

Sharing the risks, costs of biomass crops

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This image shows *Miscanthus*. Credit: University of Illinois

Farmers who grow corn and soybeans can take advantage of government price support programs and crop insurance, but similar programs are not available for those who grow biomass crops such as *Miscanthus*. A

University of Illinois study recommends a framework for contracts between growers and biorefineries to help spell out expectations for sustainability practices and designate who will assume the risks and costs associated with these new perennial energy crops.

"The current biomass market operates more along the lines of a take-it-or-leave-it contract, but in order to encourage enhanced participation and promote a more sustainable, stable biomass supply, a new kind of contract needs to be created," said Jody Endres, a U of I professor of energy and [environmental law](#).

Endres said that a good contract gives everyone more certainty.

"Incomplete contracts are the hazard," she said. "We need to develop contracts that nail down all of the details and are transparent about who's taking on the risk and who's paying for it. If we get these considerations into the contracts, those who finance this new biomass crop industry will have more certainty to invest."

The study identifies considerations that should be included in the framework for a biomass contract, including a control for [moral hazard](#), risk incentive [tradeoff](#), existing [agricultural practices](#), and risk and management tools to make the industry more sustainable financially and environmentally.

Endres said that if biorefineries receive money in the form of [carbon credits](#) for reducing pollution, incentives for farmers should be included in contracts because they are the ones who are bearing the risks associated with sustainability practices.

"Suppose a sustainability contract lists that the default should be integrated [pest management](#) rather than application of traditional pesticides," Endres said. "The farmer takes on some risk to provide a

sustainable product, but the biorefinery gets carbon credit for those sustainable practices. This should be worked into the contract—that if the farmer assumes the risk of IPM as opposed to traditional pesticide options, there has to be some sort of up-front payment or incentive in the contract to account for this risk. Due to the power relationships in this industry, the onus is on the [biorefinery](#) to be the leader in developing contracts in this new landscape."

The perennial nature of biomass crops also makes developing contracts challenging.

"We're in a unique environment, and traditional agricultural contracting structures just don't apply," Endres said. "Crop insurance is not currently available for farmers who grow [biomass crops](#) so they take on additional risk. Likewise, landowners see high prices for traditional commodity crops and do not want to be locked into a multi-year contract with a lessee to grow a perennial biomass crop. It's complicated," she said.

Endres said that although sustainability requirements are important, having an adequate supply of biomass is important as well. "We're trying to envision a future in which we have a lot of biomass and one way to secure that is to recognize all of the risks and costs, especially when it comes to sustainability practices. It's unique, and we do not yet have contracts for this aspect of the industry," she said.

A newly forming biomass standards group, in which Endres holds a leadership role, is looking at how the value of sustainability practices can be measured at the watershed, eco-shed, or air-shed level rather than on the scale of individual farms. Endres said that the working group will examine how to ensure that balance is achieved between producers and consumers of biomass, including through contracts.

"I'm optimistic that it can be done," she said. "Growers and refiners right

now are concerned with the industry being financially sound.

"There's also a real need for education in both developed and underdeveloped countries about [biomass](#) contracting," Endres said. "We're trying to shift the paradigm from traditional agriculture to something that's more sustainable—and that takes knowledge. If we don't have that knowledge here in the United States and we're trying to draft contracts in our very developed system, how is this going to be rolled out in say, Africa, or other areas where the use of production contracts are much more rare, especially in the small farm context?"

More information: "Building Bio-based Supply Chains: Theoretical Perspectives on Innovative Contract Design" was published in the UCLA Journal of Environmental Law and Policy and is available online at escholarship.ucop.edu/uc/item/6h74x82n

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