



SEASONAL INCIDENCE AND MANAGEMENT OF HARAR BORER *DICHOCROCIS* SP.

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ABSTRACT

A study on the seasonal incidence and management of harar borer *Dichocrocis* sp. was carried out at the College of Horticulture and Forestry, Neri, Hamirpur, Himachal Pradesh in 2018-19. Incidence started during the last week of May with two peaks, first peak was in the last week of July (77%) and the second peak (72%) was in the last week of September. The four insecticides viz. chlorantraniliprole 18.5 w/w, cyantraniliprole 10.26OD, fenvalerate 20EC, monocrotophos 36%EC and the biopesticide agniastra prepared using cow urine, reduced the infestation to <43%. Chlorantraniliprole 18.5 w/w @ 0.005% was the best reducing the infestation to 7.77% followed by cyantraniliprole 10.26OD @0.01% (9.99%) and fenvalerate 20EC @0.012% (14.43%).

Key words: *Dichocrocis* spp., harar borer, chlorantraniliprole, cyantraniliprole, agniastra, cow urine, seasonal incidence, peaks, control

Harar (*Terminalia chebula*) is a deciduous tree with its fruits having medicinal properties (Bag et al. 2013), forms an important constituent of 'Triphala' (a medicinal digestive stew) used in Ayurveda to treat various problems like flatulence, constipation etc. (Suryaprakash et al., 2012). Chander and Chauhan (2014) reported beetle infestation on its fruits in Haryana and adjoining parts of Himachal Pradesh; and Das et al. (2016) reported a scarab beetle from Assam. In the low hill areas of Himachal Pradesh, the fruits are bored by a caterpillar, moving from one fruit to another and damaging numerous fruits. Sharma et al. (2018) observed that fruits of *T. chebula* are heavily infested by an insect, with frass coming out. Damage up to 82.5% is known due to a borer *Dichocrocis* spp. (Lepidoptera: Crambidae) in some parts of Himachal Pradesh. There is dearth of information on its life history, and this study explores its seasonal incidence and control with field experiments conducted at the experimental farm of College of Horticulture and Forestry, Neri, Hamirpur during 2018-19.

MATERIALS AND METHODS

To evaluate the seasonal incidence four unsprayed trees having uniform vigour and age were selected, and ten fruits from each tree covering all directions were collected at fortnightly intervals, thus with a sample of 40 fruits each. The damage symptoms like

hole or excreta or frass were considered and the data pooled and converted to %. To evaluate the efficacy of control, four insecticides viz. chlorantraniliprole 18.5 w/w, cyantraniliprole 10.26OD, fenvalerate 20EC and monocrotophos 36%EC, along with biopesticide agniastra were tried. Agniastra was prepared using the following constituents viz cow urine: 20 l, grounded garlic: ½ kg, grounded green chillies ½ kg and neem leaves 5 kg. All the ingredients were mixed in a container and boiled 4 to 5 times and allowed to cool down for 48 hr, and then mixture was filtered using muslin cloth and stored in a container. It was applied @ 2.5 l/ 100 l of water (Acharya, 2017). The experiment was laid out in a randomized block design with three replications; and in control, foliar application of water only was given. Three sprays at 21 days intervals were given and the data on % infestation was pooled to perform statistical analysis.

RESULTS AND DISCUSSION

Seasonal incidence of *Dichocrocis* sp., on the basis of the fruits damaged revealed that the pest was spread from last week of May to last week of November when the fruits were harvested. Naik et al. (2010) had reported the activity of *Dichocrocis punctiferalis* on castor from July to November. The data depicted in Fig. 1, revealed two peaks, first in July and second in September. Kang et al. (2002) observed three distinct

Table 1. Efficacy of insecticide/biopesticide against *Dichocrocis* spp. on harar

Treatments	Conc. (%)	Incidence after each spray			Mean
		1 st	2 nd	3 rd	
Chlorantraniliprole SC45	0.005	4.44 (10.97)	8.88 (17.10)	7.77 (15.98)	7.40 (14.68)
Cyantraniliprole OD10.26	0.01	5.55 (12.59)	9.99 (18.30)	9.99 (18.30)	8.51 (16.39)
Fenvalerate EC20	0.012	11.10 (19.15)	15.55 (23.12)	14.43 (22.26)	13.69 (21.51)
Monocrotophos EC36	0.108	14.44 (22.12)	24.44 (29.49)	24.43 (29.54)	21.10 (27.05)
Agniastra	2.5	27.77 (31.75)	41.10 (39.81)	42.21 (40.48)	37.02 (37.34)
Control	-	38.88 (38.49)	67.77 (55.84)	71.10 (57.54)	59.25 (50.62)
Mean	-	17.03 (22.51)	27.95 (30.61)	28.32 (30.68)	

Figures in parentheses angular transformed values

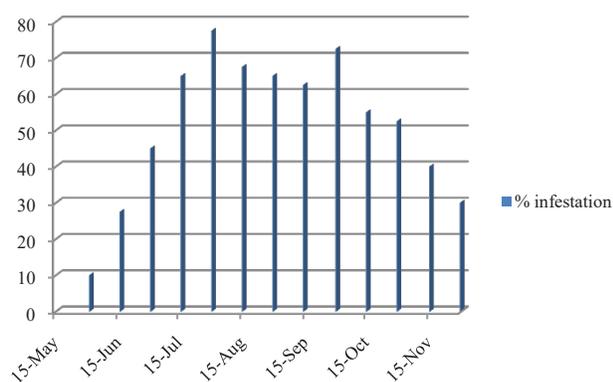


Fig. 1. Seasonal incidence of *Dichocrocis* sp. on harar

peaks during mid to late June, mid to late August, and in late September. Incidence ranged from 10% during the last week of May, which increased to 77.5% during last week of July, and the second peak was in the last week of September. Thus, incidence was severe between July and September, resulting in heavy losses. Sharma et al. (2018) also reported the maximum damage in the third week of July (ranging from 22.5 to 82.5%).

Table 1 reveals the efficacy of insecticides-chlorantraniliprole 45%SC (0.005%), and cyantraniliprole 10.26OD (0.01%) were the most effective (reducing the incidence to 7.40 and 8.51%, respectively). With fenvalerate and monocrotophos, the damage was 13.69 and 21.10%, respectively, while in agniastra it was 37.02% after three applications. The adults emerging from the infested fruits collected from the trees sprayed with agniastra were deformed. Pawar et al. (2016) evaluated insecticides against brinjal shoot and fruit borer *Leucinodes orbonalis*, and observed chlorantraniliprole as superior; and Mandal et al. (2011) observed chlorantraniliprole 20%SC at 40 g a.i./ ha as

the best; and cyantraniliprole 10%OD @ 90 and 105 g a.i./ha were highly effective against *Helicoverpa armigera* (Mandal, 2012)

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