In this work fresh crop and garden residues were applied both under laboratory conditions and in commercial greenhouse in order to assess their effect on soil nematodes populations and soil fertility.

**Laboratory approaches**
In the laboratory experiments, cabbage residues (10 g), chicken manure (10 g), cabbage residues:chicken manure (3:1, 10 g), grass:chicken manure (3:1, 10 g), leaves and stems of orange tree (5 to 10 g), pine tree (10 to 20 g), olive tree (5 to 10 g), palm tree (10 to 20 g) and boxwood (5 to 10 g) were mixed with 500 g soil having root-knot nematodes (*Meloidogyne incognita*) and kept into polyethylene bags (four replicates). A control treatment without residues was also included. The bags were incubated for four weeks at 30 ºC, when nematological and soil fertility analyses were carried out. Tomato plants susceptible to *M. incognita* were planted in pots with the treated soils and kept in growth chamber for five weeks at 24 ºC, 16 hour daylight, when root galling indices were evaluated.

**Laboratory results**
In general, all these materials significantly reduced *M. incognita* populations (100% mortality) and increased saprophagous nematodes, with slight effects on soil fertility except for the K increase with residues application: Most materials applied reduced root galling indices from 6.2 in the control to 0-1.0, except for olive tree, boxwood, and some of the treatments with 5 g dosages, that were not effective (Fig. 2).

**Field studies**
In the greenhouse experiment, cabbage residues (1.5 kg·m⁻²), cabbage residues:chicken manure (1.5:1, 2.5 kg·m⁻²), grass:chicken manure (3:1, 6 kg·m⁻²) and grass:cabbage residues (3:1, 6 kg·m⁻²) were applied to a loamy clay soil and covered with polyethylene for 5 weeks. A cabbage residues:chicken manure (1.5:1, 2.5 kg·m⁻²) treatment and a control treatment (not-amended), without polyethylene, were also included. Afterwards, a susceptible tomato crop was grown for one month, when root galling indices were determined.

**Results from field studies**
At the end of the experiment, the nematological analysis showed that all materials controlled *M. incognita* populations, reaching 86-100% mortality vs 6% for the control, the most effective treatments being cabbage residues and grass:cabbage residues. All materials significantly reduced this value from 4.75 in the control to 1.0-2.25, with results agreeing with those of mortality, i.e. the best treatments being cabbage residues and grass:cabbage residues. Cabbage residues:chicken manure treatment without polyethylene was not effective, having an index of 4.0.

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**Fig. 1.** Assessing different crop and garden residues for controlling root-knot nematodes: a: olerander; b: olive tree; c: orange tree; d: pine tree; e: chicken manure; f: grass; g: boxwood and h: palm tree

**Fig. 2.** Root galling indices in tomato plants in the laboratory experiment

**Fig. 3.** Application of treatments in the greenhouse

**Fig. 4.** Root galling indices in tomato plants (dots) and percentage of mortality of root-knot nematodes (bars) in the greenhouse experiment. CR: cabbage residues; CM: chicken manure; G: grass; P: with polyethylene; NP: without polyethylene

Our results show that fresh crop and garden residues successfully reduce *M. incognita* populations and root galling indices when applied with polyethylene covers, having good potential to be included in integrated management programs.