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JDIP News is published periodically to enhance intramural communications and ensure that JDIP participants and stakeholders are updated on news of relevance to our community.

Please direct any comments, contributions and suggestions via email to: Vivek Kapur, JDIP Program Director, at vkapur@psu.edu



National Institute of Food and Agriculture



Funding for JDIP is supported by Agriculture and Food Research Initiative competitive grant no. 2011-85204-30025 from the USDA National Institute of Food and Agriculture.

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### JDIP at the 2012 JAM

By: Kenneth Olson, Ph.D.

While JDIP did not meet at the 2012 JAM (Joint Annual Meeting of the Dairy and Animal Science societies), as we had in the past, several JDIP and Johne’s disease related activities took place at the meeting. The number of Johne’s disease related abstracts were down significantly, but there still were both oral and poster presentations included in the Animal Health sections. A Johne’s Interest Group met on the Monday morning of the meeting. This provided an opportunity to share information with attendees about the Mycobacterial Diseases of Animals (MDA) Multistate Initiative and the JDIP vaccine project, diagnostic project, and educational activities, including JD-RAP. Copies of a JAM edition of “JDIP News and Notes” were available to all attendees in the meeting registration area. One added benefit of the meeting was the opportunity to visit with Dr. Sonny Ramaswamy, the Director of NIFA, and lay the groundwork for our visit to his office the following month.

## MDA Mycobacterial Diseases of Animals

A USDA Multistate Initiative

### ***Mycobacterial Disease of Animals – the Multistate Initiative***

By Kenneth Olson, Ph.D.

**BACKGROUND:** Johne's Disease Integrated Program (JDIP) efforts have been funded primarily through two USDA competitive grants. We are now in the final year of funding through this process and are looking to the future. JDIP has successfully addressed many knowledge gaps relative to Johne's disease, but much work remains to be done. Rather than allow the effort to fade away, JDIP leadership evaluated a range of options for the future of the consortium. Primary objectives were to maintain the networking, collaboration and basic infrastructure developed through JDIP, allowing participants to identify, obtain and share resources needed to address issues related to Johne's and other mycobacterial diseases. To this end, JDIP, in collaboration with other interested parties, developed a multistate proposal entitled, "Mycobacterial diseases of animals" that official began on October 1, 2012.

The new ***multistate initiative*** is focused on two mycobacterial disease complexes - paratuberculosis (Johne's disease; JD) and the tuberculosis complex of diseases (TBc). The initiative includes five research objectives:

**Objective 1:** Increase understanding of the epidemiology and transmission of Mycobacterial diseases in animals, including predictive modeling;

**Objective 2:** Develop and implement new generations of diagnostic tests for JD and TBc;

**Objective 3:** Improving our understanding of the biology and pathogenesis of Mycobacterial diseases, as well as the host response to infection;

**Objective 4:** Develop programs to evaluate and develop new generations of vaccines for JD and TBc; and,

**Extension/Outreach:** Develop and deliver education and outreach material related to JD and TBc in electronic and print form for use by extension specialists, veterinarians, government agencies, producers and other stakeholders. Utilize trade media, producer organizations and other outlets to aid in the dissemination of information generated through the initiative.

Projects within each of these objectives, with cross-cutting contributions, will be designed to address the major animal, human, and societal issues surrounding detection and control of mycobacterial infection, including how these organisms move and spread within cattle, small ruminant and wildlife populations.

**NEXT STEPS:** The Initiative received final approval from the National Institute for Food and Agriculture (NIFA) in late September 2012. The MDA organizational structure has been put in place along with plans for transitioning current JDIP Core resources to the new initiative and identification of other resources that will be needed as we move forward, broadening our focus to include other mycobacterial diseases. We are strongly encouraging participation by current JDIP members and invite others to join the effort. Our initial Annual Meeting will be held on Saturday December 2, 2012 in Chicago in conjunction with the Conference of Research Workers in Animal Diseases (CRWAD). Watch our website [www.jdip.org](http://www.jdip.org) or contact us for additional information.

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### ***The 2012 Cornell Workshops: “Mathematical and Epidemiological modeling of endemic infectious disease”***

By: Yrjö T. Gröhn, DVM, Ph.D.

The Cornell summer course has been offered annually at Cornell University for the last seven years, except for “ISVEE years.” Every third year, the course has been given either as a Pre- or Post-ISVEE workshop. 2012 is the ISVEE year, and as such, the course was given as a Pre-ISVEE workshop in Ghent, Belgium on August 16-18, 2012.

The course turned out to be very popular, as the registration had to be closed well ahead of the deadline when all 25 seats were booked. Drs. Yrjö Gröhn and Ynte Schukken along with their Research Associate, Zhao Lu, and Postdoctoral Associate, Rebecca Mitchell, were this year’s instructors.

This workshop was aimed at epidemiologists with an interest in combining analysis of field observations with mathematical modeling. The workshop used methods and examples that were based on data from field studies and that were published. The objective of the workshop was to show the participants the connection between observations from the field and mathematical models and to help participants obtain a better understanding of the infection dynamics of endemic infectious diseases.



Teaching methods were mini lectures and case studies with hands on computer exercises. Case study examples were chosen to be relevant to veterinary medicine, such as IBR, paratuberculosis, salmonella, and mastitis. The course has evolved throughout years and contains more and more advanced material, from deterministic to stochastic models and all the way to agent based models. The course material has substantially improved over time.

Based on feedback, the workshop was well received. As the instructors, we felt that the level of the participants and motivation were excellent. There was discussion about whether the course should be longer than three days. However, the consensus was that because of the costs and the stamina of students and teachers, a three day format may be the maximum length one can take in one sitting.

In addition to offering statistical and epidemiological consulting services and developing new statistical and mathematical methodology, the Epidemiology and Biostatistics Core offers training workshops to the members of the JDIP community. This workshop was the 2012 training mission of JDIP.



## UNITED STATES ANIMAL HEALTH ASSOCIATION

### ***JDIP and the MDA at USAHA***

By Kenneth Olson, Ph.D.

The Annual Meeting of the U.S. Animal Health Association (USAHA) in Greensboro, North Carolina will provide several opportunities to share information about JDIP and the Mycobacterial Diseases of Animals (MDA) Multistate Initiative. A joint meeting of the Johne's Disease Committee and the National Johne's Work Group (NJWG) will be held on Sunday, October 21. The session will include reports on JDIP and other Johne's disease related activities, but will focus on the future of Johne's programs and research with limited federal funding. We will have a display, featuring the MDA, present throughout the meeting to share information with USAHA attendees about the MDA and current JDIP projects. We will also have a newsletter available in the registration area to share information with the full audience. A dinner meeting for MDA and JDIP board members will be held on Monday, October 22.

### **USAHA Johne's Committee/NJWG Combined Agenda Sunday, October 21, 2012**

| <b>Time</b> | <b>Presentation</b>  | <b>Speaker</b>                             |
|-------------|--|--|
| 12:30 PM    | Welcome and Introductions  | Elisabeth Patton/Scott Wells/Jamie Jonkers |
| 12:35 PM    | USDA progress report on Budget and impact to Johne's program/Species line items impact | Michael Carter                             |
| 12:45 PM    | Johne's Program with no funding from government or industry: New National goal         | Scott Wells                                |
| 12:50 PM    | NMPF   | Jamie Jonkers                              |
| 1:00 PM     | NCBA   | Jamie Jonkers for Kathy Simmons            |
| 1:10 PM     | Open Discussion  | group discussion                           |
| 1:40 PM     | Update on Research/Resources/Producer Tools  | Ken Olson                                  |
| 1:45 PM     | JDIP JD-RAP  | Ernest Hovingh                             |
| 2:00 PM     | JDIP Diagnostics   | Scott Wells                                |
| 2:15 PM     | JDIP Vaccination update  | Vivek Kapur                                |
| 2:30 PM     | New Mycobacterial Diseases of Animals/Multi-State Initiative Progress Report           | Ken Olson                                  |
| 2:45 PM     | National Johne's Education Initiative  | Teres Lambert                              |
| 3:00 PM     | Break  |  |
| 3:15 PM     | NVSL updates   |  |
| 3:15 PM     | Serum/milk check test results  | Jeff Nelson                                |
| 3:30 PM     | Fecal check test results   | Suelee Robb-Austerman                      |
| 3:45 PM     | National Demonstration Herd Project-- Individual State projects                        | Allen Roussel, Scott Wells, Jason Lombard  |
| 4:30 PM     | DHIA efforts on Johne's disease control  | Jay Mattison                               |
| 4:40 PM     | DRMS update on efforts/reporting   | John Clay                                  |
| 4:50 PM     | Committee Business and Resolutions   | Committee Members                          |
| 5:30 PM     | Adjourn  |  |

### ***Washington, D.C. Trip Summary***

By: Vivek Kapur, BVSc, Ph.D., and Kenneth Olson, Ph.D.

We spent two busy days in Washington, D.C., August 9 and 10, 2012, visiting four USDA offices and three partner organizations. Background and current information on Johne's disease and JDIP accomplishments, along with current and future plans for the multistate initiative was shared with all. The need for research funding was also discussed, offering JDIP as an example of resources well utilized. Jamie Jonker of the National Milk Producers Federation (NMPF) accompanied us for two of the visits. His participation was very helpful and provided an additional opportunity to strengthen our relationships with NMPF. NMPF continues to be very supportive of JDIP and its accomplishments, and will be interested and willing to be part of the multistate External Advisory Board (EAB) going forward.

During the visit, we met with the following individuals:

1. Bob Ehart, *Senior Policy & Science Advisor, National Association of State Departments of Agriculture*
2. Deborah Sheely, *Assistant Director of USDA-NIFA*
3. John Clifford, *Deputy Administrator USDA APHIS VS*, and Michael Carter, *Assistant Director, APHIS-VS-NCAHP-Ruminant Health Programs*
4. Sonny Ramaswamy, *Director of USDA-NIFA*
5. Ashley Morgan and Gina Luke, *AVMA- Assistant Directors of Government Affairs*
6. Caird Rexroad, *Associate Administrator for USDA-ARS*, and Steve Kappes, *Deputy Administrator*
7. Clay Detlefsen, *VP Regulatory Affairs, International Dairy Foods Association (IDFA)*

Overall the sessions went well, and we were well received by all. Several tangible, immediate outcomes resulted from the visits and two other potential actions.

- In part through conversations with ARS, year-end funds have been moved to NADC for use in support of the vaccine and diagnostic projects.
- Interest in the Mycobacterial Disease Initiative was strong, including interest in participation in the EAB by many of the groups that is being pursued.
- Interest in and support for potential establishment of a not-for-profit organization to facilitate future funding for the efforts was strong.
- It was suggested that we work with NC-FAR to focus one of their future "Hill Seminars" on mycobacterial diseases.
- It was suggested that we provide SOAR (a new research advocacy organization) with JDIP accomplishments for their work in support of agricultural research.
- Initiation of contact with Senator Leahy's staff was suggested.

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### ***USDA-NIFA Foundational Program Requests for Applications (RFA)***

USDA-NIFA plans to release the fiscal year 2013 Agriculture and Food Research Initiative (AFRI) Foundational Program Request for Applications (RFA). The original release date was August 15, 2012. While they have since pushed this release date back, they have not yet announced a new release date. NIFA will combine the FY 2012 and 2013 AFRI Foundational Program Request RFA into one FY 2013 RFA. This consolidated RFA combines appropriated FY 2012 and 2013 Foundational Program funds. The AFRI Foundational Program creates a foundation of knowledge in fundamental and applied food and agricultural sciences research. Opportunities for Mycobacterial diseases (including Johne's) are included.

Questions may be directed to Effie Baldwin, Management Resource Officer and AFRI Coordinator, at [ebaldwin@nifa.usda.gov](mailto:ebaldwin@nifa.usda.gov).

## Upcoming Meetings and Events

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October 2-6, 2012  
World Dairy Expo at the Alliant Energy Center of Dane County in  
Madison, Wisconsin. USA  
<http://www.worlddairyexpo.com/>

October 18-24, 2012  
116<sup>th</sup> USAHA Annual Meeting  
Greensboro, North Carolina. USA  
<http://usaha.org/Meetings.aspx>

October 29-31, 2012  
NMPF, NDB, UDIA Joint Annual Meeting  
Dolphin Hotel: Orlando, Florida. USA  
<http://nmpf.org/nmpf-joint-annual-meeting>

December 2-4, 2012  
Conference of Research Workers in Animal Diseases (CRWAD)  
Chicago, Illinois. USA  
<http://www.cvmb.colostate.edu/mip/crwad/authinst.htm>

December 2, 2012  
1<sup>st</sup> Annual Meeting of the Mycobacterial Diseases of Animals Multistate Initiative  
held in conjunction with the Conference of Research Workers in Animal Diseases (CRWAD)  
Chicago, Illinois. USA  
[http://www.jdip.org/index.php?option=com\\_content&task=view&id=145&Itemid=227](http://www.jdip.org/index.php?option=com_content&task=view&id=145&Itemid=227)

July 8-12, 2013  
2013 ADSA-ASAS Joint Annual Meeting (JAM)  
Indianapolis, Indiana. USA  
<http://jmtg.org/2013/>

June 22-26, 2014  
12<sup>th</sup> International Colloquium on Paratuberculosis (ICP)  
Parma, Italy  
<http://www.icp2014.eu/>

## JD In Print – Producer Press

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- Bovine Johne's - a real risk to Qld producers. Queensland Country Life. Aug. 21, 2012  
<http://qcl.farmonline.com.au/news/state/agribusiness-and-general/general/bovine-johnes-a-real-risk-to-qlc-producers/2619849.aspx>
- **Cooper, O.** 2012. Working together to get on top of Johne's. Farmer's Weekly. Aug, 31, 2012.  
<http://www.fwi.co.uk/Articles/30/08/2012/134810/Working-together-to-get-on-top-of-Johne39s.htm>
- Important changes to National Bovine Johne's Disease Plan. My Sunshine coast.com.au , July 17, 2012  
<http://www.mysunshinecoast.com.au/articles/article-display/important-changes-to-national-bovine-johnes-disease-plan,26402>
- **McCullough, D.** 2012. Johne's eradication plan to start in January 2013. Farming. June 8, 2012.  
<http://www.independent.ie/farming/news-features/johnes-eradication-plan-to-start-in-january-2013-3127142.html>
- **Olson, K.E.** 2012. We're learning more about Johne's. Hoard's Dairyman. Sept 10, 2012. p. 572
- **Platt, J.R.** 2012. First Purebred Bison Calf Born after Disease-Washing Embryo Transfer. Scientific American. Sept 7, 2012. <http://blogs.scientificamerican.com/extinction-countdown/2012/09/07/first-purebred-bison-born-disease-washing-embryo-transfer/>

**JD In Print – Peer Review**  
**Johne's Disease Related Publications**

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- **Abendaño N**, Sevilla I, Prieto JM, Garrido JM, Juste RA, Alonso-Hearn M. Quantification of *Mycobacterium avium* subsp. paratuberculosis Strains Representing Distinct Genotypes and Isolated from Domestic and Wildlife Animal Species by Use of an Automatic Liquid Culture System. *J Clin Microbiol*. 2012 Aug;50(8):2609-17
- **Allen AJ**, Stabel JR, Robbe-Austerman S, Park KT, Palmer MV, Barrington GM, Lahmers KK, Hamilton MJ, Davis WC. Depletion of CD4 T lymphocytes at the time of infection with *M. avium* subsp. paratuberculosis does not accelerate disease progression. *Vet Immunol Immunopathol*. 2012 Oct 15;149(3-4):286-91.
- **Aly SS**, Anderson RJ, Whitlock RH, Fyock TL, McAdams SC, Byrem TM, Jiang J, Adaska JM, Gardner IA. Cost-effectiveness of diagnostic strategies to identify *Mycobacterium avium* subspecies paratuberculosis super-shedder cows in a large dairy herd using antibody enzyme-linked immunosorbent assays, quantitative real-time polymerase chain reaction, and bacterial culture. *J Vet Diagn Invest*. 2012 Sep;24(5):821-32.
- **Ansari-Lari M**, Haghkhah M, Mahmoodi F. Erratum to: Association of *Mycobacterium avium* subspecies paratuberculosis infection with milk production and calving interval in Iranian Holsteins. *Trop Anim Health Prod*. 2012 Oct;44(7):1813-4.
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- **Arsenault RJ**, Li Y, Bell K, Doig K, Potter A, Griebel PJ, Kusalik A, Napper S. *Mycobacterium avium* subsp. paratuberculosis Inhibits Gamma Interferon-Induced Signaling in Bovine Monocytes: Insights into the Cellular Mechanisms of Johne's Disease. *Infect Immun*. 2012 Sep;80(9):3039-48.
- **Bach H**, Rosenfeld G, Bressler B. Treatment of Crohn's disease patients with infliximab is detrimental for the survival of *Mycobacterium avium* ssp. paratuberculosis within macrophages and shows a remarkable decrease in the immunogenicity of mycobacterial proteins. *J Crohns Colitis*. 2012 Jun;6(5):628-9.
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- **Chen JW**, Scaria J, Chang YF. Phenotypic and transcriptomic response of auxotrophic *Mycobacterium avium* subsp. paratuberculosis leuD mutant under environmental stress. *PLoS One*. 2012;7(6):e37884
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- **Davidson RS**, McKendrick IJ, Wood JC, Marion G, Greig A, Stevenson K, Sharp M, Hutchings MR. Accounting for uncertainty in model-based prevalence estimation: paratuberculosis control in dairy herds. *BMC Vet Res*. 2012 Sep 10;8(1):159.
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- **Frössling J**, Wahlström H, Agren EC, Cameron A, Lindberg A, Sternberg Lewerin S. Surveillance system sensitivities and probability of freedom from *Mycobacterium avium* subsp. *paratuberculosis* infection in Swedish cattle. *Prev Vet Med*. 2012 Aug 14.
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