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Effect of vermicompost on productivity of ginger

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Medicinal value of ginger is well known. It has an extensive use as a spice to improve the taste in most of the Indian foods. The productivity of ginger is very low due to infertile soil of the area and unawareness of farmers regarding appropriate use of fertilizers. The present study was undertaken in the form of on farm testing in the Shahdol district of Madhya Pradesh. There were four replications having plot size of 3x2 m^2. The treatment comprised of five sources of nutrient application. The result of the study revealed that the highest plant height (90cm) and maximum number of shoots (12.3 per plant) were recorded when 10t/ha vermi compost was applied.

Keyword: Ginger, vermicompost, nutrients, productivity

Introduction

Medicinal value of ginger is known since ancient time and as spices it is used not only for taste but also to improve the nutritive value of food. The productivity of ginger is quite low due to cultivation on poor; in-fertile, light textured sandy loam soils, unawareness of farmers about use of good quality organic manures and their poor economic status for the use of balance fertilization. With the onset of awareness about the degradation of productive soils, there is an urgent need for application of suitable amendments which provide sustainability. In rural areas, huge quantities of agricultural waste, including cow dung and other bio-waste are available in plenty which is not properly recycled for application. Vermi composting may be an alternation for agricultural organic bio waste use.

Nutrient up take by crops and their yield recovery both has been increased in fields where vermin compost was applied in proper manner. Vermicompost not only provides nutrients and growth regulators but also increases soil- water retention, microbial population and carbon content of the soil.

Materials and methods

In view of the above facts, on farm testing (OFT) programmes on ginger was conducted at farmer's field of Shahdol District in Madhya Pradesh. It was laid down during Kharif 2002 and 2003. The soil of the farmers field was sandy to sandy loam containing organic carbon 0.4%, 4.0kg/ha. P2O5, 548 kg/ha, K2O and pH 7.5. There were four replications having plot size of 3x2 m^2. The treatments comprised five sources of nutrient application (Table1). The average rainfall during the crop period (June to Nov.) in 2002 and 2003 was 899.4 mm. and 1476.4 mm respectively.

Results and Discussion

Plant height and number of shoots/plant were significantly affected due to application of different sources of nutrients (Table 1). Highest plant height 90cm and maximum number of shoot 12.3 per plant were recorded under vermi compst 10t/ha was applied, which were significantly higher over rest of the treatments. Similar findings were also reported by Kale *et a1*. (1992) [2] and Dhane *et al*. (1996) [1]. The yield of ginger rhizomes per plant and per hectare were differed significantly with different sources of nutrient

application. The average fresh weight of rhizomes per plant was found 251.25.g and mean rhizome yield per ha was recorded 18.38 tonnes with vermi compost 10 t/ha application and proved better over rest of the treatments. The rhizome yield of ginger in 2003 was higher as compared to 2002 due to more and even rainfall distribution. Economic analysis indicated that the highest net income of Rs. 317600/- per ha was obtained under top ranking treatment followed by FYM 10t/ha+50:30:0 NPK per ha.

Table 1: Effect of different sources of nutrients application on Ginger (year 2002 and 2003)

Treatment	Plant Height (cm)	No. of shoot/Plant	Fresh Wt of Rhizome/Plant (g)	Fresh Wt of Rhizome (t/ha.)		Mean	% increase over check	Gross income Rs./ha	Cost of Cultivation Rs./ha	Net income (Rs./ha)
				2002	2003					
Farmers practice check	48.8	5.0	85.0	4.6	7.7	6.2	---	124000	35000	89000
NPK 50:30:0	65.9	7.9	124.3	7.9	12.9	10.4	68%	208400	36300	172100
FYM 10t/ha	71.2	9.1	143.7	9.9	14.7	12.3	98.7	246400	36500	209900
FYM 10t/ha.+NPK50:30:0 Vermi-compost 10t/ha	90.	12.3	251.2	15.0	21.7	18.3	196.4	325000	37800	287200
CD at 5%`	4.1	1.1	10.2	0.27	0.27	0.27	---	---	---	----

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