



Executive Summary of the OPIC Biosecurity Gap Analysis and Risk Assessment of Ontario's Pork Industry Report

Overview

This document summarizes the final report of the project Biosecurity Gap Analysis and Risk Assessment of Ontario's Pork Industry undertaken for the Ontario Pork Industry Council (OPIC) with funding provided by Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA). The project identifies the diseases of concern, sets out industry maps identifying linkages and details potential gaps in the biosecurity and emergency preparedness of the industry. This analysis leads to the development of a set of coordinated plans for the development and implementation of a Biosecurity and Emergency Preparedness Program for the industry. The project has been led by the Ontario Pork Industry Council (OPIC) and its OPIC Swine Health Advisory Board (OSHAB), working with Ontario Pork Producer's Marketing Board (OP) and industry partners. A comprehensive steering committee broadly representing industry partners has been convened to guide this project. The consulting company eBiz Professionals Inc. was commissioned to conduct the analysis.

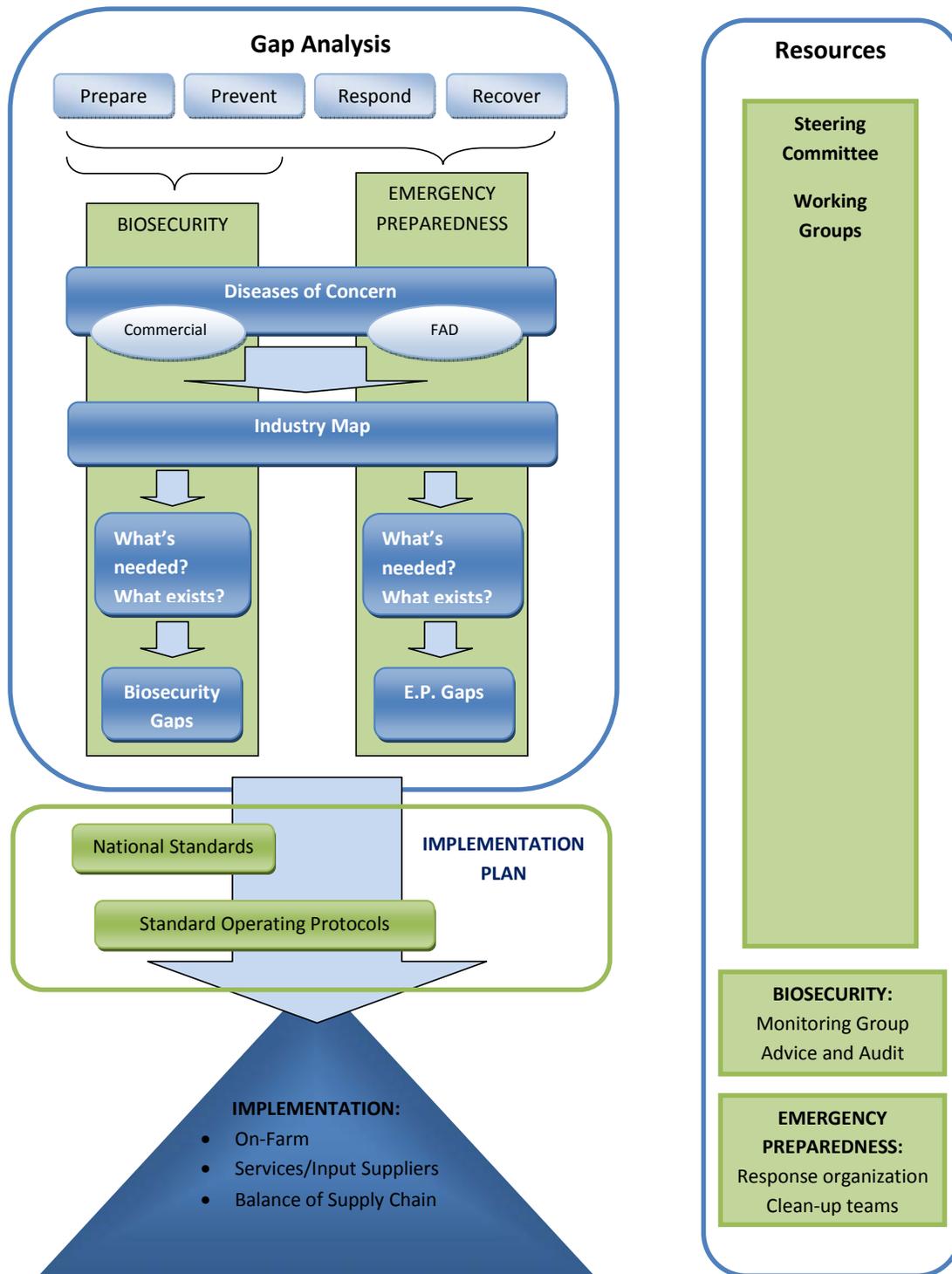
In order to clarify the objectives, direct the analysis and engage the industry, the project activity has pursued two principle areas of focus – biosecurity and emergency preparedness as illustrated in the figure on the following page, entitled "Biosecurity Program Development Framework". The figure represents the approach and methodology followed throughout the project. Each area of focus has been represented by a disease of interest, chosen for potential industry impact and broad methods of transmission.

Porcine Reproductive and Respiratory Syndrome (PRRS¹) was selected by the steering committee to focus the development of the biosecurity program. PRRS is a financially-significant production disease endemic to Ontario which has been the topic of a three-year communications project undertaken by OSHAB. The impact PRRS can have on cost-of-production is well understood, providing impetus for compliance.

Foot and Mouth Disease (FMD) was selected to represent foreign animal disease due to its potential to infect multiple species through numerous modes of transmission with known detrimental implications to the industry. If failure of preventive measures (biosecurity) occurs, the program would follow the full Emergency Preparedness cycle by enacting a response and recovery phase. The models used in this analysis acknowledge that a successful biosecurity program must be linked interactively to emergency readiness.

¹ "PRRS" is used throughout the report to refer to the disease, while the acronym PRRSv is used to represent the PRRS virus. Similarly, FMD is the disease, and FMDv is the virus that causes it.

Biosecurity Program Development Framework



The analysis includes an assessment of the “interactive risks” that are present in the interactions of the players – how and when industry participants at each node impact the risks of another. In addition, the report presents a summary of Emergency Preparedness plans in use among the industry participants, on a similar basis.

Industry Gaps

General Findings Leading to Gaps

No clear strategy by sector exists for input suppliers and professional services. Biosecurity awareness is increasing, but the implementation of appropriate measures is constantly compromised due to economic concerns. Within sectors, some companies have implemented their own strategies in order to seek competitive advantage and/or to reduce potential liabilities potentially associated with a specific case of disease outbreak.

While some activities such as manure spreading, barn cleaning, and deadstock removal are considered high risk, other less obvious practices such as the delivery of feed using feed company pipes, bagged feed delivery into a feed room and the presence of service personnel in the active barn area can pose significant risks as well. One sector, suppliers of AI boar studs, have been linked with past disease outbreaks and require significant biosecurity protocols and testing procedures to guarantee disease-free semen. On the farm, protocols for isolation room management are lacking, and this immediately compromises either gilt and/or boar introduction into the herd. In some instances, gilt barns are in continuous-flow processes, making it difficult to provide for complete isolation and acclimatization prior to entry into the breeding herd.

Biosecurity Gaps

The biosecurity gaps within and between the sectors are detailed in the body of the report. From the analysis of these gaps, a number of outcome-based statement topics have been suggested to facilitate the understanding of the various program requirements. The following are examples of recommended key outcome statements.

1. The industry has and maintains biosecurity programs and actively monitors their use.
2. Industry biosecurity programs meet federal and provincial requirements.
3. All farmers and other facility managers have clear biosecurity expectations and ensure that their visitors and services and inputs suppliers respect them.
4. Every farmer undertakes a risk assessment with his/her veterinarian.
5. Every facility operator, services and inputs supplier undertakes a risk assessment with an accredited expert.

6. Every farmer, facility operator, and services and inputs supplier understands biosecurity risk assessment and is able to monitor his/her operation according to potential disease and biosecurity risk protocols.
7. The biosecurity program at each facility is announced by signage at the farm/facility gate and the barn entrance.
8. Visitors and services and inputs personnel are free of contamination when entering a swine facility.
9. Farm vehicles return to the farm free of pathogens.
10. Animals introduced into any herd are of known disease status or are quarantined for at least three weeks.
11. The federal-provincial regulatory framework for biosecurity is free of oversight gaps.
12. The federal-provincial regulatory framework for biosecurity has clear delineations of authority.

Emergency Preparedness Gaps

Based on an Emergency Response simulation undertaken in 2007 initiated by OP and OLPC, and supported by this analysis, the swine sector is not prepared for an outbreak of disease or any other emergency, other than responding to CFIA directives during on-site activity at an infected location². The level of coordination, the understanding of industry roles is not developed at most levels. There is confusion regarding disease control zones established by CFIA and the industry response roles during a crisis.

The biosecurity and emergency response readiness cycles are not understood, hence the sector is not prepared. Outcome-based statements designed to rectify the factors leading to confusion include:

1. Industry is prepared to respond to emergency situations in a coordinated manner.
2. A “who does what” agreement between industry and government is in place and its contents are available to guide the coordinated response in an emergency; the responsibilities of industry participants and the CFIA are well understood.
3. A central command-and-communication organization is available to manage an emergency response for the industry and to keep everyone informed.

² CFIA requires that the industry prepare its own enhanced biosecurity procedures for operating within any of its control zones during a FAD outbreak. On-site activities are determined and enforced by CFIA personnel in situ.

4. Easily-understood instructions are readily available for farmers, facility operators, and services and inputs suppliers to follow during an emergency.
5. An easily-accessible list of locations and facility profiles for all pig farms and other facilities in the province is available, and agreements for their use are in place.
6. An easily-accessible cache of supplies and equipment required for response and recovery is available.
7. Teams of trained personnel sufficient for euthanasia and carcass disposal are available.
8. Teams of trained personnel sufficient for facility cleaning and disinfection are available.
9. Facilities are available for vehicle and equipment cleaning and disinfection at appropriate locations.
10. Surge capacity in the diagnostic laboratories is sufficient and available to the industry
11. Industry emergency preparedness programs meet federal and provincial requirements.
12. A planned restart process to bring industry back into production has been developed.
13. Financial planning for a (temporary) shut down has been undertaken by industry participants
14. The federal-provincial regulatory framework for emergency preparedness is free of oversight gaps and has clear delineations of authority.
15. A Provincial Animal Health Act to address non-reportable disease, other hazards, and early stages of reportable disease-outbreak investigation has been enacted along with appropriate regulations.
16. Regular disease-outbreak simulations are carried out to test protocols and industry response capability.

Governmental Gaps

As a result of the biosecurity and emergency preparedness gap analysis, it is recommended that levels of government consider implementation of programs to achieve the following goals:

1. Develop a provincial Animal Health Act and regulations.³
2. Develop a provincial animal health strategy to complement the recently-released draft federal strategy
3. Develop Federal-Provincial agreements on roles and responsibilities.
4. Enunciate clear statements on levels of authorities to deal with Foreign Animal Disease (FAD) and diseases of economic significance.
5. Develop with industry an education strategy and definition of roles with respect to sector priorities and expectations of the sector's delivery capacity.
6. Ensure comprehensive laboratory capacity and integration of efforts.
7. Communicate the national and provincial Chief Veterinarians' role including clarification with respect to authority over diseases of economic significance
8. Develop an agreement with industry on responsibility for surveillance systems⁴.
9. Develop with industry surveillance models and systems that are consistent with other jurisdictions, to include: baseline of diseases and vectors; production and management practices; disease modelling; surveillance systems; and gaps
10. Monitor animal health surveillance and animal movement data in other provinces/jurisdictions.

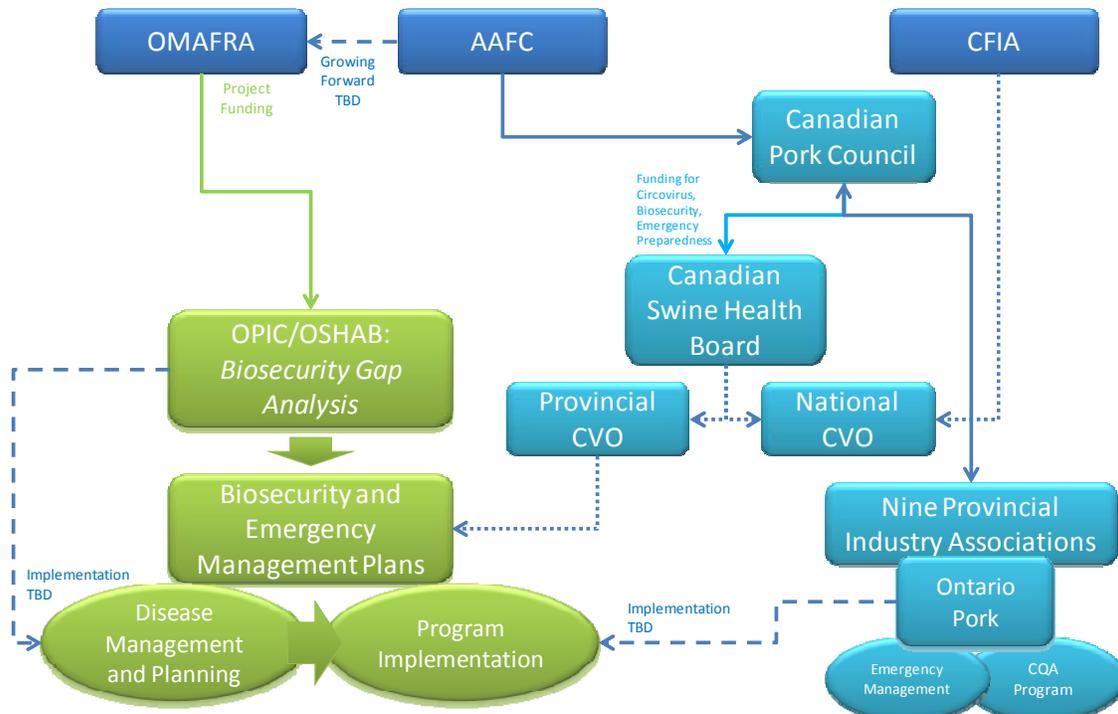
Industry and Regulatory Relationships

There are numerous essential links when considering implementation of a biosecurity and emergency preparedness plan. The following diagram illustrates the industry and regulatory relationships enabling biosecurity and emergency preparedness in Canada and Ontario.

³ The authors acknowledge the announcement by OMAFRA of plans for the establishment of an Animal Health Act for Ontario, made during the final stages of the project team's work.

⁴ The frequency of failure in biosecurity systems is partially dependent upon the strength of disease surveillance systems. An intelligence system based on both passive and active surveillance components can lead to early detection of pathogenic agents, thereby enabling reliable notification of health professionals of emerging production risks and disease dispersion patterns. Because Ontario is currently using a passive surveillance system, the need for fool-proof farm level biosecurity protocols is urgent.

**OPIC Pork Industry Biosecurity:
Industry and Regulatory Relationships**



There are several key observations presented by the diagram:

- The OPIC/OSHAB sponsorship and management of the gap analysis and the development of biosecurity and emergency management plans provides clear evidence of the willingness of the pork industry to provide leadership in this area until a permanent PICC structure is in place.
- The potential for industry-led implementation of the resulting program will require support from both regulatory and funding agencies in Ontario and nationally.
- OP provides for an effective delivery structure and linkage to all Ontario producers, thereby facilitating the management of emergency situations.
- OPIC provides linkage to the inputs and farm services in Ontario, thereby enabling inclusion of these sectors in any plan going forward. OPIC also maintains a strong partnership with OSHAB, and through it the veterinarians and other stakeholders involved in the PRRS reduction program already underway in the province.

- Legislative and regulatory animal health authority currently exists only at the national level⁵ and these authorities are usually limited to FAD situations due to budgetary limits. CFIA does have the authority to involve itself in non-reportable disease but is reluctant to do so because of potential financial implications for compensation.
- The diagram indicates the emergence of national leadership roles with respect to the CFIA, Agriculture and Agri-Food Canada and the Canadian Pork Council, with their support of the Canadian Swine Health Board (CSHB). Industry participation in CSHB is voluntary and supported by a one-time, multi-year financial contribution by AAFC.
- Federal provincial linkage through Chief Veterinary Officers will assist in implementation of biosecurity and emergency preparedness standards and strategies.
- Biosecurity needs to be coordinated with Emergency Preparedness actions.
- National biosecurity standards for the sector(s) need to be developed to fit within the Growing Forward producer initiatives.

Plans Forward

Leadership

The industry leadership role for biosecurity in Ontario has progressed in a coordinated manner. Industry has positioned itself to take proactive roles through OPIC and OSHAB as a centre of knowledge for continuous improvement in biosecurity. The swine industry has initiated a review of its gaps in an effort to develop a set of coordinated plans and appropriate biosecurity protocols and recognizes the need for coordination with national efforts, but does not believe it is in the interest of the stability and profitability of the industry to await the development of those standards. Instead, the Ontario industry recommends immediate initiation of plans to address the gaps identified in this report, utilizing a phased approach, collaborating and contributing inter-provincially and on the national level and coordinating efforts as work towards national standards advances.

In its strategic plan, the Ontario swine sector is addressing the need to control and eradicate diseases of economic significance at the production level. In April 2009, OSHAB released its PRRS Project Assessment Report in which it identifies eight

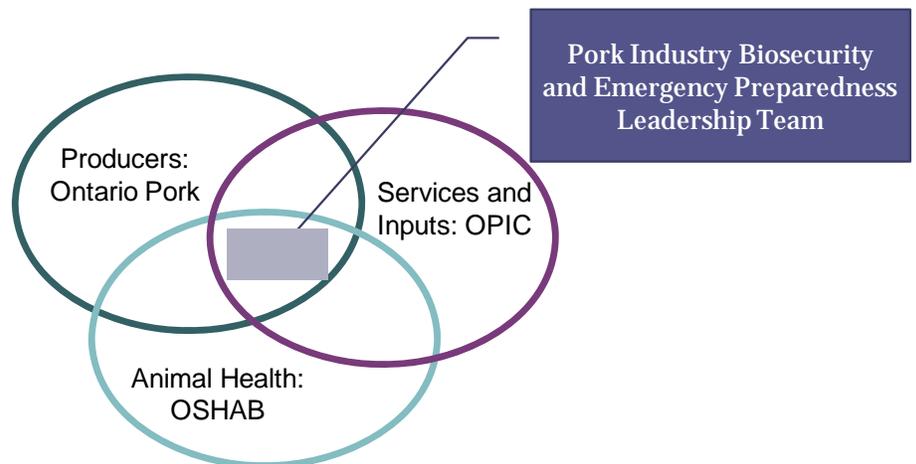
⁵ As noted earlier, OMAFRA has initiated consultations on animal health legislation for the province, incorporating elements that will expand its involvement in biosecurity, emergency response and traceability.

outcome-based objectives to understand, control and ultimately eliminate PRRS in the Ontario Swine Industry. The sequential objectives identified lend themselves as a credible blueprint and accountability framework to introduce biosecurity measures in the Ontario swine industry.

Historical roles associated with FAD preparedness and response originates from a national mandate for proven emergency preparedness protocols. As part of the national framework, Ontario, through the Office of the Chief Veterinary Officer, is also actively engaged in the maintenance of a surveillance network and assistance with education dissemination.

With respect to emergency preparedness for possible FAD situations, Ontario Pork (OP) recognizes the need for both biosecurity and emergency preparedness plans to deal with extreme but real situations that could occur over time. Through its role with the swine sector, OP maintains several databases including GPS farm data that would be essential to track the location of disease situations in Ontario. OPIC has developed excellent communication channels within the industry sectors and so is poised to assist with this aspect of emergency management.

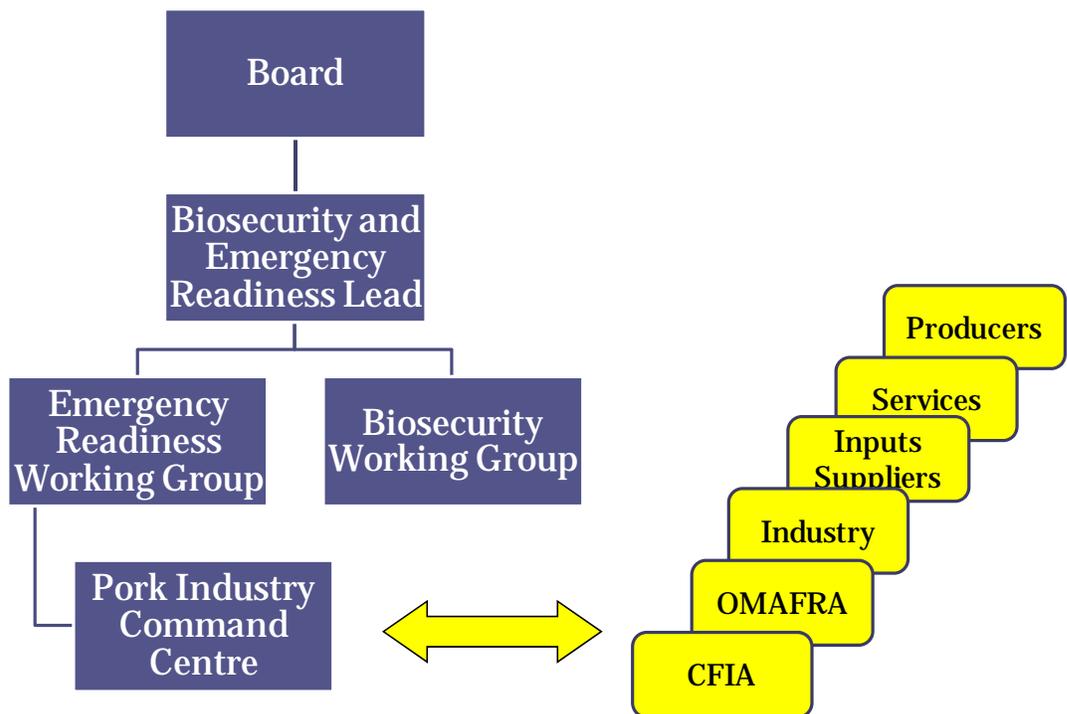
To capitalize on these strengths, further development of a leadership team, with guidance provided by OPIC, OSHAB and OP and governmental representation that is committed to these objectives, will enable the industry to address and adopt the measures needed. The degree of control over specific tasks by each of these organizations will vary depending upon expertise and resources available to conduct that task. The knowledge base and project focus of OSHAB suggests that a lead role in biosecurity would be appropriate for this group with assistance on communication and implementation from OP and OPIC. Emergency preparedness may be best led by a cooperative approach with OP representing producers, input and participation from OPIC to incorporate the industry partner sectors and scientific direction when needed from OSHAB.



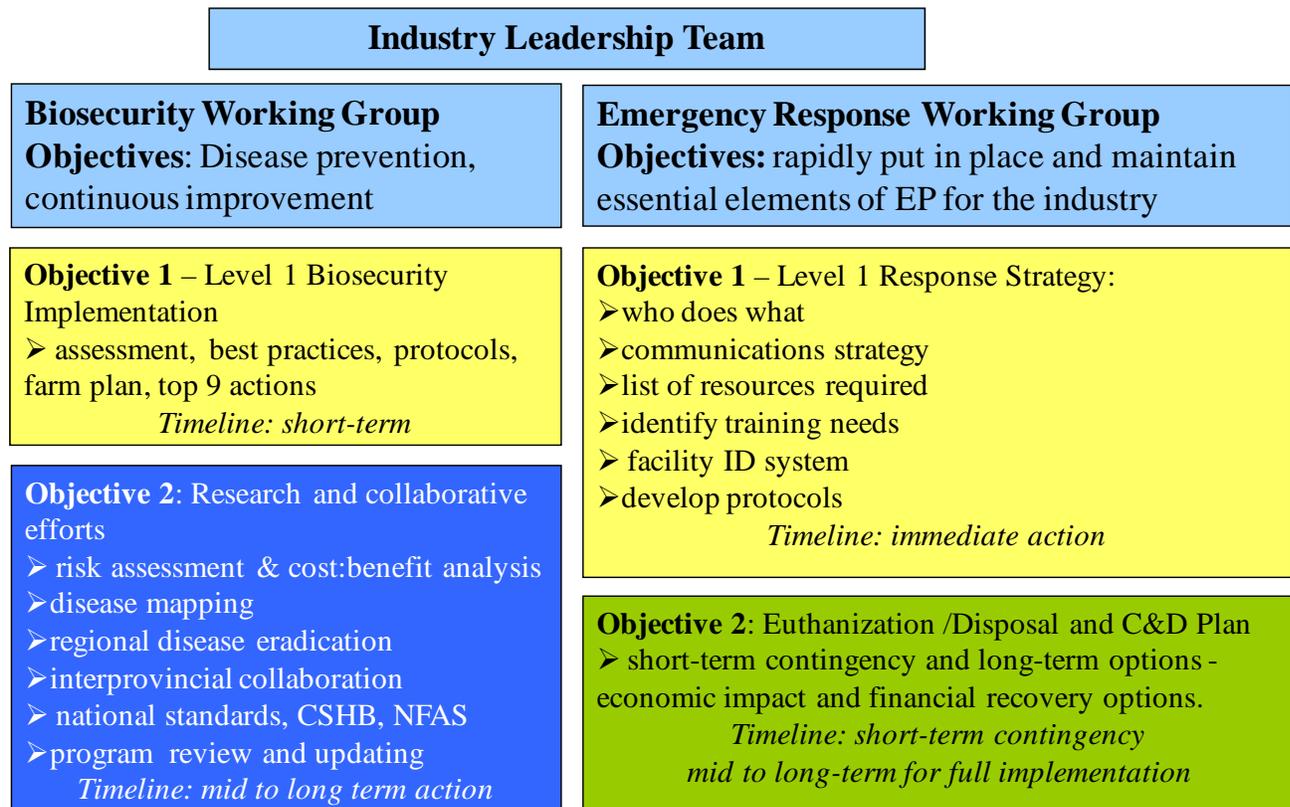
Development of the Industry Leadership Team is essential to the success of this Ontario initiative. This board is envisioned as a self-dissolving entity which will initiate plans by accessing funding, actuating the plan, designating responsibilities going forward and hiring staff as appropriate. It may be developed as a subset of the OPIC biosecurity steering committee which is already in place. After completion of these tasks, responsibilities will fall back to the appropriate members of the industry. Participants are expected to advocate back to each organization and advocate out to stakeholders in the industry.

It is anticipated that a project manager will be required and it is recommended that a qualified individual be hired to lead and coordinate the biosecurity and emergency preparedness initiatives, working with government, industry partners and consultants as needed. The operational structure for the implementation of biosecurity and emergency preparedness programs is illustrated in the diagram below. It is important to note that this is a temporary structure using, as previously noted, personnel from OP, OPIC and OSHAB, supported by consulting resources as needed. The Command Centre is anticipated to continue as a permanent entity to provide response coordination and capability in case of an industry emergency, and the need for continuous improvement in the program will be addressed as an ad hoc responsibility of the three organizations.

Biosecurity and Emergency Preparedness Industry Structure



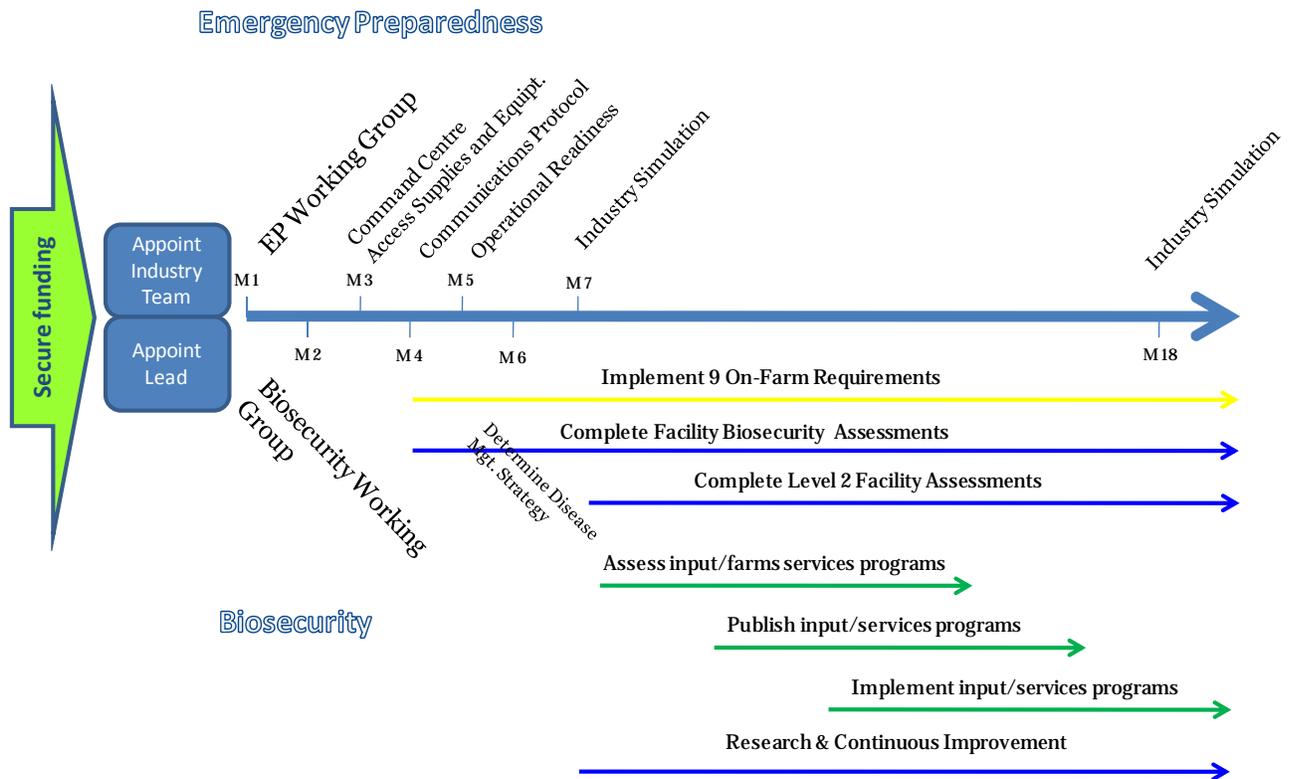
The following diagram illustrates a model for the initial stage of development of a program to implement an emergency preparedness program and a continuous improvement strategy for biosecurity for the Ontario Pork industry. The objectives are the goals and timelines of the program proposed in the full report.



Implementation Plan

The scope of the tasks requiring completion for development of biosecurity and emergency preparedness programs for the Ontario Pork Industry suggest that a phased approach to implementation would assist the industry in rapidly initiating essential elements with a longer timeline for complete program development. Implementation will require significant financial assistance, both in the establishment of the required industry infrastructure and to support on-farm and other facility- and farm service-level initiatives. However, the industry recognizes that there are many excellent tools already developed in national and provincial initiatives in other livestock and poultry sectors and intends to utilize these tools whenever possible.

The full scope of tasks required for implementation of biosecurity and emergency preparedness programs for each sector of the industry are summarized in Appendix 1 of this report.



Implementation of phase 1 of a biosecurity program, illustrated in the lower half of the figure above, would require development of a set of best practices and protocols by the industry and selection of appropriate farm/facility assessment approaches. Nine targeted on-farm actions have been identified as having immediate impact, being relatively low cost and expected to be consistent with future national standards. These include:

- Access/Egress actions
- Restricted access zone around barn
- Facility-specific clothing and equipment
- Danish entry including hand wash facility
- Quarantine capacity/isolation and testing protocol
- Limited access - drop off plan at farm gate
- Replacement sourcing plan/known animal history
- Requirements for service vehicles and attendants
- Barn and equipment washing protocols and equipment/supplies

These targeted actions are closely related to the Position Statements developed by OPIC and OSHAB to guide the industry in its efforts to reduce PRRS. The Position Statements

were the result of careful consideration and research, and are accepted by the professional community internationally. In the implementation of the biosecurity program recommended in this report, they will be melded together with the biosecurity program's targeted actions. The Position Statements will provide a continuity and familiarity to the biosecurity program as it is implemented.

Pursuit of some of the targeted actions may be supported by the current Food Safety and Traceability Initiative delivered through Growing Forward (GF) and may be considered for support under the Biosecurity program being developed for GF funding. It is recommended that an on-farm biosecurity and emergency preparedness initiative fund be made available to the industry to support those actions not included under FSTI or the Biosecurity provisions of Growing Forward.

A set of immediate priorities for initial development of an emergency preparedness system for the Ontario pork industry has also been identified:

- Identify roles and responsibilities
- Establish Command Centre
- Design communications protocol
- Access to supplies and equipment
- Plan and execute simulation

Key Actions with Immediate Impact

In summary, the following are the immediate steps to be taken to move forward with implementation of the plans developed through the work detailed in this report:

1. Prepare a budget for the initiation and operation of an Industry Leadership Team.
2. Hire a team leader.
3. Initiate phase 1 of the emergency preparedness plan, including establishment of a Command Centre to deal with emergency management – with interim plans in place for fall 2009.
4. Prepare a budget for the full multi-year implementation process and establish funding for all elements of the program.
5. Initiate phase one of biosecurity program.

Endorsement

The Boards of Directors of OP, OPIC and OSHAB have endorsed the work undertaken in this project and support the implementation of these recommendations.



Appendix 1.

Note: Implementation tasks have been categorized to address the actions needed by farms, input suppliers, other services and the industry as a whole. Input suppliers are defined as those service providers who access a farm at the animal level or inside the Control Access Zone i.e. veterinarians. Other services are defined as those service providers who accesses a premise but not inside the Control Access Zone i.e. couriers. Other facilities include facilities other than farms i.e. processing plants, feed mills etc.

In the following tables, farms, input suppliers, other services and other facilities are detailed together. Overall industry tasks are outlined in separate tables.

Biosecurity Program Implementation Requirements - Sectors

<i>Biosecurity Plan Elements</i>	Implementation Requirements			
	Farms - All Types (incl. genetics)	Input Suppliers	Other Services	Other Facilities
Facility-Level Risk Assessment	Basic assessment	Basic assessment	Basic assessment	Basic assessment
	Disease specific risk assessment	Disease specific risk assessment	Disease specific risk assessment	Disease specific risk assessment
	FAD risk assessment	FAD risk assessment	FAD risk assessment	FAD risk assessment
Facility Biosecurity Strategy	Farm plan (access and buildings)	Facility plan	Facility plan	Facility plan
	Enhanced plan (CAZ zone, compost, storage)			
	Premise plan			
Procedures	Basic Protocols	Protocols	Protocols	Protocols
	Enhanced protocols (Disease specific)	Disease information	Disease information	Disease information
	Detailed protocols (C&D products & use)	C&D product sources and use	C&D product sources and use	C&D product sources and use



Practices and Controls	Signage			Signage
	Access control - Property & Log	Access control - Facility	Access control - Facility	Access control – Facility
	Access control – Locked Barn(s)			
	Implement protocols	Implement protocols	Implement protocols	Implement protocols
	Site zones (Three)	Certification Program	Certification Program	
Facilities	Lane gate(s)			Lane gate(s)
	Clean vehicle (plus 24 hr rule)	Vehicle washing and disinfection	Vehicle washing and disinfection	Vehicle washing and disinfection
	Danish Entries			
	Shower-in/shower-out			
	Washed & disinfected vehicle			
	Washing & disinfection of barns			
	Quarantine facilities			Quarantine facilities
	Isolation barn – separate			
Materials and Equipment	Ventilation/filtration			
	Barn specific clothes/footwearequipment	Barn clothes/footwear	Barn clothes/footwear	Work clothes/footwear
	C&D products	C&D products	C&D products	C&D products
	C&D application equipment	C&D application equipment	C&D application equipment	C&D application equipment
Animal to animal (diagnostics & prevention)	Personal protective equipment (PPE)	PPE	PPE	PPE
	Information between participants	Information between participants		Information between participants
	Herd health recording/treatment			
	Testing			
	Coordinated sampling plans			Coordinated sampling plans
	Disease Status, Surveillance/vaccination			Disease Surveillance
	Post mortem			



	CFIA direction - vaccination/eradication			
Knowledge/Continuous Improvement	Practices/methods research	Practices/methods research	Practices/methods research	Practices/methods research
	Education and training	Education and training	Education and training	Education and training
	Feedback loops (monitoring & auditing)	Feedback loops	Feedback loops	Feedback loops
	Source material/hotline	Source material/hotline	Source material/hotline	Source material/hotline
Transaction management	Information between participants	Information between participants		Information between participants
	Electronic records	Electronic records		Electronic records
	Traceability	Traceability		Traceability
Protocols Required	Access/Egress			Access/Egress
	Animal Receiving and Isolation	Animal Receiving	Animal Receiving	Animal Receiving
	Animal Shipping	Animal Shipping	Animal Shipping	Animal Shipping
	C&D – Facilities	C&D – Facilities	C&D - Facilities	C&D – Facilities
	C&D – Equipment	C&D – Equipment	C&D - Equipment	C&D – Equipment
	Pet/Rodent/Pest/Fly Control			Pet/Rodent/Pest/Fly Control
	Manure Management		Manure Management	Manure Management
	Deadstock Management	Deadstock Management (Feed)	Deadstock Management	Deadstock Management
	Feed and Supplements	Feed and Supplements		
	Water			
	Animal Health Care			



Emergency Preparedness Program Implementation Requirements - Sectors

<i>EP Plan Elements</i>	Implementation Requirements		
	Farms - All Types (incl. genetics)	Input Suppliers/Other Services	Other Facilities
Procedures	Protocols	Protocols	Protocols
Leadership	Communications	Communications	Communications
Response Capability	Materials and equipment	Materials and equipment	Materials and equipment
	Facility containment		Facility containment
	Movement controls	Movement controls	Movement controls
Recovery Capability	Welfare slaughter methods and capacity	Welfare slaughter methods (Vets)	Welfare slaughter methods and capacity
	Disposal methods and capacity		Disposal methods and capacity
Knowledge/Continuous Improvement	Education and Training – participants	Education and Training – participants	Education and Training – participants
	Training - Response Capability	Training - Response Capability	Training - Response Capability
	Training - Recovery Capability	Training - Recovery Capability	Training - Recovery Capability
Protocols Required	Facility containment	Facility containment	Facility containment
	Movement controls	Movement controls	Movement controls
	Welfare slaughter		
	Disposal		

Biosecurity Program Implementation Requirements - Industry

Biosecurity Plan Elements	Implementation Requirements
	Industry
Facility-Level Risk Assessment	Tool selection/development
Facility Biosecurity Strategy	Secure funding
Leadership & Information	Program information
	Disease control strategies
	C&D product sources and use
	Biosecurity and EP Coordinator
Practices and Controls Facilities Materials and Equipment Diagnostics Knowledge/Continuous Improvement	best practices/protocols
	best practices/protocols
	PPE access (via ARMMI)
	C&D products – sourcing
	C&D application equipment – sourcing
	Coordinated sampling plans
	Disease Surveillance
	Diagnostic Standards
	Practices/methods research
	Education and training
	Source material/hotline
	Feedback loops
	Biosecurity & ER coordinator
	Transaction management
Industry tools	
Protocols Required	Access/Egress
	Animal Receiving
	Animal Shipping
	C&D – Facilities
	C&D – Equipment
	Pet/Rodent/Pest/Fly Control
	Manure Management
	Deadstock Management
	Feed and Supplements
	Animal Health Care

Emergency Preparedness Program Implementation Requirements - Industry

<i>ER Plan Elements</i>	Implementation Requirements
	Industry
Information	Protocols
	Contact – outbound
	Contact - inbound
Leadership	Command Centre
	Communications
Response Capability	Materials and equipment
	Response teams
	Facility containment
	Movement controls
Recovery Capability	Welfare slaughter methods and capacity
	Disposal methods and capacity
	Cleaning and disinfection teams
	Industry Recovery Plans
Knowledge/Continuous Improvement	Education and Training – participants
	Training - Response Capability
	Training - Recovery Capability
	Disease Outbreak Simulations/Tests
Protocols Required	Notification
	Zoning
	Movement controls
	Command Centre operations
	Response teams
	Cleaning and disinfection