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JOHNE'S DISEASE – DAIRY

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19 On-Farm Practices That Can Make a BIG Difference

If you're serious about managing Johne's disease before it gains a major "in" in your herd or you want to reduce the incidence of Johne's disease already in your herd, then these 15 practices identified by dairy producers could be the key. According to the Michigan Dairy Review, Michigan dairy producers who implemented these practices give these practices a "thumbs up" when it comes to Johne's disease control and prevention.

Practice #1
Provide individual calving pens.

Practice #2
Remove the calf from the dam within one (1) hour of birth

Practice #3
Don't use colostrum from Johne's disease-infected or suspect dams—particularly for heifer calves.

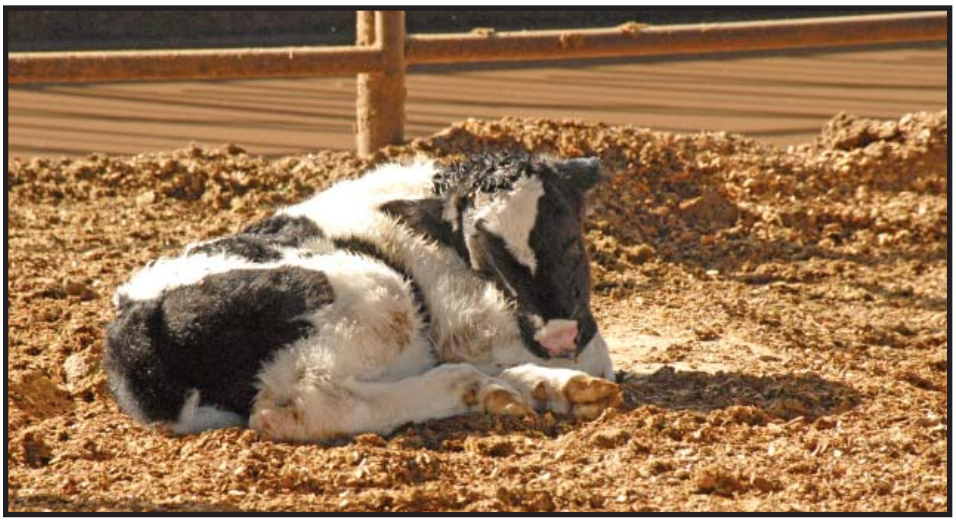
Practice #4
Do not feed unpasteurized waste milk to calves.

Practice #5
Do not use the same skid-steer or tractor bucket to feed cattle and to remove manure.

Practice #6
Separate young stock housing from adult cow housing.

Practice #7
Do not use a cattle trailer to move calves on and between farms.

Practice #8
Ear notch—permanently identify—calves born to positive dams as this easily identifies them as higher risk animals.



Remove the calf from the dam within one hour of birth.

Because young calves are extremely vulnerable to MAP, take precautions to keep them from being exposed to the bacteria.

Practice #9
Do not spread manure on alfalfa fields in the same season the fields will be harvested.

Practice #10
Separate bull calves from heifer calves if bull calves get colostrum or milk from Johne's disease-positive cows.

Practice #11
Use separate calving pen for Johne's disease-positive animals and use separate equipment to clean it. Clean all calving areas as often as possible.

Practice #12
Use milk ELISA on the last DHI test before dry off, or pre-breeding, to help make more informed management decisions.

Practice #13
Implement a plan post test results. For example, examine inseminated cows

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USDA

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by ultrasound and cull Johne's disease-positive cows if not pregnant or if carrying a bull calf.

Practice #14
Do not feed heifers waste feed from cows.

Practice #15
Hold an annual meeting on Johne's disease control for everyone who works with the farm livestock.

More Strategies

Because the same manure that carries nitrogen, phosphorus and potassium may also be carrying *MAP* that put dairy livestock at risk, Dr. John H. Kirk, DVM, extension veterinarian at the School of Veterinary Medicine, University of California Davis, Tulare, offers these four additional strategies to help prevent the spread of *MAP*:

Dairy workers should wash boots thoroughly when moving between locations, particularly when moving to where young animals are housed.

Practice #16
Ensure that manure from sick pens and adult animals flows away from the most susceptible animals on your dairy—young calves.

Practice #17
Control the turbulence of flush water to prevent it from entering any feed area.

Practice #18
Thoroughly wash boots worn by dairy workers to remove all manure and disinfect the work boots when moving from one location to another on the dairy. This is particularly important when moving from one area to a high-risk area such as to calf hutches or pens.

Practice #19
Avoid using the same equipment to handle manure and feeds.

Dairy producers should implement a Johne's disease control and prevention program, and work with their veterinarian to conduct a Johne's disease risk assessment and to develop a farm plan based on the identified risks.

Vaccine Project Progressing

The Johne's disease vaccine project—a collaboration effort of the Johne's Disease Integrated Program and USDA/APHIS—that is investigating vaccine efficacy, with the expectation of identifying one or more Johne's disease vaccine candidates for possible commercial development, is progressing on schedule. Initiated in 2009, the vaccine project will also serve to validate the goat Johne's disease experimental challenge model proposed in the 2007 AMSC manuscript "Experimental Challenge Models for Johne's Disease: A Review and Proposed International Guidelines" by Hines et. al.

During Phase I, the in vitro macrophage phase of the study, 18 knockout mutants were evaluated to identify those showing the best attenuation. These results, coupled with an apoptosis study in Dr. Paul Coussens' lab identified the top eight vaccine candidates that were moved into Phase II, the mouse vaccine efficacy trial.

This part of the study measured *MAP* colony-forming units in tissues after experimental infection to assess protection from the test vaccines. Samples were also retained for immunological monitoring of the mice to be performed at a separate lab.

Five mutant vaccines showing the best protection after *MAP* challenge were identified and moved forward into the final phase of the vaccine project, Phase III, the goat challenge study that is currently in progress in the lab of Dr. Murray E. Hines II at the University of Georgia.

Five treatment groups and three control groups of 10 goat kids each are being evaluated. Goat kids were vaccinated in mid-September 2011 with the five test vaccines and a commercial control vaccine, then challenged four weeks later with a K10 strain of *MAP* following the parameters of the Goat Experimental Challenge Model proposed and published by the JDIP AMSC committee.

Monthly fecal cultures are being collected for HEY culture and PCR, and monthly serum samples are being collected for ELISA and AGID testing. Periodic comparative cervical intradermal skin testing is also being performed. Whole blood is being provided to Dr. Torsten Eckstein's lab at Colorado State University monthly for other immunologic testing with *MAP* cell wall lipids.

At necropsy, the gross and microscopic lesions detected will be graded for statistical analysis. Select tissues will be collected at necropsy, with PCR and HEY culture then performed on these samples. Limited amounts of goat serum, feces and tissues samples will be archived during the Phase III study.

It is anticipated that final results will be available in the spring of 2013.

For information about Johne's disease, contact your Designated Johne's Coordinator Jesse L. Vollmer, DVM, *jlvollmer@nd.gov,* Ph (701) 328-2655 or visit *www.johnesdisease.org*