



EQSP

Depopulation and Disposal Exercise on Three Farms

Dr Ghislain Hebert, DMV, IPSAV

Ms. Leila Aguilera, Collaborator

Centre des Congrès de Québec

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Presentation outline

- **Objective**
- **Description of three farms**
 - **The site**
 - **The hypothesis**
 - **The depopulation**
 - **The disposal**
- **Costs**
- **Findings**



Objective

- **Validate the preparedness of the EQSP's emergency response plan** for an intervention to depopulate pigs and dispose of their carcasses at three sites theoretically infected with ASF in Quebec:
 - **using EQSP equipment** to depopulate pigs and dispose of pig carcasses;
 - according to the **methods recommended by the CFIA and the regulations of Quebec's Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP).**



Exercise

- A **theoretical simulation** was carried out on **three large** farrowing, nursery and grow-finishing **farms** that would be **infected with the ASF virus**.
- A complete and detailed **depopulation plan** for each site was developed, including:
 - Euthanasia and disposal methods
 - Equipment and material required
 - Human resources needed
 - An estimate of the required duration for each of these stages.
- An **economic estimate** of all costs and expenses accompanies the determination of the technical and logistical aspects of the three sites.



Exercise

The exercise was carried out by **EQSP staff**, who were joined by members and collaborators of the **depopulation and disposal teams** from the **Emergency Measures Plan**, and the **owners of the farms**

Ferme Douporc

Ms. Andréanne Wolfe

Groupe Robitaille

Mr. Luc Robitaille

Porcs Marineau

Ms. Aude Boissonneault

Mr. David Boissonneault

Les Éleveurs de porcs du Québec

Mr. Yves Garceau

Veterinary practitioners

Dr Martine Denicourt

Dr Manon St-Hilaire

Agri-Marché

Ms. Mélanie Fortier

Olymel

Mr. Simon Caron

Sanimax

Mr. Marc Hamelin

Mr. Djillali Kashi

Mr. Yanick Larose

Canadian Food Inspection Agency - CFIA

Ms. Sophie Benoit

Ms. Karine Bourassa

Mr. François Carré-Leclerc

Dr Maude Charron-Langlois

Mr. André Coderre

Mr. Éric Letendre

Équipe québécoise de santé porcine - EQSP

Ms. Leila Aguilera

Dr Ghislain Hébert

Mr. Martin Pelletier

Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec - MAPAQ

Ms. Rachel Chiasson

Ms. Marilène Halin

Dr Chantal Proulx

Dr Hugo Tremblay

Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs - MELCCFP

Ms. Marie-Pier Beaumont

Mr. Pierre-Paul Dion



Farrowing – The hypothesis

- **Site infected by ASF in April 2024**
 - **30% non-ambulatory pigs**

Animals	Average live weight	Inventory	Ambulatory	Non-ambulatory
Sows	250 kg	1,713	1,456	257
Gilts	160 kg	190	162	28
Boars	275 kg	3	2	1
3-day-old piglets	2 kg	1,715	1,715	0*
19-day-old piglets	6 kg	1,488	1,339	149
Total	471,800 kg	5,109	4,674	435

*2-kg piglets moved manually into containment boxes



Farrowing – The depopulation

- **Piglets**
 - **3-day-old ambulatory and non-ambulatory**
 - Gassing in containment boxes
 - **19-day-old ambulatory piglets**
 - Gassing in trailers
 - **19-day-old non-ambulatory piglets**
 - Non-penetrating captive bolt pistol





Farrowing – The depopulation

- **Adult pigs**
 - **Euthanasia order**
 - 3-day followed by 19-day lactating sows
 - Pregnant sows, boars and gilts
 - **Ambulatory**
 - Mobile euthanasia unit at farrowing loading dock
 - **Non-ambulatory**
 - Penetrating captive bolt pistol
 - Euthanizing in pens or stalls
 - Removed from barn by disposal team





Farrowing – The depopulation

Type of pig	State	Duration of operations (h)	Staff (number)	Hours worked (h)
Gilts, sows, boars	Ambulatory	21 h	9 people	160 h
	Non ambulatory	12 h	3 people	
Piglets	Ambulatory	9 h	11 people	49 h
	Non ambulatory	3 h	2 people	
Total		45 h	25 people	209 h

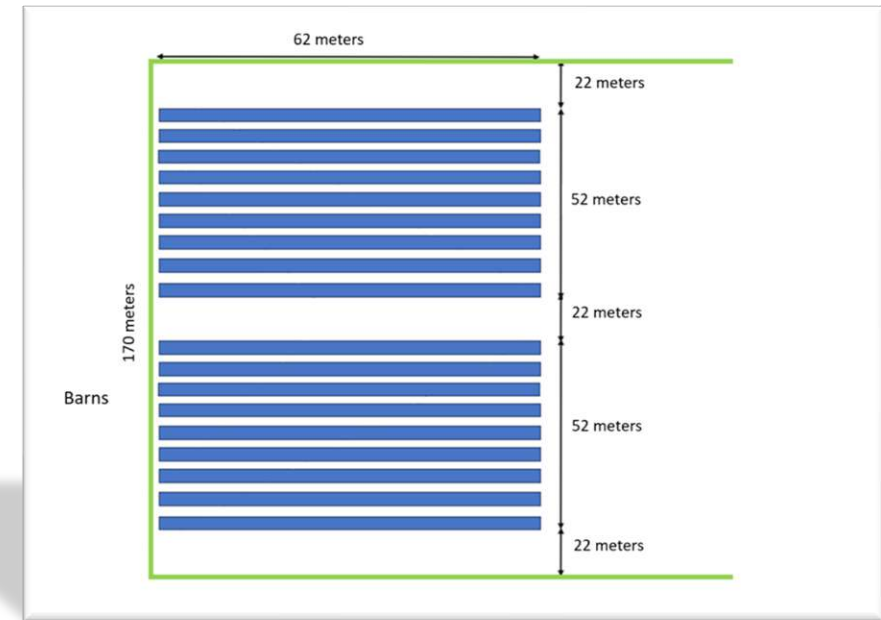
Depopulation duration

- 3 days
- Parallel work by different teams

Farrowing – The disposal

Composting at the farm

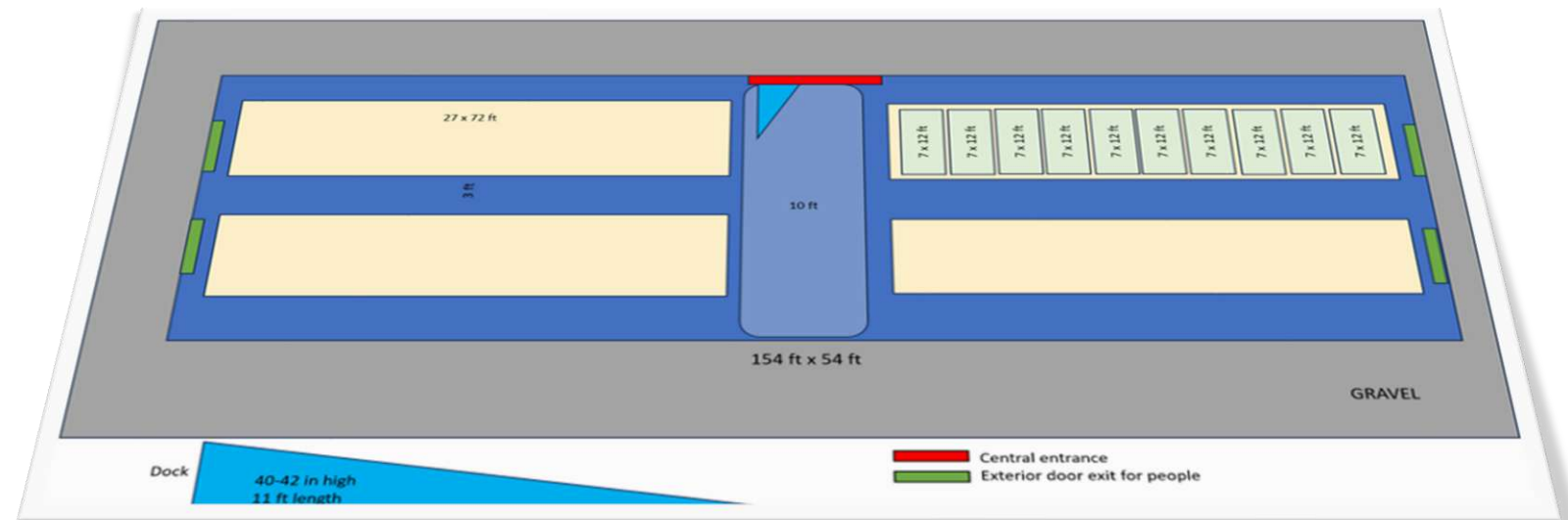
- 29.9 hectares of land around the farm
- 18 windrows of 62 meters each for a total of 1.1 km
- 472 TM of whole carcasses
- 60 trucks of wood shavings and bark
- 25 people and more than 1,000 man-hours
- 2 days to remove the carcasses from the barn
- 12 days for building windrow





Nursery – The site

- **4-building site**
 - Capacity of 8,800 piglets
 - Rotating site – 2 nurseries entered at a time
 - Building with 2 rooms and a central corridor
 - Loading dock
- **Herd**
 - 8,646 piglets
 - 4 and 6 weeks-old





Nursery – The hypothesis

- **Site infected with ASF in April 2024**
 - Two buildings with 4-week-old and 16-kg average live weight piglets
 - Two buildings with 6-week-old and 24-kg average live weight piglets
 - 30% non-ambulatory piglets

Description	Inventory	4-week-old	6-week-old
Entered piglets	8,800	4,400	4,400
Live piglets	8,646	4,334	4,312
Ambulatory piglets (70%)	6,052	3,034	3,018
Non-ambulatory piglets (30%)	2,594	1,300	1,294



Nursery – The depopulation

- **Piglets**
 - **Ambulatory**
 - Gassing in trailers
 - **Non-ambulatory**
 - Penetrating captive bolt pistol





Nursery – Depopulation

Type of pig	State	Operation duration (h)	Staff (number)	Hours worked (h)
16 and 24-kg piglets	Ambulatory	21 h	5 people	159 h
	Non-ambulatory	19 h	6 people	
Total		40 h	11 people	159 h

Depopulation duration

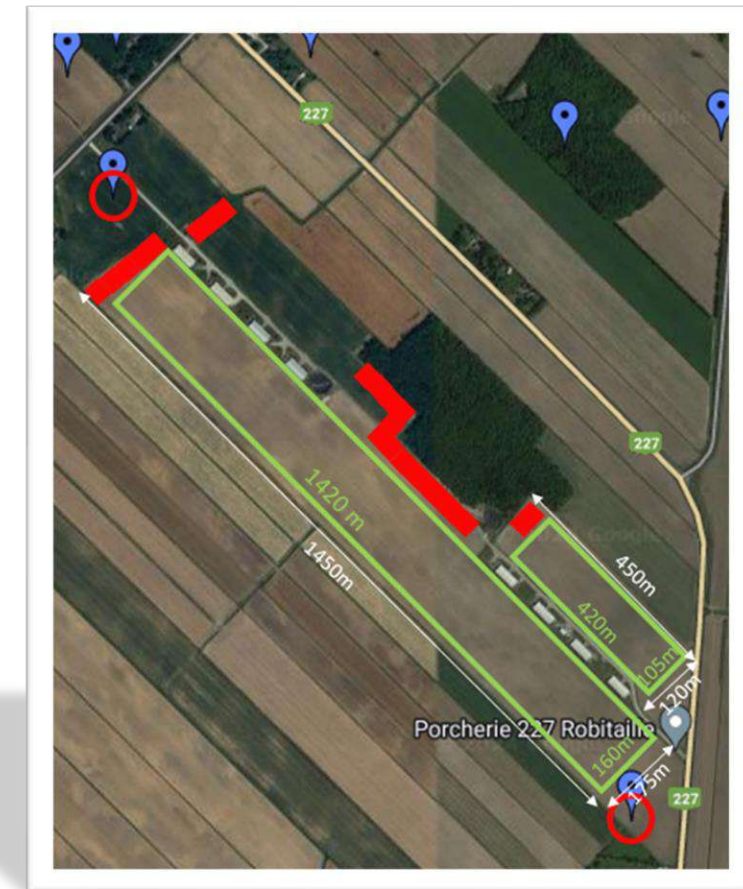
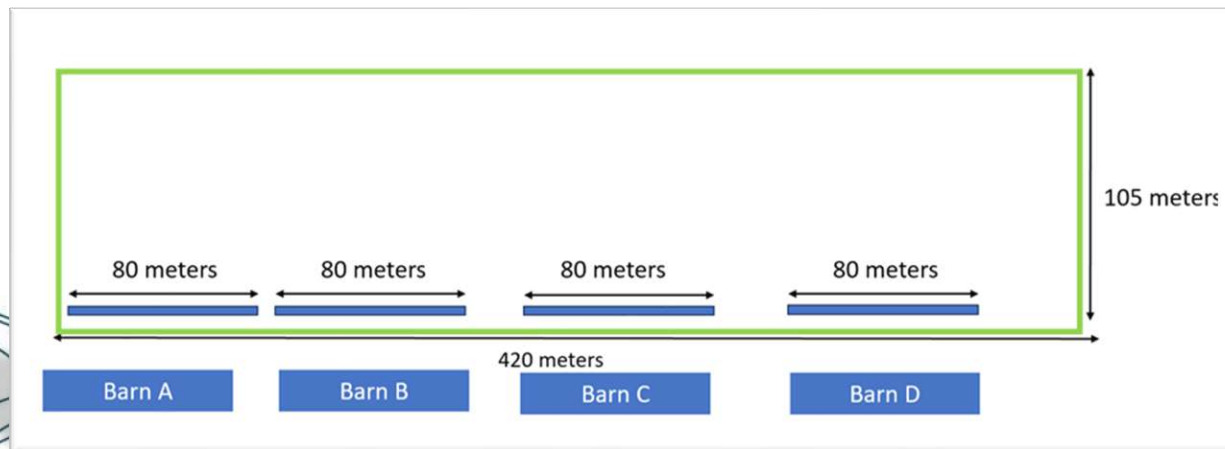
- 3 days
- Parallel work by different teams



Nursery – The disposal

Composting at farm

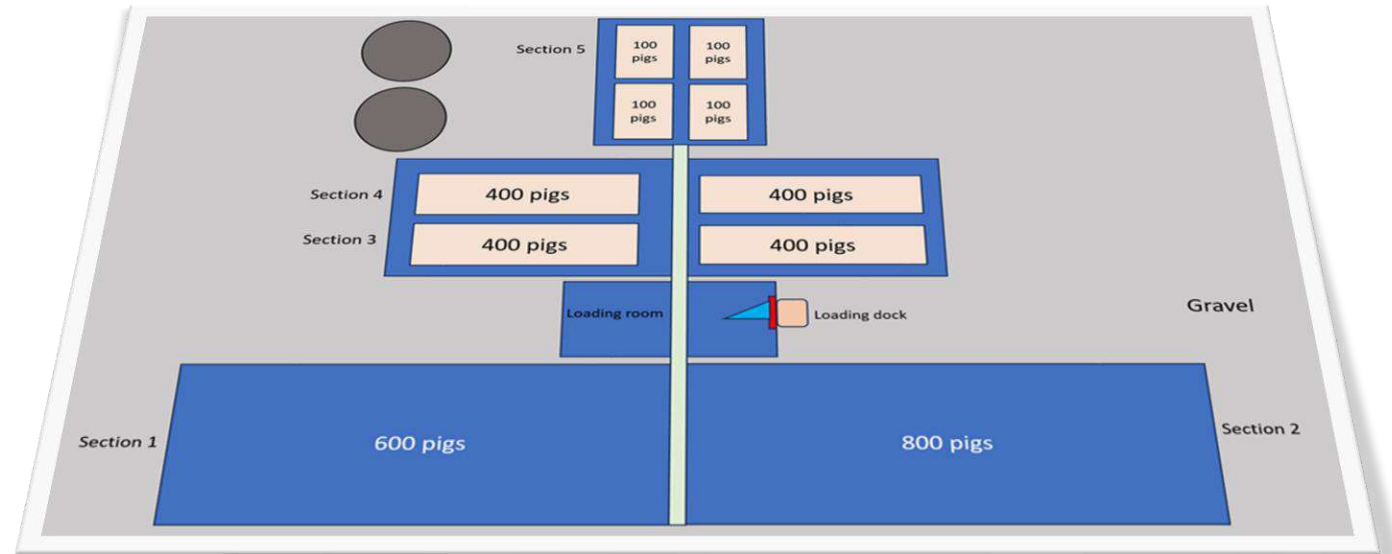
- 150 hectares of land around the farm
- 4 windrows of 80 meters each for a total of 0.3 km
- 173 TM of whole carcasses
- 18 trucks of wood shavings and bark
- 14 people and 320 man-hours
- 2 days to remove the carcasses from the barn
- 5 days for building windrow





Grow-finishing – The site

- **A 5-section building site**
 - Capacity of 3,400 pigs
 - All-in-all-out
 - Piglet entry over 28 days
 - Hall and loading dock
- **Herd**
 - 3,264 pigs
 - 21-week-old





Grow-finishing – The hypothesis

- **Site infected by ASF in April 2024**
 - 95-kg average live weight pigs
 - 15% non-ambulatory pigs

Description	Inventory
Entered pigs	3,400
Live pigs	3,264
Ambulatory pigs (85%)	2,774
Non-ambulatory pigs (15%)	490



Grow-finishing – The depopulation

- **Pigs**
 - **Ambulatory**
 - Mobile euthanasia unit
 - **Non-ambulatory**
 - Penetrating captive bolt pistol





Grow-finishing – The depopulation

Type of pig	State	Operation duration (h)	Staff (number)	Hours worked (h)
95 kg pigs	Ambulatory	30 h	9 people	236 h
	Non-ambulatory	11 h	4 people	
Total		41 h	13 people	236 h

Depopulation duration

- 3 days
- Parallel work by different teams



Grow-finishing – The disposal

Technical landfill site (TLS)

- No land around the farm
- 310 TM of whole carcasses
- Choice of 2 closest TLS out of 4 within 150 km
- Transport by Association nationale des camionneurs artisans inc. (ANCAI)
- Polyethylene liners required for watertightness
- 11 3-axle and 1 12-wheel trucks
- 3 transports per day
- 17 workstations over 3 shifts
- 408 hours worked
- 3-day duration





Costs

- The summary of expenses include:
 - Staff labour
 - Transport and accommodations
 - Equipment and material

Activity	Farrowing	Nursery	Grow-finishing
Depopulation	\$40,924	\$25,683	\$44,010
Disposal	\$300,908	\$57,364	\$157,571
Both activities	\$341,833	\$83,047	\$201,571

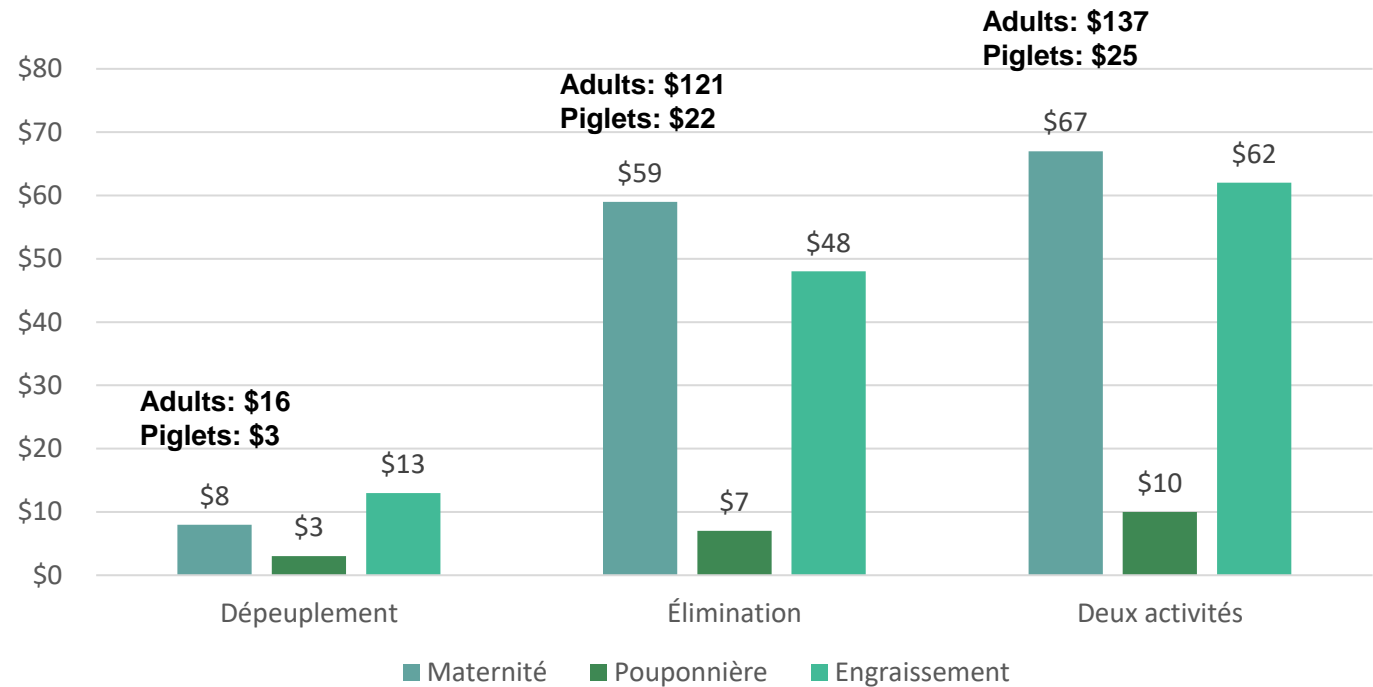


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Costs

- **Disposal costs are far higher than depopulation costs**
- Depopulation costs for adult pigs in the farrowing unit are like those for grow-finishing pigs, and for piglets to those for the nursery unit
- **Disposal costs** for adult pigs far exceed those for other pig categories

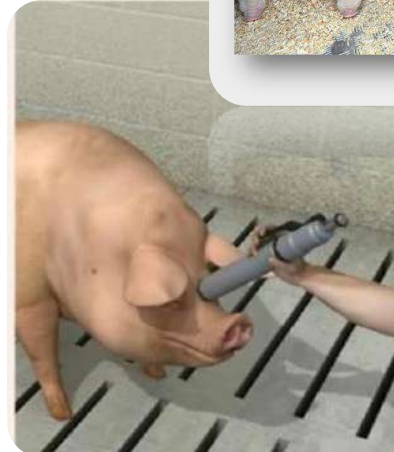
Depopulation and disposal costs per pig by production stage





Depopulation findings

- **Depopulation efficiency** is determined by:
 - **Choice of method**
 - **Availability of equipment and materials**
 - **A trained supervisor and staff**
 - **Coordination** between the different teams





Disposal findings

- Choice of **disposal method** between **composting** or **TLS** :
 - Availability of **land near** the site and **presence of crops**
 - **Weather** and **seasons**
 - **Decomposition of carcasses**
 - Possibility of **temporary windrows**
 - Availability of **carbon material**
 - **Capacity of TLS** and the **ASF status** established by the CFIA
 - Availability and type of **transport trucks**

