

## Survival of Pigeonpea *Phytophthora* Blight Fungus in Infected Stubble

Information on the survival of *Phytophthora drechsleri* f. sp. *cajani*, the causal organism of pigeonpea blight, is lacking (Nene et al. 1980). Therefore, an experiment was conducted during 1978-79 to study the survival of the fungus in infected host plant stubble stored in two types of soil, and in bags at two temperatures.

Infected pigeonpea plants, collected immediately after seed harvest from the blight nursery, were chopped into bits approximately 5 cm long.

In Test-1 the infected bits were placed on the surface as well as 2.5 cm below the surface in 20-cm earthen pots filled with either Alfisol or Vertisol. The pots were kept in the open. Two sets of pots were prepared, one set received water every 15 days, the other received no water.

In Test-2 the infected bits were kept in gunny bags (58 x 34 cm) in the laboratory (at 21-44°C) as well as in a cold room (at 18-20°C). There were two replications. The survival of the fungus in the infected bits was tested by placing them on and at 2.5 cm below the soil surface in earthen pots containing Alfisol or Vertisol. Checks with no stubble were used.

In both tests about 25 seeds of the blight-susceptible cv Hy 3C were sown (2 cm deep) every month immediately after placing the infected bits in the pots. Two pots were used for each treatment. The survival of the fungus in the infected bits was indicated through the percentage of plants that developed blight. The experiment was terminated after 12 months.

The pigeonpea blight fungus survived in infected bits up to 3 months only (Table 1). However, it survived for only 2 months in Test-1 where infected bits were left on the soil surface without watering, and in Test-2 where the infected bits were placed on the

Table 1. Survival of *Phytophthora drechsleri* f. sp. *cajani* in infected pigeonpea plant bits stored under different conditions.

Tested pathogenicity (periods in months)	Blight-infected stem bits <sup>a</sup> placed at:	Soil type	Percent infected			
			Test 1		Test 2	
			Stored in soil		Stored in bags	
			With watering	Without watering	Labo-ratory	Cold room
1	Surface	Alfisol	43.7	33.3	31.2	10.5
		Vertisol	25.0	7.7	5.0	13.6
	2.5 cm deep	Alfisol	29.4	31.2	33.3	7.1
		Vertisol	4.3	0.0	11.0	20.8
2	Surface	Alfisol	4.2	34.8	0.0	4.3
		Vertisol	0.0	3.8	7.4	3.8
	2.5 cm deep	Alfisol	17.8	0.0	26.9	7.1
		Vertisol	29.4	6.2	4.8	12.0
3	Surface	Alfisol	0.0	0.0	0.0	0.0
		Vertisol	0.0	0.0	0.0	0.0
	2.5 cm deep	Alfisol	5.0	0.0	4.2	56.0
		Vertisol	0.0	0.0	0.0	19.3
4 to 12		No blight developed in any treatment				

<sup>a</sup>Twenty-five infected stem bits were kept for each treatment.

soil surface after storage in bags. We have no explanation for the high infection from the samples stored in the cold room for 3 months.

These results suggest that occurrence of blight in pigeonpea every year should not be attributed to the survival of the fungus in pigeonpea stubble. Studies are needed to investigate other possible modes of survival.

#### Reference

NENE, Y.L., KANNAIYAN, J., HAWARE, M.P., and REDDY, M.V. 1980. Review of the work done at ICRISAT on soil-borne diseases of pigeonpea and chickpea. Pages 3-47 in Proceedings of the Consultants' Group Discussion on the Resistance to Soil-borne Diseases of Legumes, ICRISAT, 8-11 January 1979. Patancheru, A.P., India: ICRISAT.

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### Short-Duration Pigeonpeas Escape Leaf Blight Disease in Late Seedings in Bihar

During the past 2-3 years, the postrainy-season seeding of pigeonpea in Bihar has re-

ceived a setback due to severe outbreaks of leaf blight disease caused by *Alternaria* spp. The two presently recommended long-duration varieties, Bahar and Basant, are highly susceptible to this disease.

In September-sown pigeonpea this disease starts to appear in early December and attains maximum severity by the middle of January, which is the time of maximum inoculum buildup in late-duration varieties. However, when extra-early pigeonpeas are planted in September they are at the late podding stage by mid-January and thus escape the major effects of this leaf disease despite the fact that they are susceptible.

For this reason, six extra-early strains received from ICRISAT Center, Patancheru, were evaluated with two checks for their yield potential when seeded in September. The seedings were done on 12 September 1980 and 2 September 1981 in a randomized block with three replications. Net plot size was 3.5 x 1.5 m with plants 8 cm apart in rows 30 cm apart. None of the entries or checks showed disease symptoms in either year, whereas a 30-40% disease incidence was recorded on cv Bahar which was planted in observation rows on either side of the test.

The lower yield during the first year (Table 1) was probably due to late rains in October which caused high insect damage.

Table 1. Performance over two years of extra-early pigeonpea varieties sown in September at Pusa, Bihar, India.

Strain	Yield (kg/ha)			Growth <sup>a</sup> habit	Days to maturity	100-seed weight (g)
	1980-81	1981-82	Mean			
ICPL-86	2278	3732	3005	DT	130	9.0
ICPL-87	2296	3592	2944	DT	142	10.0
ICPL-81	2476	3211	2844	IDT	142	7.0
UPAS 120 (check)	2117	3265	2691	IDT	148	7.5
T.21 (check)	2063	3211	2637	IDT	152	7.5
ICPL-156	2063	3140	2601	DT	139	8.5
ICPL-166	2117	2996	2557	DT	143	9.5
ICPL-4	2278	2637	2458	DT	138	6.0
SE ±	104	168				
CV (%)	8.5	9.1				

a. DT = Determinate, IDT = Indeterminate.