Soybean Crops in Canada:
A case study on Sustainability in Agricultural Systems

Presented by:
Dale Petrie
General Manager
Ontario Soybean Growers (OSG)
Soybean Crops in Canada

Market size

• 3.0 million acres of which 75 % are grown in Ontario

• Provincial Breakdown
  – Manitoba 300,000 Ac.
  – Ontario 2,150,000 Ac.
  – Quebec 550,000 Ac
Crop Rotations in Ontario

Cash crop - cropping systems

• Corn-Soy-Wheat
• Soy-Wheat-Soy
• Corn –Soy- Corn

WHY ROTATE???
Crop Rotations in Ontario

Why Rotate??

- Improves Soil Tilth and soil organic matter
- Reduces Insect and Disease pressure
- Spreads risk for markets and weather
- Reduces weed resistance and pressure
- Reduces soil erosion
- Nutrient balancing
Ontario Market Segmentation

- 4 different markets segmentations
- GM Crush market (15,000 farms)
- Non-GM Identity Preserved (4,000 farms)
- Non-GM Crush (850 farms)
- Non-GM Organic (150 farms)
Soybean GM Crush

Chronology:

• GM soybean varieties introduced to market in 1997 – herbicide tolerant
• Currently achieved over 60% of market share in Ontario
• Rapid adoption mainly attributed to ease in production
  – Improved weed control
  – No-till planting
  – Reduced fuel costs
Identity Preserved (IP)

Chronology:

• Currently has about 35% of the Ontario Market
• We are the best in the World
• Export markets (especially EU & Japan) require non-GM soy for premium of $0.75 - $4.00/bu to producers
Identity Preserved (IP)

• Identity Preservation (IP) process necessary to ensure specialty food export markets of non-GM
• Canadian Identity Preservation Recognition System (CIPRS) introduced in 2004
• Key Food Products: Tofu, Miso, Soymilk
Organic Non-GM Soybeans

- Very few farms (150-180) are certified organic despite high premiums of $20+ per bu.
- Soybeans are the largest Organic crop grown in Ontario (<20,000 ac)
- Most of the crop is exported to EU and Japan or used for domestic Soyfoods
- Higher carbon footprint - tillage
Soybean Sustainability

Opportunities:
New traits to assist in sustainability

- Drought tolerance
- Heat tolerance / Cold tolerance
- Disease resistance (Leaf and root diseases)
- Insect resistance (Aphids, Bean leaf beetle)
- Inoculants “messaging systems”
- More effective N-fixing bacteria strains
- New healthy oil and protein profiles
Soybean Sustainability

$N_2 \rightarrow NH_3$
No-Till Soybean Production
No-Till Soybean Production
No-Till Soybean Production

• Tillage
  55% of soybeans are no-till
  An additional 15-20% are minimal tillage

This saves a lot of Fuel, Time, and Water.
No Genetic Drift
101+ Uses for Soybeans
Food and Feed and Fuel

- Soybeans
  - Oil 20%
  - Meal 80%
  - Soyfoods
    - Edible Oil
    - Bioproducts
    - Edible
    - Feed
    - New soyfoods
Petroleum oil replacement

Ford Soybean Concept Car

Woodbridge Foam
2008 Ford Escape Hybrid
Summary

• Soybeans are a very sustainable crop
• Keys reasons are:
  • Reduced tillage and No-Till
  • Reduced herbicide use
  • Nitrogen Fixation
  • Crop rotation / Insects / disease
  • No genetic drift
  • Renewable C=C Petroleum replacement
  • Low carbon footprint crop
Thank You