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ON-FARM EVALUATION OF PROMISING PIGEONPEA CULTIVARS FOR THE DROUGHT-PRONE UPLANDS OF WESTERN ORISSA

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ABSTRACT

On-farm farmers' participatory trials were conducted during rainy season of 1990 and 1991 in the village Palsipani (Kalahandi) in Western Orissa to evaluate promising pigeonpea varieties/ cultivars suitable for the rainfed unbunded upland situations. Among pigeon pea varieties/cultures "ICPL-87", ICPL-151", UPAS-120" and Local tall varieties were promising with a yield level of 0.935 to 1.075 t/ha. ICPL varieties were subject to susceptibility of blister beetle. Farmers got especially impressed with the variety "UPAS 120" because of shorter duration, uniformity in flowering and maturity and comparatively less blister beetle problem

INTRODUCTION

Pigeon pea (*Cajanus Cajan* L.) cultivation in unbunded upland is considered to be a better practice for improving and stabilizing crop yield from the fragile (drought prone upland ecosystem) environment. Larger parts of western Orissa comprising districts of Kalahandi, Koraput, Bolangir, Phulbani, Sambalpur, Chhatishgarh region of Madhya Pradesh and plateau region of south Bihar come under such fragile ecosystem. The practice of growing pigeon pea either as sole or intercrop with groundnut/rice/millets has been gaining popularity in these areas. The farmers of this region usually grow their local pigeon pea which is bushy type and of longer duration. Besides, the problem of blister beetle was the major bottleneck that the farmers were facing (Behera and Jha, 1993). Farmers of the area are mostly tribal and resource poor. They do not like to go for application of pesticides for controlling the blister beetle due to low purchasing power. In order to improve and stabilize the pigeon pea yield from such rainfed uplands, an effort was made through on-farm farmers participatory research programme to evaluate suitable pigeon pea varieties/cultures with field tolerance to blister beetle, so that their large scale cultivation would lead to improve yield and economic status of the farmers.

MATERIALS AND METHODS

On-farm farmers' participatory trials were conducted during 1990-1991 and 1991-92 in the unbunded upland (red soil) of village Palsipani in Kalahandi district of western Orissa. The soil of this ecosystem were sandy loam in texture with pH 5.78, organic carbon 0.26%, total N 0.033, available "P" (Olsen) 7.46 kg/ha and available "K" 395 kg K_2O/ha. The rainfall during cropping season from June to October was 1012 and 586 mm during 1990 and 1991, respectively.

Researchers designed and farmers managed (RDFM) trails were conducted on varietal evaluation taking 9 elite cultures/varieties (listed in Table 1) of pigeon pea along with local check. The experiment was laid out in randomized block design with four replications taking each farmer as one replication. The trial was sown in the 2nd fortnight of June with a spacing of 60 cm between rows and 30 cm between seeds. A fertilizer

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dose of 20-40-30 Kg N, P_2O_5 & K_2O/ha was applied basally in the seed furrows. Observations were recorded on grain yield from a sample area of 200 m^2, number of pods per plant, duration (days) to maturity, plant height and tolerance of these cultures/varieties to blister beetle etc.

RESULTS AND DISCUSSION

Among the piegon pea varieties/cultures "ICPL-87, "ICPL-151", "UPAS-120" and the local tall variety proved highly promising with a yield level of 0.935- to 1.075 t/ha. The improved varieties of pigeon pea gave 4 to 15% higher yield against local tall variety (Table 1). Similar findings were also reported by Behra and Jha, (1993). All the ICPL varieties were found susceptible to blister beetle. Farmers linked "UPAS-120: and "Local" variety followed by "ICPL-87" AND "ICPL-151", because of less pest incidence, good yield and early duration (except local tall). Farmers got especially impressed with the variety "UPAS 120" because of shorter duration, uniformity in flowering and maturity and comparatively less blister beetle problem. On the other hand, they did not like "ICPL-86005" at the latter stage because of its high susceptibility to blister beetle, though farmers were impressed by its red flower and profuse fruiting.

It is concluded that for stabilizing yield of pigeon pea in the unbunded uplands of western Orissa, short duration field tolerance to blister beetle variety may be encouraged or low cost blister beetle technology may be worked out.

REFERENCE

Behera, U.K. and Jha, K.P. 1993, Agro-techniques for the resource poor farmers of Kalahandi, *Orissa Review*, 11: 25-27

Table 1. Performance of different Arhar varieties/cultures in the unbunded uplands of Kalahandi during rainy season, 1990 and 1991 (Researches Designed and Farmers Managed trial)

Treatments	Grain Yield (t/ha) 1990-91		Mean 1992	Yield	No. of Index	Plant pods/ plant	Duration height (Cm)	Remarks (Days)
1.UPAS 120	1.000	0.952	0.976	104	187	175	125	Short duration, farmers liked the variety very much, less damage due to blister beetle.
2.ICPL	0.870	0.960	0.915	98	320	128	140	Affected by blister beetle.
3.Prabhat	0.653	0.587	0.620	66	250	102	146	Dwarf plant, highly susceptible to blister beetle.
4.ICPL 161	0.620	0.580	0.600	64	115	136	-	Affected by pest, not very good fruiting.
5.CO.5	0.840	0.900	0.870	93	182	128	-	Good, relatively less pest attack.
6.ICPL 86005	1.050	0.957	1.003	107	408	131	165	Profuse fruiting, red flower, farmers like but highly susceptible to blister beetle.
7.ICPL 151	1.100	1.002	1.060	113	254	150	160	Semi-tall plant, good fruiting, farmers like but susceptible to blister beetle.
8.ICPL 87	1.050	1.100	1.075	115	265	150	130	Dwarf plant, good fruiting, farmers like but susceptible to blister beetle.
9.Local	0.950	0.920	0.935	100	343	190	210	Long duration, bushy plant, farmers do not like, very less or no pest attack.
Mean	0.904	0.886	0.895	96	258	-	-	
CD (P=0.05)	0.135	0.161						

Blister beetle is the major pest affecting redgram seriously.