

Research Note

FAILURE TO INFECT SUGARCANE WITH *SCLEROSPORA GRAMINICOLA* CAUSAL OF DOWNY MILDEW

A disease found abundantly on Sordan 70-A, a commercial hybrid sorghum and Johnsongrass (*Sorghum halepense*) at the Lajas Substation was identified as downy mildew, caused by *Sclerospora graminicola*¹.

TABLE 1.—Results of attempts to infect sugarcane with *Sclerospora graminicola* from Sordan 70-A and Johnsongrass

Flat no.	Cross no.	Sugarcane seedlings		Infected plants		
		Parentage	Number exposed to infection	Sugarcane	Sordan 70-A	Johnsongrass
1	12	US67-22-2 × 68-3041	6	0	—	15
2	12	US67-22-2 × 68-3041	10	0	8	—
3	17	68-3041 × US67-22-2	12	0	—	15
4	33	69-2 × 67-245	10	0	—	20
5	33	69-2 × 67-245	8	0	—	8
6	33	69-2 × 67-245	10	0	—	6
7	33	69-2 × 67-245	8	0	—	15
8	33	69-2 × 67-245	12	0	—	10
9	33	69-2 × 67-245	10	0	10	—
10	69	62-258 × 68-3120	10	0	—	8
11	69	62-258 × 68-3120	12	0	—	6
12	129	67-1070 × ?	15	0	—	12
13	149	68-3041 × ?	12	0	—	10
14	149	68-3041 × ?	12	0	—	20
15	149	68-3041 × ?	16	0	—	9
16	149	68-3041 × ?	9	0	—	6
17	149	68-3041 × ?	15	0	9	—
18 ²	—	PT 43-52	9 clones	0	8	—
19	—	PT 43-52	12 clones	0	—	8
20	—	PT 43-52	10 clones	0	12	—

¹ * PT 43-52 is highly susceptible to mildew disease.

Since no sugarcane plants growing nearby showed symptoms of the disease, tests with sugarcane plants were performed.

In one test, plants of PT 43-52, a variety highly susceptible to mildew, were exposed to infection in the field. Two 10 ft × 20 ft plots were planted with two bud cuttings. After the sugarcane germinated the adjacent rows were planted with whole diseased Sordan 70-A and Johnsongrass seedlings. Care was taken on the transplanting operation to

¹ Communication of Sept. 11, 1978 from Dr. L. J. Liu to Dr. Raúl Abrams, Director AES.

maintain all the soil around the roots of the diseased plants. Weekly observations showed the progress of the disease on both Sordan 70-A and Johnsongrass, but no disease symptoms appeared on the young leaves of sugarcane variety PT 43-52. After 5 months the test was terminated since no sugarcane plants showed downy mildew symptoms.

In Taiwan, first-year sugarcane seedlings are exposed to mass infection with downy mildew². A similar procedure on a much wider scale was adopted at the Lajas Substation to test whether *Sclerospora graminicola* infected first-year sugarcane seedlings.

This second test was initiated using artificial inoculation via diseased Sordan 70-A and Johnsongrass leaves. The conidia bearing leaves were clipped to three leaves of each sugarcane plant to be tested. Seventeen flats were planted with sugarcane seedlings and three flats with PT 43-52. Each flat was planted with whole diseased Sordan 70-A or Johnsongrass seedlings in addition to the material to be tested. All flats were covered with clear plastic material, kept in a Saran mesh enclosure and watered daily with tap water to maintain optimum moisture and temperature throughout the test. Observations were made weekly. No disease symptoms were evident on leaves of sugarcane seedlings nor of variety PT 43-52 after 2 months.

The results from these preliminary tests suggest that the mildew disease identified at the Lajas Substation caused by *Sclerospora graminicola* does not affect sugarcane.

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² Personal communication, Chu, T. L.