



Bringing a Stock Bull Onto the Farm

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Bringing a bull onto the farm

What should farmers look for when they go to buy or hire a bull? Michael McGowan, Professor with the Population Medicine Group at the Royal Veterinary College, offers his thoughts on what to look out for.

Despite the widespread use of AI in the dairy industry, bull mating is commonly used, especially in seasonally calving herds and increasingly in large herds because of the difficulties of heat detection. My concern is that although farmers will spend some time scrutinising the predicted production details of the offspring of individual bulls and will pay particular attention to their AI technique or the performance of the professional inseminator, much less time and attention is devoted to the selection and management of bulls they use for natural service. Farmers who use bulls frequently underestimate the impact a subfertile or infertile bull will have on their herd's reproductive performance e.g. a 200 cow seasonal calving herd which uses AI for six weeks and then uses a bull for the final six weeks of mating. Assuming this is a well-managed herd achieving a 90% submission rate and 50% conception rate during the AI period, then 140 of the cows should conceive to AI. However this leaves 60 cows to be successfully mated by the bull. Clearly in this situation, the use of a subfertile or infertile bull will result in significant economic loss due to culling of cows which failed to conceive and production losses associated with longer calving intervals.

What information should farmers ask for when they go to buy or rent a bull?

(i) Pedigree and performance details

For farmers purchasing bulls to sire replacement females for their herd, this information is critical and the same approach to selecting an AI sire should be used i.e. examine the estimated breeding values (PTA's) for a selection of production and survival (including fertility) traits for each bull. In the case of farmers purchasing beef bulls to produce dairy-beef calves, the critical information to ask for is either the bull's EBV for calving ease, or the bull's actual birth weight, to reduce the risk of selecting a bull that will sire calves with above average birth weight and hence increased risk of calving difficulties.

ii) Previous breeding performance

If the bull has been mated before, then information on the pregnancy rate achieved and, more importantly, the proportion of cows put to the bull that subsequently calved in the first nine weeks of the calving period, should be obtained. As a guideline in well managed herds using natural mating, 90% of cows should calve within nine weeks.

iii) Management history and disease status

Farmers should ask whether a bull has had a bout of clinical illness, lameness or significant weight loss in the past two to four months. A bull experiencing any one of these may have reduced semen quality, libido or mating ability. Also, it must be remembered that from the time a sperm begins to be formed until when it is released in an ejaculate takes approximately 10 weeks, thus a young bull suffering a bout of infectious pneumonia may require 10 weeks to recover normal reproductive function. Farmers should also be aware that young bulls that are fed high energy rations and are growing at greater than 1.2 kg/day have an increased risk of developing joint and hoof problems, which may not always be detected in their first year of mating but may result in the development of arthritis in subsequent years.

After the foot-and-mouth disease outbreak in 2001, farmers have become more aware of the importance of biosecurity. Unfortunately, the introduction of a new bull to a farm continues to be an important way in which disease enters a farm. Farmers should consult their veterinarian about what diseases they should check for in the herd of origin of the bull they wish to purchase or hire, and what diseases he should be tested for before they put him with their herd. A newly purchased or hired bull should be quarantined away from other livestock for at least one month before entry to the herd. Diseases that could be introduced to a herd via a new bull include TB, Johne's disease, IBR and BVD plus the venereal disease, vibriosis.

Farmers should give serious consideration to asking their veterinarian to examine a bull they are interested in purchasing or renting. Their veterinarian will carry out a systematic physical examination paying particular attention to the following:

- i) general health – a bull should be adequately grown for its age and have a body condition score of 2.5 to 3.0 i.e. it should be fit not fat. Studies have shown that over conditioned bulls have reduced semen quality and libido. The bull should be examined for freedom from abnormalities affecting the,
 - ?? skin and coat (e.g. external parasite problems)
 - ?? eyes (e.g. eye cancer, extensive scarring of the cornea due to IBK)
 - ?? jaws and tongue (e.g. 'lumpy jaw', 'woody tongue', abscesses in the upper neck region)

?? thorax (e.g. cough, nasal discharge)

?? abdomen (e.g. bloat)

ii) musculoskeletal system – too often the picture of the ideal bull farmers have in their mind is the bull in the show ring, rather than what they require, which is a ‘sexual athlete’. Bulls need to be capable of repeatedly mounting and serving heifers/cows on heat. During mating, the bull bears his full weight on his hind legs. Abnormalities affecting the hind legs in particular have a serious affect on mating ability. Some of the more common musculoskeletal problems include hoof abnormalities such as foot-rot, ‘corns,’ severe hoof overgrowth, ‘corkscrew’ or ‘scissor claw’, and limb abnormalities such as low sloping pasterns and excessively straight hind legs (the hock is straight and the skin overlying the point of the hock is obviously wrinkled). The bull should be checked for freedom from any swellings of the major limb joints, which may indicate developing arthritis. Also muscle wasting over the hip region may be indicative of arthritis affecting the hip joint. Farmers should also remember that bulls that have abnormal conformation will pass this onto their offspring. A bull should always be checked to ensure it has a normal gait when it walks and when it is encouraged to trot.

iii) external and internal sex organs – it is important that these organs are carefully examined to verify they are normally developed. The best method of assessing whether the testicles are adequately developed is measurement of scrotal circumference – this provides an accurate estimate of the bull’s daily sperm output. As a guide, regardless of age or breed, a scrotal circumference measurement of greater than or equal to 34 cm indicates that the testicles are adequately developed. The testicles should be similar in size and shape and be palpably firm and springy (a good indication of the health of the sperm producing tissue). The penis within the sheath should be checked for freedom from any swellings. The internal sex organs are checked by palpation per rectum.

However the ‘acid test’ of both a bulls musculoskeletal system and ‘sperm delivery apparatus’ is his ability to repeatedly mount and serve a cow or heifer. Wherever possible, an assessment of mating ability should take place before the bull is purchased. However, if this cannot be done, it is critical that the bull be closely observed by the farmer during the first three weeks of the mating period to ensure he is serving normally. Many abnormalities of the penis such as the ‘corkscrew’ or spiral deviation defect can only be detected by watching a bull attempting to serve.

Having completed a systematic physical examination and assessment of the bull’s mating ability, the farmer should request that a sample of the bull’s semen be microscopically examined. It has

been found that approximately 20% of bulls that are physically sound and have well developed testicles are producing semen which contains a high proportion of abnormal sperm; these bulls have reduced fertility.

Finally, farmers who are intending to rent a 'sweeper' bull should be aware of the risk of introducing a venereal infection into their herd. They should consult with their veterinarian as to the tests or treatments that could be used to minimise this risk.

The take home message is simple. When we go out to buy a car or tractor, we ask for details about its performance and then take it for a test ride. This same approach should be taken when buying or renting a bull.