

Table 1. Population of plant parasitic nematodes in Vertisol chickpea fields.<sup>a</sup>

Field	BIL-1		BIL-2C		BIL-2D		BP-14A		BUS-8H	
	Nematodes/ 500 cc soil	% Total nema- tode species	Nematodes/ 500 cc soil	% Total nema- tode species	Nematodes/ 500 cc soil	% Total nema- tode species	Nematodes/ 500 cc soil	% Total nema- tode species	Nematodes/ 500 cc soil	% Total nema- tode species
<i>Helicotylenchus indicus</i>	0	0	0	0	0	0	60	4.4	0	0
<i>Helicotylenchus retusus</i>	300	13.1	260	52.0	160	34.2	440	32.5	380	26.5
<i>Heterodera cajani</i>	165 (5) <sup>b</sup>	7.2	100 (4)	20.0	208 (8)	44.4	372 (17)	27.5	235 (13)	16.4
<i>Heterodera</i> sp.	1680 (24)	73.5	0	0	0	0	0	0	0	0
<i>Hoplolaimus seinhorsti</i>	20	0.9	20	4.0	40	8.5	100	7.4	340	23.7
<i>Pratylenchus</i> sp.	80 [9] <sup>c</sup>	3.5	60 [6]	12.0	60 [5]	12.9	100 [8]	7.4	140 [16]	9.8
<i>Rotylenchulus reniformis</i>	0	0	0	0	0	0	160	11.8	160	11.1
<i>Tylenchorhynchus</i> sp.	40	1.8	60	12.0	0	0	120	8.9	180	12.5

<sup>a</sup> BIL=Black ICRISAT Lake; BP=Black Precision; BUS=Black Unsprayed;

<sup>b</sup> ( ) = Cysts/500 cc soil; <sup>c</sup> [ ] = Nematodes/g root.

reported on chickpeas, and efforts to identify it are in progress.

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## Entomology

### A Preliminary Study of Incidence of *Aphis craccivora* in Chickpea at Hissar, India

Stunt, caused by pea leaf-roll virus, is the most important and widespread virus disease of chickpea in almost all the chickpea-growing areas of the world. The

legume aphid, *Aphis craccivora* Koch (Aphididae: Homoptera) is a known vector of this virus (Nene and Reddy, 1976)(1). Some aspects of management of stunt disease are being studied at the ICRISAT experimental farm at Hissar. During 1982/83, the incidence of *A. craccivora* was studied in the chickpea stunt disease nursery at this location. The nursery consisted of four rows of a mixture of ten legumes, (cowpea, field pea, lentil, mung bean, urd bean, garden pea, alfalfa, fenugreek, faba bean, and *Melilotus alba*) sown 0.75 cm apart, around and between every six chickpea rows in a 0.5 ha field, on 16 September 1982. The test material and indicator/spreader rows of a mixture of susceptible chickpea lines (ICC 3912 and ICC 5566), after every two test rows, were sown on 7 October 1983. Three sticky traps were located in the nursery. Each trap consisted of a yellow tin cylinder (10 cm dia, 15 cm height) coated with sticker (TanglefootR) on the sides and installed 30 cm above ground.

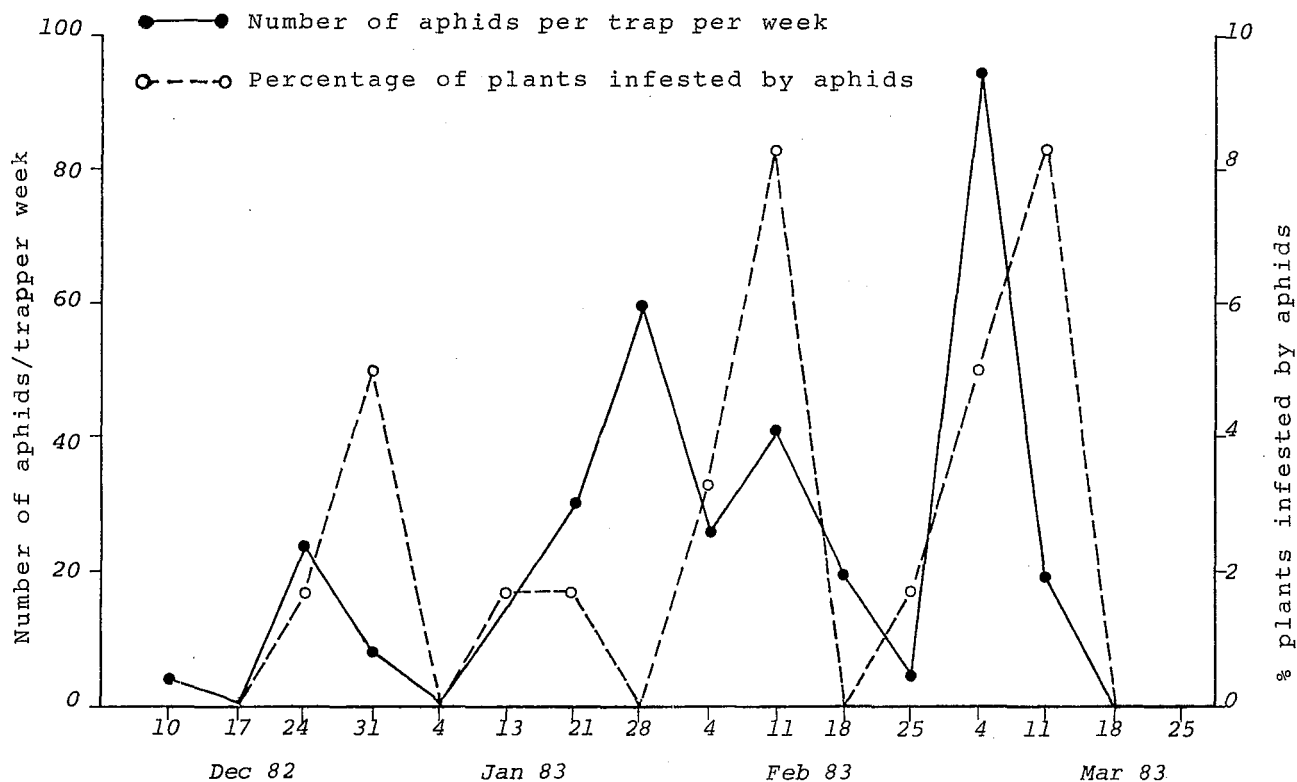


Figure 1. Seasonal catches of aphids in traps and percentage of chickpea plants infested by aphids at Hissar.

Weekly collections of aphids were recorded from each trap commencing early December. The numbers of *A. craccivora* infested plants were recorded for twenty random plants in indicator/ spreader rows adjacent to each trap.

There were three distinct peaks of catches: on 24 December, 28 January, and 4 March (Fig. 1). Three peaks were also observed in the incidence of the aphid on chickpea, occurring 1-2 weeks later than the peaks in trap catches. It is likely that the increase in the incidence of aphids on chickpea (% plants infested) is preceded by a cycle of dispersal of alates (winged aphids) represented by the peaks in the trap catches. However, the incidence of *A. craccivora* on plants was very low and these observations need to be confirmed.

Earlier studies of *A. craccivora* at Hissar have shown its occurrence on legumes such as lentils, chickpeas, alfalfa, funugreek, mung bean, and wild pea (*Lathyrus*), and on non-legumes such as tomato and potato (Verma *et al.*, 1975)(2). The present observations indicate the seasonality

of the aphid and the relationship of trap catches with aphid incidence on the chickpea crop. The shift of vector aphids from reservoir legume hosts to chickpea, which is a major factor in the spread of stunt disease, will be further studied.

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(1) Nene, Y.L., and Reddy, M.V. 1976. Tropic. Grain Legume Bull. 5:31-32.

(2) Verma, A.N., Khurana, A.D., and Bhanot, J.P. 1975. Haryana Agric. Univ. J. Res. 5:11-14.

### A Pilot Survey for Pest Damage in Chickpeas in Jordan and Syria

Surveys of pest damage in farmers' fields constitute one method of estimating the 'real' losses caused by pests. During 1979-82, limited surveys of pest damage in