



Rice Varieties Suitable for Machine Transplanting in Rajanganaya

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1 INTRODUCTION

The yield performance of lowland rice varieties depends on the method of crop establishment. However, yield of transplanted rice is generally believed to be higher than that of dry-seeded rice (Balasubramanian *et al.*, 2003). Broadcasting is the most widely practiced establishment method by Sri Lankan paddy farmers. Under Korea Project on International Agriculture (KOPIA) and Yaya II program launched by Department of Agriculture, Sri Lanka machine transplanting method of crop establishment was introduced to farmers. Under KOPIA project farmers of Yaya 09 tract, Rajanganaya were encouraged to practice machine transplanting. At the time of introduction of machine transplanter to Sri Lanka no research studies have been done on machine transplanting in Sri Lanka. Thus, there was a necessity to evaluate how different rice varieties perform under machine transplanted conditions. A study was conducted to show how different rice varieties perform under machine transplanting establishment methods. The problem with the transplanting machine at the moment is its inter-row spacing of 30cm which is a fixed value. Due to this wider spacing only varieties enabling to cover ground by faster tillering are suitable for machine transplanting method of establishment. Among those faster

tillering varieties, varieties showing number of filled grains can give a higher yield at the end.

2 METHODOLOGY

A farmers' field experiment adopting RCBD with 03 replicates was conducted in Rajanganaya KOPIA Project site during the *Maha* 2015/2016 and *Yala* 2016 season. 06 varieties were tested namely BW367, AT362, BG359, BG310, BG360 and BG370. Plot size was 18m² (3mx 6m).

Machine transplanting method of crop establishment was adopted (Spacing = 30 cm x 15 cm, Depth of planting= 1.5 cm, No. of plants per hill =05 seedlings). All crop management practices were done according to the recommendations of Department of Agriculture, Sri Lanka. Herbicide; Pretilachlor 170 g/L + Propanil 300 g/L EC were sprayed at the rate of 2l/ha within 6-10 days after establishment. Only grain yields were recorded during *Maha* 2015/2016 season. Total number of tillers, number of productive tillers, number of filled grains, number of unfilled grains and final grain yield were recorded during *Yala* 2016 season.

Data was analyzed adopting GLM using SAS Software package. Counts data were square root transformed prior to SAS analysis.



Table 1: Attributes of tested rice varieties (Source: RRDI, Batalagoda)

Variety	Age (days)	Yield Potential (t/ha)	Grain Type	Special Characteristics
<i>Bg310</i>	92	7	White Intermediate Bold	Salinity Tolerant, Medium Resistant to Brown Plant Hopper and Rice Blast
<i>Bg359</i>	105	7	White Intermediate Bold	Iron Toxicity Tolerant, Medium Resistant to Brown Plant Hopper and Rice Blast
<i>Bg360</i>	105	6.5	White Short Round	Medium Resistant to Brown Plant Hopper and Rice Gall Midge
<i>At362</i>	105	10	Red Long Medium	Medium Resistant to Brown Plant Hopper Resistant to Rice Blast
<i>Bw367</i>	105	7.4	White Short Round	Iron Toxicity Tolerant, Medium Resistant to Brown Plant Hopper, Rice Blast and Rice Gall Midge
<i>Bg370</i>	99	7.5	White Short Round	Resistant to Brown Plant Hopper and Rice Blast

3 RESULTS AND DISCUSSION

Bw367 showed the highest grain yield of 10.53 and 7.70t/ha during *Maha* 2015/2016 and *Yala* 2016 respectively. The yield of BW367 was comparable with AT362 during *Maha* 2015/2016 season.

The yield of BW367 was comparable with the grain yields of AT362, BG359 and BG370 during *Yala* 2016. BW367 showed the highest number of filled grains per panicle.



Table 2: Number of Tillers, Number of Productive Tillers, Number of Filled Grains, Number of Un-filled Grains and Final Grain Yield of Different Establishment Methods

Treatment	No. of Tillers (yala2016)	No. of Productive Tillers (yala2016)	No. of Filled Grains per panicle (yala2016)	No. of Un-filled Grains per panicle (yala2016)	Grain yield (t/ha)	
					maha 2015/16	yala 2016
Bw367	15 ab	15 a	302 a	47 a	10.53 a	7.70 a
At362	14 ab	13 a	131 ab	37 ab	9.56 a	6.09 ab
Bg359	17 ab	17 a	137 b	32 ab	8.92 b	7.04 ab
Bg310	12 b	11 a	170 ab	21 b	8.66 b	5.70 b
Bg360	18 a	17 a	201 b	27 b	7.43 c	5.91 b
Bg370	13 ab	12 a	241 ab	32 ab	7.06 c	6.37 ab
CV	20.25	20.93	35.44	42.90	5.5	6.92

** Means within same column with the same letter are not significantly different ($\alpha=0.05$)

4 CONCLUSIONS

BW367, AT362, BG359 and BG370 were better varieties to be grown in machine transplanter in the Rajanganaya area.

Acknowledgements

Authors wish to acknowledge: Dr. A.P. Bentota, Director (Rice Research and Development), Ms. A.S.K. Abeysekara, Assistant Director of Agriculture (Research); KOPIA Sri Lanka Centre for financial support given to conduct this experiment; all breeders of tested varieties of this study.

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