US Swine Health Improvement Plan (US SHIP)

House of Delegates Meeting (US SHIP HOD)

September 5 – 7, 2023

Doubletree by Hilton

Bloomington, MN

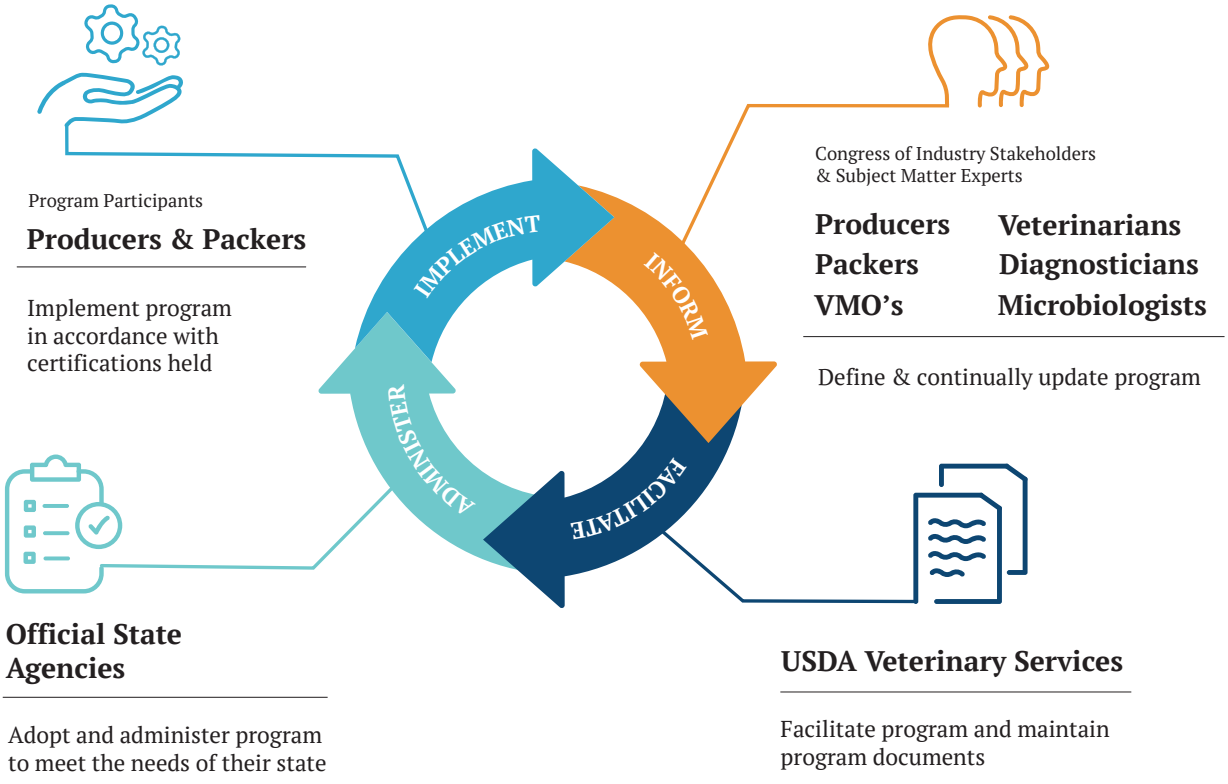
Conference Proceedings

Participant Name: _____

US Swine Health Improvement Plan

ASF-CSF Monitored Certification

"A proven platform for safeguarding, certifying, and bettering animal health"



Program Participants

Producers & Packers

Implement program in accordance with certifications held

Congress of Industry Stakeholders & Subject Matter Experts

Producers
Packers
VMO's
Veterinarians
Diagnosticians
Microbiologists

Define & continually update program

Official State Agencies

Adopt and administer program to meet the needs of their state

USDA Veterinary Services

Facilitate program and maintain program documents

Industry, State, & Federal Partnership

Pathway for improving preparedness across US Pork Industry

US SHIP will establish a **National Playbook** of technical standards centering on **Prevention** and **Demonstration of Freedom of Disease** Outside of Control Areas in Support of Animal Health, Commerce, and Trade.

Biosecurity, Traceability, and Disease Surveillance

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Proposed Resolutions

Overview of US SHIP

US SHIP is being modelled after the National Poultry Improvement Plan (NPIP), a collaborative effort involving industry, state, and federal partners providing standards for certifying the health status of greater than 99% of commercial scale poultry and egg operations across the US.

US SHIP aims to establish a similar platform for safeguarding, improving, and representing the health status of swine across participating farm sites, supply chains, states, and regions. Such a working system is needed to support the current and future health assurance needs of the 21st century US pork industry.

The initial and principal objectives are to develop and implement an African Swine Fever (ASF)-Classical Swine Fever (CSF) Monitored Certification of US pork production operations (farm sites and slaughter facilities) modelled after the NPIP's H5/H7 Avian Influenza Monitored certification of US Commercial Poultry operations.

The US SHIP ASF-CSF Monitored certification aims to mitigate risks of disease introduction and provide a practical means for demonstrating evidence of freedom of disease (outside of foreign animal disease control areas) in support of ongoing interstate commerce and a pathway towards the resumption of international trade over the course of a trade impacting disease response and recovery period.

US SHIP is designed to be applicable across the full-spectrum of US pork industry participants from the small show pig farmer to the larger commercial producers, live animal marketing operations, and slaughter facilities. Deriving program standards that are relevant to and enabling participation across the full-breadth of US commercial pork industry participants is essential. A critical mass of participation is a foundational element necessary for being able to represent the health status of domestic pig production operations across supply chains, areas, states, and regions.

The National Pork Producers Council, National Pork Board, North American Meat Institute, United States Animal Health Association, American Association of Swine Veterinarians, and the American Association of Veterinary Laboratory Diagnosticians have each come forward with motions and/or other words of support for expanding the resources being provided to further the development of US SHIP. In 2022 a joint industry "ASF Strategy Work Group" led by board members of the National Pork Board and National Pork Producers Council identified "expediting the development of US SHIP into a permanent USDA program" as one of the key industry priorities to be pursued and in March of 2023 the National Pork Forum unanimously passed a resolution encouraging all pork producers to enroll in US SHIP.

In summary, US SHIP will establish a national playbook of technical standards and associated certification recognized across participating states that centers on disease prevention and demonstration of freedom of disease outside of control areas in support of animal health, commerce, and trade.

The time for such a national strategy is now!

Acknowledgements

The US SHIP development project investigators and staff would like to thank the myriad of industry, state, and federal partners that have volunteered their time, subject matter expertise, and energies towards informing the development of a US SHIP customized to meet the needs of the 21st century US pork industry.

The engagement and contributions of the ***more than 200 US pork industry participants*** (e.g., producers, packers, veterinarians, nutritionists, VDLs / academia, and state and federal veterinary medical officials) from across the US that have participated in a technical working group, pilot project, research endeavor, or served in an advisory capacity have been exemplary.

The collaboration and support provided by the National Pork Board, National Pork Producers Council, North American Meat Institute, United States Animal Health Association, Swine Health Information Center, and the American Association of Swine Veterinarians has been nothing short of tremendous and foundational towards moving this precedent setting endeavor forward.

A special word of thanks to the National Pork Board for the provision of funding to off-set the costs to host (meals, convention hall meeting rooms, AV support) this 3rd US SHIP HOD meeting.

Also, a word of thanks to US SHIP Technical Committee Working Group Leaders that have facilitated the process of developing the proposed updates to the Program Standards and the Resolutions to be discussed and considered further at this US SHIP HOD.

US SHIP Technical Committee Working Group Leaders:

Biosecurity Site Plans /Feral Pig Risk Mitigation Working Group: Chris Rademacher (Iowa State University) and Montse Torremorell (University of Minnesota)
Feed Biosafety: Jordan Gebhardt (Kansas State University)
Transportation Sanitation: Edison Magalhães (Iowa State University)
Traceability: James Lowe (University of Illinois), Giovani Trevisan (Iowa State University)
Sampling and Testing: Rodger Main (Iowa State University), Jane Christopher-Hennings (South Dakota State University), Jerry Torrison (Longhorn Vaccines and Diagnostics), and Jeff Zimmerman (Iowa State University).
Subcommittee on Peacetime Surveillance (2023): Mike Paustian (Producer - IA) and Howard Hill (Producer - IA)

Meeting Objectives

US SHIP House of Delegates Participant,

Thank you for attending the 3rd US SHIP House of Delegates (HOD) meeting that is being held at the DoubleTree by Hilton in Bloomington, MN.

Objectives of this forum of US pork industry stakeholders:

1. Further introduce and orientate interested US pork industry, state, and federal partners to this US Swine Health Improvement Plan (US SHIP) endeavor. (e.g., Scope, purpose, requirements for certification, operational structure, progress made over the past year, plans for ramping US SHIP to an officially recognized USDA Swine Health Program by the end of 2024, and the outcomes of the charges set forth by a series of Resolutions passed at the 2022 US SHIP HOD).

2. Review, discuss, and vote upon proposed updates to the Program Standards and a series of Resolutions being brought forth for consideration.

3. Provide participatory based input towards US SHIP program content, direction, and to determine additional items of high relevance (related to US swine health and foreign animal disease preparedness) that are of interest to be explored further in the coming year.

The US SHIP HOD is a decision-making body composed of US pork industry participants and subject matter experts that aim to represent the interests of pork industry stakeholders across each of the states that have expressed an interest in participating in US SHIP.

Each state expressing interest has been allocated a specified number of voting delegates and the opportunity to invite up to 2 non-voting guests to attend the US SHIP HOD meeting. A formula was used to derive the number of voting delegates allocated to each state. The number of delegates includes a baseline allocation to each state, as well as an allocation proportionate to the capacity (inventory) of the Breeding Herd and Growing Pig production sites (respectively) enrolled in US SHIP that are located in each respective state.

Official State Agencies (OSAs) in conjunction with their state pork producer associations have been asked to seek volunteers to serve as voting delegates or non-voting guests in this US SHIP HOD. Each participating state's voting delegation is to be inclusive of the State Animal Health Official or their designee. State level participation in this US SHIP development project will be determined by the State Animal Health Official.

As of July 12, 2023, 33 states have expressed interest to participate, and a total 231 voting delegate invitations have been extended to participate in this 3rd US SHIP HOD. Delegates must be present to vote at the US SHIP HOD. Individual delegates attending the US SHIP HOD cannot cast more than one vote or cast votes on other delegates' behalf (i.e., one person/delegate = one vote). Please reach out to your respective US SHIP OSA or state pork producer association if you would like to be considered as a voting delegate or non-voting guest.

The US SHIP development project investigators, staff, and technical committees have worked earnestly to ensure the Program Standards and Resolutions being set forth for consideration represent practical and tangible improvements to the current industry status quo for animal health.

US SHIP OSAs and US SHIP HOD meeting participants are encouraged to review and discuss the proposed Program Standards and Resolutions to be considered within their respective places of business and collectively prior to the US SHIP HOD meeting in September. . In addition, the 2023 HOD will host the first elected General Conference Committee (GCC) with candidates nominated for each of the nine (9) GCC members.
As you have the opportunity to review the enclosed information, the US SHIP office would certainly welcome any questions, suggestions, or concerns.

US SHIP Contact Information:
Email: usship@iastate.edu
Phone: 515-294-8611
Website: usswinehealthimprovementplan.com

Thank you again for your interest in volunteering your time and insight towards helping form and shape this precedent setting endeavor that has the overarching goal of establishing a sustainable platform for safeguarding, certifying, and bettering the health of US swine and longer-term competitiveness of the US pork industry.

US Swine Health Improvement Plan Development Project Investigators and Staff,

Collaborating Investigators (By Institution):

Iowa State University:
Rodger Main (Principal Investigator), Chris Rademacher, James Roth, Giovani Trevisan, and Jeff Zimmerman

Kansas State University:
Jordan Gebhardt

South Dakota State University:
Jane Christopher-Hennings

University of Illinois:
James Lowe

University of Minnesota:
Montserrat Torremorell

Longhorn Vaccines Diagnostics:
Jerry Torrison

USDA
Lisa Rochette, Nick Humphry, Cody Egnor, and Kelly Castiano

US SHIP Staff:
Tyler Holck, Senior Program Coordinator
Leticia Linhares, Veterinary Coordinator
Giovani Trevisan, Veterinary Diagnostic and Epidemiologic Information

Agenda

Tuesday, September 5th

1:30 to 6:00 pm — US SHIP Registration Table Open *(Grand Ballroom Foyer)*

3:00 to 5:30 pm — US SHIP Official State Agency Session *(Edina Room)*

- *US SHIP program update, site status verification database, proposed repository of inter-premise movements, and discussion of OSA best practices, challenges, and needs*

6:00 pm — US SHIP Welcome Reception *(Garden Court)*

Wednesday, September 6th

6:30 to 8:00 am — Continental breakfast *(Garden Court)*

8:00 to 9:45 am — General Session (*Grand Ballroom)*

- Welcome, agenda/objectives, and US SHIP year in review – Tyler Holck
- MN welcome, GCC progress & proposals – Mike Walker
- USDA APHIS ASF update and expectations for US SHIP – Jack Shere
- USDA trade and implications for US SHIP – Ingrid Kotowski
- National Pork Producers Council & US SHIP engagement - Bryan Humphreys
- National Pork Board & US SHIP engagement – Dusty Oedekoven
- US SHIP vision forward – Rodger Main

9:45 to 10:15 am — Break: coffee and refreshments *(Grand Ballroom Foyer)*

10:15 to 12:00 pm — Technical overviews and key topics for breakouts *(Grand Ballroom)*

- Biosecurity overview and survey results – Montse Torremorell
  - Site biosecurity/feral pig risk mitigation – Chris Rademacher
  - Feed biosafety – Jordan Gebhardt
  - Transport sanitation – Edison Magalhaes
- Traceability overview – Daniel Boykin
  - Traceability in other pork export countries – Erin Lowe
  - US movement repository – Giovani Trevisan
- Surveillance – Rodger Main & Mike Paustian

12:00 to 1:15 pm — Lunch *(Garden Court)*

1:30 to 3:00 pm — Breakout Session I

- A. Traceability *(Edina room)*
- B. Site biosecurity and feral pigs *(Bloomington room)*
- C. Feed biosafety *(Veranda 1-4)*

3:00 to 3:15 pm — Break: coffee and refreshments *(Grand Ballroom Foyer)*

3:30 to 5:00 pm — Breakout Session II

- A. Surveillance *(Edina room)*
- B. Packer & live animal marketing *(Bloomington room)*
- C. Live haul sanitation (*Veranda 1-4)*
- D. Governance (GCC) *(Veranda 5-8)*

6:30 pm — Banquet

Thursday, September 7th

6:30 to 8:00 am — Continental breakfast *(Garden Court)*

8:00 am — Business Meeting agenda, procedures, and call to order *(Grand Ballroom)*

- Approval of agenda
- Approval of 2022 US SHIP House of Delegates minutes
- Election of General Conference Committee members
- Consider new Standards & Resolutions
- Adjournment

Break(s) as necessary

~12:00 pm — Adjourn

Summary of Program Standards

Program Standards

A summary of the program standards are listed below. These are the requirements for conferring the US SHIP ASF-CSF Monitored Certification to participating Production Sites and Slaughter Facilities.

Note: Slaughter facilities will not be required to have 100% of their supply chain originating from ASF-CSF Monitored Certified production (farm) sites to participate in US SHIP..

ENROLLMENT:

- ☑ Participating premises are to be enrolled with the US SHIP Official State Agency (US SHIP OSA) in the state in which the premises is located.

VETERINARY SERVICE PROVIDER:

- ☑ Producers are to maintain a valid veterinary client-patient relationship with a licensed and federally accredited veterinarian.

TRACEABILITY:

Premises level information

- ☑ Premises level demographic information for each participating premises is to be complete, accurate, current, and on-file with the US SHIP Official State Agency in which the premises is located.

The minimum required demographic information to be recorded for each premises is:

- ☑ Premise Identification Number (PIN)
- ☑ Premise Type (Boar Stud, Breeding Herd, Farrow-Feeder/Finish, Growing Pig, etc.)
- ☑ Site Location Information:
  - Latitude and Longitude
  - 911 Street Address, if one has been assigned
- ☑ Date of last usage of the site by swine owner (if applicable)
- ☑ Site Owner Contact Information
- ☑ Common Name of Site
- ☑ Expected Site Capacity (Number of Breeding Swine and/or Growing Pigs)
- ☑ Date of initial enrollment of the site in US SHIP, or date of first usage of the site by current swine owner

TRACEABILITY: CONT.

Swine movement information

- ☑ Participants are to maintain records of the intrastate and interstate movements of live swine into and out of each participating premises.
- ☑ Participants must demonstrate competency in providing at least 30 days of movement information electronically in a common format (e.g., a prescribed CSV file) to the US SHIP Official State Agency in a timely manner (e.g. < 72 hours).

  For participants with multiple participating premises within a given state, such competency can be demonstrated on a site-by-site basis or en-masse.

The minimum information required to be recorded for each movement is:		
☑ Date of movement	☑ Origin State	☑ Origin PIN
☑ Destination State	☑ Destination PIN	☑ Head in movement
☑ Animal type in movement		

Semen movement information

- ☑ Boar stud premises participants are to maintain records of the intrastate and interstate movements of semen distributed out of each participating premises.
- ☑ Participants must demonstrate competency in providing at least 30 days of movement information electronically in a common format (e.g., a prescribed CSV file) to the US SHIP Official State Agency in a timely manner (e.g. < 72 hours).

  For participants with multiple participating premises within a given state, such competency can be demonstrated on a site-by-site basis or en-masse.

The minimum information required to be recorded for each movement is:		
☑ Date of movement	☑ Origin State	☑ Origin PIN
☑ Destination State	☑ Destination PIN	☑ Number of units in shipment

Animal Identification

- ☑ Certified ASF-CSF monitored participants must comply with existing state and federal laws regarding animal/group/lot identification.

BIOSECURITY:

Feed Biosafety

In the event of an ASF or CSF incursion into the US (ASF/CSF Risk Level 3; immediately after incursion, or if state/region positive), participants are to implement a temporary cessation of feeding spray-dried plasma, blood meal, meat and bone meal, intestinal peptide products, or other meal-based feedstuffs that have the potential to be of porcine origin.

This temporary cessation will be lifted if ingredients described above are sourced from:

a. Suppliers with enhanced post-processing biosafety measures in place[1,2]
b. States or regions at ASF/CSF Risk Level 2 (Operations normalizing, State or Region negative).
c. US returns to ASF/CSF Risk Level 1 (US Negative).

[1]Requirements of post-processing treatment facilities:	[2]Approved post-processing treatments:
Enhanced post-processing treatment must occur at facilities that have premises level segregation from: Premises in which protein sources of porcine origin were initially heat treated (rendered or spray-dried) in accordance with feed grade safety requirements. AND Finished feed facilities manufacturing feed for swine.	Thermal processing OR Ingredient quarantine/holding time and temperature

Enrollment Survey (Biosecurity Practices)

☑ At enrollment, participating premises will complete a survey to provide a simplistic categorization of some of the high-level biosecurity practices being implemented at the premises. Information from this survey is to provide quantitative data to assess current standards of practice across a broad spectrum of program participants. Results will help provide insight towards consideration of additional biosecurity related program standards in the future.

Feed Supply

☑ The feeding of swill, garbage, or table waste that has the potential to include meat products is strictly prohibited.

Personnel

☑ Permissioned individuals that have recently been exposed to livestock, feral/wild pigs or slaughter facilities in ASF/CSF/FMD positive regions or countries abroad should only visit farms or slaughter facilities in the US after observing a 5-day downtime since arriving in the US, and donning PPE (boots/coveralls, etc.) provided by farm site or slaughter facility being visited.

BIOSECURITY: CONT.

Secure Pork Supply Site Plans

☑ Boar Stud, Breeding Herd, Farrow to Feeder, Farrow to Finish, and Growing Pig sites (US SHIP Production Site Types) must be able to provide access to a completed Secure Pork Supply Biosecurity Plan to the OSA within 24 hours of the request.

SAMPLING AND TESTING (DISEASE SURVEILLANCE):

☑ Sampling and Testing Requirements of Participants

☑ Maintain compliance with ASF-CSF Sampling and Testing Requirements

US SHIP sampling and testing requirements will ***vary by Production Site Type*** and the ***ASF-CSF status*** of the US, State, or Region (**Tables 1, 2, and 3**).

The program is based on targeted testing of animals of poor or sub-standard health. Targeted sampling enhances both the efficiency of detection and the simplicity of sample collection across the spectrum of commercial and non-commercial farms in the U.S.

The frequency of on-site sampling is a function of time and is independent of the timing of pig movement, thereby providing for a uniform and continuous system of disease monitoring across production sites, areas, and regions.

US SHIP ASF-CSF tests are to be used for screening purposes only. Non-negative results would result in the testing laboratory (USDA NAHLN lab certified to conduct ASF-CSF testing) contacting the appropriate State and Federal animal health officials to initiate a Foreign Animal Disease Investigation (FADI) for the collection of additional samples for official ASF-CSF testing (confirmatory) purposes.

Table 1. Sampling and Testing Requirements for ASF-CSF Risk Level 1.

ASF/CSF Status = Level 1, US Negative (Peace Time)

Production Site Type	Specimen Type(s)	I or A[1]	Frequency / Timing of Sampling	Sampling & Testing Requirements (Alternative Options)		
				Option 1 Individual Only		Option 2 Aggregate Only (Group or Pen)
				# of Individuals	# of Pools (Groups of up to 5)	# of Samples
Boar Stud Mature Boars, Distributing Semen, ± On-Site Isolation	Oral Swab Blood Swab Oral Fluids	I I I	No Additional Sampling and Testing Required			
Breeding Herd Breed to Wean, Breeding/ Gestation/ or Farrow Only, ± On-Site GDU or Isolation	Oral Swab Blood Swab Oral Fluids	I I I	No Additional Sampling and Testing Required			
Growing Pig Nursery, Grower, Finisher, Isolation	Oral Swab Blood Swab Oral Fluids	I I A	No Additional Sampling and Testing Required			
Farrow to Feeder Farrow to Finish	Requirements of Breeding Herd + Growing Pig In Numbers, and Growing Pig Only in Frequency					
Small Holding ≥ 100 or < 1,000 Breeder or Feeder Swine	Oral Swab Blood Swab Oral Fluids	I I I or A	No Additional Sampling and Testing Required			
Non-Commercial < 100 Breeder or Feeder Swine.	Oral Swab Blood Swab Oral Fluids	I I A	No Additional Sampling and Testing Required			

[1] I = Individual Sample, A = Aggregate (Group or Pen) Sample

Additional note concerning USDA's active ASF/CSF surveillance of case-compatible submissions to veterinary diagnostic laboratories in the NAHLN:

Efforts will be made in the coming year to increase industry participant awareness and participation in this recently expanded means of active ASF/CSF surveillance.

Additionally, US SHIP Program Administrators have been in preliminary discussions with USDA Swine Health Program Staff concerning the potential for incorporating this real-time (ongoing) surveillance of case- compatible case submissions to VDL's as a principle component of US SHIP's Risk Level 1 (US Free) surveillance in the future.

Table 2. Sampling and Testing Requirements for ASF-CSF Risk Level 2.

ASF/CSF Status = Level 2,
US Positive, Operations Normalizing, and State or Region Negative (All US SHIP Testing is outside of Control Areas)

Production Site Type	Specimen Type(s)	I or A[1]	Frequency / Timing of Sampling	Sampling & Testing Requirements (Alternative Options)		
				Option 1 Individual Only		Option 2 Aggregate Only (Group or Pen)
				# of Individuals	# of Pools (Groups of up to 5)	# of Samples
Boar Stud Mature Boars, Distributing Semen, ± On-Site Isolation	Oral Swab Blood Swab Oral Fluids	I I I	2X per month	10	2	-
Breeding Herd Breed to Wean, Breeding/ Gestation/ or Farrow Only, ± On-Site GDU or Isolation	Oral Swab Blood Swab Oral Fluids	I I I	Monthly	10	2	-
Growing Pig Nursery, Grower, Finisher, Isolation	Oral Swab Blood Swab Oral Fluids	I I A	Monthly	10	2	2
Farrow to Feeder **Farrow to Finish**	Requirements of Breeding Herd + Growing Pig In Numbers, and Growing Pig Only in Frequency					
Small Holding ≥ 100 or < 1,000 Breeder or Feeder Swine	Oral Swab Blood Swab Oral Fluids	I I I or A	Monthly	5	1	1 per 500, or 2 if > 500 pigs
Non-Commercial < 100 Breeder or Feeder Swine	Oral Swab Blood Swab Oral Fluids	I I A	Quarterly	5	1	1

[1] I = Individual Sample, A = Aggregate (Group or Pen) Sample

Table 3. Sampling and Testing Requirements for ASF-CSF Risk Level 3.

ASF/CSF Status = Level 3,
US Positive, Immediately After Incursion, or if State or Region Positive. (All US SHIP Testing is Outside of Control Areas)

Production Site Type	Specimen Type(s)	I or A[1]	Frequency / Timing of Sampling	Sampling & Testing Requirements (Alternative Options)		
				Option 1 Individual Only		Option 2 Aggregate Only (Group or Pen)
				# of Individuals	# of Pools (Groups of up to 5)	# of Samples
Boar Stud Mature Boars, Distributing Semen, ± On-Site Isolation	Oral Swab Blood Swab Oral Fluids	I I I	Weekly	10	2	-
Breeding Herd Breed to Wean, Breeding/ Gestation/ or Farrow Only, ± On-Site GDU or Isolation	Oral Swab Blood Swab Oral Fluids	I I I	2X per month	10	2	-
Growing Pig Nursery, Grower, Finisher, Isolation	Oral Swab Blood Swab Oral Fluids	I I A	Monthly	20	4	1 per 500 pigs with maximum of 8 per site
Farrow to Feeder Farrow to Finish	Requirements of Breeding Herd + Growing Pig In Numbers, and Growing Pig Only in Frequency					
Small Holding ≥ 100 or < 1,000 Breeder or Feeder Swine	Oral Swab Blood Swab Oral Fluids	I I I or A	Monthly	10	2	1 per 500, or 2 if > 500 pigs
Non-Commercial < 100 Breeder or Feeder Swine	Oral Swab Blood Swab Oral Fluids	I I A	Monthly	5	1	1

[1] I = Individual Sample, A = Aggregate (Group or Pen) Sample

Administrative Requirements for Sampling & Testing:

Sample Collection:

Samples are to be collected and submitted to the testing laboratory under the guidance and direction of an officially licensed and accredited veterinarian.

Submission for Testing:

Samples are to be submitted to qualifying veterinary diagnostic laboratories (i.e., USDA NAHLN labs certified to conduct ASF/CSF testing) in accordance with the policies and procedures of the laboratory to receive and test the samples.

Testing Laboratories:

Testing for ASF-CSF Monitored Certification can only be performed in participating USDA NAHLN laboratories certified by the USDA to conduct ASF-CSF testing.

Accessibility and Reporting of Test Results:

Test results are to be accessible (reported) to the Submitting Veterinarian, Program Participant, US SHIP Official State Agency, and the appropriate State Animal Health Officials and USDA Veterinary Services Agencies.

Samples with non-negative test results will be forwarded to the USDA Foreign Animal Disease Diagnostic Laboratory (FADDL) for additional (confirmatory) testing. Simultaneously, the testing laboratory will be responsible for contacting the appropriate State and Federal Animal Health Officials to initiate a Foreign Animal Disease Investigation and collection of additional samples for official ASF-CSF testing (confirmatory) purposes.

Consistent with existing procedures, reporting of confirmed positive ASF-CSF test results and response to detection is the responsibility of the appropriate State and Federal Animal Health Officials.

Test Methods (Assays):

ASF-CSF diagnostic test methods (assays) shall be equivalent or comparable to USDA NAHLN ASFV and CSFV approved test methods, shall be well-supported by test validation and personnel training records in accordance with quality assurance standards set-forth by the American Association of Veterinary Laboratory Diagnosticians (AAVLD), and approved by the US SHIP Sampling and Testing Technical Committee.

Proposed Updates to Program Standards

Definition: Program Standards: Requirements to be met or exceeded by enrolled producers and slaughter facilities to be certified in US SHIP.

Approval of Program Standards requires majority vote by the US SHIP HOD.

The proposed updates to the Program Standards represent some portion of the work product and recommendations of US SHIP Technical Working Groups Biosecurity (Feed Biosafety and Site Biosecurity), Traceability, and Sampling and Testing.

The principal charges provided to the various working groups stem back to the series of Resolutions passed at the 2022 US SHIP HOD.

The Resolutions passed at the 2022 US SHIP HOD are available on the US SHIP website under Documents (usswinehealthimprovementplan.com).

UPDATE TO PROGRAM STANDARD NUMBER: 2023 – 1

SUBMITTED BY: US SHIP General Conference Committee

SUBJECT MATTER: Establishment of the US SHIP Technical Committee

PROPOSED STANDARD:

US SHIP Technical Committee:

The US SHIP Technical Committee is made up of technical experts on swine health, biosecurity, surveillance, and diagnostics. The committee consists of representatives from the US pork industry, universities, and State and Federal governments and is appointed by the Senior Coordinator and approved by the General Conference Committee (GCC).

The US SHIP Technical Committee is divided into three subcommittees:

- Biosecurity
- Traceability
- Sampling and Testing (Surveillance)

More specialized (subject matter or initiative specific) working groups may also be commissioned under the umbrella of these three principal subcommittees as needs arise.

US SHIP Technical Committee Members may serve on one, two, or all three subcommittees.

The committee will evaluate proposed changes to the Provisions and Program Standards of the US SHIP and provide recommendations to the GCC and delegates of the US SHIP House of Delegates as to whether they are scientifically or technically sound.

Background/Reason:

This proposal aims to formalize the establishment of the US SHIP Technical Committee. Whereas the National Poultry Improvement Plan's Technical Committees have evolved over time to be by pathogen type (e.g., Mycoplasma, Salmonella, and Avian Influenza), the proposed structure that centers on the three pillars (biosecurity, traceability, and sampling & testing) of the ASF/CSF Monitored certification seems to be a more appropriate entry point for the structure of the US SHIP Technical Committee.

During the start-up period of US SHIP, the US SHIP Technical Working Groups have played an active role in developing the proposed program standards, amendments to existing standards, and resolutions being brought forward for consideration to the US SHIP House of Delegates. As US SHIP and its associated processes mature with time, as is the case with NPIP, the principal role of the US SHIP Technical Committees is anticipated to pivot to be more focused on "vetting" rather than "developing" proposed changes or updates to the US SHIP being submitted to the US SHIP House of Delegates for consideration.

The subject matter experts serving on NPIP's Technical Committees have a long history of playing a significant role in supporting the needs of and helping to advance the NPIP over the course of time. The US SHIP Technical Committees proposed here are anticipated to provide similar support to the ongoing development, implementation, and advancement of the US SHIP.

UPDATE TO PROGRAM STANDARD NUMBER: 2023 – 2

SUBMITTED BY: US SHIP General Conference Committee

SUBJECT MATTER: Percent Vote To Pass or Amend Program Standard at US SHIP House of Delegates

PROPOSED AMENDMENT TO EXISTING PROGRAM STANDARD:

CURRENT STANDARD:

Approval of Standards and Resolutions by simple majority (>50%) of votes cast.

PROPOSED AMENDMENT / UPDATE:

Approval of new or amendments to Program Standards require a super-majority (defined here as > two-thirds or 66.67%) votes cast.

Approval of Resolutions require simple majority (> half or 50%) of votes cast.

Definitions:

Program Standards = Requirements to be met or exceeded to obtain and maintain a specified US SHIP certification.

Resolutions = Charges to pursue initiatives or further explore specific issues that aim to further inform US SHIP program content and direction.

Background/Reason:

US SHIP is a voluntary USDA program for certifying the health of US swine that provides for a shared system of governance among industry, state, and federal partners wherein such partners convene to determine program content, direction, and requirements necessary to confer certifications granted.

US SHIP is being modeled after the basic tenets of the National Poultry Improvement Plan (NPIP). NPIP has evolved to now be certifying the health status of greater than 99% of commercial scale poultry and egg operations across all 50 US states. This critical mass of participation is unquestionably a highly significant contributing factor toward NPIP's longstanding and proven track-record of success.

US SHIP is being founded upon an ASF/CSF Monitored certification that centers on providing a well-prescribed means for demonstrating evidence of freedom of disease across participating production operations, supply chains, states, and regions in support of ongoing interstate commerce and a pathway towards the resumption of international trade over the course of a trade impacting disease response and recovery period.

Obtaining a critical mass of participation in this US SHIP ASF/CSF Monitored certification program the singular most important element necessary towards being able to make tangible progress towards protecting, improving, and being able to represent the health status of all domestic pig production operations across supply chains, areas, states, and regions.

The US pork industry consists of operations that are quite diverse (e.g., large, small, integrated, independent, indoor, outdoor, breeding stock, grow-finish, commercial, exhibition, or niche). While great differences exist among the various types of pork production operations, each of the various segments of the US pork industry play a highly important role when it comes to being able to represent the health status of a supply chain to a given slaughter facility or all the pigs across a geographical area, state, region, or country.

Developing the US SHIP ASF/CSF Monitored certification in such a way that encourages very large-scale participation across the full-spectrum of industry participants and states is absolutely critical to achieve the overarching objectives of this endeavor.

Increasing the percentage of vote required to establish or amend a Program Standard aims to build stakeholder confidence in that such Program Standards incorporated into the US SHIP are reflective of the sentiment and interest of the greater expanse of US pork industry participants.

UPDATE TO PROGRAM STANDARD NUMBER: 2023 – 3

SUBMITTED BY: US SHIP US Traceability Working Group

SUBJECT MATTER: Inter-premises Swine Movement Records: Eliminating "Head in Movement" as a Required Field to be Recorded Unless Otherwise Required to Meet a Regulatory Requirement

PROPOSED AMENDMENT TO EXISTING PROGRAM STANDARD:

CURRENT STANDARD:

The minimum information required to be recorded for each movement is:

☑ Date of Movement
☑ Origin State
☑ Origin Premises Identification Number (PIN)
☑ Destination State
☑ Destination Premises Identification Number (PIN)
☑ Animal Type in Movement
☑ Head In Movement

PROPOSED AMENDMENT / UPDATE:

The minimum information required to be recorded for each movement is:
☑ Date of Movement
☑ Origin State
☑ Origin Premises Identification Number (PIN)
☑ Destination State
☑ Destination Premises Identification Number (PIN)
☑ Animal Type in Movement
☑ ± Head In Movement (Only When Needed to Meet a Regulatory Reporting Requirement)

Background/Reason:
It has come to our attention via the many ongoing industry level conversations related to "Traceability in the US Pork Industry" that reporting the "Head in Movement" seems to be a concern amongst a number of industry stakeholders. Albeit reporting the "Head in Movement" is commonly required for meeting regulatory requirements associated with moving swine inter-state for the purposes of further breeding, growing, or exhibition; knowing the "number of head in movement" is not necessary to be able to capably track and trace the inter-premises movements of swine. The contact premises involved in such investigations are the same irrespective of the number of animals moved between premises.

Eliminating "Head in Movement" as required field, unless otherwise necessary to meet a regulatory requirement, aims be responsive such stakeholder feedback and accelerate the adoption and implementation of a 21st century system of traceability across the breadth of the US Pork Industry.

UPDATE TO PROGRAM STANDARD NUMBER: 2023 – 4

SUBMITTED BY: US SHIP US Traceability Working Group

SUBJECT MATTER: Inter-premises Semen Movement Records: Eliminating "Number of Units in Shipment" as a Required Field to be Recorded Unless Otherwise Required to Meet a Regulatory Requirement

Note: Applicable Only to Boar Studs

PROPOSED AMENDMENT TO EXISTING PROGRAM STANDARD:

CURRENT STANDARD:
The minimum information required to be recorded for each movement is:

☑ Date of Movement
☑ Origin State
☑ Origin Premises Identification Number (PIN)
☑ Destination State
☑ Destination Premises Identification Number (PIN)
☑ Number of Units in Shipment

PROPOSED AMENDMENT / UPDATE:

The minimum information required to be recorded for each movement is:

☑ Date of Movement
☑ Origin State
☑ Origin Premises Identification Number (PIN)
☑ Destination State
☑ Destination Premises Identification Number (PIN)
☑ Animal Type in Movement
☑ ± Number of Units In Shipment (Only When Needed to Meet a Regulatory Reporting Requirement)

Background/Reason:

It has come to our attention via the many ongoing industry level conversations related to "Traceability in the US Pork Industry" that reporting the "head in movement" seems to be a concern amongst a number of industry stakeholders.

This proposed amendment is being made to be consistent with the proposed amendment associated with removing "Head in Movement" as a required field to be recorded in inter-premises swine movement records, unless otherwise necessary to meet a regulatory requirement.

Please see proposed Update to Program Standard 2023 – 3.

Knowing the "Number of Units in Shipment" is not necessary to be able to capably track and trace the inter-premises movements of semen. The contact premises involved in such investigations are the same irrespective of the number of semen doses moved between premises.

Eliminating "Number of Units in Shipment" as required field, unless otherwise necessary to meet a regulatory requirement, aims be responsive such stakeholder feedback and accelerate the adoption and implementation of a 21st century system of traceability across the breadth of the US Pork Industry.

UPDATE TO PROGRAM STANDARD NUMBER: 2023 – 5

SUBMITTED BY: US SHIP General Conference Committee

SUBJECT MATTER: US SHIP Official State Agencies (US SHIP OSA) requirement to report and keep the status of the US SHIP certifications held by the participating sites current in the US SHIP Site Status Verification Database.

PROPOSED STANDARD:

US SHIP Official State Agencies are to report the current (most up to date) status of the US SHIP certifications held by the participating sites in their respective state to the US SHIP Site Status Verification Database.

Data elements to be reported to the US SHIP Site Status Verification Database:

- ☑ Premises Identification Number (PIN)
- ☑ State: the state where the Premise is located
- ☑ Status Type: US SHIP
- ☑ Pathogen: either ASF (African Swine Fever) or CSF (Classical Swine Fever)
- ☑ Status: can assume three definitions based on the health status: Monitored Free, Certification Expired, or Inactive

Participating sites officially recognized the status of the US SHIP certifications held as reported to the US SHIP Site Status Verification Database from the US SHIP Official State Agencies.

Background/Reason:

This item is being brought forward as a Program Standard to facilitate discussion and create clarity on this requirement for the US SHIP OSAs to report the status of the US SHIP certifications held by the participating premises in their respective state to the US SHIP Site Status Verification Database.

The US SHIP Site Status Verification Database application was developed in Spring 2023, stemming from an action item (program development need) discussed at the US SHIP 2022 HOD and is currently being onboarded for use on a State-by-State basis.

The US SHIP Site Status Verification Database is a built for purpose database application that provides a simplistic means for maintaining the current and officially recognized status of the US SHIP certifications held by the participating sites from across the US.

As described in this proposed program standard, only a minimum set of data fields are to be reported by the US SHIP Official State Agencies (OSAs) to the US SHIP Site Status Verification Database. All of the more detailed participant and premises level specific identifiers (e.g., names, addresses, locations, etc.) remain with the respective US SHIP OSA and ***are not*** reported to or contained in the US SHIP Site Status Verification Database.

The basic workings and use of the US SHIP Site Status Verification Database are pictorialized in **Addendum 1**.

The US SHIP Site Status Verification Database provides end-users a simplistic means to verify the status of the US SHIP certifications held by participating premises.

End users simply provide the Premises Identification Number (PIN) of the premises in question, and the US SHIP Site Status Verification Database application returns the status of the US SHIP certifications held by that premises.

End users and use cases of the US SHIP Site Status Verification Database include:

- State Animal Health officials can use to verify status of the US SHIP certifications held by premises moving pigs into their state for further breeding, growing, or exhibition.
- Slaughter facilities can use to verify the status of the US SHIP certifications held by the premises supplying pigs to their facility to be harvested.
- Exhibitions can use to verify the status of the US SHIP certifications held by the premises pigs being exhibited/shown.
- Live animal marketing operations channels can use to verify the status of the US SHIP certifications held by the premises supplying pigs to their facility.
- Producers can use to verify the status of the US SHIP certifications held by either their own premises or the premises of pigs of which they are purchasing or otherwise receiving pigs from third parties.

Key Point of Functionality the US SHIP Site Status Verification Database application for End Users = End users query the database via providing the PIN of the premises in question, and the database application simply returns the current status of the US SHIP certifications help by the premises (PIN) in question.

The US SHIP Site Status Verification Database application is a built for purpose database application that is readily compatible with and independent of, whatever software/database application or other means the US SHIP OSAs from across the country are using to house the participant/premises specific information and manage the workings of the US SHIP OSA in their respective state.

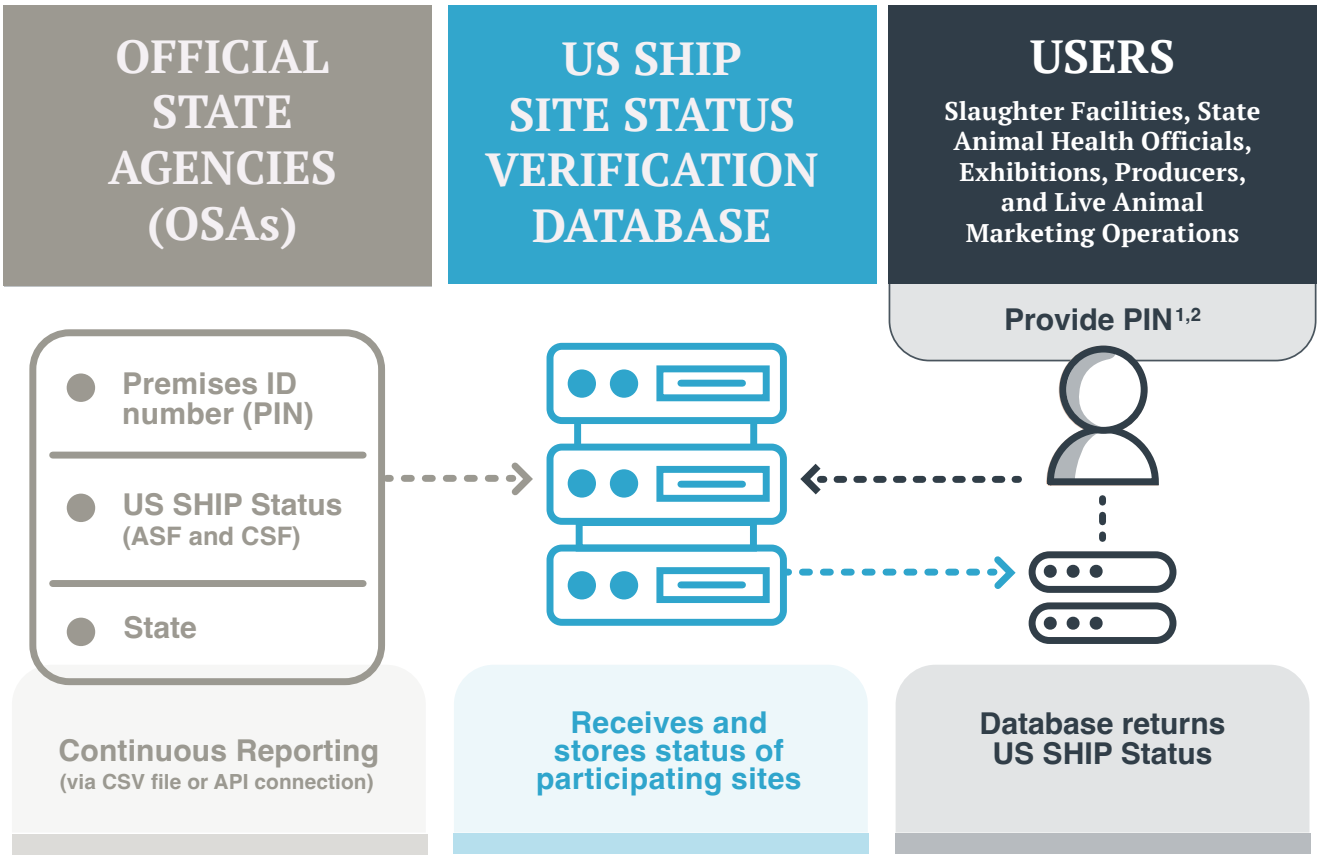
The US SHIP OSAs are the only entities permissioned to report the status of the US SHIP certifications held by the participants in their respective state to the US SHIP Site Status Verification Database.

The US SHIP Program Administration is responsible for managing the services provided by the US SHIP Site Status Verification Database.

The US SHIP Site Status Verification Database is currently being housed and maintained within the information technology infrastructure used to support the Department of Veterinary Diagnostic and Production Animal Medicine at the Iowa State University College of Veterinary Medicine.

ADDENDUM 1

US SHIP Site Status Verification Database Application



[1] Non-Registered Users can provide one PIN and get status returned one premises at a time.
[2] Registered Users can provide multiple PINS and get status of multiple premises returned via CSV file or API connection.

UPDATE TO PROGRAM STANDARD NUMBER: 2023 – 6

SUBMITTED BY: US SHIP Sampling & Testing Working Group

SUBJECT MATTER: Program Administrative Requirement: Incorporating Use of USDA ASF/CSF Active Surveillance of Case Compatible Submissions to Veterinary Diagnostic Labs Into the US SHIP ASF/CSF Monitored Certification Program.

PROPOSED STANDARD:

Additional Program Administrative Requirement for US SHIP Sampling & Testing:

ASF/CSF test records of case-compatible submissions from US SHIP ASF/CSF Monitored premises included in the USDA ASF/CSF Active Surveillance program (i.e., routine screening of case-compatible submissions made to veterinary diagnostic labs in the National Animal Health Lab Network) are to be collated, summarized and made available in near-real time to the appropriate stakeholder audiences. The US SHIP Official State Agencies and State Animal Health Officials Premises are to be provided access to the total number and specific US SHIP ASF/CSF Monitored premises being surveilled via this surveillance stream in their state. Aggregate level summaries (state level data) of the total number tests of and total number of US SHIP ASF/CSF Monitored premises being surveilled via this USDA ASF/CSF Active Surveillance program are to be made available to broader US pork industry stakeholder audiences.

Effective date, April 1, 2024. (i.e., Approximately 6 months from 2023 US SHIP HOD)

Notes:

1. US SHIP Program Administrative Requirements are relevant to all US SHIP Sampling and Testing. However, the initial focus of this requirement and associated deliverables centers on US SHIP ASF/CSF Risk Level 1 (ASF/CSF Not Present in US / Peacetime).

   Risk Level 1 = ASF/CSF Not Present in US (Peacetime)
   Risk Level 2 = US Positive, Operations Normalizing, State or Region Negative.
   Risk Level 3 = US Positive, Immediately after Incursion, or if State or Region Positive.
   All US SHIP ASF/CSF Monitored Sampling & Testing is Outside of Control Areas

2. This proposed US SHIP Program Administrative Requirement does not have any impact on the means (current standard practices used) in which Submitting Veterinarians and Program Participants are routinely receiving tests result information from their veterinary diagnostic lab service providers.

Background/Reason:

This proposed update to US SHIP Sampling and Testing Program Administrative Requirements stems from the recommendations of a sub-committee of the US SHIP Sampling and Testing Working Group assembled in Spring 2023 whose principal focus centered on "peacetime" (ASF-CSF Risk Level 1 = US Free of ASF/CSF) surveillance.

This working group, led by Mike Paustian (Producer, IA) and Howard Hill (Producer, IA) considered a number of different options related to potential "peacetime" surveillance requirements within the context of the US SHIP ASF/CSF Monitored certification.

The principle go-forward recommendation from this working group to be brought forth for consideration at the 2023 US SHIP House of Delegates was to: "Establish a means for linking the current USDA ASF/CSF active surveillance of case compatible submissions to VDLs to be incorporated into US SHIP ASF/CSF Monitored peacetime surveillance."

Outlined here is a proposed update to the US SHIP Sampling & Testing Program Administrative Requirements. This is a US SHIP program level administrative requirement and does not infer any additional premises-specific "peacetime" (ASF-CSF Risk Level 1") sampling and testing requirements for participating premises. Similarly, this proposed update would not have any impact on the means (current standard practices used) in which Submitting Veterinarians and Program Participants are routinely receiving tests result information from their veterinary diagnostic lab service providers.

Please see the accompanying Resolution 2023 – 4, entitled "Developing a Pathway for Incorporating the USDA ASF/CSF Active Surveillance of Case Compatible Submissions to Veterinary Diagnostic Labs into US SHIP Sampling and Testing," for further explanation and context.

A more comprehensive report and options considered by the US SHIP Sampling and Testing subcommittee on "Peacetime" (ASF-CSF Risk Level 1) surveillance will be shared at the 2023 US SHIP House of Delegates.

Resolutions

Definition: Resolutions: Charges to pursue initiatives or further explore specific issues that aim to further inform US SHIP program content and direction.

Approval of Resolutions require majority vote by the US SHIP HOD.

The proposed Resolutions represent some portion of the work product and recommendations of US SHIP Technical Working Groups centering on topics related to Biosecurity, Traceability, and Sampling and Testing convened in the spring 2023. The principal charges provided to the various working groups stem back to the series of Resolutions passed at the US SHIP HOD 2022.

It should be understood that US SHIP is an industry, state, and federal partnership en-route to be a USDA Swine Health Program (modeled after NPIP's longstanding system of shared governance) that centers on certifying the health of US swine in accordance with well-defined program standards.

Any project-based work involving research, new system development, collaborative forums, outreach, education, and advocacy for US SHIP related efforts are only possible through the support and self-evident synergies working in partnership with the national pork producer, packer, and swine veterinary organizations (i.e., National Pork Board, National Pork Producers Council, Swine Health Information Center, North American Meat Institute, and the American Association of Swine Veterinarians).

The Resolutions passed at the 2022 US SHIP HOD are available on the US SHIP website under Documents (usswinehealthimprovementplan.com).

RESOLUTION NUMBER:	2023 – 1
SUBMITTED BY:	US SHIP Traceability Working Group
Introductory Note from Submitters:	*The US SHIP Traceability Working Group recognizes this concept of utilizing the services of an active / working "US Compliant Repository of Inter-Premises Swine Movement Records" as described and proposed here is complex.* *This concept will require further explanation and significant discussion amongst industry, state, and federal partners at the US SHIP HOD. US SHIP HOD meeting participants are encouraged to take time to study this Resolution, Addendum I, and Addendum II in detail prior to the meeting.*
SUBJECT MATTER:	Utilization of a "US SHIP Compliant Repository of Inter-Premises Swine Movement Records" for Capturing Movement Records of Swine Being Moved Interstate for Further Growing, Breeding, or Exhibition in Near Real-Time Across a Number of US States.
WHEREAS,	The US pork industry is highly dependent on interstate pig movement and the ability to export pork products.
WHEREAS,	The ability to proficiently track and trace inter-premises movements of live swine across the breadth of US pork industry participants is a foundational element of foreign animal disease preparedness.
WHEREAS,	In the event of an animal health emergency, such proficiencies are critical in being able to competently represent the health status of pigs and maintain the continuity of business across supply chains, areas, states, and regions over an extended response and recovery period,
WHEREAS,	Current capabilities to proficiently track and trace the masses of swine moving intra and interstate is a well-recognized "mission critical foreign animal disease preparedness vulnerability" for the greater expanse of the US pork industry,
WHEREAS,	Scalable approaches for being able to capably track and trace inter-premises movements of live swine in near real-time (within 7- days of movement) have become commonplace in various shapes and forms in pork exporting countries throughout the world. Such capabilities have been developed over the course of time as an outcome of being routinely implemented as a market-driven or compulsory requirement within their respective countries (i.e., figured out what works by doing/implementing),

WHEREAS, The 2022 US SHIP HOD charged a multidisciplinary working group of industry, state, and federal partners to more fully vet:

a. Alternative approaches that could be taken towards meeting a prescribed standard requiring reporting inter-premises movements of swine to a "US SHIP Compliant Repository of Inter-Premises Swine Movement Records" within 7- days of movement.

b. The requirements, functionality, and operational covenants necessary for entities to be recognized and function as a "US SHIP Compliant Repository of Inter-premises Swine Movement Records."

WHEREAS, Movement records of swine being moved interstate for the purposes of further breeding, growing, or exhibition have long been required to be reported to the State Animal Health Official of the state of destination in accordance with a Certificate of Veterinary Inspection or Swine Production Health Plan.

WHEREAS, The methods used, format, and the degree of sophistication in which such interstate movement records of swine are captured and archived are highly variable within and across US states. As such, these inter-premises movement records are commonly not well-suited to support highly scalable or proficient track and trace procedures.

WHEREAS, National Pork Board has developed AgView for the purpose of providing a National Swine Movement Repository that includes all swine movement data, including interstate movements.

WHEREAS, National Pork Board is currently developing AgView to be a repository for Swine Production Health Plans which includes the sharing of movement records of swine moving interstate for purposes of further growing or breeding within a production system.

WHEREAS, Furthering developing and evaluating this concept of participants using a "US SHIP Compliant Repository of Inter-Premises Swine Movement Records" utilizing movement records of swine that already have to be reported to the State Animal Health Officials of the state of destination would seem like a logical place to start, learn from, build stakeholder confidence and competence in using, and further inform next steps in a journey towards establishing a 21st-century system of traceability in the US pork industry.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the initiation of the use of a "US SHIP Compliant Repository of Inter-Premises Swine Movement Records" **(Pictorialized in Addendum 1)** to capture movement records of swine being moved interstate for the purposes of further breeding, growing, or exhibition in near-real time by a number of US states.

Be it further RESOLVED:

The permissioned database application used and the entity responsible for managing and providing the services of the "US SHIP Compliant Repository of Inter-premises Swine Movement Records" in this proposed pilot project are to meet or exceed a baseline set of operational covenants and functionality requirements drafted by the US SHIP Traceability Work Group in 2023 **(Described in Addendum 2)**.

Be it further RESOLVED:

The entity responsible for managing and providing the services of the "US SHIP Compliant Repository of Inter-premises Swine Movement Records" in this proposed pilot project is accountable for providing customer support services to both the **Industry Participants** responsible for depositing the movement records into the Repository as well as the **Permissioned Users** (i.e., State Animal Health Officials and US SHIP Official State Agencies) of the US SHIP Compliant Repository of Inter-premises Swine Movement Records.

Note: The entity responsible for managing and providing the services of the "US SHIP Compliant Repository of Inter-premises Swine Movement Records" for this pilot project is envisioned to function as a "Bureau of Inter-Premises Swine Movement Records".

Be it further RESOLVED:

The US SHIP House of Delegates requests that pork producers and states that import the largest number of pigs for growing, breeding, and exhibition actively participate in this pilot project and work collaboratively in such a way that the services provided by the "Repository of Inter-premises Swine Movement Records" meet the requirements for reporting such interstate movements of swine into each participating state.

Be it further RESOLVED:

The US SHIP House of Delegates requests representatives of the US SHIP Traceability Working Group, National Pork Board, and participating State Animal Health Officials work in unison to further develop and utilize a built for purpose module within the AgView™ database application (developed by National Pork Board) and the accompanying software support services to be used by the entity (Bureau of Inter-Premises Swine Movement Records) determined to be responsible for managing and providing the services of the "Repository of Inter-premises Swine Movement Records" utilized in this proposed initiative.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests a progress report of the learnings, outcomes, and ongoing operations of this pilot initiative to be presented to the 2024 US SHIP HOD.

Progress report to be inclusive of feedback from:

- Program participants (Producers)
- State Animal Health Officials
- Entity responsible for managing/providing services of the Repository in this initiative.
- AgView – software/database application used to support services being provided.

Additional Note of Explanation:

It should be understood that this concept of industry participants depositing inter-premises swine movement information into active / working "US Compliant Repository of Inter-Premises Swine Movement Records" for specified use cases is independent of the software or other tools being used by program participants to generate and house the more detailed inter-premises swine movement records for their own operational specific management purposes.

ADDENDUM 1

A Model For Proficiently Capturing and Securing Inter-Premises Swine Movement Records in Near Real-Time

"A Potential Pathway to 21stCentury Traceability across US Pork Industry"
"Capable of Providing for a True Step Change in FAD Preparedness"

[1] US SHIP's role would be to provide a program standard that defines the minimum functionality and operational requirements for such repositories to be considered a "US SHIP Compliant" repository of inter-premises swine movement records.

[2] The operational requirements are to include a well-defined set of data security and operational covenants for governing the permissioned access and use of the inter-premises swine movement records deposited into the repository.

[3] In addition to creating a step-change in FAD preparedness, establishing such a working system would also provide a platform for streamlining and modernizing existing methods used for permitting the interstate movement of swine for further growing, breeding, or exhibition.

ADDENDUM 2

US SHIP Compliant Repository of Inter-Premises Swine Movement Records

Initial Set of Operational Covenants and Functionality Requirements for Pilot:

- **Managing Entity** (i.e., Bureau of Inter-premises Swine Movement Records):
  - Repository of Inter-premises Swine Movement Records must have a Managing Entity responsible for provision of services provided:
    - Maintain and operate the functions of the Repository.
    - Provide customer support services to the Industry Participants responsible for depositing data into the Repository as well as the Permissioned Users of the Repository.
- **Database Requirements of Repository:**
  - Provides Participants one or more options (methods) to electronically deposit inter-premises swine movement records that have occurred into the Repository.
  - Validates data fields of the movement records to ensure the completeness of records housed in the Repository.
  - Securely houses the inter-premises swine movement records deposited into the Repository.
  - Provides permissioned access to the inter-premises swine movement records deposited into and housed in the Repository to the appropriate US SHIP Official State Agencies and State Animal Health Officials for well-defined purposes / use cases.
  - Provides permissioned connectivity (e.g., via permissioned access API) enabling the capabilities for seamless sharing of the inter-premises swine movement records housed in the "US SHIP Compliant Repository of Inter-premises Swine Movement Records" to the various Animal Health Program Management Database Applications (e.g., USA Herds, Trace First, and EMERS, etc.) being used by the State Animal Health Officials to manage the animal health regulatory functions and emergency disease responses activities in their respective state.
  - Provides technical (software) support of the database application used.
- **Permissioned Data Sharing of the Inter-premises Swine Movement Records Deposited into and Housed in the Repository:**
  - US SHIP Official State Agencies are to be provided access to the movement records of participating premises within their respective state for the purposes of periodically confirming compliance with the reporting requirements necessary for program participants to ascertain or maintain compliance with the US SHIP certification(s) held.
  - State Animal Health Officials are to be provided access to the interstate movements records of swine moving into their state in such a manner that meets the reporting requirements of their respective state.

- In the event of a confirmed introduction of ASF or CSF into the US, State Animal Health Officials are to be provided access to the inter-premises swine movements occurring within, into, or out of their state for purposes of supporting the trace-in / trace-out procedures associated with FAD response related efforts.
- Data-sharing beyond purposes outlined above is strictly prohibited.

Additional Note of Explanation:

These Operational Covenants and Functionality Requirements of a "US SHIP Compliant Repository of Inter-premises Swine Movement Records" for use in the proposed initiative were drafted by a US SHIP Working Group on Traceability in 2023. The experiences gained via implementing the proposed initiative aim to further inform an initial set of Operational Covenants and Functionality Requirements of a "US SHIP Compliant Repository of Inter-premises Swine Movement Records" to be brought forth for consideration and vote by a future US SHIP HOD.

RESOLUTION NUMBER:	2023 – 2
SUBMITTED BY:	Rodger Main (Interim US SHIP GCC Member)
SUBJECT MATTER:	Establishment of a US SHIP Exhibition Swine Working Group that centers on developing a well-informed and ustainable (long-term) strategy for engaging and encouraging participation among the exhibition swine community.
WHEREAS,	Pork producers breeding and growing pigs that are being exhibited at local, regional, or national exhibitions are a highly important component of the US pork industry.
WHEREAS,	Developing this US SHIP ASF-CSF Monitored certification program in such a way that encourages high rates of participation across the full-spectrum of industry participants is a foundational element necessary for protecting and being able to represent the health status of domestic pig production operations across supply chains, areas, states, and regions.
WHEREAS,	Pork production operations of all shapes and sizes share the common interests of wanting to protect the health of the pigs within their care and maintain the ability to readily move hogs within or across state lines for the purposes of further growing, breeding, exhibition, or sale over the course of a trade impacting disease response and recovery period.
WHEREAS,	In addition to creating a step-change in foreign animal disease preparedness, establishing this US SHIP ASF-CSF Monitored certification also presents as a platform that could be used to streamline and modernize existing methods used for routinely permitting the interstate movement of swine for further growing, breeding, or exhibition in the future.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the establishment of a US SHIP Exhibition Swine Working Group that centers on developing a well-informed and sustainable (long-term) strategy for engaging and encouraging participation amongst the exhibition swine community in the US SHIP.

This US SHIP Working Group should be led by and consist principally of pork producers that are active and thought leaders in the US exhibition swine community, along with advisement of a practicing veterinarian who routinely provides services to the exhibition swine clientele, a State Animal Health Official, and member of the USDA APHIS swine staff.

US SHIP Program Administration (inclusive of the Exhibition Swine Member on the General Conference Committee to be elected at the 2023 US SHIP HOD) are to seek guidance on ascertaining producers interested in volunteering their time to serve on this working group from the National Swine Registry, Certified Pedigree Swine, American Berkshire Association, National FFA and 4-H Organizations, State Pork Association(s) with a highly active exhibition swine community, and the National Pork Board.

Intended Outcomes:

A well-documented set of recommendations and guidance to be provided to the US SHIP Program Administration, US SHIP General Conference Committee, US SHIP Official State Agencies, and be shared, presented, and discussed more broadly at the 2024 US SHIP House of Delegates.

RESOLUTION NUMBER:	2023 – 3
SUBMITTED BY:	US SHIP Feral Swine Mitigation Working Group
SUBJECT MATTER:	Integration of Feral Swine Mitigation Plan into Secure Pork Supply Plan
WHEREAS,	The US Swine Health Improvement Plan (SHIP) is a collaborative effort involving industry, state, and federal officials tasked with establishing a "national playbook" of technical standards associated with biosecurity, traceability, and sampling/testing,
WHEREAS,	The 2022 US SHIP HOD passed a resolution to commission a working group to further define mitigation measures to minimized the threat of direct contact of feral swine to US-SHIP participating sites,
WHEREAS,	A completed Secure Pork Supply Enhanced Biosecurity Plan is a program requirement for certification in US-SHIP for boar studs, breeding herds, growing pig and farrow to feeder/finish sites.
WHEREAS,	The Secure Pork Supply Plan is scheduled to undergo a review and possible revision to its program standards beginning in 2024.
WHEREAS,	A recently completed literature review established that the likelihood of ASF disease transmission from direct contact between feral swine and swine with outdoor access was significantly higher than with swine housed indoors.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the commissioning of a working group to work with the National Pork Board Secure Pork Supply Working Group to advise revisions within Secure Pork Supply's resources to include the incorporation of a feral swine mitigation plan for animals with outdoor access.

RESOLUTION NUMBER:	2023 - 4
SUBMITTED BY:	US SHIP Sampling & Testing Work Group
SUBJECT MATTER:	Developing a Pathway for Incorporating the USDA ASF/ CSF Active Surveillance of Case Compatible Submissions to Veterinary Diagnostic Labs into US SHIP Sampling and Testing. **Initial Target / Focus:** Peacetime = Risk Level 1, ASF/CSF not present in US
WHEREAS,	USDA APHIS initiated the ASF/CSF Active Surveillance Program of case compatible submissions made to veterinary diagnostic labs (i.e., labs in the USDA National Animal Health Laboratory Network) in 2019 in response to the growing risks of ASF globally,
WHEREAS,	The USDA ASF/CSF Active Surveillance Program in NAHLN labs has continued to evolve overtime and provides for a very targeted and efficient means for contributing to the ASF/CSF surveillance of US Swine,
WHEREAS,	Incorporating the use of the USDA ASF/CSF Active Surveillance of case compatible submissions to veterinary diagnostic labs in the US SHIP ASF/CSF Monitored certification program presents as an opportunity to leverage this existing surveillance stream and further enhance the breadth and depth of benefits and overall effectiveness of the ASF/CSF surveillance of US swine and overall FAD preparedness without placing additional costs or administrative burden upon participants,
WHEREAS,	Including the Premises Identification Number (PIN) in the veterinary diagnostic record of case compatible submissions is the key element needed to provide a seamless means of incorporating the use of this existing surveillance stream into the US SHIP ASF/CSF Monitored certification program,

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the US SHIP Program Administration to work with USDA Swine Health Program Staff, USDA NAHLN, and CEAH to establish a process for and begin reporting the number of samples and premises being surveilled (tested) for via the USDA ASF/CSF Active Surveillance of case-compatible submissions to USDA NAHLN labs that are originating from US SHIP ASF/CSF Monitored premises.

The principle objective (ask) is to get this system established in the coming year with the aim of having this ASF/CSF active surveillance stream incorporated into the US SHIP ASF/CSF peacetime

surveillance by April 1, 2024 (i.e., approximately 6-months from 2023 US SHIP HOD).

Key components of reporting:

- Aggregate level surveillance data to be summarized overall and by state of origin.
    - State of origin = State in which the US SHIP participant premises from which the clinical samples tested originate is located.
- Aggregate level summary information to be made available to broader US SHIP stakeholder audiences.
- US SHIP Official State Agencies and State Animal Health Officials Premises are to be provided access to the total number and specific US SHIP participating premises being surveilled via this surveillance stream in their state.

See Addendum attached for reference: Basic description of the envisioned process for incorporating the use of the ASF/CSF Active Surveillance into the US SHIP ASF/CSF Monitored certification program.

Be it further RESOLVED:

The US SHIP House of Delegates requests the US SHIP Program Administration to work in partnership with US animal health and pork industry organizations to raise pork producer/veterinary practitioner/diagnostician awareness, understanding (how to), and participation in the USDA ASF/CSF Active Surveillance of US Swine via submission of case-compatible submissions to USDA NAHLN labs.

Note: Participation in US SHIP and including adequate case history information and the premises identification number (PIN) of the premises of origin on case-compatible submissions to USDA NAHLN labs are the key US pork industry participant responsibilities for optimizing the value and successfully incorporating this surveillance into US SHIP.

USDA APHIS is currently funding the ASF/CSF PCR testing costs of this ASF/CSF Active Surveillance of case-compatible submissions at USDA NAHLN labs.

ADDENDUM

Basic description of the envisioned process for incorporating the use of the ASF/CSF Active Surveillance into the US SHIP ASF/CSF Monitored certification program.

Process described below is pictorialized in Figure 1 on the following page.

1. US SHIP participants submit case-compatible submissions to veterinary diagnostic labs in the National Animal Health Lab Network certified to conduct ASF/CSF testing.
   Case-compatible submissions include:
   - Adequate case history information of clinical signs being observed.
   - Appropriate samples from clinically affected pigs sampled (e.g., spleen, tonsil, lymph-nodes, spleen-pulp swabs, blood swabs, or whole blood).
   - Complete premises-level demographic information of the site of origin (e.g., minimally Site Name, Premises Identification Number (PIN) and State)

Note: The USDA is currently funding the ASF/CSF PCR testing costs of this ASF/CSF Active Surveillance of case-compatible submissions at veterinary diagnostic labs in the National Animal Health Lab Network certified to conduct ASF/CSF testing.

2. USDA NAHLN labs message test results and associated demographic information message to USDA (i.e., to NAHLN Laboratory Messaging Service, or LMS).

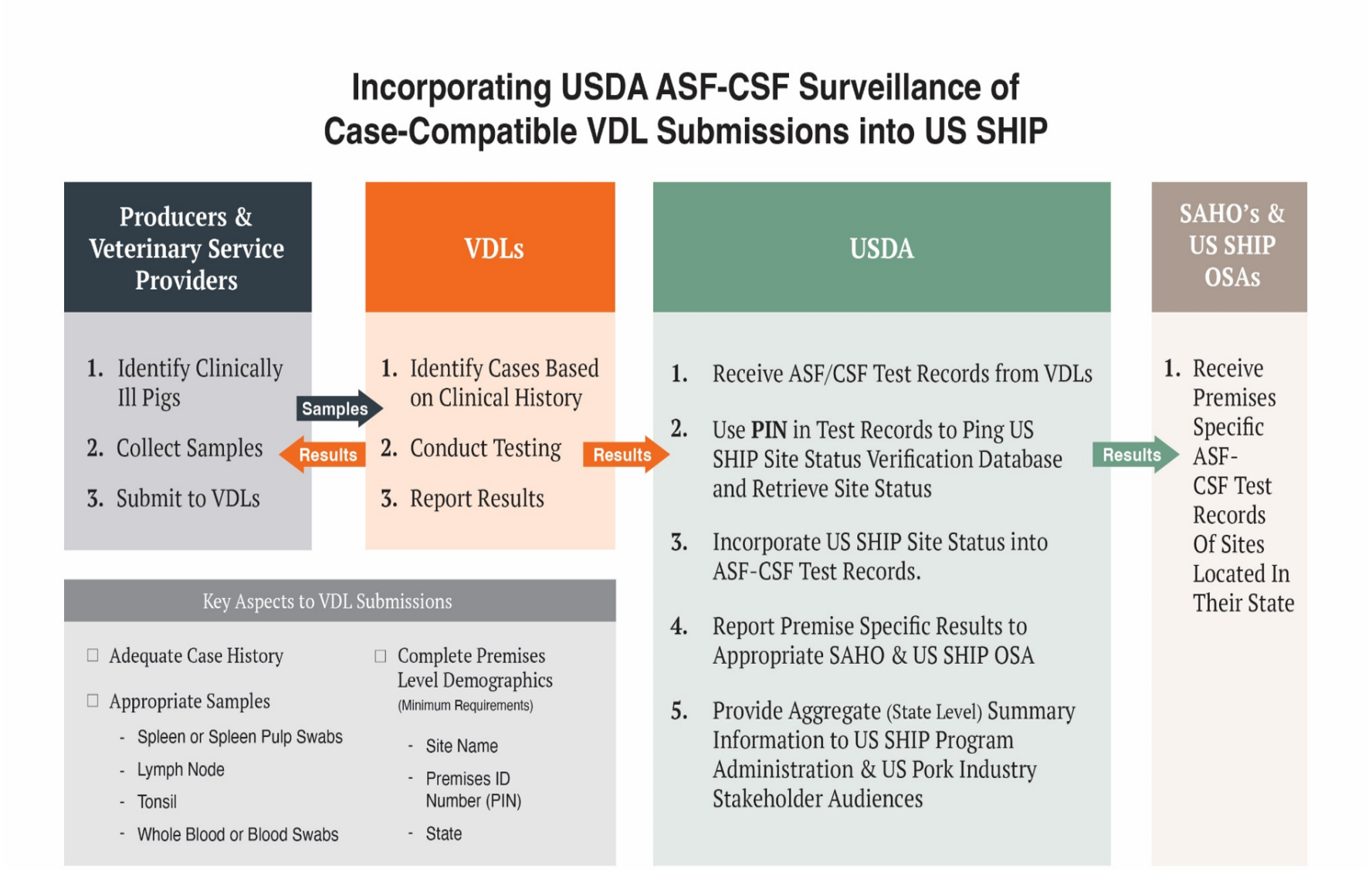
3. USDA utilizes this information received into LMS to ping the US SHIP Site Status Verification Database Application to assign the US SHIP ASF/CSF Monitored site status (i.e., US SHIP ASF/CSF Monitored or Not) to the premises level test result record.

4. USDA responsible for providing the US SHIP Official State Official State Agency and the State Animal Health Official access to the total number and specific US SHIP participating premises being surveilled via this surveillance stream in their state.

5. USDA / US SHIP Program Staff responsible for reporting the aggregate level summary data illustrating the total number of samples tested and US SHIP ASF-CSF Monitored premises surveilled via this stream each month / quarter / year.

Note: This proposed Resolution ("Developing a Pathway for Incorporating the USDA ASF/CSF Active Surveillance of Case Compatible Submissions to Veterinary Diagnostic Labs into US SHIP Sampling and Testing") does not have any impact on the means (current standard practices used) in which Submitting Veterinarians and Program Participants are routinely receiving test result information from their veterinary diagnostic lab service providers.

Figure 1. Incorporating the current USDA ASF/CSF active surveillance of case-compatible VDL submissions into the US SHIP ASF/CSF Monitored certification program.



US SHIP General Conference Committee (GCC)

Summary Description (What is the US SHIP GCC?):

A federal advisory committee to USDA APHIS and the US Secretary of Agriculture on matters relating to swine health and the administration of US SHIP[1].

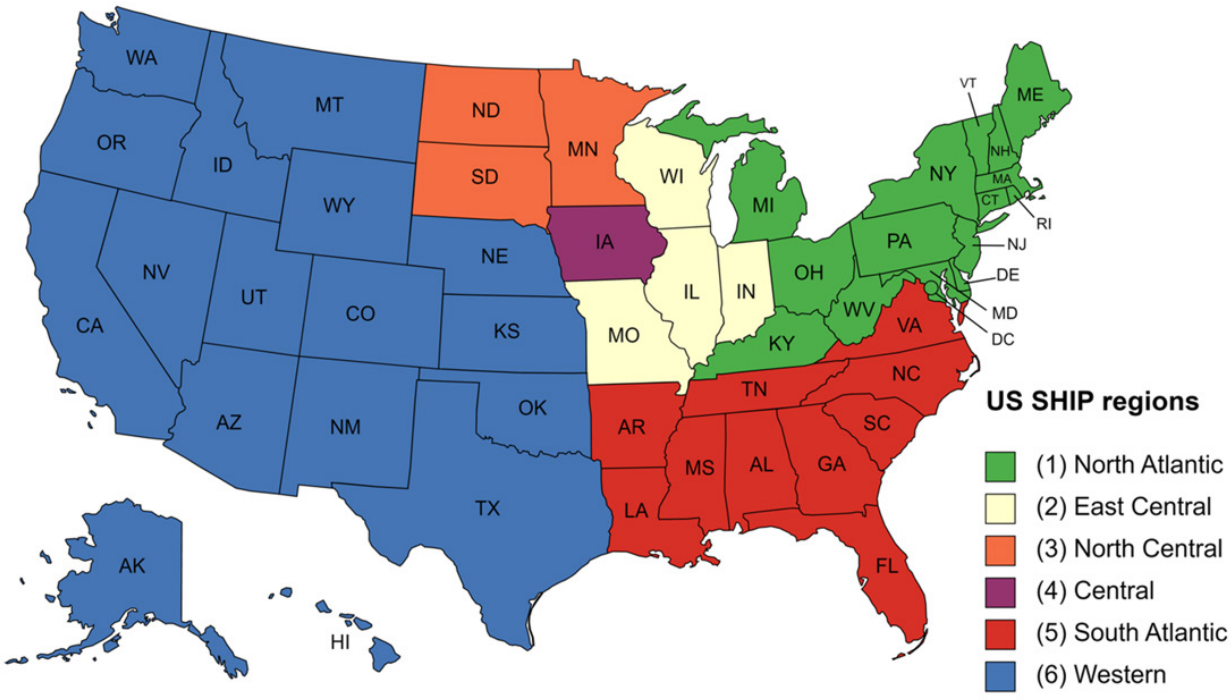
Note: The GCC members are to represent the points of view of all types of swine producers,

livestock marketing operations, and slaughter facilities.

Composition of US SHIP GCC:

6 Regional members and 3 At-large members.

- Six Regional Members: (elected by delegates in said Region at US SHIP HOD)



- Three At-Large Members: (elected by the entire delegate body at US SHIP HOD)
  - Packer/Slaughter Facility Member
  - Exhibition Swine Member
  - Unrestricted At-Large Member

Description of Purpose and Duties:

1. The purpose of the US SHIP General Conference Committee (GCC), representing cooperating state agencies and swine industry members, is to act as a liaison between the swine industry and the USDA/APHIS. The GCC maintains and ensures industry involvement and advises the Secretary of Agriculture on matters relating to swine health and administration of the US SHIP.

2. The duties of the US SHIP GCC members involve:

    a) Assisting USDA/APHIS US SHIP staff in planning, organizing, and conducting the annual US SHIP House of Delegates (HOD) conference, and Between HOD conferences, the GCC represents the cooperating States in advising USDA/APHIS on administrative procedures and interpretations of US SHIP provisions, and
    b) Advises and makes recommendations to USDA/APHIS on the relative importance of maintaining adequate departmental funding for US SHIP to enable the Senior Coordinator and staff to fully administer the provisions of the Plan, and
    c) Assisting USDA/APHIS in evaluating comments received from interested persons concerning proposed amendments to the US SHIP provisions, and
    d) Recommending to the Secretary of Agriculture any changes in US SHIP provisions when postponement until the next US SHIP HOD Conference would seriously impair the operation of the program; and
    e) Serving as a forum for the study of problems relating to swine health.

3. GCC members will serve a 3-year term of service, with no limits to the number of terms served.

    Each of the 6 regional members will be elected by their respective regions and at-large members will be elected by the entire US SHIP HOD voting delegation[2,3,4].

Footnotes:

[1]The US SHIP GCC is enroute to be an officially recognized federal advisory committee upon the codification of US SHIP at the end of CY 2024. The initial US SHIP GCC elections will be held at the 2023 US SHIP House of Delegates Meeting in Bloomington, Minnesota.

[2] No more than two members of any standing General Conference Committee may be employed by or associated with the same business entity.

[3] When there is a mid-term vacancy for a GCC position, the General Conference Committee shall make an interim appointment. The appointee shall serve until the next House of Delegates when an election is held. That election will be to fill the remaining term of the vacated position.

[4] In efforts to create an element of future continuity amongst the GCC members, the initially elected GCC members initial term of service will be staggered as follows: Regions 3 & 4 and Exhibition (1 year term); Regions 1 & 2 (2 year term), Regions 5 & 6 (3 year term).

GCC 2023 Nominees

Region 1 – North Atlantic

States: CT, DE, KY, ME, MD, MA, MI, NH, NJ, NY, OH, PA, RI, VT, and WV

Don Davidson, DVM, MS

Don Davidson is Director of Veterinary Services for Cooper Farms. He oversees staff veterinarians and production teams, health, and biosecurity for all of the live animal division, turkey and hog grow out, and feed mills.

Cooper Farms is a diversified farm and food company based in Northwest and West Central Ohio which hatches over 15 million turkey poults, 200,000 turkey breeder hens, and starts 7 million tom turkeys a year.

Cooper Farms has 34,300 sows and markets over 900,000 pigs a year. And, Cooper Farms has 6.2 million laying hens which produce over 155 million dozen table eggs a year.

Prior to coming to Cooper Farms in 2014, Dr. Davidson was the Director of Production for PFFJ /Hormel Foods (Farmer John) in Snowflake, Arizona with 54,000 sows and 1.2 million wean and market pigs located in California, Arizona, Wyoming, and Colorado from 1992 to 2014.From 1986 to 1990 Dr. Davidson was in a mixed animal private practice in Bellefontaine, Ohio.

Dr. Davidson earned his BS degree in 1982 and DVM degree in 1986 from The Ohio State University. In 1992 he earned a MS degree from the University of Illinois in the IFAMS program (Integrated Food Animal Management Systems).

Dr. Davidson is active and serves on several professional and industry organizations and groups.

Dr. Davidson is originally from Sidney, Ohio and now resides in Celina, Ohio.

Reason for Running for the US SHIP GCC:

I have been involved in the pork industry all of my professional career. I am now working with Cooper Farms which is both a pork and poultry company.

Since being with Cooper Farms I have become involved in the National Poultry Improvement Plan (NPIP) which the US SHIP is being modeled after. I have seen how the collaboration of the private and public poultry industry has benefited the poultry industry.

I strongly believe a similar plan for the swine industry will advance our industry to maintain markets, control and eliminate disease and provide operational standards for all segments of the swine industry

Region 2 – East Central

States: IL, IN, MO, and WI

Howard (AV) Roth,

Howard “AV” Roth Jr. is a fifth-generation farmer who owns and operates Roth Feeder Pig, Inc. which includes 3000 sows in a farrow-to-wean enterprise marketing over 75,000 head annually. The business also includes 1200 acres of corn, oats, and alfalfa along with a black Angus herd.

AV is FFA and AGR Alumni. He has served on many local, state, and national committees, including Past President of the Wisconsin Pork Association and Past President of National Pork Producers Council. Roth attended the University of Wisconsin-Platteville.

AV and his wife Christine have 7 children and reside on the family farm in Wauzeka, Wisconsin.

Reason for Running for the US SHIP GCC:

I worked very hard with the National pork producers council to secure funding to protect our borders and fight FAD in other countries now the next step is to be prepared to fight FAD in our barns on our own soil if this is done right we will have a chance to fight any disease. This is so important to me because if we lose the 30% of our pork consumed outside our borders. It will probably be my family farm going under.

Region 3 – North Central

States: MN, ND, and SD

Nick Bundermann,

Nick is the manager of 18,000 head nursery and 20,000 head finishing sites in Cando ND.

He is a current member of the ND Pork Council.

Nick has worked his way up through the swine operation, first working at the sow barn as a breeder and then working his way up to his current position.

Nick holds a BS in wildlife biology from the University of North Dakota and he is currently serving on the North Dakota Pork Council. Nick enjoys spending time with his wife Lindsay, and daughters Emma and Madison.

Reason for Running for the US SHIP GCC:

Being on the US SHIP GCC would allow me to give back to the industry as well as give and gain insight into some of the current and future health, disease and policy issues.

Being in the barns doing daily chores gives me the perspective of day-to-day operations as well as also having to look at the big picture of weekly shipping and planning.

Region 3 – North Central

States: MN, ND, and SD

Shane Odegaard,

Shane Odegaard and his family operate Odegaard Family Farms at Lake Preston, SD. Odegaard Family Farms is a diversified livestock and grain farm. They operate a farrow-to-finish hog farm, a small cow/calf herd, and a 4,000 head contract nursery. They also grow soybeans and corn.

Odegaard Family Farms is owned and operated by Shane, his brothers Justin and Shaun, his Uncle Randy, his cousin Michelle and her husband, Heath.

Shane has been active in South Dakota Pork Producers Council for nearly 12 years, most recently serving as President in 2021 and 2022. Shane has also served on various committees such as Demand enhancement, public policy, and membership outreach and engagement, to mention a few.
He has also been involved with various local and state organizations in the community and state.

Reason for Running for the US SHIP GCC:

My interest in herd health is of high priority on our farm. With the ongoing threat of PRRS and the challenges that come with that can have a huge impact on the sustainability of our farm and pork industry.

With the threat of a FAD breaking in the US and the impacts it will have on us producers and the food supply it is important that we become proactive to minimize the impact and the spread.

By becoming involved with SHIP we can work together and get a program in place to protect our farms and the food supply worldwide.

Region 3 – North Central

States: MN, ND, and SD

Michael Walker,

Michael Walker earned a BS in Agriculture Studies at Iowa State University.

In his 23-year career he has primarily been at Christensen Farms focused on production for the first 16-years while the last 7 years has been focused on Business Development.

Currently Michael serves on the Minnesota Emergency Disease Management Committee by supporting the Depopulation & Disposal, Permitting, and Regionalization Sub-committees since 2019.

Michael has also had the opportunity to serve on multiple task forces with National Pork Board.

Michael and his wife, Cassie, are always on the move with their 4 daughters ranging from 2 to 15 who are involved in hockey, softball, volleyball, and gymnastics.

Michael and his family have lived in the small town of Belview, Minnesota for the last 7 years.

Reason for Running for the US SHIP GCC:

I am running for a seat on the US SHIP GCC because I believe in what the program has been able to accomplish to and what the potential of the program holds. I believe that US SHIP represents our industries best opportunity to have a holistic approach to preventing a catastrophic event of ASF and CSF within the US.

This is the culmination of tremendous work that has been put in by all in the industry as well as government officials at the state and national level. Prevention of these two diseases within the US is of the up most importance for all of our stakeholders. From those delegates representing the swine industry from their states to all within agriculture.

I firmly believe that we will succeed in our mission and that this work is the bedrock for continuity of business for all of us. I am proud to have had the opportunity to serve as the Chair for the Interim GCC over the past year and would ask to serve this industry as an elected steward of US SHIP again.

Region 4 – Central

State: IA

Mike Paustian, PhD

Mike is a 6th generation farmer from Walcott, Iowa, who operates a 1200-sow farrow-to-finish operation with his family. The farm also grows corn and soybeans on 1400 acres.

Mike received a Ph.D. in microbiology and worked as a research scientist at the National Animal Disease Center before returning to the family farm.

He has served as a past president of the Iowa Pork Producers Association and on several national committees and working groups.

Mike and his wife Amy stay busy keeping track of 3 teenagers whom all know how to operate a power washer.

Reason for Running for the US SHIP GCC:

I want to be a US SHIP GCC member because in the short term I believe it will be a critical component of foreign animal disease preparedness for the pork industry.

Looking further into the future, my hope is that US SHIP could also become a platform for eliminating or reducing the impact of many endemic diseases as well.

To accomplish this, we need to build a science-based program that will also provide tangible value to individual producers of all sizes.

I hope to use my science background to help bridge the communication gaps between producers, scientists and regulatory agencies at the state and national level.

Region 5 – South Atlantic

State: AL, AR, FL, GA, LA, MS, NC, SC, TN, and VA

Mary Battrell, DVM, MS

Dr. Mary Battrell earned her DVM and MS degrees from Iowa State University.

She also holds a MS in Animal Science from the University of Tennessee and BS in Agriculture from The Ohio State University.

She is a staff veterinarian for Smithfield Foods Central Region which manages 250,000 sows farrow-to-finish in eastern North Carolina.

She has been with the company for more than 20 years and is actively involved in the development of the Smithfield Animal Care Program and their Contingency Plan for Foreign Animal Disease.

Dr. Battrell was the recipient of the 2018 Swine Veterinarian of the Year awarded by the American Association of Swine Veterinarians and served as the associations President in 2021.

Reason for Running for the US SHIP GCC:

Many people I know and care about depend on the swine industry as a means of providing for their family. It is imperative that we work together to make wise decisions, that are not over burdensome to protect this great industry.

I agree that SHIP is the most appropriate format for collaboration to safeguard, certify and improve the health of the US swine industry, and I would like the opportunity to contribute as a member of US SHIP GCC.

Region 6 – Western

States: AK, AZ, CA, CO, HI, ID, KS, MT, NE, NV, NM, OK, OR, TX, UT, WA, and WY

Christine Mainquist-Whigham, DVM, MS

Dr. Mainquist-Whigham is the Director of Health for Pillen Family Farms/DNA Genetics Nucleus. Her role includes overseeing the herd health and biosecurity of the two systems.

A native of Stanton, Iowa and raised on a family farm, she pursued science and agriculture, earning a B.S. in biochemistry and molecular biology from Nebraska Wesleyan University in 2012.

Christine graduated from Iowa State University College of Veterinary Medicine in 2016 with her DVM and Master's Degree in Veterinary Preventive Medicine.

In 2022 she completed the Executive Veterinary Program at the University of Illinois.

Christine resides in Columbus, NE with her husband Alex and son Callum.

Reason for Running for the US SHIP GCC:

The US SHIP program is a great opportunity for our industry to set biosecurity, traceability, and disease monitoring standards. These standards should aid in the continuity of business and trade in the event of foreign animal disease concerns.

I believe in the efforts already in place from the early adopters and want to continue to grow the program, ensure the program aligns with the needs of the pork industry, and promote education and outreach.

At – Large: Exhibition Swine Member

Jesse Heimer,

Jesse Heimer, Taylor, Mo., owns and operates Heimer Hampshires, a nationally renowned show pig operation where more than 600 purebred and crossbred litters are farrowed annually and marketed coast to coast.

A third generation pig farmer, Jesse is committed to developing the best genetics in the industry while keeping high standards for herd health and biosecurity. His focus and commitment has resulted in numerous champions for customers at every level of competition as well as a genetic influence that has impacted the entire industry.

The mission of Heimer Hampshires is rooted in Jesse's passion to develop young people and promote agriculture as a viable and sustainable career path. He has long been a leading advocate of junior livestock programs and finds purpose in supporting his own kids, among many others, across the United States in their efforts to raise and show pigs as a means of developing valuable life skills.

Jesse serves on the Missouri Pork Producers Association Board of Directors, completed a term in the Pork Leadership Institute and recently was a producer representative on the NPB/NPPC trip to Europe to learn about ASF. Outside of the pork industry, he enjoys spending time on the farm with his wife, Amy, and two kids, Max and Harper. Both kids are active in multiple sports and usually, they can all be found at a ball field, gym, or a pig show.

Reason for Running for the US SHIP GCC:

Healthy pigs are the foundation of success for everyone in the swine industry, and as I represent my fellow show pig producers, I look forward to working with others to develop plans for biosecurity, traceability, and preparedness in a manner that allows everyone in the pork industry to succeed.

At – Large: Exhibition Swine Member

Daniel Hendrickson, DVM

Dr. Daniel Hendrickson is a partner in 4 Star Veterinary Service that owns both the Stoney Creek Veterinary Service Office in Farmland, IN and the Michigan Swine Veterinary Service location in Holland, MI.

Dr. Hendrickson primarily focuses on commercial swine family-owned farms throughout the Midwest and all sizes of showpig production throughout the United States. His practice is one of the most recognized swine veterinary practices throughout the showpig industry.

Dr. Hendrickson Graduated from Michigan State University in 2003 with a degree in Animal Science and earned his DVM from Purdue University in 2014.

Daniel returned home to work with his uncle after graduation and eventually purchased the practice. Dr. Hendrickson has been involved in many organizations in the ag industry at the local, state, and national level. He is currently on the US SHIP Traceability committee and a delegate for Indiana at the US SHIP House of Delegate.

Dr. Hendrickson and his wife, Telynda, live in Farmland, IN along with their children Hadley and Hogan. His children are involved showing livestock throughout the United States.

Reason for Running for the US SHIP GCC:

My strong passion for all segments of the swine industry has led me to run for a position on the US SHIP GCC.

Daily, I provide veterinary service in both the commercial and exhibition segments of the industry.

Within the exhibition segment, I work with showpig producers, boar studs, and exhibitors from across the country to provide health, bio security, and reproductive recommendations.

The importance of getting both segments of the industry to understand, implement, and become advocates of US SHIP is of vital importance to the long-term success of the program, and pork producers in both parts of the industry.

With my ties of not only providing veterinary work to showpigs across the country, and my kids being heavily involved in showing, I can bring expertise on how to help make US SHIP successful.

It would be an honor to be considered for a position on the GCC, and serve an industry that I have dedicated so much of both my personal, and professional life to.

At – Large Exhibition Swine Member

Ben Schmaling,

Ben is a third-generation pig farmer who owns Schmaling Brothers Berkshires with his wife JaLynne, and two sons Grayson (7) and Mack (4).

About 25 purebred Berkshire sows make up the operation.

In spring and fall, nearly 150 Berkshire show pigs are sold throughout the Midwest and nationwide. Seed stock and bred females are marketed in the fall.

Off the farm, Ben is a Strategic Account Manager for Zoetis in their Pork business unit.

Ben has been president of the Iowa Purebred Swine Council since 2013 and currently serves on the Iowa Pork Producers Association Board of Directors; is a certified swine judge in multiple states; and has served on the Adult Board of Directors for Team Purebred and the National Junior Swine Association Adult Advisory Board, both national youth swine organizations.

In addition, he is a member of the American Berkshire Association and the National Hereford Hog Association.

He graduated from the Iowa Pork Leadership Academy; and served IPPA's promotion committee, and on the National Pork Board's Producer/Public Health & Workplace Safety committee.

A native of Belleville, Wis., Ben earned a marketing degree from Iowa State University.

Reason for Running for the US SHIP GCC:

I would like to be a member because the swine industry is integral to my livelihood. Not only does my professional career encompass the commercial swine industry but my hobbies include show pig production and is a vehicle I use to raise my children in agriculture.

I think my spot on US SHIP GCC is vital to ensure that the Exhibition Swine industry has a voice at the table during these key times of preparation.

At – Large: Packer / Slaughter Facility Member

Mindy Henry,

Mindy currently serves as Senior Director of Food Safety and Quality Assurance for the Pork Division with Tyson Fresh Meats.

She earned a Bachelor of Science with a Beef Production Option at Oregon State University and a Master of Science in Animal Science with Meat Science Emphasis from Oklahoma State University. After graduation, Mindy was hired by Tyson Fresh Meats and has held various roles within Food Safety and Quality Assurance and Animal Welfare during her 14-year tenure with Tyson.

Foreign animal disease (FAD) preparation is a part of her current job responsibilities and as such she led the development of the Tyson Fresh Meats (FAD) response plan and is currently one of Tyson's FAD coordinators.

In addition, Mindy manages the continued development of written plans and the company's foreign animal disease working share site that allows for central access to industry websites, resources, and company communication.

As part of the preparation process, she has also led in-plant exercises to help refine and address gaps by testing the written plans.

Mindy actively participates in industry working groups to help with industry foreign animal disease preparation and represents and serves as the harvest plant delegate for the state of Indiana.

Reason for Running for the US SHIP GCC:

I am grateful to be nominated for the US SHIP GCC at large member representing the packer/slaughter facilities and am excited about this potential opportunity due to my passion for the meat animal industry.

I wholeheartedly support and believe in every segment that US SHIP represents, including animals, veterinarians, producers, packers, scientists, and consumers and I understand that successful prevention of a foreign animal disease outbreak will take all of us in the meat animal industry and I want to be a part of that collaboration.

I can provide an unbiased and thoughtful perspective to the topic of foreign animal disease but also understand the complexities. I have worked for a meat packing company for 14 years and understand the business objectives of this industry and know that I can be a representative for all companies with keeping the end goal in mind.

At – Large: Packer / Slaughter Facility Member

Katherine M. Stack,

Katherine is the Hog Procurement Manager and Wholestone Farms in Fremont, Nebraska.

She previously worked as the Carcass Evaluation and Animal Welfare Manager and moved into a Hog Procurement role in 2019.

She grew up on a small cow/crop operation in Northeast Illinois, worked on a farrow to finish operation throughout college, and started with Hormel Foods as a Production Supervisor at a facility in Southern Wisconsin.

Additional Involvement in the Industry: Katherine is a TQA and PQA Advisor, participates on the Animal Welfare Committee with NAMI, is PAACO Certified for meat plant auditing, and actively participates in the SHIP Traceability working group.

She studied Agriculture Business and Animal Industry Management at Illinois State University.

Reason for Running for the US SHIP GCC:

As an agricultural professional deeply concerned about the impact of foreign animal diseases like African Swine Fever, I am eager to contribute my expertise, knowledge, and passion to General Committee Council.

Joining this committee would allow me to contribute to the mission of US SHIP through proactive engagement and collaboration efforts related to traceability, transparency, innovation, and advocacy.

As a representative of the slaughter sector within the industry, I can bring a critical and unique point of view to the GCC.

At-Large: Non-Specified Member

Ryan Pudenz

Ryan is the general manager of Prestage Farms of Iowa. In that position, he oversees finisher production in Iowa of 1.5 million hogs annually.

In addition to being the District 6 Director on the IPPA Board, Ryan also serves as the Vice President of Operations. In that role, he is responsible for the minutes of IPPA's delegate body, executive committee meetings, and the board of directors' meetings. He also reviews IPPA's communications and public policy programs.

Ryan has been active at the local, state, and national level in leadership roles.

He belongs to the Story County Pork Producers and has served on several IPPA committees, including membership/leadership; and swine health and well-being.

Nationally, he has served as a delegate to the National Pork Industry Forum, attended the National Pork Producers Council's Legislative Action Conference, and participated in the Pork Leadership Institute.

In other industry roles, Ryan is a PQA Plus® adviser on the Iowa Pork Industry Center Advisory Board, including the program planning for Iowa State University's Iowa Swine Day.

Ryan has a bachelor's degree in animal science from ISU.

Reason for Running for the US SHIP GCC:

US SHIP is a vital program to safeguard the health of the swine industry. To be successful, US SHIP needs to be a producer-driven program applicable for producers at all levels.

As a US SHIP GCC member, I will work collaboratively to develop common sense, data-based guidance.

At-Large: Non-Specified Member

Kelli Werling, DVM

Dr. Werling is the Senior Director of Operations and Director of Swine Health at the Indiana State Board of Animal Health. In this role, she oversees development and implementation for a variety of swine health programs, including African Swine Fever preparedness and response activities as well as serving as Indiana's Official State Agency administrator for US SHIP.

Dr. Werling grew up on a central Indiana farm and attended Purdue University where she earned her Bachelor of Science in Animal Science and her Doctor of Veterinary Medicine.

She is the past District 12 representative for the Indiana Veterinary Medical Association Board of Directors, current Young Alumni representative on the Purdue Veterinary Alumni Association Board of Directors, a current member of the American Association of Swine Veterinarians (AASV) and the United States Animal Health Association (USAHA), and a Foreign Animal Disease Diagnostician.

In her personal life, Dr. Werling enjoys mentoring students through the Purdue University College of Agriculture Alumni Mentorship Program, volunteering in a state-wide philanthropic organization (Tri-Kappa), and serving as the Alumni Relations Chari for the Stewart Cooperative Alumni Board of Directors.

Kelli currently resides in central Indiana with her husband and daughter.

Reason for Running for the US SHIP GCC:

As a candidate for the GCC, I look forward to the opportunity of bringing to the table my understanding and real-world experience in the implementation of swine health programs.

Additionally, as a US SHIP OSA representative on the GCC, I would provide a unique perspective to the group while ensuring the mission of US SHIP remains balanced and upholds the values of our US pork industry.

US SHIP Classifications, Delegate Allocation, and Governance

I. US SHIP Classifications (6 groupings, for delegate allocation)

1. Breeding Herd: Sites: ≥ 1,000 breeding females or ≥ 50 mature boars (Inventory)
2. Growing Pig: Sites: ≥ 1,000 post-weaned pigs (Inventory)
3. Slaughter Facility: Slaughter ≥ 100,000 pigs / year
4. Small Holdings:
5. Farm sites with ≥ 100 post-weaned pigs (Inventory) that don't fit into any of the other commercial farm site categories.
6. USDA or State Inspected slaughter facilities slaughtering < 100,000 pigs / year
7. Non-commercial: Production sites with ≤ 100 pigs. (e.g., exhibition, niche)
8. Live Animal Marketing Operations: Sites that aggregate swine for resale of such swine (> 100 pigs/week) onto slaughter facilities.

Notes:
[1] Farrow-to-Finish or Farrow-to-Feeder sites ≥ 1,000 breeding females will be classified as Breeding Herds.
[2] Farrow-to-Finish or Farrow-to-Feeder sites < 1,000 breeding females will be classified as Small Holdings.
[3] Boar Stud sites (> 50 mature/working boars) will be classified as Breeding Herds for delegate allocation purposes.

US SHIP Classifications are important as it relates to ensuring appropriate representation from the various segments of US pork industry and in the delegate allocation process.

Such US SHIP Classifications (and associated definitions) also create clarity for the states as to "who to ask" when seeking industry stakeholder volunteers to serve as delegates in representing the interests of a particular "Classification or Segment" of the industry in the US SHIP House of Delegates.

However, there will not be any "Classification Specific" votes cast at the US SHIP House of Delegates Meeting to be held on September 5 - 7, 2023 in Bloomington, MN.

II. Overview of US SHIP Delegate Allocation

Formula based approach = (Base Allocation & Distribution of At Large Delegates)

Brief Description of Methodology Used For Delegate Allocation:
This formula-based approach uses a combination of a baseline allocation of delegates to all participating states, as well as the generation and subsequent distribution of a pool of At-Large Breeding Herd and Growing Pig delegates based upon the percentage of Breeding Swine and Growing Pigs (respectively) participating in US SHIP that are located in the state.

The formula-based approach is structured such that the number of At-Large delegates increase in direct proportion to the number of states participating in the US SHIP.

Detailed Description with Explanation:

1. Participating states will be allotted a minimum base of 4 voting delegates, one delegate (vote) for each of the following 4 US SHIP Classifications: Non-commercial, Small Commercial, Breeding Herd, and Growing Pig. A state will receive 1 additional voting delegate for the classification slaughter if they have an active slaughter facility operating in their state, for a total of 5 voting delegates.

2. A pool of At-large delegates will be generated for allocation to the states. Two At-large delegates (1 Breeding Herd delegate and 1 Growing Pig delegate) will be generated for each state participating in the US SHIP House of Delegates.

   For example:

   a. If 25 states participate, a pool of 25 Breeding Herd and 25 Growing Pig At-Large delegates (votes) will be generated for allocation.

3. The pool of At-large delegates will be allocated to states as a percentage of all Breeding Swine and Growing Pigs (respectively) ***enrolled*** in US SHIP that are located in a given state.

   For example:

   a. Using example above of 25 participating states: If a state had 4% of the Breeding Swine inventory and 8% of the Growing Pig inventory ***enrolled*** among participating states, they would be allocated 1 additional Breeding Herd delegate and 2 additional Growing Pig delegates.

4. Live Animal Marketing Operation delegates: The 15 states that generate the most Breeding and Growing Pig at large delegates (combined) will each have one Live Animal Marketing Operation delegate allocated to their respective state's delegation. The Live Animal Marketing Operation delegate is an additional delegate invitation being extended to the 15 states that generate the most Breeding and Growing Pig at large delegates (combined).

Note: Since US SHIP currently in the start-up phase, the number of Breeding Swine and Growing Pigs ***enrolled*** (versus certified) at the end of June 2023 is being used to allocate the Breeding Herd and Growing Pig At-Large Delegates (respectively) for the 3rd US SHIP House of Delegates meeting.

III. Delegate Allocation for 2023 US SHIP HOD
(enrollment as of 7/11/2023)

33 states have demonstrated interest in US SHIP

State	Non-commercial	Small commercial	Breeding herd	Growing	Slaughter	Live Marketing	Total
Alabama	1	1	1	1	0	0	**4**
Arizona	1	1	1	1	0	0	**4**
Arkansas	1	1	1	1	0	0	**4**
California	1	1	1	1	1	0	**5**
Colorado	1	1	2	1	0	1	**6**
Delaware	1	1	1	1	0	0	**4**
Georgia	1	1	1	1	0	0	**4**
Illinois	1	1	4	3	1	1	**11**
Indiana	1	1	2	3	1	1	**9**
Iowa	1	1	5	12	1	1	**21**
Kansas	1	1	3	2	1	1	**9**
Kentucky	1	1	2	1	1	1	**7**
Michigan	1	1	2	2	1	1	**8**
Minnesota	1	1	3	3	1	1	**10**
Mississippi	1	1	1	1	0	0	**4**
Missouri	1	1	3	3	1	1	**10**
Montana	1	1	1	1	0	0	**4**
Nebraska	1	1	3	2	1	1	**9**
North Carolina	1	1	7	7	1	1	**18**
North Dakota	1	1	1	1	0	0	**4**
Ohio	1	1	3	2	1	1	**9**
Oklahoma	1	1	3	2	1	1	**9**
Oregon	1	1	1	1	1	0	**5**
Pennsylvania	1	1	2	1	1	1	**7**
South Carolina	1	1	1	1	0	0	**4**
South Dakota	1	1	3	1	1	1	**8**
Tennessee	1	1	1	1	1	0	**5**
Texas	1	1	2	2	1	1	**8**
Utah	1	1	1	1	0	0	**4**
Virginia	1	1	1	1	0	0	**4**
West Virginia	1	1	1	1	0	0	**4**
Wisconsin	1	1	1	1	1	0	**5**
Wyoming	1	1	1	1	0	0	**4**
Total	**33**	**33**	**65**	**65**	**19**	**16**	**231**

IV. Other US SHIP Governance Items

1. Voting delegates representing each participating state will be appointed by each participating state's pork producer association. If a participating state does not have an active pork producer association, delegate selection will be deferred to the respective State Animal Health Official or Department of Agriculture.

2. The State Animal Health Official or their designee is to serve as one of the voting delegates among their respective state's delegation at the US SHIP House of Delegates.

    - This is not an additional delegate and does not have any implication on the number of delegates being allocated for use by participating states.
    - This language is included simply to clarify the importance of the SAHO's (and/or respective State Department of Agriculture's or Board of Animal Health's) role and engagement with this US SHIP development project in their respective state.
    - The SAHO's or their designee's engagement in US SHIP and the US SHIP House of Delegates process is highly important.

3. Delegates must be present to vote at the US SHIP House of Delegates.

4. Individual delegates attending the US SHIP House of Delegates cannot cast more than one vote or cast votes on other delegates' behalf (i.e., one person/delegate = one vote).

5. States are not required to have representation or be present at the US SHIP House of Delegates to participate in the US SHIP.

6. Definitions of US SHIP Program Standards vs Resolutions:

    - US SHIP Program Standard = Requirements to be met or exceeded by program participants to be certified in US SHIP.
    - US SHIP Resolution = Charges to pursue initiatives or further explore specific issues that aim to further inform US SHIP program content and direction.

7. Approval of Standards and Resolutions by simple majority (>50%) of votes cast.

8. Amendments to both Standards and Resolutions can be brought forth as long as such amendment remains within the scope under consideration.

9. Motions for new Standards or Resolutions which have not been vetted and previously circulated to delegates will not be considered for vote but instead tabled for further review and consideration.

US SHIP Site Status Verification Database

Participating premises are to be enrolled with the US SHIP Official State Agencies (US SHIP OSAs) in the state where the premises are located.

Upon enrollment, participants provide site demographic information to the US SHIP OSA and fill out one biosecurity survey for all enrolled sites. Once participants sites demonstrate compliance with the program standards of the certification being pursued the sites are then conferred the certification by the US SHIP OSA.

Stemming from an action item (program development need) discussed at the US SHIP 2022 HOD, a collaborative effort was established between US SHIP and US SHIP OSAs to develop the US SHIP Site Status Verification Database. During spring 2023, the US SHIP Site Status Verification Database was deployed and is currently being on-boarded for use on a State-by-State basis. The US SHIP Site Status Verification Database is a built-for-purpose database application that provides a simplistic means for maintaining the current and officially recognized status of the US SHIP certifications held by the participating sites from across the US.

It is envisioned that the US SHIP OSA will maintain and report the current status of the participant sites to the US SHIP Site Status Verification Database. Only a minimum set of data fields inclusive of the the premises identification number (PIN),corresponding US SHIP disease status, and the State in which the premises is located are to be reported by the US SHIP OSAs to the US SHIP Site Status Verification Database. All of the more detailed participant and premises level-specific identifiers (e.g., names, addresses, locations, etc.) remain with the respective US SHIP OSA and are not reported to or contained in the US SHIP Site Status Verification Database **(Figure 1)**.

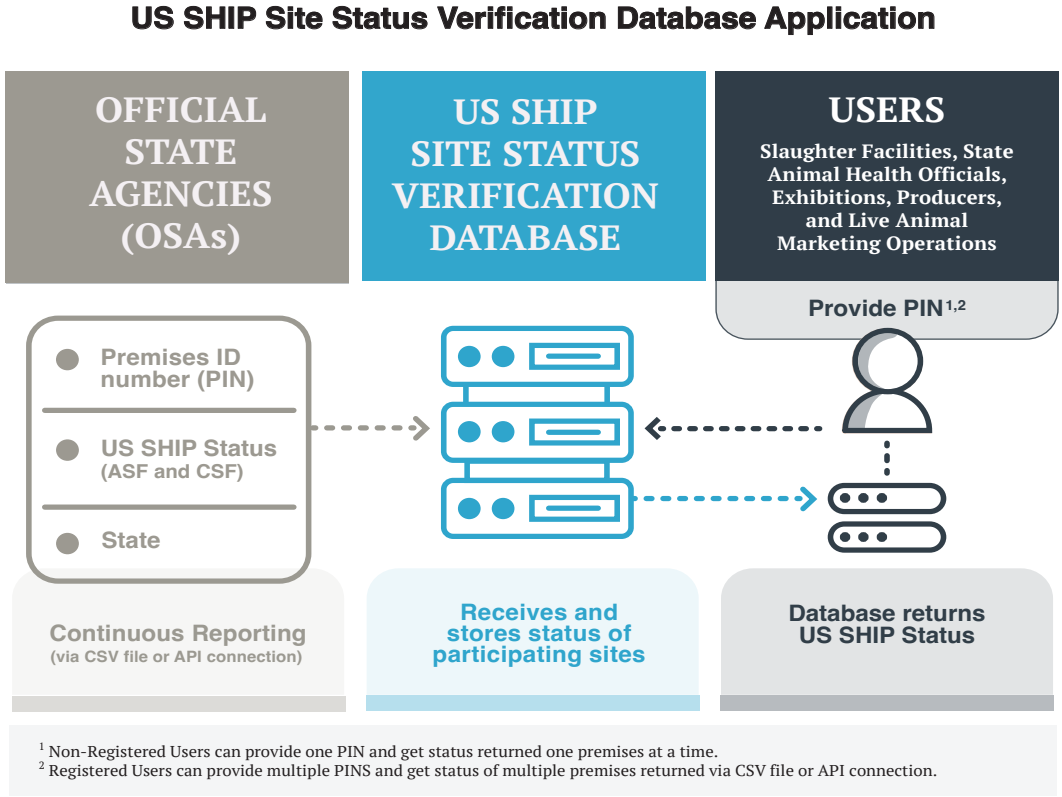


Figure 1: The basic workings and use of the US SHIP Site Status Verification Database

End users and use cases of the US SHIP Site Status Verification Database include but are not limited to:

- *State Animal Health Officials* can use to verify the status of the US SHIP certifications held by premises moving pigs into their state for further breeding, growing, or exhibition.
- *Slaughter facilities* can use to verify the status of the US SHIP certifications held by the premises supplying pigs to their facility to be harvested.
- *Exhibitions* can use to verify the status of the US SHIP certifications held by the premises pigs being exhibited/shown.
- *Live animal marketing operations* channels can use to verify the status of the US SHIP certifications held by the premises supplying pigs to their facility.
- *Producers* can use to verify the status of the US SHIP certifications held by either their own premises or the premises of pigs of which they are purchasing or otherwise receiving pigs from third parties.

US SHIP disease status

Once a site participates in the US SHIP, certification can be assigned as one of the three proposed disease statuses. The US SHIP disease status was structured to accommodate the different stages and levels of certification of participant sites using three proposed and the site Disease Status:

1. **Monitored Free:**
   - To be used for ASF or CSF US SHIP certified sites
2. **Certification Expired:**
   - On cases when the ASF or CSF-free certification is on hold for not complying with current program standards. It could affect either ASF, CSF, or both.

   Example of situations where "Certification Expired" would occur is when the US SHIP House of Delegates approves new standards and the site no longer meet the US SHIP program standards.
3. **Inactive:**
   - For US SHIP enrolled sites but not certified
   - Certified sites when the site is going through a change in ownership and waiting for re-statement of certification by the OSA.
   - Lost or revoked status (tested positive for ASF or CSF)
   - Sites that decide to drop out of US SHIP
   - Sites that never participated in US SHIP
   - Sites that participated in the US SHIP and went Out of Business

Key point of the functionality of the US SHIP Site Status Verification Database application for end users

End users query the database via providing the PIN of the premises in question, and the database application simply returns the current status of the US SHIP certifications held by the premises (PIN) in question **(Figure 1)**. The US SHIP Site Status Verification Database application is a built for purpose database application that is readily compatible with, and independent

of, whatever software/database application or other means the US SHIP OSAs from across the country are using to house the participant/premises specific information and manage the workings of the US SHIP OSA in their respective state.

The US SHIP OSAs are the only entities permissioned to report the status of the US SHIP certifications held by the participants in their respective state to the US SHIP Site Status Verification Database. The US SHIP Program Administration is responsible for managing the services provided by the US SHIP Site Status Verification Database.

The US SHIP Site Status Verification Database is currently being housed and maintained within the information technology infrastructure used to support the Department of Veterinary Diagnostic and Production Animal Medicine at the Iowa State University College of Veterinary Medicine.

US SHIP: Traceability Systems In Other Pork Export Markets

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Executive Summary

Using the Oxford Language Dictionary, Google defines traceability as 'the quality of having

an origin or course of development that may be found or followed'. Traceability is a 'blanket' term as it might involve logistic and/or attribute contexts. The primary goal of the four pork traceability systems evaluated (Australia, Brazil, Canada, and Denmark) were to have logistic traceability of pigs from origin to destination, but some systems had additional aspects that supported attribute-based traceability.

Traceability has three different components: 1) the data that is required to have for tracing; 2) the data entry process and storage or repository of the data; 3) and the governance of the system including the security and access, the enforcement and verification methods. All four traceability systems had a single, central repository that the federal animal health officials could access. Some had precursor repositories for different uses before the data flowed to the central national repository, whether that was local and state repositories as in Brazil, or it was the logistic and attribute-based industry-maintained repository in Australia. Brazil also has an industry-based system, built on top of the municipal systems, to certify attribute traceability, although it has not yet been used for pork.

Balancing the needs and wants of all stakeholders is crucial for the success of any system. The goal of a traceability system is to build trust. A perfect system is not required, but participation in the system is.

A 4-part video series was created to share major findings on traceability across other pork exporting countries. A playlist can be found on YouTube or by using this QR code, with the following title:

1. What is Traceability?
2. The Components of a Traceability System
3. Exploring Traceability Systems
4. Data Entry, Management, and Governance

Introduction

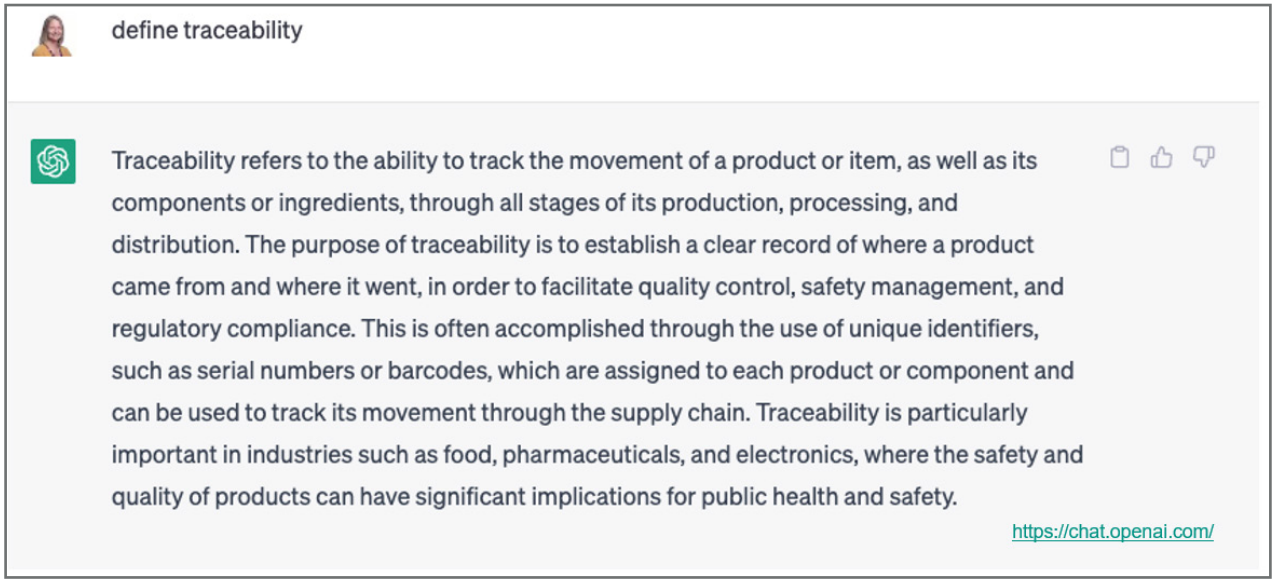
This report builds on the preliminary work of Trevisan, et. al., submitted to the House of Delegates (HOD) in 2022, and is in response to the HOD resolution 2022 – 1 initiative # 2, with the directive to complete a more in-depth study and review of the various approaches and systems being implemented in the various pork exporting countries around the world that are currently meeting this prescribed inter-premises movement of swine reporting.

This report will further define traceability, discuss the general components of a traceability system and compare the components of the traceability systems in four pork exporting markets: Canada, Denmark, Australia, and Brazil.

Traceability: Definition

Google, using the Oxford Language Dictionary, defines traceability as 'the quality of having an origin or course of development that may be found or followed'. This definition references 2 contexts of traceability. The first, is on the basis of logistic traceability of a product from an origin to its present location or destination. The second context is on the basis of attribute traceability or having the ability to follow a product in its development or through a process. A more detailed definition retrieved from ChatGPT is shown in figure 1.

Figure 1: 2023 ChatGPT definition of traceability



The ChatGPT longer definition supports the logistic context of traceability as 'the ability to track the movement of a product or item'. It goes on to propose that the purpose of traceability is to 'establish a clear record' to 'facilitate quality control, safety management and regulatory compliance'. An everyday example of logistic traceability is in regard to grocery products where universal product codes (UPCs) and batch numbers are used to trace and identify products. This system allows goods to be traced from manufacture through distribution and potentially even on to the end consumer in the event of a food safety or other product quality issue. A real-world example of logistic traceability is a dog treat recall. Consumers may learn of a product recall in the news and then, if they purchased that product for their pet, they could review the UPC and the batch number on the back of the package to understand if their purchased product is a part of the recall. If it is, they may follow the instructions with the recall, but if it is not, they can now have

confidence in the product and the working traceability system. Alternatively, if the consumer used a store rewards card or credit card for the purchase, the grocer may also be able to contact the consumer and inform them that they may have a product that is a part of the recall. This further improves the traceability of the product from the grocer to the end consumer and bulbs trust in the traceability system.

The ChatGPT definition does little to address the second context of traceability above, attribute traceability. Pork traceability systems that include attribute traceability, or the ability to trace processes or practices to support product or brand claims, may also have a role alongside logistic traceability. Attribute traceability may involve things beyond logistics such as management practices, quality assurance certifications or sustainability parameters. For US producers, practices like "no antibiotics ever" and adhering to California's Proposition 12 are just two examples. Outside of pork, the Swedish furniture retailer, Ikea, famous for their flat-pack wood furniture, brings a real-world example of an attribute traceability system with their sourcing of lumber. It was not only important to know where the lumber was sourced from, but consumers also wanted to know that it came from responsibly managed forests. For this aspect of traceability, Ikea requires that all wood sourced for their products either be recycled wood or certified by the Forestry Stewardship Council, an international non-governmental organization that certifies and verifies forestry practices. Ikea has also put in place their own internal team to further spot-check and verify the certification processes of the council.

Whether the goal of a traceability system is to track the movement of an item, or a practice used in the production of an item, the purpose of the system is to improve consumer confidence by building and maintaining the consumer's trust.

The pork traceability systems in Canada, Denmark, Australia, and Brazil have different goals.

- In Canada, their federal system, PigTrace, states as their goal 'to ensure and protect the prosperity and peace of mind for the Canadian pork industry and its consumers'.
- In Australia, the Australian PigPass wants to be able to act in the event of a disease outbreak, but it also aims to provide assurance to consumers.
- Denmark has a straightforward goal of veterinary preparedness.
- In Brazil, they have both state and federal government programs for veterinary preparedness, but beyond the government, the industry also has a multi-industry collaborative group that wants to give international traders additional health information beyond what the Brazilian government is giving. Specifically, they are trying to build greater confidence in Brazil's exported products.

With these stated goals, there is always a desire for logistic traceability, but some systems also desire attribute traceability as well. The four different export markets have different goals for their traceability systems; therefore, the design of their systems varies in order to serve their objectives.

The Components of a Traceability System

Traceability systems have three primary components: 1) the data; 2) the data entry and storage or repository for the information; and 3) the governance of the data and its use. The following sections will break down these three components and compare them in the four markets.

The Data

The data component of a traceability system consists of the fields, and the required format of the fields, to be captured and recorded. Table 1 compares the different fields required by information category including locations, date/time, transport, animals, and reporting person.

All four markets require some information about the origin and the destination of the movement.

In Canada, it is simply the individual site IDs that are required. This equates to premise IDs in the US. In other cases, more location information is needed such as the address or even the owner's taxpayer number.

Three of the four markets require some information about the transportation of the animals for the movement. This may include information as simple as the license plate number, or further details such as the name of the person transporting the animals and whether the truck was clean or not. All markets require information about the animals transported. Again, this information can be as simple as the number of animals moved, or may require further details like the IDs, type, age or gender of the animals or any withholding period information. Finally, Denmark and Brazil also require information identifying the person reporting the movement information.

Table 1: Summary of data fields used as part of a pork traceability system by country and information category.

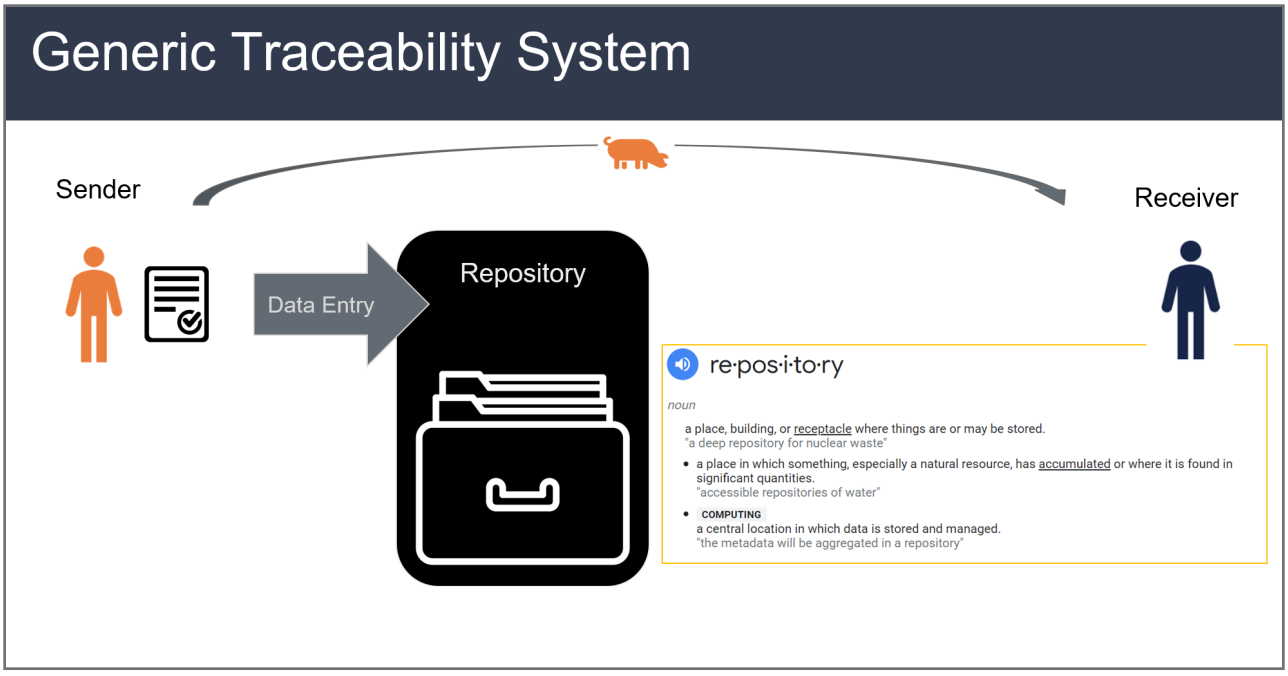
	Canada	Denmark	Australia	Brazil
Locations	Origin & Destination: ID	Origin & Destination: Country Code, CHR#, Address, Crew#	Origin & Destination: Name, Property ID, Address, Phone Origin: Name of person responsible for husbandry Destination: Type of facility, Signature	Origin & Destination: code, name, livestock exploitation code, Owners - CPF/CNPJ (taxpayer#), Owners name, Municipality and federation unit. Origin ONLY: symbol of establishments brand name
Date/Time	Departure OR Arrival date/time	Date of report	Carrier: Load and unload date and time, Ambient Temp at load	Date of issue
Vehicle Info	License plate	Country Code Registration # on carriage & trailer + any trailer used for trans shipment	Carrier: Registration number, Y/N trucks clean, Name, Signature, Phone	License plate
Animal Info	# loaded OR unloaded ID's if applicable	# Animals or Deadstock	#, Gender, Type, Duration on origin property, Withholding period Information	#, Gender, Age or Category, Aptitude and product when applicable, Purpose of transit
Reporter		Logon ID		ID, Place of issue

Although these fields are the listed fields required for each movement, this list may not represent all the information available about each movement. For instance, although Canada doesn't explicitly capture the reporter of the information, the way the data is captured or entered may contain information able to identify the reporter. This will become clearer with the explanation of the second component of a traceability system, the data entry and repository.

The Data Entry and Repository

Once the required information has been established, the next step is to establish a process, or multiple processes, to capture that information and store it. Figure 2 depicts part 1 of a generalized traceability system. The schematic depicts a movement of pigs between the sender of the pigs and the receiver of the pigs. The sender is the first person with information about the movement and would be a logical place to begin data entry. The place where the information is entered and stored is known as a repository and can be thought of like an organized file cabinet. A repository can be as complicated as an accounting software platform or as simple as a .csv file with a column for each field captured where each row is a single individual movement. With this generalized schematic in mind, the next sections provide more detail about the data entry and repositories for each of the four markets

Figure 2: Schematic of a generalized traceability system (Part 1)



Canada

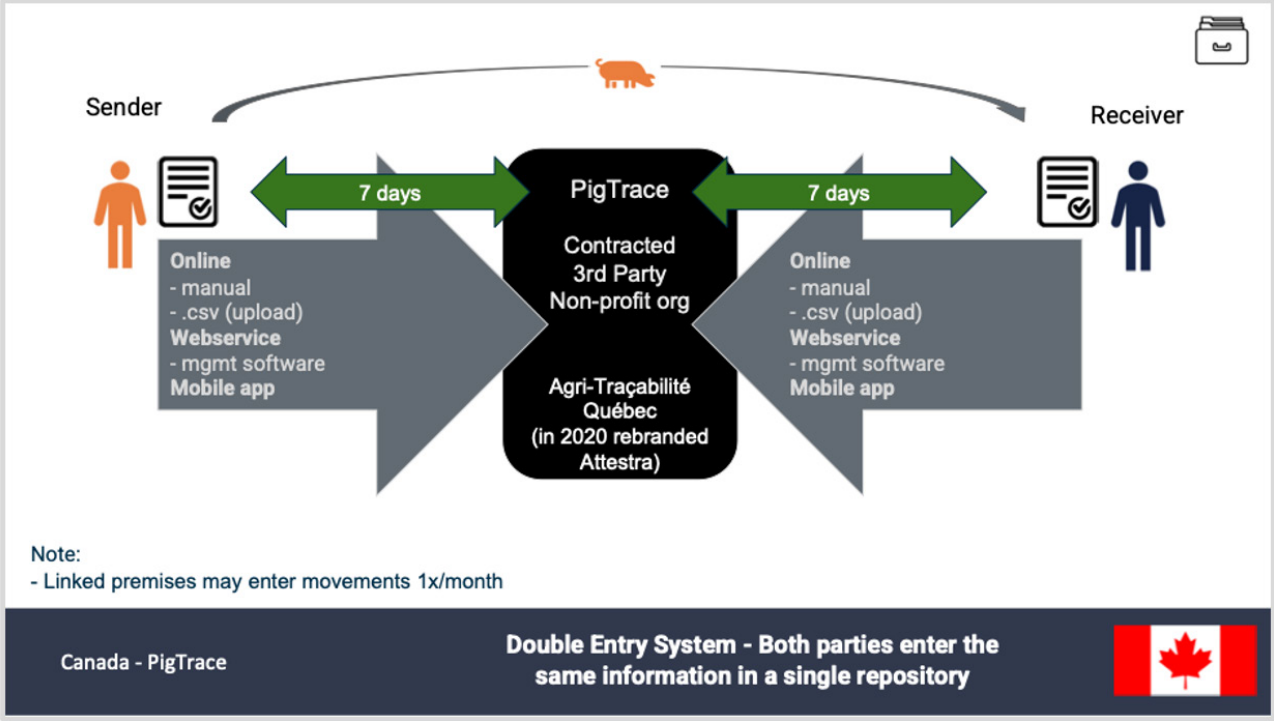
Beginning with the data entry, PigTrace Canada has several different ways for producers to enter the data. Data may be manually entered individually, online or in the mobile app. Alternatively, several movements may be entered at one time with a .csv file of the movement information uploaded to the online platform. Additionally, there is the ability to have web service connections to the repository, which is a direct, one-way connection between the individual producer's management software platform and the repository. This means that once the information was entered into the producer's existing software that the information could be easily transferred into the repository without re-typing the information.

As the schematic depicts in Figure 3, the same data entry arrows from the sender are also illustrated coming from the receiver. The Canadian system is a dual entry system where both sides of the movement enter all the information. At 100% compliance, the repository would contain 2 entries for every movement. Both parties in this system have seven days to enter the

information, but there is a condition where a producer may set up 'linked premises' that have frequent movements between premises, where movements can be reported just one time per month.

The repository used for the PigTrace system is a single national repository operated by the contracted 3rd-party, Attestra, formerly Agri-Traçabilité Québec.

Figure 3: Schematic - PigTrace Canada double entry, central repository traceability system



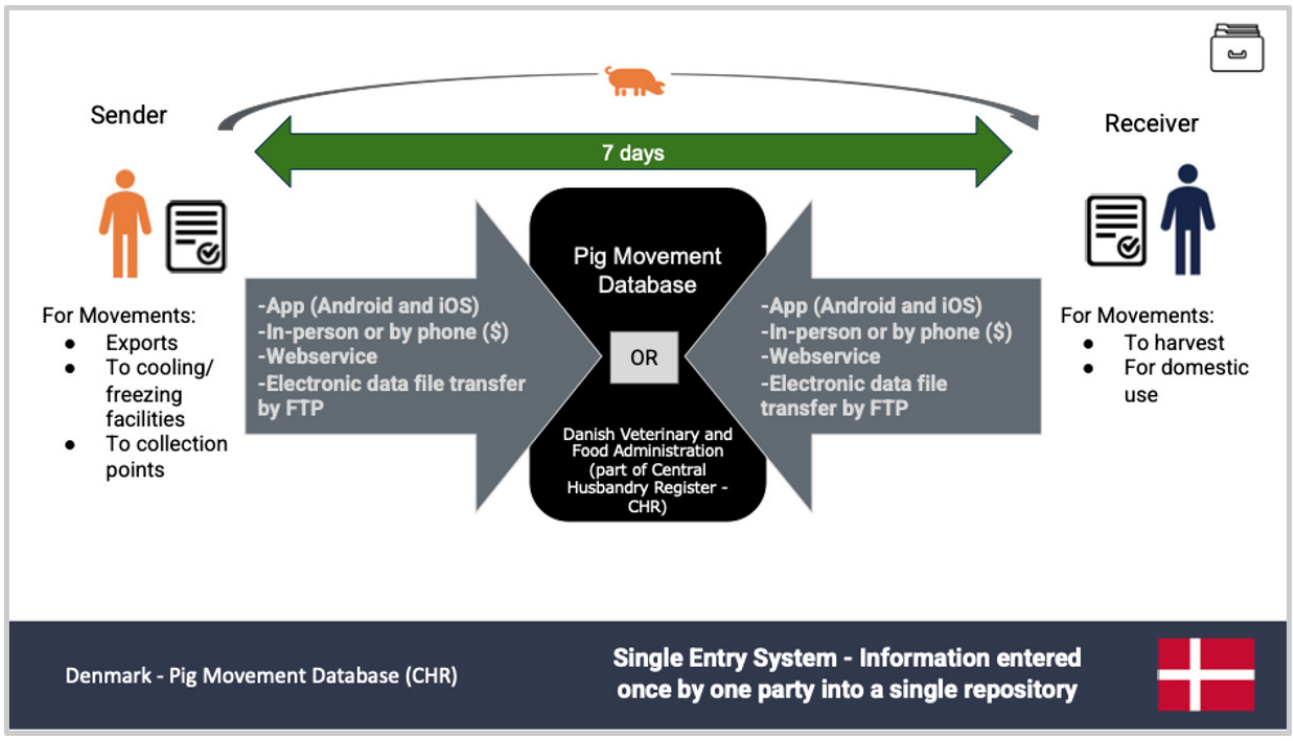
Denmark

In the Danish Pig Movement Database (CHR), the data entry can also occur in many ways. There is an Android and iOS app for movement data entry. There is also the ability to enter a movement in person or by phone, for a nominal fee. There is a web service, as well as the ability to set up electronic data file transfers if a producer wants to set up a direct connection to their system.

Although the schematic in figure 4 depicts data entry arrows originating from both the sender and the receiver, the CHR is a single-entry system where either the sender or the receiver enters the information depending upon the type of movement. For export movements, the sender enters the information. For movements to cooling or freezing facilities or to collection points, again, the sender enters that information. For movements that go to harvest or are from farm to farm within the country for domestic use, the receiver is responsible for the entry of the information. This results in the information for each movement being entered once by one party into the repository. Both parties have seven days from the date of the movement to enter the information.

The repository for the Pig Movement Database is a single national repository operated by the Danish Veterinary and Food Administration. The repository is a part of the Central Husbandry Register or CHR.

Figure 4: Schematic – Danish Pig Movement Database single entry, central repository traceability system



Australia

In the past, Australia had and continues to still use a three-part form to collect movement information. These triplicate forms utilized a carbon copy system where the pressure of writing on the top page transferred writing, although more faintly, to the remaining pages in the document. In this case the top page was pink for the sender, the middle green for the carrier and the bottom white for the receiver. Each party, the sender, the carrier and the receiver, has their own section of information to fill out to complete the record and a copy to retain for their own records. Australia's PigPass system allows the use of the paper forms, but also mimics the forms in a digital capacity with data entry by mobile app.

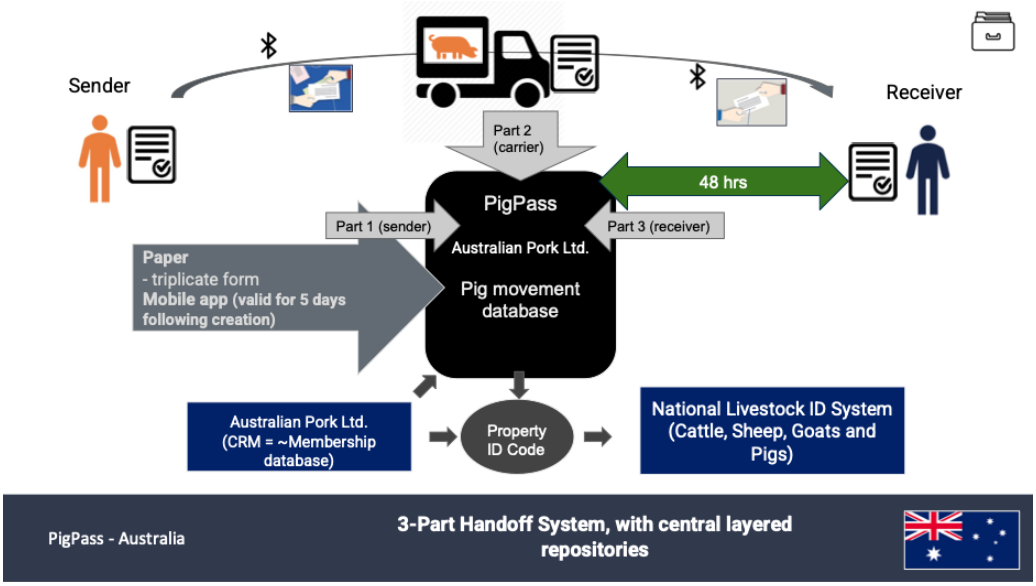
If using the form, the process begins with the sender completing the top part of the form and tearing off their pink copy to retain for their records, while passing the rest of the document to the carrier. If instead the sender uses the app to enter their information about the movement, they can use their mobile device to Bluetooth sync that information to the carrier's device when both have the app open and are in proximity. The carrier continues with their section on the form or in the app entering information at the sending site and entering more information at the receiving site. Once they've completed their section, then they can do the Bluetooth final pass off to the receiver. The receiver completes their section and signs off that all the information is correct by form or app.

The sender may start recording a movement up to 5 days before the movement begins. The carrier continues the record of the movement at the time of the movement. The receiver then has 48 hours to complete and submit the movement record.

All movement information enters the single national PigPass repository. The repository is

operated by Australian Pork Ltd, the national pork industry group. They manage the movement database alongside a membership database that has more information about the ownership and relationship of property ID codes. They then pass the movement information on to the National Livestock ID system, where there is national level traceability for all livestock logistics used for veterinary preparedness of foreign animal diseases and for other governmental programs.

Figure 5: Schematic – Australia's PigPass 3 part handoff single entry, central layered repository traceability system



Brazil

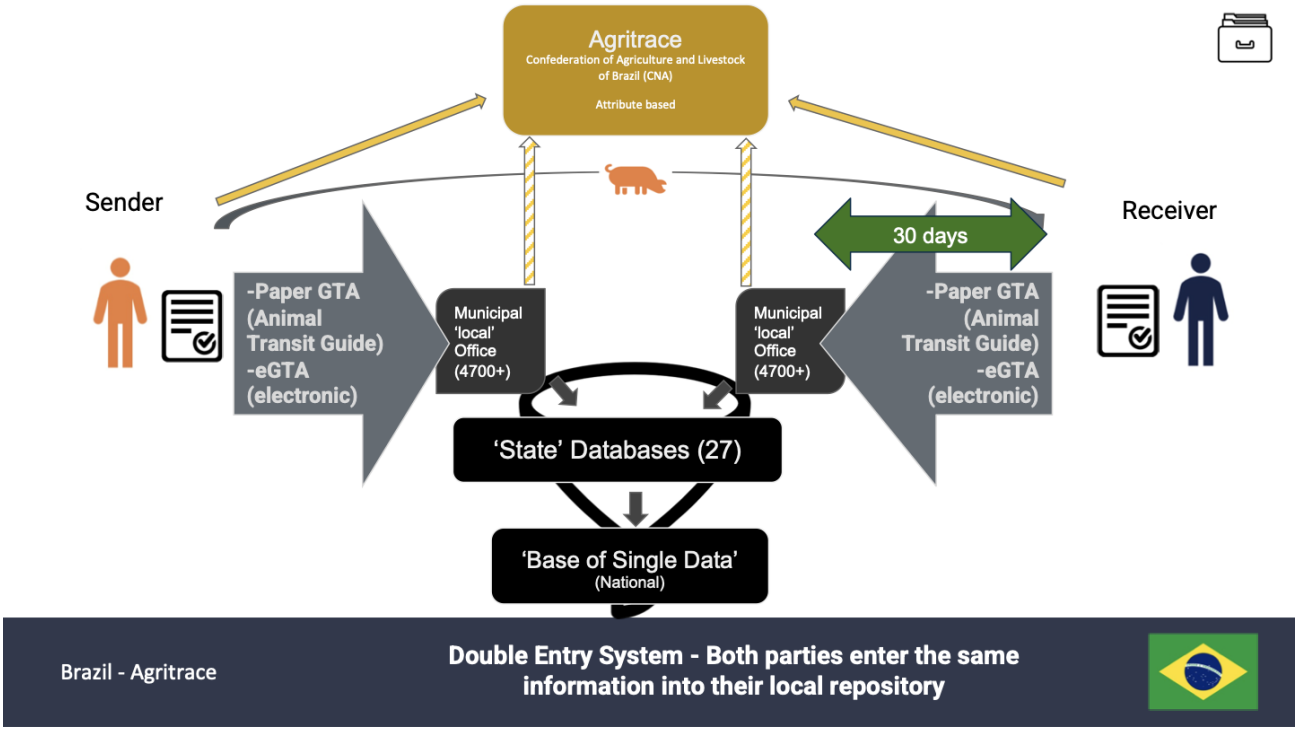
Brazil has a double entry system where both the sender and the receiver complete an Animal Transit Guide (ATG). There is both a paper copy or an alternative electronic version. Both are entered into a repository at the local municipal office. There are more than 4700 municipal offices throughout Brazil.

Brazil has a layered repository structure where the information from the municipal offices is then transferred to one of the 27 state databases. Those state databases then pass the information to the national database, loosely translated as the 'base of single data'. This database is used at the federal level for governmental programs. As Brazil is a double entry system, both sender and receiver may enter the information into a single local office or different local offices depending on their locations. The sender enters prior to the movement, while the receiver has up to 30 days from the date of the movement for entry. This is similarly true at the state level. Only at the National level, if the system was 100% compliant, would every movement have both the sender's and receiver's entries.

The state and federal system meet the desire for logistic traceability, but Brazil also has an additional traceability system at the ready for attribute based information. In this system, the information that is required governmentally at the municipal level may also be moved into a parallel system called Agritrace. Agritrace is managed and maintained by the Confederation of Agriculture and Livestock of Brazil as an export market traceability system. The system not only

has the movement data that the municipal government requires, but it can also capture additional attribute based information that goes beyond the information that the government collects but that export markets may require. The system currently only has programs that support attribute based certification for beef exports, but if an attribute verification process was desired to increase the value of Brazilian pork exports, the system template is already in place.

Figure 6: Schematic – Brazil's double entry, multi-layered repository traceability system



Comparison: Data entry and repository systems

Each export market has multiple routes for the data to be entered in the system with all of them having an electronic option. Several markets have entry methods that may cater to specific producer types. For Large producers with many movements or the same movement repeated frequently, there's often ways to batch movements into the repository or to have a direct connection to the repository. Smaller producers or show pig producers may prefer options to enter information by phone or form. In Australia and Brazil digital data entry systems have mimicked the legacy paper-based systems while still maintaining the paper forms, thus easing the adoption process over time. Improving the ease of data entry into a repository for the different producer types should garner both faster and more broad participation throughout the industry.

Both single entry and double entry systems were utilized. Canada and Brazil both used a double entry system where, with 100% participation, each movement would be entered twice. The disadvantage of a double entry system is the double burden of the entry process on both sender and receiver. But double entry systems have an advantage in the ability to more thoroughly audit and verify the process as it is unlikely that both parties would not enter information. Although an audit process is possible with a double entry system, no documentation mentioning a process in either Canada or Brazil was found. Denmark's and Australia's single entry system eases the burden of the data entry process, but might make it more difficult to verify and audit. Later

sections of the paper will discuss this point further.

There is a wide range of time allowed between the time of the movement to data entry particularly from the receivers of pigs, from 48 hours in Australia to 30 days in Brazil. The time allowed would most definitely impact the readiness to respond in the case of a foreign animal disease or other food safety concern. Systems should weigh a short time frame to speed any necessary response with the ability and ease of participants to fully participate.

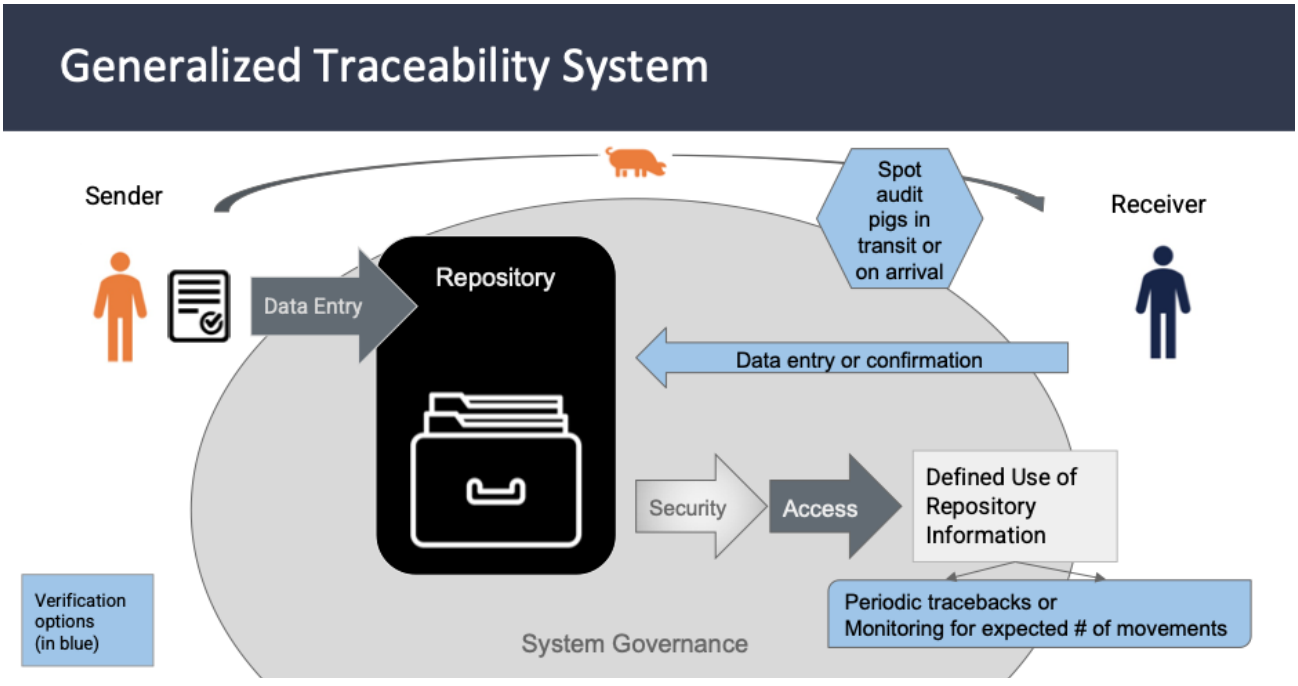
Each of these traceability systems result in all movement data added to a single repository that the National Animal Health officials can access. There may be a single central repository that the data is directly entered into, as in Canada and Denmark. Although an efficient means to capture, store and access the information, these systems may be considered a data security risk with all of a nation's movement records in a single place. Alternatively, the data may pass through one or more repositories, either for local or state logistic traceability use, as in Brazil, or for industry or trade attribute traceability use as in Australia and Brazil. Movement data may also be duplicated and/or augmented to support attribute traceability depending on export market requirements. Although these layered systems allow repositories to serve additional purposes on top of national logistic traceability, the passing of the information from layer to layer may also lengthen the time it takes for the information to enter into the national repository.

Governance

The final major component of a traceability system is the governance of the system.

Governance includes the security, access and use of the data, the enforcement of the process and management of proposed changes to the system and verification methods used to know that the system is performing as expected. Figure 7 illustrates these components in a generalized traceability system.

Figure 7: Schematic of a generalized traceability system (Part 2)



Data Security and Access

Data security is a large and increasingly complex field. The details of specific cyber security practices used within these systems are not published and are beyond the scope of this report. In two of the four export markets, Denmark and Brazil, a governmental organization maintained the data repository and it is presumed that those repositories would be held at the same data security standards as other governmental databases. Canada chose to outsource the maintenance, management and security of its repository to a 3rd party that specializes and has a track record of managing traceability data in industries throughout Canada. Australian Pork Ltd, the industry organization, manages and maintains the repository of pig movement data. Prior to the pig movement repository, the organization also maintained a separate membership database that includes information like premise ID, location and ownership information. It would seem that the industry group had the track record and confidence of the producers to house their information securely.

Often the security of data is improved by limiting access to it and by defining and limiting its intended use. Table 2 summarizes the accessing entities and the rationale for use by country.

The governmental repositories are often only accessible to governmental officials for the purpose of contact tracing, administration or enforcement of the program. In Canada's central repository federal inspectors have access to the information, while provincial inspectors may gain access with a signed data sharing agreement. They may also grant limited access to law enforcement if pertinent to a legal matter. The Brazilian governmental repositories are similarly accessible to governmental officials at the level of the layered repository: municipal, state or federal. Denmark's central repository is also accessible to authorities but the Danish repository allows other parties limited access. Registered producers have access where they may enter, edit or delete their own movements. Registered users may research movement to and from a known premise or CHR number but their research does not return sensitive information such as phone, email or physical address. The public may also access the repository to obtain aggregate information such as the animal density in locations across Denmark or to understand the countries where pork is imported or exported.

Table 2: Data access entities and rationales in four pork export markets

Governance - Security
Who can access and why?

Canada	Australia	Denmark	Brazil
Who? Federal inspectors Provincial inspectors, with agreement Law enforcement, with cause.	Who? Australian Pork Ltd. (which grants access to others)	Who? Authorities Public Registered producers Registered users	Who? Local officials State officials Federal officials CNA
Why? - To administer the program. - To verify compliance to the program. - To enforce requirements.	Why? - To manage emergency disease outbreaks or food safety events - To track industry production volume trends - To verifying levy payment accuracy as a service to Govt stakeholders. - To operate and maintain the database	Why? - For contact tracing - For enforcement - To obtain animal density - To make understand import and export countries - To enter, edit or delete own movements - To research movements with a known CHR number (does not return phone, email or physical address)	Why? - For contact tracing - For program administration - To make available reports and information of public interest related to Brazilian agribusiness - To certify product meets customers desired quality attributes

The industry repositories in Australia and Brazil are similarly accessed by those organizations in order to operate and maintain their respective repositories. Brazil's Agritrace, not yet used for pork, is accessed by organization personnel as a means to establish certification of desired attributes for a particular market. Australia's repository may be accessed by Australian Pork Ltd personnel to manage disease outbreaks or food safety events that are not of a multi-species nature, like foot and mouth disease, and/or are not designated as federal concerns. PRRSV (Porcine Reproductive and Respiratory Syndrome Virus) or PEDV (Porcine Epidemic Diarrhea Virus) detection in Australia are examples of single species impact that may not warrant a larger federal response. The organization also accesses the data as a means to verify levy payments, known as indemnity payments in the USs, as a service to the Australian government. Further, the organization accesses the information to establish production volume trends nationally and they may use the information in the repository for research, marketing, industry development or policy development to further the Australian pork industry. Lastly, the organization accesses the repository to enhance and pass the data to the national livestock movement repository.

The System Enforcement and Changes

Generally, the enforcement of a movement traceability system is undertaken by a governmental body, a national entity in all except Brazil, where the individual states regulate and enforce the program. Most frequently, escalated non-compliance may result in fines or other legal action. In Canada, non-compliance is first managed with education on the program, where additional incidents may result in a letter from the Canadian Food Inspection Agency and then escalate to fines, where the dollar amount of the fine depends on the gravity of the offense. In Denmark, restrictions may be imposed on the farmer for non-compliance implying that no movements would be allowed and movement documents could not be issued until resolved. If further escalated, the producer may face legal action. One of the main enforcement measures used in

Australia is through enforcement at the abattoir where incomplete documentation could result in a penalty notice to the abattoir.

In all four countries, there is a national requirement to comply with the traceability program where the rules and regulations of the program are clearly stated. Changes to the program would require following governmental processes for the country in order to change policy. As Australia has an industry repository as a precursor to what is required by the national repository, it is theoretically possible that the industry organization could make changes or adjustments to the program, as long as the changes still met the requirements set out by the Australian government. The organization states that it 'will from time to time make PigPass system improvements and changes to facilitate industry compliance with government regulations, and to improve traceability outcomes for the industry.' It is presumed that any major changes to the system or system requirements for producers would follow their corporate governance process as defined in the Australian Pork Ltd constitution.

Verification Methods

Each traceability system requires a series of checks and balances to ensure that the system is working as intended. The Canadian system uses the repository information to estimate the number of pork producers participating against expected numbers. Additionally, the data may be used in provincial outbreak simulations. The Danish system has a series of automatic control systems to validate the information and follow-up on anomalies. They also have an annual confirmation or update of premise information. In Brazil, the more than 4,700 local agricultural health offices are responsible for maintaining updated farm information and compliance to the traceability program is regularly checked by independent inspectors. Australia's 3-part hand-off system has checks and balances in place within the system including a unique serial number for each movement and the acceptance of information from the sender and the carrier by the recipient of the pigs. The system is also used to verify any government levy payments which acts as a financial incentive for participation and maintaining accurate information. Finally as mentioned previously, abattoirs are required to have complete documentation or face fines meaning movements without complete documentation would not be accepted for harvest.

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Summary of Literature Review

A literature review to gather the scientific evidence for an African Swine Fever virus (ASFV) exposure assessment of US domestic pigs raised in total confinement and/or with outdoor access to ASFV-infected feral swine

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Introduction: Feral swine are an invasive species in the United States (US) that cause damage to agriculture property, livestock, natural resources (water and land), cultural sites, and historic places. Feral swine can also physically injure pets and people. Feral swine have been reported in at least 35 US states and have an estimated population of more than 6 million. There are also feral swine in Canada, especially in the plains Prairie Provinces (i.e., Alberta, Saskatchewan, and Manitoba). In addition to the environmental damage and physical harm, feral swine can and may harbor numerous pathogens, both swine-specific and zoonotic. African Swine Fever virus (ASFV), the causative agent of African Swine Fever (ASF), is arguably the pathogen of major concern. ASF is a foreign animal disease of high consequence, and although never diagnosed in the US, its introduction and subsequent spread would have myriad negative consequences for US domestic pig populations and the pork industry. In the US, the feral swine range map overlaps that of domestic pigs.

Pigs with outdoor access are at increased risk of ASF due to direct and indirect contact. In the European Union, a high percentage of outbreaks are in backyard swine, for which these farms have demonstrated poor biosecurity and lack of fencing[1]. There have been more statistically significant risk factors identified (direct and indirect) for outdoor raised pigs versus indoor raised pigs. Whereas the indoor pigs have an increased risk with proximity to other outbreaks, outdoor raised pigs additionally have increased risk when there is wild boar density near the farm and a short distance to wild boars.[2]

Purpose: This summarizes a literature review that describes the potential pathways of ASFV transmission between feral swine and domestic pigs, with a focus on outdoor raised pigs. Additionally, various mitigations implemented in ASF-infected countries were identified, reviewed and summarized from published literature and case reports specific to decreasing or eliminating ASFV transmission pathways for feral swine and domestic pigs, with a focus on outdoor raised pigs.

The full literature review can be found at: https://hdl.handle.net/11299/255024

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Results:

I. Pathways of transmission: To provide information regarding the ways infected feral swine could transmit ASFV to domestic pigs, a pathways analysis approach, similar to the approaches used in the risk assessment process by the Secure Food Systems team, was completed. The following pathways have been identified in the "Assessment of the Risk Associated with the Movement of Liquid, Cooled Boar Semen Within, Into, and Outside of a Control Area During an ASF Outbreak in the US" that is in development as potential pathways for ASFV transmission.

The following pathways were explored for the transmission of ASFV from feral swine to

domestic pigs.

1. Wild and peri-domestic Animals: In Europe, three key drivers of contact between wild boar and domestic pigs are: I. food availability, II. sexual attraction, and III. overlap of habitat.[3] The following are examples of these main drivers but written in the context of US feral swine ecology and behavior:

- In a food scarce environment, feral swine can become attracted to the available feed at a pig farm.
- Feral swine, especially boars, may be sexually attracted to domestic sows and gilts (such sexual behavior mainly occurs in Autumn in Europe[3]).
- Wherever the presence of feral swine and domestic pigs overlap, there exists the potential for these two populations have direct contact or indirect contact via the environment in their shared habitats.

2. Mortality and Cull Management: Direct contact with ASFV contaminated wild boar carcasses can be a pathway of transmission to domestic pigs. Infectious ASFV can be maintained in carcasses for months, especially in cold and moist climates, like those found in Eastern and Central Europe[3]. Even following decomposition, a contaminated environment may still serve as a pathway for ASFV transmission, due to the long ASFV survival times and the rooting behavior of suids. Additionally, any field dressing of recently hunted feral swine, or the inappropriate disposal of their offal, could also contaminate the environment with ASFV.[3,4]

3. Domestic Animals: There is no direct evidence to support the transmission pathway of ASFV via domestic animals such as dogs and cats[5], or poultry and other livestock species. It is possible that domestic animals could serve as mechanical vectors in the spread of ASFV, either by contaminating their body, or the movement of contaminated carcass. Transmission is especially possible if they have access to or travel between both feral swine and domestic pigs or their environments. Another potential pathway of transmission could be from scavenging on ASFV contaminated feral swine carcass or grazing in ASFV contaminated environments. This pathway is unlikely given that wolf feces from wolves allowed to scavenge on contaminated wild boar carcasses tested negative for infectious ASFV, suggesting that the virus does not survive passage through the intestines of non-suids.[6] Although these pathways of ASFV transmission via domestic animals are possible, more information is needed to fully extrapolate their role in ASF transmission.

4. Insects and Arthropods

- Ticks have been established as a vector for ASFV on the African continent, specifically Ornithodoros spp. soft ticks[7]. Therefore, it is possible that soft ticks could become infected from feral swine and domestic pigs become an "accidental host" if infested by the tick vectors[8,9]. Current outbreaks in Europe have not been attributed to the transmission of ASFV via the sylvatic cycle because wild boars do not have permanent resting places in which ticks are also present making this pathway unlikely. Where there is clear overlap in the habitats of the warthogs and ticks with those of the domestic pigs, transmission via ticks is very possible, but in regions of Africa where these areas of overlap are non-existent, tick transmission is infrequent[3].
- The four Ornithodoros ticks found in the US Ornithodoros coriaceus, O. turicata, O. puertoricensis, and O. parkeri, have all been experimentally infected with ASFV in published studies. In addition, with the exception of O. parkeri[10,11], the infected ticks were also deemed competent hosts and resulted in ASFV transmission to the susceptible

pigs in the experimental studies.[10,11] Areas of the United States in which spillover risk from the sylvatic cycle to domestic pigs is higher has been identified, due to the presence of domestic pigs and the co-occurrence of competent ticks and feral swine.[10] Additional information is needed to evaluate whether hard bodied ticks could play a role in the transmission of ASFV in the US.

5. Water: There is evidence that water can serve as an indirect pathway in which ASFV is transmitted from feral swine to domestic pigs. Experimental studies have shown that the virus can "remain infectious in stagnant water from 50 to 176 days"[3] and when water is contaminated by ASFV infectious blood, the viability of the virus is preserved for at least 60 days when stored at 4°C[12].

6. Feed and Bedding

- Transmission of ASFV is possible via the natural consumption of contaminated feed that is plant-based, especially after repeated consumption. Were the feedstuffs to be contaminated by infected feral pigs or their contaminated carcasses, feed could serve as an indirect transmission pathway for feral pigs to transmit ASFV to domestic pigs[8].
- Transmission of ASFV is possible via naturally derived bedding such as straw[13] or the hulls/husks of rice or other cereals[14]. In Poland and other Baltic states, fresh grain and grass contaminated by infected wild boars was implicated as a direct source of infection of ASFV, because infected wild boars were found in the same areas as the domestic pig outbreaks[15].

7. Aerosols: Aerosol spread of ASF is limited to short distances[16] and can be a form of indirect transmission of ASFV. A report from China noted positive ASFV in aerosols, dusts and air outlet samples, but these samples were limited to those of the piggeries.[17] There was no identified literature that explored aerosol spread between feral swine and domestic pigs, nor were there epidemiological accounts of aerosol spread over long distances. Although long-distance cannot be completely discounted, it is more likely that if transmission were to occur from feral swine via aerosols, that feral swine and domestic pigs would need to be in close contact with each other.

8. Vehicles and Equipment: Given that AFSV survives in secretions and excretions of swine such as saliva, nasal fluids, urine, and feces, they may be important sources of contamination coming from feral swine and their environments. If those materials contaminate equipment and vehicles, they can then serve as fomites to spread disease to susceptible swine. Contaminated livestock vehicles have been implicated as a source of ASFV in outbreaks[18], although according to the EFSA, no data exists for ASFV survival on or in vehicles used for live pig transport, vehicles visiting pig farms, or any other vehicle types.[19] Equipment and its surfaces may be contaminated with ASFV when in contact with infectious material from feral swine. Although there is no evidence to support this exposure pathway between feral and domestic swine, it remains possible.

9. People: People can serve as a means of indirect transmission of ASFV from feral swine to domestic pigs. The clothing or shoes of a person following contact with infected feral swine, their carcass, or a contaminated environment may serve as a pathway of transmission[20], especially during normal hunting or slaughter practices[8].

10. Biological Materials: Any of the ingredients that are used in biological materials (e.g., vaccines, bacterins, diagnostic kits, etc.) that are derived from infected feral swine could serve as an indirect pathway transmission. Another form of biological materials is semen for the use in artificial insemination. ASFV has been detected in semen at 2 days following experimental

infection[21], semen from infected feral swine being used for artificial insemination could serve as an indirect pathway of indirect transmission from feral swine to domestic pigs.

II. Mitigation measures applicable to transmission pathways: The following are mitigation measures identified in literature from countries outside the US that are ASV positive, have eradication ASFV, and/or have borders with ASV positive countries. These mitigation measures are in use or have been proposed to eliminate and/or decrease transmission of ASFV via the pathways identified in the previous section.

Prevention, Surveillance, and Communication

- Vaccination: The vaccination of domestic pigs, wild boars, and feral swine against ASFV have all been proposed as preventative measures. Vaccination that targets domestic pigs would help mitigate transmission from feral swine by increasing the domestic pig population's resistance to infection and decreasing the severity of clinical disease. Vaccination of wild boars and feral swine will mitigate this pathway by reducing the amount of virus shed which should then decrease the probability of virus transmission to domestic pigs. Although vaccines would be a great preventative tool, there are no commercially available ASFV vaccines in the United States.
- Surveillance: An important part of preventing transmission of ASFV from feral swine to domestic pigs is to first recognize its presence in the feral swine population. Surveillance is a tool that has been used by previously negative and currently positive ASFV countries for early detection of infections in wild swine populations.[3] Depending on the ASFV status in a region or country, passive or active surveillance of wild boars that were found dead or hunted, has been effective.[22] The US has targeted active surveillance of feral swine in certain regions.
- Diagnostics: Diagnostic assays are necessary for the detection of ASFV. Many of the validated diagnostic methodologies in use have been validated for use in wild suids, some of which may have better sensitivity in this population. In the US, any samples submitted for testing of ASFV is currently performed at the National Veterinary Services Laboratory of the USDA.
- Communication: Communication offers a way to provide information on recommendations for mitigation measures used to reduce the likelihood of ASFV spread from feral swine to domestic pigs. Although state and federal regulators are charged with controlling ASFV, control cannot be achieved without the engagement, cooperation, and efforts from the individuals who own or handle wild swine or domestic pigs.

Containment of ASFV in native wild suid species

- Outbreak Zones: Following positive ASF cases in wild swine, many countries have used containment zoning. Each of the zones in a nation will have specific regulations in place, regarding hunting or surveillance.

Measures targeting wild boar/feral swine populations

- Hunting: A 2014 scientific report of EFSA reported that "no evidence was found in scientific literature proving that wild boar populations can be drastically reduced by hunting…in Europe".[23] The Food and Agriculture Organization (FAO) recommends that in areas where hunting biosecurity compliance is difficult a total ban on hunting should be considered, especially if proper surveillance or ASFV testing is unlikely and/or proper disposal of carcasses is impossible.[24]

- Trapping: The use of traps has been employed in the US, and Gaskamp et. al, (2021) has published information on the different types of traps and their effectiveness and efficiency for capturing wild pigs in the state of Oklahoma.[25] When used in conjunction with euthanasia, and when managed appropriately, trapping can be a highly effective method of reducing wild swine populations.[24]
- Contraception: Contraception has been proposed as a method of reducing the wild boar population in Europe.[24] To date (c. 2022), there are no effective oral contraceptives that are available and marketed, only injectable, making it logistically difficult to administer to wild suids.[24]
- Poisoning (Biocides): Poisoning, or the use of biocides, has been proposed to control wild boar populations.[23] This tool has been used for other wildlife in the Americas and Oceania with mixed results.[24] Most successful applications of poisoned bait follow pre-feeding with untreated bait.[26] A general downside of using bait is that once boars have perished, carcasses may be difficult to locate for disposal.[26]
- Artificial Feeding Stations: The use of artificial feeding stations has been proposed to keep wild boar in a specific geographic area to restrict their movement, and subsequently the geographical spread of diseases such as ASF.[23] They have also been used to facilitate trapping, hunting, or as a deterrent or distraction from agricultural fields.[23] It has also been noted that they may increase the concentration of wild boar in a given area which might facilitate spread of ASFV within the wild boar population.[23] Additionally, it could also increase wild suid populations through "improved survival during winter and reproductive output".[23] The FAO has proposed regulating supplementary feeding as a more appropriate mitigation.[24]
- Manipulation of Habitat (of wild boar) Carrying Capacity: The general purpose of manipulating habitats is generally targeted at reducing the population of wild boar in a given geographical area. Examples include fencing off of water or food sources or clearing away bushes and trees.[27] This manipulation of a wild boar habitat may only be effective in a small ASFV affected area.[27]

Fencing

- To restrict movement of wild swine: Although there are numerous accounts for the use of fencing to restrict the movement of wild boar, it may not be useful in all situations. Information on the spatial distribution of wild boar populations is necessary to identify the locations wherein fencing can be effective.[23] The FAO recommendations regarding permanent boar-proof fencing are to use fences made of woven wire mesh at a minimum of 1.5-1.8 meters high, fixed to the ground, and with barbed wire on the sides and along the top.[24] The FAO also noted that electric fencing alone is not sufficient to completely block animal movements but could be used as a deterrent, especially to protect smaller areas of land.
- To exclude feral swine from domestic pig farms: Wild boar- and feral swine-proof fences have been described, and have been in used for hunting preserves (to keep wild boar in) and also in agricultural or ecological environments (to keep wild swine out).[23] The EU commission prescribes that any perimeter fence should "delimitate the commercial holding" and that for outdoor farms fences be "preferably doubled, at least 1m apart, and proofed against wild boar and pigs. Fences should be at least 2m high of which 50cm should be under the ground".[28]

Confinement of Domestic Pigs: In certain countries where ASFV is considered epidemic, in an attempt to decrease further spread of the disease, the establishment of backyard herds has been prohibited, although such discriminatory practices should be carefully evaluated due to high risk of poor compliance.[20]

Hunting Practices

- Education: A few biosecurity recommendations specific to hunting practices have been proposed by Bellini et al. (2016) and include: "Hunters shall be authorized to hunt in the area only after a specific training on basic hygiene and biosecurity practices."[20]; "Hunting suits, including boots/shoes should be kept in specific bags. Boots are worn in the dressing room before hunting and re-placed in the same bag after hunting."[20]
- Dressing facilities: Special, dedicated carcass dressing facilities for hunting have been proposed to be available for hunters, to assist with biocontainment of potentially contaminated wild boar carcasses following hunting. A few biosecurity recommendations specific to dressing facilities by the EU Commission[29] have been proposed.
- Quarantine Testing (of hunted wild swine): The dedicated dressing facilities could have a holding facility where the freshly hunted wild boar carcasses are quarantined while awaiting the results from ASFV testing.[20] A few biosecurity recommendations specific to quarantine and carcass testing are also available by the EU Commission[29].

Cleaning and Disinfection: In a study evaluating the stability of ASFV in different soil matrices, the use of citric acid or calcium hydroxide resulted in complete inactivation of the virus after 1 hour of treatment, although the authors noted that the depth of carcass fluid drainage might affect the efficacy of treatment.[30]

Reporting, Testing, and Removal of Wild Swine Carcasses: The European Union (EU) Commission has recommended procedures for the control of ASFV. One of those recommendation is the reporting of all dead boars and the testing of wild boars hunted/killed in ASF control zones.[31]

Domestic Animals: A minimum biosecurity requirement of the EU commission is that all farm buildings should "be built in such a way that no…other animals (e.g. dogs and cats) can enter the stable". The US also has regulations for dogs and cats that are imported from ASFV positive countries in that the dogs and cats must be bathed at the US post-entry point(s) within two days of arrival.[32]

Insects and Arthropods: In Spain and Portugal where *Ornithodoros erraticus*, a known ASFV vector, is present, it is recommended that pig-housing facilities used in outdoor production are kept in good repair to help prevent tick harborage and thus ASFV. If the pig-housing facility is no longer in use, the facility should be fenced off to keep domestic swine from entering. If ticks are present, the pig-housing facility should be destroyed.[28] If in use and in good repair, methylene bromide should be applied to the facilities and/or the domestic pigs treated with ivermectin.

Water: Fencing has been used to exclude wild swine from highly sensitive environmental areas, such as mound springs and freshwater lagoons.[26] Virkon S® (active components: sodium chloride and potassium peroxymonosulfate) can be used to disinfect watering equipment against ASFV.[24]

Feed and Bedding

- In the EU, in regions where there may be a risk of ASFV contamination on locally

harvested grasses or grains, there is a ban on feeding fresh grass or untreated grains to pigs.[14]
- In the EU, in regions where there may be a risk of ASFV contamination on locally harvested grasses or grains, the use of straw bedding for pigs is discouraged, unless a treatment for inactivation is used, or the straw has been stored for at least 90 days before use.[14]

Vehicles and Equipment

- It is recommended that "cleaning and disinfection protocols are established and periodically performed on every farm facility, vehicle, and piece of equipment"[28] to mitigate the transmission of ASFV from these surfaces.
- It is recommended that "sharing of equipment between holdings should be discouraged.[28]

People: In addition to routine biosecurity measures, a mitigation measure recommended by the EU Commission[29] is that footbaths "should be used at the entrance of every unit where animals are held" [28] and that "organic material should be removed from footwear prior to disinfecting" [28].

Biological Materials: The EU commission minimum biosecurity requirements for breeding farms are that semen, ova, or embryos should come from free-ASFV certified farms.[28]

Considerations: The following considerations may be used to guide development of US standards while keeping in mind the situations or settings in which the use of specific interventions might be implemented.

- Geography or Topology
- Control versus Eradication
- ASFV strain characteristics
- Funding
- Regulations or Policy
- Proximity to "risk"
- Culture
- Protection of animals and trade

Conclusion:

- Additional knowledge gaps exist for the potential pathways of ASFV transmission from wild swine to domestic pigs in other countries that also need further elucidation. In particular, there is a lack of information regarding environmental contamination from ASFV shedding.[14]

- Some mitigation strategies described are currently in place in the US regarding the control of feral swine population density.

- Although US pork producers may have little input in the success or failure of feral swine population reduction efforts, the very existence of federal feral swine control efforts should be considered a protective measure to keep in place indefinitely.

- Finally, it is expected that risk of transmission from feral swine to domestic pigs will vary across the regions and sectors of the US pork industry.

- Clear and targeted mitigations are needed in the US that are specifically targeted to meet regional and sector risks and should be considered in future work.

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US SHIP: Piloting a feed ingredient importation biosecurity protocol

Draft program for Pilot Project of Voluntary Participants

The risk of the introduction of viruses of veterinary significance through the importation of feed and feed ingredients from countries of high risk is well documented. In an effort to mitigate this risk, program participants must apply principles of Responsible Imports as outlined below. These standards apply to any non-bulk ingredient (defined as 1 metric ton packaging or less) originating from or undergoing transit through a region with known presence of African swine fever virus (ASFV) and/or Classical swine fever virus (CSFV). To comply with this pilot program, the importation of said ingredients sourced from the defined areas must incorporate:

1. Traceability:

- Suppliers/importers must have documented traceability practices with the ability to track individual lots back to the source, including manufacture location, manufacture date, arrival date to port in United States, and arrival date to the quarantine location within the United States.

2. Biosecurity at origin:

- Suppliers/importers must certify that a clean container is used when a product is loaded at port of origin, including a protocol of disinfection of interior surfaces of shipping containers prior to loading using a United States EPA-registered disinfectant approved for use against ASFV and CSFV administered at the validated concentration and allowed the appropriate contact time.
- There must be no use of recycled, refurbished, or re-used bags or pallets.
- Products must be bagged/palletized/shrink wrapped prior to loading into shipping container.
- Containers must be sealed and locked at port of origin with tamper proof seals.

3. Biosecurity upon arrival in United States at ingredient importer warehouse:

- If a product arrives damaged, the supplier/importer must handle the product in a biosecure manner, including sealing of damaged packaging, cleaning spilled material to prevent cross-contamination, and disinfecting surfaces contacting spilled material using a United States EPA-registered disinfectant approved for use against African swine fever virus with appropriate contact time.
- Trucks bringing products to importer's warehouse must be properly cleaned disinfected using a United States EPA-registered disinfectant approved for use against ASFV with appropriate contact time following transport of ingredients to quarantine warehouse.

4. Requirements of quarantine facility and process:

- Ingredients must be stored in an enclosed airspace that is clearly delineated to prevent all contact with personnel during the quarantine period.
- Ingredients must be stored for a minimum of 30 days at or above 68°F (20.0°C) before being eligible to be transported to feed manufacturing facilities.
- The quarantine facility must implement biosecurity measures to reduce the risk of employees and visitors becoming contaminated during the quarantine of incoming ingredients. The use of dirty/clean lines and signage in English and Spanish is recommended.
- Employees and visitors are required to observe a 5-day downtime prior to being admitted entry to the facility following travel to a region with known presence of ASFV and/or CSFV.

US SHIP: Feed Biosafety Committee

In the event of an African swine fever (ASF) or classical swine fever (CSF) incursion, US SHIP requires secondary thermal processing or ingredient quarantine of already manufactured porcine-derived ingredients (spray-dried plasma, blood meal, meat and bone meal, etc.) in order to be used in swine feeding programs (US SHIP Program Standard 2022-1). The mitigation would take place at a facility which is segregated from both the ingredient manufacturing facility and the feed mill (Figure 1). Currently, there are no set parameters for the time and temperatures needed to complete these requirements during a foreign animal disease outbreak.

Therefore, a review of available literature focused on the time and temperatures needed to reduce ASFV/CSFV concentrations in already manufactured porcine-derived ingredients was conducted and included studies which met the following criteria:
Experimental research, not review articles,Studies included porcine-derived ingredients,

- Experimental research, not review articles,
- Studies included porcine-derived ingredients,
- Studies inoculated the already manufactured porcine-derived ingredient (i.e., spray-dried plasma was inoculated and underwent mitigation, not porcine plasma), and
- Studies evaluated ASFV/CSFV mitigation.

Studies meeting these criteria were then categorized as either thermal processing (> 40°C) or ingredient quarantine (< 40°C) and are summarized in Table 1. Studies which were reviewed but did not meet the inclusion requirements are listed in Table 2. There were no studies which met the criteria for CSFV and only a few studies which evaluated ASFV mitigation in manufactured porcine-derived ingredients, which limits the ability to make recommendations. At this time, the body of literature is relatively sparse related to post-processing strategies to reduce ASFV/CSFV contamination. As such, while 3 papers are currently available, further research is needed to have greater confidence and provide specific recommendations for the US SHIP program in order to safely use porcine-derived ingredients in swine feed in the event of an ASF/CSF incursion.

Figure 1

Table 1. Summary of peer-reviewed, published literature which evaluate African swine fever virus (ASFV) inactivation in manufactured porcine-derived ingredients by either thermal processing (> 40°C) or ingredient quarantine (< 40°C).

	Reference	Ingredient	Duration[1], min	Temperature, °C
Thermal processing (> 40°C)	Songkasupa et al., 2022	Meat and bone meal	20	60, 70, 80, and 85
	Reference	**Ingredient**	**Duration[1], day**	**Temperature, °C**
Ingredient quarantine (< 40°C)	Fischer et al., 2021	Spray-dried porcine plasma	35	4 and 21
	McOrist et al., 2022	Meat and bone meal	7	23

[1] Duration refers to the total time the study was conducted. Virus concentrations were evaluated at multiple time points throughout the study duration.

Table 2. Exclusion process of peer-reviewed, published literature discussing African swine fever (ASFV) in feed or viral mitigation in porcine-derived ingredients.

Exclusion step	Reference
1. Exclude review articles	Blázquez et al., 2020a Farez and Morley, 1997 Niederwerder, 2021 Shurson et al., 2022
2. Exclude studies not evaluating porcine-derived ingredients	Calvin et al., 2021 Cummins and Adkin, 2007 Dee et al., 2018 Galvis et al., 2022a Galvis et al., 2022b Mazur-Panasiuk et al., 2019 Mazur-Panasiuk et al., 2020 Niederwerder et al., 2019 Niederwerder et al., 2021 Nuanualsuwan et al., 2022 Plowright and Parker, 1967 Schambow et al., 2022
3. Exclude studies which inoculated prior to a manufacturing kill step (i.e., porcine plasma was inoculated prior to spray-drying; spray-dried plasma post-manufacturing was not inoculated)	Blázquez et al., 2019a Blázquez et al., 2019b Blázquez et al., 2020b Blázquez et al., 2021 Blázquez et al., 2022 Gerber et al., 2014 Hulst et al., 2019 Kalmar et al., 2018 Kim et al, 2008 Opriessnig et al., 2014 Patterson et al., 2010 Pasick et al., 2014 Pillatzki et al., 2015 Polo et al., 2005 Pujols et al., 2011 Quist-Rybachuk et al., 2015 Shen et al., 2011
4. Studies evaluating mitigation of *endemic* swine coronaviruses in manufactured porcine-derived ingredients	Cochrane et al., 2015 Dee et al., 2015 Gebhardt et al., 2018 Pujols and Segalés, 2014 Trudeau et al., 2017a Trudeau et al., 2017b

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Market Haul Sanitation Pilot
Evaluating alternative options for monitoring truck sanitation status

Edison Magalhaes (Iowa State University) and Ryan Pudenz (Prestage Farms)

Introduction*:*

At the 2022 US SHIP House of Delegates meeting held in September 2022, the Resolution 2022-4 on Market Haul Sanitation was approved, which included the execution of a pilot study to *evaluate alternative options for monitoring truck sanitation status and inform current standards of practice across supply chains, areas, and regions*.

A partnership was established with Prestage Farms (Ryan Pudenz) to conduct the pilot study at their packing plant and truck wash facilities at Eagle Grove, IA. Three independent platforms to allow the recording of events concerning truck-wash and market pigs deliveries at the packing plant were tested in this study. This is a critical step to verify trailers' status and provide analytics regarding market haul sanitation compliance.

Approach:

The three sources of data on truck movement and sanitation were:

(1) Truck GPS data, (2) Trailer GPS data, and the (3) Sanitation APP provided by animalEYEQ^{tm} to record truck wash events along with pictures.

Also, a truck-automated sanitation classification (TASC) platform was created (Figure 1) to combine the information from all methods mentioned above, generate a single report comparing the information collected, and provide data back to Prestage regarding the trailer sanitation status.

Data related to deliveries at the packing plant and truck washes was collected from July 10th, 2023 – August 18th. The GPS data from both trailers and trucks was collected automatically by the technology, based on enter and exit events into the truck wash and packing plant geofences, respectively. The CleanTrailer App (Powered by animalEYEQ^{tm}) was utilized for recording truck wash events and pictures taken before and after washing the trailers.

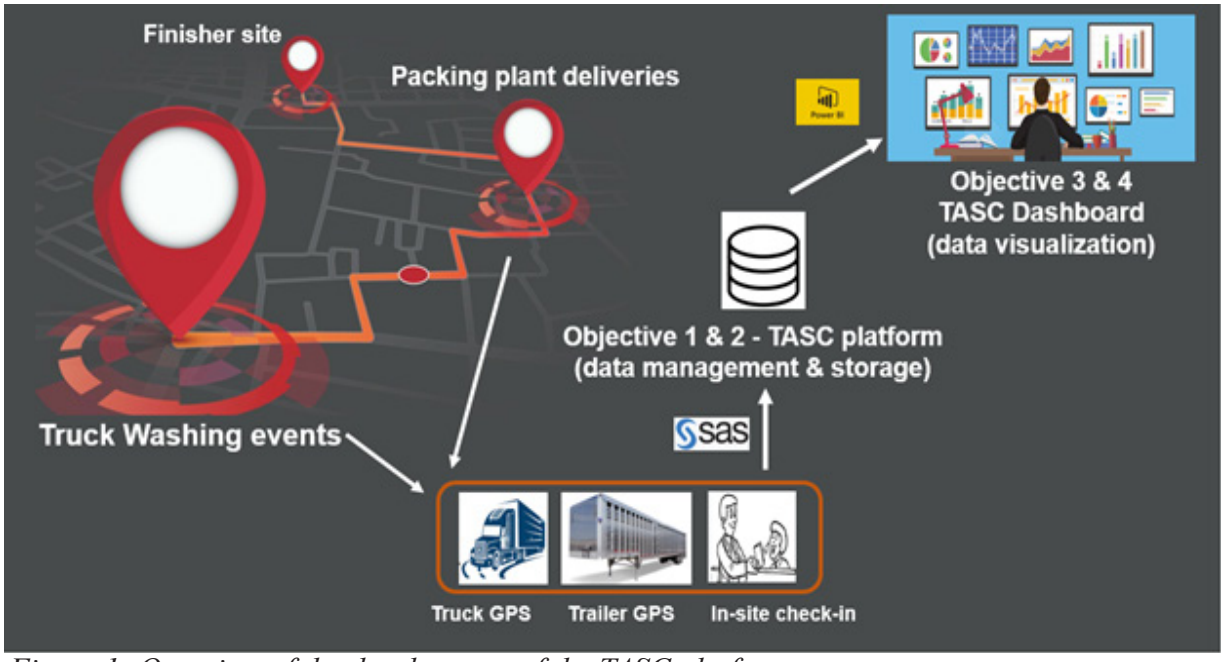

Figure 1: Overview of the development of the TASC platform

(1) Truck and (2) Trailer GPS tracker:

GPS beacons were installed in all trucks and trailers owned by Prestage Farms delivering pigs in Eagle Grove, IA. GPS Beacons are electronic devices that capture satellite information to report the exact location of the vehicle/equipment carrying them.

For this pilot study, the SAMSARA GPS software was utilized, where the trucks` data was recorded every 30 seconds and the trailers every 30 minutes. The major difference between the two timings is due to power (trucks` beacons are connected directly to the truck battery, while for trailers, the beacons use an independent battery).

Once the Beacons were installed and running in trucks and trailers, geofences were established to differentiate between vehicles entering and exiting the packing plant or the truck wash (see figures below). As seen that both facilities are located in the same property, the borders of the geofence were narrower in the truck wash to avoid capturing trucks and trailers passing by and only record vehicles entering the truck wash bays.

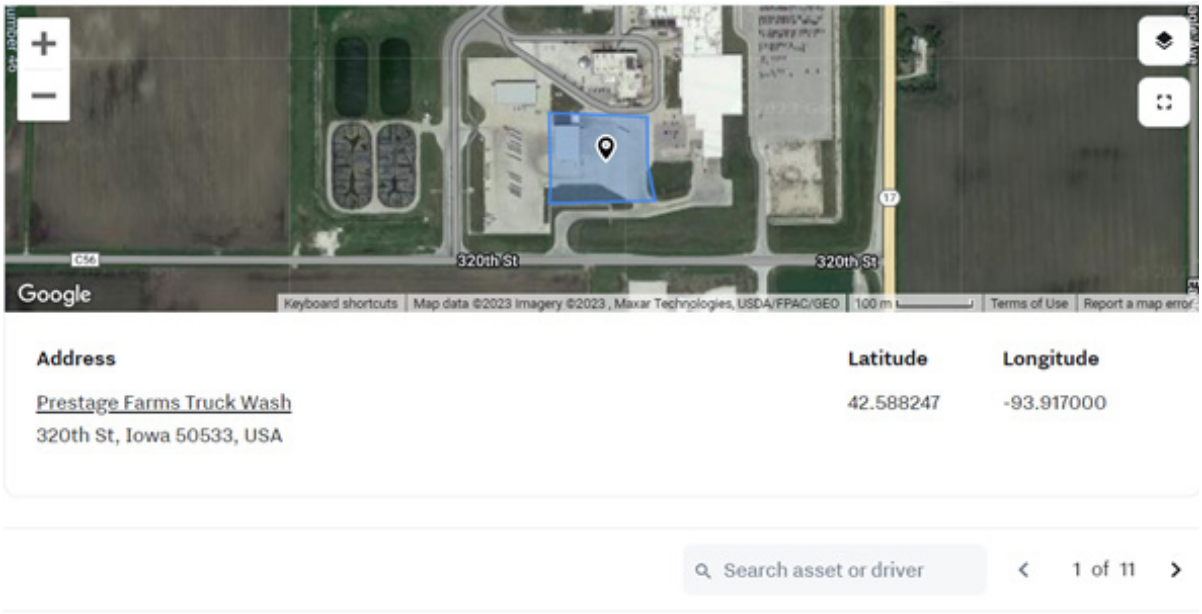

Figure 2: Truck wash geofence limits

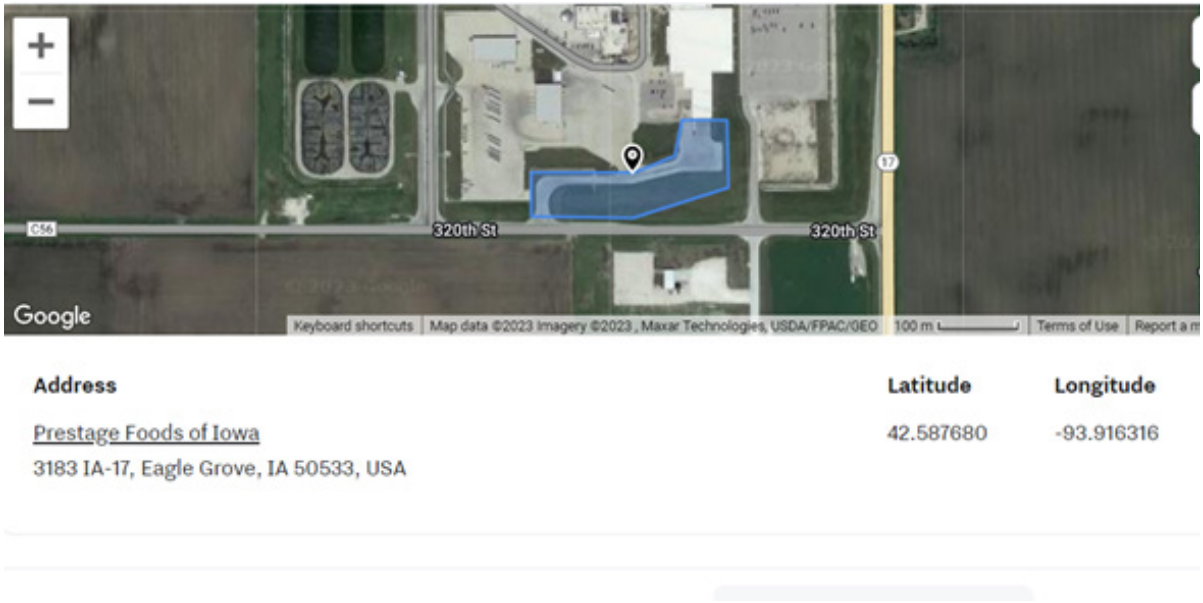

Figure 3: Packing plant unloading dock geofence limits

A truck wash event or delivery at the packing plant was created when either a truck or a trailer entered and exited the geofences, respectively. If the interval between two visits in a row at the same geofence was inferior to 60 minutes, one of the events was not considered a movement. In the initial days of the pilot, the geofence borders had to be adjusted to avoid this issue with duplicate events.

Four Excel reports were generated for the two GPS approaches:

1. Trailer GPS packing plant report
2. Trailer GPS truck wash report
3. Truck GPS packing plant report
4. Truck GPS truck wash report

Figure 4 demonstrates one Excel table of the report mentioned, containing the identification of the trailer or truck, date & time of entry in the geofence, date & time of exit, and the average time inside the geofence.

Trailer	Arrival	Departure	Time on Site (Minutes)
1721	7/24/2023 1:15	7/24/2023 1:56	40.7
1716	7/24/2023 2:26	7/24/2023 3:05	39.8
1723	7/24/2023 5:47	7/24/2023 6:26	38.6
1711	7/19/2023 6:01	7/19/2023 6:39	37.8
1712	7/11/2023 8:00	7/11/2023 8:37	37.6
1723	7/28/2023 8:27	7/28/2023 9:04	37.2
1720	7/19/2023 6:43	7/19/2023 7:20	36.8
1708	7/11/2023 8:16	7/11/2023 8:53	36.6
1719	7/24/2023 2:21	7/24/2023 2:57	36.3
1716	7/21/2023 2:31	7/21/2023 3:07	36.1

Figure 4: Example of one of the four automated reports generated by the GPS software

After the completion of the pilot study, the data provided in the four reports mentioned above was utilized to build the Truck Automated Sanitation Classification (TASC) platform.

For this purpose, algorithms were built using SAS software to automate the process of integrating and summarizing the information (import standardize → match & merge → report). The TASC platform developed in this pilot study for Prestage demonstrated the capability to compare multiple data streams concerning truck wash events and deliveries at the packing plant to verify if the data streams, once combined, could provide accurate status of cleanness.

After the integration of all data, the information reported by the TASC platform to the Prestage team was: *# of loads/day, # trailer visits to washing bays; # of dirty (did not visit washing bay) truck movements; # of dirty (did not visit washing bay) trailer movements; # of loads between washes; time (minutes) at the truck wash; the number of trailer movements before washing.*

Notably, the approach utilized in this study can be replicated in other swine production systems that can provide a report for one or all the methods utilized in this pilot study.

(3) CleanTrailer App (Powered by AnimalEYEQ):

The CleanTrailer App is an Android-based technology utilized to create tickets/records concerning each trailer washed during the pilot study. The idea was to utilize a technology that is feasible/practical to be implemented during the routine of the truck wash personnel while automatically storing the information concerning each truck wash event, along with pictures taken before and after the wash process.

The truck wash at Prestage has four wash bays. For this purpose, 4 Android Tablets (Galaxy Tab s7) were provided per washing bay, and the Prestage personnel was trained to utilize the App. The use of the CleanTrailer App is fairly simple, requiring the farm personnel to register the trailer to be washed once it arrives at the bay and input basic information on the "Document Wash" section of the App, such as the worker name, trailer plate photo, and pictures before and after washing the trailer. Once the wash is complete, the operator submits the ticket and the information is automatically recorded, and stored by the software, providing the capability to verify the wash information in the future using a unique QR code **(Figure 5)**.

For this pilot study, one report was provided through the CleanTrailer App as an Excel file containing information related to the trailers washed in the study period, with a similar structure to the 4 GPS reports mentioned above (i.e., containing the trailer ID, date & time, and a website link for accessing the pictures).

Figure 5: Cell phone screenshot of a QR code of the CleanTrailer app

Key Lessons Learned:

- The pilot demonstrated the capability of utilizing currently available methods for recording truck wash events and deliveries at the packing plant to create a platform to verify washes compliance and trailers' status-quo.
- The TASC platform can be used by decision-makers on the production system to identify gaps and opportunities for improvement in market haul sanitation. Methods are scalable for monitoring a larger number of production systems if needed.
- Trailer-related data is the most accurate to determine trailer cleanness status compared to truck information alone.
- GPS information, compared to the CleanTrailer App, was more accurate in recording the truck wash events and deliveries at the packing plant. On the other hand, more errors (false or duplicate events) occurred with this technology. To minimize errors, the GPS refresh rate on beacons should be less than 10 min, and geofences limits should be adjusted according to the property entrance and exit.
- Despite the CleanTrailer having missed a couple of washes, the agreement with the GPS information was very high, especially because the truck wash personnel conducted the task with quality. Also, the App provides the capability of verifying the cleanness of the trailers after washing, which is not provided by GPS information.
- Geofences established at the GPS tracking software are crucial to determine the quality of the information, where inaccurate geofence limits can provide incorrect information on washing events or deliveries at the packing plant.
- Algorithms can be developed to import and analyze truck-related information, also providing alerts of missing information or potential errors, as mentioned above.
- The success of developing a truck classification platform depends on the quality of the information recorded, where trailer ID, date & times of the events, and available through an Excel-like report format.

US SHIP House of Delegates 2022 Meeting Minutes

September 8, 2022

The business meeting was called to order by Tyler Holck at 8:10 AM.

Paul Yeske (MN) moved to approve the agenda for the House of Delegates meeting. The motion to approve the agenda was seconded by Craig Andersen (SD). Motion carried.

Brandon Schafer (MN) moved to approve the minutes from the 2021 US SHIP House of Delegates Meeting held August 24th, 2021, in Des Moines, Iowa. The motion to approve the minutes was seconded by Craig Andersen (SD). Motion carried.

Traceability

Resolution 2022-1 was introduced by Giovani Trevisan. Katherine Stack (NE) moved to approve Resolution 2022-1 and the motion was seconded by Daniel Boykin (IA). There was no discussion on the motion, motion carried.

Please see Appendix 1 for Approved Resolution 2022-1.

Sampling and Testing

Standard 2022-4 was introduced by Jerry Torrison. Paul Yeske (MN) moved to approve Standard 2022-4, and the motion was seconded by Brandon Schafer (MN).

Roger Dudley (NE) moved to amend the Standard by adding in language regarding a 12-month period so that US SHIP could address the issue at next year's house of delegates meeting. Paul Yeske (MN) seconded the motion to amend. Amanda Chipman (IA) moved to amend the amendment to include a specific date for the 12-month period. The amendment to the amendment failed due to lack of a second. Maggie Baldwin (CO) moved to amend the amendment on the 12-month time period, the amendment to the amendment was seconded by Elizabeth Noblett (IL). Amendment to the amendment passed.

Vote on the original amendment made by Roger Dudley (NE) passed.

Standard as amended passed.

Approved Standard 2022-4

In the absence of an introduction of ASF/CSF, there will be no additional ASF/CSF sampling and testing requirements of participants for the next twelve months beyond the current and/ongoing systems of foreign animal disease (FAD) surveillance taking place across the US.concern. ASF is a foreign animal disease of high consequence, and although never diagnosed in the US, its introduction and subsequent spread would have myriad negative consequences for US domestic pig populations and the pork industry. In the US, the feral swine range map overlaps

See updated Table 1. Sampling and Testing Requirements for ASF-CSF Risk Level 1 illustrated below for reference.

ASF/CSF Status = Level 1, US Negative (Peace Time)

Production Site Type	Specimen Type(s)	I or A[1]	Frequency / Timing of Sampling	Sampling & Testing Requirements (Alternative Options)		
				Option 1 Individual Only		Option 2 Aggregate Only (Group or Pen)
				# of Individuals	# of Pools (Groups of up to 5)	# of Samples
Boar Stud Mature Boars, Distributing Semen, ± On-Site Isolation	Oral Swab Blood Swab Oral Fluids	I I I	No Additional Sampling and Testing Required			
Breeding Herd Breed to Wean, Breeding/ Gestation/ or Farrow Only, ± On-Site GDU or Isolation	Oral Swab Blood Swab Oral Fluids	I I I	No Additional Sampling and Testing Required			
Growing Pig Nursery, Grower, Finisher, Isolation	Oral Swab Blood Swab Oral Fluids	I I A	No Additional Sampling and Testing Required			
Farrow to Feeder Farrow to Finish	Requirements of Breeding Herd + Growing Pig In Numbers, and Growing Pig Only in Frequency					
Small Holding ≥ 100 or < 1,000 Breeder or Feeder Swine	Oral Swab Blood Swab Oral Fluids	I I I or A	No Additional Sampling and Testing Required			
Non-Commercial < 100 Breeder or Feeder Swine.	Oral Swab Blood Swab Oral Fluids	I I A	No Additional Sampling and Testing Required			

[1] I = Individual Sample, A = Aggregate (Group or Pen) Sample

Resolution 2022-5 was introduced by Jerry Torrison. Dwain Guggenbiller (OH) moved to approve Resolution 2022-5 and the motion was seconded by Scott Hays (MO). There was no discussion on the motion, motion carried.

Please see Appendix 1 for Approved Resolution 2022-5.

Resolution 2022-7 was introduced by Jerry Torrison. David Hardin (IN) moved to approve Resolution 2022-7 and the motion was seconded by Paul Yeske (MN). Maggie Baldwin (CO) moved to amend the motion, and the motion to amend was seconded by Rod Hall (OK). Matt Ackerman (IN) made a friendly amendment to the amendment to replace the word peacetime with active. The friendly amendment was accepted by Maggie Baldwin (CO) who made the original amendment. Amendment passed.

Noel Williams (IA) moved to amend Resolution 2022-7 by adding in language with regard to a pilot project, the motion to amend was seconded by Brent Scholl (IL). Amendment passed.

Noel Williams (IA) moved to amend the resolution to add language regarding a potential pilot program where US SHIP sites would be required to include a PIN on every lab submission. The motion to amend was seconded by Brent Scholl (IL). Amendment passed.

Resolution as amended passed.

Please see Appendix 1 for Approved Resolution 2022-7.

Feed Biosafety

Resolution 2022-2 was introduced by Jordan Gebhardt. Dwain Guggenbiller (OH) moved to approve the resolution and the motion was seconded by Lisa Tokach (KS). Resolution passed.

Please see Appendix 1 for Approved Resolution 2022-2.

Resolution 2022-3 was introduced by Jordan Gebhardt. Mike Walker (MN) moved to approve the resolution and the motion was seconded by Marisa Rotolo (KY). Resolution passed.

Please see Appendix 1 for Approved Resolution 2022-3.

Standard 2022-1 was introduced by Jordan Gebhardt. Lisa Tokach (KS) moved to approve the resolution and the motion was seconded by Bill Luckey (NE). Deb Murray (MN) moved to amend the resolution by adding the word temperature to holding time, the motion to amend was seconded by Brandon Schafer (MN). Amendment passed.

Seth Krantz (TN) moved to amend the resolution as amended to strike the word approve, the motion to amend was seconded by Dwain Guggenbiller (OH). Amendment passed.

Resolution as amended passed.

Approved Standard 2022-1

In the event of an ASF or CSF incursion into the US (ASF/CSF Risk Level 3; immediately after incursion, or if state/region positive), participants are to implement a temporary cessation of feeding spray-dried plasma, blood meal, meat and bone meal, intestinal peptide products, or other meal-based feedstuffs that have the potential to be of porcine origin.

This temporary cessation will be lifted if ingredients described above are sourced from:

a. Suppliers with enhanced post-processing biosafety measures in place1,2.
b. States or regions at ASF/CSF Risk Level 2 (Operations normalizing, State or Region negative).

c. US returns to ASF/CSF Risk Level 1 (US Negative).

[1]Requirements of post-processing treatment facilities:	[2]Approved post-processing treatments:
Enhanced post-processing treatment must occur at facilities that have premises level segregation from: Premises in which protein sources of porcine origin were initially heat treated (rendered or spray-dried) in accordance with feed grade safety requirements. AND Finished feed facilities manufacturing feed for swine.	Thermal processing OR Ingredient quarantine/holding time and temperature

Site Biosecurity

Standard 2022-2 was introduced by Chris Rademacher. Joel Nerem (MN) moved to approve the Standard and the motion was seconded by Joe Popplewell (OK). There was no discussion on the motion, motion carried.

Approved Standard 2022-2

Boar Stud, Breeding Herd, Farrow to Feeder, Farrow to Finish, and Growing Pig sites (US SHIP Production Site Types) must be able to provide access to a completed Secure Pork Supply Biosecurity Plan to the OSA within 24 hours of the request.

Standard 2022-3 was introduced by Chris Rademacher. Rebecca Robbins (TX) moved to approve the Standard and the motion was seconded by Catherine Harris (NC).

Jeremy Pittman (VA) moved to amend the standard by adding after access to outdoors, the language “or feral swine via nose-to-nose contact.” The motion to amend was seconded by Joe Popplewell (OK). Paul Yeske (MN) offered a friendly amendment to just strike outdoors. Jeremy Pittman (VA) agreed to the friendly amendment. Amendment passed.

Discussion was had by the group and after some discussion, David Reeves (GA) moved to table the standard, the motion was seconded by Paul Yeske (MN). Motion carried.

The delegates took a break from 9:15 until 9:45 when the meeting resumed.

David Reeves (GA) moved to take the standard off the table, the motion was seconded by Paul Yeske (MN).

Mike Walker (MN) moved to amend the Standard by changing the Standard to Resolution 2022-8 and provided the amended language for the resolution. The motion to amend was seconded by David Reeves (GA). Amendment passed.

Resolution 2022-8 passed.

Please see Appendix 1 for Approved Resolution 2022-8.

Live Haul Sanitation

Resolution 2022-4 was introduced by Rodger Main. Mary Battrell (NC) moved to approve the resolution and the motion was seconded by Laura Dalquist (SD).

Resolution passed.

Please see Appendix 1 for Approved Resolution 2022-4.

Governance

Resolution 2022-6 was introduced by Rodger Main. Mike Walker (MN) moved to approve the resolution and the motion was seconded by Linda Schroeder (IA).

Rich Deaton (OH) moved to amend the resolution to remove references to NPIP on the second page of the resolution and notes referring to Appendix A. The motion to amend was seconded by Brandon Schafer (MN). Amendment passed.

Noel Williams (IA) moved to amend the resolution to include producer, the motion was seconded by Rebecca Surber (OH). Amendment passed.

Daniel Hendrickson (IN) moved to amend the resolution by adding purebred registries, the motion to amend was seconded by Suzanne Genova (OK). Jason Propst (IL) offered a friendly amendment to just reference show pig industry in case the registries were no longer in existence.

Daniel Hendrickson (IN) accepted the friendly amendment. Amendment passed, 129 yes votes.

Jason Propst (IL) moved to amend the resolution to strike the word producer that was added with the first amendment and add “with preference to producers” at the end of the paragraph, the motion was seconded by Alicia Gorczyca-Southerland (OK). Amendment passed.

Resolution as amended passed.

Please see Appendix 1 for Approved Resolution 2022-6.

Rich Deaton (OH) moved to adjourn the meeting at 10:27 AM and it was seconded by Joe Popplewell (OK). Motion carried.

Appendix 1. Approved Resolutions

RESOLUTION NUMBER:	2022 - 1
SUBMITTED BY:	US SHIP Traceability Working Group
SUBJECT MATTER:	Pathway to 21st century traceability of swine movements in the US pork industry
WHEREAS,	The number of live swine being transported within or across one or many state lines for breeding, growing, exhibition, or to be harvested has increased exponentially in recent decades in lock-step with the wide-spread adoption of multi-site pig production,
WHEREAS,	The US pork industry has become increasingly dependent on interstate pig movement and the ability to export high quality pork products globally over this same period,
WHEREAS,	The ability to proficiently track and trace inter-premises movements of live swine across the breadth of US pork industry participants is a foundational element of foreign animal disease preparedness. Similarly, in the event of an animal health emergency, such proficiencies are critical in being able to competently represent the health status of pigs across supply chains, areas, states, and regions over an extended response and recovery period,
WHEREAS,	Current capabilities to proficiently track and trace the masses of swine moving intra and interstate have been identified as a "mission critical foreign animal disease preparedness vulnerability" for the greater expanse of the US pork industry,
WHEREAS,	Recent experience in piloting a more comprehensive approach for capturing and integrating quality assured inter-premises swine movement information in near real-time across a subset of highly capable pork producers of varied ownership and production system structure feeding a single packing facility has proven to be more challenging than initially anticipated,
WHEREAS,	Scalable approaches for being able to capably track and trace inter-premises movement of live swine in near real-time (within 7-days of movement) have become commonplace in various shapes and forms in pork exporting countries throughout the world. Such capabilities have been developed over the course of time as an outcome of being routinely implemented as a market-driven or compulsory requirement within their respective countries (i.e., figured out what works by doing / implementing),

WHEREAS, Establishing the ability to proficiently track and trace inter-premises movements of live swine across the breadth of US pork industry participants and states would create a substantive, multi-faceted, and sustainable step change in the state of foreign animal disease preparedness across the US pork industry.

Now, therefore be it RESOLVED:

US SHIP House of Delegates supports moving forward with a series of initiatives necessary to enable the future consideration and implementation of a program standard requiring "inter-premise movements of swine to be deposited (reported) to an approved repository of inter-premises swine movement records within 7 days of delivery to the premises of destination."

Envisioned roles and responsibilities of implementing such a program standard:

Participating Producers/Packers: Responsible for depositing (reporting) inter-premises movements of live swine to an approved repository of swine movement records.

Approved Repository(s) of Inter-Premises Swine Movement Records: Responsible for receiving and housing the inter-premises movement records and providing permissioned access of such records to the appropriate US SHIP Official State Agency for periodic compliance verificatio and to the appropriate veterinary medical officials in times of an animal or public health (food safety) emergency.

National Pork Board's investment in the AgView platform is an example of a software platform currently being developed and used to receive, house, and share swine movement records with the appropriate veterinary medical officials in a time of need.

Note: It is also envisioned that certification in US SHIP and the working systems established for maintaining compliance with a program standard associated with reporting inter-premises movements of swine could play a significant role in the future for streamlining and improving the current methods producers and states use when permitting the interstate movement of swine for breeding, growing, or exhibition.

Series of Initiatives Proposed:

1. Formation of a multidisciplinary (Industry, State, & Federal) working group to fully vet:

    a. Alternative approaches (options/structure/strategy) that could be taken towards scalably meeting a prescribed standard requiring reporting of inter-premises movements of swine to an approved repository within 7 days.

    b. Clearly defining the requirements, functionality, and operational covenants necessary for entities to be recognized as an "approved repository of inter-premises swine movement

2. Complete a more in-depth study and review of the various approaches and systems being implemented in the various pork exporting countries around the world that are currently meeting this prescribed inter-premises movement of swine reporting standard of practice.

3. Complete further study of the various approaches and systems US pork producers and packers are using to capably capture the inter-premises swine movement information that is inclusive of the US SHIP program standard requirements (i.e., date, PIN of origin, state of origin, PIN of destination, state of destination, animal type in movement, and number of head in movement).

4. Advocate for the development, further development, and/or adoption of built for purpose applications that could be used by a broad range of US pork industry participants to facilitate user-friendly and quality-assured compliance with the prescribed inter-premises swine movement reporting standard.

5. Expand proof of concept pilot projects that center on the entirety of supply chains to slaughter facilities demonstrating competence in successfully and sustainably achieving the prescribed program standard for reporting quality assured swine movement records within 7 days of movement.

RESOLUTION NUMBER:	2022 - 2
SUBMITTED BY:	US SHIP Feed Biosafety Working Group
SUBJECT MATTER:	Establishment of Standing Feed Biosafety Committee and Plan of Work
WHEREAS,	The US Swine Health Improvement Plan (SHIP) is a collaborative effort involving industry, state, and federal officials tasked with establishing a "national playbook" of technical standards associated with biosecurity, traceability, and sampling/testing,
WHEREAS,	US SHIP presents as a platform for incorporating broadly applicable standards of practice related to mitigating the risks of disease introduction through feedstuffs into a swine health certification program that is national in its scope and recognition,
WHEREAS,	Knowledge, recommendations, and best practices are expected to evolve and improve over time necessitating an organizational structure to facilitate discussion of the latest research findings and provide up-to-date recommendations for consideration by the US SHIP House of Delegates.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the commissioning of a coordinated, standing committee (Feed Biosafety Committee) to discuss the latest scientific findings related to feed biosafety and provide recommendations for consideration by the US SHIP House of Delegates.

This working group will include a broad range of stakeholders representing US SHIP stakeholders, swine producers, feed ingredient suppliers and feed industry representation, state, and federal partners. Their charge will be to periodically review the latest information and provide recommendations for consideration by the US SHIP House of Delegates.

Topics for consideration by the Feed Biosafety Committee include:

1. Consider recommendations concerning the potential for incorporating program standards into US SHIP associated with mitigating the risks of introduction of ASF/CSF via imported feed ingredients. These recommendations are to be inclusive of the methodology of how any such standards would be communicated, monitored, and/or periodically verified.

2. Consider recommendations and next steps to the US SHIP program to reduce risk of disease transmission in domestically sourced feedstuffs.

3. Coordinate discussion of practices and standards for consideration to reduce the risk of pathogen transmission through transport of swine feed and ingredients.

RESOLUTION NUMBER:	2022 - 3
SUBMITTED BY:	US SHIP Feed Biosafety Working Group
SUBJECT MATTER:	Pilot demonstration of a broadly applicable Responsible Imports program across a substantive subset of US pork industry participants and feed industry stakeholders.
WHEREAS,	The US Swine Health Improvement Plan (SHIP) is a collaborative effort involving industry, state, and federal officials tasked with establishing a "national playbook" of technical standards associated with biosecurity, traceability, and sampling/testing,
WHEREAS,	There is a recognized risk of disease transmission from both feed ingredients and whole feed and research and risk assessments continue to be conducted to assess the risks associated with importing feed ingredients from ASF-CSF positive regions and potential mitigation strategies to reduce or eliminate those risks,
WHEREAS,	US SHIP presents as a platform for incorporating broadly applicable standards of practice related to mitigating the risks of disease introduction via imported feedstuffs into a swine health certification program that is national in its scope and recognition.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the pursuit of a demonstration project across a substantive subset of US SHIP pork industry participants and feed industry stakeholders.

Participants in the demonstration project would affirm:

Feed biosafety risks associated with feed ingredients being imported (manufactured, grown, processed, or packed) from regions or countries known to have ASF/CSF actively circulating in their swine populations are being mitigated via one of the following risk mitigation procedures:

1. Excluded from use in swine diets; or

2. The imported ingredient or resulting finished feed is to be stored for a scientifically-based holding time and temperature conditions demonstrated to inactivate the respective virus; or

3. The ingredient or resulting finished feed is to be processed or treated using scientifically-based methods at conditions or with feed additives at a dose demonstrated to inactivate the respective virus.

Within strategies 2 and 3, practices are to be utilized to avoid cross-contamination by preventing contact of the product with any source of ASFV/CSFV.

RESOLUTION NUMBER:	2022 - 4
SUBMITTED BY:	US SHIP Market Haul Sanitation Working Group
SUBJECT MATTER:	Market Haul Sanitation
WHEREAS,	Livestock trailers returning from terminal points of concentration (slaughter facilities, buying stations, or cull markets) that have not been cleaned and disinfected present as a primary and well understood risk factor for indirectly recirculating, amplifying, and broadly distributing disease causing agents in US swine,
WHEREAS,	Live-haul sanitary standards (practices) for cleaning and disinfecting livestock trailers returning from terminal points of concentration are widely variable,
WHEREAS,	In the event of a trade-impacting disease introduction into US swine, in the absence of being cleaned and disinfected between loads, live-haul transport trailers returning from terminal points of concentration present as principal risk factor for recirculating, amplifying, and broadly distributing said disease throughout the US. Such live-haul transport related disease transmission risks would apply during the pre-identification phase and throughout the extended response and recovery period,
WHEREAS,	The current lack of infrastructure and inability to clean and disinfect livestock trailers returning from terminal points of concentration is a well-understood industry level vulnerability of national importance to the longer-term sustainability and competitiveness of the US pork industry,
WHEREAS,	Well-defined traceability and live-haul sanitary standards are commonly the two hallmark components of swine health control and improvement programs being implemented in other export centric countries globally,
WHEREAS,	The 2021 US SHIP HOD put forth a charge to convene a working group on “market haul sanitation” and provide a summary of findings and recommendations concerning suggested next steps to the 2022 US SHIP HOD,
WHEREAS,	The series of efforts proposed below are the principal recommended go forward actions (next steps) stemming from the US SHIP Working Group on Market Haul Sanitation convened in Spring 2022.

Now, therefore be it RESOLVED:

US SHIP House of Delegates supports moving forward with a series of efforts leading towards the future consideration of a program standard requiring livestock trailers returning from terminal points of concentration (e.g., slaughter facilities, buying stations, or cull markets) to be cleaned and disinfected prior to returning to farm sites or farm site collection points (depots).

The initiatives proposed would serve to further inform:

- Current standards of practice and existing infrastructure
- Infrastructure needs and the various options and approaches to fill existing deficits
- Systems, tools, and alternative approaches that would be necessary to monitor compliance (auditable log of key events) within the context of a broadly applicable program
- Operational costs and implications
- Pace for phasing in a program standard into US SHIP related to requiring livestock trailers returning from terminal points of concentration be cleaned and disinfected prior to returning to farm sites or farm site collection points (depots)

1. Pilot a suite of compatible options that provide a scalable means for monitoring (measuring) the percentage of livestock trailers delivering pigs to commercial slaughter facilities that are meeting the prescribed market haul sanitation standard to be considered.

    a. The systems/tools and alternative approaches explored, developed, and implemented in the pilot aim to provide a platform for scalably measuring the status-quo, monitoring progress being made over time, better understanding existing infrastructure and associated capabilities, and quantify infrastructure gaps.

    b. Auditable log of key events (trailer washes and deliveries to commercial slaughter facilities)

    c. The pilot project would serve to identify, develop, and use a suite of scalable tools, systems, or options that would be necessary to monitor the implementation of a program standard requiring livestock trailers returning from terminal points of concentration be cleaned and disinfected prior to returning to farm sites or farm site collection points (depots).

2. Establish a working forum and associated educational materials for sharing of best practices and examples of the various systems, technologies, and approaches being implemented by:

    a. Pork producers and swine slaughter facilities (domestically and abroad) currently achieving this standard of practice en-masse.

    b. US poultry producers sustainably achieving this standard of practice.

3. Explore educational, policy, or federal funding related opportunities associated with permitting and constructing such livestock truck-wash facilities in support of US animal agriculture and our nation's food supply.

4. Advocate for applied research and development of engineering based improvements to reduce the labor and enhance the consistency, sustainability, and quality of high throughput market-haul washout procedures.

RESOLUTION NUMBER:	2022 - 5
SUBMITTED BY:	Justin Brown, Swine Medicine Education Center, Iowa State University
SUBJECT MATTER:	Certified Swine Sample Collector (CSSC) Training Program
WHEREAS,	The US Swine Health Improvement Plan (SHIP) is a collaborative effort involving industry, state, and federal officials tasked with establishing a "national playbook" of technical standards associated with biosecurity, traceability, and sampling/testing,
WHEREAS,	The USDA and National Pork Board (NPB) have recently funded the development of a Certified Swine Sample Collector (CSSC) training program,
WHEREAS,	The principle purpose of the CSSC training program is to expand the number of well-trained individuals to assist animal health officials and category II accredited veterinarians in collecting diagnostic samples during an FAD response,
WHEREAS,	The CSSC training program content and associated resources have been developed by collaborators at Iowa State University, the American Association of Swine Veterinarians, the Multistate Partnership for Security in Agriculture, and National Pork Board and are available on the Secure Pork Supply Plan website,
WHEREAS,	State animal health officials are currently (2022) in the early stages of rolling out the CSSC training program within their respective states.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates acknowledges the rigors around which the CSSC training program was built and recognizes that CSSCs will be an important resource to collect samples identified within the US SHIP surveillance protocols.

RESOLUTION NUMBER:	2022 - 6
SUBMITTED BY:	US SHIP General Conference Committee (US SHIP GCC)
SUBJECT MATTER:	Elected General Conference Committee & Governance
WHEREAS,	the US Swine Health Improvement Plan (US SHIP) was initiated as a two-year pilot project funded by the USDA and led by a team of swine interest veterinarians across four Midwestern universities, and is being administered through Iowa State University,
WHEREAS,	US SHIP is being modelled after the National Poultry Improvement Plan (NPIP), a collaborative effort involving industry, state, and federal partners providing standards for certifying the health status of greater than 99% of commercial scale poultry and egg operations across the US,
WHEREAS,	NPIP (established in 1935) has a well-tested model of operations and shared system of governance that is built upon leveraging industry participant know-how and leadership in deriving practical standards, definitions, and policies that serve to safeguard and better poultry health and the competitiveness of the US poultry and egg industries,
WHEREAS,	NPIP's leadership includes a General Conference Committee (GCC) that consists of seven individuals (volunteers, US poultry and egg industry participants / subject matter experts) from across the US that are elected by the NPIP House of Delegates. The NPIP GCC is an officially recognized Federal Advisory Committee to the NPIP Program Administrative Staff (USDA APHIS employees) and the US Secretary of Agriculture on matters related to poultry health,
WHEREAS,	the US SHIP pilot project investigators appointed seven GCC members to serve during this current start-up phase of US SHIP. The appointed GCC members include two principal investigators from the initial USDA grant, three members representing industry, one state animal health official, and one USDA representative which have served US SHIP since its inception,
WHEREAS,	given the industry support and interest in US SHIP and further funding support from both the USDA and National Pork Board/Check-off, the US SHIP pilot is being extended two additional years to further develop and transition to a formal USDA program for certifying the health of US swine.

Now, therefore be it RESOLVED:

The US SHIP House of Delegates requests the commissioning of a working group to further develop and clarify plans for the governance of US SHIP. This working group is to include the current US SHIP GCC, one individual appointed by each of the national pork industry associations (i.e. NPPC, NAMI, AASV, and show pig industry), and six representatives of pork producing entities appointed by state pork associations with preference to producers.

This group's work will include:

1. Clearly defining the role and responsibilities of the elected US SHIP General Conference Committee and its membership,
2. Determining the formation of the GCC including the number of members and their representation,
3. Establishing the terms of service for a US SHIP GCC member,
4. Clarify the transition to formal Technical Advisory Committees and propose the core topics/disciplines to be addressed to advance the technical content of US SHIP,
5. Further clarify the working relationship of the US SHIP GCC with the US SHIP Technical Advisory Committees and the US SHIP staff (pilot staff FY 2023/24 and USDA staff beginning October 2024),
6. Initiating steps necessary to establish the US SHIP GCC as Federal Advisory Committee,
7. Solicit and put forth nominations of well-qualified candidates with an interest in serving in the first-slate of elected US SHIP GCC members. Nominations would be put forth and voted upon at the US SHIP HOD in 2023.
8. Serve as the US SHIP GCC that includes providing guidance and counsel to the current US SHIP Program Administration and associated US SHIP operations until elections are completed at the US SHIP HOD in 2023.

The outcomes of this working group's efforts will be shared and brought forward to the US SHIP HOD in 2023.

RESOLUTION NUMBER:	2022 - 7
SUBMITTED BY:	State of Indiana Delegation
SUBJECT MATTER:	Establishment of a sub-committee within the Sampling and Testing Committee to further evaluate peacetime surveillance opportunities and needs within the U.S. Swine Health Improvement Plan program.
WHEREAS,	U.S. SHIP is a collaborative effort involving industry, state and federal officials tasked with establishing a "national playbook" of technical standards associated with biosecurity, traceability and sampling/testing,
WHEREAS,	Knowledge, recommendations and best practices are expected to evolve and improve over time, necessitating an organizational structure to facilitate recommendations for consideration by the U.S. SHIP House of Delegates,
WHEREAS,	U.S. SHIP aims to provide a means for demonstrating evidence of freedom of disease (outside foreign animal disease control areas) in support of ongoing interstate commerce and a pathway towards the resumption of international trade,
WHEREAS,	U.S. SHIP presents as a platform for incorporating broadly applicable active surveillance standards to support industry efforts for early detection of ASF/CSF.

Now, therefore be it RESOLVED:

The U.S. SHIP House of Delegates supports moving forward with efforts to determine the need for active surveillance within the program. The primary objectives of these efforts will be to further evaluate opportunities associated with the USDA-APHIS CSF/ASF case compatible submission program, explore a potential program standard where US SHIP enrolled sites will be required to include a premises identification number (PIN) on every lab submission, continue to evaluate opportunities to expand surveillance options, including oral fluids and others and explore options to initiate a pilot project to begin active surveillance. The sub-committee shall be producer-led with advisement by a practicing veterinarian, APHIS import/export staff, APHIS Swine Health Team, CEAH, state animal health official, the National Animal Health Laboratory Network, and APHIS-FADDL staff.

This sub-committee will provide an update with recommendations for implementation of active surveillance at the 2023 House of Delegates Meeting.

RESOLUTION NUMBER: 2022 - 8

SUBMITTED BY: US SHIP Working Group on Site Biosecurity

SUBJECT MATTER: Mitigating Risks of Direct Contact with Feral Swine

PROPOSED RESOLUTION:

To further define mitigation measures for US SHIP participating sites from feral swine.

The US SHIP House of Delegates requests the commissioning of a coordinated, standing com to provide recommendations for consideration by the US SHIP House of Delegates in 2023.

Background/Reason:

Segregating domestic pigs from having direct contact with feral swine is a fundamental princi toward protecting the health of US domestic swine and hallmark of foreign animal disease preparedness.

In the absence of intentional biosecurity measures and plans in place, pigs with access to the outdoors can be of substantively increased risk to have direct contact with feral pigs in such a and regions where feral swine are present.