Sprouting Success: Investigating Seedbed Quality and Early Growth in High-Residue Corn and Soybean Fields across Eastern Ontario

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No-tillage and cover cropping are agricultural practices aimed at enhancing soil health, with long-term economic and environmental benefits. However, they present short-term challenges including reduced stand establishment and yield, partly due to heightened levels of surface residue. This residue can impede planting and influence underlying soil conditions. While previous studies have linked altered soil conditions under high residue with reduced stand establishment, the effects of these changes on early crop growth—a crucial period for later stand establishment—are less understood. To address these gaps, we will conduct on-farm research in high-residue corn and soybean fields. Fields will be stratified by topography and residue level to create sampling zones reflecting varying levels of expected stand establishment. Seedbed soil qualities will be assessed before and after planting. Success, and timing, of germination and emergence after planting will be measured then associated with seedbed quality, stand establishment, and yield. This research aims to provide insight into the relationship between high residue levels and stand establishment across diverse field environments, informing hypotheses for future research. Additionally, it may offer farmers insights to tackle stand establishment issues on their farms and promote the adoption of no-tillage and cover cropping across Ontario.