

Maize hybrid looks promising for biofuel

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Scientists at the University of Illinois at Urbana-Champaign have identified a new contender in the bioenergy race: a temperate and tropical maize hybrid. Their findings, published in *GCB Bioenergy*, show that the maize hybrid is potentially capable of producing ethanol from biomass (plant material used for biofuel production) at levels equal to or greater than ethanol produced from grain harvested from current commercial maize hybrids.

"Our maize hybrid, when grown using the same amount of fertilizer as commercial grain hybrids, produced 15-20% more biomass than the commercial hybrids." said Dr. Frederick Below, Professor of Crop Physiology at the University of Illinois.

The scientists selected plants with different [genetic combinations](#) created from a hybridization of temperate and tropical maize in order to incorporate beneficial characteristics of both tropical and temperate maize. Accustomed to a [tropical climate](#), the tropical parent plant experiences a much longer growing season in the Midwest than temperate varieties. Temperate maize minimizes the [negative traits](#) of tropical maize such as disease and pest vulnerability while maximizing positive traits such as [drought tolerance](#). Both [parent plants](#) combine to form a hybrid that grows larger and accumulates more stalk sugars than conventional grain hybrids, factors that increase ethanol output.

The scientists discovered that the hybrids are capable of producing as much ethanol per acre as maize currently grown for ethanol made from grain, but the hybrids require less input such as fertilizers like nitrogen

and the ethanol could be produced from the vegetative plant material.

According to Dr. Below, "the temperate and tropical maize hybrid has the potential to produce the same amount of ethanol as commercial grain hybrids, but with lower [nitrogen fertilizer](#) requirements. This difference makes the hybrid more energy efficient and can result in a more sustainable environmental life cycle."

Maize is often criticized by the scientific community as a poor choice for ethanol given the toll fertilizers can have on the environment. But as Dr. Below and his team have shown, the hybrid will significantly lessen the need for fertilizer application and provide an alternative, more environmentally sustainable feedstock for biofuel production.

While this new hybrid may be in its early stages, a wealth of information about maize has been long established, allowing for rapid improvements.

More information: Monti A, Barbanti L, Zatta A, Zegada-Lizarazu W. "The contribution of switchgrass in reducing GHG emissions", *GCB Bioenergy*, Wiley-Blackwell, December 2011, [DOI: 10.1111/j.1757-1707.2011.01142.x](#)

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