

Prevent the Spread of JD

The Basics of Prevention

The spread of Johne's Disease (JD) in herds can be prevented if the following points are recognized:

- ✓ The bacteria causing JD is mainly spread through manure.
- ✓ An infected cow can shed billions of organisms into the environment for years prior to showing any clinical signs of the disease.
- ✓ Calves are the most easily infected.
- ✓ A small amount of manure is all it takes to infect a calf.
- ✓ Only 1-5% of infected cows in a herd will show signs of the disease. The rest of the infected animals will appear healthy.
- ✓ Tests for JD do not detect animals in the early stages of infection.
- ✓ Eliminating JD from a herd takes a long-term commitment—at least 5-7 years. Animal purchases must be very limited so that no new infected animals are introduced.
- ✓ Keeping the infection out of your herd is always cheaper than trying to control the disease once it is present.
- ✓ Management changes implemented to decrease the risk of JD will also reduce the risk of other calf diseases (calf scour viruses, E. coli, Salmonella) and improve overall calf health.

Recommended Best Management Practices

The overall objective of a JD management plan is to reduce the prevalence of JD on the farm by preventing exposure to infected animals and a contaminated environment. The following is a list of optimum management practices from a disease control perspective. These will not be possible or cost-effective on all farms—producers will benefit from implementing procedures based on risks identified on their individual farms.

Prevent infected animals from entering the herd by:

- ✓ Maintaining a closed herd:
 - introduce genetics by using frozen semen or embryos.
- If it is necessary to purchase animals, you should:
- ✓ Know the history of the herd you are buying from:
 - buyer beware applies to JD as not all herds are aware of their JD status;
 - ask about history or suspicion of JD.
 - ✓ Pre-test mature cow purchases:
 - there is the potential for infected animals to test negative but this is better than testing heifers (who rarely test positive even if infected) or doing nothing.

- ✓ Buy from test negative herds:
 - pick herds that have a JD status the same or better than your own.
- ✓ Pre-test 30 animals from the herd of origin to estimate their infection status:
 - select second lactation or older animals to test.

Decrease the exposure of newborns to contaminated manure in the maternity area by:

- ✓ Having dedicated maternity pens that are separate from hospital pens and keeping the pens clean, dry and very well-bedded:
 - if you kneel on bedding and your knee is wet after 25 seconds, add more bedding;
 - reduce the rate of manure contamination by keeping cow numbers low in the pens;
 - consider all manure infective and remove it as soon as possible.
- ✓ Bedding routinely between calvings:
 - remove old and/or wet bedding before re-bedding.
- ✓ Never allowing animals suspected of having JD (ill, test positive or suspect animals) in the calving area.

Prevent ingestion of manure by calves in the maternity area by:

- ✓ Removing calves from the pen within 30 minutes of birth, moving them to an area that has never held cows.
- ✓ Not letting the calf search for the udder or allowing it to nurse.
- ✓ Clipping and cleaning (with soap, water and drying) the cow's udder and teats prior to calving.

Feed colostrum unlikely to contain the JD bacteria (MAP) by:

- ✓ Feeding only the colostrum from a single cow to a single calf;
 - do not feed pooled colostrum.
- ✓ Feeding colostrum from test-negative cows;
 - set up a bank of frozen colostrum collected from recent test negative animals.
- ✓ Preventing manure contamination of colostrum during collection by utensils, hands and/or during storage.

Feed milk unlikely to contain the JD bacteria by:

- ✓ Only feeding calves milk from recent test-negative cows.
- ✓ Substituting a good quality milk replacer for whole milk.
- ✓ Pasteurizing milk on-farm.

Decrease exposure of calves to manure in calf housing area by:

- ✓ Housing calves in a facility or location separate from cows or older heifers.
- ✓ Separating calves and cows located in the same facility by distance (buffer zone).
- ✓ Not allowing runoff from manure or pens to enter the calf area.
- ✓ Not allowing any contact with manure or manure storage.
- ✓ Not entering the calf area after walking through cow manure—wear clean boots and use clean equipment before entering the calf area.

- ✓ Preventing manure contamination of feed by splattering from cows or equipment.

Raise uninfected replacements by:

- ✓ Not keeping replacement heifers from dams showing clinical signs of JD.
- ✓ Aggressively managing replacements born to test-positive cows by removing the calf within 30 minutes of birth and feeding low-risk colostrum.
- ✓ Raising heifers off-site at a heifer raising facility.
- ✓ Not raising replacements from a herd with a high prevalence of JD until the level of disease in the mature cows has declined to a level agreed upon by the owner and the herd veterinarian.

Prevent exposure to infected animals and manure by:

- ✓ Housing replacements in a separate facility or by separating them from the cows by distance within the same barn.
- ✓ Locating replacements upstream of manure runoff.
- ✓ Not co-mingling replacements with adults (such as bred heifers with dry cows).

Prevent contamination of feed with JD bacteria by:

- ✓ Using separate equipment for feeding and manure handling.
- ✓ Not using common mangers/bunks for replacements and mature animals.
- ✓ Not walking through feed areas/mangers with dirty boots.
- ✓ Cleaning manure out of mangers/bunks.
- ✓ Keeping animals out of mangers/bunks.
- ✓ Not allowing heifers to graze a pasture the same season after manure application.

Prevent contamination of water with the JD bacteria (MAP) by:

- ✓ Not using common waterers for replacements and mature animals.
- ✓ Cleaning manure out of waterers.
- ✓ Preventing manure build-up around waterers.
- ✓ Preventing access to natural water or wet areas that collect manure or runoff from cows.

Eliminate high-risk animals by:

- ✓ Separating and culling clinical animals as soon as possible:
 - sell to slaughter

Manage JD test-positive animals (infected but not showing signs of illness) by:

- ✓ Visibly identifying test positive animals.
- ✓ Targeting to cull animals when economically feasible.
- ✓ Designating cows as Do Not Breed.
- ✓ Grouping cows in high prevalence herds according to test results:
 - keep test-positives separate from test-negative or low risk cows.
- ✓ Keeping clinical, test positive or suspect animals off pasture.

Canadian Johne's Disease Initiative

Dairy Cattle

Dairy Farmers
of Canada



Canada



CAHC

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Canadian Animal Health Coalition

Promoting a collaborative approach to animal health

What Is Johne's Disease?

Johne's Disease (JD) is a contagious, progressive bacterial infection that causes abnormal thickening of the lining of the intestine restricting the absorption of nutrients. Clinical signs of animals infected with JD are long-lasting diarrhea and extreme weight loss despite maintaining some appetite. JD is caused by a bacterium (*Mycobacterium avium* subspecies *paratuberculosis*; MAP), a distant relative to the bacteria that cause tuberculosis.

Animals usually become infected with MAP as calves. No signs of disease are seen for years after infection and most infected cows never show signs. Infected animals may appear normal and spread the disease to other animals in the herd before showing signs themselves. During this time, infected animals may be sold, culled or die without owners being aware that these cows are infected.

How is it spread?

JD is spread through the contamination of udders, feed or water by manure from infected animals. Calves are the most susceptible to new infection, but adults may also be susceptible if there is exposure to high levels of MAP bacteria. While MAP does not multiply in the environment, it can survive in manure, water and pastures for up to one year, depending on conditions.

Calves may also be infected through colostrum and milk from infected cows. Occasionally calves can be born already infected. With increasing age, calves become resistant to infection and by about one year of age their resistance equals that of an adult. JD usually enters a herd through the purchase of an infected animal that sheds the bacteria in its manure.

Why should I be concerned?

JD can have a significant financial impact in a dairy herd through reduced milk production, increased involuntary culling, loss of heifer sales, and reduced beef production. JD may also be associated with an increased incidence of other diseases.

There may be an association with milk and meat safety. JD may be linked with Crohn's Disease, an incurable, chronic, intestinal disorder in humans. If this link is proven, beef and milk may be viewed as a route of disease transmission to humans. The presence of JD in our herds will increasingly affect our ability to market cattle internationally as countries have begun to demand certification of JD-free status before permitting imports.

What Is the Canadian Johne's Disease Initiative?

The Canadian Johne's Disease Initiative (CJDI) was created to reduce the prevalence of Johne's Disease in Canadian herds. CJDI is a collaborative activity of industry, governments and veterinary schools, led by Dairy Farmers of Canada (DFC), the Canadian Cattlemen's Association (CCA) and the Canadian Animal Health Coalition (CAHC).

The CJDI focuses on:

- Education and awareness-- Develop and deliver coordinated educational information and communications about JD to farmers, veterinarians, government and other target audiences.
- Provincial coordination-- Facilitate communications amongst provincial JD working groups, share JD awareness and extension messages, as well as recommend minimal program standards.
- Research-- Scan international JD programs and research activities, as well as facilitate collaborations to enable priority Canadian research and cost-effective JD program delivery.

Initially the CJDI encourages provincial delivery of the Prevention Pathway of the JD program. Alberta, Ontario, Quebec, PEI, Nova Scotia and New Brunswick have initiated programs. Other provinces, including Manitoba, Saskatchewan, and British Columbia are assessing the proposed national approach and considering program options.

Prevention Pathway program on the farm

Many private veterinary practitioners have received training in the standard risk assessment approach to JD prevention. To initiate the JD Prevention Pathway on the farm, a trained veterinarian works with the herd owner to gather the herd's history related to JD. Then the veterinarian makes recommendations about testing and the use of the risk assessment document to evaluate management practices related to the spread of MAP. Finally, the herd owner and the veterinarian develop a plan to implement cost effective Best Management Practices (BMPs) to minimize JD in the herd. Confidentiality of results is strictly maintained.

For more information, visit the CJDI page on the Canadian Animal Health Coalition website:

<http://www.animalhealth.ca/CJDI/>

Factors that Increase Risk for Johne's on Farms

Calving Area	
1	Having more than one cow in a maternity box stall at one time
2	Manure left in the maternity box stall; not adding new bedding daily
3	If you kneel down on the bedding in the maternity box for 25 seconds, your knee is wet
4	Lame, sick or other special needs cows routinely put in maternity box
5	JD clinical or test-positive animals calving in the same area as non-infected cows
6	No specific strategies for dealing with JD clinical or test-positive cows at calving
7	Calves born in stalls, on pasture or in other areas in contact with cows
8	Udders and hind legs of cows contaminated with manure when introduced in maternity box
9	Udders not clipped and cleaned before calving
10	Calves left with their dams for more than 30 minutes after birth
11	Calves allowed to nurse
12	Calves fed less than 4L of colostrum (Holsteins)
13	Calves not fed colostrum within 4 hours after birth
14	Pooled colostrum (from more than 1 cow) fed to calf
15	Calves are fed colostrum from cows of unknown JD status
Prewaned Heifer Calves	
16	Milk fed to calves coming from cows of unknown JD status
17	Pooled whole milk fed to calves
18	Non-saleable milk (fresh, mastitis or treated cow milk) fed to calves
19	Unpasteurized milk fed to calves
20	Calf bottles and pails not thoroughly washed with soap and water daily.
21	Bottles and pails used to feed more than 1 calf.
22	Calves in contact with cows or cow manure.
23	Calf milk, feed or water contaminated with cow manure.
24	People walking among calves after contact with cow manure, without cleaning or changing their boots.

Factors that Increase Risk for Johne's on Farms (cont'd)

Weaned, Breeding Age and Bred Heifers	
25	Heifers in contact with cows or cow manure
26	Water contaminated with cow manure
27	Feed (including leftover feed), shared between heifers and cows
28	Feeding equipment contaminated with manure used to feed heifers
29	Heifers sharing (at the same time) or grazing (not at the same time) the same pasture with cows (dry or milking).
30	Manure spread on forage grazed by, or harvested for, heifers in the same season.
Cows	
31	Feeders or waterers contaminated with manure.
32	Feeding equipment or feed storage areas contaminated with manure.
33	Cows having access to manure storage areas or run-off.
34	Manure spread on forage grazed by, or harvested for, cows in the same season.
35	Milking or dry cows having dirty legs and udders

Agriculture and Agri-Food Canada (AAFC) is pleased to participate in this project. AAFC is committed to working with industry partners to increase public awareness of the importance of the agriculture and agri-food industry to Canada. Opinions expressed in this document are those of the Canadian Animal Health Coalition and not necessarily those of AAFC.

