

# Pathology/Nematology

## Assessment of Diseases on Short-duration Pigeonpea in Sri Lanka

M.V. Reddy<sup>1</sup>, K.B. Saxena<sup>1</sup>, S.J.B.A. Jayasekera<sup>2</sup>, and D.G. Faris<sup>1</sup> (1. ICRISAT Center; 2. Agricultural Research Station, Pal-lekele, Kandy, Sri Lanka)

Pigeonpea is not a new crop in Sri Lanka. However, its cultivation is now very limited. The major pigeonpea production constraint in Sri Lanka is insect pests (*Helicoverpa armigera* and *Maruca testulalis*), due to which pigeonpea cultivation declined from 1136 ha in 1974 to 69 ha in 1979.

Because of the good performance of short-duration pigeonpeas provided by ICRISAT, a collaborative production project funded by the Asian Development Bank (ADB) was initiated in Sri Lanka in 1989/90. A survey of pigeonpea-production plots in dry and intermediate zones of Sri Lanka was conducted 15–22 Jan 1991. The pigeonpea varieties grown in these areas were ICPL 2, ICPL 87, and ICPL 161. The crop was mainly in the flowering and podding stages at the time of the survey. At each location, the disease incidence or severity was recorded on a 3-point scale: + = disease present but not important (less than 1% incidence or severity); ++ = disease was present and severe (up to 10% incidence or severity) and +++ = disease was present and very severe (more than 50% incidence or severity). Disease incidence was recorded for yellow mosaic and sterility mosaic. Disease severity was noted for leaf spots, powdery mildew, and blights.

Observations recorded at 18 locations including farmers' fields and research stations in six districts in four provinces (North-western, north-central, central, and southern provinces) indicated that diseases are not a problem in the newly introduced short-duration pigeonpeas in Sri Lanka in the 'Maha' season (long rains) (Fig. 1) (Table 1).

The diseases observed were yellow mosaic (YM), sterility mosaic (SM), *Cercospora* and *Phyllosticta* leaf spots, bacterial leaf spot, powdery mildew, phytophthora blight, and web blight. YM and SM were more widespread than the other diseases. YM incidence was high (about 5–10%) at Siyambalawewa in Matale district in the Central Province. At Pal-lekele Research Station in Kandy, SM incidence was very high (80%) on ratooned pigeonpeas. Flower drop was commonly observed at most of the locations and the flowers were colonized by *Rhizopus* sp.

There is a need to observe diseases for 2–3 years both in 'Maha' and 'Yala' (short rains) seasons. SM may become a production constraint with increased cultivation of pigeonpea in the country, especially as a ratooned crop. If this occurs, SM-resistant short-duration lines from ICRISAT can be used.

At most of the locations, a pycnidial fungus was observed on the stems in the form of brown circular bands but it did not cause any damage. At Pal-lekele Research Station, a rust-like disease was observed. The causal agents of these diseases have not yet been identified.

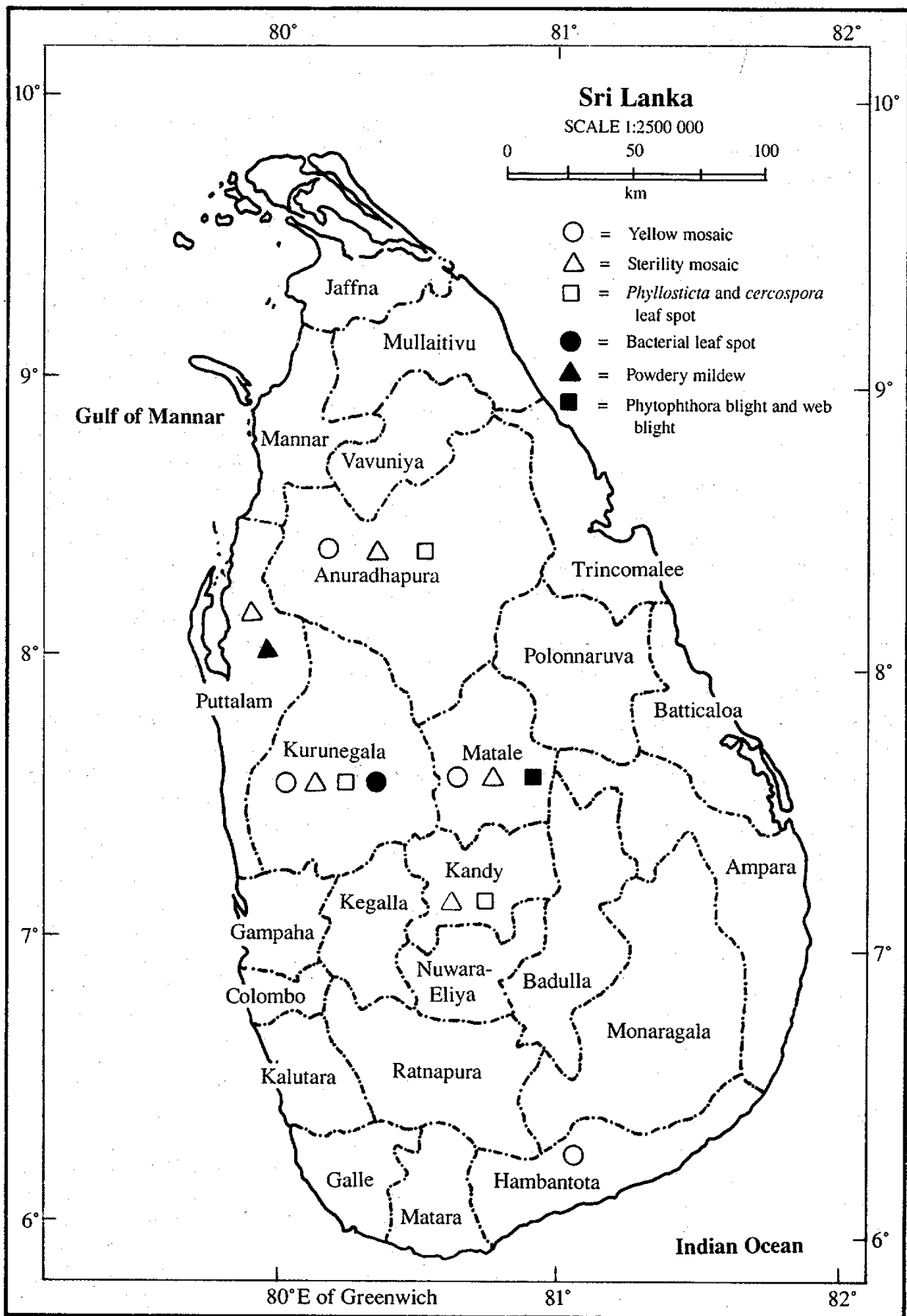
Table 1. Pigeonpea disease survey in Sri Lanka, 15-22 Jan 1991.

Province	District	Village/ town	Approximate field area (ha)	Stage of crop growth	YM <sup>1</sup>	SM <sup>1</sup>	Diseases observed				PB <sup>1</sup> and web blight
							<i>Phyllosticta</i> and <i>Cercospora</i> leaf spot	Bacterial leaf spot	Powdery mildew		
NWP <sup>2</sup>	Kurunegala	Liyangama	1.5	Podding	+ <sup>3</sup>	- <sup>3</sup>	+	-	-	-	-
		Amunugama	0.25	Podding	+	-	+	-	-	-	-
		Nawana	1.0	Flowering and podding	-	+	-	-	-	-	-
Puttalam	Nawana	Nawana	0.5	Podding	+	-	-	+	-	-	-
		Anamaduwa	1.5	Flowering	-	+	-	-	-	-	-
		Anamaduwa	0.25	Flowering	-	-	-	-	-	+	-
NCP <sup>2</sup>	Anuradhapura	Minhintale	Varietal trial	Flowering	+	+	-	-	-	-	-
		Kannaliya	0.5	Preflowering	+	-	+	-	-	-	-
		Wahamolgollewa Maha- Illupallama	3.0 Research station	Flowering	+	-	-	-	-	-	-
CP <sup>2</sup>	Matale	Illupallama	Research station	Variable	+	-	+	-	-	-	-
		Siyambalawewa	1.5	Preflowering	++ <sup>3</sup>	+	-	-	-	-	-
		Gelewela	3.0	Preflowering	+	-	-	-	-	-	-
		Yapagam	0.5	Flowering	+	+	-	-	-	-	-
		Mahasagan Tennekoonpura	1.0 1.0	Preflowering Podding	+	-	+	-	-	-	+
SP <sup>2</sup>	Hambantota	Pellekelle	Research station	Variable	-	+++ <sup>3</sup>	+	-	-	-	-
		Angunakola- pelessa	Research station	Variable	+	-	-	-	-	-	-
		Weerawila	Varietal trial	Variable	-	-	-	-	-	-	-
		Beralilela	0.1	Flowering	-	-	-	-	-	-	-

1. YM = yellow mosaic, SM = sterility mosaic, and PB = phytophthora blight.

2. NWP = North West Province, NCP = North Central Province, CP = Central Province, and SP = Southern Province.

3. + = disease present, ++ = disease was severe, +++ = disease was very severe, and - = disease not observed.



Base map from World Atlas of Agriculture Plate 22  
Projection: Transverse Mercator

Figure 1. Distribution of pigeonpea diseases in Sri Lanka