

RESEARCH PAPER:

Influence of weather factors on the infestation of yellow stem borer, *Scirpophaga incertulas* Walker in aerobic rice

S.V. HUGAR, VENKATESH HOSAMANI, B.C. HANUMANTHASWAMY AND S. PRADEEP

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See end of the article for authors' affiliations

Correspondence to :

**VENKATESH
HOSAMANI**

Krishi Vigyan Kendra,
Hanumanamatti,
Ranebenur, HAVERI
(KARNATAKA)
INDIA

SUMMARY

Field experiment was conducted to study the influence of weather factors on the infestation of yellow stem borer, *Scirpophaga incertulas* Walker in aerobic rice at College of Agriculture, Shimoga University of Agricultural Sciences, Bangalore. It was revealed that during *Kharif* 2005, borer infestation attained its peak activity when the crop was 60 days old, while in *Rabi* 2006, the peak activity was noticed at 75 days after sowing. Regression equations between the infestation of stem borer and weather parameters showed a significant negative correlation with minimum temperature and afternoon relative humidity but showed non-significant and negative correlation with maximum temperature, morning relative humidity and rainfall and had significant positive correlation with sunshine hours in *Kharif*. While in *Rabi* season, per cent dead heart or white earhead showed significant positive correlation with morning and afternoon relative humidity and non-significant positive correlation with the mean sunshine hours per day.

Key words :

Aerobic rice,
Correlation,
Weather factors

Among the cereals, rice is a staple food of India. Among the different insects associated with rice, the yellow stem borer, *Scirpophaga incertulas* Walker is one of the most destructive and widely distributed from tropics to temperate regions (Torii, 1967) infesting from seedling to maturity stages. The damage in the early stage of the crops results in dead hearts and at a later stage in white ears. It is rather difficult to find a direct cause and effect relationship between any single factor and pest activity because the impact of weather factors on pest is usually compounded. For developing weather-based pest forecasting models, the information on the relationship between the incidence of insect pests and weather factors is needed. Kisimoto and Dyck (1976) stated that climatic factors are responsible for causing certain biological events. Thus, the present study was undertaken to identify the weather factors, if any that influences the infestation of YSB on aerobic paddy.

MATERIALS AND METHODS

The field experiment was conducted at College of Agriculture, Navile Shimoga, University of Agricultural Sciences, Bangalore. during *Kharif* and *Rabi* seasons of 2005-06 with rice variety Rasi to assess the impact of

weather factors on infestation by *Scirpophaga incertulas* in aerobic paddy. In each plot of 20 sq.m, five quadrants of one m² were randomly selected in 'W' design. From each quadrant, four hills were selected for counting dead hearts or white earheads at fortnightly intervals from 15 days following sowing. To the study instantaneous effect of major abiotic factors viz., maximum temperature, minimum temperature, morning and afternoon relative humidity, rainfall and sunshine hours on pest infestation, a correlation coefficient and multiple linear regression was worked out taking fortnightly per cent dead hearts or white earheads as dependent variable with the fortnightly mean meteorological data as independent variables. Meteorological data were recorded from the observatory situated at College of Agriculture, Navile, Shimoga.

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below :

Kharif season:

The impact of major abiotic factors on the incidence of per cent dead heart (DH) or white ears (WH) as affected by *Scirpophaga incertulas* at fortnightly interval during *Kharif* season are given in Table 1 and 2.

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