



Effect of mechanization with different land configuration on economics and energetics of soybean

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ABSTRACT

An experiment was conducted during the *Kharif* season of 2009-10 to study the effect of mechanization with different land configuration on growth and growth attributes of soybean with RBD design. The treatment consisted of six land configuration treatments. viz., T₁ (Flat bed layout), T₂ (BBF layout), T₃ (Ridges and furrow), T₄ (Flat bet + opening of furrow after every two rows at 30 DAS), T₅ (Flat bet + opening of furrow after every 5 rows at 30 DAS), T₆ (Conventional / farmers practice) and replicated four times. Result showed that, significantly higher energy output and energy use efficiency found in tractor drawn broad bed furrow, followed by ridges and furrow. Significantly higher GMR, NMR was found in broad bed furrow, higher B:C ratio was also recorded in broad bed furrow method.

KEY WORDS : Soybean, Land configuration, Mechanization, Economics, Energetics

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INTRODUCTION

Soybean (*Glycine max.* L.) is one of the important oilseed as well as leguminous crop. It is the cheapest and richest source of high quality protein. It supplies most of the nutritional constituents essential for human health. Hence, soybean is called as "Wonder Crop" or "Golden bean" or "Miracle bean". This crop in fact has made revolution in the agricultural economy with its immense potential, quality of food, feed and numerous industrial production commodity. Symbiotically soybean fixes 125-150 kg N ha⁻¹ (Chandel and Bhatia, 1989) and leaves about 30-40 kg N ha⁻¹ for succeeding crop (Sexena and chandel, 1992). In India, soybean is grown over an area of 7.46 m ha with a production of 8.35 m tonnes and with average productivity of 1007 kg ha⁻¹. Madhya Pradesh, Uttar Pradesh and Maharashtra are the major soybean producing states. (Anonymous, 2006). To improve economics potential and energetics of soybean to use mechanization with different land configurations. Patil (2005) conducted an experiment on soybean and reported

that higher values of GMR (Rs. 21878 ha⁻¹), NMR (Rs. 12349 ha⁻¹) and B:C ratio 2.29 were recorded in ridges and furrow over (Rs. 17379 ha⁻¹ Rs. 7876 ha⁻¹ and 1.82, respectively) on flat bed and Jain and Dubey (1998) investigated that highest net returns of Rs. 9075 ha⁻¹ and B:C ratio of 2.43 were obtained by ridge planting with two rows followed by ridge planting one row (Rs. 7936 ha⁻¹ with B:C ratio 2.27, respectively) and conventional system (Rs. 6797 ha⁻¹ with B:C ratio 2.03, respectively). Considering the above facts, attempt was made to study the effect of mechanization with different land configuration on economics and energetics of soybean.

MATERIALS AND METHODS

An experiment was carried out during *Kharif* 2009-10 at Gadadhi Block, Central Research station, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.). The experiment was laid out in Randomized Block Design in Four replications with Six land configuration treatment *i.e.* T₁ (Flat bed layout), T₂ (BBF layout), T₃ (Ridges and furrows), T₄ (Flat bet + opening of furrow after every two rows, at 30 DAS), T₅ (Flat bed + opening of furrow after every 5 rows at 30 DAS), T₆ (Convention / Farmer's practice). In treatments T₁ to T₅ were mechanized culture with tractor. Gross plot size was of 15 m x 4.5m with net plot size of 13.0m x 3.6m. The experimental site was clayey in texture, low in nitrogen content, medium in phosphorus

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