

Malignant Catarrhal Fever: Learning from a Tragedy



By: Karen LaFlamme, CFE



When the turnstiles stop their rotation on the last day of your fair, and you have made it through the run without a big incident, you breathe a sigh of relief. Right?

That's exactly what we did at 10 p.m. sharp on Sunday, Sept. 21, 2008. In hindsight, we were premature in that feeling of total relief. Yet, we didn't know for nearly two months how wrong we were.

Our FFA superintendent, Al Swider contacted us, saying that something was amiss in mid-November. He had heard that several cows appeared to have contracted Malignant Catarrhal Fever (MCF) from sheep, and had also been shown at the Puyallup Fair the last five days of the fair. Since the virus has an incubation period of 30-60 days, on average, there was a possibility that the initial FFA member's cow/calf pair may have contracted the virus at our venue.

Upon hearing that information, Puyallup Fair Assistant Manager Candace Blancher contacted the Washington State Veterinarian's Office. They said they were looking into the matter, and were verifying if it was a foreign animal disease. Ruling out the possibility of a foreign animal disease is a top priority for the State Veterinarian's Office.

By the time Candace received a confirmation that it was MCF, many more cattle that had been shown at our venue had died. When that call was received, our pre-existing crisis management plan went into effect.

At this point we needed to learn as much as we could about MCF at mach speed, while also getting the word out to those involved.

MCF Education on an Accelerated Level

While we quickly learned more than could be imagined about MCF, we developed a *Cliffs Notes* version of the virus to communicate to the public and press. Simply put, sheep and wildebeest are reservoir hosts of MCF, and if transferred, this complex disease is fatal to cattle, bison, and deer.

There have been reports of MCF in wildebeests in Africa for centuries, and reports in the United States with cattle since the 1920s. Positive bison recordings have occurred in 11 states and Canada to date, though it is often misdiagnosed. Cases are reported around the world each year, though small, isolated cases.

There are two major forms of this herpes virus, AHV-1 primarily in Africa, and OHV-2 worldwide, plus 10 strains. It is a DNA virus, and therefore quite stable against mutation. The reservoir hosts (sheep, in this case) are clinically unaffected by infection with the virus, but can serve as a source of infection for clinically-susceptible animals, primarily even-toed ungulates.

The good news is that the virus does not pose a threat to humans and cannot be transmitted between people and animals. If cattle are infected, they cannot transmit MCF to other animals.

All adolescent sheep, six to nine months in age shed this virus through the nasal passages

50-300 times more than adult sheep. Transmission appears to peak in late summer or fall when a majority of the lamb crop is 6-9 months old. Since scientists have found it does not grow well in cell cultures, that makes typing the virus difficult.

It is believed that stress, such as travel, can cause sheep to shed even more of the virus than usual. Ideal conditions are a cool, moist area, and direct sunlight can kill the virus. There is no vaccine or treatment yet available to prevent cattle from acquiring the virus.

Previous cases have occurred where the virus transferred through the air, as far as three miles away. Having a sheep and cow touch nose to nose can transfer the virus, just as humans can carry it on their clothing, hands, or equipment. For that reason, a variety of precautionary measures must be taken.

While the incubation period usually runs its course in two months, it can last as long as 200 days. Peracute (rapid onset) disease is characterized by few clinical signs, rapid progression, and death. Sudden death can occur in this form, or may be preceded by a day of depression, weakness, or diarrhea. More apparent clinical signs are seen when animals survive longer. Animals with acute disease develop a high fever and stop eating. The disease is characterized by inflammation, ulceration and exudation of the oral and upper respiratory mucous membranes, and sometimes eye

lesions and nervous system disturbances.

There is a possibility that gene susceptibility may make a difference in which cattle get the virus, and which don't. Survival is rare, and until researchers can recreate the virus in the lab, much is still unknown.

MCF is a reportable disease, meaning veterinarians should notify their state authorities so they can rule out foreign animal disease and/or confirm the virus.

Getting the Word Out

We opened our barns to the State Veterinarian Office staff to tour twice before there was a final confirmation that the cattle had MCF. Our policy has always been open, ready, and willing to assist in any way we can.

Once Candace received the confirmation phone call, she met with Puyallup Fair CEO Kent Hojem to discuss strategy. The goal was to work quickly to notify those involved, while also working with the State Vet's office to determine the cause.

A notification letter from the fair was distributed, along with a fact sheet prepared by the state veterinarian's office. This Nov. 20 mailing was sent to all open class cattle and dairy exhibitors and our FFA superintendent. Since our fair hosts the state FFA fair, the FFA office has all of the records of those students who showed animals, when, and where. At the same time, the state veterinarian's office sent a letter to all large animal practitioners in the state, bovine and ovine producers, and related organizations.

We hosted two meetings in our office for all cattle and sheep owners who showed at the 2008 fair, FFA, cattle organizations, and other interested organizations. The first meeting was held to discuss the facts we had at that time with State Veterinarian Dr. Leonard Eldridge, a key component in answering questions. Our Fair Veterinarian Pete Sathre, DVM, has also played an active role throughout this outbreak.

Then, a second meeting was held on Dec. 1, 2008, with Dr. Eldridge's second in command, Dr. Paul Kohrs taking lead, as well as introducing a featured speaker, Dr. Hong Li.

Both Dr. Eldridge and Dr. Kohrs have had a close working relationship with Washington State University's Veterinary Medicine Extension over the years, and this MCF outbreak made it even stronger. Dr. Hong Li is one of the top research microbiologists at the university's animal disease research unit, as well as a MCF expert. We were fortunate to have a research so experienced in the virus right in our state, ready and willing to go the extra mile in researching this untimely issue.

Dr. Li reported that he has never seen this

many cattle — 18 at that point — die from MCF, nor are there any records showing an outbreak of this magnitude in cattle in North America, or the rest of the world. In 2002, Colorado had a case with bison, where sheep one-mile away shed the virus, and 7.1% of the 761 head herd (54 bison) on the ranch died of MCF. A year later, a separate bison case in Twin Falls, Idaho was reported, with 1,400 sheep 50-200 yards from 1,618 bison. An astounding 835 bison died (51.6%), starting after a 35-day incubation. Both are extremely high numbers, since direct sunlight can kill the virus.

Alberta, Canada, had a smaller case, which was unique because the incubation period lasted over 200 days. Imagine hearing that type of news, nearly seven months after your fair had ended.

Dr. Li and his team have been following the case, taking samples and doing their research as funds allow. Their goal is to recreate the virus in the lab, which would open doors to finding a way of preventing this type of situation from happening again. Until that comes, they can only recommend prevention control.

The Media Steps In

Since this was an issue that focused on the fair and animal exhibitors, we initially focused the majority of our time communicating with them.

We prepared a press release and basic fact sheet in the event that the media picked up on the situation. On Dec. 4, the release was sent out, stressing that MCF poses no threat to humans.

The state veterinarian's office concurred with our press release slant, stressing that fair guests were not affected by MCF in any way. The daily newspapers and radio and television stations in the greater Seattle area that covered the story utilized the information in the release. Since humans were not ill, it was short lived in the high profile A market press.

However, those newspapers in more rural areas where the cattle died wrote human-interest stories, including photos, often taken at the fair. Having cattle die is always difficult, but animals owned and shown by FFA students is that much more heart wrenching. Whether it was a weekly or daily newspaper, or a trade publication, we provided all the information we had in a timely manner.

The Perfect Storm

While we really don't find anything "perfect" about this situation, we all agree that it had to be what is classified as "the perfect storm." All of the right conditions had to come together at the same exact time to create this deadly havoc.

The reason is quite simple. The same exact elements were in place this past fair as the year before, and they mirrored the decade (or two) before that. The barn where this occurred has housed sheep and cattle together for the last five days of the fair for many decades, and it has never been an issue with the state vet's office or our participants. The same ventilation system has been in place and the barn is religiously cleaned with disinfectant prior to the arrival of the animals. Never before had we even heard of MCF or cattle dying 30-60 days after showing at the fair.

When Dr. Eldridge and Dr. Kohrs toured the barn both times after the reports first came in, there wasn't an issue that caught their attention as a defining cause. While they closely looked at the ventilation system, they soon discovered that it operated as it had in previous years. As in the past, exhibitors have also brought in their own fans to help keep their livestock cool.

Challenges Along the Way

As prepared as you'd like to be, there are always challenges that you face in a situation like this.

The first challenge dealt with communication. As soon as official word was received, FFA Superintendent Al Schwider sent an email to all of the FFA advisors who had students showing cattle at our fair. Unfortunately, some of the advisors did not check their emails in a timely manner, and many of the students were not notified. They found out through word of mouth, which is not the ideal way to communicate important information. Though there is no way to prevent MCF, it would have still been better had those people who showed cattle at the Puyallup Fair been notified right away.

Now, timely correspondence with FFA students will be sent in a letter directly to them, copying their advisor. This process bypasses the challenge of unopened emails.

During our second meeting on Dec. 1, many of the FFA students and their parents who had lost cattle had concerns over the cost of MCF testing. Dr. Kohrs said that the state could pick up some of the initial costs of the testing, which was sent to a Federal lab or to the Washington Animal Disease Diagnostic Laboratory in Pullman, Wash. Once testing established MCF, and not a foreign animal disease as the cause of the cattle deaths, the state didn't have funds available for all of the testing.

Like calling a vet to the farm when livestock is ill, testing is also a costly expenditure.

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Many who raise livestock know it is a risky business, and don't want to invest any more money when they lose an animal.

Since the Dec. 4 meeting, the USDA Agriculture Research Service announced that it is now paying for all follow-up MCF testing.

It is unfortunate that the economic climate is extremely tight right now, and there are few dollars available to conduct further testing. Having all of this vital information right at their fingertips would be valuable to researchers to recreate the virus in the lab if funds were available.

Establishing New Protocol

Cattle and sheep have co-mingled in many fair barns and on farms for decades, and often for centuries. That is what has made it such a strange anomaly that this occurred during the last five days of our fair, especially when the same protocol had been in place for years.

This incident has made a strong impact on the way we schedule animal shows in the fu-

ture. Dr. Eldridge and Dr. Kohrs have been invited to speak about this MCF incident to groups in our region and around the country. In looking at their speaking engagement calendar on the subject, their office says they have become rock stars in the animal disease circuit.

While the situation is not good news for us or the cattle owners involved, there are some valuable lessons we have learned and are anxious to pass along. The state veterinarian's office is also sharing the protocol we have established with state veterinarians and animal organizations around the country, knowing that they will undoubtedly impact animal scheduling at many fairs in North America and abroad. Our goal is to negate this from happening again.

In total, the 2008 Puyallup Fair MCF incident impacted 24 cattle (18% of the 133 cattle in the barn) owned by FFA members, open class owners, and included two of the fair's display cows. All of these various-breed cattle acquired MCF or are listed as probable MCF deaths. At the beginning, not all cattle were tested or the time lapse made the results

fall in the probable category. Their symptoms all fell under MCF symptom descriptions.

In an effort to keep this "perfect storm" at bay and eliminate another MCF incident, the Puyallup Fair's MCF committee (made up of Kent Hojem, fair CEO; Candace Blancher, recently retired and now on our board; David Schodde and Kenneth Scholz, past and present board presidents; Don Hillman, new fair COO; and Karen LaFlamme, public relations counsel) met with the entry office staff, FFA and 4-H representatives, superintendents of our cattle and sheep departments, Fair Veterinarian Dr. Pete Sathre, and other related individuals to discuss what preventative measures to make for future fairs.

An open, active and worthwhile discussion developed. We weighed the pros and cons of housing the animals in different barns on the grounds during the same time, versus showing them at different times during the fair. When all opinions were aired, the entire group felt most comfortable to not have sheep and cattle at the fair at the same time.

Starting at the 2009 Puyallup Fair, cattle will be shown from fair opening until six days prior to closing. Our cleaning team will then sanitize and change over the barn for the sheep. The sheep will then have exclusive use of the barn for the remainder of the fair. Since the cattle are scheduled to leave 24 hours before the sheep even enter our grounds, the state veterinarian feels comfortable that more-than-adequate precautionary measures have been taken.

The Puyallup Fair has been an advocate in health safety for many years. We have hand-washing stations at all barns and will continue to stress the importance of guests *and* animal exhibitors washing hands as they leave the barn.

Two cattle owners currently have their attorneys in contact with our insurance company. They are in the discussion phase at this point. In the meantime, a sheep producer organization in the state of Washington has started a fund to help the FFA students in replacing the livestock they lost, and we will be contributing to that cause.

While it is important to look back at what happened in this unique MCF occurrence, our team at the Puyallup Fair prefers to use their energies to move forward, continuing to create a safe and enjoyable fair

for our guests, exhibitors, and animals. ◆



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