# Effect of K and Cl on potatoes. (S08-horneck173848-Poster)

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## Abstract:

Studies have shown the benefits of no-till (NT) at reducing erosion but the impact on runoff is inconsistent. The role that residue plays at controlling the runoff and erosion in NT and conventional-tillage (CT) systems, and the carry-over effects from year to year, is less clear. This is particularly true when long-term CT systems are converted to NT systems or long-term NT converted to CT. The objective of this study was to use plots with CT history (CTh) and NT history (NTh) maintained as CT and NT and others converted from CTh to NT and NTh to CT to elucidate the effects of tillage practices and residue management, by removal of residue cover, on runoff and erosion. Plots had an average slope of 5.6% on a Grenada Silt Loam (Glossic Fragiudalf) soil. Rainfall simulations were conducted on an 3.7 m by 10.7 m area within each plot at a rate of 65 mm/h for one hour under natural antecedent soil-water conditions (dry run), followed by a 0.5 h simulation four hours later (wet run), and another 0.5 h application 30 minutes later (very wet run). Soil losses and runoff were adjusted for variations in rainfall to the prescribed application rate and soil losses were further adjusted for differences in slope among plots. As expected, runoff increased with each rainfall event in response to increased antecedent soil water contents. While NT systems exhibited greater runoff than CT systems, sediment losses were significantly lower with NT. Initial response to residue removal was an increase in runoff and erosion for both systems. The second year of residue removal did not affect runoff but caused substantially higher sediment losses. The carry-over effect of residue removal resulted in NT systems having similar erosion rates as CT systems.

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