

Positive and Negative Outputs

- Positive:
 - Low-till cropping → healthy soil, carbon sink;
 - Wetland conservation → increased biodiversity → habitats;
 - Nutrient Best Management Practices (BMPs) → clean drinking water;
- Negative:
 - Intense tillage → soil erosion;
 - Increased nitrogen → reduced water quality;
 - Cropping of wetlands & woodlots → loss of habitats & biodiversity;



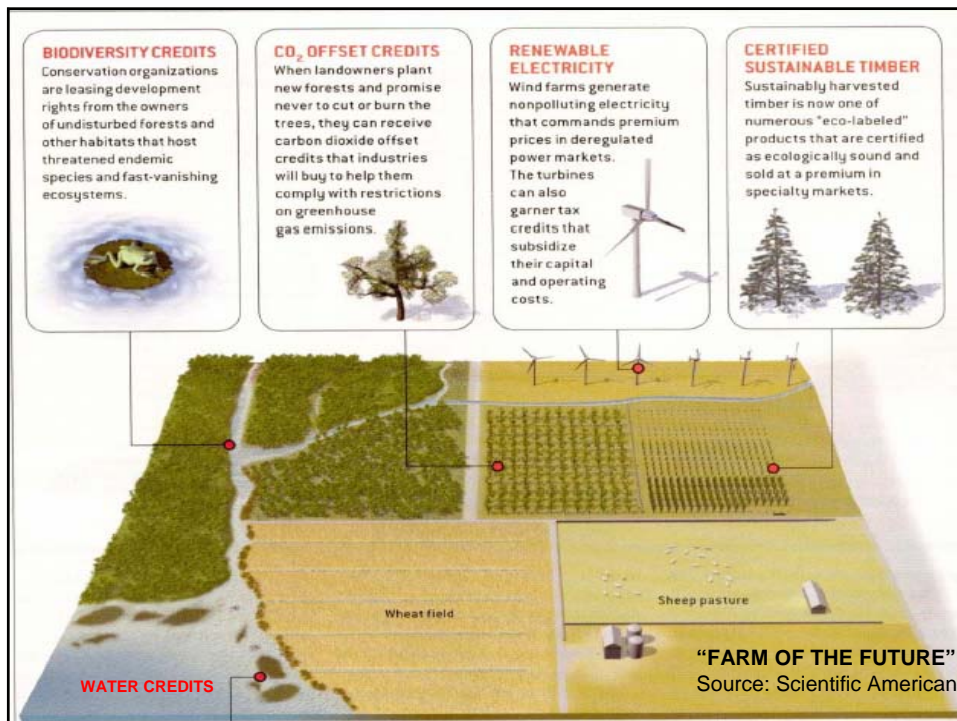
What is driving agri-environmental policy?

- High demand for environmental quality;
 - Better maintenance of our Natural Capital;
 - Climate Change;
 - Air and water quality;
 - Public concerns linked to health issues.
- Farm profitability;
 - Markets fail to fully value positive and negative agri-environmental outputs.





What are Ecological Goods and Services (EG&S)?

- EG&S are the benefits humans derive from healthy ecosystems, beyond consumed products such as food and fibre.
- Agro-ecosystems can provide wildlife habitat, groundwater recharge, flood and erosion control, carbon sequestration, increased biodiversity, and other EG&S
- EG&S are products, not programs.




Private partners already increase EG&S

	=	Annual payments
<input type="text"/>	=	Carbon/Emissions trading
<input type="text"/>	=	Innovative partners funding BMPs
<input type="text"/>	=	Water quality trading



Three streams of APF Environment policy:

- **On Farm Action**
 - Environmental Farm Plans (EFPs);
 - National Farm Stewardship Program (BMPs);
 - Greencover Canada.
- **Knowledge and Information**
 - Science for on-farm activities and policy;
 - National Land and Water Information Service (NLWIS);
 - National Agri-Environmental Standards Initiative (EC);
 - Modelling.
- **Measuring Performance and Reporting Results**



The issues we face are complex

- Providers need to demonstrate value for money;
- Need to scientifically measure environmental benefits
- Integrate EG&S with policy on environment, income, etc.
- How to define polluter pays vs provider gets;
- Local vs Global benefits:
 - Those who benefit should contribute to the providers.
- EG&S policies compete with other demands;



There is general consensus that any approach must:

- Have clear environmental goals;
- Be locally based;
- Partnered with producers
- Science-based with measurable outcomes for evaluation;
- Based on a suite of policy tools appropriate to different situations.



F/P/T governments EG&S policy framework:

What do we need to target?	<ul style="list-style-type: none"> • Emissions • Farming practices • Inputs • Environmental outputs
Who do we need to engage?	<ul style="list-style-type: none"> • Farmers, landowners • Up- or down-stream industries • Research institutes • Environmental NGOs • Consumers
What policy instruments can we use?	<ul style="list-style-type: none"> • Payments • Taxes • Regulations • Certification • Awareness • Voluntary action • Stewardship
What levels of government need to be involved?	<ul style="list-style-type: none"> • Local • Regional • Provincial • National • International

Potential options for improving water quality:

- Annual acreage payments for specified practices
- Riparian Tax Credits
- Beneficial Management Practice insurance
- Water Quality Trading



Annual acreage payments for specified practices

- Examples include CRP (US), Greencover Canada, ALUS-Blanchard, Manitoba
- Can target habitat, riparian zones, GHG emissions
- Needs participation of local landowners, environmental authorities, governments
- Issues: equity among participants, targeting, measuring results, setting rates, costs.



Danger of capitalization of payments into land values

North Dakota Land for Sale: NW Stutsman County;
This is a really pretty piece of land. When you drive up on the east side and look down on the water and grass, it is a sight to behold! **Acreage Breakdown: 160 acres with 76.2 acres earning an annual CRP Income \$2,340.10 thru 2017 (\$30.71/acre).** Balance is wetland. Asking \$72,000.00.

Source: Prairie Rose Realty (www.prairieroserealty.com)



Look at the big picture.



Riparian tax credits

- Reduced taxes on landowners who enroll specified land in stewardship practices (e.g. no tillage)
- Can improve water quality, habitat, GHG emissions
- Sample pilots in Saskatchewan and Manitoba
- Partnered with provincial government and Ducks Unlimited Canada to offset costs to municipality



Riparian tax credits

- About 1/3 of eligible acres enrolled
- Favourable reception by producers
- Issues include:
 - ability of tax system to identify sensitive land and treat differently;
 - cost impacts, rates
 - needs clear expectations, communication and monitoring



The BMP Challenge

- Input paradox: up to 40% over-application
- Risk is a major culprit
- American Farmland Trust's Agricultural Conservation Innovation Center initiated the BMP Challenge to test practices that improve farm profitability and stewardship.
- Best Management Practices (BMPs) save farmers money and maintain yields:
 - In any one year, BMPs may not result in maximum yields, but are designed to deliver maximum economic returns over time.



The Nutrient BMP Challenge

- Apply normal fertilizer rates to a check strip in each field you enroll (Limit: up to 120 acres per farm)
- On the balance of the field, apply university-recommended BMP fertilizer rates for N, P and/or K with the help of your crop advisor and manage the entire field (check strip and balance) exactly the same way;
- At harvest, you and your crop advisor assess yield and contact us if you find a loss.
- Payment based on yield loss minus fertilizer savings;



The Nutrient BMP Challenge

NUTRIENT BMP CHALLENGE - Example, Corn Grown for Grain		
	CHECK STRIP	NUTRIENT BMP RATE
Amount of N applied	180 lbs/acre x \$0.28/lb. = \$50.40/acre	150 lbs/acre x \$0.28/lb. = \$42.00/acre
Amount of P applied	75 lbs/acre x \$0.30 = \$22.50/acre	35 lbs/acre x \$0.30 = \$10.50/acre
Amount of K applied	0 lbs/acre x \$0 = \$0/acre	0 lbs/acre x \$0. = \$0/acre
Total fertilizer cost	\$72.90/acre	\$52.50/acre
\$72.90 - \$52.50 = \$20.40/acre fertilizer cost savings!		
Situation 1: Yield loss w/ BMP	180 bu/acre x \$2.20/bu = \$396.00/acre	165 bu/acre x \$2.20/bu = \$363.00/acre
Net yield loss	\$396.00 - \$363.00 = \$33.00/acre yield loss	
Net economic return	\$33.00 loss - \$20.40 savings = \$12.60/acre net loss	
\$12.60/acre performance guaranty paid to grower		
Situation 2: Yield gain w/ BMP	180 bu/acre x \$2.20/bu = \$396.00/acre	190 bu/acre x \$2.20/bu = \$418.00/acre
Net yield gain	\$418.00 - \$396.00 = \$22.00/acre yield gain	
Net economic return	\$22.00 gain + \$20.40 savings = \$42.40/acre net gain	
\$42.40/acre gain - \$6/acre contribution = \$36.40/acre net = \$3,640 on a 100 acre field!		
TAKE THE CHALLENGE. HOW MUCH CAN YOU SAVE?		

Water Quality Trading

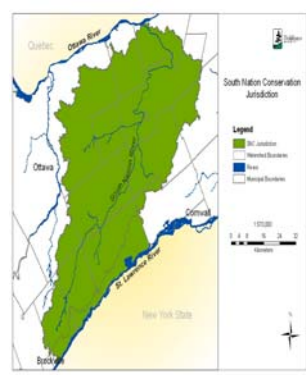
- Farms implement BMPs that reduce water contamination;
- Point source polluters purchase credits (e.g. South Nation Conservation);
- Public receives better water quality at less cost;
- More flexible than regulation.



Several pilots in Canada pay farmers for activities that reduce P emissions from farmland

South Nation Conservation

- Phosphorous levels in the South Nation watershed are too high
- Continued municipal growth would aggravate the situation
- The SNC obtains funds from the municipalities to pay farmers to reduce P emissions
- Lower cost than building very expensive water treatment facilities.



Next steps

- Consultation with stakeholders
- Next generation of federal-provincial agricultural policy
- Research and pilot projects

