ABSTRACT

Aerobic rice system, the most promising irrigation water saving rice production technology, is highly impeded by severe weed pressure. Weed control through the use of same herbicide causes development of herbicide resistant weed biotypes and serious problem in weed management. This study was aimed at finding out herbicides with different mode of actions to suggest effective weed control herbicide technology in aerobic rice system. This study was conducted at Malaysian Agricultural Research and Development Institute (MARDI), Seberang Perai Station, Penang, Malaysia during off season 2008 (April – July 2008) and main season 2008-2009 (November 2008 – February 2009) to evaluate fourteen and eight combinations of different locally available herbicides, in the off season and main seasons, respectively. A weed free control and a weedy check treatment were also included in the both trials. The trial used a RCB design with three replications in the off season and four replications in the main season, respectively. Twenty one (21) weed species were found in the aerobic rice field but two species (Eleusine indica and Digitaria ascendens) appeared as dominant. Based on the weed control efficiency, weed index values and net benefit from economic analysis, it appeared that the herbicide combinations such as Propanil/Benthiocarb fb Bentazone/MCPA or Cyhalofopbutyl+ Bensulfuron fb Bentazone/MCPA or Pendimethalin fb Cyhalofop-butyl+ Bensulfuron fb Bentazone/MCPA or Pretilachlor+Pendimethalin fb Bentazone/MCPA could be the possible alternative options for effective and economic weed control in rice under aerobic system towards avoiding development of herbicide resistance in weed. Manual weeding is not at all cost-effective. The selected herbicide combinations could be used in rotation for sustainable weed management and to run the aerobic rice system as a profitable business venture.

Keyword: Herbicide combination; Summed dominance ratio; Weed control efficiency; Weed index; Rice yield.