ters would automatically decrease the other character. The negative significant associations were obtained between fruit weight and yield per plant. This character therefore, cannot form a sound basis for selection.

Most of the environmental correlation coefficients were non significant whereas phenotypic and genotypic, correlation coefficients were significant showing that the effect of environment on the expression of the association between the characters was not so strong as to alter it markedly. However, the environmental correlations between the days to flower with days to fruit setting, fruit diameter and plant height, days to fruit set with plant height, flower per cluster with plant height and early yield were positive and significant. It may finally be concluded that for selecting high yielding genotypes, selection based on fruit length, primary branches per plant, number of fruits per plant and early yield would be quite rewarding.

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PERFORMANCE OF SOYBEAN TO SINGLE AND MULTISTRAIN RHIZOBIAL INOCULATION

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ABSTRACT

Under acid lateritic soil at Vamban, the seed bacterization of *Rhizobium japonicum* have significantly increased the nodulation, plant growth and yield attributes on soybean cultivars viz., CO 1 and KM 1. However, the inoculation of R japonicum as multistrains gave a better symbiotic performance over single strain inoculation. Among the cultivars, CO 1 recorded better symbiotic performance that the KM 1 in exhibiting better nodulation, plant growth and grain yield under field condition.

KEY WORDS: Soybean, Rhizobium, Symbiosis.

It is a well known fact that the inoculation of Rhizobium on legumes increases growth, nodulation and nitrogen fixation efficiency (Kumar Rao and Patil, 1974; Raut *et al.*, 1980 and Pulvar, 1982). In comparison to single

Table 1. Effect of single and multistrain inoculation of *Rhizobium japonicum* on plant growth nodulation of soybean cultivars at different growth stages

TREATMENTS	Variety CO 1						Variety KM 1					
	PLANT DRY WEIGHT (g/pl)		NODULE NUMBER (No/pl)		NODULE DRY WEIGHT (mg/pl)		PLANT DRY WEIGHT (g/pl)		NODULE NUMBER (No/pl)		NODULE DRY WEIGHT (mg/pl)	
DAS:	30	45	30	45	30	45	30	45	30	45	30	45
61 A 76	3.980 *(40.1)	8.920 (30.9)	16	22	86	148	3.310 (64.7)	8.620 (59.0)	18	29	92	124
COS-1	3.770 (32.7)	8.170 (19.9)	10	17	50	110	2.970 (47.8)	7.188 (32.5)	15	18	64	94
UASSB-1	3.310 (16.5)	7.990 (17.3)	13	16	67	104	2.720 (35.3)	7.870 (45.2)	12	20	63	98
MULTISTRAIN	4.430 (55.9)	10.090 (48.2)	20	34	103	157	4.030 (100.5)	9.850 (81.7)	26	31	102	135
N- CONTROL	3.980 (40.4)	9.311 (36.7)	14	10	72	32	3.560 (77.1)	8.480 (56.5)	14	10	77	53
CONTROL	2.840	6.810	4	7	16	40	2.010	5.420	8	9	40	45
SE_D	0.348	0.119	0.8	1.92	17.58	11.86	0.194	0.108	71	2.16	8.1	10.1
CD (P=0.001)	0.898	.NS	2.07	.NS	45.42	.NS	0.515	.NS	NS	5.59	NS	NS

(* Parantheses indicate per cent increase over control)

Table 2. EFFECT OF SINGLE AND MULTISTRAINS RHIZOBIAL INOCULATION ON THE YIELD ATTRIBUTES ON SOYBEAN CULTIVARS

TREATMENTS	VARIETY CO 1				VARIETY KM 1			
	DRYMATTER PRODUCTION (t/ha)	POD YIELD (kg/ha)	SEED YIELD (Kg/ha)	PERCENT INCREASE OVER CONTROL	DRY MATTER PRODUCTION (t/ha)	POD YIELD (Kg/ha)	SEED YIELD (Kg/ha)	PERCENT INCREASE OVER CONTROL
61 A 76	4.358	905	816	59.7	4.076	912	716	60.3
COS -1	3.741	686	555	8.6	3.526	595	490	5.1
UASSB-1	3.866	729	631	23.5	3.690	612	512	8.1
MULTISTRAIN	5.186	1029	856	67.5	4.940	953	791	67.7
N-CONTROL	4.416	736	609	19.1	3.891	620	520	9.7
CONTROL	3.525	603	511	-	3.250	562	474-	-
SE_D	0.312	37.5	19.2	-	0.110	37.9	42.6	-
CD (P=0.01)	.NS	96.8	49.5	-	0.390	99.3	110.1	-

Table 3. CORRLATION AND REGRESSION EQUATION

DEPENDENT VARIABLE	INDEPENDENT VARIABLES	COEFFICIENT OF CORRELATION	COEFFICIENT OF REGRESSION	LEVEL OF SIGNIFICANCE		t VALUE
CO 1						
Nodule numbers/pl (30 DAS)	Plant dry weight	1.074**	0.014	12.27+	0.10	3.68
	Nodule dry weight	0.998**	5.212	-0.33	+5.21	3.11
	DMP	0.880**	0.094	2.99	+0.09	4.25
	Pod yield	0.912**	24.672	468.97	+24.67	4.46
	Seed yield	1.008**	24.560	315.90	+24.56	–
KM 1						
Nodule numbers/pl (30 DAS)	Plant dry weight	0.946**	0.133	14.08	+0.13	5.84
	Nodule dry weight	0.931**	3.327	21.73	+3.32	5.14
	DMP	0.954**	0.089	21.99	+0.08	5.44
	Pod yield	0.869**	24.858	325.09	+24.85	3.51
	Seed yield	0.864**	19.380	283.91	+19.38	--

strain inoculation, the seed bacterization with multistrains of rhizobia considerably performed better in various legume crops (Das and Bhaduri, 1975; Oblisami *et al.* 1976). With this view in consideration the performance of sigle and multistrains of rhizobia on two cultivars of soybean was studied in this present investigation.

MATERIALS AND METHODS

A field trial was laid out at acid lateritic soils of Vamban with two cultivars of soybean *viz.,* CO 1 and KM 1 which were inoculated with various *Rhizobium japonicum* strains viz., 61 A 76, COS-1 and UASB-1 and the multistrain (combination of equal proportion of these three strains). Unionoculated control was also maintained. An inoculum load of 10^7 cells/g of seed in peat based carrier was used. Each treatment was replicated four times in 4 x 3 m^2 plot and 60 Kg P_2O_5 per ha was applied as basal dose. During the plant growth stage, plant biomass, nodule counts and nodule biomass were recorded at 30 and 45 DAS. At harvest yield attributes *viz.,* dry matter production (DMP), pod and seed yield were recorded.

RESULTS AND DISCUSSION

The data on the effect of single and multistrain inoculation of *Rhizobium japonicum* on plant biomass, nodulation and nodule biomass in Co 1 and KM 1 soybean at 30 and 45 DAS are presented in Table 1. The plant biomass and nodule counts were greatly enhanced due to the seed bacterization of either single or multistrains of *R.japonicum* over control at various growth stages of soybean plants. Among the inoculation treatments, maximum symbiotic pertormance was obtained with multistrain seed bacterization followed by single inoculation of 61 A 76 strain. Among the cultivars, the response due the inoculation was observed with CO 1 followed by KM 1. Several workers also reported that the inoculation of multistrain (Balasubramanian *et al.* 1980 a, 1980 b) and composite cultures of Rhizobium (oblisami *et al.* 1976; Raut *et al.* 1980) increased the nodule counts and dry matter production in legumes.

The data on the effect of single and multistrain inoculation of *R.japonicum* on the DMP, pod and seed yield at harvest in two cultivars of soybean are presented in Table 2. Dry matter production was more in multistrain inoculated plots followed by N-control. Single strains recorded more than control but they were on par with each other. Similar trend was also observed with pod and seed yield in the two cultivars of soybean. Raut *et al.,* (1980) stated that soybean responded well to single or composite cultures. At least any one of the strains might establish well and cause the effective nodulation in the inoculated legume plants. The present findings also revealed that soybean cultivars responded well to the inoculation of multistrain followed by the inoculation of 61 to 76 strain.

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REACTION OF F_1 HYBRIDS TO RICE BLAST (*Pyricularia oryzae Cavara*) RESISTANCE

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ABSTRACT

The reaction of six F_1 hybrids for leaf and neck blast (*Pyricularia oryzae* Cavara) involving TKM 9, CO 29, IR 36 and IR 50 was studied. The F_1 hybrids showed grades towards susceptibility for leaf blast, indicating the dominance of susceptibility over resistance. In the case of TKM 9/IR 50 and its reciprocal, the high heterotic vigour towards resistance indicated the possibility to exploit them to obtain desirable blast resistant segregants.

KEY WORDS: Rice, Disease resistance, Blast.

Blast disease caused by *Pyricularia oryzae* cavara occurs in all rice growing areas of the world. It is the most important disease of the rice plant and causes serious, sometimes total yield loss. In Tamil Nadu, after the introduction of high yielding dwarf genotypes like TKM 9 and IR 50 and large scale cultivation of these varieties under varied environments, the blast disease appeared in server form. Their cultivation in the Navaral season (December-January to March-April) was severely handicapped because of its high susceptibility to blast. Mohan *et al.* (1984) reported that highest blast incidence was recorded in the mid December, followed by that planted in early January. A study was undertaken at Rice Research Station, Tirurkuppam, Tamil Nadu during Navaral 1983-84 on the reaction of the hybrids to blast.

MATERIALS AND METHODS

TKM 9, a cosmopolitan high yielding, semi-dwarf genotype was taken as the base parent and crossed with CO 29 (resistant), IR 36 (moderately resistant) and IR 50 (highly susceptible). Reciprocal crossess were also made using TKM 9 as male parent. The F_1 hybrids and their parents were raised in randomised black design replicated five times.

The experimental materials were tested for blast reaction by Uniform Blast Nursery (UBN) technique as suggested by Ou (1965).

The infected plants were observed for leaf blast symptoms on the tenth day. Observations were recorded