Title: “Breeding commodity crops for second generation biofuels”

Plant Breeding Lecture Series: Breeding Lignocellulosic Crops for the Bioeconomy

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The continued rise in oil prices coupled with environmental and national security concerns has driven the need for increasing supplies from domestic non fossil fuel sources. The Renewable Fuels Standard in the Energy Independence and Security Act of 2007 calls for a rapid expansion in the production of biofuels from commodity crops with a mandate for 16 billion gallons targeted by 2022. The increased demand for biofuels has generated interest in research on a wide range of diverse plant feedstocks as well as for alternative transportation fuels. Greater recent emphasis has been placed on harnessing genomic biology tools to aid in enhancing plant productivity. The goals of the research are to increase supply from available acreages and to alter the composition of the feedstocks for the purposes of reducing the cost of processing and increasing the value of the co-products. New approaches to research on plant genomics offer opportunities for multidisciplinary University research efforts that cross traditional artificial boundary lines and span disciplines that range from basic plant science to engineering, ecology and economics. Rapid advances in these areas are expected to result in a second green or blue revolution that will have a far reaching impact on agriculture worldwide even beyond second generation biofuels. As the center of much of this activity, the State of Iowa, in partnership with its public universities and agricultural and industrial sectors, will need to continue to develop and build on holistic models to insure that best sustainable practices are adopted to guide and spur future developments in commodity crop production. In my presentation I will highlight progress and challenges to the continued development of commodity crops for biofuels.