

Engineering Biomass Feedstocks



for Industrial Biotechnology



Cheap Sugar for Fuels and Chemicals Production



Production costs comparable to using petroleum at \$60/bbl

Agrivida GreenGenes[™] Technology



- 1. Agrivida's proprietary molecular engineering technology produces energy crops containing dormant enzymes.
- 2. The dormant enzymes are activated using a proprietary switch after harvest.
- 3. The activated enzymes degrade the cell wall, converting cellulose into sugar.



Intein-modified Enzyme Development



High throughput screening combined with mutagenesis and computational design is used for optimization of intein splicing in cell wall degrading enzymes.

Plant Transformation

"Dwarf phenotype"



Transgenic maize expressing CWD enzymes

Age matched, control wild-type maize

"Seed phenotype"



Segregating phenotype seen in maize seed.

Transformation of corn, switchgrass, and sorghum is used to embed the enzymes into the plants. Unmodified enzymes lead to detrimental effects.

Processing Impact of Enzymes



A cocktail of cell wall degrading enzymes are required to hydrolyze cellulosic material. Tissues from plants that express one of these enzymes do not require the same level of external addition to release equivalent sugars.

Market Penetration



- As proposed, only 25% built out by 2016
- First year requirement decreased by 95%
- Value achieved from retrofits to existing facilities



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