



**Supplemental Table S1.** Plant-parasitic nematode taxa (including species name and authority where known), and the average and range of population densities across all treatments at harvest at Lewiston-Woodville and Rocky Mount in 2013, 2019, and 2022.

		Population of plant-parasitic nematodes in soil at peanut harvest (range)					
Nematode	Genus, species, and authority	Lewiston-Woodville			Rocky Mount		
		2013	2019	2022	2013	2019	2022
		No./500 cm <sup>3</sup>					
Dagger	<i>Xiphinema</i> spp.	-	2 (0-20)	19 (0-670)	1 (0-10)	4 (0-20)	5 (0-80)
Lesion	<i>Pratylenchus</i> spp.	14 (0-70)	39 (0-560)	13 (0-110)	10 (0-40)	38 (0-150)	23 (0-60)
Ring	<i>Mesocriconema</i> spp.	591 (0-4,666)	319 (0-2,320)	340 (30-2,040)	41 (0-230)	3,650 (0-28,080)	1,172 (70-2,440)
Root-knot	<i>Meloidogyne</i> spp.	970 (0-11,640)	560 (0-5,920)	937 (0-9,760)	-	1 (1-10)	1 (0-10)
Soybean cyst	<i>Heterodera glycines</i> Ichinohe	21 (0-300)	8 (0-50)	5 (10-80)	22 (0-70)	12 (0-60)	7 (0-100)
Spiral	<i>Helicotylenchus</i> spp.	5 (0-50)	7 (0-80)	16 (0-120)	56 (0-120)	65 (0-250)	47 (0-200)
Stubby root	<i>Paratrichodorus</i> spp.	3 (0-33)	7 (0-50)	10 (0-70)	5 (0-80)	5 (0-40)	4 (0-20)
Stunt	<i>Tylenchorhynchus</i> spp.	71 (0-280)	40 (0-120)	19 (0-160)	45 (0-280)	61 (0-160)	47 (0-200)

**Supplemental Table S2.** Analysis of variance for peanut yield and population of plant-parasitic nematodes in soil at Lewiston-Woodville in 2013.

Source	Peanut (kg/ha)	yield	Plant-parasitic nematode taxa population						
			Lesion	Ring	Root knot	Soybean cyst	Spiral	Stubby	Stunt
Tillage <sup>a</sup>	*		NS	NS	NS	NS	NS	NS	NS
Rotation	*		NS	NS	*	NS	NS	NS	NS
Tillage Rotation	× NS		NS	NS	NS	NS	NS	NS	NS

\*Indicates significance at  $p \leq 0.05$ . NS indicates not significant.

<sup>a</sup>Conventional tillage consisted of two passes with a disk harrow, one pass with a field cultivator, and bedding with in-row sub-soiling at a depth of 25 cm. Strip tillage consisted of fluted coulters, two rolling baskets, and in-row sub-soiling on a 45-cm band on 91-cm rows.

**Supplemental Table S3.** Analysis of variance for peanut yield and population of plant-parasitic nematodes at Rocky Mount in 2013.

Source	Peanut (kg/ha)	yield	Plant-parasitic nematode taxa population in soil (No./cm <sup>3</sup> )						
			Dagger	Lesion	Ring	Soybean cyst	Spiral	Stubby	Stunt
Tillage <sup>a</sup>	*		NS	NS	NS	NS	NS	NS	*
Rotation	NS		*	NS	*	NS	NS	NS	NS
Tillage × Rotation	NS		NS	NS	NS	NS	NS	NS	NS

\*Indicates significance at  $p \leq 0.05$ . NS indicates not significant.

<sup>a</sup>Conventional tillage consisted of two passes with a disk harrow, one pass with a field cultivator, and bedding with in-row sub-soiling at a depth of 25 cm. Strip tillage consisted of fluted coulters, two rolling baskets, and in-row sub-soiling on a 45-cm band on 91-cm rows.

**Supplemental Table S4.** Analysis of variance for peanut yield, plant condition rating, and populations of plant-parasitic nematodes at harvest at Lewiston-Woodville in 2019 and 2022.<sup>a</sup>

Source	Peanut yield	Plant condition rating <sup>b</sup>	Population of plant-parasitic nematode taxa							
			Dagger	Lesion	Ring	Root knot	Soybean cyst	Spiral	Stubby	Stunt
2019										
Rotation length (ROT)	*	*	NS	*	NS	*	NS	NS	NS	*
Previous crop (PC)	NS	NS	NS	NS	NS	NS	*	*	NS	*
Tillage system <sup>b</sup> (TILL)	NS	NS	NS	NS	NS	NS	*	NS	NS	NS
Nematicide (NEM)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × TILL	NS	NS	NS	NS	NS	NS	NS	NS	NS	*
ROT × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TILL × NEM	NS	NS	NS	NS	NS	NS	NS	*	NS	NS
ROT × PC	NS	NS	*	*	NS	NS	NS	NS	NS	NS
PC × TILL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PC × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × TILL × NEM	NS	NS	NS	NS	NS	NS	NS	*	NS	NS
ROT × PC × TILL	NS	*	NS	NS	NS	NS	NS	NS	NS	NS
ROT × PC × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × PCL × TILL × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2022										
Rotation length (ROT)	*	NS	NS	NS	NS	*	NS	NS	NS	NS
Previous crop (PC)	NS	NS	*	NS	NS	NS	*	NS	NS	NS

Tillage system (TILL)	NS	*	NS	NS	NS	NS	NS	NS	NS	NS
Nematicide (NEM)	NS	NS	NS	NS	NS	*	*	NS	NS	NS
ROT × TILL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TILL × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × PC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PC × TILL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PC × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × TILL × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × PC × TILL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × PC × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × PCL × TILL × NEM	NS	NS	NS	NS	NS	*	NS	NS	NS	NS

<sup>a</sup>\*Indicates significance at  $p \leq 0.05$ . NS indicates not significant.

<sup>a</sup>Visual estimate of plant condition rating based on an ordinal scale of 0-5 where 0 = canopy foliage yellow in color and 5 = deep green color of foliage.

<sup>b</sup>Conventional tillage consisted of two passes with a disk harrow, one pass with a field cultivator, and bedding with in-row sub-soiling at a depth of 25 cm. Strip tillage consisted of fluted coulters, two rolling baskets, and in-row sub-soiling on a 45-cm band on 91-cm rows.

**Supplemental Table S5.** Analysis of variance for peanut yield, plant condition rating, and populations of plant-parasitic nematodes at harvest at Rocky Mount in 2019 and 2022.<sup>a</sup>

Source	Peanut yield	Plant condition rating <sup>b</sup>	Population of plant parasitic nematodes taxa							
			Dagger	Lesion	Ring	Soybean cyst	Spiral	Stubby	Sting	Stunt
2019										
Rotation length (ROT)	NS	NS	*	NS	*	NS	NS	NS	-	NS
Tillage system <sup>b</sup> (TILL)	*	*	NS	NS	NS	*	NS	NS	-	NS
Nematicide (NEM)	NS	NS	NS	NS	NS	NS	NS	NS	-	NS
ROT × TILL	NS	*	NS	NS	NS	NS	NS	NS	-	NS
ROT × NEM	NS	NS	*	NS	NS	NS	NS	NS	-	NS
TILL × NEM	NS	NS	NS	NS	NS	NS	NS	NS	-	NS
ROT × TILL × NEM	NS	NS	NS	NS	NS	NS	NS	NS	-	NS
2022										
Rotation length (ROT)	NS	NS	NS	NS	NS	*	NS	NS	NS	NS
Tillage system (TILL)	*	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nematicide (NEM)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × TILL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ROT × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TILL × NEM	NS	NS	NS	NS	NS	NS	NS	*	NS	NS
ROT × TILL × NEM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

<sup>a</sup>\*Indicates significance at  $p \leq 0.05$ . NS indicates not significant.

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<sup>a</sup>Visual estimate of plant condition rating based on an ordinal scale of 0-5 where 0 = canopy foliage yellow in color and 5 = deep green color of foliage.

<sup>b</sup>Conventional tillage consisted of two passes with a disk harrow, one pass with a field cultivator, and bedding with in-row sub-soiling at a depth of 25 cm. Strip tillage consisted of fluted coulters, two rolling baskets, and in-row sub-soiling on a 45-cm band on 91-cm rows.