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AN OBSERVATION ON THE REACTION OF SIX  
GRASSES TO APHIDS AND RUST IN THE WET  
TROPICS

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SUMMARY

*Digitaria decumbens* (commercial pangola grass) showed greater signs of damage presumably due to *Schizaphis* attack than did *Setaria splendida*, *Brachiaria decumbens*, *Digitaria pentzii*, *D. decumbens* CPI 8353 and *Panicum maximum* cv. Hamil. Pustules of *Puccinia oahuensis* were most prevalent on pangola grass.

Since 1971 pangola grass (*Digitaria decumbens*) growing in the Ingham-Cooktown area of North Queensland has suffered from severe local attacks by aphids (*Schizaphis* sp. of the *graminum* group) and rust (*Puccinia oahuensis*) (Teitzel *et al.* 1972). During the establishment phase of an experiment at Silkwood to test replacements for pangola, vastly different reactions to aphids and rust were noted.

An estimate of these reactions in the randomized block trial of six grasses x four replications was made by three observers who visually assessed (a) the percentage of leaves showing aphid damage symptoms (Teitzel *et al.* 1972) and

TABLE 1  
ESTIMATES (MEAN OF 4 REPLICATIONS) OF APHID AND RUST DAMAGE SYMPTOMS

Species	% Leaves with Aphid Damage	% Leaves with > 20 Rust Pustules
<i>Setaria splendida</i> .. .. .	0.00 (0.000)*	0.00 (0.000)*
<i>Brachiaria decumbens</i> .. .. .	5.18 (0.230)	0.00 (0.000)
<i>Digitaria pentzii</i> CQ 911 .. .. .	0.75 (0.087)	0.10 (0.032)
<i>Digitaria decumbens</i> (pangola) .. .. .	34.54 (0.628)	50.98 (0.795)
<i>Digitaria decumbens</i> CPI 8385 .. .. .	2.11 (0.146)	30.21 (0.582)
<i>Panicum maximum</i> cv. Hamil .. .. .	0.16 (0.040)	0.15 (0.039)
L.S.D. 5% .. .. .	(0.149)	(0.133)
1% .. .. .	(0.206)	(0.183)

\* Inverse sine transformation used for analysis.

the percentage of leaves with substantial numbers ( $> 20$ ) of rust pustules. Aphid populations had declined by the time estimates were made and damage symptoms rather than actual aphid populations had to be recorded.

The mean estimates of aphid and rust damage obtained on August 11, 1972, are shown in Table 1.

Pangola showed significantly greater ( $P < 0.01$ ) signs of aphid damage and both pangola and *Digitaria decumbens* CPI 8385 significantly greater ( $P < 0.01$ ) presence of rust. The effects were also significantly expressed in dry-matter yields taken shortly afterwards; pangola yielded only 1 060 kg/ha dry matter and CPI 8385 only 410 kg/ha dry matter compared with *Setaria splendida* 2 670, *Brachiaria decumbens* 2 110 and *Digitaria pentzii* 1 860 respectively (L.S.D. 5% = 710 kg/ha). This result was obtained despite the fact that the pangola was planted (with *Brachiaria decumbens* and *Panicum maximum* cv. Hamil) on February 16, 1972, compared with March 15 for *Digitaria pentzii* and *D. decumbens* CPI 8385. The *Brachiaria decumbens* was replanted vegetatively on April 10 because of failure of the *initial* seed planting.

Care must be exercised when interpreting the estimates of aphid damage. We are confident that the "aphid damage symptoms" are a characteristic response to *Schizaphis* attack. However, so far as we are aware breeding colonies of *Schizaphis* sp. have not been found on *Brachiaria decumbens* in North Queensland although immature aphids have (Franzmann, private communication).

#### REFERENCES

- TEITZEL, J. K., FRANZMANN, B. A., BROADLEY, R. A. and PONT, W. (1972).—Bad year for pangola grass. *Qd agric. J.* 98:601-603.

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