

Mississippi Voluntary Johne's Disease Program for Beef Cow-Calf Herds

Mississippi Voluntary Johne's Disease Programs for Cattle

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I. DEFINITIONS

Accredited Veterinarian - a veterinarian approved by the Deputy Administrator of USDA, APHIS, VS to perform functions required by State-Federal-Industry Cooperative programs.

Animal Health Technician – A person that has received training to assist a veterinarian with sample collecting and treatment and is certified or licensed by the State Animal Health department. This person may collect samples for program herds if they are under the supervision of an accredited veterinarian.

Animal Health Official – A full time employee of the State animal health department or of APHIS that has authority from the state veterinarian or the AVIC to carry out Program activities.

Approved Laboratory - a private, state, federal or university laboratory that has passed an annual check test for Johne's disease administered by the National Veterinary Services Laboratories. All program testing must be done in a laboratory approved by NVSL for the specific test being used in a states testing program.

Area Veterinarian-in-Charge (AVIC) - The veterinary official of VS, APHIS, USDA, who is assigned by the Deputy Administrator of VS to supervise and perform the official animal health work of APHIS in the State or States concerned.

Certified Veterinarian - an accredited veterinarian that has received training approved by the designated Johne's disease epidemiologist for Johne's disease epidemiology and herd management plan development.

Commingling - physical contact or exposure to manure or raw milk of susceptible species. For example, all cattle grazed together or on the same area of a property or farm, at any time during a 12 month period, are considered commingled. Susceptible species include domestic and exotic ruminants such as sheep, goats, cervids and camelids. Exposure to manure via contaminated water or feed sources will also be considered commingling.

Designated Johne's disease epidemiologist (DJE) - an epidemiologist who has demonstrated the knowledge and ability to perform the functions required under these program standards and who has been selected for this position by the State animal health official and the AVIC. The VS regional Johne's disease epidemiologist and the VS Johne's disease staff must concur in the selection and appointment of the DJE.

ELISA testing - Enzyme Linked Immunosorbent Assay test designed to detect the presence of antibodies for *Mycobacterium avium ss paratuberculosis* in serum, blood, and/or milk. Test kits must be approved by USDA.

Herd - a group of cattle that has been together for at least one year and has been managed as a separate and discrete unit not commingled with other groups of

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susceptible species. This may include two or more groups of animals under common ownership or supervision, geographically separated but which have an interchange or movement of animals without regard to health status.

Herd member - any Johne's disease susceptible species of animal that is commingled with the herd.

Herd management plan - A written plan developed by the producer and certified veterinarian or animal health official that includes animal husbandry and hygiene practices specific to that herd which is designed to limit opportunities for exposure to *Mycobacterium avium* ss *paratuberculosis*.

Herd status levels - herds may achieve status levels of 1, 2, 3, 4, or higher. Each increase in status level indicates a lower risk of Johne's disease in the herd.

Official Johne's disease test - An organism detection test approved by the Administrator and conducted in a laboratory approved by the Administrator. The Administrator will approve laboratories to conduct an official Johne's disease test only after determining that the laboratory meets the check test proficiency requirements prescribed by the National Veterinary Services Laboratories. Approval will continue as long as such check test proficiency requirements are met on an annual basis.

Official eartag - an identification eartag approved by APHIS as being tamper-resistant and providing unique identification for each animal. An official eartag may conform to the alphanumeric National Uniform Eartagging System, or it may bear the valid premises identification that is used in conjunction with the producer's livestock production numbering system to provide a unique identification number.

Premises identification number - a unique number assigned by the State animal health official to a livestock production unit that is, in the judgment of the State animal health official and Area Veterinarian-in-Charge, epidemiologically distinct from other livestock production units. The premises identification number shall consist of the State's two letter postal abbreviation followed by the premises' assigned number or code.

Program - Voluntary Bovine Johne's Disease Control Program

Screening test - A Johne's disease test approved by the Deputy Administrator of APHIS, Veterinary Services for use in the Voluntary Bovine Johne's disease Control Program and conducted in an approved laboratory. Screening tests are tests or screening tools that have been developed to aid in determining the presence of *Mycobacterium avium* ss *paratuberculosis* within a herd. Animals found positive to these test will be considered suspect unless they show clinical symptoms of Johne's disease or they are confirmed positive by an official Johne's disease test.

State - Any of the 50 States, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the District of Columbia, and any territories and possessions of the United States.

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State Animal Health Official – the state official who is responsible for the livestock and poultry disease control and eradication programs in a State.

State Johne's Disease Advisory Committee - a committee organized by the State animal health official to assist in the oversight and coordination of the State's Johne's Program.

MVJDSP: Mississippi Voluntary Johne's Disease Status Program with Levels 1-4

MVJDMP: Mississippi Voluntary Johne's Disease Management Plan

Johne's Disease Test Positive Animals:

An animal is considered Johne's disease test positive if:

- 1) The blood sample is ELISA test positive, unless a subsequent fecal sample from the animal is test negative.

- 3) The fecal sample is culture positive for *M. paratuberculosis*, unless subsequent appeal determines the animal to be negative (see Appeal Process in the MVJDSP standards.)

Herd Status Levels: MVJDSP herds may achieve Status Levels 1, 2, 3 or 4. Each level of increase indicates higher confidence in the Johne's disease free status of the herd.

Level achievement year: the year in which a herd met Program standards to be granted a specific status Level. For example, a herd completing Level 2 testing in 1998 which elects to remain at Level 2 would have Level 2 1998 status. Level achievement year is noted because continued monitoring increases confidence the herd is not infected.

ELISA Statistical subset: an ELISA test on a statistically determined number of animals. The table in Appendix I shows the number of animals to include in Program ELISA statistical subset testing.

State Johne's Advisory Committee: an appointed committee which is the authority responsible for overseeing and coordinating the State's Voluntary Johne's Disease Status program. The Committee may be comprised of any or all of the following:

- 1) Dairy producers - purebred, commercial and commodity groups
- 2) Beef producers - purebred, commercial and commodity groups
- 3) University Extension - beef and dairy
- 4) Veterinary practitioners - beef and dairy

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- 5) Regulatory veterinary medicine - state, federal, and/or field services
- 6) Livestock Market Association

Responsibilities of the committee should include, but are not limited to:

- 1) Informing and educating the industry regarding Johne's disease
- 2) Overseeing financial needs for state Johne's disease activities
- 3) Recommending state policies with approval of the appropriate State authority on operating a Johne's disease program which enhances a Johne's disease herd status program, reduces the spread of Johne's disease and assists infected herds in managing or controlling the infection
- 4) Setting standards for release of information on Program herd status
- 5) Overseeing appeals of Program herd status
- 6) Providing input to the USAHA Johne's Committee National Johne's Working Group for evaluation and revision of the MVJDSP and MVJDMP.

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II. PROGRAM STANDARDS

Positive Animals

Positive animals whose status is not being appealed should be permanently identified within 30 days of receipt of positive culture results with a "J" brand on the tail-head or a "Colored USDA Pass tag" and "J" tattoo in the left ear. The accredited veterinarian or state or federal animal health official will be responsible for permanent identification of test positive animals.

Risk Analysis

A farm or herd risk evaluation must be done before a herd may be enrolled in a control or status program. This evaluation would inform producers entering the program of existing herd risk factors for the spread of Johne's disease. A farm risk checklist may also be used as a yearly reminder of existing herd risk factors.

Management Plan

A farm or herd management plan must be completed prior to a herd being enrolled in a control or status program. This management plan is designed to prevent the introduction and/or spread of Johne's disease in their herd.

Test Procedures

The herd must meet identification and commingling requirements described in the definitions.

Herds enter the Management Program by Johne's ELISA randomly testing thirty, three years old or older animals; or by being in a higher level of the program and having a positive animal. Animals should be selected to be representative of the herd population. Herds with less than 30 animals will test all animals 2 years old or older.

Herds enter the Status Program by having a negative Johne's ELISA herd test of animals three years old or older. See Appendix I.

All samples for MVJDMP or MVJDSP annual herd testing shall be collected by a certified veterinarian or a state or federal animal health official. The person performing the sampling should select the group of animals to be tested, collect an appropriate sample from each test animal, identify each sample with the animal's unique individual identification, sample collection date, and submit the samples to the testing laboratory. If an animal is removed from the herd while ELISA results are pending, a fecal culture should be collected and submitted on hold to the laboratory. This will allow, if the owner wishes, an appeal of herd status to be made if the animal tests ELISA positive. (See Appeal Process, page 9).

Samples for the annual herd test shall be analyzed by a laboratory that has passed an annual check test for Johne's disease administered by USDA-APHIS-VS National Veterinary Services Laboratories. All program testing shall be conducted by a laboratory approved for the specific test being used. For the MVJDMP & MVJDSP the laboratory should use one of the following tests:

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Enzyme linked immunoabsorbant assay (ELISA) - or -
Fecal culture test

Test Results

The laboratory performing the Johne's disease tests shall send a copy of the test chart and results to the State Veterinarian's Office within 10 days of test completion.

Confidentiality

All records are confidential unless released by the State Veterinarian.

Johne's Disease vaccinated herds

Cattle may not be vaccinated for Johne's Disease except under an agreement from the state veterinarian's office.

Herds previously vaccinated for Johne's disease may enter the Program once vaccination has been discontinued. These herds must utilize fecal culture as the only test until enough non- vaccinated natural additions qualify for ELISA testing. The number of animals to test at each level remains the same.

Herds tested negative prior to implementation of this program -

Herds Johne's disease tested negative prior to the implementation of this program may be entered at an assigned Program Level determined after a review by the Johne's epidemiologist. That review must include:

- 1) Verification that the herd meets the minimum standards for testing (fecal culture results can be used in place of ELISA results). Future Program tests must be performed in accredited laboratories.
- 2) Risk assessment of the number, source, and testing history of herd additions made after the first qualifying test.
- 3) Written statement of verification by attending veterinarian.

Application to enter program

At the request of the producer or testing veterinarian, the State Veterinarian, in consultation with the State Johne's Disease Advisory Committee, will issue a herd status level based on the submitted test chart and results, risk analysis and management plan for the herd. In the case of initial qualifying tests, the status anniversary date will be the date the samples were taken. The herd owner and/or veterinarian will be notified by the State Veterinarian regarding the status level and anniversary date given to the herd. When selling animals, the herd owner may elect whether or not to disclose this assigned status.

Maintaining a Status Level

Producers may elect to remain at any level of confidence by conforming with the program standards and performing an ELISA test on 30 randomly selected animals three years of age or older every 10 - 14 months. Herds with less than 30 animals will test all animals 2 years old or older. Staying in the MVJDMP requires herds to be

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tested at least at 24 month intervals. A level achievement year for each herd will also be noted, because continued monitoring increases confidence the herd is not infected.

Testing Intervals

Testing intervals are every 10 - 14 months from the date the test samples are collected for MVJDSP herds. It is recommended that MVJDMP herds also test every 10-14 months, but are allowed to go up to 24 months between testing and remain in the program. Herds will be removed from the program if the testing interval requirements are not met, unless an extension has been received from the State Veterinarian in consultation with the State Johne's Advisory Committee.

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III. PROGRAM LEVELS

MVJDMP

The MVJDMP is designed to allow entry to the program with a minimal investment of funds and gradually increases the producer's investment in the program. This program is also designed for producers that have positive animals in the herd. Emphasis is placed on biosecurity and best management practices. Entry requirements are to perform a random test of 30 three year old or older animals. Herds with less than 30 animals will test all animals 2 years old or older.

MVJDSP Level 1 - program entry requirements met, negative ELISA on a statistical subset of three years old or older animals in the herd.

MVJDSP Level 2 - met requirements for Level 1, and negative ELISA on a statistical subset of three years old or older animals. (See Appendix I for the Herd Subset Testing chart.) The Level 2 testing must be completed a minimum of 10 months and a maximum of 14 months after Level 1 testing.

MVJDSP Level 3 - met requirements for Level 2 and have negative ELISA on statistical subset of three years old and older animals in the herd. Each herd must remain in Level 3 until it has had 2 **consecutive** negative ELISA tests on a statistical subset of three years old and older animals in the herd 10-14 months apart. This does not include the entry- level herd test i.e. a herd must remain in Level 3 a minimum of 20 months.

MVJDSP Level 4 - met requirements for Level 3 and have a negative ELISA on a statistical subset of three years old or older animals. Level 4 testing must be completed a minimum of 10 months and a maximum of 14 months after Level 3 testing. Level 4 status is maintained by achieving negative ELISA results on 30 three years old or older animals every 10 - 14 months. These animals must be randomly chosen by the accredited veterinarian, state or federal animal health official. Herds with less than 30 animals will test all animals 2 years old or older.

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IV. CATTLE MOVEMENT GUIDELINES

Import of cattle to the state

Currently, Mississippi has no import requirements relative to Johne's Disease.

Intrastate Movement of infected animals

No restrictions, but each test positive animal will be permanently identified as described above under "Johne's disease test positive animals". Movement of animals to MVJDHSP and MVJDMP herds are described in the standards for that program.

Feeder cattle movements

Cattle intended for feeding purposes only are exempt from the interstate and intrastate movement requirements, except that feeder cattle which are test positive for Johne's disease should be identified as described above under "Johne's disease test positive animals".

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V. COMMINGLED ANIMALS

Animals sold through a consignment sale are not considered temporarily assembled for sale or shipment for purposes of determining their classification. Animals temporarily assembled with animals from herds of lower classification for purposes of sales, shows or shipping retain their classification when brought back to the herd of origin as long as it has been less than 120 days. After 120 days commingled animals may only come back into the herd as a new herd addition.

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VI. HERD ADDITIONS

Heifers that have not calved and bulls less than 2 years of age:

These animals should be from herds of equal or higher program levels.

3 years old and older cows, bulls greater than or equal to 2 years of age:

Level 1 - 3 herds - from herds of equal or higher level **-or-**

from any other herd as follows:

- 1) ELISA test of addition(s) in the herd of origin within 30 days prior to entry to the program herd **-and -**
- 2) Submission of fecal culture from addition(s) within 30 days of arrival
- 3) Testing of herd addition(s) in addition to required animal sampling numbers for the next required annual testing. Herd additions are not granted the same status as the receiving herd until this additional testing is negative.

Additional risk of infection is incurred when animals are purchased from non-program herds. Non-program herds should be encouraged to ELISA test 30 second or higher lactation animals before a Program herd will purchase from them (i.e. non-program herds should be encouraged to participate in the management plan.) When possible, additions from non-program herds should be isolated from the program herd and biosecurity maintained until fecal culture results are reported negative.

Level 4 herds - from herds of equal level **-or-**

from Level 2 or 3 program herds as follows:

- 1) ELISA test of addition(s) in the herd of origin within 30 days prior to entry to the program herd **-and-**
- 2) Submission of fecal culture from addition(s) within 30 days of arrival **-and-**
- 3) Testing of herd addition(s) in addition to required animal sampling numbers for the next required annual testing. Herd additions are not granted the same status as the receiving herd until this additional testing is negative.

Additional risk of infection is incurred when animals are purchased from herds of lower status.

Replacements raised elsewhere: Replacements may only be raised with animals from equivalent status Level herds. Replacements must not be commingled with lesser status level animals or herds.

Embryo Transfer / Artificial Insemination: Program herds may utilize semen and embryos from any other cattle herds. However, embryos must be processed according to International Embryo Transfer Society protocols. Embryo transfer recipient cows must meet herd addition requirements.

The risk of transmission of *M. paratuberculosis* from semen is unknown. AI centers are encouraged to routinely test their bulls for Johne's disease and to remove for sale all

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semen from bulls found to be infected. All semen used in program herds must be processed according to Certified Semen Services standards.

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VII. CHANGES IN HERD STATUS

Herd additions : The status of the herd will revert to the status of the lowest animal if Program herd addition requirements are not met. If a herd addition is found to be positive, after following herd addition requirements, Level Status will be suspended pending an ELISA of the statistical subset of the herd (3 years old and older animals) during the herd's next regularly scheduled herd test. A negative herd test will result in the re-instatement of the herd status. A positive test will result in Herd Status reverting to MVJDMP.

Positive Herd Test: If an animal is found to be positive on a herd test, the status of that herd shall be suspended, pending an ELISA of a statistical subset of the herd's (animals 3 years old and older) next regularly scheduled test. A negative test will re-instate the herd status level, a positive test will result in status level reverting to MVJDMP.

Change of ownership: herd status is determined by the status of the lowest herd member. Therefore, when ownership of a herd or part of the herd changes and no new animals are added to the herd, the herd level remains the same. When ownership of a herd changes and the herd is commingled with another herd or herds, the resulting new herd shall be assigned the lowest level and achievement year of the herds combined to make the new herd.

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VIII. APPEAL PROCESS

Appealing ELISA positive results: status of herds with ELISA positive test(s) is "suspended pending confirmation". Producers may elect to either leave the program or confirm the test results.

Confirmation of ELISA-positive cattle will be done by fecal culture. Fecal culture must be submitted within 45 days of notification of ELISA results. If found to be culture-negative, the herd may advance or retain its status Level. Additionally, the animal(s) must be included in the next round of Program testing if still resident in the program herd.

Appealing Fecal culture positive results: fecal culture-positive cattle will be assumed to be infected with *M. paratuberculosis* and the herd will have its status revoked. Herds may reenter the program at Level 1 by following program standards.

If the animal owner wishes to appeal this decision, the herd is assigned a status of "suspended pending appeal". Appeal may be made using one of three means of proving the animal in question is not infected:

- 1) Necropsy of the animal with culture and histopathology of at least the ileum, mesenteric lymph node and ileocecal lymph node **-or-**
- 2) Biopsy of the ileum (full thickness) and mesenteric or ileocecal lymph node with histopathology and culture of the tissues and culture of a fecal sample taken at the time of biopsy **-or-**
- 3) Six separate fecal cultures from the animal on samples collected not less than 30 days and not more than 45 days apart.

The herd Johne's disease status will be suspended until all testing is completed. Only negative results on all tests on all samples will allow the herd to advance or retain its Program Level.

Appeal of status for other reasons: herd owners may appeal any decision or discuss extenuating circumstances that prevent compliance with the program rules to the State Johne's Advisory Committee.

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Appendix I Herd Subset Sampling

PLEASE NOTE - The sample numbers below have been calculated based on the following assumptions:

- The cattle to be tested are 3 years of age or older
- For these calculations, 25-percent test sensitivity of the ELISA and 40- percent test sensitivity of the fecal culture were assumed (these were the consensus estimates of the Herd Status Committee for subclinically infected cows in first or higher lactation, and no changes were made for the older population sampled)
- For these calculations, 100-percent test specificity of the ELISA and fecal culture was assumed (given follow-up of all ELISA positives with fecal culture)
- The confidence of detecting infection (at least 1 test-positive cow), if present at a true prevalence of 2 percent, is 95 percent
- Sampling without replacement (hypergeometric distribution)

No. cows in herd (3 years old or older)	No. cattle to sample (3 years old or older)
	<u>ELISA</u>
< 300	test all
400	test all
500	test all
600	531
700	540
800	547
900	552
1000	580

Note: In smaller herds, all cattle 3 years of age or older must be tested. In herds with fewer than 30 three year old and older animals, 2 year old animals must also be tested.

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Appendix II Herd Risk Analysis

A. Herd Information

Date completed: _____

1. Farm or ranch name: _____ 2. Premise ID #: _____

3. Owner(s) name: _____

4. Address: _____

5. Phone: (____) _____ 6. Fax: (____) _____ 7. E-mail: _____

8. Herd Veterinarian: _____

9. Key farm management (decision-makers, key employees): _____

10. Type of operation:

a. Cow/calf, seed stock, other: _____

b. Other animal enterprises: _____

11. Herd size:

a. Cows _____

b. Bred heifers _____

c. Heifer calves _____

d. Bulls _____

e. Total _____

12. Herd goals (include future herd size):

a. Next 2 years: _____

b. Next 3 to 5 years: _____

13. Do you plan to be in the beef business in 10 years? _____

14. Current and future source(s) of herd replacements: _____

15. Current herd performance: _____

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16. Herd performance goals: _____

17. Herd health concerns you are addressing or plan to address: _____

18. Management concerns you are addressing or plan to address: _____

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B. Herd History for Johne's Disease

1. First diagnosed case of clinical Johne's disease in your herd:

a. Year? _____ b. Source of animal (home raised or purchased?) _____

2. Clinical cases in the past:

ID	Date	Approx. Age	Source	Offspring ID still in herd

3. Youngest clinical case: a. Age _____ b. Date _____ c. Source _____

Enter information for the **last 12 months** in the table below:

Johne's Tally	1 st calf	2 nd calf	3+ calf	Total	Percent of herd
4. Clinical Johne's cases					
5. Animals culled last year					
6. Johne's cases as percent of culls					
7. Johne's-test positives					

C. Introduction of new cattle

Group	Number last 12 months	Source	Number previous 5 years (not previous year)	Source
1. Cows				
2. Bred Heifers				
3. Heifer calves				
4. Bulls				

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5. Total				
----------	--	--	--	--

D. Johne's Disease Risk Assessment Checklist for Beef Cow-Calf Herds

Risk	Ma x ris k	Her d risk	Current	Past
			Comment	Comment
1. Calving Area:				
a. new cow/calf pairs stay with close-up cows after birth	10			
b. manure-soiling of cows (udders)	10			
c. multiple animal use	10			
d. manure build-up	10			
e. calves born in mud and manure	10			
f. calving area used for sick cows	10			
g. JD clinicals/suspects in area	10			
h. Risk Total: Calving area	70			
2. Pre-weaned calves:				
a. calves kept in close contact with JD-suspect adults	10			
b. potential for contamination of feed, water, with cow manure	10			
c. calves exposed to adult fecal waste	10			
d. Risk Total: Pre-weaned calves	30			
3. Post-weaned heifers:				
a. direct contact with adult manure	6			
b. potential for contamination of feed, water, housing with cow manure	6			
c. share feed, water, facilities with cows	6			
d. manure spread on pasture and grazed in same season	6			
e. share pasture with cows	6			
f. Risk Total: Post-weaned heifers	30			
4. Breeding age heifers:				
a. direct contact with cows/manure	4			

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b. potential for contamination of feed, water, housing with cow manure	4			
c. share feed, water, facilities with cows	4			
d. manure spread on pasture and grazed in same season	4			
e. share pasture with cows	4			
f. Risk Total: Bred heifers	20			
5. Cows/Bulls				
a. contamination of feeders, water sources	4			
b. manure contamination of feed storage or feed equipment	4			
c. manure spread on pasture and grazed in same season	4			
d. access to manure storage areas	4			
e. Risk Total: Cows	16			
6. Total	166			

E. Management Procedures and Plan

Objectives:

1. Keep calving areas clean and dry.
2. Prevent exposure of heifers to cows, bulls, and their manure.
3. Prevent fecal contamination of feed and water.
4. Minimize fecal contamination of premises.

Specific Procedures:

<u>Management Procedure</u>	<u>Person Responsible</u>
1.	
2.	
3.	

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4.	
5.	
6.	
7.	
8.	

Form completed by: _____

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A. Herd Information

Date completed: _____

1. Farm name: _____

2. Premises ID number: _____

3. DHIA number: _____

4. Owner(s) name: _____

5. Address: _____

6. Phone: (____) _____

7. Fax: (____) _____

8. E-mail: _____

9. Herd Veterinarian: _____

10. Key farm management (decision-makers, key employees): _____

11. Other animal enterprises: _____

12. Herd size:

a. Milk cows _____

b. Bred heifers _____

c. Heifer calves _____

d. Bulls _____

e. Total _____

13. Herd goals (include future herd size):

a. Next 2 years: _____

b. Next 3 to 5 years: _____

14. Do you plan to be in dairy farming in 10 years? _____

15. Current and future source(s) of herd replacements: _____

16. Current herd performance (include milk production): _____

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17. Herd performance goals: _____

18. Herd health concerns you are addressing or plan to address: _____

19. Management concerns you are addressing or plan to address: _____

B. Herd History for Johne's Disease:

1. First diagnosed case of clinical Johne's disease in your herd:
a. Year? _____ b. Source of animal (home raised or purchased?) _____

2. Clinical cases in the past:

ID	Date	Approx. Age	Source	Offspring ID still in herd

3. Youngest clinical case: a. Age _____ b. Date _____ c. Source _____

Enter information for the **last 12 months** in the table below:

Johne's Tally	1st lact	2nd lact	3+ lact	Total	Percent of herd
4. Clinical Johne's cases					
5. Animals culled last year					
6. Johne's cases as percent of culls					
7. Johne's-test positives					

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C. Introduction of new cattle

Group	Number last 12 months	Source	Number previous 5 years (not previous year)	Source
1. Milk cows				
2. Bred heifers				
3. Heifer calves				
4. Bulls				
5. Total				

D. Johne's Disease Risk Assessment Checklist for Dairy Herds

Risk	Max risk	Herd risk	Current	Past
			Comment	Comment
1. Calving Area:				
a. multiple animal use	10			
b. manure build-up	10			
c. calves born in cow areas	10			
d. calving area also used for sick cows	10			
e. JD clinicals/suspects in area	10			
f. newborn calves stay with cows after birth	10			
g. calves nurse cows	10			
h. manure-soiling of cows (udders)	10			
i. Risk Total: Calving area	80			
2. Pre-weaned calves:				
a. fed pooled colostrum/multiple cows	10			
b. fed pooled milk	10			
c. calves have direct cow contact	10			

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d. calves housed near cows	10			
e. potential for contamination of milk, feed, water, stall with cow manure	10			
f. Risk Total: Pre-weaned calves	50			
3. Post-weaned heifers:				
a. direct contact with cows/manure	5			
b. potential for contamination of feed, water, housing with cow manure	5			
c. share feed, water, housing with cows	5			
d. share pasture with cows	5			
e. manure spread on pasture and grazed harvested as hay in same season	5			
f. contamination of feed equipment	5			
g. Risk Total: Post-weaned heifers	30			
4. Bred heifers:				
a. direct contact with cows/manure	4			
b. potential for contamination of feed, water, housing with cow manure	4			
c. share feed, water, housing with cows	4			
d. share pasture with cows	4			
e. manure spread on pasture and grazed harvested as hay in same season	4			
f. contamination of feed equipment	4			
g. Risk Total: Bred heifers	24			
5. Cows:				
a. contamination of feeders, waterers	4			

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b. manure contamination of feed storage or feed equipment	4			
c. manure spread on pasture and grazed harvested as hay in same season	4			
d. access to manure storage areas	4			
e. Risk Total: Cows	16			
6. Total	200			

E. Management Procedures and Plan

Objectives:

1. Keep calving areas clean and dry, and used preferably by only one cow at a time.
2. Avoid feeding infected colostrum or milk.
3. Prevent exposure of heifers to milk cows and their manure.
4. Prevent fecal contamination of feed and water (especially that fed to heifers).

Specific Procedures:

<u>Management Procedure</u>	<u>Person Responsible</u>
1.	
2.	
3.	
4.	
5.	
6.	

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7.	
8.	

Form completed by: _____

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Appendix III

Management Plan

Key Elements: List other health management objectives that will be integrated with and benefit from Johne's preventive efforts; i.e., what other diseases will be prevented or controlled.

- a. Calving management
 1. Management objective: keep it clean and dry.
 2. Suggestions for achieving objective:
 - a. For inside area: use area for calving only; use single-animal pens; assure adequate size area; remove manure and bedding after each use; always have adequate bedding.
 - b. For outside calving areas: use adequate area and monitor use to minimize mud and manure accumulation; remove cow/calf pairs immediately after bonding from calving area.
 - c. Clean and clip udder before calving and remove calf immediately after birth.
 3. What specific procedures can you do to achieve goals for the calving area?
- b. Calf raising management
 1. Pre-weaned calves
 - a. Management objectives: avoid feeding infective colostrum/milk and to prevent contact with other infectious materials.
 - b. Suggested procedures to achieve objectives:
 - use colostrum from known JD-free cows; feed 4 qts colostrum within 2 hours; feed milk replacer rather than milk in JD herds; prevent manure contamination of feed and water; house calves in separate facility/location from cows, manure and traffic; minimize manure transfer from cows to calves (feed calves first, separate equipment, clean boots, etc.).
 - c. What specific procedures can you do to achieve goals for the pre-weaned calf sector?
 3. Post-weaned calves
 - a. Management objectives for this area are to prevent exposure to infective animals and manure and to prevent contamination of feed and water.
 - b. Suggested procedures to achieve objectives:

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house young stock in totally separate facility; do not co-mingle young stock with mature animals; do not allow contact with cows or their manure; prevent water drainage from cow areas to young stock areas; do not use common feedbunks or waterers for cows and young stock; use separate equipment for feed and for manure; design and maintain feed and water areas to prevent manure contamination.

c. What specific procedures can you do to achieve goals for the post- weaned calf area?

c. Developing heifers

1. Management objectives are: prevent exposure to infective animals and manure and prevent contamination of feed and water sources.

2. Suggested procedures to achieve objectives are:

house young stock in totally separate facility; do not co-mingle young stock with mature animals; do not allow contact with cows or their manure; prevent water drainage from cow areas to young stock areas; do not use common feedbunks or waterers for cows and young stock; use separate equipment for feed and for manure; design and maintain feed and water areas to prevent manure contamination; do not give refused cow feed to young stock; avoid vehicle and people traffic from cow areas to young stock areas; do not put young stock on pastures used by cows; do not spread manure on pastures to be grazed by young stock in that grazing season

3. What specific procedures can you do to achieve goals for the bred heifer area?

d. Adult cow management

1. Manure and Animal Risks

a. Management objectives are: minimize contamination of premises.

b. Suggested procedures to achieve objectives are:

keep facilities and premises free of manure build-up; haul and store manure away from feed, water and young animals; restrict access; use tuberculocidal (phenolic or cresylic base) disinfectants after manure is removed.

c. What specific procedures can you do to achieve the management goal for this concern?

2. Cows

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- a. Management objectives are: eliminate high-risk animals; manage test-positive animals
- b. Suggested procedures to achieve objectives are:
 - segregate, test, cull all animals with clinical signs of JD as soon as possible; manage asymptomatic JD test-positive animals to reduce premises contamination; cull when economically feasible
- a. What specific procedures can you do to achieve the management goals for this sector?
 - 3. Herd testing
 - a. Management objectives are: to determine presence and/or prevalence of disease; identify infected animals; monitor progress of herd management plan.
 - b. Suggested procedures to achieve those objectives are:
 - test suspects to know status and track clinical cull rate; do baseline herd test to assess prevalence and target control; use results appropriately as part of management plan; test herd regularly to complement and enhance preventive management efforts; use results appropriately as part of management plan; test suspects to know status and track clinical cull rate.
 - c. What specific procedures can you do to achieve goals for the herd testing area?
- e. Records
 - 1. Management objectives are: know baseline or beginning disease status; identify infected animals and their offspring; determine costs of disease and/or plan; help monitor progress and compliance with farm or ranch plan.
 - 2. Suggested procedures to achieve objectives are:
 - ID test-positive animals; record body condition score, salvage value of Johne's culls to track cost in herd; develop management plan checklist to review monthly; periodically review and update checklist with herd veterinarian and other herd decision-makers.
 - 3. What specific procedures can you do to achieve the goals for the records area?
- f. Culling and replacement strategy
 - 1. Acquired animals
 - a. Management objective are: not to purchase or bring back Johne's-infected animals.
 - b. Suggested procedures to achieve objective are:

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know identity, JD history and JD testing record of herd(s) of origin; avoid buying animals from herd with JD risk higher than your herd; test acquired animals -- serology or fecal culture; do not buy or retain any test-positives; segregate and/or prevent oral/fecal contact with young stock until test status is known.

c. What specific procedures can you do to achieve the management goal for this concern?