

Effect of Green Manure Crop for Reducing *Meoidogyne* spp. In Yam(*D.polystacha*) Cultivaton

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➤ Background

Plant parasitic nematodes found in yam fields include *Meloidogene* sp., *Tylenchus* sp. and *Ditylenchuys* sp.. These nematodes reduce growth and production of yam. As a result of investigating a total of 10 yam cultivation areas in the Andong region in August 2022, a minimum of 5 to a maximum of 209 root-knot nematodes were detected per 300ml of soil. It is thought that the high occurrence of root-knot nematodes in yam cultivation areas is due to continuous cropping and use of nematode-infected seedlings. This experiment was conducted to reduce root-knot nematode density in an environmentally friendly manner through green manure crop cultivation.

➤ Methods

In July 2021, crotalaria, super sweet corn, sesame, and kenaf were used as green manure crops and planted in a continuous yam cultivation area. Green manure crops were incorporated to the soil in the fall, yam was planted in April 2022. The density of nematodes in the soil at the harvest time was investigated. To investigate root-knot nematode density, the number of nematodes in 300ml of soil was counted by microscopic observation.

➤ Results



Figure 1. Cutivaton of green manure crops in yam continuous cultivated area

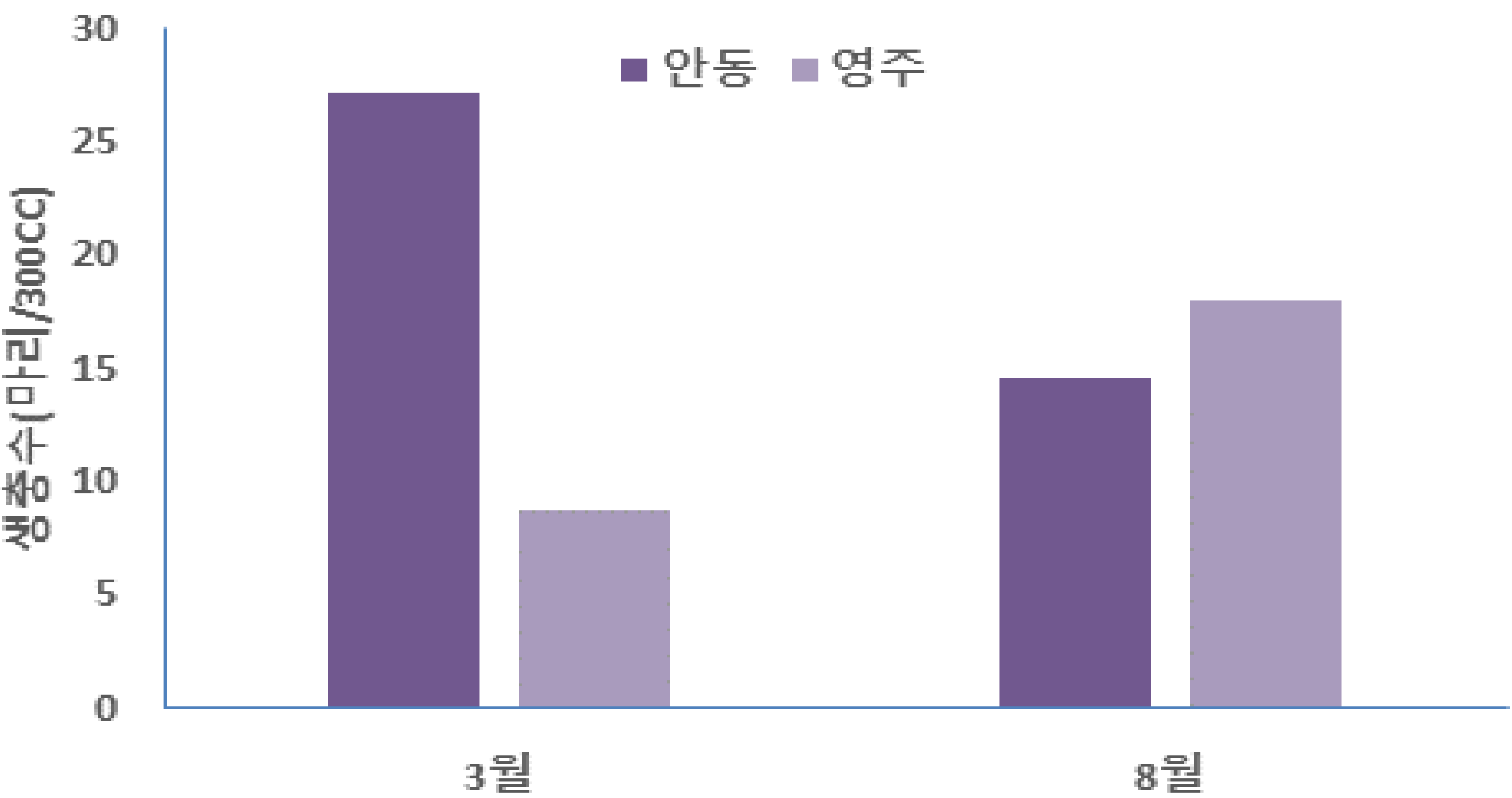


Figure 2. Occurrence of yam root-knot nematode in Andong and Yeongju areas

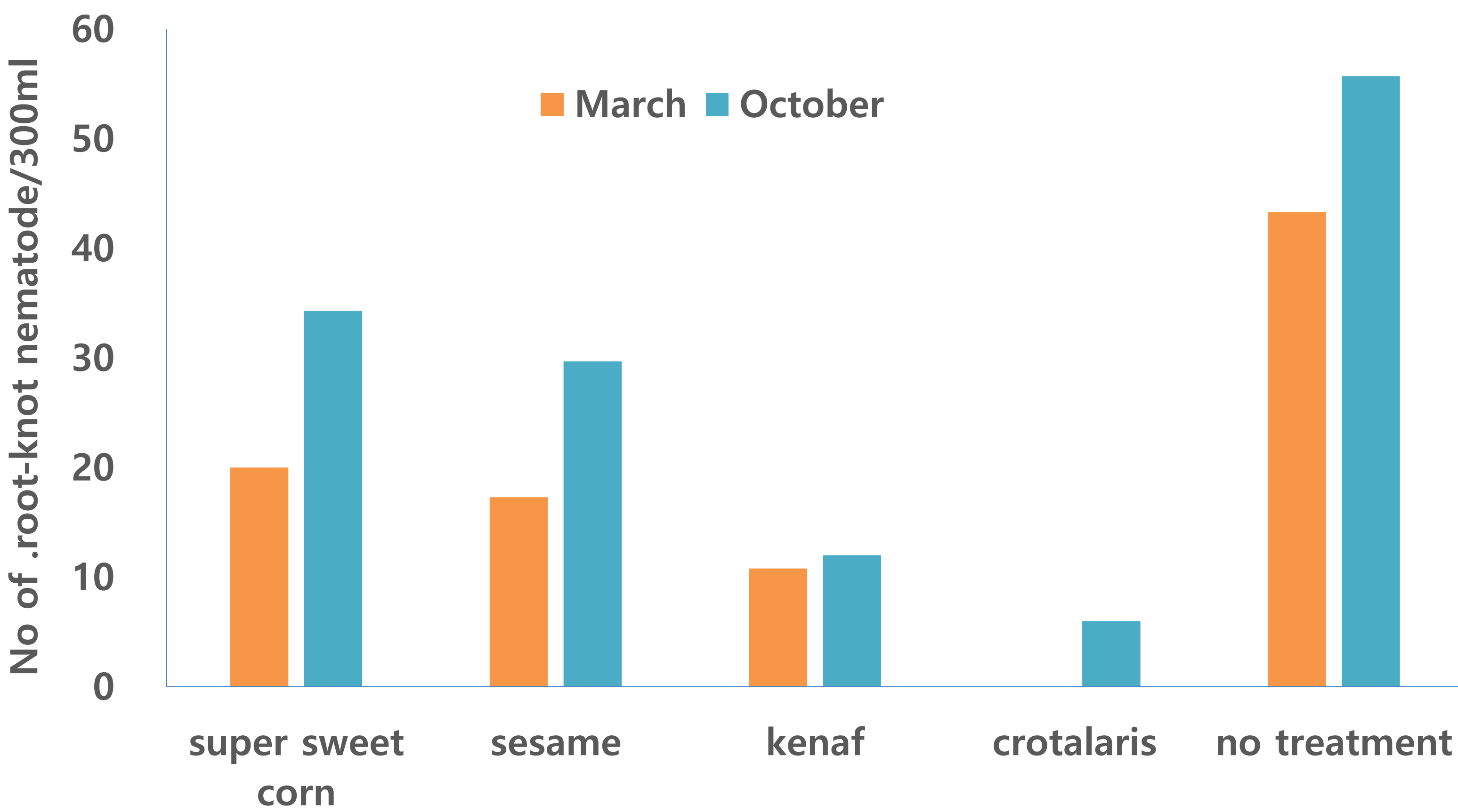


Figure 3. Number of root-knot nematods before planting and at harvest time of yam

Table 1. Changes in Nematods density decrease after cultivation of green manure crops

	Super sweet corn	sesame	kenaf	carotalaria	Non treatment
NO. of Nemetode	34.3	29.7	13.0	6.0	55.7
Reduction rate(%)	38.4	46.6	76.6	89.2	-

Table 2. Nematod infection rate of yam tuber according to green manure crop cultivation

	Super sweet corn	sesame	kenaf	carotalaria	Non treatment
infection rate(%)	15.0	24.0	14.9	0.8	35.6



Figure 4. Root-knot nematods damaged tuber(left) and normal tuber(right)

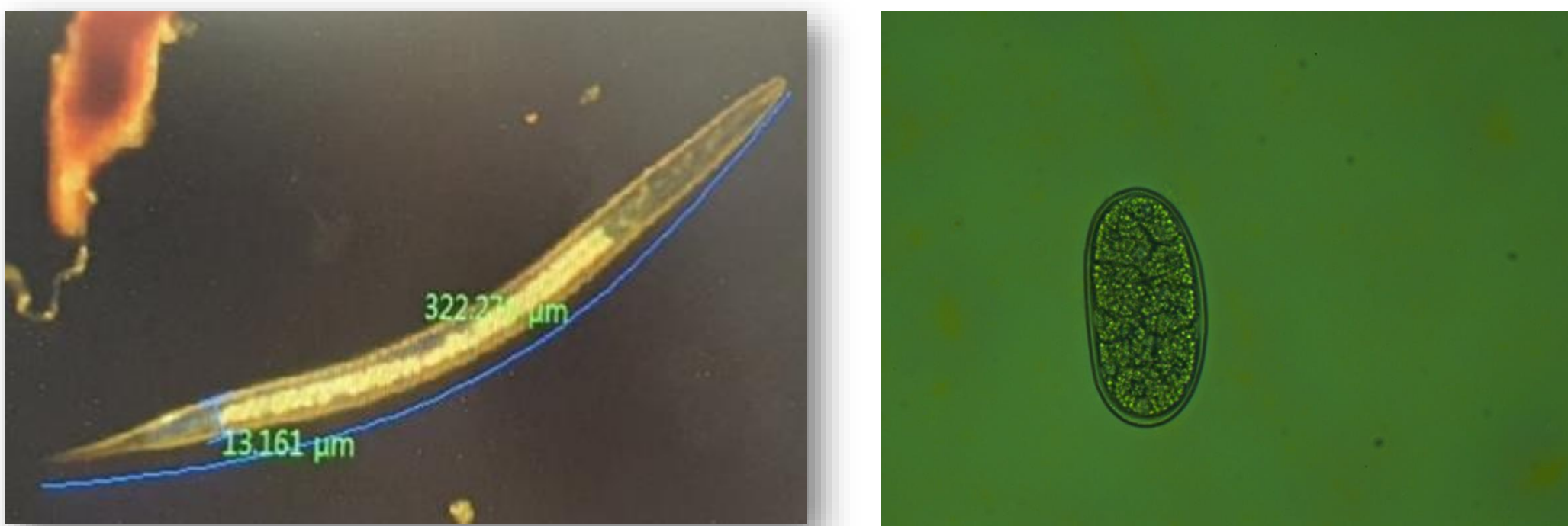


Figure 5. *Meloidogene arenaria* adult(left) and egg(right)

➤ Conclusions

Cultivating crotalaria in continuous yam cultivation areas where root-knot nematodes occur frequently can reduce the density of root-knot nematodes by 89.2% compared to untreated plants. This is an eco friendly method that reduces the density of root-knot nematodes and can reduce pesticide usage.