Indian Journal of Entomology, **81**(3): 000-000 (2019) DoI No.:

HEAVY INFESTATION OF SUGARCANE LEAFHOPPER *PYRILLA PERPUSILLA* ON WHEAT AND OATS IN CHHATTISGARH

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ABSTRACT

Heavy infestation of sugarcane leafhopper *Pyrilla perpusilla* Walker (Hemiptera: Lophopidae) was observed on wheat and oats in Chhattisgarh. On an average, 27.10 and 29.10 adults and nymphs/ plant were found on wheat and oats, respectively. Both adults and nymphs suck the sap from leaves and secrete honey dew which resulted in sooty mould development.

Key words: *Pyrilla perpusilla*, wheat, oats, Chhattisgarh, honey dew, sooty mould, adults, nymphs, intensity

Climate change has been influencing insect pest herbivores to the extent that their distribution and host plant species are changing dynamically, which results in appearance of new insect pests (Jepsen et al., 2008). There are number of first reports of insect pests across crops in India (Taggar et al., 2012; Maruthadurai and Singh, 2015). In India, the changing insect pest scenario across the crops and agroecological regions had been well documented (Dhaliwal and Koul, 2010). Sugarcane leafhopper *Pyrilla perpusilla* Walker (Hemiptera: Lophopidae) is a major sucking pest of sugarcane. Both adults and nymphs suck the sap from leaves which leads to yellowing and stunting. In addition, leafhoppers secrete large amount of honey dew which encourages sooty mould growth and indirectly it affects photosynthesis. Infestation of *P. perpusilla* also affects quality of sugarcane as it reduces sucrose content to the extent of 34.2 % (Rahman and Nath, 1940). An array of crops are known as alternate hosts for *P. perpusilla* which include maize, pearl millet, sudan grass, guinea grass, oats, wheat and barley in Punjab and North India (Rahman and Nath, 1940). Sugarcane leafhopper is a classical example of the changing pest complex on sorghum and *P. perpusilla* was a serious pest with 69.07 to 91.43% incidence and an outbreak on newly developed sorghum hybrids resulted in heavy grain loss (Kishore, 2005; Kishore et al., 2000). The surveys conducted in wheat and oats growing areas in Chhattisgarh revealed the occurrence of *P. perpusilla*, and the observations are presented herein.

MATERIALS AND METHODS

Field surveys were undertaken at Mainpat and Ambikapur hill regions of Sarguja district in Chhattisgarh. Random roving fixed plot survey was conducted from February 2018 onwards at the time of wheat heading stage. Wheat and oats fields were randomly selected and observed approximately at every 10 km on the moving rout. In fixed plot survey, randomly 10 plants in each plot were selected in a zigzag manner for sampling. Sampling was done along a diagonal or zigzag line moving over several rows and taking 5-10 steps before selecting a new plant. The individual sampled plants were 10- 15 feet apart. The field borders and bunds were avoided to minimize the shadow and edge effect. Selected plants were observed and data was recorded as number of leafhoppers (nymphs and adults)/plant. The morphological identification up to species level was done with a compound microscope.

RESULTS AND DISCUSSION

The field surveys revealed heavy infestation of *P. perpusilla* on wheat and oats in Sarguja District (N 22° 57' 39'' E 83° 13' 54''). The incidence was in the range of 15-45 nymphs and 10-15 adults/ plant. Both adults and nymphs were found feeding on leaves, shoot and even emerging ear heads and secreting honey dew in large quantity. The plants were stunted with leaves turning yellowish with black sooty mould (*Capnodium* sp.) observed on plants. The occurrence started after the harvesting of sugarcane crop and peak activity was observed during February to April. Rahman and Nath (1940) also reported that *P. perpusilla* preferred wheat during winter season and late ripening oats varieties during April-May in Punjab region. Gupta and Ahmed (1983) found that 29.4 °C and 75.84% RH were the

most suitable for growth and development of *Pyrilla* on sugarcane and this retards at >43°C and <9.4 °C. During peak infestation on wheat and oats, 27-31°C and 75-78% RH were observed.

The present observation is the first report of *P. perpusilla* infesting heavily on wheat and oats from Chhattisgarh. Earlier reports from other parts of India reveal that it feeds on other crops also apart from sugarcane- Gupta and Awasthy (1954) reported wheat, sorghum, rice, barley, many grass species and weeds as alternate hosts. Jotwani and Chandra (1971) observed on sorghum and maize with number of adults and eggs being more on these than its preferred host, sugarcane. Singh and Singh (1974) reported its population buildup of on sorghum and pearl millet under dry land conditions of Delhi. Pawar (1981) reported this on rice in Karnal and Sonepat region of Haryana during 1978-79 and in Gurdaspur district of Punjab, in 1980. Singh and Narayana (2017) reported its heavy incidence of on rice from Jammu and Kashmir. Hameed and Razmi (1970) observed its occurrence on simul trees (*Bombax malabaricum*) in Bihar with nymphal population density on under surface of leaves being 30-35/sq. inch.

Wheat and oats act as green bridge and helps the insect to increase its population or in perpetuation to infest sugarcane crop in the next season. It is necessary to monitor its spread to other crops to prevent outbreaks.

ACKNOWLEDGEMENTS

The authors acknowledge the Director, ICAR-National Institute of Biotic Stress Management, Raipur for encouragement and providing facilities. This manuscript is outcome of the survey work with institute reference id NIBSM/RP-15/2018-7.

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(Manuscript Received: March, 2019; Revised: August, 2019;
Accepted: August, 2019; Online Published: August, 2019)