Screening *Brachiaria* hybrids for resistance to the pasture spittlebug *Notozulia entreriana* (Berg, 1879) (Hemiptera : Cercopidae) in central Brazil

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Introduction The beef cattle industry in tropical America , with its extensive production systems , depends on forage grasses for meat production . Several species of the genus *Brachiaria* comprise the most important of these grasses . Because of their excellent adaptation , particularly of *B . decumbens* to low-fertility acid soils , they have been widely adopted throughout Central and South America . The extensive monoculture of *B . decumbens* , however , has favored the buildup of several spittlebug species , the most damaging pests of *Brachiaria* in tropical America . These insects can drastically reduce plant growth , dry matter production as well as forage quality (Valério et al . ,2001) . A great effort has been devoted to finding grasses resistant to spittlebugs . The objective of the present work was to evaluate 28 hybrids of the genus *Brachiaria* , from the germplasm available at Embrapa Beef Cattle Research Center , for resistance to the spittlebug *Notozulia entreriana* using the selection criteria of nymphal survival and nymphal period .

Material and method The assay was conducted in the greenhouse ($T = 28.0 \pm 2.2$℃ and $RH = 71.7 \pm 8.8\%$) using methodology described by Lapointe et al . (1989) . The hybrids were initially established in a hydroponic system (a minor modification in the original methodology) , then planted in small plastic cups and , posteriorly transferred to 17 cm diameter plastic pots . Each of these pots were covered with aluminum tops , which have a central opening for the grass stems . This is done in order to stimulate abundant superficial rooting at the soil surface and hence provide enough feeding sites for the newly hatched nymphs . The plants were infested two and half months after planting with five eggs [obtained according to Valério (1993)] per pot . There were ten replications for each hybrid in a complete randomized assay . Close to adult emergence , the pots were individually caged . The emerging adults were collected daily . As screening criterium , only the hybrids presenting , simultaneously , percentage of nymphal survival below the average for the group , minus the correspondent standard deviation and , nymphal period above the average for the group plus the respective standard deviation , were selected as resistant . *B . decumbens* cv . Basilisk was included as the susceptible check whereas *B . brizantha* cv . Marandu , as the resistant one .

Results and discussion The survival rates varied from 12% to 96% , the average being $76 \pm 15.6\%$ for the group . For nymphal period , the variation was from 26.9 to 37.5 days , with an average of 30.8 ± 2.3 days . In accordance with adopted screening criterium , two hybrids (HB331 and HB336) were selected as more resistant in this trial . The nymphal survival for these hybrids were , respectively , 12% and 48.9% ; whereas the duration of the nymphal period were , respectively , 37.5 and 33.7 days . Presumably the resistance exhibited by these plants is due to secondary chemicals , being still necessary , additional studies to fully understand the basis of this resistance . All the remainder evaluated hybrids provided high nymphal survivorship ($79.2 \pm 7.5\%$) , showing , therefore , suitableness as host plant to this spittlebug species .

Conclusions Two *Brachiaria* hybrids were selected as resistant to the pasture spittlebug *Notozulia entreriana* through the mechanism of resistance termed antibiosis , impairing development and survival of the nymph . Aiming to release new spittlebug resistant *Brachiaria* cultivars , however , both hybrids should also be evaluated with sugarcane spittlebugs of the genus *Mahanarva* (serious threat to forage grass in Northern Brazil) , additionally to complementary agronomic evaluations in multi-location trials in distinct ecosystems of the country .

References

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