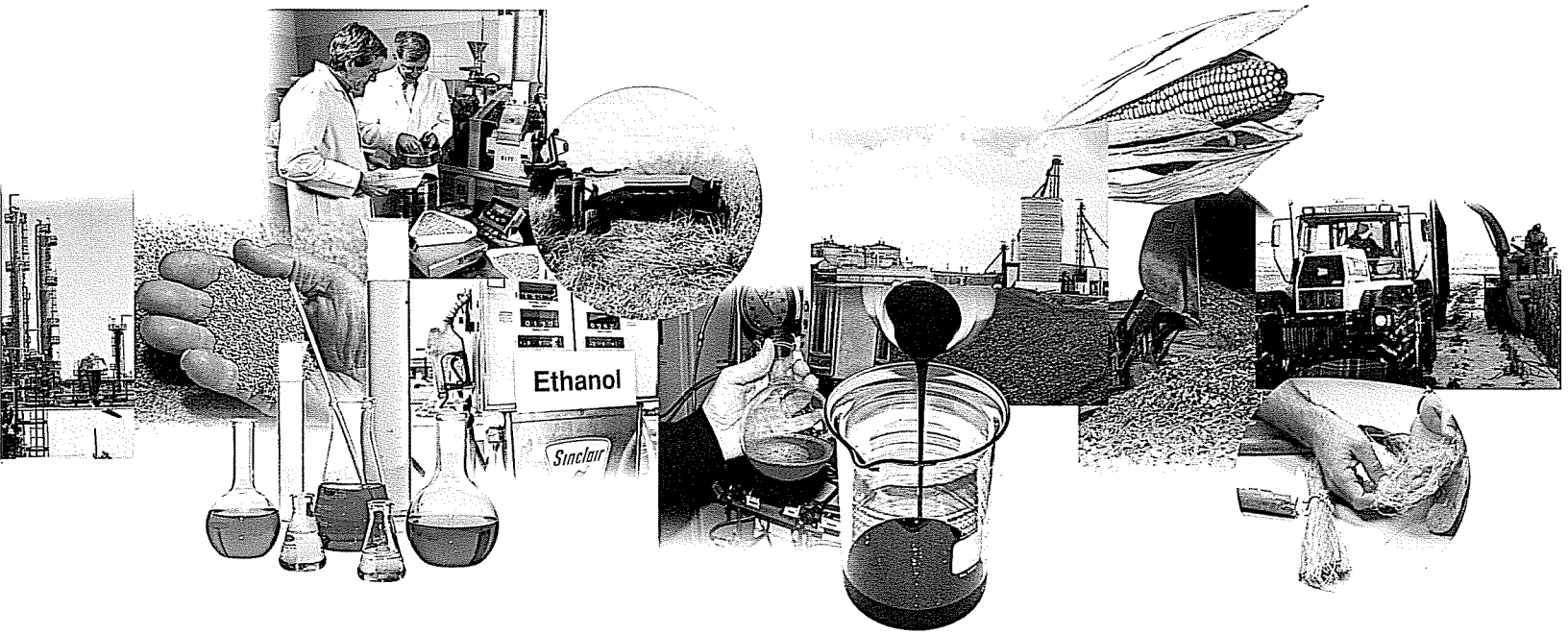
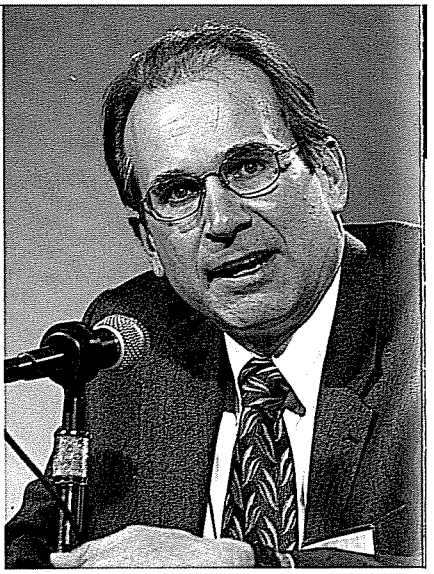
biorenewables at Iowa State



The bioeconomy is nothing less than a revolution in the way society will obtain vital sources of carbon and energy, in the process dramatically reducing our dependence on imported petroleum. Agriculture will make this transformation possible by providing biorenewable resources for the production of biofuels, biobased products, and bioenergy.

The substitution of indigenous agricultural and forestry resources for imported petroleum will significantly improve national security by reducing our nation's dependence on resources from politically unstable regions of the world. The use of biorenewable resources will also improve environmental quality by reducing pollutant emissions associated with fossil fuel usage, especially emission of sulfur, heavy metals, and greenhouse gases. Finally, the bioeconomy will literally transform rural development by introducing new crops, employment opportunities for skilled personnel, and new value-added markets to the agricultural economy.



Iowa Farm Bureau Director of Biorenewables Robert C. Brown

Iowa State University's Bioeconomy Initiative

Iowa State University's foresight in 2002 led to the establishment of a campuswide Bioeconomy Initiative several years before other universities. Iowa State organized its faculty to conduct the kind of multidisciplinary, systems-oriented research required to advance the bioeconomy. As a result, Iowa State is now widely recognized as being at the forefront of institutions leading the bioeconomy revolution. Since the initiative's inception, Iowa State has launched the Bioeconomy Institute whose affiliated faculty members have leveraged institutional support into over $50 million in cumulative external research funding.

Education is an important part of the bioeconomy initiative. Within a year of launching the initiative, Iowa State established the first-in-the-nation graduate program in biorenewable resources. This program educates students in the interdisciplinary skills they will need to operate in the emerging bioeconomy and is providing biobased companies a workforce for the future. More recently, the biorenewables education program is offering distance education in support of life-long learning, participating in national and international research consortia, and assisting academic departments in offering undergraduate coursework in biorenewables.

As a land-grant university, Iowa State recognizes that outreach to the state of Iowa is an important component of the Bioeconomy Initiative. The bioeconomy is transforming agriculture and the economy of Iowa in ways that were hard to envision a few years ago. Iowa State Extension and the Office of Research and Economic Development are helping Iowans capitalize on the opportunities that will ensue, ranging from new production and harvesting practices to new technologies for production of cellulosic biofuels.

Vision for a Bioeconomy in the United States

- The Midwest becomes self-sufficient in production of automotive transportation fuels and eventually becomes a net exporter of renewable energy to the rest of the United States.
- American agriculture plays a major role in achieving greenhouse gas reductions.
- The Midwest becomes the world hub of renewable energy technology, supplying international markets with solutions to problems in renewable fuels, biobased products, and greenhouse gas reductions and carbon sequestration.
- The United States models sustainable agriculture and renewable energy production, improving quality of life globally.
- Young Midwesterners hoping to work in the bioeconomy find educational and occupational opportunities in their home states.
- Rural communities restore population and vibrancy as a result of commercial opportunities in biofuels and biobased products.
- Farming becomes an economically sustainable enterprise without recourse to expensive and market-distorting farm subsidies.
- The bioeconomy drives a new wave of entrepreneurial spirit in the United States, leading to the establishment of new businesses in biorenewable resources and technologies.
- Land-grant universities develop technologies that drive the bioeconomy and provide a sustainable supply of bioenergy crops.
- American farmers adopt new cropping systems that are capable of sustainable production of biomass crops for bioenergy.
- Next-generation farmers and agriculturists can enter agriculture and participate in bioeconomic opportunities.
- Rural America is able to supply food and fuel to American consumers.
- Animal agriculture becomes more efficient and profitable through integration with biofuels and bioenergy production.

Photo credit: Jared Brown

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