Table 2. Seed transmission frequencies of peanut stripe virus in groundnut varieties grown under field conditions at Khon Kaen, Thailand.

Variety	Seed transmission (%)
ICGS 36	1.60
ICGS 1	1.05
NC Ac 2240	0.00
ICG 19	1.02
148-7-4-3-12B $_x$ NC Ac 17090	4.07
ICG 149 (Philippines Pink)	0.00
RCM 387	0.29
(Comet x NC Ac 17090)-F2-B2-4B1	1.63
ICG 43	0.76
FSB7-2 x EC 76446 (292)	6.72
No. 324	NA>
NC 7 (Khon Kaen 60-3;	0.00
Tainan 9	0.82
Moket (Khon Kaen 60-1)	0.00
(Comet x NC Ac 17090)-F2-3B1-B2-B1	1.98
KAC290	0.00
TMV 3 (Khon Kaen 60-2)	0.34
ICG 18	1.11
EC 76446 (292)	3.41
(MGS 9 x Robut 33-D-18-3-F6-1	0.49
ICG 12	0.35
EC 76446 (292) x Robut 33-1	3.18

1. NA « Not available.

environmental conditions to determine the critical factors that influence seed transmission.

Some of the varieties, i.e., NC Ac 2240, NC 7, Moket, and KAC 290, that have shown no seed transmission in our tests need to be tested with other PStV isolates for this character. Developing cultivars that do not transmit the virus through their seeds will avoid virus spread and help in ensuring sustainability of groundnut cultivation.

Acknowledgement. Research on peanut stripe virus has been supported by Peanut CRSP, USAID Grant no. DAN-4048-G-00-0041-00.

References

Demski, J.W., Reddy, D.V.R., Sowell Jr. G., and **Bays, D.** 1984. Peanut stripe virus - a new seed-borne potyvirus from China infecting groundnut *(Arachis hypogaea).* Annals of Applied Biology 105:495-501.

Demski, J.W., and **Warwick, D.** 1986. Testing peanut seeds for peanut stripe virus. Peanut Science 13:38-40.

Ohki, S.T., Nakatsuji, T., and **Inouye, T.** 1989. Peanut stripe virus, a seed-borne potyvirus isolated from peanut plant in Japan. Annals of Phytopathological Society, Japan 45:267-278.

Wongkaew, S., and **Dollet, M.** 1990. Comparison of peanut stripe virus isolates using symptomatology on particular hosts and serology. Ollagineux 45:267-278.

Xu, Z., **Chen,** K., **Zhang,** Z., and **Chen,** J. 1991. Seed transmission of peanut stripe virus in peanut. Plant Disease 75:723-726.

Xu, Z., Yu, Z., Lui, J., and **Barnett, O.W.** 1983. A virus causing peanut mild mottle in Hubei Province, China. Plant Disease 67:1029-1032.

Occurrence of Entomopathogenic Nematodes at ICRISAT Center

M. Singh, S.B. Sharma, and **G.V. Ranga Rao** (ICRISAT Center)

Two entomopathogenic nematodes, *Steinernema* sp and *Hetero rhabditis,* are important biocontrol agents for the management of insect pests because of their wide host range and high virulence (Poinar 1979). Surveys were conducted at ICRISAT Center between June and December 1991 for steinernematid and heterorhabditid nematodes. Soil samples were collected from 110 sites in five Vertisol and six Alfisol fields. Ten soil cores (0-15 cm soil depth) were collected from each field, and insect parasitic nematodes were collected using a soil-baiting technique (Bedding and Akhurst 1976) that employs larvae of the rice moth as bait, *Corcyra cephalonica* Stainton. Ten full-grown larvae of *Corcyra* were placed at the bottom of 250 cm^3 plastic containers, and thoroughly bulked and mixed soil from within each field was placed on the *Corcyra* larvae. Containers were covered with muslin cloth and incubated **at** 25±1"C. After 1 week, dead *Corcyra* larvae were collected and examined for the presence **of** nematodes. Infective stages of the nematodes

*

were kilted in hot saline water and fixed in *5%* formalin. The nematodes were treated by the glycerin evaporative process (Poinar 197S). The processed specimens were mounted in dehydrated glycerin and morphometric data were recorded.

Populations of *Steinernema* sp were found only in soils collected from two Vertisol fields. More than 10 000 nematodes per rice moth larva were present. Nematodes killed the rice moth larvae within 48 h. Dead rice moth larvae were yellowish brown in color. *Steinernema* sp also infected larvae of *Spodoptera litura {¥.).* Morphometries of IS infective nematode juveniles indicated that this nematode species is closely related to *Steinernema feltiae* Filipjev *(=Neoaplectana carpocapsae* Weiser) (Table 1).

Table *L* Morphometric data of infective nematode juveniles collected from soils at ICRISAT Center, India.

Character	Dimensions (n=15)	
Average body length	613.1 um (554.4-659.2 urn)[1]	
Maximum body width	26.9 urn (25.2-28.2 urn)	
Distance from anterior end to excretory pore	47.9 um (43.7-52.3 um)	
Distance from anterior end to base of pharynx	101.6 um (94.2-109.2 um)	
Tail length	56.1 um (51.5-61.2 um)	
Body width at anus	15.7 um (14.6-17.7 um)	
A ratio[2]	22.83	(21.3-24.7)
B ratio[3]	6.0	(5.6-6.4)
C ratio[4]	10.9	(10.0-12.0)
D ratio[5]	0.47	(0.46-0.50)
Emtio[6]	0.85	(0.79-0.91)

1. Figures in parentheses represent range.
2. Ratio A: Total body length/Greatest body width.
3. Ratio B: Total body length/Distance from head to base of pharynx.
4. Ratio C: Total body length/Length of tail.
5. Ratio D: Distance from head to excretory pore/Distance from head to base of pharynx.
6. Ratio E: Distance from head to excretory pore/Length of tail.

This nematode species may be useful for the management of such soil-inhabiting pests as white grubs *{Hohtrichia* spp), termites *(Odontotermes* spp and *Microtomes* sp), and foliar pests, e.g., *Spodoptera litura* (F.) and *Helicoverpa armigera* Hub., mat pupate in soil.

References

Bedding, R.A., and Akhurst, R.J. 1976. A simple technique for detection of insect parasitic rhabditoid nematodes in soil. Ncmatologica 21:109-110.

Poinar, Jr., G.O. 1975. Entomogenous nematodes. Leiden, Netherlands: E.J. Brill. 317 pp.

Poinar, Jr., G.O. 1979. Nematodes for biological control of insects. Boca Raton, FL, USA: CRC Press, Inc. 277 pp.

Persistence of Chlorpyriphos Residues in Soil and Groundnut Seed

Ashok Bhatnagar and Alamelu Gupta
(All India Coordinated Research Project on Pesticide Residues, Department of Entomology, Agricultural Research Station, Durgapura, Jaipur, Rajasthan, India)

In India, groundnut crops are infested by several insect pests at different stages. Among these, white grubs, *Holotrichia consanguinea* (Blanch), are known to be highly damaging, particularly in light soils. The pest can be effectively controlled by use of chlorpyriphos. The available literature shows that this compound remains active for several weeks after application (Sree Ramulu 1979). Therefore it was postulated that the residue of this insecticide may persist in groundnut seed and hay at harmful levels, and the present study was undertaken to examine the persistence of chlorpyriphos in a groundnut crop (variety M 13) in the 1991 rainy season at the Agricultural Research Station, Durgapura, Jaipur, India. The experiment was laid out in a randomized-block design with three treatments. The treatments comprised soil application of chlorpyriphos at 800 and 1200 g a.i. ha^{-1} and a nontreated control, each replicated three times. The plot size was 5 x 8 m. While irrigating the crop, chlorpyriphos was applied to the plots drop by drop at their water inlet source, 4 weeks after the onset of the monsoon. Soil samples were collected at 0,10,20,30, and 40 days after treatment for residue analysis. Groundnut seed samples were also collected for this purpose at harvest time.

For the determination of chlorpyriphos residue in soil, 50 g soil was extracted with 150 mL of acetone. The