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Short Comminucation

Seasonal incidence of major insect pests of sesame in relation to weather parameters in Bundelkhand zone of Madhya Pradesh

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Sesame (*Sesamum indicum* Lin.) known as the "queen of oil seeds" is one of the most ancient oilseed crop of the world. In India, it is grown in the entire crop growing season's *viz., kharif*, late *kharif*, *rabi*, and summer seasons. In India it is grown on 1.82 million ha with a total production of 0.68 million tonnes with very poor average productivity of 376 kg ha^{-1} as compared to the world average productivity of 558 kg ha^{-1} (FAOSTAT, 2012). The main reasons of low productivity of sesame are its rainfead cultivation in marginal and submarginal lands under poor management practices. Damage due to insect pests is also one of the major factors causing low productivity. The crop is attacked by 29 species of insect pests in different stages of its plant growth (Biswas *et al*., 2001). Among these, leaf roller and capsule borer (*Antigastra catalaunalis* Dup.) is a major insect pest in all sesame growing areas in India. It damages the crop at all three stages *viz.,* vegetative, flowering and maturity. Newly hatched larvae feed the young leaves and shoot tips and at a later stage they roll the leaves together and feed inside. There after feed on flowers, pods and seeds. In Bundelkhand zone of Madhya Pradesh sesame is grown in *kharif* season. Activity of *Antigastra* is high during August to October. Therefore, in Bundelkhand region *Antigastra* is a key insect pest of sesame and causing economical loss to an extent of 43.1% (Gupta *et al.,* 2002). Nymph and adults of some sucking insect pests, jassid (*Orosius albicinctus* Distant), mirid bug (*Nesidiocoris tenuis* Rent.) and white fly (*Bemisia tabaci* Gennadius) suck the cell sap from leaf, flower, and pods. This leads to curling of leaf margin downwards, stunted the growth of the plant and ultimately reduce the yield. Jassid and white fly are also responsible to transmit phyllody and leaf curl diseases in sesame, respectively. Keeping these facts in view, present study on incidence of *Antigastra*, jassid, mirid bug and white fly was undertaken.

Seasonal incidence of insect pests was estimated under natural condition at AICRP (sesame) centre of College of Agriculture, JNKVV, Tikamgarh (M.P.). The experiment was conducted during two consecutive *kharif* seasons of 2010 and 2011. The periodical observations on the incidence of insect pests were recorded in the variety JT-7 at each meteorological week from 15 days after germination to harvest on 200 m^2 plot without any insecticidal treatment. The variety was sown in first fortnight of July during each season with spacing of 30 cm between rows and 10 cm between plants and other recommended agronomic practices. Observations on the *Antigastra* larvae population were recorded on randomly selected 10 plants from 10 spots of plot and mean pest population was computed per plant. Incidence of nymph and adult of sucking pests (jassid, mirid bug and white fly) were recorded on three leaves from upper canopy of randomly selected 10 plants from 10 spots of plot and mean pest population was computed per plant. In addition, a simple correlation was worked out between the pooled pest population (% incidence) and weather parameters (temperature, relative humidity and rainfall).

Pooled data of weather parameters and incidence of major insect pest of sesame during *kharif* 2010 and 2011 presented in Table 1 indicated that incidence of *Antigastra* was started from 33th standard meteorological week (SMW) and continued up to 38th SMW. The highest incidence (0.11 larvae / plant) of *Antigastra* was recorded in 35th SMW. After heavy rainfall, when long dry spell occur *Antigastra* larvae population were increased. The incidence of *Antigastra* larvae was high when the maximum and minimum temperatures were high and the rainfall was low (Anonymous, 1989). Incidence of all three sucking pests jassid, whitefly and mirid bug were at peak respectively during 34th, 34th and 35th SMW (0.39 jassid, 0.59 white fly and 0.52 mirid bug / plant).

Correlation worked out of *Antigastra* larvae and three sucking pests jassid, white fly and mirid bug population with abiotic factors *viz.* minimum, maximum temperature, R.H. and rainfall is given in Table 2. There was a significant and negative correlation between *Antigastra* larval

Table 1: Mean weather parameters and incidence of major insect pest of sesame during *kharif* 2010 and 2011

SMW	Temperature(°C)		RH	Rainfall	*Antigastra*	Jassid	White fly	Mirid bug
	Maximum	Minimum	(%)	(mm)	Larvae/plant	adult/plant	adult/plant	adult/plant
32	30.8	24.2	85.0	86.8	0.00	0.15	0.29	0.20
33	31.7	24.3	83.5	39.4	0.01	0.36	0.40	0.31
34	32.3	24.6	81.5	67.9	0.05	0.39	0.59	0.31
35	33.4	25.2	77.0	9.5	0.11	0.32	0.54	0.52
36	31.8	24.4	73.0	70.4	0.09	0.23	0.31	0.38
37	31.5	24.3	78.0	63.0	0.10	0.19	0.24	0.35
38	31.3	23.0	81.5	59.6	0.08	0.14	0.25	0.20

Table 2 : Correlation of insect pests population of sesame with meteorological factors

	Maximum Temp.	Minimum Temp.	RH	Rainfall
Antigastra	0.56	0.14	-0.80*	-0.42
Jassid	0.66	0.65	0.01	-0.49
White fly	0.79*	0.69	0.01	-0.49
Mirid bug	0.87*	0.81*	-0.69	-0.73

*Significant at 5

population and relative humidity. Ahirwar *et al.* (2009) and Kumar *et al.* (2012) also reported that relative humidity had significant negative correlated with *Antigastra*. Whereas, incidence of white fly and mirid bug population had significant and positive correlation with maximum temperate while mirid bug population had also significant and positive correlation with minimum temperate.

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