



Effect on chickpea cultivars (*Cicer arietinum* cv. JG62, ICCV 2, ICC17163, EC556270, ICCV05530, ICC17124, ICC17123, ICC17121)

1. The net impact of individual and combined stress on plant growth

Crop: Chickpea (*Cicer arietinum* cv. JG62, ICCV 2, ICC17163, EC556270, ICCV05530, ICC17124, ICC17123, ICC17121)
 Stress 1: *Pratylenchus thornei*
 Stress 2: *Rhizoctonia bataticola*
 Stage of plant: 7day old Seedling

The table shows the impact of nematode and fungus alone and in combination on plant height reduction, shoot weight reduction and root weight reduction of chickpea plants.

	Treatment	Plant response to stress** Type A parameters*		
		Plant height reduction %	Shoot weight reduction %	Root weight reduction %
JG62	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	16.2↓	30.5↓	29.1↓
	<i>Rhizoctonia bataticola</i>	18.7↓	11.9↓	16.1↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	31.8↓	45.7↓	47.3↓
ICC17163	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	8.8↓	13.2↓	16.8↓
	<i>Rhizoctonia bataticola</i>	7.7↓	14.2↓	18.2↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	12.5↓	17.3↓	21.3↓
EC 556270	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	7.1↓	8.9↓	17.8↓
	<i>Rhizoctonia bataticola</i>	7.5↓	11.9↓	24.4↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	10.6↓	18.3↓	21.1↓
ICCV2	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	3.2↓	1.9↓	7.9↓
	<i>Rhizoctonia bataticola</i>	1.9↓	4.6↓	12.6↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	7.9↓	7.6↓	17.7↓

ICCV05530	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	14.2↓	16.7↓	22.2↓
	<i>Rhizoctonia bataticola</i>	6.3↓	1.7↓	7.4↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	20.5↓	34.4↓	40.4↓
ICC17124	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	5.2↓	11.9↓	14.7↓
	<i>Rhizoctonia bataticola</i>	6.2↓	10.3↓	11.4↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	9.7↓	15.8↓	19.6↓
ICC17123	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	5.2↓	1.7↓	13.5↓
	<i>Rhizoctonia bataticola</i>	6.2↓	1.7↓	11.8↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	8.9↓	8↓	17↓
ICC17121	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	7.3↓	20.7↓	11.4↓
	<i>Rhizoctonia bataticola</i>	8.5↓	20↓	11.2↓
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	12↓	21.2↓	17.8↓

Note:

‘***’ - Values are presented as it is from the source article without subjecting to the calculation.

‘*’ - For more information on parameters classification, please refer to ‘methodology’ tab.

2. The interaction between nematode and fungal pathogen under combined stress at plant interface

The table shows the effect of the fungal pathogen on nematode reproduction factor , nematode population and disease reaction under combined stress treatment

	Treatment	Response to combined stress** Type B parameters*		
		Final nematode population/200cc soil	Reproduction factor	Reaction
JG62	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	3651	3.6	HS
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	5109	5.1	HS
ICC17163	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	1382	1.4	MR
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	1812	1.8	S
EC 556270	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	1501	1.5	MR
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	1851	1.8	S
ICCV2	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	339	0.3	R
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	509	0.5	R
ICCV05530	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	3202	3.2	HS
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	4186	4.1	HS
ICC17124	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	1457	1.5	MR
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	1927	1.9	S
ICC17123	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	1437	1.4	MR
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A

	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	1906	1.9	S
ICC17121	<i>Pratylenchus thornei</i> (1000 nematodes /plant)	1517	1.5	MR
	<i>Rhizoctonia bataticola</i>	N/A	N/A	N/A
	<i>Pratylenchus thornei</i> (1000 nematodes /plant) + <i>Rhizoctonia bataticola</i> (Simultaneous stress)	1917	1.9	S

Reproduction factor : 0 to 1-resistant (R), 1.1 to 1.5 moderately resistant (MR), 1.6 to 2 susceptible (S) and above the 2 highly susceptible (HS)

For raw data – Click here (.xlsx file)

Reference - Jatav R, Tiwari SP (2018) Reaction of *Pratylenchus thornei* and *Rhizoctonia bataticola* in Chickpea Genotypes. Int. J. Pure App. Biosci. 6(3): 19-24

Note:

‘**’ - Values are presented as it is from the source article without subjecting to the calculation.

‘*’ - For more information on parameters classification, please refer to ‘methodology’ tab.

Inference From the study: Jatav R (2018) studied interaction of *Pratylenchus thornei* with *Rhizoctonia bataticola* in chickpea cultivars JG62, ICCV 2, ICC17163, EC556270, ICCV05530, ICC17124, ICC17123, ICC17121. Pathogens were inoculated singly and simultaneously. An additive reduction in plant height, shoot weight, and root weight was observed under simultaneous stress in all cultivars. The reproduction factor and nematode population increased under simultaneous stress. **Thus, this pathogen combination acts synergistically and reduces growth parameters in chickpea.**