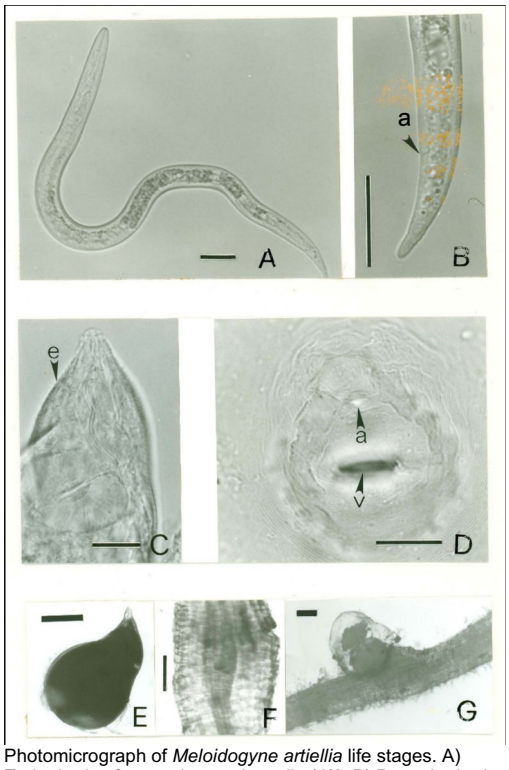
Are You Eating My Crops?
British root-knot nematodes

British root-knot nematodes (*Meloidogyne artiellia*) are known to infect 2000 plant species world-wide and account for 5% of global crop loss. We have reached the end of our 12-month series called 'Are you eating my crops?' Pests highlighted in this series have not yet been reported in Texas, but are on the 'Watch List' due to their high level of pest importance or risk due to host availability. We have covered several different crop pests, damage, and appearance.

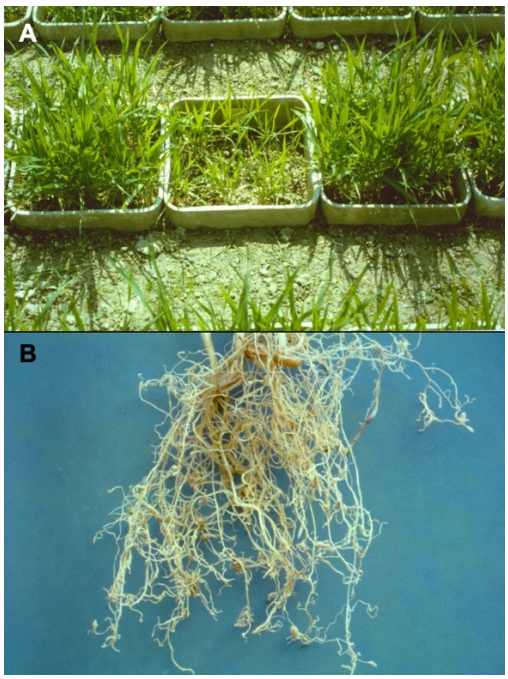
Meloidogyne artiellia is a microscopic plant parasitic nematode. The females grow to be 650-750 µm long, while the males only grow to 0.82-1.37 µm long. The adults exist in the soil and the larvae infect plant roots. There are four juvenile larval stages (J1-J4). The first stage starts inside the egg, followed by a molt and emergence when the second stage moves out of the egg and invades the host plant roots. This is the only stage when juveniles are mobile and can live for a short time in the soil. They will then either reinfect the same root system they hatched from or find a new system to infect. The J2 moves into the roots where it eventually becomes sedentary and forms feeding cells, also known as giant cells. Juveniles will feed from the giant cells for about 24 hours after becoming sedentary. The feeding cells contaminate the root and cause the surrounding root tissue to form a gall in which the J2 is embedded. This can cause the young to die and mature plants to decreased yield. Satiated from feeding, the J2 molts three times into adults. Female adults will resume feeding. For the next three months the adult female will produce squishy egg sacs that can hold 500-1000 eggs. The egg sacs are deposited on galled root surfaces or inside root galls. Emergence from eggs typically happens under moist soil conditions. Eggs will not hatch if conditions are too dry; instead, they will remain dormant until conditions improve. Eggs can also be distributed by irrigation ditches.

Thousands of plant species are susceptible to *M. artiellia*, but the most common host plants infected are cereals, crusiferae (mustards), and leguminosae (peas and bean family). Damage due to infection involves impaired root growth and impaired root function. Symptoms are like those caused by nutrient or water deficiency. Plants may appear withered under sunny conditions even if there is sufficient soil moisture. This is because infestations limit water intake, and the development of root-knot galls drains the plants of photosynthate and nutrients. Injured root tissue is also susceptible to disease-carrying pathogens.

British root-knot nematodes can be easily confused with other nematodes and require morphological identification to distinguish them from other species. If you have question or concerns regarding the headliners, OR you believe you have identified a British root-knot nematode infestation, contact invasives@shsu.edu for further instructions.



Photomicrograph of *Meloidogyne artiellia* life stages. A) Entire body of second-stage juvenile (J2). B) Posterior body portion of J2, a=anus. C) Anterior body portion of swollen female, e=excretory pore. D) Perineal pattern showing the eight-shaped inner area marked by coarse lines and containing vulva (v) and anus (a). E) Entire body of swollen female. F) Slight swelling induced by J2 on chickpea root. G) Large egg mass covering a swollen female, which protrudes with its posterior portion of the body from the surface of a chickpea root. Credit: R.N. Inserra.



Damage cause by *M. artiellia*. A) Stunted hard wheat plants seen in center. B) Infected hard wheat roots. Note: the small galls on the roots. Credit: R.N. Inserra.