

**Table 1. Continued.**

Germplasm accession	Mortality due to wilt and root rots (%)		Time to 50% flowering (days)	100-seed mass (g)	Yield during 1988/89 (kg ha <sup>-1</sup> )
	1987/88	1988/89			
ICC 15230	16	7	51	16.0	588
ICC 15233	0	5	49	15.6	823
ICC 15236	0	6	52	15.3	346
Controls					
Annigeril (resistant)	1	20	35	20.2	301
JG 62 (susceptible)	100	100	-	-	0
SE ±	9.6	15.7	-	-	185.5
CV (%)	102.4	77.2	-	-	40.4

1. These were also tested during 1985/86 and 1986/87 and showed <20% mortality.
2. Not tested.
3. Kabuli.

## References

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## Occurrence of Chickpea Foot Rot Disease in Rajasthan, India

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While traveling in Rajasthan during the 1st week of March 1989, a wilt-like disease was observed in chickpea trial and multiplication plots at Agricultural Research substation (Rajasthan Agricultural University), Digg, located about 70 km south of Jaipur in Tonk district. The farm has sandy soils and grows several winter crops, including chickpea, under totally rainfed (408 mm in July-September;

27 mm during cropping season) conditions. During the 1988/89 postrainy season, the farm had around 3-4 ha under chickpea, which included All India Coordinated Trials, State Regional Trials, and multiplication plots of local varieties. The crop sown in the first half of October 1988 was nearing maturity.

Many dead plants were observed in trial and multiplication plots. The extent of killing varied from plot to plot. All 16 entries in State Regional Trials were almost completely killed except RSG 116 and 810299. The extent of damage in multiplication plots appeared to be more than 30%. The above-ground symptoms of the diseased plants were similar to those of typical fusarium wilt. Drooping of petioles and rachis along with leaflets was visible in the upper parts of the plants. The examination of roots indicated the rotting of external tissues from the collar region downward, without any apparent mycelial growth. When the roots of dead plants were split open, the brown discoloration, which did not involve the pith, was observed.

Isolations from the roots of dead plants yielded the cultures of *Operculella padwickii*, the causal organism of foot rot of chickpea. The fungus was isolated in pure culture on potato-dextrose-agar. The pathogenicity of the fungus was proved by inoculating the roots of 15-day old chickpea plants of cv JG 62. The disease has been described earlier from Punjab and Delhi in northern India (Kheswalla 1941; Grewal et al. 1974). On the basis of the reports of the occurrence of this disease (Nene and Reddy 1987), it appeared that the disease was prevalent only in the wet soils. However, it may not be true. The epidemiology of the foot rot of chickpea needs to be worked out.

## References

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## Nematology

### Effect of *Meloidogyne* spp Infection on Chickpea Biomass and Yield in Nepal

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Chickpea (*Cicer arietinum* L.) is an important legume crop in Nepal. It suffers from attacks by root-knot nematodes (*Meloidogyne* spp) in various parts of the country. In 1986, chickpea was heavily infested with these nematodes which caused complete failure of several experiments at National Grain Legumes Improvement Program, Chitwan, Nepal. Manandhar and Amatya (1988) evaluated 180 chickpea genotypes for resistance to the natural field infestation of nematodes, but not one of them was found resistant. A preliminary pot experiment was conducted in the greenhouse at the Division of Plant Pathology, Khumaltar, Lalitpur, Nepal in 1988 to study the loss in chickpea plant biomass, pod, and grain yield because of *Meloidogyne* spp.

Twenty-cm diameter clay pots were filled with sterilized soil. In six pots, fresh galls containing mixed inoculum of *M. incognita* race 2 and *M. javanica* were thoroughly mixed with the soil. Six noninoculated pots served as controls. Surface-sterilized seeds of chickpea cv Dhanush were sown in all the pots. After germination, thinning was done to have only one seedling pot<sup>-1</sup>. Observations on shoot length, fresh shoot mass, number of pods plant<sup>-1</sup>, grain yield, and galling index were recorded at maturity. Galling was rated using a 0-5 scale where 0=no galls, 1=1-20 galls, 2=21-40 galls, 3=41-60 galls, 4=61-80 galls, and 5=81-100 and more galls. The experiment was designed as pair-treatment method. T-tests were used to test for significance.

Reductions in shoot length, fresh shoot mass, number of pods plant<sup>-1</sup>, and grain yield significant at the 1% level were observed in inoculated pots in comparison to control pots (Table 1) The nematode infection is very widespread in the Terai region of Nepal (ICRISAT 1989) and there is a need to assess the economic importance of the problem on a national basis. This experiment indicates the potential loss in chickpea yield that may be caused by the root-knot nematodes in Nepal.