



GEORGE MORRIS CENTRE

Ethanol Development: Impacts on a Meat Exporting Country

Al Mussell, PhD

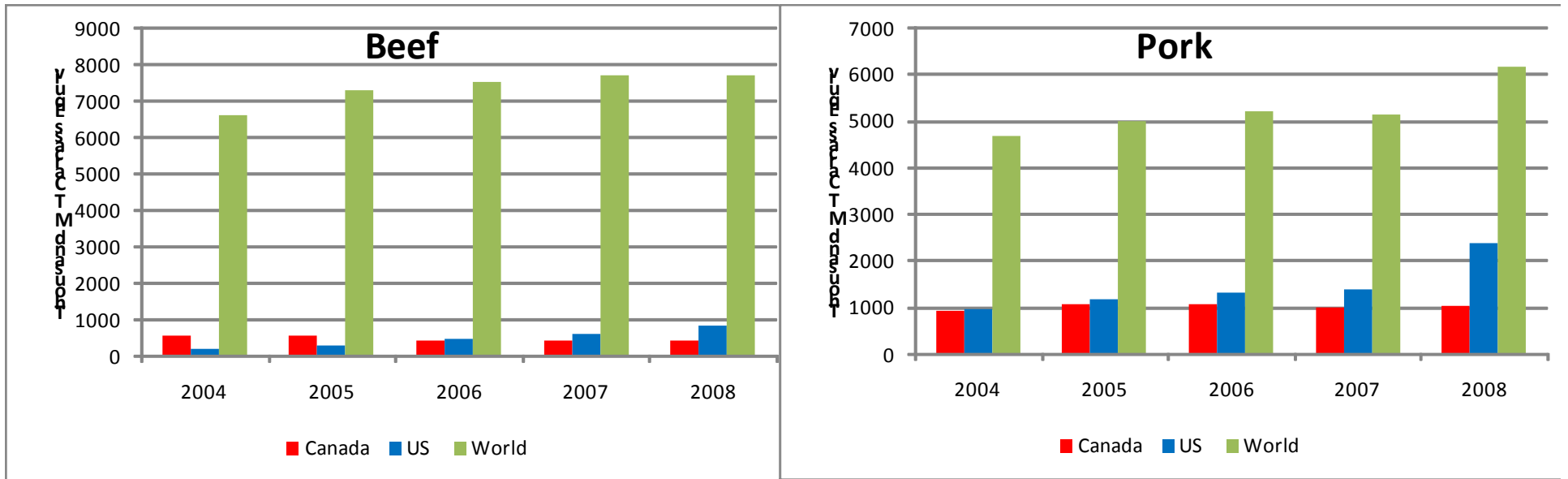
Canada's Independent Agri-Food Think Tank



Ethanol Development and Trade in Red Meats

- Canada has embarked on an ethanol mandate based on domestic production
 - 5% mandate; ethanol production and plant capital subsidies
 - Corn in eastern Canada, wheat in west
- Canada is a significant red meat exporter, predicated on relatively low-cost grains
- What impact ethanol development?
 - Ontario as an illustration

Canada: A Red Meat Exporter



Source: USDA FAS



A Nascent Ethanol Industry

- Small but growing *relatively* large
- Versus the US:
 - Ontario: End of 2009 332 M gal capacity; corn acreage around 2 million acres =**166 gal/corn acre**
 - US (2008): 12.4 B gal capacity; corn acreage around 85 million acres =**145.9 gal/corn acre**



A Free Trader (mostly)

- No trade barriers in corn, hogs, cattle, and red meat; dairy and poultry protected
- Ethanol development creates the following dynamic:
 - Additional demand for corn consumes domestic supply; flips corn price from export to import basis
 - DDG in feed mitigates ethanol corn demand effect, but only partially offsets
 - Import-basis pricing on corn makes region uncompetitive for feeder livestock
 - Reduces livestock and meat production



Corn in Feed Use- Ontario

	Inventory/ Slaughter (Head)	Corn Consumption Without DDG, Metric tons		Max Inclusion Rate, % DM	Corn Consumption With DDG at Maximum Inclusion, Metric tons	
		Per Head	Total		Per Head	Total
Dairy	340,325	2.04	680,039	20%	1.103	366,968
Chicken	202,226,750	0.0024	485,344	10%	.0025	505,567
Turkey	93,379,000	0.0137	117,310	10%	.0143	122,198
Laying Hens	9,596,250	0.0194	186,167	10%	.02	193,924
Hogs	5,407,206	0.223	1,205,807	20%	.181	978,704
Slaughter cattle	669,799	2.0	1,339,598	20%	1.73	1,158,752
Total Corn Use in Feed			3,595,800			3,326,114

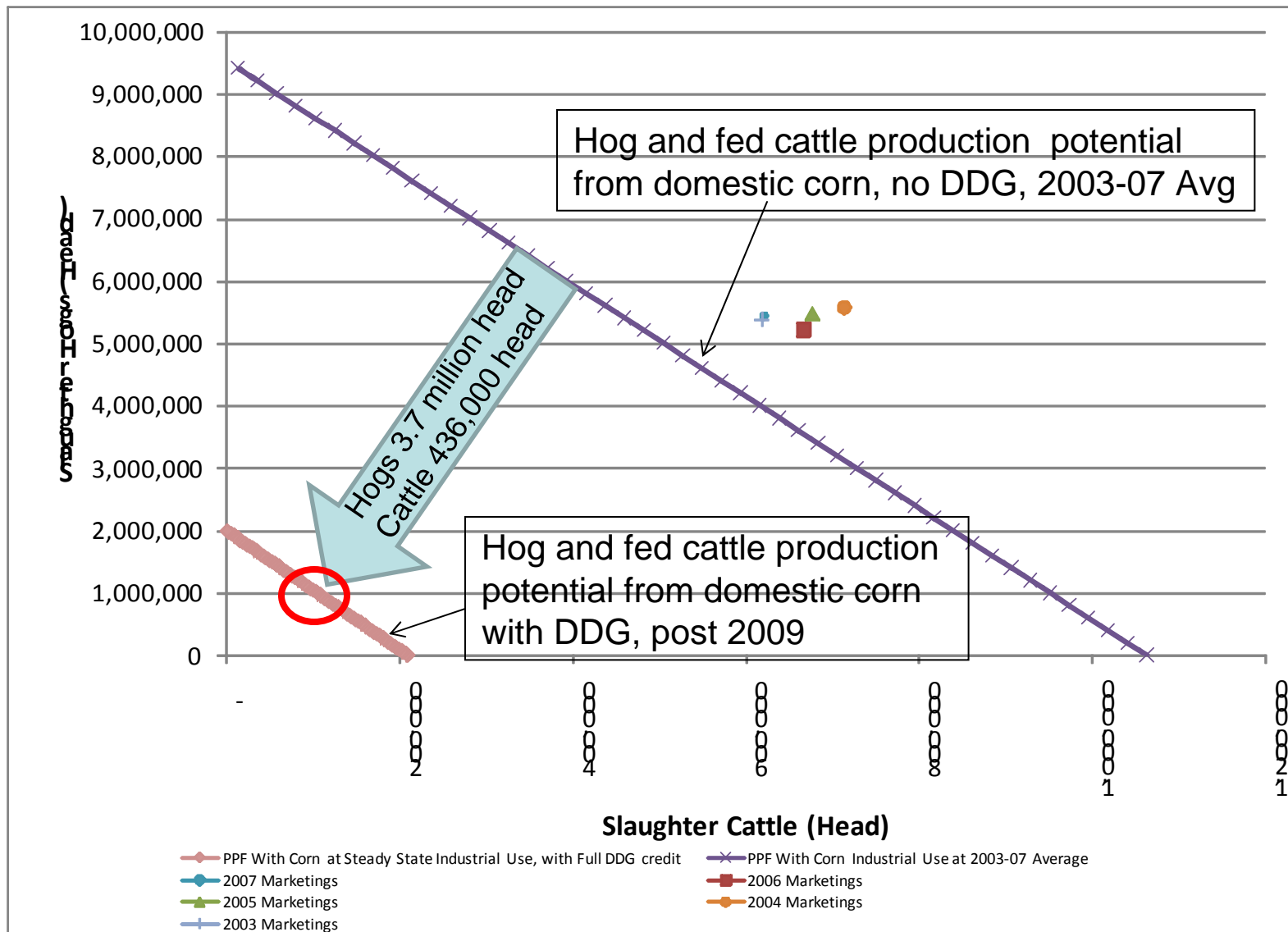




Corn Balance with DDG in Feeds, Post 2009, MT

Corn Production (2003-07)	6,009,221
Food and Industrial Use (2009 est)	4,454,877
Feed-Supply Management (2003-07)	1,188,657
Feed-Red Meat Livestock (2003-07)	2,137,457
Apparent Corn Deficit	(1,771,770)

Hogs and Cattle: Feasible Sets





Ethanol Impact on Meat Exports

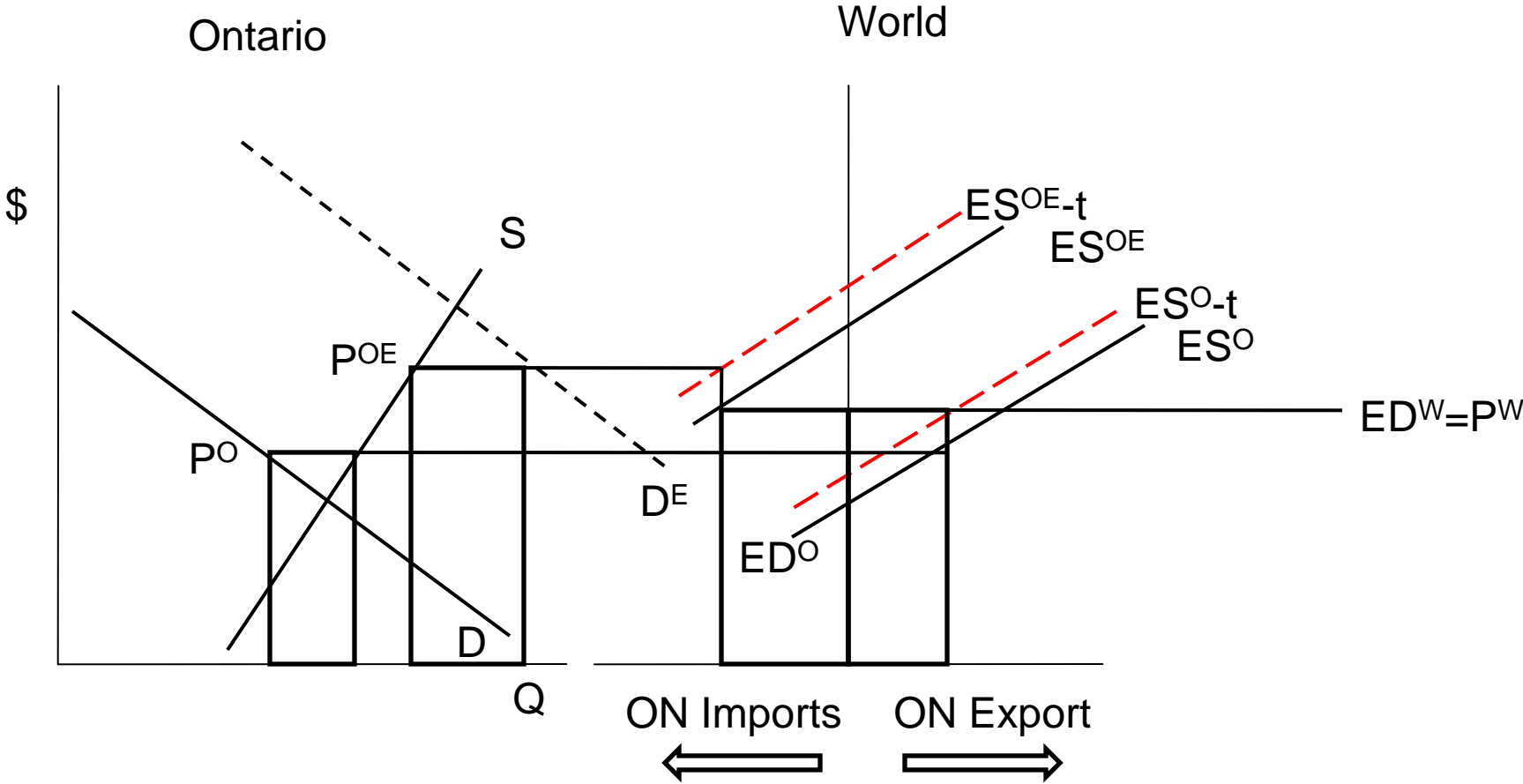
- Propositions:
 1. As local ethanol development tightens corn market, ability to compete for feeder livestock decreases
 2. The impact on meat and livestock market exceeds that on corn market
 3. Effect is largely independent of the world corn price; the corn basis is what matters



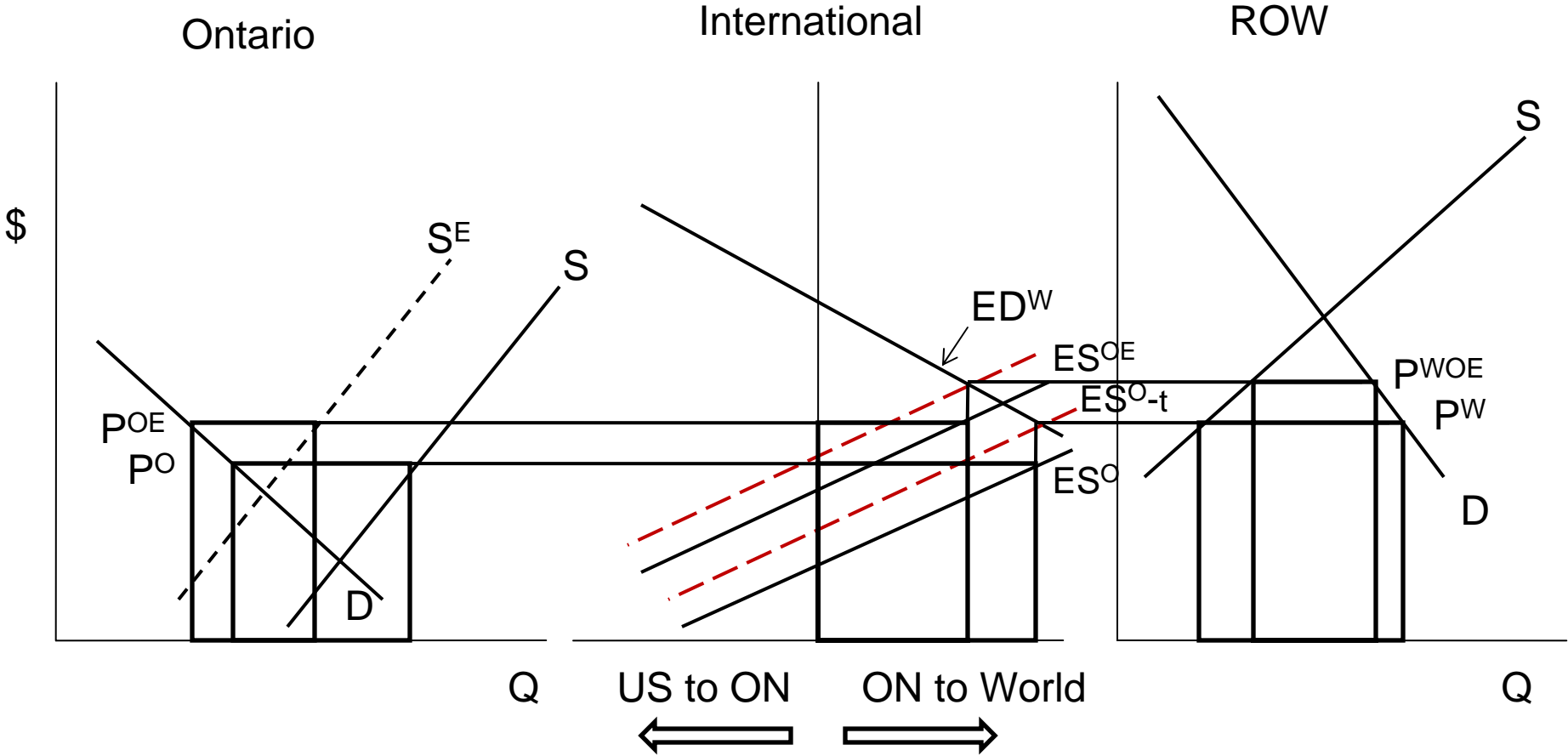
Red Meat Trade Model

- Literature deals with biofuel impact on world grain prices and regional livestock/meat supply shifts
- Doesn't deal with feed grain basis and regional feeder livestock competition
- Graphical model
- Canada (Ontario):
 - small country in corn market
 - large country in bilateral feeder livestock trade
 - large country in beef and pork trade

Ontario Corn Market With Ethanol Production



Meat Market





Results

- Ethanol development in Ontario:
 - Strengthens the ON corn basis
 - Weakens ON demand for feeder animals, thus releasing animals to be fed elsewhere and reducing the NA feeder price
 - Reduces the meat supply and exports from ON, increasing the ON and world meat price



Observations

- Because ethanol development in a small corn producing region does not affect global corn prices, ethanol effect is realized on local corn basis
- As a result, corn price shock from ethanol development is concentrated on local livestock/meat market, instead of being distributed through to world market
- Impact on world meat market due only to S&D adjustments in local market
 - Effectively amplifies the ethanol shock



Extensions

- Same logic for western Canada, based on feed wheat and barley
- Other factors cloud the ethanol-corn basis-livestock-meat-export dynamic:
 - COOL
 - Weak US dollar
- Potential destabilizing effect as identity of meat exporting countries may change
- Is the US situation really that different?



Conclusions

- Impact of ethanol development is to increase the *relative* in-country price of feed grains
- Will hamper export competitiveness in meats
- Policy-driven advantage to meat exporters not pursuing ethanol manufacturing



GEORGE MORRIS CENTRE

*Working to develop a
more competitive and prosperous
Canadian agri-food sector.*

www.georgemorris.org