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EFFECT OF N ON SORGHUM CSH 45 IN RELATION TO SEASON OF PLANTING

Sorghum is found to perform better under a wide range of environmental conditions, while its response to nutrients particularly N, varies depending on weather factors. Experiments conducted in Parbhani in rabi season indicated that grain yield was significantly increased with every increase in N level up to 150 kg (Anon., 1973).

Field experiments were conducted with sorghum CSH 5 in four seasons viz., summer, monsoon and winter in the first year followed by summer in the second year. Three levels of plant population, three geometrical methods of planting on main plots and three levels of N viz., 0, 75 and 150 kg/ha were tried in the first three seasons and were changed to 75, 150 and 225 kg/ha in the second summer. Observations on the climatic parameters, growth and yield were recorded.

The variation in temperature was marked during the different crop seasons. The mean maximum temperature ranged from 33 to 36°C in summer, 31 to 32 °C in monsoon and 28 to 23 °C in winter. The mean minimum temperature ranged from 20 to 23°C in summer and monsoon season and 16 to 21°C during winter. The amount of solar radiation received in winter was much less than the other seasons. The accumulated heat units and accumulated photothermal units were also higher during summer followed by monsoon and were the lowest during winter.

Increased application of N, in general, increased the growth and yield attributes in all the seasons, the highest level of N recorded the maximum and it is due to the larger sink (Narasiah *et al.*, 1972 and Krishnamurthy *et al.*, 1973). There was higher N uptake at higher levels of N

Table 1. Grain and straw yield of sorghum, t/ha

Treatments		First Year			Three seasons mean	Second summer
First three seasons	Second summer	Summer	Monsoon	Winter		
Grain *yield*						
NO	N1	5.75	3.88	0.65	3.42	3.96
N1	N2	6.31	4.90	0.81	4.01	4.28
N2	N3	6.65	5.56	0.93	4.38	4.32
SED		0.22	0.15	0.04		0.15
CD		0.46	0.28	0.06		0.32
Straw yield						
NO	N1	7.59	7.28	7.68	7.52	11.76
N1	N2	11.54	8.24	8.42	9.40	12.58
N2	N3	13.70	9.14	8.85	10.56	12.60
SEm		0.36	0.10	0.18		0.20
C:D (0.05)		0.74	0.20	0.37		0.41

application. There was significant increase in yield of grain and straw with increase N levels up to 150 kg/ha. When N level was increased to 225 kg/ha in second summer, there was no further increase in yield and it was on par with that obtained for 150 kg N/ha indicating that application of N at the rate of 150 kg/ha was sufficient to get good yield. Low temperature and cloudy weather that prevailed during winter might have adversely affected the absorption and utilization of applied N and consequently the yield of sorghum was the least in winter season.

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