

Challenges in Dryland Agriculture: A Global Perspective. In: *Proceedings of International Conference on Dryland Farming*, Bushland, USA.

RAJENDRA PRASAD., SHARMA, S. N., SINGH SURENDRA AND MANGAL PRASAD, 1990. Nitrogen management. Nutrient management supply system for sustaining Agriculture in 1990s. In: *Soil fertility and Fertilizers*, Vol. IV,

IFFCO, New Delhi (Ed: Virendra Kumar, Shotriya, G. C and Kaore, S.V.)

SINGH, R.P., SINGH, H. P., DAULAY, H. S. AND SINGH, K.C. 1981. Effect of periodical application of nitrogen in organic and inorganic form on the yield of rainfed pearl millet. *Indian Journal of Agricultural Sciences*. 57: 409-416.

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A Severe Outbreak of Pigeonpea Pod Borer *Helicoverpa armigera* (Hubner) in Gulbarga District, Karnataka

The Pod borer, *Helicoverpa* (*Heliothis*) *armigera* (Hubner) has become a very serious pest in the recent past and has been recorded on 60 species of cultivated plants and 67 other plant species. The loss due to this pest in India is estimated to exceed 300 million dollars per year on two major pulses, pigeonpea and chickpea (Reed and Pawar, 1982). Chauhan and Dahiya (1987) reported 8.8. to 79.25 per cent loss in yield in early and extra early genotypes while Panchabhavi and Kadam (1990) estimated the avoidable loss of 64.17 per cent during the reproductive phase.

Gulbarga district in Karnataka, India is the "dahl bowl" where pigeonpea is cultivated over an area of 2.4 lakh hectares. During the year 1990-91, the tur crop was worst hit due to severe outbreak of pod borer, *H. armigera* (Hubner) in spite of receiving usual control measures. Hence, a survey was made in December 1990 to investigate the extent of pest damage in various taluks on different cultivars. Pod damage due to the borer *H.*

armigera in the district, in spite of applying insecticides (3 to 7 times) ranged from 9.25 to 100 per cent with an average of 33.51 per cent. The maximum damage was noticed in Sedam (43.08), Chitapur (44.57), Jewargi (44.31) and Chincholi (42.66) taluks. These taluks are known as traditional tur growing taluks in the district, with medium to deep black soils. The per cent pod damage was less in Aland (26.04), Afzalpur (25.26), Gulbarga (23.15) and Yadgir (28.75) taluks.

While collecting the data on pod damage, the farmers were interviewed to know the time of sowing, insecticide applied, method of application and frequency of application. The information collected on time of sowing, variety cultivated and the damage seen (by the author) gave some interesting clues. The crop, irrespective of variety, that came to maturity by the end of November, either due to early sowing or due to short duration and/or less moisture holding soil type suffered less damage than the crop

Table 1. Per cent pod damage observed at maturity on pigeonpea in the farmer's fields of different taluks in Gulbarga district after taking usual control measures by the farmers

Taluk	No. of fields surveyed	% pod damage *		Area under pigeonpea (ha)
		Range	Mean	
Aland	8	1262 – 47.50	26.04	28968
Afzalpur	10	9.25 – 66.01	25.26	20156
Gulbarga	8	16.34 – 31.64	23.15	32529
Jewargi	7	18.25 – 73.94	44.31	33009
Shahapur	3	7.45 – 72.35	35.72	14997
Shorapur	1	29.60	29.60	7670
Yadgir	3	25.75 – 32.60	28.75	7500
Chittapur	7	25.03 – 100.00	44.57	44446
Sedam	6	16.43 – 98.00	45.08	22540
Chincholi	7	13.90 – 68.72	42.66	27710

* Per cent pod damage was worked out from 10 randomly selected plants in each field.

maturing late. The damage observed on different varieties is tabulated below (Table 2)

The damage was observed to be maximum on red seeded local variety (56.50%) and minimum on PT-221 (21.64%) and GS-1 (23.08%). It is interesting to note that the local white seeded variety suffered less damage (30.51) than either ICPL- 8863 (31.82%) or red seeded local variety (56.50).

In all, the survey has clearly indicated the severe outbreak of the pest during the second half of November month (1990); and traditional tur-growing localities recorded more of pod borer damage than non-traditional belt. Red seeded cultivars were found to be susceptible than white seeded cultivars among the varieties cultivated by the farmers.

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References

- CHAUHAN, R. AND DAHIYA, B., 1987, Damage due to pod borer and pod fly in early maturing genotypes of pigeonpea in Haryana. *Indian Journal of Plant Protection*, 15 : 5-9.
- PANCHABHAVI, K. S., AND KADAM, M. L., 1990, Avoidable loss in yield due to insect pests at different stages of growth in pigeonpea (*Cajanus cajan*), *Indian Journal of Agricultural Sciences*, 50 : 742-743.

Table 2. Per cent pod damage observed on the different varieties of farmers fields in various taluks of Gulbarga district

Variety cultivated	No. of fields visited	Per cent pod damage *	
		Range	Mean
ICPL – 8863	12	9.09 – 79.31	31.82
GS – 1	08	7.45 – 52.38	23.08
PT – 221	09	7.80 – 42.50	21.64
Local (red seeded)	11	27.85 – 100.00	56.50
Local (white seeded)	17	9.25 – 66.87	30.51
Others	03	26.08 – 45.59	34.89

* worked out from the pods of 10 randomly selected plants.

REED, W., AND PAWAR, C.S., 1982, *Heliothis*, a global problem. *Proceedings of international workshop on Heliothis*

management. 15–20 November 1981, ICRISAT Centre, Patancheru, Andhra Pradesh, India.

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A Note on the Efficacy of Sequential Spray of Neem (*Azadirachta indica* A. Jass) Seed Extract and Insecticides for the Control of Pod Borer *Helicoverpa armigera* Hubner infesting Redgram (*Cajanus cajan* (L) Millsp).

Helicoverpa armigera Hubner is the most devastating pest of redgram and causes considerable yield loss (Anonymous, 1985; Rangaiah and Sehagal, 1985; and Rajwant Singh *et al.*, 1988). Application of neem seed extract as a spray has been found to be effective in controlling this pest (Kumar and Sangappa, 1984; Srivastava *et al.* 1984; Gohokar *et al.* 1985; and Singh *et al.* 1985). But there is no information available on the efficacy of

neem seed extract when sprayed in sequence with the other recommended insecticides in the control of redgram pod borer. Hence, field experiments were conducted at three Research Stations during 1989–90 in northern Karnataka to generate necessary information.

The experiments were conducted during the rainy season at Agricultural Research Station, Gulbarga and Bidar, and Main Research