

Public Abstract

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Title:MANAGEMENT PRACTICE EFFECTS ON CORN GRAIN ETHANOL YIELD AND ETHANOL BYPRODUCT QUALITY

The Renewable Fuel Standard (RFS2) under the Energy Independence and Security Act of 2007 (EISA) currently requires the production and use of 36 billion gallons of renewable fuels by the year 2022. A significant portion of the requirement will come from the production of corn grain ethanol. Traditional corn management practice strategies focus on increasing grain yield. With the dramatic increase in corn grain usage for ethanol production, it is important to determine how management practice decisions affect ethanol yield and byproduct quality. This study was conducted in Missouri during the 2007 and 2008 growing season to determine whether planting date, planting density, or environment (location and year) have an affect corn grain yield, ethanol yield and kernel characteristics important in ethanol byproduct quality. Whole kernel samples were tested using Near-Infrared (NIR) spectroscopy to analyze kernel composition. The data collected in this study showed changes in management practices had the largest affect on grain yield while ethanol yield and kernel composition were affected to a lesser extent. This suggests selecting a planting date and planting density based on achieving the highest grain yield would be the most effective practice to help meet the current RFS2 requirements.