

## Research Article

# Effect of different organic sources on biological properties of soil, nutrient uptake, quality and yield of soybean

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### Summary

The present investigation was conducted to study the effect of different organic sources on biological properties of soil, nutrient uptake, quality and yield of soybean. It was carried out during *Kharif* 2010-11 at Research Farm, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The results indicated that application of different organic sources *i.e.* vermicompost, FYM, compost and crop residues increased the biological properties of soil, nutrient uptake, quality and yield of soybean. Highest increased activity of micro-organisms, uptake of nutrient, quality and yield of soybean with the application of 100 per cent RDN through vermicompost + jeevamrut.

**Key words :** Jeevamrut, Vermicompost, Compost, FYM, Crop residues, Soybean, Fertility, Quality, Yield

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## Introduction

The organic manures supply primary, secondary and micronutrients to plant which are liberated in an individual form during the process of mineralization carried out by different micro-organisms. The addition of organic matter in the soil stimulates the activity of soil micro-organisms through supply of energy. The organic matter activates the soil ingredients necessary for a plant's healthy growth. It has a very complex effect on soil and on plant growth as well as improves the physical, chemical and biological properties of soil. Therefore, use of chemical fertilizer alone may not keep pace with time in maintenance of soil health.

## Resources and Research Methods

A field experiment was conducted on an experimental farm of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during *Kharif* 2010 in Randomized Block Design with eleven treatments of organic sources including control with three replications. Some of the soil physico-chemical properties of the experimental field prior to experimentation were pH 8.1, EC 0.26 dSm<sup>-1</sup>, CaCO<sub>3</sub> 6.5 per cent, organic carbon 4.2 g kg<sup>-1</sup>, available nitrogen 204.2

kg ha<sup>-1</sup>, available phosphorus 16.82 kg ha<sup>-1</sup> and available potassium 328.3 kg ha<sup>-1</sup>.

The soybean crop was sown by drilling method on 23<sup>rd</sup> June, 2010 in 5.40 x 9.00 m<sup>2</sup> plots with row to row spacing 45 cm and plant to plant spacing of 5 cm. The crop received 1157.4 mm of total rainfall during its growth period. Five randomly selected plants were sampled from each replication at harvest for chemical analysis. Composite soil samples (0-30 cm depth) before sowing of crop was taken from the experimental area and plot wise soil samples were taken after harvest of soybean crop. Plant and soil samples were determined by using the modified methods (Piper, 1966 and Jackson, 1973). Similarly, soil microbial count was determined by serial dilution plate technique (Dhingra and Sinclair, 1993)

## Research Findings and Discussion

The experimental findings of the present study have been presented in the following sub-heads:

### Biological properties of soil :

The results presented in Table 1 indicated that the highest