

The Performance of Local Organic Inputs in Crops at Farmer Field under Organic Environment.

By

Sanjeev Kumari

Reg. No-18710225(Environment Science)

JJTU,Juhnjhunu(Raj.)

UNDER THE GUIDANCE OF

Dr. P.K. Gupta

Senior Lecturer

Amity Institute of Organic Agriculture

Amity University Uttar Pradesh

Noida U.P.

Session 2010-12

Life is the precious gift of nature and the human has always been in search of better life. For more food production farmers has exploit the chemical fertilizers and by using these commercial inputs, food and soil quality has been adversely affected. Its impact on human health has also been emerged in the face of different nutritional deficiency disorders. Moreover, human health is more challenging issue to a day. To obtains quality food production healthy soil system is required.

Health of citizens is of prime importance in the overall development of the nation which is achievable only with nutritive food. The nutritive and healthy food can produced from healthy soil. So, buildup of soil health is the crucial need to save the nation. No doubt, Green Revolution has given rich dividends and has shifted Indian agriculture from a step of food deficiency to food sufficiency, but high and injudicious use of chemicals, fertilizers, pesticides resulted in serious pest problems i.e. water holding capacity (WHC) of soil, soil fertility column, moreover all these problems have resulted in nutritional deficiency in the food although production is in bulk.

Agricultural soil has been adversely affected by chemical fertilizers, pesticides, and heavy machinery resulted by organic carbon and microbial pool, which create a unique environment for biologically active soil which has sprinkled since green revolution and it has been observed that most of the soil are not responding towards productivity. Under such circumstances build up of soil health is urgent need. To minimize the cost of cultivation which is beyond the farmer's reach, low cost organic inputs respondent to soil health and crop productivity. **At this juncture, a keen awareness has sprung on the adoption of "organic farming" as a remedy to cure the ills of modern chemical agriculture.**

"Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved."

Objectives of the study:

1. To study the viability of microbial counts in the local organic inputs, soil health of selected field and crop productivity.

The Preparation method of the different organic inputs are following:-

1. Panchgabya (Pn): The five cow products was mixed with the following proportion – cow dung-5kg, cow milk-2litre, cow curd-2kg, cow urine-3litre and cow ghee-500g in a drum. Mixed well and kept it for one week. Afterward fermented material ready to use. *Panchagavya* is also a traditional method, used to safeguard for growing plants and soil micro-organisms and to increase the production also.

2. Jivamrit (J): The mixture of cow dung-10kg, cow urine-10litre, Jaggary(Gur)- 2kg and Pluse flour- 2kg. Mix well and keep it for one week. It is containing huge quantity of microbial load. The yield increased significantly over control with application of Jivamrit.

3. Vermiwash (V): It is the watery extract of vermicompost. In this 100kg of vermicompost with thick volume of worms was put into a drum with a tab at the bottom of the drum. Small stones were put on the bottom then straw was spread on that and then gunny bag was put. Now the vermicompost was put then again straw and gunny bag was put on upper side of the drum. Now watering on the drum 5-6 litre water per day (in 5 installment with the gap of 2 hours between installments in each watering installment) for one week. When whole vermicompost was saturated with water then extract water was came out side from tab and collected in a container. It is an effective biopesticide

4. Banyan tree soil (BS): This was the soil below the old banyan tree with thick volume of microbes, because large no. of birds releases the excreta on the soil below the tree. By this large no. of microbes were present in the particular soil. Which was improving the fertility of soil by microbial activity.

Selection of Crops for Experiment: *Rabi* crop may be selected because the study is basically done on effect of various on-farm Traditional Formulation on soil health.

Application of Organic inputs- The inputs were applied four times @ 50 Kg. / Liter per hector at 0, 15, 30 and 45 day intervals as basal dose in liquid form. It has been observed that all these inputs performance was significantly higher in rhizospheric zone as compare to control plots where all the inputs were applied in no crop plots and plots with crop. T1 to T8 are the treatments for different plots. T1 - Crop with *Panchgabya*, T2- Crop with *Jivamrut*, T3- Crop with *Vermiwash*, T4- Crop with *Banyan tree soil*, T5- Without Crop *Panchgabya*, T6- Without Crop *Jivamrut*, T7- Without Crop *Vermiwash*, T8- Without Crop *Banyan tree soil*. Randomization method is used for experiment.

Use Plant Protection technique as per availability of local viz. - Old Mattha, Pheromones Trap, Light Trap, Neem Seed kernel Extract, Turmeric solution, Garlic, ginger and chilly extract was taken.

RESULT AND DISCUSSION

This research was conducted with four different innovative organic inputs with and without crop plots with eight treatments and in three replicates on Wheat C-306 (*Triticum aestivum*). The observations are following:-

The maximum no. of tillers was 14.1 found in crop with vermiwash and height of plant 149.90cm with vermiwash. The total biomass, yield of grains and weight of straw in Quintals per hector was found maximum 175.4 and 51.3 in Panchagabya and 124.42 in Vermiwash respectively. In this experiment the value of soil pH, EC, OC%, N, P, K and S was maximum 7.78, 1.44 dSm⁻¹, 0.37%, 114.53 Kg/ha, 6.83, 205.33 Kg/ha and 157.37ppm respectively. The Maximum bacteria and fungai was found 4.23x10⁶ and 1.40x10⁶ in Banyan tree soil at 192 hr respectively.

Conclusion

The conclusion from above results was that the value in the plots without crop was more than the crop plots. This was due to no plant were there for uptake of minerals from soil. The organic phosphorous compound are decomposed and mineralized by enzymatic complexes like phosphates produced by microbes. In ecosystem, a mixed population of microbes is essential to promote enzymatic degradation of naturally occurring phosphorous compounds.