

## Effect of Processed Green Organic Fertilizer on the Yield of Sugar cane

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**Abstract:** The present study was carried out in randomized complete block design. With four replication on sugar cane variety BL-4 at sugar cane section Tando Jam. It has been observed that maximum yield per plot and per hectare was obtained as 525 kg/plot and 139 M. tons/ha. Respectively from 275-112-180 kg NPK/ha with adding 30 bags of green organic fertilizer.

**Key words:** Sugar Cane, Green Organic Fertilizer, Yield

### Introduction

Sugar cane *Saccharum officinarum* is tropical Crop and its maximum growth takes place under hot, humid and sunny conditions an ideal climate for sugar cane crop consists of long warm, summer growing season with minimum rainfall 72 m.m per month (Williams, 1970). The importance of sugar cane with agrain economics of the world needs no emphasis because of its higher value as a cash crop, a major source of sugar and as a source of basic raw material for various agro-based industries. Sugar cane industry comes second to the textile industry and enjoys a key position in the world economics. (Bhatti, 1996). In spite of the fact that sugar cane plays a very important role in our economy. Sugar cane is the raw material for the sugar industry. It provides income to the growers and employment for numerous works thought the year. About 30 % of cane is crushed in sugar mills, 60 % is making un-refined sugar, and rest 10% is retained as seed purpose. By products of sugar cane are bagasse, molasses, filter cake and wax. Bagasse is used in manufacturing of paper, hard board, live stock feed and fuel for boilers. Alcohol and fertilizer cane be manufacture from molasses. Another side filter cake is rich source of organic matter. Sugar cane wax is used in the formation of shoe polish. (Black burn, 1984). The cane and sugar yield per unit area in our Country is much lower as compared to other sugar cane growing Countries. The proper managements of fertilizer are a major factor in maximizing cane production. Because of continuous and intensive cropping system for countries, so it has been depleted plant nutrient. Now days nitrogen is the most expensive of all fertilizer and must be applied in optimum amounts, since to a little application of nitrogen results lower yields, while excessive application of nitrogen fertilizer his deleterious affect on cane crop. Keeping these points in view and importance of such type of basic research and its impact upon the future sugar cane production strategy, the present study was conducted to see the effect of processed green organic fertilizer on the yield of sugar cane.

### Materials and Methods

The investigation was taken in hand to study the effect of processed green fertilizer with chemical fertilizer on the yield of sugar cane. Research was conducted at sugar cane section, Agriculture Research Institute. Tando Jam durnig the year 1997. The experiment was laid out in randomized complete block design with four replications having plot size 14m x 2.7m (37.8m<sup>2</sup>) the

detail of treatments was as under.

Variety=01

VI=BL-4

Treatments	N-	P-	K	+ Green fertilizer/ha
T1	0	0		0
T2	275	112		180
T3	275	112		180+10 bags GF/ha
T4	275	112		180+20 bags GF/ha
T5	275	112		180+30 bags GF/ha
T6	275	112		180+40 bags GF/ha

Fertilizer was applied by broad casting in rows. All phosphorus, potash and green fertilizer with 1/3 nitrogen dose was applied at the time of sowing. Second 1/3 N has been applied before first earthing. Last 1/3 nitrogen was applied before second earthing. All necessary practices were done as usual. Pak green fertilizer limited company has provided process organic fertilizer, which contain 1.75 N; 1.75 % P<sub>2</sub>O<sub>5</sub>; 2.75% K<sub>2</sub>O

### Results and Discussions

The present study was carried out the determine the effect of inorganic and process green organic fertilizer on the yield of sugar cane at sugar cane research section agriculture research institute Tandojam on variety BL-4 the yield was considerably increased from zero level to application of fertilizer at the rate of 275-112-100 Kg/ha NPK, where yield increase was records nearly up to 100 percent than control. Assessment of result reveals that the application of additional 10 bags of green fertilizer an increase approximately 20 to 25 Kg sugar cane yield per plot and that yield increase went up to the application of 30 bags of green fertilizer. Reduction of yield nearly 5 Kg/ plot was recorded when 40 bags of green fertilizer were applied. This indicate that excess use of green fertilizer had a negative impact on sugar cane yield. Where as the yield per hectare (M.T) increased from control level to application of fertilizer rate of 275-112-180kg/ ha NPK, where yield increase 100%. The data further show that the application of additional 10 bags of green fertilizer up to 6.75 (M.T) sugarcane yield per hectare respectively. The yield was reduced nearly 1.97 (M.T) per hectare when 40 bags of green fertilizer was applied. Result indicate that the use of excess green fertilizer produce low yield.

The findings are Supported by Li (1983) stated that can growing areas where apply N in performance to Fym, P and k in addition of Nitrogen with green manure incorporated in soil, yield increase up to 11.8% respectively. Pandit and Jafri (1986) applied green manure dry matter contribution in initial stage that the

yield was increase significantly. Kanwar et al, (1987) applied two organic manures and Fym each at 20t/ha before planting where as nitrogen in shape of (Urea) 150 kg /ha was alone applied in split dose, one half at planting and other dose applied in combination of 3 organic manures at 100 kg N /ha and gypsum 2.5t/ha +150 kg N/ha. The highest yield of cane 69.5- t/ha was obtained from Fym and urea. Reyes (1988) planted sugarcane with four organic amendments was applied as 10-ton chicken dung; 20-ton molasses; 20-ton mud press and 10-ton filter press cake/ha. Chicken dung gave higher sugar yield than other. Ramanathan et al (1989) conduct field experiments with different NPK fertilizer dose like 225 kg N, 62.5 kg P<sub>2</sub>O<sub>5</sub>, 115kg k<sub>2</sub>O/ha, Fym 20-t/ha applied and obtained highest yield (135- t/ha.

Corraler et al, (1990) studied two types of organic matter at the rate of 4-t/ha decomposed chicken manure, sugar cane bagasse, saw dust and ashes were mix soil in 3 ways, result chicken manure gave maximum yield. Patel et al, (1991) Conduct trial effect of Fym, caster cake and press mud cake with various amounts. It was found that the cane yield were significantly increased by Fym at (25- t/ha) or Caster cake 625 kg/ha with adding 250-125-125 NPK/ha where as press mud cake application had no advantageous effect on yield. Yadav and Prasad (1992) planted sugar cane at Luck now with fertilizer treatment, organic manure like Fym 10-20 t/ha add 50 kg N/ha and 100 kg N/ha in split application, the yield of cane were in creased by Nitrogen and organic manure respectively.

Table 1: Average Yield per Plot (Kg) of Sugar Cane as Affected by Green Organic Fertilizer

Treatments	Replications				Mean
	I	II	III	IV	
T <sub>1</sub> = 0 - 0 - 0	240	230	234	246	237
T <sub>2</sub> = 275-112 -180	450	460	470	460	460
T <sub>3</sub> = 275 -112 - 180+10 BGF	480	488	484	490	485
T <sub>4</sub> = 275 -112 -180 +20 BGF	505	510	520	505	510
T <sub>5</sub> = 275 -112 - 180+30 BGF	520	525	530	525	525
T <sub>6</sub> = 275 - 112 - 180+40 BGF	515	520	520	515	517
Mean	451.66	455.50	459.66	456.83	
Cdi	8.08				
Cdii	11.19				
Cv%	1.18				

Table 2: Yield per Hectare in (M.t) of Sugar Cane Affected by Green Organic Fertilizer.

Treatments	Replications				Mean
	I	II	III	IV	
T <sub>1</sub> = 0 - 0 - 0	63.49	60.25	61.90	65.07	62.83
T <sub>2</sub> = 275-112 -180	119.05	121.69	124.33	121.69	121.69
T <sub>3</sub> = 275 -112 - 180+10 BGF	126.98	129.10	128.04	129.63	122.44
T <sub>4</sub> = 275 -112 -180 +20 BGF	133.59	134.92	137.56	133.59	134.91
T <sub>5</sub> = 275 -112 - 180+30 BGF	137.56	138.88	140.22	138.88	139.00
T <sub>6</sub> = 275 - 112 - 180+40 BGF	136.29	137.56	137.56	136.24	136.91
Mean	119.49	120.50	121.60	120.25	-
Cdi	2.13				
Cdii	2.96				
Cv%	1.18				

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