



**Investigate the use of the
Environmental Farm Plan (EFP)
as an EG&S Management and Policy Tool**

EG&S Technical Meeting

April 30, 2009

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Presentation Outline

- **History behind the NB pilot project**
- **Introduction to the NB EFP**
- **NB-EG&S project - Activities & progress**
- **BMPs retained for their potential to deliver EG&S**
- **EFP-EG&S Process**
- **On-farm testing and data requirements**
- **Consultation sessions**
- **Conclusion**

History behind the NB-EG&S Project

- ***NB Delegates to EG&S National Symposium, Winnipeg, February 2006***
 - ***Bob Speer, APANB***
 - ***Bonnie Robertson, NB AFA***
 - ***Claire Caron, NBWTF***
 - ***Jean-Louis Daigle, ECSWCC***
- ***Opportunities for EG&S***

Follow-up to Winnipeg Symposium

- Briefing to DM
- Creation of a EG&S Working Group
 - Susannah Banks
 - Lynn Moore
 - Colette Lemieux
 - Claire Caron
 - Jean-Louis Daigle
 - Bonnie Robertson
 - Bob Speer
 - Jane Tims
 - Gordon Fairchild
- ECSWCC lead the preparation of an EG&S Pilot Project proposal in consultation with working group
- Group decision to submit proposal on EFP

NB EG&S Project

Title

**Investigate the use of the
Environmental Farm Plan (EFP)
as an EG&S Management and Policy Tool**

Rational

- Use an existing environmental awareness & risk assessment tool
- Cut down on paper work
- Further promote the EFP
- Increase adoption of the EFP
- Whole farm approach to EG&S
- EFP used in the UK for EG&S program

Introduction to the NB Environmental Farm Plan



Workbook

Environmental Farm Plan for New Brunswick



Farmstead & Homestead

(sub-sections & # questions)

1. Farmstead Management	7
2. Water Wells	10
3. Petroleum Storage	10
4. Pesticide Storage & Handling	12
5. Fertilizer Storage & Handling	7
6. Farm Waste	17
7. On-Farm composting	10
8. Energy efficiency	5
<u>9. Farmstead Windbreaks</u>	<u>5</u>
Total	83

Livestock Management

(sub-sections & # questions)

10. Livestock Facilities	40	
11. Manure Storage & Handling	14	
<u>12. Pasture Management</u>	<u>11</u>	
	Total	65

Soil & Crop Management (sub-sections & # questions)

13. Soil Management	38
14. Nutrient Management	32
15. Pest Management	28
16. Irrigation	14
17. Field Windbreaks	4
<u>18. Peatlands, Dykelands & Floodplains</u>	<u>29</u>
Total	145

Ecological Resources

(sub-sections & # questions)

19. Riparian Buffer Zones	6	
20. Wetlands	11	
21. Woodlots	13	
<u>22. Species at Risk</u>	<u>3</u>	
	Total	33

4 sections	22 sub-sections	326 questions
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NB EG&S Project

Title

**Investigate the use of the
Environmental Farm Plan (EFP)
as an EG&S Management and Policy Tool**

Activities

1. Identify potential EG&S produced on farms
2. Assess and weight EFP questions for EG&S delivery
3. Identify baseline EFP risk rating level acceptable for EG&S
4. Identify gaps
5. Develop and evaluate data collection, monitoring requirements, and EFP-EG&S software on-farm
6. Consult with industry

A vibrant rainbow arches across a clear blue sky, its colors transitioning from red at the top to violet at the bottom. The rainbow appears to be positioned on the left side of the frame, extending from the top edge down to a flat, green horizon line. The foreground is a lush green field, possibly a meadow or a field of crops, which is slightly out of focus. The overall scene is bright and optimistic, symbolizing hope and progress.

Progress

Stakeholders Meeting

- Provided general information about the project and EG&S
- Brainstorming session to identify potential EG&S for NB
- Created two committees
 - Advisory committee
 - Technical Working Group (TWG)

Advisory Committee Members

Maarten Van Oord - Producer

Winston Jones - Producer

Charline McCoy - AANB

Susannah Banks - NBSCIA

Robert Gareau - Potatoes NB

Ben Whalen - Kennebecasis River

Claire Caron - NB WTF

Jane Tims - NBDENV

Maurice Maillet - AAFC

Darrell Gumieny - AAFC

Lynn Moore - NBDAA

Bonnie Robertson - NBDAA

Jean-Louis Daigle - ECSWCC

Gordon Fairchild - ECSWCC

Jérôme Damboise - ECSWCC

TWG Members

Amy McFadgen - NBSCIA

Bonnie Robertson - NBDAA

Bruce Kinnie - NBDAA

Gordon Fairchild - ECSWCC

Jérôme Damboise - ECSWCC

John Russell - AANB

Maurice Maillet - AAC

Mélanie Godin - AANB

Roger Thériault - NBDENV

Tanya Dykens - NBSCIA

Tom Byers - NBDAA

Other Collaborators

Nicole Williams - NBDAA

Pat Toner - NBDAA

Charles Karemangingo - NBDAA

Activities & Progress

TWG held 7 meetings and went through 5 exercises in order to screen the EFP questions. The Advisory committee held 6 meetings to review recommendations from TWG.

- Assessed all 326 EFP questions against the initial list of EG&S*
- Agreed on a **list of potential EG&S** that can be provided on NB farms*
- Developed a set of **Guiding Principles** to be followed*

List of EG & S

- 1. AIR:**
 - *Air purification*
 - *Provision of Oxygen*
 - *Maintain good air quality*

- 2. WATER:**
 - *Water purification*
 - *Maintain Water Quality*
 - *Regulate Water Cycle*

- 3. SOIL:**
 - *Regeneration & Renewal of Soil*
 - *Maintain good quality Soil*

- 4. BIODIVERSITY:**
 - *Provision of Terrestrial & Aquatic Habitat*
 - *Maintain / Enhance Genetic Diversity*
 - *Protect Species at Risk*

- 5. CLIMATE:**
 - *Carbon Sequestration*
 - *Reduction of GHGs emission.*

- 6. OTHER SOCIAL BENEFITS:**
 - *Provision of Aesthetic Landscape*
 - *Enhance Recreational Activities*

Guiding Principles

- 1. No short term net economic benefit*
- 2. May increase production risk*
- 3. May reduce non-point source water pollution*
- 4. Reduce nuisance*
- 5. Enhance fish & wildlife habitat*
- 6. Reduce or regulate flooding*
- 7. Positive EG&S*
- 8. Reduce negative impact on EG&S*
- 9. Exceed acceptable practice*
- 10. Exceptional practice in sensitive /designated areas*
- 11. High non cash and/or maintenance cost*
- 12. High opportunity cost*

Example of EIT question analysis

19	Riparian Buffer Zone		67	97.0%
1	294	Width of riparian buffer along watercourses	97	100.0%
2	295	Buffer strips for drainage and road ditches	80	99.0%
3	296	Watercourse crossing	51	93.0%
4	297	Vegetation	70	98.0%
5	298	Habitats	57	95.0%
6	299	Condition of watercourse	47	88.0%

20	Wetlands		36	79.0%
1	300	Presence of natural wetlands	51	93.0%
2	301	Wetland restoration / alteration	74	98.0%
3	302	Wood harvesting in / near wetlands	18	45.0%
4	303	Discharge into natural wetlands	37	80.0%
5	304	Farming activities near wetlands	48	89.0%
6	305	Water extraction	15	36.0%
7	306	Wetland construction	55	95.0%
8	307	Farm safety	6	8.0%
9	308	Wetland inspection	17	41.0%
10	309	Type of wastewater treated	25	62.0%
11	310	Outflow of water from constructed wetland	46	87.0%

A	90-100%	31
B	80-89%	34
C	65-79%	47
Fail	< 65%	214
		326

Activities & Progress

- *For each question kept, the TWG agreed on the EFP **Risk assessment level** that could be acceptable (baseline)*
- *For each farm practice that was kept, the TWG determined if the practice could be **measured or verified at the farm** and which method (s) that could be used to complete the verification.*

Riparian Buffer Zones

<i>Risk Rating</i>	1 <i>(Low)</i>	2	3
<i>EFP question</i>			
Width of riparian buffers along watercourses	Between 30 to 75 m along all natural watercourses (streams, rivers, ponds, lakes, and wetlands).	Between 15 to 30 m (50 to 100 ft) of maintained natural vegetation.	Between 5 to 15 m (17 to 50 ft) of vegetated buffer between field and edge of watercourse; or Buffer width meets legislation
Buffer strips for drainage and road ditches	More than 5 m (17 ft) of grass strip between field and ditch (high water mark)	Between 3 to 5 m (10 to 17 ft) of grass strip	
Watercourse crossings	Well designed, constructed, and maintained bridges Road approaches prevent water from draining directly into the watercourse		



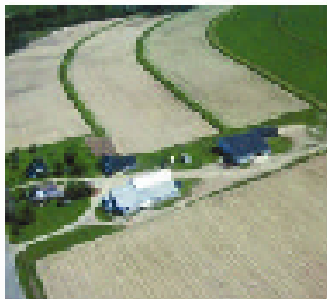
Activities & Progress

- *As a result, **64 EFP questions** were kept as having potential to provided EG&S.*
- *Questions with **low potential** of providing EG&S or **not measurable** were eliminated.*
- *ECSWCC staff compiled a **suite of BMPs** based on the 64 questions.*
- ***Eight consultation sessions** were held across the province from November 19 - 26, 2008*
- *The **EFP software** was revised to measure potential EG&S at the whole farm level*
- *The EFP and Agri- Environmental club coordinators completed a series of **on-farm testing** with the software*

Investigation of the use of the Environmental Farm Plan (EFP) as an EG&S Management and Policy Tool

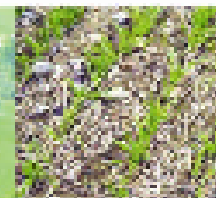
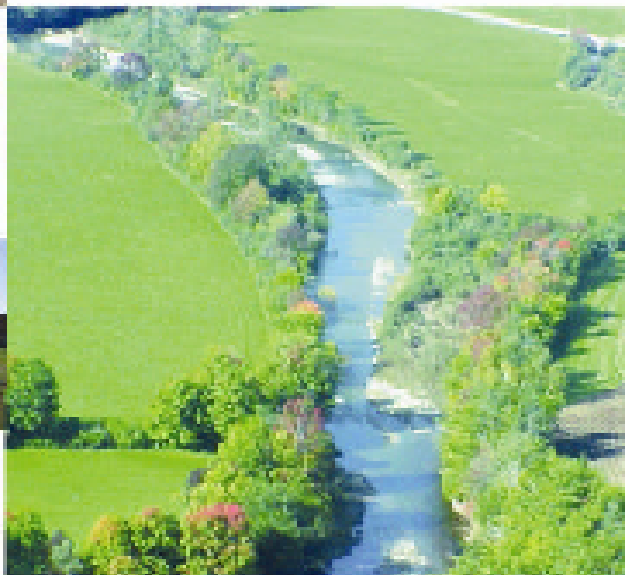
**Beneficial Management Practice (BMPs)
retained for their potential to deliver EG&S**

**Eastern Canada Soil and Water Conservation Centre (ECSWCC)
March 2009**



Workbook

**Environmental Farm Plan
for New Brunswick**



Farmstead Windbreaks

EG & S provided

- *Water purification*
- *Maintain water quality*
- *Air purification*
- *Maintain good air quality*
- *Provision of oxygen*
- *Carbon sequestration*
- *Reduction of GHG emissions*
- *Maintain / enhance biodiversity*
- *Provision of Aesthetic landscape*



3 / 5 questions kept

Farmstead Windbreaks

<i>Risk Rating</i> <i>EFP question</i>	1 (<i>Low</i>)	2	3
1. Presence of windbreaks and living snow fences	Area needing protection (e.g. building, working area, road, farmyard, barnyard, feedlot) is sheltered with windbreaks or living snow fences		
4. Density and uniformity	<p>Density is 60 to 80% year round and uniform across length and height of <i>windbreaks</i></p> <p>Density is 80 to 100% and uniform across length and height of <i>living snow fences</i></p> <p>Shrubs provide a uniform density at the bottom of windbreaks</p> <p>No gaps in windbreak(s)</p> <p>Windbreak(s) extends at least 15 m (50 ft) beyond each side of area needing protection or extends into an L shape</p>	<p>Overall density is 60 to 80% but not uniform across length and height of windbreaks and living snow fences</p> <p>Snow distribution not uniform and accumulation occurs in areas along windbreaks but no sign of turbulence or drifting near buildings or farm yard</p>	
5. Wildlife protection and biodiversity	<p>Windbreaks consist of at least 3 rows of trees and shrubs of deciduous and coniferous species of various ages and structure</p> <p>Groundcover at the bottom of windbreaks</p>	<p>Windbreaks consist of at least 2 rows of trees and shrubs of deciduous and coniferous species</p>	<p>Windbreaks consist of 1 row of trees and shrubs of mixed species</p>

Field Windbreaks

EG & S provided

- *Water purification*
- *Maintain water quality*
- *Air purification*
- *Provision of oxygen*
- *Maintain good air quality*
- *Carbon sequestration*
- *Conserve / maintain good quality soil*
- *Provision of terrestrial & aquatic habitat*
- *Maintain / enhance biodiversity*
- *Provision of Aesthetic landscape*
- *Enhance recreational activities*



4 / 4 questions kept

Manure Storage & Handling

EG & S provided

- *Maintain water quality*
- *Maintain good air quality*
- *Reduction of GHG emissions**



2 / 14 questions kept

Pasture Management

EG & S provided

- *Maintain water quality*
- *Maintain good air quality*
- *Conserve / maintain good quality soil*
- *Carbon sequestration*
- *Reduction of GHG emissions*
- *Maintain / enhance biodiversity*
- *Provision of terrestrial and aquatic habitat*
- *Provision of aesthetic landscape*



4 /11 questions kept

Soil Management

EG & S provided

- *Maintain water quality*
- *Regulate water cycle*
- *Regeneration / renewal of soil*
- *Conserve / maintain good quality soil*
- *Carbon sequestration*
- *Reduction of GHG emissions*
- *Maintain / enhance biodiversity*
- *Provision of terrestrial and aquatic habitat*



Nutrient Management

EG & S provided

- *Maintain water quality*
- *Maintain good air quality*
- *Regeneration / renewal of soil*
- *Conserve / maintain good quality soil*
- *Reduction of GHG emissions*
- *Maintain / enhance biodiversity*



Pest Management

EG & S provided

- *Maintain water quality*
- *Maintain good air quality*
- *Regeneration / renewal of soil*
- *Conserve / maintain good quality soil*
- *Maintain / enhance biodiversity*



Pest Management

<i>Risk Rating</i> <i>EFP question</i>	1 (<i>Low</i>)	2	3
1 Pest management	<p>Principles of IPM <i>understood and followed:</i></p> <ul style="list-style-type: none">• preventative and sanitation measures• scouting for pests and natural enemies• control decision based on economic or action threshold• sound crop management practices• combines mechanical, biological, or chemical control <p>or</p> <p><i>Certified organic farm or in transition to become an organic farm</i></p>		



Peatlands, Dykelands & Floodplains

EG & S provided

- *Regulate water cycle*
- *Maintain water quality*
- *Carbon sequestration*
- *Conserve / maintain good quality soil*
- *Provision of terrestrial & aquatic habitat*
- *Maintain / enhance biodiversity*
- *Enhance recreational activities*



5 / 29 questions kept

Riparian Buffer Zones

EG & S provided

- *Air purification*
- *Provision of oxygen*
- *Carbon sequestration*
- *Reduction of Greenhouse gas*
- *Water purification*
- *Maintain water quality*
- *Regulate water cycle*
- *Conserve / maintain good quality soil*
- *Provision of terrestrial & aquatic habitat*
- *Maintain / enhance biodiversity*
- *Provision of Aesthetic landscape*
- *Enhance recreational activities*



5 / 8 questions kept

Wetlands

EG & S provided

- *Water purification*
- *Maintain water quality*
- *Regulate water cycle*
- *Provision of terrestrial & aquatic habitat*
- *Maintain / enhance biodiversity*
- *Enhance recreational opportunities*



Woodlots

EG & S provided

- *Air purification*
- *Provision of oxygen*
- *Maintain good air quality*
- *Carbon sequestration*
- *Water purification*
- *Maintain water quality*
- *Regulate water cycle*
- *Provision of terrestrial & aquatic habitat*
- *Maintain / enhance biodiversity*
- *Provision of aesthetic landscape*
- *Enhance recreational activities*



5 / 13 questions kept

Species at risk

EG & S provided

- *Provision of terrestrial & aquatic habitat*
- *Maintain / enhance biodiversity*
- *Provision of Aesthetic landscape*
- *Protect species at risk*



2 / 3 questions kept

EFP-EG&S Process

EFP Workshop

- Site evaluation (technical information)
- Assess potential concerns

•*Complete On-farm Review using the EFP-EG&S software*

- Review all sites and operations on the farm
- Fill in worksheets that apply to your farm

Look for Solutions

- Consider possible actions/solutions
- Consult resource material and expertise

Develop a Realistic Action Plan

- Identify actions for high risk rated situations (3 or 4)
- Prioritize and develop a timetable for the action plan

EFP Review

- Coordinator/Advisor reviews EFP with farmer
- Third party review (where available)
- Certificate of completion of EFP issued

Implementation of Work Plan

- Put plan into action
- Review Action Plan each year
- Highlight completed action
- Participate in evaluation survey
- Repeat process within five years

If there are potential for EG&S payments:

- *Up to the producer to continue process*
- . *Someone will go at the farm to verify the practices with potential to provide EG&S*

EFP-EG&S Process

Field Sites

e	PIN	Id. #/name	Area (ha)	Info. Well at Risk		Info. Surface Water at Risk		Soil Characteristics				Slope		Crop Rotation
				Well	Distance	Surface Water	Distance	Series	Drainage	Texture	HSG	%	Length	
		all fields	150.8											
		1	10.3									1.1		
		2	6.65									1.7		
		3	1.4									1.5		
		4	8.76									1.9		
		5	8									1.8		
		6	9.2									1.4		
		7	9.5									1.0		
		8	1.76									2.8		
		9	7.3									3.4		
		10a	3.28									.5		
		10b	3.32									3.4		
		10c	9.92											
		11a	0											
		11b	5.84									4.2		
		11c	0											
		11d	0.5											
		12a	5.88									2.5		
		12b	3.68									1.1		
		15	9.04									3.5		
		16	8.2									3.2		
		17	7.88									3.1		
		11e	1											
		woodlot	485											
		14	5.9									1.4		



EFP-EG&S Process



Pasture Management

- Introduction
- What can you do?
- Resource List
- Risk Assessment
- Photos
- Other Documents

Watercourse Protection



Question	1 (Low)	2	3	4 (High)
4 Fencing of watercourses	Fences placed at least 10 m (33 ft) from any watercourse and at least 30 m (100 ft) from protected watercourses	Fences placed at least 5 to 10 m (16 to 33 ft) from any watercourse and at least 15 m (50 ft) from protected watercourses	Fences placed at less than 5 m (16 ft) from watercourses	No fences

A - all fields

Risk: 1 2 3 4 N/A R

Timetable: Start: End:

Action: Action Completed

Barrier:

Ecological Good & Service: Length (m):

EFP-EG&S Process

Action Plan


Report Type


All answered questions

Questions with high risk

Ecological Goods & Services

Special Report

Risk Assessment: 

Year: 

Completed Action

Create a PDF file

Create an Excel file

View

EFP-EG&S Process

Ecological Goods & Services (Farmstead & Homestead)

Question	Site	Risk	Measure 1	Measure 2	Factor	Credit
Farmstead Windbreaks						
) Presence of windbreaks and living snow fence	1-general	3	Length (m): 350		0	0.00
	26-windbreak 1	1	Length (m): 204		0.57	116.28
	27-windbreak 2	1	Length (m): 90		0.57	51.30
	28-windbreak 3	1	Length (m): 45		0.57	25.65
) Density and uniformity	26-windbreak 1	1	Length (m): 204		0.43	87.72
	27-windbreak 2	1	Length (m): 90		0.43	38.70
	28-windbreak 3	1	Length (m): 45		0.43	19.35
) Wildlife protection and biodiversity	1-general	4	Length (m): 350		0	0.00
	26-windbreak 1	2	Length (m): 204		0.4	81.60
	27-windbreak 2	3	Length (m): 90		0.27	24.30
	28-windbreak 3	3	Length (m): 45		0.27	12.15
Total:						457.05



On-Farm Testing

- EFP & Agri-Env. Club Coordinators tested 14 farms (4 dairy, 3 beef, 4 blueberries, 1 potato, 1 field crops, 1 vegetables)

- **Purposes of on-farm testing**
 - Test the revised software
 - Evaluate data collection & monitoring requirements
 - Determine measurability of the practices
 - Test various measuring tools
 - GPS
 - GIS software with geo-referenced aerial photos
 - Determine time required to complete the measurements and verification

On-Farm Testing

- Took 2 to 20 hours per farm to complete the verification (average 10.3 hours per farm)
- Initial verification takes more time, then occasional verification.
- Producers will need to keep a good crop record keeping system
- Training will be required for those doing the verification:
 - Common understanding of the EFP questions
 - Use of various measuring tools
 - Improve efficiency
- Trade-off : Level of compensation versus Precision of Verification

Consultation Sessions

- Inform the participants about EG&S
- Review the suite of BMPs identified as having potential to provide EG&S
- Obtain feedback and comments from participants
- Identify gaps

Consultation Sessions

Location	Date	# Participants
Sussex (E)	November 18	14
Bouctouche (F)	November 19	10
Moncton (E)	November 19	7
Bathurst (E)	November 20	7
Tracadie (F)	November 20	15
Fredericton (E)	November 25	21
Wicklów (E)	November 25	9
Grand Falls (F)	November 26	<u>13</u>
		96

Roundtable Session

Everyone said yes

- *Do you agree on an EG&S program concept and using the FFR to implement an EG&S program?*

Yes but some BMPs missing

- *Are all the farm practices listed during the presentation acceptable?*

Yes

- *Would you be willing to implement BMPs for the farm?*

if beneficial
if cash flow

- *Are there any practices you would like to see implemented on the farm that were not included?*

if funding available
Many BMPs already implemented

GAPS in the EFP

- ***Alternate energy -biomass, bio-energy***
- ***Certified Organic Farms***
- ***Animal welfare / confinement***
- ***Nuisance wildlife, invasive species***
- ***Wildlife protection***
- ***Species at risk (weak)***
- ***Agro-tourism, recreation***
- ***Climate change adaptation***
- ***Land use / zoning***
- ***Bee keeping, pollination***
- ***Christmas tree production***

EFP Questions or Practices to be revisited

- *Manure storages - Risk level 2 (Q 3 & 4)*
- *Milkhouse Washwater- use of alternate chemicals (Q 34)*
- *Manure treatment (Q 12)*
- *Manure application - Food safety (Q20)*
- *Water use efficiency of irrigation system (Q 10)*
- *Land clearing (blueberries)*
- *Taking land out of production*
- *Rock crushing*
- *Sediment basin*

Communication

- *Provincial workshop held March 4, 2009
60 participants*
- *Results presented at 3 industry group
AGM meetings and conferences.
Over 400 participants*
- *Final report and workshop proceeding are
posted on the ECSWCC Web site:*

<http://www.ccse-swcc.nb.ca>



Conclusion

- *The project has demonstrated that the EFP can be used as an EG&S program management and policy development tool.*
- *Agricultural producers in NB are in favour of this approach.*
- *Very few gaps identified. Can be addressed when EFP is revised.*

Conclusion

Benefits to the producers

- *Producers are able to identify their farm's potential for delivering EG&S while completing their EFP*
- *Little extra paperwork*
- *Whole farm assessment*

Potential issue

- *Confidentiality*

Conclusion

- *Any provinces using an EFP workbook with a similar format as the one used in NB could use their EFP as an EG&S program management tool, however:*
- the EFP questions need to go through a thorough screening process*
 - important to involve a broad range of expertise and stakeholders in the screening and consultation process*
 - need for a computerized version of the EFP to facilitate calculation & management*
 - the EFP assessment needs to be done on a field-by-field basis to be more precise*