

Banana (Musa paradisiaca L.) called ‘Apple of the Paradise’ is one of the important fruit crop of the world and recently has achieved the status of food, while plantain group (AAB) are the major staple food of millions of people across the globe (FAO, 1985). In India, the banana plant by virtue of its continuous reproduction is considered as a symbol of fertility and prosperity. Therefore, the plant finds its place as a token of goodwill in the various religious practices and ceremonial functions, especially marriages. It is delicious, seedless and grown throughout the year, providing a more balanced diet than any other fruit or vegetable. The crop is an important component of many of the farming systems prevailing in the states of Maharashtra, Tamil Nadu, Kerala, Gujarat, Assam, Andhra Pradesh, and Karnataka. Among the various factors affecting the yield and economic value of banana, damage done by insect pests is very important. In India, banana pseudostem weevil, Odoiporus longicollis Oliver, rhizome weevil, Cosmopolites sordidus Germar, lacewing bug (Stephanitis typicus Dist.), leaf eating caterpillar (Spodoptera litura Fabricius), Semilooper (Chrysodeixis acuta (Walker)), scale insect (Aspidiotus destructor Signoret), mite (Raolia indica Hirst) and mealy bug (Pseudococcus sp.). While, healthy and infested pseudosuckers were recorded fortnightly and per cent infestation was worked out for aphid (Pentalonia nigronervosa Coquerel). Numbers of adults present on pseudostem were counted at fortnightly interval in case of pseudostem weevil, (Odoiporus longicollis Oliver). The obtained data was correlated with different weather parameters.

Aphid, Pentalonia nigronervosa Coquerel

It can be seen from data (Table 1), that the aphid infestation was seen thrice i.e., during September to November (2007), April to June and October to November (2008). The activity of the pest was more pronounced during April to June with maximum 5.86 per cent infested
Table 1: Per cent infested pseudosuckers and leaves by various pests of banana

| Sr. No. | Year | Month | Fortnight | Aphid | Lace wing bug | Spodoptera | Semilooper | Scale insect | Mite | Mealy bug | Mean Number of adults per plant | Mean number of holes /5cm² |
|---------|------|-------|-----------|-------|---------------|-------------|------------|--------------|------|-----------|--------------------------------|---------------------------|
| 1       | 2007 | August| I         | 0.00  |                | 0.00        | 0.00       |              |      |           |                                |                           |
| 2       |      |      | II        | 0.00  |                | 5.26        | 10.27      |              |      |           |                                |                           |
| 3       |      |      |           |       |                | 3.46        | 9.06       |              |      |           |                                |                           |
| 4       |      |      | II        | 0.95  |                | 3.31        | 6.43       |              |      |           |                                |                           |
| 5       |      |      |           | 0.68  |                | 1.53        | 3.15       |              | 1.56 | 0.67      |                                |                           |
| 6       |      |      | II        | 0.57  |                | 0.93        | 1.23       |              | 2.10 | 0.87      |                                |                           |
| 7       |      |      |           | 0.62  |                | 0.96        | 1.20       |              | 2.69 | 0.75      |                                |                           |
| 8       |      |      | II        | 0.35  |                | 0.67        |            |              | 3.56 | 1.07      |                                |                           |
| 9       |      |      |           | 0.00  |                |            |            |              | 2.84 | 1.13      |                                |                           |
| 10      |      |      | II        | 0.00  |                |            |            |              | 4.65 | 1.47      |                                |                           |
| 11      | 2008 | January| I         | 0.00  |                |            |            |              | 6.91 | 1.68      |                                |                           |
| 12      |      |      | II        | 0.00  |                |            |            |              | 7.20 | 0.89      |                                |                           |
| 13      |      |      |           | 0.00  |                |            |            |              | 7.01 | 0.40      |                                |                           |
| 14      |      |      | II        | 0.00  |                |            |            |              | 8.48 | 0.87      |                                |                           |
| 15      |      |      |           | 0.00  |                |            |            |              | 8.37 | 1.79      |                                |                           |
| 16      |      |      | II        | 0.00  |                |            |            |              | 9.15 | 1.23      |                                |                           |
| 17      |      |      |           | 3.90  |                |            |            |              | 7.06 | 1.76      |                                |                           |
| 18      |      |      | II        | 4.24  |                |            |            |              |      |           |                                |                           |
| 19      |      |      |           | 5.86  |                |            |            |              |      | 0.78      |                                |                           |
| 20      |      |      | II        | 2.06  |                |            |            |              |      | 0.98      |                                |                           |
| 21      |      |      |           | 1.32  | 1.76          | 1.17        |            |              |      |           |                                |                           |
| 22      |      |      | II        | 0.65  | 2.07          | 1.06        |            |              | 1.34 | 0.00      |                                | 3.10                      |
| 23      |      |      |           | 0.00  | 2.62          | 0.87        |            |              | 0.65 | 2.86      |                                | 4.57                      |
| 24      |      |      | II        | 0.00  | 3.60          | 0.95        |            |              | 0.57 | 3.10      |                                | 6.24                      |
| 25      |      |      |           | 0.00  | 4.60          | 0.64        |            |              | 0.00 | 4.67      |                                | 7.26                      |
| 26      |      |      | II        | 0.00  | 3.27          | 1.02        |            |              | 0.00 | 5.90      |                                | 5.68                      |
| 27      |      |      |           | 0.00  | 1.70          | 1.02        |            |              | 0.00 | 4.85      |                                | 8.64                      |
| 28      |      |      | II        | 0.00  | 0.00          | 0.91        |            |              | 0.00 | 3.75      |                                | 8.10                      |
| 29      |      |      |           | 0.70  | 0.00          | 0.00        |            |              | 0.75 | 2.70      |                                | 7.38                      |
| 30      |      |      | II        | 0.84  | 0.00          | 0.00        |            |              | 0.67 | 1.46      |                                | 8.67                      |
| 31      |      |      |           | 1.29  | 0.00          | 0.00        |            |              | 0.80 | 1.75      |                                | 10.68                     |
| 32      |      |      | II        | 0.68  | 0.00          | 0.00        |            |              | 0.94 | 1.02      |                                | 10.35                     |
pseudosuckers noted in II\textsuperscript{nd} fortnight of June. The aphid infestation exhibited significant positive correlation with maximum temperature and average temperature, while it was significantly negative with morning relative humidity. This correlation indicated that as the maximum temperature increases and relative humidity decreases, the infestation of aphid was found increasing and vice versa.

**Lace wing bug, Stephanitis typicus Dist.**

The infestation was mostly confined during monsoon i.e., from June to September (2008) (Table 1). It was recorded as high as 4.60 per cent infested leaves in first fortnight of August. The lace wing bug infestation showed significant positive correlation with minimum temperature, morning relative humidity, evening relative humidity, average relative humidity, rainfall and rainy days. This indicated that, as these weather parameters increases, the infestation of lace wing bug also found increases and vice-versa (Table 2). Moreover, there was significant negative correlation with maximum temperature, while the average temperature did not influenced to the pest infestation.

**Leaf eating caterpillar, Spodoptera litura Fabricius**

This pest was found damaging to banana crop at early stage of growth when the crop is of 2 to 4 months old. The infestation of the pest started appearing in the month of August and appeared up to first fortnight of November (Table 1). The pest could damage as high as 5.26 per cent infested leaves in second fortnight of August and thereafter, it was gradually declined. The infestation also found sporadic and no serious damage was noticed during the present investigation in south Gujarat condition. It is revealed that there was significant positive correlation between *Spodoptera* infestation and morning, evening and average relative humidity. This indicated that as the relative humidity increases, the infestation of *S. litura* found increases and vice versa (Table 2).

**Banana semilooper, Chrysodeixis acuta (Walker)**

The newly introduced pest was found damaging to banana at early stage of growth i.e., upto the age of 5 months. The infestation of semilooper started from August and observed up to November. It was recorded as high as 10.27 per cent infested leaves in second fortnight of August (Table 1). The data clearly indicated that, the pest remained active during monsoon months only. Moreover, the infestation of this pest found associated with early stage crop during second fortnight of August to second fortnight of September. Infestation of *C. acuta* is not observed from
November onwards during the present research work.

There was significant positive correlation between semilooper infestation and morning, evening as well as average relative humidity. This indicated that as the relative humidity increases the semilooper infestation also found increases and vice-versa (Table 2).

**Scale insect, Aspidiotus destructor Signoret**

The scale insect infestation on leaves found started from June, 2008 and observed up to September, 2008 with maximum 1.17 per cent infestation in first fortnight of June, 2008 (Table 1). This infestation was coinciding at reproductive stage of banana. The data also indicated that the scale insect prefers the monsoon season in south Gujarat condition. There was significant negative correlation between maximum temperature and pest infestation. While, it was significant positive correlation with minimum temperature, evening relative humidity, average relative humidity, rainfall and rainy days. This correlation indicated that as the maximum temperature increases the pest infestation also increases and vice-versa (Table 2).

**Pseudostem weevil, Odoiporus longicollis Oliver**

It is indicative from the data that the number of adult weevils on pseudostem were as high as 5.90 (2nd fortnight of August). The population started building up after onset of monsoon. The adult weevils are found active from July to November in south Gujarat condition (Table 2).

There was significant positive correlation between mean number of adults and minimum temperature, morning relative humidity, evening relative humidity, average relative humidity, rainfall as well as rainy days. This indicated that as the above weather parameters increases, the population of adults also found increased and vice-versa (Table 2).

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