LIVE HOG TRANSPORT VEHICLE
WASH/DISINFECT/DRY PROTOCOLS

March 2011

1. Cleaning
2. Prewash
3. Detergent
4. Rinse
5. Disinfect
6. Dry
7. Cab

This project was funded by the Quebec Hog Industry Biosecurity and Health and Safety Stabilization Program, an initiative of the Canadian Swine Health Board, made possible by Agriculture and Agri-Food Canada. www.swinehealth.ca
### TABLE OF CONTENTS

Objective ........................................................................................................... 3  
Preparation ....................................................................................................... 4  
Equipment ......................................................................................................... 5  
**Step 1 - Cleaning** ......................................................................................... 6  
  Remove as much debris as possible ......................................................... 6  
  Vehicle exterior ......................................................................................... 6  
  Procedure .................................................................................................. 7-8  
**Step 2 - Prewash** ....................................................................................... 9  
**Step 3 - Wash: detergent** .......................................................................... 10  
  Remove incrusted dirt .............................................................................. 10  
  Why use detergent? .................................................................................. 10  
  Which detergent is best? ......................................................................... 11  
  What is biofilm? ....................................................................................... 11  
**Step 4 - Wash: rinse** ................................................................................ 12  
  Rinse off all dirt and detergent .............................................................. 12  
**Step 5 - Disinfect**  
  Why use disinfectant? ............................................................................... 13  
  Which disinfectant is best? ..................................................................... 13  
**Step 6 - Dry** .............................................................................................. 15  
  Why dry? ................................................................................................. 15  
  Best methods .......................................................................................... 15  
**Step 7 - Cab** .............................................................................................. 16  
  Quality control .......................................................................................... 17  
  Avoid reconnecting disinfected vehicles ............................................... 17  
  Wash/disinfect/dry cycle frequency ....................................................... 18  
Resources ....................................................................................................... 19
OBJECTIVE
Avoid spreading diseases

Contaminated transport vehicles can quickly spread costly diseases.

Using these wash/disinfect/dry protocols will keep Canadian pig farms healthy and improve the profitability of pork producers and transporters.

Success
• Complete all steps in order
• Clean in corners
• Clean thoroughly
Check water quality

- **Drinking water must** contain no chemical or biological contaminants.
- **Hard water** can reduce the effectiveness of soap and disinfectant. Check manufacturers’ recommendations for more information.

Test once a year for deep wells.
Test four times a year for surface wells.

Each employee is trained on:

- The issues and importance of washing, disinfection and drying
- Safety
- Equipment and product use
Eye protection: at all times!
Waterproof clothing
Slip-resistant boots
Helmet
Ear protection
Waterproof gloves

The following is essential safety equipment
**Vehicle exterior**

Remove accumulated dirt and snow (wheels, mud flaps, chassis).

**Vehicle interior**

Scrape off **as much bedding as possible** with a shovel, a rake or a brush.

- Begin on the highest level.
- This cleaning step should be carried out in a different location from where vehicles are washed and disinfected.
- Dirty bedding must be stored far from clean vehicles and from farm animals.

**Rinse, soap and disinfect** all cleaning instruments prior to replacing them in a vehicle, whether clean or dirty.
**Procedure**

- Remove all objects from the vehicle (clothing, boots, crates, tools), and wash, disinfect and dry them prior to replacing them in the clean vehicle.

- Remove winter panels and removable floor panels to better wash, disinfect and dry the trailer’s hard-to-reach places.

**Always apply products or rinse in this order:**
(details on reverse)
Apply products or rinse in this order:

1 **Vehicle exterior**
   Top to bottom, front to back. **Don’t forget:**
   - Storage areas.
   - Tools must be cleaned separately.

2 **Trailer interior**
   From top to bottom (ceiling, wall, floors) and from front to back.
   
   ➔ Removable floors: Begin with upper levels, and raise one at a time, completing cleaning on the lowest level.  

   **Don’t forget:**
   Corners, behind roll-up doors, back of door surfaces.

3 Inside to outside of loading docks.

4 Winter panels and removable floor panels (planks) removed from the trailer.

Complete this step for every part of the vehicle before moving on to the next.
PREWASH
Rinse plentifully to remove as much visible debris as possible

Use a high volume of **water**. Network pressure. Cold or lukewarm water.

Especially in summer, wet the inside of vehicle between cleaning and prewashing.

In winter, ensure vehicle is deiced before prewashing.

**IMPORTANT NOTE FOR SUBSEQUENT STEPS (3 AND 5)**

**To apply** detergent and disinfectant:

- Use a foam gun.
- Regularly check the injectors’ calibration to ensure good product distribution.
  - Improved efficiency.
  - Easier product application.
  - Saves product.

Foam gun
**Why use detergent?**

Also called *degreaser* or *soap*.

Better at fighting dirt, which protects bacteria and hinders disinfectant power.

**Which detergent is best?**

- Neutral or alkaline (fights grease more effectively).
- Non-corrosive.
- Compatible with the selected disinfectant.

→ Apply detergent on every surface.
→ Use correct concentration of detergent.
→ Apply for the recommended contact period (minimum 10 min.).

Read product label or check with manufacturer before using the product.

- Gun water temperature:
  
  **Lukewarm**: 30 – 40 °C, max. 55 °C.
- Low or medium pressure.

---

Do not allow foam to dry.
Thoroughly brush contaminated areas and corners.

Why brush?
- Effectively removes dirt.
- Prevents biofilm.

What is biofilm?
Biofilm is an aggregate of microorganisms, protecting them against disinfectant.
Biofilm stains vehicles and accelerates corrosion.
- Removal of these mineral deposits requires a dangerous acid treatment.
Rinse off all contaminated material and detergent.

**Caution**: Do not splash contaminated material onto previously rinsed areas or other vehicles.

High pressure.
Cold or lukewarm.

- Let the vehicle drain before disinfecting.
- Avoid water accumulation.

**PRIOR TO MOVING ON TO THE NEXT STEP**

Visual inspection with flashlight:
- **No visible contaminated material.**
- If still contaminated, rewash.
- No accumulated water.
Why use disinfectant?

Disinfectant destroys bacteria that are invisible to the eye and that remain on surfaces even after a thorough wash.

Which disinfectant is best?

- Efficient against a wide range of microbes (bacteria, viruses, fungi).
- Compatible with the selected detergent.
- Non-corrosive.
- As little harm as possible to:
  - humans,
  - animals,
  - the environment.

CAUTION!

Disinfectants can be highly toxic. Read the label and respect safety instructions before use.
Use the correct concentration of disinfectant.

Comply with required contact period (minimum 10 min.).

Read the product label or check with the manufacturer.

20 °C
Low or medium pressure.
The efficiency of disinfectants is guaranteed at 20 °C and with the recommended contact period.

Do not touch disinfected areas:

- With boots.
- With hoses.

Winter
Do not allow disinfectant to freeze because its effectiveness is reduced. Vehicles must remain indoors for the duration of the contact period.

Some disinfectants require rinsing.
**Why dry?**

**Humidity encourages bacterial survival and multiplication.** Drying is key to eliminate viruses, including Porcine *Reproductive and Respiratory Syndrome Virus* (PRRSV).

- **Dry completely** and as **quickly** as possible.
- **Dry all removed parts before reinstalling.**

**Best methods**

**Dripping**  
(grade)

**Active drying**  
Ventilation + heat  
(32 °C or more to eliminate several viruses)

- Sunlight helps destroy bacteria.
- In winter, dry indoors to avoid freezing.
CAB
Wash, disinfect and dry the cab interior

1. Remove all objects and vacuum.

2. Remove mats. Soap, brush, disinfect and dry all removable objects, mats and floors.

A household disinfectant may be used.

3. Wash, disinfect and dry any surface or object the driver has touched or handled.
QUALITY CONTROL
Ensure quality and thorough work

- Visual inspection following each wash, disinfection and drying.
- Microbiological control twice per year.
- For more information, consult the wash/disinfect/dry live-hog transport quality-control guide.

Avoid recontaminating disinfected vehicles.

Clean vehicles:
- Must not use the same route as soiled vehicles.
- Must be parked far from soiled vehicles.
- Must remain inaccessible to animals.

Caution! Wind can spread bacteria!
WASH/DISINFECT/DRY CYCLE FREQUENCY

**Ideal**: After unloading.

**Required**: At the end of each day.

Consider the sanitation status of the loading and unloading sites. Monitor movements, organize your route, etc.

Transport animals beginning at the top of the production chain.

<table>
<thead>
<tr>
<th>Type of transport</th>
<th>Frequency of the wash/disinfect/dry cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piglets</td>
<td>At the end of the day</td>
</tr>
<tr>
<td>Breeding animals</td>
<td>After each trip</td>
</tr>
<tr>
<td>Commercial hogs</td>
<td>• End of the day</td>
</tr>
<tr>
<td></td>
<td>• After visiting a salmonella-contaminated site</td>
</tr>
<tr>
<td></td>
<td>• Prior to transporting animals destined for a farm</td>
</tr>
</tbody>
</table>

Clean vehicle between each trip.
Use clean bedding for each trip.

The frequency of the wash/disinfect/dry cycle may be modified following veterinarian recommendations.
RESOURCES

Fédération des producteurs de porcs du Québec

Fédération des producteurs de porcs du Québec
Guide de conception et d’aménagement de station de lavage de camions de transport de porcs vivants (2011)

American Association of Swine Veterinarians
PRRSV Biosecurity Manual

Center for Food Security and Public Health
Disinfection 101 (2005)

Canadian Swine Health Board
National Swine Farm-Level Biosecurity Standard (2011)
www.swinehealth.ca

French Pork and Pig Institute
www.itp.asso.fr