NSW DPI A NEWLETTER FROM THE NSW DPI BIOSECURITY TEAM

biosecurity

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ANIMAL BIOSECURITY

MESSAGE FROM THE CVO

Biosecurity – protecting the economy, human health and the environment from problems associated with pests, diseases and weeds

Welcome to the first edition of the Biosecurity Newsletter - Animals.

This publication will provide stakeholders with information on the various national and state animal biosecurity programs that are core business for the public animal health system in NSW.

The system is delivered by a partnership between NSW Department of Primary Industries (NSW DPI) and Rural Lands Protection Boards (RLPB).

These two organisations work closely with the veterinary profession, livestock producers, other government agencies, livestock industries, educational and research organisations and members of the public to ensure the quality and safety of NSW livestock and products.

National and state biosecurity programs range from 'non-regulated' programs, often implemented by private practitioners and industry but supported and administered by the public animal health system, to fully regulated programs.

The regulated programs are often dictated by national policy, e.g. TSE surveillance. Others, like the footrot and cattle tick programs, are state-based.

The non-regulated programs usually fall into two types: accreditation, such as the national Johne's Disease Market Assurance Programs, and advisory, such as the state-based worm control programs (DrenchPlan, WormKill, WestWorm).

Individual RLPBs also run regional programs that target animal health issues relevant to producers within their particular district or region.

Private practitioners have a vital role to play in animal biosecurity, particularly in terms of surveillance. They also provide valuable accreditation, certification, diagnostic and advisory services that enhance biosecurity in NSW.

Practitioners particularly need to be aware of the emergency animal diseases and how to notify if they suspect one. They also need to be aware of their legal obligation to notify an inspector when they suspect a notifiable endemic disease.

Notification obligations don't just apply to veterinary practitioners. Any person who's consulted about an animal, or who owns or is responsible for an animal, is subject to the same notification obligations.

If you suspect an emergency animal disease, ring the emergency animal disease hotline on 1800 675 888.

Information about emergency and notifiable diseases is available from the NSW DPI website.

For further information about animal biosecurity programs in NSW, please contact NSW DPI or your local RLPB veterinarian, or email biosecurity@dpi.nsw.gov.au

Bruce M Christie
NSW Chief Veterinary Officer (CVO)

FOOTROT

One of the most successful programs in NSW is the footrot program. Virulent footrot affects sheep and goats causing both major production losses and very significant welfare issues. The disease can decimate merinos flocks, particularly in higher rainfall areas. The footrot program effectively combines advisory and regulatory components and is strongly supported by the NSW sheep industry.

When the program started in 1988 there were almost 4 000 known infected flocks in NSW. By 1991, following increased awareness and intensive surveillance, that number had risen to

over 6 000. In June this year, there were just 26 known footrot infected flocks in NSW and all of these are undergoing eradication programs.

Education and on-going surveillance are the keys to managing footrot in the future. The present low incidence of virulent footrot, pleasing though it is, means many veterinary practitioners and their clients have never seen footrot infected sheep on their knees. It also means that most present-day sheep producers have never had to factor the high costs of an intensive footrot eradication program into their budget.

The NSW DPI website provides valuable information for practitioners and sheep producers about footrot, its risk factors, diagnosis, control and eradication methods, and legislative obligations about notification.

For further information on footrot please contact John Seaman, NSW Department of Primary Industries, ph 6391 3248, m 0401 149 472, john.seaman@dpi.nsw.gov.au

CAPRINE ARTHRITIS ENCEPHALITIS

One of the non-regulated biosecurity programs currently being administered by NSW DPI is the accreditation program for caprine arthritis encephalitis (CAE).

Veterinary practitioners who work with the goat industry need to understand CAE, its epidemiology and risk factors, and in particular the importance of testing to determine CAE status.

Caprine arthritis encephalitis (CAE), commonly known as 'big knee', is caused by a lentivirus or 'slow' virus associated with nervous disorder (encephalomyelitis) in kids and slowly-developing disease syndromes in older goats. Symptoms can vary markedly between animals with most well managed goats showing no obvious clinical signs.

The virus occurs mainly in improved dairy goat breeds and is spread primarily via infected colostrum and milk. Control programs have been conducted in many countries but CAE is still causing problems in dairy goat populations world-wide, including within NSW.

CAE is a concern in terms of market access and animal welfare. It also causes significant production losses through mastitis, ill-thrift, arthritis, pneumonia, ascending paralysis and encephalitis in kids.

The OIE requirements for live goat imports include:

- the animals showed no clinical sign of caprine arthritis/encephalitis on the day of shipment;
- animals over one year of age were subjected to a diagnostic test for caprine arthritis/encephalitis with negative results during the 30 days prior to shipment; or
- caprine arthritis/encephalitis was neither clinically nor serologically diagnosed in the sheep and goats present in the flocks of origin during the past 3 years, and no sheep or goat from a flock of inferior health status was introduced into these flocks during this period.

THE VIRUS

The CAE virus belongs to a family of viruses (lentivirus) that can integrate into the DNA of a host cell and then uses the host's own cell to reproduce itself (retrovirus). Once a host cell is infected, it remains infected for life. The only means of removing infection is by destruction of the infected cell.

The CAE virus infects mainly white blood cells (monocyte-macrophage lineage) and travels through the body inside these cells. Any secretion from an infected goat that contains white blood cells (milk, blood, saliva, tears, respiratory secretions) will contain the virus. It can also be found in the granulosa cells surrounding oocytes and in semen.

Antibodies to the virus are not protective against infection. Development of antibodies after exposure to the virus can take from two months to 2 years to occur.

The virus is very susceptible to inactivation by heat (56 degree C for 10 minutes) and by chemical disinfection but is resistant to UV. It does not survive well outside the host as it is cell associated.

THE DISEASE

Caprine retrovirus is an OIE listed disease.

The disease occurs when the monocytes carrying the latent virus mature and multiply as macrophages in different body 'target' organs – mammary gland, lungs, tendons sheaths, joints and nervous tissue.

The clinical signs that can occur in an infected goat are mainly due to the body's reaction against the virus infected cells. Clinical signs include:

- viral mastitis, with an increase of white blood cells in the milk and a decreased resistance against mastitis. 'Hard udder' (indurative mastitis) can occur.
- arthritis in any joints, most notably the carpal joints ('big knee), due to inflammation of the tendon sheaths and joint lining (synoviae),
- pneumonia following inflammation in the lung tissue, and
- neurological disease due to inflammation in the brain and its covering (meningitis/encephalitis)

or inflammation in the spinal cord, resulting in progressive paralysis.

Kids less than 6 months of age are more likely to show neurological disease.

The majority of CAE infected goats do not show any outward clinical signs, although viral mastitis may be present in does.

Clinical signs can arise in a previously sub-clinical goat if the goat is exposed to stressful situations such as poor nutrition and overcrowding. Well managed infected goats may never express clinical signs.

EPIDEMIOLOGY

The main spread of the virus between goats is through the ingestion of infected milk by kids or adults. Adult goats can also become infected by exposure to infected milk droplets during milking.

The virus can also be spread by respiratory secretions, saliva and tears when goats are kept in close quarters.

Transfer sometimes occurs by blood on gear such as vaccination needles, tattooing equipment, dehorners or foot/hair shears, or through exposure to open wounds.

Venereal spread in semen and in utero spread to kids are less likely but can occur.

The virus usually enters a clean property in an infected goat. The goat may or may not be antibody positive for CAE at the time of blood testing because of the delay between exposure to the virus and the development of antibodies.

ZOONOTIC RISK

People drinking milk from infected does can develop antibodies to the CAE virus. There is no evidence that this contact has resulted in persistent viral infection.

There is a strong cross reactivity between surface glycoproteins on the CAE virus and the HIV virus. It's been postulated that the false positive reactions to HIV in some people may be due to previous exposure to the CAE virus in goat milk.

CAE RISK FACTORS

The least-risk herd for CAE is a closed herd (no introductions) where there have been at least two whole herd tests with negative blood results at minimum 12 months interval. CAE accredited herds and a number of non-accredited herds fulfil this criteria.

A low to moderate risk herd is a herd with a history of negative testing that buys in goats (open herd). Goats bought from CAE accredited herds or from closed herds with a good testing history would pose a low risk. Goats bought from herds with no testing history present a moderate to high risk (even if the purchased goat is tested).

A high risk herd is a herd with no testing history in the last 12 months on all goats over 12 months of age (including goats that had previously been tested negative or were sourced from tested herds), regardless of introduction policy.

Low risk factors include:

- extensive management where single doe/kid(s) units predominate and where goat to goat contact is minimal (commercial fibre and meat goats),
- the use of pasteurised milk to feed kids (heated to greater than 56 degrees C for a minimum of 10 minutes),
- strict hygiene in the use of common equipment or handling between goats.

High risk factors include:

- feeding pooled milk to kids and/or adult goats,
- exposure to secretion contaminated feed or water,
- keeping goats in close confinement,
- sharing equipment between goats without sterilisation,
- persons handling a number of goats (especially udder or mouth) from different sources,
- untested goats being milked as a common group,
- co-mingling of goats from different farms at one site, e.g. at shows and sales.

Shows, sales and any other venues where goats from multiple sources congregate for a period of time present a significant transmission risk. The risk increases with the period the goats are kept in close confinement.

CAE CONTROL

Detecting sub-clinically infected goats is the key to preventing CAE spread.

Infected goats are detected by serological testing. The most accurate test is the ELISA although some countries still use the less specific AGID test.

Repeated blood testing during a 12 month period will detect the majority of infected goats (a very small number may take longer to seroconvert).

The CAE status of goats should be determined in goats 12 months and older. Adult does should not be tested in the period from one month either side of kidding as inconsistent results could occur. No goat should be tested within one month of any vaccination.

CERTIFICATION FOR CAE STATUS

Dairy goat herds are at greater risk of being infected with CAE because both kids and adults

are managed intensively. Knowledge of the testing history of the adult herd (especially within the last 12 months), and assessment of the herd management as low risk, provide confidence when certifying for CAE status.

Where the herd is not accredited and there is no history of testing within the previous 12 months, or where the herd management is medium to high risk or unknown, all relevant adult animals over 12 months of age should be blood tested. This may include a subset of the adult herd (for example, a show or exhibition group). Any ELISA positive animal indicates that infection could be present in the herd and the CAE status of the herd is positive.

For further information on CAE please contact Diane Ryan, NSW Department of Primary Industries, ph 4640 6378, m 0402 070 914, diane.ryan@dpi.nsw.gov.au

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