

# Dehorning Beef Cattle Via Genetics Is Welfare Friendly

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In June, 2000 the Expert Committee on Farm Animal Welfare and Behaviour met in Guelph, Ontario to set research priorities and discuss emerging issues. This is an annual meeting for the Expert Committee and involves the gathering of scientists, industry representatives, government officials, Farm Animal Council representation, veterinarians and representatives from the humane society and the animal welfare movement.

From a scientist's perspective it is clear that we do not need additional scientific studies to resolve some animal welfare issues. On some issues the scientific information is already quite clear and it is highly unlikely that new or additional research would overturn previous finding. A case in point would be the issue of dehorning cattle. It appears that there is sufficient evidence (and no contrary evidence) to make a sound recommendation to the beef industry regarding dehorning of cattle. The question is whether the industry will embrace the recommendation.

Below is one of the recommendations discussed by the Expert Committee this past June and the background information that led to the recommendations. It is the committee's hope that the industry would embrace this statement.

## **Using Polled Beef Sires to Dehorn Beef Cattle:**

**Expert Recommendation: Promote the use of Polled Sires within the Beef Industry within Canada.**

### **Background:**

Horns on beef cattle pose several disadvantages to the cattle and to the beef industry. Horns are weapons that are used by cattle in competitive encounters at the feed bunk, hay bale, shade tree, water trough, over breeding privileges or dominance and against man in offensive or protective situations. Leaving horns on beef cattle makes all of these encounters potentially more dangerous, both to people and to other cattle.

When horns are left on feedlot cattle, the amount of bruised trim from the carcasses has been reported to be twice the amount measured from equivalent hornless groups (Meischke et al., 1974; Grandin, 1980). Bruised carcasses devalue the product. The Canadian Beef Quality Audit has estimated that bruising costs the industry \$10 million a year. The alternative is to remove the horns of feedlot cattle. However, cattle dehorned in the feedlot experience a setback in average daily gain that can be detected up to 106 days post dehorning (Goonewardene and Hand, 1991), evidence of the long term effects from the pain and suffering that the dehorning procedure inflicts upon cattle of this age.

Dehorning cattle prior to arrival at the feedlot, say at 3 months of age, does not circumvent the painful experience (Sylvester et al., 1998). Dehorning cattle shortly after birth using caustic paste or hot iron has also been proven to be painful (Morisse et al., 1995). The use of local anesthetics administered prior to dehorning in calves has been shown to reduce the behaviours associated with the immediate pain response (Morisse et al., 1995; Sylvester et al., 1998), however, it is not common practice within the beef industry to administer analgesics prior to dehorning. Even when local anaesthetics are administered prior to dehorning their effectiveness in blocking pain is limited to a few hours post dehorning. Cortisol levels rise after the effect of the local anaesthetic wears off (Petrie et al., 1996) evidence that post operative pain extends beyond the reach of local anesthetics alone. It is unlikely that the beef industry would embrace the use of long acting non-steroidal anti-inflammatory drugs (such as ketoprofen) in a combination with local anesthetics, which are needed to control post-operative and immediate pain responses (McMeekan et al., 1998; 1999), when the common practice already is not to use local anaesthetics prior to dehorning.

The logical alternative to dehorning and one that is welfare and industry friendly is to use polled bulls to sire calves that do not need dehorning. Horns are inherited as an autosomal recessive gene, polledness being dominant (Long and Gregory, 1978). In one breeding season a producer can take a herd of horned cows and breed them to a polled bull (homozygous for the polled condition) and produce an entire calf crop of polled calves. Historically horned bulls may have been superior to their polled counterparts, but today there is no scientific evidence that polled bulls are inferior. Polled Hereford and Charolais bulls at test stations have been found to be no different or superior to their horned counterparts in average daily gain, adjusted yearly weight, adjusted scrotal circumference and backfat thickness (Stookey and Goonewardene, 1996). Polled German Simmental cattle were no different from their horned counterparts in growth, carcass yield, carcass composition, health and reproductive performance (Lange, 1989). Horned and polled crossbred lines from various beef breeds were no different in live weight, fertility and mortality rates (Frisch et al., 1980). Recent comparisons of three beef synthetic lines found no differences between horned and polled cattle in weight at birth, weaning weight, pre- and post-weaning average daily gain, carcass weight and carcass characteristics (Goonewardene et al., 1999a) nor were there differences in reproductive traits such as pregnancy rates, dystocia scores, cow weights and cow condition scores (Goonewardene et al., 1999b). To date, there is no scientific evidence that polled animals are inferior. Dehorning beef cattle via genetics using polled sires is the logical and welfare appropriate practice that the beef industry should embrace and promote.

Since the Expert Committee met in June, additional information has been obtained. It already appears that the trend towards using polled beef bulls may be increasing, regardless of the welfare issues, due to the increase in popularity of some of the polled breeds sought for their calving ease, color or carcass traits. Exotic beef breeds in North America that were bred up from foundation stock are reporting a gradual increase towards the numbers of polled animals. For example, in 1989 the number of polled Limousins registered by the Canadian Limousin Association represented only 18% of the new registrations. In 1999 the number of Limousins registered as polled had increased to 49%. The same trend has occurred in the Simmental breed with 14% of the registrations in 1989 reported as polled, while 32% of the animals registered in 1999 were reported to be naturally polled. The Charolais breed in Canada is moving, perhaps the fastest of any exotic breeds, towards the polled animal. The frequency of polled animals registered between 1988-1990 was already 38% and by 1998-2000 polled Charolais animals represented 65.5% of the association's registrations. Fortunately, the presence or absence of horns is not thought to be representative of superior or inferior animals for many of the exotic beef breeds, in the sense that breeders or buyers would avoid buying a polled bull. Instead

selection for polled animals in exotic breeds seems to be the current trend. It is interesting to note that some breeders in North America have begun exporting semen and animals with the polled condition back to the country where the breed originated and where polled animals are not readily available.

Horned Hereford breeders seem to be the exception to the trend and in some ways have used the horns as indicators or "advertisements" of their tradition and selection for specific traits. Many horned Hereford breeders would resist switching to polled bulls simply to address the issue of dehorning, because at the same time they would have to give up tradition, possible clientele and years of selection following specific lines. It is an extremely sensitive debate for many horned Hereford breeders to consider, but the pain and welfare issues concerning the practice of dehorning will not subside as long as beef calves are being sired by horned bulls and no analgesics are being used to dehorn them.

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