

# **National Johne's Disease Control Program**

## **Strategic Plan**

**July 2004**

## Introduction

Johne's disease (pronounced "yo-knees") is a contagious, chronic and usually fatal infection that affects primarily the small intestine of ruminants (For more information about the disease and national efforts to control it see Appendix A). The goal of the National Johne's Disease program is to reduce the prevalence of Johne's Disease in the United States over the next five years. To accomplish this goal, these five objectives need to be accomplished:

1. Increase producer participation
2. Improve national educational efforts
3. Close gaps in knowledge about Johne's Disease
4. Improve the monitoring and reporting of program activities and results
5. Develop a plan for rapid eradication of the disease agent

### **Overall program targets and milestones:**

#### **National Herd prevalence:**

- The percentage of dairy cattle herds infected will be reduced from xx% to xx% by September 30 2009)
- The number of seed stock beef herds that are test negative will increase from xx to xx

#### **Within Herd prevalence:**

- <5% within Herd prevalence for infected herds by September 30 2009

## Objective 1: Increase producer participation

### **Key Objective 1 targets and milestones:**

#### **Herd control program:**

- 10% of dairy cows in the program (by September 30 2006)
- 5% increase per year thereafter
- Increase participation of beef herds (no specific target)

#### **Test negative (Status) herds:**

- Double numbers of dairy and beef herds the first year (Baseline in FY2004 602 Test negative herds (not divided by beef versus dairy at this time)
- Add same amount each subsequent year

## Objective 2: Improve national educational efforts

### **Key Objective 2 targets and milestones:**

- Hire an educational coordinator by December 2004
- Develop national, web-based library of materials by June 2005
- Develop fact sheet to include up-to-date economic data by December 2004 (get that info in materials at the state level by June 2005)
- Keep Certified Veterinarians certifications up to date (no lapse in their three year certifications)

**Objective 3: Close gaps in knowledge about Johne's disease****Key Objective 3 targets and milestones:**

- First annual meeting of scientists held in 2004
- Optimal testing described by March of 2005
- Evaluate the program and report on ways to improve by March of each year (At the NIAA meeting)

**Objective 4: Improve the monitoring and reporting of program activities and results****Key Objective 4 targets and milestones:**

**Overall:** Accurate annual national report needs to be developed by the national USAHA meeting – October 2004

- Needs assessment completed by July 2004
- National coordinator able to make adjustments to the program based on annual report in October 2004
- State coordinator able to make adjustments to the program based on quarterly report in October 2004

**Objective 5: Develop a plan for rapid eradication of the disease agent****Key Objective 5 milestone:**

- Draft eradication plan completed by December 2005

**Strengths, Weaknesses Opportunities and Threats Analysis**

See Appendix B for the complete analysis

**Reporting**

See Appendix C for a list of data that needs to be collected and information that needs to be reported out.

**Program Logic**

See Appendix D for a list of Inputs, Activities, Outputs, Intermediate and final Outcomes. One chart shows the relationship between Activities, Outputs and Intermediate Outcomes.

**Introduction** This document represents the consensus of the ad hoc Strategic Planning working group which is a subcommittee of the Johne's Committee of USAHA. While some progress has been made in getting producers to enroll in the program, much still needs to be done to reduce the prevalence and effects of the disease. This plan outlines the key actions that need to be taken to reduce the prevalence of Johne's Disease in the United States over the next five years.

**Goal and Objectives** The primary goal of the National Johne's Program is to reduce the prevalence of Johne's disease in the United States over the next five years. To reduce the prevalence the national program needs to accomplish the following objectives:

1. Increase producer participation
2. Improve national educational efforts
3. Close gaps in knowledge about Johne's Disease
4. Improve the monitoring and reporting of program activities and results
5. Develop a plan for rapid eradication of the disease agent

**Targets and Milestones:**

Note: These are national targets. State targets are to be set through process involving regional epidemiologists, AVICs and State Veterinarians by September 30 2004.

**Herd prevalence:**

- The percentage of dairy cattle herds infected will be reduced from xx% to xx% by September 30 2009)
- The number of seed stock beef herds that are test negative will increase from xx to xx

**Within Herd prevalence:**

- <5% within Herd prevalence for infected herds

## Objective 1      Increase Producer Participation

### **Targets and Milestones:**

Note: These are national targets. State targets are to be set through process involving regional epidemiologists, Johne's Disease coordinators, AVICs and State Veterinarians by September 30 2004.

### **Herd control program:**

- 10% of dairy cows in the program (by September 30 2006)
- 5% increase per year thereafter
- Increase participation of beef herds (no specific target)

### **Test negative (Status) herds:**

- Double numbers of dairy and beef herds the first year (What is the baseline?)
- Add same amount each subsequent year

### **Activities to accomplish Objective 1**

To increase participation in herd control program:

1. Support the cost of program through cooperative agreements or other mechanisms to include the following:
  - a. risk assessments
  - b. herd management plans (and annual renewal)
  - c. testing
  - d. veterinary sample collection
  - e. equipment producers may need to implement the management plan (such as fencing)
  - f. increased lab capacity to support testing
2. Provide low cost loans for facility modification through FSA (APHIS work out agreement)
3. Provide indemnity as funds become available
4. Encourage additional funding from state and private sources

To increase participation in the test negative (status) herds program and help prevent introduction of Johne's disease

1. This program should be focused within states on those owners who sell replacement cattle. (Seed stock producers)
2. Promote the value of the test negative herds through national web site that lists states and herds on the program (and encourage advertising at the state level)
3. Consider ways to encourage a market premium for cattle from test negative herds
4. Support the cost of program through cooperative agreements or other mechanisms to include the following:
  - a. risk assessments
  - b. herd management plans (and annual renewal)
  - c. testing
  - d. veterinary sample collection
  - e. increased lab capacity

Overall, to increase participation and uniformity in the program:

1. Increase personnel dedicated to Johne's Disease in the field within the states. This includes personnel needed to:

- a. Conduct risk assessments and write management plans.
- b. Help states with epidemiology support, training and information management.
2. Standardize the program across the nation
  - a. Standard forms (risk assessment and herd management)
  - b. Standard control measures to facilitate interstate cattle movements
3. Program standards should be reviewed by the program standards subcommittee (by September 30, 2004)

## Objective 2      Improve Educational Efforts

### **Targets and Milestones:**

- Hire an educational coordinator by December 2004
- Publish 4 success stories per year in national publications; at least one in each state per year
- Improve 4 states educational efforts (in the ways described in this objective) per year 2004 to 2009
- Develop national, web-based library of materials by June 2005
- Develop fact sheet to include up-to-date economic data by December 2004 (get that info in materials at the state level by June 2005)
- Keep Certified Veterinarians certifications up to date (no lapse in their three year certifications)
- Develop Spanish language versions of the materials as needed by June 2005

### **Activities to accomplish Objective 2**

The educational efforts will improve by carrying out these activities:

1. Hire an educational coordinator – partner with NIAA (use federal (APHIS and JDIP) and industry money (from NMPF and DMI) to fund position for several years)
  - a. Education committee to work on fuller plan for this to include:
    - i. Getting the word out
    - ii. Collect educational materials and related information in a central national web site
  - b. Education committee would provide support (Mike Collins, Sue Stehman and Jeannette McDonald)
  - c. John Adams to contact Ken Olson and DMI (put in cover memo)
2. Need to develop strategy for collecting, writing and publishing successes
  - a. Article in Hoards (or other publications) about demonstration herd – other success stories
  - b. Create a new web site to follow the Scrapie model that would complement the Johnes.Org web site
  - c. Working group, education subcommittee would be responsible
3. Continue the education efforts in the states; help states that have not done much

4. Contact states to develop national library of educational materials that other states can use. This would include pamphlets, articles etc. (VS or Educational subcommittee) within 12 months (Coordinator to do)
5. Refine and update economic educational programs
  - a. Put in user friendly format (such as question and answer format) VS – CEAH could produce by December 2004
  - b. Include the Designated Johne's Coordinators so they get this data in their training
6. Keep certified Johne's veterinarians up to date
  - a. Educate veterinarians (training is on-line and available – WI maintained web site)
  - b. Keep certification up to date (3 year cycle)
    - i. ID process to recertify
    - ii. Work into vet accreditation process for recertification
    - iii. Develop plan (need to know numbers)
  - c. Consider similar program for producers
7. Develop a high quality collection of materials for educating cattle producers, herd veterinarians, animal health officials, and associated industry. Put materials on a CD-ROM and assure adequate distribution.
8. Develop Spanish language versions of the materials as needed and make those available to others
9. Survey owners
  - a. Herds that dropped out – why
  - b. Herds that stayed in (especially the test-negative herds)– why

### Objective 3      Close Gaps in Knowledge about Johne's Disease

**Targets and Milestones:**

**Overall: Study issues and report findings to help achieve Objectives 1 and 2**

- First annual meeting of scientists held in 2004
- Optimal testing described by March of 2005
- Specific studies completed by :
  - Demonstration herd
  - Field trials
  - Applied studies
  - Use of vaccine in controlling Johne's Disease
- Evaluate the program and report on ways to improve by March of each year (At the NIAA meeting)

**Activities to accomplish Objective 3**

1. Identify critical gaps in knowledge about Johne's Disease
  - a. Hold an annual meeting of scientists concerned with Johne's to identify and fill those knowledge gaps

- b. Fund the meeting through USDA
2. Develop optimal Johne's Disease test strategies
  - c. The USDA contract with a team of experts to describe the optimal testing system for initial differentiation of presumptively infected and non-infected herds.
  - d. The USDA contract with a team of experts to review and update guidelines for testing strategies to complement management for control of Johne's disease in infected herds.
3. Develop and validate model strategies for control of Johne's Disease
  - e. Use demonstration farms, clinical field trials and applied studies to learn how best to control the disease
  - f. Convene a panel of experts to develop guidelines for use of vaccination as a tool for use in control of JD in heavily infected cattle herds.
4. Learn why some states were highly successful in 2003 by surveying successful owners. Replicate lessons learned in other states.
5. Compare Johne's Disease data from NAHMS 2002 with the previous dairy cattle study
6. Study integrated risk assessment and best management practices model for protecting animal agriculture.
  - g. Consider shift from individual disease focus to an integrated approach that addresses the biosecurity risks of animal agriculture
  - h. Address in the model: animal welfare, animal health, food safety and quality, potential zoonotic pathogens, and environmental issues
  - i. Study sponsored jointly by USDA, USAHA and DHS
7. Evaluate the program annually to learn about and improve program effectiveness and efficiency

#### **Objective 4      Improve Reporting**

**Targets and Milestones:**

**Overall:** Accurate annual national report needs to be developed by the national USAHA meeting – October 2004

- Needs assessment completed by July 2004
- Guidelines for exporting data from State data bases to the GDB by July 2004
- Revisions to the GDB by August 2004
- Adequate infrastructure in 50% of the states by December 2004; infrastructure adequate in the other 50% by December 2005
- National coordinator able to make adjustments to the program based on annual report in October 2004
- State coordinator able to make adjustments to the program based on quarterly report in October 2004

**Activities to accomplish Objective 4**

1. Conduct information needs assessment
  - j. Meet week of June 7 2004
  - k. Write assessment report
  - l. Have stakeholders comment on report
  - m. Program standards committee final arbiter on the information needs are for the JD program (Quarterly and Annually)
2. Adjust GDB to meet JD needs
  - n. Ensure that personnel available to accomplish this
    - i. Program assistant
    - ii. Program analyst
    - iii. Programmer (contracting?)
  - o. Chairs of the John's committee and chair and co-chairs of the working group to meet with VSMT to ensure available resources (John Adams to set up)
3. Improve the data entry and exporting of state data to GDB
  - p. Ensure adequate infrastructure
    - i. People
    - ii. Training and guidance
    - iii. Equipment
    - iv. Ability to integrate data from multiple systems (GDB, budgets others) for comprehensive reports
  - q. CEAH to create guidelines for exporting data from state DB to GDB (by Mid July)
    - i. Regional epidemiologists work with the states to improve processes of getting data in the GDB
    - ii. Consider incentives and penalties for reporting/non reporting such as publicly reporting on who has reported
4. Use reports to monitor and evaluate program
  - r. Progress against strategic plan
  - s. Budget accountability
    - i. Federal
    - ii. State (done through narrative annual state report)
    - iii. Cooperative agreements
5. Fund the support of the GDB infrastructure (percentage of the budget or is it considered overhead—how does it fit in with other programs?)
  - t. Additional support:
    - i. data entry
    - ii. design
    - iii. exporting of data
    - iv. reporting

**Objective 5          Develop Eradication Plan****Targets and Milestones:****Overall:** Draft eradication plan completed by December 2005**Activities to  
accomplish  
Objective 5**

1. Form subcommittee of the NJWG (John Honstead of USDA volunteered)
2. Need to include other species in the final plan

**APPENDIX A:  
Background**

Johne's disease (pronounced "yo-knees") is a contagious, chronic and usually fatal infection that affects primarily the small intestine of ruminants. All ruminants are susceptible to Johne's disease. Johne's disease is caused by *Mycobacterium paratuberculosis*, a hardy bacteria related to the agents of leprosy and tuberculosis. The disease is worldwide in distribution.

Signs are rarely evident until two or more years after the initial infection, which usually occurs shortly after birth. Animals are most susceptible to the infection in the first year of life. Newborns most often become infected by swallowing small amounts of infected manure from the birthing environment or udder of the mother. In addition, newborns may become infected while in the uterus or by swallowing bacteria passed in milk and colostrum. Animals exposed at an older age, or exposed to a very small dose of bacteria at a young age, are not likely to develop clinical disease until they are much older than two years.

Johne's disease is a concern to US cattle industries because the disease impacts international marketing of cattle and cattle products, and causes economic losses to producers. It is also a concern for small ruminant herds (sheep and goats), and non domestic hoof stock (zoos and wild game parks). Concern also exists regarding the zoonotic potential of *M. paratuberculosis*.

The last hundred years have seen a steady increase in the number of *M. paratuberculosis*-infected animals within a species, such as dairy cattle, the number of different animal species infected, and the number of countries of the world where this infectious disease has reached economically significant proportions for domestic animal agriculture.

A critical question facing infectious disease biologists today is whether the animal pathogen known as *M. paratuberculosis* belongs on the list of zoonotic agents, that is: are humans among the animal species that can be infected with *M. paratuberculosis*? And if infected, does disease result? If it is ever shown that humans become diseased after infection with *M. paratuberculosis*, then the way veterinarians manage the infection in animals will be significantly changed. This is reflected in the part of the strategic plan calling for the development of a rapid Johne's Disease eradication plan.

**Recent History  
of National  
Johne's  
Program**

In the fall of 1995, the United States Animal Health Association (USAHA) appointed the National Johne's Working Group (NJWG) to assist the Johne's Committee of USAHA in developing a national, coordinated Johne's disease effort in conjunction with the States and cattle industries. The NJWG developed a strategic plan designed to reduce the prevalence of Johne's disease in US cattle. That earlier version included a national educational campaign, the Voluntary

Johne's Disease Herd Status Program for Cattle, and guidelines for states to assist infected herds. This national program is designed to be producer driven and voluntary. Other US livestock industries are examining potential certification and control programs for their industries. The American Zoological Association has prepared Johne's disease guidelines as well. This plan is an update to those earlier efforts.

In 1996, a national study of US dairies, Dairy NAHMS 96, found that approximately 22 percent of US dairy farms have at least 10% of the herd infected with Johne's disease. The study determined that infected herds experienced an annual loss. Small herds (<50 cows) lost an average of \$178 per cow, while large herds (>500 cows) lost \$181 per cow. This loss was due to reduced milk production, early culling, and poor conditioning at culling. The costs of Johne's disease in beef herds still need to be determined.

In 1998, the United States Animal Health Association approved the Voluntary Johne's Disease Herd Status Program for Cattle (VJDHSP). The VJDHSP provides testing guidelines for States to use to identify cattle herds as low risk for Johne's disease infection. With numerous tests over several years, herds progress to higher status levels. The higher the status level, the more likely a herd is not infected with Johne's disease.

In April of 2002, USDA-Animal and Plant Health Inspection Services-Veterinary Service incorporated portions of this program into its national program standards: Uniform Program Standards for the Voluntary Bovine Johne's Disease Control Program (VBJDCP). VBJDCP test negative herds (often referred to as Status Herds) serve as a source of low Johne's disease risk replacement animals.

In June of 2004, the USAHA Committee on Johne's Disease formed an ad-hoc Strategic Planning subcommittee. The group met June 15 through June 17, 2004 in Riverdale MD. This plan is the result of that meeting.

In thinking through revisions to the strategic plan, the committee considered the strengths and weaknesses of the program as well as the opportunities and threats facing the program. See Appendix B for a complete discussion of the group's analysis of the program's strengths, weaknesses, opportunities and threats. The four objectives developed as a result of that analysis are:

1. Increase producer participation
2. Improve educational efforts
3. Close gaps in knowledge about Johne's Disease
4. Improve reporting
5. Develop an eradication plan

There is more detail about these objectives in the main part of this

document (See page 4).

**APPENDIX B:  
SWOT  
(Strengths,  
Weaknesses,  
Opportunities  
and Threats)  
ANALYSIS**

**Strengths**

- **Strong program planning and development** – In the fall of 1995, the United States Animal Health Association (USAHA) appointed the National Johne's Working Group (NJWG) to assist the Johne's Committee of USAHA in developing a national, coordinated Johne's disease effort in conjunction with the States and cattle industries. The NJWG developed a strategic plan designed to reduce the prevalence of Johne's disease in US cattle.

As a result, the basics of the program nationally and at the state level began to grow. It now includes national and state educational campaigns, the Voluntary Johne's Disease Herd Status Program for Cattle, and guidelines for states to assist infected herds. The VJDHSP provides testing guidelines for States to use to identify cattle herds as progressively lower risk for Johne's disease infection. The program is designed to be producer driven and voluntary. Other US livestock industries are examining potential certification and control programs for their industries. The American Zoological Association has prepared Johne's disease guidelines as well. This plan is an update to those earlier efforts.

In April of 2002, USDA-Animal and Plant Health Inspection Services-Veterinary Service incorporated portions of this program into its national program standards: Uniform Program Standards for the Voluntary Bovine Johne's Disease Control Program (VBJDCP). VBJDCP test negative herds (often referred to as Status Herds) serve as a source of low Johne's disease risk replacement animals. One key component of the national program provides for help with the cost of testing, conducting risk assessments and developing herd management plans.

In June of 2004, the National Johne's Working Group formed an ad-hoc Strategic Planning committee. The names of the committee members are listed in Appendix A. The group met June 15 through June 17, 2004 in Riverdale MD. This plan is the result of that meeting.

- **Effective champions and leaders of the program** – The energetic, committed leaders from government, industry and private veterinary practice have helped move the program forward. Those who personally promote the program have a tremendous impact on participation and ultimate effectiveness.
- **Education and Program Incentives** – Personal stories of herds being affected (especially those stories shared producer to producer) by Johne's Disease have helped to promote the

program. The stories are especially effective at encouraging participation when the affected producer sees a clear benefit from being on the program. Both clinical disease and clear economic incentives of the program help to promote the program because the program can help reduce the incidence of clinical disease and helps mitigate the economic impact. In addition, the program promotes good management practices that can help with other diseases or conditions in addition to Johne's Disease.

- **Demonstrated adverse effects of the disease and the effectiveness of the program** – In 1996, a national study of US dairies, Dairy NAHMS 96, found that approximately 22 percent of US dairy farms have at least 10% of the herd infected with Johne's disease. The study determined that small herds (<50 cows) lost an average of \$178 per cow, while large herds (>500 cows) lost \$181 per cow. This loss was due to reduced milk production, early culling, and poor conditioning at culling. The costs of Johne's disease in beef herds were not considered in the '96 study. In addition, personal stories help
- **National/State Support** – USAHA has sponsored the National Johne's Working Group which consists of people from industry, Federal, State Governments and Industry. USDA has supported the program with rulemaking and budgeting and appropriating funds. Some states have long supported Johne's disease programs while others have more recently supported the national program.
- **Committees help steer the program after it is up and running** – State committees help to make the program more effective after it is up and running. To be effective, they need both good leadership and participation from the state dairy and beef industries, veterinarians and producers. It helps to include legislators and Federal and State animal health officials.
- **Regulatory efforts help generate research money** – Universities and other entities have more money available thanks to the interest generated by the voluntary regulatory program.

### **Weaknesses**

- **Lack of interest** – The biggest weakness in the program is the overall lack of interest from producers in the program. This was attributed to a number of factors: First, is fear of participation. There is a sense that producers don't want government intervention into managing this disease. To admit having the disease is seen as a stigma (especially in pure bred beef cattle) making it more difficult to sell stock. Generally, producers do not welcome or want the hassle of government intervention with the record-keeping that is inevitably required. Unless the herd is free

of the disease, or there is severe clinical disease in the herd, there are few incentives to be on the program. When a herd is not free and does not have severe clinical disease most owners are complacent about joining the program. There are competing interests for producers that include other disease control efforts and other issues that more directly affect their bottom line.

- **Voluntary program** – there are three problems with the program being voluntary: 1) there are no requirements for euthanasia (to help reduce the prevalence and work towards eradication) 2) there is no indemnity to create a strong interest in the program and 3) there are no movement controls to further prevent the spread of the disease.
- **Tests that are not seen as sensitive and reliable enough** – The tests currently used in the program are not able to reliably detect the causal agent in young calves. Producers and regulators can not use the tests to declare a herd free of the disease.
- **Reporting problems** – Producers are concerned about reporting disease because they don't trust that the information will remain confidential. The system used to collect and report on disease is the APHIS, VS Generic Data Base (GDB). The GDB continues to have several technical problems: 1) Connectivity – States have difficulty connecting to the data base to input or to upload data. Security issues and the creation of data "firewalls" have contributed to this difficulty. 2) Ease of use – the GDB has a reputation of being difficult to use. The program is reportedly not intuitive and many of the personnel who are responsible for inputting data have a difficult time using the program correctly. In addition, there is rapid turnover of this group of personnel making the program's ease of use all the more critical. At least one state flatly refuses to use the program directly.
- **The original impetus was public health concern** yet the program is designed from an animal health perspective.
- **Different interests between the dairy and beef industries** – Management practices used for dairy and beef herds result in different requirements for managing the disease in those herds. These issues and difference in the politics between the dairy and beef industries make funding and running the program all the more complex.
- **Availability of resources** – A number of issues affecting the availability of resources for this program. 1) there are competing priorities – there are no shortage of already high priority animal health issues that need to be addressed including, but not limited to BSE, Avian Influenza, Scrapie, Chronic Wasting Disease,

tuberculosis 2) governmental budget woes including deficits (Federal and State), which cause budget cutbacks and hiring freezes 3) funding at the state level through cooperative agreements with the Federal government. These agreements are inherently piecemeal and don't guarantee a steady stream of funding)

### Opportunities

- **Economic incentives** – An upcoming JAVMA study that will detail the correlation between the disease and economic costs. This may present an opportunity for educating producers and generally getting the message out about the disease and the benefits of the program.
- **The program's Good Management Practices help with other diseases** – By following the program, producers will control other fecal/oral diseases as well. This can be used to help market the program or as some states have done, can be used to package the program as part of a larger effort to control Johne's and similar diseases.
- **Prevention is relatively easy and cheap** – The good management practices advocated by the program can help producers prevent the disease in their herds in a cost effective way.
- **Human Implications** – If a link between Johne's and Crohn's disease becomes definitive, the urgency for and the funding for the program would improve immediately.

### Threats

There are a number of threats to the program that the working group identified. They include the following:

- **Competing disease threats** – it is hard to get producers' attention when there is more focus on other disease threats such as BSE, tuberculosis.
- **Monetary support Program dollars in jeopardy** – it is hard to get appropriators attention when they are being asked to fund programs to address other disease issues such as BSE, Scrapie, Chronic Wasting Disease, Exotic Newcastle Disease, Avian Influenza and others. There are lots of stakeholders to convince with so many people involved in each of these budget processes: President's budget, Congressional reaction to the President's budget and the process within each of the states. Without strong support from USDA for money and other resources, the program will not move ahead quickly in reducing the prevalence of the disease in this country. Likewise, without strong support from State Animal Health officials state-level funding will not be

available to help the program move ahead.

- **Human implications** – a strong scientific link would require a rapid change in the program from control to eradication. There is currently no contingency plan to handle such a scenario
- **Low number of clinical cases in most herd causes a lack of interest in the program** – Low prevalence of severe clinical disease means there is low visibility for the disease and resulting low interest in the program.
- **Program drives producers away** – benefits for most are not commensurate with the hassle of participating in the program.
- **Low interest from the beef industry** – There is considerably less interest from the beef industry compared to the dairy industry and as a result less interest from those states where beef cattle predominate over dairy cattle.
- **Pasteurization report could create negative perception issue** (this might be an opportunity) – The pasteurization report will show that the causal agent can still be cultured from milk, though the amount of disease causing agents are considerably reduced by pasteurization.

**Appendix C Information needed in the GDB for Johne's Disease**

This appendix details the kinds of information that should be considered when the final decisions are made on what information to record in the GDB for reporting in annual and quarterly reports:

Quarterly reporting from field (State and Federal personnel) to national staff and eventually to USAHA, Congress (also state hierarchy). Information needed would include:

1. Producers participating
  - a. Herd control program
  - b. Test negative program
2. Budget accountability all levels and offices
  - a. Budget and money allocations
  - b. Cooperative agreements
    - i. Data requirements must be part of cooperative agreements
    - ii. accounting report
3. Work counts (Activities)
  - a. Initial educational contacts
  - b. Advanced educational contacts or events
4. Laboratory capacity
  - a. Numbers of labs certified
  - b. Total capacity throughput
  - c. Number of tests conducted by category
    - i. ELISA
    - ii. Fecal culture
    - iii. PCR
5. Collect information for the standard GDB program report sections:
  - a. A – herds and animals tested
  - b. F – Other species
  - c. K – vaccination
  - d. M – Status
    - i. Herd status (Management, Positive, education, risk assessment)
    - ii. Initial contact
    - iii. Advanced education
    - iv. Risk assessment
    - v. Mgmt plans
    - vi. Other contacts
  - e. N number of herds identified
    - i. ELISA
    - ii. Fecal Culture
    - iii. PCR
    - iv. Combinations
6. Certifications of Veterinarians
  - a. Number certified
  - b. Number re-certified

7. Performance measures
  - a. % of time spent of HQ to field VMO/AHT on Johne's activities
  - b. State level education
    - i. # of meetings
    - ii. # producers attending
    - iii. time involved
    - iv. # vets attending
  - c. Vaccination
  - d. Testing
  - e. Risk Assessments
  - f. Inspection
  - g. Management Plan consultations
  - h. Evaluation of compliance with mgmt plans
8. Other accomplishments
  - a. Demo herds
  - b. Field studies
  - c. Program progress
  - d. Focus – new information to enhance educational program
9. Formal evaluation process (in addition to the quarterly/annual reporting)
  - a. CEAH/Riverdale
  - b. Evaluate progress in relation to the strategic plan
  - c. Program reviews
10. How to get information to GDB
  - a. Data entry
  - b. Up loading data
11. Consider penalties for non-compliance / incentives for compliance

### Appendix D – Program Logic

<b>Inputs</b>
<ul style="list-style-type: none"> <li>• Planning and Program Development (National Johne’s Working Group)</li> <li>• Budgets (Federal and State)                             <ul style="list-style-type: none"> <li>○ Cooperative Agreements</li> </ul> </li> <li>• Information                             <ul style="list-style-type: none"> <li>○ Research</li> <li>○ Field Studies</li> <li>○ Demonstration projects</li> </ul> </li> <li>• Adequate tests</li> <li>• Laboratory Capacity</li> <li>• Program Standards</li> <li>• People                             <ul style="list-style-type: none"> <li>○ DJC</li> <li>○ VS</li> <li>○ State</li> <li>○ Others</li> </ul> </li> <li>• Market incentives</li> <li>• Concern about confidentiality</li> <li>• Concern about possible link of JD to human Crores disease</li> </ul>

<b>Activities</b>	<b>Outputs</b>	<b>Intermediate Outcomes</b>
<ul style="list-style-type: none"> <li>• Educate Producers (Educate Veterinarians and Extension to help)                             <ul style="list-style-type: none"> <li>○ Demo herds</li> <li>○ Field tests</li> <li>○ Econ studies</li> <li>○ Stories</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Classes, Information, Brochures, CDs etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Enrolled herds as “status” herds (and continue testing and implement management plans for prevention)</li> </ul>
<ul style="list-style-type: none"> <li>• Conduct Risk Assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Risk assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Management plan requested</li> </ul>
<ul style="list-style-type: none"> <li>• Develop Herd Management Plans</li> </ul>	<ul style="list-style-type: none"> <li>• Management Plans</li> </ul>	<ul style="list-style-type: none"> <li>• Management plans implemented – begins to reduce prevalence in the herd</li> </ul>
<ul style="list-style-type: none"> <li>• Test herds and individual cattle</li> </ul>	<ul style="list-style-type: none"> <li>• Test results                             <ul style="list-style-type: none"> <li>○ Test positive</li> <li>○ Test negative</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Management plan requested or enrolled as “status” herd</li> </ul>
<ul style="list-style-type: none"> <li>• Plan for eradication of the disease if the need arises</li> </ul>	<ul style="list-style-type: none"> <li>• Draft eradication plan developed</li> </ul>	<ul style="list-style-type: none"> <li>• Johne’s program ready to quickly switch to eradication if needed</li> </ul>

**Outcomes**

- Prevalence of Johne's reduced resulting in:
  - Safeguarded animal health (from JD and other fecal/oral transmitted diseases)
  - Economic benefits (those on mgmt plans see results of GMPs; those enrolled as status herds see those results and market benefits of being status herd)
  - Public health benefits of reducing prevalence