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"Resilience of agricultural systems against crises"

Soil Coverage Evaluation with Calendula (*Calendula officinalis* L.), Crotalaria (*Crotalaria* sp. L.) and Oat (*Avena* sp. L.) in *Meloidogyne* spp. Control in Quito Orange (*Solanum quitoense* Lam.)

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Abstract

In the department of Nariño the area cultivated with quito orange (*Solanum quitoense* L.) is 600 ha. This crop shows a productivity decrease due to pathogens such as the root knot nematode *Meloidogyne* spp. of up to 50-79%. On the other hand, allelopathic plant species release nematotoxic compounds, nematostatics or biocides, interfering in the nematode life cycle. This research was carried out in the village La Caldera (Pasto), in order to search alternatives of root knot disease management. For it a randomised block design was used, with three replications and five treatments, which consisted of three soil coverages: Calendula (*Calendula officinalis* L.), Crotalaria (*Crotalaria* sp. L.) and oats (*Avena* sp. L.) sown one month before the crop was planted and incorporated at flowering time, a chemical control with the application of carbofuran at sowing and every third month, and a control. Each experimental unit had 12 quito organges planted at 3 × 3 m. Incidence and severity of the nematode population were evaluated and quito orange production measured. The results showed a 100 % incidence in all treatments, but a positive effect of the soil coverage on the nematode severity. Regression analysis allowed to prove that with an increasing severity of the nematode population the quito orange production was significantly reduced. *Meloidogyne incognita* was the most abundant species. We conclude that calendula, oats and crotalaria are viable alternatives for dealing with the problem of root knot nematode.

Keywords: Management practices, plant coverage, root knot

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