



Effect of levels of post biomethanated spent wash (PBSW) on nutrient concentration and uptake at harvest of soybean

ASHWINI C. CHANDEL AND H.P. PARDESHI

ABSTRACT

This study was conducted on Inceptisol soil at Rahuri (Maharashtra) and concluded that, the soil available major nutrients viz., nitrogen, phosphorus and potassium were observed to increase significantly in the 120 m³ PBSW ha⁻¹ + RDF application of soybean. Significantly higher uptake of nitrogen and potassium was observed in 120 and 100 m³ PBSW ha⁻¹ + RDF, respectively and phosphorus was observed in 60 m³ PBSW ha⁻¹ + RDF level.

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Key words : PBSW, Nutrient concentration and uptake, Soybean

INTRODUCTION

Soybean [*Glycine Max* (L.) Merrill] is an important pulse as well as oilseed crop. It is believed to be the originated in China. Nutritionally, soybean is an excellent source of protein and oil. It contains 38 to 43 % protein, 18 to 20 % oil, 26 % carbohydrates, 4 % minerals and 2 % phospholipids. Among the oilseed crops, soybean has occupied third place in the edible oil scenario of India, next to groundnut, rapeseed and mustard.

In India, the area under soybean was 8.88 million ha, with production and productivity of 9.99 MT and 1124 Kg ha⁻¹, respectively. In Maharashtra area under soybean was 2.66 million ha, production and productivity of 3.97 MT and 1492 Kg ha⁻¹, respectively (Anonymous, 2008).

Alcohol is one of the major revenue earning enterprises for the government. The fermented molasses is distilled and alcohol is obtained. The liquid left after distillation of fermented molasses is known as spent wash.

The amount of spent wash produced is quite staggering causing environmental pollution and disposal

problem. However, some recent studies indicate its potential for crop production as a source of nutrient. The idea of methane generation from spent wash came forward generated with a view to use huge organic load present in spent wash. The effluent left after the methane gas generation is known as post biomethanated effluent or primary treated effluent.

The post biomethanated spent wash is nearly neutral in reaction (pH 7.51), contains high concentration of soluble salts (EC 41.6 dSm⁻¹) with low BOD (5400 mg L⁻¹) and COD (24680 mg L⁻¹) and good amounts of nitrogen, phosphorus and potash. Therefore, post biomethanated spent wash could be utilized as a liquid manure and should not have adverse effects on availability of soil nutrients as well as on physico-chemical properties of soil.

MATERIALS AND METHODS

The field experiment with soybean was conducted at Post Graduate Institute Research Farm, Department of Soil Science and Agril, Chemistry, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmadnagar

Correspondence to :

ASHWINI C.CHANDEL, Department of Soil Science and Agricultural Chemistry, Rajiv Gandhi Agricultural College, PARBHANI (M.S.) INDIA

Authors' affiliations:

H.P. PARDESHI, Department of Soil Science and Agricultural, Chemistry, Mahatma Phule Krishi Vidyapeeth, Rahuri, AHMEDNAGAR (M.S.) INDIA