

## A Biomass Primer

**CELLULOSIC ETHANOL IS** a non-grain material made from the cellular structure of plants often referred to as biomass. Current plans call for **excess residue** from corn, wheat and milo to be processed at three new plants, but use of dedicated energy crops, such as sorghum, switchgrass and Miscanthus, could be used later.

While residue has long been used for feed or fodder, predictions are that its processing for ethanol will offer producers a more stable market than that used for livestock. Also, in addition to creating a new revenue stream, the harvest of excess residue has been shown to improve soil health and increase yields.

DuPont, which runs a corn stover harvest collection program for its plant in Nevada, Iowa, estimates that a partial stover harvest can increase the following season's yield by an average of 5.2%. Calculate that gain over multiple years, add revenue from sale of the residue, then look at your numbers.



Cellulosic Ethanol, DuPont currently engages about 300 growers in contracts to gather corn stover from their fields. He says the company hopes to grow that number to 500. "Growers range from midsized to large-scale producers," he says.

DuPont hires custom harvesters to take up corn stover from farmers' fields and bale it, though he notes the company has one producer who contracts the harvesting himself. "We want this to be a sustainable practice," Penland says. "Our take rate is based on advisement from the USDA."

That means for every 180 bushels of grain, the average producer will have about 4.3 tons of stover. To maintain sufficient organic matter in the soil and to prevent erosion, the USDA advises leaving 2.3 tons per acre on the ground. There is some variation in that number, depending on soil type and topography, but studies have shown that leaving too much residue can increase the likelihood of disease the following spring, make planting more difficult and use up nitrogen.

"The biggest benefit we bring growers is an alternative method for managing high residue," Penland says. "And it also produces a platform for producing next year's crop of corn."

### Nascent Stages in Canada

In Canada, there are currently no biomass plants online or in the works, but Charles Lalonde, a project manager with the Ontario Federation of Agriculture, says he expects that's going to change in the next few years. While he doesn't see the market for dedicated energy crops like Miscanthus and switchgrass taking off anytime in the near future, he says there will soon be demand for corn stover and wheat straw inside Canadian borders.

"With corn stover, we're trying to develop a market for it in bioprocessing," Lalonde explains, "and are looking at opportunities for establishing a facility." He anticipates that facility will focus on using cellulosic material to produce sugars for use in various biochemical

