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A Study on the Yield Compensation by Tillers Caused by Shootfly in Sorghum

Shootfly *Atherigona varia soccota* Rondani is a serious pest of sorghum (Vasanthraj David and Kumaraswami, 1978). The yield loss caused by this pest varies from 13 to 90% with a infestation levels between 20 to 90% (Rai *et al.* 1978). When the growing shoot is affected by the pest resulting in the formation of dead heart, number of tillers are produced. These tillers, though not as healthy as the main stem, do produce ear heads and contribute to the yield. Hence a study was made during 1983 and 1985 to assess the role of these tillers in compensating the yield loss caused by shootfly, at Main Research Station, Dharwad.

CSH-1 Jowar seeds were dibbled at 18 cm apart in the rows opened at 45 cm on a uniform plot of 15 x 10m. Sowing was done on 15th September and 19th July during 1983 and 1985, respectively., Recommended dose of fertilizers were applied to the crop. Plants showing varying number of ear heads on tillers were fixed as different treatments. Such plants were randomly selected from the entire plot at six locations to represent six replications. The crop was protected against diseases and other pests at appropriate time with mancozeb, carbofuran granules (Whorl application against army worm) and endosulfan.

During 1983, the plant height (92.66 cm.) ear head, grain and fodder weights (47.16; 42.66 and 45.16 g, respectively) were maximum in the treatment where no dead heart was found. There was considerable decrease in these parameters in the plants with varying numbers of earheads. The per cent decrease of plant height ranged

Table 1. Effect of tillering due to shootfly on growth and yield of Sorghum

Treatment	Plant height (cm)		Decrease in plant height (%)		Weight (g/plant)						Decrease in weight (%)					
					Ear		Grain		Fodder		Ear		Grain		Fodder	
	1983	1985	1983	1985	1983	1885	1983	1985	1983	1985	1983	1985	1983	1985	1983	1985
1. Plants showing one ear (Healthy plant)	92 66	145.6	—	—	101.6	8.79	90.33	7.02	212.8	10.24	—	—	—	—	—	—
2. Plants showing one earhead on a tiller	47.16	81.00	49.10	44.36	24.3	3.51	21.66	2.20	69.1	5.78	76.08	60.06	76.02	68.66	67.52	43.55
3. Plants showing two heads on tillers	42.66	80.0	53.69	45.05	14 3	3.65	11.50	2.22	45.3	7.82	85.92	58.47	87.26	68.37	78.71	23.63
4. Plants showing three earheads on tillers	45.16	59.0	51.26	59.47	13.3	2.99	10.66	1.50	53.3	5.08	86.90	65.98	88.19	78.63	74.95	50.39
C.V.%	16.25	11.48			20.15	29.44	18.45	50.67	15.60	56.90						
C.D. 1%	—	2.62			—	1.499	—	2.19	—	3.677						
5%	5.22	—			38.97	—	13.90	—	27.33	—						

from 53.96 to 49.10 and the per cent weight loss ranged from 86.90 to 76.08 (earhead); 88.19 to 76.02 (grain) and 78.71 to 67.52 (fodder).

During 1985, similar results were obtained. The maximum plant height (145.6 cm), earhead, grain and fodder weights (8.79, 7.02 and 10.24 g, respectively) were observed in the treatments where earheads were produced on main stem. The per cent decrease of plant height ranged from 59.47 to 44.36. The per cent weight loss ranged from 65.98 to 60.06 (earhead); 78.63 to 68.37 (grain) and 50.39 to 23.63 (fodder).

Thus the study indicated that the tillers (caused by shootfly attack) though produce earheads do not compensate the grain and fodder yield losses.

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A Note on the Occurrence of *Ephelis oryzae* on Sudangrass

During the survey of plant diseases, the authors noticed a severe out break of udbatta disease on sudangrass [*Sorghum vulgare* var. *sudanense* (Piper) Hitche] grown at Agricultural College farm Hebbal campus, Bangalore. The incidence was as high as 20 to 60 per cent. In the infected plant all the tillers, panicles which pushed out from boot leaf showed greyish to silvery, cylindrical rod hard structures (Fig. 1 and 2). Such plants also appeared stunted. Similar symptoms have been described on *Eragrostis tenifolia* Hochst, and *Isachne elegans* Dalz., (Venkatkrishnaiya,