Final Report
For
Advanced Manure Management Technologies For Ontario Project

A Project Funded
By

Cold Springs Farm
Selves Farms
Ontario Pork
Premium Pork
Ontario Pork Industry Council
Poultry Industry Council
Ontario Ministry of Agriculture and Food
Through
Healthy Futures For Ontario Program

Richard St. Jean
Geomatrix Consultants
AMMTO Project Manager

John Alderman
Cold Springs Farm
Project Chair

March 20, 2004
AMMTO
Advanced Manure Management Technologies For Ontario
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Appendix 1

Summary of AMMTO Public Meeting Discussions Posted on AMMTO Website
AMMTO Public Meeting Invitation List
Agricultural Groups Concerned About Resources and Environment Association of Local Public Health Agencies
Association of Municipalities of Ontario
Canadian Institute for Environmental Law and Policy Canadian Mushroom Growers Association CARES
Christian Farmers Federation of Ontario
Conservation Ontario
County Planners Group
Dairy Farmers of Ontario
Ducks Unlimited
Energy and Environment Committee of West Perth Federation of Ontario Cottagers' Association Inc. Federation of Ontario Naturalists
Greenpeace Canada
Huron County Water Quality Coalition
National Farmers' Union
Ontario Agri Business Association
Ontario Association of Sewage Services
Ontario Building Officials Association
Ontario Cattlemen's Association
Ontario Corn Producers Association
Ontario Egg Producers
Ontario Environment Network
Ontario Farm Animal Council
Ontario Farm Environmental Coalition
Ontario Federation of Agriculture
Ontario Fruit and Vegetable Growers Association Ontario Large Herd Operators
Ontario Professional Planners Institute
Ontario Sheep Marketing Agency
Ontario Soybean Growers
Perth South (Blanshard Rate Payer Association)
PROTECT
Regional Planning Commissioners of Ontario
Rural Ontario Municipal Association
Rural Ontario Stewardship Association
Rural Rights Alliance of Ontario
The Ontario Rural Council
Water Environment Association of Ontario
Ontario Pollution Control Association
Nuhn Industries Ltd.
Husky Farm Equipment
Terratec Environmental Ltd. Raydel Agri Services
Grand River Conservation Authority
Maitland Valley Conservation Authority
Ausable Bayfield Conservation Authority
Poultry Industry Council
Regional Municipality of Waterloo
February 13, 2002

The Ontario Rural Council
Ms. Mary Robertson, General Manager
Fax: (519) 826-3408

RE: Invitation to Participate in Stakeholders Discussion Meeting About Advanced Manure Management Technologies for Ontario

Dear Ms. Mary Robertson

The Advanced Manure Management Technologies For Ontario (AMMTO) project is holding a stakeholders meeting to identify manure management concerns for all sizes of livestock operations in Ontario. Groups and interested citizens not directly involved with the AMMTO project are being invited to attend the discussion meeting to voice their opinion, and provide input to AMMTO in determining and prioritizing manure management concerns that need to be addressed in Ontario.

The AMMTO project is evaluating advanced manure management technologies to meet the changing environmental, social and economic requirements of all sizes of livestock operations in Ontario. The goal of AMMTO is to identify a variety of viable technologies that can be implemented on different types and sizes of farms.

Funding partners in AMMTO include: OMAFRA’s Healthy Futures for Ontario, Poultry Industry Council, Cold Springs Farm Ltd. Ontario Pork Producers Marketing Board, the Ontario Pork Industry Council, Premium Pork, and Selvies Farms Limited. AMMTO has two advisory committees with representation from farm operations, local and provincial government, agri-business, agricultural organizations, academic specialists and farm commodity groups.

Your participation in the Stakeholders Discussion Meeting is important to AMMTO to ensure that:

1. We are evaluating technologies that will address the concerns that exist regarding manure management on all sizes of livestock operations in Ontario,
2. We are aware of the type of communication linkages stakeholders want to see from AMMTO,
3. We have included all interested stakeholders in discussions.

We look forward to your participation in the AMMTO project Stakeholders Meeting. The meeting will be held:

Thursday March 07, 2002
3:00 to 7:00 pm
Kroehler Rooms B and C
Arden Park Hotel, 552 Ontario Street, Stratford
Hotel Phone Number: 275-2936

A light snack of sandwiches, veggies and dip, coffee, tea, juice and water will be provided. The Arden Park Hotel is located approximately 1 km east of the Stratford Downtown area, on the left side of Ontario street as you head east.

Please confirm by February 22 your intentions to attend or not attend the Stakeholder Meeting.

If you are unable to attend, we would appreciate you recommending another person to us who could attend in your place. Any questions regarding the meeting or AMMTO should be directed to Richard St.Jean.

Sincerely

AMMTO

Richard St. Jean
AMMTO Project Manager
Phone: 519-886-7500 ext.225
E-mail: rstjean@geomatrix.com
ATTENTION:
Ms. Cathy Brown
Executive Director, The Ontario Rural Council
Fax: (519) 826-3408

REMINDER
ADVANCED MANURE MANAGEMENT
TECHNOLOGIES FOR ONTARIO
STAKEHOLDERS MEETING

THURSDAY MARCH 7, 2002
3:00 - 7:00 PM
ARDEN PARK HOTEL
STRATFORD

Invitations Were Faxed During The Week Of February 11 — 15, 2002
If You Have Not Replied Please Let Us Know If You
Will Be Attending Or Not

We Would Like To Confirm Attendance For Luncheon And Seating Requirements

PLEASE REPLY TO:
Richard St. Jean
Phone: 519-886-7500 Ext. 225
E-mail: rstjean@geomatrix.com

MEETING AGENDA

3:00 Introduction by the Meeting Facilitator - Wayne Caldwell
3:15 Introduction to AMMTO Project – Richard St. Jean
3:30 Small Group Discussions & Discussion Presentations
   Discussion Topics:
   1. Experiences related to Livestock production in your community.
   2. What will the ideal manure management technology do?
   3. How can we measure the success of technologies?
5:00 Break – Sandwiches, veggies, dessert, served at tables
5:15 Small Group Discussions & Discussion Group Presentations Discussion Topics:
   4. What needs to happen before you are comfortable with new manure management technology being used?
   5. What are the cost implications of adopting new technologies?
6:15 Large Group Discussion – Wayne Caldwell
6:50 Meeting Summary & Conclusions – Wayne Caldwell
7:00 End of Meeting
## Attendance Summary

For

AMMTO Stakeholder's Meeting

March 07, 2002

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<td>Sittler Manufacturing</td>
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<td>2 Valerie Moen</td>
<td>Global Repair</td>
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<td>7 Robert Bedggood</td>
<td>Christian Farmers Federation of Ontario</td>
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<td>8 Bruce Whale</td>
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<td>9 Bill French</td>
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<td>10 Jon Gingerich</td>
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<td>13 Bert Vorstenbosch</td>
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<td>14 Debbie Brander</td>
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<td>16 Brenna MacKinnon</td>
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<td>18 George Wicke</td>
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<td>19 Darren Kenny</td>
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<td>20 Dave Hanly</td>
<td>County of Perth Planning Department</td>
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<td>21 Kate Monk</td>
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Advanced Manure Management Technologies for Ontario (AMMTO)
Stakeholders' Meeting
March 7, 2002
3:00 pm to 7:00 pm
Arden Park Hotel, Stratford ON
Wayne Caldwell, Facilitator

AGENDA

2:30 to 3:00 Registration and coffee, tea or juice

3:00 Introduction – Wayne Caldwell

3:15 Introduction to AMMTO Project – Richard St. Jean

3:30 Small Group Discussion - Question 1
Please share any experiences relating to livestock production in your community, both good or bad.

Small group discussion sessions will have time for reporting back to the whole group at the end of each question.

4:00 Small Group Discussion - Question 2
a) What would the ideal manure management technology do?
b) How can we measure the success of technologies?

5:00 Break time - Sandwiches, veggies and desert served at tables.

5:15 Small Group Discussion - Question 3
What would need to happen before you would be comfortable with your neighbour using a new technology?

5:45 Small Group Discussion - Question 4
What are the cost implications of adopting these new technologies?

6:05 Large Group Discussion – Wayne Caldwell

6:50 Summary and Conclusions – Wayne Caldwell

7:00 End of Meeting
AMMTO

Advanced Manure Management Technologies for Ontario (AMMTO) is an exciting partnership between Cold Springs Farm Ltd., Ontario Pork, the Poultry Industry Council, the Ontario Pork Industry Council, Premium Pork, Selves Farms and the province. In addition to the aforementioned funding partners the project includes representatives from a broad spectrum of agri-businesses, government agencies, and farm commodity groups that provide input to the project. The focus of the AMMTO project is to provide a scientifically evaluated information base from which decisions regarding advanced manure management systems can be made.

The Challenge:
There is considerable public pressure for the agriculture industry to address concerns surrounding land application of manure, potential impacts on surface and groundwater, and livestock and poultry production odours. While a variety of advanced manure management technologies exist world-wide, many technologies have not yet been adopted in Ontario. Livestock and poultry producers need an objective source of information to help them decide between the available options.

Project goal:
The goal of the AMMTO project is to improve and protect the water quality of rural Ontario by providing a scientifically evaluated information base of manure management technologies. The information will be structured to allow decision-making with regard to the scale and type of livestock operation, surrounding environmental conditions, and the concerns and needs of the local community. Solutions will address the need to encourage rural economic development and to improve the quality of life for rural communities through a healthy environment, as well as addressing the specific needs of the livestock and poultry sectors.
Pilot Project Stage:
The advisory committees and project manager will recommend viable technologies for pilot scale testing. Companies willing to provide capital and facilities to establish a pilot project will consult with the advisory committees and project manager to select a viable technology that best meets their needs. More than one pilot project may be initiated, as interested companies review the results with different needs or objectives. Scientific monitoring of the pilot project(s) by an objective third party will verify whether a given technology and its implementation process can be used as a successful model for other projects in Ontario.

Conclusion:
By being proactive in addressing the future of manure management, the agricultural community and its partners can identify solutions that protect the environment and the health of rural citizens while ensuring livestock and poultry production remains a viable industry in Ontario. We look forward to working with different stakeholders from across the livestock and poultry sector, as well as other interested parties in finding ways to ensure a prosperous, healthy future for livestock and poultry production in Ontario.

Contacts:
For more information, please contact:

<table>
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<tr>
<th>AMMTO PROJECT MANAGER:</th>
<th>Program Lead:</th>
<th>Co-chairs:</th>
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<tr>
<td>Richard St. Jean</td>
<td>John Alderman</td>
<td>Jon Gingerich</td>
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<tr>
<td>Ph: (519) 886-7500 Ext. 225</td>
<td>Cold Springs Farm Limited</td>
<td>Cold Springs Farm Limited</td>
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<td>Fax: (519)886-7419</td>
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<td>&amp;</td>
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<tr>
<td><a href="mailto:rstjean@geomatrix.com">rstjean@geomatrix.com</a></td>
<td></td>
<td>Jake DeBruyn</td>
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Request for 
Advanced Manure Management Technology 
Proposals

Advanced Manure Management Technologies for Ontario (AMMTO) is a group comprised of representatives from farm operations, agri-business, government, agricultural organizations and farm commodity groups interested in evaluating advanced manure management technologies to meet the changing needs of all sizes of livestock producers in Ontario. Solid and liquid manure management technologies are being evaluated to develop a database of technologies that can meet the varied environmental, economic and social requirements of the livestock production sector of Ontario agriculture.

AMMTO is requesting technical summary submissions for any and all manure management technologies that can provide environmental and/or economic and/or social benefits to livestock producers of any size and/or society through but not limited to the following:

**Surface and groundwater protection**

- Co-treatment of off farm organic materials and manures to produce an enhanced nutrient source for crop production
- Pathogen destruction
- Organic stabilization
- Reduce potential for surface and groundwater nutrient and bacteria loading from land application

**Reduction in land base requirements**

- Removal of mineralized manure nutrients (N,P,K) for off farm sales,
- Converting manure into an organic material suitable for off farm sales,
- Reduce volumes of manure generated in the barn/barn yard,
- Drying of liquid manure and manure runoff,

**Improvement in air quality**

- Odour reduction,
- Reduction in greenhouse gases produced by manures,

**Maximization of manure nutrient and organic matter value**

- Incorporation of chemical fertilizer and manure into a single crop nutrient commodity,
- Enable manure to be applied in its natural state to any growing crop,
● Convert manure into a form that can be more readily applied to any growing crop,
● Mineralization of manure nutrients,
● Balancing manure nutrients to match crop nutrient requirements,
● Pelletization of manure to enhance application,

**Recovery of energy**

● Anaerobic treatment of manures and/or other off farm organic materials for organic stabilization and production of biogas as an alternative energy source,

**Ensure economic viability**

● Provide confidence to society that manure is being managed in an environmentally sound manner,
● Reduce environmental concerns from society regarding land application of manures,
● Incorporation of chemical fertilizer and manure into a single crop nutrient commodity,
● Volume reduction,
● Moisture reduction,
● Co-treatment of off farm organic materials and manures to produce an enhanced nutrient source for crop production,
● Centralization of manure management facilities to handle manure from entire production regions in the province,
● Meet changing regulatory requirements for manure management.

AMMTO is encouraging industry, researchers, educational institutions, and farm operations that can offer an advanced manure management technology suitable for any size of livestock operation to submit a technology summary to AMMTO for review.

**Contact:** Mr. Richard St. Jean  
Tel.: 519-886-7500 Ext. 225 or  
e-mail: rstjean@geomatrix.com

**AMMTO**

Last Modified: 2004 04 13  
Important Notices
AMMTO Stakeholders Meeting Questionnaire

1. Were you satisfied with the opportunity the meeting provided for you to voice your opinion? Yes □ No □

2. Did you feel the concerns that you voiced during the small group discussions were well presented during the discussion group summary presentations? Yes □ No □

3. Did you feel the summary comments at the end of the meeting addressed the concerns that you voiced during the meeting? Yes □ No □

4. Did you feel the small group discussion format used for the meeting was effective? Yes □ No □

5. Did the meeting format provide you with the opportunity to meet your objectives for attending the meeting? Yes □ No □

6. Do you feel that the cross section of people attending the meeting provided a good insight into the issues society has related to manure management? Yes □ No □

7. Please provide any additional comments below.

_________________________________________________________________
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Summary of AMMTO Stakeholder Meeting Discussions

March 7, 2002
Arden Park Hotel
Stratford, Ontario

Summary of Attendance

- 53 invitations were sent out to stakeholders
- 20 stakeholders who do not attend AMMTO meetings participated
- 9 stakeholders who attended AMMTO meetings participated
- 7 people were involved with facilitation in some way
- a total of 36 people were involved with discussions including facilitators

Meeting Format

The stakeholders meeting was organized to facilitate small group (7-8 people) discussions. A series of questions were presented to promote discussion on manure management issues. Each question was discussed for approximately 20 minutes in the small groups. Discussion contributions from participants were recorded on flip charts and after each small group discussion, the facilitator for each small group presented a summary of the discussions to all the attendees.

The discussion questions and a summary of the discussions are provided below.

Question 1. Share any experiences relating to livestock production in your community, both good and bad.

- Participants indicated they want to know more about farm operations up front
- Addressing livestock smell/odour issues was a common concern
- Manure application amounts and time of application concerns were expressed
- Questionable manure application and storage methods by a few was noted as tainting all
- Participants want to see farmers taking a proactive approach/leadership role in resolving manure management issues
- Perception verses reality was discussed. In many instances concerned persons really are not informed and problems arise out of perception rather than cause
- Few problem areas/sites receiving publicity are raising public awareness of manure issues
Environmental Farm Plan is a good tool to create awareness of things being done to promote good stewardship.
It was noted that large farm operations create jobs in the rural areas.

**Question 2a. What would the ideal manure management technology do?**

- Produce food economically to enviro standards that society demands
- Production in a sustainable manner
- Reduce volume, cost of manure management, pathogens
- Be different, make manure valuable/profitable commodity, add value to manure
- Provide 100% utilization of manure
- Solve odour concern and connection to water quality issues
- Be problem free to all stakeholders
- Applicable to all types and size of operations
- Provide flexibility in timing for manure application and use
- Provide opportunities for innovative partnerships with municipalities and generators of organic wastes, for management systems
- Use weight watcher approach by being organized and controlled

**Question 2b. How can we measure the success of technologies?**

- Widely accepted by public, producers and all stakeholders (source of pride)
- Fewer calls of concern to MOE, and the producer
- Increase in positive image of farming
- Economically viable system?
- Payback over the long term for non producers & producers
- Improvement in human, animal, crop, water and soil health and quality
- Promote a change in the current way of thinking

**Question 3a. What would need to happen before you would be comfortable with your neighbour using a new technology?**

- Has to look good to build confidence in the technology
- Proven to meet an end goal
- Based on scientific research
- Verifiable by outside 3rd party
- Continually monitored (by various stakeholders)
- Remedial action built into system in the event of failure
- Compliance program with demonstrated enforcement
- Provide confidence in operator- Certification?
- System size has flexibility for expansion of the operation
- Public meeting before system implemented to educate the public
- Open house to understand impact of technology (Too late if after the fact?)
- Certification for the long term if technology changes hands
Question 3 b. What are the cost implications of adopting these new technologies?

- Consumer pays - through taxation or through product cost
- Capital investment support required from other stakeholders
- Global issues- cheaper production from other countries
- Have to show Canada’s environmental responsibility
- Loss of social network because of change in production system
- Job loss
- Loss of family farm- where will people come from to support facility?
- Grants for cost of new technology
- Tax credit to encourage new technology
- Possible reduction of cost of health care, environmental remediation
- Possible manure tax
- Partnering with different stakeholders i.e. industry, government and producer to implement new technologies
- Change/flexibility in standing legislation i.e. land needed
- Creating an ideology that legitimate other uses are no longer valid
- Cost efficiency for all size farms
- Need for system of accountability, certification, education, policing
- Loss of sales to other service providers i.e. suppliers
- Tax credit for farmers who meet water quality standards
- Incentives for use of technology
- Cost of consumer knowledge (to educate)

Other Important Points

- Technology licensing/patents may be an issue
- Confidentiality of technology processes may be an issue
- Filtering systems to pin point solutions with high validity required
- Movement away from mandatory best management practices needs to be addressed
- Canada label/brand development i.e. livestock quality and environmental standards need to be promoted
- How to bring forth a larger cross section of stakeholder groups that were invited?
- Other groups not identified
  - i. Concerned urban groups
  - ii. Educational sector
  - iii. Grocery retailers and chains
  - iv. Church groups

Shared interests by stakeholders in Rural Ontario

- Sustainability
- Natural resource
- Food quality and prices
- Safety
- Health of the environment
Summary of Stakeholder Meeting Participant Questionnaires

1. 13 participants out of 28 completed questionnaires

2. All were satisfied the meeting provided them an opportunity to voice their opinions.

3. All participants felt that the concerns and opinions they expressed in small group discussions were brought forward in the large group summary presentations.

4. Two participants didn’t feel their concerns were included in the meeting wrap up summary.

5. All participants felt the small group discussion format was effective.

6. One person felt that their objective for attending the meeting was not met and two people were not satisfied that their objectives were completely met.

7. Eight participants felt that we had a good cross section of stakeholders attending the meeting. Five people felt we needed a better cross section of people. During large group discussions a number of participants also indicated that more urban stakeholder groups should have been represented such as teachers, community leaders, health care sector, U of G curriculum makers, builder associations, environmental activist groups, anti-livestock groups, concerned urban groups, grocery retailer chains.

8. General comments about the meeting were positive and one person noted that they “wouldn’t have thought that 4 hours of late day discussion on manure would have been so interesting and yes exciting – well done”