



Maximizing Barley Bioprocessing to Create Food and Fuel



EPAC 2010

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Introduction to Osage Bio Energy



Overview of Osage Bio Energy

Osage Bio Energy (OBE) is First Reserve Corporation's biofuels investment platform.

- Established in 2007 and headquartered in Glen Allen, Virginia.
- First Reserve corporation's first investment in the biofuels sector.
- Developing a barley bioprocessing plant in Hopewell, Virginia.
- Total capital invested of ~\$200 million per plant with 100% equity commitment.
- Expect to obtain debt financing when markets return.



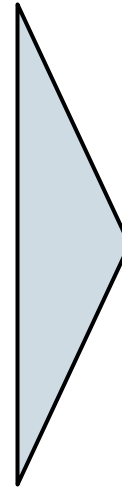
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Osage Bio Energy Business Model

Osage Bio Energy's Business Model

Osage Bio Energy's business model is robust in many ways and lays the foundation for becoming an advanced bio-refinery

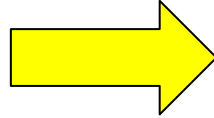
- Locally grown barley feedstock with numerous economic advantages over corn
- Numerous barriers to entry for competition
- Best-in-class partners
- Talented management team



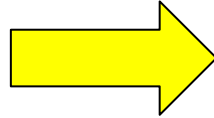
Foundation for advanced bio-refinery

Economic Advantages of Local Barley-Based Plant over Typical Corn-Based Plant

Corn

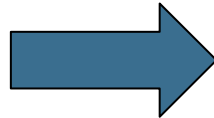


Ethanol



DDGS

Barley



Ethanol

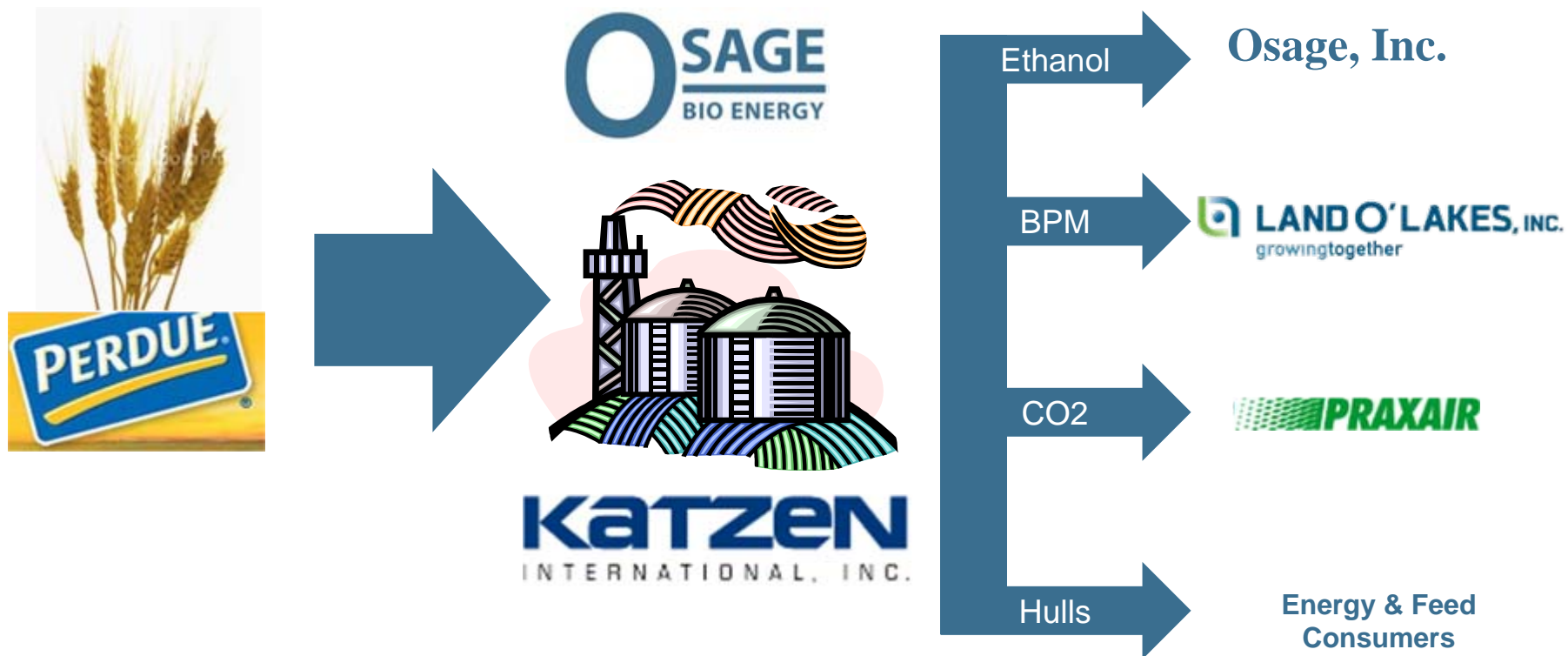


Barley Protein Meal



Biomass fuel pellets

Snapshot of Osage Bio Energy's Model



Technology provider



- Leading global ethanol and starch fermentation process technology, with particular expertise in conversion of small grains to alcohol.
- Operating history throughout the United States, Europe, and Asia with multi-feedstock ethanol plants that produce alcohol from corn, wheat, barley, triticale, and rye.
- Built over 115 Ethanol plants globally.

Distribution partner - Ethanol

Osage, Inc.

- Largest independent distributor of ethanol in the Southeast.
- 24 year operating history as an ethanol distributor.
- Deep industry relationships and proven ability to distribute ethanol to leading independent customers.
- Exclusive distributor for OBE.
- Approximately 150 million gallon + annual run rate.

Marketing partner - BPM



- A leading animal feed company in the U.S
- Significant experience marketing feed to dairy, poultry and swine in OBE's target market
- OBE has an agreement with Land O'Lakes to serve as its primary BPM marketer

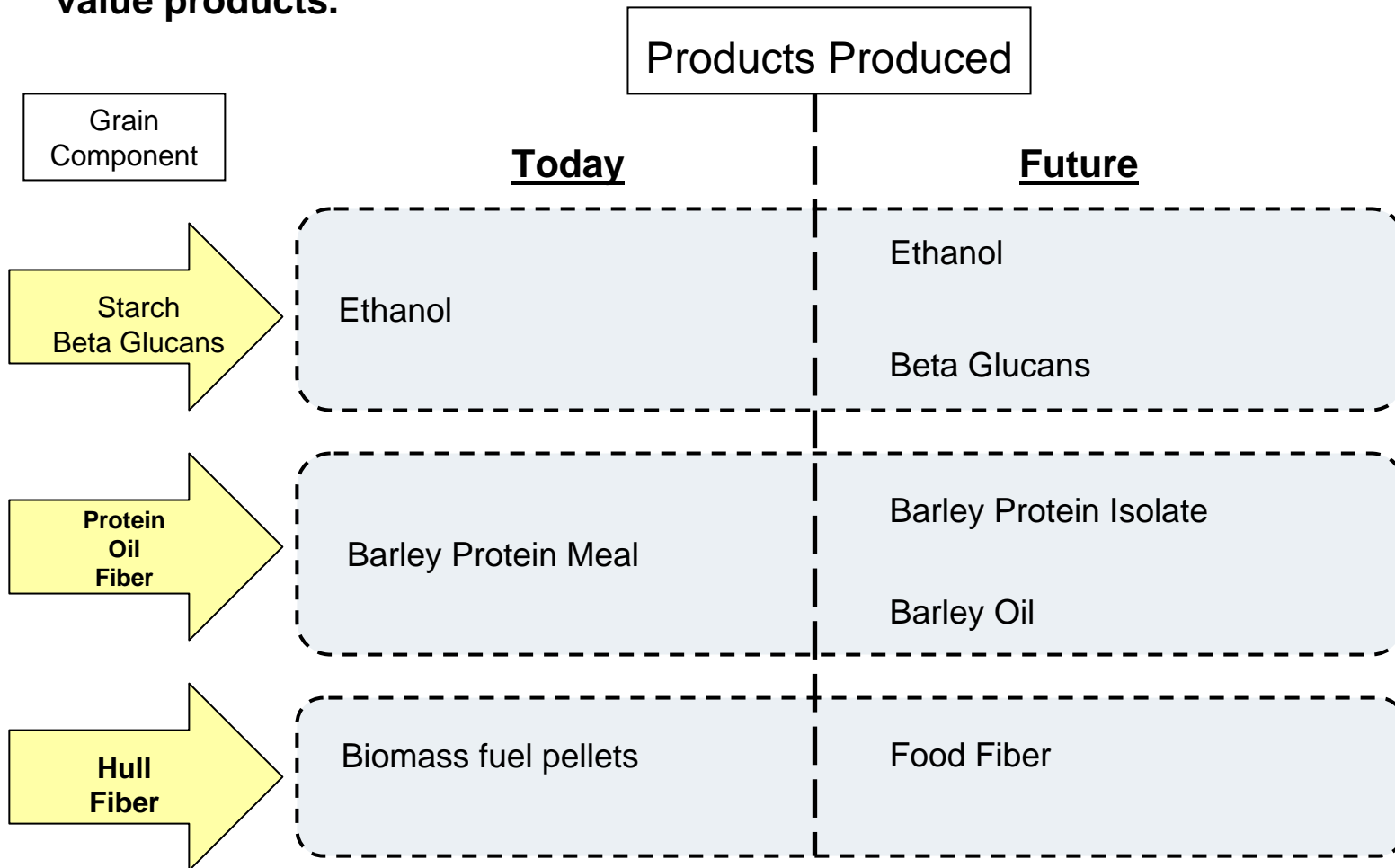
Grain Supplier and BPM Marketer



- Regions largest integrated agricultural products company
- Significant regional grain storage capacity
- Capability to fully supply feedstock and off-take and BPM

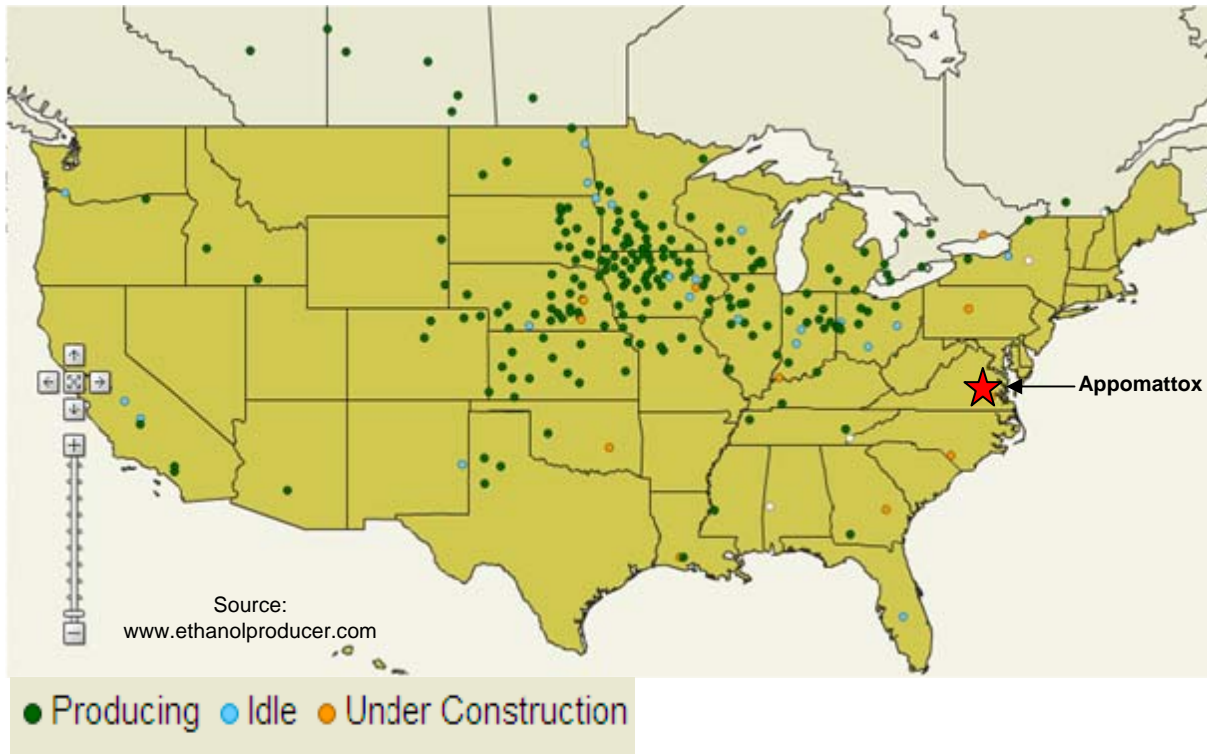
Osage Bio Energy's Bio-Refinery Strategy

OBE's long-term vision is to take the current model to the next step and make higher value products.



Structural Economic Advantages

Osage Bio Energy's location in the Mid-Atlantic serving the East Coast provides it with key strategic advantages due to feedstock and transportation benefits.



- Regional winter barley historically has traded at a discount on a pound for pound basis to corn.
- Osage Bio Energy's barley co-product has a superior protein profile than corn DDGS and will sell at a premium.
- Osage Bio Energy will save on ethanol transportation costs from the Midwest.
- Our ethanol marketer, Osage, Inc. obtains market-leading pricing on ethanol sales in the Southeast and Mid-Atlantic markets through rack pricing and has a 24 year operating history in the region.
- Osage Bio Energy has an exclusive technology license with KATZEN International, as well as other key technology components of the process.

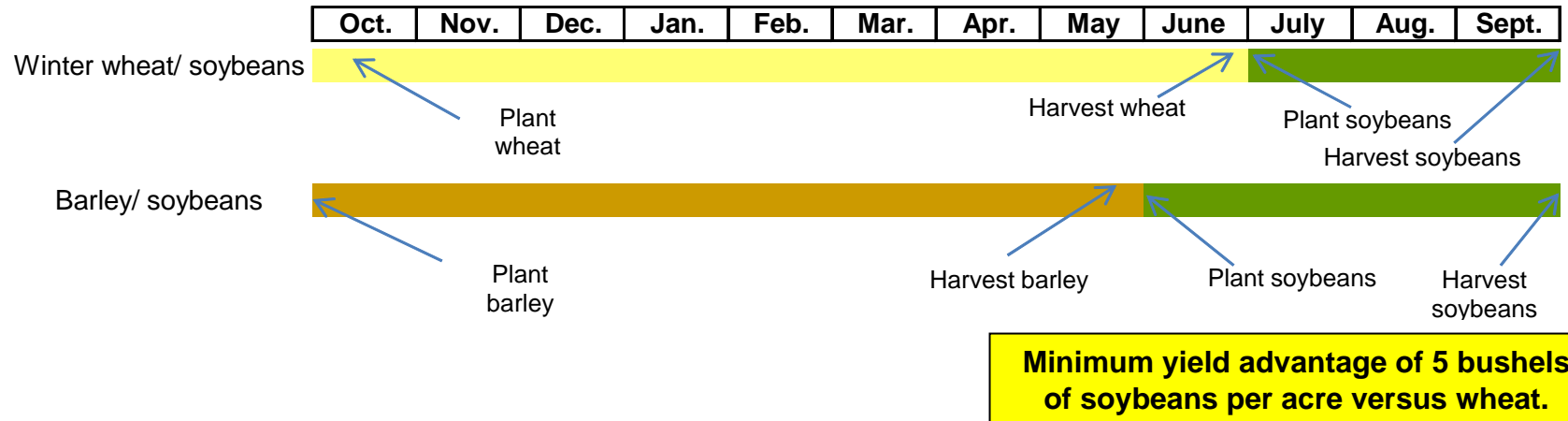


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Barley in the Mid-Atlantic / Southeast

Why Barley in Virginia

Double cropping with barley and soybeans provides a longer growing season for soybeans and thus enables a higher yield.



- Virginia Tech studies indicate that that double cropping barley and soybeans results in a **minimum yield advantage of five bushels of soybeans per acre versus wheat.**
- Barley trials at Penn State University and Virginia Tech University show that the “Thoroughbred” variety, on average, can produce yields of 95 bushels per acre in a double crop system with soybeans.
- Virginia Tech indicates planting date yield loss at one half bushel per day for each day after June 10.



Growth Stage 26-27 – Early March



Growth Stage 31 – Late March







Growth Stage 75 (Ripening) – Mid-May



Growth Stage 85 – Late May





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Osage Bio Energy Construction Process

ABE Construction Progress



May 2009

ABE Construction Progress



August 2009

ABE Construction Progress



November 2009



February 2010



May 2010



Current