REPORT OF THE COMMITTEE ON JOHNE'S DISEASE

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

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The Committee met on October, 24, 2004 from 12:30 pm to 5:30 pm. There were 61 people in attendance. Chair William Hartmann presided assisted by Vice Chair Scott Wells. The Chair welcomed members and reviewed the structure of the Committee. The Committee has four subcommittees: Scientific Advisory Subcommittee, Finance and Budget Subcommittee, National Johne's Working Group Subcommittee and the Strategic Planning Subcommittee.

JOHNE'S DISEASE

The Chair announced that a Committee Scientific Paper had been presented yesterday at the American Association of Veterinary Laboratory Diagnosticians (AAVLD) Epidemiology Scientific Session. Drs. C. Munoz-Zanzi and Scott Wells from the University of Minnesota presented a paper entitled, "Effectiveness of Pooling Strategies for Detection of Johne's Disease Infected Cattle Herds."

Dr. Michael Carter, United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), National Johne's Disease Program Coordinator reported that in 1997, the National Johne's Working Group (now the National Johne's Working Group Subcommittee of the Committee on Johne's Disease) appointed an Ad Hoc Committee to design an affordable and flexible program based on sound scientific knowledge. The result of that work 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 *Mycobacterium avium subspecies paratuberculosis* (MAP) infection. These guidelines are used as a model for the Uniform Program Standards for the Voluntary Bovine Johne's Disease Control Program (VBJDCP) approved by USDA-APHIS in April of 2002. In FY2003, 34 States were considered in full compliance with the standards. More than 650 herds have been enrolled in the various status programs based on information through monthly conference calls and less than complete quarterly reports through the Generic Database (GDB). Over 4,722 control herds have been reported. Forty-five states had laboratories approved for Johne's serology testing and 21 with laboratories approved for MAP fecal culture or DNA testing. In FY 2003, the reported volume of activities from these laboratories estimates Enzyme Linked Immunosorbent Assay (ELISA) testing above 549,810 samples and 97,057 fecal culture samples. By the end of FY2004, 41 States will be considered as in full compliance with these standards. Modifications are being made to the GDB to gain access to better quality data and to decrease the effort need by states to enter summary data and further evaluation of the GDB will continue to be made.

Currently 42 States (76 laboratories) have laboratories approved for Johne's serology testing and 26 States (65 laboratories) have laboratories approved for MAP fecal culture or DNA testing. In FY2004, the reported activities include 455,680 cattle tested by ELISA and 61,244 cattle tested by fecal culture, 5,760 approved herd plans and 658 test negative herds. In FY2004 USDA-APHIS-VS received $16.4 million for Johne's disease activities. Of this, $11.9 Million was distributed through cooperative agreements with the states for use with the National Johne's Demonstration Project ($1.7 million – 18 States), Field projects ($0.54 Million - 9 projects), and state cooperative agreements

($9.7 Million).

Dr. Mark Comacho, USDA-APHIS-VS Johne's Disease Program Coordinator for the Eastern Region reported on Johne's disease activities in that region. The demographics of cattle in the U.S. show that about 53% of the adult dairy cows are in the Eastern Region, mostly in the upper Midwest and the north-eastern states. Conversely, only about 26% of the U.S. beef cattle are in the Eastern Region, concentrated mostly in Kentucky and Tennessee and other states below the Mason-Dixon Line. The total herd plans reported from the Eastern Region through the 3rd quarter of the last FY = 4,967. This is compared to the 3,215 herd plans for the entire prior year, so there was significant increase in herd plan activity with 1 Quarter of data not yet reporting. This calculates to $1,966 spent per herd plan written. The total number of Test Negative Status Herds (TNSH) reported in the Eastern Region last FY = 587. The total reported TNSH for the entire U.S. is 658 so the vast majority of TNSH are in the eastern region, approximately 89% of the U.S. total. This calculates to $16,644 spent per TNSH. Currently, 15 Eastern Region states are reporting Johne's disease data on the GDB in 2004, including Alabama, Vermont, Connecticut, Wisconsin, Delaware, Rhode Island, Florida, Virginia, Indiana, West Virginia, Maine, South Carolina, Minnesota, New York (via spreadsheet), Mississippi. Pennsylvania (in the process to upload), New Hampshire, Ohio (in the process to upload).

Dr. John Honstead, USDA-APHIS-VS Johne's Disease Program Coordinator for the Western Region reported on Johne's disease activities in his region. During the year, 9 states were visited to address problems with the Johne's disease program. Montana, Wyoming, Arizona and Louisiana had not requested Johne's disease funding and have no program in place. During the last year, total animals with Johne's disease tests within the region were up from 145,052 to 187,520. Farms tested for Johne's disease were also up from 1,511 to 3,147. Some of the challenges that the region faced included lack of interest in Johne's disease, confidentiality with test positive data, the lack of value added incentives in the program and lack of motivation of local practitioners. The Western Region also faced problems with reports associated with the GDB. Solutions to the reporting problems offered were the 2004 GDB enhancement meeting at USDA-APHIS-VS Center for Epidemiology and Animal Health (CEAH) in Fort Collins, data management meeting, completion of a requirements document for the GDB and development of a web based reporting system (available in October of 2004). The Western Region reported the most active states in the Johne's program were Kansas, Iowa, California, North Dakota, Missouri, Colorado and Texas.

Dr. Jason Lombard, USDA-APHIS-VS National Johne's disease Epidemiologist reported on herd demonstration projects. During the

past year, CEAH staff developed a Microsoft Access database and multiple Excel spreadsheets to capture necessary data for the National Johne's Disease Demonstration Herd Project. Spreadsheets were constructed to expedite data capture from electronic sources that could then be uploaded directly into the database without re-entry of data. Data received from participating states was validated and initial data analysis performed for presentation at USAHA.

Dr. Bob Whitlock, University of Pennsylvania, National Johne's Working Group Subcommittee (NJWGS) chair, reported on NJWGS activities. The NJWGS met for two full days on Thursday and Friday October 21 and 22, 2004. The meetings were attended by approximately 80 individuals on Thursday and 125 individuals on Friday. Membership of the NJWGS includes 59 individuals with 12 USAHA and 12 corresponding members. NJWGS report follows:

Thursday's meeting was opened by John Adams, National Milk Producers' Federation, followed by self-introductions. Bill Hartmann, Chair of Committee on Johne's Disease, reviewed the follow-up to last year's Committee resolutions (17-ELISA QC sera & 18-Curriculum for certifying veterinarians for conducting Risk Assessments and Herd Management Plans) and three recommendations (One to APHIS with 8 specific recommendations; one for ELISA Quality Control sera; and one on fecal check tests and Qusality Control for fecal cultures).

Ken Olson presented the treasurer's report. The current account balance was $32,538.26. Several expense items were outstanding. Approximately 767 Johne's CD's have been sold, which serves to enhance the level of understanding about Johne's disease across the country. The Johne's Disease web site is up and active.

Michael Carter, USDA-APHIS-VS, provided a detailed report about progress in the number of herds being tested, tests being done, states with Designated Johne's Disease Coordinators in addition to the use of funds appropriated by Congress for Johne's disease in cattle. From the $18.8 million appropriated for Johne's disease in cattle, $11,100,000 was utilized by states through cooperative agreements.; $1.7 million was allocated to the National Herd Johne's Disease Demonstration project; approximately $1.5 million to the Eastern and Western Regions of USDA-APHIS-VS; $540,000 for field studies (9 projects); $900,000 to the USDA-APHIS-VS-National Veterinary Services Laboratories (NVSL); $240,000 to USDA-APHIS-VS-CEAH; and $250,000 to the USDA-APHIS-VS Center for Veterinary Biologics (CVB). Two conferences for training state Designated Johne's Coordinators were held; one in Ohio in July 2004 and the other in Wisconsin. Forty-one states are currently in compliance with the National Johne's Disease Standards. Montana and Wyoming have no interest and Arizona is in the initial stages of implementation. Both New Mexico and Oklahoma remain non-compliant with the Standards. The National Johne's dis-

ease report has failed to collect much of the data from the states, due in large part to problems with the GDB and states having the ability to connect to the GDB. APHIS sponsored two Johne's disease meetings; one three-day meeting in Riverdale, MD on June 15-17, 2004 to develop the new strategic plan that was distributed to those in attendance; and a two-day meeting in Fort Collins, CO in July 2004 to facilitate implementation of the GDB. The later meeting was coordinated by VS Western Region epidemiologist John Honstead. Mike Carter reported that the new printed Program Standards for Johne's disease approved last year will soon be available. Challenges for the Western Region includes: lack of interest by producers; confidentiality of test data; lack of added economic value for the producers and modest motivation by practitioners. Thirteen states do not use the GDB at this time. A GDB meeting was held in June 2004 at Fort Collins to help overcome some of the issues plaguing lack of compliance by the states. The Eastern Region has 15 states using the GDB and more states entering data using the web based data entry system. The following states received the largest allocation of funds through cooperative agreements: NY ($1.3 million), WI ($1.3 million), MN ($705 thousand), PA ($620 thousand) and OH ($817 thousand).

State reports include: Pepi Leids reported that NY State provided nearly $500 thousand in grants-in-aid to their farmers for projects (up to $4,000) designed to reduce the risk for Johne's transmission on farms. The producers were required to support 25% of the funds for each project. Beth Patton reported that Wisconsin added more than $250 thousand instate funds for their program and that more than 280 veterinarians are being certified to conduct risk assessments (RA's) and herd management plans (HMP's) with more than 820 RA's and HMP's completed. Ned Cunningham reported that Ohio has done more than 259 RA's and HMP's. Seventy-three herds are in the status program and 134 veterinarians have been certified. Keith Friendshuh reported that Minnesota has completed more than 800 RA's and HMP's and that most producers in the status program will allow their farms to be listed on web sites as status herds.

On Thursday afternoon, specific "breakout discussion groups" were ably coordinated by Scott Wells for the "Demonstration Herd" project subgroup; Keith Friendshuh for the "Program Standards" subgroup; Dix Harrell for the Information Management subgroup; and Don Hansen for the Education subgroup. In addition, the new Strategic Plan Subcommittee of the Committee on Johne's Disease had a breakout discussion group.

John Adams discussed a letter that had been sent to U.S. Representative Henry Bonilla, chair of the House Agriculture Committee, suggesting full funding for the Johne's disease program at an estimated $49 million. The letter was signed by 11 members of the House sup-

porting this request.

Don Hansen reported the education subgroup focused on the educational portion of the new proposed Strategic Plan.

Jason Lombard reported the National Animal Health Monitoring System (NAHMS) 2002 Dairy Study conducted by CEAH was nearly completed. In brief, cows with a strong positive ELISA value produced less milk than other cows ($620 less). The add-on study included 29 dairy operations that will provide additional data about Johne's disease. Although the studies were comprehensive, neither of these studies was designed to provide any data concerning the current national prevalence of Johne's disease on a herd basis or a cow basis.

For the ELISA check test, Heidi Schleicker from NVSL reported that 76 ELISA check tests were distributed to laboratories. Of the test kits, 56 used the IDEXX kits while 34 used the BIOCOR kits. For 2003, 54 used IDEXX and 31 used BIOCOR. Three labs did not pass the first round of ELISA check tests. Approximately 60 laboratories are participating in the ELISA quality control (QC) project and have purchased "low positive sera" from NVSL for the purpose to monitor their ELISA results. Several labs have reported that this QC has been a valuable aid to help detect variations in ELISA performance. From the earlier pilot study, 37% of the variation in ELISA values was associated with kit lots.

For the fecal culture check test, Janet Payeur reported that 72 laboratories requested check test sets, 65 from the United States. Typically, the set of samples includes 4 low shedders, 6 moderate shedders and 8 TNTC (too numerous to count) samples. Fifty-six laboratories passed the fecal culture check tests and 9 failed. Fifteen labs used PCR (polymerase chain reaction) with 4 labs failing the PCR tests. Twenty-one reported their colony forming unit count data at 8 weeks and 18 labs found no difference at 16 weeks. Five labs used MGIT 960, while 4 labs used the 460. Four labs still use sedimentation while 48 labs use centrifugation. Five labs reported results using Tetracore PCR and 13 labs used a PCR test. Five of the 13 failed the check test. NVSL strongly recommends that labs switch from sedimentation to centrifugation and that the inoculum volume be 200 microliters per tube. Becton-Dickinson may sell HEYM in flasks in the near future. NVSL held two training programs on fecal culture techniques for laboratory personnel.

Jay Ellingson from Marshfield Laboratory in Wisconsin reported that 2.8% of retail pasteurized milk samples were culture positive for MAP. These samples were obtained from retail markets in California, Minnesota and Wisconsin over a 12-month period. Four of 237 samples from Wisconsin, 7 of 235 samples from California and 9 of 234 samples from Minnesota were culture positive. Interestingly, more MAP culture positive samples were detected in the summer months compared to

the other seasons. The recorded colony counts were low and each positive isolate was confirmed by two PCR tests. Fifty-five percent of the different brands of milk tested were positive. The source of MAP contamination was not determined as the study was designed to detect if MAP was present in retail milk.

The laboratory subgroup recommended a change in the ELISA scoring procedure. The new scoring system will be based on the Z-score concept that will critically evaluate difference from the mean score of all labs. This system will provide greater feedback to labs participating in the annual ELISA check test. This proposed change was approved by the Program Standards subgroup. For next year's fecal culture check test, laboratories using solid media would be requested to provide cfu (colony forming units) for each culture tube of solid HEY media. Each laboratory would need to provide an assessment of shedding level of MAP in each positive fecal sample reported, especially those samples categorized as equivalent to TNTC equivalent or heavy shedders. A check test fecal sample would be classified as TNTC, if 50% of the laboratories that pass the fecal check test with current criteria, report the sample as TNTC or high shedder. Samples from laboratories reporting cfu per tube would be classified as TNTC or high shedder, if 2 or more tubes had more than 50 cfu per tube. Laboratories would be required to identify 50% of those "consensus classified TNTC fecal check test samples". Laboratories that fail to detect 50% of the "consensus classified fecal check test TNTC (high shedder) samples" would be notified of their proficiency results with the intent to improve their detection techniques. If a laboratory fails to detect these consensus classified TNTC for the second year they would be required to take additional training at NVSL.

Scott Wells and Jeanette McDonald presented two of the four major components of the Johne's Disease Integrated Program [(JDIP) research award for $4.1 million over three years], the diagnostics and education components respectively. The JDIP program is being coordinated by Vivek Kapur the principle investigator. For more detailed information the reader is referred to the web site (JDIP.org). The priorities for the diagnostics section included: 1. Simulation model to determine efficient strategies to determine the presence of Johne's disease in cattle herds; 2. Field data, refined and improved culture methods for MAP (NVSL); 3. develop and validate molecular tests for MAP in fecal; samples, 4. Molecular Epidemiology of MAP bio-typing. For the Education and Extension module, McDonald reported on the specific modules that will be developed including modules for goats, sheep and Cervidae. RA's and HMP's are being incorporated into the on-line training web site.

Mike Collins provided a new model to help estimate which diagnostic tests are more appropriate based on new data collected from the

earlier Wisconsin-Minnesota study of more than 2,000 cows.

Dr. Dave Wiklund presented the report of the Information Management subgroup for chair Dr. Dix Harrell. He reported on the subgroup's recommendations to USDA about how information should be handled. The recommendations are included in the strategic plan and are:

1. VS Regional Johne's Disease Epidemiologists should coordinate with Area Veterinarians in Charge, State Veterinarians and Designated Johne's Disease Coordinators to complete state level needs assessments and develop specific plans with timelines for accomplishing necessary data collection, data entry and reporting of Johne's program data to the National Johne's Disease Coordinator.

2. All states receiving cooperative agreement funds for Johne's disease must submit accurate Johne's disease program reports to the National Johne's Disease Coordinator in accordance with the Program Standards. In order to be considered for renewal of Johne's disease cooperative agreements in the future, state reports must accurate and up-to-date for the previous 12-month period.

3. Interactive GDB training materials should be developed and provided by USDA with the help of the new Johne's Disease Education Coordinator. GDB training should be provided on the web and in CD format to improve access to those needing the training.

4. Laboratories that conduct Johne's disease testing should be required to report all Johne's test results back to the State Veterinarian's office in the state of origin where the animals were tested. This will allow all states to capture this data for Johne's disease reporting purposes and any follow up activities that may be necessary according to the states Johne's program requirements.

Dr. Keith Friendshuh presented the report of the Program Standards Ad Hoc Group of the NJWGS. He reported on the recommend changes to the national program standards. Dr. Friendshuh reported on the nine recommended changes to the national program standards which were included in one of the recommendations passed by this committee. The full text of these recommended changes are included at the end of this report.

Vice Chair Scott Wells presented the report of the Demonstration Herd subgroup. He reported on the objectives of the National Johne's Disease Demonstration Herd Project (NJDDHP) including: 1) evaluate the long term effectiveness and feasibility of management-related disease control on development of Johne's disease on dairy and beef cattle operations; 2) provide information and materials for education and training of public and private practice veterinarians and cattle pro-

ducers; 3) develop and evaluate management, testing, and monitoring strategies for use in control of Johne's disease in cattle herds; and 4) create the opportunity for add-on projects within states to address important research objectives. Significant progress has been made in capture of data from cattle herds participating in the NJDDHP. An objective for the next year is development of an information sheet providing a brief summary of results to date from the project, to be sent to study investigators and Area Veterinarians-In-Charge from study states, with baseline information such as the distribution of project herds by region and herd size and risk by management area. In addition, participant states with more than 3 years of data will be requested to develop state-specific summaries of results from demonstration herds. Participant states will also be requested to collect environmental fecal samples from demonstration herds at least annually for fecal culture. This information will be used to estimate the sensitivity and specificity of culture of environmental fecal samples from various parts of the country and different cattle herd types.

This concludes the report for the NJWGS.

Dr. Robert Ehlenfeldt provided a report for the Strategic Planning Subcommittee of the full Committee. The Strategic Planning Subcommittee met in Riverdale, MD June 15-17, 2004 to draft an updated Johne's Disease Control Program Strategic Plan. A draft of the plan was presented to the NJWGS at the USAHA meeting and modifications were made to the plan based on input by the NJWGS. The Strategic Plan was presented to the Committee on Johne's Disease on October 24, 2004. The Committee approved the plan and a resolution in support of the Strategic Plan. The major goal of the Committee on Johne's Disease is to reduce the prevalence of Johne's disease in the United States. To accomplish this goal, five objectives were set. Targets, milestones and activities to achieve the objectives are included in the Strategic Plan.

Dr. Judy Stabel reported on Scientific Advisory Subcommittee (SAS) activities. Members of the SAS met on October 23, 2004 to discuss two main issues. The first issue concerned the need for a new dairy survey to assess herd prevalence of Johne's disease in the United States. This is very important as we do not have a current figure of herd prevalence. The most recent data stems from the NAHMS 1996 Dairy Survey that reported approximately 20% of herds infected at that time. However, this figure was based upon serologic data (ELISA) from a subset of cows within the herds tested (approximately 1000 herds). The sensitivity of the ELISA test for accurate diagnosis of *M. paratuberculosis* infection has been an issue with reports of sensitivity ranging from 25 to 50%, on average. Higher sensitivities are reported for clinically affected cows (85%) and lower sensitivities are reported for subclinical cows (15%). Culture detection methods have proven to be

more sensitive and can detect a wider range of subclinically affected animals. However, fecal culture of individual cows would be too expensive and laborious for a national survey of this type. A suggestion made at the SAS meeting was to conduct the survey using environmental sampling of selected herds. A protocol or set of guidelines for conducting environmental sampling would be compiled based upon studies conducted by the University of Minnesota, Cornell University, and University of California-Davis. A study by the University of Minnesota showed that that 90% of infected herds could be identified by culture of 4 environmental samples obtained from cow alleyways and from manure storage areas. It is important to note that each sample obtained is a composite of many sub-samples (at least 5). Therefore, culture of environmental samples would provide a more efficient (time and cost) method for assessing herd status (infected versus non-infected) to provide a broad figure for prevalence rates in U.S. dairy herds. It is imperative that we obtain current estimates in order to put forth to the Congress the importance of continued funding for Johne's disease. It is widely acknowledged that the current figure of 20% herd prevalence is vastly underestimated but we need definitive data to confirm this. With data to support that the herd prevalence of Johne's disease is high in the U.S. it will be more likely that Congress will continue to support a program for research, education and control of this disease.

The second issue addressed by the SAS was to consider using environmental sampling as a tool for initial screening of dairy herds for Johne's disease. This method would be used as an alternative to ELISA testing. The number of environmental samples required for detection of an infected herd is low relative to serum samples needed for the ELISA test. The reduced number of samples would lower testing costs and labor for sample collection. A standard set of guidelines for collection of environmental samples (number of samples, number of sub-samples per sample, location on the farm) would be defined. Suggestions were made for collection of 6 environmental samples with at least 5 sub-samples to pool per sample. Locations of sampling would include major areas where adult cows concentrate (alleyways, exit from the parlor) and manure storage areas including scrapers and spreaders. Using this methodology, producers would be able to enter a herd at Herd Status Level 1.

The Chair reported that significant progress was made in implementing all of the 2003 resolutions and recommendations.

Following the scientific program, the Committee considered and approved two (2) resolutions which were forwarded to the Committee on Nominations and Resolutions for approval by the general membership. The resolutions addressed:

1. An updated strategic plan for the National Johne's Disease Control Program (NJDCP);

2. Conducting a Johne's prevalence study during 2006 to guide the NJDCP.

The committee approved two (2) recommendations. They were:

1. Spending Plan for Federal Fiscal Year 2005 - The USDA-APHIS-VS Johne's disease budget should focus on producer incentives. Priority should also be given to the national demonstration herd project which answers critical knowledge gaps in the management and control of Johne's disease. Additional funds should be directed at expanding information technology capabilities specific to Johne's disease at CEAH. A survey to determine the herd prevalence of Johne's disease in the U.S. should be funded. Funding distribution should focus on the top 20 dairy states with 80% of the cooperative agreement money going to those states. States requesting a cooperative agreement must account for their improvements. Cooperative agreement work plans need to reflect participation of people, herds and animals. Improvement to producer education should be included in the plan. To meet these goals most states will need to allocate 70% of the funds to maintain and increase producer participation, 15% toward education and the residual funding to other program needs as identified by the state.

2. Changes to the Uniform Program Standards for the Voluntary Bovine Johne's Disease Control Program

The following changes should be made to the Program Standards:

- Risk assessments should be required on years 1, 2, 4, 6, and 10 of program participation. An annual review of the herd plan and assessment of management changes is required.
- Test negative status herds should get an official test on clinical suspects when they are culled.
- Status follows herd not the owner.
- Delete fast track section.
- In herds with previous documented testing, the DJC, after evaluation of the testing and that introduced cattle are of low risk, may assign a herd a test negative status level up to level 3 after the herd has the required negative test to get that level and the owner signs a declaration stating: "No Johne's disease was known or suspected in the herd during the last 5 years."
- Laboratories would be requested to provide cfu for each culture tube of Herrold's Egg Yolk media. Each laboratory would need to provide an assessment of shedding level of MAP in each positive fecal sample reported, especially those samples categorized as equivalent to TNTC.
- A check test fecal sample would be classified as TNTC, if 50% of the laboratories that pass the fecal check test with current

criteria, report the sample as TNTC or equivalent. Samples from laboratories reporting cfu per tube would be classified as TNTC, if 2 or more tube had more than 50 cfu per tube. Laboratories would be required to identify 50% of those consensus classified TNTC fecal check test samples. Laboratories that fail to detect 50% of the "consensus classified fecal check test TNTC samples" would be notified of their proficiency results with the intent to improve their detection techniques. If a laboratory fails to detect these consensus classified TNTC for the second year they would be required to take additional training at NVSL.

- Z score calculation should be used to determine variation of quantitative results with laboratory reported values greater than the absolute value of 3 considered outside the range of acceptable results. Laboratories with more than 2 quantitative test results falling outside the acceptable range would not pass the proficiency test. A major advantage of the Z score grading system is that it allows lab feedback on whether labs are consistently above or below the consensus median value. Calculating absolute values allows a visual representation of consistency, since a lab that is not consistently above or below the median will still have a large absolute value of Z. Labs with an absolute average Z score of greater than 2 would be notified that quality control practices should be evaluated. Specific actions could include internal QC review using NVSL low positive sera, contacting the kit manufacturer and evaluating other equipment and procedures. The plan for 2004 is to introduce all labs to the procedure by providing Z score feedback and results of testing for 2003 and 2004 had the Z score system been in place. Each sample Z score, summed Z score and graphics depicting how well they scored relative to other labs will be provided. Any labs with questions or concerns can contact NVSL or CEAH.

- Replace testing procedures with minimum confidence levels to be obtained and add an Approved Testing Strategies section in the Appendix.
  - o Level 1 – 85% confidence of having a non-infected herd
  - o Level 2 – 95% confidence of having a non-infected herd
  - o Level 3 – 98% confidence of having a non-infected herd
  - o Level 4 – 99% confidence of having a non-infected herd

- Test strategies, that meet the confidence criteria, will be added to the program standards appendix after evaluation by the SAS.

The Chair announced that this was his 5th and final year as Chair of the Committee. He will recommend to USAHA President Rick Willer that Dr. Robert Ehlenfeldt, Wisconsin State Veterinarian, replace him as the next Chair.