

RICE FARMING SYSTEMS AT IRRI

Introduction

Rice farming studies at IRRI are examining different ways of growing rice and their impact on resource use. Six different management strategies are being compared during both the wet and dry seasons for three years beginning in 2002. All inputs such as water, labor, fuel, seed, fertilizer, and pesticides are recorded and crop production parameters measured. These studies are being undertaken in large replicated fields (0.125 ha/treatment). The mean results for the last three seasons are:

1. Puddled and transplanted

- Good yields (3.27 t/ha)
- Lowest labor requirement (338 hrs)
- Medium seed rate (40 kg/ha)
- Low number of seedling replacement
- Good water use efficiency (5142 l/kg)
- Highest machine use (12.6 hrs/ha)
- Lowest N fertilizer use (89 kg/ha)

Comments: Least weed problems



4. System of Rice Intensification (SRI)

- Low yields (2.21 t/ha)
- Highest labor requirement (799 hrs/ha)
- Low seed requirement (8 kg/ha)
- Very high re planting
- Low water use efficiency (6777 l/kg)
- Medium-high machine use (9.2 hrs/ha)
- Fertilizer use (10 t/ha animal manure)

Comments: Low number panicles produced and N deficiency at panicle initiation



2. Puddled and broadcast

- Highest yields (3.53 t/ha)
- Medium labor requirement (555 hrs/ha)
- High seed rate (80 kg/ha)
- Medium amount seedling re arranging
- Best water use efficiency (5066 l/kg)
- High machine use (11.4 hrs/ha)
- Medium N fertilizer (99 kg/ha)

Comments: High labor use for weeding



5. Beds

- Low yields (2.12 t/ha)
- Labor requirement (715 hrs/ha)
- High seed rate (80 kg/ha)
- Little seedling re arranging
- Low water use efficiency (7175 l/kg)
- Medium machine use (8.5 hrs/ha)
- Medium N fertilizer use (93 kg/ha)

Comments: Problems of closing over between beds and bed forming in wet



3. Dry prepared and dry planted

- Medium-good yields (3.13 t/ha)
- Labor requirement (484 hrs/ha)
- High seed rate (80 kg/ha)
- Little seedling re arranging
- Low water use efficiency (7175 l/kg)
- Medium machine use (6.9 hrs/ha)
- Medium N fertilizer use (101 kg/ha)

Comments: High water use and weed problems



6. Zero till

- Medium yields (3.15 t/ha)
- Low labor requirement (464 hrs/ha)
- High seed rate (80 kg/ha)
- Some seedling re arranging
- Medium water use efficiency (6340 l/kg)
- Low machine use (5.0 hrs/ha)
- Highest N fertilizer use (112 kg/ha)

Comments: High fertilizer use and low water use efficiency



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