

## Short Communication

## Pearl Millet Based Intercropping in Arid Zone of Rajasthan

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Cereal and legume combinations are very popular for intercropping (Ofori & Stern 1987). The competitive effects between principal and intercrops basically depend on the maturity period, rooting pattern, canopy spread and plant habit of the component crops (Lomte & Dabhade 1990). Keeping these objectives in view a field experiment was conducted to identify the suitable

component crop and planting ratios for the development of most productive, stable and profitable intercropping system for arid zone of Rajasthan.

The field experiment on intercropping of pearl millet with legumes was conducted at Agricultural Research Station, Mandor, during *kharif* 1990.

Table 1 Performance of pearl millet based intercropping system

Treatments*	Grain yield (kg ha <sup>-1</sup> )		Per cent recovery		LER	Net returns (Rs ha <sup>-1</sup> )
	Pearl millet	Component crop	Pearl millet	Component crop		
4:4 ratio :						
PM + MuB	1196	169	74	27	1.01	2188
PM + MoB	1228	200	76	39	1.15	2262
PM + CB	1104	196	68	24	0.92	1728
4:3 ratio :						
PM + MuB	1310	135	81	21	1.02	2261
PM + MoB	1257	146	77	29	1.06	2061
PM + CB	1214	131	75	16	0.91	1819
4:2 ratio :						
PM + MuB	1364	115	84	18	1.02	2331
PM + MoB	1380	125	85	24	1.09	2335
PM + CB	1362	124	84	15	0.99	2253
4:1 ratio :						
PM + MuB	1563	82	96	13	1.09	2557
PM + MoB	1588	89	98	17	1.15	2601
PM + CB	1393	110	86	14	1.00	2206
Sole PM	1620	—	100	—	1.00	2127
C.D. 5%	239	—	—	—	—	412
Sole Crops						
MuB	—	637	—	100	1.00	2404
MoB	—	509	—	100	1.00	574
CB	—	800	—	100	1.00	1614

\* PM = Pearl millet, MuB = Mung bean, MoB = Moth bean, CB = Clusterbean

Four planting ratios, viz., 4:4, 4:3, 4:2 and 4:1 of pearl millet (*Pennisetum glaucum* (L.) R. Br. emerd. Stuntz) cv. MH-179, in combination with three component crops, viz., mung bean (*Phaseolus radiatus* L.) cv. K-851, moth bean (*Vigna aconitifolia* (Jacq.) Marechal) cv. Jadia and clusterbean (*Cyamopsis tetragonoloba* (L.) Taub.) cv. Suvidha, were replicated three times in a randomized block design. Sole crops of all components were also taken to study the efficacy of the systems. All component crops were spaced at 45 cm with intra-row spacing of 12 cm. The crops were sown on 9th July 1990. Forty kg N and 20 Kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> was applied to all the treatments. Total rainfall during the season was 797.9 mm (presowing: 594.9 mm; after sowing: 203.0 mm).

The 4:1 ratio of pearl millet with any of the component crops yielded the maximum and was superior to other ratios with corresponding component crops (Table 1). The recovery of grain yield of pearl millet in 50 per cent plant population treatment (4:4) with mung bean, moth bean and clusterbean was 74, 76 and 68 per cent, respectively. The corresponding values under 4:1 ratio

(80 per cent plant population) were 96, 98 and 86 per cent, respectively. The recovery of moth bean in 4:4, 4:3, 4:2 and 4:1 ratios was 39, 29, 24 and 17 per cent, respectively. Recovery of other two intercrops (mung bean and clusterbean) was poor under intercropping system.

The land equivalent ratios (LER) were higher in pearl millet + moth bean and pearl millet + mung bean intercropped treatments compared to sole crop of pearl millet. The higher LER (1.15) was recorded in pearl millet + moth bean in 4:4 and 4:1 ratios. Maximum net return of Rs. 2601 ha<sup>-1</sup> was obtained from pearl millet + moth bean intercropping system with 4:1 ratio which was at par with pearl millet + mung bean (4:1) and was significantly superior to sole pearl millet. Results indicate that pearl millet + moth bean (4:1) is more suitable intercropping system for arid zone of Rajasthan.

#### References

- Lomte MH & Dabhade RS 1990 Intercropping studies in rainy season sorghum. *Indian Journal of Agronomy* 35 56-59
- Ofori F & Stern WR 1987 Cereal-legume intercropping system. *Advances in Agronomy* 41 41-90