

Genotype-specific nutrient responses of wheat (*Triticum aestivum* L.), Maize (*Zea mays* L.) and sunflower (*Helianthus annuus* L.)

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Abstract. *The long-term experiments were carried out on chernozem soil in eastern part (Hajdúság) of Hungary. Our scientific data proved that the most important parameters for the characterization responses were the followings: natural nutrient utilization ability (yield in control), fertilizer utilization ability (yield surpluses of NPK fertilizers), maximum yield, fertilizer requirement ($N_{opt}+PK$). The genotypes of wheat, maize and sunflower could be classified into 4 groups: type A = modern genotype (high natural and fertilizer responses); type B = traditional intensive genotype (moderate natural nutrient utilization and excellent yield surplus of NPK fertilizer); type C = traditional extensive genotype (high control yield and low yield increasement by NPK fertilizer); type D = old genotype (bad natural and fertilizer responses). By using of genotype fertilization crop model we can improve the efficiency of natural and fertilizer utilization in wheat, maize and sunflower production.*

Keywords: natural nutrient utilization, fertilizer response, genotype

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