



EQSP Depopulation Projects and Tools

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Centre des Congrès de Québec
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Presentation Outline

- **Depopulation strategy**
- **Equipment description**
- **Challenges and issues**



Depopulation Strategy

Choice of depopulation site



On-site depopulation

- Movement restriction required by CFIA
- Infected or healthy pigs

Depopulation on-site, at slaughterhouse or central site

- No movement restrictions
- Healthy pig surplus to market requirements



Depopulation Strategy

Preferred locations and methods according to stage of production

	Methods	Suckling piglets	Weaned piglets	Grow-finishing pigs	Gilts and sows	Sows and boars
<u>On-site depopulation</u> <u>Infected or healthy pigs under movement restriction</u>	Primary	Gassing CO ₂ or N ₂	Gassing CO ₂ or N ₂	Electrocution Mobile unit	Electrocution Mobile unit	Electrocution Mobile unit
	Secondary	Captive bolt pistol Electrocution	Captive bolt pistol Electrocution	Captive bolt pistol	Captive bolt pistol	Captive bolt pistol
<u>Depopulation on-site, at slaughterhouse or central site</u> <u>Healthy surplus pigs</u>	Primary	On-site Gassing CO ₂ or N ₂	On-site Gassing CO ₂ or N ₂	Slaughterhouse Gassing by CO ₂	Slaughterhouse Gassing by CO ₂	Slaughterhouse Electrocution and bleeding
	Secondary	Induction of abortions Captive bolt pistol Electrocution	Induction of abortions Captive bolt pistol Electrocution	Central site Electrocution Mobile unit	Central site Electrocution Mobile unit	Central site Electrocution Mobile unit



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Captive Bolt Pistols and Electrocution Wires

Blunt force trauma and electrocution

19 Cash Dispatch kit
All types of pigs



16 Cash Special XL
Grow-finishing to adult pigs



1 Magnum
Grow-finishing to adult pigs
10 Magnum XL
Adult pigs



6 Blitz-Kerner
Weaned piglets to adult pigs



27 Zephyr EXL and plastic restraint boards
Suckling to weaned piglets



50 Kits of electrical wires
Suckling piglets to market pigs





Captive Bolt Pistols and Electrocution Wires

Services offered

- **Equipment lending**
 - Over 80,000 cartridges of various strengths
 - Spare parts
- **Maintenance**
 - Periodic
 - Velocity tester



Captive Bolt Pistols and Electrocution Wires

Services offered

- Technical documents
- Captive bolt pistol training
 - 22 training courses since 2016
 - 333 participants
 - Material in English, French and Spanish

Euthanasia of pigs weighing 9 to 135 kg with a penetrating captive bolt pistol

1 Position the pig in an appropriate space
Examples of suitable environments
Euthanasia must be performed in a clean, well-lit space with adequate ventilation and temperature control.

2 Choice of captive bolt pistol

3 Selection of cartridges
Cartridge selection must be based on the pig's weight and the type of captive bolt pistol used.

4 Verify the point of contact
Make sure the captive bolt pistol is correctly positioned on the pig's forehead, between the eyes and above the snout.

5 Load, cock, pull/see and fire
Do a quick but careful check:
Manual: A. Load the captive bolt pistol. B. Cock the captive bolt pistol. C. Pull the handle to fire the pistol. D. Observe the animal's reaction.
Auto: A. Make sure the captive bolt pistol is correctly positioned on the pig's forehead. B. Push the button to fire the pistol.

6 Observe the animal after the shot
Watch the animal's reaction. The animal should collapse immediately and lose consciousness. Do not touch the animal until it is dead.

7 Confirm animal insensibility and death
Insensibility is confirmed if the animal does not react to the following stimuli:
• Squeal
• Painful stimuli (e.g., pinching the ear)
• Bright light
• Loud sounds
• Strong odors
• Heat stimuli

8 Confirm animal death
Death is confirmed if the animal shows the following signs:
• Flaccid
• No reflexes
• No response to stimuli
• No breathing
• No heartbeat
• No pupil reaction
• No eye reaction
• No response to stimuli
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9 Confirm animal death
Death is confirmed if the animal shows the following signs:
• Flaccid
• No reflexes
• No response to stimuli
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ELECTRICAL EUTHANASIA FOR PIGS UP TO MARKET WEIGHT (110 V)

PREPARATION

Gather the equipment - photo 1 (to be validated by your electrician)

1. An extension cord of approximately 14 to 20 feet (4.3 to 6 m)
 - Where the wire can be separated into two strands
 - A two-pronged male plug (avoid the three-pronged ones)
2. Black electrical tape
3. Clean electrical clips in good working order (to replace the female plug)
 - **For piglets:**
 - Small clip: a universal clip, like the ones used to charge a battery - 50A (see photo 2)
 - **For finishers:**
 - Use a 3-spiral type [IK1] clip
 - Available at Batterie expert 8020581025 (photo 3)
 - Do not use booster cable clips as they are very aggressive
 - 4. Clean adaptor plug (4)
 - The clean plug (photo 4) is used as an adaptor between the male plug and the wall socket. It shows if there is electricity in the wall socket.



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Gassing Devices and Boxes Piglet gassing

26 gassing devices + 52 containment boxes

- Tried-and-true method with CO₂ or N₂

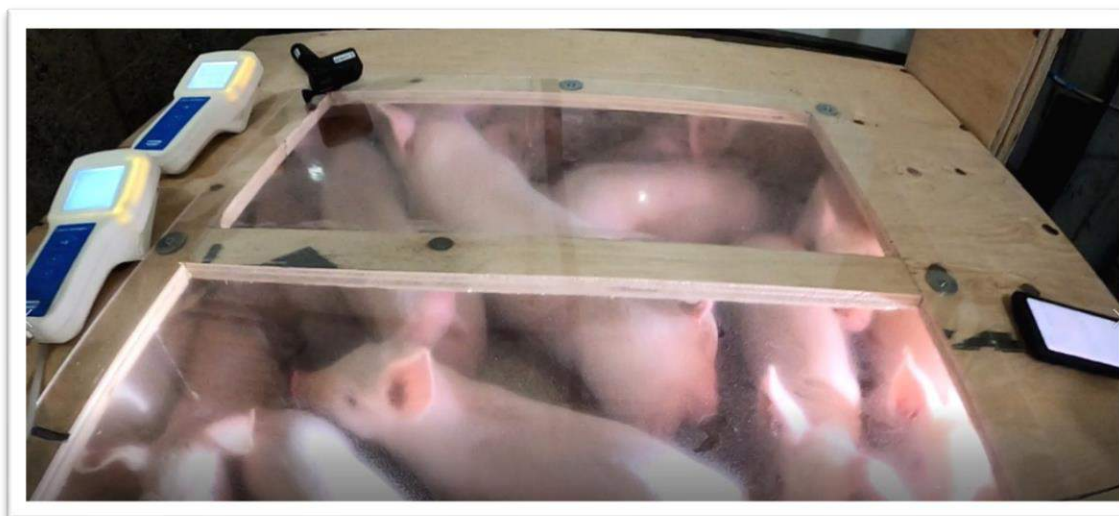




Gassing Devices and Boxes

Services offered

- **Up-to-date protocol**
 - Complete box construction
- **Tutorial videos**
 - English, French, Spanish
- **Equipment rental**





EQSP

Gassing Devices and Boxes

Services offered

• **8 trainings in 2022, 2023 and 2024**

- 130 participants
- Professionals and employees of production networks, veterinarians, consultants, pig producers and professionals from EPQ, CFIA, MAPAQ
- Ste-Cécile-de-Milton, Frampton, Bécancour, Lévis, Drummondville





Closed Dump Trailers and Gas Vaporizer Piglet gassing

2 closed dump trailers and 1 trailer-mounted ambient gas vaporizer

- Test-proven method with CO₂ or N₂





Commercial Dump Trailers and Gas Vaporizer

Piglet gassing

Gassing tests on commercial canvas dump trailers

CO ₂ gassing	Canvas trailer	Closed trailer
Objective	> 80% after 5 minutes	
Filling 5 minutes	85% CO ₂	85% CO ₂
Hold 10 minutes	40% CO ₂	92% CO ₂





Closed Dump Trailer and Gas Vaporizer Services offered

- Up-to-date protocol
- Service provider Agro Extermination





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Induced Abortions

Planning in times of crisis

- **Intended use in times of crisis**
 - Only surplus healthy pigs
 - Targeted abortions as a last resort
 - Therapeutic planning and follow-up by a veterinarian
- **Effective depopulation and disposal planning**
 - Prevent the birth of piglets from sows 12 to 90 days pregnant
 - Reduce the number of euthanized piglets and growing pigs
 - Reduce the volume of pig carcasses to be disposed of



Induced Abortions

Services offered

Up-to-date protocol

1. A reminder of the use of prostaglandins to induce parturition at term
2. Use of prostaglandins to induce abortion
3. Summary of studies
4. Commercial products available for induced abortion
5. Important considerations before taking action





Depopulation Strategy

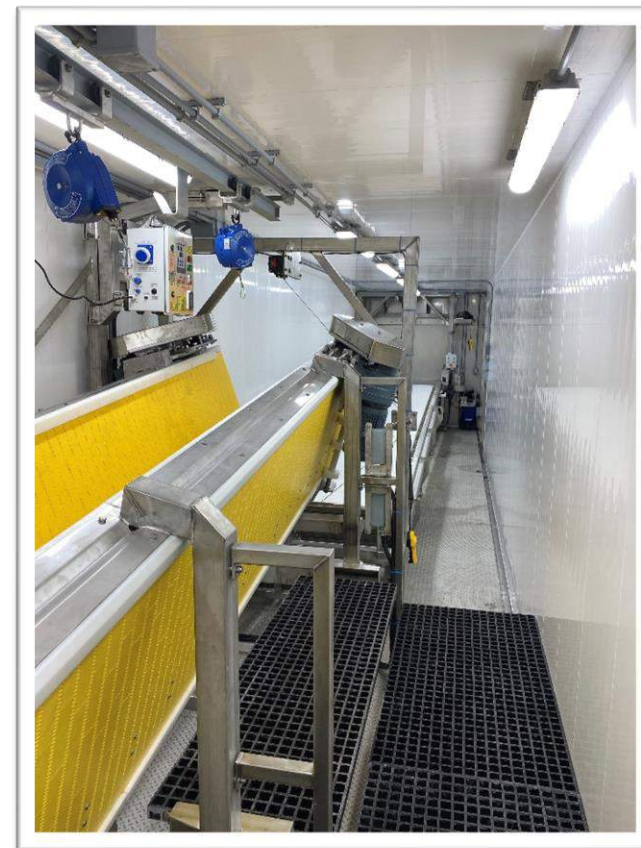
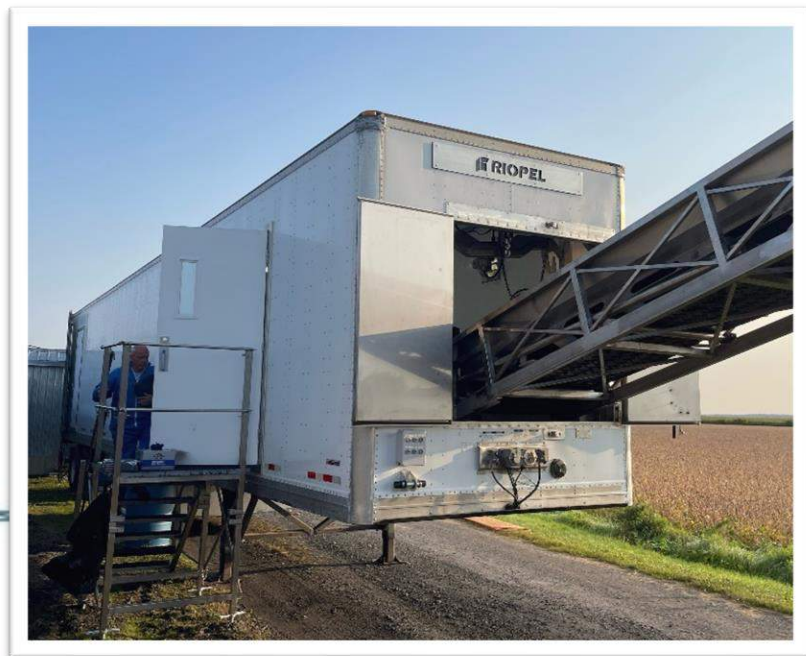
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Mobile Euthanasia Unit Electrocution

- **Designed by Les Entreprises Riopel inc.**
 - 53-foot enclosed trailer
 - Integrated transport equipment
 - Insulated, heated and air-conditioned
 - 3 VBE-6 electrocution units
 - Replacement equipment





Mobile Euthanasia Unit

Electrocution parameters

- **Objectives**

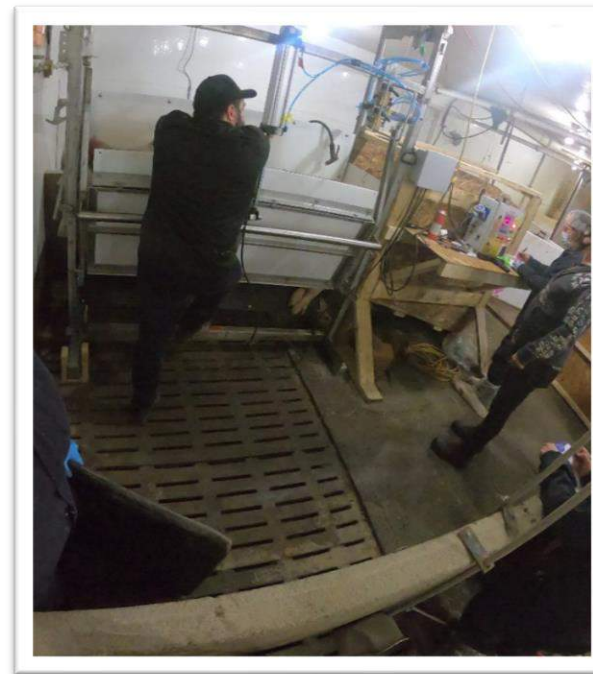
- Humane, fast and efficient death
- No bleeding
- Easy confirmation of death
- Staff safety
- Efficient, safe device and service available

- **1st validation - December 2020**

- Testing of selected electrocution device
- Determination of electrocution parameters

- **2nd validation - October 2022**

- Optimization of electrocution parameters
- Reduce conveying time
- Optimize MEU efficiency output





Mobile Euthanasia Unit Validations

- **1st validation - August 2023**

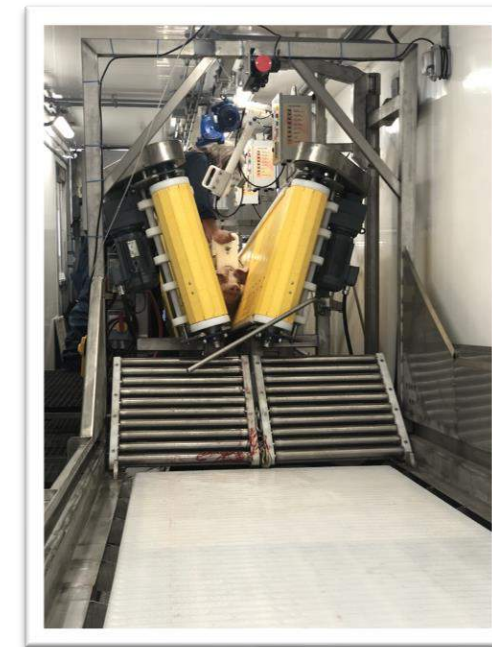
- 3 people
- 3 pigs of different stages
- Loading from floor to dock

- **2nd validation - September 2023**

- 22 people
- 81 pigs of 3 stages
- Loading dock of a barn

- **3rd validation - February 2024**

- 10 people
- 32 pigs of 3 stages
- Trailer loading
- Side unloading



Mobile Euthanasia Unit Validations

- 4th validation - October 2024
 - Nearly 100 people over 2 days
 - 304 pigs of 3 stages
 - Loading at trailer and barn dock
 - In-line and side-unloading disposal
 - Training on veterinary sampling
 - Biocontainment and disposal exercises





Mobile Euthanasia Unit

Services offered

- **Service provider**
 - Les Entreprises Riopel inc.
 - Annual equipment maintenance
 - Interventions on-site
- **Transportation contract**
 - Transport Lavoie
 - Trailer maintenance and annual inspection





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Slaughterhouses CO₂ Gassing or Electrocution and Bleeding Modification of slaughter lines

Euthanasia, hanging and loading for disposal

- **Pigs weighing 20 kg or more** (Test and evaluation carried out with EQSP)
 - Olymel Ange-Gardien
 - Olymel Yamachiche
- **Pigs weighing 70 kg or more**
 - ASTA
- **Project underway** (AAC – ASFIPP* financial assistance obtained)
 - CBCo
 - L.G. Hébert



* Agriculture and Agri-Food Canada - African Swine Fever Industry Preparedness Program



Issues and Challenges

- **Equipment for efficient depopulation on-site or at central site**
 - **New MEU improvement project**
 - Automation of electrocution
 - Redesign exit conveyor chute
 - Develop cleaning and disinfection protocol
 - Issue of wastewater management on a centralized site
 - **Future nitrogen foam trailer project**
 - **Stay tuned...**



QUESTIONS!

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