

# Bioindustrial Innovation Canada

## Benefits of Commercializing Start-ups within Clusters



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# Bioindustrial Innovation Canada

## Accelerating commercialization of clean technologies

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### Vision:

*Creating jobs and economical value sustainably for Canada*

### Mission:

*Bioindustrial Innovation Canada provides critical strategic investment, advice and services to business developers of clean, green and sustainable technologies. Our expertise in commercialization builds a stronger Canada.*

# Bioindustrial Innovation Canada

## Supporting clean, green and sustainable technologies

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### Cluster Builder:

- *Build a strong hybrid cluster in Sarnia-Lambton*
- *Create strong relationships with Colleges and Universities*
- *Integrate cluster model into additional Canadian communities*

### Critical Investment Fund:

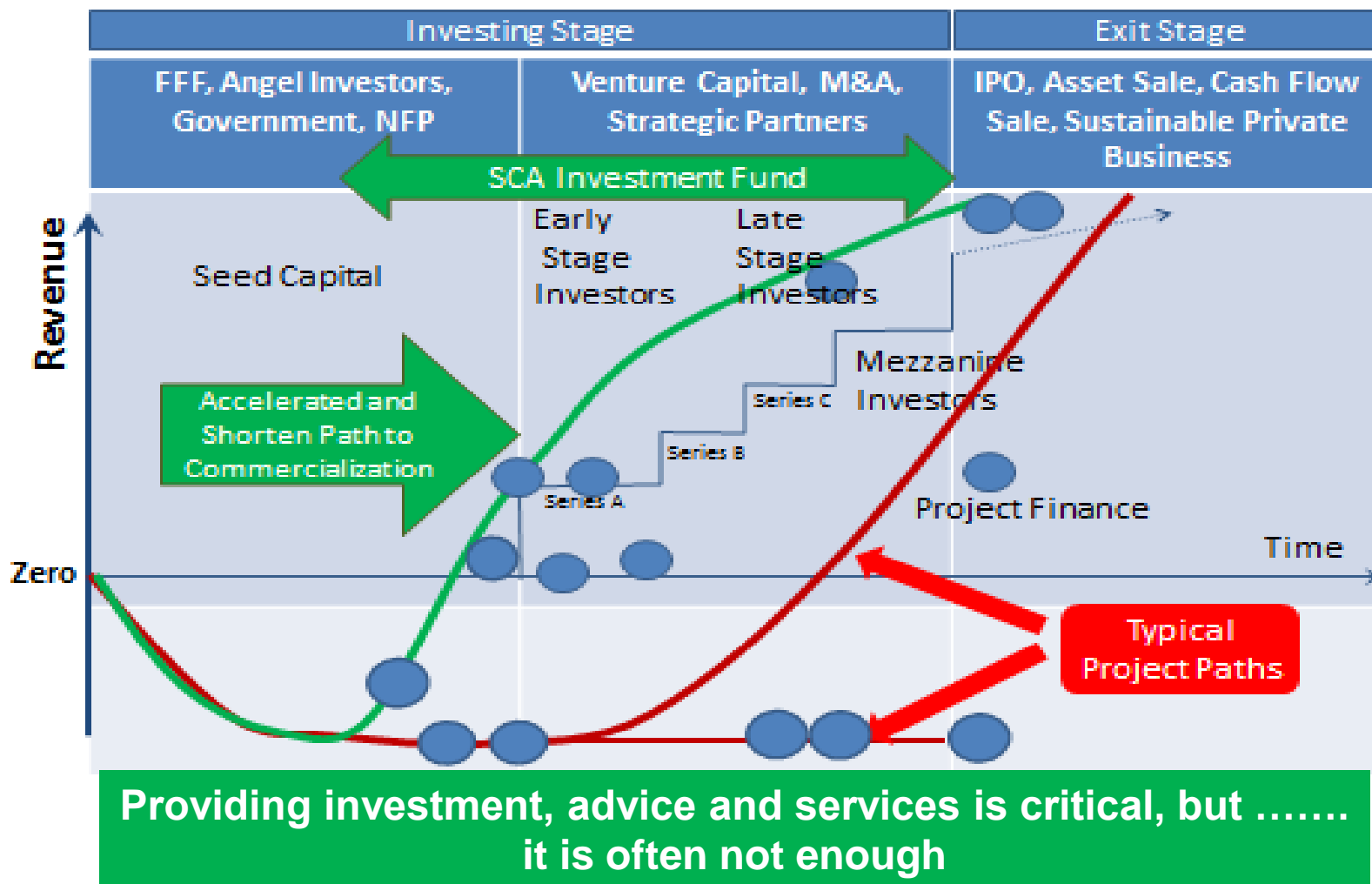
- *Raise private and government funds as risk capital for startups*
- *Invest in start up companies with strong potential for success*
- *Use BIC talent and connectivity to accelerate success and profitability*

### Strong Leader for Commercialization:

- *Provide commercialization advise and services*
- *Support R&D projects leading to commercial opportunities*
- *Provide leadership for sustainability (LCA, GHG reduction, water reduction and quality)*

# Traversing the Investment Valley of Death

## BIC plays a key role accelerating commercialization



# Corn Stover to Sugar Value Chain Initiative

## A Concrete Step towards a Relationship

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**Project initiated in 2012 to assess the value that could be created within this value chain**

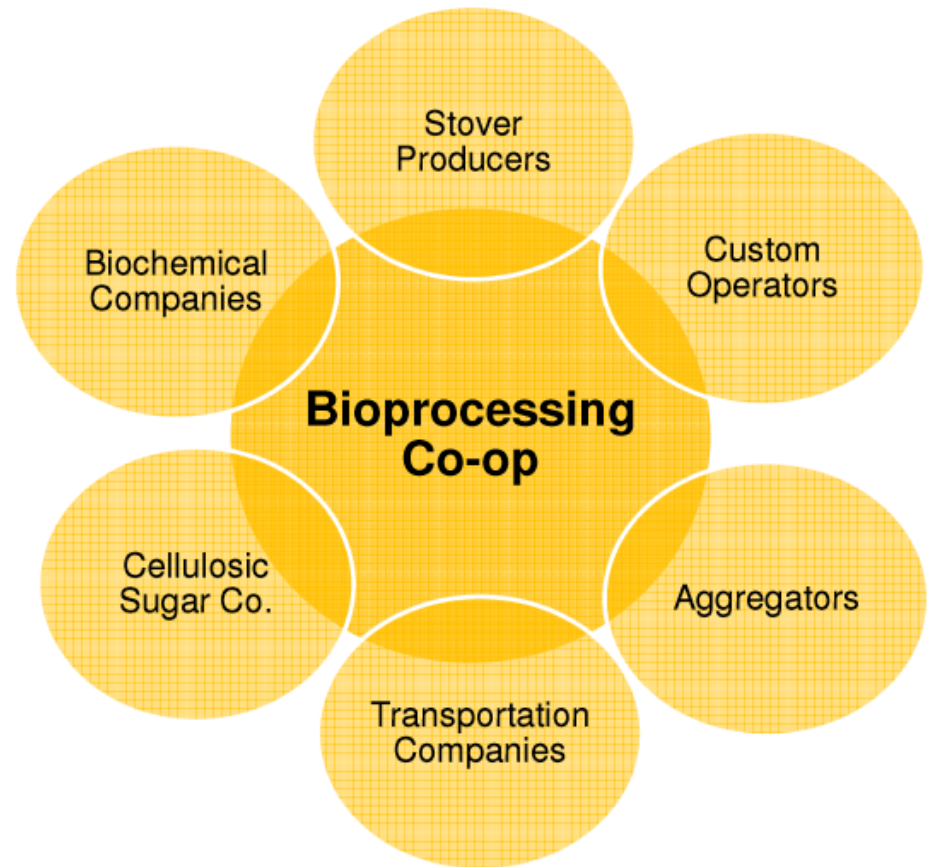
**Participation along value chain from agriculture to the chemistry industries**

**Field trials and sugar extraction testing conducted**

**Costs were assessed transparently in various business models**

**Significant interest was generated within the agricultural community**

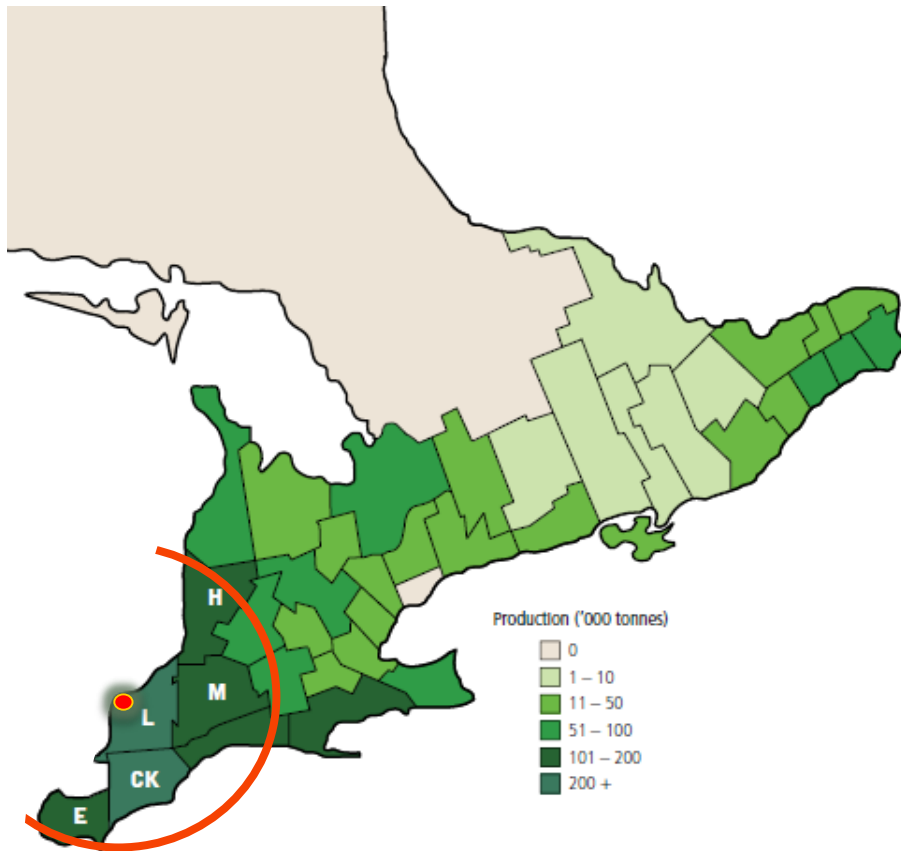
**“Seeds of trust were planted”**



University of Guelph, Ridgetown College 08-08-13

# Corn Stover to Sugar Value Chain Initiative

## Biomass available for full scale commercialization

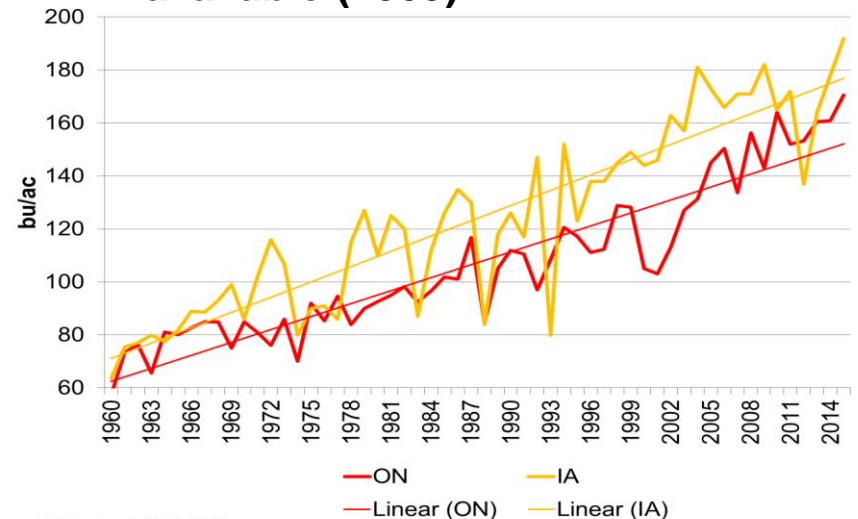


**Located within Ontario's Agricultural Heartland**

- 45% of soybeans and corn within 100km

**Five County Region around Sarnia**

- corn yields comparable to Iowa
- more than 1 million bone-dry tonnes sustainably harvestable corn stover available (2009)

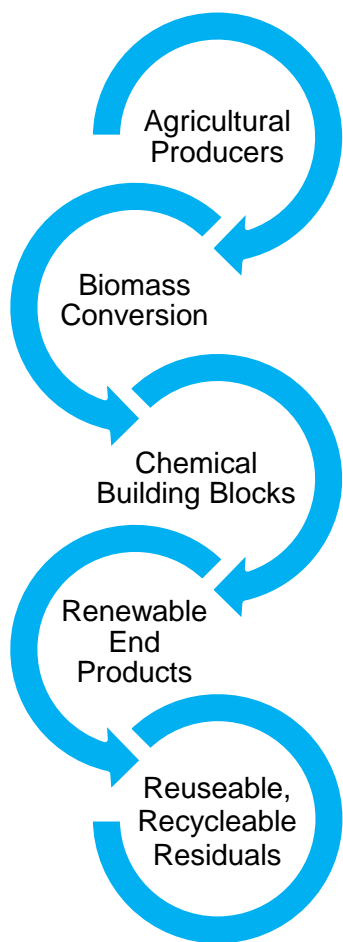


Source: Statistics Canada; USDA, NASS

# Raw Material Sourcing Anchors Growth of Clusters

## Development of cellulosic sugar production capacity

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### Vision Created and Projects Launched:

- An operating agricultural biomass to end-products supply chain by 2020 which is profitable and sustainable for all participants

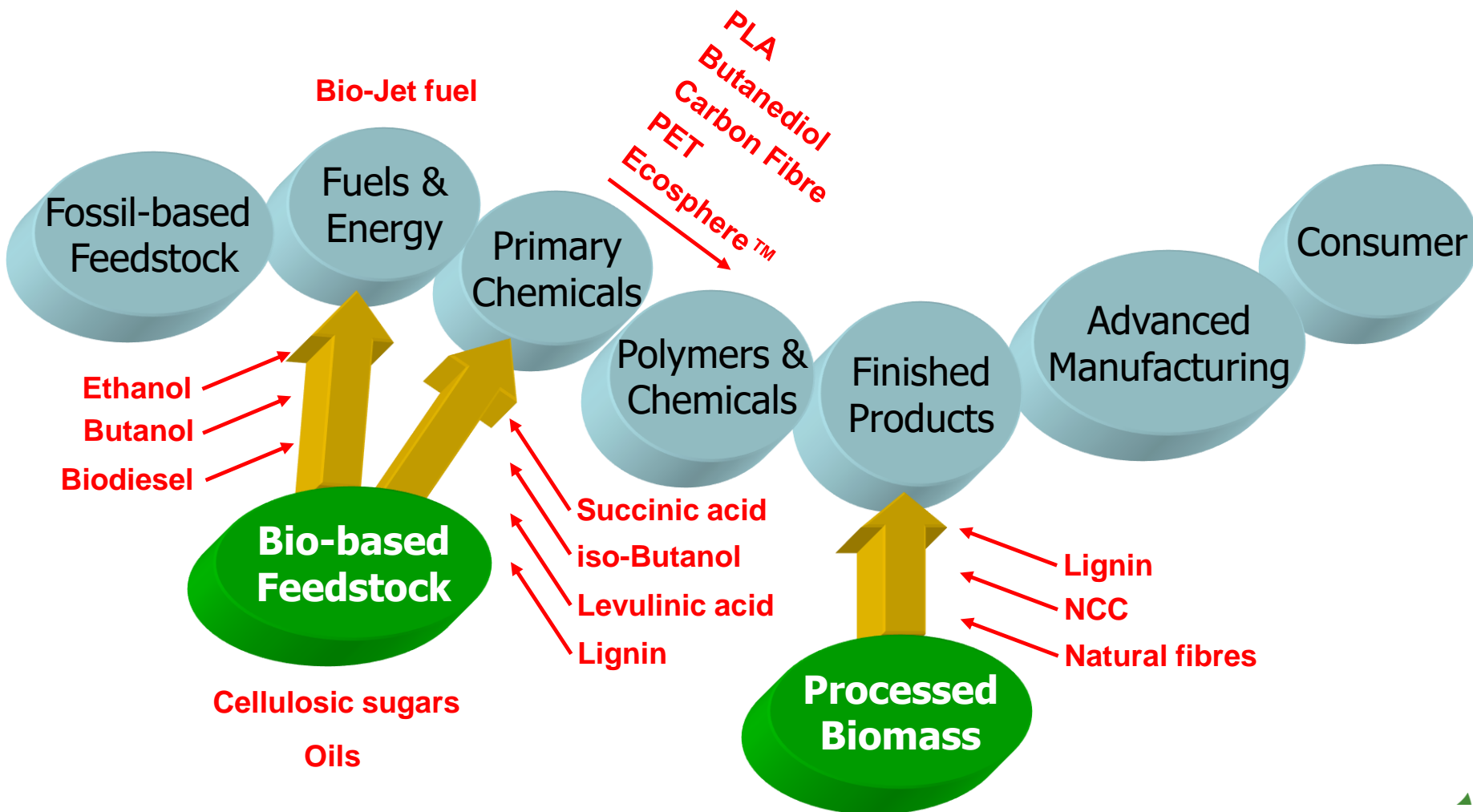
### Target:

- Construction of a cellulosic sugar conversion plant in Sarnia by 2018 processing 75,000 tonnes of agricultural residue

### Process and Outcomes:

- 19 technology providers screened vs. decision criteria
- 4 technology providers selected for biomass processing trials and further validation of product quality, mass and energy balance, process efficiencies, economics
- Recommendations given to Cellulosic Sugar Producers Co-op
- CSPC partnering with Comet Biorefining Inc to create agricultural biomass supply chain and to commercialize first cellulosic sugar production facility

# Integrating into the Hybrid Chemistry Value Chain Provides market access and business synergies



8 **Low Value Added** → **High Value Added**



# The Hybrid Chemistry Cluster in Sarnia

## A model to replicate across Canada

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**Canada's existing chemical industry in Sarnia forms the foundation for the Cluster:**

- access to energy, skilled labour and highly qualified personnel
- pipelines, rail, road and water transportation options for raw materials and finished products
- ready access to North American markets
- local Colleges and Universities active in research on the bioeconomy

**Ontario's farmers and foresters provide the biomass needed**

**Start-up bio-based and sustainable chemistry companies bring innovation to full commercialization**

**Existing chemical industry develops brownfield land for new businesses:**

- primary chemical building blocks from bio-based sources
- polymers, advanced chemicals/fuels and materials
- biomass production from local CO<sub>2</sub> sources for use as fuels and chemical feedstock
- energy generation from biomass

# Thank you - Discussion

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