Indian J. Agron. **38** (2) : 249–250 (June 1993)

Feasibility of *para* cropping lentil (*Lens culinaris*), linseed (*Linum usitatissimum*) and gram (*Cicer arietinum*) under rainfed medium-land conditon

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Received: July 1991

ABSTRACT

A field experiment was conducted at Chianki, Daltonganj, during the winter seasons (*rabi*) of 1988–89 and 1989–89 to compare the feasibility of *para* cropping of various crops, viz. lentil (*Lens culinaris* Medikus), linseed (*Linum usitatissimum* L.) and gram (*Cicer arietinum* L.) with normal sowing method. Pooled analysis revealed that the *para* cropping was significantly superior to normal sowing method. Amongst various crops tested, gram gave significantly higher yield than the other crops. The interaction effect showed that gram taken as *para* with 20 kg N : 40 kg P_2O_5/ha was significantly superior to rest of the treatments.

For good yield, the sowing time of gram (*Cicer arietinum* L.), linseed (*Linum usitatissimum* L.) and lentil (*Lens culinaris* Medikus) is very important, which often gets delayed under medium-land situation where rice (*Oryza sativa* L.) crop of medium duration is taken. By the time of rice harvest, the field remains wet. This results in the no ploughing and no sowing till it dries completely. Hence farmers wait for another 15–20 days to get proper field condition. This causes shift of normal sowing date, which considerable reduces yield. Since information on these aspects is lacking, an experiment was conducted to compare the feasibility of *para* cropping with normal sowing method under medium-land situation after rice crop.

MATERIALS AND METHODS

The field experiment was conducted during the winter (*rabi*) seasons of 1988–89 and 1989–90 at Chianki, Daltonganj. The soil was sandy loam with low organic carbon (0.25%), medium available phosphorus (46 kg/ha) and medium available potash content (178 q/ha). The pH of the soil was 6.2. The experiment was laid out in randomized block design with 3 replications. The treatments consisted of 3 crops, viz. gram, lentil and linseed, and 3 methods of sowing, viz. *para* sowing with fertilizer, *para* sowing without fertilizer and normal sowing after harvest of rice crop. The recommended doses of fertilizer for gram and lentil were 20 kg N/ha and 40 kg P_2O_5/ha, whereas that for linseed was 40 kg kg N/ha and 40 kg P_2O_5/ha. Date of *para* sowing was 30 October 1988 and 27 October 1989 and that of normal sowing was 27 November 1988 and 30 November 1989.

Table 1. Seed yield (gram-equivalent, q/ha) and economics as influenced by methods of sowing

Crop	Method of sowing			Mean net return	Benefit : cost ratio
	Para with fertilizer	*Para* without fertilizer	Normal sowing		
			1988–89		
Gram	9.66	7.85	7.93	5,314	8.24
Lentil	6.00	4.22	4.73	2,799	8.08
Linseed	5.10	4.76	3.12	2,850	9.50
Mean	6.92	5.61	5.26		
CD (P = 0.05)	Crop, 0.44; Method of sowing, 0.44; Interaction, 0.75				
			1989–89		
Gram	10.5	8.89	8.52	4,585	10.49
Lentil	5.48	4.25	4.20	2,193	16.00
Linseed	5.39	5.25	4.08	2,913	33.48
Mean	7.12	6.13	5.6		
CD (P = 0.05)	Crop, 0.99; Method of sowing, 0.99, Interaction, NS				
Gram	10.08	8.37	8.23	3,902	3.77
Lentil	5.79	4.23	4.47	1,797	2.77
Linseed	5.23	4.96	3.60	1,560	2.60
Mean	7.03	5.85	5.43		
CD (P = 0.05)	Crop, 0.53; Method of sowing, 0.53; Interaction, 0.91				

RESULTS AND DISCUSSION

In terms of gram-equivalent yield, gram crop performed significantly superior to the other crops (Table 1). Among methods of sowing, *para* sowing did better than rest of the treatments. The interaction effect was significant during 1988–89 and in pooled data indicated that gram crop taken as *para* with fertlizer application gave significantly higher yield over rest of the combinations.

Maximum mean net return was observed with gram taken as *para* with fertilizer application, whereas maximum benefit : cost ratio was observed with linseed taken as *para* without fertilizer application which could be justified as low cost of input involved in it.