Karnataka J.Agric.Sci.,11(4):(1054-1055)1998

Weed Growth in *Sorghum-Leucaena* Intercropping System as Influenced by Levels of Nitrogen and Management Practices

Intercropping is one of the biological methods to manage the weeds. A quick growing and early canopy crop will smother the weed growth. The competition of weeds for moisture and nutrients is greatly reduced (Donald, 1963) under thick canopy. Shetty and Rao (1979) reported that inclusion of smother crop like cowpea and mungbean resulted in minimising weed infestation. Present study was conducted at the Agricultural College Farm, Dharwad during *kharif* 1984 to know the effect of *Sorghum-Leucaena* intercropping system on weed growth and possibility of growing sorghum (CSH-5) in leucaena (K-8) plantation. The soil was deep black clay with 179, 18 and 528 kg/ha available nitrogen, phosphorus and potassium, respectively and with pH 8.2. During crop growth period rainfall of 560 mm was received, shortage of rainfall was felt during August and October months. The experiment consisted of three nitrogen levels viz., 0,50, 100 kg N/ha and five management practices viz., paired row of sorghum + leucaena 1.5 M apart (A), PRS+leucaena uprooted plot (U), PRS+leucaena spaced 0.75 M apart for forage (F), PRS+leucaena spaced 0.75 M apart for mulching (M) and PRS without leucaena (C)-sorghum spaced 30 x 10cm. The experiment was laid out in randomised block design with factorial concept in three replications.

Three year old crop of leucaena was cut to a height of 30cm and uprooting of *leucaena* rows was done as per treatments before two months of sowing. Net plot size for PRS was 3.25 x 3.0m and check plot was 3.37 x 3.0m The plant population of *leucaena* spaced at 0.75m and 1.50m rows were 66000 and 132000 per hectare, respectively and sorghum had a plant population with 30 x 10m spacing, sorghum population will be more than 2.5 lakhs/ha.

The results (Table 1) indicate that in *sorghum-leucaena* system, management practices resulted significant influence on weed weight. Significantly, lower weed weight (0.76kg/plot) was observed in paired row of sorghum+*leucaena* spaced 0.75m apart for mulching which was on par with that of sorghum with *leucaena* for forage than other practices.

Table 1. Fresh weed weight (kg/plot) at five weeks stage of sorghum growth as inluenced by different treatments

Nitrogen levels (kg/ha)	Management Practices					
	A	U	F	M	C	Mean
0	2.17	3.83	0.92	0.93	1.67	1 90
50	2.90	3.33	1.17	0.70	2.33	2.09
100	1.40	3.83	1.30	0.63	4.00	2.33
Mean	2.16	3.67	1.13	0.76	2.67	2.07

For comparing means of :	S.Em±	CD @ 5%
Nitrogen level (N)	0.18	NS
Management practice(M)	0.24	0.68
Nitrogen x Management level practice (N x M)	0.41	1.18

N.S. = Non Significant
A = Paired row sorghum + *leucaena* spaced 1.5m apart
U = Paired row sorghum + *leucaena* uprooted plot
F = Paired row sorghum + *leucaena* spaced 0.75m apart for forage
M = Paired row sorghum + *leucaena* spaced 0.75m apart for mulching
C = Paired row sorghum alone

Weed weight was higher (3.67 kg/plot) in sorghum with leucaena uprooted treatment. Nitrogen levels did not significantly influence the fresh weed weight.

Interaction effects of nitrogen and management practices was significant with respect to weed weight. Application of 100 kg N/ha to entire sorghum produced significantly higher weed weight (4.00 kg/ha) than other treatments except sorghum uprooted *leucaena* plot (3.83 kg/ha).

The weed weight was less in intercropping system than in the sole crop of sorghum irrespective of management practices. This is in line with the findings of Rao and Shetty (1977) and Shetty and Rao, (1979) who observed less weed growth in intercropping system. Less weights of weeds were recorded in sorghum + *leucaena* for mulching (0.76 kg/plot) and forage (1.13 kg/plot) system. This may be due to effective canopy cover produced by leucaena that might have smothered the weed growth in the early stages of crop growth.

College of Agriculture
Department of Agronomy
UAS, Dharwad - 580 005

B. JAIRAO
M.M. HOSMANI
S.M. MUTANAL
S. B. KALAGHATAGI

(Received : July, 1989)

DONALD, C.M., 1963, In search of yield. *Journal of Australian. Institute of Agricultural Sciences.* **28**:174-178.

RAO, M.R. AND SHETTY, S.V.R., 1977. Some biological aspects of intercropping on crop weed balance. In : *Proceedings and abstract papers of weed Science Conference and Workshop in India.* ICRISAT, Hyderabad, Andhra Pradesh, p.66.

SHETTY, S.V.R. AND RAO., A.N., 1979, Weed management studies in sorghum/pigeonpea and pearl millet/groundnut intercropping systems some observations. In : *Proceedings of International Workshop on Intercropping* 10-13, January, ICRISAT, Hyderabad, India.