

## Screening the Varieties of Chickpea, Rajmash, Pea and Lentil for their Resistance to Root-Knot Nematode (*Meloidogyne incognita*)

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Chickpea (*Cicer arietinum* L.), Pea (*Pisum sativum* L.), Rajmash (*Phaseolus vulgaris*) and Lentil (*Lens esculenta* M.) are the major grain legumes of subsistence farming system in the Indian subcontinent and in other regions of the semiarid tropics. *Meloidogyne incognita* is one of the most important pests of pulses, which causes significant reduction in plant growth, drying and shading of leaflets and poor pod formation at the inoculum level of 2 larvae per g. of soil (Dasgupta and Gaur 1986). Chemical nematicides have been traditionally used in past in controlling nematode problems on crop species including Root-knot nematode. However, the high cost of synthetic nematicides combined with their toxic effects prohibit their wider application especially in developed/developing countries like India. Looking to the seriousness of nematode problems, the efforts were made to screen some varieties of pulse crops for their resistance to *Meloidogyne incognita*.

Seeds of chickpea, pea, rajmash and lentil were surface sterilized and sown in 6" earthen pots containing 500 g of sterilized soil. One week old two seedlings of each variety were inoculated with *Meloidogyne incognita* 2nd stage juvenils @ 2 J/g. of soil. Each treatment were replicated three times. After 60 days of inoculation the plants were depotted and the root system of each plant were washed gently and examined for root-knot infection by *Meloidogyne incognita*. Results were summarized according to the galling index (Gd) into highly resistant (HR), resistant (R) and moderately resistant (MR).

### Chickpea

HR : none

R : IVT, BG1077, AVF-RG9218, BG1082, Phule G 95007, BGD118, Phule G5, C235, Phule G95418, BGD 107, FBK 869, BGD114, RSG888, FG694, Vijay, BG 1083, BG1071, PUSA 267, RG 9218, BG100, BG1079, BG1064, BG391, HK94-134, BG1065, Phule G95108, PBG68, FG712, BKG5124, FG711, BG1073, PUSA256 and PBG 34.

MR : BG1053, PUSA362, FG103, PBG78, BG1065, BGD93, BG1078, BG1079, BG126, PhuleG95412, BG1072, PBG12 and BGD108.

PEA

HR : DDR15, DDR45, LFP212 and HUP 16.

R : DDR48, DMR35, DPFPD2, DMR37, PUSA10, AVT2 and DDR43

MR : LEP240, HUDP17, HFP1, AVT1, LEP227, DDR27, DMR34, HUDP19, AVT2, DDR39, LFP224, HFP4, DMR7, DDR23 and HFP9412.

### **Rajmash**

HR : HUR76 and RST176

MR : HUR137, RSJ176, HUR150, RSV178 and HUR79.

### **Lentil**

HR : IPL104, IPL111 and IPL107

R : HUL55, PL406, AVT1R11(SS), AVT1R11, IPL100, DPL15, IPL 108, IPL95-16 and IPL101.

MR : L4640, PL95-18, IPL110, IPL 96 and IPL 115

Cook and Evans (1987) indicated that differences in tolerance cannot be reliably assessed in pots and should be assessed in field trials, whereas Sharma et.al (1994) believe that pot studies help to identify genotype with low levels of tolerance. However, our findings from the pot experiment also suggest that the HR and R varieties can be used to minimize *Meloidogyne incognita* present in the soil. Use of resistant varieties gives low cost, no toxicity and also no special skill necessary for farmers.

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