



STUDIES ON THE SEASONAL INCIDENCE OF SUGARCANE INTERNODE BORER, *CHILO SACCARIPHAGUS INDICUS* (KAPUR) IN TAMIL NADU, INDIA

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Abstract

Internode borer (INB), *Chilo saccariphagus indicus* (Kapur) (Lepidoptera: Pyraustidae) is an important pest on sugarcane which inflicts yield loss of about 45 per cent. Pest surveillance and forecasting is one of the important prerequisite tools in managing such pests. Hence, an attempt was made to study the seasonal incidence of the INB during 2007 and 2008 at Nellikuppam, Tamil Nadu, India. The study revealed that the peak incidence of INB was observed during June-July, which declined thereafter. Higher temperature and deficit or failure of rainfall during March –May are considered as the favourable factors for the rise in the incidence of INB.

Key Words: Sugarcane internode borer; *Chilo saccariphagus indicus*; Population dynamics.

Introduction

Pest monitoring through systematic field visits forms an important aspect of IPM practices, as it, not only gives a foresight about the future incidence of pests but also the present status of various insect pests prevailing. Keeping this in view, the present study was carried out to determine the status of INB incidence and its relation to prevailing weather parameters namely rainfall, temperature and relative humidity.

Materials and Methods

A field study to determine the seasonal incidence of INB in the sugarcane command area of the sugar mill, E.I.D. Parry (India) Ltd. in Nellikuppam, Tamil Nadu, India was carried out during the year 2007 and 2008. One acre field was selected each in eight representative locations in the command area. Monthly plantings were made since August 2006 so as to have a sequence of crop at the age of 135 days for recording the natural incidence of INB since January 2007. In each location, ten random clumps were selected every time and observed for recording the incidence of INB from 135 days after planting (DAP) till harvest at 30 days interval. INB incidence was recorded by counting the healthy and

infested canes in each clump to calculate the percentage incidence of the INB as follows:

$$\text{Per cent INB incidence} = \frac{\text{Number of affected canes}}{\text{Total number of canes}} \times 100$$

The observations thus recorded are tabulated in Tables 1-5.

Results and Discussion

In India, though sugarcane is attacked by more than 100 species of insect pests, only four pests are important in Tamil Nadu, of which INB is predominant. It is imperative to study the location-specific seasonal incidence of INB, so as to formulate a proper management strategy.

In the present study, the incidence of INB varied significantly during both the years of observation. The peak incidence was recorded during June and July respectively during the year 2008 and 2007 (Table 1 and 2). In general, the incidence declined thereafter till the end of the year. The main reason for peak incidence during June 2007 may be attributed to the absence of rainfall from January to May 2007 and a higher

temperature range of 37 to 40°C from April to July 2007, thus resulting in a drought like condition favouring INB to multiply. Further, a reduction in relative humidity during the preceding months would have also increased the population build up of INB. The decline in the population after June or July may be due to a temperature regime of less than 35°C and optimal rainfall. Similar reports have been made by Tanwar and Varma (1), Shenhmar and Brar (2), and Suasa-ard and Charensen (3), while determining the efficiency of the parasitoid, *Cotesia flavipes* Cam. to manage INB.

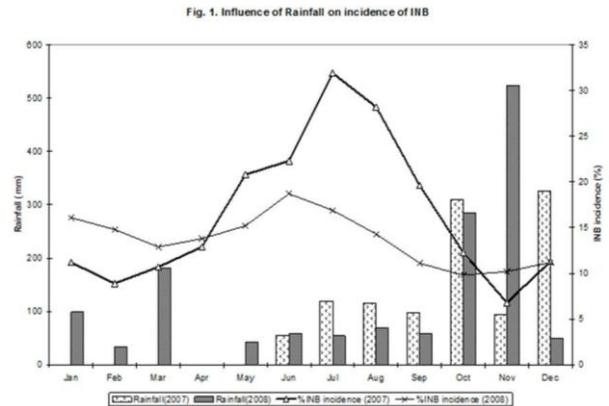
Table 1. Influence of Temperature and Relative humidity on the incidence of INB during 2008

Month	Temp(C')	RH(%)	%INB incidence
Jan	29.25	93.61	16.1
Feb	33.00	90.52	14.8
Mar	31.15	90.16	12.9
Apr	32.45	92.03	13.8
May	36.52	79.74	15.2
Jun	34.30	78.67	18.7
Jul	33.19	82.06	16.9
Aug	33.10	85.68	14.3
Sep	37.40	79.20	11.1
Oct	34.52	86.13	9.8
Nov	30.30	88.67	10.2
Dec	32.52	86.16	11.2

Table 2. Influence of Temperature and Relative humidity on the incidence of INB during 2007

Month	Temp(C')	RH(%)	%INB incidence
Jan	30.65	87.87	11.2
Feb	33.29	82.39	8.9
Mar	33.94	83.16	10.7
Apr	37.10	79.03	12.9
May	40.06	77.90	20.8
Jun	37.70	78.00	22.3
Jul	38.61	80.97	31.9
Aug	37.61	84.29	28.2
Sep	36.83	81.90	19.6
Oct	30.48	87.58	12.3
Nov	30.50	89.13	6.8
Dec	29.21	92.47	11.3

Hence it may be concluded that INB incidence at Nellikuppam, Tamil Nadu, India peaked during June and July, necessitating the initiation of control strategies since May every year.



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References:

1. Tanwar, R.K. and A. Varma, 2002. Field trials with *Cotesia flavipes* Cameron against sugarcane borers in Sub tropical India. Sugar Tech, 4(3&4): 153-156.
2. Shenhmar, M. and K.S. Brar, 1996. Efficacy of the two strains of *Cotesia flavipes* (Cameron) on the control of sugarcane borers. Indian Sugar, 45: 877-879.
3. Suasa-ard, W. and K. Charensen, 1999. Success of *Cotesia flavipes* (Cameron) for Biological control of sugarcane moth borers in Thailand. Proc. ISSCT Congress, 23: 559-568.