

## Growth Response of Rice Variety DR-82 as Influenced by Green Manure (DHAINCHA)

<sup>1</sup>M. B. Abro, <sup>1</sup>Z. A. Abbasi, <sup>1</sup>S. A. Maitlo, <sup>2</sup>N. D. Maitlo, <sup>1</sup>A.G. Bhatti and <sup>1</sup>N. A. Panhwar  
<sup>1</sup>Deptment of Agronomy, Z. A. Bhutto Agricultural College Dokri, Sindh, Pakistan  
<sup>2</sup>Rice Research Institute Dokri, Sindh, Pakistan

**Abstract:** The experiment was conducted to see the influence of green manure on the growth of rice variety DR-82, at Agriculture Research Institute Dokri, Four treatments were tried in six replicated randomized complete design. The best result for plant height (cm) and number of tillers / plant recorded under T<sub>2</sub> (green manuring with fertilizer rate 90-60 NP kg/ha). Where as maximum panicle length (cm) were indicated in T<sub>3</sub> (Transplanting with fertilizer rate 135-67 NP kg/ha) only. All the minimum results were depicted in T<sub>4</sub> (control).

**Key Words:** Green Manure, Growth, Rice Variety DR-82

### Introduction

Rice *Oryza sativa* belongs to family Gramineae plays an important role as a cereal crop. The country of its origin can not be ascertained but, the available evidence clearly shows that it has got its origin from South East Asia and from there it spread towards North Asia, including India and Pakistan (Chang, 1976). Rice feeds more people than any other food crop in the world. At least 50 percent of the world's population gets 60 percent of their energy from rice, so that about 30 percent of all human energy comes from the rice plant (Mangelsdorf 1997). Mostly rice are grown in the warm and humid tropics with latitudes of 55 °C North to 55 °C South temperature is the major factor in rice cultivation. The optimum temperature is about 30 °C, but 20 °C particularly in flowering stage (Saxena and Pathak, 1996). Starch of rice is used as manufacture of powder, Rice husk were used with mud as building material for the purpose of plastering (Kumar and Tuktuk, 1988). Husk is being used chiefly as a boiler fuel, bran as animal feed and broken rice either as part of animal feed or particularly in the diet of poor people. Better utilization of these products, both for industrial and feed purposes are possible. The husk ash has a poor texture obtained as a fully burnt white ash. It can be used for in industrial purposes. A certain quantity has been exported from the country for manufacture of refractory bricks. It is also source of silica for glass manufacture. Particularly burned black ash has been used as a soil conditioner for the treatment of alkaline soils (Desikachar, 1985). Increasing population causing continuous pressure on agricultural land. To improve land use efficiency per hectare production must be increased. At the same time soil fertility and maintenance of soil productivity have to be considered. Green manuring is an old age practice adopted to improve the fertility of soil. The crop preferred for this purpose is DHAINCHA. The green manure supply good amount of nitrogen (Bhatti and Soomro, 1994). Green manure improves properties of soil and recycles nutrients. DHAINCHA plays vital role to be used as green manure to maintain fertility. The present experiment shows that the yield per hectare traditionally have been below. The high yield will be obtained due to the application of optimum amount of fertilizer with addition of green manure.

### Material and Methods

An investigation to study the influence of (DHAINCHA) green manure on the growth of rice variety DR-82, was conducted during the year 1998 at Rice Research Institute Dokri, the experiment was laid out in randomized complete block system With six replication and four treatment having the plot size of 5 x 4m<sup>2</sup>. Treatments as under study were.

Variety= 01

V1= DR-82

Treatments: 4

	N	P <sub>2</sub> O <sub>5</sub> kg/ha
T1	0	0+G. M. only
T2	90	60+G. M. only
T3	135	67+No G. M. only
T4	0	0+No G. M. only

The DHAINCHA was grown on 1st week of May 1998 through broad casting. After 68 days it was buried in the soil with two disc plough. However three irrigation with the intervals of 20 days were applied. After ploughing operation field was flooded and kept until touched for 21 days for decomposition of DHAINCHA in to soil. The land was prepared according to Agronomic recommendations. Total phosphatic fertilizer and 1/3 nitrogen was applied at initial stage, remaining nitrogen was applied in two equal split applied after 30 and 60 days. All the cultural practices and treatments received uniform practices.

### Result and Discussion

The results for the influence of (DHAINCHA) green manure on the growth of rice variety DR-82. The maximum plant height (115.69 cm) was recorded in T<sub>2</sub> (90 + 60 kg / ha with green manure) followed by 108.28 and 107.84 cm under T<sub>3</sub> and T<sub>1</sub>. The lowest plant height (99.05 cm) was recorded in T<sub>4</sub> (control). The data further showed that the maximum number of tillers (27.43) observed in T<sub>2</sub>, followed by 19.05 and 18.37 cm were depicted in T<sub>1</sub> and T<sub>3</sub> respectively. The lowest number of tillers 18.13 of rice was recorded in control condition. The result further showed that the maximum panicle length was investigated (26.39 cm) in T<sub>3</sub> (135 + 67 kg/ha + No G.M). Where T<sub>2</sub> and T<sub>1</sub> were

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**Table 1: Plant Height (cm) as Influenced by (DHAINCHA) G.M on Rice Variety DR-82**

Treatments	I	II	III	IV	V	VI	Mean
T <sub>1</sub>	105.20	110.30	109.20	107.80	105.85	108.70	107.84
T <sub>2</sub>	115.20	114.15	116.00	117.05	116.00	115.30	115.69
T <sub>3</sub>	108.30	109.20	107.80	107.50	108.20	109.20	108.28
T <sub>4</sub>	98.50	100.50	99.30	98.30	97.50	100.20	99.05

S.E = 0.74, Cdi = 1.57, CdiI = 2.10

**Table 2: Number of Tillers Per Plant as Influenced by (DHAINCHA) Green Manure on Rice Variety DR-82**

Treatments	I	II	III	IV	V	VI	Mean
T <sub>1</sub>	18.60	18.70	19.20	19.50	10.30	19.00	19.03
T <sub>2</sub>	26.60	27.00	27.50	27.30	28.20	28.00	27.43
T <sub>3</sub>	18.00	18.20	18.90	18.30	18.30	18.50	18.37
T <sub>4</sub>	17.80	18.00	18.50	18.20	18.00	18.30	18.13

S.E = 0.168, Cdi = 0.35, CdiI = 0.49

**Table 3: Panicle Length (cm) as Influenced by (DHAINCHA) Green Manure on Rice Variety DR-82**

Treatments	I	II	III	IV	V	VI	Mean
T <sub>1</sub>	22.30	23.00	23.20	22.80	23.80	23.50	23.13
T <sub>2</sub>	25.40	26.00	26.20	25.80	25.90	26.20	25.91
T <sub>3</sub>	26.44	26.50	26.00	26.20	26.50	26.70	26.39
T <sub>4</sub>	22.50	22.00	21.30	21.50	21.50	21.60	21.73

S.E = 0.213, Cdi = 0.45, CdiI = 0.63

observed with ascending order. The minimum panicle length 21.73 cm was advocated in those plots where no fertilizer none green manuring was done the results were statistically highly significant. These findings fairly confirm the results reported by Ali *et al.* (1993) in the light of present study, it is suggested that green manure with inorganic fertilizer gave positive response in plant height and tillers / plant. Similar results for various characters were reported by several workers. Bui (1983) studied that panicle length and plant height significantly increased with addition of green manure. The result were computed by Chenlizhi (1986) reported that sesbania planted 40 days before the transplanting of rice, maximum plant height and more tillers were recorded.

Evens and Rotar (1987) stated that plant height increased by incorporated (DHAINCHA) at flowering stage. Liu Chungchu (1988) indicated that the maximum plant height, more tillers were obtained incorporated Sesbania in rice field before the transplanting. Pareek, *et al.* (1990) revealed that the rapid growth high nitrogen fixation received from green manure for low land rice farming. Tirol-Padre and Ladha (1990) reported that Sesbania resulted in higher germination rate and maximum plant height. Wood head and Chaudhary (1992) recorded that the green manure crops was incorporated 42 days after sowing adding about 50 kg N/ha. Thus practice resulted plant height, number of tillers and length of panicle increase. Chenlizhi (1994) stated that Sesbania is important summer green manure crop and is usually planted in rice tract. He found that Sesbania increased plant height as well as panicle length. There fore, it should be worth while to incorporated Sesbania in rice tract at flowering stage before 30 days of transplanting gave significant result.

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