

**IOWA JOHNE'S DISEASE CONTROL PROGRAM  
and VACCINATION FACT SHEET 2008**

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**I. JOHNE'S DISEASE****A. Incubation Period & Infection.**

Clinical disease characterized by severe diarrhea and rapid loss of weight terminating in death. Appetite remains good until the animal later stages and usually affected animals do not have a fever. Some animals may have intermittent diarrhea for a period of time.

The incubation period (time from exposure to clinical symptoms) is from one to five or more years. Stress factors, such as calving and changes of feed or environment appear to trigger clinical disease.

Clinical cases usually do not start appearing in cattle until two years of age, peak at three years (second calf) and drop off rapidly with relatively few cases noted after five years of age. Clinical sign onset is affected by age of exposure, amount of exposure, stress, and other health and management-related issues.

Clinical animals are the worst spreaders as they are shedding literally millions of the bacillus which causes the disease. This bacillus grows primarily in the terminal portion of the small intestine. Infected animals can be classified as types of shedders; low, moderate, heavy and 'super' –shedders.

**B. Methods of Spread**

Fecal contamination of feed and water by infected animals, particularly those showing clinical symptoms. Infected non-clinical animals can be shedding the organism in large numbers.

Intrauterine infection has been reported in about 25 percent of the cows with clinical Johne's disease. Therefore, offspring from infected cows should not be kept as replacements.

Milk / colostrum – this route is seen more often in advanced stages or animals with clinical signs.

**C. Immunity**

There appears to be some age immunity. Young animals are more susceptible than mature cattle.

The disease has been found in all breeds and severity of the infections within a herd seems to be related more to husbandry practices than to breed.

## II. THE JOHNE'S (Mycopar) VACCINE

### A. Whole Cell Vaccine

Prepared from a stock culture of *M. paratuberculosis*. The causative organism of Johne's disease, these bacteria are suspended in mineral oil and sterilized by autoclaving at 15 pounds of pressure for five minutes.

### B. Immunizing Ability

Around 90 percent effective, in eliminating clinical disease as shown by field trials. Approximately fifty percent or more of unvaccinated animals in a herd, in which Johne's disease persists, will become infected. Vaccination reduces shedding, clinical infection rates and clinical signs.

### C. Age of Vaccinations

One to 35 days, but preferably after the calf is one week old.

### D. Method of Vaccination

1 Dose – 0.5 ml. Use 18G,  $\frac{3}{4}$  - 1  $\frac{1}{2}$ " needle; sterile disposable syringe (larger bore needles tend to cause leakage of product and more apt to take in foreign material)

Warm to body temperature, shake well before use. Inject subcutaneously under aseptic conditions in brisket area, 1 inch off median.

Administered by an accredited veterinarian.

Exercise caution not to inject yourself as it may cause severe local reaction.

Keep all vaccine refrigerated or frozen while in storage. Destroy unused portions remaining in each vial.

Follow recommendations and precautions of vaccine company.

### E. Vaccination Reactions

A lump forms at the site of injection of the vaccine, which may vary from one inch in diameter to several inches in diameter. Eighty percent of them are less than two inches. Rarely, one will break open and drain for a time. These lesions can be a problem at slaughter.

### F. Vaccination precautions

Johne's vaccinated animals are subject to cross-reactivity with Tuberculin caudal-fold testing responses. Because of this, a whole herd TB test is a requirement prior to vaccine approval or use. Also all herd replacements (unless they are Johne's vaccinated) should be TB- tested prior to introduction into a Johne's vaccinated herd.

Vaccinated animals tend to develop antibody titers that result in positive Johne's serological tests, such as an ELISA. Fecal or PCR testing should be used when testing vaccinated animals.

### III. THE IOWA JOHNE'S PROGRAM vaccination component

- The **Iowa Johne's Disease Control Program** is a practical approach designed to reduce economic losses due to *Mycobacterium paratuberculosis* infection in dairy and beef herds. Johne's vaccine has been shown to be a valuable management tool in many herds with Johne's infection. Vaccine is available thru Iowa Department of Agriculture and Land Stewardship. In order to qualify for the voluntary vaccination component the following is required before approval for vaccine use is granted by State Veterinarian and is restricted by USDA and Iowa regulations:
  - ❖ **USDA and Iowa rules and regulations regarding Johne's vaccine use:**
    - For use in herds where infection has been confirmed by isolation of the organism.
    - Ensure herd has a negative TB history (initial negative whole herd tuberculin-test and to include testing of purchased animals before introduction into the vaccinating herd).
    - Identification of each vaccinated calf with the appropriate tattoo in LEFT ear:
      - 1-4 for the quarter of the calendar year
      - J to indicate Johne's disease vaccination
      - 0-9 for the also digit of the year of vaccination  
(For example, the tattoo for a calf vaccinated in August 2008: **3J8**)
    - Identification of each vaccinated calf with an official identification device
      - In Iowa – official USDA bright metal eartag and/or breed tattoo as approved by Iowa's State Johne's Advisory Committee.
    - A vaccination agreement must be signed prior to vaccinating a qualified herd.
    - Vaccine restrictions include:
      - Vaccine administered by an accredited veterinarian only.
      - Only for use in calves 35 days of age or younger.
      - Follow vaccine label directions and precautions.
        - Vaccination may produce sensitivity to *M. bovis* PPD and severely restrict routine tuberculin testing.
        - Vaccinated calves may remain positive to Johne's serological tests for life; therefore fecal or PCR testing is recommended in herds that vaccinate.
    - Each state's designated Johne's disease Coordinator must report vaccine related information to USDA on a quarterly and yearly basis.
      - Iowa requires a **vaccination record forms be submitted to IDALS within (15) days of vaccinating calves** with Johne's vaccine.
        - Include the calf's unique ID and dam's ID

For more information refer to USDA Veterinary Services Memo no. 553.4 - Mycobacterium Paratuberculosis Bacterin: Use in Johne's Disease Vaccination Programs in Participating States

Vaccine can be obtained from IDALS:

- **For vaccine orders or vaccine information**
  - Bob Peterson 515/ 281 – 5155 or Randy Wheeler 515/ 281- 0866

#### IV. Johne's Management recommendations:

The following recommendations, including management practices, are considered to be important in the control of John's disease and implementation of vaccination component of the Program.

1. Identify and remove infected cattle. An organism-based test or ELISA should be conducted at a six -12 month intervals to identify animals with advanced disease. Positive animals should be immediately removed for slaughter.
2. Calves should be removed from dams at birth or reduce cow/calf pair density. The most important route of spread of *M. paratuberculosis* is by exposure to contaminated feces present on the surface of the udder.
3. Colostrum from cows known to be free of Johne's disease should be fed to newborn calves.
4. Use of milk replacer or pasteurized waste milk is recommended in rearing of calves.
5. Maintain separation of young cattle from adult cow and bulls to limit exposure of replacement breeding stock to adults which may be shedding *M. paratuberculosis* and contaminating facilities and pastures.
6. Calves from dams positive for Johne's disease should not be kept as replacement animals. A very high percentage of these animals have been found to be infected with *M. paratuberculosis*.
7. Manure should not be spread on hay land or pasture. *M. paratuberculosis* can survive for several months under these conditions.
8. All heifer/ replacement bull calves should be vaccinated with heat-killed *M. paratuberculosis* in oil before 35 days of age. The prevalence of Johne's disease is markedly reduced in vaccinated cattle.
9. Calving pens should be cleaned and disinfected after each calf is born.
10. Use feeding and watering practices that reduce manure contamination.

Note: Only cresylic or anti-tuberculosis type disinfectants are effective in destroying <i>M. paratuberculosis</i> (Johne's) organisms.
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## V. Iowa Johne's Program incentive component:

\* **Limited funding** is available for lab fees at Iowa State University Veterinary Diagnostic Lab for **2008**:

- 1.) The first step is to complete a **Johne's Risk Assessment/ herd management plan** performed by your state District veterinarian (**Iowa Program certified Johne's veterinarian**) at **no charge from IDALS**. Participation with your herd veterinarian is strongly advised.
- 2.) Next, you may choose testing options, if you decide to conduct some testing in your herd. Your District veterinarian can help you and your herd veterinarian choose the testing option that best suits your herd, and discuss the pros and cons of blood, fecal, pooling or environmental testing.
- 3.) Because of decreased federal funding and no state appropriations, Program incentive testing will be subject to availability (Testing must be authorized by IDALS).

## VI. Johne's National Herd Status Program:

The above testing programs may help to put you on track for one of USDA's two Johne's Herd Status Programs if you choose to participate:

- **Test-Negative Herds-** with a negative test your herd could qualify for the Test-Negative Status classification, where annual testing can advance your herd toward a recognized higher status level; Johne's Program Levels 1, 2, 3, and 4 (JPL1- 4).
- **Test-Positive Herds-** may advance in the Herd Status Program by showing gradual improvement in annual testing results, with the goal of reducing/elimination Johne's in the herd.
  - **Test-Positive Herds are usually classified as Management or Monitored Herds**

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Participation in the Johne's Control Program is completely **voluntary**.

**Confidentiality** of test results will be maintained within the limits of Iowa law.

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**For more information please contact (IDALS) Dr. Randy Wheeler @ 515-281-0866**

<p>* (Program incentive payments must be approved by IDALS and will be subject to available funding for <b>2008</b>)  <i>Trip and service charges, collection, shipping, and handling costs are not covered by the Program and will be determined by your veterinarian.</i></p>
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