Science Societies

Defining appropriate marginal lands for bioenergy crops

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Preparations for miscanthus on the research site from the Coastal Plain location with Noboco loamy fine sand, limited by erosion potential and relatively low realistic yield expectations. Inset: Auger borings from the research site in the North Carolina Piedmont

verifying properties of a mapped Helena loamy sand. Photo by Carl R. Crozier.

Bioenergy crops can help reduce dependence on fossil fuels and carbon emissions, but they can also compete with existing commodity crops for arable land. This can displace agricultural fields to areas not historically used for food production and generate more carbon emissions. To keep competition with commodity crops to a minimum, bioenergy crops should be allocated to “marginal lands.”

In a new *Agricultural & Environmental Letters* commentary, researchers argue that the definition “marginal” land is not as clear as it should be due to a lack of objective criteria. Differences between prime and less suitable land units for commodity crop production can be subtle, leading producers to convert areas for production that would be most appropriately left undisturbed so that they provide other valuable ecosystem functions.

The team suggests that “marginal” farmlands can be determined by combining information from soil survey classifications and realistic yield estimates for a particular location. They argue that such an approach should reflect local expertise in assessing site suitability and potential. Since production of bioenergy crops is likely to increase in the future, refining the criteria by which “marginal lands” are identified should be useful to land managers in making decisions regarding land use planning.

Dig Deeper

Crozier, C.R., Carvalho, H.D.R., Johnson, A., Chinn, M., & Heitman, J.L. Appropriate "marginal" farmlands for second generation biofuel crops in North Carolina. *Agricultural & Environmental Letters*, *6*, e20041. https://doi.org/10.1002/ael2.20041

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