

# Hytek Ltd. Presentation to the Clean Environment Commission

Hearings on the Hog Production  
Industry Review

# Overview

- Introduction
  - Hytek Ltd. – Brief History of our Company
  - Example of the Economic Impact of hog operations - RM of LaBroquerie
  - Dispelling Myths and Misconceptions
- Hytek Ltd Scorecard
  - CEC Scope and Hytek Ltd. framework
  - Analysis and Hytek Ltd.'s score
  - Results and Solutions
- Conclusion
  - Phosphorus – Challenges and Opportunities
  - Industry Challenges
  - Results and Timelines

# Hytek Ltd. Background – 1994 to Today



- 1994 – Vielfaure and Janzen family farms unite
- Profitable and Sustainable Growth from 4000 sows in 1994 to 57 000 sows today
- Today, Hytek Ltd. employs over 450 people with operations in 3 different countries
- Keys to our success
  - Great People = Success
  - Positive working relationships and communication with Government, Non-Government Assoc. and Communities we operate in
  - Ongoing commitment in turning challenges into opportunities

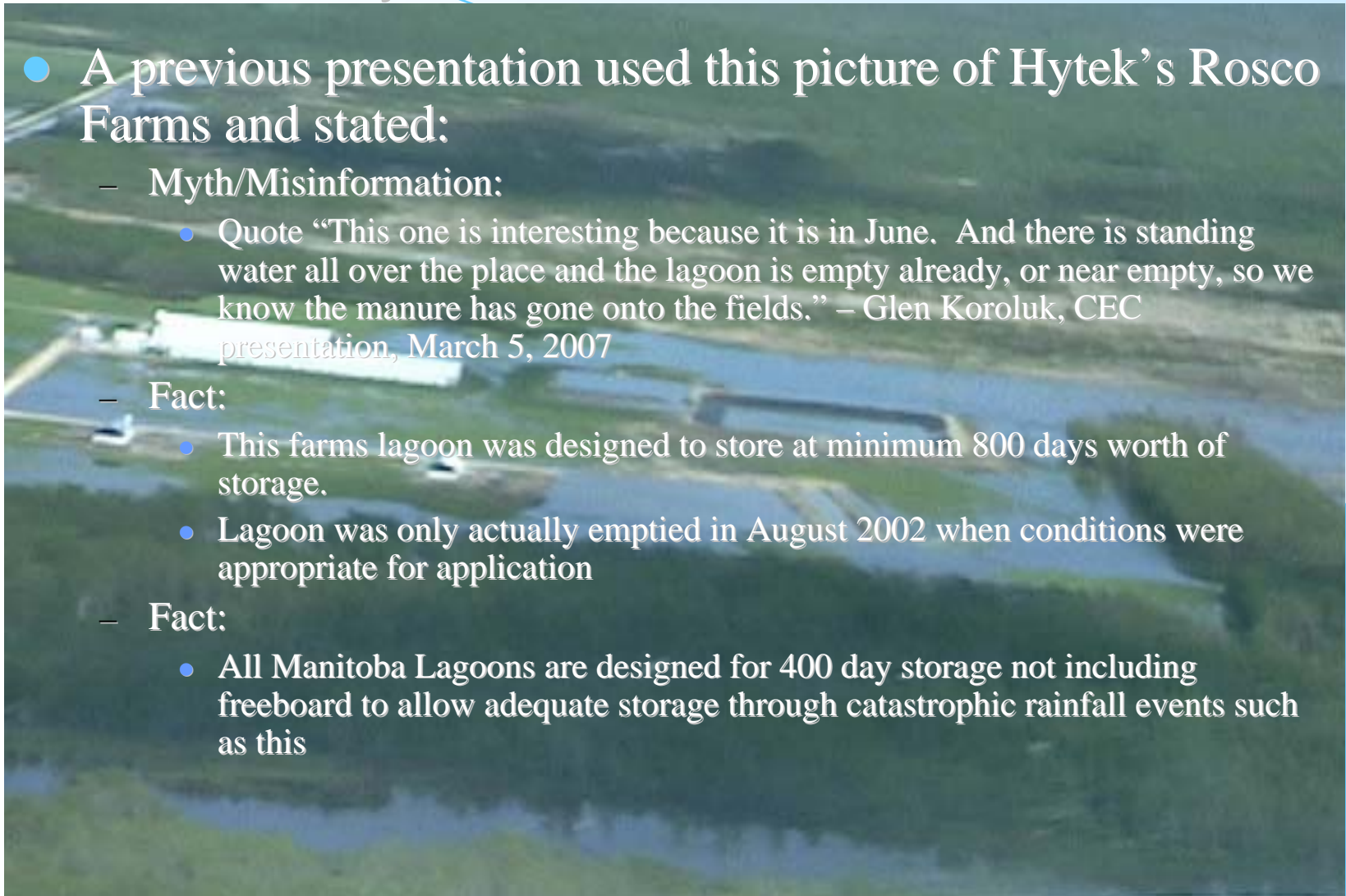
# Hog Industry – An Example of the Economic Impact on the Manitoba Landscape

RM of LaBroquerie Economic Impact - 2006				
Farm & Type	Inventory	Cost	Tax bill- annual	Employment
<b>Sows</b>				
Tritek	6,000 sows		\$ 45,133.59	
Rosco	3,000 sows		\$ 25,974.64	
Hypro 1	1,200 sows		\$ 6,939.25	
Bonanza	1200 sows+4000iso		\$ 14,714.72	
Silverado	5,250 sows		\$ 44,933.51	
Full Moon 1	1200 sows		\$ 12,330.58	
General Lee	6,000 sows		\$ 52,535.86	
Big V	1,200 sows		\$ 8,700.61	
Vielfaure Bros.	1,200 sows		\$ 7,448.49	
Triple V	1,200 sows		\$ 10,336.91	
<b>Isoweans</b>				
Tritek/Laredo	40,000 isoweans		\$ 19,228.09	
Hypro 2	4,000 isoweans		\$ 4,724.24	
Sable	10,000 isoweans		\$ 7,599.73	
<b>Feeders</b>				
Omega	10,000 feeders		\$ 22,295.13	
Sierra	1,020 isolation		\$ 6,126.00	
Wagner	2,000 feeders		\$ 5,001.37	
Hypro 3	4,000 feeders		\$ 8,737.82	
Highlander	4,000 feeders		\$ 9,097.10	
AV + Sons	950 feeders		\$ 2,354.52	
<b>Infrastructure</b>				
Skyline 1	240 boars		\$ 3,145.15	
Skyline 2	120 boars		\$ 2,472.63	
Head office	17,000 s.f.		\$ 22,961.90	
Feed+Transport	Mill + 20 trucks		\$ 15,744.95	
Hytek Distribution Ctr	Store, maintenance		\$ 5,852.80	
Hyline Pumping	Tractors + equip		\$ 2,641.61	
Truck Wash	2 bays		\$ 7,364.32	
Cattle division	750 cow/calf		\$ 1,538.09	
Land division	14,000 acres		\$ 26,785.75	
		\$ 68,427,500.00	\$ 402,719.36	249

- Over \$68 million in capital investment since 1994
- Hytek Ltd. contributed over \$400,000 in 2006 to the municipal tax base
- Over 240 people directly employed by Hytek in the RM of LaBroquerie
- Annual salaries of over \$4.8 million to just farm employees working within the RM of LaBroquerie
- Rule of thumb – 1 farm job = 6 off farm jobs
- 2006 census data showed over 26% growth in the RM of LaBroquerie vs Provincial growth of 2.6%
- Royal LePage study **Impact Analysis of Intensive Livestock Operations on Manitoba Rural Residential Property Values Five Case Study Locations**



# Myths and Misinformation



- A previous presentation used this picture of Hytek's Rosco Farms and stated:

- Myth/Misinformation:

- Quote "This one is interesting because it is in June. And there is standing water all over the place and the lagoon is empty already, or near empty, so we know the manure has gone onto the fields." – Glen Koroluk, CEC presentation, March 5, 2007

- Fact:

- This farm's lagoon was designed to store at minimum 800 days worth of storage.
- Lagoon was only actually emptied in August 2002 when conditions were appropriate for application

- Fact:

- All Manitoba Lagoons are designed for 400 day storage not including freeboard to allow adequate storage through catastrophic rainfall events such as this

# Dispelling Myths and Misinformation



Rosco Sow – June 2006



# Dispelling Myths and Misinformation



Tritek Isowean – June 2006

# Dispelling Myths and Misinformation





# Hytek Ltd. CEC Presentation Goals and Objectives

- Educate CEC members and Government of how we manage our farms on a day-to-day basis
- Demonstrate current Best Management Practices (BMP's) that we utilize
- Demonstrate achievements/shortcomings of current practices
- Highlight areas of strength and weakness where continued Research & Development required
- Indicate potential solutions and timelines required from Hytek Ltd.s perspective

# CEC Scope – Hog Industry Review

- Nutrient Management
- Manure Management
- Land Use Planning and Approval
- Groundwater Quality
- Groundwater Supply
- Soil Quality
- Odour
- Disease Transmission
- Climate Change
- Environmental Liability
- The approach taken to these issues in other jurisdictions

# Hytek Ltd Scope Analysis Framework

Scope Issues		Current Practices	Actions/Description
<b>Nutrient Management</b>	<b>Process</b>	What we do on farm today to address this issue.	<i>Further description and detail of on-farm activities.</i>
	<b>Resources</b>	The personnel committed to managing and acting on the process.	
	<b>Technology</b>	Equipment and technology used to assist in the process. Focused on advanced technologies.	
	<b>Regulation</b>	Provincial/Federal Legislation Governing the Scope Issue.	
	<b>Hytek Internal Policies</b>	Additional parameters and objectives Hytek Ltd. has set for their operations.	



# Hytek Ltd Scope Analysis Framework

Scope Issues		Issues	Results/Solutions	Timelines
Nutrient Management	Process	Challenges or shortcomings of current practices	Results of current practices or solutions to issues	Estimated timelines needed for resolution of issue
	Resources			
	Technology			
	Regulation			
	Hytek Internal Policies			

# Nutrient Management

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
<b>Nutrient Management</b>	<b>Process</b>	Main function is the development of Manure Management Plans and Nutrient Mgmt strategies for Hytek Operations	Hytek Ltd. currently prepares manure management plans for all their operations including those below 300 animal units		All Hytek Ltd manure is managed in a conscientious manner in a form acceptable to MB Conservation	Current
		Ensure compliance with all existing legislation (Prov./Federal) and guidelines	Implementation of new phosphorus based regulations in Southeastern portion of province		Implementation of Hytek Phos management strategy and seek out and aid in development of new technologies	Long-term
		Development and delivery of Nitrogen Management Plan	Utilization of injection and incorporation techniques for perennial forage stands	Nitrogen conservation is required to maintain a favorable N:P ratio.	Achieved balance through appropriate siting and land management activities	Current
		Manage manure on the basis of phosphorus on all sites regardless of regulatory requirements to mitigate potential accumulation over time	In process establishing farm specific balances with respect to phosphorus	N:P ratio of liquid swine manure is too narrow	Short term - continued implementation of Hytek Phos Management Strategy to mitigate potential accumulation	Current
					Long-Term - seek out technological or other economically viable alternatives to allow for long term sustainability	Long-term
	<b>Resources</b>	Executive VP, Business Development & Environmental Affairs	Multidisciplinary approach taken with regards to nutrient management on Hytek farms.		Qualified, specialized individuals managing all aspects of the nutrient management process.	Current
		Director, Environmental Affairs, (P.Ag)				
		Nutrient Resource Specialist, (P.Ag or CCA)				
		Land Manager				
		Water Resource Specialist				
	Assistant Agronomist					
	<b>Technology</b>	MMP Filer Software	MB Conservation developed tool for filing MMP's, not developed in conjunction with MAFRI and not integratable with MARC software	Should be developed in partnership with MAFRI and industry to ensure usable, functional tool is developed with no confusion to producers as to which to use		Immediate
		ArcGIS - Geographic Information System	Extremely useful planning tool as well as database for soil test results as well as manure application history		Practical usable database for the collection and analysis of nutrient management related information	Current
		GPS located soil sample sites	Extremely useful planning tool that allows soil sampler to return to field benchmark sites for each sampling		Increased repeatability of sample sites to gage potential nutrient accumulation over time.	Current
	<b>Regulation</b>	MLMMMMR - The Environment Act	Manure management plans to be submitted annually on farms > 300 AU's	Regulation has been in a consistent state of change since inception. Creates significant challenges in keeping abreast of regulation and gaging regulatory successes.	Allow adequate time for adjustment to regulatory changes and time to analyze regulatory successes and challenges. Too much change too fast doesn't allow for this.	Med-Term
Nutrient Management Regulation, The Water Protection Act		Regulation to affect all types of nutrients including inorganic and will affect livestock operations in areas where nutrient management plans required			Unknown	
<b>Hytek Internal Policies</b>	All manure management plans approved by a certified MMP Planner	Currently, as an owner operator, Hytek Ltd. is not required as per regulation to have a certified planner		Continued training and development of Environmental Affairs department staff to remain leaders within the industry.	Current	

# Nutrient Management – Key Points

- Hytek Ltd. Internal Policy
  - Currently, manure management plans are prepared for all operations including those below 300 animal units
  - All manure management plans within Hytek are approved by a certified MMP planner – Not required under current regulation
- Significant resources committed to nutrient management process
  - Executive VP, Business Development & Environmental Affairs
  - Director, Environmental Affairs (P.Ag. or CCA)
  - Nutrient Resource Specialist (P.Ag. or CCA)
  - Land Manager
  - Water Resources Specialist
  - Assistant Agronomist
- Issues – Manitoba Livestock Manure and Mortalities Management Regulation
  - Regulation has been in a consistent state of change since its inception in 1998
  - 4 significant regulatory changes have taken place in less than 9 years
  - Challenge for producers to stay abreast of, or even implement changes before next regulatory shift
  - Difficulty gaging regulatory success without allowing time for change to take effect
  - Return to the 5 year sunset clause in written into the regulation



# Manure Management

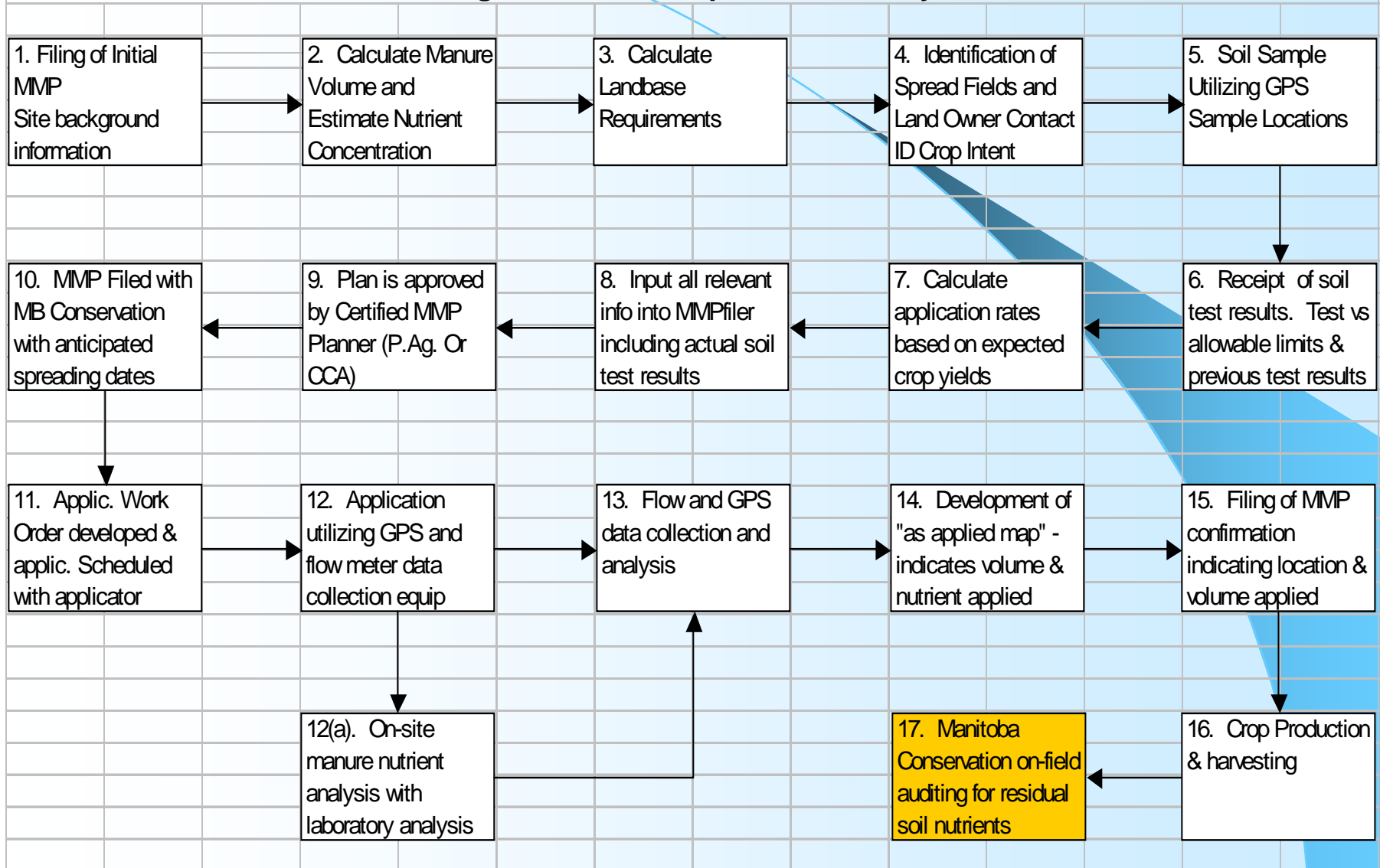
Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
Manure Management / Handling	Process	Hyline Pumping (Hytek owned applicator)	Apply all manure as per work orders received from Nutrient Resource Specialist ensuring all setback and application requirements are adhered to.		Manure applied is managed on multiple levels to ensure consistency, accuracy, and compliance with all regulatory requirements.	Current
		Hire custom applicator				
	Resources	Executive VP, Business Development & Environmental Affairs	Continuous education, training and development of all Hyline Manure Management related staff to ensure Hytek remains leaders in this field.		Highly trained staff that are specialists in their fields to ensure the outmost care and professionalism goes in to the manure management process on Hytek farms.	Ongoing training and development of staff.
		Director, Environmental Affairs, (P.Ag)				
		Nutrient Resource Specialist, (P.Ag or CCA)				
		Hyline Pumping Manager				
		Hyline Pumping Supervisors (2 persons)				
	Hyline Seasonal Staff (8 persons)	On-site safety and awareness training.		Continuously strive to improve worker education and training.	Current	
	Technology	Geographic Information System (GIS)	Calculation of spread acres with setbacks, field descriptions, data basing soil test results and past application amounts, soil test location tracking		Accurate environment for calculating and administering the manure management program. Accountability measures and manure related tracking highly beneficial.	Current
		Global Positioning System (GPS)	On field guidance, tracks flow meter information at specific points.			Current
		Flow meter controls and on-board flow and rate calculation	Calculation of manure volume applied and display of actual application rate at the time of applying		Accurate application rates as well as record of manure volumes applied.	Current
		Umbilical hose application preferred	Reduced compaction and road damage as compared to tanker applicator	Cost is greater and there are some limitations to distance of application	Ongoing research towards better and more efficient pump types to expand spread area	Current
		Ownership of Hyline Pumping - driven by need for process control and application accuracy (invested >\$1.25 million in capital)	Hyline Pumping currently applies the majority of Hytek manure. Continuous investigation for improved manure handling and management technology and techniques.		Hyline Pumping has operated within Hytek for two complete application seasons and provided application control and consistency.	Current
		Multi-cell lagoon design and operation	Segregation of manure into multiple waste streams with individual nutrient concentrations	Higher application cost, greater planning and management required.	Multiple waste streams provide the ability to better apply manure nutrients to fit crop requirements based on soil test results	Current
	Regulation	MLMMMR - The Environment Act	Dynamic and thorough regulation that details nitrogen and phosphorus residual limits allowable for manure application activities	Regulation has changed 4 times since inception in 1998. Difficult to gage effectiveness of changes due to short timeframe between changes.		Short-Term
		Nutrient Management Regulation - The Water Protection Act	Only applicable to sites where land base zone triggers the need to submit a nutrient management plan.	Regulation has proceeded through multiple public consultation periods and has not yet been passed into law.		Unknown
Manitoba Conservation actively field audits 10% of the Manure Management Plans they receive.		MB Conservation staff conduct audit of MMP and conduct in-field soil sampling to ensure compliance with regulations.	Auditing process is positive, though the Government of MB needs to commit additional resources towards this area to ensure auditing commitments are fulfilled	Government of Manitoba needs to commit more resources towards this process	Immediate	
Hytek Internal Policies	All manure to be injected where applicable.	Utilization of subsurface injectors on annual crop land and coulter or Aerway tool on perennial forages		Nitrogen conservation to preserve N:P ratio. Reduces volume/acre but reduces potential P accumulation.	Current	
	All custom applicators to utilize GPS technology on application equip.	Accurate depiction of all Hytek manure application activities including flow rate and production of as applied maps		Better understanding and control of manure application rates and application setback control. Thorough understanding of amount applied and indicates areas of adjustment for subsequent applications.	Current	
	On-field manure testing to be completed as well as continuous laboratory analysis	All manure applied through Hytek operations is Nova metered on a continuous basis. Also, all application sites have laboratory manure analysis done and results are compared back to Nova results to calibrate meter.	Quick and accurate analysis required for manure phosphorus levels. No readily available technology is available.	Development of a multi-year manure result database that provides better confidence for future applications. Results are also utilized to indicate as applied nutrients when compared back to flow and GPS data.	Current	
	1 Hyline pumping staff person to be a member of Hytek Workplace health and safety committee	Responsible for communicating issues for Hyline staff and disseminate info to the rest of Hyline staff.		Ensures Hyline Pumping crews are up to date on current issues and employee risks are mitigated	Current	

# Manure Management – Key Points

- Hytek Ltd. Internal Policies
  - All manure to be injected where applicable
  - Hytek manure applicators are required to utilize GPS technology with their application activities
  - On-field manure testing is required as well as continuous laboratory analysis
  - Minimum 1 Hyline staff person as a member of the Hytek Ltd. Workplace Health and Safety Committee at all times
  
- Issues – Manitoba Conservation Auditing Process
  - Manitoba Conservation has committed to auditing 10% of all manure management plans submitted to their department
  - Important to industry that this is done thoroughly, supports transparency and accountability and provides confidence to general public
  - Additional resources are required in this area to ensure auditing commitments are fulfilled

# Manure/Nutrient Management – Process Overview

## Manure Management Plan Development and Delivery Flow Chart





# Geographic Information System - GIS

WorkOrder - Sheldon.mxd - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

1:12,514 Layer: FieldAppPY07

Georeferencing Layer: pembina\_04.sid Labeling

Editor Task: Create New Feature Target: Relate...

**Top frame**

- F:\Nutrient Management\
  - SpreadFieldData
    - FieldAppPY07
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    - SpreadPathPY06
    - SpreadPointsPY06
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Display Source Selection

**ArcToolbox**

- Analysis Tools
- Cartography Tools
- Conversion Tools
- Data Management Tools
- Geocoding Tools
- Linear Referencing Tools
- Multidimension Tools
- Samples
- Server Tools

Favorites Index Search Results

Drawing Arial 2221796.78 17972797.29 Feet



# GIS Application Work Order

## Hytek Barn - PY 2007 Manure Application Work Order

MMP Receipt #: 2007-XXX

Field ID: CANE32160  
 Application Rate: 120 lbs/acre    Cell: 2  
 Solids: low / med. / high    Injected: ( yes | no )

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

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Field ID: HY2SE3684  
 Application Rate: 110 lbs/ac    Cell: 1  
 Solids: low / med. / high    Injected: ( yes | no )

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

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Field ID: \_\_\_\_\_  
 Application Rate: lbs/acre    Cell: \_\_\_\_\_  
 Solids: low / med. / high    Injected: ( yes | no )

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

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Field ID: \_\_\_\_\_  
 Application Rate: lbs/acre    Cell: \_\_\_\_\_  
 Solids: low / med. / high    Injected: ( yes | no )

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

\_\_\_\_ Nova Meter: \_\_\_\_\_ IMP Gal/Acre

Applicator: Happy Pumpers Ltd.  
 P.O. # \_\_\_\_\_  
 (Please reference P.O. number on invoice)

Start Date: \_\_\_\_\_, 2007

Completion Date: \_\_\_\_\_, 2007

Total Volume: \_\_\_\_\_ IMP Gallons

Approx. Temp: \_\_\_\_\_ Degrees Celsius

Application Notes: \_\_\_\_\_

Prepared by:  
 Dan Is Tomo on  
 Nutrient Management Specialist  
 Hytek Ltd.





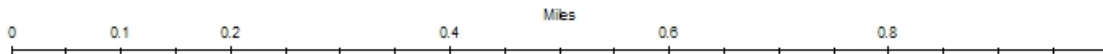
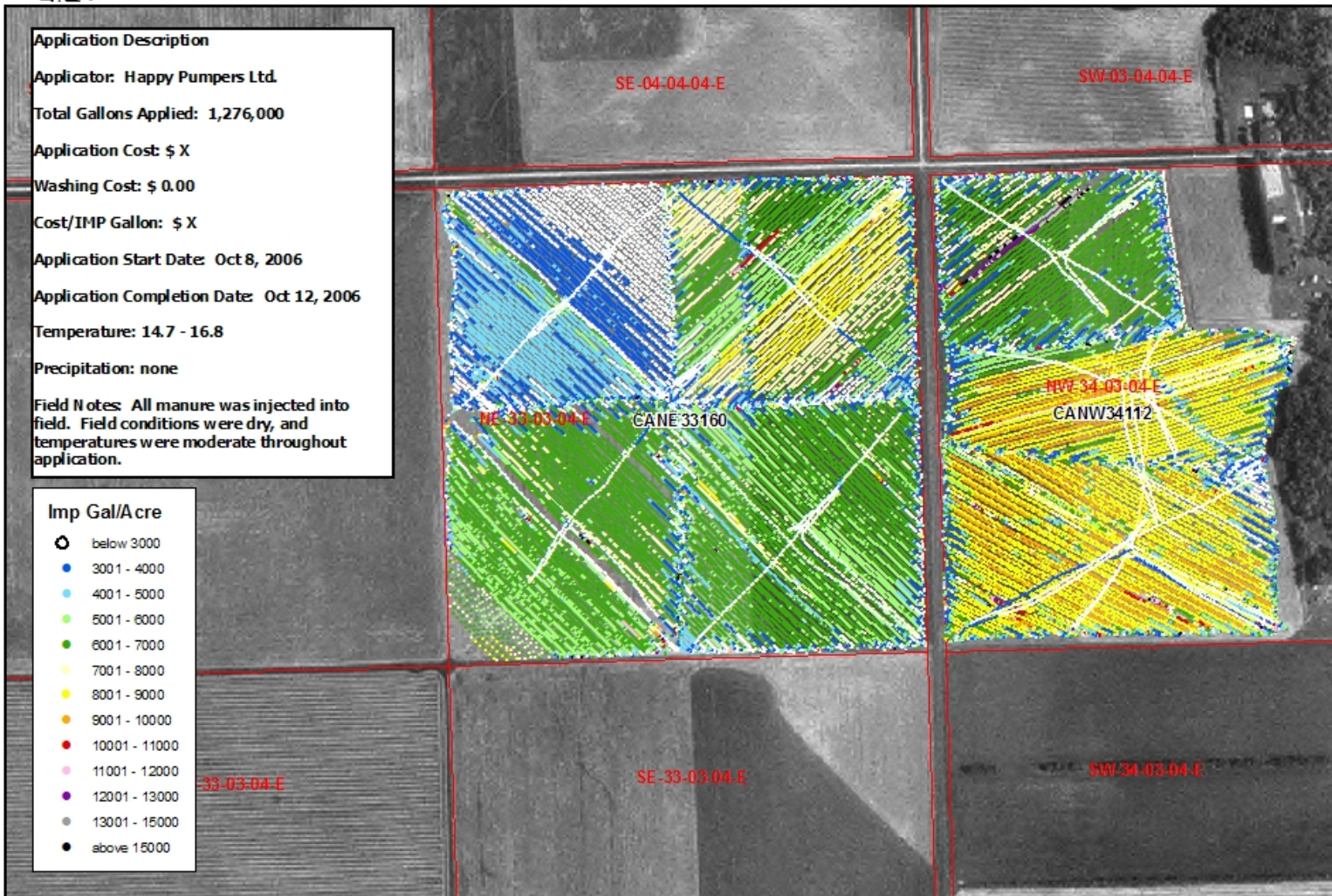
## Hytek Barn - PY 2007 Manure Application 2007-XXX

### Application Description

**Applicator:** Happy Pumpers Ltd.  
**Total Gallons Applied:** 1,276,000  
**Application Cost:** \$ X  
**Washing Cost:** \$ 0.00  
**Cost/IMP Gallon:** \$ X  
**Application Start Date:** Oct 8, 2006  
**Application Completion Date:** Oct 12, 2006  
**Temperature:** 14.7 - 16.8  
**Precipitation:** none  
**Field Notes:** All manure was injected into field. Field conditions were dry, and temperatures were moderate throughout application.

### Imp Gal/Acre

- below 3000
- 3001 - 4000
- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 8000
- 8001 - 9000
- 9001 - 10000
- 10001 - 11000
- 11001 - 12000
- 12001 - 13000
- 13001 - 15000
- above 15000



Prepared by:  
 Denis Tremorin  
 Nutrient Management Specialist  
 Hytek Ltd.



# Feeding Strategies

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines	
<b>Feeding Strategies</b>	<b>Process</b>	Develop nutrition programs and services for Hytek pigs to ensure the animals nutritional requirements are as closely met as possible throughout its life cycle	Calculation of animal feed requirements at all stages of development .Feed rations based on these criteria are milled within our feed mills and supplied to Hytek Ltd. farms.		In-house feed rationing has allowed for greater flexibility and control over rationing. Can formulate and adjust formulation on an ongoing basis to achieve desired goals.	Current	
	<b>Resources</b>	Executive VP Risk and Integration Strategies Nutritionist, M. Sc. Agr. Hytek R & D Department Veterinary Staff	Highly educated, professional staff dedicated to the health and welfare of our animals and nutritional needs.		Ongoing education and training of staff to ensure the best available technologies and techniques utilized.	Current	
	<b>Technology</b>	Phase Feeding to better meet the animals nutritional requirements through the different growth stages as well as split sex feeding to differentiate between different nutritional needs between males & females	Hytek utilizes 2 different rations for our sows (gestating and lactating), 3 different nursery pig rations, 5 different grower finisher rations and 4 different gilt developer rations			Our rations are calculated continuously by trained nutritionists to ensure animal nutritional needs are met while not overfeeding any specific requirements. This tool improves cost, optimizes growth and decrease manure nutrient contents.	Current
		Phytase use improves the availability of phosphorus for digestion with the animals diet thus allowing Hytek to reduce the amount of inorganic phosphorus added to the diet.		CFIA is tasked with enforcing the Animal Feed Act that dictates the minimum phosphorus required in the animals diet. This does not take feed advancements such as phytase into account and limits the potential phosphorus reduction benefit from the use of p		Government of Manitoba needs to assist hog operators with negotiations with CFIA to allow for the reduction in feed added phosphorus. This is the only way the full benefits for the inclusion of this enzyme will be realized.	Immediate
		R & D ongoing to determine the impacts of different feeding strategies and feed constituents on animal performance & manure	Ongoing tracking of feed changes and the resulting manure analyses to determine what effect different feed is having on output.			Trials are ongoing and results are too preliminary to provide any definitive results as of yet.	Current
	<b>Regulation</b>	CFIA Table 4	Establishes and regulates minimum feed nutrient requirements for animal livestock	Limit put on for phosphorus does not take the use of Phytase into account		Table 4 amounts and animal requirements should be adjusted to account for any advances to feed rations	Immediate
		Canadian Grain Commission	Licenses grain varieties for production	Low-phytate feed grains as novelty		Change designation so trials can proceed	Immediate
	<b>Hytek Internal Policies</b>	All Hytek feed rations have had Phytase Included since 2002.	Estimated phosphorus output reduction of approximately 30 - 40%.			Manure nutrient output maintains a more favorable N:P ratio and total P is reduced	Current

# Feeding Strategies – Key Points

- Hytek Ltd Current Practices
  - Use of phase and split sex feeding throughout our production system
  - All Hytek Ltd feed utilizes phytase and Total Phosphorus in feed ration is reduced
  - Estimate 30-40% total P reduction in manure due to phytase
- Issues
  - CFIA Animal Feed Act and Table 4 – limits phytase benefits
  - Need government assistance to negotiate with CFIA to adjust Table 4 values to account for phytase use
  - Canadian Grain Commission recognizes low-phytate feed grains as novelty, as a consequence, can't produce it in enough quantity to even conduct feeding trials
  - Regulated on phosphorus, producers need the tools to manage P

# Land Use Planning and Approval

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines	
Land Use Planning and Approval	Process	Conditional use permitting - Application to local RM for conditional use and TRC request forwarded to TRC Committee. Upon receipt of the RM of the TRC report a public Conditional Use Hearing follows where proponents and concerned citizens are able to present their positions. Councils typically provide decisions based on these hearings that include conditions on the permit with regards to odour control.	Considerable time and monetary investment go into the site establishment process up until this point and can potentially be denied for no clear rationale.	Conditional Use hearings can be confrontational and emotional that pits neighbors against each other. Many suitable developments have been denied due to the volatile and emotional nature of these meetings. If Conditional Use is to remain, an appeal process is required to ensure fairness and equity to all parties involved.	Use of the municipal development plans as the basis for livestock development approvals and operations that qualify within the criteria be allowed to develop. With this option, the conditional Use hearing could be eliminated unless developments are proposed that go outside the development plan guidelines.	Immediate	
			Province of Manitoba should assist all RM's in completing their required development plans in a timely fashion to provide clarity to all those involved	A positive example of upfront planning is in the RM of Desalaberry. The RM development plan clearly indicates to livestock producers and general public where and to what extent livestock is permitted within the RM.	Some Rural Municipalities have required performance bonds of the developer to ensure conditions have been met. This is a useful tool as long as amounts and timelines are realistic and not an impediment to development.	Current	
		TRC - MB Government Departments allowed opportunity to comment on proposed development and provide comment on suitability and feasibility of specific site.	Government of MB to provide additional resources to this process to allow site visitation and improved turnaround times for TRC's. Also, RM of Turtle Mountain process with a TRC technical meeting 2 weeks prior to Conditional Use Hearing has proven to be a useful tool.	Opponents have attacked TRC process for not including all pertinent information. Government of MB responsible for providing adequate resources to this area to ensure process is sound and based.	TRC process has been successful in providing councils with all pertinent information regarding proposed developments. Timelines have presented challenges to proponents where it is difficult to develop business plans based on an elongated permitting process	Immediate	
	Resources	Executive VP, Business Development & Environmental Affairs Director, Environmental Affairs (P.Ag.) Director, Capital Development Land Manager	Well rounded and specialized group of individuals ensuring all areas of concern are addressed throughout the application process			Forward and upfront planning provides greater clarity and ease of development. Hytek has been successful in communicating with RM's due to the highly specialized individuals it brings with it.	Current
		Technology	GIS	Utilized to calculate total acres (minus setbacks), establish barn site location, soil type and suitability for nutrient application		Site developments are done effectively and consistent with good environmental stewardship practices.	Current
			Autosketch software	Used for the development of site plans in order to establish best placement and to ensure provincial and municipal siting criteria is met.		More consistent site establishment and confidence in site placement and improves the decision making process for municipal officials.	Current
	Regulations	The Planning Act	States that all RM's to have a development plan in place by January 2008 that includes a livestock development component. This is included to alleviate issues regarding suitable and unsuitable areas for livestock development.	The process of utilizing a conditional use process regardless of presence of a development plan is cumbersome, confrontational process that is highly emotional and unfair for proponents and concerned citizens alike.	Province of Manitoba to provide clarity and Leadership with regards to the need for a conditional use process where a clear development plan is in place.	Immediate	
	Hytek Internal Policies	Hytek site development criteria has been based on high levels of communication and a transparent development process involving local government from start to finish	Engaging municipal government, land owner partners and neighbors to potential developments at their onset has been key to our past successes			Hytek has consistently been successful in developing sites through effective communication and partnering with communities.	Current
			Consistent and ongoing follow up and communication with rural municipalities.			Positive ongoing relationships with partnering communities.	Current

# Land Use Planning and Approval – Key Points

## ● **Current Practices**

- Hytek has developed strict internal siting criteria that has been augmented with high levels of communication & a transparent development process involving all levels of Government from start to finish

## ● **Issues**

- Conditional Use-Hearings – can be confrontational and emotional
- Pits neighbors against one another
- Suitable developments have been denied due to the volatile and emotional nature of these hearings

## ● **Solutions**

- Use of municipal development plan process as basis for livestock approvals and as set out in The Planning Act
- Province of Manitoba needs to assist RM's in completing their development plans on or before the January 2008 deadline
- With the use of Development Plans, permits will no longer require a conditional-use hearing as the general public has already provided the necessary input towards the zoning within the development plan



# Groundwater Quality

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
Groundwater Quality	Process	Piezometers installed around required manure storages and sampled annually as per MB Conservation Protocols. Results submitted annually to MB Conservation.	Annual sampling of all peizometers around Hytek Ltd manure storages as per Manitoba Conservation sampling protocols and procedures.		Currently, no Hytek Ltd. monitoring well samples have provided any indication of manure storage comprmise.	Current
		Individual groundwater supply wells for each farm are tested annually and results are submitted to Manitoba Water Stewardship			Currently, no Hytek Ltd. groundwater supply samples have provided any indication of manure storage comprmise.	Current
	Resources	Director, Environmental Affairs (P.Ag.)			Specialized staff dedicated to the protection and preservation of our water resources. Key to the long term viability of the operation.	Current
		Water Resource Specialist				
	Technology	Piezometers	Water samples are taken and analyzed before site is developed to get benchmark values. Subsequent values are compared back to benchmark to determine if significant changes have occurred.		Currently, no Hytek Ltd. monitoring well samples have provided any indication of manure storage comprmise.	Current
	Regulations	<i>MLMMR</i> - The Environment Act	Regulation requiring the annual sampling of piezometer and farm well water supply and indicates samples to be submitted annually to ensure they are within regulatory limits.		Effective protocol for the monitoring and enforcement of potential groundwater contamination issues.	Current
	Hytek Internal Policies	All monitoring well samples databased and analysed to monitor changes over time and compared annually to baseline samples	Current process is augmented with Hytek database of manure storage monitoring well samples that is utilized as a primary indicator of possible structural comprmise of our manure storages.		Currently, no Hytek Ltd. monitoring well samples have provided any indication of manure storage comprmise.	Current
		Ongoing commitment to support and assist with research and development for the betterment of the hog industry and the environment.		Greater understanding and research required of the movement and transfer of nutrients in soil as it relates to groundwater quality.	3 year extension given to LaBroquerie project that is aimed at understanding the roles and impacts of integrated livestock systems (Hytek sponsored)	Current

# Groundwater Supply

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
<b>Groundwater Supply</b>	<b>Process</b>	All water use on-farm metered daily and results submitted monthly to EA department. On-going analysis of farm water usage to ensure over use is caught early and mitigated in a timely manner	Monthly water usage data is analyzed to address areas of concern regarding over use of water. Water Resource Specialist investigates sites of potential concern and determines mitigation strategies to resolve issue.		Annual summary report of water usage submitted to Manitoba Water Stewardship to relate back to permit allocation.	Current
	<b>Resources</b>	Director, Environmental Affairs (P.Ag.)	Manage entire process and issues regarding water quantity and quality on Hytek operations.		Specialized staff dedicated to the protection and preservation of our water resources. Key to the long term viability of the operation.	Current
		Water Resource Specialist				
	<b>Technology</b>	Water Meters in line on all Hytek farm water supply sources.	Farm staff take water meter readings daily and submit results to Hytek Water Resource Specialist for analysis.		Effective means of monitoring on-farm water use. Hytek analyzes farm water usage monthly and identifies and mitigates area of concern.	Current
	<b>Regulations</b>	Water Rights Act - Water Rights Licensing	Water rights licensing process is often lengthy and without a water rights license, site development cannot take place.		More resources are required in the department of Water Stewardship to ensure timely turnaround on water rights license applications	Immediate
<b>Hytek Internal Policies</b>	All Hytek Ltd water supply projects are contracted out to a qualified hydrogeologist.	Hydrogeologist is tasked to secure an acceptable water supply that has suitable quality and quantity to support the livestock operation.		No failure of any Hytek Ltd water supplies with regards to quantity or quality.	Current	
	Ongoing commitment to support and assist with research and development for the betterment of the hog industry and the environment.		Greater understanding and research required of the movement of water and transfer of nutrients in soil.	3 year extension given to LaBroquerie project that is aimed at understanding the roles and impacts of integrated livestock systems (Hytek sponsored)	Current	

# Surface Water Quality

Results/Solutions		Current Practices	Actions	Issues	Results/Solutions	Timelines
Surfacewater Quality	Process	Surface water protected through the diligent management of the manure application process and abiding by appropriate setbacks and applying manure responsibly, utilizing injection/incorporation activities and applying when conditions are appropriate that i	In areas of high runoff risk, Hytek Ltd utilizes minimum disturbance incorporation techniques. Areas of little relief, subsurface incorporation is utilized to reduce overland flow potential. Reduced drainage and use of grassed waterways is encouraged on that i	Further understanding and research required with regards to nutrient transport mechanisms and nutrient fate in water bodies. Also need to address drainage related nutrient transport and ensure it is minimized in high risk areas.	Commitment of the Province of Manitoba and researchers to put emphasis on studies that address on field and off field transport of inorganic and organic nutrients.	Immediate
		Ongoing commitment to support and assist with research and development for the betterment of the hog industry and the environment.		Greater understanding of impacts of drainage, transport mechanisms, buffer strips as they affect surface water	Commitment of the Province of Manitoba and researchers to put emphasis on studies that address on field and off field transport of inorganic and organic nutrients.	Immediate
	Resources	Director, Environmental Affairs (P.Ag.)	Highly trained, specialized staff that are responsible for the management and delivery of Hytek Ltd on-field nutrient application activities.		Great deal of emphasis, time, energy, and resources committed to the responsible delivery of our programming.	Current
		Nutrient Resource Specialist (P.Ag./CCA)				
		Hyline Pumping Manager				
		Hyline Pumping Site-Supervisor				
		Hyline Pumping Maintenance Supervisor				
	Hyline Seasonal Staff (8 persons)					
	Technology	Injection applicators and Aerway incorporator	Promotes greater infiltration of manure nutrients		Fewer nutrients remain on surface and are at risk for overland transport.	Current
	Regulation	MLMVMR - The Environment Act	Dictates allowable land application times and placement with regards to surface watercourses.	Greater monitoring and enforcement required to ensure compliance.	Government of Manitoba needs to commit more resources towards this process	Immediate
		The Water Protection Act	Nutrient Management Zones for Nutrients regulation developed in 2006	Has yet to be passed and initiated		Unknown
		Farm Practices Guidelines	Hytek Ltd. utilizes the recommendations and guidelines as set out as strict parameters for our manure and mortality handling		Hytek is utilizing industry and government recognized BMP's to ensure the highest level of protection of our natural resources while maximizing the crop nutrient potential of our manure	Current
Hytek Internal Policies	All operations within Hytek Ltd, regardless of size are managed according to the MLMVMR that includes no winter spreading. All manure is incorporated where applicable.	Considerable cost has been undertaken by Hytek to ensure adequate storage and appropriate resources have been committed to ensure compliance for the <300 AU sites		Hytek Ltd. has provided consistency and accuracy at all site sizes and types.	Current	
	Timeliness of manure application in periods of suitable moisture and soil conditions	400 plus day storage and multiple lagoon emptying events allows flexibility of application timing to ensure it is done at an appropriate time.		Minimized potential for surface runoff potential due to manure being applied at appropriate times.	Current	
	Injection/incorporation of manure	Where applicable, manure is injected or incorporated into the soil.		Manure nutrients are below surface and is not available for surface transport	Current	

# Soil Quality

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
<b>Soil Quality</b>	<b>Process</b>	Replenishment and building of soil organic matter through the use of organic nutrient sources	Use of organic manures has provided an increase in overall soil organic matter and improved soil structure that in turn reduces potential pathways for surface runoff and leaching		Increasing land values and productivity and overall economic sustainability of partnering landowners.	Current
		Improved soil structure and increased water holding capacity.				
	<b>Resources</b>	Director, Environmental Affairs (P.Ag.)	Highly trained, specialized staff that are responsible for the management and delivery of Hytek Ltd on-field nutrient application activities.		Effective and efficient delivery of Hytek Ltd nutrient management program and the subsequent soil enhancement program.	Current
		Nutrient Resource Specialist (P.Ag./CCA)				
		Hyline Pumping Manager				
Hyline Pumping Site-Supervisor						
Hyline Pumping Maintenance Supervisor						
Hyline Seasonal Staff (8 persons)						
<b>Technology</b>	Use of minimum till equipment and leaving large majority of our land base in perennial forages to assist in building of soil organic matter.	Hytek Ltd is committed to managing our land in a site specific manner to ensure the appropriate land management process is on the appropriate soil type.		Increased soil organic matter and water holding capacities thus improving overall soil productivity.	Current	
<b>Regulation</b>						
<b>Hytek Internal Policies</b>	Policy is to build and enhance the productivity and environmental sustainability of the soil we own and operate on. This includes research and extension activities focused on addressing the potential positive or negative impact of our current processes.	Hytek has just completed phase 1 (3 years) of a multi-disciplinary U of M and Government of Manitoba research project aimed at examining the use of hog manure as a fertility source in a grazing/haying system. Phase 2 is beginning this spring and will cont	Better understanding of impact of soil quality with regards to increased organic matter and structure have on nutrient transport mechanisms. Need more Manitoba based research.	The LaBroquerie Project has provided valuable baseline data and will serve as an indispensable resource base for livestock producers in Southeastern Manitoba for many years to come. Increased government assistance for this projects and other similar proje	Current	



# Odour

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
<b>Odour</b>	<b>Process</b>	Minimize odour production and thus odour related issues form all Hytek operations	Ensure barn is clean as per Hytek barn operating procedures and ventilation is optimized within operation and all lagoon storages are bottom loading. Hytek Ltd. has also initiated strict siting criteria for our operations to ensure few or no neighbors ar		With improved barn cleanliness and lagoon monitoring coupled with appropriate siting criteria, few odour related complaints received. Eventhough odour complaints have been minimal, Hytek continously is investigating improved technology and odour suppress	Current
	<b>Resource</b>	Director, Environmental Affairs (P.Ag) Director, Production Systems Barn Managers and staff	Skilled team of dedicated professionals ensuring the highest qalti y animal environment		Clean, productive facilities that minimize barn odour.	Current
	<b>Technology</b>	Bottom loading lagoons, hi-tech ventilation and temperature controls (necessary for barn cleanliness)			Bottom loading storages reduce air contact with manure, mitigating incidences of odour. Barn cleanliness and good ventilation also aid in odour suppression from the farm.	Current
	<b>Regulations</b>	Farm Practices Protection Act and the Farm Practices Protection Board	Board of appointed officials that are engaged to deal with complaints from livestock operations and assess whether or not current farm practicies are being followed.		Currently, no Hytek operation has ever been brought before the board with regards to any complotants.	Current
	<b>Hytek Internal Policies</b>	Hytek deals promptly and effectively with any and all odour complaints that may be received and addresses each on a case by case basis	Little or no complaints have been received regarding Hytek operations and those that have been received (5 in 4 years) have been resolved through effective communication and addressing issues promptly.	Ongoing research and investigation of new techniques and technologies for on-farm odour suppression are required to find an economical and effective alternatives.		Current
	<b>Hytek Internal Policies</b>	Appropriate farm siting where little or no impact of farm odours has been a key factor towards Hytek Lids success.			Little or no complaints have been received regarding Hytek operations and those that have been received (5 in 4 years).	Current

# Odour – Key Points

- Current Practices

- Hytek Ltd. has always considered the most effective nuisance odour control measure is appropriate siting criteria and barn and site design
  - Has been effective in limiting odour related complaints
  - Only a handful of odour related complaints in the past years for over 35+ sites in operation
- Barn odour is directly related to barn cleanliness
  - Strict policies and procedures in place to ensure barn cleanliness and ventilation are up to Hytek Ltd standards

# Disease Transmission

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
Disease Transmission	Process	Biosecurity Protocols - establish the health status of all Hytek Ltd pigs and operations. Allows for the segregation of different health herds to ensure protection from transmittable diseases.	Protocol dictates personnel and equipment movement through Hytek operations and doesn't allow non-permitted personnel on site as well as describes shower in and out policies and sanitation and downtime requirements.		Hytek has been able to maintain an excellent herd health status that has allowed for continued competitiveness in the genetic business.	Current
		Protocol dealing with entry and exit criteria of Hytek facilities. Required showering in and out, cleaning and disinfection of equipment and tools entering site	Downtime and historical farm site visit information required before entry is permitted. Criteria must be met and no exceptions are made.	Industry critics have been critical of the hog industry "secrecy" due to the difficulty in gaining access to hog facilities.	Better communication is required, not just from industry, but government and hopefully the CEC report to qualify the measures taken by hog producers to protect their livestock health.	Immediate
		Use of 3 site production system to minimize transfer of disease.	Animals are segregated based on age. Allows for staged feeding and improved production as well high levels of disease control	High development and animal transfer costs	Improved biosecurity and animal welfare. Reduced need for medications.	Current
	Resources	Executive VP Production	Ensures delivery of all biosecurity measures			
		Hytek Veterinary Staff (third party)	Set biosecurity protocol based on health status of animals on each farm		Unbiased assessment of required biosecurity measures.	
		All Hytek Staff	Every member of the Hytek team adheres to the biosecurity measures.			
	Technology	Disinfectants, Soap and water	When accessing a Hytek facility, it is required that the appropriate down-time be adhered to and that all personnel shower in and out of the facility. If tools or other items are required, they must be sanitized with an appropriate	Greater understanding required as to the potential impact of the usage of these products	Research and development towards understanding potential impacts of continued use of disinfectant products.	Med-Term
	Regulations	Self regulating and strictly adhered to.		Continued work required for the regionalization of country to protect the Canadian industry from foreign animal disease outbreaks	Canadian Pork Council and Manitoba Pork Council are working at establishing the country wide regions. Support needed from Provincial and Federal governments to assist in the process.	Immediate
		COA validation protocol followed closely on all Hytek operations	Provides consistency throughout Hytek production system that all operations are performing to required standards	protection from foreign animal disease issues and outbreaks		
	Hytek Internal Policy	Hytek Ltd. Biosecurity protocol has been developed and is administered by a third veterinary company	Vets assess animal genetic and health status and provide health protocol status and site entry protocol requirements.	High cost of implementation but necessary to protect herd health and welfare.	Use of a third party veterinarian provides a level of confidence to our customers and staff/ownership	Current
Three site production system - Sow to Wean, Nursery, Feeder-Finisher		All Hytek farms are modeled around this type of production system.		Improved feeding techniques can be employed as well as improved disease control measures	Current	

# Climate Change

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
Climate Change	Process	Manure is stored in open air earthen manure storage facilities or above ground concrete storages or beneath barn storages.		Through open air storage of manure, there is potential for the release of GHG emissions through natural processes.	New techniques and technologies have been investigated continuously at Hytek to determine their effectiveness at reducing gaseous emissions and their economic viability	Current
		Minimum till and perennial forage production systems	These practices increase soil carbon thus reducing overall GHG's in the atmosphere.	New techniques and technologies needed to address potential methods to improve and rejuvenate forage fields without the use of traditional cultivation.	Hytek has successfully kept over 9300 acres in perennial forage production.	Current
	Resources	Director, Environmental Affairs				
	Technology	Bottom loading manure storages, multiple emptying dates and manure injection and incorporation techniques.	Bottom loading reduces storage filling emissions, multiple empty dates reduces manure residence time in lagoon, thus reducing emission levels throughout summer months, and injection/incorporation increases infiltration and absorption of manure	Continued research required to assess hog productions overall impact with regards to GHG emissions and further exploration in the field of Carbon Credit Emission trading.	Manure is managed to reduce open air contact during all peak periods of potential emission activity. Expanded use of manure as fertilizer source reduces the use of commercial inorganic fossil fuel based fertilizer sources and has a positive impact with r	Current
		Organic nutrient use offsetting inorganic supply	Inorganic fertilizer production is a high energy use process that is reliant on fossil fuel use.	The exact value of the use of hog manure as an inorganic fertilizer replacement is not entirely understood and requires further investigation.	Overall energy budgets need to be calculated to determine offsets. U of M LaBroquerie project is beginning to address this area.	Med-Term
	Regulations					
Hytek Interna Policies	All lagoons to be constructed utilizing bottom loading technology	Reduced air contact with manure has a reduction in odour production from the lagoon.	Further investigation and research required to assess economical and feasible technologies and techniques for reducing GHG's from hog production.	Ongoing reseach through Manitoba Pork Council, Canadian Pork Council and U of M researchers. Greater MB Government support required in this area.	Immediate	



# Environmental Liability

Scope Issues		Current Practices	Actions	Issues	Results/Solutions	Timelines
<b>Environmental Liability</b>	<b>Process</b>	Protect Hytek Ltd. from any and all potential areas of liability through appropriate stewardship activities.	Hytek Ltd. Environmental Affairs department ensures compliance and often exceeds all existing Provincial and Federal related legislation.	Extent and who is liable along the production and nutrient management chain requires further investigation and clarification.	Hytek has successfully mitigated areas of liability through positive action plans and stewardship activities.	Current
	<b>Resources</b>	Executive VP, Business Development & Environmental Affairs	Group of professionals with required credentials bound by ethical requirements of their individual associations.		All decisions based on sound science and fact and are of the ethical standards required.	Current
		Director, Environmental Affairs, (P.Ag)				
		Nutrient Resource Specialist, (P.Ag/CCA)				
		Legal Council - In-House				
<b>Technology</b>	All associated technologies that are utilized throughout the production system have some bearing towards the liability and accountability of Hytek Ltd. operations.	High level of responsibility on record keeping and tracking of areas of concern.			Current	
<b>Regulations</b>	<i>The Environment Act</i> <i>The Ground Water and Water Well Act</i> <i>The Dangerous Goods Handling and Transportation Act</i> <i>The Co</i>	Broad and flexible regulation and regulatory authority over the hog sector that ensures environmental stewardship activities.		Hog operations in Manitoba operate in some of the most strictly regulated environments in North America if not the world.	Current	
<b>Hytek Internal Policies</b>	All existing regulations shall be complied with on Hytek Ltd. operations.	Strict policy requiring compliance on all regulatory fronts.		Hytek Ltd. has maintained an impeccable record of compliance since inception in 1994.	Current	

# Approach Taken To Regulation and Enforcement In Other Jurisdictions

- Hytek Ltd has operations in Manitoba, Saskatchewan and North Dakota
- Of these jurisdictions, Manitoba in our experience has strictest regulatory environment. Some examples that sets Manitoba apart are:
  - Highest level of auditing and enforcement activities of the three jurisdictions
  - Only jurisdiction that requires annual soil test submissions prior to application
  - Only jurisdiction that conducts in-field audits utilizing actual soil test results
  - Only area in Canada where Environment Officers are empowered to issue tickets

# Conclusion

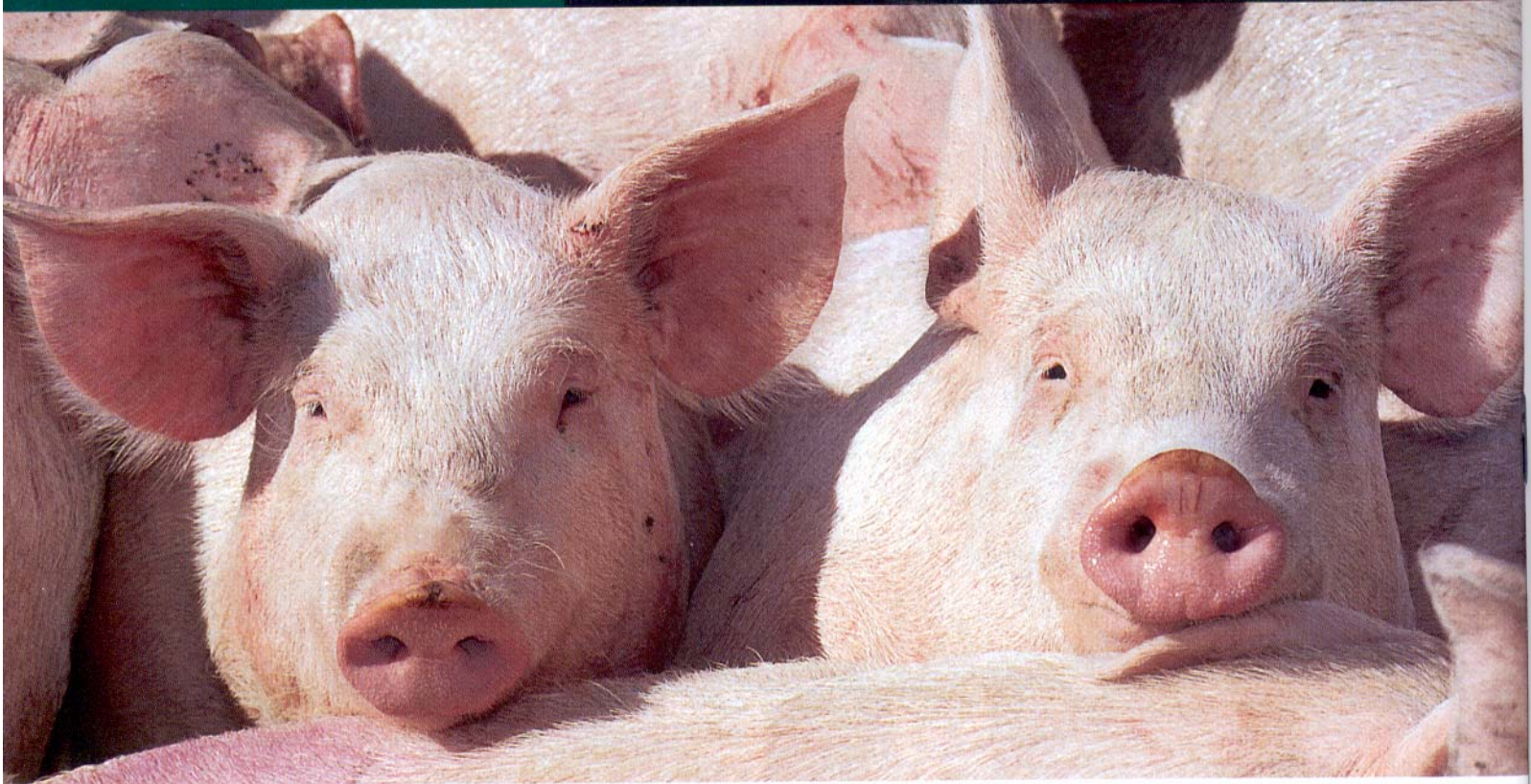
- **Hog industry has a proven track record for Environmental Stewardship**
  - On-farm balance of Nitrogen achieved
  - Industry driven adoption of new techniques and technologies
  - Research and Development Initiatives
- **Phosphorus – Challenge and Opportunity**
  - Phosphorus Expert Committee Recommendations
  - Phosphorus imbalance is a regional challenge, not Provincial
  - Research is **NEEDED** to better understand nutrient transport mechanisms from soil to water
- **Time**
  - Time is the most sustainable economic driver for adaptation
  - Goals are set, we need time to achieve them

# Going Forward

- **Hog industry is a vibrant, maturing industry**
- **Pause limits the industries flexibility to deal with:**
  - COOL legislation
  - Foreign Animal Disease issues
  - Market Shifts due to foreign exchange, ethanol, processing options, etc...
- **We need the CEC to complete its review and provide recommendations to the Minister of Conservation ASAP**
- **The “Pause” must be lifted so we can continue developing our industry and move forward in confidence**
- **The CEC should provide the needed confidence to the general public & government that the hog industry are good environmental stewards and will continue to be sustainable long-term**



**Thank You!**



**Questions?**