On Farm Testing of MTU 1212, a high yielding,nitrogen responsive Rice variety in West Godavari district of Andhra Pradesh

Abstract: ~~KrishiVigyan Kendra, Undi has~~ conductedOn Farm Testing (OFT)on rice MTU 1212 variety in three different locations during Kharif season for two consecutive years to find out the performance of rice variety MTU 1212 on yield and economics of rice. The higher yield i.e., 7669, 7574 kg/ha was noticed with MTU 1212 rice variety as compared to MTU 7029 (6607 and 6625 kg/ha) during both the years of experimentation. Net returns and B:C ratio were higher with MTU 1212 rice variety (Rs. 84,343, 95,090 and 89,717/ha) when compared to farmers practice (Rs. 60,246, 71,603 and 65,925/ha) during 2022-23, 2023-24 and in pooled data, respectively.

Keywords: Rice, MTU 1212, Nitrogen responsive, Non lodging, Net returns and Yield

Introduction: Rice is the most important staple food for more than half of the population in the world particularly in developing countries [1]. Hence, rice production and productivity increase are important for ensuring food security, reducing hunger and a vital prerequisite to sustainable economic growth [6].

In India during KharifRice crop occupies an area of 404 lakh ha with a production of 1105 lakh T and productivity of 2735 kg/ha. Whereas in Andhra Pradesh, it grows in an area of 14.52 lakh ha with a production of 49.86 lakh T and productivity of 3434 kg/ha [5]

A number of technologies have been identified as potential for increasing rice yield including high-yielding rice varieties, efficient agronomic management techniques, enhancing nutrient and water availability and controlling weeds [4]. Among these technologies improved or high-yielding varieties [3] is a particularly successful intervention used to increase yields.

In West Godavari district, paddy is the major crop grown during Kharif with an area of 84,891 ha, production and productivity of 4.2 lakh T, 5002 kg/ha, respectively [7].

MTU 7029 is the most popularly grown variety duringKharif, which is medium duration i.e, 145-150 days, medium slender, brown glume and nitrogen responsive variety. Due to continuous cultivation of this variety over three decades it has become susceptible to pest and diseases in general. Due to its susceptibility pest and diseases cultivation accrued in low yields and low net returns to the farmers besides crop lodging before harvest creating problem in harvesting, increasing cost of cultivation and grain quality was also reduced.

Farmers are not aware of newly released and improved varieties. KVK's are the grass root level organization meant for application of technology through assessment, refinement and demonstration of proven technology under micro farming situation in a district [2].

Hence, KVK has conducted OFT on MTU 1212 rice, a high yielding, nitrogen responsive, medium duration kharif variety in farmers fields of West Godavari district.With this

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background, the present investigation was undertaken with the specific objectives to assess the performance of MTU 1212 rice in terms of grain yield and economic gains by the farmers of West Godavari district.

Materials and Methods:

KrishiVigyan Kendra, (KVK)Undihas carried out assessment on performance of rice variety MTU 1212 through on farm trials in West Godavari district during Kharif season for two consecutive years i.e., 2022 and 2023. Trial was conducted in 03 locations every year thus making a total of 06 demonstrations in farmers fields of Gumparru, Chinnamvaripalem, Navuduru and N.R.P agraharam villages. Each OFT plot was in 0.2 ha. Existing farmers practice is growing of traditional variety MTU 7029. While MTU 1212 rice variety (medium slender, non lodging, moderately resistant to leaf blast, sheath blight, sheath rot and BLB and nitrogen responsive) was displayed in demo plot.A total of six farmers were selected based on their innovativeness, progressive and activeness in adoption of latest technologies with the help of department officials and direct observation during field visits and interactive meetings. Trainings to farmers, Field days and group meetings were also organized on improved variety and good agricultural practices in rice crop to provide the opportunities for other farmers to witness the benefits of demonstrated technologies. The KVK Scientists used to visit to the demonstrations plots and farmer's plot (control) on regular basis for close supervision and data collection during the entire process of demonstration programme. During two years apart from yield data, economics were also recorded from assessment plots and control plot separately at the time of harvest.Collected data during two years is analyzed using descriptive statistics and ANOVA and the results were concluded at the respective levels of significances.

Results and Discussion:

Yield: MTU 1212 rice variety recorded significantly higher yield i.e., 7669, 7574 kg/ha (Table 1) as compared to MTU 7029 variety (6607 and 6625 kg/ha) during Kharif, 2022 and 2023, respectively. Less pest and disease incidence, more number of filled grains/panicle might be the reason for increased yield in MTU 1212 rice variety.

No. of filled grains/panicle: The higher filled grain number/panicle was registered with MTU 1212 rice variety (240 and 232) over farmers practice i.e., 189 and 192 during Kharif 2022 and 2023, respectively.

Table 1: Performance of rice varieties in farmers fields of West Godavari district during Kharif 2022 and 2023.

Year	Yield (Kg/ha)		No. of filled grains/panice		Net Returns (Rs./ha)		B:C ratio	
	MTU 1212	MTU 7029	MTU 1212	MTU 7029	MTU 1212	MTU 7029	MTU 1212	MTU 7029

2022	7669	6607	240	189	84,343	60,246	2.16	1.8
2023	7574	6625	232	192	95,090	71,603	2.35	2.01
Pooled	7621.5	6616	236	191	89,717	65,925	2.255	1.905

Table 2: Data analysis for yield and Net returns

	Yield		Net returns	
Particulars	P Value	F Value	P Value	F Value
Varieties	0.036*	161.45	0.008**	161.45

*and ** indicates significant at 5 and 1 percent level

Net Returns and B:C ratio: Data furnished in Table 1 clearly indicated that the higher net returns and B:C ratio (Rs. 84,343, 95,090 and 89,717/ha) were recorded with MTU 1212 rice variety when compared to farmers practice (Rs. 60,246, 71,603 and 65,925/ha) during 2022-23, 2023-24 and in pooled data, respectively. MTU 1212 demo plot variety recorded higher Benefit Cost ratio of 2.16, 2.35 and 2.25 compared to MTU 7029 1.8, 2.01 and 1.90 during both the years of study and pooled data as well. The higher net returns and B:C ratio in MTU 1212 plot were might be due to due to increase in yield and price of the produce. Whereas in MTU 7029 the decrease in net returns and B:C ratio was owing to Crop lodging, blast incidence and reduced grain quality and less yield.

Conclusion: Based on the study, it can be concluded that MTU 1212 rice variety is performing well in farmers fields of West Godavari district under On Farm Trials in terms of yield, net returns and farmers got high Benefit cost ratio besides overcome the problem of lodging compared to MTU 7029, which is susceptible to blast and lodged before harvest.

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