Science Societies

Grazed grasslands for climate mitigation and adaptation

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Randy Jackson, author of a new commentary in Agricultural & Environmental Letters, speaking to field day audience about the potential for well-managed grazing of perennial grasslands to accumulate and stabilize soil carbon. Photo by Jacob Grace.

Most U.S. beef cattle are finished in feedlots where they are fed mostly corn grain to rapidly fatten the animals before slaughter. The greenhouse gas (GHG) contribution of this production system is roughly equivalent to the carbon footprint of 16 coal-fired power plants.

A recent *Agricultural & Environmental Letters* commentary posed the question, "Is there enough land in the U.S. to finish the same amount of beef as we do now on perennial grassland?" If all the land currently growing corn and soybeans for finishing beef and corn for ethanol were returned to well-managed grazed perennial grassland, the answer is yes!

If these grazed grasslands had no net change in annual soil carbon, they would emit GHGs equivalent to about 19 coal-fired power plants. However, most studies indicate soil carbon will increase in perennial grasslands, especially with well-managed grazing. If they accumulate about 1.6 tons C ha^{-1} yr^{-1}, this production system would meet the current U.S. demand for beef and have a net zero annual GHG contribution to the atmosphere. Significant governmental help would be needed though to help with the costs of transitioning to perennial grasslands, but the author describes these costs as trivial compared with the societal costs for cleaning up waters, stabilizing climate, and restoring biodiversity.

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Jackson, R.D. (2022). Grazed perennial grasslands can match current beef production while contributing to climate mitigation and adaptation. *Agricultural & Environmental Letters*, *7*(1), e20059. **https://doi.org/10.1002/ael2.20059**

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