



Effect of mechanization with different land configuration on yield and *in situ* moisture conservation of soybean

J.A. JADHAV*, D.B. PATIL¹ AND P.G. INGOLE

Department of Agronomy, College of Agriculture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth,
AKOLA (M.S.) INDIA

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 bed + opening of furrow after every two rows at 30 DAS), T₅ (Flat bed + opening of furrow after every 5 rows at 30 DAS), T₆ (Conventional / farmer's practice) and replicated four times. Result showed that, yield contributing character viz., number of pods plant⁻¹, seed yield weight (g) plant⁻¹, 100 seed weight (g), seed yield (q ha⁻¹), straw yield (q ha⁻¹) and harvest index (%) also found higher in broad bed furrow followed by ridges and furrow. Treatment of broad bed furrow with mechanized culture also improved significantly soil moisture content, consumptive use, relative water use and absolute water use.

Key Words : Soybean, Land configuration, Mechanization, Yield attributes, *In situ* moisture conservation

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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, numerous industrial production commodity. Symbiotically soybean fixes 125-150 kg N ha⁻¹ (Chandel *et al.*, 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 yield potential and *in situ* moisture conservation of soybean, it is necessary to use mechanization with different land configurations. Patil (2005) stated that in soybean yield contributing characters like number of pods

plant⁻¹, number of seed plant⁻¹, weight of pods plant⁻¹ and weight of seed plant⁻¹ were found significantly higher under ridges and furrow method of planting. Seed yield (1988 kg ha⁻¹), straw yield (4130 kg ha⁻¹) and biological yield (6135 kg ha⁻¹) were found significantly higher in ridges and furrow as compared to 1579 kg ha⁻¹, 2910 kg ha⁻¹ and 4489 kg ha⁻¹, respectively on flat bed and Anonymous (2004) reported that land treatments are the practices that promote maximum conservation of rain water where it falls *i.e. in situ* moisture preservation and this can be achieved by adopting different land configuration treatments like ridges and furrows, broad bed furrows etc. Considering the above facts, attempt was made to study the effect of mechanization with different land configuration on yield and *in situ* moisture conservation of soybean.

MATERIALS AND METHODS

An experiment was carried out during *Kharif* 2009-10 at Gadadhi Block, Central Research station, Dr. Panjabrao

* Author for correspondence.

¹Department of Agronomy, College of Agriculture, NAGPUR (M.S.) INDIA