

Research Note

INCIDENCE OF RING SPOT DISEASE IN SUGARCANE¹

Ring spot disease, caused by the fungus *Leptosphaeria sacchari* V. Breda de Haan, occurs in almost every country where sugarcane is grown. The disease was first described in 1890 by Kruger, and in 1892 by Van Breda de Haan.² In Puerto Rico it is distributed throughout the island, and prevails in moist localities.³ However, ring spot may not be of major economic importance in sugarcane since the fungus attacks only the older leaves, consequently causing, little damage to the growing plants.²

The first symptoms were characterized by the production of small purplish flecks on the surface of the older leaves. The spot was at first circular or elliptical, reddish brown, with an indistinct margin, but later dried in the center and became ashen-grey surrounded by a purplish brown resulting in a ring-spot appearance (fig. 1.). The lesions were generally most abundant towards the tip of leaves. On the upper side of the older spots a large number of minute black dots (perithecia and pycnidia) were



FIG. 1.—Symptoms of ring spot (*Leptosphaeria sacchari*). Note elliptical spots with ashen-grey centers surrounded by purplish brown rings (left). Healthy leaf at right.

¹Manuscript submitted to Editorial Board 7 March 1990.

²Martin, J. P., 1938. Ring Spot. *In*: Sugarcane disease in Hawaii. pp 98-103.

³Echávez-Badel, R. (personal observation).

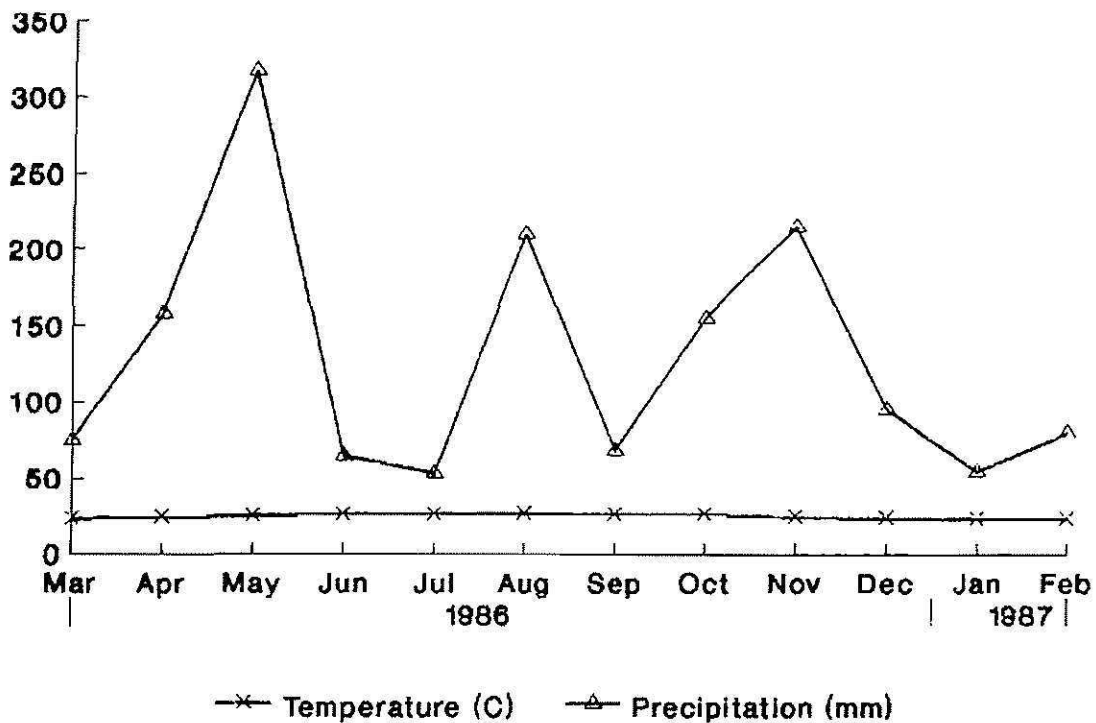


FIG. 2.—Temperature and precipitation in the first ratoon crop. Gurabo, P. R.

produced. The appearance of this disease is similar to that caused by eye spot, *Bipolaris sacchari* (Butl.) Shoem.

Ring spot disease is probably associated with a poor vigor when the plant is grown in sandy and stony soils with low fertility.⁴

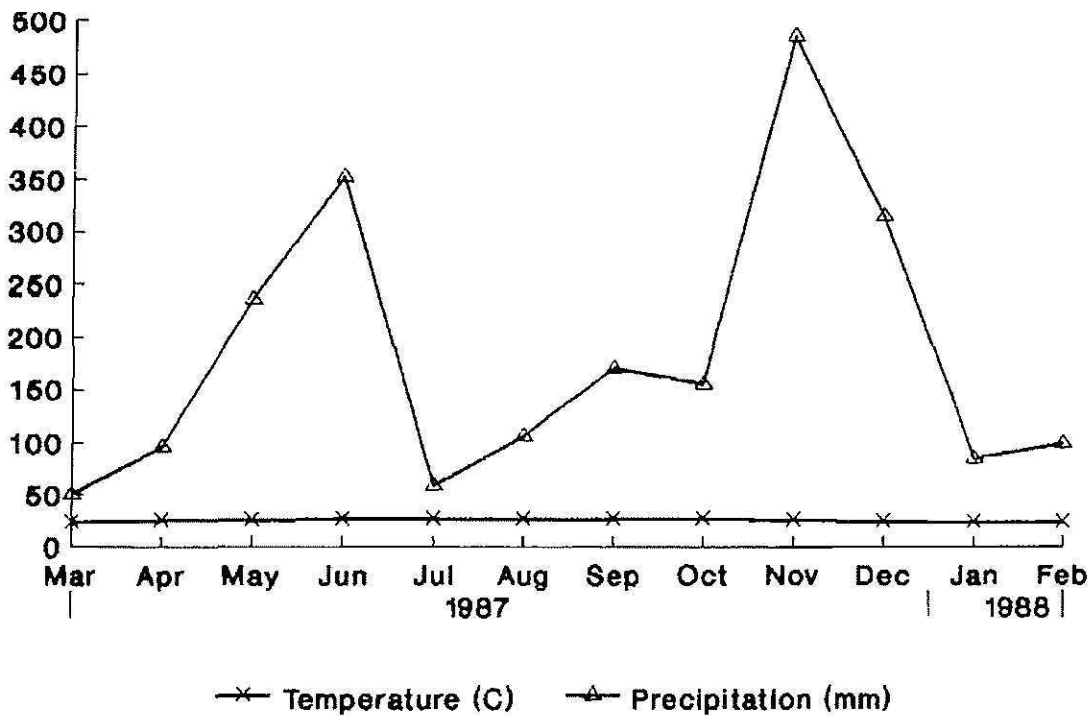


FIG. 3.—Temperature and precipitation in the second ratoon crop. Gurabo, P. R.

⁴Victoria, J. I., O. Ochoa and C. Cassalet, 1984. Mancha de anillo. Enfermedades de la Caña de Azúcar en Colombia. CENICANA. Serie Técnica No. 2. Cali, Colombia.

TABLE 1.—*Ring spot reaction of 6 released sugarcane varieties and the local check PR 980 from March 1986 to February 1987 (first ratoon) and from March 1987 to February 1988 (second ratoon) at the Gurabo Experiment Substation*

Variety	First ratoon		Second ratoon	
	Grade	Reaction ¹	Grade	Reaction ¹
PR 67-1070	0	R	0	R
PR 67-1355	3	I	3	I
PR 68-2002	0	R	3	I
PR 68-3120	0	R	0	R
PR 69-2218	3	I	0	R
PR 69-2247	0	R	4	S
PR 980 (Ck)	0	R	5	S

¹Ring spot scale: Resistant (R)=0-2, Intermediate (I)=3, and Susceptible (S)=4-5.

One hundred ninety-one sugarcane genotypes and the local variety PR 980 naturally infected with *L. sacchari* were evaluated for resistance to this pathogen during the first and second ratoon crops. The experiment was planted in non-replicated 1.5 m × 4.5 m field plots (8 seed cane/plot) at the Gurabo Experiment Substation. Variation in temperature and precipitation during two crop cycles is indicated in fig. 2,3. The disease severity was recorded as the percentage of leaves affected by ring spot: grades 0-2 (0-5%) were considered as levels of resistance, grade 3 (6-10%) as intermediate, and 4-5 (11-25% up) as susceptibility reactions. Evaluations were made at the prematurity growth stage (8-10 months of age). Cultivation, fertilization and weeding followed the general practices of this area.

Genotypes differed considerably in the amount of spotting which they showed.

Table 1 summarizes the disease reaction of 6 released sugarcane varieties and PR-980 among 192 sugarcane genotypes tested at Gurabo. PR 68-3120 and PR 67-1070 varieties were resistant to ring spot throughout the two crop cycles. PR 69-2218 revealed intermediate and resistance levels in first and second ratoon crops, respectively. PR 68-2002 was first resistant and with intermediate reaction at the second ratoon crop. PR 67-1355 was intermediate throughout both crop cycles. PR 69-2247 and the local variety PR 980 indicated degrees of resistance and susceptibility in first and second ratoon crops, respectively. These findings indicate that *L. sacchari* is probably influenced by changes in soil moisture during first and second ratoon crops (fig. 2,3).

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