

**National Johne's Disease
Control Program
Strategic Plan**

**Andy Schwartz,
Committee on Johne's Disease Chair**

**Developed by
The Johne's Disease Strategic Plan
Subcommittee**

October 23, 2008

Introduction

The Johne's disease Strategic Planning Subcommittee group met on March 13 and 14, 2008 in Chicago to update the previous strategic plan dated July 2004. The group considered how the program is doing and what should change over the next five years to most effectively address Johne's (pronounced "yo-knees") disease. For a glimpse into the group's thinking that led to this plan see Appendix A: *Results of the Strategic Planning Subcommittee Questionnaire*. A draft from that meeting was previewed at the National Johne's Working Group meeting at the National Institute of Animal Health Annual Meeting in April 2008. That draft was widely distributed to industry, academia, and government for comment. The result is this Strategic Plan designed to prevent and control Johne's disease in a world where Federal and State government agriculture budgets are shrinking and primary attention is on program animal diseases which does not include Johne's disease.

With this plan, the program would evolve in several important ways:

1. Moving from a primarily Federal/State program to one that becomes more of a public/private partnership. As the possible connection of Johne's disease to human health remains unresolved and Federal and State funding shrinks it is important that industry becomes a stronger partner.
2. Updating the herd classification system while continuing to recognize lowest risk/prevalence herds.
3. Making formerly required program components voluntary and making them more useful and more readily available.
4. Focusing educational efforts on producers and professionals (e.g. veterinarians and herd management consultants) that can help prevent and control Johne's disease.
5. Focusing research on control and prevention of Johne's disease with the highest priorities given to improving diagnostic tests, control strategies and vaccines
6. Marketing this new approach for controlling and preventing Johne's disease
7. Changing roles because of this new approach. See Appendix B: Redefined roles and responsibilities.

Note that Johne's disease is a contagious, chronic, essentially untreatable bacterial infection that primarily affects the small intestine of ruminants that can cause death due to dehydration and emaciation. Cattle affected by Johne's disease are often culled given their poor condition. For a brief history of the national program see Appendix C.

Overall Goal and Measures

Goal:

Through a public/private partnership, increase the availability of effective tools to reduce:

- The prevalence of MAP/Johne's in the national herd
- The impact of Johne's Disease on individual farms
- The risk of introducing Johne's Disease to uninfected herds

Valuable tools include:

- More useful risk assessments and herd management plans
- Faster, more accurate diagnostic tests and procedures including those that can detect the causal agent at a younger age in cattle and expanded for use with other species.
- Validated prevention and disease management/control practices
- Safe and effective vaccines, including those currently available and newly developed safer vaccine delivery systems and procedures

Suggested Measures:

- Survey of producers to determine adoption of recommended tools
- Monitor the disease prevalence
- Develop other measures based on need and practicality

Strategies

There are four strategies needed to accomplish the overall goal:

1. Focus educational efforts on demonstrating potential economic and biosecurity benefits of prevention and control of Johne's disease.
2. Focus research efforts on control and prevention of Johne's disease.
3. Update the classification system while continuing to recognize lowest risk/prevalence herds.
4. Make herd assessment and management tools readily available and encourage their use.
5. Develop a coordinated public-private communication plan to market and deliver the updated strategies

Strategy Details

1. Focus educational efforts on demonstrating potential economic and biosecurity benefits of prevention and control of Johne's disease.

- a. Evaluate potential improvements in content and delivery methods for veterinarians and producers. Expand efforts to make materials available for:
 - i. Producers
 - ii. Veterinarians
 - iii. Industry consultants (e.g. nutrition and management specialists)
 - iv. Service providers (e.g. DHIA Technicians and milk procurement field staff)
 - v. Extension agents
- b. Expand awareness and use of existing online resources such as the veterinarian certification and producer education modules such as those available at the University of Wisconsin-Madison: <http://www.vetmedce.org/index.pl?op-show:id=133363>
- c. Coordinate educational efforts through the National Johne's Working Group:
 - i. Utilize surveys of producers, veterinarians and other influencers to identify additional information needs and preferred delivery methods
 - ii. Develop tools to educate producers on the economic costs of low and high prevalence Johne's disease.
 - iii. Work with the Johne's Disease Integrated Program to transfer research findings into producer friendly publications
 - iv. Create educational articles through the Johne's Education Initiative. Articles may be written to allow for the addition of local success stories and where to get assistance with testing and education.
- d. Prioritize Federal, State, and private funding for development and production of educational materials.

2. Focus research efforts on control and prevention of Johne's disease. It is important for the research community and program efforts to be more coordinated. Priority research needs to be on rapid, more accurate, easier to use diagnostics; more effective and safer vaccines; documentation of the economic costs of the disease; and identification of more effective management tools.

- a. Diagnostics
 - i. Development of Johne's disease diagnostic tests that:
 1. Are appropriate for small ruminants, cervids and camelids in addition to cattle
 2. In the longer term, are able to detect the disease in younger animals
 3. Provide rapid, more accurate tests that focus on:
 - a. Better cell-mediated immunity (CMI) tests and improved antigens
 - b. Fewer *M. bovis* cross reactions
 - c. Bulk tank testing – quantitative ELISA milk test
 - d. Environmental sampling protocols for dairy and beef
 - ii. Development of tuberculosis (TB) diagnostic or testing procedures that do not cross-react with the Johne's vaccine(s).
- b. Vaccines
 - i. Evaluation of the current vaccine
 - ii. Development and validation of improved vaccines that provide:
 1. Less shedding
 2. Fewer side effects (abscesses, etc.)

3. Reduced cross-reactivity with the TB test
 4. Improved ease of use
 5. Improved safety when administering the vaccine
 - c. Economic impact
 - i. Quantify the costs/benefits of recommended management practices
 - ii. Make data and cost analysis and management practice recommendation tools available to consultants who work with producers.
 - iii. Work with DHIA to include these analysis and recommendation tools into their system and utilize data from the records system to further enhance the tools.
 - d. Management practices that help control the disease and provide economic benefit for the livestock owner
 - i. Focus on specific critical goals of demonstration herds and complete that effort.
 - ii. Emphasize analysis of data from existing studies (demonstration herds and other field studies).
 - e. Other concerns:
 - i. ARS basic research needs to continue.
 - ii. JDIP is an important conduit for research work being funded through CSREES. JDIP seems to work and needs to continue with its research and outreach efforts. Efforts also need to be made to assure that results from other publicly funded research are available to the program.
 - iii. Funding:
 1. Federal funding would be available for field studies to support and evaluate prevention and control programs.
 2. Funding can be leveraged from JDIP/CSREES, ARS, diagnostic companies and other industry partners.
- 3. Update the classification system while continuing to recognize lowest risk/prevalence herds.**
 The classification system will be scientifically sound, address differences in herd size and will encourage all susceptible animal species to participate.
- a. Recognize lowest risk/prevalence herds using a classification that is similar in rigor to the current Level 4 of the current test negative program.
 - b. Maintain performance standards for lowest risk/prevalence herds
 - c. Recognize progress for other herds:
 - i. States can use a modification of the current herd classification system, an approach similar to the Concept Paper dated March 7, 2008 titled Herd Testing Strategies to Achieve Classification Levels or another approach.
 - ii. Producers currently enrolled in the program would be eligible to continue in a revised system
- 4. Make herd assessment and management tools readily available and encourage rather than require their use.**
- a. Develop additional new tools as needed and make all tools available to help producers assess herd status and progress
 - b. Risk assessments (RA) and Herd Management Plans (HMP)
 - i. RA and HMPs conducted by a third party would be required only for newly enrolled herds.
 - ii. For renewals:
 1. Templates would be available to producers for free as self assessment tool
 2. Livestock owners may be assessed a fee if the RA or HMP are completed with the help of a third party such as veterinarians, industry groups, extension personnel or government officials
 3. The renewal process, including renewal form, would be simplified
 - c. Eventually phase out current Johne's Program HMPs in favor of implementing good management practices that are part of overall herd health, quality assurance or bio-security programs:
 - i. Information about the specific good management practices that affect the prevalence of Johne's disease would be readily available to:
 1. Producers

2. Veterinarians
 3. Extension specialists and agents
 4. Industry-based advisors, consultants and service providers
 5. Quality assurance programs would be encouraged to incorporate good management practices for Johne's disease prevention and control
- d. Make diagnostic tests readily available
 - i. The tests would be available through approved State and private labs
 - ii. USDA APHIS VS National Veterinary Services Laboratories (NVSL) maintains responsibility for certifying labs and validating tests.
 - e. Make vaccine and safe vaccine delivery systems readily available
 - i. Widespread use of vaccines requires research, development and availability of vaccines that are more acceptable nationally and without the cross-reactivity with *M. bovis*.
 - ii. As improved vaccine and vaccine delivery systems become available, there will be a need for APHIS to validate them and to work with States to make vaccination legal.
 - f. Funding availability – Funds for RA, HMP, and testing may be available depending on Federal and State funding and priorities.
- 5. Develop a coordinated public-private communication plan to market and deliver the updated program and strategies.**
- a. Look for ways to build market incentives for achieving the lowest levels of risk/prevalence.
 - b. Develop public-private communication and marketing plan
 - i. Include clear consistent messages
 - ii. Emphasize a unified message about the newly simplified program and its benefits
 - iii. Clarify any changes that may occur in the herd classification system
 - c. Present to industry groups at the NIAA, USAHA, ADSA/ASAS, AABP and industry meetings.
 - d. Use industry publications and newsletters to get the word out about the program and why it is important to change the approach to a simplified, public/private cooperative program.
 - e. Have the standards committee revise the standards to align with the concepts in this plan
 - f. Make sure the existing participants in the program are grandfathered into the new program
 - i. Develop a funding mechanism for both the public and private components of the public-private partnership including possibilities of matching funds and leveraging existing funding

Appendix A: Results of the Strategic Planning Subcommittee Questionnaire

Introduction

At the 2007 USAHA annual meeting, a resolution was passed to establish a sub-committee of the USAHA Johne's committee to revise and update the National Johne's Disease Control Program strategic plan for the next five years. As a way to begin working on the revised strategic plan, each member of the committee was sent a questionnaire that contained the questions listed below. The subcommittee members' answers were compiled as shown below. This document was used as a way to focus the discussion as the subcommittee began its work.

What have been the 3 most successful aspects of the National Johne's Disease Control Program since 2004?

- Increased education and resulting awareness and knowledge about the disease and steps to take to control it (14/14)
- Improving infrastructure (14/14)
- Improved results (4/14)
- Improved diagnostics (3/14)

What have been the 3 least successful aspects of the National Johne's Disease Control Program since 2004?

- Funding: Decreases, non-sustainable, inequity (9/14)
- Education and marketing (6/14)
- Cumbersome program (6/14)
- Diagnostics: Still need fast accurate test (4/14)
- Poor participation (4/14)
- Industry support (4/14)
- Lack of consistency (2/14)
- Miscellaneous (6/14): Cattle only, not responsive, demo herds, government run, little effect

Should the next 5 year goal of the National Johne's Disease Control Program to decrease prevalence or elimination?

- Reduction in prevalence (11/14)
- Elimination (0/14)
- Both reduction of prevalence generally and elimination of infection when achievable (3/14)

How can the National Johne's Disease Control Program operate successfully with declining funding from USDA?

- Use funds more efficiently by making changes to the program:
 - Cull heavy shedders ASAP
 - Pool fecal cultures
 - Encourage more use of the Johne's Vaccine
 - List status herds on web site so they become known as low risk heifers
 - Use our current funding more efficiently
 - Provide standardized fee
 - Shorten/simplify the RA-HMP for renewals
 - Provide a lower fee
 - Only those who implement management changes allowed subsidized testing
 - Require Monensin feeding
 - Develop a support organization to help inform congress about the importance of Johne's disease to the cattle industry today.
 - Test only those herds that are closed
 - Change roles of APHIS and States and producer organizations
 - Develop improved information
 - Use of milk ELISA for testing through DHIA milk testing laboratories
 - Use of environmental fecal testing for herd detection of infected dairy herds

- Research Funding should focus on research to develop an accurate young animal test
- Raise awareness/Educate producers (6/14)
- Industry helps with funding (5/14)
- Combine with other biosecurity/quality assurance programs (3/14)
- Create program that is more market driven (2/14)
- Show link to Crohns disease (2/14)
- Miscellaneous comments (3/14): Lobby states and federal legislatures for funding, matching State Funds to gain Federal funds, Federal funding going down

What should be the role of each group in the National Johne's Disease Control Program?

Industry

- Promotion (7/14)
- Design and Set Direction (5/14)
- Help Create Market Incentives/Disincentives (5/14)
- Funding (4/14)
- Partnering (3/14)
- Education (2/14)
- Lobbying (1/14)

States

- Implementation, Administration and Oversight (11/14)
- Support (4/14)
- Education (3/14)
- Questions about whether States can or should be involved (3/14)
- Cost Sharing (1/14)

Federal

- Funding (9/14)
- National Coordination for Program Consistency (7/14)
- General Administration, Structure and Guidance (5/14)
- Support Lab Work (2/14)
- Support training programs for vets and producers (1/14)
- Facilitate a market driven program that offers incentives for Johne's free milk and beef (1/14)

Research

- Generally work to improve program (8/14)
- Improve diagnostic tests (6/14)
- Focus on management, control and elimination protocols (5/14)
- Improve vaccines (3/14)
- Economics (2/14)

Extension

- Education (14/14)
- Intertwine Johne's with other management programs (1/14)

DHIA technicians (added group)

- Encourage participation/inform about detriments of Johne's disease (1/14)

What should be the research priorities?

- More accurate, more sensitive and less costly diagnostics, especially for young animals (12/14)
- Improved vaccine, especially one that does not interfere with TB tests (9/14)
- Show and document the economic impact of Johne's on producers (including beef); give them tools to define costs for their operations (7/14)

- Learn more about the disease, transmission and control (including management practices) (4/14)
- Set up demo herds, analyze data from them and wrap them up with usable data on effectiveness of current strategies (3/14)
- Miscellaneous comments (6/14): Risk/reward analysis, Food safety and public health implications; Cattle and wildlife vectors and transmission; Genetic susceptibility and resistance; Identification of super-shedders; Identify genetically low risk cattle for Johne's disease (1 each)

What should be the Johne's disease producer education and outreach priorities?

- Get the word out about the disease and control strategies (8/14)
- Provide more data about the economics of the disease (7/14)
- Promote the program with a steady, consistent flow of information especially success stories (5/14)
- Encourage use of/explain best ways to use diagnostics (2/14)
- Get information about the demo herds out (2/14)
- Make program part of other risk assessment/quality assurance or biosecurity programs (2/14)
- Miscellaneous comments (3/14): Opportunities for producer to question "experts;" producer input into research priorities; Bring tools to determine cost of disease and benefit of management to the industry.

How can current program participants be encouraged to remain active in the program?

- Create incentives (9/14)
- Modify the program to simplify and add flexibility (8/14)
- Educate producers about the impacts of the disease (7/14)
- Continue Funding/Increase Subsidies (2/14)
- Add a select number of actual working participants (producers) to the Johne's working group – there the people on the front lines feeling the actual economic impacts of the disease

How can producer participation be enhanced?

- Education and promotion (6/14)
- Simplify program and add flexibility (5/14)
- Create incentives (5/14)
- Move Johne's to broader herd plans and quality assurance (3/14)
- Involve industry organizations more (2/14)
- Maybe use program funds to pay for testing breeding animals, if the sale managers agree to advertise all animals are tested (1/14)
- Add other species to program (1/14)

How should program activities and results be monitored to assess program success including accounting for producers participating in other Johne's disease control efforts?

- Some form of testing (5/14)
- Use surveys (5/14)
- Don't use national databases (2/14)
- Monitoring will be difficult because of funding and the fact that this is a voluntary program (2/14)
- Miscellaneous ideas—number of samples, counting presentations and articles, auditing herds, use conference calls (4/14)

Appendix B: Redefined roles and responsibilities

1. Industry

- a. Develop and implement a plan for future administration and funding of the program. The herd classification program would have different aspects based on different interests
 - i. DHIA: Johne's lab services with appropriate disease data collected, stored, analyzed and managed as part of their herd management services. Work with researchers to include Johne's evaluation and management tools in their program offerings.
 - ii. Breed associations: Program adoption of recommended management practices, program participation and assist by encouraging marketing breed stock
 - iii. Dairy Coops: Educate producers, market and encourage members to participate in the program
 - iv. Producers: Change management approaches using tools to prevent and control Johne's disease and provide feedback on the practices and the program.
- b. For the leadership to be effective there needs to be an identified champion from each industry (animal species) who ideally has access to marketing and publication tools
- c. Specific groups within the industries are in the position to make research findings and other educational information available to producers. These include dairy cooperatives and allied industries such as veterinarians, producer consultants and service providers such as DHIA.
- d. Work with Federal/State government to develop a coordinated communication and marketing plan to explain the value of the program and the plans for transition from a Federal/State program to a public/private program.
- e. Allied industries such as veterinarians, cooperative field staff, and other respected producer consultants would be in a key position to help distribute information about the disease, diagnostics, prevention and management/control (including vaccination) to the producer in the form of help with assessing herd risks and planning for maximum herd health and performance (includes current or improved risk assessments (RA) and herd management plans (HMP)). Veterinarians will help with vaccination where it is determined to be an appropriate tool.
- f. Milk cooperatives will help with education and marketing of the program.
- g. Producers will use the tools available to reduce the effects of Johne's disease, providing feedback on the use and implementation of these tools. They may pay herd classification participation, testing, vaccines and other services and products as needed. Program funds may be available based on Federal and State funding and priorities.
- h. Industry consultants and service providers (e.g. DHIA) would incorporate Johne's test data into herd management analysis and recommendations. This is a particularly powerful lever for change when the producer trusts and uses the data, analysis and recommendations provided. Develop measures to assess program value and effectiveness.

2. State

- a. Assist with transition of the program to industry with their continued participation based on the level of their individual State funding and priorities.
- b. Assist in rewriting the Uniform Program Standards for the Voluntary Bovine Johne's Disease Control Program (VBJDCP) and any needed modifications to state regulations.
- c. Field personnel, including current Designated Johne's Coordinators and others, would be available to help with risk assessments and herd management plans as well as low risk herd classification for a fee if requested.
- d. Diagnostic labs will maintain their Johne's test certification from NVSL and be available for the testing needed for low risk herd certification. Producers may pay market costs, though subsidies may be available at some level as long as the APHIS appropriation stays above the base.

3. Universities

- a. Assist with research that may be funded through USDA and coordinated by the Johne's Disease Integrated Program.
- b. Assist in outreach education particularly through Cooperative extension.
- c. Serve as NVSL-accredited laboratories for diagnostic testing.

4. Federal

- a. Basic APHIS-VS role:
 - i. NVSL: Laboratory certification, proficiency testing etc.
 - ii. Centers for Veterinary Biologics (CVB): Licensure of biologic including diagnostics and vaccines.
 - iii. NAHMS would continue to include assessment of Johne's in future national studies.
 - iv. Fund the national demonstration herd project to completion focusing on analysis of data and application of the findings
 - v. Collect and analyze data about the national program to assess progress.
 - vi. Make continuing education available to veterinarians.
 - vii. Help rewrite the program standards especially for the classification program.
 - viii. Prioritize funding for:
 - 1. Creation and production of educational materials.
 - 2. Field studies. Field veterinarians may be available to help with low risk herd classification for a fee if requested.
 - 3. Subsidize testing as long as the funding continues above the base amount
 - 4. APHIS field personnel to deliver the Johne's program.
- b. CSREES would fund research and extension functions. They would make educational materials available to extension agents.
- c. A portion of the Johne's funding base could be used to help fund the measurement of the program as described above:
 - i. Survey producers to determine extent of use of tools and identify additional information needs.
 - ii. Sample those using tools to monitor changes in herd prevalence
 - iii. APHIS NAHMS studies can be one way to achieve the surveys described above

Appendix C: Recent history of the national 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 was designed from the start to be producer driven and voluntary.

In 1996, a national study of US dairies, Dairy NAHMS 96, found that approximately 22 percent of US dairy farms sampled had at least 10% of the herd infected with Johne's disease. The study determined that infected herds experienced an annual financial 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. The five objectives that were developed included as part of that revision were the following:

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

In March 2008, the USAHA Committee on Johne's Disease formed an ad-hoc Strategic Planning subcommittee. The group met to discuss changes that are needed to the program over the next five years. This document is the result of that effort.

