

A presentation to the:

Clean Environment Commission

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**Manitoba
Livestock
Manure
Management**
INITIATIVE INC.

The Issue

- Livestock ops → nutrients in ground & surface water
 - Government regulations: past, present, future
- Need for science-based best management practices
 - Enhance environmental sustainability of livestock industry
 - More fair and equitable regulations

MLMMI Vision

- Our Goal:
“ to allow Manitoba livestock industries to achieve their full economic potential through sustainable growth ”
- Resolve issues in manure management
- Promote sustainable manure management
- Develop best management practices

“Money is like manure, of very little use except it be spread”



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MLMMI

Plan of attack



Plan of attack

- 1) To continue to pioneer efforts to investigate solutions towards manure management issues from both a practical and a research angle



Plan of attack

2) To build on the Initiative's strong research base by implementing a multi-faceted scientific approach that focuses on practical, farm ready, and economically feasible projects, along with existing basic research



Plan of attack

3) To create a communications strategy that keeps the entire community informed of the Initiative's activities, which includes continuous updates to our new website



Plan of attack

4) To broaden the Initiative's mandate by developing research priorities that apply to multiple livestock sectors, and to promote the Initiative to other livestock organizations



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Main issues of concern...



Phosphorus Management

- High input into soils in areas of high livestock density and with limited land base to sustain livestock farms
 - Leaching & runoff of P into ground & surface water
 - Compromised water quality → eutrophication
- MB regulations restricting level of soluble P in soil → restricts manure application rate

Phosphorus Management

PAST & PRESENT RESEARCH:

- Completed:
 - Ongoing studies into Phytase feeding (\downarrow P excreted)
 - Nature of Phosphorus in manure
 - Literature review – effects of Phosphorus on the environment
- Current:
 - Phosphorus saturation in Manitoba soils
 - Cost assessment of proposed P management regulations

FUTURE RESEARCH POSSIBILITIES:

- Technologies and practices that reduce P loading in soils
 - Diet amendments (processing, adjusting nutrient levels, additives such as phytase or cellulase, phase feeding)
 - Manure management (handling systems, treatment)
 - Improved application methods and timing

Nitrogen Management

- LMMMR regulations limit residual N levels to ~ 34 kg/ha, regardless of crop species, on Class 5 soils
 - Leaching of N into water supplies
- Recent research shows that limits set for available N applications may be low and higher rates of N application may be possible without any, or with little increase in risk of leaching on sandy soils if the land is in perennial forage

Nitrogen Management

FUTURE RESEARCH POSSIBILITIES:

- Research is needed to establish loading rates of N for sandy soils
- Best management practices for annual (spring and fall seeded) and perennial cropping systems
- Dealing with ammonia emission
 - Diet amendments – nutrients, additives, phase feeding
 - Manure management – barn cleanliness, manure storage
 - Technologies related to improved field application methods

PAST & PRESENT RESEARCH:

- Current:
 - Ominski, U of M - “Best Management Practices to improve environmental sustainability and productivity of grassland systems using hog manure”



Odour Management

- Cause of poor perception and acceptance of livestock industry (esp. hog industry) from nearby residents
 - Concern for health and safety
 - Unpleasant/nuisance problem
- Important to address to improve public perception, increase acceptance, and thus allow expansion of the hog industry

Odour Management

PAST RESEARCH:

- Completed:
 - Zhang, U of M - Odour Emissions from hog operations
 - DGH Engineering: NAP technology for controlling odours from manure storages

FUTURE RESEARCH POSSIBILITIES:

- Technologies and practices to effectively reduce odours adjacent to livestock operations
 - BMP's for barn cleanliness
 - Improved manure handling/management (covers, slurry additives, alternate storage systems)
 - On-farm odour reduction strategies (ex. Windbreaks)
 - Improved manure application methods and timing



Funding Priorities

Research aimed at...

- Reducing environmental risk to ground & surface water & soils
- Reducing the risk of soil degradation
- Reduction of odour and emissions
- Production of valuable by-products such as energy, compost and fertilizer
 - Also reduce odour and/or other undesirable emissions
- Technologies that would be economically feasible
- Approaches likely to find general application in Manitoba
- Technologies likely to benefit Manitoba agriculture



Projects Approved

- 192 applications for funding received
 - 57 projects approved to date
 - Total funding allocated: \$ 4,418,688
 - MLMMI funding allocated: \$ 2,784,701
- Types of projects:
 - Fertilizer Value Technology
 - Odour Abatement Technology
 - Water Quality Technology
 - Infrastructure Acquisition
 - Other



Conclusions

- ❖ MLMMI incorporated in 1998
- ❖ Mandate to foster research and enhance sustainability of the livestock sector
 - ❖ Science-based legislation/regulations
- ❖ CEC involvement in MLMMI
 - ❖ Proactive role towards issues
 - ❖ Sustained leadership regarding environmental stewardship

QUESTIONS?

Or for more information, please visit our website:
www.manure.mb.ca