Economics + Environment + Social
= A Winning Equation for Agriculture and Ontario

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Focusing on Farmland

Farm land asked to provide 4Fs: Food, Feed, Fibre and Fuel (energy) and Fun.

Our responsibility is to help maintain the Functions of Farm Ecosystems.
Red Clover Benefits for Soils

- Increases Microbial Activity
- Increases Aggregate Stability
- Improves Water Holding Capacity
- Builds Soil Tilth
- Decreases Soil Compaction
- Increases Soil Organic Matter
- Increases Erosion Prevention
- Increases Microbial Activity

Sources: Lupwayi et al., 1998; Snapp et al., 2005; Queen et al., 2009; Blaser et al., 2011
Biological Infrastructure of Agriculture

- Well managed forages provide cost effective feed, soil cover, C, nutrients +
- Grasses for biomass sales, soil cover, C and nutrients +
- Cover crops are soil builders, soil cover, C and nutrients +
When corn stover and wheat straw leave the farm

- If remove crop residues from arable land for bio-products and bio-fuel, then maintain SOM with soil builders, with and between cash crops.
Observing and Caring

• Erosion control practices tend to increase on farms:

1) with farmers mostly on the farm
2) organized as family units

(Wall et al. 2002)
Insurance Companies Get It

- Insur. Bureau of Canada $1.6 bil costs of catastrophic events in 2011 and > $1 bil in 2010 and 2009. Most from extreme weather but also small unusual weather events.
- In Canada, avg temp increase 1.3°C from 1948 to 2007, 2x global avg. Temp in 2010, 3.0°C above normal.
- Avg precip up by 12% 20 more days of rain vs ‘50s.

• Increased total precipitation
• Increased precipitation intensity
• Increased temperatures
• Shorter frozen period, more frequent thaws (slope failure)
Economic and Environmental Options for Sewage

• Could apply sewage to non-food crops, especially biomass crops
• Source separation - All new homes, replace water carriage of sewage with compost toilets?
• Extract struvite as P source from sewage

http://crystalgreen.com/