



GEORGE MORRIS CENTRE

# A Tax Incentive for Certified Seed: An Assessment

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# Outline

- Potential benefits of increased use of certified seed
- Estimating the tax credit
- The cost of the tax credit
- Some thinking on the fit within safety nets



# Potential Benefits

- Increased adoption of certified seed
- Necessary condition for higher-value products
- Decrease in and mitigation of product mislabeling and cross-contamination
- Increased profitability in seed development and R&D, with multiplier effects
- Increased profitability of farm segment



# Certified Seed Adoption Rates

- If farmers are given the advantage of accessing top quality seed, they are likely to respond
- Differences in existing certified seed market share across crops
  - e.g. corn vs. wheat
- Differences in certified seed market share across regions
  - West vs. east
- Differences due to programming considerations
  - Quebec crop insurance and ASRA



# Higher Value End-Products

- Difficult to guarantee purity of end product if genetic basis is in question at the beginning
- Segmenting markets often feature aspects of farm product as part of differentiation
- Key growth market; latent investment opportunities



# Cost of Product Mislabeling

- Difficult to guarantee purity of end product if genetic basis is in question at the beginning
- Means of guaranteeing quality of farm product
- Means of establishing credibility in consumer markets interested in differentiated but not easily observed attributes



# Profitability of Seed Developers

- Expanding market for certified seed will increase profitability of seed developers, R&D
- Incentive for increased investment in seed R&D in Canada
- Sales multiplier estimated by Statistics Canada of 77%
  - in 2004 study, estimated spinoffs of \$615 million (western Canada)
  - Tax clawbacks generated of \$50 million



# Farm Profitability

- Should lead to increased farm profitability through increased adoption:
- More increased revenue opportunities
- Improved agronomic performance
- Improved confidence to make product claims; collaborate in value chains



# Estimating the Tax Credit

- Rationale:
- Individuals will be indifferent between certified and bin-run seed if they can be made indifferent, after-tax
- Tax credit is proportional to cost differential between certified and bin-run cost, marginal tax rate
- Use representative farm to aggregate across crops to arrive at a single tax credit- West and east

# Data

- Spread between certified seed price, bin-run price
- Omitted corn and canola from spread calculations
- Provided by industry sources, AAFC

	<b>Certified Seed Prices 2006</b>	<b>2006 Commodity Prices</b>	<b>Spread</b>
	<i>(\$/bu)</i>	<i>(\$/bu)</i>	<i>(\$/bu)</i>
<b>ONTARIO</b>			
Soybeans	25.80	6.06	19.74
Wheat	8.85	3.78	5.07
Alfalfa	150.02	120.02*	30.00
Timothy	74.24	51.97*	22.27
<b>SASKATCHEWAN</b>			
Wheat	8.63	5.31	3.32
Oats	6.00	2.25	3.75
Barley	6.63	3.56	3.07
Peas	10.50	3.46	7.04
Alfalfa	150.02	120.02*	30.00
Timothy	74.24	51.97*	22.27

\* Common seed



# Approach

- Establish crop acreages, implied seed consumption, and taxable income for representative farm
- Determine differential cost of certified seed for representative farm
- Calculate tax credit needed to offset cost disadvantage of certified seed



# Western Representative Farm

Wheat (acres)	1,395
Oats (acres)	306
Barley (acres)	583
Canola (acres)	805
Peas (acres)	500
Tame Hay (acres)	246
Total (acres)	3,835
Average Taxable Income (\$)	593,992
Average Taxable Expenses (\$)	539,116
Average Net Taxable Income (\$)	54,876

Source: Statistics Canada ESAS- SK Grain Farms >250,000 sales

# Additional Cost of Certified Seed-West

	Total Seeded Acreage	Spread \$/acre	Certified Seed Price Premium (\$)	Sum of premium of certified seed (\$)
Wheat	1,395	6.09	8,490.23	
Oats	306	10.23	3,130.92	
Barley	583	8.03	4,684.51	
Peas	500	21.11	10,562.69	
Alfalfa*	82	3.12	191.81	
Timothy*	82	0.99	20.27	
				<b>27,080</b>

\*75/25 mix; 3 year rotation



# Total Expenditure on Certified Seed

	<b>Acreage</b>	<b>Bushels seed</b>	<b>Seed Price (\$/bushel)</b>	<b>Total Cost (\$/Farm)</b>
<b>Wheat</b>	1,395	2,561	8.63	22,089.98
<b>Oats</b>	306	835	6.00	5,009.58
<b>Barley</b>	583	1,528	6.63	10,125.57
<b>Canola</b>	805	129	250.00	32,305.96
<b>Peas</b>	500	1,501	10.50	15,759.85
<b>Alfalfa</b>	82	9	150.02	959.06
<b>Timothy</b>	82	4	74.24	67.56
<b>Total</b>				<b>86,318</b>



# Tax Credit-West

- Given a marginal tax rate of 35%, need a tax credit of \$50,292 to cover \$27,040 cost differential
- Taken as percentage of total expenditure is certified seed were purchased,  $\$50,292/\$86,318 = 58\%$



# Eastern Representative Farm

Corn (acres)	456
Soybeans (acres)	350
Wheat (acres)	246
Tame Hay (acres)	132
Total (acres)	1,183
Average Taxable Income (\$)	665,309
Average Taxable Expenses (\$)	606,284
Average Net Taxable Income (\$)	59,025

Source: Statistics Canada ESAS- ON Grain Farms >250,000 sales

# Additional Cost of Certified Seed-East

	Total Acreage	Spread \$/acre	Certified Seed Price Premium (\$)	Sum of premium of certified seed (\$)
Soybeans	350	32.28	11,286.10	
Wheat	246	8.67	2,128.47	
Alfalfa	44	5.80	191.49	
Timothy	44	3.98	43.77	
Total				<b>\$13,650</b>



# Total Expenditure on Certified Seed

	<b>Acreage</b>	<b>Bushels seed</b>	<b>Seed Price (\$/bus hel)</b>	<b>Total Cost (\$/Farm)</b>
<b>Corn</b>	456	171*	160**	27,364.59
<b>Soybeans</b>	350	571.74	25.80	14,750.87
<b>Wheat</b>	246	419.82	8.85	3,715.37
<b>Alfalfa</b>	44	8.5	150.02	957.47
<b>Timothy</b>	44	7.9	74.24	145.89
<b>Total</b>				<b>\$ 46,934</b>



# Tax Credit-East

- Given a marginal tax rate of 31%, need a tax credit of \$30,170 to cover \$13,650 cost differential
- Taken as percentage of total expenditure is certified seed were purchased,  $\$30,170/\$46,934 = 64\%$



# Aggregating Regions

- Attribute western results to Prairie grain farms
- Attribute eastern results to Eastern & BC grain farms
- Combine based on weights reflecting number of farms
- Arrive at single tax credit of 59%

# Aggregate Cost

	No. of Grain Farms (Sales of \$250,000 +)	Tax Savings Required (\$)	Expenditure (\$)	Total Government Costs (\$)	Total Expenditures on Certified Seed (\$)
<b>Eastern Canada + BC</b>	2,185	30,170	46,934	65,921,107	102,551,203
<b>Prairie Provinces</b>	9,625	50,292	86,318	484,062,796	830,806,467
<b>Total Cost to Government</b>	11,810			549,983,903	933,357,670
<b>Average Per Farm Cost</b>		46,569	79,031		

National Certified Seed Tax Credit  $46,569/79,031 = 59\%$



# Observations on Tax Credit

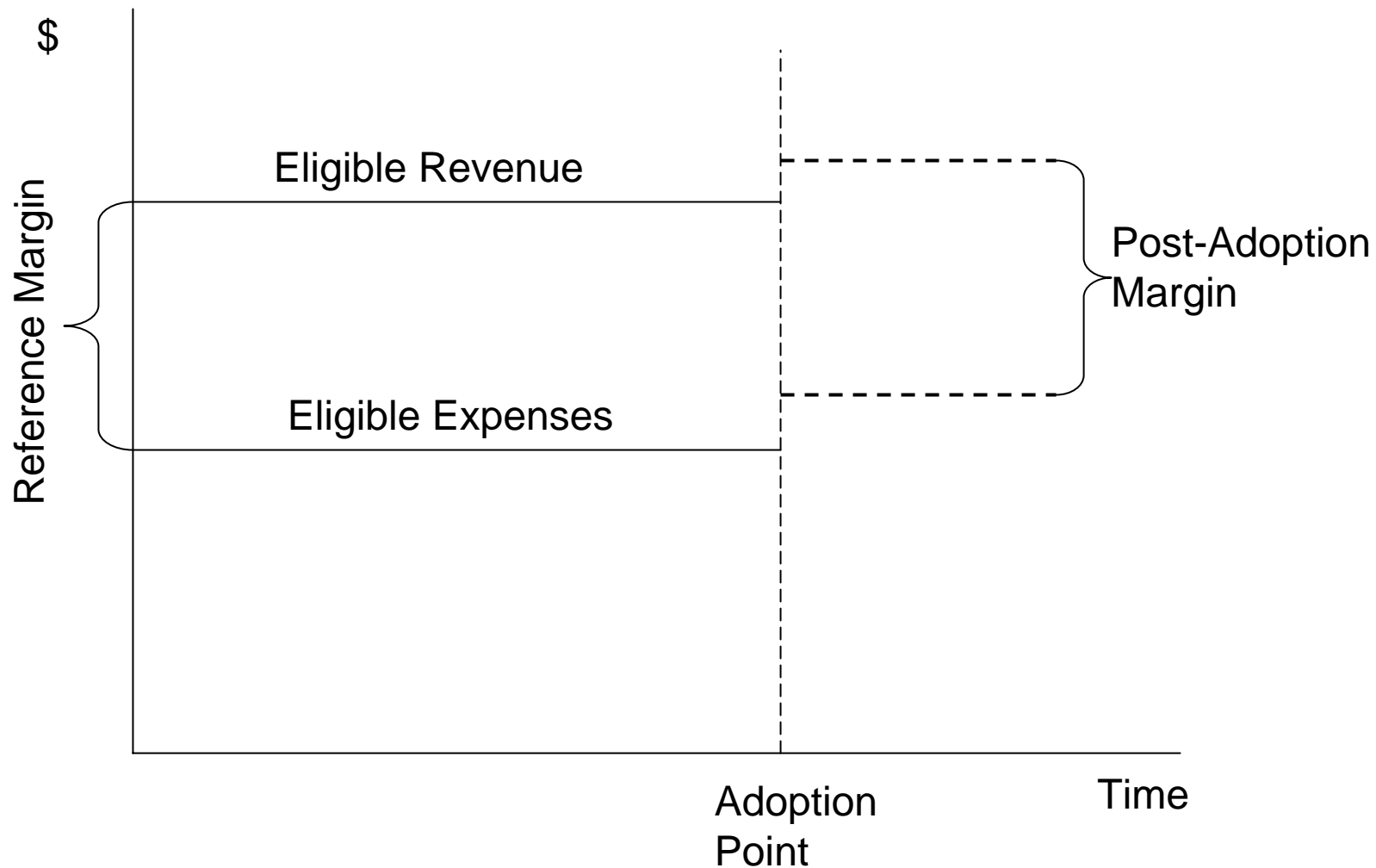
- Update in 2004 based on narrower set of western crops suggested 66% tax credit
  - Also showed equivalent reduction in tax liability for certified seed users by (1-marginal tax rate); about \$10,000 per farm
- Tax credit slightly lower in this study
- Anticipated overall cost about \$550 million/year
- Cost highly dependent on enrolment level:
  - Regressive tax
  - Participation by livestock producers; mixed farms



# Safety Net Issues

- All other things equal, adoption of certified seed will increase eligible expenses
- Eligible revenue should also increase; not necessarily proportionally
- Initially, adoption could trigger safety net payments (until reference adjusts)
- Mitigate by adjusting reference
- Complicated by new program design (?)

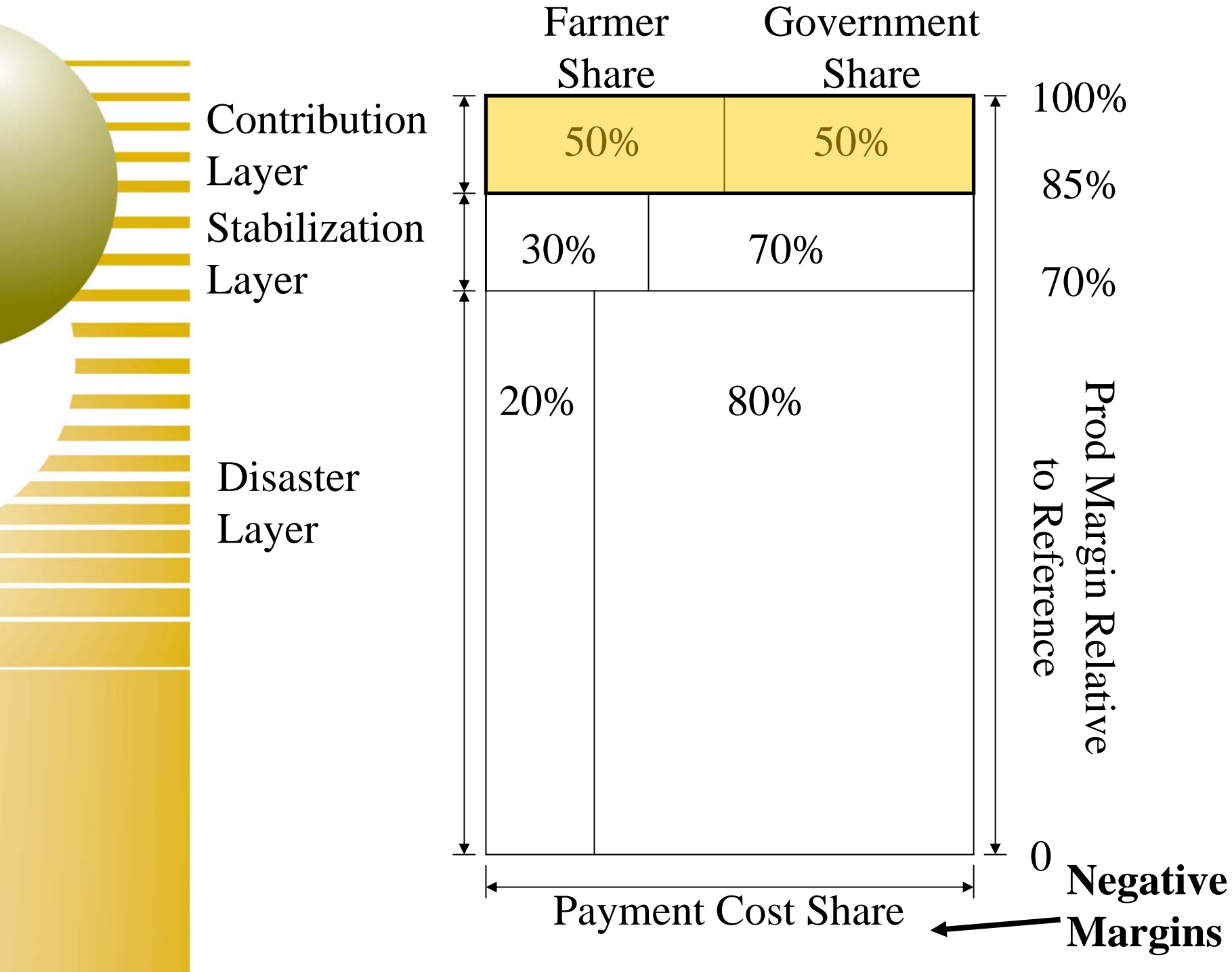
# Impact of Adoption on Margin





# Alternatives

- Structural change adjustment
  - Adjust reference for certified seed use
  - Requirement for supporting data
- Certified seed enhancement
  - Used in ON under NISA
  - Replace seed cost line item with % of crop sales
- Give choice as to whether to include seed as eligible expense for program purposes
- Others (?)
- New program design
  - Incentive to increase reference PM for contribution purposes





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