WASH BAY CAPACITY PROJECT

2019-2020

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Disease is one of the most significant challenges facing the Canadian swine industry. As producers continue to deal with existing health challenges, the introduction of a foreign animal disease such as African Swine Fever would be devastating. While our industry groups work with border officials and the public to keep the disease out of Canada, we must prepare for the chance that some reportable disease is found in Canada. The emphasis was on preparing for an outbreak of African Swine Fever.

Part of this preparation involves planning how trucks/trailers will be cleaned if they transport pigs within a controlled access zone. Trucks/trailers present a significant disease risk as they move between different facilities and carry different animals. Washing these vehicles and keeping them clean is essential to minimizing disease spread in both routine scenarios and emergency scenarios such as with African Swine Fever.

The Wash Bay Capacity Project was designed to help with this planning by developing a better understanding of the wash bays that are used to wash vehicles that transport pigs in Ontario. This project was carried out as a joint collaboration between the Ontario Pork Industry Council (OPIC), Swine Health Ontario (SHO), Ontario Pork (OP), the Canadian Food Inspection Agency (CFIA), and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

Scope

The scope of this project was to assess the Ontario swine industry's capacity to wash vehicles during routine and emergency scenarios. To evaluate this capacity, data was collected through voluntary surveys that were completed by wash bay owners and project team members. Throughout this report, all reference to wash bays is meant to include only wash bays that are used to wash swine transport vehicles and not all existing wash bays in the province. Capacity is evaluated in several ways, including physical infrastructure, labour availability, wash-water limitations, wastewater removal, and biosecurity level. The study also looked at the potential for changes to increase the biosecurity level at each site. Through these surveys we were able to estimate Ontario's baseline swine wash bay capacity for 2020, report on common capacity limitations in the industry, and identify opportunities for expanding this capacity.

Goals & Objectives

1. Update the 2014/2015 Wash Bay report (Ontario PEDv Transport Risk Reduction Report) wash bay listings and locations.
2. Survey current commercial and private wash bays, and their biosecurity protocols.
3. Identify private wash bays that could potentially be leveraged to wash other vehicles in a disease outbreak, or that would be used in an outbreak situation, by the owners, thus reducing the load on commercial wash bays.
4. Identify the capacity of producer owned wash bays to effectively follow biosecurity protocols in an emergency disease scenario.

Key Findings

1. Strong willingness of livestock transporters to work together to effectively wash trucks/trailers in an emergency disease scenario.
2. Potential for adding capacity through biosecurity improvements across producer and livestock transporter wash bays.
3. Significant opportunity for expanding wash bay capacity in an emergency by providing additional labour.

Remaining Challenges

1. Mobilizing sufficient wash capacity to areas affected by a foreign animal disease, such as African Swine Fever.
2. Ensuring wash bays are set up for, or could accommodate, high quality washes across the province to avoid disease spread.
3. Lack of sufficient labour capacity for increasing wash bay capacity.

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Introduction

The Wash Bay Capacity Project survey was developed using a reduced version of the 2014/2015 Ontario PEDv Transport Risk Reduction Report audit. Additional questions on traffic flow and site mapping were included. Sample surveys can be found in Appendix 1, for detailed information contact Dr. Bethany Davidson-Eng.

This project was completed to help the pig industry be better prepared for washing livestock trucks/trailers in the event of a foreign animal disease, such as African Swine Fever[1]. Transporters play a significant role in reducing disease transmission given the number of touchpoints that they have with different barns, wash bays, transport yards, and processing facilities across Canada and the United States. Given weekly production of about 125,000 Ontario market hogs, the industry requires over 580 truck/trailer loads to get these pigs to the processing plant every week. All trucks/trailers need to be carefully cleaned between loads in order to avoid spreading diseases from one location to another. While the volume of pigs that we move creates risk, there are additional precautions that need to be taken with pig movements out of province. Each week:

- 25,000 market hogs are shipped to Quebec
- 3,000 market hogs are shipped to the United States or another province
- 2,000 cull sows and boars are shipped to the United States
- 15,000 feeder pigs are shipped to the United States
- 8,000 feeder pigs are shipped to Quebec

Market hog loads to Quebec range from having 170-190 hogs during the summer to 190-210 hogs during the winter. Temperature, humidity, and hog size are main determining factors. Ambient temperature, humidity and hog size are main determining factors on load numbers. Market hog loads to the United States range from 140-170 hogs per load, which is highly dependent on the animal size requested from the processors and United States load weight regulations. Cull sow and board loads to the United States range from 100-150 pigs per load depending on size and target premiums from the buyers. Feeder pigs shipped to the United States or Quebec are typically a minimum of 20kg, which is approximately 500-600 for a typical pot belly truck load. Based on these numbers, at minimum there are 188 truck/trailer loads of pigs being moved in or out of Ontario per week, with the potential for over 235 truck/trailer loads per week. This is without accounting for intraprovincial movements of weanlings, feeder pigs, and culls.

One of the first challenges would be mobilizing sufficient wash bay capacity to areas affected by the disease. Wash bays are spread out across South Western Ontario with

[1] While African Swine Fever is pig specific, it is important to note that the information collected in this study is applicable in preparing for all foreign animal diseases, including those that impact multiple species (example Foot and Mouth Disease). However, to properly prepare for diseases that impact multiples species, it would be necessary to collect more detailed information from transporters that move different types of livestock and wash bays that wash truck/trailers that move different types of livestock.

varying degrees of capacity and biosecurity. This could make it difficult to wash trucks/trailers if affected farms are not close to any wash bays or if the wash bays are not capable of effectively washing the truck/trailer.

In the event of a foreign animal disease, CFIA would set the cleaning and disinfection protocols to be followed. This project allowed us to identify the location of wash bays in Ontario and add them to the industry's mapping program for streamlined decision-making and access to information during an emergency disease scenario.

Another challenge will be ensuring high quality washes and strong biosecurity procedures that reduce the risk of truck/trailer contamination. Eliminating the disease or limiting its impact requires reducing its spread throughout the province. Because livestock trucks/trailers move different livestock between many locations, they present a significant risk for spreading disease. Through the survey, we were able to create a site layout and traffic flow, enabling the wash bays to identify opportunities for risk mitigation and provided information that can be referenced in the future for decision making. By surveying wash bays, we are better prepared to help them improve their procedures and reduce their contamination risk both before and during an emergency disease scenario like African Swine Fever.

To date, 16 livestock transporters, 22 producers and one feed company have been surveyed about their wash bays. For wash bays owned by livestock transporters, all surveys were completed by a member of the project's team who interviewed the primary contact for the wash bay. Most of the interviews were completed in person and included a tour of the wash bay with an explanation of traffic flow for the yard and wash bay (see Appendix 2 for example wash bay layout and traffic flow). Unfortunately, due to COVID-19 a couple of companies had to be interviewed over the phone and explained their flow using Google Maps.

Due to the number of high-risk contacts that livestock transporters make, their washing and biosecurity procedures are very important to prevent disease spread in the industry. As a result, these sites were given a "biosecurity score" by the team member that toured the site. After completing the tour/survey, the team member would give the site a score from 1-10 and write down recommendations for improving the score. Provided these changes were implemented, a new "potential" score was given. These recommendations are to be used as a reference for emergency response staff so that they can see the changes that are required in order for these sites to be used in an emergency.

For producer-owned wash bays, most of the surveys were completed by the producer independently and returned to a project team member. No in-person interviews or tours were completed and there were no maps drawn of the producer's wash bay or traffic flow. Because producers primarily limit their wash bays to washing their own equipment, this additional information was determined to be beyond the scope of this project.

Livestock feed companies also present biosecurity risk for the industry as they travel to many different farms. To understand the perspective of this sector of the industry, one feed company's wash bay was toured, and a survey was completed with their primary contact. Proper biosecurity is essential for feed suppliers, but they present less of a risk than livestock carriers. As a result, a comprehensive study of feed suppliers' wash bays was beyond the scope of this project.

Results: Livestock Transporter Wash Bays

General Information

In total, 16 livestock transporter wash bays were surveyed. Eleven of them identified as being private sites (they only wash their own vehicles, trucks/trailers, or equipment) and four identified as being commercial sites (they wash vehicles, trucks/trailers, or equipment other than just their own).

When asked, 91 per cent of private wash bays said that in an emergency situation they would consider washing outside trucks/trailers. These findings indicate a willingness within the industry to work together on issues related to animal disease. Key determinants of the wash bays' willingness include ensuring livestock are kept away from the wash bays, pre-screening vehicles, trucks/trailers, or equipment before they are accepted on-site, and adding additional labour and resources.

The following sections will outline some of the key biosecurity characteristics of livestock transporter wash bays and how it relates to their washing capacity.

Biosecurity

Equipment Washed

Fifteen of the sixteen livestock transporters wash livestock trucks and trucks/trailers at their wash bay. Only one transporter had their livestock trucks/trucks/trailers washed elsewhere and used their bay to wash freight trucks and trucks/trailers, and feed trucks. However, this livestock transporter indicated that they would be willing to consider washing livestock trucks and trucks/trailers at their wash bay in an emergency and had washed livestock trucks/trailers in the past.

In addition to washing livestock trucks and trucks/trailers, two wash bays also wash freight trucks and machinery (both private), one also washes farm equipment (also private), and another also washes farm equipment and feed trucks (commercial). Washing equipment other than livestock trucks and trucks/trailers is important to note as this machinery presents an opportunity for bringing disease into the wash bay and can also bring disease away from the wash bay if proper protocols are not followed.

Assembly Barns

Multiple livestock transporters have an assembly barn on the same site as their wash bay. Assembly barns are used to temporarily hold smaller groups of pigs until enough of them are brought in for a full load to go to the processing plant (Table 1). Some assembly barns only have pigs coming in and out for 1-2 days a week while others have pigs moving through them most days of the week. Having an assembly barn on the same site as the wash bay presents a disease risk as these animals can spread disease to the clean trucks/trailers or the driver. Compared to something like cattle, there is a more significant disease risk if the assembly barns house hogs, as hogs are

carriers of diseases that can infect other hogs. Furthermore, certain types of pigs present more of a disease risk than others, especially if housed for longer than 48 hours. These characteristics factor into the wash bay's biosecurity score and must be considered if these wash bays are to be used during an emergency disease challenge. Animals other than pigs present less of a risk, because not all animals are impacted by the same diseases. However, if barns are shared between pigs and other animals, then there is a chance that these animals can become mechanical vectors and spread the disease without becoming infected themselves. This is important as trucks/trailers that transport cattle and other animals are often washed less carefully than hog trucks/trailers (cattle in particular). In Table 1, we can see that even though assembly barns are far less essential than in the past, most livestock transporters still have the facilities on their sites and make use of them on a regular basis.

Table 1: Animals Present in Livestock Transporter Assembly Barns Per Week

	Number of Wash Bays	Wash bays with Assembly Sites	Assembly Sites with Pigs	Pigs per Week	Cows per Week
Commercial	4	2	2	1,800 – 2,500	560 – 840
Private	11	5	5	4,700 – 7,500	approx. 50
Total	15	11	8	6,500 – 10,000	610 – 890
Note: One additional commercial wash bay has a barn onsite that houses horses, ducks, chickens, goats, cattle, and llamas and two private wash bays have beef barns on site that are used for their own cattle.					

Traffic Flow: Trucks

A significant component of biosecurity at a wash bay has to do with their vehicle traffic flow and separating the property into clean and dirty areas. Of the livestock transport wash bay sites surveyed, 60 per cent are separated into clean and dirty areas. Not surprisingly, commercial wash bays are more likely to have their sites separated (80 per cent of commercial vs. 55 per cent of private) as these companies depend more heavily on biosecurity for attracting business. These companies are also more likely to have a higher disease risk given that they have equipment coming from different companies and different farms. For wash bays not separated into clean and dirty areas, concerns include traffic flow, mixed clean and dirty parking, back-in wash bays, and lack of physical barriers separating flow.

Traffic Flow: Personnel

Foot traffic continues to be a biosecurity concern, regardless of if the wash bay sites have been separated into clean and dirty truck/trailer flows. While a rigorous examination of foot traffic at wash bays was beyond the scope of this project, this will be an important area for emergency responders to focus on in the event of a foreign animal disease. Truck/trailer drivers or wash bay staff must follow necessary biosecurity

protocols when crossing over between clean and dirty areas to ensure that they do not contaminate the vehicles that have just been washed or designated “clean” areas on the site.

Wash Bay Design

Another component of traffic flow is the design of the wash bay: whether it is a back-in bay or a pull-through (pictures can be found in Appendix 3). Pull-through bays are ideal as the wash bay becomes the transition from coming in on the dirty side to pulling out on the clean side. Back-in bays make complete separation of clean and dirty impossible as the clean truck/trailer must drive back through the same path that it used when backing into the wash bay when it was dirty. This creates the potential for it becoming dirty again. Unfortunately, only 44 per cent of wash bay sites had pull-through wash bays – many owners pointed to the additional laneway space and added cost of having a pull-through set up. However, when there were discussions of expansion or renovations, most owners talked about building a loop system with clean/dirty separation and pull-through wash bays. While most wash bays were side by side, another design was to have two bays in series, one in front of the other. In principle, this would be no different than two bays side by side, although a physical barrier would be needed if the first bay were to be used for washing and the second one for drying clean trucks/trailers. Some side-by-side bays share a common space; therefore, a barrier would be needed between them (such as a curtain or partition) to avoid cross contamination.

Physical Capacity

In addition to ensuring that trucks/trailers are washed well and kept clean, wash bay capacity is also measured by the number of trucks/trailers that can be washed in a day. This is limited by infrastructure specifications such as number of bays, clean water and wastewater capacity, employees, etc.

Number of Wash Bays

One third of the livestock transporters only have one bay on site that can be used for either washing or drying. The rest have at least one wash bay and additional bays for either washing or drying. Surprisingly, only 20 per cent of commercial wash bays have multiple wash bays, although 60 per cent have at least one wash bay and one drying bay. This may be because commercial wash bays have more trucks/trailers to wash and can provide steady work for washing staff. This allows them to make better use of their one wash bay compared to a company that may have fewer trucks/trailers but needs them all washed at once. However, having only one wash bay presents several challenges such as:

- Limited ability to dry trucks/trailers inside or in the winter
- Limited capacity expansion potential in an emergency scenario

- Difficult to find wash staff - harder to staff one bay running 24 hours a day than to staff two bays at 12 hours a day

Washing Water

Most wash bays owned by livestock transporters wash their trucks/trailers using well water. One private site was on town water due to their proximity to an urban center. For sites using well-water, capacity depended on the quality and capacity of the well drilled. The tradeoff between using a well compared to town water is that there is no cost to using more water from the well but oftentimes the existing well did not have the capacity for significant expansion. In cases where trucks/trailers were not being washed 24/7, this capacity could be increased by adding water storage on-site and drawing water from the well during non-washing hours. Alternatively, a new well could possibly be drilled to increase capacity. While there was unlimited capacity for town water, this additional use comes at a cost.

Wastewater

In addition to accessing water for cleaning trucks/trailers, wash bays must also have a solution for managing their wastewater. 40 per cent of all wash bays stored wastewater on site for removal later (three commercial, three private) – usually to be applied on nearby fields with either a tanker or dragline system. This storage was often in the shape of a concrete manure pit like the ones that farmers use for their livestock slurry. Capacity limitations are based on how often the wastewater can be applied to fields, which would usually be twice per year. One challenge with storing wastewater onsite is that this storage can become a reservoir for disease that could spread to truck/trailer drivers or clean trucks/trailers if not responsibly managed. Occasionally, wash bays will have their sewage system pumped and sent to municipal sewage system, adding an addition risk factor of contamination and cost.

The next most common method for managing wastewater was a septic system with a weeping bed (25 per cent, four private). The benefit to these systems is that there is not a biosecurity risk because the wastewater is not exposed, and the removal of water is a passive process that does not require any labour or money. However, because it is a passive process, these wash bays are limited by the speed that the weeping beds can process the water and their capacity is difficult to change.

Another 25 per cent of wash bays used the town sewer (three private, one commercial) for their wastewater. The town sewer is effective in controlling biosecurity risk and is a passive process that does not require any additional labour. The two remaining sites used a drainage ditch (private wash bay who rarely moved hogs so did not have a proper set up) and a constructed wetland (commercial). The constructed wetland was built by a larger transporter who invested significantly in this style of wastewater management.

Wash Bay Capacity

In the survey, wash bay owners were asked to indicate the number of hours it took them to wash trucks/trailers and how many trucks/trailers they wash per day. Given the different climates we face in Ontario, owners were also asked to provide responses for both summer and winter. Owners were also asked to answer this question as if they were only washing potbelly trucks/trailers. Although a number of different truck/trailers set ups are used for moving hogs, potbelly trucks/trailers are the most common. Furthermore, by standardizing our washing unit, we were able to compile and compare the results of different sites.

Surprisingly, wash bay owners often said it takes about the same time to wash trucks/trailers, regardless of whether it is winter or summer. In the summer, they face manure that gets baked onto the truck/trailer, while in the winter, the manure is frozen on and staff also have to wash the truck/trailer side panels. One benefit of washing in the summer is that the sun and heat do a better job of drying trucks/trailers for wash bay owners who do not have the capacity to dry trucks/trailers inside. It is important to note that quickest wash times occur in the spring and fall when biomaterial does not freeze or bake on to the truck/trailer.

On average, the number of potbelly trucks/trailers that are washed at livestock transport sites ranged from one every week to ten per day. For transporters who washed very few pig trucks/trailers, this was often because they mostly transported cattle, but some transporters were willing to transport pigs for neighbours.

Table 2: Speed and Capacity for Washing Potbelly Trucks/trailers in the Winter and Summer

	Potbelly Trucks/trailers/day in Winter	Potbelly Trucks/trailers/day in Summer	Man hours/potbelly truck/trailer in Winter	Man hours/potbelly truck/trailer in Summer
Commercial	34	33	2.5 – 6	1.5 – 6
Private	38 – 44	39 – 45	2 – 5	2 – 6
Total	72 – 78	72 – 78	2 – 6	1.5 – 6

**On average 170-220 market hogs, depending on season, pig size and truck/trailer design, can be loaded into a potbelly truck/trailer.

Livestock transporters pointed to the fact that they had different levels of washes depending on the load of pigs that they were moving. For breeding stock, there is a higher standard of washing procedures, that typically takes longer. However, when asked to standardize to market pigs, they often said that it took 3-4 hours to wash a truck/trailer, with a range of 1.5-6 hours. Given the wide range in wash times, it is worth paying attention to the outliers. Are the quickest wash bays more efficient or do they do a poorer job of washing? This is relevant when looking for wash bays to use in the event

of a foreign animal disease as wash staff may need additional training to ensure adequate washing. However, the average wash times were 3.5 hours in the winter and 3 hours in the summer for a market hog wash of a potbelly truck/trailer.

Methods for Increasing Physical Capacity

Based on the livestock transporters surveyed, the current washing capacity is between 72 and 78 potbelly trucks/trailers per day. The simplest way to increase this capacity is to add more labour to wash bays that have the infrastructure capacity to wash more trucks/trailers. Generally, these labourers would be used so that the wash bay could operate more hours per day and more days per week. By doing this, up to an additional 51 trucks/trailers can be washed per day (33 - 40 private, 11 commercial) for an increase of anywhere from a 56 percent – 71 per cent in capacity. This does not necessarily mean that livestock transporters are looking to fill this infrastructure capacity, just that output/capacity could be increased by finding more workers. Nonetheless, additional labour is one way to quickly increase most wash bays' capacity in the event of a foreign animal disease.

Outside of labour, the other areas limiting wash bay capacity were wastewater handling, number/size of wash bays, and drying bays. In an emergency scenario, wastewater handling could be addressed through tanker trucks/trailers and an offsite disposal area. For wash bays with a limited number of bays, temporary washing and drying bays could be installed to increase capacity depending on the season.

If all limiting factors were eliminated, wash bay capacity would increase in commercial wash bays from 6-10/day to 7-16/day and in private wash bays from 1/wk-12/day to 4-24/day regardless of season. In the event of a foreign animal disease, the potential capacity of individual sites is available for reference and can help emergency response workers address specific site capacity limitations for wash bays that are close to control zones. In total, if labour and infrastructure limitations were addressed, 127 – 146 potbelly trucks/trailers can we washed in the surveyed wash bays – this would approximately double the industry's current output.

Wash Bay Procedures

Scrape Out

Before hog trucks/trailers are washed, the manure and bedding are often scraped out by either the driver or the wash bay staff. This helps to save time in the wash bay by reducing the material that needs to be flushed out, in particular the bedding which is not soluble. Scrape out is an important step in the biosecurity of livestock transport sites. Ideally, wash bay staff are the ones who scrape out as this makes it easier for the driver to stay "clean" as they go from site to site. Furthermore, if scrape out can be done off site, this reduces the contaminated biomaterial at the wash bay. If on site, scrape out should be done on the dirty side of the wash bay and the pile or storage site should be far away from any clean trucks/trailers or where truck/trailer drivers need to walk.

Eighty-one per cent of transport companies have their drivers scrape out exclusively; 13 per cent have their drivers and wash bay staff share the responsibility depending on timing, and six per cent have wash bay staff scrape out trucks/trailers exclusively. Thirteen of the wash bays scrape out on site, while three scrape out off site.

It is important to note that the scrape out procedure is a high-risk activity. Attention should be paid to foot traffic after the scrape out procedure to ensure manure tracking is not occurring, either across the wash bay site or into the truck/trailer cab.

Rinse, Wash, Disinfect

Once trucks/trailers are scraped out, all wash bays use a hot water pressure washer to clean the trucks/trailers. To save time, some wash bays had a 1-2" fire hose that is used to rinse out all of the large materials from the truck/trailer before going in with the pressure washer to ensure everything is clean. Fire hoses were also used to clean out cattle trucks/trailers which do not require as detailed of wash. After washing, most wash bays use a disinfectant trucks and trucks/trailers, before bringing in the next truck/trailer to be washed. As expected, all commercial wash bays use disinfectant while a limited number of private wash bays do not. Synergize™ was the only disinfectant that wash bay owners listed for use, although quite a few could not recall the brand they were using or said that they switch brands. As a note, some wash bays disinfect the wash bay between washes. A large proportion of wash bays utilize external companies to manage their disinfectants at regular intervals, including ensuring proper chemical levels for adequate disinfection. In the event of an emergency (example African Swine Fever), these companies would need to be consulted to adjust disinfectant protocols in the wash bays.

Drying

Drying trucks/trailers reduces biosecurity risk and reduces the likelihood of pathogens that can live in water. Drying is generally requested for trucks/trailers transporting high health animals or breeding stock but would also be important in the event of a foreign animal disease. Thirty-eight per cent of wash bays have a formal indoor drying/heating procedure; fifty-six per cent have some capacity to heat/dry in either mechanic shops or additional wash bays; and one livestock transporter just lets the truck/trailer sit outside for a week between loads. Two wash bays have the capacity to do truck/trailer baking. For the most part, all transporters put the trucks/trailers outside in the summer to dry, while in the winter they try to park them inside until they are dry – especially if hauling high-health pigs or breeding stock.

Procedure Examples

Wash bay procedures vary from wash bay to wash bay. In private wash bays, examples of procedures include:

a. Driver pulls in laneway and scrapes out in the southwest corner of the yard, behind the wash bays and south of the assembly yard. They then park the dirty truck/trailer on the north end of the yard. Trucks/trailers are then picked up with a shunt truck and pulled into the wash bay from the west side. Once washed, the truck/trailer is pulled ahead to make room for the next truck/trailer in the same bay (bay is long enough to have two trucks/trailers in it). This truck/trailer then dries while the other is washed before it is pulled ahead into the east side of the yard, where it sits until it gets picked up by the next truck.
b. Driver pulls in separate laneway, scrapes out and parks truck/trailer on dirty side. Truck/trailer is pulled in with a shunt truck, washed in the wash bay and then pulled out and backed into the drying bay. Clean and dry trucks/trailers are then pulled outside and parked in a yard that is separate from the dirty side or the laneway where dirty trucks/trailers come in.
c. Trucks are scraped out off site and then pulled in laneway where they either go right into the wash bay or are parked behind it. Trucks/trucks/trailers then go into the wash bay and then are pulled into the large drying bay, usually overnight, before they are used the next day and exit the same laneway that they came in.

In commercial wash bays, examples of procedures include:

a. Trucks enter from the east and go behind the wash bay to be scraped out in the northeast corner. Trucks are parked on the north end before they are pulled into the wash bay and once washed, they are parked on the south side of the wash bay. Bedding would theoretically be stored there as well and then trucks would leave the laneway on the south end. Lunchrooms/washrooms are separated for wash staff and mechanic staff who work in the bays to the west. These bays could be used for drying in an emergency.
b. Driver parks truck/trailer on dirty side and then either drives truck/trailer through wash bay or drives other to clean side to pick up the next truck/trailer. Shunt truck picks up truck/trailer which gets washed and then either parked in the clean area or parked in the drying bay (heated, heated floor)

Site Biosecurity Rankings

After completing the tour and survey of livestock transporters' wash bays, the project team member rated sites on a scale from 1 – 10 for their biosecurity, with 10 being biosecure and 1 being not biosecure. Any site receiving a rating below a 6 was considered to not be biosecure unless modifications were made.

Table 3: Site Biosecurity

	Biosecurity Scale Range	Biosecurity Scale Average	Number of sites that are Biosecure	Number of sites that are not Biosecure
Commercial	5 – 9	7	4	1
Private	2 – 9.5	5.8	6	5

The easiest way for sites to improve their biosecurity was to adjust their traffic flow and site layout. Some examples of layout adjustments would be keeping scraped out and dirty trucks/trailers together and away from clean trucks/trailers and where bedding is stored. With these adjustments, three sites can move from scores of not biosecure to biosecure, as shown in Figure 2.

Figure 1: Wash Bay Biosecurity Scores

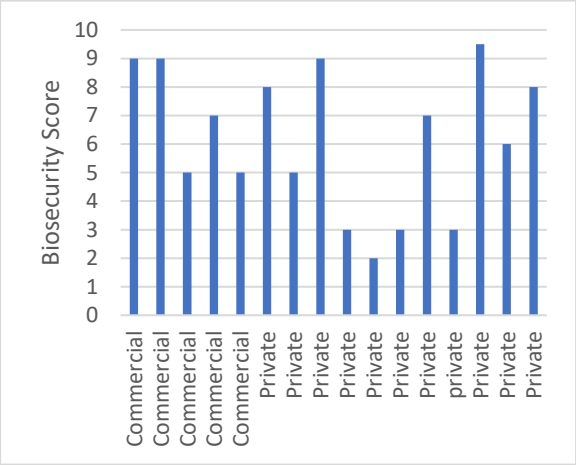
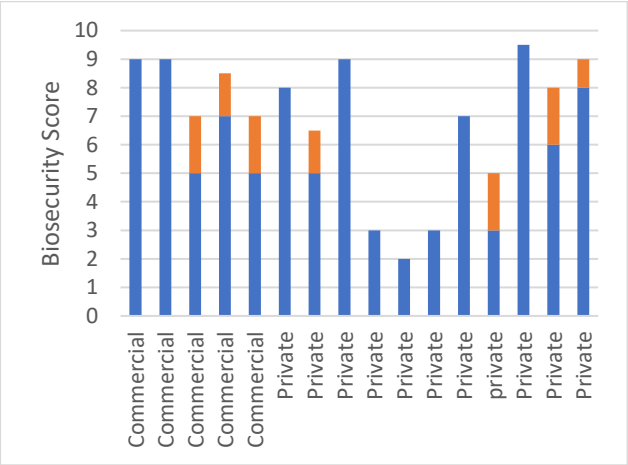


Figure 2: Potential Biosecurity Scores



Additional actions that can be taken are listed below. The number indicated beside the item are the number of times that suggestion was made. The actions include:

1. Limit foot traffic and staff between clean and dirty portions of the sites (5)
2. Pull-through wash bays are ideal for biosecurity (2)
3. Limit the number of pigs on site or within proximity to the wash bay (1)
4. Drying capacity inside (1)

Results: Producer Wash Bays

General Information

Producer owned wash bays were also surveyed as some producers have their own trucks/trucks/trailers and do not rely on livestock transporters for moving their pigs. In the event of a foreign animal disease, these pig movements will need to be accounted

for and the trucks/trailers must be monitored and properly washed. While most producers have the capacity to wash their own equipment, there are still challenges to ensuring proper washing procedures and ensuring sites are biosecure.

For this project, 23 producers completed independent surveys about the wash bays on their farm. All wash bays are used to wash livestock trucks or trucks/trailers, 17 wash farm equipment, six wash feed trucks, three wash deadstock truck/trailer and five wash other commercial trucks/machinery. Eighty-three per cent of producers surveyed have the capacity to wash their own trucks and trucks/trailers and the remaining 17 per cent are close to having the necessary capacity or only choose to move certain types of pigs themselves and then hire the rest out. This finding is important for emergency scenarios as producers with sufficient capacity may not need their trucks/trailers to be washed externally. Furthermore, with the producer's permission, these sites may also provide an opportunity for increasing the province's wash bay capacity in an emergency.

Despite this opportunity, depending on producer owned wash bays creates two challenges. The first is whether or not producers would be willing to wash external vehicles on their farm. Unlike livestock transporters, only two producers said they would even consider washing external vehicles, while the rest said no. The second is whether they would have the capacity to clean the trucks/trailers effectively as these wash bay sites were not toured or scored by a project team member.

Biosecurity

For producers washing their own vehicles or external ones, it is important to help ensure that they follow sufficient biosecurity protocols to ensure vehicles are clean. Based on responses, it appears that changes would need to be made as only 35 per cent of producers surveyed said their wash bays are separated into clean and dirty areas. These findings suggest that there is an opportunity to support producers to proactively increase the biosecurity of their wash bays.

General Capacity

Of the 23 producer wash bays surveyed, 70 per cent have one wash bay, 17 per cent had two wash bays, seven per cent had one bay that could fit two vehicles, and one producer did not report the number of wash bays they had on site. Fifteen sites have back-in wash bays, whereas seven were pull-through and one was unreported. All producers reported that their water source was a well, except for one producer which was undeclared. Sixty-one per cent of producers stored their wastewater onsite for later removal, 17 per cent utilized a septic system with a weeping bed, 13 per cent let the water run out the door, and nine per cent used constructed wetlands.

Seventeen producers reported how many vehicles they could wash per day. Capacity ranged from one potbelly truck/trailer per week to six potbelly trucks/trailers per day. Together, these 17 producers that reported can wash 35+ trucks/trailers per day. For

these producers, it takes between one and a half to eight hours to wash a truck/trailer, with an average time of three and a half hours.

Fifteen producers reported on how adding more labour could improve their capacity. With more labour, the range of individual capacity expanded by one potbelly truck/trailer per week to 12 potbelly trucks/trailers per day and the total number of vehicles that would be washed per day increased to 56+. Of the other eight producers, six producers declared that they did not know how many more they could wash per day and two said they would not be willing to wash more.

Producers were also asked what their immediate limiting factor was, other than labour. Their responses were drying time (17 per cent), heat (four per cent), space (eight per cent), biosecurity and location (12.5 per cent), and water disposal (12.5 per cent). One producer said they did not have any limiting factors and one did not declare a limiting factor. To reduce the spread of the disease and reduce pressure on livestock transporter wash bays, it may be beneficial to proactively support producers to expand their washing capacity.

Wash Bay Procedures

All producers used a pressure washer to clean the trucks/trailers, while 30 per cent also had a fire hose to speed up cleanout. The majority of producer wash bays strictly use hot water (65 per cent), while 26 per cent use cold water and 9 per cent use a mix of cold or hot water depending on the wash. 100 per cent of producers disinfected their trucks/trailers following the wash, with six producers using Synergize™, two using Prevail™, one using Virkon™ and two using Mega™.

While there were differences between winter and summer, 70 per cent of producers dried their vehicles exclusively indoors, 17 per cent did not respond, nine per cent dried indoors and outdoors and four per cent dried exclusively outside. For those who dried vehicles inside, there was usually supplemental heat or air movement to help speed up the process. Some used salamander heaters, others used fans, and some had heat in the drying bay already. The one producer who did not dry inside only used the truck/trailer once per week and decided that this waiting period was sufficient to make the truck/trailer biosecure.

Multiple similarities arose when looking at washing procedures between producers. It is typical for the truck/trailer to be scraped out, rinsed, washed, disinfected and air dried. Some examples of washing procedures include:

Producer Wash Bay Procedure Examples

a) Driver parks the truck/trailer and leaves the area. Washer fire hoses out the shavings. Truck/trailer is then soaped and pressure washed out. The truck/trailer is pulled out of the wash, floor is washed and disinfected, the truck/trailer is pulled back into the wash

to be disinfected.
b) The truck/trailer pulls into the wash bay and is scraped. The scraped material is stored in the bay storage. The truck/trailer is then blown out and washed using hot water and a pressure washer. The bay is sloped to have all the water drain to the dirty side. The exterior of the truck/trailer is then washed, and the box is rinsed and disinfected.

Conclusions

Through this survey we have accomplished surveying the majority of the swine wash bays, both private and commercial, within the industry; provided a means to geographically locate them; understand capacity and processes; and we have an assessment of their biosecurity protocols and potential for improvement. Additionally, the survey has demonstrated that:

- The trucking industry wants to be collaborative and work together to solve industry challenges (When asked, 91 per cent of private wash bays said that in an emergency situation they would consider washing outside trucks/trailers).
- Strong willingness of livestock transporters to work together to wash vehicles in an emergency disease scenario.
- Potential for biosecurity improvements across producer and livestock transporter wash bays to add additional capacity.
- Significant opportunity for expanding wash bay capacity in an emergency by providing additional labour.
- There is capacity to improve some of the wash bay sites to increase their biosecurity standards.
- It would be beneficial to establish a standard wash bay layout for new wash bays being constructed to increase biosecurity standards.

For the Ontario swine industry to manage swine health challenges the entire industry needs to be engaged and work collaboratively together.

Appendix 1 Wash Bay Survey

Person Administering the Survey: Person Taking the Survey:	Date:
Wash Bay Address:	Wash Bay PID:
Wash Bay Geolocation: Lat: Long:	Wash Bay Owner: Name Cell Number Email
Primary Contact Name Cell Number Email	
Secondary Contact Name Cell Number Email	
Alternate Contact Name Cell Number Email	
Is the site: ☐ Commercial – washes vehicles, trucks/trailers, or equipment other than their own	

☐ Private – only washes their own vehicles, trucks/trailers, or equipment

If private, would you be willing to wash other vehicles, trucks/trailers, or equipment?

☐ Yes

☐ No

☐ It Depends (explain):

This site washes:

☐ Livestock trucks or trucks/trailers

☐ Other commercial trucks/machinery

☐ Feed trucks

☐ Farm Equipment

☐ Deadstock trucks

☐ Other explain:

Is the site separated into a dirty and clean area?

☐ Yes

☐ No

Explain:

Are there animals on site?

Explain:

☐ Assembly Yard
Type of animal(s):
Number of animals:

☐ Barn
Type of animal(s):
Number of animals:

☐ Other?
Type of animal(s):
Number of animals:

On average, how many potbelly trucks/trailers do you wash per day? Winter: Summer: How many man-hours per potbelly truck/trailer? Winter: Summer:	What is the maximum number of potbelly trucks/trailers you could wash per day by adding more labour? Winter: Summer:
What is your immediate limiting factor for capacity other than labour?	If addressed, what would be your new capacity? Winter: Summer:
How many bays?	Are the bays: ☐ Pull-Through. ☐ Back-In
Describe your washing procedure (consider truck driver, washer, truck, truck/trailer): Describe the scrape out procedure (where is it, who does it)?	
What is your water source for washing?	Where does your water go? ☐ Septic with weeping bed ☐ Stored on site for removal ☐ Constructed wetland ☐ Other (Explain):

Is the wash water: ☐ Hot ☐ Cold	Do you use disinfectant: ☐ Yes (describe): ☐ No
What is the type of wash? ☐ Pressure Washer ☐ Fire Hose ☐ Other (Explain):	What is the drying procedure?
Procedure and capacity differences in winter vs. summer? • Time to wash and dry • Type of wash and dry • Scrape out • Etc.	

<u>Wash Bay Site Layout Map Considerations</u>

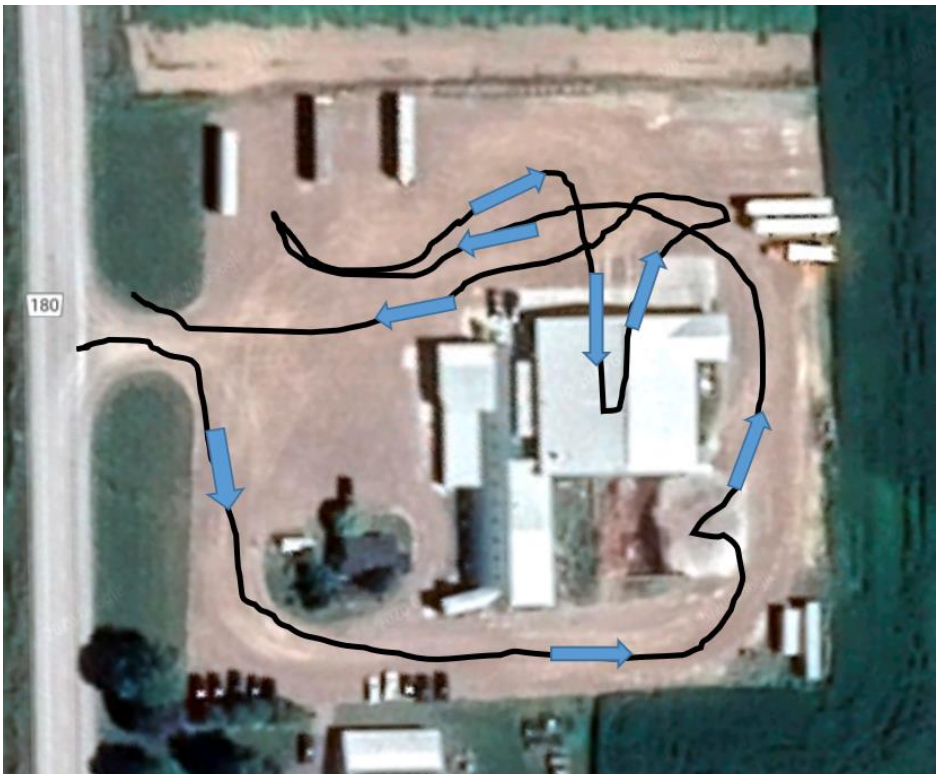
When creating the site layout map include the following items (consider winter vs. summer, think about **clean vs**. **dirty**):

1. In-bound/Out-bound traffic
    a. Identify where the trucks enter and exit (separate? visible? physical barrier?)
    b. Identify where trucks/trucks/trailers are parked (clean vs. dirty?)
    c. Identify the refueling station
    d. Identify the scrape out
    e. Identify the wash bay
    f. Identify the bedding storage
    g. Identify where the trucks leave
    h. Identify the drying area
2. Where are personal vehicles parked?
3. Are there clean and dirty areas designated?
    a. Change rooms
    b. Office
    c. Lunchroom
    d. Bathroom
    e. Etc.

Administration Summary

Is the site biosecure? Scale – (1-10) NO - ☐ With modifications (clean vs dirty, truck and person flow)	Explain:

Appendix 2 Example Wash Bay Layout and Traffic Flow



Appendix 3 Wash Bay Pictures

Back-In Wash Bay

Back-In Wash Bay with Curtain

Pull-Through Wash Bay

In


Out