



Animal and  
Plant Health  
Inspection  
Service

APHIS 91-55-042

# Swine Brucellosis Control/Eradication

State-Federal-Industry  
Uniform Methods and Rules

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## Introduction

These Uniform Methods and Rules (UM&R) were adopted for the eradication of swine brucellosis from all domestic swine in the United States. These are minimum methods and rules developed by the Veterinary Services division of the Animal and Plant Health Inspection Service (APHIS), an agency of the U.S. Department of Agriculture (USDA), and endorsed by swine health practitioners at the annual United States Animal Health Association meeting in October 1997.

The following list highlights changes adopted in this version of the swine brucellosis UM&R. Numbers in parentheses represent page numbers in this typescript.

**Part I—Definitions.** A definition for breeding swine was added, and the definitions of domestic swine and feral swine were changed. (6)

**Part III—Epidemiology.** At Section H., Surveillance, requirements for Stage I and Stage II States or areas were added. (13)

### **Part VII—Program Stages—Stage I.**

At Sec. A.1.j., the requirement for first-point testing was added and subsequent subsections were relettered. (21)

At Sec. A.6, the title of the section was expanded, the phrase “feral swine” was changed to read “wild or feral swine,” certain specifics were adjusted in subsection c., and the requirement for exposed swine was added in new subsection d. (22)

The minimum uniform methods and rules described in this publication do not preclude the adoption of more stringent methods and rules by any geographic or political subdivision of the United States.

## Part I—Definitions

<b>Accredited veterinarian</b>	A veterinarian approved by the <b>Deputy Administrator</b> of Veterinary Services (VS), Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture (USDA), to perform functions required by cooperative State–Federal animal disease control and eradication programs.
<b>Approved all-class market</b>	A market approved by the <b>APHIS Administrator</b> and listed in Title 9 of the Code of Federal Regulations (CFR) at which breeding, feeding, or slaughter swine may be sold in accordance with Federal interstate regulations.
<b>Approved slaughter market</b>	A swine-only market approved by the <b>APHIS Administrator</b> and listed in Title 9 CFR at which interstate shipments of slaughter swine only are permitted in accordance with applicable State and Federal regulations. No swine may be released from an approved slaughter market unless consigned directly to another approved slaughter market, or to a <b>recognized slaughtering establishment</b> for immediate slaughter.
<b>Area Veterinarian-in-Charge (AVIC)</b>	The veterinary official of VS, APHIS, USDA, who is assigned by the <b>Deputy Administrator</b> to supervise and perform official APHIS animal health work.
<b>Boar</b>	An uncastrated male swine 6 months of age or over that is, or has been, capable of being used for breeding purposes.
<b>Breeding swine</b>	Swine that are 6 months of age or older and that are used or intended to be used for breeding.
<b>Certificate</b>	An official document issued for and prior to interstate movement of swine not known to be infected with or exposed to <b>swine brucellosis</b> (SB) by a VS representative, a State representative, or an <b>accredited veterinarian</b> , which states: (1) the number, individual identification, and description of the swine to be moved; (2) that the swine to be moved are not known to be infected with or exposed to SB; (3) the purpose for which the swine are to be moved; (4) the points of origin and destination; (5) the consignor and consignee; and (6) additional information as required by applicable State and Federal laws and regulations.
<b>Complete herd test (CHT)</b>	An official SB test of all breeding swine 6 months of age and older in a herd. Swine being fed for slaughter that are not in contact with breeding swine may be exempted from CHT requirements.
<b>Deputy Administrator</b>	The Deputy Administrator, VS, APHIS, USDA, or any other VS official to whom authority has been delegated to act in his or her stead.
<b>Designated brucellosis epidemiologist</b>	An epidemiologist selected by the State animal health official and the AVIC. The regional brucellosis and swine disease epidemiologists and the VS Regional Director should concur in the selection of the designated brucellosis epidemiologist.
<b>Domestic Swine</b>	Swine that are owned, managed, and have never been exposed to wild or feral swine.
<b>Direct shipment</b>	Movement without unloading en route and without contact with swine of lesser SB status.

<b>Farm of origin</b>	A farm where the swine were born, or on which they have resided for at least 60 consecutive days immediately prior to movement.
<b>Feral or wild swine</b>	Swine that have lived all (wild) or any part (feral) of their lives as free-roaming animals.
<b>Herd</b>	All swine under common ownership or supervision on a premises or all swine under common ownership or supervision on two or more premises among which swine have been interchanged.
<b>Herd of origin</b>	(See <b>Farm of origin</b> .)
<b>Herd plan</b>	A written management and testing agreement designed by the producer and <b>designated brucellosis epidemiologist</b> to control and eradicate SB from an infected herd.
<b>Interstate</b>	From any State into or through any other State.
<b>Intrastate</b>	Within a State.
<b>Known infected herd</b>	A herd in which one or more swine have been classified an SB reactor and which has been determined by a <b>designated brucellosis epidemiologist</b> to be infected. (See Part VI, Lab Procedures and Test Interpretation.)
<b>Monitored negative feral swine population</b>	The <b>designated brucellosis epidemiologist</b> may classify feral swine originating from areas that have been geographically defined and under continuous surveillance yielding no evidence of infection as a monitored negative feral swine population.
<b>MST negative</b>	A swine that is negative to one or more official SB presumptive tests. (See Part III, Epidemiology.)
<b>MST program</b>	The identification of <b>sows</b> and <b>boars</b> to their <b>farm of origin</b> by official identification device and collection of blood samples from these swine at markets or slaughter establishments for official SB testing at a designated laboratory.
<b>MST reactor</b>	A swine that is positive to an SB confirmatory test or positive to the card test alone and not subjected to a confirmatory test.
<b>MST suspect</b>	A swine that is positive to a presumptive test but is negative to a confirmatory test. (See Part III, Epidemiology.)
<b>Official backtag</b>	A VS-approved paper or plastic tag applied to the head or poll region of slaughter sows and boars that provides <b>farm of origin</b> identification of blood samples collected at markets and slaughter establishments.
<b>Official slaughter sow/boar identification eartag</b>	A VS-approved identification eartag for the identification of <b>sows</b> and <b>boars</b> in slaughter channels.

<b>Official swine brucellosis test</b>	Any serologic test approved by the <b>Deputy Administrator</b> for diagnosis of brucellosis in swine.
<b>Permit</b>	An official document required to accompany all intrastate and interstate shipments of SB-infected or -exposed swine. It may be issued by a VS representative, State representative, or an <b>accredited veterinarian</b> and states: (1) the number of swine and individual identification of swine to be moved, (2) the purpose for which the swine are to be moved, (3) the points of origin and destination, (4) the consignor and consignee, and (5) additional information required by applicable State and Federal regulations.
<b>Qualified Pseudorabies-Negative (QN) herd</b>	For definition, refer to <i>Pseudorabies Eradication—State–Federal–Industry Program Standards, Effective January 1, 1995</i> , (USDA–APHIS publication APHIS–91–55–022), Part IV—Participation in Herd Plans and Release of Quarantines, Subpart I—The Qualified Pseudorabies-Negative (QN) Herd.
<b>Qualified-Negative Gene-Altered Vaccinated (QNV) herd</b>	For definition, refer to <i>Pseudorabies Eradication—State–Federal–Industry Program Standards, Effective January 1, 1995</i> , (USDA–APHIS publication APHIS–91–55–022), Part IV—Participation in Herd Plans and Release of Quarantines, Subpart II—The Qualified-Negative Gene-Altered, Vaccinated (QNV) Herd.
<b>Quarantined herd</b>	A herd in which SB-infected or -exposed swine are bred, reared, or fed under the supervision and control of the <b>State animal health official</b> and from which swine must be moved under permit directly to a <b>recognized slaughtering establishment</b> or directly through no more than one slaughter market and then directly to a recognized slaughtering establishment.
<b>Recognized slaughtering establishment</b>	A slaughtering establishment operated under the provisions of the Federal Meat Inspection Act (21 U.S.C. 601 et seq.) or a State-inspected slaughtering establishment that meets the minimal requirements of Title 9 CFR.
<b>Sow</b>	A female swine that is parturient or postparturient.
<b>State</b>	Any State or Territory of the United States, including the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, and the Northern Mariana Islands.
<b>State animal health official</b>	The State official who is responsible for the livestock and poultry disease control and eradication programs in a State.
<b>Swine brucellosis (SB)</b>	The contagious, infectious, and communicable disease of swine caused by <i>Brucella suis</i> ( <i>B. suis</i> ) biovars 1 or 3.
<b>Swine brucellosis-exposed</b>	Swine that are not known to be SB infected but are part of a known SB-infected herd or that have been in contact with reactor or feral swine.
<b>Swine not known to be infected with or exposed to swine brucellosis</b>	All swine except those that are part of a <b>known infected herd</b> or are known to have been exposed to brucellosis-infected swine and/or feral swine.



<b>Validated swine brucellosis-free herd</b>	Any swine herd not known to be infected with SB that is located in an SB-free State or a swine herd in a nonvalidated SB-free State which meets the specific provisions of a validated SB-free herd. (See Part V, Validated Swine Brucellosis-Free Herds.)
<b>Veterinary Services (VS)</b>	The Veterinary Services branch of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS).
<b>Veterinary Services representative</b>	A person employed by VS, APHIS, USDA, who is authorized to perform official SB eradication activities.

## Part II—Administrative Procedures

### **A. Supervision of the Cooperative State–Federal Swine Brucellosis Eradication Program**

The Cooperative State–Federal Swine Brucellosis Eradication Program must be supervised by full-time animal health veterinarians employed by the State or Federal Government.

### **B. Entering premises**

State and Federal representatives participating in the National Swine Brucellosis Eradication Program must be authorized by the State to enter premises to carry out program procedures. While on such premises, these representatives must use commonly accepted sanitary procedures to minimize the risk of physically transmitting diseases among groups of swine on the farm being investigated, as well as to other premises.

### **C. Providing services to livestock owners**

Owners are responsible for handling their animals. Program administrators may contract with accredited veterinarians, paraprofessionals, other State and Federal agencies, or with the management of privately owned firms as needed, to assist State and Federal representatives in collecting blood or tissue samples, identifying animals, and performing other Program activities.

### **D. Notifying the community of swine brucellosis-infected herds**

State or Federal program officials shall notify swine owners within a 1.5-mile (2.4-km) radius of the infected herd within 15 days after a swine herd has been quarantined for SB. When the herd quarantine is released, the same herd owners shall be notified within 30 days by an informational letter.

### **E. Dealers—Registration and recordkeeping**

The following dealers (individuals or other legal entities) of swine should be registered or licensed with the appropriate State agency:

- Dealers who purchase, trade, or sell swine;
- Dealers who act as commission representatives or brokers;
- Dealers who operate and conduct an auction where swine are sold.

Registered or licensed dealers must maintain records required by the licensing agency to make it possible for State authorities to trace swine to their herds of origin and destination.

1. Registering dealers—After giving due notice and opportunity for a hearing to the dealer involved, the State agency must have the authority to deny an application for registration or to suspend or cancel the registration when the agency is satisfied of either or both of the following:
  - a. There is adequate evidence to establish that the dealer had intent to violate or circumvent the recordkeeping requirements of this section and/or other animal health regulations;
  - b. The dealer has repeatedly demonstrated failure to keep records adequate to permit tracing his or her swine sales and purchases.

2. Keeping records—Each registered or licensed swine dealer must keep sufficient records of all swine purchased to enable the State agency to trace such swine satisfactorily to their farms of origin and destination. The records should be kept for a minimum of 1 year.
3. Dealing with violations—Provisions should exist so that State animal health officials may institute any action at law or in equity that appears necessary to enforce compliance with dealer registration and recordkeeping requirements. This includes the authority to subpoena appropriate records and/or persons that allegedly violate these minimum standards. The appropriate State officials should also have authority to petition the local court that has venue for an order to enforce these subpoenas.

**F. Administrative review of Program activities**

Appropriate VS and swine industry personnel will review State SB control/eradication program progress periodically to ensure compliance with the Uniform Methods and Rules as outlined in this publication.

**G. Application for Program status**

Application for program entry and advancement in status will be jointly signed by the State animal health official and AVIC and be submitted to the Chief Staff Veterinarian of the Swine Health Staff.

## Part III—Epidemiology

### A. General considerations

The requirements of Part III apply to establishing and maintaining Program status for all States in Program Stages I, II, and III.

### B. Traceback of market swine test (MST) reactors

All tracebacks of MST reactors require a thorough epidemiologic investigation, including completion of VS Form 4–106 or a similar document.

1. A successful traceback occurs when or if:
  - a. The farm of origin of the MST reactor is identified; and
    - (1) A complete herd test (CHT) is conducted; or
    - (2) Upon review of the herd's health status and all other epidemiologic information, a designated epidemiologist determines that a CHT is not necessary. The designated epidemiologist will provide an alternative testing plan if needed and a detailed explanation of measures taken to ensure that the herd does not have SB.
  - b. All swine on the farm of origin are verified to have been sold for slaughter.
2. An unsuccessful traceback occurs when the MST reactor cannot be traced to its herd of origin or is only traceable to a dealer, commission firm, etc.

### C. Records

An electronic and/or written record will be maintained for all MST reactors including at least the following information:

1. Identification of the MST reactor. (Include sex, breed, and ID numbers.)
2. Consignor's name and address.
3. Date and location bled.
4. Presumptive test and confirmatory test results.
5. Epidemiologic data, including results of farm-of-origin CHT.

### D. Traceback of MST suspects

Traceback investigations are generally recommended but may be waived when, in the professional judgment of the designated brucellosis epidemiologist, one is not required.

**E. Other epidemiology** Tracing sales from infected herds and testing swine exposed to SB by “boar borrowing,” broken fences, across-fence contact, etc., are basic to the efficient eradication of SB. MST alone cannot be expected to identify all infected swine herds rapidly and efficiently.

A VS Form 4–108 (Epidemiologic Investigation), VS 4–108A (Origin of Reactor/Herd Addition), VS 4–108B (Animals Removed From Infected Herd), VS 4–108C (Epidemiology Report—Suspect Herd), or similar document is required for all herds determined to be infected and should be completed within 30 days of a positive diagnosis. All exposed herds should be located as rapidly as possible. A CHT of the exposed herds should be conducted within 30 days of locating the index herd.

A successful epidemiologic investigation of a traceback of an MST reactor to a “sold out” herd requires further work even when all swine are determined to have been slaughtered. Potential sources of infection must be investigated as well as potentially infected exposed herds.

**F. Bacteriology** Prior to the slaughter of SB reactors, arrangements should be made for tissue collection. The tissues will be frozen and submitted to a State-approved diagnostic laboratory or the National Veterinary Services Laboratories (NVSL) for bacteriologic culture per applicable VS memoranda. Preferred tissues in order of priority include mandibular, gastrohepatic, internal iliac, supratharyngeal, and superficial inguinal lymph nodes. In addition, any tissues showing inflammatory lesions such as abscesses should be cultured. These are most likely to be seen in the reproductive organs—testes, epididymis, and seminal vesicles in males and uterus and ovaries in females—and in the bones and joints of either sex.

**G. Reclassification of reactors and suspects** Swine classified as SB reactors or suspects may be reclassified by the designated brucellosis epidemiologist when there is sufficient bacteriologic, serologic, and/or epidemiologic justification.

Swine herds with a brucellosis reactor must be maintained under quarantine until the designated brucellosis epidemiologist makes a final decision and classification.

**H. Surveillance** All Stage I and Stage II States must require change of ownership testing for all breeding swine. All livestock markets in Stage I and Stage II States must require first-point testing on all breeding swine.

## Part IV—Herd-Cleanup Plans

### A. General considerations

1. Identification—All swine from which a blood sample is collected for official SB testing must be identified, when bled on the farm, with externally visible, permanent, individual identification. Acceptable identification includes official eartags, visible tattoos, or ear notches when the ear notch has been recorded in the book of record of a purebred registry association.

Reactor swine must be identified with an approved reactor tag in the left ear.

2. Retesting reactors—The herd owner or designated brucellosis epidemiologist may request a retest of SB reactors within 3 days following notification of test results.
3. Cleaning and disinfection—The premises of a known infected herd must be cleaned and disinfected under State or Federal supervision within 15 days after reactors have been removed for slaughter. The time may be extended another 15 days for reasons mutually acceptable to the cooperating State and Federal officials in charge. The requirements of 9 CFR Part 51.8 must be met to qualify for Federal indemnity.
4. Quarantines—All swine in infected herds must be confined to the premises under State quarantine until the herd has been sold for slaughter under permit, or the herd has been freed of SB by the test-and-slaughter procedures of Plan 2 or Plan 3.

Three negative CHT's are required for quarantine release, with the first conducted at least 30 days following removal of all SB reactors for slaughter. The second CHT must be conducted 60–90 days after the first one. A third CHT is required 60–90 days following the second CHT.

5. Movement of reactor and exposed swine—SB reactors must be identified with an official reactor tag in their left ear and be removed from the infected herd under State or Federal permit within 15 days of owner notification of reactor classification. Reactor and exposed swine must receive permits only for immediate slaughter directly to a recognized slaughtering establishment or to an approved slaughter market for resale to a recognized slaughtering establishment. During shipment, reactor and exposed swine must be transported separate and apart from all swine that will subsequently be used as breeding animals.

### B. Herd-Cleanup Plan 1. Depopulation/ repopulation

This plan is recommended for commercial herds and seed stock producers who wish to eliminate SB from their herd rapidly:

1. Sell the entire herd for slaughter as soon as practicable.
2. Clean and disinfect buildings and equipment.
3. Restock premises with animals from validated SB-free herds, placing them on ground that has been free of swine for at least 30 days.

**C. Herd-Cleanup  
Plan 2. Offspring  
segregation**

This plan is recommended only when the owner wants to preserve genetic qualities in the herd:

1. Separate gilt pigs from their dams at 28 days of age or less and isolate the gilts from other swine. These gilts form the nucleus for establishing the free herd.
2. Completely isolate infected breeding animals. Infected sows and boars should be slaughtered as soon as possible.
3. Test the isolated gilts about 30 days before breeding. Save only the gilts that are negative. Breed them only to negative boars.
4. Retest gilts after farrowing and before removing them from individual farrowing pens or crates. If reactors are found, they should be segregated from the remainder of the herd and slaughtered as soon as possible. Select only pigs from negative sows for breeding gilts.
5. If reactors are found in step 4, repeat the process, beginning with step 1.
6. After three consecutive negative CHT's, the herd is eligible for release from quarantine. The first CHT must be administered at least 30 days after all reactors have been removed and slaughtered, and the second CHT must take place 60–90 days after the first test. A third CHT is required 60–90 days following the second CHT.

**D. Herd-Cleanup  
Plan 3. Test and  
removal of reactors**

This plan is not generally recommended but may be useful in herds with only a few reactors and no observed clinical signs of SB:

1. Sell reactors for slaughter.
2. Retest the breeding herd at 30-day intervals, removing reactors for slaughter, until the entire herd is negative.
3. If the herd is not readily freed of infection, abandon this plan in favor of Plan 1 or Plan 2.
4. After four consecutive negative CHT's, the herd is eligible for release from quarantine. The first CHT must be administered at least 30 days after all reactors have been removed and slaughtered, and the second CHT must take place 60–90 days after the first test. A third CHT is required 60–90 days following the second CHT. A fourth CHT is required 6 months after the third CHT.

## Part V—Validated Swine Brucellosis-Free Herds

### A. Initial validation or revalidation

1. Swine herds may be validated or revalidated as SB free by conducting a CHT that has negative results, or
2. By subjecting all breeding swine over 6 months of age to an incremental CHT through testing 25 percent of the swine over 6 months of age every 80–105 days and finding all swine so tested negative, or by testing 10 percent of the swine over 6 months of age each 25–35 days and finding all swine so tested negative. No swine may be tested twice in 1 year to comply with the 25-percent requirement nor twice in 10 months to comply with the 10-percent requirement. A herd may be validated as SB free when all its breeding swine have been tested and found negative, or
3. Swine herds may be validated or revalidated as SB free if all samples are tested SB negative when establishing a Qualified Pseudorabies-Negative (QN) or Qualified-Negative Gene-Altered Vaccinated (QNV) breeding herd.

### B. Maintaining validation

1. Validation is good for a maximum of 12 months without further testing. At the end of this time, the herd must be revalidated. There is no grace period.
2. Validation may be continuously maintained by testing 25 percent of the swine over 6 months of age every 80–105 days and finding all swine so tested negative, or by testing 10 percent of the swine over 6 months of age each 25–35 days and finding all swine so tested negative. No swine may be tested twice in 1 year to comply with the 25-percent requirement nor twice in 10 months to comply with the 10-percent requirement, or
3. Validation may be maintained by testing SB negative all samples submitted to maintain QN or QNV herds.

### C. General considerations

1. Duration of validated swine brucellosis-free status—A herd may maintain its SB-free status for a maximum of 12 months. There is no grace period.
2. Clinical signs—There must be no evidence of infection at the time of initial validation or revalidation.
3. Suspects—Swine that are positive to an official SB presumptive test and negative to a confirmatory test should be evaluated by a designated brucellosis epidemiologist.



4. Reactors—When an animal that reacts positively to the card test is found in a validated herd, the infection status of that animal, and ultimately the herd, must be determined by a designated brucellosis epidemiologist. Once a herd is determined to be infected, the herd will be held under quarantine until it meets the quarantine release requirements of Part IV. Card-positive reactors that are considered not infected should be retested every 30–60 days or slaughtered and tissue-cultured in accordance with Part III, F. Bacteriology.
5. Movement of swine into a validated swine brucellosis-free herd
  - a. Movements between validated SB-free herds do not require an official SB test.
  - b. Movement of breeding swine from a nonvalidated SB-free herd requires one negative presumptive test within 30 days prior to movement. These animals must be isolated and retested 30–60 days after arrival.
  - c. Breeding swine are not permitted to enter SB-free herds from feedlots or slaughter consignments.
6. Use of swine semen in swine brucellosis-free herds—All semen used must come from boars in validated SB-free herds.

## Part VI—Laboratory Procedures and Test Interpretation

### A. Laboratories

All official SB tests must be conducted in State–Federal laboratories that have been specifically approved for conducting SB serology.

All blood samples that have been tested for SB at a market or other site as part of an official State program must be submitted to a laboratory designated by local program animal health officials within 24 hours of testing at the market or other site.

Approved laboratories and personnel will be monitored annually to ensure quality of laboratory procedures. A cooperative system among the States and NVSL will be utilized to assist approved laboratories in ensuring quality control through employee training and performance evaluation, including an annual series of check tests.

### B. Diagnostic reagents

Antigens used for conducting SB serology will be distributed to approved laboratories, approved State and Federal personnel, and accredited veterinarians designated to conduct SB serology at markets.

### C. Tests

All serums that are positive to a standard card test must be confirmed by one or more confirmatory tests.

#### 1. Presumptive tests

- a. Buffered acidified plate antigen (BAPA) test—The BAPA test is used to identify sera to be tested with the standard card test. A test will be interpreted as positive whenever any agglutination is observed. All sera positive to a BAPA test should be subjected to a standard card test.
- b. Standard card test (SCT)—The SCT is used to classify swine as positive or negative. All swine positive to an SCT should be subjected to a confirmatory test.

2. Confirmatory tests

- a. Standard tube test (STT)—If all of the following apply: (1) The swine are part of a herd not known to be infected, (2) no swine tested, individually or as part of a group, has a complete agglutination reaction at a dilution of  $\geq 1:100$ , and (3) the swine are tested as part of a herd blood test or are part of a validated brucellosis-free herd, then the swine are classified according to the following agglutination reactions:

1:25	1:50	1:100	
	–	–	Negative
+	–	–	Negative
+		–	Negative
+	+	–	Negative
+	+		Negative
–	=	No agglutination	
	=	Incomplete agglutination	
+	=	Agglutination	

If any of the following apply: (1) The swine are part of a herd known to be infected, (2) any swine tested, individually or as part of a group, has a complete agglutination reaction at a dilution of  $\geq 1:100$ , or (3) the swine are not part of a validated brucellosis-free herd and are not being tested as part of a herd blood test, then the swine are classified according to the following agglutination reactions:

1:25	1:50	1:100	
	–	–	Negative
+	–	–	Reactor
+		–	Reactor
+	+	–	Reactor
+	+		Reactor
+	+	+	Reactor

- b. Particle concentration fluorescence immunoassay (PCFIA) test—The results of the PCFIA test are interpreted as follows:

< 5	=	reactor
5–7	=	suspect
> 7	=	negative

3. Confirmatory tests not standardized nor official (to be used and have their results evaluated by the designated brucellosis epidemiologist)

a. Rivanol test

*Interpretation of the Rivanol test*

Negative | @ 1:25 or less  
 Positive + @ 1:25 or greater

b. Complement fixation (CF) test (manual)

*Interpretation of manual CF test results*

Negative 1+ @ 1:10 or less  
 Suspect 2+ @ 1:10 through 1+ @ 1:20  
 Positive 2+ @ 1:20 or greater

Degree of fixation of complement:

1+ = 25 percent	3+ = 75 percent
2+ = 50 percent	4+ = 100 percent

- c. Semen plasma test—The semen plasma test is approved as an official test in boars used for artificial insemination when used in conjunction with the card test and/or the standard tube test. The classification of such animals shall be based on the maximum agglutination titer of either test.

- d. Standard plate test—Interpretation of results of the standard plate test in an infected herd is made in accordance with the following chart:

1:50	1:00	1:200	
–	–	–	Negative
	–	–	Suspect
+	–	–	Suspect
+		–	Suspect
+	+	–	Reactor
+	+		Reactor
+	+	+	Reactor

## Part VII–Program Stages

### A. Establishment of status

#### Stage I

The application for Stage I status shall certify and include documentation that the following standards are met:

1. The State has legal and regulatory authority to:
  - a. Place and maintain a quarantine on any premises on which swine are infected with or exposed to SB;
  - b. Regulate intrastate movement of swine that are infected with or exposed to SB;
  - c. Perform the necessary tests and epidemiologic investigations to determine the presence or absence of brucellosis in swine;
  - d. Require proper identification and disposal of brucellosis-infected and exposed swine;
  - e. Require cleaning and disinfection of premises, vehicles, and equipment that may have been contaminated by SB-infected swine;
  - f. Control procedures for conducting and reporting results of all SB tests;
  - g. Require herd-of-origin identification of slaughter sows and boars moving intrastate. The identification should be compatible with the farm-of-origin externally visible identification methods approved for swine moving interstate;
  - h. Require records that facilitate tracing slaughter sows and boars to their farms of origin;
  - i. Require that all breeding swine sold or transferred originate from validated SB-free herds or are negative to an official SB test within 30 days prior to change of ownership;
  - j. First-point testing shall be required on all breeding swine passing through markets;
  - k. Control the intrastate movement and importation of feral swine;
  - l. Require that all herds that market swine semen be validated SB free and be subjected to an annual CHT;
2. A State SB eradication committee or swine disease committee is established, and its membership includes swine producers and representatives of other swine industry groups.
3. A validated SB-free herd program is in effect.

4. States in Stage I must carry out the following additional procedures:
  - a. Quarantine and promptly test all MST reactor herds. When the designated brucellosis epidemiologist determines that a herd is infected, the herd should be depopulated within 30 days, or a herd-cleanup plan should be implemented.
  - b. Tag and slaughter reactors within 30 days of confirming a herd as infected with SB.
  - c. Distribute available SB-eradication literature to the swine industry.
  - d. A designated brucellosis epidemiologist should determine whether or not to investigate MST suspects and the extent of testing required on a case-by-case basis.
5. Swine importation is controlled as follows:
  - a. Breeding swine: Must have a negative 30-day presumptive test or originate in a validated SB-free herd or State.
  - b. Feeding and slaughter swine: All movements are permitted as long as there is no contact with breeding swine.
6. Transmission of disease from wild or feral swine shall be controlled as follows:
  - a. Wild or feral swine may be moved to immediate slaughter. Movement to hunting preserves or game farms is not classified as shipment to slaughter.
  - b. Wild or feral swine moved to hunting preserves, game farms, exhibitions, or feeding areas, etc., are from monitored free populations or are found negative to an official SB screening test conducted 30 days or less prior to interstate shipment, and these wild or feral swine are imported by permit of the State animal health official.
  - c. Wild or feral swine moved for breeding purposes must be held separate and apart from all domestic swine and be found negative to two official SB tests conducted at least 60 days apart.
  - d. Any swine that have had known exposure to wild or feral swine must be separated from wild or feral swine and quarantined until release according to subsection c. immediately above.
7. All hunting preserves and game farms that include any swine, feral or domestic, must be under surveillance by State animal health officials.

**B. Maintenance of status**

Thirty-six to 40 months following assignment of Stage I status by VS, a State may indicate that it continues to meet Stage I requirements utilizing the Stage I certification procedure or certify that it meets the requirements of a subsequent Program stage. States failing to recertify as required will automatically lose their Stage I status.

## Stage II

### A. Establishment of status

States may apply for Stage II status whenever they feel the requirements are met.

The application for Stage II status shall certify that the following standards are met:

1. Stage I standards are implemented;
2. An active program to locate and eliminate SB has been instituted. Current statistics on breeding swine population provided by the USDA, National Agricultural Statistics Service, will be used to calculate surveillance data unless a farm-by-farm survey of all swine producers that provides more accurate data is conducted. **The surveillance program must be random and must be representative of all herds in the State.** One of the following surveillance programs has been implemented:
  - a. Complete herd (area) testing. An official SB test of all breeding swine 6 months of age and older in the State was conducted within the 2-year period prior to the Stage II status request; or
  - b. During the 2-year period prior to the request for Stage II status, the State's breeding swine population, at a rate of 10 percent annually, was subjected to an official SB test with successful annual traceback of at least 80 percent of MST reactors to their farm of origin. Blood samples may be collected at markets and/or slaughter establishments from breeding swine identified to their farms of origin by official backtags or other specifically approved slaughter sow/boar identification devices or when farm-of-origin identity is otherwise available. All MST reactor herds must be subjected to a CHT within 30 days following the laboratory report date; or
  - c. An analysis of the results of all SB testing conducted during the 2-year period (MST, diagnostic, change of ownership, herd validation, etc.) demonstrates a surveillance level equivalent or superior to the above two surveillance programs.

### B. Maintenance of status

Thirty-six to 40 months following assignment of Stage II status by VS, a State may indicate that it continues to meet Stage II requirements utilizing the Stage II certification requirements or certify that it meets the requirements of a subsequent Program stage. States failing to recertify as required will automatically lose their Stage II status.

## **Stage III (Free)**

### **A. Establishment of status**

States may apply for Stage III status whenever they feel the requirements are met.

The application for Stage III (free) status shall certify and document that the following standards are met:

1. Stage II standards are implemented, and its requirements are fulfilled.
2. Herd infection rate

During the 2-year qualification period, no more than one SB-infected herd was identified; and any SB-infected herd found during the 2-year qualification period was depopulated or tested and determined free of SB by a designated brucellosis epidemiologist. If more than one SB-infected herd was disclosed during the 2-year qualification period, a new qualification period must be established.

3. Epidemiology—See part III.

### **B. Maintenance of status**

Thirty-six to 40 months following assignment of Stage III status by VS, a State may indicate that it continues to meet Stage III requirements. States failing to recertify as required will automatically lose their Stage III status. During the revalidation period, State and Federal officials are responsible for continuously monitoring Program activity. To maintain Stage III status, a State must survey on a random basis at least 5 percent of its breeding swine annually and demonstrate traceback of 80 percent or more of all MST reactors to their herds of origin.

### **C. Termination of status**

Stage III status may be terminated at any time during the validation period with 10 days' notice if:

1. The State does not maintain adequate surveillance; or
2. The State fails to comply with quarantine requirements and testing schedules; or
3. The State permits improper disposal of reactors; or
4. Infection is disclosed with evidence of spread.

### **D. Reinstatement of terminated status**

When Stage III status is lost due to deficiencies in surveillance or in procedures necessary for locating infected herds, in controlling infected and exposed swine, or in eliminating infected swine, as prescribed under the various plans and procedures, Stage III status shall be reinstated when State and Federal officials present sufficient evidence that the procedural deficiencies have been corrected.



## **Part VIII—Quarterly Reports**

All SB program States will submit a quarterly report to the APHIS, VS, Swine Health Staff. The report must provide basic Program data, including infected herd information.

The national SB quarterly and annual reports will be compiled from data provided by the State quarterly reports. These reports will be used by State–Federal–Industry SB Program managers in conducting the national SB eradication program.