

Corn stover — biofuel or soil?

What is this technology?

This study addresses the sustainability of harvesting crop residues, e.g. corn stover, for biofuels, considering the impacts of residue removal on runoff, and soil and water quality.



Comparison of dark, organic matter-rich, no-till soil with lighter conventionally plowed soil

What is this research project?

- Addresses the sustainability of harvesting corn stover for other uses, e.g. biofuels.
- Different rates of corn stover (stalks, leaves) were removed.
- Impacts on soil properties, e.g. soil organic carbon, aggregate tensile strength, soil hydraulic properties, were assessed in terms of stover removal rates.

What problem does it address?

- Are conservation practices in conflict with harvesting biofuel source materials?
- No-till practices leave residues on the surface, which increase soil carbon, and reduce runoff and soil erosion,
- Removal of residues (e.g. for biofuel feedstocks) increases runoff and erosion, reduces beneficial soil properties.

How is this project different from other projects?

- This project addresses some limitations of the removal of crop residues for biofuel use.
- Environmental aspects of removing different rates of crop residues are evaluated.

What are the benefits of partnering with partnering with ARS on this research?

- The NAEW has a 40+ year consecutive no-till corn watershed where soil properties have been evaluated.
- This unique watershed facility can be used to address soil/environmental/residue/biofuel aspects of national energy concerns.

Who are the potential customers?

- The potential negative impacts of excessive removal of crop residues makes everyone an indirect customer.
- Direct customers include policy makers, agricultural producers, action agencies, and scientists.

Moving Forward

- Thus far studies have been conducted on small plots.
- Watershed scale studies are needed to determine the effects of crop residue removal on runoff/erosion and soil properties.
- Future studies may include ways to replace harvested residues, e.g. cover crops or addition of organic wastes.

Contact Information

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