



Not All is Lost

Collecting semen from injured bulls helps ranchers salvage genetic potential.

by Heather Smith Thomas

You can't predict the future, so what happens when a prized bull is seriously injured or must be put down? You might want semen collected from that bull.

Ernest Bailes, DVM, a reproductive specialist located

north of Houston, Texas, has collected semen from bulls with all types of injuries such as broken legs or broken backs and also does postmortem semen extraction.

Bailes has been a registered embryologist for the past 16 years and has a mobile lab that is fully

automated for semen processing — for collecting, processing and leaving the frozen straws of semen with the rancher.

“If you want to collect from an injured bull, the key factor is speed,” Bailes says. “Timing is critical — the sooner the better. I can't stress enough how important it is that the collection be done prior to any fever or swelling and inflammation from the injury, especially from spinal and back injuries.”

Bailes says getting the bull into a hydraulic chute so he can't go down or to help support him if he has a broken leg — to get the weight off that leg — helps.

“The other thing that's nice about a hydraulic chute is that you can fully restrain the bull and prevent him from further injuring himself, especially if you're going to try to repair a broken leg or see if you can give the animal time to heal,” Bailes says.

He sees all types of injuries when called to collect bulls. “But if you collect those bulls quickly, within the first 12 to 24 hours — regardless of the extent of injury — as long as they were reproductively viable prior to the injury there is usually not a problem in getting a good collection,” he explains.

First thought

Usually when a bull gets hurt, the rancher's immediate thought is to treat the bull. Semen collection is often an afterthought. Some drugs used in treatment (such as dexamethasone, which is often given as an anti-inflammatory to help reduce swelling and inflammation), however, will have a negative impact on semen quality.

It's wise to try to collect the bull before treatment is started. It's best to collect him shortly after the injury, if it can be done without causing the bull any further injury. Fever is another thing that can make a bull temporarily sterile, so try to collect him prior to onset of fever if his condition (injury or illness) may lead to fever.

Bailes collected a bucking bull that had suffered a spinal injury during a rodeo event at Las Vegas. “His owners were hoping the injury wasn't long-term and had him on a high daily dose of dexamethasone for 14 days, before I was called in for a collection. After consulting

with the veterinarian overseeing the treatment, we decided to temporarily postpone the collection,” Bailes says.

“They took the bull off dexamethasone and he went downhill fast and could not stand up. Four days later I collected the bull twice via electro-ejaculation (24 hours apart) while he was lying on his side, sedated. They ended up having to euthanize the bull. We then removed his testicles for post-mortem semen extraction. Even though that bull had been on high dosages of dexmethasone for that long, and had extensive injury, we still were able to get some viable semen from the bull.”

In another case a rancher with an injured bull called Bailes immediately. “They were able to get the bull into the hydraulic chute and we collected him and got more than 200 units of semen. We all thought the bull would recover, but he went down and they had to euthanize him three days later. This is why it's better to collect a bull sooner than later,” Bailes explains.

Postmortem collection

He is occasionally called to euthanize bulls with severe injuries and to do postmortem collection. A postmortem semen collection is not difficult, if the bull dies or must be euthanized before he can be collected. If a veterinarian is not immediately available, the bull owner can carefully remove the testicles and send them to a facility for extracting the semen.

“The testicles should be removed intact in the scrotum,” Bailes explains. “You cut and tie off the spermatic cords. The intact testicles (inside the scrotum, with the cords tied off), are placed inside a zip-lock bag. This can be put into a small cooler with three to four inches of ice in the bottom of the cooler. A bath towel can be folded to create a three to four-inch buffer zone between the ice and the testicles. You don't want the testicles sitting directly on the ice.”

A folded cardboard or wadded up newspaper can also be used, but most people have a towel available, and it's usually the easiest choice. The testicles are placed on top of the towel. The unit is then sealed and delivered or shipped overnight for priority morning delivery.

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— Ernest Bailes

you are ready to put the testicles in it, and you always need a buffer between them and the ice,” Bailes says. “You want to slow-cool the testicles in the cooler, to prevent cold shock — which would kill any viable sperm cells that are still within the epididymis. When we receive the testicles, the tail of the epididymis can be dissected off and flushed. A bull typically stores two to three ejaculations of viable semen in the tail of the epididymis.”

Bailes says viable sperm cells with this type of collection will have a higher incidence of what is called medial cytoplasmic droplets and immature sperm cells.

“Even so, you can get viable semen from that collection, and this can be successful anywhere from 12 to 24 hours post-mortem,” he explains.

The sooner the testicles are removed, the better, especially since outdoor temperature can have an effect. “If it’s a mild or cool day, you have a much better chance of getting viable semen for a longer period after the bull dies than if it’s a hot or very cold day,” Bailes says. “If it’s 10 to 20 degrees below body temperature, this is all right because it starts the gradual cooling process. If you can get to the animal prior to rigor mortis setting in, you have a pretty good chance of being able to salvage semen.”

At severely cold temperatures, a semen collection can still work if the bull is still alive or if the accident is witnessed. “You could go ahead and remove the testicles and the semen will be fine. But if the bull has been lying on the snow awhile and the testicles are stuck to the snow, there will be only a slim chance,” he says. The sperm cells will be dying.

Midsummer can be tricky if weather is hot. “I actually had

Breeders’ experiences

David Bailey, an Oklahoma rancher, had a good bull that broke his back.

“The vet came and took semen from the bull while he was still alive, even though the bull was down. He tranquilized the bull and extracted semen, then euthanized the bull. If you have an experienced vet, you can often get semen from a bull in the first day or two after an injury,” Bailey says.

“Sometimes you might get 50 to 150 straws from that bull, depending on how fertile he is, and how much semen he has, but this is something you’d have to do pretty quickly. On the bull that broke his back, we were able to get 80 straws from him. We were pleased, because he wasn’t a complete loss.”

Sammy Andrews, a breeder in northeastern Texas, has had several instances in which bulls were injured and collected. “We had them at the veterinary facility anyway, to deal with the injury. The ones we’ve collected were because of a broken leg. The people who collect semen just came over to the clinic and collected the bull. That way, in case treatment for the broken leg didn’t work, we still had the semen,” Andrews says.

“Even if the bull recovers, there’s no guarantee he’ll be able to breed cows again. We had an expensive bull with a broken leg, trying to get his leg fixed. Collecting semen from a bull immediately after an injury is good insurance.

It’s a good back-up if he doesn’t recover, and the semen quality is usually good,” says Andrews.

Gary Warner, a veterinarian in Elgin, Texas, has collected many bulls with limb fractures.

“During the process of evaluating the injury, most of these bulls are heavily sedated. While they are sedated we collect semen,” Warner says. In a few instances the rancher or breeder has removed the testicles from a bull that died or had to be euthanized and brought the testicles to his clinic, rather than transport the dead bull.

Collecting an injured bull is similar to a routine semen collection, except more care may be needed in restraining the bull. “Some bulls with limb or back injuries (where we need to harvest the semen to obtain the genetics because we don’t know what the outcome of the injury might be), we may put the bull on a hydraulic tilt table and sedate him for collection, so we don’t injure him further,” Warner says.

Bulls can easily break a leg while fighting. “It’s generally not the fighting itself that’s so dangerous, but accidents sometimes happen when a third bull hits one of the fighting bulls in the hind legs when they are braced and pushing,” Andrews says. If it is an older bull, you may have already collected some semen from him, but with a young bull, you may not have done this yet, so it’s wise to have a plan for a possible emergency. **HW**

one bull delivered to me and he’d been dead about four hours, but I was still able to get viable semen,” he says. “Ranchers also need to know they have a better chance of obtaining viable sperm cells if the bull died from an injury rather than from illness, because his body wasn’t stressed prior to the injury.” With an injury, the bull merely had short-term stress but was not in declining health.

The main thing is to do it sooner than later, before any inflammation and swelling, since fluid starts to accumulate internally after an injury. “If it’s a testicle injury or an injury to the hindquarters, these tissues start to retain fluid. Fluid will also be retained in the scrotum, and will have an adverse impact

on the body’s ability to properly thermo-regulate the testicles and keep them at proper temperature,” he explains.

Plan ahead

The rancher should have a plan in mind for emergencies if the need arises to collect an injured or recently deceased bull.

“Most large-animal veterinarians will have the capability of processing the testicles post-mortem,” Bailes says. “If the rancher is unable to remove the testicles and needs help doing this, it would be best to call their veterinarian first, and then contact us or some other facility that processes semen. I’ve helped walk several veterinarians through the process on the phone,

so they can prep and salvage the testicles and maintain them until someone is able to process them.”

A local veterinarian might be able to do the first step and then to send the testicles to a facility that does this. The semen would then be frozen and stored like regular semen.

“With post-mortem semen, however, it must be identified as such and printed on the straws,” he explains. “In the post-mortem processing, evaluation parameters would be different. You would not be as critical of the semen from a bull collected and processed post-mortem as you would from a bull that was collected normally and could be checked again later. The post-mortem collection is your last possible opportunity to salvage any genetic potential from that bull, so if there’s any chance the semen would settle a cow you’d probably use it.” **HW**



Costs

Collecting an injured bull will vary greatly in cost, depending on the type of injury, whether sedation is needed and the location of the ranch and whether the bull can be brought to a reproductive clinic or must be collected on-farm. If the reproductive specialist must drive a long way to collect a bull, his trip would cost more than if a set of testicles can be delivered to his facility by the client. **HW**