

RESEARCH REGARDING THE LONG-TERM FERTILIZATION ON THE WINTER WHEAT YIELD, AT A.R.D.S. SECUIENI

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Abstract

Winter wheat is a demanding plant to the fertilizers application having an high consumption of nutrients: N – 24 – 36 kg/t wheat; P₂O₅ – 12 – 18 kg/t wheat; K₂O – 18 – 36 kg/t wheat; CaO – 6 – 10 kg/t wheat; MgO – 3 – 45 kg/t wheat. The radicular system is poorly developed, exploring a low volume of soil, with low power of absorption and leaching of the nutrient elements. One of the important links in this crop technology is the application of fertilizers which influence the quantity, quality and economic levels of the obtained yields. The paper aims to interpret from a technical point of view the obtained data and production functions resulting from the application of different doses of fertilizers with nitrogen and phosphorus. The data come from a long experience with chemical fertilizers for wheat, located at A.R.D.S. Secuieni during 2013-2015. Through the application of fertilizers containing nitrogen and phosphorus at wheat (compared with the control variant N₀P₀) were obtained production increases between 12 - 58% representing 1018 kg wheat/ha - 2909 kg wheat/ha. The phosphorus fertilizers brought average increases compared with the unfertilized variant P₂O₅ of 7 – 17% representing 451 kg wheat/ha – 987 kg wheat/ha. In the case of nitrogen fertilizers the average increases compared to the control variant N₀ were of 14 – 36% representing 763 kg wheat/ha – 1954 kg wheat/ha. Wheat production increases were related with the applied fertilizer doses settling highly significant correlations. The production increases achieved by applying 1 kg a.s. of fertilizer had average values of 5.71 – 11.27 kg wheat/kg P₂O₅ at the fertilizers with phosphorus and 12.21 – 19.07 kg wheat/kg N at the fertilizers with nitrogen. These increases were directly correlated with the fertilizer doses used in winter wheat crop.

Key words: wheat, increases, nitrogen, phosphorus, yield.