

Efforts Under Way To Build Animal Disease Fighting Ability

(Continued from Page A1)

practicing dairy veterinarian, many hopes of an aggressive, preventative animal health program depend on how well cooperation and funding continue to support the young program.

The benefits of such an undertaking are many and the implications for human health are great. The reason for the need of such a program are evident.

Background

During the mid-80s, there were several disease problems that were identified in the state. The one that had the most impact was avian influenza, according to Card.

"And then it became apparent that there was a fairly high incidence of Johne's disease in cattle," he said. "Prior to that, we had a problem with tuberculosis, actually it was avian T.B. but it was affecting swine. Then pseudorabies in swine. All of these diseases are relatively difficult to control, without good laboratory diagnosis and continued testing and surveillance.

"At the time, I was at Penn State, department head of veterinary science, and several of us had made the suggestion at that time — including the faculty, the dean of the vet school at the University of Pennsylvania — and said we should really pull together these resources we have, because we had people up there at Penn State who were good at various types of diagnostic activities.

"(University of Pennsylvania) had people who were good at various types of diagnostics, and of course Summerdale has a somewhat different approach, because they do a lot of import and export testing and a lot of regulatory testing, so they do a lot of high volume tests that are done rapidly," Card said.

"So each lab had a different emphasis.

"Suggestions were made and I think a white paper was written at New Bolton that suggested that was a way that we might go to make more effective the resources present in the state.

"And that's what happened. So the act was written, passed in 1988, as legislation, and was enacted in 1989, signed into law.

"At that time, they appointed commissioners — six farmers, three vets, four legislators (the political minority and majority chairmen of the Senate and House Agricultural and Rural Affairs committees), and the secretary of agriculture as the designated chair of the Animal Health Commission.

"The verbiage in the enactment was that they wanted to develop a tripartite lab system, pulling together or integrating the resources of the Penn State University, University of Pennsylvania and Summerdale (the PDA diagnostic lab). That was the main objective when I came here almost two years ago," Card said.

"Secondly, they wanted to develop a stronger research focus on animal disease by trying to attract external funding, from other than the state line funding that comes from PDA, they wanted an integration of research activities, evaluation of results and dissemination of information.

"So, what they wanted really was a system that would look at research in animal health in the state and make it more available to people who could use it, and thus provide more knowledge for farmers.

"The third was field studies,

field investigations and disease surveillance," Card said.

According to the director, the law also called for the development of a "cadre" of scientists from Penn State, University of

Penn, or Summerdale to "intervene on a more scheduled basis in disease crisis."

"They wanted us to become aware of disease processes that were going on in domestic animals

in the state, and then to intervene on a planned basis rather than reactionary."

There were three major responsibilities, according to Card. He said the goals were to first

strengthen the system, build the diagnostics program, which had received little attention since it was constructed during the 1950s, and getting more people out in the field
(Turn to Page A21)

PDA Publishes Johne's Disease Pamphlet

VERNON ACHENBACH JR.

Lancaster Farming Staff HARRISBURG (Dauphin Co.) — While the Animal Health and Diagnostic Commission of the state Department of Agriculture is attempting to bring the animal diagnostic laboratory system up to a modern level, it is also actively working to combat animal disease now.

This week a pamphlet was printed by the PDA that combines information about one of the most worrisome diseases to the dairy industry, Johne's Disease.

The text of the pamphlet, distributed by the PDA, was prepared by R.H. Whitlock, L.J. Hutchinson, and R.W. Sweeney, of the Pennsylvania Johne's Research Team, and C. Rossiter, of Cornell University in November last year.

According to the text, the disease is caused by *Mycobacterium paratuberculosis*, and it was first identified by Dr. Heinrich Albert Johne. It is slow-growing, requiring 14 weeks to grow under ideal conditions and it affects cattle, sheep, goats, deer, llamas, buffalo and other ruminants, such as whitetail deer.

It can be carried without symptoms for two to several years after infection. Infection can come from birth or an infected environment.

Calves can get it from dams while in the uterus, from ingesting pieces of manure, or from the teat or udder of a cow.

If one shows signs of it — normal appetite, but weight loss and diarrhea — the authors of the pamphlet state that, "15-20 other animals are likely infected. The clinical case represents only the 'tip of the iceberg' of Johne's infection. However, only 40-50 percent of all infected cattle can be detected with even our most sensitive (test).

According to the experts, if 25 to 30 animals are test positive on a single herd test of 100 adults, it suggests that probably 50 percent or more are infected.

Estimates are that it may cause a loss of about \$5.8 million per year to the Pennsylvania dairy industry, and it is also prevalent in other large dairy states, according to researchers.

And while calves born with it would only show the disease after they are at least two years old, and can represent a significant economic loss to dairy farmers, the researchers state that having it discovered on a farm doesn't necessarily mean the end of business.

The following is that portion of the pamphlet that tells about managing a herd for Johne's control. The full pamphlets should be available through the state Department of Agriculture, and also

through the local extension office soon.

Managing Johne's

How is Johne's disease controlled on the farm?

The general strategy: There is no treatment for Johne's disease.

The key to preventing, controlling and eliminating Johne's in a herd is MANAGEMENT.

Testing is a valuable tool to evaluate the extent of the infection, to identify infected animals, determine the intensity of a control program, and to monitor progress of control efforts.

The general strategy for controlling infection is to identify and adopt appropriate management and sanitation procedures for the farm that will best accomplish three main goals:

1. Prevent highly susceptible newborn calves and young animals from ingesting manure from infected adults, be it from the dam, the environment, or the feed (or water).

2. Prevent all other susceptible animals from the gesting low levels of infected manure, especially by contamination of feed and water.

3. Reduce the total farm exposure level to *Microbacterium paratuberculosis* by removing the bacteria from the environment and reducing the number of infected animals that are shedding the bacteria.

Goals one and two are achieved by sanitation and accepted good management practices, which benefit the farm as a whole.

Goal three is accomplished by more rigorous sanitation and testing and culling specifically for Johne's disease.

For a given level of infection, detecting and culling infected animals early in the disease will speed the rate at which Johne's is reduced or eliminated from a herd.

Specific recommendations: The specifics and intensity of a Johne's disease control strategy in cattle will vary with the individual farm situation. To be relevant and effective it must be designed to fit the immediate and future goals of the farm, and available resources.

Many specific methods can be used to accomplish the three main goals, but the most effective and practical measures to break the cycle are outlined.

- Management of newborn calves and young animals is critical and is the most effective place to put the effort:

Calves should be born in an area that is dry, clean of manure, and well bedded. Areas used only by one or a few animals at a time and for maternity ONLY should be the goal. Clean tests and udders are a must.

The most effective control measure is to remove newborn calves from the dam and maternity area immediately, thus ELIMINATING the chance to ingest manure in attempts to find the udder and nurse.

Feed newborns colostrum, ideally within one to two hours, from only healthy appearing dams, who are less likely to pass *M. paratuberculosis* into the udder and milk.

Milk replacer eliminates the risk of possible infection from feeding whole or pooled milk to calves. Replacer should be seriously considered especially in herds with significant infection.

Young calves and heifers should be housed separate from adults and should have no direct contact with manure from adult cattle. Separate facilities are ideal but sections protected by partitions, dry alley-ways or buffer zones, or low traffic zones are effective.

Do NOT contaminate feed or feed mangers with manure from feet or equipment.

- Management to prevent low levels of exposure in all older animals is important:

Prevent manure contamination of feed and waterers. DO NOT use the same loader or equipment to clean manure and to load feed.

DO NOT walk in the feed bunks. Eliminate or fence animals out of natural water sources that they drink, that also are slow moving or stagnant, and collect run-off containing manure that animals stand in.

- Identifying and removing infected animals and their manure is necessary to reduce the risk of continued exposure for ALL animals:

Test the herd to identify infected animals that are, or probably will be shedding the bacteria. Based on evaluation of results, infected animals, should be culled as heavily as economics permit.

The most severe should be culled first.

An initial test of the whole herd followed by aggressive culling is very effective in initially reducing the prevalence in the herd. Appropriate management should be started at the same time.

Testing and culling, combined with management, will control Johne's disease more effectively and in less time than partial culling and management or either alone.

Frequency of testing and culling will depend on what is practical for the farm.

The simplest and most effective approach to take in any infected herd is to manage all animals as if they are infected and as if all manure is guilty.

This management attitude works all the time, and is especially important if testing and early culling is not practical.

Attempt to recognize and

cull animals suspicious with clinical signs, earlier, before they further contaminate facilities and lose salvage value.

These animals are shedding billions of organisms each day. If uncertain, ISOLATE or cull anyway, and test to confirm for your knowledge.

Sanitation has no substitute. Remove manure as thoroughly and as often as possible. Always strive for more often. Spread manure on cropland, not on pasture to be harvested or grazed the same season.

- Reduce the risk of introducing infected animals into the herd, especially when elimination of the infection is the goal:

Be cautious and investigate animals to be purchased. Purchase animals from test negative herds, herds with no history of Johne's and/or farms that look clean.

Reduce risk by prior testing with serology or by fecal culture immediately when animals arrive.

The goals of a Johne's Disease control program are several.

In herds with low to moderate infection (1 percent or fewer clinical cases per year), wise use of a combination of testing, culling and management can be expected to reduce the clinical disease to zero within 1 to 3 years and most infection in 5 to 7 years.

Thus, as the herd turns over, each succeeding generation will have fewer infected animals, eventually all of which will be non-shedders.

Finally, the infection will be eliminated.

Complete elimination of infected cattle is likely to take many years after Johne's disease becomes invisible in the herd. Preventive management should remain in place otherwise Johne's disease is likely to recur.

With repeated negative herd tests, herds can qualify for paratuberculosis test negative certification status in PA and NY. These state programs are consistent with the National Paratuberculosis Certification Program Guidelines adopted by the USAHA, November 1993.

Herds with more severe widespread infection will require aggressive control programs and many years to eliminate Johne's disease. However, a practical control program and sound herd management can be expected to eliminate clinical disease in these herds and reduce the economic impact of Johne's in the herd to a minimum.

For more information on control programs, contact in New York-NYS Diagnostic Laboratory, ITHACA 14852 607-253-3931 and Pennsylvania: Penn State University 814-863-7696 or University of Pennsylvania 610-444-5800.