

## Research Note

### LEAF-BLADE FRECKLING IN SUGARCANE SEEDLINGS<sup>1</sup>

Although limited freckling and spotting can be considered normal in sugarcane leaves, intensification to a degree restrictive to growth is an abnormality. Freckling in sugarcane seedlings from the AES-UPR cane breeding program has been observed at the AES Lajas Substation for many years. The amount of freckling, or spotting, varies markedly from one genotype to another. Freckles on leaf blades appear as light, yellow-green spots up to 2.0 mm in length, often bearing small red dots.<sup>2</sup>

Some sugarcane breeding lines apparently transmit susceptibility to this condition. Frequently, these spots begin to appear on young leaves newly emerged from the spindle at a time when the leaf tissue is ordinarily wholly green and blemish free.

They remain visible, sometimes concentrated toward the outer blade tip, throughout the aging of the canopy leaf ranks. They can be seen even in the detached and desiccated aged leaf trash.

Foliar freckling emerged with alarming severity in PR67-1335, PR76-19 and other released hybrids, near Cambalache (northern Puerto Rico), during the 1987-88 crop year. US67-22-2 planted in the same field has failed to develop any freckling symptoms.<sup>3</sup>

Table 1 shows selected crosses and the percentage of affected progeny. Progeny of crosses, whether biparental or polycross, which included PR68-1099, PR65-2638, PR68-3041 and PR70-3364 as a parent, invariably displayed freckling (table 1). Vari-

TABLE 1.—Incidence of leaf-blade freckling in sugarcane seedlings from selected biparental and polycrosses<sup>1</sup>

Parentage	Seedling total	Seedlings <sup>2</sup> affected	% Affected
PR65-2638 × PR68-1099	1716	914	53.3
PR67-1336 × PR68-1099	935	277	29.6
Co. 1148 × F-160	196	38	19.4
US70-6-2 × PR 68-1099	720	134	18.6
PR70-3364 × ? <sup>3</sup>	371	68	18.3
PR68-1099 × ? <sup>3</sup>	227	34	15.0
F160 × ?	794	95	12.0
PR62-193 × PR69-3134	292	27	9.2
PR70-3364 × PR67-2467	163	14	8.5
PR68-3041 × ? <sup>3</sup>	1024	85	8.3
PR69-2030 × PR68-3041	536	39	7.3
NCo. 310 × PR68-3041	850	10	1.2

<sup>1</sup> AES-UPR cane breeding program, AES-Lajas Substation.

<sup>2</sup> Freckling occurred on 25% or more of the leaf-blade surface.

<sup>3</sup> Polycross performed with unknown male parent.

<sup>1</sup> Manuscript submitted to Editorial Board 2 December 1988.

<sup>2</sup> Hughes, C. G., E. V. Abbot and C. A. Weimer, 1964. Sugarcane Diseases of the World, Vol. II, p. 271.

<sup>3</sup> Alexander, A. G., 1988. Personal Communication. AES - P.R., Río Piedras.

ety PR68-1099 was used as a breeding parent because of its known tolerance to salinity conditions. Variety PR65-2638 was also used because of its high sucrose yielding potential.

Most of the affected stools have shown poor vigor and stooling potential because of a highly constrained canopy (green surface

area) during the crucial 3- to 4-month period of late juvenile and young adult growth phases. Evaluation of crosses, breeding lines, and progeny continues in order to eliminate those parents which transmit this condition.

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