

Research Article

Long-term effect of organic manuring and inorganic fertilizers for enhancing yield and soil properties under soybean (*Glycine max* L.)-safflower (*Carthamus tinctorius* L.) cropping sequence in Vertisol

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Summary

Long term fertilizer experiment was started from 2006-07 Department of Soil Science and Agricultural Chemistry, Vasant Rao Naik Marathwada Agricultural University, Parbhani, to study the effect of manures and fertilizers on yield and soil properties under soybean-safflower cropping sequence during 2006-07 to 2010-11 on Vertisol (*Typic Haplusterts*). The results of pooled mean indicated that the 100 per cent NPK+FYM @ 10 Mg ha⁻¹ was recorded highest grain yield of soybean (26.44 q ha⁻¹) and safflower (18.71 q ha⁻¹), whereas, it was statistically at par with 150 per cent NPK and 100 per cent NPK+25 kg ZnSO₄ ha⁻¹ in both the crops. Maximum soybean straw yield (35.02 q ha⁻¹) was recorded by the treatment receiving 100 per cent NPK+FYM @ 10 Mg ha⁻¹, whereas highest straw yield of safflower (49.17 q ha⁻¹) was recorded by the treatment 150 per cent NPK, but it was at par with the treatment receiving 100 per cent NPK+FYM @ 10 Mg ha⁻¹ (47.85 q ha⁻¹). The highest soybean grain equivalent was recorded by the treatment 100 per cent NPK+FYM @ 10 Mg ha⁻¹, whereas, maximum benefit cost ratio (1.90) was found in the treatment receiving 150 per cent NPK followed by 100 per cent NPK+Zn (1.84) and 100 per cent NPK+FYM @ 10 Mg ha⁻¹ (1.83). The improvement of soil properties with respect to pH, EC, OC, available NPKS and Zn was also prominent with the application of 100 per cent NPK+FYM @ 10 Mg ha⁻¹ as compare to all the treatments.

Key words : Long term, Soybean grain equivalent, Manures, Benefit cost ratio

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