

**APPENDIX - I**

# POPULATION STUDIES OF A. GOSSYPII ON LADIES FINGER (OKRA) VARIETIES

## INTRODUCTION

Ladies finger (okra) - Abelmoschus esculentus is a common vegetable crop grown extensively in Orissa during summer and rainy seasons. The varieties grown in summer are transplanted in February-March whereas varieties grown in the rainy season are transplanted in May - June ( Mohapatra and Kar, 1976 ). A. esculentus forms of the important host-plants of Aphis gossypii Glov. Population studies of the aphid species on okra is scanty. However, Uthamaswamy et al. (1974) have evaluated a resistant factor basing on population studies on as many as 25 varieties. According to their findings varieties A.E. 77 and A.E. 17 are resistant to A. gossypii. The present study deals with population studies of the aphid species on 5 varieties of okra grown in summer in order to assess the varietal preference A. gossypii.

## MATERIALS AND METHODS

In this experiment 5 varieties of okra seedlings were transplanted in the field on 16.3.79 in complete randomised block design comprising 5 treatments and 3 replications. There were altogether 15 subplots each subplot with a dimension of 3.5 m x 3.4 m situated in the

Central Research Station, C.U.A.T., The varieties were Selection 1, Selection 2, Mayurbhanj local, Selection 2-2 and Pusa Sawani. In each sub plot 5 rows and in each row 5 plants were planted in each replication. 13 weekly observations were recorded for counting aphid population covering a total period of 3 months ( 28.3.1979 to 28.6.1979 ). Mean aphid population per leaf (areas of 130 sq.cm) was calculated after the method adopted by Khan (1976). Analysis of variance was done in order to find out L.S.D. at  $P = 0.05$  and  $0.01$ . This was made to study preference ( by ANOVA ) on 9 leaves count. In order to find the respective significant differences amongst different varieties alphabetical symbols like a, b, c are used.

#### RESULTS AND ANALYSIS

Monthwise data of aphid population on okra are presented in Tables 1, 2 covering the period from March to June, 1979. Fig. 1 indicate the comparison of aphid population in 5 different varieties of the crop.

Mean aphid population including all forms on different varieties were : Selection 1 (2.43 aphids/leaf), Selection 2 (0.12 aphids/leaf), Mayurbhanj local (1.41 aphids/leaf ), Selection 2-2 (0.02 aphids/leaf) and Pusa Sawani (1.40 aphids/leaf). Highest population was recorded on the variety Selection 1 and the lowest population on the variety Selection 2-2. During March and April, 1979 when mean temperature showed  $30.4^{\circ}\text{C}$  and R.H. at 62.7 %, the aphid population was comparatively higher than during May and June, 1979 when mean temperature showed  $32.5^{\circ}\text{C}$

and R.H. at 66.5 %. Detailed observation of aphid populations on okra varieties are set in Table 2 and 2.A.

Analysis of data reveals that the varietal preference of A. gossypii to okra in order are Selection 1, Pusa Sawani, Mayurbhanj local, Selection 2 and Selection 2-2, Highest preferred significant variety of crop is Selection 1 and least preferred is Selection 2-2. Analysis indicate that Selection 1 was statistically significant at  $P = 0.05$  from rest other varieties. Selection 2-2 is the least preferred but not significantly different from Selection 2.

#### Amongst SUMMARY

Amongst summer crop varieties of ladies finger which are transplanted during March Selection 2-2 variety and Selection 2 show relatively less attack by A. gossypii in comparison to other varieties like Selection 1, Mayurbhanj local and Pusa Sawani commonly grown in the state during the said period.

#### REFERENCES

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Table 1

Comparative population studies of Aphis gossypii on different varieties of ladies finger (Abelmoschus esculentus) at Bhubaneswar during March to June, 1979.

Mean aphid population \* / leaf

Different months/ corresponding plant age	Variety- Selection-1		Variety- Section-2		Variety- Meyurbhanj local		Variety- Selection- 2-2		Variety- Pusa sawari												
	Al.	Apt. Ny	T	Al.	Apt. Ny	T	Al.	Apt. Ny	T	Al.	Apt. Ny	T									
March, 1979 (1-10 days plant)	0	0	5.5	5.50	0.33	0	0	0.33	1.66	0	4.0	5.66	0	0	0	0	0.66	0.66			
April, 1979 (11-40 days plant)	1.50	0.25	1.0	2.75	0.17	0	0	0.17	0	0	0	0	0	0	0.08	0.08	0.31	0.31	4.33	4.95	
May, 1979 (41-71 days plant)	0	0	1.50	1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June, 1979 (72-101 days plant)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total aphids/ leaf	1.50	0.25	8.0	9.75	0.50	0	0	0.50	1.66	0	4.0	5.66	0	0	0.08	0.08	0.31	0.31	4.99	5.61	
Mean	0.37	0.06	2.0	2.43	0.12	0	0	0.12	0.41	0	1.0	1.41	0	0	0.02	0.02	0.08	0.08	1.24	1.40	

Al. - Alate

Ny. - Nymph

Apt. - Apterous

T - Total

\* Mean of 3 leaves, 3 plants in 3 replications

Table 2

population studies of Aphis gossypii on ladies finger (Abelmoschus esculentus) to evaluate varietal preference during March to June, 1979 at Bhubaneswar.

Varieties of the plant	March, 1979 aphids/leaf	April, 1979 aphids/leaf	May, 1979 aphids/leaf	June, 1979 aphids/leaf	*† Mean
Selection - 1	5.50	2.75	1.50	0	2.43
Selection - 2	0.33	0.17	0	0	0.12
Mayurbhanj local	5.66	0	0	0	1.41
Selection 2-2	0	0.08	0	0	0.02
Pusa Savani	0.66	4.95	0	0	1.40

\* Mean aphid population/leaf

\* Mean aphid population (including all forms) of 3 leaves, 3 plants in 3 replications

\*\* Overall mean population of 4 months observation/leaf

Table 2.A  
Population of A. gossypii on different varieties  
of ladies finger

Variety	Mean: aphid population* / 9 leaves
Selection - 1	29.33 (5.30) <sup>a</sup>
Pusa sawani	16.88 (3.39) <sup>b</sup>
Mayurbhanj local	17.00 (3.06) <sup>b</sup>
Selection - 2	2.00 (1.48) <sup>bc</sup>
Selection 2-2	0.22 (1.08) <sup>c</sup>

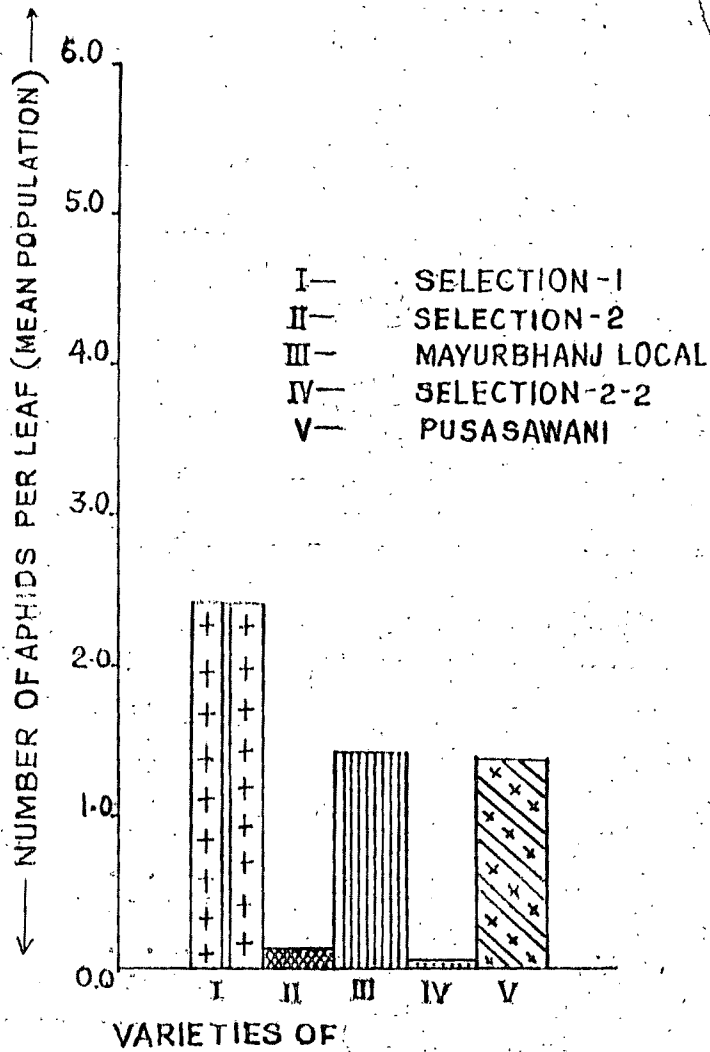
  

'F' test	Significant
S.E (m) ±	(0.909)
L.S.D. (P = 0.05)	(1.852)
L.S.D. (P = 0.01)	(2.491)

\* Mean figure of 9 observations taken during the period, March, 1979 to May, 1979

- Figures in parentheses are transformed values  $\sqrt{x+1}$
- Similar letter in a column indicate that their differences are not statistically significant at 5 % P.

Fig. 1.



COMPARATIVE POPULATION OF *A. GOSSYPHII*  
IN OKRA VARIETIES DURING 1979.

(*Abelmoschus esculentus*)