

Trich:

Not Just a Western States Disease



Good bull management practices and new testing technology lead to the diagnosis and control of the often-silent trichomoniasis.

Story & photo by
KIM HOLT

Cow-calf producers may be leaving money on the table when it comes to assessing the reproductive — and trichomoniasis, or “trich,” disease status — of their resident herd bulls.

The U.S. Department of Agriculture’s (USDA’s) Beef 2007-2008 National Animal Health Monitoring System (NAHMS) study, conducted in 24 states, questioned producers about their bull management practices and the methods they use to prepare for breeding season. The study represented nearly 80% of U.S. cow-calf operations and just under 90% of U.S. beef cows.

What it found was larger herds, greater than 200 head, are more likely to prepare resident bulls through semen testing

(61%), trich testing (25.5%) and scrotal measuring (41.8%).

Those figures are substantially lower, however, when all operations are considered. Just 26.8% of operations semen-test bulls, 15.6% perform scrotal measurements and 9.8% trich-test bulls ahead of breeding.

Interestingly enough, 53.3% of operations that purchased, leased or borrowed a bull, added bulls that were more than 18 months of age or no longer considered virgin. However, only 34.4% of those operations trich-tested these bulls.

Veterinarian David Anderson, professor and section head, agricultural practices, Kansas State University (K-State) College of Veterinary Medicine (CVM), points out that the work of sterile or inefficient breeding bulls can show up

in an increasing number of open cows.

“Many herds don’t realize that they have a bull that is underpotent,” he says, “because they have multiple bulls servicing those cows.” Anderson adds that a breeding soundness exam is one of the only tools producers have to predict if a bull will be a successful breeder at turnout.

Without testing, producers may not also realize that trichomoniasis, a venereal disease of cattle caused by the parasitic protozoan *Trichomonas foetus* (*T. foetus*), could be lurking around.

While trich isn’t as common as infectious bovine rhinotracheitis (IBR) or bovine viral diarrhea (BVD), it does warrant a watchful eye. The trich organism interferes with a cow’s ability to stay bred and, therefore, is responsible for varying degrees of reproductive inefficiency, namely early embryonic death, a leading cause of calf-crop failure.

Trich can be difficult to detect. Bulls infected with *T. foetus* are entirely without symptoms, and semen quality and sexual behavior are unaffected.

From a herd biosecurity standpoint, Anderson says that trich is “one of the big things we look at now. If you have one bull that is carrying trich, that can spread through the herd relatively easy.

“What we have found is that a lot of people are testing young bulls at purchase, but virgin bulls are the least likely to be infected. Resident bulls that have gone through multiple breeding seasons are more likely to be infected with trich and are the ones we probably should be taking a closer look at. The likelihood of them getting tested seems to fall off after they’ve been owned for a couple of years.”

Not a trivial disease

“Trich is really not a trivial disease,” assures Julie Weikel, state field veterinarian for the Oregon Department of Agriculture. Costs can be highly variable depending on which stage of breeding season trich affects a herd.

“In a 300- to 500-head outfit in which trich enters the herd early in the breeding season, it could easily cost half a million dollars,” she says.

The cost of testing, culling and replacing infected cattle is a big hit for an operation, but the biggest source of economic loss is the loss or reduction in calf crop.

Anderson’s colleague, Brad White, an assistant professor in K-State’s College of Veterinary Medicine, notes the veterinary school has received a lot of questions the past year about this disease.

“We’re certainly becoming more aware of it,” he says. “It’s not just a western thing.” White points out that trich isn’t running rampant, “but certainly there are enough issues with it that we need to have trich prevention programs in place.”

Texas, the nation’s largest cattle-producing state, recently adopted regulations, and at least 13 other western states, including Nebraska and South Dakota, have rules. Kansas is in the process and even Louisiana has recently implemented precautions to thwart the disease.

White advises producers to check with their veterinarian or state department of agriculture regarding trich regulations, because age of virgin bulls and testing protocols often differ from state to state (see sidebar).

He also encourages producers to understand how this disease spreads.

“It’s primarily through non-virgin bulls. We end up transporting those bulls quite frequently to different parts of the country.” But it’s not just geography-driven; the disease clusters at a herd level, in pockets, and can be passed as neighbors trade bulls back and forth.

“If you’re not buying young, virgin bulls, I’d certainly consider testing,” White advises. “If you’re leasing and that bull has been out, I’d certainly consider testing.”

The usual means of trich transmission is an infected bull exposing unexposed cows. That’s why, like White, Weikel cautions against the practice of borrowed or leased bulls.

It is estimated that anywhere from 30% to 90% of cows bred by an infected bull will also become infected, because it takes such a small number of organisms for effective transmission. But the disease can also spread through the purchase of infected, open cows and the mixing of clean herds with infected cattle through broken fences.

It becomes more difficult and expensive to control for producers who graze on expansive communal pastures with other herds, an especially common practice in the western states.

New technology helps clean up trich

Cleaning up trich involves much more than testing a bull battery, and it can be costly.

Bulls are the long-term carriers of this infection where the *T. foetus* organism resides in the tissues lining the penis, prepuce and sheath. Since there is no treatment, all trich-positive bulls need to be culled to slaughter and replaced.

A vaccine is available to help cows clean up faster from an infection and rebreed, but it doesn’t prevent trich from infecting the herd. Often it’s the open and late cows that are carrying the disease, so they, too, need to be culled and replaced.

If trich is found in even one bull, the entire battery needs to be tested. Trich can be diagnosed through the standard culture test or the newer PCR — polymerase chain reaction — assays which are a viable alternative to traditional culture techniques.

Weikel explains that PCR is a genetic test that actually looks for the DNA of the trich organism; therefore, it’s very, very specific. “It’s not ‘fooled’ by other trichomonads that we really can’t tell apart in culture,” she says.

In Oregon, Weikel uses the quantitative PCR (qPCR) test. This state requires trich testing of bulls in every herd diagnosed positive the previous year.

“The test is so superior that, in Oregon, one qPCR test done exactly to protocol equals three cultures,” Weikel says. “In other words, if the original samples in a positive herd were taken and

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Above: Trich doesn’t interfere with a cow’s ability to get bred, but it does interfere with her ability to stay bred. If infected by trich, a female may lose her first conception, clear the infection, return to estrus, and conceive a pregnancy that goes to term. The results of this scenario are a drawn-out calving period within the cow herd if bulls are left with the cows long enough.

PHOTO BY SCOTT HOLT

Producers take a tough stance on trich

Trichomoniasis — or trich — testing is not mandatory in Oregon unless bulls are in a herd that has tested positive for or been exposed to this disease. This is what Oregon calls its Bovine Trichomoniasis Test Positive Response Program.

Ranchers in eastern Oregon's Malheur County desired a tougher trich program, and took implementation into their own hands. On the books is what's known as the Malheur County Ordinance, which declares that all bulls, except virgins, being turned onto public grazing allotments located wholly or partially within Malheur County shall be tested and tagged for trich.

The Malheur County Cattlemen's Association sought the help of the Malheur County Court in promulgating the ordinance to control and eradicate trichomoniasis in that county. This area encompasses 4.5 million acres of public grazing lands, which support about 430,584 AUMs (animal unit months) and some 75,000 beef cows, the largest number in all Oregon counties.

The ordinance became effective Sept. 1, 2006, for the 2007 trich year. Julie Weikel, state field veterinarian for the Oregon Department of Agriculture, says the Malheur County Ordinance has been "hugely helpful" in decreasing trich, and has even helped change the mindset in this state.

"Even in counties that did not adopt a similar ordinance, the very existence of the Malheur County Ordinance created an expectation on the part of ranchers that their neighbors did not have a right to endanger them," she says.

In trich year 2006 there were 5,000 bulls trich-tagged in Oregon; in trich year 2009, more than 12,000 bulls were tagged and a greater number were tested.

In Oregon, tested bulls don't have to be tagged, as in the neighboring state of Idaho. Weikel explains, "Tagging is only required in positive and exposed herds," and in Malheur County and its adjoining public lands. "People in Malheur County don't challenge the tag," Weikel says. "They just accept it."

Deanne Maag of Maag Angus Ranch, Jamieson, Ore., was president of the Malheur County Cattlemen's when this group decided tougher trich rules were in order.

She explains, Oregon is unique in that the state's western side is mostly private land and, for the most part, herds and acreages are smaller compared to the east side. "Trich wasn't an issue there versus over here where people are running cattle together in common on thousands of acres."

Rather than force the whole state into regulation, they worked with the state veterinarian to keep the ordinance local.

"We had excellent support from local commercial producers who'd dealt with trich and had lost money because of it," she says.

Testing and marking bulls with tags, meanwhile finding the positive carriers has really helped clean up their county, Maag reports. Producers with greater than 100 head of bulls, some who initially fought the county regulation, have since found it useful, especially if they had to deal with this disease. And herds infected with trich for years have seen a noticeable increase in pregnancy rates, from 30% upwards to 60% and 70%, she says.

"We pushed for a lot and are happy with what we got," Maag says.

Weikel concludes, "It changed the neighborhood, so to speak."



Idaho trich rules call for all tested bulls to be identified with its trich-program tag. In this state, a bull less than 24 months of age that has never serviced a cow is recognized as a virgin and exempt from testing. Idaho was the first state to implement a trich-testing and identification program.

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handled correctly, and they run one test, they're done. Bulls don't have to be run two more times."

Before PCR, the standard for calling a bull negative and OK to breed cows was three negative culture tests administered one week apart.

"One equals three is slowly catching on," Weikel says. Some states actually have to change their law. Oregon changed its ruling last summer to reflect

the updated research and testing protocol.

Typically, every spring, Weikel usually has close to 30 herds to investigate for trich. This year she's sitting on 10 total cases. She believes rancher awareness and program diligence are two reasons for this decrease, "but part of the credit almost certainly belongs to the better test," she assures.

"It's really rare and unusual to

completely clean up trich in an area in a single year. But we've done it over and over again since we started using PCR."

Weikel's prediction is that within a few years, all states will be using PCR unless a new technology comes along. Across the border in Idaho, Idaho State Veterinarian Bill Barton agrees that PCR is becoming more and more accepted.

"In fact I see the day when most states will only accept PCR results and not our

typical culture results. I think that will probably occur sooner than later," Barton says.

This new testing technology has made Weikel's job a little easier, but she knows from experience that with trich, "if we don't stay with it, we don't get it cleaned up. We still need to be vigilant and vigilant means testing."

**Check trich rules when shipping bulls interstate**

Trichomoniasis outbreaks have heightened awareness for this disease to the point all 11 western states have some type of rules on the books. Idaho was the first state to implement such a rule and, since 1989, has required that all producers annually trich-test and tag bulls before turnout.

Its neighboring states also have some type of programs in place, and the six western states — Idaho, Utah, Nevada, Oregon, Washington and Montana — have color-coordinated their tags to match trich years.

While these states' tags may match, their regulations do differ. Bill Barton, Idaho state veterinarian, explains there are quite a few inconsistencies in trich regulations from state to state. Therefore, it behooves

purebred breeders who are exporting bulls to a variety of states to do their homework.

"It's really important that they check with the individual state of destination to see exactly what the requirements are. The age requirement for bulls that can be considered virgins or have to be tested varies dramatically among states," Barton advises.

For example, Idaho's rule specifies a virgin bull as less than 24 months of age that has never serviced a cow; Utah is 9 months of age, Nevada is 8 months, while several other states are 12 months of age.

Barton says that if you assume all states are 24 months or less, like Idaho, "You could be exporting bulls illegally without the proper trich test. This is a 'very important' point to note."

Testing protocol is also critical to note. Trich can be diagnosed through culture tests or the newer PCR — polymerase chain reaction — assays. States with newer trich rules automatically require that bulls have a PCR test, and only a PCR in order to come into their state. Some states like Nebraska, for example, require that this test only be run at an American Association of Veterinary Laboratory Diagnosticians (AAVLD)-accredited laboratory.

"There are lots of real specific requirements on a state-by-state basis," Barton relays. "The best thing to do is for producers to get with their veterinarian, have him or her call the state of destination and find out exactly how they want that sample treated."