449c Converting Corn into Ethanol and Valuable Coproducts Using the Enzymatic Dry Grind Process

Vijay Singh, Ping Wang, David B. Johnston, Kent D. Rausch, and M. E. Tumbleson

The corn dry grind process is used for producing ethanol and a ruminant foodstuff coproduct. During the last several years, there has been an exponential increase in dry grind corn processing due to increased demand for ethanol in the US. The dry grind process is an efficient method to produce ethanol but does not produce coproducts with high value. We have developed a modified process that will transform a dry grind facility into a biorefinery that produces coproducts for animal, human and industrial uses. The new process, the enzymatic dry grind process, involves fractionation of corn at the beginning of the dry grind process and recovery of nonfermentable components (germ, pericarp and endosperm fiber) prior to fermentation. Removal of these nonfermentables increased production capacity, improved fermentation efficiency and allowed production of other valuable coproducts. The enzymatic dry grind process will be discussed.