B-98: Competition between rice and *Cynodon dactylon* populations from different climatic zones in Sri Lanka

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This study was carried out to investigate competition between rice and various *Cynodon* populations and to relate competitive ability of *C. dactylon* populations to the habitat conditions from which they were collected. *C. dactylon* plants were collected from 3 habitat types (roadsides, lawns and paddy-fields) within

each of the 5 major climatic zones in Sri Lanka (arid, dry, intermediate, lowland wet and upland wet) and grown in dense pure stands (36 plants/m^2) and in replacement mixtures with rice (50:50). The plots were arranged in a randomised complete block design with two replicates.

At harvest vegetative height, flowering date, number of leaves, number of tillers, pseudostem diameter, shoot dry weight and root dry weight were measured for rice as well as for *Cynodon* plants grown in pure and in mixed stands. In addition, number of panicles, number of seeds per plant and weight of 1000 seeds were recorded for rice grown in pure and in mixed stands.

The competitive ability of various populations of *C. dactylon* relative to rice was measured as aggressivity. *C. dactylon* from arid, dry and intermediate zones were more competitive ($p<0.01$). Populations from paddy fields were more competitive ($p<0.01$) for light than those from lawns and roadsides since they are able to compete with tall rice crops.

Resource complementarity was measured by the relative yield total (RYT) values. Rice mixed with populations of *C. dactylon* from lowland and upland wet zones had RYT values greater than 1.0 implying that rice and *C. dactylon* did not fully compete for the same limiting resources. RYT values less than 1.0 found in *C. dactylon* from arid, dry and intermediate zones might be interpreted as evidence of allelopathy.