

Johne's Update: Answers through research

Editor's note: Johne's disease is of growing concern to more and more dairy farmers, and is the subject of much recent research. This is the conclusion of a two-part article about research progress and current knowledge about Johne's.

Dairy Exclusive

BY WENDY WEHR
NEW BOLTON CENTER—Phase two of the Johne's research project, which is being conducted by the University of Pennsylvania School of Veterinary Medicine and Penn State, with funding from the Pa. Department of Agriculture, is to complete herd studies of 24 Pennsylvania dairy herds. As with phase one of the project, the objective is to collect as much data as possible, to establish a base of information that might give some clues to solving the Johne's problem.

The 24 herds, all on the DHIA program, are a stratified random sample of the dairy herds in Pennsylvania. They are distributed geographically across the state, and represent all sizes of herds. Animals in these herds may or may not be carrying the paratuberculosis organism that causes Johne's. That's one part of the testing in the herd studies.

Dr Robert Whitlock, coordinator of the project, and his fellow researchers recently completed the sixth herd study. The first herd study was done in July. Whitlock explained that it takes five or six people a full day on each farm to gather all the information they think might pertain to Johne's.

"In each of the 24 herds, every animal from six months of age and up is tested for Johne's," said Whitlock. In addition, each animal is classified according to body condition, and information is gathered about her breeding records, lifetime production, health, and feeding programs. The DHIA records enables them to gather much of this related information.

Management practices are also noted because this may give the researchers clues about the spread of the disease between animals in the herd. Because most animals that contract Johne's are infected at a very young age, calf housing and contact between young stock and cows is of particular concern. Knowing whether the dairyman raises his own replacements or does a lot of buying and selling of

cattle might also indicate how the disease spreads.

One of the questions that the researchers are particularly curious about, said Whitlock, is at what age an infected calf will show positive on the diagnostic tests.

Collecting soils samples on the farms, another part of the herd studies, may shed some light on how long the paratuberculosis organism lives outside of an infected animal.

Johne's positive

Of course all of the information that is gathered in the herd studies will be valuable to the Johne's research. Important answers to the questions about economic consequences of both the sub-clinical and clinical occurrence of Johne's may be found.

But what about the animals that test Johne's positive during the herd studies?

Any animal that is found to have Johne's in Pennsylvania must be reported to the Bureau of Animal Industry. As long as she remains in the herd, the dairyman cannot obtain certain health charts, so there is little choice but to cull the animal.

The BAI does pay an indemnity under certain conditions to dairymen who lose animals to Johne's. Whitlock explained, "The state will pay 90 percent of the appraised value of the cow, less the meat value when the cow is culled, if the dairyman agrees to continue cooperating by testing for Johne's at regular intervals and culling any additional animals that test Johne's positive."

"Several hundred farmers have taken advantage of the indemnity program to date," says Whitlock, "and as far as I know Pennsylvania is the only state that has initiated such a program."

But the indemnity program hardly covers the threat of Johne's for some dairymen. Whitlock explained why a few of the dairymen contacted for herd studies refused to become part of the research.

"If you've got an extremely valuable animal, or a registered herd with terrific genetic potential, finding Johne's in the herd would be really unfortunate."

Interestingly, there are a few options, with considerable drawbacks, that owners of particularly valuable cows can choose.

One option is the Johne's vaccine, which is only available on a strictly controlled basis. Five or six years ago the vaccine was used experimentally in three or four herds, and four new herds have been approved for its use recently, commented Whitlock.

But the drawbacks of the vaccine are many. Calves must be vaccinated before 35 days of age, and often a large lump occurs at the

site of the injection. And although this vaccine may prevent the clinical disease, it is not known whether it prevents infection.

"Furthermore," says Whitlock, "use of the vaccine means that the herd is then Johne's infected." Even so, some dairymen would prefer to buy a vaccinated animal.

Another even lesser known option for valuable Johne's infected cows is an experimental treatment. Whitlock mentioned its successful use recently on an animal that was worth at least \$200,000. The only reason to use it is if a cow has terrific genetic potential, because once she receives the treatment the cow may never be used for milk or meat again.

"The treatment is a drug called Lamprene, which is actually used as a treatment for human leprosy in other countries, but it is so rare and unusual that for all uses in the United States it is only used experimentally.

Lamprene does not cure Johne's, it merely arrests it. Three cows that received the treatment did respond, but they continued to shed the paratuberculosis organism. Several embryos were obtained from the valuable cow mentioned above, before she had to be destroyed.

Managing Johne's

Obviously the vaccine and treatment are of very limited use to most dairymen. But until the results of the three-year Johne's research project begin to yield some solutions, what can dairymen do about Johne's?

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