

EFFECT OF SEEDING RATE AND ROW SEEDING DISTANCES ON THE GROWTH AND DEVELOPMENT OF RICE (*Oryza sativa* L.)

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Recommendation on broadcasting with low seeding rate and row seeding practice was launched to save seed, and to remain higher yield as compared to broadcasting with high seed rate. However, application row seeding with different distances are not well studied yet so far. Therefore, this experiment was carried out in 2009 Dong Xuan season at Cuu Long Delta Rice Research Institute to contribute more scientific data base on direct seeding in rice production. The experiment aimed at examining the effect of different row seeder tools with different row distance treatments and their effect on the growth and rice grain yield. The results showed that rice yield in check plot was the lowest with 4.76 T/ha, whereas, the row seeding

treatments obtained higher yield than check without statistical significance (ranging from 5.13 T/ha to 5.50 T/ha). Row seeding with wider distance (T3-RS, 18cm, 100kg/ha) obtained the highest yield and overyielded 740 kg/ha as compared to broadcasting check. The grain yields of other treatments were lower than the T3-RS by thicker distances (T2-RS) and T1-RS as 540 kg / ha and 370 kg/ha, respectively. Application of row seeding, farmers can gain more profit as compare to broadcasting one. In the row seeding with different distances, the treatment T3-RS exhibited the highest profit, then followed by treatment T2-RS, and T1-RS with VND 4,230,000 /ha, VND 3,330,000 /ha, and VND 2,565,000/ha, respectively.

Table 1: Experimental treatments

Sign of the treatments	Name of the treatment, row space, and seeding rate (kg/ha)
T1	Row seeding, 10cm, 100 kg/ha
T2	Row seeding, 14cm, 100 kg/ha
T3	Row seeding, 18cm, 100 kg/ha
T4	Broadcasting, check, 200 kg/ha

Note: Row seeding = RS, Broadcasting = B

Table 2: Effect of row distances and seeding rates on the growth of rice plant

Treatments	Plant height (cm)			Number of tillers/m ²		Number of leaves /m ²	
	30 DAS	60 DAS	90 DAS	30 DAS	60 DAS	30 DAS	60 DAS
T1-RS,10cm, 100kg/ha	70.2	103.3	106.0	390.7	352.7	1446.7	1827.3
T2-RS,14cm, 100kg/ha	67.4	101.6	105.0	256.7	298.7	1018.7	1290.7
T3-RS,18cm, 100kg/ha	67.8	103.3	105.1	248.0	342.0	899.3	1375.3
T4-B,check, 200kg/ha	71.4	95.2	100.9	434.7	403.3	1650.7	2008.7
SE (N=4)	1.57	2.43	1.41	37.39	14.63	185.12	87.75
5% LSD 6 DF	3.48	8.39	4.87	129.02	50.62	640.35	303.55
CV (%)	2.5	4.2	2.3	19.4	7.3	25.8	9.4

Note:DAS = Day after sowing



Table 3. Effect of row seeding distances and seeding rates on the rice yield and yield components

Treatments	Number of panicles /m ²	Panicle height (cm)	Number of filled grains/ panicle	Percentage of unfilled grains (%)	1,000-grain weight (gr)	Yield (T/ha)	Extra yield compared to check
T1-RS,10cm, 100kg/ha	360.8	22.8	208.1	31.5	25.5	5.13	0.37
T2-RS,14cm, 100kg/ha	308.3	24.4	225.9	30.5	25.4	5.30	0.54
T3-RS,18cm, 100kg/ha	373.3	24.3	232.4	30.1	25.1	5.50	0.74
T4-B,check, 200kg/ha	464.2	22.0	188.8	27.3	25.9	4.76	-
SE (N=4)	36.09	0.59	19.80	3.15	0.18	0.45	-
5% LSD 6 DF	124.85	2.05	68.50	10.89	0.61	1.56	-
CV (%)	16.6	4.4	16.0	18.3	1.2	15.1	-

Table 4: Economic efficiency per ha applying row seeding with different distances and seeding rates

Treatments	Amount of seed saving compared to check (Kg)	Money saving due to reduce seeds (VND)	Profits from extra yield compared to check (VND)	Total extra profits/ha (VND)
T1-RS,10cm, 100kg/ha	100	900.000	1,665,000	2,565,000
T2-RS,14cm, 100kg/ha	100	900.000	2,430,000	3,330,000
T3-RS,18cm, 100kg/ha	100	900.000	3,330,000	4,230,000
T4-B,check, 200kg/ha	0	0	-	-

Note: Market price in May, 2010:

- Price of certificated seed = VND 9,000 /Kg
- Price of paddy rice = VND 4,500 /Kg