight plants, with analysis of the six center plants. Before applying the treatments, soil and roots were collected to quantify the initial population ( $P_i$ ) of *M. exigua* (evaluation at time zero). The other collections were carried out at 120, 180, 240, 360 and 420 days after application of the products (DAA). To perform the statistical analysis, the software RStudio version 3.5.1 and the statistical package 'ExpDes.pt', version 1.2.0 were used. The data were submitted to ANAVA and the variables that did not meet the statistical assumptions for the analysis were transformed to  $\ln(x)$  in order to homogenize the variances of the treatments. To compare the means between treatments and collection periods, the Scott-Knott test was used at 5% probability. For the number of nematodes in the roots, the treatments that most reduced the population of *M. exigua* were T3, T4, T5, T6 and T7. As for the reduction of the number of *M. exigua* in the soil, T6 was most effective, although all treatments reduced the population. The highest yields in 2019 were observed in plants treated with T1 (53 sc/ha) and T5 (52.75 sc/ha), while in 2020 it was in plants that received T2 (54.5 sc/ha), T6 (58.25 sc/ha) and T7 (62.12 sc/ha). In 2019, except for T6, all treatments resulted in increased productivity. In 2020, the treatments that brought the most profit to the coffee grower were T6 and T7.

### Keywords

Arabica coffee, Integrated management, Root-knot nematodes.

### Acknowledgments

The authors thank the Institute Federal of Espírito Santo for providing facilities and equipment available for research; to the Coordination for the Improvement of Higher Education Personnel (CAPES) and to the National Council for Scientific and Technological Development (CNPq), for financial support and scholarships for master's, doctoral and PIBIC scholarships.