Department of Entomology
UNIVERSITY OF AGRICULTURAL SCIENCES
GKVK, BANGALORE, KARNATAKA, INDIA

NEW HORIZONS IN INSECT SCIENCE

Editors
A.K. Chakravarthy • C.T. Ashok Kumar • Abraham Verghese • N.E. Thyagaraj

ICIS 2013

INTERNATIONAL CONFERENCE ON INSECT SCIENCE

Febraury 14th - 17th 2013, Bangalore, India

EXPLORING INCREDIBLE INSECT WORLD

Cotton (*Gossypium hirsutum*) is a queen of fiber and under various agro-climatic conditions it is an imperative non food cash crop. In Pakistan economy, cotton is considered as moral fibers. In cotton crop, 20-40% losses are estimated due to insect pests. Among the sucking insect pests, *Thrips tabaci* is a serious pest of cotton in Pakistan. Genetically modified crops proved best for control of insect pest without any additional charges. A study was conducted at Research Farm of Department of Agricultural Entomology, UAF to determine thrips density on newly developed cotton genotypes like FH-113, FH-114, FH-4243, FH-116, FH-167 (BT) FH-1000, FH-941, FH-942, FH-901 and FH-207 (Non BT). Fluctuation in the population of *Thrips tabaci* related to abiotic factors like temperature, relative humidity and rainfall was determined.

Determination of temperature threshold of growth for Bryobia rubrioculus Scheuten (Acari: Tetranychidae) on sweet cherry

N. Honarparvar[1] *(Honarparvarnazila@yahoo.com),M. Khanjani*[1]*; S.H.R. Forghani*[2]

Department of Plant Protection Bu Ali-Sina University Hamedan, Iran

The brown mite *Bryobia rubrioculus* is one of the important mites on fruit crops across the world. This mite is found on fruit trees in Hamedan (west of Iran) and considerable damage is caused in some orchards. In an experiment, biology of the mite was investigated at constant temperatures (15, 17/5, 20, 22/5, 25, 27/5, 30, 32/5 and 35 ± 0.5)ºC, (60 ± 5)% RH and 16:8 h (Light:Drak). The different growth processes was conducted except of egg in 35 ºC, i.e. no egg hatched). The mean larval duration was 2.57±0.2, Protonymph 3.45±0.24, Deutonymph 4.00±0.45 and longevity was 6.00±0.60 days. The results can be used in integrated pest management.

Influence of weather on seasonal incidence of sucking pests of groundnut

Harish, G. *(hari4065@gmail.com), Nataraja, M. V., Poonam Jasrotia., Prasanna Holajjer, Savaliya, S. D. and Meera Gajera,*

Directorate of Groundnut Research (DGR), P. B. No. 5, Junagadh-362 001, Gujarat. India

The seasonal incidence of sucking pests, *viz.*, leafhopper and thrips was recorded on groundnut crop in DGR farm during 2010 and 2011. The populations were sampled using a sweep net. The leafhopper population grew steadily from the first standard week and reached its maximum at 8th standard week (78.5 hoppers/five sweeps) and then gradually decreased and a second peak was observed at 41st standard week (26.5 hoppers/five sweeps). The thrips population, however, reached its maximum at 4th standard week (22.5 thrips/five sweeps). Correlation studies indicated a direct relationship between leafhopper population and sunshine h. and between thrips population and sunshine hours as well as maximum temperature. The values of co-efficient of multiple determinations (R^2)taking into consideration all the weather parameters was 0.30 for leafhopper and 0.52 for thrips indicating that weather conditions accounted for 30% variation in the population of leafhoppers and 52% in thrips. These results indicated that though the population of both the pests prevailed throughout the year, the maximum population is expected during 4th to 8th standard weeks.

Relative abundance of fruit flies, Bactrocera spp. on cucurbits in Tamil Nadu

C. Durairaj *(c_durairaj@yahoo.com), T. Boopathi, S. Sambathkumar and S. Mohankumar*

Centre for Plant Protection Studies, Tamil Nadu Agricultural University, Coimbatore – 641 003, India

Fruit flies of the genus, *Bactrocera* spp. have become a major problem on gourds. The fruit damage was as high as 70 % on gourds. As the nature of damage is hidden, the early detection is essential to minimize the damage. Cuelure is used for monitoring fruitflies in gourd fields for timely plant protection measures. In Tamil Nadu Agricultural University, Coimbatore, the activity of *Bactrocera* was monitored during 2011 and 12 using Cuelure in different gourd fields. Weekly trap catches were recorded. The trapped adults were observed for the species complex in the laboratory using taxonomic keys. The earlier report of fruitfly present in gourds in Tamil Nadu revealed the dominance of *B. cucurbitae*. In the present study, besides *B. cucurbitae,* the attraction of *B. caudata* and *B.tau* were also recorded. In pumpkin, the trap catches of fruit flies revealed the dominance of *B. cucurbitae*. The attraction was 10.5 adults during 4th SMW (Jan 2012) and 14.5 in 49th SMW (Standard Meteorological Week-Dec 2011). In ash gourd, it ranged from 5.5 to 15.5 during 4th SMW (Jan 2012) and 49th SMW (Dec 2011). *B. caudata* was collected from traps kept in bitter gourd and watermelon fields. The adults of *B. caudata* were more in water melon and it ranged from 3.6 to 6.0 during 48th SMW and 52th SMW (Dec 2011), respectively. Under laboratory conditions, the field infested fruits showed the dominance of *B. cucurbitate* and *B. caudata*.

Effective blend ratio and field persistence of Helicoverpa armigera (Hubner) (Lepidoptera: Noctuidae) sex pheromone

C. Durairaj *(c_durairaj@yahoo.com), J. Rajeshkumar, G. Ravi, S.Sambathkumar and S. Mohankumar*

Centre for Plant Protection Studies, Tamil Nadu Agricultural University, Coimbatore – 641 003, India

To increase trapping efficiency of *H. armigera* pheromone blend, field studies were conducted at Tamil Nadu Agricultural University, Coimbatore, with different blend ratios of pheromone compounds, 2010 and 11 in pigeonpea ecosystem. Studies were also conducted with field persistence of pheromone blend loaded in different dispensers and evaluated using Gas chromatography and Electroantennogram (EAG) in laboratory. Pheromone blends of *H.armigera,* Z-11 hexadecenal and Z-9 hexadecenal were loaded in PVC and plastic septa withdifferent blend ratios and the results revealed a maximum male catches in the blend ratio of 97:3. The per cent male trap catches of *H. armigera* was 62.2 during *Kharif* and 65.6 in *Rabi,* 2010-11. The trap catches ranged from 0.0 to 17.0 % in other blend ratios during both the seasons. Out of 3.00 mg loaded in dispensers; PVC were effective in holding the pheromone compound up to 2.13 mg (71. 00 %) and 2.35 mg (78.33 %) at 15 days of exposure under field and normal room temperature conditions, respectively. These results were confirmed through EAG as maximum antennal response of -1.527 and -1.671 mV were obtained from field and normal room temperature exposed PVC septa, respectively. Hence it is inferred that the blend ratio of 97: 3 loaded in PVC septa was effective in attracting male moths.

Whitefly (Aleurolobus barodensis mak.) population fluctuations in diverse conditions of sugarcane

Shashi Vemuri[1] *(Sash_3156@yahoo.co.in), Suresh K and Vijay Kumar M*

Agricultural Research Station, ANGR Agricultural university, Basanthpur, Medak district, Andra Pradesh, India

Experiments were conducted in three sugarcane farmers' fields at 10-15 km radius in Zaheerabad and Ganapathy sugar factories