

AEC STANDARD OPERATING PROCEDURES

SOP No:	19																																														
SOP	Cattle																																														
Scientific Name:	<i>Bos Taurus and Bos indicus</i>																																														
Category:	2, 3, 4, 5																																														
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Approval Level:	Where an activity is not listed in this SOP, approval must be sought from the Animal Ethics Committee and confirmed before it can be undertaken.																																														
Authority:	Government Schools – Department for Education and Childhood Development Animal Ethics Committee Independent and Catholic Schools - Non Government Schools Animal Ethics Committee																																														
Authority Approval Date:	1 August 2010																																														
Last update	10 October 2019																																														
Disclaimer:	<i>This document may be updated at any time. You should check the web site regularly to ensure that you are meeting the most recent recommendations. If you note any concerns with the information provided (inadequate, incorrect) please contact the relevant AEC</i>																																														
Licensing Requirement:	Not applicable																																														
Compliance Requirement:	The keeping of this species requires approval from the School Principal alone or as well as the AEC depending upon the activity category. It is recommended that this Standard Operating Procedure be followed as a minimum in the provision of appropriate care and housing for this species.																																														

General information: ***Bos Taurus*** are temperate cattle breeds, mainly found in southern areas of Australia. Breeds include Angus, Belted Galloway, Devon, Highland, Murray Grey, Poll Hereford, Red Angus, Shorthorn, South Devon, Charolais, Limousin and Simmental.

Bos indicus are tropical cattle breeds, found in northern areas of Australia. Breeds are: Brahman, Santa Gertrudis, Braford, Charbray and Droughtmaster.

Many different and distinct breeds exist. Cattle are usually divided into two groups:

1. Dairy cattle (milk production), e.g. Holstein, Jersey and Illawarra Shorthorn
2. Beef cattle (meat production), e.g. Hereford, Angus, Murray Grey and Brahman

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Physical

Attributes:

- **Size:** Varies greatly between breeds. Mature heights up to 1.5 metres at the shoulder, or taller for some large breeds.
- **Weight:** from 400 - 800kgs. Varies greatly with breed and stage of growth
- **Age at adult size:** Breed dependant varying from 2 - 4 yrs.
- **Weight at birth:** Small breeds 15 - 20 kg. Large breeds 35-40+ kg. Note that final birth weight is dependant upon the age of the cow, the nutrition of the cow (particularly in early pregnancy), the breed, the specific genetics of the parents, ie. some bulls 'throw' low birth weight cows and are actively selected for that as this can mean less problems at calving and whether it is a single or multiple birth.
Healthy characteristics:
 - Body Temperature: 38.6°C, range 37.0°C-39.3°C
 - Respiration rate: 20-40 breaths/minute
 - Heart rate: 40-100 beats/minute
 - Other: moist muzzle, active, and alert, glossy coat, clear bright eyes.

Behaviour:

Cattle used in school activities should be docile, spending most of their time grazing or chewing the cud. Cattle are social and will herd if kept in numbers. Cattle showing difficult temperaments should be culled or rehomed and not used in a school situation.

Environment:

Extensive cattle farming:

Housing/Space: The minimum space required in extensive situations is 0.5 ha per head assuming the pasture is balanced and well maintained.

Movement: Cattle may be kept in a paddock and perform well in an open pasture that has plenty of available water.

Shelter: They need shelter from wind, rain and sun.

Intensive cattle farming: (e.g. feedlots) **Housing/space:** Suitable materials for stalls include straw, sand or sawdust. Suitable drainage needs to be provided.

Movement: Cattle should be able to display their normal behaviour on a daily basis.

Temperature: In stalls, provide adequate ventilation; in feedlots, access to shade, such as trees or shelter, is preferable to avoid heat stress.

Light: If cattle are kept indoors the area should be well lit.

Cleaning: Clean the stalls daily. Feedlots that produce meat for export must be accredited under the National Feedlot Accreditation Scheme.

Feeding:

Diet: Good quality pasture comprising a balance of grasses and legumes should be fed out. Monitoring of live weight or condition scoring will indicate the adequacy or otherwise of the feed conditions. Fresh, clean water that is readily accessible is also needed for efficient growth.

- **Extensive systems:** Care must be taken when cattle are put on pastures with a high legume content as bloat can occur. Grazing is the most economical for older cattle. Remember, when hand feeding, the rule is to introduce new food types slowly and carefully. Do not feed excessive quantities of grains, feed plenty of high quality roughage and feed small amounts at frequent interval
- **Intensive systems:** Adequate food and water trough space must be available so all cattle have equal access to food to prevent bullying and therefore eliminate unintentional over and under feeding. Feed bins should be off the ground and automatic waterers, which supply clean, fresh water at all times, should be installed and checked daily. There should be adequate waterers for the number of cattle housed.

Daily requirements: Food quantities vary with the animal's weight, stages of growth and stages of production. On average, a 450 kg cow requires 0.5 ha of good quality pasture (2.5 – 3% of body weight in dry matter). To hand feed the same cow requires approximately 10 kg of concentrates, plus hay, each day. Cattle should be fed daily. Young calves should be hand fed twice a day. Young calves either suckle on their mother or can be fed using a milk replacement. Ask a Veterinarian or Animal industry expert for further dietary advice.

Supplementary feeding: with hay and concentrate mixes may be necessary.

Essential dietary needs (variations): Newborn calves must get colostrum in the first 24 hours.

Water: A clean, fresh, reliable supply is necessary. As a guide, a small cow will require 30–50 litres per day and more if she is lactating.

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- Breeding:**
- **Gestation period:** 282 days (range 275-290 days).
 - **Number of offspring:** usually one.
 - **Range of breeding ages:** Mating begins: 15-18 mths, reproductive life 8-10 yrs.
 - **Weaning age:** 6-8 months.
- Schools should consult with a Veterinarian prior to commencing a breeding program and attaining any stock for such purposes.
- Handling:**
- Humans:** Cattle need to be handled calmly and carefully to prevent distress and injury to both handlers and cattle. Cattle prod use should be discouraged. Instead, food incentives should be used to train cattle to become more comfortable with human contact, handling and restraint. Any new food types should be introduced slowly and carefully. Do not feed excessive quantities of grains, feed plenty of high quality roughage and feed small amounts at frequent intervals.
- Equipment:** A set of solid yards is required, including a race and crush or head bail are necessary.
- Transport:** Considerations must be given to cattle behaviour when loading and unloading cattle. See Section B4 for Specific requirements for the land transport of cattle in the Land Transport of Livestock Standards and Guidelines and the AEC Calf Transport Compliance checklist for more information in relation to cattle transportation. This outlines requirements with regards to time off water, long distance travel, food and water requirements when travelling, vehicle and facilities requirements and handling. All cattle must be deemed fit for travel prior to transporting them.
- Disease prevention**
- Schools are encouraged to seek advice from Veterinarians and Animal Industry Representatives and to develop an animal management plan. This plan should outline a calendar of routine husbandry events and treatments (e.g. vaccinations and weaning) the school will undertake throughout the year. Treatments must be documented in the appropriate records. Schools should also develop a farm biosecurity plan to assess risks to their enterprise.
- Hygiene:**
- After handling or working with cattle, thoroughly wash hands with soap and running water for at least 15 seconds. Dry hands with clean paper towel or an air dryer. Turn off the tap with the paper towel if possible.
- Signs of illness:**
- Indicators:
- stiff gait, swollen joints or lameness,
 - abnormal posture (e.g. neck extended), diarrhoea,
 - weight loss,
 - loss of appetite,
 - abortion or infertility,
 - abnormal discharges from eyes, nose, mouth, genitals or anus,
 - persistent coughing, gasping or panting,
 - growths or lesions on the skin,
 - skin irritation,
 - patchy coat or hair loss,
 - excessive vocalisation and
 - failure to thrive or grow
- The health of stock should be monitored at least daily and preferably more often. Common ailments may include mastitis, bloat and parasites.
- Treatments:**
- Schools are encouraged to develop relationships with a Veterinarian and Animal industry representatives (e.g. stock agent) familiar with livestock. These contacts can be used for discussing treatment options and dietary, husbandry and welfare advice. Veterinarians can also assist with disease diagnoses and advice for activities that may illicit pain where pain relief is required and for emergencies particularly when euthanasia is needed. Treatments must be documented in the appropriate records.
- Euthanasia:**
- Where an injury or illness is such that recovery is unlikely then cattle must be euthanised by a Veterinarian. Schools should contact their local Veterinarian to discuss emergency treatment options prior to an event occurring when keeping cattle. Any adverse event including death must be reported to the AEC using the ADVERSE EVENTS form. Forms must be returned to the AEC within 7 days of the event occurring.

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Disposal/fate planning: Cattle can be sold privately, at auction or consigned to an abattoir. Cattle must not be released into the wild. Carcasses must be disposed of in accordance with local council regulations.

Holiday and weekend care: It is preferred that cattle remain onsite for quarantine reasons and are not mixed with other cattle offsite, while being used for school activities. Cattle can be taken offsite however with the permission of the school Principal and the carers and on advice from a Veterinarian. Staff should provide carers with animal care and record-keeping instructions, emergency contacts and provide appropriate equipment and food. Animals must be checked daily, records kept and any problems reported to the school immediately whether kept onsite or taken offsite.

Approved activities: **Where an activity is not listed in this SOP, approval must be sought from the Animal Ethics Committee and confirmed before it can be undertaken.**

a. CAPTURE, RESTRAINT AND HANDLING OF CATTLE

Activity: Category 2

Category: To instruct students on the correct methods of capture, restraint and handling of cattle.

Objective: Staff should be experienced and familiar with cattle behaviour when undertaking this activity. Cattle that are experienced with handling including walking on a halter are preferred. The use of laneways leading to yard facilities will allow cattle to move freely rather than being forced.

Activity: **b. MEASUREMENT OF BODY WEIGHT, GROWTH OR BODY PROPORTIONS OF CATTLE (NON-INVASIVE)**

Category: Category 2

Objective: To instruct students on collecting measurements of body weight from cattle.

The animal's growth can be recorded by measuring the width of a cattle's body parts (e.g. girth). A soft plastic tape measure can be used to measure different body parts. Two handlers are required for the measurement of body proportions using low stress handling techniques. One handler is required to restrain the cow while the other handler takes measurements. It is important to ensure that all the equipment required is ready prior to restraining the sheet. Cattle should not be excessively distorted to make measurements of body parts. Growth measurements can also be shown by photographing or drawing a cow against an appropriate background scale. Use a sufficient number of cattle to determine individual difference.

A cow's bodyweight can be recorded by weighing it regularly. This measurement should be done with low stress handling techniques (e.g. halter a lead trained cow to the scales with food training) returning the cow to its enclosure promptly. Only cows accustomed to being handled should be used. It is important to ensure that all the equipment (e.g. scales) required is ready prior to catching any cows. Rubber matting can be used to avoid the surface of scales being slippery. Scales should be cleaned regularly. Recording regular measurements of weight can give an accurate measure of weight over time.

Activity: **c. MEASUREMENT OF BODY CONDITION OF CATTLE (NON-INVASIVE)**

Category: Category 2

Objective: To instruct students on the measurements of body condition in cattle

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A cow's body condition can be measured using a chart that compares the cow's fat coverage at certain bony points on its body. See the body condition scoring reference in the Resources section of this SOP for more information.

Activity: **d. MEASUREMENT OF PULSE OR RESPIRATION OF CATTLE**

Category: Category 2

Objective: To instruct students on the correct methods for measuring pulse and respiration in cattle

Respiration can easily be measured by visually observing a cow's chest movements as it breathes. Alternatively, cows can be observed in warmer weather conditions as indications of respiration become more obvious. Observe and record a cow with its mouth open and nostrils flared, recording the number of nostrils flare movements.

The use of a stethoscope or palpating over specific locations on the head is required to measure a pulse rate in cow. With a little practice, students should be able to hear a pulse rate using a stethoscope or feel the pulse with their fingers. With the cow restrained in a crush or in yards, the pulse can be measured. . It is best if students practise using a stethoscope on each other prior to performing this procedure.

Activity: **e. MEASUREMENT OF AGE BY DENTITION IN CATTLE**

Category: Category 2

Objective: To instruct students on the use of dentition to age cattle.

Staff should be experienced and familiar with cattle behaviour, handling and restraint when undertaking this activity. Cattle that are experienced with handling including walking on a halter are preferred.

Activity: **f. MEASUREMENT OF THE SCROTUM AND TESTICLES BY PALPATION IN CATTLE**

Category: Category 2

Objective: To demonstrate to students the palpation and taking of measurements of a cow's scrotum and testicles

Staff should be experienced and familiar with cattle behaviour, handling and restraint when undertaking this activity. Cattle that are experienced with handling including walking on a halter are preferred to be used

Activity: **g. MEASUREMENT OF MILD DIETARY EFFECTS IN CATTLE**

Category: Category 3

Objective: To instruct the students on measuring mild dietary effects in cattle

Cattle can be observed for dietary preference by offering a range of diets to them that are suitable for cattle. Unsuitable diets should not be fed and cattle must still have access to their normal diet

Activity: **h. TAMING/GENTLING OF CATTLE**

Category: Category 3

Objective: To instruct students in methods of taming or gentling sheep.

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Not specified

Staff should be experienced and familiar with cattle behaviour when undertaking this activity. Cattle that are experienced with handling including walking on a halter are preferred.

Activity: **i. COLLECTION OF HAIR, MILK, FAECES AND URINE SAMPLES FROM CATTLE (NON-INVASIVE)**

Category: Category 2

Objective: To demonstrate the collection of samples of hair, milk, faeces and urine from cattle to students.

Staff should be experienced and familiar with cattle behaviour, handling and restraint when undertaking this activity. Cattle that are experienced with are preferred. Samples of hair, faeces and urine can be collected with minimal restraint. Milk collection is not uncommon, requires a little more restraint and is usually done to collect colostrum for newborn calves.

Activity: **j. COLLECTION OF SALIVA FROM CATTLE**

Category: Category 3

Objective: To demonstrate the collection of saliva from cattle to students

Staff should be experienced and familiar with cattle behaviour, handling and restraint when undertaking this activity. Cattle that are experienced with handling particularly head restraint are preferred

Activity: **k. COLLECTION OF BLOOD, FAECES AND RUMINAL FLUID SAMPLES (INVASIVE) FROM CATTLE**

Category: Category 5

Objective: To demonstrate to students the collection of samples of blood, ruminal fluid or faeces using invasive techniques from cattle.

Staff should be experienced and familiar with cattle behaviour when undertaking this activity. Cattle that are experienced with handling including head restraint are preferred. Students must be supervised at all times and handling kept to a minimum. All equipment must be ready prior to capturing and restraining the cattle. Schools should discuss this activity as part of their animal management plan with their local Veterinarian with whom they should already have an established relationship.

Activity: **l. EAR MARKING or TAGGING OF CATTLE**

Category: Category 4

Objective: To instruct students on the correct method of ear marking and tagging of cattle

Schools should refer to the Primary industries and Regions of South Australia website for cattle tagging requirements (e.g. National Livestock Identification Scheme) needs. Schools must also have a Property identification code if keeping livestock on site.

Activity: **m. PREGNANCY DETECTION BY USING AN ULTRASOUND FOR CATTLE**

Category: Category 3

Objective: To instruct students on the method of pregnancy detection using an ultrasound for

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cattle

Schools are encouraged to develop a relationship with their local Veterinarian that is familiar with cattle to develop an animal management plan. This should include developing a calendar of events including pregnancy detection that will occur throughout the year. This discussion should include welfare, pain relief use and withholding periods.

Activity: n. HOOF PARING OF CATTLE

Category: Category 3

Objective: To instruct students on the correct method of hoof paring of cattle

Ratios: Schools are encouraged to develop a relationship with their local Veterinarian that is familiar with cattle to develop an animal management plan. This should include developing a calendar of events including hoof paring that will occur throughout the year. This discussion should include welfare, pain relief use and withholding periods. Experienced staff or a local Veterinarian should be utilized for hoof paring only. Incorrect hoof paring techniques can be detrimental to the welfare of the cattle involved.

Activity: o. ADMINISTRATION OF ORAL AND DRENCH TREATMENTS BY BACKLINE TO CATTLE

Category:

Category 3

Objective:

To demonstrate the administration of oral and drench treatments used in cattle to students

Schools are encouraged to develop a relationship with their local Veterinarian that is familiar with cattle to develop an animal management plan. This should include developing a calendar of events including drenching that will occur throughout the year. This discussion should also include welfare, pain relief use and withholding periods. All the animals on site should be treated and ensure that products are only used that are suitable for the age of cattle you have. Doses should be calculated accurately based upon an animal's bodyweight. Schools should talk to their local Veterinarian or Animal industry expert for product advice.

Activity: p. ADMINISTRATION OF TREATMENTS BY SUB-CUTANEOUS, INTRA-MUSCULAR OR INTRAVENOUS INJECTION TO CATTLE

Category:

Category 4

Objective:

To demonstrate to students the correct method of administering treatments to cattle by subcutaneous, intra-muscular or intravenous injections

Schools are encouraged to develop a relationship with their local Veterinarian that is familiar with cattle to develop an animal management plan. This should include developing a calendar of events including vaccinations that will occur throughout the year. This discussion should also include welfare, pain relief use and withholding periods. All the animals on site should be treated and ensure that products are only used that are suitable for the age of cattle you have. Any doses should be calculated accurately based upon an animal's bodyweight. Schools should talk to their local Veterinarian or Animal industry expert for product advice. Vaccinations can be given to livestock by suitably trained staff without the supervision of a Veterinarian.

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Activity: q. LOADING AND UNLOADING OF CATTLE FOR TRANSPORT

Category: Category 3

Objective: To demonstrate the principles of loading and unloading cattle for transport to students

Considerations must be given to cattle behaviour when loading and unloading cattle. See Section B4 for Specific requirements for the land transport of cattle in the Land Transport of Livestock Standards and Guidelines and the AEC Calf Transport Compliance checklist for more information in relation to cattle transportation. This outlines requirements with regards to time off water, long distance travel, food and water requirements when travelling, vehicle and facilities requirements and handling. All cattle must be deemed fit for travel prior to transporting them.

Activity: r. TRANSPORT OF CATTLE

Category: Category 3

Objective: To demonstrate the correct methods of transporting cattle to students

Considerations must be given to cattle behaviour when loading and unloading cattle. See Section B4 for Specific requirements for the land transport of cattle in the Land Transport of Livestock Standards and Guidelines and the AEC Calf Transport Compliance checklist for more information in relation to cattle transportation. This outlines requirements with regards to time off water, long distance travel, food and water requirements when travelling, vehicle and facilities requirements and handling. All cattle must be deemed fit for travel prior to transporting them.

Activity: s. CASTRATION OF CATTLE

Category: Category 5

Objective: **To demonstrate the method of castration of cattle.**

Schools are encouraged to develop a relationship with their local Veterinarian that is familiar with cattle to develop an animal management plan. This should include developing a calendar of events including castration that will occur throughout the year. Consideration should also be given to staff availability, facilities available including yarding (temporary or permanent yards) and the age of the calves. This discussion should also include welfare, pain relief use and withholding periods. When castration is required, it should be performed as young as possible, before calves are weaned and before calves are 12 weeks old. Calves should be more than 24 hours old when castrated. Experienced operators can undertake castration of calves less than 3 months of age. If undertaken by a non-Veterinarian, appropriate pain relief must be provided and the operator must be skilled and experienced in performing castrations including post-operative care. **Castration of cattle over 3 months including adults should ONLY be performed by a Veterinarian.** Methods of castration that can be undertaken are the rubber ring method, the tension-band method or the cutting method. Rubber ring and tension band methods rely on blocking the arterial blood flow to the testicles. Operators must ensure that the correct tension and positioning is achieved. When creating a surgical incision by using the cutting method, the wound must be of a sufficient size extending to the base of the scrotum to allow sufficient drainage and reducing the risk of infection. Calves under two weeks of age should be castrated by the rubber-ring method in preference to the cutting method. Calves older than two weeks should be castrated using the cutting method in preference to the rubber-ring and tension band methods. The method chosen should use the most appropriate tools, be familiar to the operator, and comply with legislation and the least painful method to perform the castration that is applicable to the production system.

Good hygiene should be practiced in relation to facilities, hands, handling and instruments with disinfectant being used and changed frequently. Consideration of weather and yard conditions should be made when planning castration of cattle (e.g.

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choose mild days and avoid muddy or dusty yards not extreme weather days). Castration should be conducted early in the day to allow time for mothering-up and monitoring by staff. Calves should be away from their mothers for the shortest time possible. Castration should only occur after a secure maternal bond has been formed between calf and the cow (mother). A crush can be used to restrain calves and when released they should land on their feet to avoid the wound contacting the ground and being contaminated. Castration should be done when fly activity is minimal. Wound haemorrhage should be minimised by selecting an appropriate method, After castration and when calves and their mothers are placed into a paddock for recovery, they should be monitored regularly for any signs of post-operative complications during the healing process with minimal disturbance. Any post-operative complications need to be addressed in a swift and appropriate manner. Cows should be managed to optimize milk production in order to maximize protein availability for the lamb to aid wound healing.

When any pain relief or other medications are used on cattle, schools should in consultation with their Veterinarian, ensure that products are only used that are suitable for cattle. Any doses should be calculated accurately based upon an animal's bodyweight. Schools should talk to their local Veterinarian or Animal industry expert for product advice.

See the Resources section of this SOP for more information. “The Producers Guide to best practice husbandry of beef cattle” by Meat and Livestock Australia which outlines the process of castration in cattle.

Activity: t. ARTIFICIAL INSEMINATION OF CATTLE

Category: Category 5

Objective: To demonstrate the process of artificial insemination in cattle to students.

Artificial insemination (AI) of cattle should only be undertaken by schools after a discussion with their local Veterinarian as part of their animal management plan for their cattle. AI requires skill and should only be undertaken by highly experienced operators under supervision of a Veterinarian or Veterinarians. Schools must also give consideration to plans for extra stock created from breeding and ensure they have the appropriate facilities and resources to provide for the cattle needs prior to undertaking breeding.

Activity: u. DISBUDDING OF CALVES

NOTE: Caustic disbudding is deemed a prohibited activity (Category 6)

Category: Category 4

Objective: To instruct students on the correct method of disbudding calves

Schools should be preferencing cattle breeds that are naturally polled or will have sourced cattle that have already had this activity undertaken prior to the animals' arrival on the farm. Disbudding of calves must be carried out by a Veterinarian or other suitably experienced person as soon as the bud can be located coming through the skin. Disbudding should be done in preference to dehorning. Care must be taken to ensure the entire bud is cauterised to prevent regrowth. Trimming of hair around the bud will reduce smoke and make it easier to target and monitor disbudding. Calves should be well-restrained and a topical antiseptic applied after cauterisation. Regrowth should be checked two to three weeks after disbudding. Disbudding of calves should be done by heat cautery only, not using excision methods. Disbudding by means of chemicals is considered a prohibited activity (Category 6). Good hygiene should be practiced in relation to facilities, hands, handling and instruments. Gloves should be worn when using a cauterising tool. Consideration of weather and yard conditions and fly activity should be made when planning the activity e.g. avoid muddy yards and wet or humid weather. Schools are encouraged to develop a relationship with their local Veterinarian that is familiar with goats to develop an animal management plan. This

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should include developing a calendar of events including disbudding that will occur throughout the year. This discussion should include welfare, pain relief use when disbudding or undertaking other husbandry practices and withholding periods.

Activity: **v. DEHORNING CATTLE**

Category: Category 4

Objective: To instruct students on the method of dehorning cattle.

Dehorning (as distinct from disbudding) can be performed by suitably trained operators if the cattle are less than 6 months of age. Dehorning of cattle over 6 months including adults should ONLY be performed by a Veterinarian. Horn trimming or the removal of sharp horn points is recommended to minimise injury to other cattle. It should be performed so as to avoid bleeding and ensure that no sharp horn projections remain after the procedure. Appropriate equipment should be used for dehorning. Schools are encouraged to develop a strong and ongoing relationship with their local Veterinarian that is familiar with cattle to develop a herd management plan. This should include developing a calendar of events including dehorning that will occur throughout the year. This discussion should include welfare, pain relief use and withholding periods. Ideally schools will source naturally polled cattle or cattle that have already have this activity undertaken prior to the animals' arrival on the farm. Disbudding is preferred over dehorning where possible. **See the Resources section of this SOP: "The Producers Guide to best practice husbandry of beef cattle" by Meat and Livestock Australia outlining the process of dehorning in cattle.**

Resources: **Australian Animal Welfare Standards and Guidelines for Cattle (2016)**
www.animalwelfarestandards.net.au/cattle/

A Guide to Best Practice Husbandry for beef cattle – Meat and Livestock Australia and the Cattle Council of Australia

Includes castration, dehorning, paring feet, branding and drenching information
<https://publications.mla.com.au/login/redirectFrame>

Land Transport of Livestock Standards and Guidelines (2012) – Australian Animal Welfare Standards and Guidelines

www.animalwelfarestandards.net.au/land-transport/
www.animalwelfarestandards.net.au/files/2015/12/Land-transport-of-livestock-Standards-and-Guidelines-Version-1.-1-21-September-2012.pdf

Animal Welfare Regulations 2012 – SA Legislation

www.legislation.sa.gov.au/LZ/C/R/Animal%20Welfare%20Regulations%202012.aspx

Livestock handling guide

publications.mla.com.au/login/redirectFrame

Animal Health - Science of healthy animals

publications.mla.com.au/login/redirectFrame

Is the animal fit to load? Meat and Livestock Australia

www.mla.com.au/fittoload

Cattle health and diseases, movement and identification, Primary Industries and Regions South Australia (PIRSA)

pir.sa.gov.au/biosecurity/animal_health/cattle

Farm biosecurity plans in South Australia – One Biosecurity PIRSA

www.onebiosecurity.pir.sa.gov.au/Home

Cattle breeds

afs.okstate.edu/breeds/cattle/

agriculture.vic.gov.au/agriculture/livestock/beef/breeds

AEC STANDARD OPERATING PROCEDURES

Horn tipping of cattle video – Dept. of Primary Industries and Regional Development

www.youtube.com/watch?v=UL3CWrtFEyg

Body condition scoring of beef cattle

mbfp.mla.com.au/Weaner-throughput/Tool-52-Condition-scoring-beef-cattle

Body condition scoring of dairy cattle

www.dairyaustralia.com.au/farm/animal-management/fertility/body-condition-scoring

The Australian Bovine Livestock Language (jargon from the Industry translated)

www.mla.com.au/download/finalreprots?itemId=3506

Ageing cattle by their teeth – Future beef

futurebeef.com.au/knowledge-centre/aging-cattle-by-their-teeth/