Influence of soil cover on moisture content and weed suppression under system of rice intensification (SRI)

ABSTRACT

System of rice intensification (SRI) makes the yield of rice to significantly increase in addition to water productivity, which in turn will have a positive effect to the farmers as well as the country at large. However, weeds growth is one of the main constraints of SRI due to wider planting pattern (25 × 25 cm or more) and alternate wetting and drying, thereby reducing rice crop yields if weed control is not attempted. Presently, manual weeder is being used which is labour intensive, while motorized weeder reduces the labour but currently, it cannot be able to remove the weeds up to rice canopy closure as recommended in SRI farming. This research was designed to evaluate the influence of two mulches (rice straw mat [SRImat] and commercialized black plastic) on controlling of weed growth, soil moisture and determining of seedling performance. Significant differences in weed density, weed dry weight, weed control efficiency (WCE), weed ratio (WR), number of tillers per hill and volumetric moisture content were observed, between the unmulched treatment (control) and mulched treatments. The dominant weed class associated with SRI was sedges, due to higher summed dominance ratio followed by grasses and broadleaves, respectively. The effectiveness of SRImat mulched on weed control was 98.5 % (WCE) and 0.01 (WR).The research revealed the possibility of SRImat mulch in controlling weeds up to rice canopy closure or 40 DAT as recommended in SRI, retaining of soil moisture and more number of tillers in SRI farming.

Keyword: Single seedling; Soil cover; Volumetric moisture content; Weed ratio; Weeding