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“Effect of Various Dry Powder Organic Manure on Sugarcane Crop”

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Introduction:

Sugarcane (*Saccharum officinarum*) is a member of Poaceae/ Gramineae family, is a perennial grass, which grows well in plenty of sunlight, high temperatures, good drainage, fertile soils and requires large quantities of water (1500 mm of rain per year/ grown with irrigation).

Wastes, weeds and tree leaves are no more wastes but a valuable resource and free of cost current strategy centers around their disposal and eradication only. Economic utilization of these bioresources through green manure, dry manure, compost and vermicompost production can help not only in meeting the challenge of energy crisis but also keeping environment pollution free.

Excessive and imbalanced use of chemical fertilizers has adversely affected the soil, causing decreasing the structure and water holding capacity, reduction in organic carbon and microbial flora of soil results as increasing acidity and alkalinity and hardening of soil, to solve this organic manure plays an important role, they are complementary to the chemical fertilizers and many times they have the capacity to replace them [5].

The quantity of soil organic matter depends on the quantity of organic material which can be introduced into the soil either by natural returns through roots, stubbles, sloughed-off root nodules and root exudates or by artificial application in the form of organic manure which can otherwise be called organic fertilizer [1].

Materials and methods:

Field site and experimental design - The experiment was conducted on the farm located at Khandepargaon, V-P High-tech Research farm, Dist. Beed. The experiment design was a randomized block design [RBD] with seven treatments and four replicates.

Treatments, dry powder manures process and plot size - Tree leaf dry manures like *Azadirachta indica* dry powder organic manure (**Azi.DM.**); *Gliricidia sepium* dry powder organic manure (**Gs.DM.**); Non-leguminous weeds plants dry powder organic manure like *Achyranthes aspera* dry powder organic manure (**A.DM.**); *Parthenium hysterophorus* dry powder organic manure (**P.DM.**); Neem seed cake (**N.C.**); compared with chemical fertilizers like Nitrogen+Phosphorus+Potassium (**NPK**); along with Control (**CON**);

Then aerial biomass of trees leaves and Non leguminous weed plants were cut into small pieces as 1-2 inches by the traditional iron cutter at 10 % flowering stage in morning time then dried under semi-shade sunlight, They were used for preparing dry powder organic manure. After 26 days naturally well dried 12.5kg i.e. at the rate of 13889kg/ha dry powder organic manure/ fertilizer inserted in their randomly selected treatment plots, 100gm of sample from each dry powdered organic manure collected and kept in oven at 105° for drying, after drying the samples were used for the further analysis [4].

The field was irrigated as per requirement. and dry powder organic manure/ fertilizer were allowed to decompose for 76 days then the sugarcane was cultivated on 3 x 3m plots of size 3m x 3m i.e. 09sqm., keeping 45 cm distances in rows.

Plant sampling - The crop was harvested early in the morning and the fresh yield of the aerial part of the crop was noted and calculated as kg/ha. Three kg sample of fresh vegetation was cut into small pieces as 1-2 inches by the traditional iron cutter, in which 100gm was dried in oven at 90°C till it gives constant weight for the determination of dry matter (DM), this dried sample was grinded to fine powder and used for further analysis, [2].

Results and Discussion:

Fig.1. Shows the highest yield of Sugarcane fresh vegetation was on the treatment *A.aspera* dry powder organic manure followed by on Neem cake manure then on *A.indica* dry powder organic manure followed by the treatment of *G.sepium* dry powder organic manure and the lowest yield of Sugarcane fresh vegetation kg/ha on Control followed by on *P.hysterophorus* dry powder organic manure then on the treatment of chemical fertilizers NPK.

Table 1. Effect of dry powder organic manure on Sugarcane crop analyses of total plant shows the highest dry matter analyses C:N ratio was in the plot treated with *P.hysterophorus* dry powder organic manure then on *A.aspera* dry powder organic manure followed by Neem seed cake treatment then in the plot treated with *A.indica* dry powder organic manure, the minimum C:N ratio was observed on the treatment Control then followed by *G.sepium* dry powder organic manure then on the treatment of chemical fertilizers NPK [3].

Conclusion:

On the basis of result obtained, it can be concluded that all organic manure plays an important role, they are complementary to the chemical fertilizers and many times they have the capacity to replace them.

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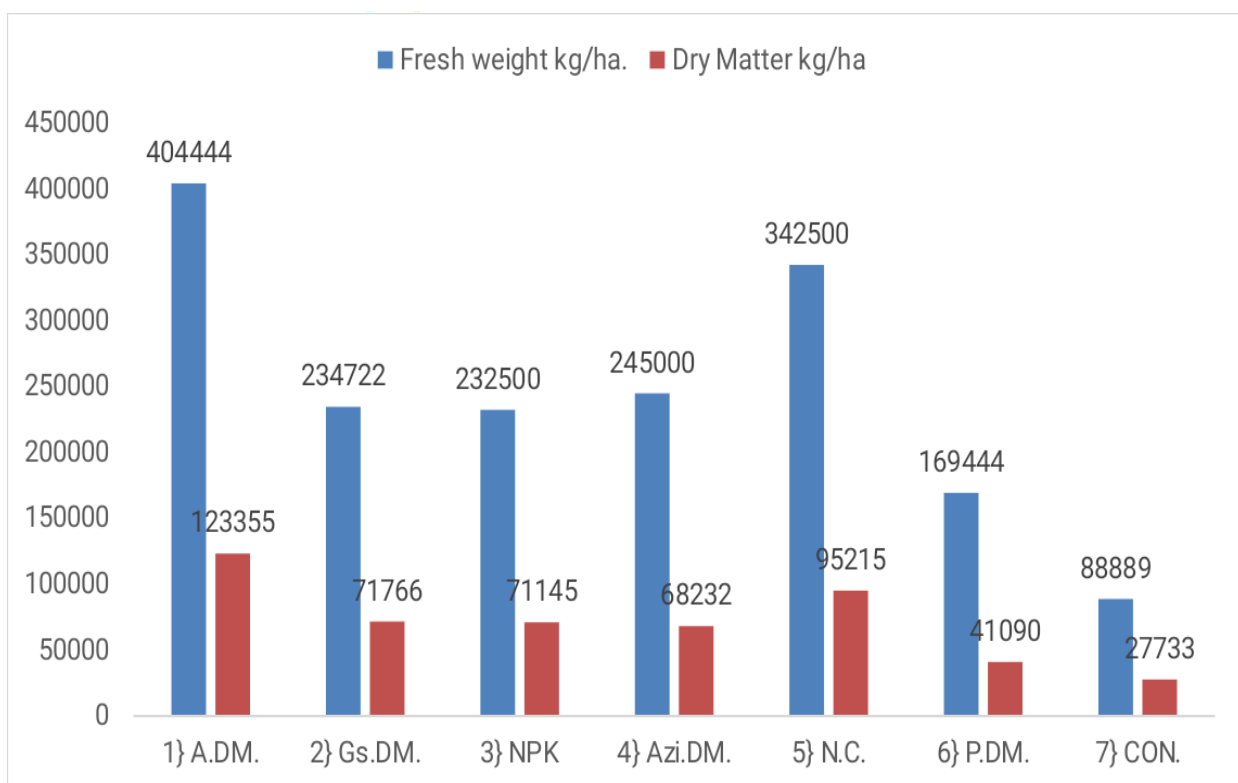


Fig. 1 : Fresh Weight S.E = 11953, CD = 25102 and Dry Matter SE = 5045, CD = 10595 (Kg/ha)

Table :- I :- Sugarcane Crop Analyses of Total Plant.					
Treatments.	F.wt./plot	%			C/N Ra.
		D.M.	C.	N.	
1} A.DM.	364.0	30.5	8.17	2.17	3.77
2} Gs.DM.	211.3	30.6	7.98	2.83	2.82
3} NPK	209.3	30.6	7.08	2.42	2.93
4} Azi.DM.	220.5	27.9	8.67	2.92	2.97
5} N.C.	308.3	27.8	7.82	2.33	3.35
6} P.DM.	152.5	24.3	8.35	2.08	4.01
7} CON.	80.0	31.2	5.22	1.92	2.72
S. E. =	10.76	1.53	0.0009	0.21	0.005
C.D. =	22.59	3.21	0.0018	0.44	0.011

Table 1 : Effect of Dry Powder Organic Manure on Sugarcane Crop Analyses of Total Plant.