



# Experiences using willows as a heating fuel on-farm

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# Family Homestead in Lower Bedeque - Heating requirements



**Century Home**

**Workshop;  
and  
furnace  
and Chip  
storage**



# My heating system

- 20-Year old system
- Installed by Vince Court of Grove Wood Heat Inc (Eco-Blaze Corp)
- Burns wood chips and fire logs
- Domestic hot water heating for house
- Radiant heat loss from furnace for shop
- Automatic auger fed from hopper (5-inch auger)



# Hopper feeding system



# Auger in hopper – some willow chips and whips mixed in





# Auger feed system (5-inch auger) and chip burner



Wood chip  
burner

Wood chip  
hopper

Auger feed  
system

# Boiler and wood log side of system





# Water pressurized system





# 2012 wood chips from a forestry contractor and willow chips from hand fed chipper



# First willow chips in 2009

- From father/ brothers's farm in Wilmot Valley- AAFC Research willow trial.
- Willows were cut with chain saw and hand fed through a chipper.
- Chipper lacked enough knives thus many whips
- All chips were burnt in furnace – some whips were removed by hand
- Just less than a tandem dump truck load of willow chips produced. About half of the plot was harvested that year
- Dried naturally in pile for 1 to 2 months and then mixed in with drier wood chips – burnt fine



Wilmot Valley willow biomass AAFC trial



# Second willow chips in 2011

- From Martin Visser and Sons farm in Shamrock-PEISCA demo willow trial harvested with a JF192 harvester
- A full tandem dump truck load of willow chips
- Dried naturally in a pile for a month or two and then mixed in drier wood chips





# Chips produced by the JF 192





# Third willow chips in 2012

- From father/ brothers's farm in Wilmot valley (Willard Waugh and Sons) - AAFC Research willow trial
- Willows were cut with chain saw and hand fed through two chippers.
- Over two tandem dump truck loads of willow chips produced
- Dried naturally in pile for 1 to 2 months and then mixed in with drier wood chips – burnt fine



# Chipper from rental store - 2012





# Chipper from AFFC - 2012



# Conclusions

- Willow chips at harvest would be 50% moisture
- Allowed to dry naturally for 1 to 2 months, then mixed in with drier chips – maintained satisfactory heat levels
- Burning wet willow chips straight would drop the temperature by 5 to 7 ° C
- Willow chips produced by the JF 192, a rental unit, and a new AAFC 3-pt hitch chipper, all produced suitable size and shape for the furnace – no auger issues with whips