Small Lot
Pork Producer
Management & Production

CANADIAN AGRICULTURAL PARTNERSHIP

Investment Agriculture Foundation of British Columbia

BC pork Proudly Grown Close to Home

BRITISH COLUMBIA

Canada

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LEGAL DISCLAIMER

contractors will not be liable for any claims, damages or losses of any kind whatsoever arising out of the use of, or reliance upon, this information.

All legislation identified in this Manual refers to British Columbia or Canada legislation. This publication should not be viewed as a substitute for legal advice. An individual or farming operation that requires legal advice regarding legal requirements or potential liability should retain a lawyer who can examine the current state of applicable law and has acquired an understanding of the farm's particular circumstances.

FOR FURTHER INFORMATION

Please view B.C. Pork's website (www.bcpork.ca) under Small Lot Pork Producers for the most current version of this Resource Manual. Section revisions will be dated when additional information is provided and new section(s) will be added and dated as required. For additional reading, a complete reference list is provided in REFERENCES at the end of the Manual.

Edition 1.0 (June 1, 2020)

INTRODUCTION

OBJECTIVE

This resource manual will provide basic information about raising pigs safely and humanely. During development, multiple resources were referenced. Use this manual as a guide to understand how to:

- Raise healthy pigs responsibly and respectfully in accordance with government legislation;
- Economically produce high quality, safe pork products; and
- Effectively respond in emergency situations.

INSTRUCTIONS

- **Key Point Checklist** – Listed in each section, the key point checklist includes regulation requirements, national security, and important human and animal health related topics.
- **Definitions** – Use definitions to familiarize yourself with basic swine terminology.
- **Sections** – Each section is topic specific.

This resource manual is for small lot pork producers varying in size from individuals raising one pig for personal consumption, to those raising many pigs for the purpose of generating income. It provides details on good husbandry practices, production economics, marketing, euthanasia, emergency management, and provincial and federal legislation. Raising pigs can be an enjoyable and rewarding experience. Before venturing into pork production, familiarize yourself with all aspects of this publication.

Very few educational materials exist that are current, comprehensive and tailored to the highly diverse needs of small lot (backyard) pork producers. Many farmers with good intentions but little knowledge of raising pigs are soon confronted with health issues, poor growth, mortalities, wasted resources, and significant financial losses. This publication is to help avoid these problems.

Biosecurity is highly important to all livestock producers, both commercial and small lot farmers. It is a term that refers to the collection of practices and procedures that are employed to keep livestock healthy and is particularly appropriate for pigs. All elements of pork production, whether in a small- or large-scale operation, are essential to the execution of good biosecurity. Effective biosecurity would be impossible without management of housing and fencing, adequate husbandry practices, infectious disease prevention strategies, and implementation of all these elements of pork production.

This publication is a collation of information from many subject matter experts, and their contributions are gratefully acknowledged. References to recognize the information sources is provided at the end of each section. A complete listing of all references is provided in REFERENCES at the end of the Manual. We appreciate and acknowledge all contributors of photos.

This Resource Manual will be distributed to attendees at workshops held for small lot pork producers in B.C. The most current version of this manual will be available to view and/or download from B.C. Pork's website (www.bcpork.ca) under 'Small Lot Pork Producers'.

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CONTENTS

CONTENTS

CONTENTS

CONTENTS

SECTION 1: SWINE LEGISLATION

1.1 INTRODUCTION

This section aims to inform you about the British Columbia Premises ID program, the national PigTRACE program, national animal care requirements, new Federal transport regulations, British Columbia provincial legislation on possessing and raising pigs, and the Canadian Pork Excellence program for licensed commercial producers.

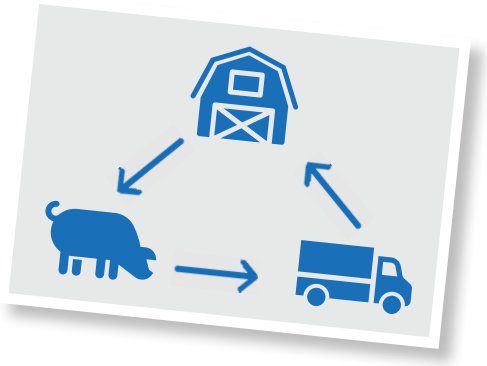
In summary, the most important things for you to do:

1. Get a B.C. **Premises Identification (Premises ID)** number.
2. Register with **PigTRACE**.
3. Follow the National Farm Animal Care Council's (NFACC's) **Code of Practice for the Care and Handling of Pigs** guidelines and requirements to ensure you meet animal welfare standards. Ensure you are meeting all land use, environmental or other regulated requirements.
4. Adhere to land use, environmental and other regulated requirements including new Federal animal transport regulations.

1.2 PIGTRACE

KEY POINT CHECKLIST

Anyone raising pigs in Canada MUST register with PigTRACE. Every shipment of pigs between two separate properties (i.e., premises) must be reported to the **PigTRACE** program within 7 days (after) the movement.[1]



There are three components of PigTRACE that make up make up Canada's traceability program:

1. PREMISES IDENTIFICATION (PREMISES ID)
   - **LOCATION**
   - This is a number that ties animals to a specific location

2. MOVEMENT DECLARATION
   - **MOVEMENT**
   - This tracks movement of pigs between Premises ID sites

3. ANIMAL ID
   - **IDENTIFICATION**
   - This gives the pig a unique ID

PIGTRACE

1. WHAT IS IT?
   - A program **mandated by federal law** to track all pig movements in Canada.
   - Anyone who possesses a pig **MUST** register with **PigTRACE**.
   - An industry-led, live animal traceability initiative designed to ensure protection, prosperity and peace of mind for the Canadian pork industry and its customers.

2. WHY DO WE NEED IT?
   - To identify and trace animals for emergency planning, preparedness, and response.
   - To improve food safety and disease control and prevention.

3. WHO NEEDS TO REGISTER WITH PIGTRACE?
   - Anyone who has possession of a pig in Canada.

4. DO I NEED TO REGISTER WITH PIGTRACE?
   - If you are in possession of a pig, yes!

5. HOW MUCH DOES REGISTRATION COST?
   - It is FREE.

6. HOW DO I REGISTER?
   - **Get a B.C. Premises ID number (LOCATION)**
     - Premises identification is managed by provincial governments in Canada – here in B.C., the program is managed by the Ministry of Agriculture.
     - Register online with the B.C. Premises Identification Program[2] at the following website: http://gov.bc.ca/premisesidprogram.
       i. *Online registration takes about **10 minutes** and if you have all the required information you will receive a Premises ID number immediately.*

     - You can also download, fill out, and e-mail or fax in the registration form to the B.C. Ministry of Agriculture (See APPENDIX I).
     - You will need to provide the following info: B.C. parcel identifier (from your B.C. tax assessment), contact information, operation type, and your animal information.
     - See Appendix I for a sample Premises ID registration form.

- **Register with PigTRACE (MOVEMENT)**
  - Go to www.pigtrace.ca, then select "Request a **PigTRACE** Account" and complete the form, or
  - Contact PigTRACE customer service at 1-866-300-1825 (contact new registration), or
  - If you have a Premises Identification Number (Premises ID), please share it with PigTRACE when you register. If you do not have a Premises ID, follow the above steps to get one.

- **Get Identification for your Pigs (IDENTIFICATION)**
  - Pigs are either identified as an INDIVIDUAL or as a HERD
    i. **The INDIVIDUAL ID is a unique 15-digit number that is specific to every pig.** This can be used <u>to identify pigs going anywhere</u> (e.g., to slaughter, exports, imports, to fairs/exhibitions/auctions, or when moving breeding sows or boars from one farm to another farm).
    ii. **The HERD MARK is a 5-digit number assigned to a farm.** It can only be used <u>to identify pig movements to slaughter or export</u>, as it must identify the ***last farm*** of residence before slaughter or export. Un-weaned piglets accompanied by their sow moved for educational purposes to a site (e.g., to a fair or exhibition), can be marked with herd mark ear tattoos.

    *Note: Pigs going to slaughter can be given a HERD MARK of non-toxic livestock spray paint and homemade stencil **instead** of tagging or tattooing (*check with abattoir)*

  - Feeder pigs that are moved from **one farm to another farm** DO NOT require animal ID (tattoo or tags), but, the movement of these pigs requires reporting to PigTRACE.
  - Breeding pigs (sows and boars) that are moved from **one farm to another farm** DO require the 15-digit PigTRACE individual ID tag (shown above), and the movement of these pigs requires reporting to PigTRACE.

  - Order tags through **PigTRACE**:
    i. Order online by logging into PigTRACE with your secure username and password.
    ii. Call 1-866-300-1825; you must be registered with PigTRACE to order.
- **Report all incoming or outgoing pig movements within 7 days (after movement)**
  - Internet: login to www.pigtrace.ca (computer or mobile browser).
  - Fax: 1-877-301-6710 (manifest sheets are available; any format may be used).
  - Phone: 1-866-300-1825.
  - Information to report: origin and destination locations, date and time of departure or reception, licence plate of vehicle or trailer (if tandem unit), number of pigs, animal identification where applicable (see previous page).

7. WHAT IF I BUY FROM OR SELL TO AN UNKNOWN/UNREGISTERED LOCATION?
   - When reporting movements to PigTRACE, you must enter a valid Premises ID number for the locations.
   - You can contact PigTRACE staff at any time to ask if a Premises ID has been entered into their system for the location you are shipping to/receiving from (e-mail pigtracevm@cpc-ccp.com or call 1-866-300-1825 with any requests for assistance).
   - You can use the B.C. Premises ID Lookup Tool to find a Premises ID number for all registered abattoirs, fairgrounds/exhibitions, and livestock markets/auctions.
   - If your supplier is not registered with the B.C. Premises ID program, you can enter the other location with the province code followed by "unknown" (e.g., ONunknown, BCunknown, etc.). Enter any additional information about the location in the "note" box (e.g., contact name, contact info).

8. HELPFUL TIPS:
   - If you are selling piglets to customers for further growing, you can voluntarily apply the **15-digit individual ID tags (small piglet tag)** to the pigs before shipping/selling them to customers.
   - Customers would then have pig identification for eventual slaughter (they would be using the INDIVIDUAL ID tag instead of the HERD MARK tag for slaughter – this is alright).
   - Report the tag numbers involved in these movements so they are no longer associated with the originating sow farm.

1.3 NATIONAL INDUSTRY LED PROGRAM – CANADIAN PORK EXCELLENCE

Licensed commercial pork producers are registered with our national program: **Canadian Pork Excellence.**

CANADIAN PORK EXCELLENCE[3]

- This is the newest version of a national program that covers three major on-farm components: Traceability (**PigTRACE**), Food Safety (**PigSAFE**), and Animal Care (**PigCARE**).
- This program is mandatory for all ***licensed commercial pork producers*** slaughtering pigs at a ***federally inspected slaughter plant***.
- **This program does not apply to Small Lot Pork Producers.**
- Please visit the Canadian Pork Council website for more information.[4]

1.4 NATIONAL FARM ANIMAL CARE COUNCIL (NFACC) CODES OF PRACTICE

The National Farm Animal Care Council (NFACC) led the development of the **Code of Practice for the Care and Handling of Pigs**. **This Code of Practice applies to ALL pig producers under provincial legislation in B.C. (Section 1.6)**. ***All producers should follow the requirements outlined in this document:*** **Code of Practice for the Care and Handling of Pigs.**[5]

CODE OF PRACTICE FOR THE CARE & HANDLING OF PIGS

1. WHAT IS IT?
   - Nationally developed guidelines for the care and handling of pigs.
   - Developed by a broad panel of experts and diverse stakeholders.

- Considers and includes the most updated and best available knowledge and scientific literature.
- Promotes sound management and welfare practices for housing, care, transportation and other animal husbandry practices.

2. WHY DO WE NEED IT?
   - To have properly researched requirements and recommendations about pig welfare available for producers.
   - To act as industry leaders in promoting good animal welfare.

3. WHO NEEDS TO USE THE CODE OF PRACTICE?
   - Anyone raising pigs in Canada should follow the Code of Practice.
   - **This applies to all Small Lot Pork Producers.**

4. DO I NEED TO USE THE CODE OF PRACTICE?
   - **If you are raising pigs in Canada, you should follow the Code of Practice.**

5. IS THE CODE OF PRACTICE LEGALLY ENFORCED?
   - The B.C. Ministry of Agriculture references the NFACC Code of Practice under regulation and recognizes it as a part of reasonable and generally accepted practices of animal management.
   - While failure to abide by the Code is not an offence under provincial legislation, following the Code would be a defense from prosecution of animal distress as per the *Prevention of Cruelty to Animals Act (PCA Act)*.
   - The Code reflects industry supported standards that promote animal health and well-being.

6. HOW DO I GET A COPY OF THE CODE OF PRACTICE?
   - Free copies are available online from the following National Farm Animal Care Council's website. https://www.nfacc.ca/pdfs/codes/pig_code_of_practice.pdf

1.5 FEDERAL TRANSPORT REGULATIONS

Transportation of animals is regulated federally under the *Health of Animals Act*, and its *Health of Animals Regulations:* Part XII Transport of Animals.[6]

These regulations apply to anyone transporting animals or who is involved directly or indirectly in selecting, loading, confining, transporting or unloading animals (See Section 11.4 FEDERAL TRANSPORT REGULATIONS).

Prior to loading and transporting animals, they must be assessed for "fitness". Federal law (Part XII of the *Health of Animals Regulations* prohibits loading, confining, and transporting unfit animals (See Section 11.3 FIT TO TRANSPORT).

1.6 PROVINCIAL LEGISLATION IN BRITISH COLUMBIA

There are a few Acts that must be followed by all pig producers in B.C.:

PREVENTION OF CRUELTY TO ANIMALS ACT (PCA ACT)[7]

Animal welfare in British Columbia is regulated under the provincial government's *Prevention of Cruelty to Animals Act*. The **B.C. SPCA** has a legislative role that is mandated by the B.C. Government under the *PCA Act* to respond to animals in distress. Under the *PCA Act*, an animal is in distress if it is:

(a) deprived of adequate food, water, shelter, ventilation, light, space, exercise, care or veterinary treatment,

(a.1) kept in conditions that are unsanitary,

(a.2) not protected from excessive heat or cold,

(b) injured, sick, in pain or suffering, or

(c) abused or neglected.

BCSPCA
SPEAKING FOR ANIMALS

B.C. SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS[8]

1. WHAT IS IT?
   - The B.C. SPCA has two very different roles:
     - **Legislative Role:** The only animal welfare organization in B.C. ***with the authority to enforce*** the *Prevention of Cruelty to Animals Act (PCA Act).*

- **Animal Advocacy and Community Service Role:** Separate from its legislative role, the B.C. SPCA engages in a variety of other activities including, for example, the provision of shelter and veterinary services, wildlife rehabilitation, a pet identification registry, and animal care and welfare education.

2. WHY DO WE NEED THE LEGISLATIVE ROLE OF THE B.C. SPCA?
   - In the event of possible animal distress, the **B.C. SPCA** has the authority to investigate. As part of the investigation, the B.C. SPCA can refer to the Canadian Code of Practice for the Care and Handling of Pigs as a guide for assessing distress. While failure to abide by the Code would not necessarily be an offence, following the Codes would be a defence from prosecution of animal distress.

3. WHY ARE THE CODES REFERENCED IN B.C. REGULATIONS?
   - Referencing the NFACC Codes in regulation ensures a better understanding of what is meant by "reasonable and generally accepted practices of animal management" under the *PCA Act*, and protects farmers and ranchers when these practices are misperceived or challenged. Following the NFACC's **Code of Practice for the Care and Handling of Pigs** is a good way to legally demonstrate you are following generally accepted practices.
   - The B.C. SPCA's investigations team can recommend charges for Crown Counsel for the prosecution of individuals who inflict suffering on animals under the *Criminal Code of Canada*.

4. WHAT ARE THE CURRENT PENALTIES UNDER THE *PCA ACT*?
   - The maximum penalties that can be levied under the *PCA Act* against a person who is convicted of causing distress to an animal are: fines up to $75,000, up to 24 months imprisonment, or both. A judge may also limit or ban an individual from having animals for a certain period of time.

FOOD SAFETY ACT[9]

- B.C. slaughter and meat processing are regulated under the *Food Safety Act:* Meat Inspection Regulations.
- This *Act* ensures that animals are humanely handled and slaughtered, that carcasses are processed in a clean environment, and that meat is packaged and stored in ways that reduces contamination risks.
- There are different types and classes of slaughter establishments in B.C. (See Section 10.3 SLAUGHTER PLANT CLASSES/LICENCES).

WATER SUSTAINABILITY & WATER PROTECTION ACTS [10]

- Groundwater is a vital resource for farmers throughout B.C. On February 29, 2016, the Province implemented the *Water Sustainability Act (WSA),* enabling the government to manage groundwater and surface water as one resource and help ensure the resource's long-term sustainability.
- If you use, or plan to use, groundwater for your farm, you are required to have a water licence.
- If you were using groundwater on or before February 29, 2016, **you now have until March 1, 2022 to apply for an existing use groundwater licence**.
- Submitting a completed water licence application by this deadline allows you, the water user, to secure water rights for your farm, and continue to use water as you have in the past until a decision regarding the water licence has been made.
- Doing so also enables your historic water-use to be recognized and used to establish your first-in-time, first-in-right priority date. This priority date provides you with precedence over newer users during times of water scarcity. This means that newer users will need to cease diverting water before you do during those times.
- For existing users who apply after March 1, 2022, the priority date will be the date the application was submitted.
- Another benefit for existing users of applying by March 1, 2022 is that you will not have to pay the one-time application fee of $250. Applicants can expect to pay water rentals backdated to February 29, 2016, which can be estimated by visiting the **Water Rent and Application Fee Estimator** (https://portal.nrs.gov.bc.ca/web/client/-/existing-use-groundwater-licence-application).
- To submit an application, please visit **Existing Use Groundwater Licence Application** (https://portal.nrs.gov.bc.ca/web/client/-/existing-use-groundwater-licence-application).
- If you have questions, please contact FrontCounter BC: FrontCounterBC@gov.bc.ca, toll free: 1-877-855-3222.

ENVIRONMENTAL MANAGEMENT ACT [10]

- On February 28, 2019, B.C. introduced the Agricultural Environmental Management Code of Practice (AEMCoP) as a replacement for the Agricultural Waste Control Regulation (AWCR).
- Depending on the farm enterprise, herd size, land base, and proximity to watercourses and neighbouring properties, there may be components of the new AEMCoP that may apply.

- Whether planning to raise hogs, own an existing operation, or planning an expansion of an existing farm, recommend contacting either B.C. Ministry of Environment (ENV) or B.C. Ministry of Agriculture (AGRI) staff about your enterprise. Staff will assess your operation and advise whether any aspects of the new AEMCoP apply, and if so, what actions you need to take.

FARM PRACTICES PROTECTION (RIGHT TO FARM) ACT (FPPA)[11]

- Under the *FPPA*, farmers are not liable for nuisance to any person for noise, dust, odour or any other disturbance, provided they are following normal farm practices. Farmers also receive protection from local government nuisance and animal control bylaws where an operation is being conducted in accordance with normal farm practices.
- The B.C. Farm Industry Review Board (B.C. FIRB) adjudicates complaints from individuals who feel that they are aggrieved by farm practices and makes a determination of what constitutes normal farm practices. In order to be considered as within normal farm practices, an operation must not be in contravention of the *Environmental Management Act*, the *Public Health Act*, the *Integrated Pest Management Act*, and any regulations under those Acts.
- For more information please visit the B.C. Ministry of Agriculture web page on **Farm Practices Protection** at https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/farm-practices-protection.
- More information on the complaints process can be found on the B.C. FIRB web page at https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/boards-commissions-tribunals/bc-farm-industry-review-board.

LOCAL GOVERNMENT ACT (LGA)[12]

- The *LGA* provides local governments in B.C. with the authority to regulate land use through Official Community Plans, Zoning Bylaws and other types of bylaws.
- Certain provisions in the *LGA* address agriculture such as those covering community planning, zoning, nuisance regulations, the removal and deposit of soil, weed and pest control and water use and drainage.
- However, there are also provisions to ensure that local governments are not regulating agriculture in such a way as to be detrimental to agriculture. Section 555, in particular, allows intensive agriculture, including livestock production, in the Agricultural Land Reserve (ALR) despite a zoning bylaw attempting to prohibit this use.
- More information on *LGA* provisions that affect agriculture can be found on B.C. Ministry of Agriculture's web page under the Strengthening Farming Program at https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/strengthening-farming/legislation-for-strengthening-farming.

ANIMAL UNITS (A.U.)

- Several factors influence the total number of animals that may be raised on an acreage (e.g., soil type/nutrient analysis, topography, distance from water sources, housing, government regulations, and the ages, weights and species of animals).
- Most small lot enterprises in B.C. raise multiple animal species. This presents challenges to authorities when asked how many animals an acreage will support. One strategy used by some is to calculate the number of **Animal Units (A.U.)** that a farm currently has or intends to have.
- Regardless of animal types, ages and weights on a farm, the concept of an A.U. is to generate a number that can be compared to provincial regulations and local bylaws. How governments calculate an A.U. and present A.U. standards vary widely across provincial and state jurisdictions. Some A.U. calculations are based on annual manure nutrient excretions per year (e.g., nitrogen, phosphorus) while others are based on animal weights and feed consumption.
- Become familiar with this term and its intention to assist in determining total animals that an acreage can handle. Check with authorities for standards they follow, regardless if expressed in A.U. or otherwise, when seeking advice on the animal carrying capacity of an acreage.

SECTION 1 REFERENCE LIST

1. Canadian Pork Council. Canadian Pork Excellence. PigTRACE (2020)
2. British Columbia. B.C. Premises ID Program (2020)
3. Canadian Pork Council. Canadian Pork Excellence (2020)
4. Canadian Pork Council. About Us (2020)
5. National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs (2014)
6. Canadian Food Inspection Agency. Animal Health. Health of Animals Regulations: Part XII: Transport of Animals – Regulatory Amendment. Interpretative Guidance for Regulated Parties (2020)
7. *Prevention of Cruelty to Animals Act* [RSBC] Chapter 372 (2020)
8. BCSPCA. Programs and Services. Farm Animal Programs (2020)
9. British Columbia. Food Safety Legislation. *Food Safety Act* (2020)
10. British Columbia. Laws and Rules. Provincial Acts and Regulations (2020)
11. British Columbia. Farm Practices Guide (2020)
12. British Columbia. Local Government Legislative Framework. *Local Government Act* (2020)

APPENDIX I: Premises ID registration form

B.C. Premises ID Registration of Livestock and Poultry Premises

Online registration available at www.gov.bc.ca/premisesidprogram

I am:	☐ Registering a premises for the first time Please complete all sections.	☐ Updating an existing registration for Premises ID: **BC** _ _ _ _ _ _ _ Please enter only data that has changed.

Primary Premises Location: The Primary Premises is the parcel of land defined as the main ranch or home site of an operation. Please complete ONLY ONE of the three boxes below.

BC Land Titles PID: _ _ _ - _ _ _ - _ _ _ (PID = Parcel Identifier. It is 9 digits and is listed on Property Assessments)	☐ See attached copy of Property Assessment Notice (Feel free to black out confidential PIN numbers and valuation data)

Alternate identifying Information (e.g. legal land description, Crown Land PIN, coordinates, First Nations' Reserve, physical address, map):

Linked Premises: Linked Premises are additional parcels of land within an operation where livestock may be present. Linked premises information will enable emergency responders to more quickly address a livestock disease outbreak. However, only the Primary Premises ID will be required for livestock movement reporting. If applicable, please provide information identifying linked premises on attached sheets or below.

Registrant Information: Person who will be notified of the Premises ID. Please complete only the fields that are applicable.

First Name: _____ Middle Name: _____ Last Name: _____

Legal Business Name:_____ Farm Name:_____

Physical Address: _____

Mailing Address: _____

Town/City: _____ Province: _____ Postal Code: _____

Phone (1): _____ Phone (2): _____ Fax: _____

E-mail (1): _____ Email (2): _____

(Optional) CCIA ACCOUNT ID*: _ _ _ _ _ _ _ _ *Issued by the Canadian Cattle Identification Agency (CCIA); ex. A1234567 (not a Premises ID)

Emergency Contacts: Persons responsible for care and control of animals in an animal health or natural disaster emergency.

Primary Contact ☐ Same as Registrant **OR** First Name: _____ Last Name: _____

Address: _____

Town/City: _____ Province: _____ Postal Code: _____

Phone (1): _____ Phone (2): _____ Fax: _____

E-mail (1): _____ Email (2): _____

Secondary Contact ☐ Same as Registrant **OR** First Name: _____ Last Name: _____

Address: _____

Town/City: _____ Province: _____ Postal Code: _____

Phone (1): _____ Phone (2): _____ Fax: _____

E-mail (1): _____ Email (2): _____

Relationship of Registrant to Primary Premises:

☐ Owner ☐ Lessee ☐ Licensee ☐ User of Commingling Site ☐ Operator of Commingling Site
☐ Renter ☐ Manager ☐ Livestock Share Owner ☐ Other (specify): _____

Premises Type: Select all operations that were conducted in the last year.

☐ Farm / ranch	☐ Feedlot	☐ Pasture (range)
☐ Community pasture	☐ Hobby farm (small acreage)	☐ Boarding farm / stable
☐ Hatchery	☐ Zoo / petting zoo	☐ Exhibition / Fair ground
☐ Competition facility	☐ Race track	☐ Veterinary clinic
☐ Insemination centre	☐ Livestock / poultry research facility	☐ Veterinary hospital and / or lab
☐ Assembly yard	☐ Auction market / livestock sale facility	☐ Abattoir
☐ Carcass disposal site	☐ Rendering facility	☐ Other (specify) _____

Species Type: Select all species raised, kept, assembled, or disposed of in the last year within the operation.
For each species selected, indicate the maximum number of animals (all ages, male and female) that were accommodated at one point in time.

	CAPACITY		CAPACITY		CAPACITY
☐ Alpacas	_____	☐ Elk	_____	☐ Poultry: broiler	_____
☐ Aquaculture: crustaceans	_____	☐ Emu	_____	☐ Poultry: hatching egg	_____
☐ Aquaculture: molluscs	_____	☐ Fur: fox	_____	☐ Poultry: pullet	_____
☐ Aquaculture: salmon	_____	☐ Fur: mink	_____	☐ Poultry: table egg	_____
☐ Aquaculture: fish other than salmon	_____	☐ Fur: other than fox, mink	_____	☐ Poultry: turkey	_____
		☐ Geese in captivity	_____	☐ Poultry: (specify) _____	_____
☐ Asses	_____	☐ Goats	_____	☐ Rabbits	_____
☐ Bees (# of colonies)	_____	☐ Guinea Fowl in captivity	_____	☐ Sheep	_____
☐ Bison	_____	☐ Horses	_____	☐ Swine	_____
☐ Cattle: beef	_____	☐ Llamas	_____	☐ Vicuna	_____
☐ Cattle: dairy	_____	☐ Nandu / Rhea	_____	☐ Wild boars	_____
☐ Cervids: domestic	_____	☐ Ostrich	_____	☐ Wild turkeys in captivity	_____
☐ Deer (White tailed, Mule)	_____	☐ Peafowl in captivity	_____	☐ Wildlife (specify) _____	_____
☐ Donkey, Mule	_____	☐ Pheasants in captivity	_____	☐ Yaks	_____
☐ Doves in captivity	_____	☐ Pigeons in captivity	_____	☐ Other (specify) _____	_____
☐ Ducks in captivity	_____	☐ Quail in captivity	_____	☐ NO LIVESTOCK PRESENT	

Use and Disclosure of Information

1. The information you are providing in this Premises Registration Form may be used and disclosed for any of the following purposes:
   a. Determining the presence of, identifying, preventing, controlling or eradicating a notifiable or reportable disease;
   b. Assessing and addressing threats to animal health;
   c. Implementing and maintaining a traceability system; and
   d. Any other purposes under Sections 17 and 18 of the *Animal Health Act*, and as required by law.

(Print Name) (Signature) (Date mm/dd/yyyy)

Mail Registrations to:
BCPID, Ministry of Agriculture
1767 Angus Campbell Road
Abbotsford, BC V3G 2M3

OR Email to:
BCPID@gov.bc.ca
OR Fax to: 604-556-3030

If you have questions:
604-556-3001
1-888-221-7141 (toll free)
BCPID@gov.bc.ca

BRITISH COLUMBIA Ministry of Agriculture

SECTION 2: GETTING STARTED

2.1 WHY PIGS?

Okay, so you want to raise pigs. Now what?

Pigs are interesting and enjoyable animals, but they require work and a basic level of understanding their needs. **Before reading any further, you should ask yourself:**

"Why do I want pigs?"

There are common myths about raising pigs that may lead people to incorrectly believe pigs are simple and inexpensive to raise. It is important to have realistic expectations about raising pigs before investing in them.

Pigs can be raised for many reasons: commercial meat production, self-sustaining farming, niche markets or even companion animals. Whether you have intentions to start a business or simply want a pig as a companion animal, you should read through this manual first. The goal of this manual is to provide basic information to enhance your knowledge and help you manage expectations.

2.2 COMMON BREEDS

There are many different breeds of pigs. Depending on your goals, certain breeds may be more suitable than others. You should research the breed you are interested in prior to making any investment. Ask yourself a few basic questions related to your goals.

What are you looking for?

- Fast growth?
- High fat or marbled meat?
- Flavourful meat?
- High dressing percentage (proportion of total body weight that is meat)?
- A companion animal?

2.2 COMMON BREEDS

Here are a few common heritage breeds seen in Canada:

BREED	QUALITIES	WEIGHT RANGE	COLOUR
Berkshire[a] 	• High fat content and marbling of meat. • Shorter snout. • Stocky legs and strong feet.	Mature adults up to 270 kg	Black with white marks
Duroc[a] 	• Good muscle growth. • Often used in commercial pork production. • Nice temperament.	Mature adults up to 350 kg	Solid red or black
Hampshire[a] 	• Fast growth for outdoor production. • Good mothers. • Longer snout & longer legs.	Mature adults Up to 300 kg	Black and white
Kunekune 	• Short snout. • True grazing pig. • Friendly – can be raised as companions. • High fat content and flavourful meat.	50–150 kg	Multiple – often tricoloured
Landrace[a] 	• Often used in commercial pork production. • Prolific sows. • Good mothers. • Floppy ears.	Mature adults up to 400 kg	White
Large White[b] 	• Often used in commercial pork production. • Prolific sows. • Good mothers. • Erect ears.	Mature adults up to 400 kg	White

BREED	QUALITIES	WEIGHT RANGE	COLOUR
Mangalitsa[(b)] 	• Curled thick hair. • High fat content and flavourful meat. • Smaller litters for size of sow.	70–150 kg	Blonde, Swallow-bellied, red, curly hair
Meishan[(b)] 	• Reach sexual maturity at young age. • Prolific sows. • Docile temperament. • Floppy ears.	60–160 kg	Black
Tamworth[(b)] 	• Hardy and good at grazing/foraging. • Docile temperament • Originally considered a "bacon pig". • Slower growing.	Mature adults up to 400 kg	Red
Vietnamese Pot Belly Pig[(b)] 	• Often raised as companion animals. • Swayed back & smaller feet. • NOT all are "miniature" they can get very large!	50–100 kg	Black, black with white marks
Yorkshire[(a)] 	• Often used in commercial pork production. • Prolific sows. • Good mothers. • Erect ears.	Mature adults up to 400 kg	White

Photos: a. National Pork Board. Pork Checkoff. Major Swine Breeds, 2020
b. Dr. Kelsey Gray

2.3 UNDERSTANDING PRODUCTION GOALS

Ensure your goals and expectations line up. Consider some common goals outlined below and review your own expectations. Defining your goals will help you achieve them and will help you make decisions about your farm.

GOAL	EXPECTATION
To raise pigs for personal consumption, hobby, or sustainable farming. No intention of giving away or selling meat to anyone.	• If you are raising pigs for personal consumption, there are fewer restrictions on slaughtering and packaging meat. • This meat is for at home consumption only. • Sustainable farming that includes **feeding food waste to pigs has strict laws** and regulations that must be followed. (Section 5.2) • You must be registered with **PigTRACE**.
To raise pigs with the intention to sell pork for commercial meat sales (registered shops, restaurants, grocery stores, or farmer's markets).	• To sell pork locally, you must organize slaughtering, processing, and legal sale of products. (Section 10) • To sell pork nationally or internationally, pigs must be slaughtered at a federally inspected slaughter plant, and you must be registered with the Canadian Pork Excellence (CPE) national program (Section 1.3). • You must be registered with **PigTRACE**.
To raise pigs with the intention to sell pork under speciality markets (e.g., organic pasture).	• To raise pigs under a speciality program, you must contact specific organizations for certification (i.e., Certified Organic Association of B.C. - COABC).[3] This may involve auditing and the fulfillment of specific requirements. • You must be registered with **PigTRACE**.
To raise pigs as replacement breeding animals. Intending on selling them as breeding stock to another farmer.	• Raising breeding stock requires an understanding of genetics, healthy selection, breed specifics, reproduction, and knowledge of consumer demand. • Higher quality diets may be required. • Culling out poor quality genetics may be necessary. • You must be registered with **PigTRACE**.
To raise pigs as pets or to house them in a sanctuary. Caring for them as companions.	• Before purchasing a pig as a companion animal, you should check with your jurisdiction if you are legally allowed to possess a pig as a pet. • Research and ask specific questions to ensure you are getting what you want (**not all "mini" pigs are miniature…**). • Special veterinary care should be considered for older, injured, or rescued animals. • You must be registered with **PigTRACE**.

Source: Certified Organic Associations of B.C. (COABC), 2020[1]

Section 3: Production Economics will go into the basic economics of raising pigs under different production scenarios.

Section 10: Marketing Hogs will go into the basic regulations regarding slaughtering and marketing pigs.

2.4 BUYING & SELLING PIGS

Local Sales

There are many ways that people can buy and sell pigs locally: online sales, auction marts, or on-farm sales or purchases. Whether this is the 1st or 100th time, before purchasing or selling a pig, you should do the following:

DO:

- **MANDATORY:** Have a valid B.C. Premises ID number, be registered with PigTRACE, and record all swine movements online within 7 days after movement (Section 1.2 PIGTRACE).
- Be prepared! Have an appropriate environment set up for pigs BEFORE bringing them in. (Section 4: HOUSING & MANAGEMENT)
- Discuss the health and vaccination status of incoming or outgoing animals with the buyer/seller and your veterinarian (**Don't bring disease in, don't send disease out!**).
- Ask questions to the buyer/seller. Make sure the pig you are buying/selling will meet the expected goals:
  - e.g., If you are buying a breeding sow, has she successfully been bred before?
  - e.g., If you are buying a pet pig, how big will it get?
  - e.g., If you are buying an animal to feed and grow, how big is it today?
- Have a plan on transporting the animal to or from the site.
- Make and keep your own records regarding pig movement, vaccination, treatment, and deworming, etc. (Section 2.5 RECORD-KEEPING).
- Monitor animal introductions carefully. Watch for any health issues (e.g., coughing), aggression, and overall adjustment to the new environment.
- A quarantine pen or barn is highly recommended for new animals. (Section 8.2 BIOSECURITY ON YOUR FARM).
- Report any details you can if you purchase from or sell to a site without a Premises ID number.

AVOID:

- Auction marts
  - These are HIGH traffic, high risk sites for disease movement. If you use an auction mart, talk to your veterinarian about risk reduction.
- Sharing animals
  - You do NOT want to spread disease. Sharing breeding animals is a good way to move disease back and forth.

- Purchasing from multiple sources
  - Sourcing new animals from multiple sources increases the likelihood of introducing new diseases. Single sourcing reduces your risk.

Importing/Exporting

Some producers look outside of Canada to buy pigs for genetic variation and others may find buyers outside of the country to sell to. Before making any international purchases or sales, you MUST consider government regulations and requirements.

Consider the following:

WHO needs to be contacted:

- Your veterinarian
- The Canadian Food Inspection Agency (CFIA) office in your area

WHAT needs to be done:

- ALL country specific requirements need to be reviewed and completed. This can include but is not limited to veterinary surveillance and diagnostics, getting health certificates, organizing trucking routes, booking a veterinarian on the border, quarantining of animals, and understanding the associated costs.

WHERE this applies to:

- Different countries have different requirements.

WHEN should you start preparing:

- Organization of an import or export should be performed AT LEAST 4 months in advance of any desired purchase or sale date. Imports and exports take TIME!

WHY this matters:

- Canada is free of many devastating swine diseases and in order to maintain this health status internationally, we have specific requirements for allowing animals into the country. EVERYONE must play a role in keeping Canada's pork sector safe, including commercial and small lot producers.

Note: Importing animals is not a spur of the moment decision. You must understand that there are very specific regulations to import/export animals. Talk to your veterinarian and local CFIA officer before considering this route.

2.5 RECORD-KEEPING

Whether you have 5 pigs or 500 pigs, keeping records is a good management practice that everyone should do. Records can help you monitor farm performance, manage diseases, communicate with vets, and give you credibility with other producers whom you want to do business with.

Required Records:

- Swine movement declaration (Section 1.2 PigTRACE)

Recommended Records:

- Swine inventory records
- Swine treatment records
- Swine mortality records
- Swine reproductive records
- Swine feed records
- Swine sales and purchase records, including any imports and/or exports certification records
- Agricultural activities such as using outdoor composting piles, burying mortalities or solid/semi-solid waste, and water testing

Other Records:

- Swine diary – Write down things you are doing, questions you have, ideas, or observations. This is a great way to learn!
- Depending on the size of your farm, there are data-management software programs specific to swine management. Talk to your veterinarian or local swine nutritionist for more details.

Note: Farms registered with the CPE Program have different requirements for record-keeping. If you wish to become CPE certified, please see Section 1.3 NATIONAL INDUSTRY LED PROGRAM – CANADIAN PORK EXCELLENCE.

SECTION 2 REFERENCE LIST

1. Certified Organic Associations of B.C. (COABC) 2020

SECTION 3: PRODUCTION ECONOMICS

An understanding of your production cost is essential for the financial viability of your farm. This chapter will provide the tools to make informed, financial decisions though collecting, organizing, and understanding your financial data.

3.1 KEY FACTORS FOR SUCCESS

Key factors for success vary according to the type of operation. These factors are common to any hog operation whether producing weaners, finishing market hogs, farrow-to-finish, or selling cuts of meat.

1. **Goal Setting:**
   - Begin with the final result or goal, then create smaller targets or steps to achieve the larger goal.
   - Make goals SMART: Specific, Measurable, Attainable, Relevant, and Time Bound.
   - Write goals down and post them where they will be seen frequently as a constant reminder.

2. **Accurate and Consistent Record-keeping:** is crucial to achieve profitability.
   - **Production Records:** Select a data collection and record-keeping system that is simple and works for your farm. This could include written production logs, a paper-based record filing system, or a computerized system if there is a large amount of data. Key records to calculate Costs of Production (COP) include:

– Piglets born per litter – Days to weaning – Days on each feed type [1] – Daily feed intakes [2] – Average daily gain (ADG) [3]	– Piglets weaned per litter – Litters per sow per year – Days to market weight – Feed conversion [4] – Mortalities [5]

[1] **Days on each feed type:** Reflects overall production system and husbandry practices (e.g., colostrum intakes, supplementary heat lamps, type and quality of feed fed by production stage, genetics, herd health, housing, vaccinations, supplemental iron, disease control, breed of pig).

[2] **Daily feed intakes:** Feed cost constitutes the largest expense item of swine production. Feed intake drives growth rate and days to market weight. Poor and/or erratic feed intakes may be an indicator of health issues and/or an improperly balanced diet. Collect for each production (age) group.

[3] **Average daily gain (ADG):** ADG is a key performance indicator and can vary with management style, production system, stage of production, herd health, breed, and type and quality of feed fed. Data can be gathered on a small operation with the help of a sling scale and weekly weighing.

[4] **Feed conversions:** Tracking herd feed consumption at each production stage is critical to calculating feed conversion ratios and assisting decision-making when assessing feed options and practices. Feed conversion has a significant impact on total feed costs and COP to market weight.

[5] **Mortalities:** Mortality rates vary by production system (e.g., confinement housing, intensive grazing) and stage of production (e.g., pre-weaning, finishing). Recording mortalities and observations about the circumstances will assist in reducing mortality rates by evolving swine management.

- **Financial Records:** Frequent, regular tracking of expenses is important to identify potential cost-saving measures, and ways to improve herd productivity, performance, and profitability. The following list of expenses should be recorded for each batch and production group of pigs:

– Feed purchases (e.g., starter, grower) – Livestock purchases (e.g., feeders, boars) – Trucking (e.g., hauling feed, animals) – Processing (e.g., slaughter, cut & wrap)	– Homegrown feeds fed – Herd health (e.g., vet, medicine) – Sanitation (e.g., cleaners, scrubbers) – Marketing (e.g., advertising, website)

3. Monitoring and Evaluation

- Essential to Goal Setting and demonstrates progress.
- Implement a data tracking and record-keeping protocol for the farm operation, and consistently utilize it from batch to batch.
- Regular analysis of production and expenses is critical to short and long-term farm profitability, thus allowing informed management decisions to align with the farm's financial goals.

3.2 RECORD-KEEPING BASICS

"If you can measure it, you can manage it."

- View the Annual Enterprise Budget Worksheet in the Appendix for examples of data to collect.
- Only collect data relevant to the farm operation and that supports the calculation of production and financial performance indicators, and subsequent decision-making.
- Organization is important to record-keeping. Select a secure place to work with a filing cabinet, set of binders or a storage box to keep farm records separate, secure, and easily accessible.
- For larger farms with many animals and lots of data, a computerized system can assist to streamline data storage and facilitate subsequent performance analyses.
- Allocate a regular time (e.g., weekly) to update and analyze production and financial records. Compare current to past figures to identify changes and assess factors impacting change. This information will support continued improvements in herd performance and profitability.
- Many farms have diverse production lines, or enterprises, which contribute to farm income. Enterprise budgeting is achieved by monitoring each aspect of the operation separately (e.g., a farrow-to-finish operation whose primary income is from pork sales, but raises its own replacement sows, should be monitoring each aspect of the operation separately).

3.3 WHAT IS AN ENTERPRISE BUDGET?

An **Enterprise Budget** is an estimate of the costs and economic returns (profit) to produce and sell a specific product over a set period of time.

- It is comprised of listing income and expenses, based on a set of assumptions.
- Formats for enterprise budgets vary in complexity, layout, and assumptions.
- An enterprise budget has several components:
  - **Income:** The total income expected from the sale of product for a specific period of time.
  - **Direct expenses:** Associated with production inputs which change in proportion to the level of production.
  - **Contribution margin:** Calculated by subtracting total direct expenses from total income. Remainder pays for indirect (or fixed) expenses, interest, and capital expenses (e.g., depreciation, investment).
  - **Indirect expenses:** Also referred to as fixed costs or overhead costs, these are expenses that are incurred independent of production level (e.g., property taxes, insurance premiums).
  - **Operating expenses:** Total of all direct and indirect expenses plus interest on operating costs.
  - **Capital expenses:** Associated with longer term investments in land, buildings, equipment, machinery, and livestock, which do not change with production level changes (e.g., depreciation, investment).
  - **Net Income:** Calculated by subtracting total operating and capital expenses from total income. This amount represents return to labour management and taxes.
- Enterprise budgets are used to examine the input, labour, and machinery required to produce each product as it relates to total income from sales. This guides management decisions regarding changes to reduce expenses and/or increase net income.
- It is imperative that enterprise budgets within an operation be consistent in their structure and inclusions to ensure they are portrayed on the same basis.
  - When reviewing or analyzing enterprise budgets, focus on key expenses.
  - A 20% reduction in a key expense that is 70% of your total cost will have a dramatic effect on total expenses whereas a 20% reduction in an expense that is 10% or less will have little effect on return to management.

The **Contribution Margin** provides a figure permitting comparisons of alternative production enterprises on a consistent basis (e.g., raising and selling only weanling pigs compared to only market hogs). The contribution margin pays indirect (or fixed) expenses, interest, capital expenses, and return to management labour and taxes.

3.4 DIRECT EXPENSES (VARIABLE COSTS)

Direct Expenses are also known as **Variable Costs**:

1. Compared to fixed expenses, direct (or variable) expenses are related to production activities and change in direct proportion to the level of production.
2. Tracking direct (or variable) expenses for each production cycle is important. It provides critical information for decisions to change practices resulting in reduced costs and increased profits.

Feed – the largest direct expense of pork production, it includes purchasing commercial starter, grower, finisher, gestation, and lactation rations OR growing and milling on-farm rations.

- Farms which grow and mill their own rations need to calculate production crop costs and include the cost of purchasing, farm delivery, protein supplements, and vitamin/mineral mixes, as well as the labour involved in handling, mixing, and milling.

Livestock Purchases – direct expenses should include purchasing or raising and maintaining both boars and replacement sows, and may include the purchase of weaners to raise as market hogs.

- Purchase of replacement boars and sows may not occur annually, however, a portion of the cost should be factored in on an annual basis.
- If raising replacement stock, calculate associated rearing costs for this element of the operation.

Herd Health – veterinarian visits, medications and treatments, vaccinations, and farm biosecurity.

- Total annual costs are allocated on a per animal basis: to the sows in a farrow-to-finish or weaner operation, or to the market hogs, or to finished carcasses or pork sales in a finishing operation.

Traceability – livestock ID tags, applicators, paper or electronic records, and other measures required by the processing facility. NOTE: registration in the B.C. Premises ID program is currently free and voluntary.

Sanitation – sanitizers, cleaning agents, and scrubbers or cleaning brushes for pails, feeding pans and troughs, pens, crates, trailers, truck boxes, and/or other transportation equipment.

Pasture Management – for operations providing access to and utilizing pastures.

- Include expenses for fencing, pasture renovation or re-seeding, pasture shelter repair and maintenance.
- Track operating labour involved in moving field feeders and waterers as well as training and moving swine in a rotational grazing system.

Heat and Electricity – heat lamp bulb replacement and the quantity and cost of kilowatt hours. An allocation of fixture cost should be included based on the lifetime of the fixture at replacement value.

Deadstock Disposal* – include cost of composting, incineration, burial on-farm, or transportation delivery to an approved waste disposal site, an approved anaerobic digester, or delivery to a veterinarian for post-mortem and subsequent disposal. Also include the cost of collection and refrigerated or frozen storage where immediate disposal options are not available.

Trucking – cost of replacement animals delivered to the farm, shipping finished animals to market, and trucking of feed supplies.

Processing – includes slaughter cost per animal.

- Cut and wrap costs depending on sales price agreement.
- Both slaughter and cut and wrap are direct (variable) expenses; however, cut and wrap costs may be passed directly to customers when selling carcasses (e.g., whole, half, quarter).

Marketing – packaging and labelling costs, marketing fees, meat product deliveries, and sales time.

Machinery Costs – fuel, oil, and lubrication, including the cost of oil changes and filter replacement.

Repairs and Maintenance – equipment and machinery repairs and maintenance.

- These MAY be treated as direct enterprise expenses (see Note on next page for exceptions).
- There are several ways to allocate total costs of annual equipment and machinery repairs and maintenance to each enterprise (e.g., hourly use, area involved, ratio of total income).

* Does not include the cost of humane euthanasia equipment (e.g., captive bolt stun gun) which falls under Fixed Costs in the category of Small Tools.

Note: Building repairs and maintenance costs MAY be included as direct (or variable) expenses in an enterprise budget; however, it depends on appreciable wear and tear caused by animals on an annual basis. Building repairs and maintenance costs are normally regarded as indirect (fixed) expenses for the whole farm Income and Expense Statement.

DIRECT EXPENSE LINE ITEMS	FARROW-TO-FINISH	WEANER PRODUCTION	MARKET HOGS/ MEAT SALES
Feed	✔	✔	✔
Livestock Purchases	✔	Maybe	Maybe
Herd Health	✔	✔	✔
Pasture Management	Maybe	Maybe	Maybe
Repairs & Maintenance	✔	✔	✔
Machinery Costs	✔	✔	✔
Heat & Electricity	✔	✔	Maybe
Trucking	✔	Maybe	✔
Processing	✔	✘	✔
Marketing	✔	✔	✔

3.5 INDIRECT EXPENSES (FIXED COSTS)

Indirect Expenses are also known as **Fixed Costs** or **Overhead Costs**. These are expenses that remain unchanged regardless of production level.

- Property Taxes
- Water Fees and Licences
- Building Repairs and Maintenance
- Insurance Premiums
- Legal and Accounting Fees
- Office and Telephone
- Shop Supplies and Small Tools
- Interest on Operating Loans
- Interest on Term Loans

INDIRECT EXPENSE LINE ITEMS	FARROW-TO-FINISH	WEANER PRODUCTION	MEAT SALES
Property Taxes	✔	✔	✔
Water Fees & Licences	✔	✔	✔
Building Repairs & Maintenance	✔	✔	✔
Insurance Premiums	✔	✔	✔
Legal & Accounting Fees	✔	✔	✔
Shop Supplies & Small Tools	✔	✔	✔
Legal & Accounting	✔	✔	✔
Interest on Loans	Maybe	Maybe	Maybe

3.6 CAPITAL EXPENSES (DEPRECIATION & INVESTMENT)

Capital Expenses are calculated and reported as Depreciation Expenses and Investment Expenses. Each refers to a different type of expenditure. With capital assets, their costs have already been incurred even if there is zero production.

1. **Depreciation Expenses:** Depreciation measures the loss of value of a capital asset over time. This expense is calculated based on its total original cost, salvage value, and useful life. The most common method for calculating depreciation expenses on capital assets for enterprise budgets is the straight-line depreciation method. The formula is as follows:

   Depreciation Expenses = (Original Cost – Salvage Value) / Useful Life

2. **Investment Expenses:** This expense measures the opportunity cost of money spent to purchase capital assets. It's a calculation of interest income foregone when a capital asset is purchased using one's own capital, which otherwise could have been earning interest income if invested in such things as interest-bearing bonds.

   Investment Expenses (Capital) = [(Original Cost + Salvage Value) / 2] x Investment Rate

   There is also an investment expense to owning livestock. To calculate this requires using the total value of all sows and boars, plus the total value of market hogs sold per year adjusted for days of age at market.

   Investment Expenses (Livestock) = {(Total Value of Sows + Boars) + [(Total Value of Market Hogs Sold per Year) x (Days of Age at Market/365)]} x Investment Rate

Capital Asset Requirements May Vary by Scale & Type of Operation

CAPITAL REQUIREMENTS	FARROW-TO-FINISH	WEANER PRODUCTION	MEAT SALES
Farrowing Pens	✔	✔	✘
Barn/Swine Housing	Maybe	Maybe	Maybe
Pasture Shelters	Maybe	Maybe	Maybe
Fencing & Gates	Maybe	Maybe	Maybe
Water System	✔	✔	✔
Irrigation System	Maybe	Maybe	Maybe
Feed Storage	✔	✔	✔
Grain Handling	Maybe	Maybe	Maybe
Animal Handling/Loading	✔	Maybe	✔
Weigh Scale	Maybe	Maybe	Maybe
Tractor/Loader	Maybe	Maybe	Maybe
Truck	✔	✔	✔
Stock Trailer	✔	✔	✔

3.7 LABOUR EXPENSES

Tracking labour costs should be done according to labour category, which includes operating labour and management labour.

Operating labour recognizes time spent on operational activities such performing daily chores (e.g., feeding, watering, herd health checks) and less frequent activities (e.g., shelter moves, fence repairs). Operating labour is treated as a direct expense item in an enterprise budget.

Management labour includes time spent managing higher level decision-making tasks such as analyzing herd production and farm financial records, meeting with financial advisor to discuss herd expansion plans, securing financing, altering the farm's pork marketing strategy, or changing the breed of pigs. Net farm income is what pays management labour, commonly referred to as return to labour.

When tracking labour, tasks that are done frequently (e.g., daily) should be recorded in separate categories, whereas labour for less frequent tasks (e.g., monthly) can be lumped together in one category.

3.8 FOCUSING ON THE RIGHT INFORMATION

When reviewing or analyzing financial statements, enterprise budgets, or other financial information, centre on the important items:

- For whole farm income statements, concentrate on those expenses and income categories which have the greatest contribution to the entire farm.
- Focus on the largest expense categories in an enterprise budget.
- Budgets are only as good as the quality of information collected and used for analyses. Wherever possible, use information based on your farm's records and resist the temptation to be too optimistic with estimated figures (e.g., piglets weaned per litter, litters per year, days to market weight).
- Enterprise budgets provide an excellent tool to support management decision-making.

The Annual Enterprise Budget Worksheet for Small Lot Pork Producers located in Section 3.9 provides an excellent overview of the types of herd production, marketing and financial parameters that are typically collected by farmers seeking to get a handle on their farm's operation.

3.9 INSTRUCTIONS – ENTERPRISE BUDGET WORKSHEET

These worksheets are designed to be flexible for use by a wide range of farm sizes and types (e.g., farrow-to-finish, farrow-to-weaning, feeder-to-finish, direct meat sales, or any combination). Therefore, anyone contemplating or currently raising pigs will benefit from examining this enterprise budget worksheet.

Each worksheet section is described below along with how to use instructions. How extensively it is completed is up to the user. Small pig farmers with only a few pigs may want to browse through the worksheet to familiarize themselves with typical expenses related to pork production. Taking time to complete the budget worksheet will provide a clear indicator of projected revenues, expenses, and net income, especially for those with significantly larger farms or those planning to expand.

Worksheet sections are identified by **Roman numerals** (e.g., I, II, III, IV). Within Sections V to XIII, key financial parameters, which are labelled as **letters** ranging from A (Total Income) to N (Net Farm Income), provide the user with a clear path to record and track the progression of calculations.

3.9 INSTRUCTIONS – ENTERPRISE BUDGET WORKSHEET

Key components of the enterprise budget worksheet and user instructions are as follows:

- **Section I:** Gathering and recording data relevant to your operation. Accuracy of data collection is one of the most critical steps in the budgeting exercise. If certain parameters are unknown, refer to a reliable source to acquire a realistic estimate.
- **Section II:** Four formulas are provided to complete budget worksheet calculations: Interest on Operating Expenses, Depreciation Expenses, and Investment Expenses.
- **Section III:** Suggested figures for salvage value and useful life when calculating depreciation and investment expenses for buildings, manure storage, equipment, machinery, and livestock.
- **Section IV:** Approximate daily feeding levels by animal type and by type of feed in both lb and kg/head/day. Caution: these are only rough estimates for budgeting purposes. More precise figures should be obtained from a swine nutritionist to tailor ration formulation by animal type, quality of feed source, environmental conditions, breed of animal, and marketing objectives.
- **Section V:** INCOME sources and corresponding calculations. Complete only those lines that pertain to the farm or farm plan.
- **Section VI:** DIRECT EXPENSES is divided into two subsections: one examines the direct expenses of 'Feed', while the second includes all 'Other Direct Expenses'. It also illustrates how to handle expenses that are known for the whole farm and accumulated across multiple farm enterprises (e.g., fuel, oil & repairs), but need to be allocated on a percentage (%) basis to individual enterprises (e.g., 25% allocation to the swine enterprise). The section concludes with a TOTAL DIRECT EXPENSES figure.
- **Section VII:** The calculation of CONTRIBUTION MARGIN, which is Total Income less Total Direct Expenses from figures generated in Sections V and VI.
- **Section VIII:** INDIRECT EXPENSES. How to handle expenses that are known for the whole farm and accumulated across multiple farm enterprises (e.g., property taxes), which need to be allocated on a percentage (%) basis to individual enterprises (e.g., 40% allocation to the swine enterprise). The section concludes with a TOTAL INDIRECT EXPENSES figure.
- **Section IX:** TOTAL OPERATING EXPENSES: the sum of 'Total Direct Expenses' and 'Total Indirect Expenses', and an adjustment for 'Interest on Operating Expenses'.
- **Section X:** TOTAL CAPITAL (DEPRECIATION) EXPENSES on buildings, manure storage, equipment, and machinery. Methodology described in Tables of Sections II and III, and footnotes to Table of Section X.
- **Section XI:** TOTAL CAPITAL (INVESTMENT) EXPENSES on buildings, manure storage, equipment, machinery, and livestock. Methodology described in Tables of Sections II and III, and footnotes to Table of Section XI.

- **Section XII:** Calculation of NET FARM INCOME using figures from Sections V (INCOME), VI (DIRECT EXPENSES), VII (CONTRIBUTION MARGIN), VIII (INDIRECT EXPENSES), IX (TOTAL OPERATING EXPENSES), X (DEPRECIATION EXPENSES), and XI (INVESTMENT EXPENSES).
- **Section XIII:** Use figures generated from the Enterprise Budget Worksheet to calculate income and cost of production (COP) figures on a PER UNIT BASIS.

Please refer to the footnotes under the Table in Section XIII *before* attempting any calculations.

  - **Per Sow:** 100% of weaner pigs must be sourced from sows managed on-farm for an accurate calculation.
  - **Per Weaner:** Applies to farms that sell weaner pigs originating from sows managed on-farm. (See footnote below.)
  - **Per Market Hog:** Includes all pigs sold as market hogs. These hogs may have been reared from feeders originating from sows managed on-farm and/or from feeders purchased off-farm. (See footnote below.)
  - **Per lb or kg Meat:** Includes all market hogs that are sold directly to customers as meat (e.g., whole/half/quarter and/or as cuts of meat). (See footnote below.)

Footnote: For farms 'selling a combination' of weaners, market hogs, and/or meat cuts, Section XIII of the Enterprise Budget Worksheet allows allocations of income and expenditures for each category based on % of TOTAL INCOME that each category generates. Example: If Total Income of $100,000/year with weaner sales ($20,000), market hog sales ($70,000), and meat cut sales ($10,000), then input 20%, 70%, and 10% under the PER WEANER, PER MARKET HOG, and PER LB OR KG MEAT columns respectively on the line designated as ***% Allocation of Total Income***.

An **interactive, enterprise budget calculator for small lot and commercial pork producers** is available for public use and downloading from B.C. Pork's website (www.bcpork.ca) under Small Lot Pork Producers. This interactive spreadsheet enables users to run different production system scenarios and compare impacts on income, expenses, net farm income, and income and costs of production on a per unit basis.

LEGAL DISCLAIMER: Neither B.C. Pork nor any of its funding partners shall be held liable for any direct, indirect, incidental, special, exemplary, or consequential damages that any individual or business may incur from the use of information generated from the small lot pork budget worksheet in this Section. This worksheet is to be regarded as a guide to users in conducting a financial assessment of their current or planned small lot pork enterprise. It is the responsibility of the user to obtain professional financial management advice before making a farm management decision and not rely solely on the outputs of this Section's budget worksheet.

ANNUAL ENTERPRISE BUDGET WORKSHEET
SMALL LOT PORK PRODUCER

Farm Name:_____ Budget Year: _____

I. Herd Production, Marketing & Financial Parameters

# Breeding sows	_____	sows	Weaners	- Days on nursery/starter feed	_____ days
# Litters per sow per year	_____	/year		- Nursery or starter fed/hd/day	_____ lb or kg
# Piglets weaned per litter	_____	/litter	Growers	- Days on grower feed	_____ days
# Total weanlings per year	_____	/year		- Grower feed fed/hd/day	_____ lb or kg
# Weanlings sold	_____	/year	Finishers	- Days on finisher feed	_____ days
# Market hogs sold	_____	/year		- Finisher feed fed/hd/day	_____ lb or kg
# Market hogs sold (as carcass sales)	_____	/year	Gestating	- Days on gestation feed	_____ days
Weanling sales price	$_____	/head		- Gestation feed fed/hd/day	_____ lb or kg
Market hog weight	_____	lb or kg	Lactating	- Days on lactation feed	_____ days
Market hog price	$_____	/lb or kg		- Lactation feed fed/hd/day	_____ lb or kg
Carcass price (whole, half, quarter)	$_____	/lb or kg	Boars	- Feed fed/hd/day	_____ lb or kg
Days of age at market hog weight	_____	days	# Breeding boars		_____ boars
# Cull sows sold	_____	/year	# Breeding boars sold (culls)		_____ /year
Cull sow weight	_____	lb or kg	Breeding boar sales price (culls)		$_____ /head
Cull sow price	$_____	/lb or kg	# Preweaned piglet mortalities		_____ /year
Market value of breeding sow	$_____	/sow	# Grower/finisher mortalities		_____ /year
Market value of breeding boar	$_____	/boar	# Breeding sow mortalities		_____ /year
# Weanlings purchased for growers	_____	/year	# Breeding boar mortalities		_____ /year
Slaughter charge	$_____	/hog	Interest rate on operating expenses		_____ %
Cut & wrap charge	$_____	/lb or kg	Investment rate on capital and livestock		_____ %

II. Formulas to Calculate Interest on Operating Expenses, Depreciation Expenses & Investment Expenses

1. Interest on Operating Expenses: charged on subtotal operating expenses.
   Interest on Operating Expenses = [(Subtotal Operating Expenses/12) / 2] x Interest Rate on Operating
2. Depreciation Expenses: to be applied on buildings, manure storage, equipment & machinery.
   Depreciation Expenses = (Original Cost – Salvage Value) / Useful Life
3. Investment Expenses: to be applied on buildings, manure storage, equipment & machinery.
   Investment Expenses (Capital) = [(Original Cost + Salvage Value) / 2] x Investment Rate
4. Investment Expenses: to be applied on livestock.
   Investment Expenses (Livestock) = {(Total Value of Sows + Boars) + [(Total Value of Market Hogs Sold per Year) x (Days of Age at Market/365)]} x Investment Rate

III. Suggested Figures for Salvage Values & Useful Life

SALVAGE VALUE		USEFUL LIFE	
ITEM	**%**	**ITEM**	**YEARS**
Buildings	10	Buildings	20–25
Manure Storage	0	Manure Storage	20–25
Equipment/Machinery	10	Equipment/Machinery	10–15

IV. Approximate Daily Feeding Quantities When Estimating Feed Amounts & Expenses(1)

ANIMAL TYPE	FEED TYPE	DAYS OF AGE	DAYS ON FEED	APPROXIMATE DAILY FEEDING LEVELS	
				lb/hd/day	kg/hd/day
Pre/Post Weaning	Nursery/Starter	21–45	25	3.0–4.0 lb	1.4–1.8 kg
Feeders	Grower	45–75	30	4.0–5.7 lb	1.8–2.6 kg
Finishing	Finisher	75–130	55	6.0–7.3 lb	2.7–3.3 kg
Gestating sows	Gestation	—	290–300 days/year	5.0–8.0 lb	2.3–3.6 kg
Lactating sows	Lactation	—	65–75 days/year	14.0–16.0 lb	6.4–7.3 kg
Breeding Boars	Boar Diet	—	365 days/year	5.0–6.0 lb	2.3–2.7 kg

(1) Contact a swine nutritionist for precise ration formulations. Rations and daily feeding levels can vary widely depending on breed, feed ingredients, herd health, and the environment. The above figures are only for preliminary budgeting purposes.

V. INCOME

INCOME ITEM	SALES			AVG WEIGHT (lb / kg)		PRICE PER		INCOME $/YR
	#		UNITS			$	UNITS	
Weanlings			head				head	
Market Hogs			head		(4)		lb / kg	
Cull Sows			head				lb / kg	
Breeding Boars (culls)			head				head	
Carcass – Whole	(1)	(3)	whole		(4)		lb / kg	
Carcass – Half	(1)	(3)	half		(4)		lb / kg	
Carcass – Quarter	(1)	(3)	quarter		(4)		lb / kg	
Carcass – Cuts	(total weight of carcass cuts)			(2)	(5)		lb / kg	
A. TOTAL INCOME								

(1) Input the respective # Whole, Half and/or Quarter Carcasses sold.

(2) Input the total # lb or kg of annual carcass cuts sold.

(3) Calculate and input the # Market Hog Equivalents. These are calculated as follows: 1 Whole Carcass = 1 Market Hog Equivalent; 2 Half Carcasses = 1 Market Hog Equivalent; 4 Quarter Carcasses = 1 Market Hog Equivalent.

(4) Input the # lb or kg for average market hog weight.

(5) Use the following formula to calculate and input the # Market Hog Equivalents from total carcass cuts sold. [(Total weight of carcass cuts sold / 0.75) / Average weight of a whole carcass].

VI. DIRECT EXPENSES

DIRECT EXPENSES	FEED FED (lb or kg/hd/day)	DAYS FED (#)	TOTAL FEED (lb or kg/hd)	FEED EXPENSE ($/lb or kg)	TOTAL HEAD (#/yr)	EXPENSES $/YR
Feed – Pigs						
Nursery/Starter						
Grower						
Finisher						
Feed – Sows						
Gestation						
Lactation						
Feed – Boars						
Breeding Boars		365				
B. Total Feed Expenses						

OTHER DIRECT EXPENSES	QUANTITY		UNITS	EXPENSE $/UNIT	EXPENSES $/YR
Weanlings Purchased for Growers	#	/yr	weaner		
Replacement Gilts	#	/yr	gilt		
Replacement Boars	#	/yr	boar		
Herd Health (vet, med) - sows	$	/mo			
Herd Health (vet, med) - mkt hogs	$	/mo			
Traceability (ear tags, applicator)	$	/mo			
Trucking (animals, feed, supplies)	$	/mo			
Sanitation (sanitizers, scrubbers)	$	/mo			
Pasture Management	$	/mo			
Fence Repairs/Main.	$	/mo			
Marketing	$	/mo			
Mortalities	$	/mo			
Deadstock Disposal	$	/mo			
Labour Hours (operating labour)	#	/mo	hr		
Slaughter Charges	#	/yr	market hog		
Cut & Wrap Charges	#	/yr	lb or kg		
Other	$	/mo			
Other	$	/mo			

OTHER DIRECT EXPENSES	TOTAL ANNUAL FARM DIRECT EXPENSES ($)	% ALLOCATION OF DIRECT EXPENSES TO SWINE ENTERPRISE (1)	EXPENSES $/YR
Mach & Equip Repairs/Main.			
Truck & Tractor Repairs/Main.			
Fuel, Oil & Lube			
Misc. (fees)			
Utilities (heating, electricity)			
Other			
C. Total Other Direct Expenses			
D. TOTAL DIRECT EXPENSES (B + C)			

(1) % Allocation of Direct Expenses to swine enterprise is based on the estimate of total farm generated revenue that is derived from the swine operation (e.g., if annual farm income = $80,000 and swine contributed $20,000, then % allocation = 25%).

VII. CONTRIBUTION MARGIN

E. CONTRIBUTION MARGIN (A–D)	

VIII. INDIRECT EXPENSES

INDIRECT EXPENSES	TOTAL ANNUAL FARM INDIRECT EXPENSES ($)	% ALLOCATION OF INDIRECT EXPENSES TO SWINE ENTERPRISE (1)	EXPENSES $/YR
Property Taxes			
Water Fees & Licences			
Building Repairs/Main.			
Insurance Premiums			
Legal & Accounting Fees			
Office & Telephone			
Shop Supplies & Small Tools			
Interest on Term Loans			
Other			
Other			
F. TOTAL INDIRECT EXPENSES			

(1) % Allocation of Indirect Expenses to swine enterprise is based on the estimate of total farm generated revenue that is derived from the swine operation (e.g., if annual farm income = $80,000 and swine contributed $20,000, then % allocation = 25%).

IX. TOTAL OPERATING EXPENSES

TOTAL OPERATING EXPENSES	EXPENSES $/YR
G. SUBTOTAL OPERATING EXPENSES (D + F)	
H. Interest on Operating Expense (1)	
I. TOTAL OPERATING EXPENSES (G + H)	

(1) Refer to Formulas Table under Section II for a description of the methodology in calculating 'Interest on Operating Expenses'.

X. CAPITAL (DEPRECIATION) EXPENSES

CAPITAL (DEPRECIATION) EXPENSES	FARM CAPITAL VALUE OF ITEMS ($)[1]	% ALLOCATION TO SWINE ENTERPRISE[2]	ALLOCATION TO SWINE ENTERPRISE ($)	SALVAGE VALUE ($)[3]	USEFUL LIFE (YR)[3]	DEPRECIATION EXPENSES $/YR[4]
Buildings & Manure Storage						
Gestation Bldgs/Pens						
Farrowing Bldgs/Pens						
Nursery Bldgs/Pens						
Grower/Finish Bldgs/Pens						
Pasture Shelters						
Fencing						
Feed Storage						
Manure Storage						
Other						
Other						
J. Total Buildings & Manure Storage						
Equipment & Machinery						
Feed Handling						
Feeders						
Heated Waterers						
Gates & Partitions						
Animal Handling/Loading						
Weigh Scales						
Truck						
Stock Trailer						
Tractor						
Manure Spreader						
Other						
Other						
K. Total Equipment & Machinery						
L. TOTAL CAPITAL (DEPRECIATION) EXPENSES (J + K)						

(1) The 'Capital Value' is the cost to replace the capital item. In most budgets, this would be the new cost for a building, equipment or machinery; however, price conscious buyers can get away with including values lower than new cost (e.g., buy a good used tractor).

(2) % Allocation of Capital Values to swine enterprise is based on the estimate of total farm generated revenue that is derived from the swine operation (e.g., if annual farm income = $80,000 and swine contributed $20,000, then % allocation = 25%).

(3) Refer to Table in Section III for suggested values for 'Salvage Values' and 'Useful Life'.

(4) Refer to Formula Table under Section II for a description of the methodology in calculating 'Depreciation Expenses'.

XI. CAPITAL (INVESTMENT) EXPENSES

CAPITAL (INVESTMENT) EXPENSES	ALLOCATION TO SWINE ENTERPRISE ($)[1]	SALVAGE VALUE ($)[1]	INVESTMENT RATE (YR)[2]	INVESTMENT EXPENSES $/YR[3]
Buildings				
Manure Storage				
Equipment & Machinery				
Livestock[4]				
M. TOTAL CAPITAL (INVESTMENT) EXPENSES				

(1) These values were determined in Section X and transferred to Section XI.

(2) Investment Rate (%) that was recorded in Table in Section I.

(3) Refer to Formula Table under Section II for a description of methodology in calculating 'Investment Expenses'.

(4) Livestock Value based on figures recorded in Table in Section I for sows and boars, plus an adjusted value for market hogs sold/yr.

XII. NET FARM INCOME

SUMMARY CALCULATION OF NET FARM INCOME	TOTAL $/YR
A. TOTAL INCOME	
D. TOTAL DIRECT EXPENSES	
E. CONTRIBUTION MARGIN	
F. TOTAL INDIRECT EXPENSES	
G. SUBTOTAL OPERATING EXPENSES	
H. Interest on Operating Expenses	
I. TOTAL OPERATING EXPENSES	
Net Returns Over Operating Expenses[1]	
L. TOTAL CAPITAL (DEPRECIATION) EXPENSES	
M. TOTAL CAPITAL (INVESTMENT) EXPENSES	
N. NET FARM INCOME [A – (I + L + M)]	

(1) 'Net Returns Over Operating Expenses' is calculated by subtracting Total Operating Expenses (I) from Total Income (A).

XIII. SUMMARY OF INCOME & COST OF PRODUCTION (COP) PER UNIT

PARAMETER[1]	Per Sow[3] ($/sow)	Per Weaner[2] ($/weaner)	Per Market Hog[2] ($/market hog)	Per lb of kg Meat[2] ($/lb or kg meat)
% Allocation of Total Income[2]				
A. TOTAL INCOME				
D. TOTAL DIRECT EXPENSES				
E. CONTRIBUTION MARGIN				
F. TOTAL INDIRECT EXPENSES				
G. SUBTOTAL OPERATING EXPENSES				
H. Interest on Operating Expenses				
I. TOTAL OPERATING EXPENSES				
Net Returns Over Operating Exp.				
L. CAPITAL (DEPRECIATION) EXPENSES				
M. CAPITAL (INVESTMENT) EXPENSES				
N. NET FARM INCOME				

(1) Per unit figures for these parameters are calculated by taking 'Enterprise Budget Worksheet' totals (Section XII) and dividing each by the respective # sows, # weaners sold, and/or # market hogs sold (Section I), and/or # lb or kg meat cuts sold (Section V).

(2) For farms ***SELLING A COMBINATION*** of weaners, market hogs, and/or meat cuts, please input the ***% Allocation of Total Income*** attributed to each category. Example: If Total Income of $100,000/year with weaner sales ($20,000), market hog sales ($70,000), and meat cut sales ($10,000), then input 20%, 70%, and 10% under the PER WEANER, PER MARKET HOG, and PER LB OR KG MEAT columns respectively on the line designated as ***% Allocation of Total Income***. Once these %'s are inputted, take the 'Enterprise Budget' totals from Section XII and multiple each by the % figure for each respective column (e.g., weaners, market hogs, meat cuts), then divide by the # weaners sold or # market hogs sold (from Section I) or by the # lb or kg of meat cuts sold (from Section V) to generate PER UNIT values.

(3) 100% of weaner pigs must be sourced from sows managed on-farm for an accurate calculation of $/sow.

SECTION 3 REFERENCE LIST

1. PennState Extension. Agricultural Alternatives. Swine Production (2016)
2. Agriculture and Horticulture Development Board. Pork. Costings and Herd Performance (2016)
3. Kwantlen Polytechnic University. Enterprise Budgets. Enterprise Budget Users Guide (2020)
4. Fearless Farm Finances: Farm Financial Management Demystified. Midwest Organic and Sustainable Education Services (2012)
5. Guidelines for Estimating Swine Farrow-Finish in Manitoba, Manitoba Agriculture (2019/2020)
6. U.S. Pork Centre of Excellence (2020)
7. Sustainable Agriculture Research and Education. USDA. Hog Production Systems (2012)
8. Niche Pork Production – Peter Lammers, David Stender and Mark Honeyman. Iowa State University (2007)

SECTION 4: HOUSING & MANAGEMENT

Now that you have a better understanding about the economics and requirements for getting set up to raise pigs, it is time to learn about how to provide them with an appropriate environment.

The NFACC **Canadian Code of Practice for the Care and Handling of Pigs**[1] outlines housing requirements and recommendations.

- The B.C. Ministry of Agriculture references the NFACC Canadian Code of Practice for the Care and Handling of Pigs under regulation and recognizes it as a part of reasonable and generally accepted farming practices.
- While failure to abide by the Code is not an offence under provincial legislation, following the Code is a way for you to legally demonstrate how you prevented animal distress, and acted in line with the *Prevention of Cruelty to Animals Act*.
- The Code reflects industry supported standards that promote animal health and well-being.
- The Code is available electronically at www.nfacc.ca/codes-of-practice/pigs.
- Code requirements will be included throughout the manual and presented in a box as follows:

REQUIREMENTS[1]
(Throughout this manual where a Code requirement is presented, specific wording of the Code requirement will appear in a box like this.)

4.1 FENCING & PROTECTION FROM PREDATORS

KEY POINT CHECKLIST

Appropriate fencing is of paramount importance when raising pigs. Fencing provides a barrier to keep pigs within a defined area, while also keeping predators or unwanted visitors out. Consider the following:

DO:

- Have **DOUBLE** fencing.
  - The distance between two above-ground fences should be a minimum 1.2 metres (or 4 feet) to a maximum 5.0 metres (or 16 feet).
  - Double fences should prevent nose-to-nose access with wildlife.
  - A second fence provides a backup plan if one fence fails.

- Use special **Hog Fencing**.
  - Hog panels OR page wire with boarded bottom and top.
  - Fence material must be 12.5-gauge hinge lock mesh fencing or heavier high tensile wire with spacing adequate to prevent fence-line breaches by pigs.
  - If electric fence wire is used, please see specifications in Section 9: WILD & FERAL PIGS IN CANADA.

- **Fence off feed** bins/feed storage.
  - Rodents, predators, and other pests (including wild pigs) will be attracted to spilled feed.
  - It is advisable that perimeter fencing be buried **underground** to a minimum 45 centimetres (or 1.5 feet).
  - Pigs will dig so fences must be deep.

- Fences need to be **high**.
  - Pigs will jump, so make sure fences and pens are high enough to keep them in.
  - Perimeter fencing should be constructed to be a minimum 1.5 meters (or 5 feet) in height above the ground.

- Regularly **walk about** to check for weak spots.
  - If you don't find them, the pigs will.
  - Pigs are escape artists and will test your ability to make a strong fence.

1. High double fence lines with space in between fences to prevent nose to nose contact with wildlife.
2. Strong double fencing with hog panels and hog fencing buried into the ground.
Photos: Dr. Kelsey Gray

AVOID:

- Only electric fences.
  - When used alone and not in combination with hinge lock mesh fencing, electric fences can provide a greater opportunity for sneaking through a fence.
- Weak or damaged fencing.
- Allowing pigs to create common routes that become dug outs around fence lines.
  - These areas can allow water to fill near a fence-line leading to areas where pigs can root deeply and get under a buried fence.

Photos: Dr. Kelsey Gray

4.2 HOUSING

SHELTERS – INDOOR & OUTDOOR

Pigs are susceptible to extreme weather challenges, which are common in Canada. Good housing should offer protection from all weather extremes. Pigs require shade from the sun and barriers from the wind, warmth from the cold, and somewhere to cool off when it is hot. Consider the following:

DO:

- Have enough shelters for all pigs if your farm is fully outdoors.
  - Pigs are prone to sunburn and require shade.
  - ALL pigs should be able to comfortably find shelter at the same time.
- Consider having indoor/outdoor access.

  - Having an indoor/outdoor facility improves your ability to accommodate extreme weather.

- Consider specific shelters for compromised animals.
  - Providing shelters and a heat source for newborn piglets.
  - Providing shelters for mother sows who are pregnant, farrowing, or nursing.
  - Providing shelters to segregate and isolate sick or injured animals being treated.

1. Shelter bedded with straw for outdoor protection.

2. Shelter with door access.

3. Inside of shelter showing the straw bedding for warmth.

Photos: Dr. Kelsey Gray

REQUIREMENTS[1]
Nose rings must not be used.
Pigs must have access to shelter that minimizes the effects of adverse weather and provides a dry resting area and shade.
A protocol must be developed and implemented that protects pigs from parasites and predators.

REQUIREMENTS[1]
Housing systems and their components must be designed, constructed and regularly inspected and maintained in a manner that reduces the potential for injury, provides suitable temperatures, fresh air, and clean conditions, and allows for inspection of all pigs.
Emergency plans must be developed to ensure that alternative means of temperature regulation, ventilation, feeding, and watering of pigs are available in the event of a power failure mechanical breakdown, or other emergency situation.
Pigs must not be tethered as part of their normal housing systems.

AVOID:

Bringing pigs who are not pets into your house for health and hygienic reasons.

SPACE

Ensure there is enough space for the number of pigs you are housing.

TABLE 1: PIG SPACE ALLOWANCES BY BODY WEIGHT

AVERAGE BODY WEIGHT (KG)	AVERAGE BODY WEIGHT (LB)	MINIMUM SPACE ALLOWANCE PER PIG (m^2)	MINIMUM SPACE ALLOWANCE PER PIG (ft^2)
10	22	0.16	1.67
20	44	0.25	2.66
30	66	0.32	3.49
40	88	0.39	4.22
50	110	0.46	4.90
60	132	0.51	5.53
70	154	0.57	6.13
80	176	0.62	6.70
90	198	0.67	7.25
100	220	0.72	7.78

AVERAGE BODY WEIGHT (KG)	AVERAGE BODY WEIGHT (LB)	MINIMUM SPACE ALLOWANCE PER PIG (m^2)	MINIMUM SPACE ALLOWANCE PER PIG (ft^2)
110	243	0.77	8.29
120	265	0.82	8.79
130	287	0.86	9.27
140	309	0.90	9.74

Source: Canadian Pork Council. Canadian Pork Excellence, 2020[2]

BEDDING & WALLOWING

Bedding provides multiple benefits for pigs: it offers warmth, it is a form of enrichment, provides comfort, and improves the animal's well-being.

Wallowing is a natural behaviour for pigs and is critical for their ability to cool off as pigs cannot sweat. Consider the following:

DO:

- Provide suitable bedding.
  - Most straw-based options are suitable.
- Use enough bedding.
  - Deeper bedding for cold winter months.
  - Can use ~1/3 less bedding in summer vs winter.
- Use clean bedding.
  - Manure or urine contaminated bedding can cause scalding and chemical burns to the skin.
  - Assess pig cleanliness frequently and regularly. If they look dirty, it's time to clean out and replace the bedding.
  - Add more bedding as dunging areas form to prevent the pen from dirtying rapidly.
- Change bedding.
  - Between groups of pigs.
  - When it becomes obviously soiled.
- Provide wallowing areas.
  - Mud pits, water pits, or water pools all work.
  - Pigs cannot sweat.
  - Wallowing areas are critical to raising pigs outside.

REQUIREMENTS[1]
Flooring must be designed and maintained to minimize slipping.
Flooring must be designed, constructed and maintained in a manner that does not cause injury or suffering to pigs standing or lying on them, and must contribute to pig comfort.
Where bedding is provided, it must be clean, dry, and not harmful to the pigs.

AVOID:

- Wood shavings.
  - Contact your wood shavings provider to ensure the product is preservative-free.
  - Certain chemical preservatives in wood shavings (PCPs, chromated copper arsenate, or other wood-preserving agents) can absorb through the skin of pigs and create residues that are unsafe for human consumption.
- Dusty bedding.
  - Excessively dusty bedding, sandy soil, and dirt-pens can act as an irritant on their respiratory tract and predispose animals to infection.

SUPPLEMENTAL HEAT

There are certain situations where supplemental heat is necessary. Consider the following:

DO:

- Provide heat lamps for newborn piglets.
  - Extra heat is instrumental for the survival and strength of newborn piglets.
  - Supplemental heat lamps keep piglets away from the warm sow and prevent them from being accidently crushed by her.
- Consider location of supplemental heat.
  - Ensure supplemental heat sources are checked regularly and positioned in a way that they will not catch fire.
  - Pigs LOVE chewing on things so make sure electrical cords are out of reach.
- Consider providing supplemental heaters indoors during cold and/or drafty winter spells.
- Keep heat lamps and supplemental heaters clean of dirt and dust to prevent a fire hazard.

Maternity pen with heat lamp on to provide extra warmth.
Photos: Dr. Kelsey Gray

A detailed summary of optimum and desirable temperature limits by age group is presented in Table 2.

TABLE 2: OPTIMUM AND DESIRABLE TEMPERATURE LIMITS BY AGE GROUP

ANIMAL	OPTIMUM TEMPERATURE* °C (°F)	DESIRABLE LIMITS* °C (°F)
Creep areas for newborn piglets	35 (95)	32–38 (89–100)
Creep areas for older suckling piglets (2–5 kg [4–11 lb])	30 (85)	27–32 (81–89)
Young pigs (4–5 days post weaning)	35 (95)	33–37 (91–99)
Young pigs (5–20 kg [11–44 lb])	27 (80)	24–30 (75–86)
Growing pigs (20–55 kg [44–121 lb])	21 (70)	16–27 (61–81)
Finishing pigs (55–110 kg [121–243 lb])	18 (65)	10–24 (50–75)
Gestating Sows	18 (65)	10–27 (50–81)
Lactating Sows	18 (65)	13–27 (55–81)
Boars	18 (65)	10–27 (50–81)

Source: National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs, 2014[1]

**Stated temperature reflects the desired temperature in the environment directly around the pig, and not necessarily the overall temperature of the barn. Supplementary heat sources (e.g., heat lamps) can be used to achieve desired temperatures.*

LIGHTING

Pigs prefer a well-lit environment when awake but prefer to sleep in the dark. **For pigs raised outdoors, their preferred lighting schedule is created naturally.**

If you house pigs indoors, or temporarily indoors, please consider the following:

DO:

- Provide lighting of proper intensity and duration.
- Light should be bright enough (to read a newspaper) for a minimum 8 hours per day.
- Light fixture number and placement should avoid creating shadows.
- Provide darkness for 6 consecutive hours at night.

REQUIREMENTS[1]

Sufficient lighting must be available to permit thorough inspection of pigs and facilities at any time, and for normal husbandry practices.

A minimum of 50 lux of lighting (described as bright enough to allow a person of normal sight to read standard newspaper print) must be provided for a minimum of 8 hours per day.

Pigs must have access to darkened area (i.e., ~5 lux or less, with the exception of heat devices in the farrowing area and the first 48 hours for newly weaned pigs) for at least 6 consecutive hours per day.

VENTILATION

Pigs require quality air that is free of harmful gases and has appropriate humidity levels. **For pigs raised outdoors, the natural fresh air meets these needs.**

Young piglets are extremely sensitive to changes in their environment. Chills, drafts, and/or high humidity in the barn can create major health problems.

If you have pigs indoors, or temporarily indoors, please consider the following:

DO:

- Have appropriate ventilation that provides a continuous source of clean, fresh air at all times.
- Remove wet bedding and manure regularly to keep ammonia levels below 25 ppm. Your eyes will start to sting when ammonia reaches this level.
- Manage and minimize dust in the barn.

REQUIREMENTS[1]

Environmental control systems must be designed, constructed and maintained in a manner that allows for temperatures, fresh air, and hygienic conditions that promote health and welfare for pigs.

Newborn piglets must be housed at temperatures that will assists them to reach and maintain normal body temperatures.

Reasonable steps must be taken to help prevent and manage housed pigs from becoming overheated or cold stressed.

AVOID:

- Manure and urine build-up, which can increase ammonia levels.
- Conditions that allow cold drafts, which can cause illness or death in young piglets.

HOUSING SOWS

It is uncommon to see gestation or breeding stalls in outdoor pig production. If you are using gestation stalls, please refer to the Code of Practice for stall requirements.

If you are using farrowing crates, follow space requirements from the Code of Practice.

If housing sows in loose pens, follow the space requirements from the Code of Practice.

REQUIREMENTS[1]

All group housed sows must be able to stand, move about and lie down without interference with each other in a way that compromises welfare, and space must be provided for separation of dunging from lying and eating areas.

REQUIREMENTS[1]

The length of a farrowing crate must allow the sow enough room to move forward and backward, and to lie down unhindered by a raised trough or rear gate.

When standing in a normal position in a farrowing crate, the sow must not touch the sides of the crate (not including the anti-crush rails) simultaneously, and her back must not touch any bars along the top.

Sows must not be kept in farrowing crates for more than 6 weeks in any one reproductive cycle except in exceptional circumstances (e.g., when a sow is required to foster a second litter).

The farrowing system must provide an area to which piglets can retreat when the sow moves.

Photos: Dr. Kelsey Gray

4.3 HYGIENE

There is a misconception that pigs are "dirty" animals. This is not true. They certainly look content wallowing in mud and rooting in the dirt, but they are in fact a very clean animal. Pigs will naturally establish a soiling area in their living space and will tend to defecate and urinate in that designated area.

It is difficult for us to predict which location they assign as the toilet. Pigs establish this on their own.

Pigs prefer a clean sleeping and feeding area, and typically will not dung in these places. Regardless of their own hygienic behaviour, they still require your active involvement in creating a safe, clean space for them.

CLEANING & DISINFECTION

There is a difference between "clean", "disinfected", and "sterilized".

- **Clean** = Physically removing visible contamination, dirt, or grime (usually with soap and water and a mechanical tool like a brush).
- **Disinfected** = Chemically killing almost all invisible germs (usually with a chemical disinfectant that requires a specific amount of contact time).
- **Sterilized** = A chemical or physical process that gets rid of ALL pathogens or germs using extreme heat or specific chemical products.

For your farm, we will focus on proper cleaning and disinfection. An important part of cleaning and disinfection for farm animal health and food safety is **drying**. Whenever you clean or disinfect an area, pen, or equipment, always ensure it is **dried** before placing animals or using the equipment around animals. This is a key component to eliminating those invisible germs.

WHEN SHOULD YOU CLEAN AND DISINFECT:

BARN 	• In between batches of separate pigs. (See instructions below). • **At least twice a year** if you have a continued flow of pigs moving in and out. • Bedding should be changed as frequently as needed depending on weather and how soiled it becomes.
TRAILER 	• EVERY time after you haul pigs – inside and outside. • This should be cleaned, disinfected and dried.

4.3 HYGIENE

EQUIPMENT	• Like boots, coveralls, handling equipment, wheel barrels, etc. • As frequently as you can. • After handling sick animals. • After and before use in quarantine areas.
FEED & WATER TROUGHS	• In between batches of separate pigs. • As needed – do not let feed and water troughs build up grime and contamination – feed and water are great mediums for bacteria to grow. • Feed will grow mould, so make sure it is provided fresh every day.
MATERNITY PENS	• In between EVERY litter. • Maternity pens and farrowing crates should be disinfected prior to moving a pregnant animal in here to farrow – remember, newborn piglets are new babies. • Ensure the pen or crate is completely dry before placing animals.
SICK PENS	• In between housing sick animals to limit the spread of disease.

WHAT YOU NEED:

Protective Clothing
- Boots, coveralls, gloves, masks, eyewear, and earplugs.

Power Washer or Hose
- If you have an indoor facility or shelters, you may need a power washer.
- A hose with a spray-gun can also work.
- You can find attachments for your hose to attach soaps and disinfectants.

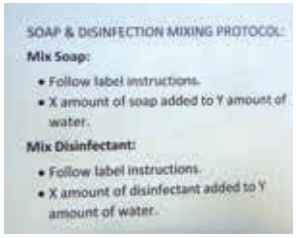
Soaps
- There are many different industrial grade soaps available.
- Purchasing soaps from veterinary clinics or farm supply stores should lead you toward animal safe products.

Disinfectants
- There are many different industrial grade disinfectants available.
- Purchasing disinfectants from veterinary clinics or farm supply stores should lead you toward animal safe products.

Photos: Dr. Kelsey Gray

Mixing Protocols

- Ensure soaps and disinfectants are mixed according to label.
- Over concentrated products can be irritating and toxic.
- Under-concentrated products can fail to work and be a waste of money.



Manure Management

- See Section 8.3 BIOSECURITY for information about manure management.
- If you are a fully outdoor facility, cleaning may be focused on manure management and pasture rotation.

Clean Space to Store Equipment

- Ensure cleaning and disinfecting equipment is dried and stored safely away from chemical contaminants, birds, and rodents

Photos: Dr. Kelsey Gray

HOW TO WASH THE BARN:

STEP 1	Pigs leave the building/barn.
STEP 2	Remove all feces, left-over feed, bedding, and other easily removed materials.
STEP 3	Compost all removed material.
STEP 4	Power wash or hose off all surfaces with water.
STEP 5	Leave for 30 minutes.
STEP 6	Examine the outside area.
STEP 7	Remove all fecal material, bedding, debris from outside area.
STEP 8	If outside area has been dug up, replace soil as needed.
STEP 9	You may need to turn over the soil surface.
STEP 10	Repair wallow area if needed. Drain the wallow area if possible to allow it to dry.
STEP 11	After allowing the barn/floor area to soak for 30 minutes, brush the floor or power wash/hose down the floor and area with soapy water. (Mix according to label.)
STEP 12	Clean floor, area, feed and water troughs, and equipment in barn thoroughly with soap.
STEP 13	Allow area 1 hour to sit – repair any damages to building/flooring.
STEP 14	Prepare disinfectant and disinfect all surfaces (up to 1 meter high on walls). (Mix according to label.) Let disinfectant SIT. DO NOT wash off with water.
STEP 15	Allow space and equipment to FULLY DRY after disinfectant is applied.
STEP 16	Allow pigs to re-enter facility after it is completely dried (minimum 24 hours).

Source: Manual for Pig Rearing in Uganda, 2011[3]

REQUIREMENTS[1]
A sanitation protocol must be developed for each production area of the barn and followed at least annually.
Manure must be removed and stored in a manner that promotes the health and welfare of animals.

RODENT & PEST CONTROL

Rodents, birds, and insects can be major contributors for spreading disease amongst pigs.

Rodents can shed pig diseases like *salmonellosis*, *erysipelas*, and *colibacillosis*.

Starling birds and pigeons can carry diseases that can cause severe diarrhea in pigs.

Insects can fly from farm to farm and carry diseases with them.

It is impossible to prevent pigs from interacting with these other creatures, however, reducing exposure and contamination by pests is beneficial for the health of your pigs.

Under B.C.'s *Farm Practices Protection Act (FPPA)*, producers have a legal obligation to manage their operations to prevent nuisances (e.g., dust, noise, odour, flies, rodents). See Section 1.6 PROVINCIAL LEGISLATION IN BRITISH COLUMBIA.

DO:

- Store feed in sealed or screened containers.
- Sweep and clean up spilled feed around feed bins or barns.
- Remove trash, equipment, or other objects that would serve as hiding places or attractants to rodents and predators from outside of the barn or near the walls.
- Regularly mow grass and/or weeds from around and near the barn and feed storage bins.
- Use rodenticides in sheds, barns, or near feed storage, but keep them away from livestock or pets.
- Place traps or bait stations in several locations around the barn.
- Keep rodenticides out of reach of pigs or pets – this can be toxic to them.
- Keep your barn and pig pens clean.

Fly control in the barn is a good way to reduce contamination by insects.
Photo: Alberta Pasture Pig Producer & Breeder

4.4 HOSPITAL PENS

At some point, you may have a sick or injured animal that needs treatment and extra care. A sick or injured animal may not be able to compete for food and water and are often picked on by dominant animals. These animals should be removed from the main herd and placed in isolation in a separate "hospital" pen. Consider the following:

DO:

- Create a separate pen.
  - Remove sick or injured animals from the main herd as soon as possible so they can be treated and have a better chance of recovery.
  - Removing sick or injured animals can reduce the spread of disease to healthy animals.
- Offer more bedding and/or shelter.
  - Sick or injured animals may require extra comfort and more bedding as they may not be healthy enough to handle everyday stressors.
- Pay attention to the animal's social needs.
  - Separating the animal is usually recommended, but, if this animal has never been alone before, it may feel more stressed without a companion.
  - Consider a companion IF you are not worried about a contagious disease.
  - Be aware that when reintroducing the animal to the herd, there may be some fighting.

REQUIREMENTS[1]
Every pig production facility must have the ability to segregated sick or injured pigs in a separate area where the necessary treatment can be administered.

4.5 SOCIAL INTERACTIONS

Pigs are social animals and prefer to live with other pigs. Pigs will create their own hierarchy and establish dominate and submissive animals. Once the group establishes their hierarchy, this is easily disturbed by introducing new animals or removing animals. Pigs may fight when a new animal is introduced. It is important to monitor group dynamics and have a plan to assist an animal being picked on. It is important that pigs have interactions, but please consider the following:

DO:

- House pigs with other pigs.
- House pigs with pigs of similar size and age.
- Monitor group dynamics.
- Remove pigs from a group in which they are being picked on.

REQUIREMENTS[1]
Strategies to minimize or eliminate aggression must be developed and followed.

AVOID:

- Introducing 1 new animal to a large group (if you are introducing one animal, introduce it to a small group of 2 or 3 pigs and gradually combine this group into the larger herd).
- Pig interactions with wildlife. Fences are critical to prevent this.
- Housing multiple domesticated species together. This is a good way to spread different diseases.
- Housing breeding pairs together year-round (they lose sexual interest in one another). See Section 6.1 REPRODUCTION MANAGEMENT.

4.6 ANIMAL HANDLING & SAFETY

KEY POINT CHECKLIST

It is very important for your safety and that of your animals for you to understand pig handling and behaviour. Even when working with animals whom you have raised for a long time, you must always respect that they have natural animal instincts that can override a bond that they share with you. Animals who are frightened, injured, protective, hormonal, or who feel threatened may behave in unpredictable ways.

- Example 1: Sows in heat, or when giving birth, or when with their litters can display sudden aggressive behaviour and can seriously injure you. They will do anything to protect their litter and may see you as a threat.
- Example 2: Breeding age males (boars) can quickly become very aggressive with little warning, particularly if around female pigs in heat.

You should always practice good animal handling and always remain alert when working around pigs. It is beneficial to understand pigs' natural instincts and to respect their boundaries when working with them. For example, pigs will use their peripheral vision to drive on forward (if you block off an area to the right, they will see the opening over to the left and head that direction).

Pigs prefer to move with other pigs. Trying to move 1 pig at a time can be frustrating because the pig is bound to want to go back toward the other pigs, therefore, try moving 2 pigs at a time. Additionally, pigs are sensitive to sound and using rattles or shakers are useful to get their attention to get pigs to stand up when you are checking them.

The important thing to consider when handling pigs, is to be patient. The pig has a different perspective than you. **There is a good saying when working with animals *"if you have no time, it will take all day, if you have all day, it will take no time".***

Here are a few important "Pig Tips" authored by Jennifer Woods[4]:

PIG TIPS

- Pigs do not appear to discriminate between different handlers. They tend to generalize their experience with one handler and apply to all others.
- Due to their poor vision, pigs will often try to force their way through small openings. They will target in on small openings of light, especially if it is between the handler's legs.
- Hog panels should be utilized at all times. In an alley, the panel should be slightly narrower than the alley. Other moving aids are canvas slappers and plastic shakers.
- Pigs do not like to back up. However, they can be guided backwards by placing a basket or box over their head, as they will try to back out of it.
- Pigs are prone to heart failure. A pig that is experiencing heart failure will collapse, breathe rapidly, and have blue ears and snout.
- Pigs have a very strong escape reaction.
- Pigs are not designed for exercise or endurance.
- Pigs do not like stepping up or down, but they can jump up to four (4) feet.
- Pigs startle easily. Indoor pigs are sensitive to light and will not go into bright light such as sunlight or headlights.
- Hogs will refuse to leave their building during truck loading when it is either cold or very bright outside.
- Excitable pigs are easier to handle and load if producers have walked through the pens every day during finishing. Do not spend too much time with pigs (over-socialize), as this will make them more difficult to handle. They will want to follow instead of being driven.
- Overcrowding or mixing of pigs can cause fighting, injury and savaging.
- A pig that is in distress will make loud, deep, gasping sounds, stand with their head down or lie down, breathe rapidly, make gasping sounds and refuse to move.
- Hogs are highly reactive and will react to changes in footing, flooring surface, temperature, lighting, odour, other people, drafts or winds, shadows and noises.
- Breeding stock (mature sows and boars) are very powerful animals that can be quite dangerous. They must be handled with extreme caution at all times.
- Sorting boards should be used at all times when handling breeding stock.

- Handlers should also be aware of where they are at all times and ensure they are not in a place where a boar or sow can crush them up against a fixed object (e.g., wall, feeder).
- Boars are extremely dangerous and extreme caution should be shown at all times.

EQUIPMENT

Below is a list of some appropriate animal handling tools. You should have some of these on your farm!

HOG HANDLING TOOLS

Hog Board – The most versatile tool is typically the sorting board or sorting panel and can be a single or bi-fold panel. A sorting board can provide both a physical and a visual barrier. When using a sorting panel make sure to use the ground as an anchor, don't try to hold back a pig with the board wedged against your legs/knees.

Rattle Paddle – The rattle/shaker paddle can provide auditory and visual stimuli. Shaker cans or bottles can also be used. Rattle paddles can also be used to gently tap an animal, but should not be raised higher than shoulder level.

Matador Cape/Bat Wings – A matador's cape can be effectively used as visual barrier with nearly all pigs. Its main use is as a tool to block a pig's vision and provide the illusion of a dead end.

Nylon Flag – A nylon flag is an effective, visual stimuli in many cases, especially with larger pigs. Used correctly, it can draw a pig's attention, as well as block its visual path.

Photos: Dr. Kelsey Gray

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear the correct equipment to keep yourself safe when working with pigs:
Boots
Coveralls
Gloves
Masks (if dealing with manure or chemicals to avoid the effects of harmful gases)
Ear plugs
Eye wear

DO:

Follow the Pig Tips.
Use appropriate animal handling tools.
Wear PPE.

AVOID:

Electric prods are not encouraged to be used in the industry; however, there is very specific time and place for their use. Please refer to the Code of Practice regarding the safe use of these instruments.

REQUIREMENTS[1]
Use humane moving devices when moving pigs (e.g., chase boards, shakers).
Electric prods must only be used as a last resort and never as the primary driving device, When necessary, use of prods must be restricted to the back and hind quarters on lead pigs, but never used in the anal and genital areas, and only when there is clear path for them to move forward.
Electric prods must not be used in the finishing pen.
Electric prods must not be used on piglets, nursery, distressed, sick or injured pigs.
Pigs must not be handled aggressively (e.g., kicked, walked on top of, picked up or suspended or pulled by one front leg, ears or tail).
Pigs that become distressed during handling must be attended to immediately.
Pig must only be restrained for as long as necessary and only appropriate, well-maintained restraint devices must be used.

SECTION 4 REFERENCE LIST

1. National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs (2014)
2. Canadian Pork Council. Canadian Pork Excellence (2020)
3. Manual for Pig Rearing in Uganda. Drs. Linda Nelson and John Carrs, Daktari Animal Health (2011)
4. Pig Trips. Livestock Handling. Personal Communications – Jennifer Woods, M.Sc. (2019)

SECTION 5: NUTRITION & FEEDING MANAGEMENT

This section will help you understand how to feed your pigs and inform you about federal law around feeding pigs in Canada.

TAKE HOME MESSAGES:

1. **It is *illegal* to feed meat to pigs** under the Canadian Food Inspection Agency's (CFIAs) Health of Animals Regulations. This includes:
   - All pet food containing meat or meat by-products.
   - Food waste containing meat.
2. **It is *illegal* to feed international waste to pigs** (e.g., leftover garbage from ships and airplanes) under the Canadian Food Inspection Agency's (CFIAs) *Health of Animals Regulations*.
   - This waste can be contaminated with viruses like **African swine fever (ASF)** and **Foot and Mouth Disease (FMD)**.
3. **Do not feed kitchen wastes or food scraps to pigs.**
   - In the event wastes or scraps have trace amounts of virus, the outcome to animal health could be potentially devastating.
   - If a disease occurred, it could cause widespread outbreaks affecting many thousands of pig producers and even cause disruptions in the export of pork products.
4. **Viruses like ASF or FMD can cause serious implications including death of your pigs as well as cause a national emergency and disrupt trade.** These viruses can SURVIVE several months in fresh, frozen, cooked, artificially cooked, and processed pork products. **ANY PORK SCRAPS ARE SERIOUS RISKS.**

5.1 NUTRITION BASICS & REQUIREMENTS

There are a few definitions on feeding pigs to be familiar with:

WORD	DEFINITION
Ingredient	A component of a pig's diet. Just like flour is an ingredient in baking bread, feeds like barley, wheat, dried distillers' grains and canola meal are examples of ingredients in pig feed.
Nutrient	A micro molecule required for body functions and life, and that is derived from ingredients (e.g., proteins, minerals, vitamins).
Mineral	An element required for body functions and life. Mineral elements are further categorized as macro elements (e.g., Calcium, Phosphorous, Magnesium) and micro elements (e.g., Iron, Cobalt, Copper). Minerals exist in all feed ingredients. Minerals can be added to a pig's diet as a component of a supplement or a premix.
Vitamin	An organic compound needed for normal growth and body functions. Vitamins are required in very minute amounts. Vitamins can be found in feed ingredients; however, levels vary widely among ingredients and their bioactivity diminishes with time. Vitamin requirements are typically met by adding them to a pig's diet as a component of a supplement or a premix.
Supplement	A supplement is a manufactured feed that is enriched with proteins, minerals, vitamins, and other essential nutrients. It is combined and fed with other feed ingredients to provide a nutritionally balanced diet to pigs.
Premix	A mixture of specific micronutrients (e.g., micro minerals, vitamins) that are required in very minute quantities. The premix is then added as one of several components in the manufacture of a feed supplement. The premix is of such a volume that when included in a supplement, it ensures equal distribution of micronutrients throughout the feed supplement.
Complete Feed	A nutritionally balanced diet that has all the necessary nutrients (including carbohydrates, proteins, minerals and vitamins) in one diet. Feeding a complete feed to pigs is similar to feeding dog kibble at home (it is one simple diet that provides everything the animal's body requires).
Creep Feed	A highly digestible diet used to introduce solid feed to young piglets.
DDGs	Dried distillers' grains are the leftover grains from alcohol production. DDGs provide both energy and protein; however, when fed it MUST be supplemented as it is not a balanced diet on its own.
Ad libitum	Ad libitum (or ad lib) means feeding as much or as often as the animal desires.
Ergot	A fungus that grows on grains turning the grain black and can cause growth, health and reproductive issues in pigs.
Mycotoxins	A toxin produced by mould or fungus that can develop in crops and can cause growth, health and reproductive issues in pigs.
Deficiency	A lack of a necessary nutrient and can cause growth, health and reproductive issues in pigs. A nutrient deficiency compromises the pig's immune system, which can make the pig highly susceptible to diseases.
Toxicity	A moderate to serious health condition resulting from ingesting a toxic compound or an excessive amount of a nutrient (e.g., Copper, Molybdenum).
Swill Feeding	Process of feeding recycled food products to pigs. The Canadian Food Inspection Agency (CFIA) has strict regulations regarding the feeding of recycled food products to pigs.
Kitchen Waste	Leftover food or food products that are starting to spoil and/or have exceeded their posted expired dates.

1. WHAT DOES A PIG NEED?

*Pigs **can** eat many things, but that does NOT mean they **should**. Pigs need:*

- **Nutritionally balanced diet.** A diet that includes a combination of ingredients that satisfies the body's nutritional requirements to support body maintenance, growth, health and reproduction. Dietary nutrients are in balance with one another, but not in excess.
- **Do not feed a finishing ration to young piglets at weaning.**
  - A pig's digestive system changes and develops with age.
  - Nursing piglets should be gradually introduced to creep feed at day 10 of age.
  - Creep feed is a specially formulated, highly digestible feed that promotes stomach development in pre-weaned piglets and provides nutrients for growth.
  - Upon weaning onto creep feed and fresh water, the weanling should be gradually introduced to a combination of creep feed and a grower feed, and before long be solely consuming the grower feed and water.
  - The transition from a milk diet to milk and creep feed, then to a grower ration is critically important to the piglet's digestive system development, health and growth rate.
  - This transitional feeding period in piglets is similar to what people do with babies who start on a milk/formula diet, then onto baby foods before transitioning solely to whole foods.
- Fresh feed every day.

2. WHAT ARE EXAMPLES OF INGREDIENTS IN PIG DIETS?

Remember, ingredients are the components of the recipe. When you cook a casserole, you may not add the exact same ingredients every time, but you are creating a nutritious supper. This is the same with pig feed; not every diet will have the same ingredients, but the goal is to develop a nutritionally balanced ration.

Some examples of ingredients include:

- Grains such as wheat, barley, or corn
- Beans and by-products
- Animal by-products such as fishmeal
- Protein supplements
- Mineral and vitamin premixes
- Grain by-products from alcohol production (e.g., DDGs)

3. WHAT ARE EXAMPLES OF PIG DIETS?

EXAMPLE	COMMENTS	RECOMMENDATIONS
Complete Feed	A single, completely balanced ration (or diet) that includes all required nutrients. Compare this to feeding dog kibble to your dog – this is the same idea. One diet that is nutritionally balanced and is fed every day.	It is recommended to feed a complete feed.
Single Grain Diet	Some farmers choose a single grain like barley, or whatever is affordable in the area, as the bulk of their pig's diet.	If you feed a single grain you **MUST** add a **SUPPLEMENT** (e.g., proteins, vitamins, minerals) and possibly a **PREMIX** (e.g., micro minerals, vitamins) to ensure pigs are receiving a nutritionally balanced diet.
Homemade Diet	Some farmers choose to make their pig diets at home. Ingredients could include a mix of grains grown on farm combined with purchased supplements and premixes.	If you feed a home-made diet you **MUST** add a **SUPPLEMENT** (e.g., proteins, vitamins, minerals) and a **PREMIX** (e.g., micro minerals, vitamins) to ensure pigs are receiving a nutritionally balanced diet. It is ***illegal*** to feed meat scraps or international waste to pigs. It is ***ill-advised*** to feed recycled food products and/or kitchen waste to pigs due to the risk to animal health and introducing diseases. The Canadian Food Inspection Agency (CFIA) has **strict regulations** regarding the feeding of recycled food products to pigs, kitchen wastes, meat scraps and international waste.

Note 1: Commercial farms will have specific complete diets for set age groups and stages of production. Depending on your goals, you can consult a local feed nutritionist or maybe your veterinarian to set up rations for different ages of pigs (e.g., weanlings, grower-finisher, gestating sows, lactating sows).

Source: Canadian Food Inspection Agency (CFIA) – 3.19 Recycled Food Products, 2019[1]
For more details concerning CFIA regulations regarding the feeding of recycled food products to pigs, please visit their website.
https://www.inspection.gc.ca/animals/feeds/regulatory-guidance/rg-1/chapter-3/eng/1329319549692/1329439126197?chap=19

4. WHERE CAN I PURCHASE PIG FEED?

- Local farm supply stores
- Commercial feed mills
- Local feed mills
- Neighbours
- Grow your own
- Local Hutterite colonies

5. HOW MUCH DO I FEED MY PIG?

Every breed will have different requirements. It is important to research the specifics of your breed. Use the following recommendations as a general guideline:

ANIMAL	AMOUNT
Piglets <12 hours	MUST receive **colostrum** (the first milk) from their mother.
Piglets	Will nurse on sow throughout the day. Can introduce **creep feed** around day 10 or up to 2 weeks prior to weaning. **Approximately 20–50 grams/piglet/day.**
Growing Pigs	**Feed Ad Lib.** For a proper ration, consult a feed nutritionist. **They will consume approximately 4% of body weight/day.** E.g. 10 kg pig will eat 0.4 kg of feed/day 50 kg pig will eat 2.0 kg of feed/day 100 kg pig will eat 4.0 kg of feed/day
Finishing Pigs	**They will consume approximately 4% of body weight/day.** Compared to a grower ration, it is advisable to switch to a more economical finishing ration during this stage. For a proper ration, consult a feed nutritionist.
Gilts	**Feed Ad Lib until 6 months of age.** **Then control consumption to approximately 2–3% of body weight/day.** Do not want gilts getting too fat before breeding. Consider a specific diet for gilts. Consult a feed nutritionist.
Gestating Sows	The goal is to have sows at farrowing in good condition. Not too fat, not too thin. For a proper ration, consult a feed nutritionist. **Control consumption to approximately 1.5% of body weight/day.** E.g., 100 kg sow will need 1.5 kg of feed/day 200 kg sow will need 3.0 kg of feed/day 220 kg sow will need 3.3 kg of feed/day ***In general:*** If a sow is too fat: ↓ feed (only in the first 4–6 weeks of gestation) If a sow is too thin: ↑ feed If a sow is >100 days pregnant: ↑ feed If a sow is known to have large litters: ↑ feed
Lactating Sows	**Feed Ad Lib.** It is very important that lactating sows be fed a nutritionally balanced diet. They need a healthy diet and lots of food. Nursing requires a significant intake of nutrients to satisfy lactating needs. For a proper ration, consult a feed nutritionist. **They will consume approximately 2% of body weight/day + 0.5 kg per each piglet nursing on her.** E.g., 100 kg sow with 5 piglets will need 2.0 kg + [(0.5) x (5)] = 4.5 kg/day 200 kg sow with 5 piglets will need 4.0 kg + [(0.5) x (5)] = 6.5 kg/day 220 kg sow with 8 piglets will need 4.4 kg + [(0.5) x (8)] = 8.4 kg/day
Boars	Don't let full grown boars get too fat. They will lose their libido and may get too lazy to do their important job of breeding. **Control consumption to approximately 2% of body weight/day.** E.g., 200 kg boar will need 4.0 kg of feed/day 300 kg boar will need 6.0 kg of feed/day

Source: Adopted from Manual for Pig Rearing in Uganda, 2011[2]

6. HOW OFTEN DO I FEED MY PIG?

- This is your pig's favourite part of the day.
- Feed pigs EVERY day.
- For pigs being fed ad libitum:
  – Offer fresh feed daily that they can graze as they please.
- For pigs on restricted amounts:
  – Offer fresh feed ideally two to three times a day.
- Try to feed at the same time every day – pig stomachs are like alarm clocks.

Estimate of weekly feed, labour, water, and manure management requirements for different types of swine enterprises. *

ITEM	FARROW-TO-FINISH (FROM A FARM WITH 20 SOWS)	FARROW-TO-FEEDER (FROM A FARM WITH 20 SOWS)	FEEDER-TO-FINISH (WITH SPACE FOR 100 HOGS)
Feed (lb or kg/week)**	5800 (2630) ***	1200 (545)	4500 (2040)
Labour (hour/week)	16	11	5
Water (US gal or L/week)	2100 (7950)	700 (2650)	1400 (5300)
Manure output (cu.ft. or cu.m./week)	370 (10.5)	100 (2.8)	160 (4.3)
Manure output (US gal or L/week)	2000 (7570)	725 (2745)	1200 (4545)

* Includes all animals that would be associated with this type of operation (e.g., sows, weaners, growers, finishers, boars).

** Feed cost figure are not provided due to variability of ration feed ingredients and wide variability in pricing depending on local and national grain markets.

*** Imperial and metric equivalents provided for all units [e.g., lb (kg), US gal (L), cu.ft. (cu.m.)].

Source: PennState Extension. Agricultural Alternatives. Swine Production, 2016[3]

7. HOW DO I GIVE FEED TO MY PIG?

- Use a feed trough to deliver feed.
- Make sure you have enough space for all pigs to eat at the same time – bigger pigs will push smaller pigs out of the way. The size of the feeder should be relative to the number of pigs and should be easily accessible.
- Make sure feeders are bolted down to the ground.
- Set feeders up so that they minimize feed wastage and minimize contamination by feces and urine.
- Maintain clean feeders/troughs that are free of feces as well as wet, spoiling feed.

- Consider how feed will be refilled. For example: for a few pigs, a trough that can be refilled by hand over the side of the pen would work fine; for a larger herd that will go through feed rapidly, a larger scale hopper that could be topped off with the bucket of a tractor or skid steer could be considered.
- Other important considerations for feed troughs include being weather and pest proof. In an outdoor feeding system, consider some sort of tarp or cover for the feeder that can be easily removed for filling, but will keep out the elements and deter birds and rodents.
- Feed pigs every day with FRESH feed into a CLEAN feeder.
- You can feed pigs by hand daily or set up feeders to feed automatically.

Source: Adopted from Introduction to Small Scale Pig Production – Pork Nova Scotia, 2016[4]

8. WHO CAN HELP ME WITH FEEDING MY PIG?

- Livestock feed nutritionists from local country stores or feed mills.
- Possibly your veterinarian.

Don't be afraid to seek help when it comes to pig nutrition. A proper diet is KEY to raising well-grown, healthy pigs. If feeding is done correctly, it can prevent many problems.

5.2 FEED SAFETY

KEY POINT CHECKLIST

There are a few critical concepts you must be aware of when it comes to safe feeding practices for pigs.

1. Feeding Swill or Kitchen Wastes

- **It is *illegal* to feed meat to pigs.** This includes:
  - All pet foods containing meat or meat by-products.
  - Food waste containing meat.
- **It is *illegal* to feed international waste to pigs.** This includes:
  - Leftover garbage from ships or airplanes.
- It is ***ill-advised*** to feed recycled food products to pigs due to the risk to animal health and introducing diseases.
- The practice of feeding swill or kitchen wastes to pigs is ***ill-advised*** due to the risk to animal health and introducing various lethal diseases, some of which could cause immediate trade restrictions and suspension of pork exports from Canada.

2. High Risk Ingredients

Based on scientific research, the Canadian Pork Council (CPC) recognizes some ingredients are more high risk than others in terms of their ability for dangerous viruses to survive in the ingredient. **Be aware of the following and AVOID feeding:**

HIGH RISK FEED INGREDIENTS
Rice hulls and corn cobs, conventional soybean meal, organic soybean meal, soy oil cake, distillers dried grains, choline chloride, kitchen wastes, and plasma.

Source: Canadian Pork Council. What's Hitching a Ride In Your Feed?, 2020[5]

3. Sourcing Feed Safely

- Purchase feed from a feed mill or a farm store that has the complete feed milled at a location using a HACCP (hazard assessment program) or is registered with the Animal Nutrition Association of Canada FeedAssure® program.
- If you are planning to use whole grains that are purchased within the country or grown locally, consider collecting and submitting a grain sample for mycotoxin testing. Discuss the test results with a local feed nutritionist to ensure the grain is safe to feed your pigs.
- If you are purchasing grains, DDGs or other feed ingredients, ***do not import from outside of Canada***. Purchase locally or purchase a complete feed. Companies that legally import feed products from countries that are known positive for such diseases as African swine fever (ASF) must follow strict handling and feed quality assurance protocols before selling the feed to mills or farmers.
- Don't purchase or feed plasma, don't feed meat scraps, and avoid purchasing feed that you don't know where it comes from or how it was stored.

Source: Canadian Pork Council. What's Hitching a Ride in Your Feed?, 2020[5]

4. Feed Storage

DO:

- Fence off feed bins/feed storage.
  - Rodents, predators, insects, flies and other pests (including wild pigs) will be attracted to spilled feed.
  - Sweep up spilled feed.
- Store feed in a dry area that does not allow chemical, biological or water contamination.

Photo: Dr. Kelsey Gray

AVOID:

- Allowing birds, rodents, or predators to access your pig feed.
- Allowing spilled feed to lay around and attract pests and wild animals.
- Allowing feed to get wet and mouldy.
- Allowing feed to be stored next to chemicals that could contaminate the feed.

Photo: Dr. Kelsey Gray

5. Mycotoxins and Ergot

- Mycotoxins are toxins produced by fungi that can grow in grain crops.
  - Can cause problems in pigs ranging from feed refusal to serious illness. Examples include:
    i. Fumonisin → Liver and lung damage
    ii. Alfatoxins → Feed refusal
    iii. Zearalenone → Breeding problems
- Ergot is a fungal disease of cereal grains such as rye and wheat whereby the fungus replaces the affected grain with a long, hard, blackish body.
  - Ingestion of infected grains can cause a wide range of symptoms including severe gastrointestinal upset, convulsions, decreased milk production, abortions, vasculitis, gangrene, and death.


Photo: Malachy Young, Ph.D., P.Ag, Gowans Feed Consulting.

- Prevention:
  - Avoid high moisture when storing feed.
  - Don't feed mouldy feed.
  - Source feed from reputable suppliers.
  - Collect feed samples and submit for testing. Contact your local feed mill for instructions on feed sampling and submission.

- Management:
  - Watch for the sudden appearance of abnormal symptoms such as listlessness, decreased feed intake, isolation, pain, panting, and lack of general activity.
  - Immediately contact your veterinarian upon the first signs of abnormality in your pigs because it may be the onset of disease or potential mycotoxin ingestion.
  - If your feed has mycotoxins and you must feed it, consult a qualified feed nutritionist about safe feeding levels and products that can bind mycotoxins to make it safer to feed.

6. Poisonous Weeds

- Redroot Pigweed *(Amaranthus retroflexus)*
  - Can lead to weakness, trembling, incoordination, dragging rear legs, and death.
  - Summer and early fall months.

Redroot Pigweed
Photo: B.C. Government

- Cocklebur *(Xanthium spp.)*
  - Can lead to depression, nausea, weakness, incoordination, vomiting, and death.
  - Young two-leaf seedling stage or ground seeds are most dangerous.
  - For a description of this weed, its toxicity and photos, please refer to the following Colorado State University website https://csuvth.colostate.edu/poisonous_plants/Plants/Details/95

- Black Nightshade (*Solanum nigrum)*
  - Can lead to anorexia, constipation, depression, incoordination, and death.
  - Unpalatable so unlikely to be consumed unless pigs are unable to find other food.
  - Leaves and green berries are most dangerous.

Black Nightshade
Photo: B.C. Government

7. **Nutritional Diseases of Pigs**
   There are many different types of nutritional diseases that can be avoided by good management and feeding a nutritionally balanced ration. Here are some key diseases to be aware of:

DISEASE	WHAT DOES IT LOOK LIKE?	HOW TO DEAL WITH IT?
Iron Deficiency Anemia	Pale piglets, piglets failing to grow, death in suckling piglets.	200 mg of iron. Given as an injection (in the muscle) to EVERY piglet before 4 days of age.
Salt Toxicity/Water Deprivation	Can happen in hot days if pigs do not have access to water. Incoordination, walking into walls, and twitching.	Make sure pigs have access to fresh water 24/7. If your pigs were out of water and are showing signs of disease, call your vet IMMEDIATELY. Water must be reintroduced VERY SLOWLY if pigs have been deprived of water.
Mulberry Heart Disease (Vitamin E/ Selenium Deficiency)	Sudden death of young rapidly growing pigs.	Feed a nutritionally balanced ration with appropriate levels of Vitamin E and Se.
Calcium, Phosphorous, Vitamin D Imbalance	Lameness in pigs of all ages especially large rapidly growing pigs.	Feed a nutritionally balanced ration. Have feed tested. Treat pigs with anti-inflammatory for pain. Call your vet.
Mycotoxicosis	Many different signs. For more information, see subsection above titled 5. Mycotoxins and Ergot.	Feed diets free of mycotoxins. Have feed tested. Consult with your vet and feed nutritionist.

5.3 WATER

1. **Nutritional Value**
   - It is an ESSENTIAL component of the diet. Without water, there is no life.
   - A readily available source of quality water allows the pig to consume and thrive on a nutritionally balanced diet.

2. **Availability**
   - 24/7 access to FRESH water.
   - Pigs consume about 10% of their bodyweight in water per day.
   - Running water lines directly into the barns should be buried or properly insulated to avoid freezing in the winter.

3. **Source**
   - City or regional water systems or treated well water is preferred.
   - Pond water should be avoided – surface contaminants can cause health problems.
   - Can offer water in a trough or basin.

- Ensure source is bolted to ground so that pigs do not spill it and deprive their resource.

4. **Quality**
   - Periodically collect and submit a water sample for testing to ensure the pH, bacteria count, and mineral content are appropriate for livestock.
   - Quality Guidelines:

PARAMETER	GUIDELINE
E. coli	0
Coliform Bacteria	<1000 cfu/100 mL
Total Solids	<3000 mg/L
Salts	<1000 mg/L is ideal 1000–5000 mg/L may cause diarrhea

Bottom line: Water is important. Get it tested if you are seeing problems.

Source: PennState Extension. Agricultural Alternatives. Swine Production, 2016[3]

5.4 PASTURED PIGS

From the Introduction to Small Scale Pig Production – Nova Scotia, 2016[4]

"Pastured pigs will forage on available vegetation, but are very aggressive and can cause lasting damage to the plants in a pasture setting. If possible, sometimes rotating pigs to a new pasture will help protect the longevity of the pasture as well as reduce disease, parasite, and pathogen risks.

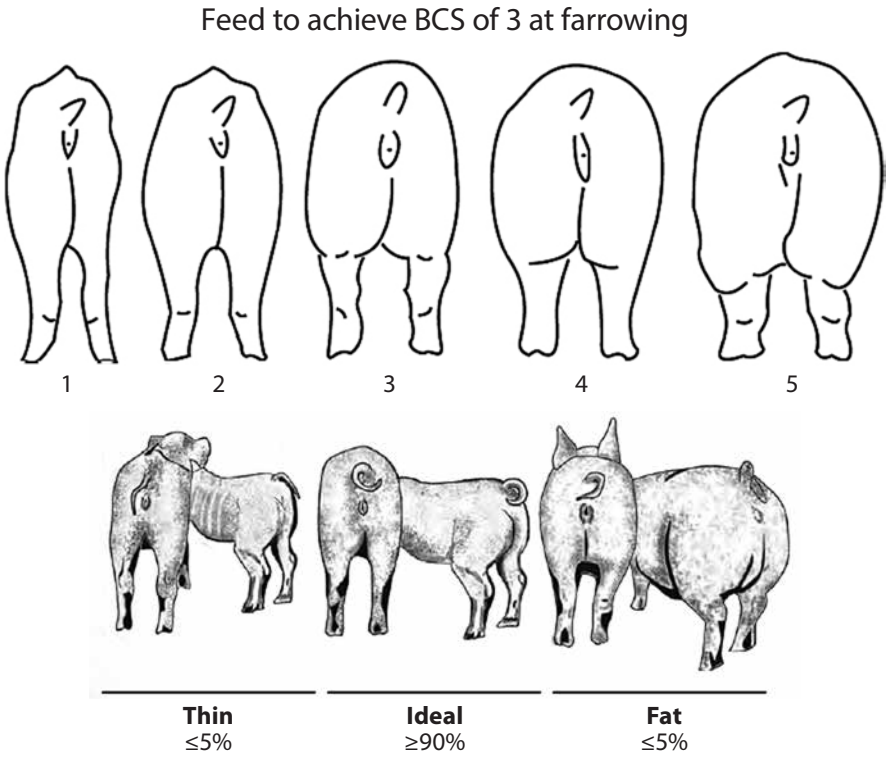
The longer pigs stay in one place, the more risk there is of creating a mud hole. While pigs do like to wallow in the mud to stay cool in the summertime, they do not like to be in a damp and cold environment all the time. Between rotating to fresh areas of pasture and providing sufficient bedding (especially within the sheltered areas), the damage to the pasture and to the pigs' health can be minimized.

Straw, hay, and shavings all make good bedding as long as it isn't mouldy or too dusty. Pigs will usually choose an area of their pen that is cooler or draftier to use as their 'bathroom' area, and generally won't contaminate their 'living' area unless they are overstocked, or the pen is too dirty."

5.5 BODY CONDITION SCORING

Body condition scoring is a management tool used to assess body or fat reserves of an animal. It is a great method to critically examine the nutritional state of your herd and determine if your animals are too thin, too fat, or just right.

1. Some diseases can result in animals losing body condition (i.e., fat reserves) or can prevent them from growing. These animals must be assessed by a veterinarian and treated.
2. Animals should NEVER be too thin as a result of not being fed enough. It is YOUR job to ensure your animals have access to enough feed that is part of a balanced diet EVERY day.
3. Overweight animals may experience mobility issues, farrowing as well as breeding issues.
4. Overweight of animals is a sign that the feed cost of production is excessive.



Source: Michigan State University, MSU Extension. Sow body condition influences productivity and profitability, 2011[6]
https://www.canr.msu.edu/news/sow_body_condition_influences_productivity_and_profitability

SECTION 5 REFERENCE LIST

1. Canadian Food Inspection Agency, Chapter 3 – Specific Registration Information by Feed Type, 3.19 Recycled Food Products (2019)
2. Manual for Pig Rearing in Uganda. Drs. Linda Nelson and John Carrs, Daktari Animal Health (2011)
3. PennState Extension. Agricultural Alternatives. Swine Production (2016)
4. Pork Nova Scotia. Introduction to Small Scale Pig Production (2016)
5. Canadian Pork Council. What's Hitching a Ride In Your Feed? (2020)
6. Michigan State University, MSU Extension. Sow body condition influences productivity and profitability (2011)

SECTION 6: THE PIG – WHAT TO EXPECT

You should learn basic information about the life stages of a normal healthy pig. This section will review the basic timeline of a pig and what to expect at each life event. It begins with breeding and pregnancy, followed by farrowing, and then proceeds to descriptions of the pig's life through various growth stages from day 1 to finished market weight. Information on farrowing and associated complications are also included in this section.

BASIC PIG LIFE CYCLE FACTS[1]

Age at breeding:	varies around 7–7.5 months for gilts and boars
Heat/Estrus cycle:	lasts 18–24 days for a female
Gestation:	116 days (3 months, 3 weeks, 3 days)
Breeding season:	generally year-round, poorer in summer and early autumn
Slaughter weight:	about 95–110 kg, around 26 weeks of age

6.1 REPRODUCTION MANAGEMENT

PUBERTY & SEXUAL MATURITY

1. Females
   - Most females go through puberty around 6–7 months of age.
     - Age at puberty can be breed-specific (e.g., Meishan breeds can go through puberty as early as 3 months old).
   - When a female is 6 months of age, exposing her to sexually mature males and allowing nose to nose contact with them once a day can encourage her to come into "heat".
   - After a female goes through puberty, she will show a "heat" which is a hormonally driven process that tells a boar she is sexually receptive.
   - It is normal for females going through puberty to mount other animals (males or females).

2. Males
   - Most males are sexually mature for breeding around 12 months of age.
     - This can be breed-specific (e.g., Meishan breeds can be sexually mature for breeding around 6 months of age).
   - It is normal for males going through puberty to mount other animals (males or females).

FEMALE ESTROUS OR FERTILITY CYCLE

- After puberty, females go through a 21-day cycle ***on average***.
- The most important concept to understand from this is that most post-pubertal females can potentially get pregnant every 21 days.

- There are 3 main phases of the female cycle.
  - Pre-Ovulation or "follicular phase".
  - Ovulation.
  - Post-Ovulation or "luteal phase".
- Pregnancy will disrupt this 21-day cycle.
- Do pigs breed 12 months of the year?
  - Domesticated pigs are considered "non-seasonal polyestrous" which means, they can be bred year-round and will cycle every 21 days regardless of the season.
  - Wild pigs are documented to be "seasonal breeders" which means, they generally breed when days are short (late winter) and farrow out in the spring when it is warmer. This would be beneficial in the wild to rear young piglets when it is warmer out.
  - "Autumn abortion" is a phenomenon described where gilts or sows lose pregnancies that do not align with natural seasonality.
  - Overall, you can expect year-round breeding of your pigs, but you should not be surprised if breeding in late summer or fall is less successful.

FEMALE ESTRUS OR "HEAT"

- During the cycle, about every 21 days the female comes into "heat".
- Heat means she is sexually receptive.
- Being in "heat" lasts about 36–96 hours.
- During that time, you can expect the following:
  - Red swollen vulva.
  - Restlessness and frequent urination.
  - Smelling the boar.
  - "Locking up" or standing rigid for the boar.
  - Allowing mounting by the boar.
  - Allowing copulation from the boar.

Photo of a gilt in standing heat. This gilt is ready to be bred.
Photo: Dr. Kelsey Gray

BREEDING

- There are two major categories for breeding: natural and artificial insemination.
- Most outdoor pig producers use natural breeding.
  - Natural Breeding
    i. You need approximately 1 sexually mature boar per 20 females.
    ii. Boars should ***not*** live with females 24/7 – females can become "refractory" or uninterested in boars sexually.
    iii. Introduce females to the boar when you want to breed them.
    iv. Allow boars to be with the females for at least 21 days – you will not know where a female is in her 21-day cycle; however, the boar will detect when "heat" occurs.
    v. Boars will be highly interested in females who are in heat – smelling them and mounting them.
    vi. Boars will not be interested in a pregnant female.
    vii. Boars will not be interested in a female who is not in heat.

Photo of a natural breeding. This is a boar breeding a young Meishan gilt. Please note, Meishans go through puberty much younger than other breeds.
Photo: Alberta Pasture Pig Producer & Breeder

  - Artificial Insemination (AI)
    i. This is not straight-forward or economical unless you are a commercial producer.
    ii. It requires daily heat checks, the presence of a boar, equipment, training, and appropriate facilities to perform this.
    iii. Talk to your veterinarian if you are considering artificial insemination (AI).

- Unsuccessful Breeding
  - Can be a result of health (e.g., disease) or fertility issues with male and/or female pigs.
  - Feeding a diet that is not nutritionally balanced.
  - Under-conditioned or over-conditioned pigs.
  - Environmental or management related issues.
  - Consult a veterinarian if breeding is unsuccessful on your farm.

BOAR CARE

- Sexually mature boars can live together if there are not any sexually receptive females in the pen.
- It is recommended to allow boars to live together in their own home pen, and to introduce one boar into a breeding pen at the desired time.
- Feeding strategy for boars is similar to feeding pregnant females – achieve and maintain a desired body condition and do not over-feed.
- Two times per day feeding is common.
- 24/7 access to quality water.
- NEVER EVER trust a boar. These animals can be very aggressive and unpredictable. You should always use extreme caution when handling them, particularly when they are among females that are in "heat". Do not turn your back on them.

6.2 PREGNANCY/GESTATION

PREGNANCY CONFIRMATION

You can "diagnose" pregnancy via the following methods:

- Ultrasonography
  - Veterinarians can perform pregnancy ultrasounds as early as 28 days after breeding.
- Heat Checking
  - Pregnant animals should not show a heat.
  - A boar should not show sexual interest in a pregnant animal. If your boar is trying to mount a sow, she is unlikely to be pregnant.
- Wait/Monitor
  - Witness the breeding event and assume pregnant. You cannot rule out a failed conception or pregnancy loss this way.
  - Waiting for the expected farrowing date is an option; however, it is not an economical way to determine if a female is pregnant.
- Visual Assessment
  - This is difficult to do even for experienced pig producers.

GESTATION

- Normal gestation: 3 months, 3 weeks, and 3 days (116 days on average).
- The feeding goal is to maintain ideal weight and body condition score. Increase or decrease feeding amounts as necessary (see Section 5.5 BODY CONDITION SCORING).
- Two times per day feeding is common.
- 24/7 access to quality water.
- Her environment should consist of clean comfortable housing with minimal changes to the social structure in order to minimize stress.
- Prevent disease and stress. Fever and stress can both cause pregnancy loss in animals.
- A healthy gestation should be an uneventful time.

6.3 GESTATION COMPLICATIONS

SICK GILT/SOW

- There are many reasons a sow or gilt could be sick. A sick pregnant animal is at risk of losing her pregnancy.
- Consult your veterinarian to get a diagnosis and an appropriate treatment.

DISCHARGE

- Thick white vaginal discharge can indicate an internal infection which requires treatment.
- It is very unlikely your animal is pregnant if they have a discharge.
- Consult your veterinarian about appropriate treatment.

Two photos of purulent vaginal discharge from sows. This indicates infection and these animals need treatment. Photos: Dr. Kelsey Gray

ABORTION

- A pregnancy loss after 55 days of pregnancy is considered an abortion.
- It is not easy to determine the cause of an abortion from a single animal.
- Record details concerning any abortions that occur (e.g., stage of gestation).
- Multiple abortions should be very concerning. Consult your veterinarian if this occurs.

6.4 FARROWING

PRE-FARROWING PREPARATION

- Sow Behaviour
  - As your sow nears 116 days of gestation, she will start preparing for the birth of her piglets.
  - She will have a natural desire to build a nest. Providing a sow with material to build a nest will ease her stress and make her more comfortable. Straw-based bedding works very well for this.
  - When a sow is within hours of farrowing, she will become restless. She may get up and lay down often, pace, and may become aggressive to other animals and people. Use EXTREME CAUTION when approaching these animals.
- Environment
  - Moving your sow into a pen about a week before she is due is a good way to acclimatize her to the farrowing area.
  - Ensure the maternity pen has been thoroughly cleaned and disinfected, has dry, fresh bedding prior to farrowing, and is draft-free.
  - Keep this area as clean as possible for piglets. Remove manure daily.
  - Prepare additional heat sources (e.g., heat lamps). These should be turned on as close to farrowing as possible. If it is warm outside, do not turn them on too early as you do not want to overheat the sow and waste energy.
  - Cleanliness and warmth are incredibly important for newborn piglets. Regard and treat the farrowing space like a maternity room for a newborn.

Two photos of clean, straw bedded maternity pens. Notice the heat lamp for keeping piglets warm. Photo 1: Alberta Pasture Pig Producer & Breeder Photo 2: Dr. Kelsey Gray

- Feed
  - Sows will lose their appetite close to farrowing and likely will not eat on the day of farrowing. This is normal.
  - Sows should start drinking and eating soon following farrowing.
  - Ensure sows have ready access to a clean supply of quality water IMMEDIATELY AFTER farrowing.
  - Offer the sow fresh feed a few hours AFTER farrowing or the day AFTER farrowing to encourage her to begin eating.
  - Sows need to begin eating soon after farrowing to produce milk, so ensure the feed available to her is FRESH and readily available. Do not leave feed sitting there for days and expect her to eat it once her appetite comes back after farrowing. FRESH FEED IS THE KEY.
  - See Section 5: NUTRITION & FEEDING MANAGEMENT for more information.
- Midwife Supplies
  - It is your job to act as a midwife for your sows. It is very important to have the correct supplies on hand in preparation for farrowing. See 'Farrowing Complications' below for more details.
    i. Large animal obstetric gloves.
    ii. Lube.
    iii. Bucket of clean warm water.
    iv. Soap.
    v. Clean towels.
    vi. Speak to your veterinarian about pharmaceuticals that you should have on hand and protocols for their correct use.

FARROWING

- When a sow begins farrowing, she will likely be laying on her side, breathing rapidly, and her vulva will become very reddened and swollen.
- Farrowing can take anywhere from 1–6 hours, and piglets can be born seconds to an hour apart – **ideally piglets are born within 15–20 minutes of each other**.

- Normal delivery of piglets will be one piglet at a time, head or feet first, and piglets should be born no longer than 30 minutes apart from one another. Longer than this can mean trouble.
- Litter size can vary depending on the breed and genetics of the sow and boar. Read the literature on what is a normal litter size for your breed.
  – A litter can range from 4–20 liveborn piglets.
- A gilt will usually take longer to farrow than a sow.
- When a piglet is born, the umbilical cord will still be connected to the placenta inside the sow. The cord will snap naturally as the piglet moves towards the udder or if the sow stands up.
- The afterbirth (placenta) will be delivered after the last piglet is born.
- It is normal for sows to have a swollen vulva and some discharge for a few days after farrowing.
- Once your sow starts farrowing, you should check on her every 30 minutes to see that she is progressing with her delivery. If your sow is not having any troubles, the best thing you can do is leave her alone and let nature run its course.
- During farrowing, the sow will let down colostrum the entire time. Piglets should make their way to her udder to nurse shortly after birth.
- If your sow is NOT progressing on time, or is in distress, you may need to intervene (see Section 6.5 FARROWING & POST-FARROWING COMPLICATIONS).

1. Swollen vulva with clear, mildly bloody discharge.

2. Advancement of piglet head.

3. Piglet being delivered onto clean sheet. Notice the farmer/midwife is wearing clean gloves.

4. Placenta/after birth delivered.

Photos 1,2,3: Alberta Pasture Pig Producer & Breeder, Photo 4: Dr. Kelsey Gray

POST-FARROWING SOW CARE

- After farrowing, a healthy, comfortable sow should lay on her side and allow her piglets to nurse.
- A sow should milk easily and lay on her side with her udder exposed for her piglets to nurse.
  - You can feel her udder and try milking her to see that she is milking.
- A sow should show interest in piglets and should not show aggression towards them.
- A sow should be offered fresh feed soon AFTER farrowing and begin eating feed within day 1 of farrowing.
- A healthy sow in a farrowing crate will show very predictable behaviour after farrowing: Sleep → Nurse piglets → Stand up → Defecate or urinate (not every time she stands but often) → Eat & Drink → Repeat.
- A sow in an open pen will likely show similar predictable behaviours, but may include some exercise in between nursing and sleeping.
- It is NOT normal if a sow has vaginal discharge that is beyond a few days, if she is aggressive to piglets, does not allow piglets to nurse and lies directly on her udder, does not show interest in food, is lethargic and fails to stand up when encouraged, or is breathing hard. Call your veterinarian.

6.5 FARROWING & POST-FARROWING COMPLICATIONS

Note: All comments on health complications and recommendations are general and are for improving your understanding of topics. You should always consult with your veterinarian regarding health issue diagnostics, and subsequent treatment protocols and pharmaceutical use.

DYSTOCIA/LABOUR DIFFICULTY

- If a sow or gilt is pushing and it has been 30–45 minutes since her last piglet was born, it is time to perform an internal exam.
- Wash your hands, use a new clean obstetric glove with lots of lube, and with fingers together in a cone shape, you can carefully enter the vulva and vagina to begin exploring the problem.
- Use a NEW CLEAN obstetric glove anytime you perform an internal exam.
- There are different positions a piglet could be in that can interfere with normal delivery. It takes time and experience to develop technique, but the goal is to manipulate the position of the piglet so you can assist getting the piglet out.

- If the sow contracts on you while your arm is advanced internally, then stop, wait for the contraction to pass and do not push forward.
- If a piglet needs to be manually pulled out, you should pull while the sow pushes thus working with her.
- You must be gentle but confident. Time is critical.

Correct hand position and correct application of soap and lubricant to a clean OB glove.
Photos: Dr. Kelsey Gray

PROLAPSES

- Sows and gilts close to farrowing (before or after) can be susceptible to prolapses as a result of pushing.
- Types of prolapses: rectal, vaginal, bladder, uterus, or a combination.
- Uterine prolapses are uncommon, but when one occurs, regard this as an emergency and call your veterinarian immediately.
- Animals who prolapse are likely to prolapse again and may not be a suitable animal to rebreed.

- There are specific rules about shipping animals with prolapses (see Section 11: TRANSPORTING PIGS).

Image of a rectal prolapse in a sow that has occurred after farrowing. Photo: Dr. Egan Brockhoff

MASTITIS OR AGALACTIA "NO MILK"

- Mastitis is an inflammation of the mammary gland caused by an infection.
- Agalactia is a failure to secrete milk.
- These problems can arise from multiple causes and they can both lead to one another.
- An animal with mastitis or agalactia will have a hard, hot, red udder, and piglets will continuously try to nurse and bite on her teats with little to no success at getting milk.
- Management involves treating the sow or gilt as well as caring for the piglets:
  - Sows usually require a combination of antibiotics, anti-inflammatories, and potentially hormone therapy. This depends on the cause and the veterinarian's recommendation.
  - Piglets need to be supplemented with an energy source (e.g., milk replacer) to prevent starvation. This is CRITICAL. Starving piglets will quickly die.

Swollen hard udder from a sow. She is not milking. Photo: Dr. Kelsey Gray

SAVAGING PIGLETS

- Describes aggressive behaviour of the mother to her piglets. Aggression can be biting, injuring, attacking, and even killing piglets.
- Savaging can result from a combination of hormonal, genetic, physiological, and environmental effects.
- Management involves treating the sow or gilt as well as caring for the piglets:
  - Sows/gilts usually require a sedative to help calm them down to allow nursing. They may also require a painkiller if they are savaging due to some unknown discomfort. You may not want to rebreed this animal if she is predisposed to savaging piglets. Follow your veterinarian's recommendation.
  - Piglets need to be supplemented with an energy source (e.g., milk replacer) if the mother will not allow nursing.
  - Injured piglets need to be cared for appropriately.

LAID ON PIGLETS

- It is not uncommon to have some piglets "laid on" after farrowing.
- The sow/gilt is a large animal and her tiny piglets like to lay near her for warmth. This can be a dangerous place for them as the sow is unaware of how large she is and can sit or lay down on piglets unintentionally.
- There are a few things you can try to reduce the number of laid on piglets:
  - Using farrowing crates, positioning heat lamps away from the sow, and creating warm bedded areas away from the sow.
- Laid on piglets who are not immediately killed from the impact must be assessed and treated and cared for or euthanized depending on the severity of the injuries.

6.6 SOW LACTATION

- This is the most metabolically demanding time for a gilt or sow.
- The feeding goal is to prevent the sow or gilt from losing body condition while lactating.
- Provide a high-quality diet ad libitum (or unlimited access).
- 24/7 access to quality water.
- Piglets will nurse together at the same time periodically.

6.7 PIGLETS DAYS 1 TO 4

KEY POINT CHECKLIST

The first 4 days of life are the most critical and require the most attention. Piglet survivability is highly dependent on the efforts made in these first 4 days. There are some requirements for a piglet at this stage of life that you are responsible for.

COLOSTRUM

- **Colostrum is the single most important thing a pig receives in its life.**
- Colostrum is the initial milk produced by the sow.
- Colostrum is filled with protective proteins, known as colostral antibodies, which provide the building blocks for the newborn's immune system.
- Colostrum consumption provides protection against bacterial infection along the inside of the newborn piglet's digestive system.
- Consuming colostrum is very time sensitive. **Piglets MUST nurse their OWN sow within 6–12 hours** of being born in order to receive this precious milk.
- The earlier and more often a piglet nurses its mother following birth, the better.
- The sow will start producing and releasing colostrum continuously from the start of farrowing and for up to 12 hours afterwards.

IRON

- **Every single pig, whether raised indoors or outdoors, should receive an iron supplement.**
- You may have heard that "outdoor pigs do not need iron because they get it from the soil".
  - This is partially true; however, to ensure that pigs do not experience a deficiency in iron and subsequent anemic symptoms, it is highly recommended that you provide your pigs with an iron supplement.
  - Soil does provide some iron; however, iron intake from normal soil consumption levels would fall far short of meeting the pig's nutrient requirement for this mineral.
  - Certain domesticated breeds may have requirements that differ from a pig living outdoors in the wild.

- Iron is a cheap and effective intervention that is critical for the health of your pigs.
- Iron is administered by giving an injection in the neck muscle.
- Administering iron is time sensitive. **It MUST be given before the piglet is 4 days old.**
- Consult with your veterinarian about getting injectable iron and administering supplies.

PROCESSING

- Processing is a term used to describe the piglet management interventions that take place.
- Processing can involve iron injections, castration of males, tail docking, and ear tagging.
  - Iron Injections. See above.
  - Castration:
    i. Is the surgical removal of testicles.
    ii. Is performed to reduce boar taint and reduce aggression in market animals.
    iii. Is not performed on animals intended for breeding purposes.
    iv. As of July 1, 2016 and for animal welfare reasons, castration performed at any age **MUST** be done with an analgesic to help control post-procedure pain (Code of Practice for the Care and Handling of Pigs, 2014[2]). In addition, it is recommended that an anesthetic be administered.
  - Tail Docking:
    i. Is the surgical amputation of the tail.
    ii. Is performed to reduce an unwanted behaviour of "tail biting".
    iii. Is rarely performed in outdoor pig production.
    iv. As of July 1, 2016 and for animal welfare reasons, tail-docking performed at any age **MUST** be done with an analgesic to help control post-procedure pain (Code of Practice for the Care and Handling of Pigs, 2014[2]).

  - Ear Tagging:
    i. Is placing a permanent identification tag in the ear of the desired animal.
    ii. Does not require analgesics (pain control).
    iii. Better to perform early in life.

- Obtain proper training prior to performing any processing procedures. Consult with your veterinarian about training.

PIGLET BEHAVIOUR

- As soon as a piglet is born, within minutes it will open its eyes and start heading towards the udder.
- It is normal for a piglet to be wobbly and disoriented, but they should be active and making attempts at nursing.
- To consume adequate colostrum, ideally a piglet should have 3–4 good suckles within an hour of being born.
- It is normal and beneficial for piglets to suckle on multiple teats.
- Piglets will naturally move toward the heat lamp when they are not nursing.
- Things you can **DO**:
  - Help piglets find the teat by moving them to the udder. This is called teat training.
  - Dry off newborn piglets with a CLEAN towel.
  - Move shivering piglets under the heat lamp.
- Things you should **AVOID**:
  - Handling piglets when it is unnecessary. They may be cute, but it is important that they spend this time with their mother.
- Over the first 4 days, healthy piglets should have received colostrum and iron, and should spend most of their time nursing and sleeping.

FOSTERING

- A litter nursing their own mother is the best possible outcome.
- However, there are situations where a sow cannot nurse her own litter because the sow dies, the sow cannot milk, or where there are too many piglets and not enough teats.
- You may need to foster a piglet or an entire litter to a new mother depending on the situation.
- Sows are very willing to accept new piglets.
- Fostering, if done correctly, can work wonderfully to rear healthy piglets.
- Things you can **DO**:
  - Choose a foster sow who is nursing well and in good body condition to handle another piglet.
  - If fostering piglets onto a new sow, make sure the original piglets and the foster piglets will be around the same age to make the competition equal.
- Things you should **AVOID**:
  - Fostering unless it is necessary.

ENVIRONMENT

- Piglets should be born in a clean, disinfected, dry, freshly bedded area.
- If farrowing outdoors:
  - Increase the amount of bedding for warmth.
  - Make sure bedding is clean and fresh.
  - Make sure there are shelters in the pen.
  - When checking piglets, use extreme caution as the mother may be very protective. If you are going into an open pen, make sure 2 people go and bring a rattle bat or device to help you direct pig movement.
- If farrowing indoors (ideal):
  - Set up additional heat lamps.
  - Make sure bedding is clean and fresh.
  - Eliminate any drafts in the farrowing area. These can be deadly to newborn piglets.
  - When checking piglets, use extreme caution as the mother may be very protective.

6.8 DAYS 4 TO WEANING (AT DAYS 21 TO 50)

The first 4 days are the most critical for setting the piglet up for a healthy start. The next few weeks should involve close observations of your piglets and keeping an eye out for complications.

PIGLET BEHAVIOUR

- Piglets will have established a "teat-order" at this stage and will go back to the same teat each time they nurse.
- Piglets will nurse together as a group.
- Piglets should spend their time nursing, sleeping, and playing.
  - You can add toys (e.g., rubber balls, chains, or pieces of wood) for piglets to play with.
- Piglets will establish a designated soiling area for defecating and urinating.

CREEP FEED

- Creep feed is a specially formulated ration for piglets that is introduced to piglets before weaning to get them accustomed to solid feed.
- Creep feeds for piglets can be purchased from a feed mill.
- Health-wise, it is very important that you purchase a specially formulated creep feed and offer it to piglets by 10–14 days of age.
- Piglets do not have mature digestive tracts, which means that feeding an inappropriate diet that is not a specially formulated creep feed can cause diarrhea if fed to them too early.
- **If you are weaning pigs older than 28 days, it is required by the Code of Practice for the Care and Handling of Pigs that you feed a creep feed in order to maintain the body condition of the sow.**[2]

WEANING

- Weaning is the process of removing piglets from nursing and getting them solely onto solid feed.
- There are two major ways to go about this: natural weaning and controlled weaning.
  - Natural Weaning
    i. Natural weaning will be controlled mostly by the sow.
    ii. Piglets will continue to suckle, but as they get older, the sow will gradually allow them to nurse less and less.
    iii. Piglets will naturally start gravitating to solid feed, but they will nurse occasionally.
    iv. Most sows will fully wean piglets by 10 weeks of age.
  - Controlled Weaning
    i. The industry norm is to wean piglets from the sow around 3 weeks of age.
    ii. Controlled weaning involves collecting piglets and physically removing them from having access to the sow.
- DO NOT wean piglets before 3 weeks of age.

6.9 WEANER TO GROWER

At weaning, pigs are separated from their mother, mixed with other pigs, and put onto solid feed. This can be stressful. The younger the pig, the more stressful it is. Pigs need your help during this transition. Once pigs get through the initial stress of weaning, this next phase should be relatively straight forward: eat, grow, play, and sleep.

PIG BEHAVIOUR

- It is normal for pigs to have a reduced appetite the day of and day after weaning.
- It is normal for pigs to be tired right after weaning.
- It is normal for pigs to fight with one another during the first few weaned days.
- It is normal to see some loose stool when pigs transition onto a new diet.
- Pigs should explore their new environment, interact with other pigs, and explore their access to feed and water.

- Make sure you offer newly weaned pigs FRESH water and FRESH food. You can offer food in the trough, but you can also sprinkle food onto boards laid on the ground to increase their exposure to food. You need to encourage them to consume feed.
- As pigs get older, they will establish a group dynamic and pecking order with each other.
- Normal behaviour during the early grower phase is eating, sleeping, fighting, playing, rooting, and exploring the environment.
- Pigs love chewing on things and will chew on absolutely anything and everything. This is normal behaviour. Do not leave anything in the pen that you do not want destroyed.
- Healthy pigs will practically grow before your eyes. Certain breeds can grow 0.5 kg per day.
- It is not normal if pigs are biting tails, not eating or drinking, fail to get up, have obvious clinical signs, are limping, or are losing weight. If you see these signs, call your veterinarian.

FEEDING

- The creep feed diet discussed above is often used as a first diet after weaning.
  - If weaning at about 21 days old, you can feed this for 1–2 weeks.
  - If weaning older or doing a natural wean, you can feed this for 1–2 days.
- Creep feeds are generally high in milk protein, so after weaning, you can then transition them onto a complete feed or otherwise (see Section 5: NUTRITION & FEEDING MANAGEMENT).
- All pigs should have unlimited (ad lib) access to feed in the growing phase.
- Make sure feed is offered fresh and is highly palatable to encourage consumption.
- 24/7 access to quality water.

ENVIRONMENT

- An outdoor pen for a newly weaned group should follow the housing recommendations in Section 4: HOUSING & MANAGEMENT.
- Younger pigs will be more susceptible to weather challenges so consider the weather when choosing a weaning age and timeframe.

6.10 GROWER TO FINISH

Growing a pig through the finishing phase is a time where we generally see fewer problems, because you have an older pig with a strong immune system. However, when problems do arise, it can be extra troubling because you have put more energy, emotion, and resources into these animals. This is a time where being aware of subtle changes is important. Older pigs are much better at hiding problems than younger animals are.

PIG BEHAVIOUR

- It is normal for pigs to slow down as they get heavier. They spend more time sitting and laying than the lighter growing pigs who are running around.
- It is normal for heavier pigs to spend more time in the shade and more time wallowing.
- It is normal for pigs to eat throughout the day.
- Larger pigs do not grow as rapidly as weaners and growers.
- Larger pigs gain more fat and less lean growth during the latter part of this phase.
- It is not normal if pigs are biting tails, not eating or drinking, fail to get up, have obvious clinical signs, are limping, or are losing weight. If you see these signs, call your veterinarian.

FEEDING

- When finishing a pig, you should have a slaughter timeline in mind and feed accordingly.
  - If you want your hog to grow more before an upcoming slaughter, feed ad lib.
  - If you want to maintain you hog at the current weight, feed a maintenance diet of about 1.5% of body weight per day.
  - You can adjust how you feed in the finisher phase to add more or less back fat. Consult with a feed nutritionist.
- Feeding a less expensive diet is economically beneficial at this time.
- 24/7 access to quality water.

ENVIRONMENT

- An outdoor pen for a grower and finishing group should follow the housing recommendations in Section 4: HOUSING & MANAGEMENT.

6.11 GETTING READY FOR MARKET

Prior to getting ready to send your hog to market, there are a few things you need to do well in advance:

1. Understand desired and achievable body weights.
   - A Kunekune and a Yorkshire pig do not have the same weight potential. Read the literature on your breed to determine what is a common market weight.
   - Understand what is desired by asking the consumer and provincial slaughter plant about the desired weight and back fat.
2. Understand food safety and preparation.
   - See Section 10: MARKETING HOGS.
3. Prepare and Plan the Slaughter Event.
   - See Section 10: MARKETING HOGS.

6.12 RAISING BREEDING ANIMALS

If the weaned animal is being reared as a replacement breeding animal, the behaviour and environment should not be all that different from the market animal descriptions; however, the feeding strategy for a breeding animal can be quite different.

FEEDING

- After the initial grower phase, feed a ration that is designed to meet the nutrient requirements of reproductive animals. Consult with a feed nutritionist to develop a ration.
- Most gilts and boars are fed ad lib until they reach sexual maturity; however, they should then have their feed intake controlled to a maintenance amount of about 1.5% of their body weight.
- Do not allow breeding animals to get over-conditioned and fat. This will reduce libido, create health complications, result in injuries if a boar is too heavy for the female, and prevent cycling in otherwise healthy gilts.

SECTION 6 REFERENCE LIST

1. The Importance of Reproductive Performance. Dr. Gordon King, University of Guelph, Canada (1996)
2. National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs (2014)

SECTION 7: SWINE HEALTH

This section will review swine diseases, government regulated foreign animal diseases, and how to keep your herd healthy.

7.1 HERD HEALTH

The concept of "herd health" generally refers to preventative group health and disease management. Depending on your farm goals, you may be raising 1 pig, a dozen pigs, or over 100 pigs. Regardless of how many pigs you are raising, it is useful to know how to keep a herd healthy.

The principles of keeping a herd healthy can be compared to keeping kids healthy at school:

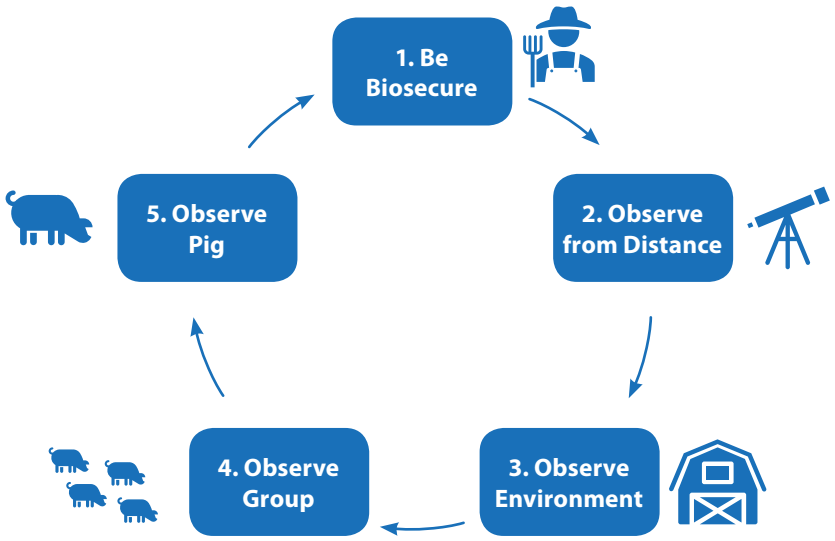
CONCEPT	SCHOOL EXAMPLE
Disease prevention	*E.g., Vaccinating school age kids.*
Disease containment	*E.g., Keeping a sick kid home from school.*
Treating a group for contagious diseases	*E.g., When one kid brings head-lice to school, treat everybody.*
Observing and reacting to disease dynamics	*E.g., Observing a flu-like bug going through school and implementing hand-sanitizer and wearing masks.*

Consult with your veterinarian to create a herd health program, which usually include:

- Vaccination and deworming protocols,
- Biosecurity protocols,
- Individual pig treatment protocols,
- Group treatment protocols,
- Farrowing and breeding protocols, and
- Euthanasia protocols.

7.2 HERD HEALTH EXAM

When checking your herd (**every day**), observe the big picture and focus on smaller individual details. It is a good idea to ***make a check list, make it routine, and do it every day*** to prevent missing something important. Here is a suggested check list:



1. BE BIOSECURE

- Follow biosecurity protocols prior to entering pig facilities (e.g., wear appropriate personal protective equipment (PPE), change clothing, change boots, enter **Restricted Access Zone (RAZ)** properly) (See Section 8: BIOSECURITY)

2. OBSERVE FROM DISTANCE

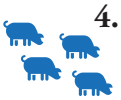
- Before stepping into pens, **STOP**. Look, listen, smell, and note anything unusual. Get to know your pigs, learn what is "normal" for them day-to-day. Get to know your barn, learn what are "normal" smells and sounds day-to-day. For example:
  - What are pigs doing?
  - Are they sleeping and relaxed? *(A good sign)*
  - Are they fighting? *(Maybe they are picking on a new pig)*
  - Are they screaming at the feeders? *(Maybe you were late feeding today)*
  - Do they react to your presence? *(Listlessness could indicate onset of sickness)*
  - Do they get up and interact with you? *(They should)*
  - Is there a strange odour? *(Maybe a result of poor ventilation)*
  - Does it smell sour or rancid? *(There may be a diarrhea spell)*

- Does it smell unusual? *(There could be a dead pig)*
- Do you smell smoke? *(This could be an emergency)*
- Do you eyes burn in the pens? *(This could indicate too much ammonia gas)*
- Do you hear anything new? *(Squealing piglets might indicate non-nursing sow)*
- Do you hear coughing? Sneezing? *(Your pigs might be getting sick)*
- Do you hear equipment malfunction? *(You better check on this)*

3. OBSERVE ENVIRONMENT

- Feed: Check feeders.
  - Is feed available? Is feed fresh? Are pigs eating? Is there leftover feed?
- Water: Check water.
  - Is water available? Are troughs frozen over? Is water fresh? Are pigs drinking?
- Air: Check ventilation.
  - If indoors, is it humid? Are your eyes burning? Do you smell ammonia? Is there good air flow? Are there any drafts?
- Temperature: Check temperature.
  - Are piglet heat lamps on and working? If outside, do pigs have access to shelter, bedding and wallowing to protect them from cold or heat?
- Hygiene: Check for cleanliness.
  - Are pens clean? Is bedding soiled? Are there excess flies? Is there evidence of a rodent problem?

4. OBSERVE GROUP



- Get every single pig up every single day.
- Observe the group.
  - Is there a pig who behaves or looks different from the group?
- Observe surroundings.
  - Are there any signs of vomit, diarrhea, blood, or distress from the group?

5. OBSERVE PIGS

- Observe every pig's behaviour.
  - Are they behaving like others?
  - Are they getting up?
  - Are they dull, depressed, or hanging their head low?
  - Are they eating?

- Watch every pig walk.
  - Are they limping?
  - Can they get up OK?

- Watch every pig breath.
  - Are they open mouth breathing?
  - Are they panting?
  - Are they struggling?

- Observe every pig's body condition score.
  - Are they underweight or overweight?

- Look at every pig head to tail.
  - Eyes, ears, nose, mouth: look for discharge, lesions, blood, swelling.
  - Skin/body: look for lumps, bumps, scratches, abscesses, hernias, wounds, hair growth.
  - Limbs: look for swellings, redness, bumps, symmetry.
  - Hind end: look for diarrhea staining, prolapses, tail biting.

*****Don't forget to write down what you find*****

7.3 PIGS – IDENTIFYING NORMAL VS. ABNORMAL

Consider both **BEHAVIOURAL SIGNS** and **CLINICAL SIGNS** when evaluating "Normal" vs. "Abnormal" pigs. Ask yourself:

BEHAVIOUR: WHAT is my pig doing?

ACTIVITY	NORMAL BEHAVIOUR	ABNORMAL BEHAVIOUR
Lying Down	• Main group of pigs will sleep together touching, but some pigs will be spread out to maximize contact with the floor. • Separated pigs are more dominant. • Pigs sleep on side with legs stretched out from the body. • Lay down mostly throughout the night. • Up and down throughout the daytime.	TOO COLD • Piling on top of each other, shivering, tucking limbs under the body, lay near corner or wall, do not want to get up. TOO HOT • Panting (over 40 breaths per minute), NOT lying with other pigs, digging, laying in cold mud or in wet areas, do not want to get up.
Getting Up	• Pigs should get up when greeted. • Pigs should stand up without struggling or vocalizing. • Pigs should be curious to your presence. • Larger pigs may be slower or lazy to stand up and need more encouragement.	• Vocalizing when standing. • Shaking when standing. • Refuse to get up. • Obvious red marks on skin where animal was sitting or laying (this may indicate the animal has not gotten up in awhile).
Vocalizing	• Grunting and barking are normal greeting sounds. • You may hear squealing when pigs are playing or arguing with one another.	• High-pitched screaming. • Honking cough, raspy coughing, sneezing.
Defecating/ Urinating	• Pigs will defecate in a specific area of the environment. • This will often be where it is cold, dark, wet, where a draft is, or where it is private. • Pigs will stand up and defecate/urinate multiple times a day.	• Defecating and urinating all over the pen can indicate something is wrong. • Pigs with diarrhea often cannot make it to the "toilet area" and will go anywhere. • Bloody diarrhea is not normal.
Exercise	• Pigs will get up and down to walk around throughout the day. • Younger and lighter pigs will run more. • Heavier pigs will be lazier.	• No interest in getting up. • Avoiding other pigs. • Laying alone.
Play	• Pigs are very playful animals and love to explore the environment. • Pigs will chew on everything. • Pigs will bite at each other when playing. • Pigs play rough, but should not seriously injure each other.	• Tail-biting, flank-biting, or ear-biting other pigs. • This can indicate something is wrong with the health or environment of your pigs. • Group of pigs attacking one pig.

7.3 PIGS – IDENTIFYING NORMAL VS. ABNORMAL

ACTIVITY	NORMAL BEHAVIOUR	ABNORMAL BEHAVIOUR
Eating	• Every pig should be eager to eat. • If you have feed available 24/7, pigs will be up and down at the feeder all day. • If you have a feeding schedule, pigs will consume all of their feed in one sitting. • Dominant pigs push their way to feeder first – have enough feeder space!	• Not eating – a pig off feed is very unusual and must be checked. • If you have one pig off-feed, this pig may be sick. • If you have multiple pigs off-feed, your feed may be bad, or this could be the onset of a disease condition.
Drinking	• Pigs will drink about 10% of their body weight per day. • Pigs may play with water drinkers or water troughs especially if it is hot out. • Make sure you have freshwater access 24/7.	• A lack of water on a hot day is enough to kill pigs. ALWAYS have water available. • In the unfortunate event of a water outage, pigs may display abnormal neurological behaviour. Contact your vet ASAP for instructions if this happens (introducing water rapidly after being dehydrated can cause major problems).

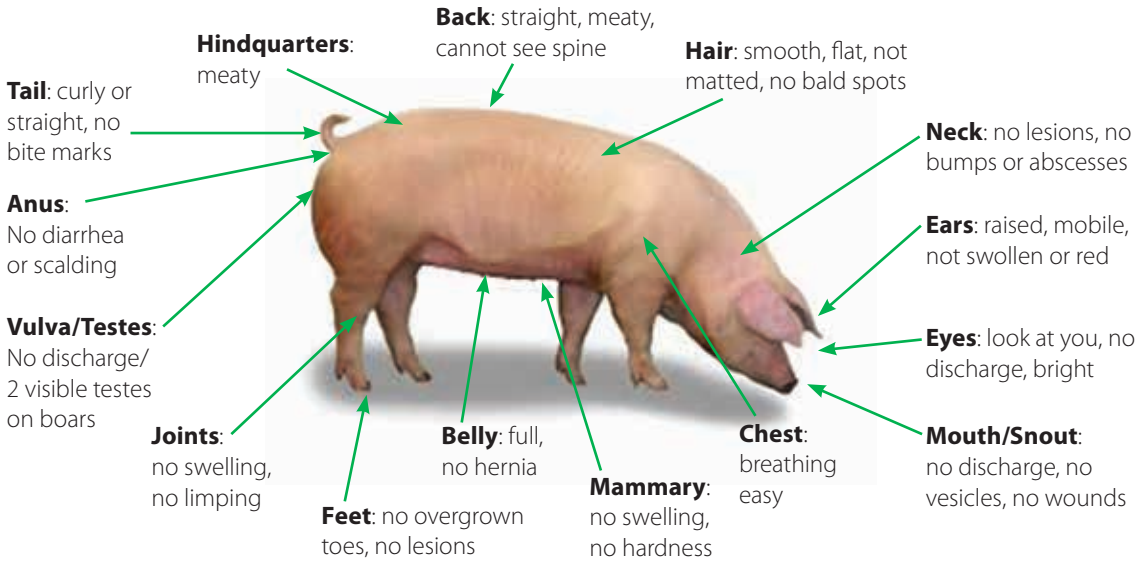
Source: Adopted from Manual for Pig Rearing In Uganda, 2011[1]

See Section 6: THE PIG – WHAT TO EXPECT for specifics on pigs of different life stages.

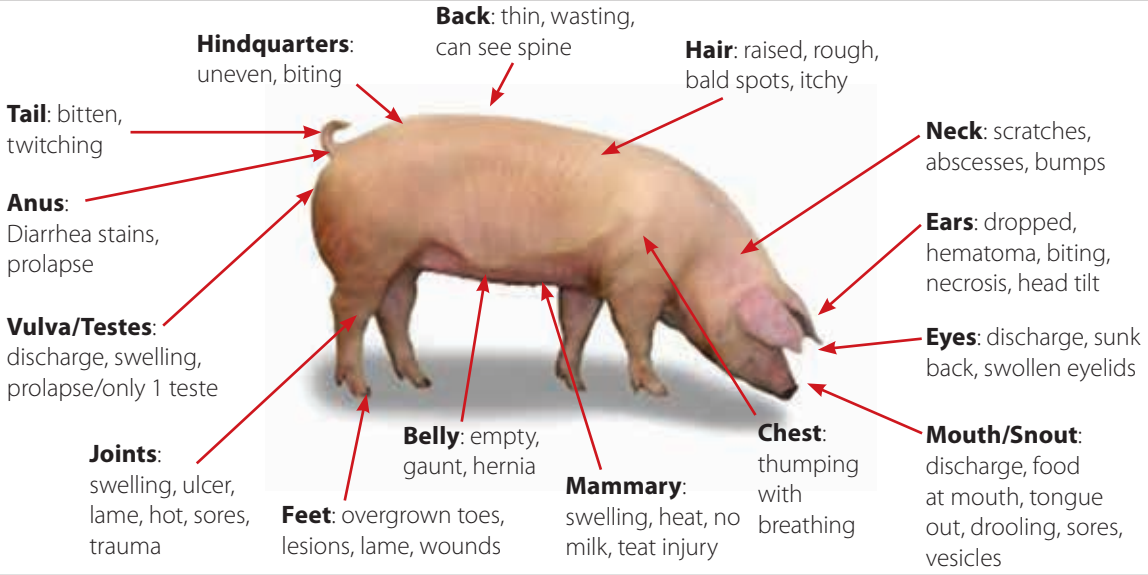
CLINICAL SIGNS: WHAT does my pig look like?

NORMAL AND ABNORMAL CLINICAL SIGNS

Normal expected signs



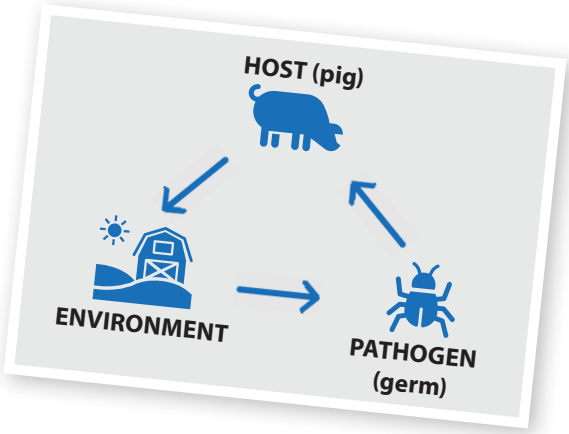
Abnormal signs which should raise concern



Source: Adopted from Manual for Pig Rearing in Uganda[1]

It is important to take a thorough look at your pig and look for any abnormal signs as pointed out in the table above.

7.4 DISEASE SPREAD



For disease to establish itself, there needs to be 3 things:

1. A susceptible **host**;
2. A disease-causing **pathogen**; and
3. A compromised **environment**.

Consider an example of a teenager who insists on not wearing a jacket on a cold day, who is stressed out about a math test, and heads to school during flu season. We have the perfect set-up for disease:

1. **Host**: *a stressed adolescent who is chilled because they refused to wear a jacket on a cold day.*
2. **Pathogen**: *influenza virus.*
3. **Environment**: *school – a place filled with children and teenagers high-fiving, coughing, sharing lunch, touching doors, sharing same air space, and germs.*

*It is the **combination of events** that favour disease.*

	COMMENTS	DO:	AVOID:
HOST	• Pigs are the hosts we are dealing with. • Piglets have weaker immune systems (like human babies). • Older animals are less susceptible to disease.	• Make sure ALL piglets get adequate colostrum soon after birth from their mother. • Vaccinate and deworm animals.	• Mixing age groups. • Keeping sick pigs with the group.
PATHOGEN	• The germs can be from viruses, bacteria, or parasites. • Can be shed from saliva, urine, feces, nasal discharge, blood, and semen of pigs.	• Remove any dead animals from pens (they can be infectious and spread disease). • Segregate sick animals from healthy animals. • Frequently clean manure from pens.	• Bringing in new animals to the herd without quarantine. • Letting sick animals have nose-to-nose contact. • Letting infectious material like diarrhea, blood, or other contamination build up.

	COMMENTS	DO:	AVOID:
ENVIRONMENT 	• Includes people and equipment moving in and out, weather changes, and cleanliness of the pig space. • Pathogens can travel on clothing, boots, and other animals for example.	• Clean and disinfect equipment, boots and buckets that are around pigs. • Provide appropriate physical environment (e.g., bedding, ventilation, lighting, temperature).	• Dirty conditions. • Pests, cats, and other animals interacting with pigs. • Bringing dirty equipment into pig pens.

7.5 PUBLIC HEALTH

KEY POINT CHECKLIST

TAKE HOME MESSAGES:

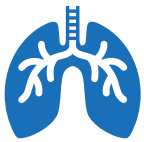
- Always wash your hands before and after handling pigs.
- Cook pork to the recommended end internal temperature of 71°C (160°F).
- Wear appropriate personal protective equipment (PPE) when working with pigs (e.g., gloves, masks, boots, ear plugs).

When working with pigs it is important to know that there are multiple diseases that can pass from pigs to humans. The three main ways that people can become sick from pigs are:

1. **DIRECT CONTACT**: Sick pigs can shed disease-causing pathogens thus causing contamination of themselves and their environment. This contamination can be transmitted to humans through unsafe direct contact with pigs.

Consider some of the diseases that can be spread from pigs to people:

DISEASES	SPREAD THROUGH	EXPOSURE	RESULT
Salmonella, E. coli, Campylobacter	Pig feces 	Human exposure can be through handling pigs, objects in their environment, equipment, boots or clothing and then touching one's mouth or handling food. This can result in accidental ingestion of the feces.	Exposure can result in diarrhea (sometimes bloody), vomiting, stomach cramps, fever, and headaches.

DISEASES	SPREAD THROUGH	EXPOSURE	RESULT
Staphylococcus aureus	Pig oral secretions (nasal discharge), skin wounds, and blood	***S. aureus*** is always present on the skin and in the noses of people and pigs, but it can cause skin infections if you have an open wound or a weakened immune system.	***S. aureus*** biggest concern is that it is commonly resistant to many antibiotics making it extremely difficult to treat.
Streptococcus suis		***S. suis*** can be passed to people through close contact with sick or dead pigs, particularly if you have an open wound.	***S. suis*** can result in meningitis (inflammation of the tissue around the brain and spinal cord), which causes headaches, fever, vomiting, confusion, stiffness, and muscle pain. It can also travel through the blood to multiple organs causing severe disease.
Influenza	 	***Influenza***, commonly known as the flu, is transmitted between people and pigs in the same manner it is transmitted between people: through coughing, sneezing, and contact with discharge from the nose and mouth.	***Influenza*** symptoms in people include fever, chills, aches, sore throat, coughing, and nasal congestion.

Source: Canadian Pork Excellence, Canadian Pork Council, 2020[2]

2. SLAUGHTER & PROCESSING:

- If you are slaughtering and processing pigs at home, it is important to consider that you can catch some diseases through contact with blood and tissue.
- The two main diseases of concern are *S. suis* and erysipelas.
- Both diseases can be passed to people if you already have an open wound that contacts the blood or tissue of an infected pig or if you accidently cut yourself during processing or clean-up with a contaminated knife.
- The symptoms of *S. suis* are described above. In humans, erysipelas is referred to as erysipeloid and causes localized inflammation. This is seen as reddening and pain of the skin around where the disease entered the skin.

3. CONTAMINATED PORK PRODUCTS:

- There are two categories of diseases that you can get from handling and consuming raw or undercooked pork products:
  - The first are those that can contaminate the outside of meat during processing:
    i. This usually happens through manure contamination of the processing area or accidentally cutting the intestines during processing releasing manure onto the carcass.
    ii. These diseases, which are shed in manure, are the same as those discussed above including *Salmonella*, *E. coli*, and *Campylobacter*.
    iii. People can be infected by handling contaminated meat in the kitchen and then touching their face or by consuming undercooked meat.
  - The second category of diseases are parasites that can exist within the meat of the pig:
    i. Three types of parasites can live in cysts in the meat and are infectious if consumed. These are *Trichinella*, *Toxoplasma*, and a type of tapeworm.
       1) *Trichinella* can cause fever, muscle pain, swelling around the eye, and abdominal pain.
       2) *Toxoplasma* usually does not cause disease in otherwise healthy adults, but it can have serious effects if a woman is infected during pregnancy. In this case it can cause miscarriage, stillbirths, severe illness in infected infants, or disability later in the child's life.
       3) Tapeworms consumed in meat can develop to adults in our guts. Migration of the immature form of the worm through our body can result in damage to the spinal cord and brain.

How to Keep Yourself Healthy:

- Avoid touching your face or eating while working with pigs.
- Always wash your hands after handling pigs, dirty equipment, dirty clothing, or raw meat.
- Remove dirty boots and clothing prior to entering the house or eating areas.
- Use cut proof gloves when slaughtering and processing. If an injury does occur clean the wound well and seek medical attention.
- Properly clean and disinfect all equipment used for processing or preparing meat.
- Fully cook all pork products prior to consumption, especially if pregnant.
- Remember, kids and elderly individuals are more susceptible to catching these diseases.

7.6 REPORTABLE DISEASES & FOREIGN ANIMAL DISEASES

KEY POINT CHECKLIST

There are specific diseases that are assigned a status of "federally reportable" (foreign animal diseases), "provincially reportable", or "notifiable" based on their importance as well as eradication status in a designated jurisdiction.

TAKE HOME MESSAGES:

- It is your job to recognize foreign animal disease (FAD) signs and know when to call your veterinarian.
- It is your veterinarian's job to know what 'status' a disease holds and to report the disease to appropriate authorities.
- African swine fever (ASF) is a current example of a FAD that is causing an international crisis and presents a major risk to Canada's pig population.
- It is your responsibility to be aware of FADs of international concerns relating to pig health.
- Do NOT feed meat scraps to pigs. This practice presents a major risk to introducing FADS like African swine fever (ASF) and Foot and Mouth Disease (FMD) to Canada.
- Reportable and notifiable diseases can have significant negative impacts on human health, animal health, export trade, and the Canadian economy.
- A federally reportable disease (FAD) must be reported and is a national emergency involving thorough investigation.
- A provincially reportable disease involves on-farm eradication and further investigation.
  - *Eradication does **not** mean depopulation*
- A notifiable disease is surveillance based and may involve treatment and prevention, but it will not involve a thorough investigation.
- Even if 1 pig acquires a FAD in Canada, it is a national emergency.
- Anyone who owns or works with pigs plays a role in maintaining Canadian pig herd health.
- If you see something unusual on your farm, call your veterinarian immediately.

What swine diseases are federally reportable? (2019)

DISEASE	WHAT IS IT?	HUMAN HEALTH RISK?	ANIMAL HEALTH RISK?	CANADIAN ECONOMY AND TRADE RISK?
African swine fever*	Viral disease that causes massive mortality of pigs.	✗	✓	✓
Anthrax	Bacterial disease that can cause respiratory disease and death in pigs and people.	✓	✓	✓
Brucellosis	Bacterial disease that causes reproductive losses in swine and illness in humans.	✓	✓	✓
Classical Swine Fever	Viral disease that causes massive mortality of pigs.	✗	✓	✓
Cysticercosis "Taenia solium"	Parasitic disease that can infect humans if infected meat is consumed undercooked.	✓	✓	✓
Foot and Mouth Disease	Highly contagious viral disease that causes painful vesicles around the mouth and snout, feet, and teats of pigs and ruminants.	✗	✓	✓
Pseudorabies "Aujeszky's disease"	Viral disease that causes neurological disease in pigs and "rabies-like" disease in other species.	✗	✓	✓
Rabies	Viral disease that causes neurological disease and death in pigs. Other species including humans can become infected.	✓	✓	✓
Swine Vesicular stomatitis	Contagious viral disease that causes painful vesicles around the mouth and snout, feet, and teats of pigs. Looks the same as Foot and Mouth Disease (FMD).	✗	✓	✓
Trichinellosis	Parasitic disease that can infect humans if infected meat is consumed undercooked.	✓	✓	✓

Source: Canadian Food Inspection Agency, Reportable diseases: Terrestrial animals, 2019[3]

What swine diseases are provincially reportable or notifiable? (2019)

Note: Search for specific details about disease status on your provincial government website.

DISEASE	WHAT IS IT?	HUMAN HEALTH RISK?	ANIMAL HEALTH RISK?	CANADIAN ECONOMY AND TRADE RISK?
Porcine Epidemic Diarrhea (PED), **Transmissible Gastroenteritis (TGE),** **Swine delta corona virus (SDCV)**	Group of viral diseases that cause diarrhea and up to 100% mortality in nursing piglets (PED, TGE).	✗	✔	✔
Rabies	Viral disease that causes neurological disease and death in pigs. Other species including humans can become infected.	✔	✔	✔
Salmonella	Bacterial disease that can cause diarrhea or sepsis in swine. Contamination of pork products can lead to human food poisoning.	✔	✔	✔
Toxin Ingestion	Clinical syndromes can arise in pigs that can lead to pork contamination if pigs ingest the following: asbestos, creosote, dioxins, fuel, lead, or poly-chlorinated biphenyls.	✗	✔	✔
Swine Influenza	Viral disease that causes upper respiratory tract infection in swine. There are multiple flu strains amongst pigs, birds, humans, and other species. Humans cannot get the flu from eating pork.	? Although uncommon, humans can get the flu by interacting with pigs who have the flu. Humans CANNOT get the flu from eating pork.	✔	✔

* **AFRICAN SWINE FEVER (ASF)**:
  - Is a serious viral disease of pigs that can cause fever, internal bleeding and high death rates.
  - Highly contagious and can spread rapidly through both direct and indirect contact with infected pigs or pig products.
  - Not harmful to people.
  - ASF has never been found in Canada.
  - It is actively (2018–2020) spreading through Asia, parts of Europe, and Africa.
  - There is currently NO vaccine or treatment.
  - It is spread through live pigs, dead pigs, wild pigs, meat, certain ticks, feed, and equipment.
  - Main risk factors:
    - **Lack of strong on-farm biosecurity standards** – ASF can be brought onto a farm by people who have visited farms from areas that are affected with ASF. This includes bringing contaminated food, clothing or equipment onto farms.
    - **International travellers** – People, such as farm workers, foreign exchange students or hunters, who travelled to countries affected with ASF, could bring back contaminated food, clothing or equipment.
    - **Small scale producers and pig pet owners** – ASF can survive for several months in fresh, frozen, cooked, partially cooked and processed pork products. Feeding pigs food scraps that are infected with the virus can spread the disease to their animals.
    - **Animal feed** – ASF can be spread through contaminated feed or feed ingredients.
    - **Contact with infected wild pigs** – ASF can be spread directly between sick and healthy pigs. This happens through contact with the blood, tissues, secretions and excretions from infected pigs. At the present time, ASF has not been detected in Canada's wild pig population.

Source: Canadian Food Inspection Agency, African swine fever – fact sheet, 2019[4]

Photo 1. African swine fever. There are multiple skin hemorrhages and/or necrosis.
Plum Island Animal Disease Center (PIADC), Center for Food Security and Public Health at Iowa State University, College of Veterinary Medicine

Photo 2. African swine fever. Pig limbs with increased redness of the skin.
Plum Island Animal Disease Center (PIADC), Center for Food Security and Public Health at Iowa State University, College of Veterinary Medicine

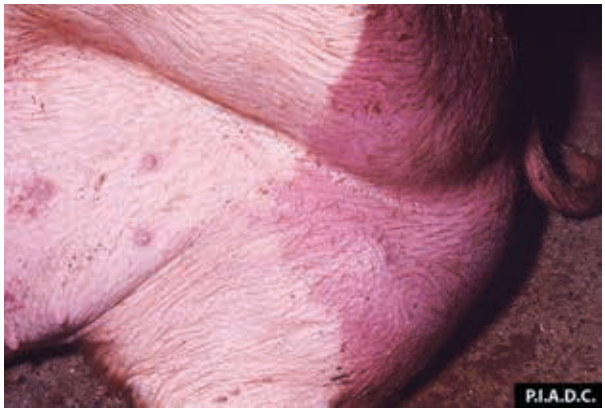


Photo 3. African swine fever. Large skin hemorrhages and necrosis.
Plum Island Animal Disease Center (PIADC), Center for Food Security and Public Health at Iowa State University, College of Veterinary Medicine

Photo 4. African swine fever. Pig kidney with scattered speckled surface (these are hemorrhages).
Plum Island Animal Disease Center (PIADC), Center for Food Security and Public Health at Iowa State University, College of Veterinary Medicine

How can reportable FADs get into Canada?

- Feed ingredients that are not safely sourced.
- Feeding meat scraps or any meat products to pigs.
- Illegal importation of meat or animal products.
- Traveling to countries with FADs and returning to you farm with contaminated boots or clothing.
- Foreign visitors on farms with contaminated boots or clothing.
- Illegal importation of live pigs.
- Compromised Canadian pig herd biosecurity.

What can I do to prevent a reportable FAD from occurring on my farm?

- DO NOT feed ANY meat scraps to pigs. It is **ILLEGAL**. This includes pet food with meat, meat by-products, or meat scraps from kitchen waste.
- DO NOT feed recycled food products or kitchen wastes to pigs due to the risk to animal health and introducing diseases.
- Buy feed from mills that are part of a *"recognized biosecurity program and participate in the Animal Nutrition Association of Canada's Feed Assure Program and follow their National Biosecurity Guide"*.
- If you travel, follow the law and do not bring back ANY illegal animal products.
- If you travel to a country with FADs, practice good biosecurity when you come back to Canada (even if you did not travel to a farm while abroad, follow these 4 easy steps and you will greatly reduce any risk):
  - Change your footwear and clothing prior to coming back to your farm.
  - Disinfect shoes that have been abroad.
  - Wash all clothing that has been abroad.
  - Disinfect cell phone or other items that have been abroad (*Lysol wipes*).
- Talk to your veterinarian about appropriate deworming programs.
- Practice good biosecurity. Remember, it only takes 1 pig to impact the Canadian herd.

What clinical signs should alert me?

- ANY fluid filled vesicle or blister.
- Sudden mortality of multiple animals.
- Severe hemorrhaging.
- Severe diarrhea that causes death in piglets.
- A known toxin ingestion.
- Concerns from your abattoir or meat inspector on the carcass.
- Bizarre behaviour, excessive salivation, or abnormal neurological activity.

What should I do if I suspect a provincially or federally reportable animal disease?

- Emergency Quarantine:
  - Contact your veterinarian immediately.
  - Stop ALL movement (foot or vehicle) to and from your farm immediately.
  - Set up fencing at your driveway to prevent any traffic onto your farm.
  - Wait for further instructions from your veterinarian or government officials.

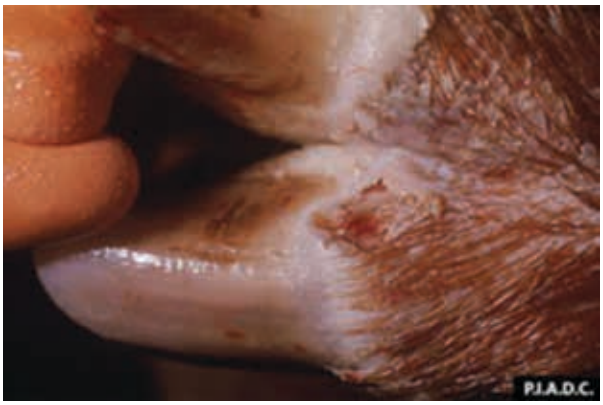


Photo 5. Foot and Mouth Disease. Pig foot with a ruptured vesicle.
Plum Island Animal Disease Center (PIADC), Center for Food Security and Public Health at Iowa State University, College of Veterinary Medicine

Photo 6. Foot and Mouth Disease. Pig foot with ruptured vesicles and sloughing of skin.
Dr. D. Gregg, Noah's Arkive. Plum Island Animal Disease Center (PIADC), Center for Food Security and Public Health at Iowa State University, College of Veterinary Medicine

7.7 COMMON DISEASES OF OUTDOOR PIGS

There are a number of diseases that are more commonly seen in outdoor pig production that you should familiarize yourself with. Please note, any management comments are basic guidelines. For your specific farm, all health protocols should be designed with your veterinarian.

	What are the clinical signs?	What is it?	What should I do?
Porcine Circovirus (pcv)	• Wasting • Poor growth • Patchy red skin • Difficulty breathing • Diarrhea in young pigs	• Virus that destroys the immune system • Affects all ages, but its appearance varies with age	• ***Prevention***: vaccinate all pigs • ***Treatment***: antibiotics for secondary bacterial infections
Influenza (Flu)	• Fever • Dry cough • Sneezing • Clear discharge from eyes and nose	• Virus that causes respiratory disease • Pigs can pass the flu to people, but more commonly people pass the flu to pigs • Affects pigs of all ages	• ***Prevention***: some strains can be vaccinated for • Avoid contact with pigs if you have signs of flu • ***Treatment***: medications to control fever
Erysipelas	• Red to purple diamond shaped skin patches • Fever • Abortion • Lameness • Sudden death	• Bacteria • Can infect people, particularly at time of slaughter • Affects pigs of all ages	• ***Prevention***: vaccinate all pigs • ***Treatment***: antibiotics
Clostridial Diseases	• ***Nursing pigs***: sudden death, bloody diarrhea, high mortality • ***Mature pigs***: sudden death, rapid bloating and decomposition of carcass	• Group of related bacteria • Affects neonates and nursing pigs differently than mature pigs	• ***Prevention***: vaccinate prior to farrowing and ensure good colostrum intake and vaccinate at weaning • ***Treatment***: antibiotics and isolate affected pigs
Streptococcus suis	• Swollen joints • Head tilt • Tremors • Incoordination • Pneumonia	• Bacteria • Can infect people, particularly if contact with damaged skin occurs • Affects nursing and recently weaned pigs	• ***Prevention***: good environmental management and stress reduction • ***Treatment***: antibiotics and separate affected pigs
Haemophilus parasuis (Glasser's)	• Sudden onset of disease • Sudden death • Swollen joints • Incoordination • Tremors • Pneumonia	• Bacteria that can affect many different body systems • Affects 1–4 month old pigs mostly	• ***Prevention***: reduce stress at weaning and in nursery • Vaccinate if this is a problem on your farm • ***Treatment***: antibiotics and separate affected pigs

7.7 COMMON DISEASES OF OUTDOOR PIGS

	What are the clinical signs?	What is it?	What should I do?
Foot Rot (Bush Foot)	• Lameness • Painful, swollen claw • Cracking or splitting of the hoof	• Bacterial infection of the claw that can extend into the soft tissue between claws • Affects mostly older animals and is predominantly seen in hind feet	• ***Prevention***: proper flooring, clean and disinfect flooring regularly • ***Treatment***: antibiotics, an anti-inflammatory, or foot bath if it is a herd problem • Move to hospital pen
Mycoplasmal Diseases	• Dry cough • Difficulty breathing • Lameness, stiff movement • Large swellings around joints • Decreased growth	• Group of related bacteria • Affects pigs 6 weeks to market age	• ***Prevention***: quarantine new animals and source new animals safely • Vaccinate if this is a problem for your farm • ***Treatment***: antibiotics and separate affected pigs
Ascaris suum	• Skinny • Decreased growth • Rough hair coat • Droopy abdomen • Chronic coughing • White spots on liver at slaughter	• Parasitic worm • Affects growers and older pigs	• ***Prevention***: proper deworming protocol • Environmental sanitation and pasture rotation • ***Treatment***: dewormer
Trichuris suis (Whipworm)	• Skinny • Decreased feed intake • Mucoid and/or bloody diarrhea • Dehydration	• Parasitic worm • Affects pigs four weeks after exposure to contaminated environment	• ***Prevention***: proper deworming protocol • Pasture management and rotation • ***Treatment***: dewormer
Toxoplasma gondii	• Rarely causes clinical disease in otherwise healthy pigs • May cause abortion or stillbirths if sow infected • May cause diarrhea, incoordination, or cough in piglets	• Parasite • People can be infected by eating undercooked meat • Disease varies with age at which pig is infected	• ***Prevention***: keep cats away from pigs and their feed • ***Treatment***: none
Trichinella spiralis	• Rarely causes clinical disease in otherwise healthy pigs • May cause decreased growth and muscle pain	• Parasitic worm • People can be infected by eating undercooked meat	• ***Prevention***: do not feed waste meat products • Rodent control • ***Treatment***: none
External Parasites (Mange)	• Itching/rubbing on objects • Crusting wounds • Fluid filled lesions • Decreased growth • Visible bites	• Parasites that live on the skin (mites, fleas, lice, flies) • Most serious is mange caused by mites • Affects pigs of any age	• ***Prevention***: environmental control and proper dewormer protocol • ***Treatment***: anti-parasitic and soaps or disinfectants for the skin applied topically

	What are the clinical signs?	What is it?	What should I do?
Piglet Scours (Diarrhea)	• Diarrhea • Rough hair coat • Wasting or skinny • Failure to grow • Mortality varies with cause of diarrhea	• Bacterial or viral disease • Affects nursing piglets	• ***Prevention***: vaccinate sows prior to farrowing • Clean environment • Colostrum for every piglet! • ***Treatment***: electrolytes in water, Kaolin pectin (absorbent) • If no response, then try antibiotics
Lameness	• Limping • Swollen joints • Non-weight bearing • Slow to rise	• Can be caused by infection or by trauma • Affects pigs of any age	• ***Prevention***: non-slip flooring • Environmental sanitation • ***Treatment***: antibiotics or anti-inflammatory • Euthanasia if the leg is broken or not responding to treatment
Deficiencies	• Lameness • Deformation of legs • Fractures under minimal stress • Goiter development • Birth of weak or stillborn piglets • Pale piglets • Heart disease • Abnormal hair coat • Failure to grow	• Lack of an essential nutrient due to an improper nutritionally balanced diet • Predominantly seen in piglets, rapidly growing pigs, or lactating pigs	• ***Prevention***: consult a nutritionist or vet to ensure diets are nutritionally balanced for all age groups • Iron injection for all piglets within 3 days of birth • ***Treatment***: supplement deficient nutrient
Mastitis or No Milk	• Udder is hard, swollen, and hot • Fever • Vaginal discharge • Inadequate milk production • Refusal to nurse • Off feed • Listlessness	• Infection causing inflammation of the udder and uterus with poor to no milk production • Affects breeding females	• ***Prevention***: good farrowing sanitation • Environmental sanitation • Management of sow body condition and nutrition • ***Treatment***: antibiotics and an anti-inflammatory
Rectal/Pelvic Organ Prolapse	• Organ hanging behind the pig through the anus or vulva • Exposed tissue will swell, dry out and die	• Rectum, vagina, uterus, or bladder can evert from body. • Affects weaned and older pigs • Can be associated with stress, illness, poor feed quality, or difficult farrowing	• ***Prevention***: good feed quality • Prompt treatment of diarrhea and coughing • Avoid piling (cold and transport stress) • ***Treatment***: can be surgically repaired by properly trained individual • Uterus prolapse is an emergency • Euthanasia

7.7 COMMON DISEASES OF OUTDOOR PIGS

	What are the clinical signs?	What is it?	What should I do?
Hernia (Umbilical or Scrotal)	• ***Prevention***: clean environment for newborn piglets to prevent naval infection • ***Treatment***: Can be surgically repaired by properly trained individual • Euthanasia if large or infected	• Intestinal tissue that is trapped in an opening of the muscle tissue • Can affect pigs 3–5 weeks of age but will enlarge as pigs grow	• ***Prevention***: clean environment for newborn piglets to prevent naval infection • ***Treatment***: can be surgically repaired by properly trained individual • Euthanasia if large or infected

Note: Farrowing related complications can be found in Section 6.5 FARROWING & POST-FARROWING COMPLICATIONS.

Photo 7. Piglet scours, Dr. Egan Brockhoff

Photo 8. Porcine circovirus, Dr. Ted Clark

Photo 9. Lame pig, Dr. Kelsey Gray

Photo 10. Strep suis, Dr. Egan Brockhoff

7.8 DISEASE MANAGEMENT

There are three major components to disease management.

1. Prevention
2. Identification and Diagnosis
3. Treatment

Disease management definitions to familiarize yourself with:

WORD	DEFINITION
Colostrum	First milk from the sow. It is rich in antibodies and nutrients for newborn piglets.
Antibody	A large protein used by the immune system to fight off pathogens (e.g., bacteria, viruses).
Vaccine	A substance used to stimulate antibody production to boost an animal's immune system and fight off pathogens.
Booster Shot	The second or third dose of a vaccine. If we think of vaccines like building a military, the first dose is the call for soldiers, and the second dose is getting soldiers trained and ready for combat. Most vaccines require a booster shot.
Dewormer	A substance used to prevent or fight off parasites (e.g., tapeworms, mites, manage, other worms).
Immunity	The ability of an animal to resist or fight off infection.
Antibiotics	Medicines used to fight off specific bacterial infections.
Antibiotic Resistance	The process where bacteria can grow in the presence of an antibiotic that would normally kill them.
Class 1 Antibiotics	Antibiotics that are considered important in human health. These types of drugs are used by people for specific reasons ranging from urinary tract infections to post-operative infection care.
Anti-Inflammatory	Medicine that reduces inflammation and pain. It brings down redness, swelling, edema, heat, and pain.
Withdrawal Times	The amount of time that you must wait AFTER medicating an animal before sending an animal to slaughter. E.g., If you are giving a medicine that is required once a day for 3 days and the withdrawal time is "8 days", after the 3rd and final treatment, you must wait 8 full days before the animal can be slaughtered to ensure the meat will be free of medication residue.

1. PREVENTION

Disease prevention is a combination of proper animal husbandry (including creating a healthy environment and feeding appropriate diets), performing proper piglet care, and administering vaccinations and a dewormer.

BASIC GUIDELINES on preventative measures to take during a pig's life:

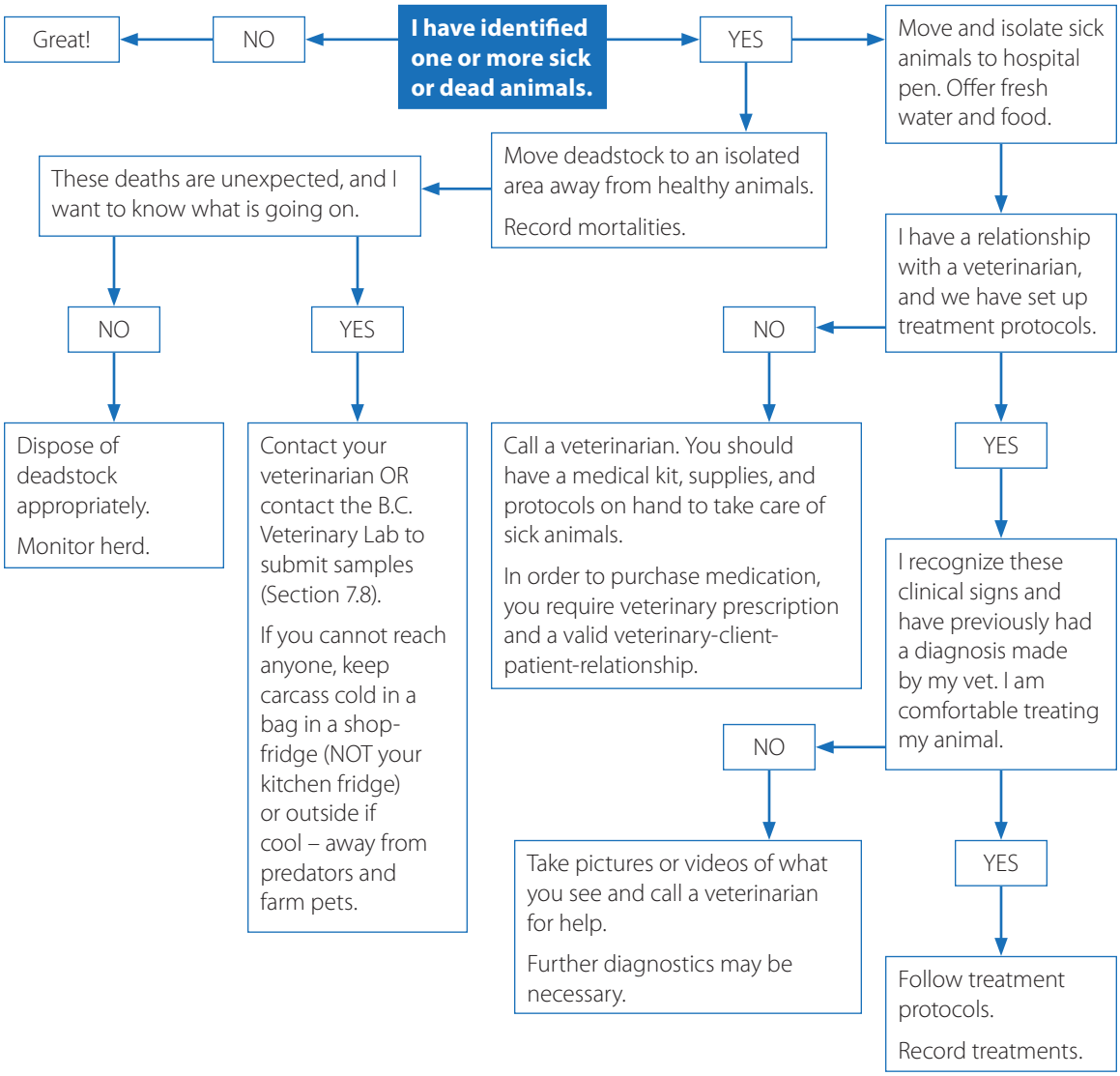
Note: Every farm is unique. Vaccine and deworming protocols should be established in consultation with your veterinarian.

PRODUCTION STAGE	VACCINES AND DEWORMER	TIMING	OTHER
Unbred sows before breeding	• Vaccinate for reproductive diseases: erysipelas, leptospirosis, and parvo virus. Vaccines often come in combination.	• 2 weeks before being penned with the breeding boar.	• Maintain ideal body condition score. • Have long toes trimmed to prevent lameness.
Pregnant sows and gilts	• Vaccinate for piglet scour pathogens: rota virus, clostridial disease, and E. coli (vaccine is given to protect piglets). Vaccines often come in combination. • Give broad spectrum dewormer.	• Gilts: 5 and 2 weeks pre-farrow. • Sows 2 weeks pre-farrow. • 2 weeks pre-farrow gilts and sows.	• Move pregnant animals to maternity pen about 1 week before farrowing. • Maternity pen should be clean, dried, warm, and well-bedded.
Lactating sows			• Offer fresh feed daily ad libitum. • Offer high energy ration. • Maintain body condition score.
Piglets 1–4 days old			• Colostrum for ALL piglets within 12 hours of being born. • Iron injection for ALL piglets before 4 days old.
Weaned Pigs	• Vaccinate for erysipelas. • Vaccinate for clostridial diseases. • Vaccinate for circo virus (pcv2).	• At weaning or at 5–6 weeks of age for all vaccines.	• For your growing herd, there are many different vaccination protocols. Consult with your veterinarian about what is appropriate for your herd.
Growing Pigs	• Vaccinate for erysipelas. • Vaccinate for clostridial diseases. • Give broad spectrum dewormer.	• Vaccinate and deworm for these diseases going into spring and fall.	• You may need to deworm more than twice a year. Talk to your slaughter plant about parasite surveillance.

PRODUCTION STAGE	VACCINES AND DEWORMER	TIMING	OTHER
Finishing Pigs			• You may deworm one more time before slaughter. Talk to your slaughter plant about parasite surveillance.
Replacement Gilts and Boars	• Vaccine for erysipelas. • Vaccine for clostridial disease. • Vaccine for circo virus (pcv2). • Vaccine for reproductive diseases: erysipselas, leptospirosis, parvo virus.	• Erysipelas, clostridial disease, and pcv2 vaccines should be given with your growing herd if raising own replacements. • First time gilts and first time breeding boars should get repro vaccine twice (3 weeks apart) before being penned up for breeding.	• If you are purchasing breeding animals, get a thorough history of their vaccination history. Consult with your veterinarian about the best vaccination protocol for new animals.
Breeding Boars	• Vaccinate for reproductive diseases: erysipelas, leptospirosis, and parvo virus (vaccines often come in combination).	• Vaccinate 2x a year.	• Do not let boars become obese. • Have long toes trimmed to prevent lameness.
Newly purchased animals			• Consult with your veterinarian about on arrival protocols for new animals.

2. IDENTIFICATION & DIAGNOSIS

As a pig farmer, you should learn how to recognize clinical disease. Please go through this entire chapter for more information on recognizing abnormalities and to learn about common diseases of pigs. Review this flow-chart for identifying and making plans for a sick animal.



Note: If you suspect a reportable FAD, contact a veterinarian immediately!

3. TREATMENT

Veterinary-Client-Patient-Relationship:

- If you are treating an animal, you should be following veterinary recommendations.
- You must establish a valid veterinary-client-patient-relationship (VCPR).
- To do this, a veterinarian must visit your herd once a year to review health and treatment protocols.
- A VCPR allows your vet to prescribe medications and establish protocols that you can use throughout the year.

Records:

- You should record all treatments administered.
- Treatment records should include: animal ID or number of animals treated, reason for treatment, date, weight of animal(s), medication(s) used, route of administration, dose, number of treatments, and withdrawal times.

EXAMPLE

DATE	ANIMAL ID	WEIGHT	REASON	MEDICATION	ROUTE	DOSE	TREATMENT NUMBER	WITHDRAWAL
Nov 1 2019	5467	~100 kg	Swollen Joint	Antibiotic X Anti-Inflammatory Y	In the muscle for both	4 ml 2 ml	1/3 1/1	8 days 5 days

Medical Kit:

- You should have a medical kit on hand.
- Keep your medical kit clean.
- Store your medical kit somewhere safe since you are responsible for the medications in that kit.

- A medical kit should include:
  - Gloves
  - Needles of varying sizes

Size of Needle Guidelines:

SIZE OF PIG	NEEDLE GAUGE	NEEDLE LENGTH (INCHES)
Adult (>125 kg)	16	1-1/2
30–125 kg	16	1
20 kg	16 or 18	1 or 3/4
10 kg	18	3/4
5 kg	18 or 20	5/8 or 3/4
Piglet	20	1/2 or 5/8

Source: Canadian Pork Excellence, Canadian Pork Council, 2020[3]

  - Syringes of varying sizes (3 ml – 20 ml)
  - Hog snare
  - Ear plugs
  - Some kind of soap
  - Some kind of disinfectant (alcohol or a peroxide)
  - Injectable iron (necessary for piglets)
  - Injectable antibiotics (e.g., penicillin)
  - Injectable anti-inflammatory (e.g., meloxicam)
  - Electrolyte powder
  - Kaolin Pectin or activated charcoal
  - Scalpels (#10 or #15 blades)
  - Slap-shots (this is long tubing that you can attach your needle to on one end and a syringe on the other – it gives you more room to work with the animal and is very helpful).

- Regularly go through the medical kit and **discard expired medications**.
- Pay particular attention to storage instructions for medications since **some medications must be refrigerated**.

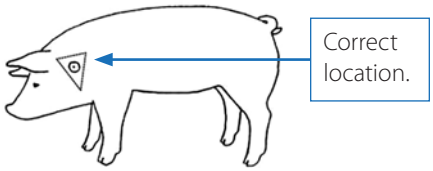
Photo: Alberta Pasture Pig Producer/Breeder

Safety:

- When treating animals, it is important that you keep yourself safe, your animal safe, and the meat safe for consumption (if you are raising meat animals).

DO:

- Work in pairs. It's best to have two people working together.
- Restrain animals securely before injecting them. See PIG TIPS from Section 4.6 ANIMAL HANDLING & SAFETY.
  i. Restrain animals with a hog snare or have them cornered safely using hog boards.
- If you are injecting an animal:
  i. Use the correct needle size.
  ii. Use a fresh needle (or change needles every 5–10 animals).
  iii. Inject directly into the neck muscle at 90-degree angle.
  iv. Use a slap shot on larger animals.



- Follow veterinary recommendations.
- Record treatments.
- Adhere closely to withdrawal times.

Photos: Dr. Kelsey Gray

AVOID:

- Chasing animals around to inject them.
- Using dirty, old, or bent needles.
- Using expired medication.
- Not following veterinary recommendations.
- Incorrectly using medication.

- WHAT TO DO IF A NEEDLE BREAKS:
  - Mark the animal immediately.
  - Retrieve the broken needle if you can see it.
  - If you cannot see it, mark down the animal ID or tag the animal with a new ID.
  - Make record of the broken needle.
  - At slaughter time, inform the slaughter plant of the broken needle so it can be located before preparing meat.
  - Review what happened and make plans for how to reduce the risk of a broken needle in the future.

Note: For international pork sale, finding a broken needle in pork oversees can cause major problems!

Antibiotic Resistance:

- Antibiotics are used in livestock production for managing disease and treating sick animals. If you are raising pigs, you will likely have to use an antibiotic on a sick animal at some point in your pig-farming career.
- Antibiotics include drugs like penicillin, a commonly known antibiotic. This class of drugs is used to treat bacterial infections. Over the last few decades, awareness about antibiotic resistance has been becoming more prevalent.
- Resistance means the bacteria are able to grow despite being treated with antibiotics.
- Resistance is an international concern because antibiotics are critical for the treatment of animal as well as human illnesses.
- When administering antibiotics to animals, you are accountable to using them responsibly.

DO:

- Limit use of antibiotics for treatment as recommended by your vet.
- Use antibiotics at the correct dose, for the correct duration, and for the correct disease.

AVOID:

- Using multiple different antibiotics at the same time.
- Using antibiotics preventatively or without reason.
- Not completing the full duration of the recommended treatment.

7.9 VETERINARY DIAGNOSTICS

The Animal Health Centre, part of the B.C. Ministry of Agriculture, is a world-class veterinary diagnostic laboratory dedicated to protecting the health of all animals in B.C. It is a very valuable resource for livestock owners, offering a full range of fee-for-service diagnostic testing, including Bacteriology, Histopathology, Molecular Diagnostics, Necropsy, Serology and Virology. The lab is fully accredited by the American Association of Veterinary Laboratory Diagnosticians as well as by the Standards Council of Canada (SCC) for ISO/IEC 17025:2005 and the Canadian Food Inspection Agency.

Samples are accepted from veterinarians, livestock producers, the general public and other government agencies. It offers a wide range of diagnostic tests that are useful for swine owners/producers (discussed in the sections on the specific diseases) and has a staff of veterinarians with advanced specializations in pathology, epidemiology, public health, microbiology and virology available for consultations with veterinarians (preferred), animal owners, and the general public.

A range of tests are available for disease surveillance and diagnostic testing on live pigs, as well as post-mortem examination of deceased animals to determine cause of death and other disease processes that may be relevant to the rest of the herd.

For whole animal submissions for post-mortem examination, up to 3 pigs can be submitted within a single submission so long as the animals within the submission are likely to represent the same disease process (e.g., show similar clinical signs of disease). Submission of multiple animals results in a more representative picture of the disease processes in a herd if there are multiple mortalities. Tissues from animals submitted as a single case will be pooled. If separate tests on individual animals are required, then those animals should be submitted separately.

Submission of samples or whole animals can be facilitated in several ways. Please call the Animal Health Centre at 604-556-3003, or visit our website (www.gov.bc.ca/animalhealthcentre) for more information. All samples must be accompanied by a submission form, which can be filled out directly at the front desk or found on the website. Samples may be dropped off directly or mailed. If samples are mailed they must be packaged correctly (properly labelled and packaged so that they do not leak and arrive

at the lab in suitable condition for examination). Guidance on proper packaging is available on the website or by phoning during office hours.

All charges are payable at the time of submission and results will not be released until payment has been received. Accepted Methods of Payment: VISA, MasterCard, American Express, Debit, Cheque (payable to "Minister of Finance") or Electronic Fund Transfer. Testing for diseases for provincially/federally reportable diseases may, in some cases, be available free-of-charge. If you suspect a reportable disease please contact your local veterinarian and/or the Animal Health Centre immediately. A fee guide is available on the website, or by phoning during office hours.

For information about diagnostic testing for your particular herd, or for guidance on whether or not submission of deceased animals for post-mortem is likely to be valuable, please contact the lab.

Contact Information:

Local phone: 604-556-3003

Toll free: 1-800-661-9903

Front office email: PAHB@gov.bc.ca

Submission forms can be emailed to: PAHB.Submissions@gov.bc.ca

Website: www.gov.bc.ca/animalhealthcentre

Hours of operation: The Animal Health Centre is open Monday to Friday from 8:30 A.M. until 4:30 P.M. Please note that the Animal Health Centre is closed on Statutory Holidays.

Address:
Animal Health Centre, B.C. Ministry of Agriculture
1767 Angus Campbell Road
Abbotsford B.C. V3G 2M3

SECTION 7 REFERENCE LIST

1. Manual for Pig Rearing in Uganda, Dr. Linda Nelson and Dr. John Carr, Daktari Animal Health (2011)
2. Canadian Pork Excellence, Canadian Pork Council (2020)
3. Canadian Food Inspection Agency, Reportable diseases: Terrestrial animals (2019)
4. Canadian Food Inspection Agency, African swine fever – fact sheet (2019)

SECTION 8: BIOSECURITY

TAKE HOME MESSAGES:

- Pig diseases can transport to and from your farm on pigs, vehicles, people, footwear, through feed, and many other ways.
- Don't bring disease onto your farm and don't transfer disease off of your farm.
- Change footwear and outside clothing when working with pigs.
- The slaughter plant should be considered a HIGH-RISK area for disease spread.
- ALWAYS WASH AND DISINFECT YOUR VEHICLE AND TRAILER AFTER A TRIP TO THE SLAUGHTER PLANT BEFORE RETURNING TO YOUR FARM.
- Use double fencing to fence in pigs and keep predators out.
- Frequently wash, disinfect, and dry all equipment, vehicles, boots, buckets, and feeders.

8.1 WHAT IS BIOSECURITY?

Biosecurity is a system of checks and balances put in place to protect your pigs and other producer's pigs by preventing and controlling disease spread. It involves multiple critical control points, but it starts with your mind set – think of it as a "culture" that you are a part of. Every pig producer needs to have the right attitude about it and work together to make biosecurity a success. If done correctly, practicing good biosecurity can prevent the spread of disease and keep everyone's pigs healthy.

Biosecurity can be straight forward. For example:

- *You wash your hands after handling raw meat when cooking.*
- *You use hand sanitizer at busy places like the mall, airport, or hospital.*
- *You get vaccinated as a child.*
- *You take your shoes off at the front door to prevent tracking dirt into the house.*

Without even thinking about it, you practice biosecurity everyday to prevent spreading disease caused by germs that are not visible to the naked eye.

Pigs also carry and can contract disease from these invisible germs.

- Pigs can spread disease to other pigs.
- Pigs can spread disease to people.
- People can spread disease to pigs.
- Other animals (like rodents, birds, or cats) can spread disease to pigs.

- Manure can harbour pathogens that can spread diseases to pigs.
- Contaminated feedstuffs can carry pathogens and spread diseases to pigs.
- Contaminated equipment, clothing, and boots can spread diseases to pigs.

Biosecurity can protect pigs as well as you and your family. Section 8.3 BIOSECURITY ON YOUR FARM will go into detail in establishing a farm biosecurity plan to reduce the chances of pigs contracting diseases and spreading diseases to other farms.

8.2 WHY IS BIOSECURITY IMPORTANT?

Understanding biosecurity and your role in it as a member of the pig production system in B.C. and Canada is **CRITICAL**. Canada is one of the world's largest net exporters of pork (>70% of our national production is traded internationally). Hundreds of thousands of Canadian individuals and family livelihoods and well-being depend on the pork industry. Our ability to trade internationally in pork and pork products is a result of our excellent national health status as an industry. This privileged status can be destroyed in an instant with the introduction of any one of a number of Foreign Animal Diseases (FAD), such as Foot and Mouth Disease (FMD), or African swine fever (ASF).

How does this involve you, as a small-scale hog producer?

Many of the most recent and devastating FAD outbreaks in first world, meat-producing countries (i.e., FMD in the United Kingdom (UK) in 2001) are introduced to a country through small scale producers, using feeding, management, and husbandry practices that were not biosecure. For example, the feeding of unconventional feedstuffs (i.e., food scraps (swill) discarded from foreign ships docked at a UK port) was the cause of FMD in England in 2001, causing the destruction of millions of animals, both healthy and diseased, at a cost of many BILLIONS of dollars to the UK agriculture economy. Not to mention the untold heartache and devastation to farming families who were caught up in a situation not of their own making. One bad decision or choice by a small-scale producer in B.C. can shut down an ENTIRE industry, Canada-wide.

That is a **VERY IMPORTANT** responsibility to understand.

As someone who is considering, or already farming pigs on a small scale, it is important to understand your role in the broader pork-producing industry. With the joy and satisfaction of raising your own pork comes great responsibility to play your part in the national biosecurity effort.

Biosecurity is not limited to large scale farms. Regardless of size or production philosophy, all farms, even hobby farms, have a responsibility to prevent an outbreak or spread of animal (or plant) diseases or pests. Stay on top of industry association news and be aware of

local conditions or issues as they arise. If there is a serious disease outbreak, you don't want to be the last to know.

A wealth of information and resources is available on the Canadian Pork Council (CPC) website that also contains the Canadian Pork Excellence (CPE) Producer Manual, 2020. https://www.cpc-ccp.com(1)

8.3 BIOSECURITY ON YOUR FARM

KEY POINT CHECKLIST

FARM LAYOUT

- You should assign and outline "access zones" on your farm.
- Setting up access zones can reduce the risk of moving disease into, around, and off of your farm.

WHAT ARE THE MAJOR ZONES?

1) **Controlled Access Zone (CAZ)**
   - Entry to farmyard.
   - As soon as you enter your property or farmyard, the area beside your pigs should be considered controlled.
   - CAZ = Limited access to owners, farm staff, and known visitors.

2) **Transition Access Zone (TAZ)**
   - Area where you transition from controlled zone in preparation to enter restricted zone.
   - TAZ = Restricted access to owners and farm staff planning to enter the animal housing.

3) **Restricted Access Zone (RAZ)**
   - Entry to barn or pens where pigs are physically kept.
   - RAZ = Restricted access to owners and farm staff working with the animals.

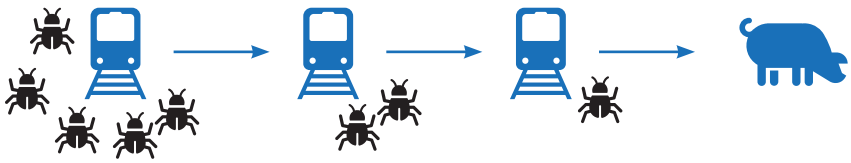
4) Quarantine

- Area for newly arriving animals.
- Pigs can be kept here for 6–8 weeks prior to entering the herd.
- This area should keep quarantined pigs completely separated from the other pigs (meaning they do not have access to each other, they do not share feeders or water troughs, and they cannot have nose-to-nose contact through a fence).

WHY DO I NEED ZONES?

- Diseases like porcine epidemic diarrhea virus (PEDv) are extremely contagious causing 100% mortality in piglets – it takes a SPECK of viral contaminated manure on the bottom of a boot to walk PEDv right into your pig pen and cause devastating disease.
- Invisible germs use boots, coveralls, and equipment as vehicles to be delivered to their desired destination (your pigs).
- Without control zones: Germs have a direct taxi service (a pair of boots, for example) to your pigs.

- With control zones: Germs take a train, and at every train station (or transition zone, for example, where boots and outdoor clothing are changed), more germs get kicked off before arriving at your pigs.



HOW DO I BUILD EFFECTIVE CONTROL ZONES?

Step 1) Have a sign to indicate entrance into the **controlled access zone (CAZ)**.

- This could be a sign at your driveway or a subsection of property where the pigs are kept.

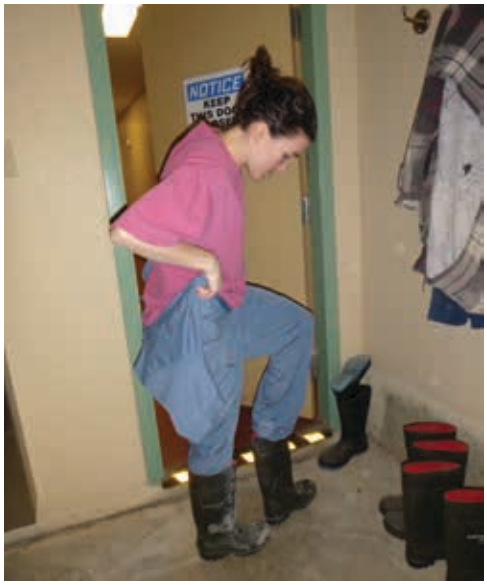
Step 2)
- Wear specific transition boots from the house to the barn.
- Have boot covers available for visitors to place over their shoes before walking with you to the barn.

Visitor stepping into boot covers before getting out of the car.
Photo: Dr. Kelsey Gray

Visitor in boot covers and coveralls to wear to the barn.
Photo: Dr. Kelsey Gray

Step 3) Have a designated **transition access zone (TAZ)**.

Stepping out of transition boots and into barn specific boots. The barn and pens are separated by a physical gate to step over. Notice the hand sanitizer available on the ledge and the gloves being worn.
Photo: Dr. Kelsey Gray



Another example stepping into clean barn specific boots and coveralls.
Photo: Dr. Kelsey Gray

- Have a transition area that has a PHYSICAL barrier to separate the outside world from your pig pens.
- This could be an area where NO pigs are kept (e.g., the house, garage, workshop) where farm specific clothing and boots are stored.

- Here is where you step out of your transition boots and step into your BARN SPECIFIC boots and clothing.
- Only barn specific boots and clothing should be worn in the pig pens.
- This is an area to disinfect or wash hands.
- **This area separates the outside world from your pigs! You do not want to bring the outside world into your pig pens.**
- **In commercial barns, there may be an entire shower-in procedure**

Step 4) Wear BARN SPECIFIC boots and clothing when entering the **restricted access zone (RAZ)**.

- The **RAZ** should be separated by a PHYSICAL BARRIER (e.g., fences, doors, physical bench to step over).
- Leave all transition boots and clothing on the transition side of the physical barrier and step into new **RAZ** outer clothing and boots.
- If you do not have enough boots for a visitor, your visitor could put on a NEW set of boot covers at this transition zone.
- Wear DESIGNATED gloves, masks, ear plugs, and other personal protective equipment (PPE) when inside the **RAZ**.
- A separate set of coveralls is advisable to wear when working with pigs to keep the underlying clothing clean.

Gloves, ear plugs, mask, and barn specific clothes. Ready to vaccinate weaned pigs. Photo: Dr. Kelsey Gray

In addition to zones, there should be a "flow" that you follow to move through your farm.

- **Flow basic rules:**
  1. Move from clean pens to dirty pens when feeding, checking, or doing chores.
  2. Move from youngest pigs to oldest pigs.
     - *Younger pigs are more susceptible to disease, so by working with them first, you limit introducing invisible germs from older pigs back to younger pigs.*
  3. Check hospital pens and sick pigs last.
     - *If you handle sick pigs FIRST, you risk contaminating healthy pigs with the germs from sick pigs.*

4. Handle deadstock with separate coveralls, boots, and gloves or change clothing and wash hands before returning to work with live animals.
5. Have one-way traffic if possible.
6. If you have animals in a quarantine on farm, visit these last and do not return to your other animals that day.
    - *The quarantine is a place to keep NEW animals or sick animals. The goal is to prevent bringing disease into your MAIN herd… (in case the animals in quarantine have a disease, visiting them last will reduce the chances you bring the disease into your herd).*

FENCING & SIGNS

- All pig farms should have a biosecurity and no trespassing signage out front to turn away unwanted visitors.
- Proper fencing is a critical component to farm biosecurity. Ideally two rows of fencing.
- See Section 4.1 FENCING & PROTECTION FROM PREDATORS and Section 9.4 WHAT CAN I DO TO PROTECT MY PIGS FROM WILD PIGS?

CLEANING & DISINFECTING

- Is a critical component to farm biosecurity and includes washing, disinfecting, and drying of pens, trailers, and equipment.
- Cleaning, disinfecting, and drying reduces contamination and pathogen load and is critical for the health of your animals.
- See Section 4.3 HYGIENE.

VISITORS

Every time a visitor comes to your farm and interacts with your pigs, it should be considered a potential "risk event". Each visitor poses a different level of risk, and you should be mindful of who visits your farm. Being a responsible pig producer should make you proud of your farm and it can make showing off your farm to visitors quite enjoyable. **Having visitor guidelines is not meant to turn people away from interacting with you; it is meant to maintain the health of your pigs as well as the health of the Canadian pig population.** There are a few things to consider regarding farm visitors:

DO:

- Keep track of who comes to your farm and when.
  – E.g., Using a logbook and ask visitors to sign in.

- Ask if they have been around pigs prior to coming to your farm.
  - **Visitors should not handle pigs from more than one site in the same day.**
  - If you have friends with pigs whom you visit with, set up guidelines for each other to follow regarding clothing, boot covers, and vehicle washing prior to visiting.
- Ask if they have been outside of the country prior to coming to your farm.
  - Visitors arriving in Canada should spend 7 days in Canada away from any farm prior to visiting a pig farm.
- Ask visitors to wash their vehicle prior to arriving.
- Have boot covers or a change of boots, coveralls, and hand sanitizer available for visitors.
- Limit unnecessary visitors.
- Have rules and implement them to protect your pigs.
- Be a responsible visitor if you go to someone's farm – respect their rules.

SOURCING ANIMALS – AUCTION MARTS

Bringing in new animals is the #1 most likely way you will introduce disease to your farm. It is very important that you do your homework before acquiring new animals to prevent financial losses and emotional distress from acquiring animal illnesses. Being cautious about sourcing animals can reduce/eliminate the risk of introducing economically challenging, deadly, or reportable diseases that could be devastating to your farm.

Consider the following:

DO:

- Contact your veterinarian prior to purchasing new animals to review the following:
  - Your herd's "health status" compared to the "health statuses" of incoming animals.
    - *You can avoid certain contagious diseases by being mindful of this.*
  - Vaccination history, condition and treatment of incoming animals.
  - Vaccination plan for incoming animals.
    - *Your new animals may need to be immunized for certain diseases. Remember, the health of your herd depends on each individual pig's health.*
- Source pigs from a single site.
- When bringing in new animals, use a quarantine pen with no nose-to-nose contact with your herd.
- Consider having a disease surveillance program on your farm.
  - This could include blood samples, fecal samples, nasal swabs, or other biologicals.
- See Section 2.4 BUYING & SELLING PIGS.

AVOID:

- Auction marts – this is a high-risk source for disease due to animal mixing.
- Mixing animals from multiple sources.
- Sourcing animals with unknown health or vaccination history.

QUARANTINE

A quarantine refers to isolating a group of animals. This can be as small as isolating one new pig you are bringing to your farm or can be as large as self-quarantining your entire farm due to a potential contagious disease outbreak.

It is critical that you understand why, when, and how to quarantine:

WHY:

- Introducing new animals:
  - Quarantine of new animals for 6–8 weeks is recommended to monitor and test for potentially contagious diseases prior to mixing them with your herd.
- Separating sick animals:
  - Quarantine of sick animals in a hospital pen is a good practice to reduce spreading disease within your farm.
- Suspect a reportable or foreign animal disease (FAD)
  - If you suspect a reportable or FAD you should immediately place a quarantine on your farm, call your vet, and get the Canadian Food Inspection Agency (CFIA) involved.

WHEN:

- Voluntary Quarantine:
  - Quarantine of new animals should be planned for and implemented at the arrival of new pigs.
  - Quarantine of sick animals should be implemented as soon as sickness is identified.
- Emergency Quarantine:
  - In the event you suspect a highly contagious disease or a FAD, you must quarantine your farm and immediately contact your veterinarian.

HOW:

- Voluntary Quarantine:
  - Set up space that prevents nose-to-nose contact with your current herd (ideally in a separate pen or barn).
  - Have protocols about entering and exiting the quarantine facility that everyone must follow.

  - Quarantined animals should be checked last.
  - Quarantine space should have separate boots, coveralls, personal protective equipment (PPE), and handling equipment.
  - Any objects (including your clothing) that leave the quarantine must be washed, disinfected, and dried prior to being used elsewhere.

- Emergency Quarantine:
  - Contact your veterinarian immediately.
  - Immediately stop **ALL** movement (foot or vehicle) to and from your farm.
  - Set up fencing or increased signage at your driveway to prevent any traffic onto your farm.
  - Wait for further instructions from your veterinarian or government officials.

DISEASE SURVEILLANCE

There is no farm that is completely free of disease. Every farm will have germs (pathogens) that are specific to their herd – some pathogens being more concerning than others.

Part of biosecurity is developing an understanding of what pathogens live on your farm. It is recommended that you perform routine disease surveillance. Disease surveillance can help you source new pigs safely, understand your farm better, and establish more economical vaccination and health protocols for your farm.

Disease surveillance is a combination of observing clinical signs and taking samples for diagnostic testing (this could include but is not limited to blood samples, saliva samples, fecal samples, or nasal swabs). See Section 7.9 VETERINARY DIAGNOSTICS.

Talk to your veterinarian about a disease surveillance plan suitable for your farm. **The goal of disease surveillance and other biosecurity practices comes down to protecting your herd and preventing losing pigs on your farm and neighbouring farms. Losing pigs is emotionally and financially difficult.**

TRAILERS

Pig trailers can be high risk vehicles for spreading disease due to the number of pigs they carry, manure contamination, and locations visited (such as auction marts or slaughter plants).

Consider the following biosecurity measures:

- *"I am using my own trailer"*
  - If using your own trailer, ensure you wash, disinfect, and dry it between pig loads, before picking up new pigs at someone else's farm, and after hauling pigs to the slaughter plant.

- *"I am borrowing a friend's trailer"*
  - If you are borrowing someone's trailer, ensure you wash, disinfect, and dry it prior to bringing it onto your property.
- *"I have hired a trucking company"*
  - If you are hiring a professional trucking service, ask them for truck wash receipts upon arrival to ensure their truck and trailer has been washed, disinfected, and dried prior to coming to your farm.

See Section 4.3 HYGIENE for more information on washing, disinfecting, and drying equipment and trailers.

FEED & WATER

Pig feed is made up of multiple ingredients – some ingredients can carry harmful agents like bacteria, viruses, and toxins. Ingredients imported from countries with Foreign Animal Diseases (FAD) carry an added risk of introducing a foreign animal disease like **African swine fever (ASF)** or **Foot and Mouth Disease (FMD)** to Canada.

See Section 5: NUTRITION & FEEDING MANAGEMENT for more information.

DO:

- **Store feed securely.**
  - Keep away from rodents, birds, pests, and other wildlife.
  - Sweep up feed spills.
  - Store in dry, cool areas with good ventilation.
  - Store in an area with good lighting for easy visual inspection.
  - Keep chemicals away from stored feed.
- **Purchase feed from safe credible sources.**
  - Purchase feed from companies that follow Animal Nutrition Association of Canada (ANAC) FeedAssure® biosecurity guidelines.[2]
- **Follow recommended holding times for imported purchased feed ingredients that do not follow a national biosecurity program.**
  - Store for 20°C for 20 days or 10°C for 100 days to reduce any virus survival.
- **Test feed for mycotoxins.**
  - Talk to your veterinarian.

- **Water**
  - At least annually, water should be tested from the source to ensure its suitability for livestock production.
  - Design and position water bowls, troughs, and waterers to prevent fecal contamination.
  - Routinely give water bowls, troughs, and waterers a thorough cleaning.

AVOID:

- **Feeding food wastes or swill to pigs.**
- **It is *illegal* to feed meat scraps or international waste to pigs.**
- **Feeding food wastes from any unknown source.**
  - Never feed food waste if there is a possibility of meat or meat products contamination. Even very small amounts of meat can be infectious. Feeding food scraps has the potential to spread diseases to your pig herd such as **African swine fever (ASF)**.
  - Food wastes may also contain harmful molds and toxins that seriously damage swine health as well as cause abortions.
- **Importing ingredients:**
  - Especially exclude high-risk ingredients like **imported soybean or soybean-meal** from countries such as China.
- **Feeding high-risk ingredients:**
  - Rice hulls and corn cobs, conventional soybean meal, organic soybean meal, soy oil cake, and distillers dried grains are considered high-risk because viruses and bacteria can survive the easiest in those ingredients.
  - Feeding your hogs anything containing **meat or meat by-products** (or food that is suspected to contain meat or meat by-products) is NOT PERMITTED in Canada because of the risk of transmission of exotic diseases (for example, foot-and-mouth disease, African swine fever, classical swine fever and zoonotic diseases such as Trichinellosis).
  - For more details concerning 2019 Canadian Food Inspection Agency (CFIA) regulations regarding the feeding of Recycled Food Products to pigs, please visit their website at: http://www.inspection.gc.ca/animals/feeds/regulatory-guidance/rg-1/chapter-3/eng/1329319549692/1329439126197?chap=19 [3]

OTHER ANIMALS

Other animals can be carriers for disease. **Many outdoor production systems house multiple species on the same site leading to interactions.** Although this cannot be entirely prevented, actions can be taken to reduce risk of disease transmission between species.

Consider the following points:

SPECIES INTERACTION	CONCERN	MANAGEMENT ACTION
Domestic Pigs 	• Pigs can carry pig diseases.	• See Section 2.4 BUYING & SELLING PIGS.
Wild Pigs 	• Wild pigs are prevalent in certain parts of Canada. • Wild pigs are known to be a high risk of spreading diseases.	• See Section 9.1 WILD & FERAL PIGS IN CANADA.
Cats 	• **Cat feces can carry Toxoplasmosis.** – This is a parasite. • **It is a human health concern.** • **Undercooked pork is a risk.** • Symptoms in humans range **from flu-like symptoms** to permanent **eye diseases** or even **pregnancy loss**. • Growing pigs will ***not*** show signs of disease.	• Keep cats away from pig feed. • Cook pork raised outdoors to an internal temperature of 71°C (160°F).
Rodents 	• Rodents can spread pig disease. • Rodents can actively shed salmonellosis, leptospirosis, erysipelas and E. coli.	• Have a rodent control program. • See Section 4.3 HYGIENE.
Birds 	• Starlings and pigeons can carry different viruses that cause diarrhea in all ages of pigs. • Waterfowl and domestic poultry can spread influenza to pigs. • Bird feces can spread a mycobacterium resulting in losses at the slaughterhouse.	• Put lids on feed storage containers and bins. • Fence off feed storage areas. • Put chicken wire or screen on barn windows. • House poultry, waterfowl and pigs separately (especially during migration season).
Other Domestic Farm Animals 	• Other species can shed E. coli bacteria. • For example, E. coli O157:H7, (can cause illness from undercooked hamburger) is a cattle pathogen but has been associated with swine.	• House domestic farm animals separate from pigs. • Keep animal pens and equipment clean.

MANURE MANAGEMENT

DO:

- Clean up manure daily.
- Keep farrowing areas clean of manure.

- Keep bedding fresh.
- Store manure in a safe area away from live animals or feed ingredients.
- Clean manure away from feeding or drinking areas.

AVOID:

- Allowing manure to build up.
- Allowing wet manure piles to seep into water, feed, or housing areas.

DEADSTOCK HANDLING & DISPOSAL

Deadstock can be a major source of pathogen spread. All deadstock should be removed from pens as soon as possible to prevent the spread of disease and to prevent cannibalism. For safe deadstock management, consider the following:

DO:

- Record the mortality event (number of pigs, age of pigs, date, suspected cause of death, pig ID number if available).
- Contact your veterinarian when unusual or unexpected deaths occur.
- Remove deadstock from pen ASAP (wear appropriate personal protective equipment).
- Have a secured room or bin where deadstock can safely be stored away from healthy pigs until final disposal is completed.
- See Section 7.9 VETERINARY DIAGNOSTICS to learn more about post-mortems and diagnostic services provided by the B.C. Veterinary Lab.

Contained freezer used ONLY for storing deadstock until they can be removed from the farm.
Photo: Dr. Kelsey Gray

- Dispose of deadstock appropriately:
  - Disposal can be through a deadstock pickup service provider for rendering, or
  - Disposal can be on-farm (in B.C. it is legally acceptable to):
    - Bury
    - Compost
    - Incinerate

- The table below outlines the general rules for deadstock handling and disposal, although it is not an exhaustive list of all the requirements. For further information on regulations pertaining to deadstock handling and disposal, in addition to the information below, please refer to B.C.'s new Agricultural Environmental Management Code of Practice (AEMCoP) that came into effect on February 28, 2019. https://www2.gov.bc.ca/gov/content/environment/waste-management/industrial-waste/agriculture/regulation-requirements

DISPOSAL METHOD	GENERAL RULES
Deadstock pickup service provider	• Have deadstock picked up prior to carcass decay.
On-farm burial	Burial pits must be: • A minimum of 30 m away from all water sources (e.g., wells, streams). • A minimum of 4.5 m away from property boundaries. • Located at least 60 m apart. • Located away from areas with coarse textured soils and that are prone to annual seasonal flooding. • Capped with at least 1 m of compacted and mounded soil when closing. • A minimum of 1.5 m above bedrock or the seasonal high water table (measured from bottom of pit). • Do not put more than 2500 kg of mortalities per pit. • Document location of the pit, type and amount of mortalities, and the date the pit was closed.
On-farm compost if composting in the field	• Pile must be minimum of 30 m from all watercourses and drinking water sources. • Pile must be at least 4.5 m from property boundaries. • Do not erect a pile on coarse-textured soil if in a vulnerable aquifer recharge area. • If your area receives 600 mm of precipitation or more from October 1 to April 1, cover your pile during this period. • Direct runoff away from the pile and prevent leachate from escaping. • Locate the pile away from areas prone to annual seasonal flooding. • Ensure the pile does not exist for more than 15 months and that composting does not occur in the same spot for 3 years. • Deter the attraction and access by vectors, pets, and wildlife. • Monitor the pile at least once per week. • Document the type and source of material, location of pile and results from monitoring. If composting in a structure: • The structure must be 15 m from a watercourse, 30 m from a drinking source, and 4.5 m from property boundaries. • Ensure the structure has a protective base (e.g., concrete pad) and that it is maintained to prevent leakage. • Ensure runoff is diverted from the structure and that leachate is captured. • Deter the attraction and access by vectors, pets, and wildlife.
On-farm incineration	• This does NOT mean burning in open fire. • Large capital investments are required to safely do this. • Refer to the AEMCoP if planning on incineration.

AVOID:

- Allowing pigs to cannibalize deadstock.
- Allowing dogs or other wildlife to eat deadstock.

NOTE: If you suspect mortality is due to a federally or provincially reportable disease, you must contact your veterinarian, CFIA, or the B.C. Ministry of Agriculture immediately.

SECTION 8 REFERENCE LIST

1. Canadian Pork Excellence, Canadian Pork Council (2020)
2. Animal Nutrition Association of Canada (ANAC) FeedAssure® (2019)
3. Canadian Feed Inspection Agency, Chapter 3 – Specific Registration Information by Feed Type, 3.19 Recycled Feed Products (2019)

SECTION 9: WILD & FERAL PIGS IN CANADA

9.1 WILD & FERAL PIGS IN CANADA

KEY POINT CHECKLIST

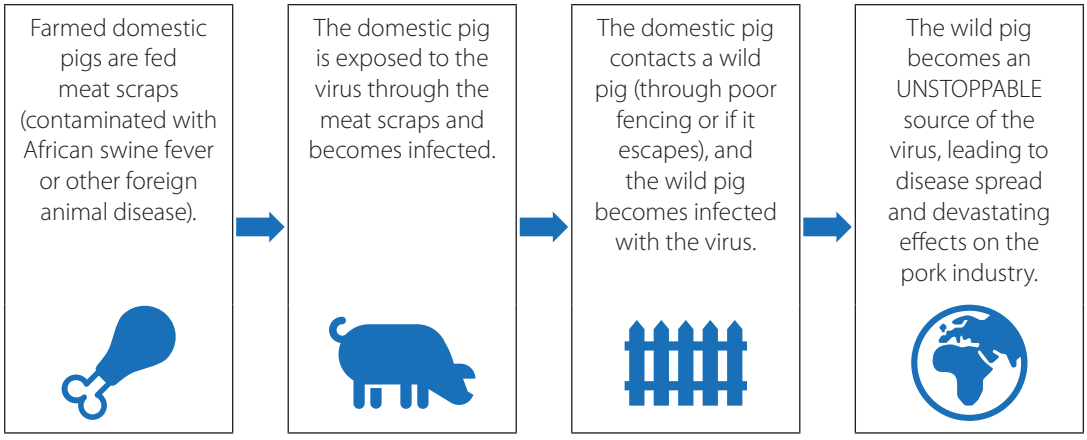
Wild or feral pigs, hogs, swine or boars are terms that can be used interchangeably; in this context, "boar" can refer to a male or female. Technically, "feral" refers to animals that can be traced back to escaped domestic pigs, while the more all-encompassing "wild" refers to any non-domestic animals. **For the purpose of this section, the term "wild pigs" will be used throughout.**

Wild pigs are the most prolific, highly invasive, large mammal species in Canada with a distribution covering 777,783 km^2 (2017), with the majority located in Alberta, Saskatchewan and Manitoba, and smaller localized populations in British Columbia, Ontario, and Quebec. The four eastern provinces of Atlantic Canada (Newfoundland and Labrador, New Brunswick, Prince Edward Island, and Nova Scotia) have had no confirmed sightings of wild pigs. Source: 1

If numbers are high, wild pigs can cause serious damage to natural ecosystems and agricultural crops, and pose significant health and safety risks to people, livestock, wildlife, and domestic pets. **Wild pigs are of particular concern to Canada's commercial pig farming as a significant threat to pig health and affecting our international trade in pork.**

WHAT IS THE RISK?

Example:



It only takes ONE person to make a poor choice, and ONE infected wild pig to cause a potentially unstoppable national crisis. DO NOT FEED MEAT SCRAPS TO YOUR PIGS!!!

WHAT ARE WILD PIGS?

- Wild pigs are native to Eurasia and parts of North Africa and were brought to North America (N.A.) on multiple occasions.
- They were introduced to Canada during federal and provincial agriculture initiatives in the 1980's and 1990's to diversify livestock production and supplement farmer incomes.
- Escapees and intentional releases from domestic wild boar farms have led to wild populations that have become well established in many regions, particularly in Canada's Prairie provinces.
- Wild populations in Canada now consist of Eurasia wild pigs, feral wild pigs originating as domesticated pigs that escaped into the wild, and crosses of Eurasia with feral wild pigs.
- While Eurasia wild pigs have litters that average six (6) piglets, crosses of Eurasia and feral wild pigs are much more prolific and can produce two (2) litters/year of 10 to 12 piglets/litter.
- Recent Canadian studies have revealed that wild pig populations have expanded significantly the past 27 years, largely due to their high prolificacy and hardiness to survive in the wild.
- They vary in weight, colour, and size.
  - They are typically grey, brown, or black and may be striped.
  - Males may weigh 60 to 200 kg and females 35 to 150 kg.
- Wild pigs of the Eurasian type have long dark hair and a woolly underfur that protects them from extreme cold. They build nests where they shelter during cold weather.
- **Wild pigs are a MAJOR concern to the health of domestic pigs, particularly those raised outdoors where contact is more likely.**

Sources: 1, 2, 3, 4, 5, 6, 7, 8

Large wild pig exiting a tall stand of grass.
Photo: Dr. Ryan Brook

Wild pig grazing and eating a cereal crop.
Photo: Dr. Ryan Brook

WHY ARE THEY A CONCERN?

- Wild pigs have a "cartilaginous disc" on their snouts, which allows them to dig and root extensively in search of insects and roots. They can use their sharp tusks for rooting, as well as for protection.
- They are very destructive using their noses to dig up roots and soil. They rub against trees and eat anything palatable. They damage ecosystems from the soil up causing direct and indirect damage to wildlife and nature.
- They eat and damage crops; alter vegetation successional stages and nutrient cycles; cause erosion, sedimentation, and contamination to land and water bodies; and destroy fish habitat.
- They compete with native species and wildlife for a wide variety of resources and food. They feed on reptiles, eggs of ground nesting birds, and small mammals.

Significant rooting damage to a commercial forage stand caused by wild pigs.
Photo: Dr. Ryan Brook

- Wild pigs can cause significant destruction to private property including lawns, golf courses, waterways, and feed storage.
- Wild pigs can harass livestock and consume their feed, and will attack, kill and eat young livestock such as sheep, goats, calves, and horses, as well as pets.
- Their damage can be extensive as they travel very large distances. Summer ranges in Canada can be 300 km^2.
- They adapt easily to new environments and can survive in various geographic areas with broad ranges of climate, habitat, and resources.
- They have high survival rates, large land base, are highly prolific, and don't have many predators.
- They can harbour many diseases and parasites that affect domestic pigs and can transmit by contact or indirectly through shared feed, human contact, saliva, blood, or feces.
- Wild pigs pose a serious safety threat to humans as well as domesticated livestock and pets.

Wild pig who jumped a fence into a domestic pig pen.
Photo: Dr. Ryan Brook

- Once populations are widely and well established, they are next to impossible to eradicate.

Sources: 1, 3, 4, 5, 6, 7, 8

WHERE ARE WILD PIGS?

- Wild pigs exist in all Provinces except Atlantic Canada, with the large majority currently found on the Canadian Prairies. The cumulative range of wild pigs across Canada is 777,783 km^2.
- In B.C., wild pig populations have been more localized and smaller in nature.
- Wild pigs are adaptable to a wide variety of habitat types but can be limited by deep snow which affects foraging and access to water. They prefer riparian areas with sufficient water.
- Wild pigs prefer habitats that provide forest cover for hiding and resting, as well as access to food. During summer months they can be found close to water sources where they can wallow to stay cool.

Group of wild pigs foraging in a forested area.
Photo: Dr. Ryan Brook

Sources: 1, 9

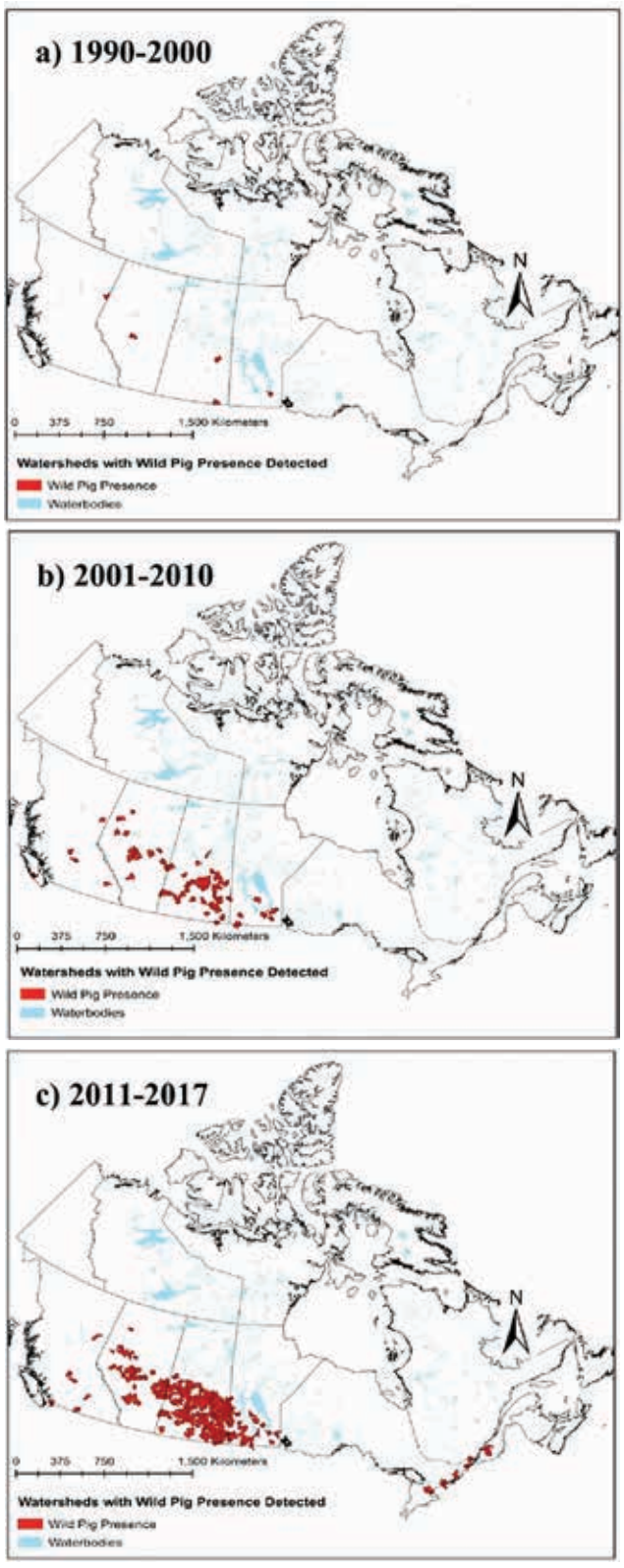


Figure: Spatial expansion of wild pigs in Canada from the period of initial escapes and releases (1990) to present.

Source: Scientific Report – Monitoring Invasive Species Dispersal, 2019[1]

9.2 WHAT ARE THE DISEASE CONCERNS RELATED TO WILD PIGS?

- **Wild pigs can be host to at least 89 bacterial, viral, and parasitic diseases which can be transferred to livestock, wildlife, and humans.**
- Diseases of global concern that could potentially be transmitted from wild pigs to livestock are swine brucellosis, bovine tuberculosis (TB), pseudorabies, porcine enteric diarrhea (PED), porcine reproductive and respiratory syndrome (PRRS), influenza, *E. coli*, salmonellosis, leptospirosis, classical swine fever, and African swine fever (ASF).
- Disease threats are an increasing concern to livestock producers as disease outbreaks are associated with high economic losses.
- It is very difficult to eliminate disease in free-ranging populations.
- **In Asia, Europe, and Africa, wild pigs have been identified as carriers of economically devastating diseases like ASF.**
- **ASF does not affect humans, but if ASF is detected in N.A., it will result in catastrophic health and economic impacts in domestic pig production and international pork exports.**
- There have been no documented cases of reportable diseases in wild pigs of key concern for domestic pig producers at this time; however, no wild pigs from B.C. have been tested for disease.

Sources: 1, 3, 4, 5, 6

9.3 WHAT IS THE FINANCIAL COST OF WILD PIGS?

- Agriculture losses in the United States from wild pig damage alone has been estimated at $2.5 billion USD per year. This estimate is based solely on physical crop damage.
- Wild pig-vehicle collisions in the US have cost insurers $36 million USD per year.
- There are no similar comparative figures for Canada.
- The threat of significant economic losses that could incur to the livestock industry and international trade if reportable diseases are identified in wild pigs is an unknown cost.
- Disease outbreaks in wild pigs would have devastating economic impacts on domestic pig production in Canada. This is already evident in many countries, such as bovine tuberculosis (TB) in wild pigs in Spain, and AFS in wild pigs in Europe and Asia.

Sources: 1, 2

WHAT IS BEING DONE TO CONTROL WILD PIGS IN CANADA?

- Provided a wild pig population has not become well established in a region, they can be effectively eradicated; however, it requires a science-based research, monitoring, and control strategy based on early detection, with a rapid and aggressive response.
- No national or international strategy currently exists.
- Some provinces have small trapping or hunting programs.
  - A bounty on wild pigs was in effect in Alberta from 2003 to 2016. The program was initiated with individual counties signing up. Hunters received $50 for every pair of wild pig ears that were turned into the county, and were required to provide the location and date of the kill.
  - There is no evidence that bounties are effective at reducing populations and instead they most likely cause harm by breaking up and dispersing groups.
  - Hunting can cause further dispersal and actually helps to spread and increase wild pig populations, so other initiatives are being investigated.
- Despite efforts to date to control their spread, there is no indication that the wild pig population in Canada has stopped increasing and expanding in terms of area coverage.
- In British Columbia:
  - Wild (feral) pigs are regulated as a Schedule C species in the Designations and Exemptions Regulation under the B.C. *Wildlife Act* and defined as pigs that are not in captivity or not otherwise under a person's control.
  - Hunting wild (feral) pigs is legal **provided** they are not in captivity or under a person's control.
  - Wild (feral) pigs can be hunted anytime and anywhere by a hunter with a valid hunting licence.
  - B.C. does not support nor license commercial wild boar hunt farms.
  - Commercial European wild boar meat production farms are legal.
  - Releasing pigs of any type into the wild is illegal.

Sources: 1, 7

WHERE TO REPORT WILD PIG SIGHTINGS IN B.C.?

- Report wild (feral) pigs via B.C.'s **Report Invasive Species phone app**, or via the **webform** available on B.C. Inter-Ministry Invasive Species Working Group (IMISWG) website. www.gov.bc.ca/invasive-species

- Several B.C. ministries and partners provide outreach and education to hunters and the public regarding regulations for wild (feral) pigs and how to report them.
- The B.C. IMISWG produced a factsheet titled Feral Pig. https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/alerts/feral_pig_alert.pdf
- One of B.C.'s proactive approaches to managing invasive species is the B.C. Invasive Species Early Detection and Rapid Response Program, which focuses on detecting and preventing establishment of new invasive species, including wild (feral) pigs. https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/edrr

Source: 7

9.4 WHAT CAN I DO TO PROTECT MY PIGS & THE CANADIAN HERD FROM WILD PIGS?

- Report sightings of wild pigs at www.gov.bc.ca/invasive-species.
- Control all feed sources:
  - Fence off feed-bins, use lids on feed-bins, and sweep up any spilled feed to prevent attracting wild pigs to your property.
  - Ensure any deadstock are removed from your farm immediately so wild pigs do not have access to any carcasses.
  - Do NOT feed meat scraps or food waste to your pigs.
- Control domestic pigs:
  - All pigs with access to the outdoors should have strong double fencing to prevent pigs from escaping and to prevent nose-to-nose contact with wild pigs. (Section 4.1)
  - Perimeter fencing should be constructed to be a minimum 1.5 metres (or 5 feet) in height above the ground surface or above any other surface including snow drifts. It's also advisable that perimeter fencing be buried underground to a minimum 45 centimetres (or 1.5 feet). These minimum standards are necessary given the ability of wild pigs to jump high and dig effectively under fences. Combining the above with strands of high voltage electric fencing provides an effective deterrent of perimeter breaches by wild pigs.
  - Anyone contemplating starting a commercial wild boar operation for meat production or is farming domestic swine species outdoors in close proximity to reported sightings of wild pigs in B.C. would be well advised to review 2015 Alberta government legislation for fencing specifications to prevent breaches of perimeter fencing by wild pigs. Fence construction details titled 'Minimum Containment Standards for Alberta Wild Boar Farms' can be found at: https://open.alberta.ca/dataset/wild-boar-at-large-an-invasive-pest-in-alberta#summary

- **Highlights of Alberta's wild boar containment fencing specifications are as follows:**
  - Two acceptable minimum fence containment Standards are provided.
    - Standard 1 – based on single fences constructed above and below ground.
    - Standard 2 – includes two above ground fences whereby the distance between fences is a minimum 1.2 metres (or 4 feet) to a maximum 5 metres (or 16 feet).
  - Fence material must be 12.5-gauge hinge lock mesh fencing or heavier high tensile wire with spacing adequate to prevent fence-line breaches by wild pigs.
  - Both Standards require that a separate electric fence be strung and that a minimum 4,000 volts pass through all points along the entire perimeter of the electric fence.
  - Electric wire must be made of minimum 14-gauge high tensile or stranded wire and it must be 10 to 30 centimetres (or 4 to 12 inches) in distance from the fence and 10 to 30 centimetres (or 4 to 12 inches) above the ground.
  - Where two electric wires are used, it is suggested that the wires be placed at 20 centimetres (or 8 inches) and 40 centimetres (or 16 inches) above the surface and separate fence chargers be used for each wire.
  - Maximum spacing between fence posts is 3 metres (or 10 feet).

  Sources: 7, 8, 9

Further, more detailed information on wild pigs can be found in a newly published book titled ***'Invasive Wild Pigs in North America: Ecology, Impacts, and Management'***, 2020[10] https://www.amazon.ca/Invasive-Wild-Pigs-North-America/dp/0367861739/ref=sr_1_1?keywords=vercauteren&qid=1579729748&sr=8-1

SECTION 9 REFERENCE LIST

1. Aschim and Brook. Evaluating Cost-Effective Methods for Rapid and Repeatable National Scale Detection and Mapping of Invasive Species Spread (2019)
2. Personal Communications. Dr. Ryan Brook, Associate Professor, University of Saskatchewan (2020)
3. Brook and Beest. Feral Wild Boar Distribution and Perceptions of Risk on the Central Canadian Prairies (2014)
4. Koen et al. Reproductive Ecology of Recently Established Wild Pigs in Canada (2018)
5. Michel et al. Spatiotemporal Trends in Canadian Domestic Wild Boar Production and Habitat Predict Wild Pig Distribution (2017)
6. Wild Boar Populations in Europe. A Scientific Review of Population Trends and Implications for Management. European Landowners Organization (2018)
7. B.C. Inter-Ministry Invasive Species Working Group, Invasive Mammals (2020)
8. Wild Boar at Large: An Invasive Pest in Alberta. Fact Sheet. Alberta Government (2017)
9. Minimum Containment Standards for Alberta Wild Boar Farms. Alberta Government (2015)
10. Invasive Wild Pigs in North America: Ecology, Impacts, and Management (2020). Kurt C. VerCauteren, James C. Beasley, Stephen S. Ditchkoff, John J. Mayer, Gary J. Roloff, Bronson K. Strickland. CRC Press.

SECTION 10: MARKETING HOGS

This section will review marketing your pigs. When your animal is ready to be marketed, there are many things to consider including:

- Types of slaughter plants,
- How to prepare for the slaughter plant,
- Understanding the biosecurity risks associated when visiting a slaughter establishment, and
- Understanding food safety (ensuring the animal you raised will be safe for consumption).

TAKE HOME MESSAGES:

1. **Biosecurity at the slaughter plant is CRITICAL.** This is a high-risk place.
2. There are **different classes of slaughter plants**. Not all of them slaughter, process, and pack meat. Do your homework.
3. **CALL AHEAD** to organize with the slaughter plant. Do not do this last minute.
4. **Healthy pigs make healthy pork**.
5. Meet all **medication withdrawal times** prior to slaughter.
6. **Food safety** involves pre- and post-slaughter preparation as well as safe food handling.

There are a few definitions on marketing pigs to be familiar with:

WORD	DEFINITION
Slaughter	Killing an animal intended for food.
Butcher	A person whose trade is focused on cutting up and selling meat.
Processing	In respect of a meat product, means to substantially change the appearance or nature of a meat product by any means and includes to debone, slice, comminute, thermally process, preserve, dehydrate, ferment, render, fractionate, defibrinate, cook, smoke, salt, or can. But does not include to dress, trim, refrigerate, freeze or defrost.
Ante-mortem Inspection	Inspecting of a live animal prior to slaughter. This inspection is focused on overall health of the animal and detection of diseases and conditions not detectable during a traditional post-mortem inspection (e.g., neurological conditions). An animal's health is critical to food safety.
Post-mortem Inspection	Inspecting the carcass and viscera of a freshly slaughtered animal. This inspection is looking for any signs of illness that we can only identify once the animal is slaughtered and thoroughly examined.
Meat Inspection	The combination of ante-mortem and post-mortem inspection to detect the presence of human health concerns associated with the carcass.

MARKETING HOGS

WORD	DEFINITION
Meat Inspector	A person appointed as an inspector under Section 8 of the B.C. ***Food Safety Act***.
Stunning	The process of rendering animals insensible, with or without killing the animal, when or immediately prior to slaughtering them for food.
Sticking & Bleeding	The process of lacerating a major blood vessel immediately after stunning with the intention of draining the carcass of blood.
Eviscerating	The process of removing the inside organs of a carcass.
Skinning	The process of removing the skin (by use of a knife) after the animal has been slaughtered.
Scalding	The process of removing hair and cleaning the skin of a hog by placing a freshly slaughtered (confirmed dead) and fully bled out carcass into clean, hot water under specific conditions.
Carcass Splitting	The process of splitting the carcass down the middle of the spinal column from neck to tail.
Trimming	The process of removing damaged or contaminated parts of the carcass with a knife. Must be done prior to carcass washing.
Carcass Washing	A final wash of the carcass is performed to remove any incidental contamination while trimming. This is NOT to replace good hygiene practices throughout the process.
Chilling	The process of cooling down a carcass quickly after slaughter to reduce bacterial growth.
Cross Contamination	The unintended act of contaminating something by touching something unclean to the something clean.
Withdrawal Times	The amount of time that you must wait AFTER medicating an animal before sending an animal to slaughter.
Live Weight	The weight of an animal before it has been slaughtered and prepared as a carcass.
Market Weight	The target weight for pigs to go to the slaughterhouse.
Hanging Weight/Carcass Weight/ Dressed Weight	The weight of the carcass after it has been dressed (e.g., guts removed, blood drained), before butchering.
Cut Weight	The weight of the final product after butchering. This will be the carcass weight minus some bone weight, trimmings, moisture, etc.

10.1 SLAUGHTER PLANT BIOSECURITY

KEY POINT CHECKLIST

Slaughter plants are HIGH RISK sites for disease spread due to multiple sources mixing at the same place. Biosecurity at the slaughter plant cannot be stressed enough!

Consider the following biosecurity recommendations when visiting a slaughter plant:

DO:

- Wash your vehicle/trailer/animal crates prior to going to the slaughter plant.
- Wear boot covers and gloves at the slaughter plant (*without wearing this, anything you walk on at the slaughter plant could be brought back to your pigs via your boots… this may include contagious diseases*).
- Keep hand sanitizer in your vehicle – use it!
- When you leave the slaughter plant, ALWAYS wash and disinfect your vehicle/trailer/animal crate prior to going back to your farm! You DO NOT want to bring back potentially contagious diseases to your pigs.
- When you get home, change your clothes and footwear prior to visiting your pigs (*ideally, do not visit your pigs on the same day as going to the slaughter plant*).
- Clothes worn to the slaughter plant should be washed and dried (*the dryer should kill most potential pathogens*).
- Consider the slaughter plant and the surrounding area as potential contamination – anything you touch at the plant can be brought back to YOUR pigs, and anything you bring to the plant could be picked up and transferred to someone else's farm!
- Call ahead to the slaughter plant to ask them about any biosecurity rules and follow them.

AVOID:

- Going from the slaughter plant directly home without first washing and disinfecting your vehicle/trailer/animal crate.
- Wearing clothes/boots to the slaughter plant, then not washing them before wearing and working with your pigs.
- Walking around the slaughter plant without boot covers.
- Transporting pigs who are sick to the slaughter plant (*you don't want to transfer potential contagious diseases to other pigs*).

10.2 WHEN IS MY PIG READY FOR MARKET?

Bringing an animal to market can vary widely in time and market weights. Type of feed, weather, housing conditions, and health can all influence the time it takes to get a pig to market.

COMPARE:	COMMERCIAL PRODUCTION	OUTDOOR PRODUCTION
TIME TO MARKET	5.5 to 7.5 months	Can be over 1 year
MARKET WEIGHTS	95–110 kg	75–85 kg

Source: Pork Nova Scotia. Introduction to Small Scale Pig Production, 2016[1]

- The hanging or carcass weight of a pig will be approximately 72–75% of the live weight (with the skin left on).
- The cut weight will be approximately 75–82% of the hanging weight. This percentage can vary greatly depending on how cuts are trimmed and how much bone is removed. For example, the percentage will be less if mainly boneless cuts are chosen.
- All weights will vary depending on breed, body conditioning, diet, as well as the presence of dirt and hair on the animal at the time of slaughter.
- Aging or further processing, such as smoking, will reduce the cut weight of the animal.
- A carcass that is aged in the cooler will lose moisture and will therefore be lighter than a fresh cut carcass.

Source: Pork Nova Scotia. Introduction To Small Scale Pig Production, 2016[1]

Hitting market weight is only the beginning. You have a lot to do before sending your pig to slaughter. Complete the rest of Section 10 to learn more about slaughter plants and preparation.

10.3 SLAUGHTER PLANT CLASSES/LICENCES

There are different types of slaughter plants in B.C.:

- They are either federally registered by the Canadian Food Inspection Agency (CFIA) or are provincially licensed.
- Slaughter establishments that are provincially licensed are **only permitted to sell their product within B.C.** ***(This applies to you.)***
- Federally registered establishments are permitted to export their product outside the province.

B.C. slaughter and meat processing plants are regulated under the *Food Safety Act*: Meat Inspection Regulation. This Act ensures:

- Animals are humanely handled and slaughtered,
- Carcasses are processed in a clean environment, and
- Meat is packaged and stored in ways that reduce contamination risks.

Not all slaughter plants will take "custom kill" hogs. Check with the establishment beforehand.

Provincial licences available under the Graduated Licensing System:

LICENCE TYPE	ACTIVITIES PERMITTED	SALES PERMITTED	GEOGRAPHIC SCOPE	# OF ANIMAL UNITS	OVERSIGHT
CLASS A	Slaughter, and cut and wrap	Retail and direct to consumer	B.C.	Unlimited	Pre and post slaughter inspection of each animal
CLASS B	Slaughter only	Retail and direct to consumer	B.C.	Unlimited	Pre and post slaughter inspection of each animal
CLASS D	Slaughter only (own animals and other peoples' animals)	Retail and direct to consumer	Sales restricted within regional district where meat is produced	1–25	Periodic site assessments and audit of operational slaughter records
CLASS E	Slaughter only (own animals only)	Direct to consumer only	Sales restricted within the regional district where meat is produced	1–10	Periodic site assessments and audit of operational slaughter records
PERSONAL USE NO LICENCE REQUIRED	Slaughter only	None	For producer only	Unlimited	None

Note: One animal unit means: combined weight, when measured alive, of 1000 lbs (454 kg) of meat (e.g., beef, poultry, bison, pork).

Source. British Columbia. Meat Inspection and Licensing. 2019[2]
https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/food-safety/meat-inspection-licensing

The above website **also provides a complete list of provincially licensed slaughter establishments** for B.C. by region, by telephone number, by alphabetical order and on an interactive map.

10.4 SLAUGHTER PLANT PREPARATION

Prior to any anticipated slaughter event, you need to consider the following:

- Intended consumer
- Slaughter plant class
- Carcass goals
- Scheduling slaughter AND processing AND packaging
- Transportation
- Animal health and readiness

Here is a suggested checklist that you should review each and every time you plan to slaughter an animal.

1. INTENDED CONSUMER

- Identify who the consumer is.

  i. "I am the consumer".
  ii. "I am selling this to a food premise located outside my regional district".
  iii. "I am selling this directly to a consumer outside my regional district".
  iv. "I am selling this within a designated regional district in which my farm is located with no provincial plants nearby".
  v. "I am selling this to consumers directly at a temporary food market, or to consumers directly from food premise located on my property, within my regional district in a non-designated zone area with no provincial plants nearby".

- Set arrangements with the consumer.
  i. Discuss well in advance when they would like the product and what they are looking for.

The 10 designated regional districts are: Central Coast, Kitimat-Stikine, Mount Waddington, Northern Rockies, Powell River, Skeena-Queen-Charlotte, Squamish-Lillooet, Stikine, Strathcona (Mainland and Discovery Islands portion only) and Sunshine Coast.

2. SLAUGHTER PLANT CLASS

- Once you establish the consumer, determine which class of plant you require.

  i. "I am the consumer" = if you are slaughtering your own animals for your own personal consumption = no licence needed.
  ii. "I am selling this to a food premise located outside my regional district". = CLASS A, B
  iii. "I am selling this directly to a consumer outside my regional district". = CLASS A, B
  iv. "I am selling this within a designated regional district in which my farm is located with no provincial plants nearby" = CLASS D
  v. "I am selling this to consumers directly at a temporary food market, or to consumers directly from food premises located on my property within my regional district in a non-designated area with no provincial plants nearby" = CLASS E

- Search for a suitable plant in your area.

3. CARCASS GOALS

- Based on what the consumer wants, understand carcass goals:

  i. Do you want a BBQ weight pig?
  ii. Do you want a heavy market hog?
  iii. Do you want high fat percentage?
  iv. Are you making sausage, or do you want specific meat cuts?

- Based on your goal, understand the animal you are slaughtering:
  i. BBQ pigs (also known as round hogs) are pigs weighing 40–45 kgs (breed specific).
  ii. Market hogs usually weight around 95–110 kgs (breed specific).
  iii. High fat percentage might require feeding for longer or selecting a different breed.
  iv. Cull sows are suitable for making sausage, but typically a meat pig is raised for more specific cuts of meat.

- If you are not sure, call the slaughter plant – they can advise you what is common for slaughter.
  i. Tell them what breed of pig you have.
  ii. Tell them the age of your pigs.
  iii. Ask about desired weights or ages for slaughter.

4. SCHEDULING SLAUGHTER, PROCESSING & PACKAGING

- Once you establish the required slaughter plant class, contact them MONTHS in advance:
  i. Book a slaughter date.
  ii. Review their protocols on transportation, arrival procedures, and cost.
  iii. Review their expectations on incoming animal quality.
  iv. Review and respect biosecurity procedures for both your operation and the plant (you do not want to bring infectious diseases back onto your farm from the plant).
- ***If this is* not a class A plant*, you will need to book a processing/packing plant as well.***
- Organize and plan how you will move the carcass from the slaughter plant to the processing/packing plant.
- Ensure the packing plant has enough freezer space to store your product.
- **DO NOT MAKE SLAUGHTER ARRANGEMENTS LAST MINUTE!**

5. TRANSPORTATION

- Organize transportation to the slaughter plant WELL IN ADVANCE.
- Plan for your PigTRACE swine movement records.
- See Section 11: TRANSPORTING PIGS for more information.
  i. You need to consider feed withdrawal, time of transportation, fit-to-transport guidelines, how you will safely contain animals during transport, proper bedding, time of day, outdoor temperature, low-stress transport, loading densities, animal separation, and appropriate transport conveyances.

6. ANIMAL HEALTH & READINESS

- Ensure all animals are free of obvious disease.
- Prepare to meet all medication withdrawal times.
- Ensure animal meets the "fit-to-transport" requirements (see Section 11.3 FIT TO TRANSPORT).
- Take appropriate measures to reduce animal stress.
- Clean heavily soiled animals a few days before planning to transport them.
- Remove feed 6–24 hours prior to slaughter (continue access to water).
- Consider the transport time and holding time at the plant when making these feed removal arrangements.
- See Section 10.5 FOOD SAFETY for more details on animal preparation.

10.5 FOOD SAFETY

KEY POINT CHECKLIST

An animal entering the food chain must be considered safe for human consumption. Consider the key areas for safe food production:

- Healthy pre-slaughter conditions,
- Pre-slaughter evaluation and preparation,
- Post-slaughter evaluation, and
- Safe pork preparation.

PRE-SLAUGHTER CONDITIONS:

Healthy pigs make healthy pork. Here are specific items to consider when raising pigs for pork:

ITEM	HEALTH CONCERN	WHAT YOU CAN DO
Water Quality	Water may contain bacteria and viruses including Salmonella, Leptospira, and E. coli. This can lead to a salmonella infection in your herd (a pig and human health concern).	• See Section 5.3 WATER. • Have water tested annually. • Have water treated (chlorination or other) if necessary.
Bedding	Wood shavings can contain wood-preserving agents (PCPs, chromated copper arsenate). These can accumulate in the tissue of pigs and reside in the meat, making it unsafe for human consumption.	• Don't use wood shavings for bedding. • If using wood shavings, get a letter of guarantee they do not have these preservatives.
Rodents & Cats	Rodents and cats can pass along diseases to pigs, some of which can create food safety issues.	• Have a rodent control plan. • Keep cats away from pig feed.
Barn Sanitation	Unsanitary housing conditions can become reservoirs for pathogens like bacteria and viruses.	• Have a barn cleaning and disinfection program.

Sources:
Guide to Slaughter Hygiene – For Class D & E Slaughter Facilities – B.C. Food Processors Association, 2019[3]
Canadian Pork Excellence. Canadian Pork Council, 2020[4]

PRE-SLAUGHTER EVALUATION & PREPARATION:

YOU are responsible for part of or all of this preparation depending on where you are having your pig slaughtered.

ITEM	HEALTH CONCERN	WHAT YOU CAN DO
Medication Withdrawals 	• Medications can reside in the tissue of pigs. To prevent this from being consumed in pork, all medications prescribed by a veterinarian require a set time that one must wait AFTER the final dose of medication has been given before slaughtering an animal. • Medication can be given through feed, water, or injection. Any of these methods of delivery may require withdrawal times.	• Any medication used should be on veterinary advice and on a veterinary prescription. • All medication administered should be recorded and the withdrawal time should be recorded and followed. • E.g., if it is Dec 1, and you give medicine-X for 3 days, and the withdrawal time is 10 days, then: – Dec 1 = Day 1 – Dec 2 = Day 2 – Dec 3 = Day 3 (last day) – + 10 days of withdrawal • Do not slaughter until Dec 13
Safe Injection Protocols 	• When injecting pigs, there is always a risk of a needle breaking in the muscle. • Do NOT let broken needles get into the food chain. ***Can you imagine this as a consumer? Would you buy this product again if you found a broken needle in your pork chop? This is a HUGE deal in commercial production.*** • When injecting pigs, there is always a risk of creating an injection site abscess – this results in additional meat trimming and meat loss.	Reduce the risk of a broken needle and of an abscess: • Restrain animals when giving an injection. • Use correct needle size (see Section 7.8 DISEASE MANAGEMENT). • Use clean and new needles. • Change needles every 10 injections. • NEVER straighten out a bent needle. • Do not use dirty/rusted needles. • Inject ONLY in the neck muscle (see Section 7.8 DISEASE MANAGEMENT). • Inject in clean areas on the skin.

ITEM	HEALTH CONCERN	WHAT YOU CAN DO
Animal Health (Ante-Mortem Exam) 	• General overall health of the animal affects food safety and quality and examining them prior to slaughter is critical. • Ante-mortem inspection will be performed by the assigned Provincial Meat Inspector at Class A and B licensed facilities.	• Identify any animals that have evidence of disease that could be unfit for human consumption. • Identify signs of disease that are a risk to personnel handling the carcass (e.g., ringworm, erysipelas). • Identify heavily contaminated animals that could cause sanitation issues in the preparation of the carcass. • Identify any animals you suspect may have a foreign animal disease. • Identify animals requiring special handling for humane reasons. • Contact your veterinarian if you have questions about whether your animal is suitable to be slaughtered for human consumption. • Ante-mortem inspection will be performed by the assigned provincial meat inspector at Class A and B licensed facilities.
Animal Stress 	• Stress is bad for animal welfare AND for meat quality. Reduce stress! • Stress can cause the pH of the meat to be out of balance resulting in a better growth environment for bacteria and a shorter shelf-life. • Stress affects the body's immune system (and therefore, health). • Stress can facilitate the shedding of enteric pathogens (e.g., E. coli O157:H7). • Bruises (from a stressed animal trampling, piling, or injuring itself) will have a higher pH and if not properly removed, can be a growth environment for bacteria. • Excessive fecal contamination on the hide/skin affects the ability to keep the carcass clean.	• Feed must be withdrawn correctly to reduce contamination of the carcass with ingesta and feces during transportation. • Keep animals clean. • Keep calm when transporting animals. • Reduce stress of animals.

Sources:
Guide to Slaughter Hygiene – For Class D & E Slaughter Facilities – B.C. Food Processors Association, 2019[3]
Canadian Pork Excellence. Canadian Pork Council, 2020[4]

POST-SLAUGHTER EVALUATION:

- Involves a post-mortem examination which includes inspection of the viscera, carcass, and portions of the lymphatic system to evaluate the suitability of the animals for human consumption.
- Class A and B licensed slaughter plants have provincial meat inspectors assigned to them to perform the ante-mortem and post-mortem inspection.
- Class D and E licensed slaughter plants do not have provincial meat inspectors assigned to them.

Source: Guide to Slaughter Hygiene – For Class D & E Slaughter Facilities – B.C. Food Processors Association, 2019[3]

SAFE PORK PREPARATION:

ITEM	HEALTH CONCERN	WHAT YOU CAN DO
Toxoplasma 	• Toxoplasma gondii is a parasite that can cause the disease toxoplasmosis in humans. The parasite can be transmitted from affected animals to humans and pigs. • It can cause illness in humans ranging from flu-like symptoms to death, miscarriage, congenital birth defects and blindness.	• Do not let cats near food storage areas. • Have good rodent control. • Cooking pork to the recommended end internal temperature of 71°C (160°F) ensures pork safety even in the presence of toxoplasma.
Trichinella 	• Trichinella is a parasite that can cause the disease trichinellosis in humans. The parasite can be transmitted from affected animals to humans and pigs. • Trichinella is a food safety and public health risk, and the presence of trichinella is a barrier to trade. • **Outdoor pigs have more access to potential sources of contamination.** *"Pig livers RARELY pass inspection due to parasite infection."*	• Have strong fencing that prevents wildlife from having access to pig housing facilities as wildlife can transmit this. • Have good rodent control. • Cooking pork to the recommended end internal temperature of 71°C (160°F) ensures it is safe to eat, even in the presence of Trichinella.

Source: Guide to Slaughter Hygiene – For Class D & E Slaughter Facilities – B.C. Food Processors Association, 2019[3]

Hogs Being Processed into Primal Cuts – Pork Bellies

Hogs Being Processed into Primal Cuts – Pork Loins

Source: B.C. AGRI. Food Safety and Inspection Branch, Meat Inspection Program 2020[5]

10.6 EMERGENCY EUTHANASIA

Situations may arise on-farm where an animal becomes unsuitable for transport and highly unlikely to respond to treatment. Emergency on-farm euthanasia may be necessary to ensure that no undue suffering occurs to the animal(s) or that there is no significant hazard to humans.

To learn more about recommended humane euthanasia procedures, please see Section 12: HUMANE EUTHANASIA.

10.7 ATTAINING REGISTERED COMMERCIAL PRODUCER STATUS IN B.C.

The B.C. pork sector is represented by two organizations: the British Columbia Pork Producers Association (BCPPA) and the British Columbia Hog Marketing Commission (BCHMC).

The BCPPA is a registered society and was incorporated in 1929. Its objectives include: promoting and supporting swine production, marketing and research, encouraging the exchange of information between value chain stakeholders (e.g., producers, processors, service industries and retail), representing producers in a liaison capacity with municipal, provincial and federal government agencies, and promoting a positive public image of the industry's sustainability in terms of environmental stewardship, animal welfare, food safety, economic growth, and support for food security.

The BCHMC was started in 1980 and is authorized under the ***Natural Products Marketing (B.C.) Act***. The Commission regulates all registered producers. It is responsible for orderly production and marketing through promoting and regulating the production, transportation, packaging, storage, and marketing of hogs. For example, the Commission collects levies and plays a marketing role. The levies are used to fund programs and the daily operations of both the BCHMC and the BCPPA.

Any individual, partnership or corporation engaged in pork production in B.C. that would like to become a member of the BCPPA must first apply to the BCHMC to become a 'registered commercial producer'. To qualify as a 'registered commercial producer' under the B.C. Hog Marketing Scheme (a regulation under the *Natural Products Marketing (B.C.) Act*), a farmer must sell a minimum of 300 market hogs annually for processing. Once registered as a commercial producer with BCHMC and a member of the BCPPA, licence fees and levies are collected from the farm to support the activities of the BCHMC and BCPPA.

For further information, you are encouraged to visit B.C. Pork's website at www.bcpork.ca, 2020[6]

SECTION 10 REFERENCE LIST

1. Pork Nova Scotia. Introduction to Small Scale Pig Production (2016)
2. British Columbia. Meat Inspection and Licensing (2019)
3. Guide to Slaughter Hygiene – For Class D & E Slaughter Facilities – B.C. Food Processors Association (2019)
4. Canadian Pork Excellence. Canadian Pork Council (2020)
5. B.C. AGRI. Food Safety and Inspection Branch, Meat Inspection Program (2020)
6. B.C. Pork. Welcome to the B.C. Pork website (2020)

SECTION 11: TRANSPORTING PIGS

Transportation can be a stressful time for animals as well as for animal owners. It is critical that you:

- Are aware of the federal (Part XII of the *Health of Animals Regulations*) and provincial laws around transporting animals.
- Are aware of the risks associated with transporting animals.
- Have equipment and conveyances designed, constructed and maintained for pigs.
- That you are comfortable and experienced to transport pigs (e.g., have the knowledge, skills and are trained by someone experienced).
- Are aware that Canada has a Recommended Code of Practice for the Care and Handling of Farm Animals: Transportation, released in 2001 through the Canadian Agri-Food Research Council.
- Are aware that an updated transportation code is currently being developed under the National Farm Animal Care Council's (NFACC) code developmental process, with a projected completion date of spring 2023.

TAKE HOME MESSAGES:

- It is ***ILLEGAL*** and inhumane to transport an unfit animal.
- NEVER transport an animal loose in the back of a truck or loose in a vehicle.
- Maximum transport time for a pig is 28 hours.
- Always wash and disinfect your vehicle, trailer and any crate used after transporting pigs.

11.1 TRANSPORTATION BASICS

To transport pigs safely and humanely, you need the right person, with the right vehicle, the right pigs, on the right day, for the right amount of time.

The person:

- Should have a class 5 driver's licence (no additional licensing is required unless you are hauling large-scale livestock liners).
- Should be experienced in handling pigs (have the knowledge and skills).
- Should be calm and collected to reduce the stress for the pigs.
- Should have experience hauling a trailer.

- Must follow the federal and provincial laws.
  - *Health of Animals Regulations (HAR):* Part XII Transport of Animals (see Section 11.4 FEDERAL TRANSPORTATION REGULATIONS).
- Must be registered with PigTRACE (see Section 1.2 PIGTRACE).

The vehicle:

- Vehicles should be in excellent condition and must be in full compliance with provincial highway traffic legislation.
- If you are using a trailer, the requirements include, but are not limited to:
  - Non-slip flooring.
  - No sharp edges, bolts, handles, or protrusions sticking out that could injure pigs.
  - A ramp designed, constructed and maintained to load pigs in and out (maximum slope is 20 degrees).
  - A clean trailer that has fresh bedding.
  - Sufficient ventilation (no exhaust should enter into the trailer).
  - Appropriate partitions (if the trailer is large and only has a few pigs, you do not want them sliding around in the back while driving. Fill the trailer or block off sections to create a smaller environment for fewer pigs).
  - When transporting boars, it is very important to use partitions to keep boars separate.
- If you are NOT using a trailer, consider the following:
  - NEVER have pigs loose in the back of a pick-up truck or inside your vehicle.
  - Secure pigs in a crate (e.g., dog kennel). Make sure they can fit into it nicely.
  - They should be able to stand with all feet on the floor, with head elevated, with sufficient space to permit a full range of head movement, and without any part of its body coming into contact with the top or cover of the crate.
  - Crates should be bedded with absorbent bedding for manure and urine.
  - Crates should be cleaned and disinfected between moving pigs.
  - If it is freezing outside, warm up your vehicle before loading pigs inside.
  - If it is hot outside, turn on air conditioning or open windows to cool the vehicle down before loading pigs inside.

Source: National Farm Animal Care Council. Recommended Code of Practice for the Care and Handling of Farm Animals – Transportation. Canadian Agri-Food Research Council, 2001[1]

(L): Clean and disinfected crate loaded with bedding placed in trailer. This is a good way to separate pigs from each other.

(R): Bedded trailer with partitions. This is an effective way to limit space in the trailer if you have more space than you need. This will prevent pigs from sliding around in the trailer during transport.

Young pigs being transported in a clean crate bedded with clean blankets inside the back of the car. Notice the disposable pad placed underneath the crate. This makes cleaning out the vehicle a lot easier. These pigs fit comfortably inside this crate.

Photo Credits: Dr. Kelsey Gray

The pigs:

- Pigs should have feed withdrawn 3–4 hours prior to loading. Heavy feed intake by pigs immediately prior to loading has been associated with vomiting and death.
- Pigs should be calmly handled and not stressed when getting them into the vehicle or trailer.
- See Section 11.3 FIT TO TRANSPORT for expectations on the conditions pigs are allowed to be transported in.
- Appropriate pigs should be transported together (for example, you should never transport boars together in a small area as they are prone to fighting and injuring each other).

The day:

- Avoid transporting on extremely hot or extremely cold days; if you must transport on these days:
  - If it is a hot day, transport early in the morning before the heat of the day.
  - If it is a cold day, add extra bedding and cover holes in the trailer.
- Avoid transporting in icy, rainy, windy, or other adverse weather circumstances.

The time:

- Maximum time without access to feed, safe water and rest (FWR) for healthy pigs is 28 hours (this includes transport time). This interval begins when FWR is last provided and ends when FWR is provided again.
  - Maximum time without access to feed, safe water and rest (FWR) for very young (8 days of age or less) and compromised pigs is 12 hours (this includes transport time).
- Pigs must be provided with FWR every 28 hours (or sooner if there is a risk of nutritional deficit, dehydration or exhaustion). When provided with rest, it must be for at least 8 consecutive hours.

11.2 TRANSPORT BIOSECURITY

Anytime you transport pigs, you are at the risk of spreading disease. When you transport pigs, you are also transporting their manure, urine, and other biologicals that may contain contagious viruses, bacterium, or parasites. High traffic places like auction marts or slaughter facilities are the highest risk.

Imagine bringing something devastating like PED (porcine epidemic diarrhea) home to your farm and losing 100% of your piglets. **You should always consider the disease risk when transporting pigs and take precautions to prevent spreading disease. Consider the following:**

DO:

- Ensure your animals are healthy before transporting them (unless you are taking them to a veterinarian).
- If you are transporting pigs inside your vehicle in a crate:
  - Your car should be clean before arriving at your destination.
  - Get vehicle washed after leaving your destination before returning to your farm.
  - Blankets or towels used as bedding should be washed in the washing machine with a hot water soap wash and dried in the dryer to kill any pathogens.

  - Any straw or shavings used as bedding must be completely scrapped out and disposed of before washing.
  - Use a clean crate to transport pigs (crates should be washed with soap and water and disinfected with a bleach solution or with an agricultural disinfectant like Prevail® or Virkon®).
  - Let crates dry completely.
- If you are transporting pigs inside a trailer attached to your vehicle:
  - Your vehicle and trailer should be clean before arriving at your destination.
  - Blankets or towels used as bedding should be washed in the washing machine with a hot water soap.
  - Any straw or shavings used as bedding must be completely scrapped out and disposed of before washing.
  - Trailer should have the outside and inside washed and disinfected – this can be done at a livestock trailer wash.
  - Alternatively, the vehicle and trailer can be washed at a regular wash-bay. The trailer should be washed inside and outside of all debris.
  - Special attention should be paid to the wheels and wheel wells when washing your vehicle and trailer (especially after leaving the slaughter facility).
  - Then, the inside of the trailer can be disinfected with a handheld spray gun.
  - Any panels/partitions used inside the trailer will need to be washed and disinfected as well.
  - Let the trailer and any panels from inside completely dry after applying disinfectant.
  - Trailer should be loaded with clean, fresh bedding at the time of the next trip.
- Wear boot covers whenever you walk around high-traffic sites – remove these from your boots as you get back inside your vehicle.
- Keep a disinfectant spray in your vehicle.
- Spray off your mats, foot pedals, and inside of the door with disinfectant after visiting high-traffic sites.
- Keep hand sanitizer in your vehicle.

Cleaned, disinfected, and dried trailer and partitions ready to be loaded with clean bedding before transport. This is how a clean trailer should look before transport.
Photo: Dr. Kelsey Gray

AVOID:

- Transporting animals in a dirty trailer, container, or crate. It is unsafe for your animals and for the safety of other animals.
  - *It also does not look professional and is an easy way to lose credibility amongst other producers and the public.*
  - *If you are buying pigs from someone, they will NOT be happy with you if you show up with a dirty trailer to their farm.*
- Waiting days to wash your vehicle/trailer. The manure, urine, and bedding will harden and make it more difficult to clean.
- Making multiple stops (e.g., veterinary clinic, feed store, supply store) in one day after visiting the slaughterhouse and prior to washing your vehicle.
- Transporting sick animals.
- Cleaning your vehicle/trailer/crates right by where you house your pigs (if you wash your vehicle at home, have a designated dirty area where you can ensure you are not scraping out your trailer near your pigs).

11.3 FIT TO TRANSPORT

It is illegal to transport an unfit animal! (Unless under exceptional circumstances where transportation is recommended by a veterinarian for veterinary care.)

Any and all people (e.g., pig producers, handlers and transporters) involved directly or indirectly in selecting, loading, transporting, and unloading an animal are responsible under federal law to ensure the animal is assessed for "fitness" prior to loading and transportation.

This means that **YOU are legally responsible to** ensure that the pigs you are selecting to transport, or are transporting yourself, are physically healthy and suitable for travel. If you transport an unfit animal, you **may be subject to law enforcement action**.

Unfit Animals:

- Would suffer unnecessarily during transport because of infirmity, illness, injury, fatigue or any other cause.
- Federal law (Part XII of the *Health of Animals Regulations*) prohibits loading, confining, and transporting unfit animals.
- Unfit animals must NOT be transported except under the advice of a veterinarian for veterinary care.

Compromised Animals:

- Have a reduced capacity to withstand transportation, but can be transported **with special provisions** to prevent unnecessary suffering, injury or death.
- May ONLY be locally transported with special provisions to receive care, be euthanized or humanely slaughtered.

Special Provisions:

- Transport locally and directly to the nearest suitable place (not through an auction or assembly yard) to receive care or be humanely killed.
- Individually load the compromised animal without having to negotiate any ramps inside the conveyance.
- Maximum time without access to feed, safe water and rest (FWR) for compromised animals is 12 hours.
- Isolate the compromised animal from other animals (exception: a compromised animal may be confined and transported with one other familiar animal if doing so is unlikely to cause either animal suffering, injury or death).
- Other special provisions may be required, such as additional bedding, to prevent the animal's suffering, injury or death during loading, confinement, transport and unloading.

Sources:
Humane Handling Guidelines for Pigs. Standards for the Care of Compromised and Unfit Animals, 2016[2]
Canadian Food Inspection Agency. Animal Health. Humane Transport and Animal Welfare, 2020[3]

11.3 FIT TO TRANSPORT

"Should this Pig be Loaded?" Decision Tree

SHOULD THIS PIG BE LOADED?
Guidelines for Transporting Pigs

LOAD HEALTHY PIGS

Do Not Load
Do Not Transport – Unfit

Delay Transportation
- Dehydration
- Fever (rectal temperature > 39.5°C)
- Sows that have farrowed within 48 hours, or likely to farrow during transport or upon arrival at destination (100 or more days of gestation)
- Recent surgery (not healed) (e.g., castration)
- Stressed pigs showing any signs of
  - –Exhaustion (refuses to move)
  - –Heat stress
  - –Weakness
  - –Trembling
  - –Laboured breathing
  - –Skin discolouration/blotchy patches

Euthanize On-Farm Immediately
- Non-Ambulatory*
- In shock or dying
- Emaciated (extremely thin)
- Fractured or amputated leg or fractured pelvis
- Other fractures that considerably hamper mobility or are likely to cause severe pain when the animal is manipulated for loading or when it is being transported
- Exposed bone
- Arthritis involving multiple joints
- Prolapsed uterus
- Rectal stenosis with distension and which renders the animal weak or down
- Hernia**
- Suffering from severe nonresponsive disease
- Severe recent injury

*** Non-Ambulatory Animals – an animal that cannot walk or that:**
- Is unable to rise or remain standing without assistance
- Is unable to move without being dragged or carried
- Has difficulty rising or needs additional time to rise
- Is reluctant to walk or exhibits halted movement
- After splitting, cannot walk
- Suffers severe pain when walking, or requires assistance to remain standing

**** Hernia includes at least one of the following criteria:**
- Impedes movement
- Painful on palpation
- Touches the ground when the pig is standing in its natural position
- Includes an open skin wound, ulceration, or obvious infection

***** Special Provisions include:**
- Extra bedding
- Loading in a rear compartment
- Separation from other animals
- Penning with a familiar companion animal
- Local transport only
- Transport direct to the nearest suitable place where the animal can be properly cared for, slaughtered or euthanized
- Other measures as appropriate

Do Not Transport to a Sale or an Assembly Yard

Transport with Special Provisions***
Direct to Slaughter

Transport As Soon As Possible
- Ambulatory pig: a pig that can walk and rise without assistance, and:
  - –Is visibly lame but can keep up with the group
  - –Is unable to keep up with other animals; has some difficulty climbing ramps
- Abscess and local infection (no fever)
- Prolapsed vagina or rectum
- Inguinal or umbilical hernias other than those defined under Do Not Transport
- Acute or unhealed penis injury
- Severe dewclaw injury
- First stage anorexia, or weight loss (no fever)
- Open wound (pig may be unfit depending on severity of wound)
- Acute frostbite
- Blindness
- Severe tail bite or vulva bite
- Smoke inhalation

Pigs with multiple conditions may not be fit for transport

IMPORTANT NOTICE
If an animal has difficulty walking or loading, it is likely that the animal will go down during transport. It is also very likely that it will be subjected to additional suffering and/or injury from trampling as a result of becoming non-ambulatory during the journey. If this is the case, transportation is not recommended.

EMERGENCY ON-FARM SLAUGHTER
If an animal is fit for human consumption, but not fit for transport (i.e., injured but not sick) emergency on-farm slaughter may be an option. Consult with your provincial government for more information on the availability of emergency on-farm slaughter in your province.

Any animal may be loaded for transport for veterinary treatment under veterinary supervision.

Adapted from: Should this Pig be Loaded? Decision Tree published jointly by BCFACC, AFAC, FACS and OFAC (May, 2010) and from Arbre de Décision Transport des Animaux Fragilisés published by Fédération des producteurs de porcs du Québec (July, 2011)

Source: Humane Handling Guidelines for Pigs. Standards for the Care of Compromised and Unfit Animals, 2016[2]

Footnote: **Refer to Part XII of the *HAR* for current information regarding compromised and unfit conditions.**

11.4 FEDERAL TRANSPORT REGULATIONS

Transportation of animals is regulated federally under the *Health of Animals Act*, and its *Health of Animals Regulations* (*HAA* and *HAR*): Part XII Transport of Animals.

If you are transporting animals (or if you are involved directly or indirectly in selecting, loading, confining, transporting, and unloading), these regulations apply to you.

Part XII of the *HAR* includes all aspects of animal transport and related confinement including:

- *Knowledge, skills and training requirements*
- *Contingency planning*
- *Assessment and selection of animals that are fit for the intended transport and confinement*
- *Withdrawal of feed, water and opportunities to rest (FWR) prior to and in preparation for loading and confinement for transport*
- *Handling the animal(s) for the purpose of loading*
- *Loading the animal(s), including into crates, modules or other contrivance or container if applicable and into conveyances*
- *Handling very young animals (8 days of age or less)*
- *Transport and related confinement of animal(s)*
- *Monitoring animals during transport*
- *Ventilation*
- *Space requirements*
- *Unloading the animal(s)*
- *Transfer of care*
- *Records*
- *Timing of the post transport access to feed, water and rest (if applicable)*

In all cases, the transport continuum (including withdrawal of FWR, handling for the purposes of loading, confining, transporting, unloading, post-transport access to feed and water) begins whenever the animal is handled or actions are taken (e.g., selection of animal to transport, moving to a pen for loading) to prepare the animal for the purposes of transport. Transport ends when the animal has been unloaded and the authority of *HAR* Part XII ends in whole or in part (requirements continue after unloading) when:

- *the unloaded animal has been provided with feed, water and rest, or*
- *the container enters the stunning chamber for the purposes of slaughter prior to the animal being removed from the container, or*
- *the animal is to be slaughtered or otherwise euthanized prior to having reached the maximum interval of time for feed, water and rest after unloading.*

Summary of Key Legal Expectations:

EXPECTATION	SUMMARY
Understand definitions from the *HAR* (136).	• Be able to describe and recognize a compromised animal. • Be able to describe and recognize an unfit animal. • Be able to describe and provide special provisions.
Have knowledge and skills necessary to select, load, confine, transport, monitor and unload an animal *HAR* (138).	• Be able to assess the condition and fitness of the animal before loading, monitoring animals throughout transport, and apply appropriate actions. • Be able to assess transport conditions such as animal compatibility (e.g., 2 boars should not transport in a small space together), space needs, and temperature, and apply appropriate actions. • Be able to assess any foreseeable equipment risks like truck, trailer, or container issues and apply appropriate actions. • Be able to assess driving conditions like weather conditions, road safety, or anticipated delays and apply appropriate actions. • Have a contingency plan in place and take appropriate measures in the event of unforeseen circumstances to prevent unnecessary suffering, injury, or death.
Understand how to handle unfit animals *HAR* (139).	• Know the options for unfit animals (depending on circumstance): immediate euthanasia, delayed transportation, on-farm slaughter, or transport for veterinary care on veterinary recommendation.
Understand how to handle compromised animals *HAR* (140).	• Know how to safely transport compromised animals and provide special provisions for them. • The maximum time without access to FWR is 12 hours.
Understand how to handle animals of 8 days of age or less *HAR* (141).	• Know how to safely transport young animals and provide special provisions for them. • The maximum time without access to FWR is 12 hours (single period, not repeated).

EXPECTATION	SUMMARY
Understand proper animal handling *HAR* (144).	• Do NOT EVER perform prohibited activities including: – Beating, striking, whipping, or kicking animals. – Using prods, whips, or devices in a way that would cause suffering, injury, or death. – Using prods, whips, or devices on an animal who does not have a clear path. – Using prods on animals less than 3 months old or on sensitive areas or animals (belly, anal, genital, or facial areas). – Dragging animals. – Lifting animals by their hair, head, neck, ears, or tails. – Handling an animal in any way that can cause suffering, injury, or death. – Dropping, kicking, or throwing containers with animals inside. – Handling animal containers in a way that can cause suffering, injury, or death.
Understand proper ramp usage for loading/ unloading animals *HAR* (145).	• Ensure ramps are: – Secure and do not have sharp edges that can cause injury. – Can bear the expected weight without breaking, bending, twisting, or collapsing. – Designed to prevent animals from tripping, slipping, or falling. – Placed to prevent a gap where an animal can fall or escape through. – On a slope that does not exceed 20 degrees.
Understand how to prepare the animal space *HAR* (146–149).	• Ensure the space is appropriate: – Do not let exhaust blow into the trailer. – Meet space requirements (if using a crate or kennel, make sure animals fit inside comfortably). – Use proper bedding for weather conditions. – Protect animals from noxious things (e.g., fumes).
Understand appropriate conveyances and containers for animals *HAR* (150).	• Ensure the containers: – Are suitable for the species (dog kennels work for smaller pigs). – Prevent pigs from escaping. – Have adequate ventilation. – Have flooring that prevents tripping, slipping, and falling. – Will not collapse or topple over. – Do not have exposed bolt heads, angles, or projections. – Do not have unsecured objects. – Can be cleaned. – Allow visibility of the animal from outside. – Have bedding to absorb manure/urine. – Are secured and will not slide around during transport.
Understand feed, water, and rest requirements *HAR* (152).	• Maximum time with access to FWR for pigs is 28 hours (this includes transport time).
Understand record keeping *HAR* (153, 154).	• Record all swine movements with PigTRACE. • If you are leaving animals at assembly yards, you need a "transfer of care" record: a receipt of incoming animal condition, date and time of food, water, and rest provision, and written location and date/time of departure and arrival.

Source: *Government of Canada. Regulations Amending the Health of Animals Regulations:* SOR/2019-38, 2019[4]

For more specific information on transportation of animals, please refer to the web page for the *Health of Animals Regulations:* Part XII: Transport of Animals – Regulatory Amendment. Interpretative Guidance for Regulated Parties, 2020[5]: https://inspection.gc.ca/animal-health/humane-transport/health-of-animals-regulations-part-xii/eng/1582126008181/1582126616914

For a basic comparison of the federal transport regulations from 1997 to the amended transport regulations in 2019[6], please refer to Appendix I at the end of this section. For small lot pig producers that own and manage other livestock species, Appendix I is particularly noteworthy because it includes transport regulation changes that affect species other than swine.

SECTION 11 REFERENCE LIST

1. National Farm Animal Care Council. Recommended Code of Practice for the Care and Handling of Farm Animals – Transportation. Canadian Agri-Food Research Council (2001)
2. Humane Handling Guidelines for Pigs. Standards for the Care of Compromised and Unfit Animals (2016)
3. Canadian Food Inspection Agency. Animal Health. Humane Transport and Animal Welfare (2020)
4. Government of Canada. *Regulations Amending the Health of Animals Regulations:* SOR/2019-38 (2019)
5. Canadian Food Inspection Agency. Animal Health. *Health of Animals Regulations:* Part XII: Transport of Animals – Regulatory Amendment. Interpretative Guidance for Regulated Parties (2020)
6. Canadian Food Inspection Agency. Animal Health. Fact sheet: Then vs. Now – Humane Transportation Regulations (2019)
7. Canadian Pork Council. Health of Animals Regulations for Pig Transport – Overview of Changes (2020)

APPENDIX I: Basic Comparison of Federal Transport Regulations from 1997 to Amended Transport Regulations in 2019[6]

THEN VS. NOW
(Humane Transportation Regulations)

Stronger animal transportation requirements = Healthier animals

The amendments to the Transportation of Animals requirements under the *Health of Animals Regulations* improve the well-being of animals during the entire transportation process, keeping in mind Canada's geographic size and the time required to travel between locations.

- ☑ Many years of consultation with veterinarians, farmers, transporters, associations, scientists, governments, members of the public and interested stakeholder groups
- ☑ Regulations apply to everyone involved in transporting animals in Canada
- ☑ Full range of enforcement and compliance

IMPROVEMENTS (starting in 2020)

- ☑ Science-based
- ☑ Longer rest periods
- ☑ Must arrive at destination safely and be suitably fed, hydrated and rested
- ☑ Full transport time (including loading and unloading) from time off feed, water and rest
- ☑ Balance of prescriptive and outcome-based requirements
- ☑ Outlines training requirements and contingency plans
- ☑ Better aligned to international standards
- ☑ Shorter hours for many animals
- ☑ Addresses compromised animals and unfit animals
- ☑ Addresses broiler chickens, spent hens, and rabbits
- ☑ Addresses young animals
- ☑ Allows for innovation

SPECIFIC COMPARISON

PROVISION	THEN (Regulations from 1997)	NOW (Amended regulations 2019)
Transport continuum	Focus mainly on time in confinement	Feed, water and rest (FWR) times start when FW are first removed and include time for loading, transport and unloading, until FW are provided again.
Type of regulations	Prescriptive based requirements that restrict innovation	More outcome based regulations including: ☑ adequate space, ☑ enough headroom, ☑ weather protection ☑ ventilation, etc.
MAXIMUM INTERVALS WITHOUT FEED, WATER AND REST (FWR)		
All livestock (including ruminants), cervids and camelids 8 days of age or less, or too young to be fed exclusively hay or grain	Max. 18 h of transport confinement (calves)	Max. 12 h without FWR
Compromised animals	Not specified. Covered under general requirements (48 h for ruminants, 36 h for monogastrics).	Max. 12 h without FWR
Ruminants	Max. 48 h of transport confinement	Max. 36 h without FWR
Animals with a simple stomach (monogastrics): horses, pigs, birds, reptiles, pets, etc.	Max. 36 h of transport confinement	Horses and pigs 28 h without FWR Max. 36 h without FWR for all other animals
Hatching birds	Max. 72 h of transport after hatching (chicks only)	Max. 72 h from time of hatching for birds
Broiler chickens, spent hens and rabbits	Not specified. General requirement for monogastrics (36 h of transport confinement)	Max. 24 h without water Max. 28 h without feed
Rest time after max. feed and water time	5 h	8 h
Innovation	Not specified	No maximum for specially equipped conveyances/containers that meet numerous specified requirements and provide FWR. Outcome-based requirements for the animals still apply.

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APPENDIX II

APPENDIX II: Health of Animals Regulations for Pig Transport – Overview of Changes, Canadian Pork Council for 2020[7]

HEALTH OF ANIMALS REGULATIONS FOR PIG TRANSPORT

OVERVIEW OF CHANGES

February 2020

This resource is part of the Canadian Swine Training Development Project.

This project is funded by the AgriMarketing Program under the Canadian Agricultural Partnership (CAP), a federal-provincial-territorial initiative.

TRANSPORT DURATIONS

- Transport duration primarily considers the time pigs go without feed, water and rest
- For fully fit pigs, the time without feed, water and rest cannot exceed 28 hours
- For compromised pigs, these time periods cannot exceed 12 hours

RAMPS

- Barn ramps and any external ramps (outside of trailer) used to load/unload pigs onto/from trailers cannot have slopes that exceed 20°

MONITORING PIGS IN-TRANSIT

- Transporters are expected to check on the pigs at an appropriate frequency to ensure their well-being, considering the current road and weather conditions and the age and condition of the pigs when loaded, among other risk factors
- If a transporter notices that a pig has become compromised or unfit in transit, all practical actions must be taken to relieve the pig's suffering, such as:
    - Euthanizing the pig on-board, or
    - Proceeding to the nearest suitable place to have the pig euthanized, while also considering the other pigs' health and welfare

OVERVIEW OF CHANGES TO THE *HEALTH OF ANIMALS REGULATIONS* FOR PIG TRANSPORT

PROVISIONS FOR TRANSPORTING COMPROMISED PIGS

A compromised pig:

- must be shipped to the nearest suitable place
- cannot be loaded and shipped to an assembly yard
- can only be transported in a trailer compartment by itself or with one other compatible pig
- must be loaded and unloaded individually, without having to use the trailer's ramps
- requires additional measures to protect its welfare, such as extra bedding and being loaded last and unloaded first

Most significant changes to definitions of "compromised" and "unfit"

- Pigs with severe rectal or vaginal prolapses are now defined as "unfit"
    - Minor rectal or vaginal prolapses are still defined as "compromised"
- A pig that is lame in one or more legs is now considered "unfit" if it also exhibits:
    - signs of pain or suffering, *and*
    - halted movements or a reluctance to walk

TRAINING AND COMPETENCY

- Commercial, livestock transport companies must provide and document training for all their employees involved in the planning and performance of livestock transport
- All livestock transporters – commercial or self-haulers – must be competent and knowledgeable in their role (and in how it relates to the regulations)

DOCUMENTATION AND PLANS

- All livestock transporters must have a contingency plan – written or verbal – for possible delays and circumstances that could result in harm or suffering to the pigs, such as storms, mechanical breakdowns, delays, accidents and injuries to the pigs that occur mid-transit
- All transporters must keep a movement document (manifest) on-board while transporting pigs, which covers details of the load, including (but not limited to):
    - floor space in the trailer,
    - when the trailer was last cleaned and disinfected,
    - the number, weight and description of the pigs at loading,
    - when the pigs were loaded, and
    - when the pigs were last fed, watered and rested
- All deliveries to slaughter facilities and assembly yards must be accompanied by a transfer of care document that describes:
    - the pigs' condition on arrival,
    - the time when the pigs were last fed, watered and rested, and
    - the time they arrived at the facility
- The pigs remain in the transporter's care until a representative of the facility provides written acknowledgement to the transporter of receiving the pigs

For more information:

- contact your provincial pork organization;
- contact your nearest CFIA area office; or
- visit CFIA's website: inspection.gc.ca/humane.

SECTION 12: HUMANE EUTHANASIA

There may come an unfortunate time when an animal is sick or injured and must be euthanized. Humane euthanasia is incredibly important and should be taken very seriously. A humane euthanasia is achieved when there is minimal pain, fear, or distress for the animal. This can be accomplished through knowledge, training, and utilizing correct technique.

There are some requirements to follow from Canada's Code of Practice for the Care and Handling of Pigs that are highlighted in this section.

12.1 EUTHANASIA PLAN

If you are raising pigs, you should have a euthanasia plan on your farm. A euthanasia plan should include the following:

WHO	• Assign who on the farm is skilled to elect and perform euthanasia. • Have a veterinarian to consult with and make on-farm euthanasia plans to follow.
WHAT	• Determine what method of euthanasia is appropriate for specific sizes and ages of pigs. • Have the correct equipment to perform euthanasia.
WHERE	• Understand the anatomy and location for correct euthanasia.
WHEN	• Have criteria for deciding when to euthanize an animal.
WHY	• Understand the ethical and legal obligations to euthanize animals who are in pain or are suffering. • Understand and recognize when an animal is in pain or is suffering.
HOW	• Perform appropriate restraint. • Perform appropriate euthanasia method. • Confirm death. • Dispose of carcass safely. • Maintain euthanasia equipment.

REQUIREMENTS[1]
In consultation with a licensed veterinarian, an on-farm written euthanasia plan to facilitate timely on-farm euthanasia must be developed and followed. Individuals who euthanize pigs must be trained in the appropriate euthanasia methods.

12.2 DECIDING TO EUTHANIZE

Deciding to euthanize an animal is not an easy decision. It is difficult due to emotional attachment, socio-demographic considerations, environmental influences, psychological factors, and management practices. When it is time to make this decision, consider the following:

- Use the *"euthanasia decision tree"* to help make the call (refer to page 12-4).
- Ask yourself several questions listed below to help you make the decision.
- Select the correct person for the job (this means someone who is trained and someone who is emotionally comfortable with this).
- It is never wrong to get a second opinion.
- Make a timely decision (do not prolong suffering).
- When an animal is suffering, euthanasia is the right thing to do.

QUESTIONS TO ASK:

- Is the animal experiencing a high level of pain?
- Will it require continual medication to alleviate the pain and suffering?
- Will the animal have to endure a painful and lengthy recovery?
- Will the animal be likely to return to normal function post recovery?
- Can the required care be provided during the recovering period?
- Is the animal likely to suffer chronic pain or immobility following recovery?
- Will weather extremes create inhumane conditions for this animal during and/or after recovery?
- Will the animal be unable to or have difficulty accessing feed and water?
- Will the cost of therapy outweigh financial return?
- Is the animal contagious and at high risk of spreading disease or illness to other animals, adversely affecting the welfare and the economics of the operation?

The answer to these questions is not always clear. Nonetheless, they should be part of the decision-making process whenever faced with the choice of treatment, slaughter or euthanasia.

One of the biggest challenges though is determining: *How long should an animal be given to recover?* Current industry literature and guidelines would suggest that animals should show evidence of significant improvement within 24–48 hours from the onset of treatment.

Simply leaving an animal that is suffering to die of natural causes or in other words, **"letting nature take its course" is unacceptable**. Furthermore, it is NOT acceptable to prolong an animal's misery by delaying euthanasia for reasons of convenience. It is important that when euthanasia is indicated, it be conducted in timely manner."

Source: B.C. Pork On-Farm Euthanasia Seminar. Instructor – Jennifer Woods, M.Sc., 2014[2]

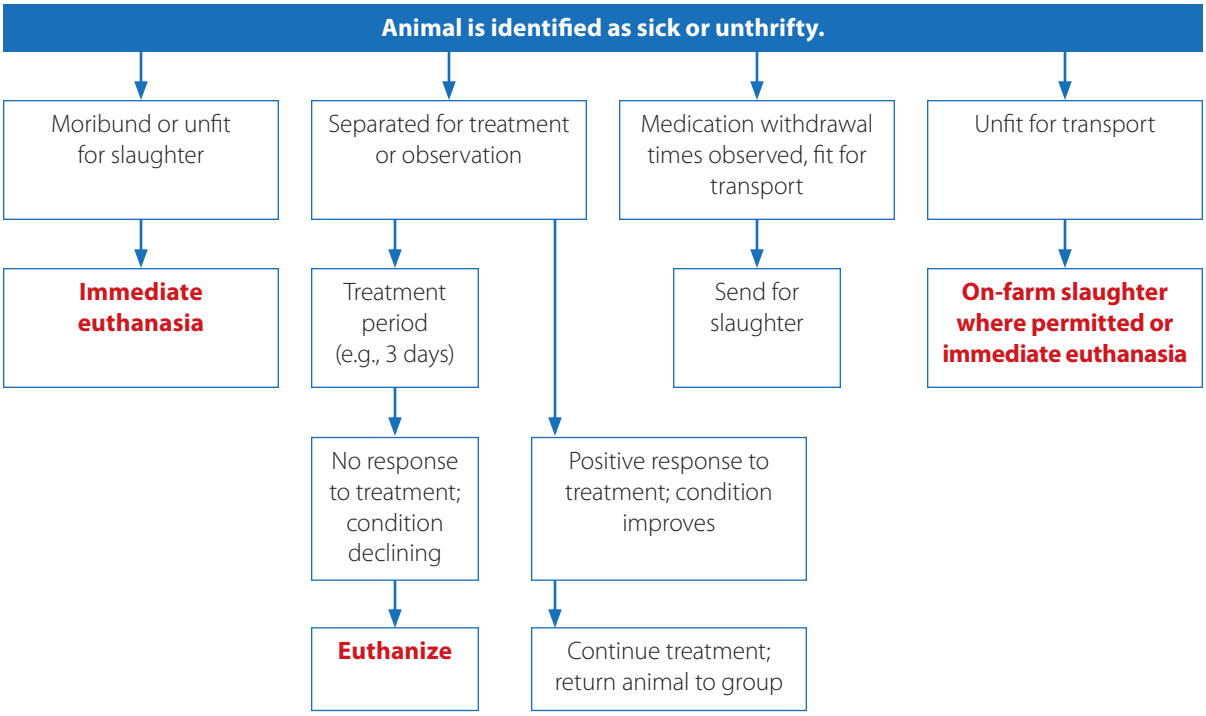
REQUIREMENTS[1]
Pigs not responding to treatment and pigs with untreatable conditions that compromise welfare, if not fit for transport, must be promptly euthanized or slaughtered on-farm (if fit for human consumption) in accordance with provincial regulations.

INDICATORS OF ANIMAL PAIN:

- Inability or unwillingness to rise or walk.
- Reluctance to put weight on a limb.
- Protection of the painful area.
- Vocalization, especially when an animal moves or a painful area is touched.
- Open mouth breathing.
- Arched or hunched back, abdomen tucked up and/or drooping head and/or ears.
- Tail uncurled (pigs whose tails have not been docked).
- Lack of interest in food, water or surroundings.
- Stays away from or does not respond to other animals.
- Does not respond when touched or prodded.
- Standing in a rigid position, shivering, trembling or profuse sweating.
- Attraction to area of pain.
- Hiding in bedding.
- Reduction in suckling.
- Unsettled, inability to get comfortable.

Source: Euthanasia Seminar. Instructor – Jennifer Woods, M.Sc., 2014[2]

EUTHANASIA DECISION TREE:



Examples of criteria for euthanizing weanling or growing pigs:

- Weak, unable to stand.
- Unable to eat or drink.
- Moderate to severe lameness.
- Fractured leg.
- Severely damaged digits.
- Infected tail, ear, or flank bites.
- Severe rectal prolapse (protruding or damaged).
- Postnatal development of scrotal, inguinal, or umbilical hernia.
- Repaired hernia with abscessation, moderate swelling, or continued drainage.
- Severe body weight loss (20% or greater).
- Severe diarrhea with dehydration (no response to treatment in 2 or more days).
- Respiratory disease with difficult or laboured breathing (no response to treatment in 2 or more days).

Source: National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs, 2014[1]

12.3 METHODS OF EUTHANASIA

- There are different ways to euthanize pigs effectively.
- Not all methods are appropriate for all sizes of pigs.
- Talk to your veterinarian about an on-farm euthanasia plan and the necessary tools to perform these properly.
- The most realistic methods used on small scale farms include:
  - Blunt force trauma.
  - Penetrating captive bolt.
  - Gunshot.
  - Anesthetic overdose performed by a veterinarian.

APPROPRIATE METHOD FOR SIZE:

Euthanasia Method	Weight						
	<2.3 kg	2.3–9.0 kg	9–32 kg	32–68 kg	68–120 kg	120–200 kg	>200 kg
Anesthetic Overdose[2]	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Blunt Trauma	Conditional[3]	Conditional[3]	Unacceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Electrocution	Unacceptable	Conditional[4]	Conditional[4]	Conditional[4]	Unacceptable	Unacceptable	Unacceptable
CO_2 and/ or Argon Inhalation	Conditional[5]	Conditional[5]	Conditional[5]	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Non-Penetrating Captive Bolt	Acceptable[6]	Acceptable[6]	Unacceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Penetrating Captive Bolt[7]	Unacceptable	Unacceptable	Acceptable	Acceptable	Acceptable	Conditional[8]	Conditional[8]
Gunshot to Head[9]	Unacceptable	Unacceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Source: National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs, 2014[(1)]

1. Further research under the oversight of a regulated research body may result in new, acceptable equipment and/or euthanasia methods that may be developed and become available during the life of this Code.
2. Administered under the direct direction of a licensed veterinarian only.
3. Blunt trauma can be administered by grasping the hind legs of the piglet and striking the top of the cranium firmly and deliberately against a flat, hard surface. Alternatively, a sharp, firm blow with a heavy blunt instrument to the top of the head over the brain can be used. Sufficient force should be used to euthanize the piglet in one attempt. Alternative methods should be actively considered to ensure the criteria for euthanasia can be consistently met.
4. Electrocution of animals must be performed using properly maintained, proven effective, purpose-designed equipment only. The electric current must flow through the brain first, resulting in insensibility and then through the heart which results in cardiac arrest. This can occur either simultaneously in one step, or by using a two-step method with electrocution to the head performed first.
5. Animals must be heavily sedated before introduction to gases. This form of euthanasia is acceptable only with properly-maintained, proven effective, purpose-designed equipment.
6. Non-penetrating captive bolt euthanasia may not be used unless the manufacturer specifies that the equipment is designed for the animal's weight range. A secondary method of euthanasia may be required depending on the type of equipment used, after the animal becomes insensible. For pigs at the heavier end of this weight range, a penetrating captive bolt will be more effective.

7. It is critical to ensure proper placement and aim of the penetrating captive bolt since the brain is relatively small and well protected. When using the captive bolt method, the frontal site is the only acceptable location.
8. Pigs ≥120 kg (≥265 lbs) in weight require a secondary method (e.g., reapply the captive bolt, pithing, bleeding) that is performed after the animal becomes insensible.
9. Proper placement and aim of the firearm is critical since the brain is relatively small and well protected. Gunshot can be applied to the frontal site, the temporal region, or from behind the ear directed diagonally toward the opposite eye. When performing euthanasia with a firearm, choosing a safe location to ensure that bystanders are safe is critical. All personnel should always be positioned behind the shooter.

REQUIREMENTS[1]
An acceptable method for euthanizing pigs must be used. The method used to euthanize pigs must be administered in a manner that is quick and causes the least possible pain and distress. Prior to being euthanized, animals must not be dragged, prodded, forced to move on broken limbs, or made to move when pain and suffering will occur.

For more details on methods of euthanasia, please see the B.C. Pork On-Farm Euthanasia Seminar document by instructor Jennifer Woods, M.Sc., 2014[2]

12.4 HOW TO EUTHANIZE PIGS

STEPS

Step 1: Choose a trained individual to perform euthanasia.

Step 2: Choose appropriate method for euthanasia based on weight of animal.

Step 3: Get all equipment prepared.
(If using a captive bolt gun or a firearm, always keep a second round of ammunition just in case).

Step 4: If animal is ambulatory, move animal to desired location.
(Do not force animal or stress animal out more than necessary).

Step 5: Perform appropriate restraint depending on method of euthanasia.

Step 6: Ensure yourself and others are in a safe location.

Step 7: Perform euthanasia.

Step 8: Confirm death (see Section 12.5 CONFIRMATION OF DEATH).

Step 9: Dispose of carcass.

Step 10: Clean and maintain euthanasia equipment.

DO:

- Know your anatomy – aim for the brain.
- Use gunshot or captive bolt guns in the head ONLY.
- Minimize stress of the pig to be euthanized. Perform in a quiet area, use proper restraint, and use an efficient and appropriate euthanasia method.
- Maintain and clean your euthanasia equipment.
- Follow the steps outlined above.
- Dispose of carcasses safely especially if euthanasia is by anesthetic overdose. If a dog or wild animal scavenges an animal euthanatized in this way, they can die!
- Ask for help if you need it.

NEVER:

- Have someone manually restrain a pig who is being euthanized by gunshot.
- Shoot an animal in the chest or anywhere other than the head.
- Put your hands ANYWHERE near the captive bolt gun opening.
- Walk around with a loaded firearm or captive bolt gun.

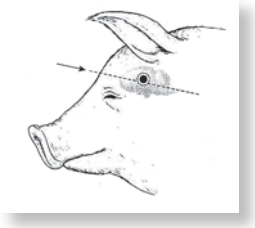


Image: Correct position for shooting swine with a captive bolt or a firearm.

Source: Recommended Animal Handling Guidelines and Audit Guide for Cattle, Pigs, and Sheep (2005 Edition, with 2007 and 2010 Updates). Author – Dr. Temple Grandin. Diagram provided by Dr. J.K. Shearer, 2010[3]
http://www.grandin.com/RecAnimalHandlingGuidelines.html

For more information on euthanasia with a firearm, go to Michigan State University, Animal Agriculture, Euthanasia of Large Animals – Firearm, then view 'Location and Angle for Humane Euthanasia of Large Animals – Firearm', 2018[4] located at:
https://www.canr.msu.edu/resources/euthanasia-of-large-animals-firearm

Three different types of penetrating captive bolt guns acceptable for humane euthanasia of pigs over 9 kg.

Correct placement of a penetrating captive bolt gun on an adult pig.

Non-penetrating captive bolt gun acceptable for humane euthanasia of piglets under 9 kg.

Correct placement of a non-penetrating captive bolt gun on piglets under 9 kg.

Source of photos: B.C. Pork On-Farm Euthanasia Seminar. Instructor – Jennifer Woods, M.Sc., 2014[2]

12.5 CONFIRMATION OF DEATH

"Death is not immediate but a process that can take in excess of 10 minutes to be completed. First the animal is rendered insensible, then the body begins to die as the brain stops, the lungs stop breathing, the heart quits beating, and the blood quits circulating.

Upon loss of consciousness, reflex motor activity or muscle spasms are likely to occur. This is a normal part of the death process and should not be perceived as the animal being in pain or distress. People sometimes mistake this involuntary movement as sensibility or mistake the lack of movement as loss of consciousness.

The muscle spasms will not be immediate and may take up to a minute to begin. Pigs tend to have more violent and longer involuntary muscle spasms than other species. The violent kicking can last 15–20 seconds or longer with more random, mild convulsions lasting for several minutes. If the animal has an extended period of movement or 'flopping' it may only be stunned and should be reshot."

Source: B.C. Pork On-Farm Euthanasia Seminar. Instructor – Jennifer Woods, M.Sc., 2014[2]

After performing euthanasia, you must confirm that the pig is dead. Signs that a pig is returning to sensibility (is not dead) include the presence of one or more of the following (Source: National Farm Animal Care Council – Code of Practice for the Care and Handling of Pigs, 2014[1]):

- Rhythmic breathing.
- Constricted pupils.
- Attempts to raise the head (righting reflex).
- Vocalization.
- Present palpebral reflex: *tap on the inner corner of the eye or run your finger along the eyelash. There should be NO blinking or movement of the eye if the animal is dead.*
- Response to a painful stimulus such as a nose prick with a needle.
- Natural blinking.
- Presence of jaw tone.

If any of these signs are present, immediately perform a backup method of euthanasia. This could include performing the euthanasia again.

REQUIREMENTS[1]
Animals must be evaluated for insensibility immediately following the application of the euthanasia method. A backup method of euthanasia must be immediately applied if an animal shows signs of returning to sensibility. Death must always be confirmed when euthanizing animals before moving or leaving the animal.

Palpebral reflex performed after euthanasia to confirm death; there should be NO blinking or eye movement from a dead animal.

Source of photo: B.C. Pork On-Farm Euthanasia Seminar – Instructor Jennifer Woods, M.Sc., 2014[2]

12.6 DISPOSAL OF DEADSTOCK

- Dispose of deadstock in a timely manner.
- If animals were euthanized by anesthetic overdose, ensure carcass is not scavenged by pets or wildlife as the residual anesthetic can be lethal to them.
- See Section 8.3 BIOSECURITY ON YOUR FARM for details concerning deadstock disposal.
- Options include deadstock pick-up, on-farm burial, on-farm incineration, and on-farm compost.

SECTION 12 REFERENCE LIST

1. National Farm Animal Care Council. Code of Practice for the Care and Handling of Pigs (2014)
2. B.C. Pork On-Farm Euthanasia Seminar. Instructor – Jennifer Woods, M.Sc. (2014)
3. Recommended Animal Handling Guidelines and Audit Guide for Cattle, Pigs, and Sheep (2005 Edition, with 2007 and 2010 Updates). Author – Dr. Temple Grandin. Diagram provided by Dr. J.K. Shearer, 2010
4. Michigan State University. MSU Extension Animal Agriculture. Euthanasia of Large Animals – Firearms (2018)

SECTION 13: EMERGENCY MANAGEMENT

This section raises awareness about on-farm emergencies. Please be advised that there are many detailed resources available to you regarding farm animal emergency management. You are highly encouraged to review these resources to be prepared for the unexpected.

KEY SOURCES: (all available by conducting an internet search)

- Animal Health Emergency Management Project, 2019[1]
- Emergency Management Guide for B.C. Small Mixed Farms – B.C. Ministry of Agriculture, 2015[2]
- Emergency Management Guide for B.C. Pork Producers – B.C. Pork, 2013[3]
- Emergency Preparedness Tips. Fact Sheet. B.C. Ministry of Agriculture, 2019[4]

13.1 FARM HAZARDS – EMERGENCY PLANNING

Listed below are a few quick-facts about farm hazards compiled from the Emergency Management Guide for B.C. Small Mixed Farms – B.C. Ministry of Agriculture, 2015.[2]

HAZARD	THINGS TO KNOW
FIRE 	• Never jeopardize personal safety to save an animal. • Panicked animals normally will not leave a barn on their own, because they do not fear fire. • Most animals are killed from smoke inhalation. Those who do survive rarely recover. • A structure can be completely engulfed in less than 6 minutes. • The vast majority of barn fires are preventable. • Livestock may become nervous, panicked, disoriented, and unpredictable near fire. • Livestock may wander into hot ashes and cinders left by burned grass or bush. They may become confused on a direction of escape and burn hooves or feet beyond recovery.
FLOOD 	• Never jeopardize personal safety to save an animal. • Unconfined animals can usually take care of themselves during a flood. • The farmer's goal is to keep livestock high and dry. • Your local Emergency Program Coordinator can provide up-to-date flood information and forecasts.

13.1 FARM HAZARDS – EMERGENCY PLANNING

HAZARD	THINGS TO KNOW
EXTREME HEAT 	• Extreme heat is generally more stressful to farm animals than extreme cold. • Animals will require more water during extreme heat/drought conditions – up to twice normal consumption levels. • Livestock should have access to natural or man-made areas that provide heat relief. • Signs of heat stress: – Increased respiration rate or panting and excessive salivation. – Elevation of head to make it easier to breathe. – Open mouth breathing. • If animals are in heat-stress: – Contact local veterinarian immediately. – Move animals to the shade. – Offer plenty of cool, clean water. – Spray animals with cool water, especially on legs and feet, or stand them in water. – Increase air movement around animals.
DROUGHT 	• Drought is a slow-onset emergency that can be highly destructive to your farm. • Dry conditions can lead to undrinkable or toxic water sources. Consider water quality testing. • Drought may result in increased grazing by livestock on toxic plants. Provide adequate forage or supplemental feed.
EXTREME COLD 	• Winter wind is usually a greater stress factor than cold temperatures. • Livestock dehydration is often a more important hazard than cold temperatures. Animals cannot drink snow. • Animals require additional feed to meet increased energy requirements.
MANURE 	• Ensure sufficient manure storage to accommodate up to 6 months accumulation. • Contain manure during transport to avoid spills. • Ensure manure is not carried onto public roads by equipment tires. • Establish buffers between manure handling and storage locations near and around watercourses. Refer to B.C.'s 2019 Agricultural Environmental Management Code of Practice (AEMCoP) for proper setback distances. • Have a manure spreading plan. • Ensure application equipment is maintained. • If possible, use air emission and odor reduction application practices.
UTILITY FAILURES 	• Things to consider: – Which critical equipment and facilities depend upon electrical power? Natural gas? Water? – What if these utilities are unavailable? – How long could you operate without the utility? – Are backup measures possible (e.g., generator)?

Source: Emergency Management Guide for B.C. Small Mixed Farms – B.C. Ministry of Agriculture, 2015[2]

13.2 SERIOUS ANIMAL DISEASE OUTBREAK – EMERGENCY PLANNING

The information below is provided by the Animal Health Emergency Management (AHEM) Project team:

Serious animal disease outbreaks are more severe than common animal health illnesses and can have significant impacts to trade and industry operations. They are recognized as the industry's greatest vulnerability because it is very likely that they often result in restricted or even banned Canadian exports, that in turn weakens our livestock sector, and undermines public trust. Even a small serious animal disease outbreak can have rippling impacts on farms across the country. Whether it involves a known or evolving disease, producers must stay informed and be aware of the signs and symptoms of serious animal diseases.

The purpose of this section is to help those on the ground to **understand**, **prepare** and **respond** to serious animal disease events. The following is an overview of the Producer Handbook developed through the AHEM Project specifically for small lot producers. The full document and other resources can be found at https://animalhealth.ca/ahem/.[1]

1. UNDERSTAND

A serious animal disease outbreak will put producers' livelihoods at risk. When an animal is unwell, there will be signs and it is your responsibility to determine whether this is an unusual event and what actions are appropriate. It is important to:

- **Share Concerns** – producers have a duty of care and a legal requirement to report all suspected cases of certain diseases. The key serious animal diseases for swine, and these are federally reportable, include African swine fever (ASF) and Foot-and-Mouth Disease (FMD).
- **Work Together** – disease outbreaks can have rippling effects and it is important that we work together – often across provinces and with other commodities – to prevent, prepare and respond.
- **Protect Others** – Canada's National Swine Farm-Level Biosecurity Standard can help safeguard your operation and the industry. Producer commitment to good animal husbandry, hygiene practices, vehicle management, and staff training is paramount.

2. PREPARE

Regardless of the type of emergency (e.g., disease, fire, flood, earthquake), by being proactive, your farm will be in a better position to respond and convey key details to emergency personnel as an emergency situation unfolds.

It is important to:

- **Know Your Objectives** – Do you have a plan to minimize risk and safety of people and animals directly involved? These can also help clarify a producer's long-term goals with regards to restocking or exiting, in the event of a serious animal disease outbreak.
- **Have a Clearly Defined Farm Plan** – Do you have maps and property information that can help aid first responders? These will help in planning the response and containment strategies, for an outbreak on a given premises.
- **Document Your Work Cycles** – What regular activities occur on your farm? Could these be potential entry/exit points for disease, and will they require immediate time-sensitive decisions to ensure the well-being of animals on farm?
- **Assign Key Decision Makers** – Who are the primary and secondary contacts for your farm? A secondary contact is important, for those occasions when the primary contact is unavailable for critical decisions.
- **Keep Up-to-Date Inventory and Contacts List** – How many livestock are onsite? What is the supply on hand, for feed and other necessities? And who might need to be contacted in the event of an emergency?

3. RESPOND

Whether directly affected or not, operators may have distinct roles and responsibilities during a serious animal disease emergency. In the event of a serious animal disease outbreak, the Canadian Food Inspection Agency (CFIA) and/or the B.C. Ministry of Agriculture have authority to take measures in order to contain and eradicate the disease. The following steps may be taken to return the industry to a disease-free state.

Containment

- Movement restrictions can be ordered by the federal or provincial government to prevent the further spread of a disease, and applied to specific areas as well as to animals, feed, and other vectors that can carry the disease. Permits or licences are required to move specific items on or off a farm premises. Voluntary cease movement may also be recommended by industry leaders, in the initial stages of an outbreak, in support of provincial or federal orders.

Investigation and Tracing

- Traceability plays an important role in containing and eradicating a disease and demonstrates the importance of Premises Identification (Premises ID). Premises ID may also be used to notify you of disease outbreaks in your area.

Vaccination

- Vaccination may be ordered to protect livestock and prevent the spread of disease. Producers ordered to vaccinate their livestock will follow a strict protocol under regulatory oversight. This is essential to satisfy international expectations and regain international market access.

Depopulation and Disposal

- Depopulation and disposal of carcasses may be ordered to stop disease spread and to protect the industry. The appropriate means and methods will be communicated to producers, after agreement with industry leadership.

Financial Considerations

- Producers may be compensated for some of their losses as a result of actions that are ordered to stop disease spread and protect the industry. As well, a suite of financial support programs offered through AAFC and the provincial government provides additional support.

Cleaning and Disinfection

- This is a necessary step in order to remove the designation of being an infected place, and a pre-requisite for restocking with healthy livestock. As well, it is an essential step that is required of all infected premises, if Canada's livestock industry is to regain disease-free status.

For more information about responding to serious animal disease outbreaks in small lot production systems, please visit https://animalhealth.ca/ahem/ or contact the B.C. Ministry of Agriculture.

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AHEM
Animal Health Emergency Management Project

13.3 SERIOUS ANIMAL DISEASE OUTBREAK: WHAT SHOULD I DO?

KEY POINT CHECKLIST

There are a few situations regarding animal health that should raise red flags:

- ANY suspicion of a serious or foreign animal disease.
- Multiple sudden deaths.
- Multiple pregnancy losses.
- Multiple sick animals.
- Abnormal neurological pig behaviour.
- A GUT FEELING THAT SOMETHING IS REALLY WRONG.

If ANY of these situations come up, follow these steps:

1) Remain calm.
2) Inform anyone on your property or working on the farm of your concern. Review and remind all, as to biosecurity protocols.
3) Call your veterinarian immediately and act on their advice.
4) Quarantine per veterinary advice:
    - Immediately stop ALL movements (e.g., animals, employees, family members, feed trucks, service providers, garbage, vehicles) to and from your farm.
    - Set up fencing or increased signage at your driveway to prevent any accidental traffic onto your farm.
5) Any dead animals should be stored somewhere on the farm safely (away from farm pets, predators, or other pigs) for the vet to inspect and collect samples for disease diagnostics.
6) Record everything you can (e.g., number of animals affected, when you noticed the problem, recent traffic on and off your farm).
7) Wait for further instruction from your veterinarian or government officials.

13.4 EMERGENCY PREPAREDNESS TIPS – ALL EMERGENCIES

Listed below are key tips in preparing for any type of emergency that may impact your farm.

These tips were sourced from an emergency management fact sheet titled Emergency Preparedness Tips – B.C. Ministry of Agriculture, 2019[4] and from the Emergency Management Guide for B.C. Pork Producers – B.C. Pork, (2013).[3]

- Be aware of the many types of emergencies (e.g., animal disease outbreak, fire, flood, earthquake, building collapse, chemical spills).
- You are responsible for the safety and security of your livestock and farm employees.
- You should have an emergency plan written out and discussed on your farm.
- It is your responsibility to have appropriate insurance coverage.
- You should consider your neighbouring farms when developing an emergency plan.
- Assign who is 1st and 2nd in command – in the unfortunate event you are faced with an emergency, you may need someone else to make many ongoing, day-to-day decisions.
- Make a list of emergency contacts (e.g., fire department, your vet, transport truckers, neighbours' phone numbers, Emergency Program Coordinator in the regional district or municipality).
- Have a Premises Identification (Premises ID) number and know your land location.
- Have a map of your farm, a farm plan.
- Make sure chemicals, tanks, electrical panels, barrels, and storage containers are correctly labeled.
- Remove trash often.
- Make sure wires, electronics, heat sources, and lamps are set up to prevent a fire risk.
- Have extra supplies on hand (e.g., towels, ropes, sandbags, plywood, tarps, buckets).
- Have a fire extinguisher.
- Control the growth of grass and weeds.
- Store chemicals safely.
- Ensure your property is accessible for emergency vehicles.

Sources: Emergency Management Guide for B.C. Pork Producers – B.C. Pork, 2013[3]
Emergency Preparedness Tips. Fact Sheet. B.C. Ministry of Agriculture, 2019[4]

13.5 EMERGENCY MANAGEMENT FOR AGRICULTURE IN B.C.

For more detailed information on **Emergency Management for Agriculture in British Columbia, 2020**[5] please refer to: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/business-market-development/emergency-management

This site provides important information and links including:

- Emergency management roles and responsibilities.
- Livestock Relocation and qualifying for financial assistance in the event of an emergency.
- Business Insurance and Risk Management related to production insurance (PI), AgriStability (AS), programming for food safety, traceability, and crop loss.
- Foreign animal disease planning and response.
- Weather advisories and other incident information including wildfire maps, B.C. wildfire services, flood warnings and advisories, and river forecasting.

For more detail information on **Disaster Mitigation Programs in British Columbia**[6] please refer to: https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/emergency-management-bc/bc-disaster-mitigation

This site provides important information and links including:

- Funding programs for disasters.
- Wildfire mitigation.
- Drought information.
- Flood mitigation.
- Flood risk assessment.
- Flood mapping guidelines.
- Land use management.
- Dike management and safety.

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