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EFFICIENCY OF VERMICOMPOST ON GROWTH AND YIELD OF SUMMER CROP OKRA *(ABELMOSCHUS ESCULENTUS* MOENCH)

The importance of organic manure in vegetable cultivation is a well established fact. But the availability of cattle manure, the major source of organic manure, is very much limited. Under this situation the nutrient rich vermicompost produced by the activity of earthworms on biowastes and *in situ* application of worms in the field along with biowastes can be tried as an alternate source of organic manure and a partial substitute for costly inorganic fertilizers. The worm cast obtained from *Eudrillus eugeniae* was reported to be a precious biofertilizer by Bano *et al.* (1984) and Girija *et al.* (1984). Okra is one of the important crops grown for vegetable purpose in almost all parts of India throughout the year as a rainfed crop in monsoon seasons and as an irrigated crop in summer.

Table 1. Biometriccharacters and yield of okra

Sl. No.	Treatments	Plant height, cm	No. of fruits, plant $^{-1}$	No. of leaves, plant $^{-1}$	Yield, kg ha $^{-1}$	C/B ratio
1	Control (No manure)	9.3	3.8	10.8	609	0.73
2	Cattle manure alone 12 t ha $^{-1}$	26.5	7.4	14.8	1540	1.45
3	Vermicompost alone 12 t ha $^{-1}$	31.4	9.5	15.5	1931	1.65
4	Vermi compost alone 18 t ha $^{-1}$	30.7	9.1	16.0	1846	1.38
5	Vermicompost alone 24 t ha $^{-1}$	34.4	8.0	17.4	18.37	1.22
6	Vermicompost in situe + basal dose of NPK	62.7	15.1	21.6	4183	4.87
7	Cattle manure (12 t ha $^{-1}$) + Inorganic NPK as per package	45.0	10.0	18.6	2763	2.52
8	Vermicompost (12 t ha $^{-1}$) + Inorganic NPK as per KAU (1993)	77.5	19.8	27.3	5663	4.70
9	Vermicompost (12 t ha $^{-1}$) + 1¼th inorganic NPK as package	63.7	18.5	20.3	4680	3.97
10	Vefmicompost (12 t ha $^{-1}$) ½ Inorganic NPK as per KAU (1993)	58.3	11.5	19.1	2803	2.37
	CD (0.05)	6.0	2.4	3.4	2040	

The present investigation was conducted at the Instructional Farm, College of Agriculture, Vellayani, Trivandrum during the summer period of 1994-95. The experiment was laid out in randomised block design with three replications and ten treatments using the mosaic resistant variety Arka Anamika as the test crop. The soil of the experimental plot Plintic Kandiustalf was low in available nitrogen, medium in phosphorous and low in potassium (223 N, 22 kg P_2O_5 and 42 kg K_2O ha^{-1}). Rainfall was not received during the

entire growth period of the crop. Inorganic fertilizers were applied at the rate of 50 kg N, 8 kg P_2O_5 and 25 K_2O ha^{-1} (KAU, 1993) in the form of urea, mussoorie phosphate and muriate of potash respectively for T7 and T8. Three fourth and half of the recommended dose of NPK were applied for T9 and T10 respectively. Organic manures were applied as basal dose for all treatments. T6 received the basal dose of inorganic fertilizers (25 kg N, 8 kg P_2O_5 and 25 kg K_2O ha^{-1} and epigeic earthworm species, *Eudrillus eugeniae* were released at the rate of 50 worms per m^2 two weeks after fertilizer application. The plots were irrigated on alternate days and fruits were harvested as green vegetable. Statistical analysis of the cumulative yield data is presented in Table 1.

The yield data (Table 1) revealed that vermicompost as an organic source along with full recommended dose of inorganic fertilizers produced the highest yield and was on par with T6, *in situ* release of earthworms after basal application of inorganic fertilises (25:8:25 NPK) and T9 (vermicompost as organic manure 3/4th recommended dose of NPK). The same treatments (T8, T9 and T6) recorded enhanced yield of 105 per cent, 69 per cent and 51 per cent respectively over T7 (Cattle manure with full recommended dose of inorganic fertilizers). T7 was also on par with T10 and T3 indicating the yield at 12 t ha^{-1} of cattle manure and full dose of inorganic fertilizers is equivalent to vermicompost alone. Growth characters also showed a similar trend.

Cost:benefit ratio was calculated taking the production cost of vermicompost as Rs.0.50 per kg. It was noticed that by using vermicompost as an organic source and the *in situ* application epigeic worms will reduce the cost of cultivation considerably (Table 1). Vermicompost is a good organic manure substitute for cowdung, and is also a partial substitute for costly inorganic fertilizers. The fertilizer budget can be saved with appreciable increase in fruit yield in summer crop bhindi.

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