

The Welfare of Cattle: Review of Recent Literature

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Introduction

The cattle industry in Canada comprises three main enterprises: dairy, veal and beef production. With regard to welfare concerns, much of the available research literature concerns the dairy industry. This should not be taken as evidence that the welfare of dairy cattle is generally poorer than the welfare of veal or beef animals. Each sector of the industry has its specific problem areas. Some issues affect all sectors to varying degrees. Several review articles have described the main issues of concern. Although these have also been heavily biased toward the needs of the dairy industry, it is notable that many of the issues raised will also apply to beef and or veal production to some extent.

In carrying out this review it became apparent that some researchers and writers closely associated with cattle production see discussion of, and action on, animal welfare issues as detrimental to the needs of the industry. Such defensive posturing is, I believe, a problem in itself. A substantial number of the articles procured in a literature search prior to the writing of this chapter appeared to embody this view. That is to say they treated animal rights organisations, and even “ignorant” members of the consuming public, as enemies of the industry, or difficulties to be circumvented. Some were specifically devoted to “proving” that a certain industry practice is not harmful to welfare (typically by pointing to a lack of scientific evidence that it *is* a concern). For the most part, articles in this vein have not been helpful in identifying the real welfare problems and few have been cited in this review. This criticism is not aimed particularly at the Canadian industry, rather at the multinational group of researchers and commentators whose publications were located during our literature search. For example, there were several articles arguing that there is little evidence that the use of bovine somatotropin (not presently licensed for use in Canada) presents a threat to the welfare of dairy cows. These do not outweigh a couple of recent papers which present such evidence and conclude that a problem does exist. What they do suggest is that there is a degree of complacency over currently accepted practices and a resistance to any discussion of change. Concern for the protection of animal welfare should not be viewed as incompatible with efficient management and high productivity. An important goal for researchers should be to illustrate where improvements in welfare can lead to improved production. Rushen and de Passillé (1998) take this approach and consider that animal welfare research can contribute to improved housing and management systems and a better public image of the industry. They identify some areas where welfare and production interests are likely to coincide. These include handling practices to reduce animals’ fear of humans and improvements in veal calf housing and calf management. Chenoweth (1998) notes that public opinion is likely to be central to the future fortunes of the dairy and veal industries. Research demonstrating where and how good welfare and good animal production go together is very much to the industry’s benefit.

Welfare issues listed by Arave and Albright (1998) included lack of individual attention, transportation, painful procedures, prolonged stanchion tying, pasturing, separation of cow and

calf, housing and susceptibility to disease and metabolic disorders. Albright and Arave also noted that animal rights proponents do have legitimate concerns which the industry needs to address. These include the early separation of cow and calf, cows being almost continually pregnant, the reduced life span of cows compared with their natural longevity, use of drugs, new technology, environmental issues and the decline of family farming enterprises. Writing on the dairy industry in Ireland, Collins (1995) cited housing, milking methods, nutrition and reproduction as the main management areas with particular consequences for animal welfare. Webster (1995) argues that many problems for dairy cow welfare are attributable to systems of feeding, milking and management that are unsuited to the biological nature of the animal. This observation could be made with equal validity in respect of beef and veal production methods also. Macpherson (1998) reports that the Farm Animal Welfare Council, in the UK., has identified lameness as one of the most urgent welfare problems facing the British dairy industry.

Academically, welfare has been defined in various ways by different authorities, with different implications as to how welfare should be assessed or measured. Poor animal welfare has been considered a state in which animals become more susceptible to negative pathologies (Moberg, 1993), a condition in which they experience difficulty coping with their environment (Broom, 1993) and a state in which they are unable to act according to the biological nature of their species (Rollin, 1995). The most simple and intuitive view of animal welfare, but perhaps the most challenging to use practically, is that welfare is to do with what animals *feel* (Duncan, 1993). In practice, a variety of forms of measurement have become important in assessing welfare including health (Alban and Agger, 1997), physiology (Jacobson and Cook, 1998), immunology (Amadori et al., 1997) and behaviour (Wiepkema, 1983). While the traditional approach has been to try to identify conditions in which welfare is likely to be poor and act to improve them, welfare scientists are increasingly becoming interested in indicators of positive welfare. In the future it should be increasingly possible to develop systems which promote good welfare, rather than simply tinkering with existing methods to ameliorate the worst signs of poor welfare. In cattle, indicators of comfort (Haley et al., 2000) and frequency of play behaviour (Jensen et al., 1998) are probably related to conditions in which welfare is good, as distinct from not bad.

Transport

The transportation of cattle subjects them to a number of manipulations that may threaten their welfare. These include loading and unloading, mixing, close and close confinement within a moving vehicle. Tarrant (1990) reviews studies of the effects of the various components of the transport chain in an effort to identify which have the most serious impact on the animals.

The most stressful part of the transport procedure appears to be the actual confinement on a moving vehicle. Confinement on a stationary vehicle is less stressful. Loading, unloading and penning in an unfamiliar environment are less stressful components. Overcrowding presents the risk that animals that go down during transport may become trapped on the floor. Low stocking density renders animals more vulnerable to falling as a result of careless driving and sudden stops. Other important influences on cattle welfare during transport are the quality of stockmanship, driving care and road conditions.

Knowles (1999) reviews scientific literature on the road transport of cattle. It is particularly concerned with conditions within the European Union, but the general conclusions are also relevant to the Canadian situation. Unlike pigs and sheep, cattle prefer to remain standing while being transported. Because of this they are more susceptible to the motion of the vehicle and

tire more quickly than other species. Toward the end of long journeys (16-18 hours) they do begin to lie down, suggesting that they find the effort of standing for this long in a moving vehicle quite demanding. Several studies have looked at the physiological effects of different journey times and rest and feeding intervals. Warris et al., (1995) suggest that for 12-18 month old steers journey times of up to 15 hours may be acceptable under good conditions. However, more research is required to determine the maximum acceptable journey time between rest periods. Young calves are particularly vulnerable during transport and mortality can be high. Adult cattle are more resilient. Knowles et al (1999) showed that 1 to 2 week old calves cannot maintain normal body temperature during transport in cool weather conditions (average 2 deg C in the vehicle). Following a 19 hour transport with a 1 hour break, body temperature remained below normal for over 8 hours. When food and water deprivation is combined with transportation, cattle lose weight rapidly. Weight loss is primarily due to loss of gut contents and dehydration. Some studies (e.g. Schaefer et al., 1997) have shown that prophylactic use of oral electrolytes can help reduce transport stress. This helps to lessen live weight and carcass weight losses during transport and also reduce loss of meat quality. Increases in the distance that cows are transported to a slaughter facility are associated with the number and severity of bruises. Work by Jarvis et al., 1996 suggests that direct marketing of cattle from farm to slaughter may be preferable for both welfare and meat quality.

Distress during transport can be avoided if animals have sufficient rest, good handling, good driving, and if properly designed facilities and equipment are used. Agriculture Canada's Recommended Codes of Practice for the Care and Handling of beef, dairy and veal animals give guidelines intended to protect animals during transport. Present federal regulations governing maximum permitted journey times may be inadequate to safeguard welfare.

Slaughter

Welfare of cattle at the point of slaughter will be strongly affected by the condition in which they enter the killing facility. In the days immediately preceding slaughter they will have experienced psychological and physiological stresses due to some combination of handling, transport, food and water deprivation and mixing with unfamiliar animals. In order to provide conditions in which animals can experience a humane death, it is necessary to consider the welfare impact of the whole chain of events leading up to death, not just the technical means of ending the animal's life.

The need for a rest period following transport and prior to slaughter has been discussed by Van Logtestijn and Romme (1981). Some would argue that such a lairage interval after transport is necessary. Others would prefer that animals be killed immediately following arrival at the slaughter plant. This is often not possible due to the time of arrival or delays in processing. In theory a rest period can help to overcome problems with meat quality which occur when very stressed or overtired animals are slaughtered. In practice animals may not recover from the stresses of transportation during lairage. Indeed they may become more agitated and aggressive, especially if mixed with unfamiliar animals.

Handling during slaughter operations is also important. Poorly designed facilities and unsympathetic treatment by plant employees during pre-slaughter handling can contribute to unnecessary suffering during the procedure. Of great concern is the excessive use of electric prods and poorly designed or improperly operated restraining equipment. Grandin (1998)

suggested that in better-run facilities fewer cattle vocalize during handling. She advocated counts of vocalization as a very simple indicator of animal welfare during this process. This measure forms part of the welfare auditing process for slaughter plants currently used by McDonalds corporation.

The killing of cattle on a commercial scale is normally by exsanguination (bleeding) of an unconscious animal, which has been stunned either electrically, or by means of a penetrating captive bolt mechanism. The most crucial requirements for animal welfare during killing are that the stunning be immediately effective at the first attempt and that the method of bleeding causes death from hypovolemia before the animal can regain consciousness. Some work by Anil et al. (1995a, b) shows that severing both carotid arteries may not always be effective in causing swift brain death. They suggest sticking in the chest to sever the brachicephalic trunk may be more effective.

Animals that are unfit to endure transport to a slaughter plant should be humanely killed as soon as possible to avoid unnecessary suffering. It is important that accurate prognoses be obtained for sick, disabled and downer animals in order to arrive at a swift, economically sensible and humane decision as to their disposal (Stark, 1995). Ideally, farm operators should adopt, in consultation with their veterinarian, protocols to follow for sick or injured animals which would include a decision to euthanise as soon as suffering becomes severe, or it is concluded that there is little prospect for recovery. Methods for on-farm euthanasia, and their advantages and disadvantages are discussed by Gardner (1999).

Lameness

Lameness is a major concern, particularly in the dairy industry, as a health problem which causes significant economic losses as well as acute or chronic pain to the sufferers. Specific conditions causing lameness include sole abscesses and ulceration, white line disease, laminitis, foot rot and interdigital hyperplasia (Shearer, 1997). The etiology of lameness is complicated (Webster, 1996). Many authorities agree however that the incidence can be considerably reduced by attention to facility design, including lying and walking surfaces, hygiene and regular hoof care (Scott, 1996; Faull et al., 1996; Shearer, 1997).

Painful Procedures

Cattle are subject to a range of invasive and painful procedures which may have both short term and long term consequences. Examples affecting cattle include castration, dehorning, branding and tail-docking. It is important to study the effect of these procedures in order to discover ways to minimise their impact on welfare. Where more than one method is available to achieve a desired end, for example hot-iron or freeze branding, it appropriate to ask which is less painful. Hot-iron branding appears to cause more tissue damage (Schwartzkopf-Genswein and Stookey, 1997) and more struggling during restraint (Schwartzkopf-Genswein et al., 1998) than freeze branding. It is also sensible to ask whether alternatives are available which can accomplish the purpose for which the procedure is normally carried out. For example subdermal electronic identification and ear-tagging (both of which involve some discomfort) can achieve some of the same aims as branding, but perhaps not all, depending on the requirements of the individual owner. In addition to causing pain, branding does entail some interruption in growth and reduces the value of hides. Although tail-docking of dairy cows is typically justified by producers

as being advantageous for the control of mastitis, leptospirosis and fly numbers (Barnett et al., 1999), it is chiefly performed for the convenience of stock persons during milking. Removal of the distal portion of the spinal cord, whether by knife, shears or rubber ring causes acute and possibly chronic pain. Research has not yet shown whether tail-docking in cattle leads to traumatic neuroma formation (associated with chronic pain) as it does in human amputees, the beak stumps of debeaked poultry or the tail stumps of docked pigs. But it seems likely. Ideally producers should decide on both welfare and economic grounds whether their objectives of any of these procedures can be fulfilled with less traumatic methods.

Dehorning is practiced by all sectors of the cattle industry. Other than for aesthetic reasons (for some farmers) horns on cattle are generally undesirable since they are capable of inflicting painful and economically significant injuries on other animals and present an additional risk to human handlers. Several methods of dehorning are available including heat cauterization (Graf and Senn, 1999) and amputation by scoop, guillotine, shears, saw or embryotomy wire (Sylvester et al., 1998). All these methods cause pain and distress and ideally should be performed under local anesthetic. Cryosurgical (freezing) techniques may be less painful but are more time-consuming and not always effective (Bengtsson et al., 1996). A non-painful alternative is to dehorn through genetics by using polled bulls. It used to be held that horned cattle were in some ways superior to their polled counterparts. In beef cattle at least this is no longer true. Stookey and Goonewardene (1996) compared production traits of large numbers of horned and polled beef bulls and found no disadvantage for polled bulls. Beef farmers could choose to eliminate the pain and setback in growth due to dehorning simply by making more use of polled animals. Behaviourally, the responses to handling and restraint are similar in horned and polled cattle of beef and dairy types (Goonewardene et al, 1999). At present there are relatively few polled Holstein/Friesian sires available. Polledness combined with good productivity would be a desirable combination in dairy cattle. It is hoped that this will be one objective of future dairy breeding programmes.

Castration of male beef calves is likely to remain common, since it decreases aggressiveness and sexual behaviour and the incidence of dark-cutting meat (Fisher et al., 1996). Again several methods are available all of which are associated with acute pain. Rubber ring castration in particular also causes chronic pain which may persist for weeks (Moloney et al, 1995). On humane grounds, as well as to maintain health and growth, all castration ought to be performed with an appropriate regime of local anaesthesia and long-lasting analgesics. However this would be unacceptably expensive to the industry. It used to be a common belief that such procedures are best performed on very young animals because they do not experience pain to the same degree as older ones. Recent evidence suggests that this view is probably wrong. There may still be reason to advocate doing these procedures early, as younger animals do recover quicker, with fewer complications.

Reproductive Technology

Most invasive techniques intended to enhance reproduction or genetic traits in cattle carry some consequences for the welfare of the animals involved. Electroejaculation is often used to collect of semen for breeding soundness evaluation or artificial insemination. Despite its painful and distressing nature, this is routinely practised on bulls without sedation or anaesthesia (Stafford, 1995). Epidural anaesthesia may be a useful method to reduce the pain associated with electroejaculation (Mosure et al., 1998). In vitro production of embryos is associated with

increased birth weight and more calving difficulties (van der Lende et al., 1999). Artificial insemination and multiple ovulation embryo transfer also involve invasive techniques which could cause distress and discomfort. Welfare consequences of the production of transgenic livestock are discussed by van Reenan and Blokhuis (1997). In the light of recent progress in cloning livestock, it has become clear that there are ethical dimensions to decisions concerning the use of biotechnology in animal production (de Boer et al., 1995). The full welfare consequences of reproductive technologies such as transgenics and cloning have yet to be evaluated and as yet are not major influences on welfare in today's production systems. This is an important area in which we should await further developments with interest.

Bovine Somatotropin (BST)

It has been noted several times in the literature that there is little evidence that the use of BST presents a hazard to dairy cow welfare (e.g. Ceelen, 1995; Bijman, 1996; IFST, 1998;). However in 1999, Health Canada decided not to approve BST for sale in Canada, mainly on the grounds that its use presented an unacceptable risk to the safety of cattle (not humans). Also in 1999 the European Union Scientific Committee on Animal Health and Animal Welfare recommended on welfare grounds that BST should not be used to increase milk yields in cattle. The committee described as misleading certain studies purporting to show no connection between BST and mastitis and lameness because the numbers of animals studied were too small. BST extends the period of metabolic stress accompanying lactation (Kronfield, 1994). According to the American Food and Drug Administration, the use of BST increases the incidence of mastitis. BST injections also cause a considerable number of moderate to severe lesions at the injection site (Pell et al., 1992). Various reproductive and health problems are associated with the use of BST including lower pregnancy rates, increased multiple births, bloat, indigestion and diarrhoea. More work is needed to show the full impact of BST on cow welfare, but there is increasing evidence that there are, in fact, some welfare problems associated with its use. From this perspective it looks as though the decision not to license BST in Canada is the correct one.

The Physical Environment

Researchers have raised a number of concerns over the physical environment and basic maintenance of cattle in production. Among the areas studied were housing design and space allowances, resting and walking surfaces, environmental complexity (or lack thereof) and feeding regimes.

Housing

Space limitations can affect the welfare of cattle. In a review of veal calf housing, Le Neindre (1993) notes that stalls that greatly restrict freedom of movement to the extent that lying down is difficult lower growth rates and resistance to disease. Dairy calves in small individual stalls showed reduced lymphocyte numbers compared with their counterparts in larger stalls (Ferrante et al., 1998). Large individual crates with open partitions could be an acceptable alternative to group housing. However improving existing group housing systems to incorporate better flooring and automated feeding systems would be better still. Finishing beef heifers housed at a density

of 1.5 m² per animal showed a substantial decrease in daily weight gain compared with animals stocked at 3 m² per animal (Fisher et al., 1997). When cattle are maintained outside in summer, studies show that heat stress can be significantly reduced if shade is provided (Spain and Spiers, 1995; Valtorta et al., 1997). This is certainly a benefit to their welfare. Natural shade is often available in pasture environments. But where this is not the case, the provision of supplemental shade should be considered. Vandenheede et al. (1995) showed that the use of shelter by grazing bulls increased as daytime temperatures rose. More use of supplemental shade should also be considered in beef feedlots.

Feeding

Welfare appears to be compromised when cattle are fed restricted diets or diets deficient in roughage. When the feeding regime is such that the animal can consume its ration within a very short time, its feeding motivation is not fully satisfied, even though its nutritional needs may be. In these circumstances cattle become frustrated and may exhibit stereotypic behaviour and non-nutritive oral activities directed at fittings or other animals. Le Neindre (1993) concluded that milk-only diets should be avoided, and that care must be taken to provide veal calves with sufficient roughage as a way to enrich their environment. Morisse et al. (1999) found that milk replacer-fed calves given supplements of pelleted straw and cereals showed reductions in non-nutritive oral activity and in the number of hair balls ingested. Production systems that provide feed only during a short period of the day are associated with stereotypic and other undesirable behaviours. In such systems environmental enrichment techniques may be appropriate (Wilson et al., 1999). Redbo et al (1996) found that dairy cows performed significantly more oral stereotypic behaviour when feed was restricted compared with cows given an ad libitum diet. Oral stereotypies were also more frequent in heifers fed a low roughage diet (Redbo and Nordblad, 1997).

The Social Environment

Cattle are highly social animals. Therefore it is inevitable that the properties of their social environment will have some effect on their state of welfare. A key decision in raising young cattle, particularly dairy and veal animals is whether to house them singly or in groups. Depriving veal calves of social contact makes them more reactive to startling stimuli and more prone to develop self-directed oral behaviours (Veissier et al., 1997). Individually reared calves are more fearful of novel situations than group housed animals (Jensen et al., 1997). In general it should not be acceptable to allow farm animals to exist in a state where they are excessively fearful of their caregivers and changes in their environment. Fearfulness affects welfare by increasing stress responses and the risk of injury (Boissy and Bouissou, 1995). Cattle do form social relationships of a sort with humans. Cattle apparently learn to recognise individual humans and modify their responses to them based on the pleasantness or aversiveness of previous encounters with a particular individual (de Passillé et al., 1996). However they do not always generalize a learned aversion to a person to locations other than where the aversive incidents took place (Rushen et al., 1998). Obviously both humans and cattle have much to gain when stock persons strive for positive interactions with their charges.

Buller Steer Syndrome

Buller steer syndrome describes a condition in which a steer (the "buller") is mounted and ridden repeatedly by other steers in a pen to the point of exhaustion, injury or death (Blackshaw et al., 1997). The condition most commonly occurs in commercial feedlots, when more than 200-250 animals are kept in each pen. Bulling is also associated with stressful events such as mixing and handling, and possible changes in the weather. Some hormonal implants, particularly estrogens may increase bulling. To reduce bulling, Blackshaw et al. recommend keeping steers in groups of fewer than 250 animals. Keeping animals in groups of no more than 100 would probably eliminate the problem almost completely. The etiology and development of buller steer syndrome is still mysterious. However, stressors such as variable feedbunk management, improper implantation and the presence of disease organisms may be involved. Environmental enrichment may be beneficial, but more research is required in this area, as may be devices such as buller rails (metal extensions of the fence under which cattle can hide). Bulling is clearly a serious welfare issue for the animal being ridden. An unknown quantity, which these authors do not address, is the extent to which buller steer syndrome may be symptomatic of chronic social stress among all animals in a pen.

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Abstract or Summary of Interesting Publications

Arave,C.W. and Albright,J.L. 1998. Animal welfare issues: dairy. Animal Welfare Information Centre Newsletter 9: 3-10.

This review article examines current practices in the dairy industry from an animal welfare perspective. It identifies many of the welfare issues that the industry needs to address, including concerns expressed by animal rights activists. Issues raised include:

Reduction in the quality and quantity of individual attention.

Transportation of injured and sick animals to slaughter.

Dehorning, castration and identification.

Prolonged stanchion tying of cows, especially without exercise.

Tail docking.

Pasturing.

Separation of cow and calf.

Treatment of bull calves, including transportation.

Housing.

Failure to use welfare-related research knowledge.

Production-related susceptibility to disease and metabolic disorders.

Of particular concern to animal rights proponents were:

Early separation of cow and calf.

Cows being almost continually pregnant.

Reduced lifespan of cows compared with their natural longevity.
Use of drugs to maintain health and antibiotics in feeds.
Family farms being forced out of business.
Harmful new or prospective technology.
Environmental issues.

Grandin, T. 1998. The feasibility of using vocalization scoring as an indicator of poor welfare during cattle slaughter. *Appl. Anim. Behav. Sci.* 56:121-128.

The author suggests that simple counts of the number of cattle that vocalize during slaughter could provide a practical indicator of their welfare for use in commercial conditions. Observations were made in 6 U.S. slaughter plants, with line speeds varying between 50 and 100 animals per hour. At each plant 100-250 cattle were observed from the handler's catwalk as they were moved through forcing pen, leadup race and into the stunning box. Each animal was classified as either a vocalizer or a nonvocalizer. There was considerable variation between plants in the proportion of cattle that vocalized, ranging from 1.1% to 32%. In the 4 plants with the lowest proportion of vocalizers, employees moved cattle quietly in small groups and only used electric prods on animals that refused to move. At the two plants with the highest proportion of vocalizers, 90% and 76% respectively of the cattle vocalized. At these last two plants, the proportions of vocalizers were reduced from 32% to 13% and from 12% to 3% when employees were instructed to tap an animal on the rear before resorting to electric prodding.

Nearly all (98.2%) of the cattle that vocalized did so immediately after an observed aversive event, including slipping, being pressed too tightly in a restraining device or missed captive bolt stuns. Electric prod use was associated with 64% of the vocalizations. By reducing the incidence of unnecessary electric prod use it was possible to substantially reduce vocalizations without slowing down plant operations.

Schwartzkopf-Genswein, K.S. and Stookey, J.M. 1997. The use of infrared thermography to assess inflammation associated with hot-iron and freeze branding in cattle. *Canadian Journal of Animal Science* 77:577-583.

Studies have shown that both hot-iron and freeze branding cause pain in the first 3 hours after branding. The objective of this study was to determine the extent and duration of inflammation following either type of branding, and possibly determine which causes least discomfort. Thirty yearling crossbred beef heifers were assigned either to hot-iron (H) or freeze branding (F) treatment groups (15 per treatment). The day before branding two patches on the right thigh of each animal were shaved. One patch was to be the brand site and the other was a reference or control area. The animals entered the facility for branding in a random order and were given their preassigned treatments. Hot-iron branding was performed using an electric branding iron in the shape of the University's registered brand, heated for 10 min and applied to the skin for 3 to 5 seconds. Freeze branding was done with a single copper iron of the same size and shape as for hot-iron branding, immersed and maintained in liquid nitrogen before and between treatments. The site for freeze branding was saturated with methyl hydrate and the iron immediately applied and held for 25 seconds. Repeated images of the brand sites and reference patches were made using an infrared thermographic camera. This records surface skin temperatures as a variable colour image to an accuracy within 0.1°C. Thermographic pictures were taken 5 min before branding, immediately after branding, 5 min after branding and at increasing intervals thereafter up to 168 hours (1 week) after branding.

Both H and F brand sites were warmer than their own reference patches between 2 and 168 hours after branding. Freeze brand sites were warmer 2 and 8 hours after branding and H sites were warmer 144 hours after branding. The thermographic studies showed that both methods of branding caused tissue damage. Hot iron brand sites were warmer than F sites at 168 hours after branding. The longer duration of this inflammatory response suggests that hot-iron branding causes more tissue damage and perhaps greater discomfort than freeze branding.

Stark, D.A. 1995. A review of the veterinarian's role in the handling of down/disabled cattle. *The Bovine Practitioner* 29:125-127.

The author notes that a down cow has to be one of the most depressing sights facing a producer and veterinarian. The public is concerned that these animals are cared for properly and that the welfare of the animal is not forsaken for economic gain. The veterinarian has important roles to play in preventing, treating and disposing of such animals. . The American Association of Bovine Practitioners states that veterinarians have three key responsibilities in the care of downer cattle. They are:

1) To help prevent conditions leading to ambulatory problems.

Cattle go down for many reasons including septicemia, toxemia, fractures or other injuries, nutritional and metabolic disturbances and others. Recommendations that promote good herd health will help to prevent conditions which can lead to ambulatory problems. Good nutrition, footing and hoof care and early treatment of hypocalcemia are important.

2) To provide an early and accurate prognosis.

The prospects of recovery for a down animal can be difficult to predict, even after thorough veterinary examination and diagnosis of any disease condition. One study showed that half of all downer cows rise within four days of going down. The prognosis was poor after seven days. An important factor is the willingness of the owner to provide good nursing care. If such care is not provided, the chances of success are poor.

3) To recommend appropriate disposition alternatives.

Producers indicate that they would value veterinary input into decisions about whether to destroy or salvage a downer animal. But the veterinarian is often not present when the decision must be made. Discussing disposal options during routine visits could help to equip owners with useful criteria to use when necessary. An animal should only be sent for salvage when:

the animal is known to be free of conditions and animal health products that would make it unfit for human consumption.

the animal can be humanely loaded and transported.

the animal can be stunned prior to unloading.

Otherwise the animal should be humanely euthanized.