

Impact of Organic Nutrients Management on Yield of Bitter Melon (*Momardica charantia*)

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ABSTRACT

The study was conducted to find out the effect of organic nutrient management on yield of Bitter Melon and its residual effect on soil. There were six treatments with different combination of organic nutrient sources. The experiment was laid out on Randomized Complete Block Design (RCBD) with three replications. Yield per plot and per hectore was found highest in T₅ (½ vermicompost + ½ Poultry manure).

Keywords : Poultry Mannure, Vermicompost, FYM, Soil Nutrient

INTRODUCTION

Cucurbitaceae vegetable is largest and increasingly important vegetable. Bitter Melon (*Momordica Charantia*) is an important vegetable and one of the most popular members of the cucurbitaceae family. It is thought to be on of the oldest vegetable cultivated by man with historical records dating back 5,000 years (Wehner and Guner, 2004). The crop is the fourth most important vegetable after tomato, cabbage and onion in Asia, the second most important vegetable crop after tomato in Western Europe (Phu, 1997). China and India are world's number one producer of Bitter Melon. Bitter Melon are high in potassium and fiber with moderate amounts of Vitamins A and C, as well as folic acid, phosphorous, and magnesium.

Bitter Melonis one of the major vegetable produced in Nepal in term of production and cultivated land. The cultivation of this crop is very popular at an altitude 1000 to 1800 m, above mean sea level as a source of income. It has acquires the status of world's most popular vegetable crop due to its wider adaptability to various climatic condition.

The productivity of vegetable is slowly declining over the years due to deterioration on soil fertilizer. One of the reasons may be due to decline in use of organic matters in soil. A decline is use of organic matter may lead to nutrient imbalance and may be attributed to inappropriate fertilizer application.

Organic manure application sustains cropping system through better nutrient recycling, improved soil structure and increased soil water holding capacity, reduces the leaching loss of nutrients, increases microbial activity, improve porosity and reduces the erosion losses of soil (Jaishy et al. 1998).

MATERIAL AND METHODS

This study was conducted from May to August 2021 in the farmer's field at Saharanpur, Uttar Pradesh. Experimental plot size was 12m².The was laid out in complete randomized design with three replications and six treatments (Table 1).

Table 1 Treatment of experiment

Treatment	Sources of Nutrient
T ₁	FYM @ 12 ton/ha
T ₂	Poultry Manure @ 5 ton/ha
T ₃	Vermicompost @ 4 ton/ha
T ₄	½ FYM + ½ Vermicompost
T ₅	½ Vermicompost + ½ Poultry Manure
T ₆	Control

Yield per plant

The observation on yield per plant was recorded after each harvesting of the vegetables harvesting the vegetables from each plant where weighed and expressed in kg/plant then calculated in yield per/plant, per plot and per hectore

RESULTS AND DISCUSSION

Effect of organic nutrients on the yield of Bitter Melon (*Momordica Charantia*)

Yield per plant/plot/hectare

The maximum yield per plot (17.98) was recorded in T₅ (Vermicompost + Poultry manure) which was statistically at par with T₃ (Vermicompost), T₂(poultry manure), T₄ (Farmyard manure + vermicompost) and T₁ (Farmyard manure) (Table 2). Increase in yield may be due fact that these organic manures supplies direct available nutrients such as nitrogen to the plants and these organic manures improves the proportion of water stable aggregates of the soil. This was attributed to cementing action of polysacchrides and other organic compounds released during the decomposition of organic matters, thus leading to taller plants, increased number of leaves, tillers and inturn the final yield, similar results was found Hendrix et al.. (1994) and Martens et al., (1992), Thapa (2012) in Broccoli (*Brassica oleraceae* Var. *italic*).

Table 2 Effect of organic Nutrients Management on Yield vegetables weight, yield/plant/plot/hectare) of Bitter Melon (*Momordica Charantia*)

Treatment	Yield per plot (kg)	Yield per Hectare (ton/ha)
T ₁ (Farm Yard Mannure)	8.83	8.83
T ₂ (Poultry Manure)	10.31	10.31
T ₃ (Vermicompost)	14.65	14.65
T ₄ (Farm Manure + Vermicompost)	12.46	12.46
T ₅ (Vermicompost + Poultry mannure)	18.24	18.24
T ₆ (Control)	6.06	6.06
CD (0.05)	6.1429	6.1429
F-Value	10.2848	10.2848
CV%	20.64	20.64

CONCLUSION

It is concluded that, the yield per plot and yield pr hectare were observed with the treatment ½ vermicompost + ½ Poultry mannure (T₅). The pH value was near to neutral in treatment 5ton/ha poultry mannure (T₂).

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