

females and, when mounted on a microscope slide, can be distinguished by the absence of the parallel-ribbed cover flap which protects the genitalia of the female. As in other species of eriophyids, spermatophores are deposited on the plant. The spermatophore is stalked and firmly attached to the leaf on an expanded base. The head of the spermatophore of this species is about 15 μ wide and contains, in its center, a globose sperm sac which is about 7 μ in diameter. The studies of this mite are continuing and it is hoped that a disease-free culture of the mites can be produced. This will be of use in our studies of causal agent-vector relationships. Further, we hope to compare the mites from Dholi with those from ICRISAT, in an attempt to discover the reason for the recorded differences in susceptibility to sterility mosaic in the selections grown at these two sites.

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Modified Infector-Row Technique to Screen Pigeonpea for Sterility-Mosaic Resistance

An infector-row technique to screen pigeonpea for resistance to sterility mosaic has already been described (ICRISAT Annual Report 1976-77). A modified technique, which we have named as the infector-hedge system, has now been found more convenient for large-scale field screening. The normal infector-row system, where rows of a susceptible cultivar are planted in advance at frequent intervals all over the field, was found to have certain disadvantages. Planting of the infector-rows at frequent intervals required a greater area for planting, more inoculations, and irrigation of a large area before the monsoon rains started. In addition, the more advanced plants in the infector rows adversely affected the growth of the adjacent test materials that were sown much later.

For the 1980-81 season, planting of a four-row hedge of a susceptible cultivar [NP(WR)-15] on the west side of a 2.0-ha field in December 1979 was found sufficient for a thorough screening of the test materials. This hedge had been infected using the leaf-stapling technique. The test materials, with indicator rows of susceptible BDN-1 after

every ten rows (9 m), were sown in June 1980. From then until October the prevailing winds were from the west and these carried the eriophyid mite vectors from the infector hedge across the nursery. The average incidence of the disease in the indicator rows across the field was high (98.7%) at 104 days after planting (Fig.6). In the initial stages, the disease incidence in the indicator rows near the hedge rows was greater with a progressive decrease to the farther end. Since the crop is susceptible throughout its life and the reaction of the lines is judged by the appearance of symptoms, the delay in the development of the disease is of little consequence.

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Days after planting

- | | |
|------------|-------------|
| 1. 23 days | 5. 66 days |
| 2. 26 days | 6. 87 days |
| 3. 36 days | 7. 104 days |
| 4. 57 days | |

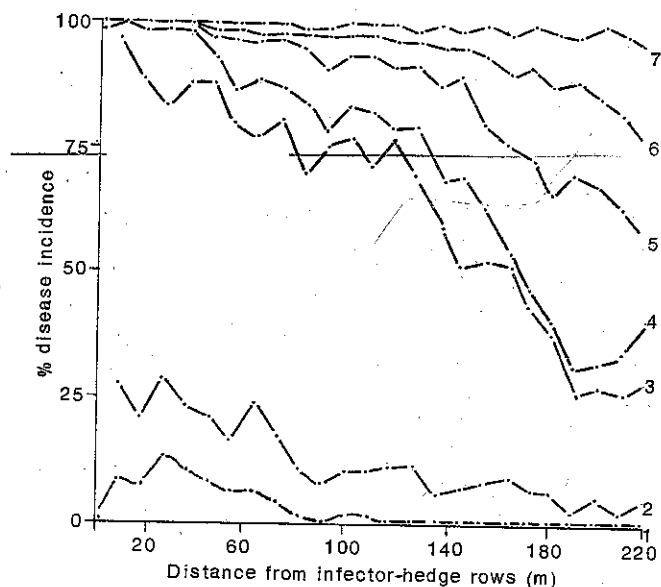


Fig. 6. Incidence of sterility mosaic in a susceptible cultivar of pigeonpea (BDN-1) planted at various distances from the infector-hedge rows at different intervals after planting.

Diseases Observed on Pigeonpea in East Africa

Pigeonpea is one of the important pulse crops in East African countries. Little is known

about the prevalence of diseases and their relative importance in East Africa. Since ICRISAT has a world mandate to improve pigeonpea, a survey trip was undertaken through the major pigeonpea growing areas of Kenya, Malawi, Tanzania, and Zambia in June-July 1980 to study the disease situation. During the surveys, excellent cooperation was received from the local scientists (Table 7).

These observations on pigeonpea disease and pest problems suggest that it may not be easy to cope adequately with these problems on East African pigeonpeas with less than a full time research team consisting of a pathologist, an entomologist and a breeder.

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***Alternaria* Blight: The Most Serious Disease of Postrainy-Season (Rabi) Pigeonpeas**

The new technology of growing pigeonpea as a postrainy-season (rabi) crop (September planting) has opened a new era in pigeonpea improvement in India. However, a major drawback in growing rabi pigeonpea is the problem of diseases. Yellow mosaic and *Alternaria* blight are the two most important diseases of rabi pigeonpeas, of which the latter is the most serious in north-eastern India. The plants can recover from yellow mosaic but *Alternaria* blight destroys the whole crop.

Table 7. Major disease problems in East African countries, visited in 1980, given in order of severity and frequency.

Country	Distance travelled by road (km)	No. of locations examined	Approximate pigeonpea area in the country (ha)	Diseases
Kenya	1500	25	100,000	Wilt ^a <i>Cercospora</i> leaf spot ^a Powdery mildew Grey mildew A mosaic A root tumor (gall)
Malawi	1000	20	50,000	Wilt ^{a,b} <i>Cercospora</i> leaf spot ^{a,b} Powdery mildew ^b Root-knot <i>Phoma</i> stem canker ^b
Tanzania	600	13	35,000	Wilt ^a Powdery mildew ^a <i>Cercospora</i> leaf spot Grey mildew ^b Rust ^b <i>Macrophomina</i> stem canker ^b
Zambia	500	6	Not known	Powdery mildew ^{a,b} <i>Cercospora</i> leaf spot <i>Phoma</i> stem canker ^b

- a. Diseases that are considered to merit top research priority in the countries indicated
- b. Although reported previously in other countries, these diseases are reported for the first time in these countries indicated