

# Significant amounts of corn stover could be sustainably collected in the US for bioenergy

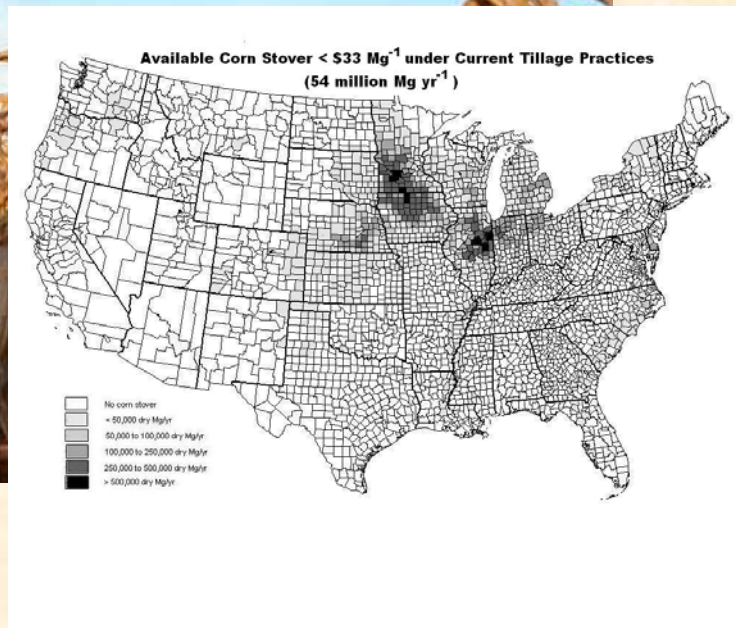
Contact: Robin Graham, [grahamrl@ornl.gov](mailto:grahamrl@ornl.gov), 865-576-7756 DOE/Energy Efficiency and Renewable Energy/Office of Biomass Program

↪ The potential supply of corn stover (stems, leaves, cobs) available for bioenergy was analyzed considering environmental constraints to collection and current US corn grain production.

↪ Under current practices ~ 30% of the stover produced in the US could be collected without causing excessive increases in erosion.

↪ This amounts to ~ 54 million dry tonnes of cellulosic material potentially available for ethanol production at a price < \$33/tonne.

↪ With a higher adoption of no-till corn production, stover amounts would double.



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Taking the approach that corn stover was only collectable if its removal wouldn't increase wind and rainfall erosion beyond T, the soil-specific tolerable erosion rate defined by the Natural Resource Conservation Service, a team of ecologists, engineers and economists analyzed the amount of stover that could be collected for bioenergy in the US. They concluded that 30% of the corn stover currently produced in the US (or ~ 54 million dry metric tons per annum) could be collected for less than \$33/dry tonne, using existing equipment and without undue increases in soil erosion. Stover is the aboveground portion of the corn (*Zea mays* L.) plant remaining after grain harvest; it includes the stalk, leaves, and cob and represents about half the dry mass of a corn plant at grain harvest. Using cellulosic ethanol technologies under development, this much corn stover could produce more ethanol than what is currently produced using corn grain (~4 billion gallons in 2005). If no-till corn production technology was applied to all US corn production, the harvestable corn stover would expand enough to produce more than twice the ethanol currently produced with grain. In three regions of the country, the collectable supply was sufficiently concentrated to support the establishment of large (million ton/yr) biorefineries.

Graham, R.L., R. Nelson, J. Sheehan, R.D. Perlack, and L.L. Wright. 2007. Current and potential U.S. corn stover supplies. *Agronomy Journal* 99:1-11. doi:10.2134/agronj2005.0222