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SEASONAL INCIDENCE OF MAJOR SUCKING INSECT PESTS OF BRINJAL IN RELATION TO WEATHER PARAMETERS

Brinjal or egg plant, *Solanum melongena* (L.) is one of the most popular and principle vegetable crops grown in India. It can be grown in almost all parts of India except higher altitudes all around the year. In India. the total area under cultivation of brinjal during 2006 was 5,83,843 ha and production was 98,02,398 tones (FAO). In Rajasthan brinjal is grown throughout the year in almost all districts. The major insect pests of brinjal affecting the yield and quality are shoot and fruit borer (*Leucinodes orbonalis* Guenee), jassid (*Amrasca biguttula biguttula* Ishida). white fly (*Bemisia tobaci* Genn.), red spider mite (*Tetranychus* spp.), stem borer (*Euzophera perticella* Rag.), hadda beetle (*Epilachna* spp.) and lace wing bug (*Urentius centis* Distant). In present investigation an attempt has been made to study the incidence of jassids & white fly and the effect of abiotic factors on their incidence.

During 2008, a field experiment was conducted to investigate the population density of sucking insect pests of brinjal (*Solanum melongena* L.)", at Rajasthan College of Agriculture, Udaipur. The experiment was laid out in plots measuring 3 × 4.5 m (13.5 sq. m.) replicated three times. The variety BR 116 was grown under natural conditions without spraying any insecticide. Row to row and plant to plant spacing was maintained at 60 cm and 45 cm, respectively. Five plants/ plot were selected and tagged to record the observations throughout the experimental period. Observations were taken during morning hours when most of insect pests remain less active.

Table 1: Seasonal incidence of jassids and whiteflies on brinjal crop along with abiotic factors during *kharif* 2008 at Udaipur

Standard Week	Period	Abiotic factor		Av. no. of Jassids and White flies on five plants	
		Mean Temp. (°C)	Mean R.H. (%)	Jassids	White flies
32	06-12 Aug.	26.9	80.15	0.00	0.00
33	13-19	26.15	77.4	0.00	0.00
34	20-26	26.45	73.8	2.00	1.43
35	27-02 Sept.	26.5	72.85	4.54	5.87
36	03-09	28	69.95	6.87	10.98
37	10-16	27.05	80.3	8.98	17.87
38	17-23	25.9	78.95	9.98	29.98
39	24-30	25.55	65.2	12.65	34.76
40	01-07 Oct.	28.25	65.65	15.87	30.45
41	08-14	27.1	51.1	15.00	25.87
42	15-21	25.6	52.1	8.98	24.65
43	22-28	24.4	48.25	9.00	22.76
44	29-04 Nov.	24.25	48.65	7.76	18.76
45	05-11	23.05	48.75	7.34	19.80
46	12-18	21.7	52.75	6.00	10.54
47	19-25	19.25	51.55	4.34	5.87
48	26-02 Dec.	20.15	50.25	1.54	3.17

Coefficient of correlation between
Mean temperature and jassids population, r = 0.331
Mean relative humidity and jassids population, r = -0.239
Mean temperature and white flies population, r = -0.225
Mean relative humidity and white flies population, r = 0.928*

The population of jassids was estimated on three leaves; one, each from the basal, middle and upper portion were selected from the five tagged plants in each plot. The population was estimated by gently holding the leaf between the halves of a Petri plate and then counting adults and the nymphs within the Petri plate. However, when the nymphal stage exists direct counting of the population was done with help of magnifying lens.

The population of white flies, similarly the was also recorded on five tagged plants from each replicated plots, three leaves, one each from the upper, middle and lower portion of each of tagged plants were randomly selected to determine the population. The base of leaf was hold between finger and thumb and twisted gently, nymphs and adults were counted quickly and carefully with least disturbance.

The data presented in Table-1 clearly depicted that the jassid, *Arasca biguttula biguttula* (Ishida) first appeared during 34th standard week (SW) i.e., 20th to 26th August (2 jassid/5 plants), initially the population increases slowly. The population from the first week of October sowed a rising trend till it reached higher level of 15.87 jassids/5 plants, during 40th (SW) 01st – 07th October), therefore the population declined and reached a minimum level of 1.54 jassids/5plants during 48th SW (26th – 2nd December).

The analysis depicted a non significant negative correlation between average population of jassids and relative humidity (r = - 0.239), whereas average temperature was found to be positively correlated (r= 0.331). The findings confirmed the results obtained by Singh *et al.,* (2005) who reported temperature ranging from 20 to 22.5°C with 69 per cent relative humidity the most suitable conditions for the longevity of adult and the longevity was adversely affected at 45 per cent relative humidity.

The data presented in Table-1 clearly depicted that the white fly *Beisia tabaci Gennadius* started during 34th SW i.e., 20th August to 26th August, and mean population of 1.43 white flies/5 plants was observed. The population increased upto five weeks and reached its maximum of 34.76 white flies/5 plants (during 39th SW). Therefore, a decreasing trend was observed till the first week of December. However, the lowest population of the insect was observed during the last week of August showing an average population as low as 1.43 white flies/5 plants.

The white fly showed a non significant negative correlation with mean temperature (r = -0.225) while the correlation was significantly positive with mean relative humidity (0.928). Thus the present findings corroborate the findings of Bharadia and Patel (2005) who reported the maximum activity of white flies during December.

REFERENCES

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