

Miscanthus

Biomass To Carbon

The Opportunity

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THE BASICS



- Miscanthus Giganteus can grow as high as 16 feet in good growing conditions.
- Miscanthus is the best plant to harvest carbon from the air and sequester it into a useable form.
 - 14-ton harvestable plant material / Acre



THE BASICS

CONTINUED

MISCANTHUS FOR BIOMASS

- Does not produce seeds.
- Crop establishment is accomplished by digging, splitting, and planting rhizomes.



Miscanthus Rhizome

PLANTING



2013 Field testing 4 row planter

Rhizomes are planted using our custom manufactured 4 row automated planter.



Once Miscanthus is established it will continue to produce an annual Biomass crop. ('Ever Green')

HARVESTING

ADVANTAGE

- Miscanthus can be harvested with the same equipment used to harvest forage



ADDITIONAL BENEFITS:

- Operators can harvest in the early spring. Prior to the regular planting season.

When:

- The ground is still frozen
- The leaves have fallen
- The crop has air dried.

OUTDOOR STORAGE TRIALS UNDERWAY

ADVANTAGES:

- Reduces harvesting cost
- Reduces storage cost
- Inventory control is enhanced

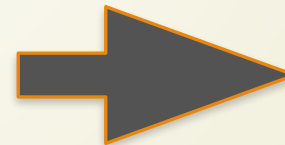


Miscanthus' Real Value ➡ Carbon

'Ever Green' - We Have The Capacity To Produce A Consistent Crop / Carbon Composition Annually:

- Known Production
- Known Quality
- Known Inputs / Costs
- No Need For Crop Rotation

Each field will produce its own unique carbon



PYROLYSIS

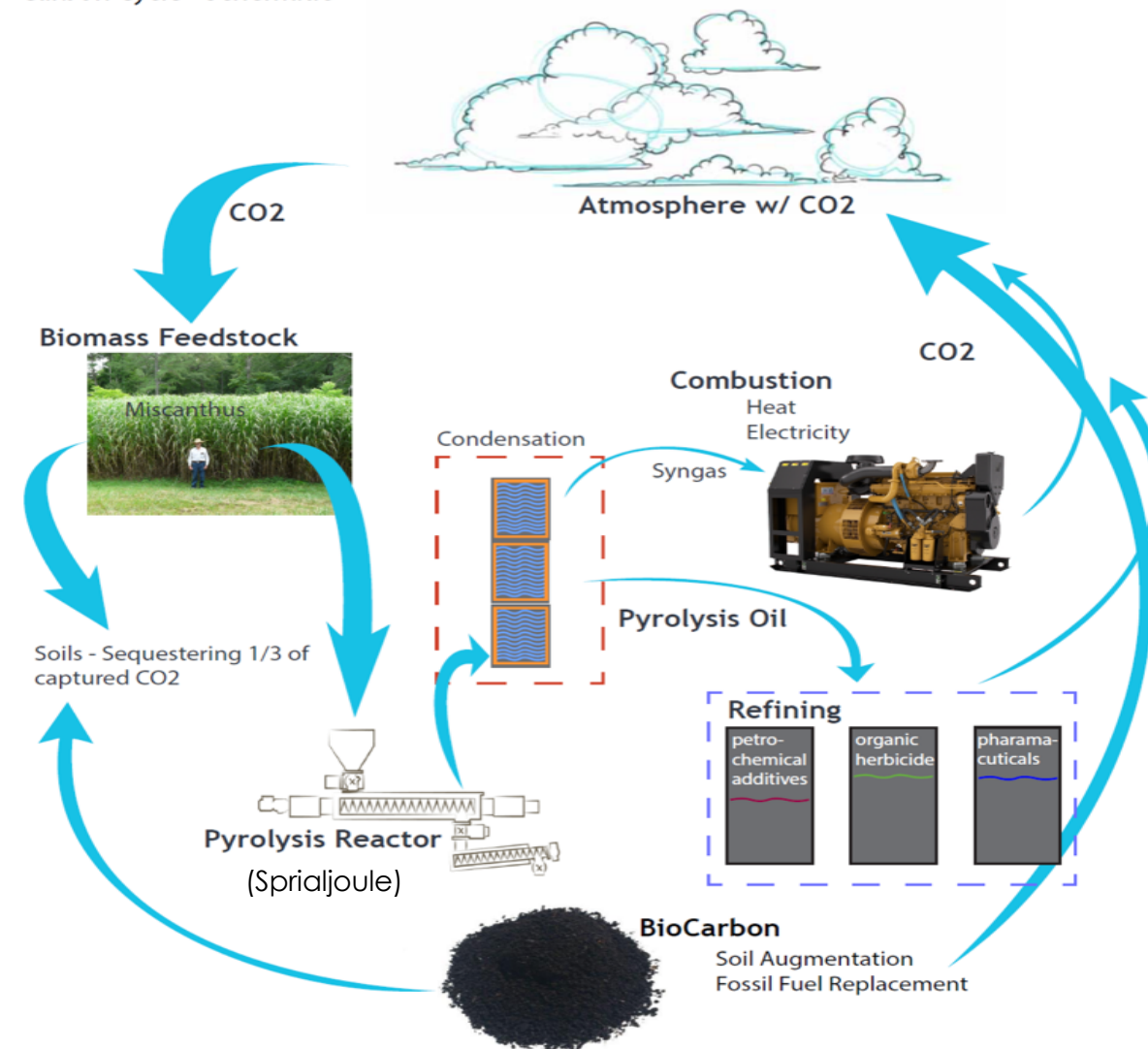
MISCANTHUS CAN AMASS MORE CARBON PER ACRE THAN ANY OTHER BIOMASS CROP

- We Utilize A Pyrolysis Reactor To Transform Carbon Into Many Profitable Forms.

OUTPUT:

- Carbon
- Gas
- Oil

Ag-Carbon Canada
Carbon Cycle - Schematic



Altering conditions in the pyrolysis reactor enables the recovery of an optimal client product mix.

INDUSTRY APPLICATIONS

STEEL & CEMENT PRODUCTION

- Coke substitute for steel and syngas in the cement industry.



INDUSTRY APPLICATIONS

ACTIVATED CHARCOAL

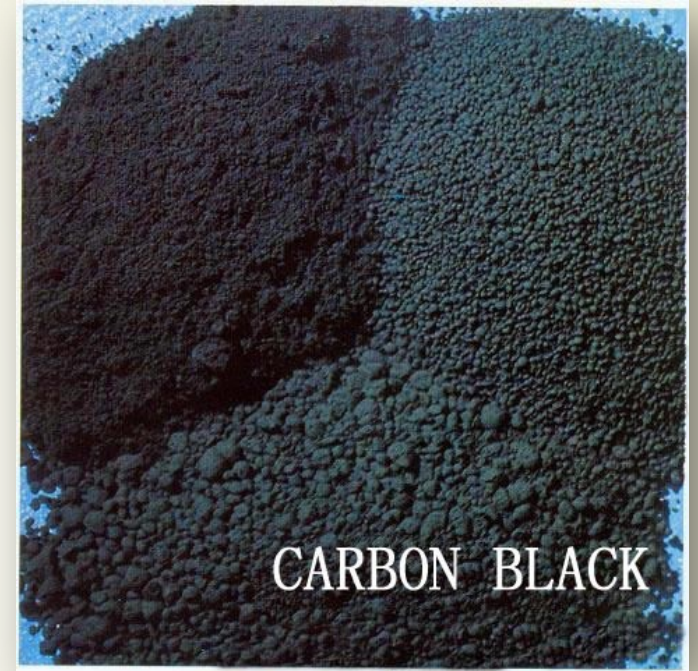
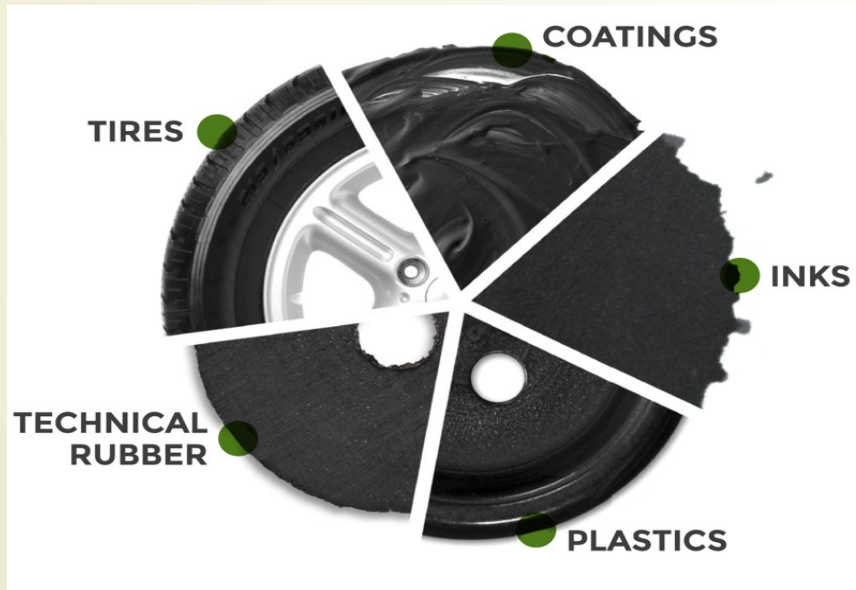
- Activated Charcoal is used in commercial and industrial filters, feed supplements and pharmaceuticals.



INDUSTRY APPLICATIONS

CARBON BLACK

- Carbon black is used as a colouring agent, chemical binder, and additive for tire production.



INDUSTRY APPLICATIONS

SYNTHETIC GRAPHITE

Our carbon can be used in place of natural graphite as an ingredient in battery production.



INDUSTRY APPLICATIONS

SYNGAS

Surplus Syngas produced during the pyrolysis of Miscanthus can replace natural gas and be used in electric power generation.



ACKNOWLEDGEMENTS

- **Bio-Renewable Innovation Lab (BRIL)**
- University of Guelph Bioproducts Discovery & Development Centre
 - Graphitization of Miscanthus grass Biocarbon enhanced by *in situ* generated FeCo nanoparticles
- *Special Thanks to OMFRA for their support of the ongoing research for use of Herbicides on Miscanthus*
 - Storage and Propagation of Miscanthus Giganteus Rhizomes for BioMass production in Ontario
 - Establishment of Different Miscanthus Genotypes in Sandy soils with Endophytic and Abiotic Soil Enrichments
- *Andre Benoit with BioChar Borealis*
- *AGRINOVA in Mashteuiatsh Quebec*




BIOPRODUCTS DISCOVERY
& DEVELOPMENT CENTRE



CARBON OFFSET SYSTEM

THE OPPORTUNITY

Biomass  **Carbon**

CARBON IS THE COMMODITY

WHY NOT MAKE IT FROM A GREEN SUPPLY HERE IN ONTARIO?

THANK YOU

QUESTIONS?

GLMiscanthus.ca

519-427-8434

Ag-Carbon Canada 
for a better tomorrow...