

APPENDIX - II

POPULATION STUDIES OF A. GOSSYPII ON COTTON  
( VARIETY MCU - 5 )

INTRODUCTION

Cotton ( Gossypium herbaceum ) is an important crop grown mainly in Maharashtra, Madhya Pradesh, Tamilnadu and the Punjab. In Orissa this crop is also grown during rainy and winter seasons. The varieties chiefly cultivated in Orissa are Sujata, Hybrid-4, M.C.U.- 5, Krishna, F.R.S. 72 and Bharalakahmi. Rainy crops are sown in June whereas winter crops are sown during November (Mohapatra and Kar, 1976 ). A. gossypii is an important pest of this crop and is commonly known as 'Cotton aphid' ( Raja Rau, 1954 ). The aphid species decreases the yield of cotton significantly ( Ewing et al., 1947). Behura (1963, 1965) and Ullah (1940) reported the period of infestation of A. gossypii on cotton to be from September to February which is probably true for rainy crops. The present investigation relates to the study of population of A. gossypii on cotton variety M.C.U. 5 grown during winter (1978-79) at Bhubaneswar in order to estimate peak period of infestation.

MATERIALS AND METHODS

Cotton seeds (variety M.C.U.-5) were sown in

the field on 25.10.1978 in three replications and four treatments in complete randomised block design. Treatments were identical in all respects. Thirtytwo weekly observations were recorded for noting aphid population covering a period of 8 months from 7.11.1978 to 30.6.1979. Mean population per leaf ( having average surface area of 120 sq. cm. ) was calculated after the procedure adopted by Khan (1976).

#### RESULTS AND ANALYSIS OF DATA

Data of A. gossypii population from November 1978 to June, 1979 along with meteorological observations are presented in Table 3 and Fig. 2.

The number of aphids ( apterae, alatae and nymphs ) recorded on the crop were as follows :-

November, 1978 (26.53/leaf), December, 1978 (35.01/leaf), January, 1979 (44.02/leaf), February, 1979 (30.5/leaf), March, 1979 (2.5/leaf), April, 1979 (0), May, 1979 (0) and June, 1979 (0), peak infestation of A. gossypii was recorded during January when mean temperature was at 23°C and R.H. 67 % . Aphid number dwindled to nil during April-June i.e., during the warm months when mean temperature stood at 32°C and R.H. 66 % . Detailed observations and related meteorological data are presented in Table 3.

## SUMMARY

Peak infestation of A. gossypii on cotton variety M.C.U.-5 sown in the winter was noticed during January, 1979 when mean temperature and R.H. were at 23° C and 67 % respectively.

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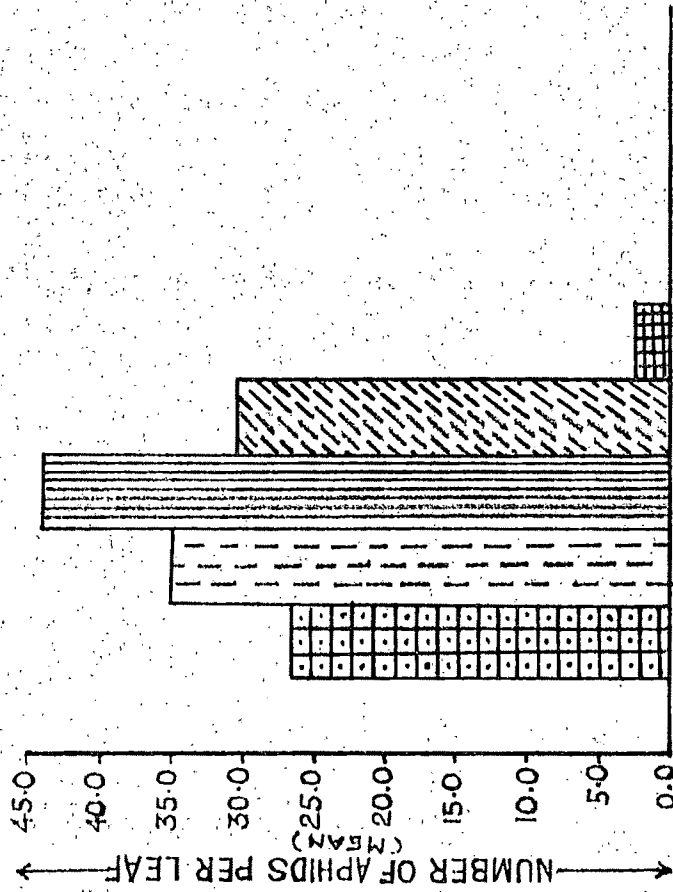
Table 3

Population studies of Aphis gossypii on Cotton (Gossypium herbaceum variety M.C.U.-5) and corresponding meteorological condition at Bhubaneswar during November, 1978 to June, 1979.

| Months/year    | Mean aphid population * /leaf |                                  |                    |                   | Meteorological factors       |                           |
|----------------|-------------------------------|----------------------------------|--------------------|-------------------|------------------------------|---------------------------|
|                | No. of alate aphids/leaf      | No. of apterous adult aphid/leaf | No. of nymphs/leaf | Total/leaf aphids | Temp. in °C (mean and range) | R.H. in% (mean and range) |
| November, 1978 | 0.11                          | 0.66                             | 25.76              | 26.53             | 25.9<br>(15.4-33.4)          | 71<br>(30 - 78)           |
| December, 1978 | 0.11                          | 0.75                             | 34.15              | 35.01             | 21.4<br>(12.8-31.5)          | 64<br>(28 - 99)           |
| January, 1979  | 2.53                          | 0.26                             | 41.23              | 44.02             | 23.0<br>(12.1-34.4)          | 67<br>(29 - 100)          |
| February, 1979 | 2.00                          | 0.24                             | 28.26              | 30.5              | 24.5<br>(13.4-33.5)          | 64<br>(20 - 95)           |
| March, 1979    | 0.80                          | 0.10                             | 1.60               | 2.5               | 29.7<br>(16 - 38.5)          | 60.4<br>(16 - 95)         |
| April, 1979    | 0                             | 0                                | 0                  | 0                 | 31.2<br>(25.3-37.1)          | 65<br>(17 - 96)           |
| May, 1979      | 0                             | 0                                | 0                  | 0                 | 32.7<br>(27.1-38.4)          | 64<br>(15 - 96)           |
| June, 1979     | 0                             | 0                                | 0                  | 0                 | 32.3<br>(27.5-37.1)          | 69<br>(20 - 93)           |

\* Mean population of 3 leaves, 5 plants in 3 replications

Fig. 2



NOV. DEC. JAN. FEB. MAR. APRIL MAY JUNE  
1978 1978 1979 1979 1979 1979 1979 1979

← DIFFERENT MONTHS OF THE YEAR 1978-79 →

POPULATION STUDIES OF Aphis gossypii ON COTTON

(Gossypium herbaceum; Var: - Mcu-5) AT BHUBANESWAR

DURING NOVEMBER-1978 - JUNE 1979.