EFFECT OF ORGANIC AND INORGANIC NUTRIENTS SOURCES ON THE SELECTED PROPERTIES OF CALCAREOUS SOILS AND YIELD OF WHEAT

Aman Ullah[1], Farman Ullah Khan[2], Nazia Tahir[2], Izaz Ali[1], Ali Muhammad[1], Muhammad Uzair[1] and Humayun Khan[1]

[1]*Department of Soil and Environmental Sciences*

[2]*Department of Agriculture, The University of Agriculture, Peshawar*

amankhan.ses@gmail.com

Abstract

To evaluate the potential use of organic and inorganic nutrients sources on wheat production, an experiment was conducted during 2012-13. The experiment consisted of different combinations of organic (Farm yard manure and poultry Manure) and inorganic (NPK) fertilizers. The NPK doses were applied at the rate of 0%, 50% and 75% of the recommended doses of NPK while farm yard manure (10 and 20 t ha^{-1}) and poultry manure (5 and 10 t ha^{-1}) were applied about one month before sowing of wheat crop. A control treatment (no application of either treatment) was included in the experiment for comparison. All the treatments were replicated three times in randomize complete block design at New Developmental Farm of the University of Agriculture Peshawar Pakistan. The experimental results showed that organic and inorganic amendments significantly affected biological yield, grain yield, thousand grain weight, soil EC, pH, soil organic matter, N, P, K, Fe and Zn while no significant changes were noted in soil lime content, Cu , Mn and saturation percentage of the soil. Higher thousand grains weight (51.17g), and biological yield (10092 kg ha^{-1}) was observed with the application of 5 tons PM along with application of 75% NPK, while grain yield (3374 kg ha^{-1}), EC (0.29 dsm^{-1}), N (26.5 mg kg^{-1}), K (84.90 mg kg^{-1}), Fe (6.25 mg kg^{-1}) and P (3.58 mg kg^{-1}) were significantly increased with application of 20 tons FYM along with 75 % NPK. SOM (1.74%) was enhanced with application of 20 tons FYM alone. From the results it was concluded that best an economical combination of organic fertilizers with inorganic fertilizers for optimum yield of wheat, yield and yield components and soil physico-chemical properties for sustainable yield were significantly enhanced with the application 20 tons FYM along with 75% NPK fertilization.