

Diversity of weed communities under different water regimes in bertam irrigated direct seeded rice field.

ABSTRACT

Experiments were initiated at MARDI Bertam Rice Research Station in Penang in the dry season of 2004 and main season 2004/2005 to study the effect of different water regimes on diversity of weed species. Plots receiving continuous flooded treatment (T1) and flooding up to panicle initiation (T2) significantly suppressed weed population to approximately 18 – 58% and reduced weed biomass to 14 – 57% as compared to the highest values in continuous field capacity treatment (T5) at all sampling dates (30, 60 and 90 DAS) in both planting seasons. Across water regime treatments the weed composition comprised of 11 weed species in the dry season and 10 weed species in the main season. Broadleaved weeds, especially *Monochoria vaginalis* and *Limnocharis flava* were the most dominant weeds in most water regime treatments. The SDR values of broadleaved weeds in the dry season were 48.7, 46.4, 44.2, 40.7 and 35.8% for T2, T1, T3 (flooding for the first month), T5 and T4 (continuous saturation), respectively. In the main season, the SDR values for the broadleaved weeds increased to 79.5, 68.2, 62.4, 62.2, and 50.57% for T2, T1, T3, T4 and T5, respectively. *Fimbristylis miliacea* and *Cyperus iria* were dominant in the dry season with SDR values of more than 34% in all water regime treatments, but decreased to less than 23% in the main season. For grasses, comprising of mostly *Echinochloa crus-galli*, *Echinochloa colona* and *Leptochloa chinensis*, SDR values of more than 20% were recorded in T4 and T5 in the dry season, while in the main season SDR values of between 21 – 34% were observed in treatments T1, T3 and T5.

Keyword: Water regimes; Weed diversity; Weed numbers; Weed biomass; Summed dominance ratio.