

Short Communications

Indian J. Agron. 38 (2) : 282-283 (June 1993)

Production potential and economic returns of pearl millet (*Pennisetum glaucum*)-based intercropping system with different grain legumes and oilseed crop under rainfed condition

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Received: May 1992

An experiment was conducted during the rainy season 1990 at Junagadh, to study the production potential and economic return of pearl millet [*Pennisetum glaucum* (L.) R. Br. emend. Stuntz]-based intercropping systems. Treatments of sole and intercrops with different row ratios were tried in randomized block design with 4 replications. The soil was medium in total nitrogen (0.093%), available phosphorus (38.40 kg/ha) and available potash (264 kg/ha). It was clayey

in texture and slightly alkaline in reaction (7.7 pH). The crops were sown on 1 July 1990 using recommended seed rates and fertilizer doses for each crop. The total rainfall received during the crop season was only 852.10 mm.

Intercropping adversely affected the yield of base crop of pearl millet (Table 1) and it was more pronounced when pigeonpea [*Cajanus cajan* (L.) Millsp.] intercropped with pearl millet at 2 : 1 row ratio. This

Table 1. Effect of different treatments on yield, land-equivalent ratio and net return

Treatment	Yield (kg/ha)		Total yield (kg/ha)	Pearlmillet-grain equivalent yield (kg/ha)	Land-equivalent yield	Net return (Rs/ha)
	Pearl-millet	Sole or intercrops				
T ₁	2,685		2,685	2,685	1.00	3,499
T ₂		852	852	2,837	1.00	4,271
T ₃		815	815	1,899	1.00	2,791
T ₄		1,458	1,458	4,131	1.00	7,828
T ₅	2,315	489	2,804	3,769	1.44	7,677
T ₆	2,444	444	2,888	3,924	1.43	7,379
T ₇	2,233	463	2,696	3,314	1.40	6,149
T ₈	2,407	426	2,833	3,400	1.42	6,557
T ₉	2,134	962	3,096	4,859	1.45	9,916
T ₁₀	2,215	778	2,993	4,419	1.36	8,250
CD (P = 0.05)	317		332	350	0.11	1,178

T₁, Sole pearl millet; T₂, sole groundnut (*Arachis hypogaea* L.); T₃, sole greengram (*Phaseolus radiatus* L.); T₄, sole pigeonpea; T₅, pearl millet + groundnut (2 : 1); T₆, pearl millet + groundnut (3 : 1); T₇, pearl millet + greengram (*P. mungo* L.) (2 : 1); T₈, pearl millet + greengram (3 : 1); T₉, pearl millet + pigeonpea (2 : 1); T₁₀, pearl millet + pigeonpea (3 : 1)

might be due to higher competition offered by pigeonpea for natural resources. However, pearl millet + pigeonpea (2 : 1) intercropping system recorded the highest total yield which was due to higher yield of pigeonpea.

Grain-equivalent yield of pearl millet was significantly higher in intercropping combinations and in sole pigeonpea than that in sole pearl millet (Table 1). Pearl millet + pigeonpea (2 : 1) recorded significantly highest grain-equivalent yield of pearl millet, which was due to high price ratio of pigeonpea to pearl millet and also higher

yield of pigeonpea in intercropping system.

The data on land-equivalent ratio (Table 1) indicated that 45% higher yield advantage was found in pearl millet + pigeonpea (2 : 1) combination compared with sole pearl millet. This was due to extra yield obtained from intercrop, and making the combination higher yielding.

Pearl millet + pigeonpea (2 : 1) gave the highest net return which was significantly higher than all the other treatments. The increase in net return under this treatment was 183% compared with sole pearl millet.

Indian J. Agron. 38 (2) : 283–285 (June 1993)

Intercropping of chilli (*Capsicum annuum*) and finger millet (*Eleusine coracana*) under dryland condition

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Received: April 1992

Productivity of chilli (*Capsicum annuum* L.) and finger millet [*Eleusine coracana* (L.) Gaertn.] have increased owing to development of improved varieties and management practices. Increase in inter-row spacing of finger millet up to 54 cm does not decrease the grain yield, which facilitating introduction of intercrop. In drylands, practice of water harvesting and storing in farm ponds and recycling for irrigation of

crops is gaining popularity. A system such as chilli + finger millet with protective irrigation can be adopted by farmers if found profitable. Hence the present investigation was taken up to know the performance of chilli and finger millet intercropping under rainfed and protective irrigation as late rainy-season (*kharif*) crops.

The experiment was conducted during late rainy season (*kharif* 1987–88) on red

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