



Surveillance of African Swine Fever (ASF) at Abattoirs 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. Wild pig surveillance
4. Setting a foundation for outbreak/post-outbreak surveillance should a positive case of ASF be confirmed in Canada.

For activity #1.c., cases are selected from diseased pigs that are submitted to the laboratory for further testing of carcasses from federal or provincially licensed abattoirs. The CanSpotASF tool was implemented in abattoirs in April 2022.

There is no change for any case where African Swine Fever (ASF) is suspected in the abattoir: these cases will be responded to by Canadian Food Inspection Agency (CFIA) inspection staff for federally inspected abattoirs and must be immediately reported to the local district office for provincially inspected abattoirs.

Under CanSpotASF early detection testing at abattoirs, abattoir inspection staff can collect samples for ASF rule-out testing on full carcass condemnations under specific condemnation codes (Table 1). In the past, these animals were not tested for ASF. Sampling will occur at federal and provincially inspected abattoirs.

What condemnation categories are eligible for testing?

A list of federal condemnation codes that are eligible for ASF testing is provided in Table 1. Because condemnation codes used at abattoirs vary across provincial jurisdictions, the federal codes listed in Table 1 are mapped to eligible provincial condemnation codes for each province in Appendix 2.

Table 1.

Code	Description
930c	Septicemia
435	Erysipelas
574,575	Hemorrhage*
051	Bruising
571	Pericarditis
577	Pleuritis

In addition, a veterinarian or pathologist can, at their discretion, submit samples (for cases they observe or are flagged by inspectors) not meeting these defined criteria but meeting the intent of CanSpotASF. This means that testing is being requested in situations where ASF is NOT suspected but could be a differential diagnosis.

Eligible abattoir condemnation codes are mapped to eligible laboratory cases that are included in the CanSpotASF surveillance testing at approved laboratories' tool in Appendix 3.

How does CanSpotASF abattoir surveillance work?

Any condemned swine with an eligible condemnation code (Table 1), where approved samples are available, and for which trace back information is available (in the event that follow up is required for an unconfirmed positive result) may be sampled for ASF rule-out testing as a non-suspect case.

For all commercial operations, required trace back information includes province and premises ID of the herd of origin of the pigs. For smallholders, premises ID is preferred but address of physical location of pigs is an acceptable alternative.

Who will pay for testing?

The sampling and ASF testing costs for eligible condemnations from federal abattoirs will be covered by the CFIA. Sampling and ASF testing costs for eligible condemnations from provincial abattoir will be covered by provincial governments in participating provinces.

How many samples will be tested?

The number of samples tested will be based on the number of eligible condemnations, inspector workload, abattoir and laboratory workflows, shipping logistics and available budget. It is expected to vary by region and over time.



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Information for inspection staff

Sample collection and submission procedures

The selection of condemnations is based on the condemnation codes in Table 1.

Approved sample types for testing are spleen, tonsils, and lymph node. When a condemnation is determined to be eligible, a sample from the spleen should be collected for testing. In cases where spleen is not convenient to collect, tonsils or any lymph nodes can be collected instead. Sample size of 50 to 100 grams (approximately 5x5cm) is adequate. Under the CanSpotASF surveillance program detection testing at abattoirs, there is no requirement to hold the condemned carcass pending test results after sample collection. The carcass can be disposed of following routine processes (Note: in cases where ASF is suspected, there remains a requirement to hold carcasses pending CFIA investigation).

Samples collected from provincially-inspected abattoirs under CanSpotASF surveillance testing should be submitted to the Canadian Animal Health Surveillance Network (CAHSN) laboratory within or nearest to the province of sample origin. These laboratories are listed in table 2. Samples collected from federal abattoirs will be submitted to the National Centre for Foreign Animal Disease (NCFAD) laboratory.

Inspectors 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 provincial requirements at provincially licensed abattoirs). Samples submitted from federally inspected abattoirs will be submitted to the CFIA's NCFAD through the CFIA laboratory submission system.

The laboratory submission form should indicate:

- A sample identifier that would allow rapid verification of information (such as the premises of origin, the animal identification number, and the slaughter date) in the event of an unconfirmed positive test at an approved laboratory
- Veterinarian or inspector identifier Abattoir identifier
- Sample type (e.g., spleen)
- Condemnation code
- Date collected

Province of origin of the pig and premises identification number for the premises of origin (farm) should be included whenever possible as these provide valuable surveillance information.

Please indicate 'abattoir surveillance sample' on the form. Multiple animals from the same premises of origin can be included on one submission form. Samples from different premises should be submitted on separate forms.

Links to online submission forms to laboratories are provided in Table 2. A record should be maintained by the inspection service for each submitted sample. A paper or digital copy of the laboratory submission form 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, veterinarian or inspector identifier, abattoir identifier, and date collected 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. 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, with samples from abattoirs shipped 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, with the goal that in most situations' samples will be in transit to laboratories within 36 hours of collection.

Table 2.

Laboratories receiving samples as part of the CanSpotASF surveillance testing at abattoirs for each laboratory.

Federal Abattoir Samples		
National Foreign Animal Disease Laboratory Please contact NCFAD		
Provincial Abattoir 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 (gov.bc.ca)
MB	Manitoba Veterinary Diagnostic Services Laboratory	Porcine Form
ON	Ontario Animal Health Laboratory	Siebel system (online platform)
QC	Laboratoire de santé animale – site de St-Hyacinthe	Animal health laboratory
NB	–	Please contact NB Animal Health Services Branch
NL	–	Please contact NL laboratory
NS	Animal Health Lab	Swine submission form
PE	–	Food and fur bearing animal virology submission form
SK	Prairie Diagnostic Services	Porcine submission form



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Information for laboratories

Samples from the CanSpotASF surveillance program at abattoirs can be tested for ASF at the NCFAD and at approved¹ laboratories. Currently the approved laboratories for ASF testing are:

- Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ) Animal Health Laboratory in Quebec,
- 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 abattoir 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.

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 practicing veterinarians and the NCFAD.

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, CFIA, NCFAD and approved laboratories will work together to compile and use this information for this purpose.

¹The 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 will happen if the ASF PCR test yields an unconfirmed positive or suspicious result?

Table 3.

Risk-based abattoir surveillance program:

Protocol for an unconfirmed positive or suspicious ASF test

Initial steps for samples collected at a provincial abattoir and tested at an approved laboratory

**If samples are collected at a federal abattoir, the protocol begins at step 3*

1. If samples from a provincial abattoir are tested at an approved laboratory, 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 (or ASF-OPP).
2. If samples from a provincial abattoir are tested at an approved laboratory, the CFIA district office affiliated with the approved laboratory will:
 - a. Collect information about the premises of origin.
 - b. Contact the CFIA district office affiliated with the premises of origin (if different)
 - c. Collect samples from the approved laboratory to submit to the NCFAD in Winnipeg.

Anticipated protocol at premises of origin

3. The CFIA district office affiliated with the premises of origin will:
 - a. Contact the owner or operator of the premises associated with the unconfirmed positive animals and schedule an on-site visit to perform a clinical examination of the suspect animals,
 - b. Seek permission from the person who has possession, care, or control of the animals in question to contact the practicing veterinarian,
 - c. Complete an epidemiological investigation and risk determination,
 - d. Collect samples from pigs on the premises,
 - e. Send samples to the NCFAD in Winnipeg.
4. If the CFIA risk determination finds no evidence of ASF, the CFIA will place a quarantine on all susceptible animals on the premises to stop movement of all swine off the premises until the NCFAD confirmatory testing is completed (estimated 48 to 96 hours).
5. If the CFIA risk determination finds that there is a suspicion of ASF, 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 of origin until the NCFAD confirmatory testing is completed (estimated 48 to 96 hours).

Table 3. continued

Anticipated protocol at abattoir where sampling occurred

6. When the CFIA is informed by an approved laboratory of an unconfirmed positive result from an abattoir sample (either from a provincial or federal abattoir), the CFIA will immediately contact the abattoir where the sample was collected to verify trace back information on the premises of origin. There will be a need for the abattoir to verify this information very quickly (within 1 to 2 hours).
7. Depending on the epidemiological investigation at the premises of origin, or the extent and the frequency of the sanitation cycles applied at the abattoir since the collection of the unconfirmed positive or suspicious samples, CFIA may require actions to prevent potential disease transmission at the abattoir during the time period while the NCFAD confirmatory testing is completed (estimated 48 to 96 hours). Such actions may include cleaning and disinfection of unloading docks and live-animal reception areas. While the required cleaning and disinfection is being completed, and until it is approved by the CFIA, the abattoir can continue to process animals that are already on site but cannot receive new animals. The length of this temporary halt in operations is dependent on the facilities' ability to mobilize the necessary resources to complete the required cleaning and disinfection. Once the CFIA approval is obtained the abattoir can again begin to receive and process animals.

Note: If ASF is confirmed at the NCFAD, the CFIA will maintain or enhance the movement restrictions and initiate response activities at the premises of origin and the implicated slaughter establishment.



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Reporting and Evaluation

Unconfirmed positive and suspicious tests 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).

Federal abattoir surveillance results will be compiled by CFIA and forwarded to the national Canadian Swine Health Intelligence Network (CSHIN) manager and further communicated to the swine regional/provincial surveillance network leads. Provincially inspected abattoir surveillance results will be compiled by the regional/provincial surveillance network leads. All results will then be distributed by the CSHIN manager to CSHIN members, the CanSpotASF technical committee (TC), the CFIA, and other stakeholders as directed by the TC, on a quarterly basis. It is expected that the abattoir reporting will include the number of tests completed by province (based on the province where abattoirs are located), and the test results. Management and surveillance reporting will be documented in the CanSpotASF annual report located at 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/provincial networks Réseau d'alerte et d'information zoonitaire (RAIZO), the Ontario Animal Health Network (OAHN), the Canada West Swine Health Intelligence Network (CWSHIN), and the Atlantic provinces,
- Animal Health Canada.

A visual overview of CanSpotASF is provided in Appendix 1.

For more information

If you are an inspection staff member and would like more information about this program, please contact your manager. If you are a staff member at a diagnostic laboratory and would like more information about this program, please contact your laboratory director.

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.

The CanSpotASF program is an initiative under Animal Health Canada.

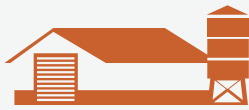


CanSpotASF

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



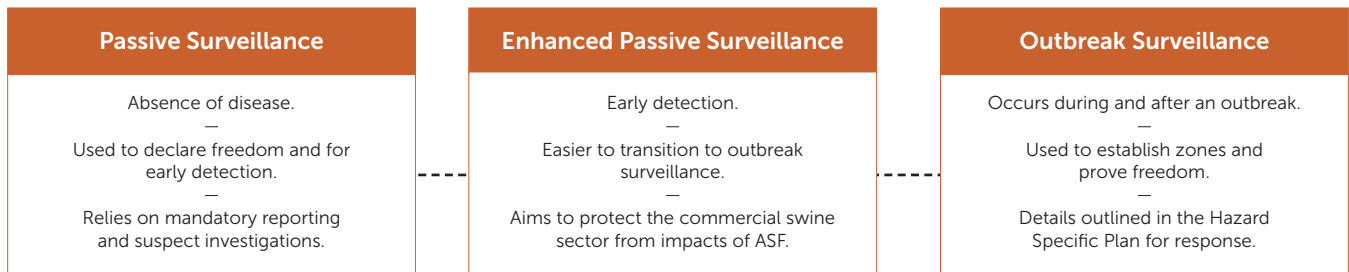
Pet Pigs



Wild Pigs

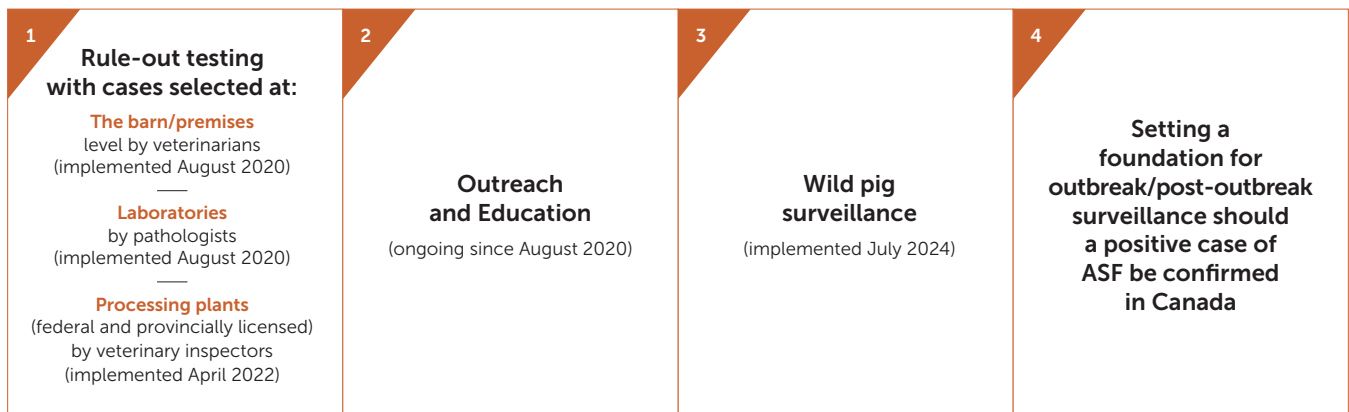
The primary objective of CanSpotASF is risk-based early detection of ASF to protect the commercial swine sector from the associated impacts of this disease. Other CanSpotASF objectives include providing evidence of freedom from ASF and easing the transition to outbreak surveillance if a positive ASF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

AnimalHealthCanada.ca/CanSpotASF

Appendix 2.

Eligible condemnation codes for testing by Province

Eligible provincial condemnation code	Maps to eligible federal condemnation code
Alberta	
Bruising	Bruising
Congestion	Septicemia
Cyanosis	Septicemia
Erysipelas	Erysipelas
Erythema	Septicemia
Hematoma	Bruising
Hemorrhage (Major)	Bruising
Hemorrhage (Petechial)	Septicemia
Hemorrhage / Splash (Ecchymotic)	Septicemia
Infarct	Septicemia
Pericarditis	Pericarditis
Pleuritis	Pleuritis
Septicemia	Septicemia
Toxemia	Septicemia
British Columbia	
Bruising	Bruising
Erysipelas	Erysipelas
Pericarditis	Pericarditis
Pleuritis	Pleuritis
Septicemia	Septicemia
Manitoba	
Bruising	Bruising
Erysipelas	Erysipelas
Pericarditis	Pericarditis
Pleuritis	Pleuritis
Septicemia/Toxemia/Congestion	Septicemia



Appendix 2. continued

Eligible condemnation codes for testing by Province

Eligible provincial condemnation code	Maps to eligible federal condemnation code
Nova Scotia	
Bruising	Bruising
Congestion	Septicemia
Diamond Skin Disease	Erysipelas
Erysipelas	Erysipelas
Hemorrhagic Disease	Septicemia
Pericarditis	Pericarditis
Pleuritis	Pleuritis
Pyrexia (Fever)	Septicemia
Septicaemia	Septicemia
Septicaemia /Toxemia /Congestion	Septicemia
Splenic Torsion	Septicemia
Toxemia	Septicemia
Ontario	
Bruising	Bruising
Erysipelas	Erysipelas
Pericarditis	Pericarditis
Pleuritis	Pleuritis
Septicemia	Septicemia
Toxemia	Septicemia
Quebec	
Contusions 051	Bruising
Erysipèle 435	Erysipelas
Péricardite 571	Pericarditis
Pleurésie 577	Pleuritis
Purpura hémorragique 102	Septicemia
Pyrexie 113	Septicemia
Septicémie 930	Septicemia
Saskatchewan	
Cyanosis	Septicemia
Erysipelas	Erysipelas
Pleuritis	Pleuritis
Pericarditis	Pericarditis
Septicemia/Toxemia/Congestive Syndrome	Septicemia
Splenic Torsion	Septicemia

Appendix 3.

Linkage between eligible abattoir condemnations and approved laboratory conditions

Relationship between eligible laboratory conditions included in the CanSpotASF surveillance testing at approved laboratories' tool* and eligible abattoir condemnation codes included in the CanSpotASF surveillance testing at abattoirs' tool.

Eligible approved laboratory conditions	Corresponding eligible federal abattoir condemnation codes	Corresponding federal abattoir condemnation e numbers
Septicemia and/or multiorganhemorrhage such as caused by E. rhusiopathiae; S. suis; S. zooepidemicus; A. suis; S. Choleraesuis; other bacteria	Septicemia	930c
	Erysipelas	435
	Hemorrhage (ecchymosis or petechial), where no underlying cause can be found	574,575
	Bruising	051
Fibrinous pleuritis/pericarditis/hydropericardium such as caused by G. parasuis; S. suis	Pericarditis	571
	Pleuritis	577

Eligible approved laboratory conditions that do not map to eligible abattoir full condemnation codes
Porcine Reproductive and Respiratory Syndrome virus (PRRS), especially when it causes cyanotic skin.
Porcine Dermatitis and Nephropathy Syndrome (PDNS) and vasculitis that can be caused by PCV 2, PCV 3 or other pathogens.
Hemorrhagic diarrhea / necrotizing enterocolitis such as caused by Salmonella spp; L. intracellularis; B. hyodysenteriae; B. hamptonii
Mulberry heart disease
Splenic torsion
Abortion above historical trend for herd
Mortality above historical trend for herd



Appendix 4.

Flowchart showing processes for the CanSpotASF: Risk-based early detection testing at abattoirs

