

CREDENCE® Biosecurity & Outbreak Clean-Up Programme - Calves



Protect Your Calves. Protect Your Farm.

Control of diseases in calf rearing is necessary for compliance with regulatory and welfare standards and for optimised animal growth and health.

Biosecurity is needed to prevent breakouts of diseases, such as *Mycoplasma bovis*, coccidiosis, foot and mouth disease, haemorrhagic salmonellosis, toxigenic *E. coli* and rotavirus.

Good animal husbandry and effective control of environmental conditions are vital for producing healthy, disease-free animals. This can only be achieved by having clearly defined and effective biosecurity programs. These need to be ideally based on preventative measures rather than curative reactions to outbreaks, for maximum security and profitability.

Implementation of effective disinfection for these programs is of paramount importance. Two basic program criteria must be met. Disinfection must be:

- practical,
- easy to understand, use and implement
- use proven, wide-spectrum disinfectants
- demonstrated in independent trials to kill relevant pathogens
- Be effective against hard-to-kill pathogens, such as enveloped viruses and biofilm-producing (*M. bovis*) or encysted microbes (coccidiosis, cryptosporidiosis), protozoa, viruses and fungi (respiratory disease).

The **Hazard Analysis Critical Control Point** (HACCP) system is internationally recognised for providing the most secure method of designing and implementing food safety programs, from farm to fork. The system follows seven basic principles, which identify, monitor and control potential hazards in the food safety chain.

These seven principles are:

1. Conduct a hazard analysis by identifying all potential food safety hazards at each step in the production process.
2. Identify the points in the process which are critical for control and monitoring – these are known as **Critical Control Points** (CCP).
3. At each identified CCP the critical control limits are established and set e.g. water temperature, total bacterial counts etc.
4. Monitoring procedures are established to ensure that the critical limits established at each control point are being met.
5. Procedures are implemented to take corrective action when a critical limit goes out of control.
6. Verification procedures are established to ensure that the system is working properly.
7. Documentation is necessary to record the proof of effectiveness of the system.

The CREDENCE DISINFECTION PROGRAM has been designed and validated to be consistent with HACCP system principles, by addressing the disinfection needs at critical control points in calves production. It allows simple, daily testing and monitoring on-farm to make record keeping easy.

This disinfection program covers:

- Safe drinking water.
- Routine/daily disinfection routines
- Terminal disinfection between different groups, e.g. at specific calf rearing facilities
- Equipment disinfection, transport and rearing pens
- Provides a comprehensive guide to optimal concentrations for all uses.

DRINKING AND FARM WATER

Water is the most important nutrient for calves development, but the monitoring and provision of safe drinking water is often overlooked. Disinfection of farm water is vitally important to ensure the health of the animals. Young calves less than 14 days of age are especially susceptible to enteric and respiratory diseases. Studies show that clean, sanitised water ensures less mortality, improved weight gain, better feed conversion ratios, improved immunity and better performance at weaning.

Other water sanitisers increase water pH to levels exceeding 8.0 (e.g., chlorine dioxide raises water to pH 8.4), which is the maximum global standard level allowed for animal or human drinking water. This is because high pH water restricts the activity of digestive enzymes and prevents uptake of minerals, especially calcium, in the gut. In young cattle this significantly increases skeletal problems and may result in culling on grounds of welfare.

CREDENCE maintains drinking water at a maximum of pH7.8, which does not interfere with such vital processes.

THE CREDENCE ADVANTAGE

- Demonstrable results against pathogens from independent laboratories
- Cost effective
- Easy to measure, apply, store and use
- No prior preparation required
- pH in water maintained below 8.0 for nutrient digestion and nutrient uptake
- Fast 'kill time' meets fastest legal recommendation of 15 min contact
- No liquids – cheaper freight and less storage area
- Easy to assay using commercial chlorine sticks
- Regulatory and technical support, including biosecurity protocols
- Meet quality standards (GMP, ISO9002, FDA, UN reg., WCB) and HACCP
- Low corrosion compared to other commercial disinfectants.
- Safe for humans and animals
- Low odour
- Ensures deposit-free pipework.
- Effective against biofilm buildup



All water, whether for drinking or cleaning, should be continuously disinfected, either by hand dosing (in tanks and troughs) or, in larger scale facilities, by the use of auto-dosing systems (details of which are available from Anpario UK). The water is dosed to a sufficient level to achieve a residual 'free available chlorine' level of ~0.5 ppm (mg/litre) at the last drinking water point in the line.

The 'free available chlorine' level can be simply measured by using commercial Free Chlorine Test Strips. Where the residual 'free available chlorine' level cannot be measured, then a dosage of 1.5 to 3 ppm has been shown to be effective in clear water, and 4 to 6 ppm in dirty water. This will keep the water disinfected and help prevent the build up of biofilm and algae.

The entire water system should always be kept under positive pressure, with the pipework always full of treated water. The concentrations at 1 tablet per 1000 litres has been tested to show it covered all grades of farm water effectively.

Trials have shown that many pathogens are reintroduced after disinfection of housing and equipment, due to washdown with infected water sources, from bores, roof collections and dams. CREDENCE is safe enough not to require such extensive wash down, a major saving on water supplies. However, all farm water should be treated with CREDENCE to prevent reinfection through this and any other vectors.

ROUTINE/DAILY BIOSECURITY

Foot baths:

- All personnel should use footbaths at the entrance point to each shed, and on leaving the site.
- Use CREDENCE at a dosage of **1 tablet per 5 litres** and replenish regularly (at least twice per week).

Hand washing:

- Personnel should wash their hands when moving between groups of animals and on arrival and departure.
- Use CREDENCE at a concentration of **1 tablet per 100 litres**, and replenish regularly (at least twice per week).

Transport:

- Wheel washes/dips should be provided for entrance and exit to the site. If a suitable concreted area is not available, use soaked foam rubber wide enough for vehicles to drive over without snagging.
- Use CREDENCE at a dosage of **1 tablet per 5 litres**, and replenish regularly (at least twice per week).
- Transport vehicles and equipment should be thoroughly cleaned and then disinfected with a CREDENCE solution of **1 tablet per 10 litres** between each use/delivery.
- The interior of vehicles should be disinfected in the same manner between all loads. This should apply to all farm deliveries and personnel. On arrival, CREDENCE at **1 tablet per 100 litres** can be used as a stock wash (registered with MPI) to disinfect calves, especially those inbound from multiple farms or sales yards.

Entrance to sheds:

- Daily wash and disinfect the area immediately outside the entrance to each shed using a CREDENCE at **1 tablet per 20 litres**.

Equipment:

- Calfeterias and feeding bottles are notoriously difficult to clean, especially for teats. After each use, each calfeteria should be soaked for 15 min in **CREDENCE at 1 tablet per 10 litres**.

This is important as it has been shown that pathogens are concentrates in the teat ends, leading to high levels of infectious agents being ingested by the next animal. Buckets should be treated in the same way, especially if these have rough or damaged surfaces.

Infected/dead animals:

Sick animals should be removed to a quarantine pen at least 200m away from other stock. Where a whole shed becomes infected, strict quarantine protocols should be followed, to restrict all vehicle and staff movements. CREDENCE is registered as a stock wash, due to its low toxicity, which makes it useful for direct animal treatment.

Infected or dead calves suspected of infection can be sprayed with CREDENCE at **1 tablet per 10 litres** to control further external spread or accidental carry over during disposal.

Infected bedding can be soaked in CREDENCE at the porous surface concentration of **1 tablet per 10 litres** prior to disposal to prevent spread during storage on farm (wild animals) or freight to disposal unit. This must be logged with disposal operators and on farm.

TERMINAL DISINFECTION END OF REARING CYCLE

1. Remove all animals, movable equipment and food. Hang up all fixed or adjustable equipment, such as the feed and water systems.
2. Brush, blow or vacuum all dirt and dust from vents, ducts, posts, ledges, light fittings, walkways, steps, equipment or any other areas where organic or faecal material from the outgoing groups may be found. Move from top to bottom.
3. Soak all bedding and debris from the shed with CREDENCE at a concentration of **1 tablet per 10 litres**, scraping where necessary, and remove to a safe point as far away as possible from the house (at least 500 m), where it can be heaped, covered and composted. CREDENCE has been tested and declared as safe for the environment.
4. Pressure wash all items and areas (using CREDENCE as appropriate to the surface). Manually clean or include CREDENCE in a foaming agent for difficult areas. Foggers can be used inside closed sheds to increase ease of contact and kill rate (e.g. light fittings, ceiling material). The run-off water should be directed to a pit at the site edge, from where it can be further disinfected and taken away.
5. Full disinfection of all surfaces and equipment should commence as soon as possible after initial clean down. A CREDENCE solution should be power sprayed to thoroughly wet all roofline, wall and floor surfaces, including any vents or ducts etc.
Areas where electrical fittings are exposed should be treated by fogging. Surfaces (at appropriate concentrations) should be uniformly sprayed at **100 litres of CREDENCE solution per 500 sq.m.**, and then left to dry off. Move from top to bottom, and back to front. **Use a dosage of 1 tablets per 10 litres for porous surfaces (e.g. concrete) and 1 tablet per 15 litres for non-porous surfaces (e.g. tiles).**
6. After basic cleaning, all equipment removed from the house is then disinfected using a CREDENCE solution of **1 tablet per 10 litres**.
7. Any automated water systems should be drained and then flushed out to remove any debris.
CREDENCE should be added to the header tank at a dosage of **1 tablet per 200 litres**, and the entire system filled with the solution, and allowed to stand for 30 mins. Where biofilms are suspected, use a higher 'shock' concentration of **1 tablet per 100 litres**. The system is then drained and refilled with fresh/ sanitised water (1 tablet per 1000 litres).
8. Bedding may be introduced 24 hours after spraying is completed.
9. For farms suspected of exposure to sub-clinical disease (such as local reports of outbreaks), a second disinfectant spray/fog is recommended after 7 days, before equipment is returned or bedding introduced.

AFTER A DISEASE OUTBREAK

1. Dead animals should be thoroughly sprayed with high strength CREDENCE **1 tablet per 5 litres** solution before removal.
2. The procedures for isolation, cleaning and disinfection should be completed as given in the previous section '**TERMINAL DISINFECTION**'.
3. The CREDENCE solution strength for disinfection of walls, floors, equipment etc. should be **1 tablet per 10 litres** to maximise efficacy. Foaming should be used to deliver CREDENCE effectively in difficult to dismantle or awkward areas in equipment and housing. The product should be left on for 24 hrs. It is not necessary to rinse CREDENCE, due to its low toxicity, but where rinsing is needed, the water must be treated with CREDENCE at **1 tablet per 1000 litres** to prevent reinfection.
4. Bedding should be soaked in CREDENCE at **1 tablet per 10 litres** for 24 hrs before removal.
5. Housing should be disinfected after 7 days for a further 24 hrs. Housing and equipment should be swabbed after this, and if clear, can be repopulated. Any remaining positive swabs (e.g. certain vehicles) should be recorded as major vectors of disease transmission, and extra biosecurity or complete exclusion put into place.

IMPORTANT CONCENTRATIONS!

Treatment	1 tablet in	Final ppm
Drinking water	1000 litres	5
Farm water	1000 litres	5
Water pipes	200 litres	25
Hand/stock wash	100 litres	50
Non-porous surfaces	15	350
Equipment & vehicles	10	500
Porous surfaces	10	500
Foot baths, wheel dips	5	1000



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Supporting Kiwi Farmers