
BIODIESEL

What is happening?

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The future of biodiesel

- Biodiesel will take more and more place in the economy over the next few years
- Suppliers of raw materials expect that this new industry will enable them to improve their revenues.

The future of biodiesel

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■ Canola Council of Canada

- Canola and rapeseed are the most utilized feedstock in the world
- The European Community should import from Canada as much as 400,000 tonnes of canola before the end of 2010

■ American Soybean Association

- The development of the biodiesel market is a priority for the ASA and they have the support of the American Government through their Energy Policy
- 150 million of gallons of biodiesel projected in 2006 by the ASA
- 2.7 billion liters before 2012

Feedstocks

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- Our project will utilise:
 - Canola
 - Soybeans
 - Animal Fats
- It is important to develop the production of canola locally

Canola in New Brunswick

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- Interesting feedstock

- High oil content

- High quality canola meal that can be integrated in animal feeds

Canola in New Brunswick

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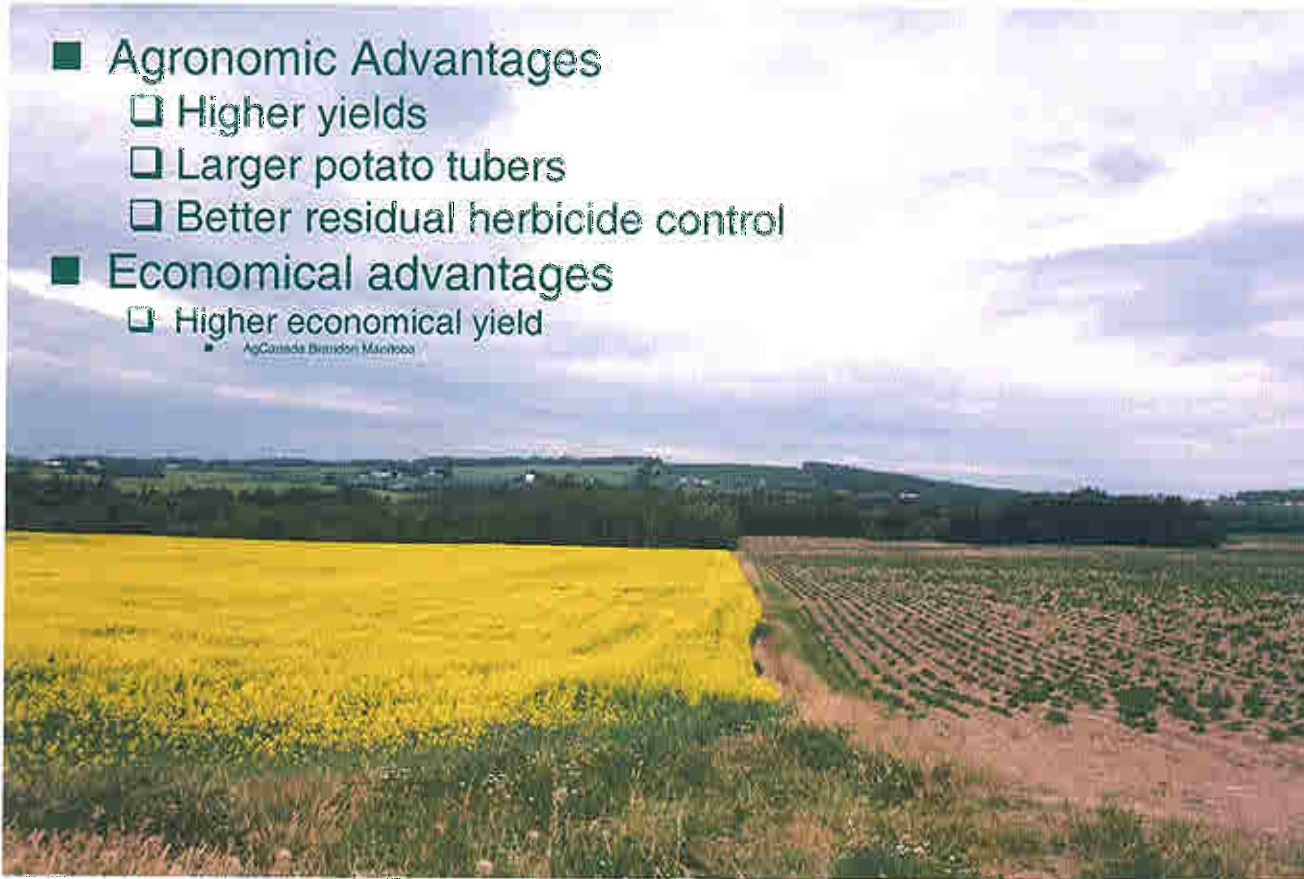
- This crop is well adapted to growing conditions in NB
 - Seeded around May 1st and harvested in mid-September
 - Can be inserted in the potato rotation with success
- Other advantages
 - Restructuration of soils (deep roots)
 - High uptake of nitrogen
 - High levels of organic matter

Canola and Potatoes

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- Agronomic Advantages
 - Higher yields
 - Larger potato tubers
 - Better residual herbicide control
- Economical advantages
 - Higher economical yield

AgCanada Brandon Manitoba



Canola and Potatoes

- The introduction of canola in the rotation reduces the rhizoctonia pressure in the following crop
 - Canola produces glucosinolates that reduce the presence of this disease
 - Honeycutt & Halloran, USDA, Dec 2005
- Canola in the rotation increases the yield of the following potato crop
 - Griffin, Larkin and Honeycutt, 2005, ARS USDA, Orono, Me

Biodiesel

What is “Biodiesel”?

In fact we have to talk about:

- “Methylic Ester of Soybean Oil (SME) »
 - « Methylic Ester of Canola Oil (CME)»
 - B100
 - “Biodiesel” for mixtures (B2, B5, B20)
 - B2 – 2% EMS & 98% pétrodiesel
 - B5 – 5% EMS & 95% pétrodiesel
 - B20- 20% EMS & 80% pétrodiesel
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What is “Biodiesel”?

- B100 is obtained through a chemical reaction called transesterification.
 - B100 can be manufactured using different types of lipids:
 - Animal Fats
 - Virgin Vegetable oils
 - Used Vegetable oils (Frying oils)
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How is it used

How is it used ?

- As B100;
 - In mixtures;
 - Mixed with petrodiesel (usually B5)
 - In any diesel engine;
 - Can replace Diesel #1 or #2
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Warranties are respected

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Company	Date	Impact on Warranty	Other
Cummins	6/14/01	No impact on warranty	Recommandation B5 max.
Detroit Diesel	6/02	20% max	ASTM 6751
Caterpillar	1/15/01	No impact on warranty	B20 & B100
Navistar	4/15/99	No impact on warranty	
John Deere	À jour	No impact on warranty	B5 max
International	11/2/00	No impact on warranty	
FIE Position	7/12/00	<5% allowed	>5% vérifier avec FIE
Mack		???	
Volvo		???	

- Mixes completely with petrodiesel
 - Equipments can handle
 - No other infrastructure is necessary (B100)
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Market

Biodiesel Market

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■ Economic Incentive

- Diesel prices have increased since June 2003
 - Prices should continue to increase over the next years
 - It is now economical to manufacture biodiesel
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Le marché du biodiesel

■ Fiscal Incentive

- Some provincial governments have announced detaxation of biodiesel (Quebec, Ontario, NS, BC, Manitoba).

■ Ruling Incentive

- The Federal Government announced on May 23rd, that a minimum of 5% biofuels in all fuels
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Market Size

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	Volume Diesel	Volume potentiel Biodiesel (B2)	Volume potentiel biodiesel (B5)
	(.000,000 litres)		
Colombie-Britannique	3,291	70	165
Alberta	4,919	104	246
Saskatchewan	1,537	32	77
Manitoba	884	19	44
Ontario	6,479	137	324
Québec	3,861	81	193
Nouveau Brunswick	917	19	46
Nouvelle Écosse	796	17	40
Ile du Prince Edouard	102	2	5
Terre-Neuve	661	14	33
Yukon	50	1	3
Territoires Nord Ouest	202	4	10
Nunavut			
<i>Total</i>	23,699	500	1,185
Total Eastern Canada		256	608

Market Size

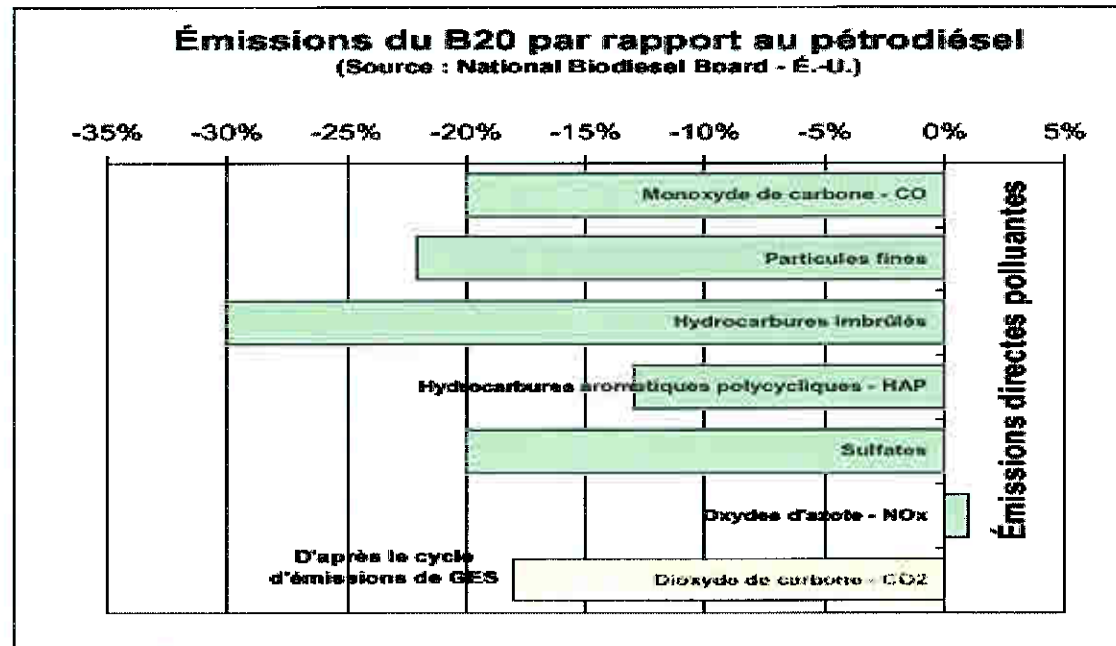
- Canadian Market Size for diesel fuel is of 24 billion litres annually
 - Potential volume of B5 in Eastern Canada is 608 millions litres
 - Canadian B100 production capacity in 2006 is of 110 million litres
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Environnemental Aspect

Environnement

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- Environnemental Incentive
 - Greenhouse gas reduction
 - Carbon Credits



Emissions

(U.S. EPA)

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<u>Emission Type</u>	<u>B100</u>	<u>B20</u>
Carbon Monoxide	-48%	-12%
Hydrocarbons	-67%	-20%
Particulate Matter	-47%	-12%
NOx	+10%	+2%