

**B-99: Analysis of yield density relationship in rice (*Oryza sativa* L)
Barnyardgrass (*Echinochloa crus-galli* (L.) Beauv) competition**

Lakshman L Ranasinghe¹, * Garvin D Crabtree², Steven R Radosevich³

¹Regional Agricultural Research Centre, Aralaganwila,

²Dept of Horticulture and ³Dept of Forest Sc., Oregon State University, USA)

Field studies were conducted in the low country dry zone of Sri Lanka to study the nature of barnyardgrass (BYG) competition with two cultivars of rice, Bg 350 and Bg 94-2. These cultivars are morphologically different, but both belong to the 3.5 month age class. They were transplanted in densities of 0, 33, 66, and 100 plants/m² with 0, 3, 9 and 27 plants/m² of BYG density in an addition series design under lowland irrigated conditions.

At 4 and 8 weeks after planting monocultures of cultivar Bg 350 were much more effected by intraspecific competition (B_{RR}) but at maturity monocultures of the cultivar Bg 94-2 had high B_{RR} values. In all rice-BYG mixtures, increasing density of either species reduced the per plant biomass of rice. Cultivar Bg 350 suffered by interspecific competition (B_{WR}) for a longer period than the cultivar Bg 94-2 and increasing density of BYG affected the biomass production of Bg 350 more than that of the cultivar Bg 94-2. At the recommended planting density the overall rice yield reduction due to competition of 9 BYG plants /m² was 11.3% in the cultivar Bg 350 while it was only 3.7% in the cultivar Bg 94.2.