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NSW Caprine Arthritis Encephalitis (CAE) Accreditation Scheme Guidelines

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1. What is CAE?

Caprine arthritis encephalitis (CAE) is a contagious viral disease of goats caused by a slow virus in the family *Retroviridae*. It is also known as chronic arthritis-synovitis, viral leukoencephalomyelitis, progressive interstitial pneumonia, caprine retrovirus disease (CRD) or more commonly 'big knee'.

CAE virus infection is widespread in dairy goat breeds. Most goats acquire the infection at an early age and they remain infected for life. Only a proportion of goats go on to develop clinical disease months and sometimes years after being infected.

1.1. Clinical Signs

Clinical signs in adult animals may include lameness, ill thrift, weight loss, mastitis ('hard udder') and chronic pneumonia. The lameness mainly occurs as arthritis and swelling of the carpal joint on a front leg (big knee) although other joints may be affected as the disease progresses.

Clinical signs in kids (one to 6 months old) are neurological and include an unusual gait, lameness, and limb weakness which may progress to paralysis.

1.2. How is CAE spread within a herd?

The disease is predominantly spread from mother to kid by the ingestion of virus infected colostrum or milk. It may be spread between adult goats horizontally by direct animal contact or indirectly through exposure to body secretions and excretions of infected goats including milk, blood and faeces which may have contaminated the surrounding environment.

1.3. Diagnosis

Diagnosis is supported by history, clinical signs, viral serology using the CAE Enzyme Linked Immunosorbent Assay (ELISA) test and histopathology.

Since the majority of infected animals are subclinical, viral serology is the preferred method for detecting infection in individual goats and herds. A positive viral serology result infers infection but does not confirm that the clinical signs are caused by CAE virus. Histopathology of carpal joint, brain, spinal cord, lung or mammary gland can assist in providing a definitive diagnosis.

2. Responsibilities under the CAE Accreditation Scheme

2.1. Goat herd owner

Herd owners must work with an approved veterinarian to achieve CAE accreditation status in accordance with these guidelines. Owners must demonstrate to the satisfaction of their approved veterinarian their ability to maintain sound herd management, record keeping and biosecurity practices. This includes an understanding of how CAE may spread into and within their herd.

The owner must comply with the following:

- Sign an Owner Agreement form at each stage of the CAE Accreditation Scheme which can be found on the NSW Department of Primary Industries (DPI) website at: <https://www.dpi.nsw.gov.au/animals-and-livestock/goats/health/cae-accreditation-scheme>
- Provide to the approved veterinarian a property plan and property map which details internal and boundary fences, isolation facilities, neighbours and types of stock on neighbouring properties.
- Permit property inspections by the approved veterinarian.

- Keep a schedule of all goats on the property (individual identification such as tag numbers or tattoos, age, breed, sex, origin, disposal, death).
- Keep records of all goat movements onto and off the property, and the origin of introduced goats (keep National Vendor Declarations (NVDs) and ensure movements are recorded in the National Livestock Identification System (NLIS) database).
- Maintain and make available to the approved veterinarian all required management records.
- Make suitable facilities available for the bleeding of goats.
- Present all eligible goats (over 6 months) for testing.
- Notify the approved veterinarian of any goats which present with signs of CAE and have them tested by the approved veterinarian.
- Document details of any new properties involved in management of the goats and provide this information to the approved veterinarian.
- Control livestock movements by maintaining fences.
- Ensure isolation from non-CAE accredited, untested or infected goats.
- Prevent straying and treat any goats that have strayed from a CAE accredited herd as introductions from a non-CAE accredited herd.
- Inform the approved veterinarian within 7 days of introduction of goats from non-accredited herds. These goats must remain isolated until tested serologically negative for CAE.
- Ensure that no goat milk from non-CAE accredited sources is fed to kids or adults. Pooled fresh milk must not be fed. Reconstituted powdered milk or pasteurised milk from any source may be fed.

2.2. Approved veterinarian

The CAE Accreditation Scheme depends heavily on the integrity and attention to detail of the veterinarian carrying it out. An approved veterinarian must be a registered Veterinary Surgeon with the Veterinary Practitioners' Board of NSW and have completed and passed the NSW CAE approved veterinarian application process.

Blood tests, property inspections and examination of herd records must be thorough, and reports must be completed and forwarded to the MAP Administrator in the required timeframe. Any evidence of a veterinarian failing to comply with the requirements of the CAE Accreditation Scheme may cause that veterinarian's approval to be revoked. False or incorrect certification may constitute professional misconduct. Professional misconduct detected through the Scheme will be referred to the Veterinary Practitioners' Board.

2.3. NSW Department of Primary Industries

NSW DPI maintains a database of CAE Accredited herds. The list of accredited herds is public information. No information regarding previous testing or pre-accreditation status will be divulged to any unauthorised person.

2.4. Participation in the CAE Accreditation Scheme

Participation in the CAE Accreditation Scheme is voluntary. The owner may withdraw from the scheme at any time. The approved veterinarian may recommend suspension and the MAP Administrator may suspend the CAE Accreditation at any time a breach of the rules is suspected.

3. Accreditation scheme requirements

The accreditation scheme provides assurance that a herd is not infected with CAE. It does this through a combination of testing for the disease, and implementation of sound management and biosecurity practices to minimise introduction of the disease into a clean herd.

3.1. Property inspection and managerial assessment

For initial accreditation, the approved veterinarian will discuss aspects of the disease and the management of the property to assess the owner's ability to maintain a CAE accredited herd. At each subsequent accreditation or re-accreditation, management will be reviewed. Details to be discussed include:

3.1.1. General management

- The approved veterinarian must be satisfied with the level of property management. This includes competence of farm staff to achieve full musters and keep adequate property and livestock records.

3.1.2. General hygiene

- Standards must be maintained when using needles, tattooing equipment, dehorner and foot shears to minimise transfer of blood and secretions between goats. Wound management and the possibility of venereal and in utero transfer should be discussed.
- There are risk factors associated with viral transfer through milk, saliva, blood, tears, semen, in utero transfer and respiratory secretions. Feeding pooled fresh (unpasteurised) milk to kids or adults is a high-risk factor.

3.1.3. Facilities, fencing and location – 'the property'

- The veterinarian must be satisfied that the fencing, particularly the boundary fences, are goat proof. Facilities must be available to facilitate blood collection and examination of goats. Isolation facilities must be available.
- Location should be considered with emphasis on access roads, proximity to public roads, stock routes and reserves. Details of enterprises on neighbouring properties, together with any known disease status of neighbouring animals, need to be considered.
- The owner must provide the veterinarian with a plan of the property. This must be approximately to scale and show boundary fences, subdivisional fences, isolation area, the names of adjoining neighbours and their stock type.

3.1.4. Identification of goats and records

- Goats must be permanently identified with visual ear tags accredited under the NLIS, although there is an exemption from tagging for dairy goat breeds for movement between properties, or to and from shows (but not for movement of dairy goats to sale or slaughter). Herd movement records must be kept, along with details of any introductions, strays, shows, sales, agistment, disposals and deaths. The veterinarian must examine these records.
- The veterinarian should discuss the herd's history with the owner.

3.2. Testing requirements

Testing for the CAE Accreditation Scheme shall be carried out at a NATA accredited Australian Veterinary Laboratory that can provide appropriate tests. The approved veterinarian is responsible for the payment of laboratory fees.

The veterinarian will collect 10 ml of clotted blood or serum from all goats over 6 months of age for testing by the ELISA for Caprine Arthritis Encephalitis antibodies unless otherwise directed by NSW DPI.

Due to possible non-specific reactions (resulting in inconclusive or false positive results), adult does should not be tested in the period 1 month either side of kidding nor should any goat be tested within 1 month of vaccination.

3.2.1. Interpretation of test results

Negative

If there are no positive or inconclusive results for any individual goats, the result of the herd test is negative. Suspect animals (e.g. with clinical signs indicative of CAE) with a negative test result should be retested in a few months' time to confirm their negative status.

Inconclusive

Goats with an inconclusive result must be isolated and retested within 30 days of the inconclusive test to clarify their status and the status of the herd.

Positive

If one or more goats return a positive laboratory test result during any test of the herd for CAE, accreditation status must be **SUSPENDED IMMEDIATELY**. The herd status is **SUSPECT**.

The herd cannot become accredited or re-accredited without further investigation by the approved veterinarian to confirm the infection status of the ELISA positive goats. This will involve a review of herd management, clinical examination of suspect goats and additional laboratory testing.

1. Animals classified as ELISA positive, together with any kids raised on their milk, must be isolated immediately.
2. Confirmed positive goats must be destroyed or sold for slaughter within 30 days.
3. After removing positive animals, the rest of the herd is required to have two negative tests 6-12 months apart to regain accreditation.

If positive goats are detected in a herd, and if the owner wishes to proceed with accreditation, the veterinarian should advise the owner about a disease management program. The herd may be run on a two-herd system (infected and non- infected herds), see Animal Health Australia website: https://animalhealthaustralia.com.au/wp-content/uploads/2015/09/CAE-Voluntary-Guidelines-Document_FA_web-002-002.pdf

A kid rearing program that includes removal of progeny of infected does at birth, cleaning of kids to remove any birth fluids and use of colostrum and milk replacement must be conducted. This program must be auditable with audits conducted by the veterinarian. The veterinarian must be satisfied all infected goats have been slaughtered before proceeding with the required testing for CAE Accreditation, see AHA website: <https://www.animalhealthaustralia.com.au/what-we-do/endemic-disease/goat-health/goat-national-kid-rearing-plan/>

Adult does should not be tested in the period 1 month either side of kidding. No goat should be tested within 1 month of vaccination.

3.3. Accreditation

3.3.1. Initial accreditation

At the initial accreditation and each renewal, the owner must complete and sign an 'Owner Agreement Form'. The property will be inspected by the veterinarian for suitability of the handling facilities as well as the goat proof boundary fence, internal fencing and the isolation yards. The veterinarian will examine herd management records. A movement register must be kept by the owner with the details of all goat movements onto and off the property including date, source and destination. NVD copies and NLIS records of movements onto and off the property would meet this requirement. The owner will submit a map of the property as outlined in section 3.1.3.

The initial accreditation testing is carried out on all goats over 6 months of age. Individual numbers and the age, sex and breed of each goat must be recorded at each testing. All goats must be accounted for and individually and permanently identified. Following testing, the herd must be

maintained in isolation until they receive negative results. Any necessary introductions during this period must be from CAE accredited herds only.

If ELISA blood test results for CAE testing are negative, the herd is retested in 6-12 months' time. A second negative result will allow the supervising veterinarian to apply for initial CAE Accreditation.

The veterinarian forwards the Veterinary Report and Recommendation for Accreditation form to the MAP Administrator. The herd will be added to the CAE register by the MAP Administrator who will send a certificate to be signed by the supervising vet. The initial accreditation expiry date is 12 months from the second negative test result.

If the goat herd owner has any suspicion that CAE is present in the herd, they must inform the veterinarian immediately.

3.3.2. Annual re-accreditation

The requirements for reaccreditation are:

- CAE accreditation has been granted within the previous 12 months.
- A new Owner Agreement Form must be signed.
- All goats must be individually and permanently identified by an NLIS accredited visual ear tag.
- Individual identification numbers and the age, sex and breed of each goat must be recorded at each testing. All goats must be accounted for since the last test.
- Serological testing is carried out on all goats over 6 months of age.
- A review must be undertaken by the veterinarian of all introductions to the herd, movement and management records and fence inspections.
- If ELISA results for CAE testing are negative, the Veterinary Report and Recommendation for Re-Accreditation form is forwarded by the veterinarian to the MAP Administrator
- The herd will be updated in the CAE Accreditation Register.

Any ELISA inconclusive or positive animals indicate that infection could be present, and the CAE status of the herd is suspect. Re-accreditation will not be granted. Further investigation is required

3.3.3. Biennial re-accreditation

Annual re-testing will be undertaken for the first 3 years of accreditation. After this period, the herd can then proceed to biennial testing with the approval of the MAP Administrator. An audit of the accredited property must be undertaken by the approved veterinarian in the intervening year in lieu of testing. This includes a review of all introductions to the herd, movement and management records and fence inspections.

4. Suspension or cancellation of accreditation

The veterinarian will notify the MAP Administrator within 14 days if any positive goats are detected, or the rules of the CAE Scheme have been contravened. Clinically suspect goats should be isolated, and their status investigated within 30-60 days.

4.1. Suspension of CAE Accreditation

Suspension of a herd from the CAE program may occur under the following situations:

- Testing for renewal is not carried out 2 months after expiry date.
- There is any breach or suspected breach of the CAE Accreditation Scheme.
- Any non-compliant goat/s is introduced to the herd (section 5).
- Goat milk from a non-CAE accredited source is fed to kids.
- Goats are moved to or agisted on another property without approval from the veterinarian.

- Change in ownership or property of location not notified to MAP Administrator within 2 months

4.1.1. Re-accreditation after suspension

In the case of testing not being carried out 2 months after expiry date, subject to effective testing, re-accreditation will be for 12 months from the original expiry date. In the case of breaches to rules of the scheme, re-accreditation is subject to such conditions as the MAP Administrator may consider necessary.

4.2. Cancellation of CAE accreditation

Cancellation of CAE Accreditation will occur if any serologically positive animals are detected, or if any goats are clinically affected with CAE. After a breakdown has occurred, if the herd is to continue in the scheme, they must re-apply for initial accreditation status. This means they must have two consecutive negative tests of all goats over 6 months of age, at least 6 but no more than 12 months apart, to regain CAE Accreditation status.

Cancellation may also occur if testing has not been carried out, or the MAP Administer has not received notification of accreditation or re-accreditation within 6 months of renewal date.

5. Goat introductions and movements

5.1. Introductions from other herds

A record of all introductions must be kept by the owner to provide to the approved veterinarian at initial accreditation and renewal.

5.1.1. CAE accredited herds

There is no requirement for the introduction of goats from another CAE Accredited herd to be tested.

5.1.2. Non-CAE accredited herds

Goats from non-accredited herds may be introduced subject to two negative CAE ELISA blood tests at an interval of 6 months. These goats must be kept in isolation during this period. Goats that are introduced less than 6 months of age must be isolated and tested twice at an interval of 6 months apart, once they reach 6 months of age. Any goat that returns a positive test at the first or second test is to be removed immediately.

5.2. Goats returning to the property

Goats returning within 14 days from shows or unsold from sales may re-join the herd provided they have not been in direct or indirect contact with goats or unpasteurised goat's milk from non-CAE Accredited sources, or shared drinking or feeding facilities.

Goats returning after more than 14 days or goats that have been in direct or indirect contact with goats or unpasteurised goat's milk from non-accredited sources must be held in isolation and be blood tested twice at an interval of 6-12 months.

The owner shall report to the veterinarian any stray goats on or from the property or any significant failure of isolation of the herd. Testing will be at the discretion of the veterinarian and appropriate to the circumstance.

5.3. Agistment

Agistment of CAE Accredited goats onto another property may occur with the approval of the approved veterinarian if non-accredited goats are not present on the property and the fencing is

goat-proof. Removal of the herd to another property without prior approval of the veterinarian may result in suspension of CAE Accreditation.

6. Artificial insemination

Semen from any buck may be used for artificial insemination provided the buck is tested for CAE with negative results within 30 days prior to semen collection, or the buck comes from a CAE Accredited herd.

Embryos may be used from donor does from a CAE Accredited herd, or from does that have had two serological tests at 6 monthly intervals while in isolation, with the final test being in the month before mating.

7. Change in herd ownership or property of location

Where ownership of a CAE Accredited herd changes, the herd may be CAE Accredited in the new owner's name, provided the new owner complies with the rules of the CAE Accreditation Scheme. A new Owner Application and Agreement form must be signed by the new owner and the veterinarian, and a new Veterinary Report and Recommendation for Accreditation form completed and forwarded to the MAP Administrator within a 2-month period of the herd transfer.

Where a CAE Accredited herd moves to a new property, the veterinarian must conduct a property inspection and obtain a map of the new property. A new completed CAE Veterinary Report and "Recommendation for Accreditation" form must be sent to the MAP Administrator within 2 months of the herd move.

8. Definitions and acronyms

Approved veterinarian - a registered veterinary practitioner who is approved by the NSW CVO to undertake accreditation work

CAE-INT	Initial accreditation status
CAE-AR	Annual reaccreditation status
CAE-BR	Biennial reaccreditation status
CAE-EXT	Extended status
CAE-SP	Suspended status
CAE-CAN	Cancelled status
CRD	Caprine Retrovirus Disease
CVO	The person appointed as the NSW Chief Veterinary Officer, a Deputy Chief Veterinary Officer, or a delegate of the CVO
DPI	NSW Department of Primary Industries
ELISA	Enzyme- Linked immunosorbent assay
LLS	Local Land Services
MAP	Market Assurance Program
NATA	The National Association of Testing Authorities
NLIS	National Livestock Identification System
NVD	National Vendor Declaration

9. Administration

MAP Administrator

NSW Department of Primary Industries

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10. More information:

Local Land Services: phone: 1300 795 299 or LLS website: <http://www.lls.nsw.gov.au/>

NSW DPI website: <https://www.dpi.nsw.gov.au/animals-and-livestock/goats/health/cae-accreditation-scheme>

Animal Health Australia website: <https://www.animalhealthaustralia.com.au/what-we-do/endemic-disease/goat-health/cae-in-goats/>