

Title Effect of harvest moisture content and drying temperature on the extractable and fermentable corn starch

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Abstract

Two yellow dent corn hybrids (33A14 and 34B23) were harvested at three different moisture contents (13.9 to 53.7% dry basis) and dried at three temperatures (30, 60 and 90°C). Extractable starch content was measured by a standard 100 g wet milling laboratory procedure. Whole corn samples were milled and liquefied by enzymatic hydrolysis. Liquefied mash was simultaneously saccharified and anaerobically fermented. Ethanol and sugar profiles in mash were monitored using an HPLC method. The harvest moisture content had a significant effect ($p=0.05$) on the starch yields for both hybrids. However, drying temperature had a significant effect on starch yields and ethanol concentrations for hybrid 34B23. Drying temperature had no effect on starch yields for hybrid 33A14. These results show that certain hybrids are more sensitive to harvest conditions and the post harvest processing.