Paid up Trial on Homeo Product Madhurima

A Paid up trial on homeo product 'Madhurima' was carried out to study the response of sugarcane under irrigated conditions (plant and ratoon crops) during the period from 2007 to 2009 at Regional Agricultural Research Station, Anakapalle.

Response of Sugarcane to homeo nutrient Madhurima

Plant Crop:

The experiment was laid out in a randomized block design with three treatments viz., no manure (T_1) 100 % recommended NPK (T_2) and homeo product Madhurima (T_3) and 7 replications. Experimental site was a sandy loam, neutral in reaction (PH 7.19), medium in organic carbon (0.62%), low in available nitrogen (244.7 KgN/ha), available phosphorous (20.9 Kg $P_2 0_5$ / ha) and available Potassium (116.2 Kg $K_2 0$ /ha).

An early maturing sugarcane variety Sarada (93 A 145) was planted on 6th February 2007 duly adopting recommended spacing and seed rate. In 100% recommended NPK treatment, phosphorous (100 Kg $P_2 0_5$ / ha) and potassium (120 Kg $K_2 0$ /ha) were applied basally at the time of planting through inorganic fertilizers in the form of Super phosphate and muriate of potash respectively. Nitrogen was applied @ 112 Kg/ha in the form of urea in two equal splits at 45 and 90 days after planting. In the treatment with homeo product (T_3), the Madhurima liquid was applied as per the protocol furnished by the firm. Remaining package of practices were followed as per recommendation to North Coastal Zone. Successful crop was raised and the crop was harvested at peak maturity during 30th January and 1st February 2008.

The data on germination of setts at 35 DAP, tiller population at 120 DAP, Plant height and shoot population at 270 DAP, no. of internodes, length and girth of millable canes, millable stalk population, sucrose content in cane juice, cane yield at harvest were recorded, data were analyzed statistically and furnished in table 1 and 2. Based on corrected brix, Pol values and cane yield, commercial cane sugar percentage, sugar yields were computed and presented in table 2.

Sailent results of the experiment are detailed below:

Growth Parameters:

Germination %: Germination of setts did not differ significantly due to fertilizer treatments and it ranged from 48.7 to 51.2 %.

Tiller Population at 120 days after planting:

Application of recommended NPK through inorganic fertilizers registered significantly higher tiller population (1,15,000 tillers/ha) than homeo product application (93,750 tillers/ha) or absolute control (93,250 tillers/ha), at the end of formative phase i.e 120 days after planting (DAP).

Plant height at 270 DAP:

Growth of the crop measured in terms of plant height at the end of grand growth phase i.e., 270 DAP was not influenced by fertilizers significantly . However, relatively more plant height was noticed with 100 % recommended NPK (284.0 cm) and homeo product Madhurima (282.0 cm) over absolute control (277.0 cm).

Shoot Population at 270 DAP:

Shoot population recorded at the end of grand growth phase was significantly influenced by fertilizers (table 1) . Application of 100 % recommended NPK through inorganic form produced significantly higher no. of shoots (74,500/ha) than homeo product application (69,750/ha). Homeo product application had relatively higher no. of shoots over absolute control (64,250/ha) at 270 DAP.

YIELD ATTRIBUTES:

No. of internodes/ millable cane at harvest:

No. of internodes recorded per each millable cane did not vary significantly with fertilizer treatments and it ranged from 26.7 to 27.9

Girth of millable cane:

Girth of millable cane differed significantly with fertilizers . Application of recommended NPK through inorganic fertilizer (2.52) or application of homeo product Madhurima (2.50 cm) recorded more or less equal cane girth and both were significantly superior over absolute control (2.25cm).

Length of millable cane:

Millable cane length was significantly influenced by fertilizers but the difference among treatments did not differ significantly. Application of homeo product Madhurima (248 cm) or 100 % recommended NPK (248 cm) recorded higher millable cane length than absolute control (237.6 cm).

No. of millable canes / ha:

Fertilizers had significant influence on millable cane population at harvest. Significantly higher millable cane population was recorded with 100 % recommended NPK through inorganic fertilizer (62,174/ha). Homeo product application increased the millable cane population marginally (55044/ha) over no manure (53,418/ha).

Quality parameters :

Juice sucrose (%):

Sucrose content in cane juice was unaffected by the fertilizer treatments and the sucrose percentage varied from 19.08 to 19.42 % .

Commercial Cane Sugar %:

Similar to sucrose content the Commercial cane sugar % was also unaltered due to fertilizer treatments. The CCS % ranged from 13.83 to 14.08 %.

Cane Yield (t/ha):

Cane yield was significantly influenced by fertilizer treatments. Fertilizer application at 100 % recommended dose through inorganic form registered significantly higher cane yield (86.0 tons/ha) than homeo product Madhurima (74.9 t/ha) but the homeo product application recorded significantly higher yield than absolute control (68.6 t/ha) or no manure application. Cane yield increased to an extent of 25.0 and 15.0 % with 100 % recommended NPK and homeo product application respectively over no manure fertilizer application (Absolute control).

Sugar Yield t/ha:

Sugar yields were computed by using CCS % and Cane yield. Sugar yields followed similar trend as that of Cane yield. Higher Sugar yield (10.51 t/ha) was recorded with 100 % recommended NPK or homeo product application (9.03 t/ha) over absolute control (8.25 t/ha).

Influence of fertilizer treatments on pest incidence:

Effect of homeo product on incidence of major pests especially early shoot borer and internode borer was also studied as per the protocol communicated by the university. Incidence of early shoot borer during formative phase and intensity of internode borer during grand growth phase were recorded by Entomologist of Regional Agricultural Research Station, Anakapalle and the data were analyzed statistically and presented in table 3.

Early shoot borer:

Cumulative incidence of early shoot borer during 2007-08 was less than the threshold level (15 %) However, incidence differed significantly among the treatments. Maximum incidence of ESB (8.15 %) was noticed in no manure application. ESB incidence was lowest in homeo product treatment (4.53 %) and it was on par with 100 % recommended NPK (6.1 %) but significantly lower over absolute control (8.15 %).

Intensity of internode borer:

Intensity of internode borer was also less than threshold level during the period of experimentation. Significantly lower internode borer damage was observed in homeo product applied treatment (2.97 %) than absolute control (8.98 %) as well as 100 % recommended NPK applied treatment (4.27 %).

Ratoon Crop:

After harvest of plant crop in February, 2008 trash was removed and ratooning operations were performed and fertilizers were applied as per treatments to study the response of ratoon crop to homeo product Madhurima. In 100 % recommended NPK plot 224 Kg N , 100Kg $P_2 O_5$, 120 Kg K_2O/ha were applied as per recommendation to North Coastal Zone. Entire dose of phosphorous and potassium along with 50 % nitrogen were applied immediately after ratooning in the form of urea, super phosphate and muriate of potash respectively. Remaining 50 % nitrogen was applied at 45 days after ratooning.

The data on tiller population at 90 days after ratooning, millable cane population, can yield, Juice sucrose at harvest were recorded, statistically analyzed and results are furnished in table 3.

Quality Parameters :

Representative Cane samples from different treatments were drawn and juice was extracted , settled and brix values were recorded . Later the juice samples were filtered after adding lead as clarificant. The filtered juices were filled in Polari table and Pol readings were recorded with help of Polari Scope. Sucrose percentage in cane juice of treatmental plots was computed based on brix and Pol. Values and data are furnished in table 2. CCS % was calculated using Corr. brix and Pol. values (table 2).

Influence of fertilizer treatments on growth, yield and quality of sugarcane ratoon:

Tiller Population: Tiller population recorded at 90 days after rationing was significantly superior with 100% recommended NPK (83.628/ha) over no manure (68602/ha) or madhurima application (72.760/ha).

No. of millable canes / ha at harvest:

Application of NPK at 100% recommended dose registered significantly higher no. of millable canes / ha at harvest (70,690 / ha). Allication of madhurima (55,200 / ha) or absolute control (53,540 / ha) registered more or less similar millable can population at harvest.

Sucrose:

Sucrose contant in cane juice at harvest did not differ significantly with different fertilizer treatments and ranged from 17.7 to 18.6.

CCS %: The computed commercial cane sugar % also did not vary significantly with fertilizer treatments.

Cane yield:

Ratoon can yield obtained from different fertilizer treatment plots differed siginificantly. Application of fertilizers at 100% recommended NPK recorded significantly higher cane yield (73.0 t/ha) than madhurima application (62.0 t/ha) or no manure application. Cane yield improved to an extent of 24.1 % and 5% 100% recommended NPK and Madhurima application respectively over no manure application.

Sugar yield: Sugar yield followed similar trend as that of cane yield. Highest sugar yield was recorded with 100% recommended NPK (9.6 t/ha) over madhurima (8.6 t/ha) or no manure application (7.7%).

2007 - 2008 (Plant Crop)

Response of sugarcane to homeo product 'Madhurima' under irrigated conditions.

Table 1: Growth parameters of sugarcane plant crop as influenced by fertilizer treatments

Treatment	Germination %	Tiller population at 120 DAP	Plant height at 270 DAP	Stalk population at 270 DAP	Incidence of ESB %	Intensity of Internode Borer.
No manure (T1)	48.7	93,250	277.0	64.250	8.15	8.98
100% NPK T2	51.2	1,15,000	284.00	74.500	6.10	4.27
Madhurima	49.9	93.750	282.00	69.750	4.53	2.97
SEm ±	1.8	3125	3.12	2,300	0.52	0.40
CD 0.05	NS	9,925	NS	NS	1.62	1.22
C.V/ %					22.4	19.4

2007 - 2008 (Plant Crop)

Response of sugarcane to homeo product 'Madhurima'

Table 2: Yield attributes & Yield of Sugarcane plant crop as influenced by fertilizer treatments

Treatment	No. of internodes	Girth of millable cane (cm)	Length of millable cane (cm)	No. of millable canes / ha	Sucrose %	CCS %	Cane yield (t/ah)	Sugar yield (t/ha)
No manure	26.7	2.25	237.6	58418	19.42	14.08	68.6	8.25
100 % NPK	27.9	2.52	241.7	72174	19.08	13.83	86.0	10.51
Madhurima	27.0	2.50	248.0	65044	19.22	13.91	74.9	9.03
	0.46	0.05	3.6	2052	0.14	0.11	1.45	
	NS	0.15	11.0	6297	NS	NS	4.46	

2008-09 (Ratoon crop)

Table 3: Yield attributes & yield of sugarcane ratoon as influenced by fertilizer treatments.

Treatment	Tiller population at 90 DAP	NMC / ha at harvest	Sucrose	CCS %	Cane yield	Sugar yield
No manure	68602	53540	17.9	13.10	59.00	7.7
100 % NPK	83628	70690	18.6	13.14	73.00	9.6
Madhurima	72760	55200	17.71	13.80	62.00	8.6
SEm ±	3133	2334	0.16	0.12	2.1	
CD 0.05	8145	6536	NS	NS	602	