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EFFECT OF ORGANIC MANURE ON THE YIELD OF SUMMER CABBAGE VAR. SUMMER QUEEN UNDER TRIPURA CONDITION

Short Communication

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ABSTRACT

A field trial was conducted at Demonstration farm of KVK, West Tripura during the year 2013-14 to study the effect of different organic manures like FYM (20 ton/ha), Vermicompost (10 ton/ha), Poultry manure(5 ton/ha) and Mixture of Neem cake, Mahua Cake (3 ton/ha) on growth and yield of cabbage in comparison with the recommended dose of fertilizer and one absolute control. The growth and yield was enhanced in RDF treatment than rest of the treatments. However among the organic manure the mixture of Neem cake and Mahua Cake showed the highest plant height (28.75 cm) followed by poultry manure. The number of leaves was higher in (28.5 leaves) in mixture of Neem cake and Mahua cake mixture and vermicompost treatments and almost at par in other treatments. The average plant spread was also maximum (39.55 cm) in neem and mahua cake mixture treatment. The early initiation of head (35 Days after transplanting) and early harvesting (at 75 days after transplanting) were observed in poultry manure and delayed in FYM treatments. The diameter, weight and volume of head was maximum (16.05, 1.05 and 725.0 ml respectively) in the neem and mahua cake mixture treatment followed by Vermicompost, Poultry manure and FYM treatments. The yield in the neem and Mahua cake mixture was highest followed by Vermicompost, Poultry manure and FYM. The highest shelf life was gained by Vermicompost and mixture of Neem cake and mahua cake treatment.

Introduction

Cabbage is an important Vegetable rich in minerals, Vitamins and possess medicinal properties. Since, the crop depletes the nutrients heavily, replacement through fertilizers is recommended. But continues use of Chemical fertilizer have a negative impact on Soil Health. The organic cultivation of vegetables is especially important as they provide quality food, which are very important for providing health security to people. Since, the vegetables are mostly consumed as fresh or partially cooked; they should be devoid of residual effect of Chemical fertilizers. The physical, chemical and biological properties of soil are improved by application of organic manures and also help in better yield and quality. There is a vast scope for increasing plant nutrient supply through the use of organic fertilizers, but there is, on the other hand, no scope for reducing the consumption of mineral fertilizers since the present level of crop productivity has to be increased in the coming years. This study aims at evaluate the impact of organic and inorganic fertilizers on the cabbage production and quality under West Tripura Condition.

Materials and Methods

The study was carried out during the Kharif Season of 2013-14 at the demonstration farm of KVK, West Tripura. The soil samples were collected before the study. The brief soil Status is given below:
Soil Texture: Sandy Loam
Soil P^H: 5.7
Organic Carbon: 0.59%
Available Nitrogen: 287 Kg/Ha
Available P_2O_5: 13.8 Kg/Ha
Available K_2O: 135 Kg/Ha
The land was prepared by following the preparatory tillage and beds of (3.5x3.5) m were prepared. The one month old seedling of cabbage variety Summer Queen was transplanted at (45x45) cm spacing. The treatments were T1: Control (No manures and Fertilizer), T2: Recommended dose of fertilizers, T3: FYM (20 Ton/Ha), T4: Vermicompost (10 ton/ha), T5: Poultry manure (5 ton/ha), T6: Mixture of Neem cake

and Mahua Cake (3 ton/ha). The intercultural operations was carried out as per the recommended package of practices. Six plants were randomly selected from every plot for growth and yield observations. Their shelf life was judged on marketable quality.

Results and Discussions

The application of recommended dose of fertilizers showed the highest plant height, number of leaves per plant, average plant spread band early head initiation and harvesting than organic manure treatment and control (T1).

The pooled data revealed that the highest yield was recorded in T2. This is might be due to the higher level of available nutrient added to the soil and uptake by the plant (Thakur *et al.*, 2010). Cabbage treated with inorganic fertilizer had lower shelf life. Highest shelf life upto 9 days was recorded in T5 and T6. Similar results were reported by Mali (2004) in Cucumber, Mulani *et al.* (2007) in bitter gourd and Umlong (2010) in Carrot.

Total variable cost differed from different treatments due to variation in the cost of inputs used. The highest BCR obtained from T2 due to its high yield and among organic treatments highest BCR obtained from the T6.

Thus it is concluded that application of mixture of Neem cake and Mahua cake @ 3 ton/ha can be used by the farmers for high returns which is eco friendly also.

Table 1. Effect of Organic manure on growth of Cabbage.

Treatment	Plant Height(Cm) 50 DAS	Number of leaves 50 DAS	Plant spread(Cm) 50 DAS	Days to initiation of Head	Days to Harvest
T1	18.50	17.00	23.9	49.6	95.4
T2	29.74	30.1	42.5	34.8	72.4
T3	23.90	24.7	31.5	42.00	84.6
T4	24.80	28.1	38.1	41.9	79.5
T5	27.90	26.3	33.6	35.00	75
T6	28.75	28.5	39.55	41.8	77.3

Table:2 Effect of organic manure on head, yield and quality of Cabbage.

Treatment	**Head Diameter(Cm)**	**Head Weight(Kg)**	**Volume(ml)**	**Yield(Ton/ha)**	**Shelf Life(Days)**
T1	9.66	0.47	331	12.6	8
T2	16.4	1.20	855	29.5	5
T3	12.3	0.76	645	21.5	7
T4	13.5	0.89	695	25.9	8
T5	14.4	0.85	681	23.6	9
T6	16.05	1.05	725	26.8	9

Table 3. Economics of Cultivation

Treatment	**Yield (Ton/ha)**	**Gross Cost(Rs)**	**Gross Income(Rs)**	**Net Income(Rs)**	**BCR**
T1	12.6	70600.00	88200.00	49600.00	**1.24**
T2	29.5	87360.00	206500.00	119140.00	**2.36**
T3	21.5	81848.00	150500.00	68652.00	**1.83**
T4	25.9	92248.00	181300.00	89052.00	**1.96**
T5	23.6	82160.00	165200.00	83040.00	**2.01**
T6	26.8	92560.00	187600.00	95040.00	**2.02**

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