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Weight Loss in Different Pigeonpea Genotypes due to Podfly, *Melanagromyza obtusa* (Malloch)

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ABSTRACT

Studies on per cent weight loss in grains due to podfly showed that the average weight loss was 61.38 per cent, with the range of 54.70 to 71.30 per cent.It was found that the least per cent weight loss in grains due to podfly occurred in ICPHaRL 4985-10 (54.70%), followed by ICPHaRL 4989-7 (56.97%), LRG 52 (57.88%), whereas highest weight loss was observed in ICPL 87119 (71.30%), followed by ICP 8863 (66.65%) and GRG 2013 (66.29%).

Key words: *Damaged seeds,Healthy seeds, Pigeonpea, Podfly, Weight loss*

Pigeonpea crop is attacked by large number of insect pests during various stages of its growth. Of these, pod borers and flower feeders are most important and have been reported to cause economic losses to the tune of 40-60 per cent.Amongst the pod borers, pod fly, *Melanagromyza obtusa* (Malloch) (Agromyzidae, Diptera) is one of the most important insect pest causing significant damage to pigeonpea from pod filling to pod maturity stage.The seed damage by this pest render the grains unfit for sowing and human consumption and the price of grain is also lowered in the market. The mixture of healthy and damaged grains in a produce increase labour charges for cleaning it before marketing.In past, several studies had been conducted to estimate the per cent pod and grain damage to pigeonpea genotypes due to this pest but only few *viz*., Bindra and Jakhmol (1967), Gangrade (1965), Srivastava (1972), Vishakantaiah *et al*. (1973), Singh and Rai (1981), Singh and Singh (1987) and Revathi *et al*. (2015) had calculated the weight loss in damaged grains. It also has been found that the variations in weight loss in damaged grains vary between varieties and at different locations. Therefore, an attempt has been made to ascertain actual weight loss and per cent weight loss in the damaged grains due to podfly, *M. obtusa* in 14 pigeonpea genotypes during*kharif* 2016 at RARS, Lam, Guntur.

MATERIAL AND METHODS

Mature pods were collected from each genotype and were split opened for collecting the seeds. Precautions were taken not to throw away damaged seed while opening the pods. Hundred healthy and 100 podfly damaged seeds were taken and the actual weight loss and per cent weight loss was calculated as per Moudgal *et al.*, 2005.

Loss in weight = (Weight of 100 healthy seeds – Weight of 100 damaged seeds) ……...(A)

Per cent loss in weight =

$$\frac{(A)}{\text{Weight of 100 healthy seeds}} \times 100$$

Statistical Analysis: The data collected on per cent weight loss was subjected to ANOVA.

RESULTS AND DISCUSSION

The results showed that100 healthy grain weight varied from 9.30 (CO 6) to 12.90 g (ICPL 87119) among different pigeonpea genotypes indicating large amount of variation amongst the genotypes. Similarly, the weight of hundred damaged grains due to podfly varied from 3.60 (CO 6) to 5.20 g (LRG 41). The actual weight loss in 100 seeds due to podfly ranged from 5.70 (CO 6) to 9.20 g (ICPL 87119) (Table 1).

Table 1. Per cent weight loss in grains due to podfly, *M. obtusa*among different pigeonpea genotypes during *kharif,* 2016-17

S.No	Namej of the Genotype	Weight of 100 grains (g) Healthy	Damaged	Weight loss (g)	Weight loss (g)
1	ICPHaRL 4989-7	11.00	4.73	6.27	56.97
2	ICPHaRL 4985-10	10.60	4.80	5.80	54.70
3	ICPHaRL 4985-11	10.93	4.57	6.37	58.13
4	Guliyal Local (Red)	12.77	4.77	8.00	62.67
5	BRG 10-2	10.83	4.47	6.37	58.68
6	ICP 11957	9.63	3.70	5.93	61.58
7	LRG 52	12.10	5.10	7.00	57.88
8	GRG2013	11.77	3.97	7.80	66.29
9	ICP 8863	11.10	3.70	7.40	66.65
10	CO6	9.30	3.60	5.70	61.29
11	WRP 1	9.73	3.80	5.93	60.93
12	ICPL 87119	12.90	3.70	9.20	71.30
13	ICPL 332-WR	11.90	4.30	7.60	63.86
14	LRG 41 (Check)	12.50	5.20	7.30	58.38
	Mean	61.38			
	F-Test	Sig			
	SEm±	1.28			
	CD (P=0.05)	3.73			
	CV (%)	3.62			

Sig – Significant

Per cent weight loss in grains of different genotypes ranged from 54.70 to 71.30. The results were in agreement with the findings ofGangrade (1965), Singh and Singh (1987) and Revathi *et al*. (2015) who reported that there was weight loss in grains of pigeonpea due to podfly. It was observed that least per cent weight loss due to podfly occurred in ICPHaRL 4985-10 (54.70%), followed by ICPHaRL 4989-7 (56.97%) and LRG 52 (57.88%), whereas highest weight loss to the extent of 71.30 per cent was observed in ICPL 87119, followed by ICP 8863 (66.65%) and GRG 2013 (66.29%). Thus ICPHaRL 4985-10, ICPHaRL 4989-7 and LRG 52 may be considered less susceptible on the basis of less amount of food material consumed by this pest.

On an average 61.38 per cent weight loss in grains due to this pest was recorded during these studies. Earlier studies on per cent weight loss calculated also showed variations *i.e*., 57 per cent (Bindra and Jakhmol, 1967), 63.4 per cent in green pods, 45.7 per cent in mature pods (Srivastava, 1972), 66.23 per cent (Vishakantaiah *et al*., 1973), 65.38 per cent (Singh and Rai, 1981), 55.82 per cent (Singh and Singh, 1987) and 60 per cent (Revathi *et al*., 2015).

CONCLUSION

The genotypes, ICPHaRL 4985-10 (54.70%), ICPHaRL 4989-7 (56.97%) and LRG 52 (57.88%) recorded least per cent weight loss due to podfly and can be considered as less susceptible on the basis of less amount of food material consumed by this pest.However, highest weight loss to the extent of 71.30 per cent was observed in ICPL 87119, followed by ICP 8863 (66.65%) and GRG 2013 (66.29%) and can be graded as most susceptible genotypes.

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