The Andhra Agric. J 64 (1): 217-218, 2017

On Farm Trial on Cost Reduction Production Technologies of Paddy in Andhra Pradesh

B Mukunda Rao and G Ramesh
Department of Agricultural Extension, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

An on-farm trial was conducted in Prakasam district of Andhra Pradesh during 2012-13.to evaluate the performance of paddy under machine transplanting and drum seeding method and performance was compared over manual planting. Among the three rice production technologies analyzed, the number of productive tillers per square meter was highest in machine planting (30) followed by drum seeding (26.5) and manual planting (21.5).But the per hectare yield was found to be highest in drum seeding (9710 kg ha^{1}) followed by machine planting (9600 kg ha^{1}) and manual planting (8250 kg ha^{1}) The cost of cultivation, net returns and B: C ratio were maximum in drum seeding method.

Key words: *Drum seeding, Machine planting, Manual planting, On farm trail.*

Rice (*Oryza Sativa)* is the second highest produced grain in the world after corn (maize). India ranks second world-wide in the production of rice, after China, with a share of 22 per cent of the total world rice production. However, Indian productivity is lower than that of many other nations of the world. The area under rice in 2008 was 45.54 million hectares, with a production of 99.18 million tones and productivity rate of 2178 kg/ha. In India, the major rice producing states are West Bengal Andhra Pradesh, Punjab, Uttar Pradesh, Tamil Nadu, Karnataka, Chhattisgarh, and Orissa. In Andhra Pradesh it is being grown annually on an area of 24.55 lakh ha., with a production of 76.05 lakh tones.

Manual planting is highly labour intensive and drudgery. Scarcity of labour and their higher wages adversely affects timely transplantation and optimum plant population per square meter cannot be maintained due to human errors. In addition to this, there is a problem with late release of canal water, which leads to delay in growing of paddy crop. In this context there is a need for evaluation and popularization of cost effective and less water use rice production technologies like machine planter and drum seeder. Hence,the present on-farm trial was conducted with an objective of evaluating the performance of machine planter and drum seeder in comparison to manual planting.

MATERIAL AND METHODS

An on-farm trial was conducted in Prakasam district of Andhra Pradesh during 2012-13.to evaluate the performance of paddy under machine transplanting and drum seeding method and performance was compared over manual planting. The trial soil was sandy loam in texture and low in organic carbon. The soil under study was low in available nitrogen and medium in available phosphorus and potassium. The Yanmar transplanter was used for transplanting. It plants eight rows at a time at an adjustable spacing of 30 X 13/14/15/18/21cm and can cover one acre area in 60 to 80 min. Drum seeder is manually drawn implement developed by International Rice Research Institute, Philippines for line sowing of pre-germinated paddy. This manually drawn drum seeder covers eight rows of 20 cm space in between the lines at a time. While using the machine the maintenance of thin water level is most important for good establishment of rice seedlings. Drum seeder was used for line sowing of pre-germinated paddy after thorough puddling and leveling of main field. A thin film of water was maintained as required by the crop. The recommended practices like application of fertilizers and pesticides were done as per the recommendation. The observations on growth, yield attributes and yield were recorded.

Table 1. Seed yield and economics of paddy with machine transplanting, drum seeding against manual planting.

S. No	Parameter	Machine planting	Drum seeder sowing	Manual planting
1	Number of hills per square meter	24	37	27
2	Number of tillers per hill	32.52	29.5	25.5
3	Number of productive tillers per hill	30	26.5	21.5
4	Grain yield (Kg /ha)	9600	9710	8250
5	Gross income (Rs/ha)	147168	148854	126472
6	Cost of cultivation(Rs/ha)	51450	50050	61200
7	Net income (Rs/ha)	95718	98804	65272
8	Benefit cost ratio (B:C ratio)	2.86	2.97	2.07
9	Per cent increase or decrease	+16.36	+17.67	

RESULTS AND DISCUSSION

The maximum number of hills per square meter was recorded in drum seeder sowing (37),followed by manual planting(27) and machine planting(24).Machine planting method recorded maximum number of tillers per hill (32.52) followed by drum seeder sowing(29.5) and manual planting(25.5).(Table 1).

The maximum number of productive tillers per hill (30) recorded in machine planting and minimum in manual planting (21.5). The economic analysis of various parameters revealed that grain yield was highest in drum seeder sowing (9710kg / ha) followed by machine planting (9600 kg / ha) and manual planting (8250 kg /ha).The results also revealed that the manual planting was most expensive over the machine planting and drum seeder sowing. The total cost of cultivation was Rs 61200 in manual planting followed by Rs 51450 in machine planting and Rs 50050 in direct sowing. But, the net income was maximum in drum seeder sowing (Rs 98804) followed by machine Planting (Rs 95718) and manual planting (Rs 65272). Due to realization of maximum net returns with drum seeder sowing, the benefit cost ratio was high (1:2.97) with drum seeder sowing method. Direct seeded paddy with drum seeder under puddled conditions gave increased grain yield by 17.67 per cent as compared to manual planting and also it furnishes highest net return and benefit cost ratio. Similar findings were reported by Halder and Patra (2007) and Jagadeesha et al.,(2009). The results also indicated that machine planting gave 16.36 per cent higher yield compared to manual planting. These findings were consistent with those reported by Venkateswrlu et al.,(2011).

The present study revealed that out of three methods of planting of paddy, the drum seeding method of planting showed encouraging results compared to machine planting and manual planting. In addition, use of drum seeder facilitates for timely sowing of paddy crop and also crop matures one week early so that timely sowing of second crop is feasible. Hence, the Department of Agriculture and State Agricultural Universities have to conduct more on-farm trials on drum seeding for creation of awareness and thereby adoption of drum seeding method of planting of paddy.

LITERATURE CITED

Halder J and Patra A K 2007 Performance of 8 – row drum seeder in direct seeded paddy under puddled condition. Indian Journal of Agricultural Sciences (77) 12: 819-901

Jagadeesha N,Seshadri T,ShetRatnakar Manjunath, Girish C and Umesha MR 2009 Growth and yield of drum seeded paddy as influenced by different weed management practices .Environment and Ecology. 27:898-901

Venkateswrlu E, Sambasivarao N and Ramaprasad D 2011 On farm evaluation of Mechanical transplanting of Rice (Oryza sativa L) against traditional method.

(Received on 17.12.2015 and revised on 22.12.2015)