## **Conservation Agriculture in North America**

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**Abstract :** Conservation Agriculture in a sustainable way of farming, as it brings many benefits, such as preventing soil from erosion and degradation, improving soil health, conserving energy, and sequestrating carbon. However, adoption of conservation agriculture has been progressing slowly in some part of the world due to some challenges. Among them, seeding in heavy crop residue is challenging, especially in corn production systems. Weed control is also challenging in conservation agriculture. This research aimed to investigate some technologies that can address these challenges. For crop residue management, vertical tillage and vertical seeding have been studied in multiple research projects. Results showed that vertical tillage and seeding were able to deal with crop residue through cutting residue into small segments, which would not plug seeder in the sub-sequent seeding. Vertical tillage is a conservation tillage system, as it leaves more than 30% crop residue on soil surface while incorporating some residue into the shallow soil layer for fast residue decomposition. For weed control, mechanical weeding can reduce chemical inputs in crop production. A tine weeder was studied for weed control during the early growing season of several field crops (corn, soybean, flax, and pea). Detail results of these studies will be shared at the conference.

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Keywords : tillage, seeding, mechanical weeding, crop residue

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