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Effects of Phosphorus and Iron Fertilization Rate on the Mechanical Damage to Wheat Seeds

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Abstract. *The effects of phosphorus and iron fertilizers on the mechanical damage to wheat seeds are unclear. The objectives were to determine the effect of different levels of phosphorus and iron fertilization on wheat seed damage under impact. Phosphorus and iron treatments were combinations of four phosphorus rates (0, 75, 150 and 225 kg/ha, P₂O₅) and three foliar iron rates (0, 1.2 and 2 L/ha, Fusin) at three replications. The harvested seeds were then subjected to impact energies of 0.1 and 0.2 J, at moisture contents of 8.5 to 25% (wb). Phosphorus and iron fertility levels and the interaction between two variables significantly influenced the mechanical damage to wheat seeds (P<0.01). Resistance to damage of wheat seeds increased following linear and polynomial relationships with increase in the phosphorus and iron fertilization rates, respectively. Increasing the rate of phosphorus from 0 to 225 kg/ha caused a significant decrease in the mean values of damage from 54.854 to 26.406% (by 2.07 times). The mean values of damage to seeds decreased significantly from 52.396 to 24.070% (by 2.17 times) as the rate of iron foliar increased from 0 to 2 L/ha. As the moisture content of the seeds increased from 8.5 to 25%, the percentage breakage of seeds decreased, at all rates of the phosphorus and iron fertilizers.*

Keywords : Wheat, mechanical damage, harvesting, handling, fertilization.