

Rebuilding the Fertility and Productivity of Eroded Knoll Soils in South Central Saskatchewan: Third Year Results

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A three-year study (2020-2022) was conducted on an eroded convex knoll landscape position in two adjacent fields near Central Butte, SK, to compare the crop and soil response to various amendments containing phosphorus, copper and zinc as a means to reclaim the fertility and productivity of these soils. Nine treatments were applied prior to the 2020 growing season, one of which being eroded topsoil transplanted back onto the knoll from an adjacent depression area, along with an unamended check. Basal rates of N, K and S were applied in 2021 and 2022 to prevent nutrient deficiencies other than P, Cu and Zn.

Despite sub-optimal growing season moisture levels, restoring eroded topsoil back on the knolls clearly was the most effective amendment for increasing annual crop productivity on these degraded knoll landscape positions. Although the practicality and/or economic feasibility of topsoil replacement was not assessed in this study, this treatment serves well as a top end “optimal control” for comparison with other treatments.