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**Spatial dependence and its effect on available land for bioenergy crops**

Intentions to rent land for bioenergy feedstocks are spatially dependent between landowners

**The Science**

Spatial dependence, or the likelihood that nearby land units are more likely to be related than more distant ones, has effects on landowners’ willingness to make land available for bioenergy production.

**The Impact**

Predicting the potential supply of available land for bioenergy feedstock production in the United States has been an important subject of research since the passage of the Energy Independence and Security Act of 2007. The factors that drive biomass supply decisions are not yet fully understood, but nearby landowner’s decisions seem to have important implications.

**Summary**

Researchers in the Great Lakes Bioenergy Research Center conducted a survey of 599 owners of marginal lands in southern Michigan. Employing a Bayesian framework and using these spatially explicit data, they estimated and compared non-spatial and spatial models to examine the presence of spatial dependence in land rental intentions. Results show that intentions to rent land for bioenergy feedstocks are spatially dependent, and that this dependence arises both from the land supply intentions of nearby landowners and from their attitudes towards environmental aspects of land rental. Ignoring spatial dependence in the intentions of neighboring landowners to participate in land rental markets for bioenergy feedstocks can lead to distortions that underestimate the total effects of land rental for bioenergy crops. These findings have important implications for policy-makers seeking to expand the supply of land for bioenergy crops; policies aiming at increasing the increase on bioenergy crops should account for spatial interactions.

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**Publications**

Skevas T. *et al.* “Does Spatial Dependence Affect the Intention to Make Land Available for Bioenergy Crops?” *Journal of Agricultural Economics*DOI:10.1111/1477-9552.12233

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<http://onlinelibrary.wiley.com/doi/10.1111/1477-9552.12233/full>

**PM Recommendation for SC Web Publication**