

CATTLE CARE STANDARDS: RECOMMENDATIONS FOR MEETING CALIFORNIA LEGAL REQUIREMENTS



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Preface

The purpose of this publication is to provide the expert opinions of the authors regarding minimum standards of care for cattle with respect to California animal cruelty statutes. The standards recommended in this publication are intended to educate animal control officers when interpreting and applying animal cruelty statutes. This publication should not be considered official California regulatory agency guidance. Neither the authors nor the University of California has the authority to adopt regulations of general application.

The United States has a long history of protecting animals against acts of cruelty. Early laws were established in 1641 by the Puritans of the Massachusetts Bay Colony. Included in the early legislation were the following two Liberties encompassing the care and treatment of cattle:

92. No man shall exercise any Tirranny or Crueltie towards any brute Creature which are usuallie kept for man's use.

93. If any man shall have occasion to leade or drive Cattel from place to place that is far of, so that they be weary, or hungry, or fall sick, or lambe, It shall be lawful to rest or refresh them, for a competent time, in any open place that is not Corne, meadow, or inclosed for some peculiar use.

Both federal and state animal cruelty statutes have continued to develop throughout the last centuries to protect the welfare, health and treatment of cattle in modern societies. Within the last two decades, there have been media reports of cattle cruelty and neglect which have elevated the public's awareness and concern about the welfare of cattle. These types of incidents are often reported to California law enforcement for further investigation and resolution.

Investigating neglect, cruelty or abuse cases involving cattle can be a challenging task for California law enforcement officers. Many of these officers have limited knowledge of the cattle care necessary in the enforcement of applicable federal and California cruelty statutes. The statutes themselves also often provide only general guidance. For example, a California animal cruelty statute provides that an individual is guilty of a crime if one "fails to provide the animal with proper food, drink, or shelter or protection from the weather ..." [California Penal Code section 597(b)]. Thus, there is a need to provide law enforcement officers with a straight-forward, easy-to-use field guide to assist them with recommended minimum standards of cattle care relevant to animal cruelty statutes in California. The recommended minimum standards for cattle are described in this

publication for Water, Feed, Shelter, Health Care and Transportation. Appendix 1 consists of a compilation of selected statutes related to cattle care for California.

This publication was developed from the expert opinion of its authors based on their extensive experience and available scientific information on cattle care, health and welfare. The intent of the publication is to serve as a resource for the cattle industry and law enforcement officials addressing neglect and cruelty of cattle in California by providing recommended minimum standards of care pertinent to contemporary animal cruelty statutes. The purpose is to avoid animal cruelty from occurring in the first place, and to identify and correct cases when it does occur. It is not intended to serve as legal authority for prosecutorial activities. During the investigation of any specific animal cruelty complaint, the authors advise and encourage the use of large-animal veterinarians' services to assist in the evaluation and resolution of the complaint, along with providing veterinary medical needs and care of any animal involved in the complaint.

This publication is one in a series of publications written as resources for California law enforcement officers and the animal husbandry industry and is available to anyone through the Center for Food Animal Health, School of Veterinary Medicine, University of California, Davis. To obtain a copy of this publication, please visit the Center for Food Animal Health's website at **www.vetmed.ucdavis.edu/cfah**.

(Released and published June 2012)

Introduction

Neglect, abuse and cruelty to cattle can result either from acts of **commision** or **omission**. Pain and suffering can be inflicted by direct and willful acts of injuring cattle (commission), or indirectly to cattle through failure to provide adequate water, feed, or care (omission). The harm to the animal is real regardless of the means by which it occurs.

Ignorance on the part of the caretaker regarding the proper care of cattle does not necessarily lessen legal responsibility. One can not be excused from legal repsonsibility for the neglect, cruelty or abuse incurred by employees or associates who have accepted responsibility for the care of cattle.

DEFINITION OF TERMS USED IN THIS DOCUMENT

Neglect	The failure to provide appropriate water or food. An environment that does not meet minimum standards of care also can be considered neglect. In some instances, neglect may include failure to provide veterinary care to cattle that are ill or injured.
Abuse and Cruelty	Includes the intentional act, omission or neglect whereby unnecessary or unjustifiable physical pain or suffering is caused or permitted. Examples include intentionally poisoning or injuring an animal or use of harmful restraint methods.
Owner	Anyone who cares for, possesses, controls or otherwise assumes custody and is responsible for the care of cattle.
Should	The term used in this document as a strong recommendation or guideline, based upon widely accepted standards or available scientific information. Other methods or practices may be justified or acceptable.
Must	The term used in this document as a necessity or requirement for the standard, method or practice described based on existing federal or California state law.

The legal requirements and recommended minimum standards relevant to existing law are listed in the colored boxes at the beginning of each section (Water, Feed, Shelter, Health Care and Transportation). All other information is intended to be educational material for managing cases by law enforcement officials.

Frequent Causes of Neglect, Cruelty and Abuse

The causes of neglect, cruelty and abuse of cattle are multiple and diverse. Some common causes are as follows:

- Ignorance or lack of skills regarding the care of cattle account for most neglect cases and some abuse or cruelty cases. Proper education of the animal owner or caretaker may result in case resolution.
- Economic hardship may contribute to owners who would normally provide adequate care, especially in providing supplemental feed for their animals.
- Apathy or laziness on the part of the owner may result in neglect, particularly during periods of adverse weather conditions.
- Illness, injury or substance abuse on the part of the animal owner can decrease the quality of care provided to the cattle, which may result in neglect or abuse of the cattle.
- Cultural or societal factors may influence the perception of what constitutes minimum care for cattle.
- Environmental disasters may result in improper care of cattle owned and/or cared for by otherwise responsible owners, which may be misconstrued as neglect or abuse.
- Failure to provide adequate care and supervision during a short-term absence (such as a vacation) may result in abuse or neglect of cattle.

CATTLE CARE STANDARDS





Cattle may safely drink from streams supplied by rain water or melting snow. (Photo by John Maas, DVM)

Water

REQUIREMENT

Cattle must be provided with “proper... drink.” [California Penal Code Section 597(b)]

RECOMMENDED STANDARD

Cattle should have easy access to fresh water. Normally, cattle should have continual access to water, but access to water twice per day will satisfy their needs under most conditions.

Educational Information

1. Water is the essential nutrient for cattle and can become critical when it is excessively hot. Most water is made available at all times for cattle and calves. The water sources may vary from seasonal streams and ponds supplied by rain water or melting snow to water troughs or tanks containing domestic (e.g., well or municipal) water on many dairies or feedlots.
2. Water intakes and requirements for cattle vary tremendously according to environmental temperature, humidity, precipitation, body weight, breed, feed intake, pregnancy, milk production, type and water content of feedstuff, and the physical characteristics of the water itself (i.e., temperature). Table 1 contains some estimates of daily water intake for a number of cattle categories; it is for estimation purposes only and each estimated intake has a wide variation under normal circumstances.

**Table 1. ESTIMATED DAILY WATER INTAKE FOR CATTLE*
(gallons/day per animal)**

Body Weight (lbs)	Ambient Temperature				Examples
	40°F	60°F	75°F	90°F	
400	4.0	5.0	6.3	9.5	Beef calves
800	6.3	7.9	9.9	15.0	Stocker calves
1,000	8.7	10.8	13.6	20.6	Feedlot steers
1,100	6.0	7.4	9.0	16.0	Pregnant beef cows
900	11.4	14.5	17.4	19.0	Nursing beef cows
1,300 (45 lbs milk/day)	21	22	28	35+	Lactating dairy cows
1,300 (90 lbs milk/day)	29	30	40	48+	Lactating dairy cows

* Source: NRC, 1996; ARC, 1980.

3. Much of the necessary water can be supplied by the feed in any given situation. For example, beef cattle on green grass in cool weather will not require much water to drink as the grass may be up to 90% water by weight. Also, dairy cattle are often fed wet feeds, such as corn silage, haylage, or green chop, and this will decrease the amount of water they need to drink per day.
4. Water intake can be affected by salinity (salt concentrations) or hardness (concentration of calcium and magnesium). Also, water may contain potentially harmful materials such as blue-green algae, nitrates, sulfates, and heavy metals. These substances in excess can be harmful to cattle. Water contaminated with dead animals, feces or other noxious materials may be a potential source of toxins or microbial contaminants which can threaten the health of cattle. A licensed large animal veterinarian should always be consulted in cases of suspected problems and can assist in making judgments about cattle health, well-being, water quantity, and water quality.
5. Water troughs, water containers and any automatic watering devices should be maintained in proper working order and not pose hazards that may result in injury. This includes any device that could result in an electrical current sufficient to harm the animals.



Dairy cow drinking from a water trough with an automatic refilling device.



Example of an unacceptable water source that fails to meet the minimum water quality standards. The water is dirty and not fit to drink. Also note hazards such as the open water spigot, the sharp edges of the trough and the board with nails protruding from it.



Feed

REQUIREMENT:

Cattle must be provided with “proper food.” [California Penal Code Section 597(b)].

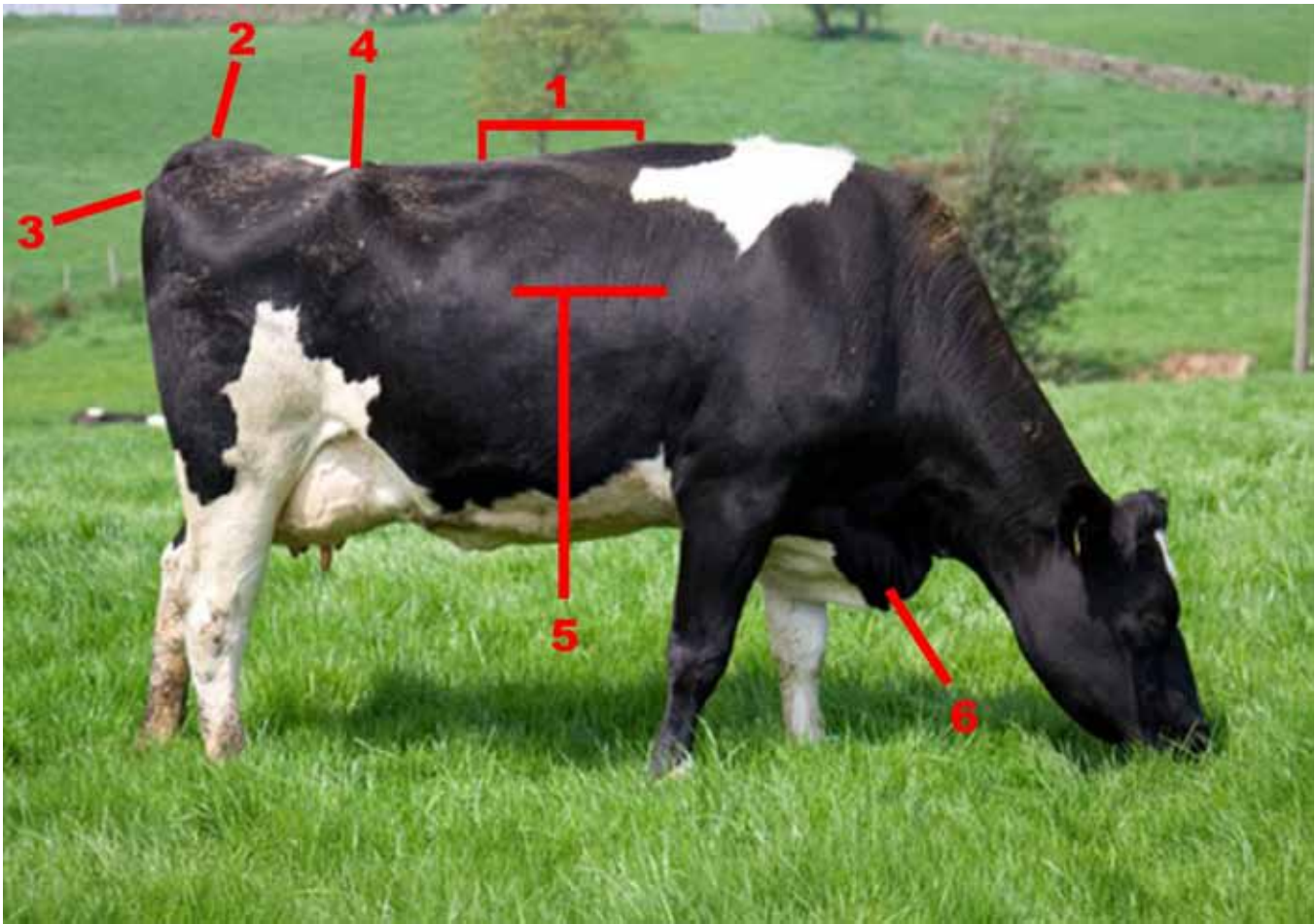
RECOMMENDED STANDARDS:

1. Cattle should be provided feed to maintain adequate body weight and/or body condition for normal body function. A body condition score (see tables below) below 2 on the 9-point scale for beef cattle, or below 2 on the 5-point scale appropriate for dairy cattle, is indicative of an emaciated animal.
2. Cattle without available pasture or range to graze should be fed at least once daily.

Body Condition Scoring of Cattle

Body condition scoring is a standardized, objective method of evaluating the body condition of cattle regardless of breed, age, gender, or body type. Body condition is a measure of fat cover; thus, body condition scores are indicative of energy reserves in the body. Long-term lack of proper nutrition for cattle can affect body condition scores. There are other reasons that animals can be very low in body condition such as severe parasite infections, diseases, or mineral imbalances (e.g., low selenium or high molybdenum). Also, older cattle may not be able to absorb the nutrients effectively. Short-term lack of nutrition (starving) cannot be ascertained by body condition scoring but may be determined by the amount of feed provided or forage available for grazing. Education on proper nutrition or consultation with a veterinarian may be suitable in remedying the situation.

Body condition is evaluated by visual appraisal and palpation (feeling) using six areas of the animal’s body. The six areas of the body that are evaluated in scoring either beef or dairy cattle are indicated in Figure 1. The beef and dairy scoring systems evaluate these six areas and then assign overall scores. The scores for beef cattle range from 1 (severely emaciated) to 9 (very obese), while the scores for dairy cattle range from 1 (emaciated) to 5 (obese). There is generally minimal variation in the scores for the same animals evaluated by different people who are familiar with body condition scoring.



1 = Back
2 = Tailhead

3 = Pins
4 = Hooks

5 = Ribs
6 = Brisket

Figure 1. Areas of the body used for determining body condition scores in cattle. This is an example of a dairy cow exhibiting a body condition score of 3 on a 5-point scale.

The following tables are descriptions for each body condition score of either beef or dairy cattle. Examples of each body score for dairy and beef cattle are provided in Appendix 2 and 3, respectively. Body condition score below 2 on either the beef cattle or dairy cattle scoring system indicate emaciated cattle.

BEEF CATTLE BODY CONDITION SCORING

Score	Description	Picture
1	Severely Emaciated	All rib and bone structures easily visible. No fat over backbone, edge of loin, hip bones, or ribs. Tailhead and ribs project prominently. Animal has difficulty standing or walking.
2	Emaciated	Appears emaciated but tailhead and ribs are less prominent. Individual spinous processes are sharp to touch, but some tissue exists along the spine. Animal not weak, but no fat detectable.
3	Very Thin	Ribs are individually identifiable, but not so sharp. No fat on ribs, brisket, spine or over tailhead. Individual hindquarter muscles easily visible, spinous processes apparent.
4	Thin	Individual ribs are not visibly apparent except the last two ribs. Backbone can be identified with slight pressure; individual spinous processes are rounded rather than sharp. Individual muscles in the hindquarter are apparent, but the quarter is straight.
5	Moderate	Good overall appearance. The last two ribs are not visible but can be easily felt. Hindquarter individual muscles are not apparent. Areas on either side of the tail head are filled and fat cover is palpable.
6	High Moderate	Good smooth appearance throughout. Ribs are not visible and are fully covered. Some fat deposition in the brisket. Spongy fat on ribs and pin bones and sides of tailhead. Firm pressure is needed to feel the spinous processes.
7	Good	Cattle appear fleshy and obviously carry considerable fat. Brisket is full. Tailhead and pin bones have protruding fat deposits. Back appears square.
8	Obese	Protruding fat deposits on tailhead and pin bones. Spinous processes almost impossible to feel. Brisket is distended and neck is thick.
9	Very Obese	The body has lost definition and contours disappear across back and sides as cow takes on a block-like smooth appearance. Tailhead and hips buried in fat deposits. Bony structures no longer visible or palpable.

Resource: J. Oltjen, Appendix A, Fundamentals of Beef Management, Drake and Phillips, eds., pages 117-119.



Above photo: Cattle with no fat detected across back, pins, hooks, tailhead and ribs, which indicates a body condition score of less than 2. Photo by Clive Dalton, Waikato Times. **Below photo:** The dairy cow has a body condition score of 2.0 and is lame. Photo courtesy of Zinpro Corporation.





Above photo: The beef animal above is assigned a body condition score of 2. A long hair coat may “hide” skeletal protrusions or fat deposits; thus, it is best to evaluate the animal from several different angles and palpate (feel) the appropriate areas of the body to determine the proper body condition score. **Below photo:** The animal below is assigned a body condition score of 3. Note the evidence of diarrhea on the tail, which may indicate an additional cause of weight loss or failure to thrive. Anytime emaciation is apparent or suspected, a veterinarian should be consulted to investigate and document the cause(s).



DAIRY CATTLE BODY CONDITION SCORING

Score	Description	Picture
1	Emaciated	Deep cavity around tailhead. Bones of pelvis and short ribs are easily felt. No fatty tissue in pelvic or loin area. Deep depression in loins.
2	Thin	Shallow cavity around tailhead with some fatty tissue lining it and covering pin bones. Pelvis easily felt. Ends of short ribs feel rounded and upper surfaces can be felt with slight pressure. Depression viable in loin area.
3	Ideal	No cavity around tailhead and fatty tissue easily felt over entire area. Pelvis felt with slight pressure. Thick layer of tissue covering top of short ribs which is felt with pressure. Slight depression over loin area.
4	Fat	Fold of fatty tissue around tailhead with patches of fat covering pin bones. Short ribs cannot be felt. No depression in loin area.
5	Obese	Tailhead buried in thick layer of fatty tissue. Pelvic bones cannot be felt with firm pressure. Short ribs covered with thick layer of fatty tissue.



Dairy cattle with body condition score of 1, which is considered emaciated (Ontario Farm Animal Council, 2010).

Educational Information

1. A body condition score of 1 on the 9-point scale for beef cattle or a score of 1 on the 5-point scale for dairy cattle indicates emaciation and many cattle cannot continue to sustain body functions. Cattle with a body condition score of 2 or less should be provided with an increase in nutrients (feed) to increase their body condition and weight and/or be evaluated by a veterinarian or consulting nutritionist to ascertain other factors contributing to decreased body condition and weight. A nutritionist may be consulted to determine how best to feed the affected cattle.

2. Feeding management varies throughout California. Some cattle may obtain their feed by grazing on grass and forage growing on rangelands and pastures. Others may be fed hay, grain or concentrates in feed yards and on dairies. Cattle on rangeland should be supplemented if the available forage is not adequate to maintain body condition and function. Regardless of the dietary components, minimum energy intake should be sufficient for cattle to maintain normal weight and body function. To maintain normal body function, cattle usually consume a diet that is 1.0 to 3.5% of their body weight per day.

EXAMPLE: For a 1,000-lb cow, this calculates to consuming between 10 and 35 lbs. of hay per day. Pregnant cattle, cows with nursing calves, dairy (lactating) cattle, or cattle with medical conditions may require more feed to maintain their body weight. Supplementation with grain or other concentrated sources of calories may be necessary at times and are commonly fed to dairy and feedlot cattle.

3. Typical types of hay forage fed in California include alfalfa, grass (sorghum or sudan) and cereal hay (e.g., oat hay), and silage (chopped forage preserved by fermentation). Rice and other straws can be provided as a source of fiber, but have lower protein and energy than most hays. Hay fed to cattle should be free of harmful toxins or poisonous plants since these can cause illness or even sudden death (see ANR Livestock-Poisoning Plants of California at <http://anrcatalog.ucdavis.edu/pdf/8398.pdf>). Some dairies may test feeds for mold content.

4. Forage from rangelands and pastures or supplemental feeds such as grain, protein concentrates, mineral supplements, and other by-products can provide additional energy and other necessary nutrients to meet or exceed a body condition score of 2 for cattle.

5. Minerals (e.g., selenium, copper, iodine, calcium, phosphorous, or potassium), vitamins, or salt may be deficient in some diets. Therefore, minerals are often added to diets or made available free-choice to cattle.

6. Extreme internal and external parasite infestations can cause dramatic loss of body condition. Preventative management practices in combination with appropriate and strategic use of various antiparasitics (de-worming products) and adequate feed are methods to allow animals to regain body condition. The effectiveness of any such parasite control program can be evaluated through laboratory analysis of fresh manure. Organic cattle producers cannot use de-worming products and must rely on other management strategies to lessen parasite populations.

FEEDING TERMS DEFINED

Mature cattle are ruminants that are characterized by a four compartment stomach and “cud-chewing” behavior. Ruminants obtain a large part of their nutritional requirements from fibrous feeds called forages. A simple forage diet may be all that is needed when nutritional requirements of cattle are low. Cattle that are growing fast, pregnant, or producing milk (lactating) may require more nutrients. For these animals, forage can be supplemented with other feeds to provide additional energy and nutrients. Following are common feeding terms:

Forage (Roughage)	Forages consist of the stems and leaves of plants that are eaten by cattle. Pasture and rangeland plants are forages that cattle consume by grazing. Some crops, such as alfalfa, are forages that are harvested and stored for future feeding. Forages are high in fiber content.
Hay	Forage that is cut, dried and then compacted into rectangular or round bales for storage. Alfalfa, oat and grass are three common types of hay fed to cattle.
Silage	Chopped plant material that is harvested, stacked in large piles, covered with heavy plastic and then allowed to ferment. Acids produced during fermentation preserve the wet forage. Corn and wheat silage are common in California.
Haylage (Green Chop)	Haylage is a term often used to describe alfalfa silage. It may also describe alfalfa that has been cut and field-wilted (but not completely dried), chopped and fed directly to cattle. This is also known as “green chop”.
Straw	Coarse stalks or stems of plants remaining after the mechanical harvesting of grain (wheat, oats, barley and rice). These are cut, dried and baled for storage. Straw is primarily used for bedding because the nutritional value is poor. When hay and other forages are in short supply, straw may be included in a TMR to provide fiber for cattle. In this case, other feed ingredients also are added to ensure that adequate nutrients are available to the cattle.
Total Mixed Ration (TMR)	Complete, nutritionally balanced ration consisting of forage, concentrates and other supplements. All ingredients are weighed, mechanically mixed together, and delivered to cattle one or more times per day. A TMR is often fed to dairy cattle.
Concentrate	High-energy, low-fiber feed primarily consisting of grain and/or oilseed meals. Often mixed with protein or mineral supplements.
Grain	Starch-filled, seed portion of plants. High in energy, very low in fiber. Common grains for cattle include barley, corn, oats and wheat. Grains are fed to provide additional energy to forage diets.
By-Product Feeds	Processing of food for human consumption generates enormous volumes of crop residue (plant parts) that can be fed to cattle. Examples include almond hulls, rice bran, wheat mill run, citrus pulp, cotton seed meal and beet pulp.



Beef cattle grazing forage from an irrigated pasture or meadow that is sufficient in quality and quantity to meet nutritional needs. (Photo by Glenn Nader)



Jersey cows on a dairy provided a total mixed ration in a bunk feeder to meet their nutritional needs.



Hay containing mold throughout the bale, as shown above, should not be fed to cattle since the nutrient content is low and the mold may cause illness. If the hay contains low amounts of mold or plants with awns (foxtails) or barbs, a greater amount of the hay should be fed to allow the cattle to sort through and select the edible portions. (Photo by Glenn Nader)

Shelter

REQUIREMENT:

Cattle must be provided with “proper... shelter or protection from the weather.” [California Penal Code Section 597(b)].

“Every person who keeps an animal confined in an enclosed area shall provide it with an adequate exercise area. If the animal is restricted by a leash, rope, or chain, the leash, rope or chain shall be affixed in such a manner that it will prevent the animal from becoming entangled or injured and permit the animal’s access to adequate shelter, food, and water. This section shall not apply to an animal which is in transit ... or in the immediate control of a person.” (California Penal Code Section 597t)

RECOMMENDED STANDARDS:

1. Shelter in the form of a structure, shade, or natural vegetation should be available for cattle showing signs of heat or cold stress in cases of extreme weather conditions (excessively low or high temperatures and/or humidity, high winds, excessive rainfall).
2. All enclosures and shelters should be free of hazards that may cause injury to cattle.
3. The minimum ceiling height should be 1 foot above the head of the cattle when held at its highest level.
4. Excessive feces, urine, mud or other waste products should not accumulate within the housing enclosures to the extent that these cause unhealthy wet conditions.
5. Ventilation in enclosed areas should be sufficient to control excessive ambient temperature and prevent the accumulation of ammonia and other toxic gases.
6. Adult cattle confined to minimal enclosed areas should have access to adequate exercise area. Young dairy calves are commonly housed in hutches or crates to ensure adequate access to feed, water. This aids in the prevention of infectious diseases and is considered proper management for young calves.

Educational Information

1. Shelter may be defined differently depending on the weather and condition of cattle. For instance, in very cold weather a group of cattle can huddle together in a grove of trees, while one solitary thin cow may not fare well in the same conditions. However, any cattle that show physical deterioration, loss of body condition below a score of 2, or failure to adapt to the weather conditions (weight loss, lethargy, anorexia, wasting) should be provided with shelter adequate to stabilize their general health without severe loss of weight, injury or illness.

2. The thermoneutral zone (TNZ) is the range in environmental temperature where cattle are neither too hot nor too cold and can maintain body temperature without expending energy to do so. The TNZ for mature beef cattle ranges between 5 and 82°F. As ambient temperatures fall below the thermoneutral zone, the nutrient requirements for cattle increase to maintain body temperature. Thus, cattle require more feed during cold environmental conditions.

- Wind, mud and rain will also impair the ability of cattle to maintain body temperature in cold environments.
- Newborn and young calves more easily experience cold stress than mature cattle. The TNZ for calves less than one month old is 50 to 86°F. In order to maintain body temperature when environmental temperatures fall below 50°F, additional energy to produce heat is derived from body fat stores or nutrients in the diet. Therefore, providing adequate feed is important for cows and calves experiencing cold environmental temperatures.
- Cattle experiencing cold stress may exhibit signs of shivering, frostbite, and hypothermia progressing to a dangerous or life-threatening decrease in body temperature.

Table 2. LOWER CRITICAL TEMPERATURES OF THE TNZ FOR BEEF CATTLE, NO WIND CHILL*

Hair Coat Description	Lower Critical Temperature (°F)
Summer coat or wet coat	60
Fall coat	45
Winter coat	32
Heavy winter coat	19

* Source: Brownson and Ames, 2008.

3. The TNZ for mature beef cattle ranges between 5 and 82°F. At excessively high temperatures, cattle increase their respiration rate and heart rate and begin to pant in order to dissipate heat and maintain body temperature. Ventilation in enclosed areas should be sufficient to control excessive ambient temperatures.

4. Cattle exhibiting signs of heat stress will reduce feed intake, exhibit sweating (note: not all breeds of cattle sweat through their skin) and open mouth panting, and have increased body temperature.

5. Research shows that exposure to as little as 10 to 15 ppm of ammonia over a long-term basis can affect immune function and cause permanent airway damage. Poor air quality due to the build-up of ammonia or other toxic gases damages healthy lung and eye tissue. Cattle housed or confined in poorly ventilated areas can be exposed to air levels of ammonia exceeding 100 parts per million (ppm) due to accumulated urine in their environment. Both proper ventilation and sanitation (removal of feces and urine-soaked bedding) assist in minimizing ammonia exposure. If an observer can smell ammonia, this warrants further investigation.

6. Indoor and outdoor cattle enclosures should be cleaned of manure and other waste products on a regular schedule.

- Standing water, mud or urine should be prevented from accumulating in housing enclosures by proper drainage or absorbent bedding materials.
- Areas such as corrals, chutes, and treatment pens where cattle are provided health care services should be kept as sanitary as possible. Barns, storage sheds, hay barns and all other structures should be properly maintained to prevent injuries.
- Areas designated as collection areas for the temporary storage prior to pick-up and removal of animal waste products or carcasses should be well maintained.

7. Enclosures and shelters should be free of hazards that may cause injury to confined cattle.

- Enclosures should be free of fire and electrical hazards such as exposed wires, electrical sockets or light switches that could cause fire or electrocution. Light fixtures, switches and any wiring should be out of the reach of cattle.
- Doors and gates should be easily opened and of sufficient width as to allow cattle to freely walk through the opening.
- Flooring in confinement areas should provide traction since excessively slippery floors can make movement, lying down and/or rising difficult or risk injuries to cattle.
- Flooring should be designed and maintained such that the limbs or hooves of cattle cannot become entrapped or cause injuries.

8. Tethering refers to the act of securing an animal to a fixed object by rope or chain. If tied for a period of longer than 2 hours, cattle should be provided proper animal care and water, as well as shelter or protection from extreme weather elements (heat, sun, wind and rain). This does not apply to cattle during transit, while in a vehicle, or in the immediate control of a person. Halters used with tethering should not be so tight as to induce suffocation or choking and should be loose enough to allow normal chewing. Cattle at shows and

exhibitions are normally haltered and tied (tethered) and this is an acceptable practice. Tethered cattle should not become entangled.

9. Adult cattle confined in pens or enclosures with less than minimal space (Table 3 below) should receive access to an exercise area at least 30 minutes per day, unless directed otherwise by a veterinarian.

Table 3. RECOMMENDED STANDARDS FOR MINIMUM AREA PER ANIMAL FOR CONFINED CATTLE*

Body Weight (lbs)	Area Size (square feet)	Examples
Calves under 150	6 to 12	Newborn calves
150 to 200	20 to 30	Calves until 2 months
201 to 800	25 to 35	Weaned calves
801 to 1,200	40 to 100	Mature cows or steers
Over 1,200	120 to 140	Pregnant or lactating cows, bulls

* Source: Federation of Animal Science Societies Guide, 2010.



An example of poor pen maintenance, with excessive manure, standing water, deep mud and no dry lying areas.

Health Care

REQUIREMENTS:

"[W]hoever, having the charge or custody of any animal, either as owner or otherwise, subjects any animal to needless suffering, or inflicts unnecessary cruelty upon the animal, or in any manner abused any animal ... is ... guilty of a crime" (California Penal Code, Section 597(b))

"Notwithstanding any other provisions of this section, any officer of a pound or animal regulation department or humane society, or any officer of a police or sheriff's department may, with the approval of his or her immediate superior, humanely destroy any abandoned animal in the field in any case where the animal is too severely injured to move or where a veterinarian is not available and it would be more humane to dispose of the animal." (California Penal Code, Section 597f(d))

"Any person who cuts the solid part of the tail of any horse or cattle in the operation known as "docking," or in any other operation performed for the purpose of shortening the tail of any horse or cattle... is guilty of a misdemeanor. ...shall not apply to "docking" when the solid part of any cattle's tail must be removed in an emergency for the purpose of saving the cattle's life or relieving the cattle's pain..." (California Penal Code, Section 597n)

"Every owner, driver, or keeper of any animal who permit the animal to be in any ... enclosure ... without proper care and attention is guilty of a misdemeanor." (California Penal Code, Section 597.1(a))

"Every animal which is unfit, by reason of its physical condition, for the purpose for which such animals are usually employed, and when there is no reasonable probability of such animal ever becoming fit for the purpose for which it is usually employed, shall be by the owner or lawful possessor of the same, deprived of life within 12 hours after being notified by any peace officer, officer of said society, or employee of a pound or animal regulation department of a public agency who is a veterinarian, to kill the same, and such owner, possessor, or person omitting or refusing to comply with the provisions of this section shall, upon conviction, be deemed guilty of a misdemeanor, and after such

conviction the court or magistrate having jurisdiction of such offense shall order any peace officer, officer of said society, or officer of a pound or animal regulation department of a public agency, to immediately kill such animal; provided, that this shall not apply to such owner keeping any old or diseased animal belonging to him on his own premises with proper care." (California Penal Code, Section 599e)

RECOMMENDED STANDARDS

1. Cattle exhibiting signs of pain, suffering or failure to thrive from any medical condition or injury should receive medical care or euthanasia performed within an appropriate time period.
2. The tail docking procedure, which is cutting the solid part of the tail, must not be performed on cattle except for emergency purposes.
3. All nonambulatory cattle must have accessible feed, water, and necessary shelter.
4. Brands should not be applied to jaw, face, nose, loins, or breeching of any cattle. Brands should not be accompanied by a mark that cuts off more than half of an ear of cattle. (See California Food and Agricultural Code 20668 and 20669, Appendix 1, providing for non-acceptance of applications for such proposed brands)
5. Euthanasia should be performed by the owner, a veterinarian, or trained law enforcement officer if the animal is too severely injured to move, if it is suffering without probability of being rehabilitated, or if it is necessary to protect the health and safety of the animal or people in the near vicinity.

Educational Information

1. Medical care should be provided for cattle in significant pain or distress. Medical conditions that may cause such pain or distress include but are not limited to severe bloat, extreme fevers (rectal temperature of 104.5°F or higher), limb fractures, serious eye injuries, prolapsed uterus, severe or prolonged calving difficulty, or any injury or condition where an animal cannot bear weight on all four limbs or where the animal is not able to move or is recumbent (cattle that are not able to rise and stand). Euthanasia is an option under these circumstances and should be performed by trained law enforcement officer, a large-animal veterinarian, or trained individual.
2. Veterinary care for severe emergency situations should be obtained by cattle owners or care providers as quickly as possible but definitely within a few hours of such a condition being discovered.

3. Observation of cattle for signs of lameness is an essential practice in the basic care of cattle, and appropriate hoof care should be provided as needed to prevent or treat signs of lameness.
4. Preventive cattle health procedures, such as vaccination and parasite prevention and control programs, are an essential part of cattle ownership and management. A program of internal parasite control that involves prevention management practices in combination with appropriate and strategic use of various types of deworming products should be implemented for grazing cattle or cattle that are likely to be exposed to disease-causing parasitic infestations. The existence or effectiveness of any such parasite control program can be evaluated at the direction of the consulting veterinarian by performing laboratory procedures, such as standardized fecal egg counts from freshly obtained manure sample.
5. A program to minimize the presence of flying or biting insects is important to the health and well-being of both the human and animal residents on any given property as well as to those living in nearby areas. Flies, ticks, mosquitoes, midges and other insects can transmit a variety of diseases that can infect animals or humans.
6. Vaccinations for prevention of respiratory and other infectious diseases are considered as routine preventive health practices. A licensed veterinarian should assist producers and owners to develop a preventive health plan including a vaccine schedule. Preventive health programs may be different for different regions of California.
7. Routine procedures such as castration and dehorning should be performed by a properly trained individual or licensed veterinarian. These procedures will evoke temporary pain. Dehorning and castration should be performed at the earliest possible age. If castration or dehorning procedures are performed on an older animal, a veterinarian should be consulted on the possible use of local anesthesia and analgesics to minimize pain.



Nonambulatory cattle must be provided accessible feed, water and shelter. Soft bedding and nonslippery surfaces will aid the animal in recovering to a standing position.



An example of a dairy cow with a full tail (left) and a cow with a docked tail (right). The orange color on the top of the tail is commonly used by dairy management for artificial insemination (AI) breeding programs to help identify cattle expressing behavior associated with being in “heat” or estrus.

Transporting Cattle

REQUIREMENTS:

“Whoever carries or causes to be carried in or upon any vehicle or otherwise any domestic animal in a cruel or inhumane manner, or knowingly and willfully authorizes or permits it to be subjected to unnecessary torture, suffering, or cruelty of any kind, is guilty of a misdemeanor; ...” (California Penal Code Section 597a)

“It is unlawful for any person that owns or operates any motor truck, or motor truck and trailer, or semitrailer, to confine or permit to be confined, in such vehicle, any animal for a longer period than 28 consecutive hours from the time the animal was last fed and watered. Upon the written request of the owner or person in charge of the animal, the period of confinement may be extended to 36 hours. Before the expiration of the permissible period of confinement, the animal shall be unloaded in a humane manner by means of a chute or tailgate of sufficient size into properly equipped pens for rest, water, and feeding, for a period of at least five consecutive hours. The failure of a person to feed or water an animal within the time limit prescribed by this section is not a violation of this section if the feeding and watering of the animal is prevented by storm or other accidental or unavoidable causes which could not be anticipated or avoided by the exercise of due diligence and foresight.” (Food and Agriculture Code Section 16908)

RECOMMENDED STANDARDS:

1. Cattle that are nonambulatory (cannot stand and walk unassisted, weak and/or debilitated, cannot bear weight on one or more legs) should not be transported to any slaughterhouse, stockyard, auction, market agency or dealer, except to receive veterinary attention.
2. Cattle must not be transported continuously for durations longer than 28 consecutive hours from the time the animal was last fed and watered. With a written request of the owner or person in charge of the animal, this may be extended to 36 hours.
3. Transport vehicles for cattle should be safe and maintained in working condition, including proper ventilation, floors, doors and latches.

4. Each animal should have sufficient space to stand in a natural position without risk of falling due to overcrowding or aggression. There should be no contact of the animal with the upper deck or roof of the trailer. Newborn and very young calves (under 60 days of age) should be separated from other cattle during transport to prevent risk of injury.

Educational Information

1. Cattle that are nonambulatory should not be transported, except those traveling to receive veterinary attention. Nonambulatory cattle include those listed above in standards section. Cattle that are blind in both eyes and pregnant cows likely to give birth during the trip should not be transported, except to receive veterinarian attention.
2. Cattle that become nonambulatory, recumbent (down), or injured during transport may be trapped on the floor by the remaining standing cattle, causing further injury. If possible, the fallen animal should be gently prompted to stand or be segregated from other livestock during transport and/or unloading procedures.
3. No recumbent, down or weak animal during unloading should be dragged, hoisted or dropped, causing further injury or pain. Moving a nonambulatory animal should be performed by gently rolling the animal onto a sled-like device such as a large piece of plywood or wide conveyor belting. During movement, the animal should be restrained to prevent further injury to itself; sedation of the animal should be considered in some cases. The loaded sled with the animal may be slowly pulled off the vehicle with a tractor or other vehicle. The animal may also be moved using a lifting harness or sling designed for cattle or by gently rolling the animal into a large bucket on a loader taking into account further injury of the animal with any surfaces that might cause injury.
4. To prevent dehydration and fatigue, cattle must not be transported continuously for more than 28 hours. Cattle subjected to extended travel should be provided with rest stops where they can be unloaded safely into appropriate pens, fed and watered, and given an extended period of time to recover of at least 5 consecutive hours. (See California Food and Agricultural Code 16908, Appendix 1)
5. The safety and comfort of cattle, as well as safety of the driver and other vehicles on the road, are of utmost concern when transporting cattle. Transport trucks and trailers should be inspected before each trip to ensure that they are mechanically sound. Tires (tread and fill), vehicle lights, floor boards, doors, latches, hitches and side partitions should all be inspected to ensure these are in proper working order. Sand, rubber mats, wood chips, or other bedding over the floor area will improve the footing of cattle during transit.
6. Prior to loading, animals should be inspected to ensure that they are fit to travel. Cattle traveling loosely in groups should be sorted prior to loading according to compatibility among group members: size, gender, age,

physical condition and horn status. Bulls, young calves, and cows with nursing calves should be segregated from other mature cattle during transport.

7. The size and design of the trailer, as well as maximum legal truck weight limits, will determine the maximum number of cattle per vehicle. Overcrowding increases stress and may cause loss of balance, injury, and death. Horned cattle should be provided with 10% more space during transport than cattle without horns. The following guidelines on space allowance are recommended during transport:

Table 4. RECOMMENDED SPACE ALLOWANCE OF HORNLESS CATTLE DURING TRANSPORT*

Weight of Animal (lbs)	Area per Animal (square feet)
200	3.5
400	6.4
600	8.5
800	10.4
1,000	12.0
1,200	14.5

* Source: Grandin, 2001 and 2007.

8. Unloading should occur within 30 minutes but no more than 1 hour after arrival. The vehicle should be positioned evenly with the unloading ramp so no gaps exist that may cause injury to the cattle.

9. Electric (battery-powered) prods should not be used during loading or unloading, except when absolutely necessary and whereby other means are not effective. Electric prods should never be applied to the animal's eyes, face, rectum, genitalia or other sensitive areas. (However, the electric prod should not be confused with the use of an electro-ejaculation probe for semen collection of bulls which is an acceptable and common management practice.)

10. Figure 1 below illustrates the impact of hot and humid weather conditions on livestock during transport. Indexes of 84 or higher indicate emergency heat stress conditions and livestock should not be shipped. Indexes of 79 to 83 indicate dangerous heat conditions for confined animals, such as those in a parked or slow moving transport vehicle. Heat increases rapidly in a parked vehicle with a full load of cattle and temperatures inside the vehicle can easily exceed the outside environmental temperature.

Figure 1. LIVESTOCK WEATHER SAFETY INDEX CHART*

Temperature (°F)	Relative Humidity									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
78			70	71	72	74	75	75	77	78
80		70	72	73	74	75	77	78	79	80
82	70	71	73	74	75	76	78	79	81	82
84	71	72	74	75	77	78	80	81	83	84
86	72	74	75	77	78	80	81	83	84	86
88	73	75	76	78	80	81	83	85	87	88
90	74	76	78	79	81	83	85	87	88	90
92	75	77	79	81	83	84	86	88	90	
94	76	78	80	82	84	86	88	90		
96	77	79	81	84	86	88	90			
98	78	80	82	85	87	89				
100	79	82	84	86	88	91				

* Categories of the Livestock Weather Safety Index associated with temperature index values:

Mild to none (79 or less)	Danger (79 to 83)	Emergency (84 or greater)
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These dairy cattle are exhibiting open-mouth breathing, a sign of severe heat stress.



An example of a calf being unloaded from a truck using a properly aligned chute.

Bibliography and Resources

Agricultural Research Council. The Nutrient Requirements of Ruminant Livestock, Commonwealth Agricultural Bureaux, Slough, UK. 1980.

Agricultural Research Service (ARS), U.S. Dept. of Agriculture. 2007. Forecasting heat stress.
<http://www.ars.usda.gov/Main/docs.htm?docid=15616>

American Association of Bovine Practitioners: www.aabp.org

American Veterinary Medical Association, AVMA Guidelines on Euthanasia, Schaumburg, IL, 2007.
http://www.avma.org/issues/animal_welfare/euthanasia.pdf

Animal Legal Defense Fund: www.aldf.org

Bewley, J. and M. Schutz. 2008. Review: An Interdisciplinary Review of Body Condition Scoring for Dairy Cattle. The Professional Animal Scientist. 24:507-529.

Brownson, R. and D. Ames. 2008. Winter Stress in Beef Cattle. Cattle Producer's Library, CL760.
<http://www.csubeef.com/dmdocuments/760.pdf>

California Department of Food and Agriculture (CDFA): www.cdfa.ca.gov

California State Laws, CCRs and Statutes:
www.leginfo.ca.gov/calaw.html and www.ca.gov/About/Government/State/LawsAndRegs.html

California Veterinary Medical Association: www.cvma.net

Center for Equine Health (CEH), University of California, Davis: www.vetmed.ucdavis.edu/ceh

Municipal Code Corporation, California County Ordinances: www.municode.com

Federation of Animal Science Societies (FASS), Guide for the Care and Use of Agricultural Animals in Research and Teaching (FASS Ag Guide), 3rd Ed., 2010. www.fass.org

Forero, L., G. Nader, A. Craigmill, J. Ditomaso, B. Puschner and J. Maas. 2011. Livestock-Poisoning Plants of California, University of California, Agricultural and Natural Resources, Publication 3495.
<http://anrcatalog.ucdavis.edu/pdf/8398.pdf>

Fundamentals of Beef Management, 2006. D. Drake and R. Phillips, Eds. University of California, Agricultural and Natural Resources, Publication 3495, ISBN-13: 978-1-879906-73-0.

Grandin, T. 2001. Livestock Trucking Guide. Natl. Institute for Animal Agriculture, Bowling Green, KY:
<http://www.animalagriculture.org/Education/Pamphlets/Livestock%20Trucking%20Guide.pdf>

Grandin, T., Livestock Handling and Transport, 3rd Ed., 2007. CAB International, Oxfordshire, UK, ISBN # 9781845932190.

Hamilton, T. D., et al. The synergistic role of gaseous ammonia in the aetiology of *P. multocida*-induced atrophic rhinitis in swine, *Journal of Clinical Microbiology* 43:2185, 1996.

Humane Farm Animal Care Policy Manual: www.certifiedhumane.org

Institute for Animal Law: www.animallaw.com

International Veterinary Forensic Sciences Association: www.vfsa.org

Large Animal Rescue Company: www.largeanimalrescue.com

Merck, M. D., *Veterinary Forensics: Animal Cruelty Investigations*, Blackwell Publishing, Ames, IA, 2007.

National Research Council (NRC), *Nutrient Requirements of Beef Cattle*, 7th rev. ed., National Academy Press, Washington, DC, 1996.

National Research Council (NRC), *Nutrient Requirements of Dairy Cattle*, 7th rev. ed., National Academy Press, Washington, DC, 2001.

Oltjen, J. Body condition scoring. 2006. In: *Fundamentals of Beef Production*. D. Drake and R. Phillips, eds. University of California Agriculture and Natural Resources, Publication #3496. Pages 117-119.

State Humane Association of California: www.californiastatehumane.org/legislation.htm

University of Arkansas, Cooperative Extension, Beef Cattle Nutrition and Feeding, Visual Learning Center, Beef Cattle Body Condition Scoring 9 Point System:
http://www.aragriculture.org/livestock/beef/nutrition/visual_learning_center/body_condition/your_turn.htm

University of California, Davis, Cooperative Extension, Animal Welfare:
www.vetmed.ucdavis.edu/vetext/animalwelfare

University of Delaware, Cooperative Extension: <http://ag.udel.edu/extension/agnr/pdf/eq-13.pdf>

University of Nebraska-Lincoln, A Practical Guide To Body Condition Scoring, Resource: Rick Rasby:
<http://beef.unl.edu/learning/condition25.shtml>

United Nations Farm Animal Welfare: **www.fao.org**

Urbain, P., et al. Quantitative assessment of aerial ammonia toxicity to the nasal mucosa by the use of nasal lavage method in pigs. American Journal of Veterinary Research 55:1335, 1994.

U.S. Department of Agriculture, Agricultural Marketing Service, Cattle and Swine Trucking Guide for Exporters. 1997. Publication AMS 166-97. **<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3008268>**

U.S. Department of Agriculture, Animal Health and Plant Inspection Service, Animal Welfare Homepage:
www.aphis.usda.gov/animal_welfare

Virginia Cooperative Extension. Body Conditioning Beef Cattle. Publication 400-795:
<http://pubs.ext.vt.edu/400/400-795/400-795.html>

About the Authors



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Dr. Carolyn Stull received her Bachelor of Science degree in Biochemistry from Purdue University, and then continued her studies as a graduate student at the University of Illinois to earn her Master's and PhD degree in Animal Science. She is also board-certified in the American College of Animal Nutrition and the American College of Animal Welfare Science. Currently as a University of California Cooperative Extension Specialist, she directs the Animal Welfare Program focusing on the well-being of agricultural animals and disseminates information to the

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Carolyn has served as the Chair of the Animal Welfare Committee of the U.S. Animal Health Association, and has worked in collaboration with the U.S. Department of Agriculture and the Bureau of Land Management on policy development and research projects concerning animal well-being and handling. She was the North American representative to the ad hoc group on Land Transportation for the OIE, the World Organization for Animal Health in Paris. Currently her Cooperative Extension research programs are directed at developing welfare evaluation programs for commercial dairy and beef facilities, examining long-term transportation stress, formulating nutritional rehabilitation programs for starved animals, managing and handling of cull cows, characterizing factors that impact the unwanted horse in the United States, and evaluating the impact of extreme weather events on the welfare of dairy cattle on commercial dairies.



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Nyles Peterson obtained both his Bachelor's and Master's degrees in Animal Science from Brigham Young University. He has been Area Dairy Advisor for the University of California in southern California since 1980 and was appointed County Director for San Bernardino

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Nyles has expertise and interests in dairy productivity and food quality, as well as complex issues of animal health and welfare, waste management, and water quality. He is a co-author on the popular UC publication *California Dairies: Protecting Water Quality*, which clearly outlines key management practices that protect surface and groundwater quality. The guide is aimed at lending institutions, consulting engineers and crop management companies that work with dairy producers, as well as regulatory bodies like county environmental health departments and regional water quality control boards. He has developed and delivered numerous short educational courses with lectures and hands-on laboratories for both dairy herdsmen and their employees on the topics of animal health, appropriate handling practices, feeding programs, facility design, and environmental policies.



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Glenn Nader has served as a Livestock and Natural Resource Advisor for UC Davis Cooperative Extension since 1982. Glenn received a Bachelor's degree in Agriculture from Chico State University and a Master's degree in Animal Nutrition from UC Davis. He currently is responsible for conducting applied research and disseminating education programs throughout Yuba, Sutter and Butte counties of

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Glenn has extensive research on feeding of rice straw to cattle, yellow starthistle management, rangeland water quality, fire and fuel management, and improved marketing of beef cattle. He has numerous publications and book chapters on management of grass fed beef, appropriate handling and facilities for cattle, impact of fire on water quality, and the feeding of various roughages to cattle. Most recently, he has been involved with studying the digestion of rice straw for energy products, such as biodiesel and ethanol. Glen is licensed as a Certified Rangeland Manager by the California State Board of Forestry.



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Dr. John Maas earned his Bachelor's degree in Biology and Chemistry at California State University-Chico before attending veterinary school at UC Davis. He later received a Master's degree in Microbiology at the University of Missouri, and board-certification in Clinical Nutrition by the American College of Veterinary Nutrition as well as in Internal Medicine by the American College of Veterinary Internal Medicine.

John has been a livestock veterinarian for over 38 years and has held faculty appointments at the UC Davis School of Veterinary Medicine since 1988. His current position as a Cooperative Extension Veterinarian serves veterinarians and beef cattle producers in California and throughout the U.S. on issues involving cattle health, cattle nutrition, food safety and cattle well-being. John has many international experiences, most recently on a U.S. Department of Agriculture mission to several European countries to provide expertise in the diagnosis, testing and control systems for bovine spongiform encephalopathy. His research activities over the past 20 years have focused on trace element and vitamin metabolism in ruminants. He has published over 90 scientific papers in journals and texts on topics such as infectious diseases of cattle, and the metabolism of selenium, copper, iron, and iodine. He also has been involved in food safety research and education at the state and national level. John has chaired the California Cattlemen's Cattle Health Committee and the National Cattlemen's Beef Association's (NCBA) Cattle Disease Research Subcommittee, and serves on the NCBA's Quality Assurance Advisory Board.



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Dr. Terry Lehenbauer earned his Doctor of Veterinary Medicine degree from Oklahoma State University in 1979. He completed a food-animal residency, as well as Master of Preventive Veterinary Medicine and Ph.D. degrees at UC Davis. He is board-certified by the American College of Veterinary Preventive Medicine in both preventive medicine and epidemiology. He has extensive clinical experience in dairy and beef cattle herd health, as well as preventive veterinary medicine.

Terry is the current Director of the UC Davis School of Veterinary Medicine's Veterinary Medicine Teaching and Research Center, which is located at the hub of California dairy production in Tulare. As Director, Terry oversees academic and clinical training programs for veterinary and pre-veterinary students. He also manages the

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Carol Collar, MS

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Carol Collar was awarded both her Bachelor's and Master's degrees in Animal Science from UC Davis. She currently serves as the University of California Cooperative Extension's Dairy Farm Advisor for Kings County, one of the most productive dairy counties in the U.S. Her areas of interest and expertise are milk quality and food safety, forage quality, manure handling and treatment, animal health and well-being, and dairy energy conservation.

Carol has successfully conducted numerous research projects on the new technologies and methods for managing dairy cattle, assuring the health and welfare of dairy cattle, and mitigating the impacts of environmental and weather related events on the dairy. Her research findings have been presented at national symposium, as well as published in peer-reviewed scientific journals. She is prolific in the dissemination and exchange of information to support the dairy community on cattle health, food safety, regulatory policies, and animal well-being issues. Carol also is an active member of the National Mastitis Council and the American Dairy Science Association, which provide scientific and technical leadership to improve milk quality and grow the dairy industry globally.

APPENDIX 1

CATTLE-RELATED STATUTES FOR THE STATE OF CALIFORNIA



Appendix 1.

Cattle-Related Statutes for the State of California

The statutes and regulations described below consist of a partial listing of current (2012) regulations that apply to the care of cattle in the State of California. The statutes are listed in numerical order by Code. For readability purposes, the individual listing of the statute may not include the entire legislative language provided for that specific regulation but only contain the section(s) describing the intent or purpose of the statute. The listing is not intended to include all regulations and statutes that may apply to cattle. Please refer directly to the Legislative Counsel of California for the most current and inclusive language concerning each regulation and its associated penalties (www.leginfo.ca.gov/calaw.html).

PENAL CODES OF CALIFORNIA

597. Crimes of cruelty to animals.

(a) Except as provided in subdivision (c) of this section or Section 599c, every person who maliciously and intentionally maims, mutilates, tortures, or wounds a living animal, or maliciously and intentionally kills an animal, is guilty of an offense punishable by imprisonment in the state prison, or by a fine of not more than twenty thousand dollars (\$20,000), or by both the fine and imprisonment, or, alternatively, by imprisonment in a county jail for not more than one year, or by a fine of not more than twenty thousand dollars (\$20,000), or by both the fine and imprisonment.

(b) Except as otherwise provided in subdivision (a) or (c), every person who overdrives, overloads, drives when overloaded, overworks, tortures, torments, deprives of necessary sustenance, drink, or shelter, cruelly beats, mutilates, or cruelly kills any animal, or causes or procures any animal to be so overdriven, overloaded, driven when overloaded, overworked, tortured, tormented, deprived of necessary sustenance, drink, shelter, or to be cruelly beaten, mutilated, or cruelly killed; and whoever, having the charge or custody of any animal, either as owner or otherwise, subjects any animal to needless suffering, or inflicts unnecessary cruelty upon the animal, or in any manner abuses any animal, or fails to provide the animal with proper food, drink, or shelter or protection from the weather, or who drives, rides, or otherwise uses the animal when unfit for labor, is, for every such offense, guilty of a crime punishable as a misdemeanor or as a felony or alternatively punishable as a misdemeanor or a felony and by a fine of not more than twenty thousand dollars (\$20,000).

(c) Every person who maliciously and intentionally maims, mutilates, or tortures any mammal, bird, reptile, amphibian, or fish as described in subdivision (d), is guilty of an offense punishable by imprisonment in the state prison, or by a fine of not more than twenty thousand dollars (\$20,000), or by both the fine and imprisonment, or, alternatively, by imprisonment in the county jail for not more than one year, by a fine of not more than twenty thousand dollars (\$20,000), or by both the fine and imprisonment.

(d) Subdivision (c) applies to any mammal, bird, reptile, amphibian, or fish which is a creature described as follows:

(1) Endangered species or threatened species as described in Chapter 1.5 (commencing with Section 2050) of Division 3 of the Fish and Game Code.

(2) Fully protected birds described in Section 3511 of the Fish and Game Code.

(3) Fully protected mammals described in Chapter 8 (commencing with Section 4700) of Part 3 of Division 4 of the Fish and Game Code.

(4) Fully protected reptiles and amphibians described in Chapter 2 (commencing with Section 5050) of Division 5 of the Fish and Game Code.

(5) Fully protected fish as described in Section 5515 of the Fish and Game Code.

This subdivision does not supersede or affect any provisions of law relating to taking of the described species, including, but not limited to, Section 12008 of the Fish and Game Code.

(e) For the purposes of subdivision (c), each act of malicious and intentional maiming, mutilating, or torturing a separate specimen of a creature described in subdivision (d) is a separate offense. If any person is charged with a violation of subdivision (c), the proceedings shall be subject to Section 12157 of the Fish and Game Code.

(f) (1) Upon the conviction of a person charged with a violation of this section by causing or permitting an act of cruelty, as defined in Section 599b, all animals lawfully seized and impounded with respect to the violation by a peace officer, officer of a humane society, or officer of a pound or animal regulation department of a public agency shall be adjudged by the court to be forfeited and shall thereupon be awarded to the impounding officer for proper disposition. A person convicted of a violation of this section by causing or permitting an act of cruelty, as defined in Section 599b, shall be liable to the impounding officer for all costs of impoundment from the time of seizure to the time of proper disposition.

(2) Mandatory seizure or impoundment shall not apply to animals in properly conducted scientific experiments or investigations performed under the authority of the faculty of a regularly incorporated medical college or university of this state.

597a. Transporting animals in cruel manner.

Whoever carries or causes to be carried in or upon any vehicle or otherwise any domestic animal in a cruel or inhumane manner, or knowingly and willfully authorizes or permits it to be subjected to unnecessary torture, suffering, or cruelty of any kind, is guilty of a misdemeanor; and whenever any such person is taken into custody therefore by any officer, such officer must take charge of such vehicle and its contents, together with the horse or team attached to such vehicle, and deposit the same in some place of custody; and any necessary expense incurred for taking care of and keeping the same, is a lien thereon, to be paid before the same can be lawfully recovered; and if such expense, or any part thereof, remains unpaid, it may be recovered, by the person incurring the same, of the owner of such domestic animal, in an action therefore.

597f. Emergency euthanasia of injured animals.

(a) Every owner, driver, or possessor of any animal, who permits the animal to be in any building, enclosure, lane, street, square, or lot, of any city, city and county, or judicial district, without proper care and attention, shall, on conviction, be deemed guilty of a misdemeanor. And it shall be the duty of any peace officer, officer of the humane society, or officer of a pound or animal regulation department of a public agency, to take possession of the animal so abandoned or neglected and care for the animal until it is redeemed by the owner or claimant, and the cost of caring for the animal shall be a lien on the animal until the charges are paid. Every sick, disabled, infirm, or crippled animal, except a dog or cat, which shall be abandoned in any city, city and county, or judicial district, may, if after due search no owner can be found therefore, be killed by the officer;

and it shall be the duty of all peace officers, an officer of such society, or officer of a pound or animal regulation department of a public agency to cause the animal to be killed on information of such abandonment. The officer may likewise take charge of any animal, including a dog or cat, that by reason of lameness, sickness, feebleness, or neglect, is unfit for the labor it is performing, or that in any other manner is being cruelly treated; and, if the animal is not then in the custody of its owner, the officer shall give notice thereof to the owner, if known, and may provide suitable care for the animal until it is deemed to be in a suitable condition to be delivered to the owner, and any necessary expenses which may be incurred for taking care of and keeping the animal shall be a lien thereon, to be paid before the animal can be lawfully recovered.

(d) Notwithstanding any other provisions of this section, any officer of a pound or animal regulation department or humane society, or any officer of a police or sheriff's department may, with the approval of his or her immediate superior, humanely destroy any abandoned animal in the field in any case where the animal is too severely injured to move or where a veterinarian is not available and it would be more humane to dispose of the animal.

597n. Tail docking in horses and cattle.

(a) Any person who cuts the solid part of the tail of any horse or cattle in the operation known as "docking," or in any other operation performed for the purpose of shortening the tail of any horse or cattle, within the State of California, or procures the same to be done, or imports or brings into this state any docked horse, or horses, or drives, works, uses, races, or deals in any unregistered docked horse, or horses, within the State of California except as provided in Section 597r, is guilty of a misdemeanor.

(b) Subdivision (a) shall not apply to "docking" when the solid part of any cattle's tail must be removed in an emergency for the purpose of saving the cattle's life or relieving the cattle's pain, provided that the emergency treatment is performed consistent with the Veterinary Medicine Practice Act (commencing with Section 4811) of Article 1 of Chapter 11 of Division 2 of the Business and Professions Code.

(c) For the purposes of this section, "cattle" means any animal of the bovine species.

597s. Abandoning animals.

(a) Every person who willfully abandons any animal is guilty of a misdemeanor.

(b) This section shall not apply to the release or rehabilitation and release of native California wildlife pursuant to statute or regulations of the California Department of Fish and Game.

597t. Animals in confinement.

Every person who keeps an animal confined in an enclosed area shall provide it with an adequate exercise area. If the animal is restricted by a leash, rope, or chain, the leash, rope, or chain shall be affixed in such a manner that it will prevent the animal from becoming entangled or injured and permit the animal's access to adequate shelter, food, and water. Violation of this section constitutes a misdemeanor. This section shall not apply to an animal which is in transit, in a vehicle, or in the immediate control of a person.

597u. Prohibited methods of killing animals by public agency.

(a) No person, peace officer, officer of a humane society, or officer of a pound or animal regulation department of a public agency shall kill any animal by using any of the following methods:

(1) Carbon monoxide gas.

(2) Intracardiac injection of a euthanasia agent on a conscious animal, unless the animal is heavily sedated or anesthetized in a humane manner, or comatose, or unless, in light of all the relevant circumstances, the procedure is justifiable.

597.1. Veterinary care for injured animals; seizure proceedings.

(a) Every owner, driver, or keeper of any animal who permits the animal to be in any building, enclosure, lane, street, square, or lot of any city, county, city and county, or judicial district without proper care and attention is guilty of a misdemeanor. Any peace officer, humane society officer, or animal control officer shall take possession of the stray or abandoned animal and shall provide care and treatment for the animal until the animal is deemed to be in suitable condition to be returned to the owner. When the officer has reasonable grounds to believe that very prompt action is required to protect the health or safety of the animal or the health or safety of others, the officer shall immediately seize the animal and comply with subdivision (f). In all other cases, the officer shall comply with the provisions of subdivision (g). The cost of caring for and treating any animal properly seized under this subdivision shall constitute a lien on the animal and the animal shall not be returned to its owner until the charges are paid, if the seizure is upheld pursuant to this section.

(b) Every sick, disabled, infirm, or crippled animal, except a dog or cat, that is abandoned in any city, county, city and county, or judicial district may be killed by the officer if, after a reasonable search, no owner of the animal can be found. It shall be the duty of all peace officers, humane society officers, and animal control officers to cause the animal to be killed or rehabilitated and placed in a suitable home on information that the animal is stray or abandoned. The officer may likewise take charge of any animal, including a dog or cat, that by reason of lameness, sickness, feebleness, or neglect, is unfit for the labor it is performing, or that in any other manner is being cruelly treated, and provide care and treatment for the animal until it is deemed to be in a suitable condition to be returned to the owner. When the officer has reasonable grounds to believe that very prompt action is required to protect the health or safety of an animal or the health or safety of others, the officer shall immediately seize the animal and comply with subdivision (f). In all other cases, the officer shall comply with subdivision (g). The cost of caring for and treating any animal properly seized under this subdivision shall constitute a lien on the animal and the animal shall not be returned to its owner until the charges are paid.

(f) Whenever an officer authorized under this section seizes or impounds an animal based on a reasonable belief that prompt action is required to protect the health or safety of the animal or the health or safety of others, the officer shall, prior to the commencement of any criminal proceedings authorized by this section, provide the owner or keeper of the animal, if known or ascertainable after reasonable investigation, with the opportunity for a post-seizure hearing to determine the validity of the seizure or impoundment, or both.

(g) Where the need for immediate seizure is not present and prior to the commencement of any criminal proceedings authorized by this section, the agency shall provide the owner or keeper of the animal, if known or ascertainable after reasonable investigation, with the opportunity for a hearing prior to any seizure or

impoundment of the animal. The owner shall produce the animal at the time of the hearing unless, prior to the hearing, the owner has made arrangements with the agency to view the animal upon request of the agency, or unless the owner can provide verification that the animal was humanely destroyed. Any person who willfully fails to produce the animal or provide the verification is guilty of an infraction, punishable by a fine of not less than two hundred fifty dollars (\$250) nor more than one thousand dollars (\$1,000).

597.7. Animals in unattended motor vehicle.

(a) No person shall leave or confine an animal in any unattended motor vehicle under conditions that endanger the health or well-being of an animal due to heat, cold, lack of adequate ventilation, or lack of food or water, or other circumstances that could reasonably be expected to cause suffering, disability, or death to the animal.

(b) Unless the animal suffers great bodily injury, a first conviction for violation of this section is punishable by a fine not exceeding one hundred dollars (\$100) per animal. If the animal suffers great bodily injury, a violation of this section is punishable by a fine not exceeding five hundred dollars (\$500), imprisonment in a county jail not exceeding six months, or by both a fine and imprisonment. Any subsequent violation of this section, regardless of injury to the animal, is also punishable by a fine not exceeding five hundred dollars (\$500), imprisonment in a county jail not exceeding six months, or by both a fine and imprisonment.

(c) (1) Nothing in this section shall prevent a peace officer, humane officer, or an animal control officer from removing an animal from a motor vehicle if the animal's safety appears to be in immediate danger from heat, cold, lack of adequate ventilation, lack of food or water, or other circumstances that could reasonably be expected to cause suffering, disability, or death to the animal.

(2) A peace officer, humane officer, or animal control officer who removes an animal from a motor vehicle shall take it to an animal shelter or other place of safekeeping or, if the officer deems necessary, to a veterinary hospital for treatment.

(3) A peace officer, humane officer, or animal control officer is authorized to take all steps that are reasonably necessary for the removal of an animal from a motor vehicle, including, but not limited to, breaking into the motor vehicle, after a reasonable effort to locate the owner or other person responsible.

(4) A peace officer, humane officer, or animal control officer who removes an animal from a motor vehicle shall, in a secure and conspicuous location on or within the motor vehicle, leave written notice bearing his or her name and office, and the address of the location where the animal can be claimed. The animal may be claimed by the owner only after payment of all charges that have accrued for the maintenance, care, medical treatment, or impoundment of the animal.

(5) This section does not affect in any way existing liabilities or immunities in current law, or create any new immunities or liabilities.

(d) Nothing in this section shall preclude prosecution under both this section and Section 597 or any other provision of law, including city or county ordinances.

(e) Nothing in this section shall be deemed to prohibit the transportation of horses, cattle, pigs, sheep, poultry or other agricultural animals in motor vehicles designed to transport such animals for agricultural purposes.

599e. Emergency euthanasia of unfit animals.

Every animal which is unfit, by reason of its physical condition, for the purpose for which such animals are usually employed, and when there is no reasonable probability of such animal ever becoming fit for the purpose for which it is usually employed, shall be by the owner or lawful possessor of the same, deprived of life within 12 hours after being notified by any peace officer, officer of said society, or employee of a pound or animal regulation department of a public agency who is a veterinarian, to kill the same, and such owner, possessor, or person omitting or refusing to comply with the provisions of this section shall, upon conviction, be deemed guilty of a misdemeanor, and after such conviction the court or magistrate having jurisdiction of such offense shall order any peace officer, officer of said society, or officer of a pound or animal regulation department of a public agency, to immediately kill such animal; provided, that this shall not apply to such owner keeping any old or diseased animal belonging to him on his own premises with proper care.

599f. Nonambulatory cattle, sheep, swine and goats.

- (a) No slaughterhouse, stockyard, auction, market agency, or dealer shall buy, sell, or receive a nonambulatory animal.
- (b) No slaughterhouse shall process, butcher, or sell meat or products of nonambulatory animals for human consumption.
- (c) No slaughterhouse shall hold a nonambulatory animal without taking immediate action to humanely euthanize the animal.
- (d) No stockyard, auction, market agency, or dealer shall hold a nonambulatory animal without taking immediate action to humanely euthanize the animal or to provide immediate veterinary treatment.
- (e) While in transit or on the premises of a stockyard, auction, market agency, dealer, or slaughterhouse, a nonambulatory animal may not be dragged at any time, or pushed with equipment at any time, but shall be moved with a sling or on a stoneboat or other sled-like or wheeled conveyance.
- (f) No person shall sell, consign, or ship any nonambulatory animal for the purpose of delivering a nonambulatory animal to a slaughterhouse, stockyard, auction, market agency, or dealer.
- (g) No person shall accept a nonambulatory animal for transport or delivery to a slaughterhouse, stockyard, auction, market agency, or dealer.
- (h) A violation of this section is subject to imprisonment in a county jail for a period not to exceed one year, or by a fine of not more than twenty thousand dollars (\$20,000), or by both that fine and imprisonment.
- (i) As used in this section, "nonambulatory" means unable to stand and walk without assistance.
- (j) As used in this section, "animal" means live cattle, swine, sheep, or goats.
- (k) As used in this section, "humanely euthanize" means to kill by a mechanical, chemical, or electrical method that rapidly and effectively renders the animal insensitive to pain.

CALIFORNIA FOOD AND AGRICULTURAL CODES

Transport- confinement of animals in truck transit: rest, water, and feeding: 28 hour limit.

16908. It is unlawful for any person that owns or operates any motor truck, or motor truck and trailer, or semi-trailer, to confine or permit to be confined, in such vehicle, any animal for a longer period than 28 consecutive hours from the time the animal was last fed and watered. Upon the written request of the owner or person in charge of the animal, the period of confinement may be extended to 36 hours. Before the expiration of the permissible period of confinement, the animal shall be unloaded in a humane manner by means of a chute or tailgate of sufficient size into properly equipped pens for rest, water, and feeding, for a period of at least five consecutive hours.

The failure of a person to feed or water an animal within the time limit prescribed by this section is not a violation of this section if the feeding and watering of the animal is prevented by storm or other accidental or unavoidable causes which could not be anticipated or avoided by the exercise of due diligence and foresight.

16909. In estimating the period of confinement, the time consumed in loading and unloading the animal shall not be considered, but the time during which the animal has been confined without rest, food, or water on any other or connecting vehicle, or outside of the state, shall be included.

Slaughter

19501. (a) Cattle, calves, horses, mules, sheep, swine, goats, or fallow deer, or poultry shall be slaughtered by the methods prescribed in this section. No state agency shall contract for, purchase, procure, or sell all or any portion of any animal, unless that animal is slaughtered in conformity with this chapter. This chapter applies to any person engaged in the business of slaughtering animals enumerated in this section, or any person slaughtering any of those animals when all, or any part of, that animal is subsequently sold or used for commercial purposes.

(b) All cattle, calves, horses, mules, sheep, swine, goats, or fallow deer subject to this part, or poultry subject to Part 1 (commencing with Section 24501) of, Part 2 (commencing with Section 25401) of, and Part 3 (commencing with Section 26401) of, Division 12 shall be slaughtered by either of the following prescribed methods:

(1) The animal shall be rendered insensible to pain by a captive bolt, gunshot, electrical or chemical means, or any other means that is rapid and effective before being cut, shackled, hoisted, thrown, or cast, with the exception of poultry which may be shackled.

(2) The animal shall be handled, prepared for slaughter, and slaughtered in accordance with ritual requirements of the Jewish or any other religious faith that prescribes a method of slaughter whereby the animal suffers loss of consciousness by anemia of the brain caused by the simultaneous and instantaneous severance of the carotid arteries with a sharp instrument. This section does not apply to the slaughter of spent hens and small game birds, as defined by the department by regulation.

19502. The regulations adopted under this chapter shall conform as far as possible to the regulations of the United States Department of Agriculture governing methods of slaughtering.

19503. The Department of Agriculture shall enforce the provisions of Section 19501 and is authorized and directed to perform the following duties:

Designate, on or before March 1, 1968, and at such times thereafter as it deems advisable, methods of slaughter and of handling in connection with slaughter, with respect to each species of livestock enumerated in Section 19501, which conform to the provisions of Section 19501. In addition, the department may designate other methods not specifically described in Section 19501. However, nothing in this section shall authorize the department to prohibit any method specifically permitted in Section 19501.

Branding and marking

20668. An application shall not be accepted for the recordation of a brand if the brand is to be applied to any of the following:

- (a) Either jaw.
- (b) The face.
- (c) The nose.
- (d) Either loin.
- (e) The breeching of an animal.

20669. An application shall not be accepted for the recordation of a brand which is accompanied by a mark if the use of the mark involves cutting off more than one-half of an ear.

APPENDIX 2

BODY CONDITION SCORES OF DAIRY CATTLE

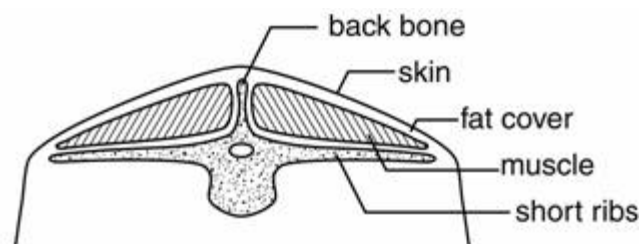


Appendix 2.

Body Condition Scores of Dairy Cattle

(Reproduced with permission © Queen's Printer for Ontario, 2000)

Body condition is a reflection of the body fat reserves carried by the animal. These reserves can be used by the cow in periods when she is unable to eat enough to satisfy her energy needs. Cows should be scored both by looking at and handling the backbone, loin and rump areas. Since the pin bone, hip bone, the top of the backbone and ends of the short ribs do not have muscle tissue covering them, any covering you see or feel is the combination of skin and fat deposits.



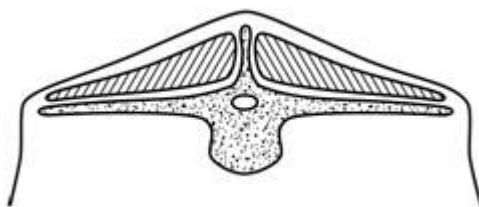
Body Condition Score 1: Only skin and fat cover the backbone and ends of the short ribs, making these ideal locations to assess body condition. This cow is **emaciated**.



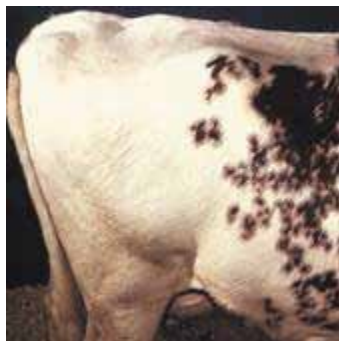
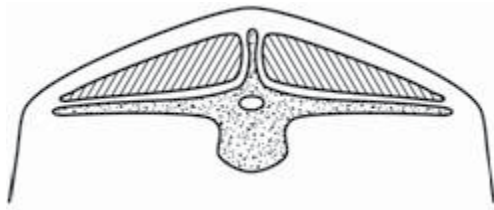
Body Condition Score 2: Shallow cavity around tailhead. Pelvis can be felt. There is a depression in the loin area. This cow is scored as **thin**.



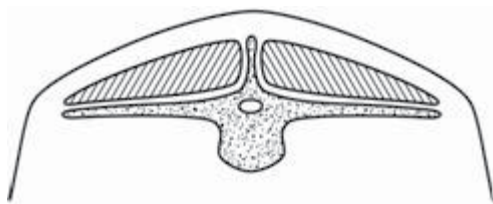
Body Condition Score 3: No cavity around tailhead. Pelvis and short ribs can be felt with slight pressure. There is a slight depression over loin area. This cow's body condition is considered **ideal**.



Body Condition Score 4: Folds of tissue around tailhead. There is no depression in loin area. The short ribs cannot be felt. This cow is considered **fat**.



Body Condition Score 5: Tailhead is buried in fatty tissue. Pelvic bones cannot be felt. Brisket is heavy. This cow is considered **obese**.



APPENDIX 3

BODY CONDITION SCORES OF BEEF CATTLE



Appendix 3. Body Condition Scores of Beef Cattle

Body Condition Score 1: Severely Emaciated. All rib and bone structures are easily visible. No fat is over the backbone.



Photos: University of Arkansas Cooperative Extension (left) and John Maas, DVM (right).

Body Condition Score 2: Emaciated. Animal appears emaciated but tailhead and ribs less prominent. Some tissue exists along spine.



Photos: University of Arkansas Cooperative Extension.

Body Condition Score 3: Very Thin. Ribs are identifiable but not sharp. No fat on ribs, brisket, spine, or tailhead.



Photos: University of Arkansas Cooperative Extension.

Body Condition Score 4: Thin. Individual ribs are not apparent except over last two ribs. Backbone can be identified with slight pressure.



Photos: University of Nebraska-Lincoln (left) and University of Arkansas Cooperative Extension (right).

Body Condition Score 5: Moderate. Good overall appearance. Ribs are not apparent. Areas on either side of tailhead are filled.



Photos: University of Nebraska-Lincoln (left) and University of Arkansas Cooperative Extension (right).

Body Condition Score 6: High Moderate. Good smooth appearance throughout. Ribs are not visible. Some fat deposited in brisket. Firm pressure needed to feel backbone.



Photos: University of Nebraska-Lincoln (left) and University of Arkansas Cooperative Extension (right).

Body Condition Score 7: Good. Cattle appear fleshy. Brisket is full. Tailhead and pin bones have protruding fat deposits. Back appears square.



Photos: University of Nebraska-Lincoln (left) and University of Arkansas Cooperative Extension (right).

Body Condition Score 8: Obese. Backbone is almost impossible to feel. Protruding fat deposits on tailhead and pin bones. Brisket is distended.



Photos: University of Arkansas Cooperative Extension.

Body Condition Score 9. Body has smooth appearance and has lost definition. Tailhead and hips buried in fat deposits. Body structures are not visible or palpable.



Photos: University of Arkansas Cooperative Extension (left) and Virginia Cooperative Extension, Virginia Tech (right).

APPENDIX 4

EVALUATION CHECKLIST FOR CATTLE CARE



Appendix 4. EVALUATION CHECKLIST FOR CATTLE CARE

Cattle Care Standard	Yes/No/NA	Comments
Does water appear to be available in amounts sufficient to provide the daily requirement of all cattle?		
Does the water appear to be of sufficient minimum quality (e.g., free of harmful algae, feces or contamination by manure or other potentially harmful substances)?		
Do the cattle have a minimum body condition score of 2 on the 9-point scale for beef cattle or the 5-point scale for dairy cattle? List the actual body condition scores. Consult a veterinarian if there are questions about body condition of cattle.		
<p>Do confined cattle have access to available pasture or range for grazing?</p> <p style="padding-left: 40px;">Are these cattle fed at least once per day?</p> <p style="padding-left: 40px;">Are these cattle fed hay or forage in the amount of at least 1.0% of their body weight per day?</p> <p style="padding-left: 40px;">Is the feed source free of contaminants such as mold or toxic weeds?</p>		
<p>Is there sufficient forage for grazing cattle such that all cattle maintain a minimum body condition score of 2? Consult a veterinarian or nutritionist if there are any questions regarding adequate diet.</p> <p style="padding-left: 40px;">If supplemental feed is fed, is it in sufficient quantity to maintain a body condition score of 2?</p> <p style="padding-left: 40px;">Is minimum shelter (structure, shade or natural vegetation) provided for cattle showing signs of heat or cold stress during extreme weather conditions? Describe the type of shelter.</p>		
Are enclosures and shelters free of hazards that can cause injury to cattle? Describe any hazards or apparent injury.		
Is the minimum ceiling height of any shelter at least 1 foot above the cattle's head when standing?		

Cattle Care Standard	Yes/No/NA	Comments
Is the enclosure free of excessive feces, urine, mud or other contaminants that may cause unhealthy conditions?		
Within enclosed areas, is ventilation sufficient to control excessive ambient temperatures, excessive humidity, or the accumulation of toxic gases such as ammonia?		
If cattle are confined in pens or enclosures with minimal space, is there access to an exercise area for at least 30 minutes per day, unless otherwise directed by a veterinarian?		
Do any of the cattle exhibit signs of pain, suffering or failure to thrive that require medical care or euthanasia? Describe signs and any medical care provided and consult a veterinarian.		
Are there any cattle with docked tails?		
Are nonambulatory cattle provided with shelter and accessible feed and water?		
Are any hot or freeze brands applied to the jaw, face, nose, loins or breeching area (between tail and hocks) in any cattle?		
Are nonambulatory cattle being transported, except to receive veterinary attention?		
Is the duration of transport longer than 28 hours since cattle were fed and watered?		
<p>Are the transport vehicles or trailers in safe and proper working condition?</p> <p>Do the cattle come into contact with the upper deck or roof of trailer?</p> <p>Do the cattle have sufficient space to stand without risk of falling?</p> <p>Are newborn or young calves provided with space to lie down without injury?</p>		
Have any California statutes (see Appendix 1 and 2) been violated? List specific regulations.		

Cattle Care Standard	Yes/No/NA	Comments
Additional Questions/Comments:		



