

VARIETAL PERFORMANCE OF SOYBEAN IN RELATION TO INCIDENCE OF RUST DISEASE UNDER HILLY AGRO CLIMATIC SITUATION OF WEST BENGAL

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Rust (*C.O. Phacopsora pachyrhizi* Sydow) is a serious disease of soybean causing drastic reduction in grain yield in the hilly region of Darjeeling district and affects all the aerial parts of plant. The disease appears as brownish pustules in the lower surface of the leaf which on maturity produce loose powdery sporemass. On severe infestation, almost all the leaves turn brown and pods produce immature, shriveled, green and half filled seeds which ultimately caused complete destruction of plant. A field evaluation trial with nine varieties [NRC 19, NRC 24, NRC 18, KB 117, Bragg, SS(SH) 89-49, PK 1137, PK 1135, JS-80-21] was conducted at the Regional Research Station, Kalimpong during *kharif*, 2001 to assess varietal susceptibility to rust disease along with their magnitude of yield loss. The trial was laid out in randomized block design with three replications. The highest incidence of rust was recorded in PK 1135, JS(SH) 89-89 and NRC 19 having disease score 9 at harvest unit mortality percentage 71.68, 53.50 and 52.81 respectively (Table 1). However, higher yield loss due to rust infestation was found in JS-80-21 and PK 1135. Although Bragg is well known susceptible variety to rust disease but in Darjeeling hills it showed less infestation to rust disease with production of highest grain yield (25.12 q/ha). The variety NRC 24 also performed very well showing moderate rust incidence (score 70) with no death of plants. The variety PK 1135 produced maximum number of branches/ plant(11.44) but due to its maximum mortality percentage(71.68) yield was low (Table 2). Likewise JS (SH) 89-49 although having highest number of pods / plant but severe rust infestation reduced its yield to a large extent.

Table 1. Effect of rust disease on grain yield of nine varieties of soybean in Darjeeling hills

Varieties	Grain yield (q/ha)	Rust disease incidence		Yield loss due to disease (q/ha)
		Percent dead plant	Disease score at harvest	
NRC 19	11.67	52.81	9	7.74
NRC 24	19.37	0.0	7	7.97
NRC 18	18.75	35.89	7	0.9
KB 117	6.25	33.33	5	11.66
BRAGG	25.12	30.9	7	8.72
SS (SH) 89-49	7.5	53.50	9	10.19
PK 1137	10.00	16.32	5	2.21
PK 1135	8.75	71.68	9	14.08
JS-80-21	8.33	44.25	5	14.32
LSD 0.05	5.90			

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Table 2. Varietal characteristics of nine varieties of soybean in Darjeeling hills

Soyabean Varieties	Plant Height(cm)	No. of branches per plant	No. of pods per plant	Seeds/ 10 pods
NRC 19	59.55	7.67	135	21
NRC 24	74.44	7.55	149	22
NRC 18	72.89	9.22	116	22
KB 117	70.33	9.67	130	22
BRAGG	81.11	9.45	122	25
SS (SH) 89-49	53.45	9.78	166	22
PK 1137	59.33	7.99	150	21
PK 1135	55.56	11.44	145	21
JS-80-21	52.78	7.44	151	21