

Nematode Suppression and Peanut Yield Response to Velum Total in Different Rotation Sequences in North Carolina

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Plant parasitic nematodes can have a negative impact on peanut (*Arachis hypogaea* L.) yield. Cropping sequence can have a major impact on nematode populations and is an important cultural practice to suppress populations. While fumigation can reduce populations, this approach is expensive and requires additional certification and training beyond application of most pesticides used in peanut. Velum Total (imidacloprid plus fluopyram) is currently registered for in-furrow application in peanut. Research is limited in North Carolina relative to efficacy of this insecticide-nematicide combination. In 2019, four rotation trials initiated from 1997-2000 with a wide range of crop rotation schemes were planted with peanut to determine if cropping sequence and in-furrow application of nematicide treatments interacted to impact peanut yield and nematode populations in soil. Depending on cropping sequence, root-knot nematode populations in soil collected in mid-September 2019 after peanut ranged from no detectable nematodes to approximately 2,800 nematodes/500 cm³. Cropping sequence had a major impact on nematode populations in soil and peanut yield. However, nematicide treatment did not affect nematode populations in soil or peanut yield regardless of rotation sequence. These results were unexpected based on other research demonstrating suppression of nematodes by fluopyram. However, soil moisture was limited in these trials after planting in early May through early June and may have affected ability of fluopyram to move into soil solution and protect seedlings from infection by nematodes. Research will be conducted to compare these treatments in cotton (2020) and peanut (2021) in these experiments.