



SWINE TRAILER

Design Innovations Review



ONTARIO PORK INDUSTRY COUNCIL

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What is OPIC?

OPIC is a not-for-profit organization that represents the needs and interests of all sectors involved in the pork industry. OPIC is governed by a Board of Directors who volunteer their time. Committee members are volunteers and come from all sectors of industry which gives members an opportunity to appreciate how issues affect other sectors, as well as their own. Representatives work together with the goal of building a stronger pork industry for Ontario.

OPIC Mandate

OPIC seeks out opportunities and facilitates the movement of information and the development of best practices that promote sustainability for the entire Ontario pork industry.

The key methods for achieving this mission are:

- Identifying industry needs
- Engaging industry to co-ordinate action
- Serving as a communication network for the industry
- Educating industry stakeholders



Review of Swine Trailer Innovations Design Project

Transportation of swine is part of the pork production value chain. All animals are transported at least once in their lifetime and some up to three times. In addition, there is transport of breeding stock into sow production units and culls out. Despite the important role that transportation has in the industry, the process and the people participating in it, have received relatively little attention. The livestock transportation industry in Ontario has not been widely studied. Nevertheless, it is a key component in the overall picture of livestock and especially pork, production in the province. In recent times, there has increased focus on transport biosecurity. The industry has responded to a couple of significant increased disease risks. There are proposed regulatory changes designed to address animal welfare that will require industry adaptation.

The purpose of this project is to gain a broader understanding of the swine transportation industry. Specifically, we wanted to understand what the swine transport industry does, what their challenges are and what can be done to assist this part of the pork production chain. In addition, there is a desire to develop a positive working relationship between various parts of the transportation sector and the broader pork production industry in Ontario. The report is intended to be a reference for those requiring insight into the industry as well as for those in the pork industry requiring references on equipment.

The challenges facing the livestock transport industry are multiple and include:

- Driver and owner demographics: The aging of the people in the industry will create new challenges very soon.
- Biosecurity: The challenge is how to deliver on customers' biosecurity expectations in a cost effective manner.
- Animal welfare: the public has increasing expectations on animal welfare, and the industry is prepared to work on this but we do not have good objective measurements of welfare. In its most extreme form, animal activists challenge transporters on a daily basis.
- Regulatory changes: In response to public pressure, regulatory bodies are working to change the framework within which the industry operates. The industry is prepared to respond but there are issues on defining what is needed.
- The Canadian pork production industry is export dependent and needs every effort and innovation to improve product quality and keep exports present and growing. This will require adaptations from transport.

Industry prioritized and driven scientific research is required to develop improvements in:

- How to evaluate animal welfare in transport.
- Improvements in the efficiency of biosecurity programs for trailers.
- Trailer design focusing on:
 - Worker (driver and washer) welfare and efficiency.
 - Reducing animal stress /improving welfare
 - Increasing the number of animals per load (spread drivers and equipment over more pigs)
 - Managing trailer weight (to control fuel costs and greenhouse gas emissions)

OPIC sees the opportunities for moving forward in swine transportation and working more closely with academic researchers on industry issues and challenges ... our industry needs the perspective of those working in livestock transport industry every day. Transportation concerns will be on-going and in order for our industry to be successful, transportation processed equipment will continue to evolve over time.

Straight Trailer



Specs

Axles:	2
Number of Decks:	2
Floor ft ² (approx):	830
Empty Weight (approx):	6,803kg (15,000lbs)
Loading Method to Decks:	Ramp
Floor Design:	Stationary
Pig Type:	Weanlings, feeder pigs, market hogs, sows
Other:	Sheep, goats, small cattle
Options:	Winter Closure Kit - Panels Air Lift Ramp (lift when loaded) Electric Lift Ramp (lift when loaded) 1/2 or 3/4 dog house
Advantages:	Simple to use Washes easier but person has to crouch
Considerations:	Limited to animal size and load capacity



North American - Hydraulic Trailer



Specs

Axles:	3 or 4
Number of Decks:	2 or 3
Floor ft2 (approx):	3 floor, 4 axle - 1106
Empty Weight (approx):	3 deck, 4 axle - 14 515kg (32000lbs)
Loading Method to Decks:	Flat
Floor Design:	Hydraulic Lift
Pig Type:	2 deck- Weanlings, feeder pigs, market hogs, sows 3 deck- Weanlings, feeder pigs, market hogs
Other:	2 deck- Sheep, Goats 3 deck- Sheep, Goats
Options:	Winter Closure Kit - Panels Drinking System Misting System Smaller Punch Side Openings
Advantages:	Humane handling features Floors move to wash(Ergonomics)
Considerations:	Moving pieces to wash, heavy Empty weight heavier



Pot Belly Trailer



Specs

Axles:	2 or 3
Number of Decks:	2 or 3 or 4
Floor ft ² (approx):	3 deck, 3 axle - 1020
Empty Weight (approx):	3 deck, 3 axle - 7 711kg(17 000lba)
Loading Method to Decks:	Ramp
Floor Design:	Stationary. Middle Deck- planks or air lift
Pig Type:	2 or 3 deck Weanlings, feeder pigs, market hogs, sows, 4 deck Weanlings, feeder pigs
Other:	2 deck Sheep, goats, small & large cattle 3 or 4 deck Sheep, goats, small cattle
Option:	Winter Closure Kit - Panels 1/2, 3/4 or 7/8 dog house Multiple configurations
Advantages:	Economical way to transport pigs All sizes of animals
Considerations:	Limited ft ³ on some floors Deck planks to handle when washing Biosecurity of unloading out the belly



Cable/Conversion Trailer



Specs

Axles: 3

Number of Decks: 2

Floor ft² (approx): 803

Empty Weight (approx): 2 deck, 3 axle - 9 525kg (21 000lbs)

Loading Method to Decks: Ramp

Floor Design: Manual Lift Floor

Pig Type: Market hogs, sows

Other: Sheep, Goats, small & large cattle. Freight goods

Option: Winter Closure Kit - Panels
3/4 dog house

Advantages: Versatile for dry goods or animals



Non North American Trailer



Specs

Axles:	3 or 4	
Number of Decks:	2 or 3 or 3+4 or 4+5	
Floor ft ² (approx):	3 floor, 4 axle - 1 161	
Empty Weight (approx):	3 floor, 4 axle - 14800kg (32630lbs)	
Loading Method to Decks:	Flat	
Floor Design:	Hydraulic Lift	
Pig Type:	Depending on # of decks- weanlings, feeder pigs, market hogs, sows	
Other:	Depending on # of decks- ducks, sheep, goats, small & large cattle	
Option:	Winter Closure Kit - Slides	Battery Back Up System
	Misting System	Lifting Roof For Ventilation
	Pig Drinkers	Hand Held Remote
	Cattle Bowls	Power Ventilation
Features:	Humane features are stand alone (without a tractor)	
Advantages:	Humane handling features	All sizes of animals
	Floors move to wash (Ergonomics)	
Considerations:	Moving pieces to wash, empty weight heavier	



Hybrid Pot Belly Trailer



Specs

Axles: 3

Number of Decks: 3

Floor ft² (approx): 3 floor, 3 axle - 1013

Empty Weight (approx): 3 floor, 3 axle - 12 068kg (26605lbs)

Loading Method to Decks: Ramps (under 20 degrees)

Floor Design: Air Lift (move when empty)

Pig Type: Weanlings, feeder pigs, market hogs, sows

Other: Sheep, Goats, small & large cattle

Option:	Winter Closure Kit - Panels	Battery Back Up System
	Misting System	Air Lift Ramp (lift when loaded)
	Pig Drinker	Self Sustained Trailer
	Fans	

Features: More ft³ per animal as deck heights are equal on each level
Humane features are stand alone (without a tractor)

Advantages: Humane handling features
Floors move to wash(Ergonomics)
All sizes of animals

Considerations:



Tail Lift Trailer



Specs

Axles: 4

Number of Decks: 2 or 3 or 4

Floor ft² (approx): 3 floor, 4 axle - 1292

Empty Weight (approx): 3 floor, 4 axle - 13 400kg (29 542lbs)

Loading Method to Decks: Ramp, Tail Lift

Floor Design: Stationary - Fold Up Centre

Pig Type: Weanlings, feeder pigs, market hogs, sows

Other: Sheep, goats, small cattle

Option:	Winter Closure Kit - Slides	Pig Drinkers
	Fans	Hand Held Remote
	Misting System	Self Sustained Trailer

Features: *Adjustable tail lift used as a ramp or lift with option loading from the ground
*Floors fold into place & roof hatch opens so driver & washer does not have to crouch

Advantages: Humane handling features, power ventilation

Considerations: Exposure to weather on tail ramp
Empty Weight Heavier



Swine Trailer Purchase Guide

Check List: Items to consider when purchasing “NEW” swine trailer

- Length of trailer (*Build to own specification up to 53”*)
- Multiple axle configuration
- Number of decks (*Maximum number of decks available is 5 decks*)
- Tires (Different sizes available- standard or low profile), duals or super-singles
- Rims- (steel or aluminum)
- Suspension- (Air ride or spring)
- Brakes (*disc or drum*)
- Kingpin (*steel vs aluminum*)
- Type of roof (*aluminum vs fibreglass*)
- Lights- (standard or LED)
- Flooring- (what percentage of tread is left for used)
- Dog house layout
- Winter kit - (yes or no)
- Deck planks- (yes or no)
- On board water, fans, misters
- No open tubes or bars within trailer to collect containments
- Rear side access door for driver
- Pig Flow (*early weans, weaners, market hogs, culled sows or breeding stock*)

Questions to consider:

- Pig Flow – (number of pigs per load)
- Wash bay availability

Additional thoughts/considerations for used trailer Identify top issues on used trailer would be

- tires – (condition/size)
- rims – (steel, aluminum, condition)
- king pin condition (steel vs aluminium)
- Pig Flow (*early weans, weaners, market hogs, culled sows or breeding stock*)

