

rains on the crop. The model suggests that you should keep cutting as much as you can and get as much with the smallest fleet of equipment as possible given the weather conditions across the upper Midwest. Those were the biggest discoveries and successes that we

Could you go into further detail about how you came to develop that model?

tedding research work. Then we went to historical weather data for several locations across the upper Midwest. Knowing some environmental conditions like humidity, wind speed, rain fall and solar insolation we could then predict how long it would take for each field of that material to dry in this particular area, if you have this many acres of switchgrass and these environmental and

thought that was very nice work and a very nice publication that

How might future advancements in harvesting methods and machinery continue to help farmers?

to see a lot more perennial grasses grown across the Midwest given our economic situation. What we have done is take the models that we built through CenUSA and extend them to more traditional forage baling systems. Now we are sharing with some of the producers to help them choose more economic baling systems, not necessarily for perennial grasses, but for traditional hay



CenUSA Bioenergy White Paper

Are there ways in which transportation can be improved that could help?

some value added to it. The second thing we found is that reducing the size of the material at the time of harvest it rather than leave it in the long form is going to make a big difference in biomass logistics

Could you talk more about the obstacles to improving biomass density and harvest capacity?

things of that nature, but what it really comes down to is that we are really struggling to find an economic value enhancement. The cost that we are putting

The biggest obstacle is that the price for the material is too low to justify some of the things we are thinking

I could be succinct about it, there are a lot more things that we could do if we could raise the price of this commodity, but there is just not much there at the current price. There's not much meat left on the bone."

So it's not a matter of throwing more research at it to solve the problem?

"Let's put it this way. More research will probably be needed for something that can utilize this material and that can add additional value to raise the price on the commodity coming out of the farm gate. A lot of people are really anxious to see this cost reduced, and I don't know that we will be able to achieve our goals with that low of a cost. Until we can see more added value, it will be hard to justify the cost of production. That's the most noteworthy thing."

How will you take your experience with CenUSA and put it to use in future projects?

"The biggest thing is that we will continue to work on ways to increase bale density, and we continue to work on ways to reduce the number of bales that need to be handled. We haven't given up on some of those things. That's the one avenue of research that I am continuing, but I am also nearing retirement, so there's a limited future there for me."

Kevin Shinnners CenUSA Bioenergy Work Product

Extension and Outreach

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Learn more about CenUSA at www.cenusa.iastate.edu

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