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Studies on Crop-Weed Competition in Greengram Under Irrigated Condition

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ABSTRACT

Weed-free conditions of one week to seven weeks were compared with unweeded control. The results revealed that initial period of greengram crop is sensitive to weeds Increased weed-free condition increased the number of pods per plant and seeds per pod and ultimately reflected in the increase of yield. Weed-free condition up to six weeks will be sufficient for irrigated greengram.

INTRODUCTION

Weeds compete with crop for nutrients, moisture, light and space. They grow at a faster rate and deplete the nutrients applied to the crop. Mahendra Singh *et al.*, (1973) stated that provision of a weed free environment at the critical stage of sorghum growth is imperative since warm season favours luxurient growth of weeds offering stiff competition to the crop. The avarage yield of sorghum was reduced by 70 kg/ha for every 50 kg of weeds/ha (Burnside *et al.*, 1964). Sankaran and Damodaran (1974) reported that sorghum crop needs weed-free condition for the first 30 days only. Similarly Mohamed Ali *et al.* (1974) observed that a weed-free condition of 35 days was essential for high yields of bajra. No work on the crop-weed competition was reported for short duration pulse crops like green gram and hence the present study was taken up.

MATERIALS AND METHODS

The experiment was conducted for two seasons under irrigated conditions in a randomised block design with three replications with a plot size of 3.33 × 3.00 m. The treatments comprised weed-free condition at weekly interval from one week to seven weeks and an unweeded control. The variety Pusa Baisaki Mung was used in both the seasons in 1973 and 1974. Hoeings and weedings were done to maintain the weed-free conditions as per treatments.

RESULTS AND DISCUSSION

The major weed flora comprised of *Trianthema portulucastrum* L., *Gynsndropsis pentaphylla* L., *Amaranthus viridis* L., *Euphorbia hirta* L., *Digera arvensis* L., *Flaveria australasica*, *Cyperus* sp., *Cynodon dactylon* L., and *Chloris barbata* L. The intensity of weeds was severe in monsoon

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TABLE. Effect of weed-competition on the growth and yield of greengram

Treatments	1373					1974				
	No. of weeds sq. m	Weed dry matter g/m	Pods/plants	Seed/pod	Seeds yield kg/ha	No. of weeds sq. m	Weed dry matter g/m	Pods/plant	Seeds/pod	Yield kg/ha
Unweeded control	1045 (3.02)	494.3	0.8	2.7	75	1266 (3.10)	450.0	1.0	3.3	88
One week weed free	361 (2.56)	155.0	6.9	7.0	126	416 (2.62)	116.7	4.2	7.3	168
Two weeks ,,	249 (2.39)	89.0	6.5	7.0	278	266 (2.42)	100.0	7.3	7.7	313
Three weeks ,,	182 (2.26)	57.7	7.6	7.7	353	183 (2.26)	75.0	8.0	7.8	514
Four weeks ,,	91 (1.95)	44.7	8.4	7.8	639	91 (1.96)	50.0	9.1	7.9	722
Five weeks ,,	80 (1.90)	43.3	9.1	8 0	721	66 (1.82)	33.3	10.0	8.1	833
Six weeks ,,	75 (1.87)	47.3	9.3	8.0	755	40 (1.60)	23.3	10.3	8.5	875
Seven weeks ,,	79 (1.90)	42.0	11.0	8.6	775	35 (1.52)	10.0	10.3	8.6	853
C. D. (P=0.5)	0.06	25.8	4.1	0.9	27	0.046		2.5		31

Figures in parentheses are transformed values

season and less in summer season. But similar types of weeds were found in both the seasons. In unweeded control the weed populations were 1045 and 1266/sq. m. respectively during 1973 and '74. As the weed-free condition increased from one week to four weeks the reduction of weed population was more and after that the reduction was less (Table). A similar trend was noticed in the weed dry matter also. Maximum dry matter of weeds recorded in unweeded control (494.3 and 450.0 gm/m^2 during 1973 and 1974 respectively) and the lowest of 43 and 10 g/m^2 respectively in 1973 and 1974 in 8 weeks weed free condition. Increased weed-free conditions reduced the weed dry matter.

The number of pods per plant increased from 0.8 in unweeded control to 11.0 in the seven week weed-free conditions during 1973 and from 1.0 to 10.3 during 1974 (Table). Similar trend was noticed in the number of seeds per pod during both the seasons. The crowding of weeds in the unweeded control smothered the crop and caused a poor stand with a few pods (0.8 and 1.0 per plant during 1973 and 1974 respectively). The increase in the pod number per plant and seeds per pod was marked upto six weeks weed-free condition.

The seed yield was maximum (775 kg/ha) in seven weeks weed - free condition but was on par with six weeks weed-free condition (755 kg/ha) during 1973. During 1974, maximum yield of 833 kg/ha was recorded in six weeks weed-free condition which was significantly superior to all the other treatments. This was due to the fact that the lesser weed population and dry matter of weeds per unit area facilitated the good growth of the crop which in turn put forth more pods per plant and seeds per pod. On the other hand, the unweeded control recorded 75 and 83 kg/ha of seed yield during 1973 and

1974 respectively. This can be attributed to crowding of weeds causing smothering effect on crop and utilsing all the nutrients applied to the crop. This resulted in the less number of pods per plant and seeds per pod. The experiments conducted during both monsoon and summer seasons revealed that a weed-free condition upto six weeks is sufficient for getting maximum yield in greengram.

REFERENCES

BURNSIDE, O. C., G. A. WICKS and C. R. FENSTER. 1964. Influence of tillage, row spacing and atrazine on the yield components of dryland sorghum in Nebraska. *Agron. J.* 56: 397.

MAHENDRA SINGH, B. B. MAHENDRAPAL, THURKHADE GANGASARAN and S. K. KANSHIK. 1973. Studies on weed control in Sorghum. *Indian J. Agron.* 18: 202-205.

MOHAMED ALI, A., V. K. BALAKRISHNAN, S. SANKARAN, and Y. B. MORACHAN. 1974. Studies on the crop weed competition and chemical weed control in irrigated and dryland Bajra. *Madras Agric. J.* 61: 365-370.

SANKARAN, S. and A. DAMODARAN. 1974. Studies on the critical period of crop weed competition in sorghum (var Co. 18) *Madras agric. J.* 61: 729-731.