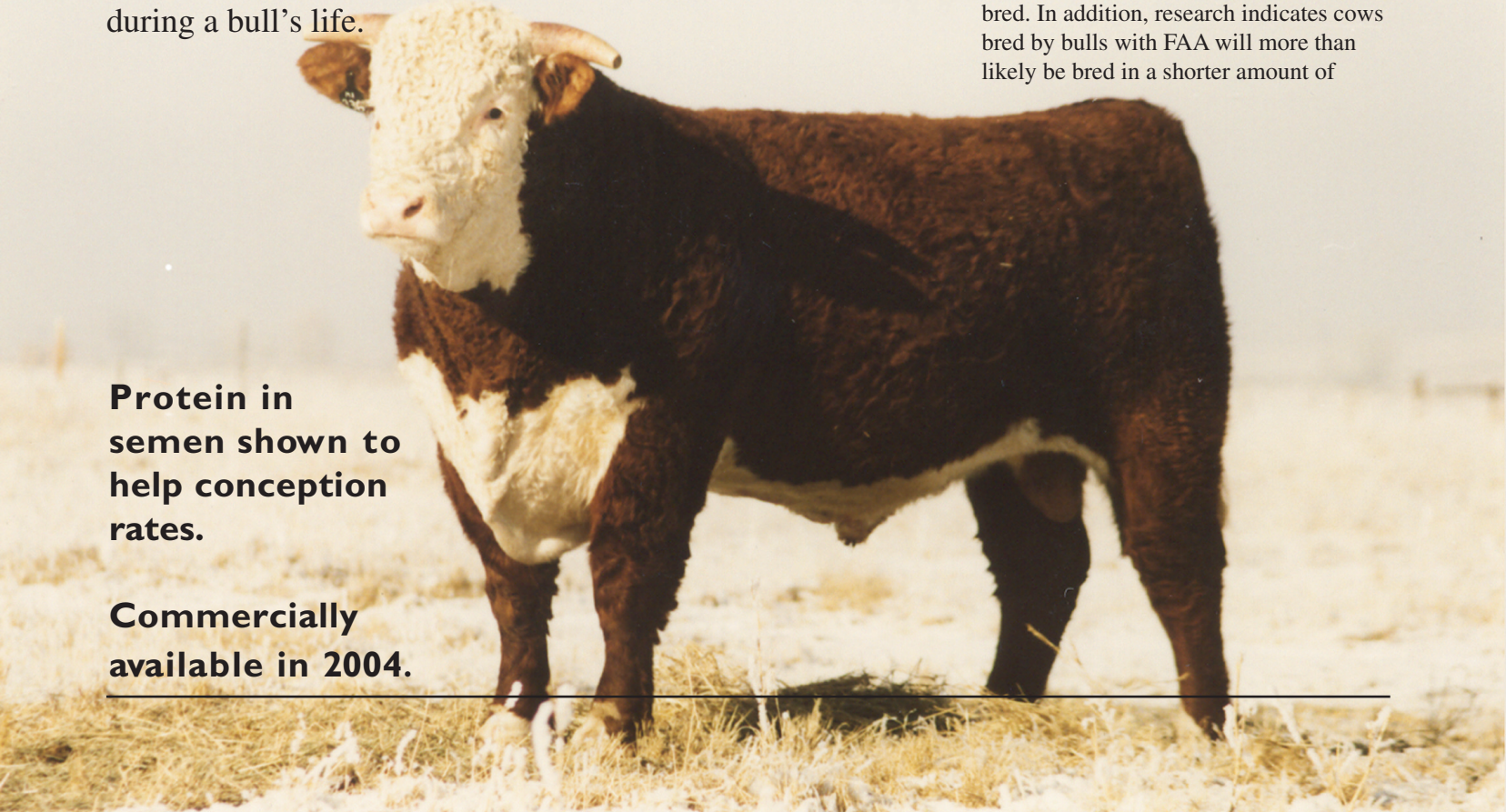
New test determines bull fertility

Fertility is the number one profit driver in the cow/calf business, as it has a direct impact on how many calves will be sold after weaning. Determining which bulls are the most fertile and lead to higher conception rates is now as simple as conducting a chute-side test that only needs to be performed once during a bull's life.

University of Arizona-Tucson researchers have been working on identifying which breeding bulls are pulling their weight in the bull battery. Dr. Roy Axe has found a unique protein on bovine sperm that serves as a marker to identify higher fertility bulls. The protein, known as Fertility Associated Antigen (FAA), is produced in the fluids from seminal vesicles, prostate and cowper's glands, at the time of ejaculation. The test is as simple as a home pregnancy test and shows whether or not a bull possesses FAA in just a few minutes.

Extensive field testing over the past ten years, on over 15,000 cows mated to 600 bulls, has shown a 17 percent difference in pregnancy rates between bulls that have FAA and bulls that do not have the protein. The test is completed by collecting a semen sample, diluting it in a salt-balanced solution, and applying it to a plastic cassette containing reagents that specifically detect for the presence of FAA.

Commercial and registered producers can use the test in combination with a breeding soundness exam and can have greater confidence their cows will get bred. In addition, research indicates cows bred by bulls with FAA will more than likely be bred in a shorter amount of



Protein in semen shown to help conception rates.

Commercially available in 2004.

time, creating a shorter calving season, and ultimately increasing fertility in the cowherd and raising the calving percentage. Also, with fewer open cows there will be fewer replacement heifers needed and lower cow costs.

Determining if FAA is part of a bull's semen allows a rancher to cull less fertile bulls and, possibly, utilize fewer bulls to breed the cows in multi-sire pastures. Also, cows bred to high fertility bulls tend to conceive quicker and calve earlier thus providing the opportunity to grow heavier calves.

Initial breeding trials were conducted over the past several years at the world-renowned King Ranch in south Texas. The Ranch was experiencing production problems and helped fund the research to identify those bulls not getting the job done. The King Ranch turned out bulls that all had a breeding soundness exam, during a 60-day breeding season at a ratio of one bull per 25 cows in large multi-sire pastures. Of the 434 bulls tested, 242 tested positive for FAA and 192 bulls tested negative for FAA.

The bulls that tested positive were turned out with a total of 5,317 cows, and 85 percent were later palpated safe in calf. The other 192 bulls negative for FAA were exposed to 3,881 cows, of which only 66 percent were palpated safe in calf. The bulls that were positive for FAA bred and settled 19 percent more cows.

In the spring of 2003, Axe and his associates tested 976 post-puberty bulls, of various breeds and ages, in 19 different herds, ranging from Arizona to Missouri. Of the 976 bulls, 722, or 74 percent, tested positive for FAA, and 254 were negative. Of the 19 herds, the percentage of bulls testing negative ranged from 50 percent to zero percent. The herd with zero percent had been using the FAA test the past seven years.

Bob and Judy Prosser, Bar T Bar Ranch, Winslow, AZ, have been using the test for a number of years. They run both commercial and purebred herds. Bob Prosser said the test has been a great tool and has helped him cut his bull needs by 30 percent in controlled breeding situations. He also said he thought many breeders in the West generally put too many bulls out with the cows. The tough part is some ranches require a large number of bulls to cover the country. Research shows cows generally come to the bull for breeding and, in big pastures, more bulls are needed to get the cows settled.

"If you need fewer bulls, you can buy better bulls and, also, the added fertility will give you more early calves," he said. "After using the test for a few years, and sharing the data with our bull customers, we now have customers that want all their bulls tested for FAA. We'll continue to use the test, and the new chute-side test will be a lot more convenient. We used to have to send it off and wait 21 days for the results. For a rancher that keeps his females and uses this test on bulls, he is eventually going to have a set of high fertility cows."

Drs. Cindy and Dave Daley also evaluated the test at University of California-Chico. They were doing some DNA carcass work for John Lacey and Dave Woods for use in the Harris Ranch Beef program. While gathering DNA data, they also tested the bulls for FAA. They tested 62 bulls and found 12 negative FAA bulls in the group. The positive bulls settled, on average, 34.7 cows, while the negative bulls only settled 20.3 cows per bull, almost a 30 percent difference in fertility.

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Dave Daley said the test looks very good and is an exciting breakthrough. He expects more will be learned as use of the test expands. "It is clear the bulls that test positive will clearly breed more cows than negative bulls," Daley said.

The test should be available for commercial use sometime in January. It will cost approximately $35 per test and will be marketed through ReproTec and Animal Health Express, which can be reached at 800/533-8115. — ***WLJ***