

Abstract

Unfortunate weed administration in direct-cultivated rice (DSR) at the harvest foundation stage has prompted the swamp environments. During the early wet seasons, this study examined weed and yield responses to pre-emergence @!;à;à;à^•ÀÇ] ^} à; { ^c@æj; } ÈÁ] !^c;æ&@] [;ÈÁ~ cæ&@] [;ÈÁ [cæ;à;æ: [] ÈÁ } àÁ } [àæ]] j;æ&æc; [] àæ•Àc@^À& [] c; [D;à } À;æ; { ^;•c;à;à^À, ^j;à•ÈÁ Ú^ } à; { ^c@æj; } À, æ•Àc@^À { [•c;^ ^&c;ç^Àæc& [] c; [] j; } *Àc@^À [] ~|æc; [] À [-À { [•c;^ À*!æ••^À, ^j;à•ÈÁæ } à;æj;] À; ^È^ { ^;•^ } &^À @^!;à;à;à^•À;^À~&^àÁ, ^j;àÁ [;æÈÁ Y @^ } A& [{] æ;^à;Àc [Àc@^À } c;^æc^à;À& [] c; [] ÈÁ] ^ } à; { ^c@æj; } À•à* } à, &æ } c; ^À;^À~&^à;Àc@^À;^À

Keywords: Pre-emergence herbicides; Direct-cultivated rice; Biomechanical; Soil; Rice yield; Pesticide; Pesticide resistance

Introduction

The direct-cultivated rice (DSR) system is a promising approach to reduce herbicide use and improve rice yield in swamp environments. However, the early wet seasons in DSR systems often result in high weed infestation, which can significantly reduce rice yield. This study aimed to evaluate the effectiveness of pre-emergence herbicides in DSR systems under early wet conditions. The study was conducted in a field experiment in Cambodia, where the rice yield was significantly lower in the DSR system compared to the conventional flooded rice system (FRR). The DSR system was established using a 50% nitrogen rate, and the FRR system was established using a 70% nitrogen rate. The results showed that the DSR system had a significantly higher weed density (20-30 plants/m²) compared to the FRR system (50 plants/m²). The DSR system also had a significantly lower rice yield (>180 t/ha) compared to the FRR system (200 t/ha). The study concluded that pre-emergence herbicides are essential for weed control in DSR systems under early wet conditions.

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Results and discussion:
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