

BREEDING CAPACITY OF BISON BULLS

By Roy Lewis DVM

Although bison have roamed the plains of North America for centuries, the bison industry is in its infancy. Every year we learn more through research, observation and talking with others. When it comes to breeding, the rule of thumb has been to run one bull with every ten cows. We know now that is not the case but what is the breeding capacity of bison bulls? I will describe some first hand information we have discovered when evaluating semen and will discuss future work that will be done in free ranging herds. This should help us all decide as to how many bulls to run with our cow herds. When performing semen evaluations over the years it was evident that semen quality – both motility and morphology – was very similar to beef bulls. Their testicle size on average is a lot smaller than beef bulls but concentration of the semen as well as volume was always more than adequate. There are a percentage of duds or lower fertile bulls just as we see in the beef industry. Also injuries from being horned can scar up the preputial area such that extension of the penis cannot occur. These bulls need to be culled from the herd.

These conditions are much more serious if they occur on the dominant bull in the herd as he may prevent other less dominant bulls from breeding.

There is no question breeding capacity is much higher than the one to ten ratio already mentioned. Many breeders run in the area of one bull per 20-25 cows and conception rate and calving interval is not sacrificed. In some cases it is improved because of less fighting and competition amongst bulls. I personally run one group of 25-29 cows with one mature bull and have excellent conception and a short calving interval. If the one bull does develop a problem, conception can be affected as there is no back up. Also bison cows are very hard to see in heat and it is hard to observe bison bulls breeding so problems are not detected until later. Rather than taking a chance most breeders don't run single sire groups for that simple reason.

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With this information we have breeding capacity information in multi sire herds. In one herd 72 cows ran with 10 sires. This created lots of competition and breeding pressures. The most dominant bull in this group was an eight year old bull who managed to sire 24 calves. Five other five to eight year old bulls sired six to eight calves each and some four year old bulls sired one or two calves. Dominance plays a large roll in breeding in bison herds. Currently there is a genetic researcher in Texas who is going to sample a free ranging park herd. It will be interesting to see just how the results. My guess is that we will see the dominant bulls doing most of the breeding. As the subordinate bulls get older and stronger they exert more pressure and at five years plus when they are at their prime do more breeding.

In another breeding herd at Beaver Creek in a two bull breeding group a five year old bred 21 of 26 cows with a four year old breeding the remaining five cows. Capacity of these mature bulls is definitely in the range of 25 cows. It appears that a number of bulls reach peak performance at five years of age. Further research will demonstrate when older bull's capacity becomes reduced. I have tested several bulls over ten and semen still had a very high count.

As with beef bulls it is a mistake to put bulls even in age and stature into the breeding herd. They spend more time sparring to establish pecking order and less time breeding. With a large age difference there is no question as to dominance so fighting rarely starts. Terrain and size of the pastures will also determine bull to cow ratio. If the herd gets split up you need sufficient bull capacity to cover all cow groups. Bison naturally breed in the late summer when nutrition is at a maximum and semen quality is at the highest which maximizes conception rates.

All the evidence indicates that the capacity of our bulls can be increased beyond ten cows for every bull. This should result in savings as fewer bulls need to be wintered. Size your bulls so that they will spend time breeding and not fighting.

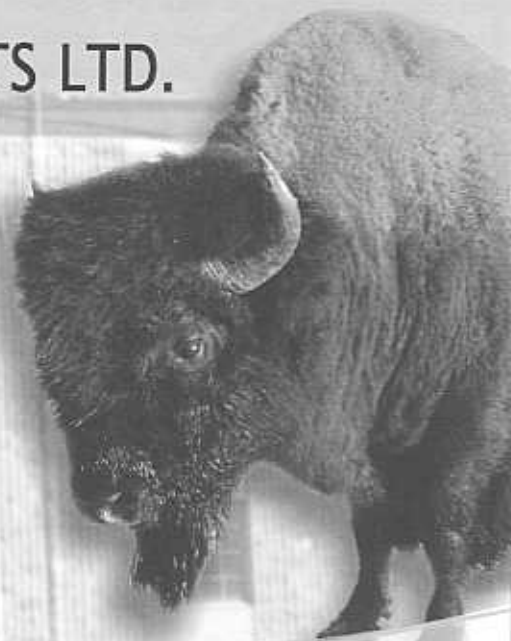
Only the top quality bulls should be used. Select the ones for growth, conformation and temperament and I am sure you will be happy with the results.

Finally if there is some doubt about the breeding ability of your bulls, have their semen evaluated. They can even be evaluated in the late fall or winter if that is when you handle them. Make sure your chute is adequate to restrain them. Normally collection of semen is no more difficult to do than a beef bull.

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