CABBI
CENTER FOR ADVANCED BIOENERGY AND BIOPRODUCTS INNOVATION

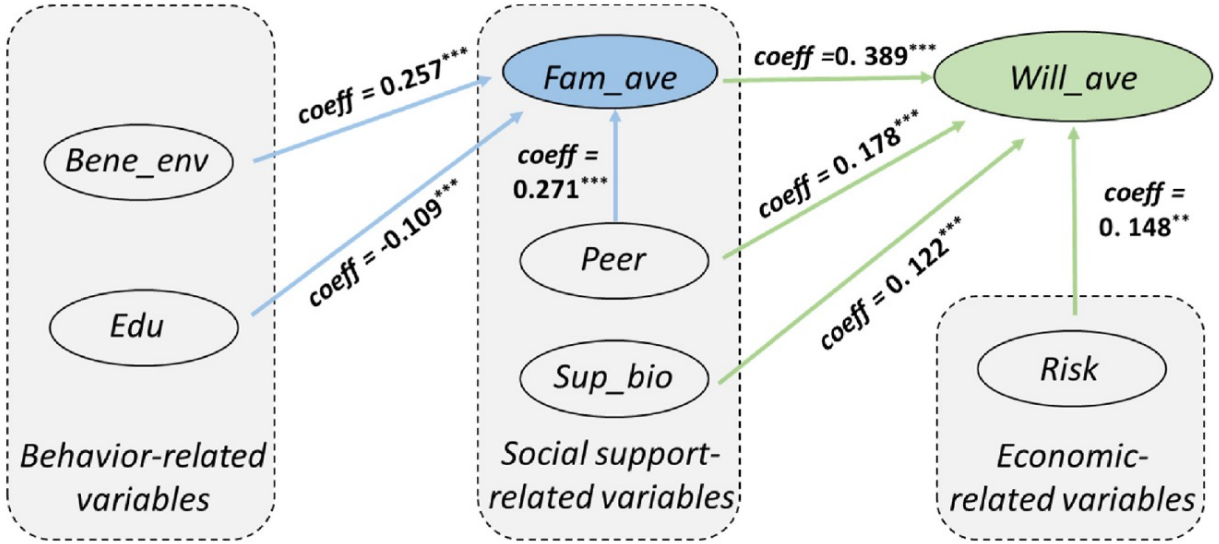
The Role of Social Support on Midwestern Farmers' Willingness to Grow Perennial Bioenergy Crops

Background/Objective

- Perennial bioenergy crops (PBCs) are promising candidates for an emerging U.S. bioeconomy due to their high yields and environmental benefits.
- Widespread integration of PBCs into the energy landscape depends on the willingness of farmers to adopt these crops at a broad scale, which underlines the importance of understanding the barriers to farmer adoption.
- In this study, researchers sought specifically to understand the influence of social support factors on farmer willingness to grow PBCs.

Approach

242 midwestern farmers were surveyed to understand the influence of economic, behavioral, and social support factors on their land use decisions. Response data were analyzed via least squares regression and structural equation modeling (SEM) to elucidate the interactive role of these factors on farmer willingness to grow PBCs.



A visualization of the SEM, showing only statistically significant variables (*P<0.01, **P<0.05, *P<0.1)**

Results

- This analysis identified six statistically significant predictors of farmer willingness to grow PBCs: perception of PBC environmental benefits (*Bene_env*), education level (*Edu*), willingness to take risks (*Risk*), familiarity with PBCs (*Fam_ave*), portion of peers already growing PBCs (*Peer*), and support of biorefineries locating in the local community (*Sup_bio*) - the latter three of which are social support factors.
- Familiarity with PBCs is identified as the most significant predictor of adoption willingness and is also an important intermediate variable mediating the influence of many other predictors.

Significance/Impacts

This work highlights the importance of social support factors, in particular familiarity with PCBs, in influencing farmer decisions to adopt these crops. These findings may be used to craft policies that more effectively promote the widespread adoption of these crops to promote their integration into the energy landscape.

Yang et al. 2023. "The Role of Social Support on Midwestern Farmers' Willingness to Grow Perennial Bioenergy Crops." *Biomass and Bioenergy*. DOI: 10.1016/j.biombioe.2023.106898.