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Research Paper

Effect of integrated organic sources of nutrients on quality and economics of groundnut (*Arachis hypogaea* L.)

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ABSTRACT

A field experiment was conducted during *Kharif* season 2008 at farmer's field, Chintamani Taulk, Karnataka, to evolve integrated organic nutrient management practices for quality and economics of groundnut under rainfed condition. Quality parameters like protein content (22.4%), oil and protein yield (648.6 kg $ha^{-1}$and 363.2kg ha^{-1}, respectively) were significantly higher with application of FYM (7.5 t/ha^{-1}) + *Rhizobium* + PSB + Panchagavya spray (3% at 30, 60 and 75 DAS) as compared with other treatments. However, oil content did not differ significantly. The highest net monetary returns (Rs. 45,201 ha^{-1}) and benefit: cost ratio (2.66) were recorded with application of FYM (7.5 t/ha^{-1}) + *Rhizobium*+ PSB (10 kg each ha^{-1}) + Panchagavya (3% @ 30, 60 and 75 DAS) followed by FYM + *Rhizobium* + PSB (10 kg each ha^{-1}) + bio-digester based on N equivalent (2.41).

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Key words : Organic manures, Panchagavya, Jeevamruta, Yield, Quality, Economics

INTRODUCTION

Groundnut (*Arachis hypogaea* L.) is the world's fourth important source of edible oil and third important source of vegetable protein. The low level of productivity of groundnut in India has been ascribed to several constraints. Soils low in organic matter content, poor in fertility status are considered to be the major problem. The ever- increasing cost of chemical fertilizer has made it to be realized once again that organic material will have to be utilized judiciously to maintain and improve the soil fertility and productivity. Hence, an attempt was made to investigate the effect of integrated organic sources of nutrients on production and quality of groundnut.

MATERIALS AND METHODS

Field experiment was conducted at farmer's field, Chintamani, Karnataka state during *Kharif* season 2008. The texture of soil was red sandy loam having neutral pH with organic carbon (0.66%), available nitrogen (256.14 kg ha^{-1}), phosphorus (37.45 kg ha^{-1}) and potassium (381.6 kg ha^{-1}). The variety used was CTMG 1. The experiment was laid out in a Randomized Complete Block Design with three replications involving 12 treatments. The biofertilizers are enriched with bulky organic manures and oil cakes. Liquid organic manures like 3% Panchagavya was sprayed @ 30, 60 and 75DAS and Jeevamruta and Bio-digester were analyzed for its nitrogen content (prior to application), on the basis of nitrogen content required quantity of Jeevamruta was applied in treatment T_6 and T_9 and bio-digester with 1:10 dilutions (Bio-digester**:** water) was applied in treatment T_8 and $T_{11.}$ Both Jeevamruta and Bio-digester were applied four times *i.e.* three hours before sowing, 30, 60 and 90 days after sowing (DAS).

Panchagavya stock solution was prepared by using following ingredients and method. 7 kg cow dung and 1 kg cow ghee were mixed well and kept for 2 days; 2 l cow urine and 10 l water were added to the mixture and left for 15 days; Then 3 l of sugarcane juice + 2 l of cow milk + 2 l of curd + 2 l tender coconut water + 250 g jaggary + 1kg ripened banana were added to accelerate the fermentation. All the materials were added to a wide