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Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Pest management
Keyword 2	: Weed management
Keyword 3	:
Title of Entry	: Evaluation of pre-emergence herbicides application methods on weed control efficiency in transplanted boro rice in Bangladesh
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Herbicides are becoming popular in Bangladesh for weed control in rice because of their role in improving timeliness of weed control, addressing labor constraints, and reducing weed control cost and drudgery involved in weed management. Current farmers' weed management practice in transplanted rice consists of use of pre-emergence (PRE) herbicide at 3-10 days after transplanting (DAT) followed by one (at around 20-30 DAT) or two (at around 20-30 DAT and 40-50 DAT) hand weeding as per need. Farmers mostly broadcast PRE herbicide either by mixing with urea fertilizer or sand or apply with irrigation water. We

hypothesized that broadcasting PRE herbicide by mixing with urea fertilizer or sand or applying with irrigation water may decrease the efficacy of herbicide as compared to spraying using clean water and therefore may result in increase in weed control cost. A farmers' participatory on-farm trials were conducted in Jessore, Bangladesh to evaluate the performance of PRE herbicides application methods on weed control efficiency and grain yield in transplanted boro (dry-season) rice. Six farmers' fields were selected and at each field, four pre-emergence herbicides application methods were evaluated viz. broadcast bymixing with urea fertilizer, broadcast by mixing with sand, spray by mixing with clean water, and application with irrigation water. At 25 DAT (before hand-weeding), the lowest weed density (101 weed m-2) was found in plots with PREwith PRE herbicide application using sprayingusing spraying method. As compared to spraying method, weed density was 34%, 86% and 380% higher in the plots where PRE herbicide was applied using broadcast by mixing with fertilizer, broadcast by mixing with sand and application with irrigation water, respectively. The plots having herbicide application with irrigation water required the highest labors (34 man-day/ha) in manual weed control and man-days/ha in manual weeding reduced by 21%, 18% and 35% in the plots having herbicide broadcast by mixing with fertilizer, broadcast by mixing with sand and spay by mixing with clean water, respectively in comparison to plots received PRE application with irrigation water. Grain yields were similar (6.3 – 6.5 t ha-1) in the plots having herbicide broadcast by mixing with fertilizer, broadcast

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