



Surveillance for African Swine Fever (ASF) in Invasive Wild Pigs in Canada

Revision date: May 2024. This is a working document and subject to change. Please ensure that you are referencing the most recent version.

Technical Description

The primary objective of CanSpotASF is risk-based early detection of ASF to protect the commercial swine sector from the associated impacts of this disease. Other objectives of CanSpotASF include providing evidence of freedom from ASF and to ease the transition to outbreak surveillance if a positive ASF case is detected in Canada.

CanSpotASF activities include the following:

1. Rule-out testing with cases selected at:
 - a. The barn/premises level by veterinarians
 - b. Laboratories by pathologists
 - c. Processing plants (federal and provincially licensed) by veterinary inspectors
2. Outreach and education
3. Invasive wild pig surveillance
4. Setting a foundation for outbreak/post-outbreak surveillance should a positive case of ASF be confirmed in Canada.

For activity #3, cases are selected from [invasive wild pigs](#) that are found dead (including their remains) or are removed from the natural landscape as part of provincial programs. Samples are submitted to an approved¹ laboratory for ASF testing at the discretion of the provincial/territorial authorities. This CanSpotASF activity has a planned implementation date of July 2024.

There is no change for any case where African Swine Fever (ASF) is suspected: these cases must be immediately reported to the local Canadian Food Inspection Agency (CFIA) district office.

¹ The term "approved laboratory" refers to a Canadian Animal Health Surveillance Network (CAHSN) laboratory that has been approved by the CFIA to perform testing for ASF after meeting several criteria including, but not limited to, accreditation to the ISO/IEC 17025 standard, certification to the Canadian Biosafety Standard, and successful participation in a proficiency testing program.

What invasive wild pig cases are eligible for risk-based early detection?

- Any pig that is living off the natural landscape in Canada that is not contained or under the physical control of a person or that is found dead or dispatched for the purposes of invasive wild pig depopulation efforts, regardless of health status, should ALL be considered eligible.
- Any invasive wild pig that is found dead should be tested for ASF if appropriate tissues are available for sampling. Procedures related to the reporting of dead invasive wild pigs and subsequent actions will vary by province/territory. Refer to Table 1 for organizations that lead on invasive wild pig management.
- In the event sampling numbers must be limited due to budgeting constraints or other reasons, priority should be given to collect samples from invasive wild pigs that are removed from higher risk areas for ASF (note: provincial/territorial authorities to determine which priorities are relevant in their jurisdiction)
 - o locations close* to the US-Canada land border
 - o locations close* to airports or seaports of entry into Canada
 - o locations close* to potential areas of congregation of invasive wild pigs
 - Any location that could be considered as a potential food source (e.g., waste management facilities, landfill, public picnic locations or rest stops, hunting bait sites)
 - o locations close* to domestic swine farms especially where pigs have outdoor exposure (e.g., smallholder swine farms)

****as defined by the province/territory where the invasive wild pig is sampled***

- To be considered eligible for CanSpotASF testing, invasive wild pig samples should have the following information readily available for reference and/or included on the laboratory submission forms:
 - o Location information (GPS location preferred, if possible, other legal land description acceptable) from where the invasive wild pig was found dead/dispatched, including the province/territory (mandatory)
 - o Date that the invasive wild pig being sampled was found dead/dispatched and the date the sample was collected, if different (mandatory)
 - o Total number of invasive wild pigs that were found dead/dispatched at that location at that same time (if being dispatched the total number of invasive wild pigs dispatched as part of the same event) (mandatory)
 - o Age category (adult or juvenile) and sex of the invasive wild pig sampled (if available)
 - o Record of any clinical signs seen (if available)
 - o Record of any postmortem findings (if available)

Table 1.
Organizations leading on invasive wild pig management, listed by province

Province	Lead organization for invasive wild pigs
Alberta	Alberta Government - Agriculture and Irrigation
British Columbia (BC)	BC Government - Ministry of Water, Land, and Resource Stewardship, Ministry of Agriculture
Manitoba	Manitoba Government - Ministry of Agriculture, Natural Resources; Squeal on Pigs, Manitoba Pork
New Brunswick	New Brunswick Government, Forestry Planning and Stewardship Branch
Newfoundland	Newfoundland Government, Department of Fisheries, Forestry and Agriculture
Nova Scotia	Nova Scotia Government- Wildlife and Biodiversity, Department of Natural Resources and Renewables
Ontario	Ontario Government - Ministry of Natural Resources and Forestry
Prince Edward Island	Prince Edward Island Government, Forests, Fish and Wildlife Division
Quebec	Québec Government - Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs, Ministère de l'Agriculture, des Pêcheries et de l'Alimentation de Québec
Saskatchewan	Saskatchewan Government - Ministry of Agriculture, Ministry of Environment; Saskatchewan Crop Insurance Corp (SCIC)



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How does CanSpotASF testing work?

We encourage wildlife officers, trappers, veterinarians or others to submit sample materials for testing (in the form of full carcasses, tissues or in the case of an invasive wild pig is found dead without viable tissues, a long bone for bone marrow sampling) whenever possible when the above criteria are met, and where ASF is not suspected but could be on a differential diagnosis list. Any case submitted to an approved laboratory must also include (or have available for future reference) information related to the invasive wild pig sampled.

Who will pay for testing?

ASF testing by approved laboratories on eligible cases will be paid for by the provinces/territories in which the invasive wild pigs are found dead or removed.

Information on sample collection and submission procedures

When an invasive wild pig is determined to be eligible, preferred sample types for testing are whole blood and serum (if available), spleen, tonsils, and lymph node. If a pig is found dead and decomposing, a large long bone with bone marrow (femur preferred) can also be submitted. Blood sample volumes of 5-10 mL are adequate (each for whole blood and serum), as are tissue sample sizes of 50 to 100 grams (approximately 5x5cm). Sampling procedures should be based on the Canadian Wildlife Health Cooperative's [wild pig sampling protocols document](#).

Under the CanSpotASF invasive wild pig surveillance program, there is no requirement to hold the carcass pending test results after sample collection. The carcass can be disposed of following routine processes. Note that in cases where ASF is suspected, there is a requirement to hold carcasses pending CFIA investigation.

Samples collected should be submitted to the Canadian Animal Health Surveillance Network (CAHSN) laboratory within or nearest to the province/territory of sample origin. The laboratories are listed in Table 2.

Samples may also be submitted to CFIA's National Centre for Foreign Animal Disease (NCFAD) when prior arrangements have been made to do so.

Sample collectors are required to fill out the required laboratory submission forms for the specific laboratory for the submission to accompany samples (this will vary based on the individual laboratory requirements).

The submitting organization/ person needs to ensure that the eligibility criteria, as stated in the "What invasive wild pig cases are eligible for risk-based early detection?" section of this document is met. Information should be readily available for reference and/or included on the laboratory submission forms.

Links to online submission forms to laboratories are provided in Table 2. A record should be maintained by the individual or organization responsible for submitting the invasive wild pig carcass or samples to the approved laboratory for CanSpotASF testing for each submitted sample. Keeping records of this information as paper or digital copies would be a sufficient record.

Samples should be packed in whirl pack bag or sterile sample container. Multiple tissue types from a single animal can be included in one bag. The bag should be labelled with the unique sample identification number, submitting individual/organization name identifier and include the date the invasive wild pig was found dead or removed and placed inside a second sealed plastic bag. This can then be wrapped in absorbent material (e.g., paper towels or newspaper) and placed inside an appropriately sized regular courier box along with a copy of the laboratory submission form. Ice packs should be included. Samples can be shipped fresh if time to arrival at the laboratory is 72 hours or less but should otherwise be frozen prior to shipping and shipped with enough ice to keep the samples frozen until being received at the laboratory. Thawing in transit does not preclude testing, however putrefaction may make samples ineligible for testing.

Samples can be shipped by commercial courier or other practical methods, as per established protocols. Because this is an early detection surveillance program, timeliness (limited delay between the time of sampling and testing) is important. Therefore, samples should be shipped as soon as is practically feasible, and whenever possible received at the lab within one month of collection and fit with existing sample submissions procedures. However, if the pigs that were sampled were found dead, samples should be submitted as soon as possible, as this category of pigs represents the highest possible risk of ASF.



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Information for laboratories

Samples from the CanSpotASF surveillance program in invasive wild pigs can be tested for ASF at approved laboratories. Currently the approved laboratories for ASF testing are:

- Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ) Animal Health Laboratory in Québec,
- Ontario Animal Health Laboratory,
- Prairie Diagnostic Services,
- Alberta Agriculture and Forestry Agri- Food Laboratories, and
- British Columbia (BC) Animal Health Centre.

CAHSN laboratories that are not approved for ASF testing can submit ASF invasive wild pig surveillance samples to an approved laboratory. Transfer of samples and testing results between laboratories will use routine processes that are already in place for other types of testing.

Any laboratory that is conducting ASF testing must have a protocol in place to differentiate samples and results associated with domestic pigs from those of invasive wild pigs. When a sample is associated with an invasive wild pig, the animal species "wild pig" must be recorded in the laboratory data system to facilitate this differentiation. This is critical to support accurate data reporting.

It is expected that each approved laboratory may have slightly different laboratory workflow processes, and as such testing may be run on a sample-by-sample basis, or in weekly batches. It is recommended that where practical, ASF tests are run on Monday through Wednesday to facilitate communications with submitters and the CFIA, including the NCFAD. However, if the pigs that were sampled were found dead, samples should be tested as soon as possible, as this category of pigs represents the highest possible risk of ASF and the tissues may already be autolyzing and could be deemed unfit for testing otherwise.

The ASF PCR test is an excellent test. Due to this, the chance of any false positive or suspicious ASF test is very low. There are significant time and resource costs associated with collecting and storing tissues, laboratories will not implement any enhanced tissue storage processes over and above standard laboratory procedure.

It is recognized that there is value in comparing test performance data across participating laboratories. As such, NCFAD and approved laboratories will work together to compile and use this information for this purpose.

Table 2.

Laboratories receiving samples as part of the CanSpotASF surveillance for invasive wild pigs, with a link to submission form for each laboratory.

Invasive Wild Pig Samples		
Province	Laboratory to submit to	Submission form available at:
AB	Alberta Agriculture and Forestry Agri-Food Laboratories	Mammalian Diagnostic Submission Form – please contact AB laboratory
BC	BC Animal Health Centre	Mammalian Submission Form
MB	Manitoba Veterinary Diagnostic Services Laboratory	Manitoba Porcine Form
ON	Ontario Animal Health Laboratory	AHL submission form for swine
QC	Laboratoire de santé animale – site de St-Hyacinthe	Animal health laboratory
NB	–	Please contact NB Animal Health Services Branch
NL	Veterinary Diagnostic and Food Safety Laboratory	Laboratory Submissions - Fisheries, Forestry and Agriculture
NS	Animal Health Lab	Swine submission form
PE	Diagnostic Services, Atlantic Veterinary College	Food and fur bearing animal virology submission form
SK	Prairie Diagnostic Services	Porcine submission form

What will happen if the invasive wild pig ASF test yields an unconfirmed positive or suspicious test result?

Protocol for an unconfirmed positive or suspicious ASF test result in an invasive wild pig

1. The approved laboratory will immediately inform the local CFIA district office and follow procedure as outlined in Section 6.1.1 of the National African Swine Fever Operating Policy and Procedures for the CAHSN laboratories (ASF-OPP). If the approved laboratory is conducting the test for another laboratory, they will immediately notify that laboratory. The original laboratory/submitting province or territory will be responsible for immediately notifying the local CFIA district office and the NCFAD.
2. The CFIA district office affiliated with the approved laboratory will:
 - a. Collect source location information for the sampled invasive wild pig,
 - b. Contact the CFIA district office affiliated with that area (if different),
 - c. Collect samples from the approved laboratory to submit to the NCFAD.
3. The CFIA district office affiliated with area where the invasive wild pig was located will:
 - a. Contact the relevant provincial authorities,
 - b. Determine if additional untested samples from cohorts are available and send to NCFAD,
 - c. In collaboration with provincial authorities, initiate an epidemiological investigation (including consideration of whether there are more invasive wild pigs in the area of the unconfirmed positive or suspicious result, determination of the presence of domestic swine premises in the area and also confirmation that there is no owner of the pig(s) in question),
 - d. Discuss additional investigation requirements to be considered, such as evaluation of the area for invasive wild pig carcasses and subsequent sampling and tested, as appropriate,
 - e. Work with provincial authorities and other stakeholders to conduct outreach to domestic swine farms in the area of concern and evaluate those premises for the risk of ASF.
4. If a CFIA risk determination finds that there is a suspicion of ASF on a domestic swine premises, the CFIA will place a quarantine on all susceptible animals on the premises to stop movement of swine, and a declaration of infected place to stop other traffic on and off the premises until the NCFAD confirmatory testing is completed (estimated 48 to 96 hours).
5. If ASF is confirmed, in either invasive wild or domestic pigs, the CFIA will proceed with additional disease response actions.



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Reporting and Evaluation

Positive and suspicious test results will be immediately reported to the CFIA as per the reporting procedures outlined in section 6.1.1 of the ASF-OPP. Confidentiality must be maintained in accordance with section 7.0 of the ASF-OPP.

The CanSpotASF technical committee will lead the reporting of all active tools in CanSpotASF. It is expected that this reporting will evolve over time. Reports authored by the CanSpotASF epidemiologic surveillance group are intended for regional and national stakeholders within Canada and are considered unofficial. The CFIA remains the organization responsible for any official reporting of the available data (e.g., to the World Organization for Animal Health and international trading partners).

Submission and reporting follow standard existing pathways for testing to occur at approved laboratories, and results reported from the Canadian Swine Health Intelligence Network (CSHIN). Datasets and data compilation processes that are currently used by the national and regional/ provincial swine networks, including the Canadian Swine Health Intelligence Network (CSHIN), the Canadian West Swine Health Intelligence Network (CWSHIN), the Ontario Animal Health Network (OAHN), le Réseau d'alerte et d'information zoosanitaire (RAIZO), and the Atlantic region will continue to be used to generate information for stakeholder reports. CFIA has access to these datasets. For samples sent to another laboratory, the responsibility for reporting will remain with the regional network from which the sample originated. Animal Health Canada's Canadian Animal Health Surveillance System (CAHSS) division supports data compilation and reporting. Reports are communicated through the CSHIN. Management and surveillance reporting will be documented in the CanSpotASF annual report found under animalhealthcanada.ca/canspotasf alongside reporting from other CanSpotASF activities.

More information about CanSpotASF

CanSpotASF is a program under the direction of the ASF Executive Management Board (ASF EMB); a board that brings together federal, provincial, and territorial (FPT) governments and industry representatives to provide guidance and prioritize activities across FPT governments and industry to address the risk of ASF introduction and establishment in Canada. CanSpotASF is a collaboration between:

- the swine industry,
- the CFIA,
- CAHSN animal health laboratories,
- provincial governments,
- the Canadian Swine Health Intelligence Network (CSHIN) including the regional networks Réseau d'alerte et d'information zoosanitaire (RAIZO), the Ontario Animal Health Network (OAHN), the Canada West Swine Health Intelligence Network (CWSHIN), and the Atlantic provinces.
- Animal Health Canada.
- The Canadian Wildlife Health Cooperative (CWHC).

A visual overview of CanSpotASF is provided in Appendix 1.



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For more information

If you are involved in invasive wild pig management or surveillance activities and would like more information about CanSpotASF, please contact your provincial/territorial chief veterinarians office.

If you are a veterinary practitioner and would like more information about CanSpotASF please contact your regional swine surveillance network lead:

Region	Name	Email
Western Canada	Dr. Jette Christensen	manager@cwshin.ca
Ontario	Dr. Christa Arsenault	christa.arsenault@ontario.ca
Quebec	Dr. Chantal Proulx	Chantal.proulx@mapaq.gouv.qc.ca
Atlantic Canada	Dr. Dan Hurnik	hurnik@upej.ca

CanSpotASF provides tools for ASF surveillance. Implementation was prioritized based on risk and feasibility.

CanSpotASF is an iterative process with annual reporting and adjustments. The published CanSpotASF annual reports link can be accessed at animalhealthcanada.ca/canspotasf.

CanSpotASF is a voluntary program implemented across Canada.



Surveillance of African Swine Fever in Canada

CanSpotASF is the enhanced African Swine Fever (ASF) surveillance targeting swine populations, such as commercial swine, smallholders, pet pigs and wild pigs. It is a voluntary program implemented across Canada.

ASF Surveillance Populations:



Commercial Indoor



Small-holder, organic



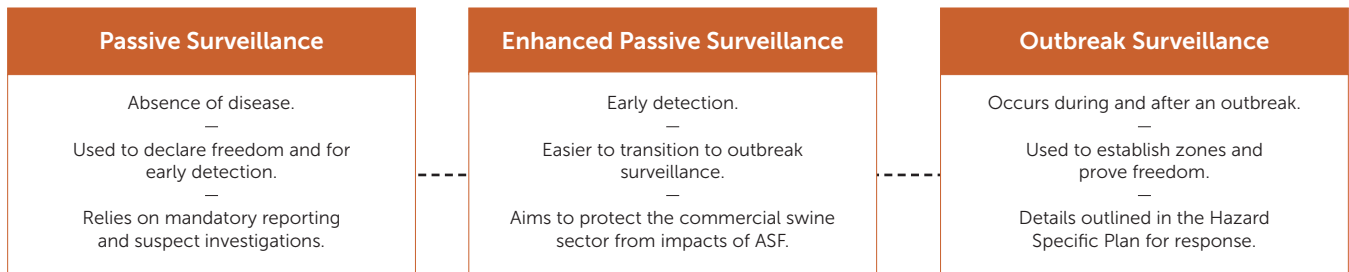
Pet Pigs



Wild Pigs

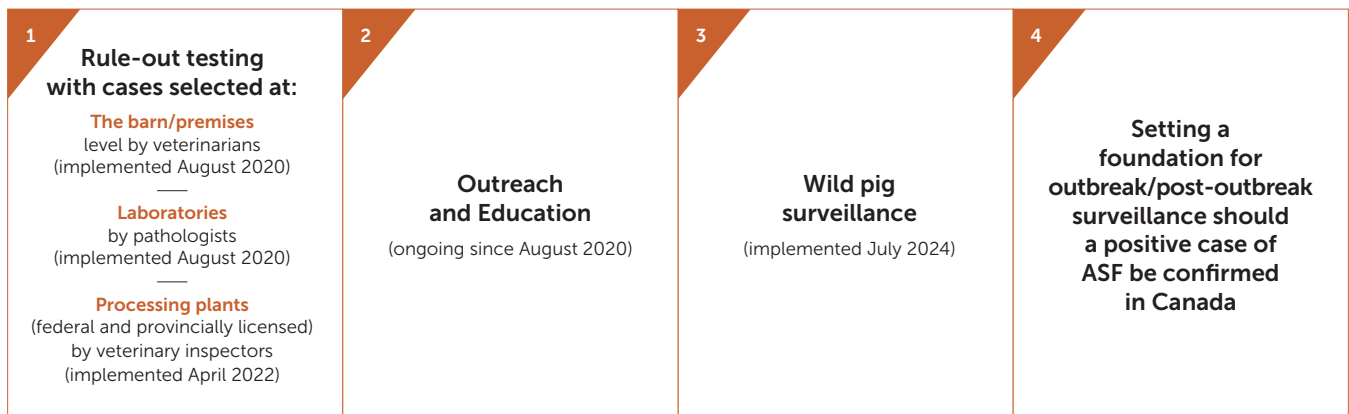
The primary objective of CanSpotASF is risk-based early detection of ASF to protect the commercial swine sector from the associated impacts of this disease. Other CanSpotASF objectives include providing evidence of freedom from ASF and easing the transition to outbreak surveillance if a positive ASF case is detected in Canada.

Canada has three types of ASF surveillance:



Any suspicion of ASF has been reportable to CFIA since 1991.

CanSpotASF activities include the following:



Further information: CanSpotASF provides tools for ASF surveillance. Implementation was prioritized based on risk and feasibility. CanSpotASF is an iterative process with annual reporting and adjustments. The Canadian Swine Health Intelligence Network (CSHIN) generates a quarterly report on CanSpotASF testing. The CanSpotASF program is a collaborative initiative under Animal Health Canada.



Appendix 2.

Flowchart showing processes for the CanSpotASF: Surveillance for ASF in invasive wild pigs

