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## Study on Effects of Integrated and Conventional Fertilisation Systems on Chemical Properties of Soil and Rapeseed (*Brassica napus*) Yield

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### Abstract

In a two years experiment, at randomised completely block design, the effects of integrated and chemical fertilisation on some chemical characteristics of soil and rapeseed yield were studied in Savadkooch region. Treatments conclude 0, 50,100, 150, 200 kg N ha<sup>-1</sup> urea (F0 to F4), 150 kg N ha<sup>-1</sup> urea + 50 kg N ha<sup>-1</sup> manure (MF1), 100 kg N ha<sup>-1</sup> urea + 50 kg N ha<sup>-1</sup> manure (MF2), 50 kg N ha<sup>-1</sup> urea + 100 kg N ha<sup>-1</sup> manure (MF3), 150 kg N ha<sup>-1</sup> manure (M). After the first year results showed that the highest yield obtained from the integrated system (35 % N organic + 100 % N inorganic). There was no difference between the seed yield of the integrated and chemical treatments. But in the second year, the integrated treatments seed yield was significantly higher than the chemical treatments. Manure application improved chemical properties of soil. For example, the 100 % organic fertiliser system (M), increased available phosphorus and exchangeable potassium in amount of 115 % and 26 % compared to 100 % inorganic fertiliser system (F3). In integrated (MF1 , MF2, MF3) and chemical treatments (F3) organic carbon increased but this increasing was respectively 12 % and 35 % at chemical and integrated systems. Total nitrogen had similar trend and their correlation coefficient were very significant (R<sup>2</sup>=0.93). pH was not affected by treatments but EC increased in chemical and integrated fertilisation systems compared to control treatment. In attention to the results, integrated fertilisation system can be suggested as a suitable strategy to improve nutrients recycle in soil and sustainability of yield in oilseed rape

**Keywords:** Canola, integrated fertilisation system, manure, oil rapeseed