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Title: Biomass reuse plants open up new markets and equipment needs.
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Abstract: Reports on Heartland Fibers' construction of a plant near Kearney, Nebraska that will use corn stover to make paper pulp and provide feedstock to make furfural, a specialty chemical used in manufacturing plastics. Processing capacity for corn stover of the plant; Evaluation of paper pulp produced by paper companies; Equipment used in the plant.
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BIOMASS REUSE PLANTS OPEN UP NEW MARKETS AND EQUIPMENT NEEDS

A new \$150 million plant being built near Kearney, Nebraska, by Heartland Fibers will use corn stover to make paper pulp and provide feedstock to make furfural – a specialty chemical used in manufacturing plastics. Corn stover is the above-ground part of the corn plant except for the grain. Owners of the plant are currently waiting on permits and expect to start construction within six months and be in full operation by the fall of 1999. Heartland is a privately held company with the majority of its funding coming from individuals associated with agriculture and the paper industry.

Approximately 1,300-1,400 dry tons per day of corn stover will be processed in the plant which will operate year-round and produce 400 tons per day of pulp. Processing the stover generates 580 tons per day of pith and other organic materials that will be used to manufacture furfural. Originally it was envisioned that this material would be used as fuel for electricity production; however, the furfural market presented a higher value use.

Over 24 paper companies have evaluated the pulp and, according to Heartland, found the pulp equal to or better than North American hardwood pulps. It is expected that the pulp will be used in high quality writing papers including greeting card stock. Heartland says that the stover pulp does not require as much bleaching as tree based fibers and can be bleached without using chlorine – a distinct environmental advantage.

Heartland will hire custom operators to harvest 200,000 to 225,000 acres of stover per year within a 75 mile radius of the plant. Every three years, 60 percent of the stover will be removed with the other 40 percent left in the field for environmental purposes. This amounts to about one-third of the farmers providing stover from about one-third of their acreage, explains a report by the Southeastern Regional Biomass Energy Program. Each acre is expected to yield about 2.5 tons of stover on fields that yield 160-200 bushels per acre of grain.

Heartland is working with equipment manufacturers to make slight modifications to their equipment to provide high quality stover for processing into pulp. One modification is the addition of a screen along the bottom of a shredder-windrower to allow dirt and fines to fall through. On some equipment, wheel spacing is also being changed to accommodate corn row spacing.

The processing plant will have a liquid wastewater stream and a black liquor stream. The black liquor will

be gasified and the chemicals recovered. An aerobic digester will be used to treat the wastewater and generate energy for the plant.

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