

# Willowlee Sod Farms Ltd.

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# Biomass Project

- Discovered Switchgrass in January 2006
- Concept of biomass for heat a very young idea
- Saw opportunity to create a product vs. sell a commodity

# Initial Strategy

- Develop a product we would grow, process and market ourselves
- Direct marketing and product delivery fits well with other components of our operation
- Differing from common commodities this product offered potential to be produced and consumed in a local community

# Crop Establishment

- Selected a 70 acre field that had been RR soys for previous 2 years in no-till for a decade
- Medium fertility levels and crop production level history
- No-tilled 8lbs PLS Cave-in-Rock with JD 750
- No cover crop

# Crop Establishment

- Seeded later May
- Little known about herbicides
- We had weeds
- Cautiously confident about stand in fall of 2006







# Year 2 Harvest

- Swath in spring of 2007
- Bale in large squares
- Store bales inside
  
- Approx yld 1.5 tonnes/acre

# Year 3

- Broadcast urea and potash blend
- No weed control
- Improved plant density in previously thin areas
- Surprised by “stay green” during drought
- Weed pressure virtually gone in all but thin stand areas







# Year 3 Harvest

- Swathed during mid-March
- Harvested with forage harvester
- Stored in Ag-bag
- Approx yld 3 tonnes

# Year 4

- Fertilized with only urea
- Replicated nitrogen rate plots designed and managed by Scott Banks OMAFRA
- N rates from 0 to 200lb acre
- Spot sprayed 60% of field for dandelions, primarily in thinner areas and perimeter of field





















# Field Trial Results – N on Established SG

<b>Nitrogen Rate (kg / ha)</b>	<b>Average Moisture %</b>	<b>Average Yield (mt/ac)</b>
<b>0</b>	<b>19.96</b>	<b>4.07a</b>
<b>50</b>	<b>17.51</b>	<b>4.73a</b>
<b>100</b>	<b>19.77</b>	<b>4.43a</b>
<b>150</b>	<b>17.09</b>	<b>4.18a</b>
<b>200</b>	<b>20.14</b>	<b>4.06a</b>

# Year 4

- Nitrogen plots produced obvious results
- Heavy rains or wind storms later in year caused lodging for a period of a couple days in higher rate plots
- Crop swathed in January 2010
- Optimistic about potential yields

# Increasing Production

- Planted additional 46 acres in 2009
- No-till seeding with cover crop of barley
- No fertilizer applied at planting or top dressed to barley
- Harvesting of barley with grain head used as mowing technique















# Processing

- Studied the market potential and the most versatile product type to fit a wide range
- Pellets currently offer the greatest opportunity in our immediate market
- We are continuing with our initial plan to process our own product

# Progressing Forward

- Constructing a small scale pellet plant
- Creating methods to harvest and store product that reduce costs on our operation
- Looking at systems that are efficient to move product from other producers to our facility to process



# Our Challenges

- Going from intent to build to producing pellets
- We are an uncommon scale
- Creating a system that balances efficient production with capital requirements that we are comfortable with
- Develop storage method that reduces costs for larger volumes
- Assessing values on raw product that work for everyone involved
- Incorporating other products into our product that maintain quality
- Diversify our market outside of only heat

# Industry Challenges

- Creating a network of industry members
- Building market stability to maintain product value
- Development and installation of furnaces and stoves that create end user confidence
- Offering a system that encourages users of fossil fuels to convert
- Increasing our knowledge of combustion and emissions of various products
- Improve transportation and storage methods that reduce cost







- Thank you

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