

## REPORT OF THE COMMITTEE ON JOHNE'S DISEASE

Chair: Dr. Robert Ehlenfeldt, Madison, WI

Vice Chair: Dr. Scott Wells, St. Paul, MN

Mr. John B. Adams, VA; Mr. J. Bruce Addison, MO; Dr. Robert D. Angus, ID; Dr. Marilyn F. Balmer, MD; Mr. Nathan James Boehm, ND; Dr. William W. Buisch, NC; Dr. Todd M. Byrem, MI; Dr. Michael A. Carter, MD; Dr. Yung Fu Chang, NY; Dr. Michael T. Collins, WI; Dr. Thomas F. Conner, OH; Dr. Robert A. Cook, NY; Mr. Ed Corrigan, WI; Dr. Stephen K. Crawford, NH; Dr. Robert J. Eisner, NJ; Dr. John I. Enck, Jr., PA; Dr. William H. Fales, MO; Dr. James M. Foppoli, HI; Dr. Keith A. Friendshuh, MN; Mr. Bob Frost, CA; Mr. L. Wayne Godwin, FL; Dr. Jeffrey J. Hamer, PA; Dr. Beth Harris, IA; Dr. William L. Hartmann, MN; Mr. Steven G. Hennager, IA; Dr. Sharon K. Hietala, CA; Dr. Donald E. Hoenig, ME; Dr. Sam D. Holland, SD; Dr. John P. Honstead, CO; Dr. David L. Hunter, MT; Dr. John P. Huntley, NY; Dr. Brette Jones, MO; Dr. Susan J. Keller, ND; Mr. John C. Lawrence, ME; Dr. Pepi F. Leids, NY; Dr. Donald H. Lein, NY; Dr. Thomas F. Linfield, MT; Dr. Mary Jane Lis, CT; Ms. Sharon L. Lombardi, NM; Mr. Gordon 'Cobbie' Magness, SD; Dr. Charles E. Massengill, MO; Mr. Chris W. Murdock, MO; Mr. Richard E. Nelson, VT; Dr. Kenneth E. Olson, IL; Dr. Boyd Parr, SC; Dr. Elisabeth Patton, WI; Dr. Janet B. Payeur, IA; Dr. Kristine R. Petrini, MN; Ms. Laurie S. Prasnicky, WI; Dr. John R. Ragan, MD; Dr. Suelee Robbe-Austerman, IA; Mr. Paul E. Rodgers, CO; Dr. Allen J. Roussel, Jr., TX; Dr. John J. Schiltz, IA; Dr. Andy Schwartz, TX; Dr. Sarah B. S. Shapiro Hurley, WI; Dr. Sang J. Shin, NY; Dr. William P. Shulaw, OH; Dr. Shri N. Singh, KY; Dr. Judith R. Stabel, IA; Dr. Susan M. Stehman, NY; Dr. William D. Stouder, ID; Mr. Les C. Stutzman, OH; Mr. Cleve Tedford, TN; Dr. Deepanker Tewari, PA; Dr. Kenneth L. Thomazin, CA; Dr. John B. Thurston, IN; Dr. James A. Watson, MS; Dr. Gary M. Weber, DC; Ms. Diana L. Whipple, IA; Dr. Robert H. Whitlock, PA; Dr. Ronald B. Wilson, TN; Dr. Ching-Ching Wu, IN; Ms. Ria de Grassi, CA.

The Committee met on November 6, 2005 from 12:30 – 5:30. There were 71 attendees at the Committee meeting, including 23 members. The chair opened the meeting and welcomed Committee members and guests. The Committee was updated on progress on Resolutions and recommendations from the 2004 Committee meeting. Resolution 1 requested that United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) conduct a national prevalence survey on bovine Johne's disease. This study will be included in the Dairy National Animal Health Monitoring Survey (NAHMS) in 2007. Resolution 21 requested that USDA-APHIS-VS utilize the National Johne's Disease Control Program Strategic Plan 2004 to guide the National Johne's Disease Control Program. USDA-APHIS-VS will use the strategic plan as a guideline for the Johne's Disease Control Program and is evaluating the plans recommended performance measures in relation to the VS proposed FY 2006 budget.

Progress has also been made on the recommendations from the 2004 meeting and the National Johne's Working Group (NJWG) meeting in 2005 and approved by the committee. These recommendations included emphasizing producer incentives in the Johne's budget, supporting demo herd projects and focusing funding on the top dairy states. Recommended changes to program standards have either been approved or are under consideration by USDA-APHIS-VS. The recommendation that FY 2006 funding for Johne's Disease be set at the FY 2005 levels was not met. Preliminary budget approvals set overall Johne's funding at approximately 30% of the FY 2005 levels. A meeting of the Johne's Disease strategic planning subcommittee was held in August 2005. There were no changes recommended to the strategic plan.

Ken Olson, National Institute for Animal Agriculture (NIAA), Johne's Education Coordinator, discussed the NIAA Johne's Education Initiative (JEI). It is a response to needs identified in the Johne's strategic plan. It provides producers and those working with them access to reliable, useful, easy to use information about Johne's Disease. The initiative is coordinated through NIAA under a Cooperative Agreement funded by USDA-APHIS-VS.

### **Activities to date include:**

- Contact with major producer publications with commitments to publication of Johne's related articles throughout the coming year.
- Survey of purchasers and registered users of "Johne's and Beyond" to assess use and additional needs for the CD.
- Translation of one of the slide sets in "Johne's and Beyond" to Spanish.
- Meetings with leaders of other Johne's education efforts (JDIP, NJWG, Committee on Johne's Disease, Johne's Information Center) to begin to coordinate activities.
- Initial contact with Johne's Education programs in Canada and Australia

- Arrangement for a section for Johne's papers at the 2006 Joint Meeting of the American Dairy Science Association and the American Society of Animal Science
- Introduction of the JEI website [www.johnesdisease.org](http://www.johnesdisease.org)

Dr. Michael Carter, USDA-APHIS-VS, National Johne's Program Coordinator gave the USDA update for the Johne's Disease Program for FY 2005. In 1997, the USAHA National Johne's Working Group (NJWG) appointed a subcommittee to design an affordable and flexible program based on sound scientific knowledge. The result was the U.S. Voluntary Johne's Disease Herd Status Program (VJDHSP). Instead of trying to certify herds free of Johne's disease, the VJDHSP provides minimum requirements for a program to identify herds of low risk with *M. paratuberculosis* infection. These guidelines are used as a model for the Uniform Program Standards for the Voluntary Bovine Johne's Disease Control Program (VBJDCP) and were approved by USDA-APHIS-VS in April of 2002. By the end of FY2005, 48 States are considered in full compliance with these standards. Seventy-seven laboratories participated in the USDA-APHIS-VS National Veterinary Services Laboratories (NVSL) Johne's serology check test with 34 approved for using the Biocor test kits and 49 using the IDEXX kit and 2 laboratories using in house assays. Fifty-nine laboratories have been approved for *Mycobacterium paratuberculosis* fecal culture or and 20 for Polymerase Chain Reaction testing. In FY2005, the reported activities includes 697,264 cattle tested by Enzyme Linked Immunosorbent Assay (ELISA) and 105,685 cattle tested by fecal culture, 7876 enrolled herds (6250 dairy and 1626 beef) of which 1,472 are test negative herds (906 dairy and 566 beef). Herds enrolled as test negative herds are progressing through to level 4. There are 677 Johne's program level 1 (389 dairy and 288 beef), 477 Johne's program level 2 (300 dairy and 177 beef), 112 Johne's program level 3 (75 dairy and 37 beef), and 204 Johne's program level 4 herds (142 dairy and 62 beef).

In FY2005 USDA-APHIS-VS receive \$16.4 Million. Of this \$10.7 Million was distributed through cooperative agreements with the states for use with the National Johne's Demonstration Project (\$1.8 – 17 States), competitive grants \$.53 Million (9 projects), and \$8.4 Million (State Cooperative Agreements).

Dr. John Honstead, USDA-APHIS-VS, Western Region (WR) Johne's Epidemiologist, discussed Johne's activity in the WR. The WR had \$3.3M available for state cooperative agreements and demo herd projects this year. The overall WR Johne's budget was summarized for the committee.

He reported on a meeting with the Dairy Farmers of America (DFA) in Kansas City to discuss Johne's Disease and encourage industry participation. DFA was very interested in the program. One dairy in Oregon and Washington is requiring patrons to have completed a risk assessment before the dairy will accept milk.

Program reviews took place in several of the WR states. Additional reviews are planned for next year. The web-based data reporting system has been improved. The ability to have state coordinators approved reports quarterly will also increase the accuracy of the national report.

Dr. Mark Camacho, USDA-APHIS-VS, Eastern Region (ER) Johne's Epidemiologist, reported on Johne's activity in the ER. There continues to be a lot of activity in the ER within the VBJDCP. VS awarded \$5,831,888 in cooperative agreements to 27 states in support of the VBJDCP for FY04. Of this total dollar amount, 76.9% went to the top ten dairy states while 29% went to the top ten beef states within the region. Of the different spending categories that states spend this money on, the largest changes in spending from the previous year were an 11% increase in Testing and Fee Basis expenditures and a 13% decrease in Risk Assessment and Herd Plan expenditures.

The top ten dairy states in the ER enrolled a total of 6,520 herds into the VBJDCP and 86% of that total was dairy herds. Overall the FY04 Cost per Enrolled herd in the ER was \$995/Enrolled herd while the overall FY04 Cost per Test Negative Status herd was \$5,317/ TNS herd.

There still remain some challenges in collecting data of important work done within the program into the AWBDS system but for the most part the states within the ER did an excellent job in completing this data collection work.

In summary, it appears that states are starting to reach a plateau in growth of enrolling new herds into the program. It is unclear whether a simple increase in funds will cause a significant increase in herd enrollment into the program without any meaningful change in the market forces within the cattle industry that would encourage more producer support.

Dr. Michael Carter, USDA-APHIS-VS, and John Adams, National Milk Producer's Federation (NMPF), gave a report on the USDA budget for Johne's. The proposed FY2006 budget for Johne's Disease has been reduced \$5.5M or 30%. Additional effort will need to be expended in the future to maintain adequate funding for the program. With a voluntary program participation has to be encouraged through the use of incentives to producers. If the program is to be maintained funding must be stabilized and hopefully increased. The committee approved and submitted a resolution to USAHA to encourage USDA-APHIS-VS to maintain funding of cooperative state agreements to the maximum extent possible.

Dr. Robert Whitlock, Co-chair of the NJWG gave a summary report of the NJWG meetings and activities. The full text of this subcommittee report is included elsewhere in these proceedings.

John Adams, NMPR, gave a report on a meeting with the USDA-APHIS-VS Management Team (VSMT). He met with the VSMT on September 13, 2005, representing the Committee on Johne's Disease. During this meeting, the following items were discussed. The VSMT was asked to request funding levels comparable to the spending in the FY 05 budget and that VSMT be present at national Johne's meetings. The Committee on Johne's Disease recommended that there be a critical assessment of the National Demonstration Herd Project with regards to oversight, management, data collection and analysis. VSMT indicated that Dr. Jason Lombard has primary oversight of the project and that further coordination of the project would be enhanced by the meeting held on October 11 and 12, 2005 with all the primary investigators for the project.

Mr. Adams inquired as to whether funding is linked to state matching funds or required reporting through the Generic Database (GDB) or Johne's Web-based system. VSMT indicated that in FY06 APHIS will be updating their information collection procedures. Further, if resources were available, they would be directed to USDA-APHIS-VS, Centers for Epidemiology and Animal Health to assist with the integration of GDB into state systems. The VSMT was asked to provide additional reporting on state contributions to their Johne's disease control program so that this information could be used to evaluate future cooperative agreement funding. VSMT indicated that a summary of information from the State Johne's disease work plans from FY 05 would be compiled and that starting in FY 06, all States would be asked to provide this information on Standard Form 424A: Budget Information. VSMT was asked to submit a 6 month updated national report to the NJWG which includes a detailed report on the regional budget spending. VSMT indicated that they would continue to provide updated national reports at the NJWG meetings associated with USAHA and NIAA.

Vivek Kapur, University of Minnesota, reported on the Johne's Disease Integrated Program (JDIP). The JDIP ([www.jdip.org](http://www.jdip.org)) is a research consortium funded by the USDA, Cooperative State Research, Education and Extension Service, National Research Initiative, CAP initiative. JDIP is focused on advancing knowledge on Johne's disease for the improvement of animal health and food quality.

The program is beginning its 2nd full year of operations, and has succeeded in ensuring that the scientific program that has been put in place is strong, with documented productivity in terms of significant research findings, peer-reviewed publications, and new collaborative and individual JDIP investigator led studies on Johne's disease have been funded through USDA and National Institutes of Health competitive funding mechanisms.

The first year of operations for JDIP has seen the development of flexible interdisciplinary research teams and consortia, establishment of core facilities, an annual meeting of JDIP investigators, sponsorship of workshops, newsletters, regular teleconferences, support of the USDA-APHIS-VS research reviews and JD control program, as well as the implementation of travel awards and a seed-grant program. Ongoing activities will focus on continued program integration and increasing the efforts on intramural and external communications and support of new research programs on JD.

Overall, JDIP is making excellent progress, represents a true asset to the Johne's community, and is well positioned to realizing its mission of improving animal health and food quality through focused research, education and extension on Johne's disease.

Dr. Janet Payeur, USDA-APHIS-VS-NVSL, gave a report on approved laboratories. She reported on laboratories approved to perform organism based tests for 2006. A list of approved laboratories is included elsewhere in the proceedings.

Dr. Robert Whitlock gave a report on the Knowledge Gap Subgroup of the NJWG. Dr. Whitlock passed out a written copy of the knowledge gap report which was briefly discussed. A copy of the report is included elsewhere in the proceedings.

Dr. Judy Stabel gave the Scientific Advisory Subcommittee (SAS) Report. The SAS has spent the last year reviewing the data on the efficacy of fecal pooling and environmental sampling as 2 methods for initial screening of dairy herds for the presence of *Mycobacterium avium subsp. paratuberculosis*. Language was approved last year for insertion of either of these 2 methods into the Program Standards for the entrance into herd status Level 1 (85% confidence of non-infected herd). This year the SAS recommended that due to the sensitivity of these methods, ease of use, and economic realities, they could be used to move from Level 2 to 3. Level 3 attains 98% confidence that a herd is non-infected. The complete protocols and guidelines for use of these 2 methods are contained in Appendix 1 of the Program Standards.

The SAS convened a symposium on use of vaccination as a control measure for paratuberculosis. USDA-APHIS-VS and the NJWG sponsored the travel of international scientists who presented excellent reports on the use of vaccination to control paratuberculosis in sheep, Dr. Peter Windsor, Australia; and in cattle, Dr. Kees Kalis, The Netherlands. In addition, vaccination in cattle and sheep in the U.S. was discussed by Dr. Elisabeth Patton, Wisconsin Dept of Agriculture, and Dr. Susan Stehman, Cornell University. Dr. Suelee Robbe-Austerman presented the results of a meta-analysis of published reports on vaccination. Results of data presented suggest that vaccination is effective in reducing clinical signs of disease, reducing tissue colonization, and decreasing fecal shedding of *Mycobacterium avium ssp paratuberculosis*. Although still exist on the cross-reactivity of vaccinated animals with diagnostic tests for TB, it is clear that vaccination is an effective means of control and may be recommended in particular circumstances.

Dr. Suelee Robbe-Austerman presented an update of her current research on the evaluation of two measures of cell-mediated immunity, the skin test and the interferon-gamma test. Each of these tests has demonstrated high specificity in non-infected herds and flocks and high sensitivity in infected animals. These tests show great potential in the early detection of paratuberculosis in young stock and subclinically infected animals and could be useful in further reducing the biological burden of paratuberculosis within herds. A significant problem in both of these assays is the availability of a consistent and uniform purified protein derivative for use as the antigen. The Committee a Resolution recommending that NVSL manufacture a product of high quality that can be made available to researchers for further characterization of these assays.

The Committee approved two Resolution. The first encouraging USDA-APHIS-VS to maintain funding to states for cooperative agreements to the maximum extent possible and the second directing USDA-APHIS-VS to conduct a new national Johne's disease dairy herd prevalence study.

**The Committee approved the following recommendations:**

1. Request the JDIP prepare a white paper on the economic impacts of Johne's Disease  
Background: A better understanding of the direct and indirect economic impacts of Johne's disease on dairy and beef production is needed to encourage producer participation in the National Johne's Disease Control Program. Likewise, dairy and beef producers need to understand what economic impacts might be expected if a scientific linkage is established between Johne's Disease and human health.  
Recommendation: The JDIP program should be charged with leading a project to write a white paper on the direct and indirect economic impacts of Johne's disease on dairy and beef production including the marketing of dairy and beef farm products if a scientific linkage is established between Johne's Disease and human health. Initial funding in the amount of \$50,000 for costs associated with the preparation of the white paper be made available through the National Johne's Disease Control Program by USDA-APHIS-VS and \$10,000 from JDIP with matching funds to be sought from industry.
2. Request USDA-APHIS-VS continue funding the National Johne's Education Initiative  
Background: Education continues to be of a high priority to the National Johne's Disease Control Program.  
Recommendation: USDA-APHIS-VS should continue funding the National Johne's Education Initiative through a cooperative agreement with NIAA.
3. Recommended curriculum for Johne's Certified Veterinarian recertification  
Background: At the USAHA meeting in October 2003, in an effort to provide standard consistent education across the country, a national core curriculum was established for educating Johne's Certified

Veterinarians. Since then, states have provided workshops, seminars, one-on-one training, and an online program has been established that is available to all states. National Johne's Control Program Standards require that Johne's Certified Veterinarians need to be recertified every 3 years. The first certified veterinarians are approaching that anniversary. Therefore, it is prudent and necessary that we establish a national core curriculum for recertification.

To this end the NJWG recommends the following curriculum:

- To be required for recertification advance course:
    - Review of Johne's basics
    - Epidemiology update
    - Testing and Interpretation, Part 2
    - New and emerging tests
    - Best tests for different scenarios
    - National program review, highlighting any changes
    - JD economics
    - Marketing tips
  - In an effort to give all veterinarians equal education and knowledge about Johne's disease, we also recommend adding the list of topics in the Advanced Course to the certification training for first time Johne's Certified Veterinarians.
  - In response to identified needs and requests from Designated Johne's Coordinators and from veterinary practitioners, we also would like to strongly suggest that states include the following topics in their recertification education offerings. While recognizing the speculative nature of some of the topics, the National Johne's Working Group feels that practitioners need to be kept abreast of the most current research and opinions so they can better respond to and advise their clients.
    - Special Challenges and Topics:
      - Correcting common misconceptions (identified by DJC's) – case scenarios
      - Update on research regarding the zoonotic issue
      - Vaccine usage
      - Potential use of Monensin
- Recommendation: The Committee recommends that USDA-APHIS-VS adopt these recertification guidelines.

4. Use of identified gaps in knowledge gaps for determining research funding for Johne's disease
  - Background: The Johne's disease Strategic Plan (USAHA-2004, Resolution 21) lists five Objectives in the Executive Summary as published in the Proceedings of USAHA. Objective 3: Close gaps in Knowledge about Johne's Disease. The 2003 National Research Council (NRC) report entitled "Diagnosis and Control of Johne's Disease" under Conclusions and Recommendations, page 121 (Conclusion # 4) reported: "There are significant gaps in knowledge about some areas relevant to control." The Knowledge Gaps group of the National Johne's Working Group was formed in February 2005 to help define and prioritize the knowledge gaps that are perceived to impede the full development of the National Johne's disease program in keeping with the recommendations of the NRC report and the Johne's disease Strategic Plan.

This summary is based on the voting by members of the Johne's Disease Knowledge Gaps sub-group of the National Johne's Working Group and reflects those items deemed of highest priority by the group. The appendix outlines the topics and questions raised during the conference calls. The full subcommittee report is included elsewhere in these proceedings.

The Committee recommends that USDA-APHIS-VS and JDIP utilize the knowledge gap report to assist in determining research funding guidelines.

Two Resolutions were approved by the Committee and forwarded to the Committee on Nominations and Resolutions.