

RESEARCH NOTES

Comparative Weed Somethering Ability of Some Legumes under Rainfed Condition

Legumes, being the important source of protein to the vegetarians, occupy a significant portion of the kharif crops in Karnataka. Continuous and heavy rains during July and August cause a severe hinderance to weeding and interculturatin operations in the transitional tracts, resulting in severe weed competition, leading to reduction in yields of legume crops (Sar *et al.*, 1978).

Therefore, a field experiment was conducted to study the weed suppressing ability of five legume crops under rainfed condition during kharif 1981-82 at the Regional Research Station, Dharwad with weeding at 40 and 60 or only at 60 days after sowing. The varieties of groundnut, soybean, greengram, cowpea and blackgram grown were Dh-3-30, KHSB-1, Pusa baisaki, C-152 and T-9, respectively. Factorial experiment was laid out in Randomised Block Design, with three replications in black soil with a pH of 6.6. Fertilizer was applied uniformly to all the crops at the rate of 25 kg N, 50 kg P₂O₅ and 25 kg K₂O per ha. just before sowing. All the legumes were sown on 30th June, 1981 at a spacing of 30cm X 15cm. The total rainfall received during 1981-82 was 749mm, which was concentrated mainly in the months of June, July and August (432.2 mm).

In the experimental field, predominant monocot weeds noticed were *Branchiaria* spp., *Cynodon dactylon* Pers, *Cyperus* spp, *Digitaria*

spp., *Dinebra retroflexa* Panz., *Eragrostis* sp. and *Setaria* sp. Whereas, *Abutilon indicum* G.Don., *Achyranthes aspera* L., *Acanthospermum hispidum* DC., *Ageratum conyzoides* L., *Alysicarpus rugosus* DC., *Commelina benghalensis* L., *Corchorus trilocularis* L., *Desmodium triflorum* DC., *Euphorbia hirta* L., *Physalis minima* L., *Sida spinosa* L., *Solanum nigrum* L. and *Xanthium strumarium* L. were the prominent dicot weeds.

The lowest total dry weight of weeds was recorded in cowpea at both the stages of weeding followed by soybean, greengram and blackgram, while the highest total dry weight of weeds was recorded in groundnut (Table). The total dry weight of weeds was significantly higher, irrespective of crops, when weeding was done only at 60 days as compared to that at both 40 and 60 days after sowing.

The plant height, canopy cover, leaf area index and total dry matter production per plant at 60 days were significantly higher in cowpea (Table). The larger canopy cover obtained by cowpea intercepted much of the incident light and competed better for other inputs, creating an environment unfavourable for weed growth at an early stage itself (Shetty and Rao, 1977).

Irrespective of crops, weeding at 40 days after sowing reduced the weed competition at an early stage itself, which helped the crops to put

Table. Total dry weight of weeds and grain yield of legumes as influenced by plant height, canopy cover, leaf area index and total dry matter production of legume crops at different stages of weeding.

	Legumes											
	Plant height (cm)						Dry					
	Canopy cover -cm-			Leaf area index			Total matter production (g/plant)			Grain yield (q/ha)		
	40 DAS*	60 DAS	Har- Vest	40 DAS	60 DAS	80 DAS	60 DAS	Har- vest	40 DAS	60 DAS	Har- vest	40 DAS
Crops												
Groundnut	16.4	32.0	37.0	18.9	38.8	1.65	16.9	25.5	33.8	28.3	34.0	
Soybean	33.9	69.6	86.7	29.3	49.8	1.38	4.8	17.1	14.4	18.1	20.3	
Greengram	32.5	44.0	48.3	30.4	40.7	0.87	11.5	19.0	14.7	19.4	23.6	
Cowpea	32.0	88.4	95.8	35.5	65.5	2.77	25.5	31.1	5.9	11.1	16.4	
Blackgram	20.3	34.4	38.7	26.1	46.1	0.84	8.8	15.7	15.9	20.5	22.5	
Stages of weeding												
40 & 60 DAS	27.0	58.8	67.0	28.2	49.4	1.72	15.8	23.3	15.0	16.4	19.8	
60 DAS	27.0	48.6	55.7	27.9	46.8	1.28	11.2	16.1	-	22.6	26.9	
For comparing												
Crops: S.Em±	0.11	1.68	1.88	0.60	1.37	0.12	1.73	1.73	-	0.93	1.32	
C.D. at 5%	0.32	4.98	5.56	1.80	4.05	0.34	5.12	5.13	-	2.76	3.90	
Stage of weeding												
S.Em ±	0.07	1.06	1.19	0.38	0.87	0.07	1.09	1.09	-	0.59	0.83	
C.D. at 5%	NS	3.14	3.52	NS	2.56	0.22	3.24	3.24	-	1.74	2.46	
Interaction												
S.Em ±	0.15	2.38	2.66	0.86	1.94	0.16	2.44	2.45	-	1.32	1.86	
C.D. at 5%	NS	NS	7.89	NS	NS	0.48	NS	NS	-	NS	NS	

* DAS - Days after sowing NS = Not significant

up faster growth and smother weeds effectively. The additional weeding at 60 days after sowing left the crops with negligible competition from weeds, resulting in significantly higher mean grain yield (14.8 q/ha) as compared to the weeding done only at 60 days after sowing (11.2 q/ha).

Delaying weeding to 60 days after sowing caused more grain yield reduction in groundnut and blackgram (37 and 20%, respectively) than in cowpea (17%), when compared to weeding at 40 and 60 days after sowing. The lower grain yield reduction in cowpea was mainly due to its better weed suppressing ability as reported by Sar *et al.* (1978).

Better weed smothering ability coupled with shorter duration and ability to retain normal yield level even under delayed and reduced weeding makes cowpea a preferential kharif crop in multiple cropping systems of transitional tract like Dharwad, where heavy rains during July and August cause severe hinderance to weeding and intercultivation operations in the early stages of crop growth. Cowpea can also be included as an intercrop with maize or jowar due to its ability to replace one hand seeding without affecting the main crop yield (Shetty and Rao, 1979).

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Performance of Onion Varieties on Black Soils

Onion (*Allium cepa* L.) is one of the important world wide vegetable and spice crops belonging to the family "Amaryllidaceae". In India, it is grown in 2.6 lakh hectares, with a production of 2.7 million tonnes and the productivity is 8.5 tonnes per hectare, which is very low. It is mainly grown in the states of Maharastra, Orissa, Karnataka, Uttar Pradesh, Gujarat, Tamilnadu and Madhya Pradesh. Karnataka alone

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occupies an area of 0.38 lakh hectares with a production of 0.18 million tonnes and the average yield is only 4.7 tonnes per hectare (Anon., 1988), which is very low as compared to national average.

In Karnataka, onion is mainly grown in Bijapur, Bellary, Bangalore, Raichur and other districts. Yield of onion is always dependent on