Pakistan Journal of Applied Sciences 2(7):768-769, 2002

Effect of Sesbania Rostrata (DHAINCHA) Green Manure on the Yield of Rice .

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Abstract: A field experiment was conducted in Randomized Complete Block Design with six replication on rice variety DR-82 at Agriculture Research Institute Dokri. It is clear that best result of paddy grain yield 11.05 kg/plot, 5525 kg/ha depicted T2 (Transplanting with green manuring with fertilizer rate 90-60-0 kg/ha). Where as lowest yield was obtained in T4 (Transplanting without fertilizer and green manuring).

Key Words: Green Manure (DHAINCHA), Rice Vriety DR-82, yield

Introduction

Rice Oryza Sativa L. belongs to family gramineae. It is staple food for 60% of main kind. Rice is most important agricultural commodity in Asia and basic food for almost more than half of the world (Khuhro, 1998). Rice is grown from latitudes of 55 degrees north to 55 degrees south and from see level to latitude of 3,000m. It is grown by either seed broad casting, drilling or transplanting (Pathak and Saxena, 1976). Rice is water loving plant, it self under an annual rainfall ranging from 1000 to 1500m or even more. Rice is essentially short day plant. The husked rice contain carbohydrates 77.2 %, protein 8.9 %, fat 2 %, except carbohydrate all the value found to be reduced after milling of rice (Singh, 1988). Rice starch is used as basic in the manufacture of powder, it is also used for starching clothes and husks are used as fuel in bricks clines. Rice straw commodity used for cattle, roughage for donkeys and litter in poultry farms in packing material and manufactures of straw broads. Some time it is also used for making of hats and baskets (Abro, 1997). Rice is an important commodity for earning foreign exchange. It has been estimated that about 18-20 % of total foreign exchange is earned from export of surplus quantity of rice after meeting our local requirement (Anonymous, 1999). In Pakistan last two decades, organic manure took back seat in the favour of inorganic fertilizers. As an alternative to in organic fertilizers organic manures like farm yard manure (FYM) and green manure are commonly used. When FYM is limited, green manure is the cheapest and best source of organic matter, the use of green manure increase the water holding capacity of soil. It improves water permeability and soil tilth. Green manure reduce the leaching of mineral nutrients and increase the yield of crop (Bhutti and Soomro, 1994) the financial losses of crop in which Sesbania could play vital role as substitute crop to be used as green manure to maintain productivity. The present study lies useful information on the green manuring for rice varieties.

Material and Methods

The research was taken in hand to study the effect of Dhaincha on rice variety DR-82. Research was conducted at Research Institute Dokri during 1996-97, the experiment was conducted in RCBD with six replication and four treatments having plot size 5x4m^2 (20m^2) the detail of treatments as under.

Variety = 01
V1 = DR-82
Treatments = 4

Treatments	N-		P_2O_5		kg/ha
T1 =	0	-	0	+	(G.M. only)
T2 =	90	-	60	+	G.M
T3 =	135	-	67	+	No. G.M
T4 =	0	-	0	+	No. G.M

The Dhaincha was grown on 1st week of May at rate of 40 kg/ha through broad casting. After 60 days it was burried in the soil with two rotavator. Behind rotavator operation the field was flooded 20 days for decomposition of Dhaincha with soil, after four month rice variety DR-82 was transplanted with space of 20 cm apart. Total phosphatic fertilizer with 1/3 nitrogen dose was applied as based dose; remaining nitrogen was applied in two equal splits at 30 and 60 day of planting. All the cultural practices were received in uniform recommendation.

Results and Discussion

The research work was carried out to determine the effect of (DHAINCHA) green manure on the yield of rice variety DR-82, the maximum paddy yield 11.05 kg (5525 kg/ha) was obtained in T2 (90-60 kg/ha + green manure) followed by 9.83 (4915 kg/ha and 8.33 kg/plot (4165 kg/ha) observed in treatments T1 and T3 135-67 without green manure, where as T1 only green manure applied without application of in organic fertilizer. The minimum yield 8.00 kg/plot (4000 kg/ha) paddy grain yield was observed in control the findings are supported by Chatterjee *et al.* (1979) reported that green manure of Sesbania and Ipomea, applied before transplanting of rice FYM released more nitrogen yield of rice increase 40 kg/ha. Bery and Meelu, (1981) stated that burying of Sesbania one day before transplanting rice gave significantly more yield than interval of 1-2 weeks. Bhardwaj *et al.* (1981) studied the use of green manure like Sesbania, sun hemp and I pomea may obtained maximum rice yield by green manuring than applying 60 kg/ha fertilizer. Bin,(1983) indicated that the Sesbania

Table: Mean Yield kg/plot/ha (paddy) as Affected by (DHAINCHA) Green Manure on Rice Variety DR-82

Treatment	I	II	III	IV	V	VI	Mean
T1	7.00	9.00	10.00	8.00	7.00	9.00	8.33
T2	10.50	11.50	11.00	11.30	10.50	11.50	11.05
T3	11.00	10.00	9.00	10.00	8.00	11.00	9.83
T4	9.00	7.00	9.00	8.00	7.00	8.00	8.00

S.E = 0.506, Cd i = 1.07, Cd ii = 1.49.

spp grown alone for one season result more yield obtained rice crop. Jia Bing *et al.* (1986) suggested that incorporating Sesbania not only increase organic matter and other nutrients. It improves quality of soil matter. It can increase rice yield 345-967 kg/ha. Swarup, (1986) applied green manure in initial stage that the yield was increase positively, Singhabutra *et al.* (1987) conducted field experiment on four species of Sesbania they resulted that yield of rice increased from 0.2 to 0.09 % respectively. Pandeey (1991) conducted trial on green manure. He stated that Sesbania is the ideal green manure crop it is easy to corporate with soil, obtain more yield. Chenlizhi (1994) stated that Sesbania is important green manure crop it increase organic matter and soil tilth and yield of rice crop.

References

Abro. M.B., 1997. Effect of Green Manure on Rice Crop. M.sc Thesis Submitted Central Library Sindh Agri. Uni. Tando Jam. 03.

Anonymous, 1999. Monthly Statistical Bhulletui, Federal Bureau of Statisties, Islamabad Pakistan. 44:9-10.

Bery.V and O.P. Meelu. 1981. Substitution of Nitrogen Through Green Manure in Rice. Ind. Farm. 31: 3-4

Bhardwaj, S.P, S.N.Parsad and G. Suigh, 1981. Economizing N by Green Manure in Rice Wheat Rotation. Ind.h. Agri. Sci. 51:86-90

Bhatti, I.M and A.H. Soomro, 1994. Agricultural Inputs and Field Crop Production in Sindh. 33-34

Bin, J., 1983. Utilization of Green Manure for Raising Soil Fertility in China Soil Sci: China. 5:65-69.

Chatterjee, B.N, K. H. Suigh, A Polands Math- 1979. Organic Manure as Substitutes for Chemical Fertilizers on High Yielding Rice Varieties. Ind. J.agri: Sci: 46:436-438.

Chenlizhi, 1994. Use of Green Manure in China as Agricultural System Commercialize Green Manure Production System for Asian Rice Lands. 48

Jia. Bing, Gu Rougshing and Zhang Xueshany, 1996. Chinese Green Manure Chinese Agri: J. 18:2.3

Khuhro, G.A., 1998. Effect of Methods and Time of Threshing on Grain Losses and Milling Recovery of Irri-6 Variety of Rice. Pak.J. Agri: Agri: Engg: vet: Sci: 4:41-46

Pandeey, R.K., 1991. A Primer on Organic Based Rice Farming Pub by Irri, Phillí Pp Ines. 41-43.

Pathak, M.D and R.C. Saxena, 1976. Insect Resistant in Crop Plant. Curr. Adv. Plant Sci: 8:1233-1252.

Singh, S.S., 1988. Crop Management under Irrigated and Rain Fed Conditions. 135

Singhabutra, N.T, S.Arumin and Y.Anuluatipan, 1987. Experiment on Two Rizobium Strain for Inoculation in to Sesbania Spp, Uses Green Manure. Paper Presented at 25th Annual Technical Meeting Bangkok. 25

Swarup, A., 1986. Effect of Pre Transplanting Sub Emergence and Green Manure on Yield of Rice. Rice Res: Newslett. 11:39.