

CONTRIBUTION OF TECHNOLOGIES FOR RAINFED SORGHUM

Sorghum is an important food and forage crop of dryland farmers. To study the production technology contribution towards sorghum yield, an experiment was conducted at the Tamil Nadu Agricultural University during north east monsoon season during 1987-88. Twelve production technologies were taken up for the study. They were: off-season tillage (summer ploughing), ploughing once with country plough, compartmental bunding (8 m x 5 m), improved variety (Co 26), seed hardening (with 2% potassium dihydrogen phosphate), seed pelleting (with Chlorphyriphos @ 10 ml per kg of seed), seed inoculation with azospirillum and phosphobacterin, seed treatment with jalashakti (polymer @ 20 g per kg of seed), pre-monsoon sowing (15 days prior to normal sowing i.e., September 17th), recommended dose of fertilizers, (40:20 kg NP ha⁻¹ as basal), mulching with coir pith @ 20 t ha⁻¹ soon after germination, intercropping with cowpea in paired rows (60/30 x 15 cm) and one hand-weeding at 20 days after sowing.

All the twelve technologies were included in one treatment (improved technologies combination). By excluding each one of the twelve technologies from the combination, twelve more treatments were formulated and an absolute control was also maintained without these technologies. These 14 treatments were replicated thrice in a randomised block design. The soil of the experimental site was clay loam. Rainfall received during crop growth period was 470.6 mm.

Integration of different production technologies increased the yield of sorghum over farmers' method (Table 1). Among the different production technologies tested, fertilizer application, weed control, improved seed, off-season

Table 1. Effect of production technologies on sorghum grain yield

Treatments	Grain yield (kg ha ⁻¹)
1 Absolute control	110
2 All the twelve technologies	692
3 All technologies excluding weed control	337
4 All technologies excluding intercropping	644
5 All technologies excluding mulching	371
6 All technologies excluding fertilizer	126
7 All technologies excluding pre-monsoon sowing	359
8 All technologies excluding jalashakti	665
9 All technologies excluding bio-fertilizer	633
10 All technologies excluding seed pelleting	629
11 All technologies excluding seed hardening	405
12 All technologies excluding improved variety	354
13 All technologies excluding compartmental bunding	370
14 All technologies excluding summer ploughing	358
CD (0.05)	90

tillage, pre-monsoon sowing, compartmental bunding, coir pith mulching and seed hardening contributed more towards sorghum yield. This was attributed to the importance of these technologies in the growth and development of the crop under dry fanning. The technology combination which lacks any one of the above mentioned technologies recorded lower sorghum yield (Table 1). Contribution of intercropping, seed pelleting, jalashakti and bio-fertilizer was less.

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