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## Testing of Organic fertilizer (Jinong) at Research Centre and farmers field

(Elegant Fashion Fiber Chemicals Ltd., Kanpur)

## Half yearly progress report 2007-2008 (Kharif Season)



**DIRECTORATE OF EXPERIMENT STATION**

**G. B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY,  
PANTNAGAR-263 145 (Uttarakhand)**

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**Project title: "Testing of Organic fertilizer (Jinong) at Research Centre and farmers field"**

**Funding agency: "Elegant Fashion Fiber Chemicals Ltd."**

### **Project Leader**

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### **General Information**

#### **Experiment I.\***

Site : Seed Production Centre, GBPUA&T, Pantnagar  
Variety : Pusa basmati- 1  
Date of sowing : 20-07-2007  
Plot size : 10 m × 7 m  
Replication : Three

\* Experiment was conducted in pure organic mode and *Sesbania* green manuring was done before the transplanting of rice to meet out the nutrient requirement of rice.

#### **Experiment II.\*\***

Farmers Name : Sri. Kunvar Singh  
Site : Village: Behta, Milak. Rampur (U.P.)  
Variety : Srju- 52  
Date of sowing : 26-07-2007  
Plot size : One Acre

\*\* Experiment was conducted with farmer's practice i.e. crop was fertilized with 120 Kg N/ha and 60 Kg P<sub>2</sub>O<sub>5</sub>/ha through urea and DAP and 20 kg ZnSO<sub>4</sub>/ha.

## Treatment details

### Step 1:

Jinong Liq. 750 ml. and Jinong Seaweed 500 g. To be added in the soil for making the soil ready for sowing. It can be mixed with sand for easy spreading.

### Step 2:

Seeds should be dipped in required Jinong water (3 ml Jinong liq. : 1 ltr water ratio) for 2 hrs. before sowing.

### Step 3:

First top dressing with 500 ml Jinong and 250 g seaweed, mixed with sand for easy spreading.

### Step 4:

Second top dressing with 500 ml Jinong mixed with sand for easy spreading.

### Step 5:

Foliar application with 3 ml. Jinong Liq. per liter of water to be mixed and sprayed.

## Experimental Results

Rice crop was grown after the harvest of wheat which was also treated with organic fertilizer Jinong (liquid and seaweed).

### Experiment I: Experiment conducted at Seed Production Centre, GBPUA&T, Pantnagar

Table 1: Plant height at harvest and yield attributes of rice as influenced by the Jinong organic fertilizer treatment

Treatment	Plant height at harvest (cm)	Panicles/m <sup>2</sup>	Grains/panicle	1000- grain weight (g)
Control	115.0	246	79	21.95
Treated	126.5	252	86	22.55

Data from table- 1 revealed that application of organic fertilizer (Jinong) influenced the plant height and yield attributes of rice. The plant height of rice varied from 115 cm (control) to 126.5 cm (Jinong treatment). Panicle/m<sup>2</sup>, grains/panicle and 1000- grain weight of rice were higher, i.e. 252, 86 and 22.55 g in treated plots in compared to control plots i.e. 246, 76 and 21.95 g. respectively.

**Table 2: Yields and harvest index of rice as influenced by the Jinong organic fertilizer treatment**

Treatment	Grain yield (kg/ha)	Straw yield (kg/ha)	Biological yield (kg/ha)	Harvest index (%)
Control	2423	6831	9254	26.27
Treated	2644	7211	9855	26.82

Data from table- 2 revealed that under organic mode of cultivation grain, straw and biological yields and harvest index of rice varied from 2423 kg/ha, 6831 kg/ha, 9254 kg/ha and 26.24 % (control) to 2644 kg/ha, 7211 kg/ha, 9855 kg/ha and 26.82 % (Jinong treatment). The per cent increase in grain yield of rice was 9.1 due to application of organic fertilizer (Jinong) over control.

**Table 3: Soil chemical properties at harvest of rice as influenced by the Jinong organic fertilizer**

Treatment	Organic Carbon (%)	Available N (kg/ha)	Available P (kg/ha)	Available K (kg/ha)
Control	0.76	265	17.8	162
Treated	0.79	271	18.0	164

Soil chemical properties (Table- 3) at harvest of basmati rice were also influenced by application of organic fertilizers (Jinong). Soil organic carbon increased from 0.76 to 0.79%, available N from 265 to 271 kg/ha, available P from 17.8 to 18.0 kg/ha and available K from 162 to 164 kg/ha, respectively.

**Table 4: Nutrient uptake of rice as influenced by the Jinong organic fertilizer**

Treatment	N uptake (Kg/ha)			P uptake (Kg/ha)			K uptake (Kg/ha)		
	Grain	Straw	Total	Grain	Straw	Total	Grain	Straw	Total
Control	42.97	29.42	72.39	6.32	5.54	11.85	10.33	127.59	137.92
Treated	49.33	32.32	81.65	9.08	8.16	17.24	11.34	139.60	150.94

Data from table- 4 revealed that N, P and K uptake by grain, straw and total by rice crop were influenced by application of organic Jinong organic fertilizer. Highest values of total N (81.65 Kg/ha), P (17.24 Kg/ha) and K (150.94 Kg/ha) uptake was recorded in Jinong treated plots.

## Experiment II: Experiment conducted at farmer field with farmer's practice

**Table 1: Plant height at harvest and yield attributes of rice as influenced by the Jinong organic fertilizer treatment**

Treatment	Plant height at harvest (cm)	Panicles/m <sup>2</sup>	Grains/panicle	1000- grain weight (g)
Control	132.2	260	85	25.30
Treated	132.9	267	89	25.69

Data from table- 1 revealed that application of organic fertilizers (Jinong) under farmers practices influenced the plant height at harvest and yield attributes of rice. Plant height from 132.2 cm (control) to 132.9 cm (Jinong). While, panicle/m<sup>2</sup>, grains/panicle and 1000-grain weight of rice were recorded (267, 89 and 25.69 g, respectively) higher when rice crop was treated with Jinong over control (260, 85 and 25.30 g, respectively).

**Table 2: Yields and harvest index of rice as influenced by the Jinong organic fertilizer treatment**

Treatment	Grain yield (kg/ha)	Straw yield (kg/ha)	Biological yield (kg/ha)	Harvest index (%)
Control	3722	6408	9142	40.71
Treated	3835	6423	9258	41.44

Improvement in grain, straw and biological yields and harvest index were observed due to application jinong (Table- 2). Higher grain, straw and biological yields (3835, 6423 and 9258 kg/ha, respectively) were observed due to application of Jinong over control (3722, 6408 and 9142 kg/ha, respectively). The percent increase in the rice yield due to application of organic fertilizers (Jinong) was 3.0 over control. However, harvest index varied from 40.71% (control) to 41.44 % (Jinong).

**Table 3: Soil chemical properties at harvest of rice as influenced by the Jinong organic fertilizer**

Treatment	Organic Carbon (%)	Available N (kg/ha)	Available P (kg/ha)	Available K (kg/ha)
Control	0.71	254	16.5	156
Treated	0.74	262	16.9	161

Jinong application under farmers practice also improved the fertility status of the soil at harvest of rice (Table- 3) and increased the soil organic carbon from 0.71 to 0.74%, available N from 254 to 262 kg/ha, available P from 16.5 to 16.9 kg/ha and available K from 156 to 161 kg/ha, respectively from control to treated.

**Table 4: Nutrient uptake of rice as influenced by the Jinong organic fertilizer**

Treatment	N uptake (Kg/ha)			P uptake (Kg/ha)			K uptake (Kg/ha)		
	Grain	Straw	Total	Grain	Straw	Total	Grain	Straw	Total
Control	63.28	22.16	85.44	9.72	4.79	14.51	15.43	92.72	108.15
Treated	68.25	22.58	90.83	10.06	5.85	15.91	16.05	99.32	115.37

Data from table- 4 revealed that N, P and K uptake by grain, straw and total by rice crop were influenced by application of organic Jinong organic fertilizer under farmers practices. Highest values of total N (90.83 Kg/ha), P (15.91 Kg/ha) and K (115.37 Kg/ha) uptake was recorded in Jinong treated plots under farmers field condition



**Overview of the experiment at Pantnagar**



**Pusa basmati rice crop without use of organic fertilizers (control)**



**Pusa basmati rice crop treated with Jinong organic fertilizer**

### **Silent Achievements**

1. Rice crop treated with Jinong (liquid and seaweed) organic fertilizer improved plant height at harvest and yield attributing characters in both organic mode of cultivation and farmers practices.
2. Application of Jinong (liquid and seaweed) in rice recorded 9.1 % and 3.0 % higher yield over control under organic mode of cultivation and farmers practice.
3. Soil chemical analysis showed that wheat crop treated with Jinong (liquid and seaweed) improved 3.9 %, 2.3 %, 1.1 and 1.2 % higher organic carbon, available N, P and K over control under organic mode of cultivation, respectively.
4. Under farmer's practice, crop treated with Jinong (liquid and seaweed) recorded 4.2 %, 3.1 %, 2.4 % and 3.2 % higher soil organic carbon, available N, P and K, respectively.
5. Increase in N, P and K uptake by rice crop was recorded under organic mode and farmer's field condition with Jinong (liquid and seaweed).



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