

Integrated Weed Management in Intercropping of Mungbean (*Vigna radiata*) and Cowpea Fodder (*Vigna unguiculata*) with Pigeonpea (*Cajanus cajan*) under Western U. P. Condition

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In western U. P., summer pigeonpea is important pulse crop and grown well after wheat high yield potential. Pigeonpea, being a widely spaced crop with slow initial growth, is often intercropped with short duration legume for bonus production and also keeps the weed under check. Cowpea fodder and mungbean intercropped in inter-row space of pigeonpea covers the space quickly and smothers the weed through competition. Weed

management in such situation has greater importance to obtain higher yield. In summer pigeonpea, weeds play an important role in its production. Therefore, the present investigation was carried out to find out the effective weed management practices as well as suitable intercropping systems.

A field experiment was conducted during summer season of 1998 and 1999 at Amar Singh

Table 1. Effect of treatments on weeds and crops

Treatment	Weed count (No. m ⁻²)		Weed dry weight (g m ⁻²)		Pigeonpea equivalent (t ha ⁻¹)	
	1998	1999	1998	1999	1998	1999
Cropping systems						
Pigeonpea+Mungbean	5.38 (32)	5.09 (29)	4.88 (26.1)	4.79 (26.7)	2.67	2.49
Pigeonpea+Cowpea	4.22 (19)	3.78 (15)	4.0 (17.5)	4.12 (18.4)	2.27	2.16
Pigeonpea	5.97 (39)	5.73 (36)	5.84 (35.8)	5.90 (36.4)	2.06	2.03
LSD (P=0.05)	0.3	0.3	0.28	0.28	0.11	0.10
Weed management						
Weedy	8.47 (73)	8.34 (71)	8.07 (65.3)	8.12 (66.0)	1.92	1.78
Hand weeding 20 and 35 DAS	3.89 (15)	3.66 (13)	4.00 (16.6)	4.16 (17.8)	2.47	2.23
Pendimethalin 1.0 kg ha ⁻¹	5.71 (33)	6.39 (29)	5.13 (26.3)	5.17 (26.7)	2.27	2.17
Fluchloralin 0.5 kg ha ⁻¹	6.12 (37)	5.51 (31)	5.46 (29.9)	5.51 (30.4)	2.23	2.12
Pendimethalin 0.5 kg ha ⁻¹	5.56 (31)	4.89 (34)	4.89 (23.9)	4.94 (24.5)	2.33	2.22
Pendimethalin 1.0 kg ha ⁻¹ + HW 30 DAS	3.19 (10)	3.10 (9)	2.40 (11.6)	3.46 (12.0)	2.62	2.55
Fluchloralin 1.0 kg ha ⁻¹ + HW 30 DAS	3.40 (11)	3.19 (10)	3.40 (11.6)	3.57 (12.7)	2.52	2.43
LSD (P=0.05)	0.4	0.4	0.36	0.32	0.10	0.09

Original data are given in parentheses.

(P. G.) College, Lakhaoti, Bulandshahr (U. P.). The treatment consisted of three cropping systems in main plots (pigeonpea+mungbean), (pigeonpea+cowpea fodder) and (pigeonpea sole) and seven weed management practices in sub-plots viz., weedy, weeding at 20 and 35 DAS, pendimethalin at 1.0 kg ha⁻¹ pre-emergence, fluchloralin at 0.5 kg ha⁻¹ pre-plant, pendimethalin at 0.5 kg a. i. ha⁻¹ pre-emergence, pendimethalin at 1.0 kg ha⁻¹+ hand weeding at 30 DAS, fluchloralin at 1.0 kg ha⁻¹+hand weeding at 30 DAS replicated four times in split plot design. The recommended fertilizer dose of 20 kg N, 40 kg P₂O₅ and 40 kg K₂O ha⁻¹ was applied at the time of sowing. The varieties used were : UPAS-120 for pigeonpea and PS-16 for mungbean. Cowpea was obtained from the local market, generally grown by western U. P. cultivators. The mentioned crops were sown on 25 June 1998 and 1999.

Sole cropping gave significantly higher grain yield of pigeonpea over the intercropping systems in both the crop seasons. Intercropping systems, however, recorded higher pigeonpea equivalent over pure cropping. Significantly highest values

were observed in pendimethalin at 1.0 kg ha⁻¹+ hand weeding at 30 DAS followed by fluchloralin at 1.0 kg ha⁻¹+one hand weeding at 30 DAS in comparison to control and other practices.

Important weed flora recorded in the experimental field were : *Cynodon dactylon* (19%), *Cyprus rotundus* (15%), *Sorghum halepense* (13%), *Boerhavia diffusa* (12%), *Digetaria arvensis* (9%), *Commelina benghalensis* (8%), weed density and weed dry matter and were lowest in intercropping (pigeonpea+cowpea) followed by pigeonpea+mungbean and highest with sole crop of pigeonpea (Table 1). Pendimethalin at 1.0 kg ha⁻¹ in combination with one hand weeding at 30 DAS was closely followed by fluchloralin at 1.0 kg ha⁻¹+ one hand weeding. These results are similar with those of Ahuja *et al.* (1998).

REFERENCE

- Ahuja, K. N., N. T. Yaduraju and D. K. Singh, 1998. Effect of different pigeonpea-based intercropping systems and weed management practices on growth of weeds and yield of pigeonpea. *Indian J. Weed Sci.* **30** : 141-144.