HARD WORKING PROTECTION FOR CATTLE
## The Heavy Toll of Clostridial Diseases

Your herd, your financial investment and your livelihood could suffer significant impact from an outbreak of an easily prevented clostridial disease.

Rapid death is the primary sign of clostridial diseases. Even if clinical signs are recognised, treatment is usually not practical.

<table>
<thead>
<tr>
<th>Clostridial disease</th>
<th>What is it?</th>
<th>How is it spread?</th>
<th>What are the symptoms?</th>
<th>What does this mean for you?</th>
</tr>
</thead>
</table>
| **Blackleg**<br>*Clostridium chauvoei* | Typically affects young, well grown cattle from 3 months to 2 years old. | Bacteria are ingested from the pasture. Bruising stimulates growth of the organism and toxin production in muscle. | Severe muscle damage, with inflammation, pain and gas accumulation in the tissues. Fever, weakness and death results. | These listed clostridial diseases all result in death of most affected animals and response to treatment is poor. The economic impact of clostridial diseases can be devastating:  
• Herd losses  
• Loss of income  
• Profitability. |
| **Tetanus**<br>*Clostridium tetani* | Tetanus organisms which produce a fatal toxin are found in soil and manure on most farms. | Tetanus bacteria grow in wounds from: castration (including rings and banding), dehorning, nail punctures and calving trauma. | Tetanus affects the nervous system. Stiffness and muscle spasms can be seen. The animal eventually collapses and respiratory failure leads to death. |  |
| **Enterotoxaemia (Pulpy Kidney)**<br>*Clostridium perfringens* type D | This bacterium normally exists in small numbers in the gut of healthy animals. | Disrupted digestion, e.g. changing feed type to high carbohydrate diet allows bacteria to multiply rapidly and produce toxin. | Diarrhoea, bellowing, mania or dullness, blindness, convulsions and sudden death of animals otherwise considered to be in good condition. |  |
| **Black Disease**<br>*Clostridium novyi* | Grows and produces lethal toxins in damaged liver tissue. | Damage to the liver by migrating liver fluke is the most common trigger for the disease. | Livestock are often found dead with no evidence of clinical signs. In some cattle, lethargy and loss of appetite can be seen. Death occurs within 48 hours. |  |
| **Malignant Oedema**<br>*Clostridium septicum* | Organisms are common in the soil on many farms. | Bacteria from soil enter wounds including the navel of calves and produce fatal toxin. | Swelling, inflammation and accumulation of gases. Gangrene occurs as blood supply is compromised. Response to treatment is poor and death typically occurs within 24 hours. |  |
Prevention is the Key to Managing Clostridial Diseases

Ultravac® 5in1 prevents the five common clostridial diseases in Australia

✔️ Blackleg ✔️ Tetanus ✔️ Pulpy Kidney ✔️ Black Disease ✔️ Malignant Oedema

Ultravac 5in1 with breakthrough ultrafiltration technology delivers optimal immune response

- Ultrafiltration process creates a lower volume vaccine that is less likely to produce lumps, is easily handled and easily recognised by the immune system
- This ensures rapid and effective protection against these key clostridial diseases
- Safe for use at all stages of pregnancy

Ultravac 5in1 (2mL dose)

- Calves can be vaccinated from 6 weeks
- A second booster dose is given 4-6 weeks later
- An annual booster dose is recommended. Where local and seasonal conditions increase the risk of Enterotoxaemia (Pulpy Kidney), more frequent booster doses may be required

“The economic impact of clostridial diseases can be devastating. During outbreaks, the losses can be dramatic and extensive. Often, farms lose one or two animals each year without realising it — at current livestock prices this is far more than the cost of the vaccine.”

Dr R Holmes and Dr M Scott, District Veterinary Officers, DPI Victoria.

CAN BE USED FOR 30 DAYS AFTER OPENING*
*PROVIDED STORAGE INSTRUCTIONS ARE FOLLOWED

Protect your livestock and your livelihood with Ultravac 5in1
Leptospirosis Can Affect You, Your Family and Your Herd

Leptospirosis is a serious disease in the beef and dairy cattle industries

It can significantly reduce the productivity and reproductive performance of your herd and is an important safety and health risk for you, your family and your workers.

<table>
<thead>
<tr>
<th>Leptospirosis</th>
<th>What are the symptoms of Leptospirosis?</th>
<th>How is it spread?</th>
<th>The risks to humans</th>
<th>What does this mean for you?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leptospira Hardjo*</td>
<td>L. hardjo</td>
<td>Infected animals shed bacteria in their urine and during calving and abortion.⁶</td>
<td>Leptospirosis is a debilitating disease.</td>
<td>The economic impact of leptospirosis can be significant:</td>
</tr>
<tr>
<td>- the main type of</td>
<td>• “Mastitis”</td>
<td></td>
<td>Signs include:</td>
<td>• Calf deaths</td>
</tr>
<tr>
<td>leptospirosis</td>
<td>• Sharp drop in milk production¹</td>
<td></td>
<td>• Severe flu-like</td>
<td>• Abortions and stillbirths</td>
</tr>
<tr>
<td>infecting Australian</td>
<td>• Acute illness with fever and anorexia¹</td>
<td></td>
<td>symptoms</td>
<td>• Reduced milk production</td>
</tr>
<tr>
<td>cattle</td>
<td>• Abortion ‘storm’ in cows &gt; 5 months pregnant, stillbirths and birth of weak calves¹³</td>
<td></td>
<td>• Headaches, chills</td>
<td>• Treatment costs</td>
</tr>
<tr>
<td></td>
<td>• Reduced fertility.⁴⁵</td>
<td></td>
<td>• Muscle pains</td>
<td>• Reduced milk production</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Humans can become infected:</td>
<td>• Disease in you, your family, workers or contractors and</td>
</tr>
<tr>
<td>Leptospira Pomona**</td>
<td>L. pomona</td>
<td></td>
<td>• While assisting</td>
<td>associated Workplace Health</td>
</tr>
<tr>
<td></td>
<td>In calves:</td>
<td></td>
<td>during calving</td>
<td>and Safety (WH&amp;S) issues</td>
</tr>
<tr>
<td></td>
<td>• Jaundice and anaemia</td>
<td></td>
<td>without proper</td>
<td>• Relief staff costs</td>
</tr>
<tr>
<td></td>
<td>• Reddish brown urine</td>
<td></td>
<td>personal protection⁷</td>
<td>• Legal liability for</td>
</tr>
<tr>
<td></td>
<td>• Fever and death¹</td>
<td></td>
<td>When mucous</td>
<td>preventable diseases</td>
</tr>
<tr>
<td></td>
<td>In cows:</td>
<td></td>
<td>membranes of the</td>
<td>contracted by staff at work.⁶</td>
</tr>
<tr>
<td></td>
<td>• Significantly reduced milk production</td>
<td></td>
<td>nose, throat or eyes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Abortion</td>
<td></td>
<td>are contacted by fine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Delivery of weak or stillborn calves¹³</td>
<td></td>
<td>droplets of urine</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>splashing from</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>infected cows</td>
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<td></td>
<td></td>
<td></td>
<td>during milking or</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>calving⁶</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>• Indirectly via</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>contaminated</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>water, food or soil</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>By drinking unboiled</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or unpasteurised</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>milk from cows</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>who have leptospirosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• By handling an</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>aborted foetus or</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>afterbirth</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>membranes.</td>
<td></td>
</tr>
</tbody>
</table>

*Caused by Leptospira borgpetersenii serovar Hardjo type hardjo-bovis. **Caused by Leptospira interrogans serovar Pomona.

Leptospirosis is an occupational hazard for all people who work with cattle. Workplace Health and Safety (WH&S) regulations require that farmers provide a safe environment for their employees.
Stop the Spread of Leptospirosis

Only Ultravac® 7in1 (2.5 mL dose)

✔ Stops the spread of leptospirosis – by preventing urinary shedding of leptospires when used prior to natural exposure

✔ Protects you, your family, your workers and your herd

✔ Keeps the unborn calf safe and sound from leptospirosis – through preventing urinary tract colonisation and placental and foetal infection

✔ Can be used in calves from 4 weeks to provide early age protection

Protects against clostridial diseases

✔ Blackleg ✔ Tetanus ✔ Pulpy Kidney ✔ Black Disease ✔ Malignant Oedema

<table>
<thead>
<tr>
<th>Your best practice vaccination program</th>
</tr>
</thead>
<tbody>
<tr>
<td>All calves</td>
</tr>
<tr>
<td>Vaccination can begin from 4 weeks of age. This prevents calves becoming infected and shedding leptospires in urine. For calves 6 weeks of age or older, two doses 6 weeks apart with an annual booster 12 months following previous vaccination is recommended.</td>
</tr>
<tr>
<td>Breeding cows and heifers</td>
</tr>
<tr>
<td>Vaccinate prior to calving to protect unborn calf and to prevent infertility and abortion.</td>
</tr>
<tr>
<td>All other cattle, including steers, bulls and newly purchased animals</td>
</tr>
<tr>
<td>Vaccinate early to prevent chronic kidney infection and the shedding of leptospires in the urine, followed by annual vaccinations.</td>
</tr>
</tbody>
</table>

Ultravac 7in1 ticks all the boxes. There’s only one choice.

<table>
<thead>
<tr>
<th>Prevents shedding in urine and from the reproductive tract when used prior to natural exposure</th>
<th>Ultravac 7in1 vaccine</th>
<th>Other 7 in 1 vaccines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevents reproductive tract colonisation*</td>
<td>✔</td>
<td>No claim</td>
</tr>
<tr>
<td>Prevents placental and foetal infection*</td>
<td>✔</td>
<td>No claim</td>
</tr>
<tr>
<td>Calves can be vaccinated from 4 weeks*</td>
<td>✔</td>
<td>4-6 months</td>
</tr>
<tr>
<td>Low volume 2.5mL dose</td>
<td>✔</td>
<td>4mL</td>
</tr>
<tr>
<td>Can be used for up to 30 days after opening**</td>
<td>✔</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

*Caused by Leptospira borgpetersenii serovar Hardjo. **Provided storage instructions are followed. Refer to product label for registered label claims.

Note: Only Ultravac 7in1 prevents shedding of leptospires. Any vaccines that just minimise shedding do not stop the spread of leptospires and do not provide full protection.

There’s only one choice to prevent leptospirosis
Bovine Pestivirus

A highly contagious virus present in herds across Australia

Any way you look at it, your herd is at risk
90% of herds have evidence of past exposure to pestivirus\textsuperscript{1-3}

- Parts of your herd may be immune to the virus but infection can spread from Persistently Infected (PI) animals or Transiently Infected (TI) animals
- Losses will continue to occur and will add up over time
- Infection may have ceased with young animals being naive and therefore they are susceptible to infection

10% of herds have never been infected with pestivirus

- Naive, uninfected herds are at risk of the potentially devastating effects of pestivirus
- Infection at critical times during mating and pregnancy will cause significant losses\textsuperscript{1-3}

The effect of pestivirus on reproduction

Your ability to identify the outcomes in the table below, depends on your ability to measure the effects within your herd. Reproductive outcomes are often hidden or hard to measure.

<table>
<thead>
<tr>
<th>Stage when infected</th>
<th>Around time of mating or AI</th>
<th>First trimester</th>
<th>Second trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical effect</td>
<td>Disrupts ovulation and fertilisation • Early embryonic death\textsuperscript{11}</td>
<td>Production of PI calves • Abortions, late embryonic death, stillbirths.</td>
<td>Abortions • Late delivery of unviable or abnormal calves • Central nervous system problems • Eye defects.</td>
</tr>
<tr>
<td>Outcome</td>
<td>Reduces conception and pregnancy rates • Increases returns to service • Delayed conception • Poor growth rates in PI cattle • Increased levels of scours in calves • Increased Bovine Respiratory Disease (BRD) complex in calves or cattle in feedlots.</td>
<td>Reduces number of calves born and viability of calves.</td>
<td></td>
</tr>
</tbody>
</table>
Insure Your Herd Against Pestivirus

Vaccinate your herd with Pestigard® (2mL dose). Only Pestigard:

✔️ Is registered in Australia to prevent pestivirus. There are no other registered vaccines
✔️ Prevents nasal shedding of pestivirus to safeguard your heifers and cows reproductive potential

<table>
<thead>
<tr>
<th></th>
<th>Heifers</th>
<th>Cows</th>
<th>1st Season/New Bulls</th>
<th>Bulls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dose</strong></td>
<td>1st Dose</td>
<td>2nd Dose</td>
<td>Booster</td>
<td>1st Dose</td>
</tr>
<tr>
<td><strong>Age/Time</strong></td>
<td>6–8 weeks pre-joining*</td>
<td>2–4 weeks pre-joining</td>
<td>2–4 weeks pre-joining*</td>
<td>6–8 weeks pre-joining*</td>
</tr>
</tbody>
</table>

*Special Note: The time interval between 1st and 2nd dose should not be less than 4 weeks. However, the interval can be extended to 6 months. The second dose must be administered at least 2-4 weeks prior to joining.

The major cost of pestivirus to a commercial beef breeding herd is lack of surplus stock — both steers and heifers for sale and replacement heifers for the herd.

In a dairy herd infected with pestivirus it has been estimated that it may cost $53/cow/year. This is due to less replacement heifers, 3 days less lactation and 1% decrease in in-calf rate.4,5

Overall total production can be reduced by 25-50% in recently infected mobs or herds, and ongoing losses of 5-10% annually where pestivirus persists.6-9

MLA’s 2015 Report ranks pestivirus as the disease with the second biggest cost to the Australian beef cattle industry, costing $114 million annually.10

DON’T TAKE CHANCES
Vaccinate replacement heifers with two doses of Pestigard prior to joining.

Guard against potential production losses caused by pestivirus

Note: The time interval between the 1st and 2nd dose can be from 4 weeks to 6 months.
Vibriosis: The Hidden STD

Vibriosis is a major cause of infertility and abortion in cattle across Australia.

In newly infected herds, conception rates can be as low as 40%.

<table>
<thead>
<tr>
<th>What is it?</th>
<th>How is it spread?</th>
<th>What are the symptoms?</th>
<th>What does this mean for you?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibriosis is a bacterial, sexually transmitted disease of cattle caused by the bacteria <em>Campylobacter fetus</em> subspecies venerealis.</td>
<td>Bulls spread vibriosis during breeding.</td>
<td>Impact of vibriosis is in the female reproductive tract: • Localised infection and delayed conception • Abortions at all stages of pregnancy • Permanent infertility in up to 11% of infected heifers.</td>
<td>Impact on breeding performance and productivity: • Reduced pregnancy rates and calving percentages • Greater proportion of late calves • Increase in “barren” heifers • Significant reproductive and economic losses.</td>
</tr>
<tr>
<td>Widespread throughout the Australian cattle herd.</td>
<td>Infected bulls can act as carriers for many years.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibriosis infection causes no visible external signs in infected cows or bulls.</td>
<td>Vibriosis has no direct effect on a bull’s fertility.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vibriosis can have a significant economic impact

Gross margins can be reduced by as much as 65% in the first year of infection in beef herds. When the disease becomes established in a herd, gross margins are usually 36% below those of non-infected herds.

Up to 90% of northern beef herds are infected with vibriosis.

CONCEPTION RATES CAN DROP AS LOW AS 40%.

In newly infected herds, conception rates can drop as low as 40%.

11% IMPROVEMENT IN FIRST ROUND PREGNANCY RATES.

Vaccinating heifers against Vibriosis in a large northern herd significantly improved (+11%) first round pregnancy rates.
Start Protection Before Conception

Only Vibrovax®

✔️ Is registered in Australia to prevent vibriosis in cattle. There are no other registered vaccines

✔️ Prevents transmission of vibriosis to safeguard your heifers’ and cows’ reproductive potential

Practical vaccination for cattle in temperate regions of Australia

<table>
<thead>
<tr>
<th></th>
<th>First Dose</th>
<th>Second Dose</th>
<th>Annual Booster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulls (5mL dose)</td>
<td>At least 8–12 weeks prior to joining</td>
<td>4–6 weeks prior to joining</td>
<td>4–6 weeks prior to joining</td>
</tr>
</tbody>
</table>

Vaccinating bulls annually with Vibrovax prevents vibriosis from spreading:
- Significantly reduces the spread of vibriosis between infected females
- Increases pregnancy rates
- Prevents disrupted calving patterns
- Has no adverse impact on the testicular function and therefore semen morphology

Vaccination of heifers and cows with Vibrovax may also be necessary to eradicate vibriosis from herds confirmed through testing to be infected.

Practical vaccination for cattle in tropical regions of Australia

<table>
<thead>
<tr>
<th></th>
<th>First Dose</th>
<th>Second Dose</th>
<th>Annual Booster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulls (5mL dose)</td>
<td>At least 8–12 weeks prior to joining</td>
<td>4–6 weeks prior to joining</td>
<td>Annually</td>
</tr>
<tr>
<td>Heifers 18 months and older &amp; Cows</td>
<td>1 x 5mL dose 4-6 weeks prior to joining for 2 years protection</td>
<td>Annually 4-6 weeks prior to joining</td>
<td></td>
</tr>
</tbody>
</table>

Heifer vaccination is a cost-effective addition to bull vaccination in extensively managed beef herds where bull control is difficult. This has been shown to improve early conception rates in heifers resulting in significantly more calves being born early in the calving period.

Vaccinating maiden heifers with Vibrovax significantly increases economic returns from your herd:
- More calves at the right time
- Increases number of calves weaned first round
- Improves pregnancy rates
- Reduces returns to service

Producers in both temperate and tropical regions of Australia can benefit from increasing the number of females calving early
- More kilos of meat per hectare
- More calves finished that season
- Less “out of season” calves
- Improved utilisation of pasture
- Increased profitability of the enterprise

Protect your livestock and your livelihood with Vibrovax
The Deadly Impact of Botulism

Botulism is a severe, fatal disease of livestock and a significant cause of stock losses in the northern beef industry. Sporadic outbreaks can also occur in all areas of the Australian mainland.

<table>
<thead>
<tr>
<th>What is it?</th>
<th>How is it spread?</th>
<th>What are the symptoms?</th>
<th>What does this mean for you?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botulism</td>
<td>A major disease of livestock, particularly of cattle in the extensive grazing areas of northern Australia.</td>
<td>Symptoms vary dramatically depending on the amount of toxin ingested, pre-existing immunity and the stage of poisoning.</td>
<td>Animal deaths.</td>
</tr>
<tr>
<td></td>
<td>Paralysis is caused by a potent nerve toxin.</td>
<td>Progressive symptoms: • Paralysis of the tongue, throat and stomach • Inability to drink • Dehydration • Reduced feed intake • Depression • Muscular weakness • Incoordination – cattle go down • Progressive paralysis • Aggression.</td>
<td>Economic losses.</td>
</tr>
<tr>
<td></td>
<td>These cattle often chew on carcases and bones.</td>
<td>Death can take up to 14 days. In severe cases, animals can die in less than 24 hours without signs of illness.</td>
<td>At current market prices, if botulism impacted even 1% of a 5000 head herd, it could cost over $35,000.</td>
</tr>
<tr>
<td></td>
<td>Bones and carcases are the principle sources of botulism toxin.</td>
<td>In southern Australia, toxin is ingested from contaminated hay and silage or from pasture fertilised with chicken litter.</td>
<td></td>
</tr>
</tbody>
</table>

"Botulism outbreaks have caused losses of up to 25% of the herd on some properties. The disease may also have a persistent but undetected low level of mortality which may significantly increase the herd death rate by up to 10-20% annually.” — S. Fitzpatrick, Regional Veterinary Officer, Katherine NT.

Longrange – best science, best for beef

<table>
<thead>
<tr>
<th>Key benefits</th>
<th>Longrange®</th>
<th>SingVac®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latest science – the latest formulation</td>
<td>![ ] Demonstrated to reduce death due to botulism using field trial data²</td>
<td>![ ] Not demonstrated to reduce death due to botulism using field trial data⁴</td>
</tr>
<tr>
<td>Less site reactions</td>
<td>![ ] Unique water based formulation – less risk of site reactions, injection lumps and carcase trim</td>
<td>![ ] Oil based vaccine – increases the risk of site reactions and carcase trim Over 3 times as many large site reactions⁵</td>
</tr>
<tr>
<td>Fastest protection</td>
<td>![ ] Fastest protection – within 28 days³</td>
<td>![ ] 35 day onset of immunity claim</td>
</tr>
<tr>
<td>Optimal immunity</td>
<td>![ ] Annual booster doses ensure optimal immunity is achieved</td>
<td>![ ] 3 year muster programs will miss animals – no vaccination means no protection</td>
</tr>
</tbody>
</table>
Optimum Protection from Botulism

With Longrange® and Ultravac® Botulinum

Don’t lose a breeder because you missed an annual botulism vaccination

• Protect your cattle with Longrange and Ultravac Botulinum
• Take the confusion out of botulism management – vaccinate annually
• Annual vaccination protects animals that were not mustered the previous year
• Yearly vaccination boosts immunity

Longrange (2.5mL dose). Annual vaccination is best practice when it comes to protecting your herd from botulism and Longrange provides this the fastest

• Immunity develops in 28 days after vaccination
• Longrange provides protective immunity from a single dose of vaccine for at least 12 months
• Provides protection against Clostridium botulinum Types C and D toxins

Ultravac Botulinum (2.5mL dose)

• Cost-effective annual booster vaccination
• Recommended for lactating dairy cattle

The optimum botulism vaccination program for northern herds

<table>
<thead>
<tr>
<th>Botulism Vaccination</th>
<th>Weaners</th>
<th>Breeders (including Bulls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longrange®</td>
<td>One shot at first muster.</td>
<td>1st dose for previously unvaccinated cattle. Annual booster every year.</td>
</tr>
<tr>
<td>Ultravac® Botulinum</td>
<td></td>
<td>Alternative annual booster to Longrange.</td>
</tr>
</tbody>
</table>

Botulism vaccination may be integrated into your annual vaccination program. The above program is specific to extensive northern beef herds where the majority of botulism vaccination occurs. For Feedlots: One dose of Longrange will be sufficient but should be given no less than 28 days prior to feedlot entry.

The following vaccination protocol is suggested for Australian dairy herds

<table>
<thead>
<tr>
<th>Protocol for lactating cows, heifers, dry cows and bulls using Ultravac Botulinum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial course</strong></td>
</tr>
<tr>
<td><strong>Annual boosters</strong></td>
</tr>
</tbody>
</table>

Annual vaccination with Longrange and Ultravac Botulinum increases botulism protection of the entire herd

LONGRANGE®
FASTEST PROTECTION AGAINST BOTULISM.
IMMUNITY WITHIN 28 DAYS*
*REFER TO PRODUCT LABEL FOR DETAILS AND CLAIMS
PARASITICIDES

Dectomax®

Kills the parasites that count

Dectomax Injectable

This high performance model provides injected performance where it’s needed.

- Reliable dosing, every time
- Persistent activity against the 5 major worms
- Controls cattle tick for up to 28 days
- Low irritant formulation, easy to administer
- Meat withholding period of 42 days
- Export slaughter interval of 42 days

Dectomax Injectable gets to where it’s needed most

The stomach and small intestine are the parts of cattle most affected by worms. The skin is most affected by ticks and lice. This table shows the superior drug availability of Dectomax in these key organs when compared to other drenches.

Identify the mixture of worm types in your local area: www.wormtrax.com.au

Injectable Drench Comparison – Cattle

Drench availability in key parasite locations following injection1-3

<table>
<thead>
<tr>
<th>Target Tissues</th>
<th>Cydectin Injection</th>
<th>Ivomec Injection</th>
<th>Dectomax Injectable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intestinal Mucosa</td>
<td>Cydectin</td>
<td>Ivomec</td>
<td>Dectomax</td>
</tr>
<tr>
<td>Abomasal Mucosa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood</td>
<td>Cydectin</td>
<td>Ivomec</td>
<td>Dectomax</td>
</tr>
</tbody>
</table>

Area Under Curve (ng.day/mL)

Cattle: DORAMECTIN vs Ivermectin & Moxidectin (200 mcg/kg SC)1-3

One powerful product. Two unique models.

Dectomax Pour-On

The reliable all-rounder provides protection against the worms that count.

- Convenient, easy to administer
- Persistent activity against the 5 major worms
- Nil milk withholding period
- Rainfast
- Meat withholding period of 42 days
- Export slaughter interval of 42 days

Pour-On Drenches – Days of persistent activity

<table>
<thead>
<tr>
<th>Major worm types</th>
<th>Dectomax Pour-On</th>
<th>Cydectin® Pour-On</th>
<th>Eprinex® Pour-On</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperia spp. (Small intestinal worm)</td>
<td>35 days1</td>
<td>NO CLAIM</td>
<td>28 days</td>
</tr>
<tr>
<td>Ostertagia ostertagi (Small brown stomach worm)</td>
<td>35 days</td>
<td>42 days</td>
<td>28 days</td>
</tr>
<tr>
<td>Haemonchus placei (Barber’s pole worm)</td>
<td>35 days</td>
<td>28 days</td>
<td>21 days</td>
</tr>
<tr>
<td>Trichostrongylus axei (Stomach hair worm)</td>
<td>35 days</td>
<td>28 days</td>
<td>21 days</td>
</tr>
<tr>
<td>Oesophagostomum radiatum (Nodule worm)</td>
<td>21 days</td>
<td>42 days</td>
<td>28 days</td>
</tr>
</tbody>
</table>

1 Provides up to 21 days of persistent activity against Cooperia oncophora as per label claim.
2 Maximum number of days approved.

Injectables – Days of persistent activity

<table>
<thead>
<tr>
<th>Major worm types</th>
<th>Dectomax Injectable</th>
<th>Cydectin® Injection</th>
<th>Ivomec® Injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperia spp. (Small intestinal worm)</td>
<td>21 days4</td>
<td>NO CLAIM</td>
<td>7 days</td>
</tr>
<tr>
<td>Ostertagia ostertagi (Small brown stomach worm)</td>
<td>21 days</td>
<td>21 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Haemonchus placei (Barber’s pole worm)</td>
<td>21 days</td>
<td>14 days</td>
<td>NO CLAIM</td>
</tr>
<tr>
<td>Trichostrongylus axei (Stomach hair worm)</td>
<td>21 days</td>
<td>14 days</td>
<td>NO CLAIM</td>
</tr>
<tr>
<td>Oesophagostomum radiatum (Nodule worm)</td>
<td>21 days</td>
<td>NO CLAIM</td>
<td>NO CLAIM</td>
</tr>
</tbody>
</table>

4 Provides up to 14 days of persistent activity against Cooperia oncophora as per label claim.

One powerful product. Two unique models.

Dectomax Injectable – Kills the parasites that count

Cattle: DORAMECTIN vs Ivermectin & Moxidectin (200 mcg/kg SC)1-3

Identify the mixture of worm types in your local area: www.wormtrax.com.au

Check your count

Worm TRAX®

One powerful product. Two unique models.
PARASITICIDES

CattleGuard®

✔️ For the treatment and control of moxidectin sensitive internal and external parasites of cattle and for the treatment and control of lungworm and gastrointestinal roundworms of red deer

Flexibility for cattle producers

- Nil milk and nil meat withholding periods and nil ESI
- CattleGuard offers the convenience of nil milk and nil meat withholding periods, allowing for the treatment of animals at any time, without concern for withholding period violations

<table>
<thead>
<tr>
<th>Pour-On Products</th>
<th>CattleGuard</th>
<th>Cydectin*</th>
<th>Genesis*</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHP Meat</td>
<td>0 days</td>
<td>0 days</td>
<td>21 days</td>
</tr>
<tr>
<td>WHP Milk</td>
<td>0 days</td>
<td>0 days</td>
<td>0 days</td>
</tr>
<tr>
<td>ESI</td>
<td>0 days</td>
<td>0 days</td>
<td>21 days</td>
</tr>
</tbody>
</table>

Pour-Ons – Days of persistent activity

<table>
<thead>
<tr>
<th>Internal Parasite</th>
<th>CattleGuard</th>
<th>Cydectin*</th>
<th>Genesis*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ostertagia ostertagi</td>
<td>42 days</td>
<td>42 days</td>
<td>14 days</td>
</tr>
<tr>
<td>(Small brown stomach worm)</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>42 days</td>
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<td></td>
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</tr>
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<td>NO CLAIM</td>
</tr>
<tr>
<td>(Small intestinal worm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cattle tick and buffalo fly

- CattleGuard is effective against cattle tick, and buffalo fly. It’s the all rounder you’re looking for

SUPONA®

- A special organophosphate-based formulation for use in cattle backrubbers and as an overspray for the control of buffalo fly
- Nil meat WHP and 10 day ESI when applied by backrubber (beef cattle only)*
- Can be applied as an overspray to beef and dairy cattle with nil meat and milk WHP

*BHP: Withhold Period; ESI: Export Slaughter Interval

BARRICADE®

- Control of external parasites on cattle including cattle tick, buffalo fly and cattle lice
- Suitable and safe for beef cattle
- It’s easy to maintain the effectiveness of Barricade ‘S’ dip. No messy powders
- Kills susceptible ticks on contact
- 21 days control of buffalo fly
Bovine Respiratory Disease (BRD)

Bovine Respiratory Disease (BRD) is the most common cause of illness and death in feedlot cattle triggered by a complex interaction of stress factors, viral and bacterial infections. A range of factors can also predispose feedlot cattle and calves to BRD. These include stress caused by weaning, transport and social restructuring, age, immunological background, dehydration and change of diet.

Cost to your animals

- 84% of animals pulled for illness while on feed are pulled for respiratory disease.
- 4.1% of affected cattle die.
- BRD is the major cause of morbidity and mortality in all feed categories.

The largest estimated cost of BRD

- Is due to lost weight gain, not drug costs associated with treatment.

70-90% OF COST due to lost weight gain

10-30% OF COST due to drugs for treatment

One of the most important primary pathogens associated with BRD is Bovine Herpesvirus-1 (BHV-1), otherwise known as Infectious Bovine Rhinotracheitis (IBR). Like pestivirus, IBR is capable of causing disease in its own right, but these infections also predispose cattle to more serious viral and bacterial pneumonias.

Unique vaccines and antibiotics

Zoetis manufactures unique vaccines for both IBR and MH to assist in the management of BRD. These two vaccines play a role in managing the disease at different stages of the disease pathway, so the most effective solution may involve using both vaccines. Zoetis also manufacturers a range of unique antibiotics for beef and dairy cattle.

Consult your veterinarian for the best way to manage BRD and discuss any antibiotic requirements.

YARD WEANING AND BACKGROUNDING

**BOVI-SHIELD® MH-ONE** for MH protection

*Mannheimia haemolytica* (MH), found commonly in the upper airways of cattle, is recognised as the most common bacterial infection associated with BRD. Bovi-Shield MH-One is the **only single dose MH vaccine** available and is a convenient way to provide optimal immunity to MH with just one shot. Protect cattle from BRD at or just before weaning and during backgrounding. A single dose administered prior to weaning, transport or any other stress or protects cattle when they’re most vulnerable to infection.

**SYNOVEX®** for growth

The Synovex range of implants can help improve weight gain and feed conversion efficiency. These are products specifically designed to assist growth of heifers and steers. The range is available through registered suppliers where state regulations allow.
SPECIALISED PRODUCTS

There are a range of conditions that can be controlled or treated with a range of specialised products from Zoetis. Please consult with your veterinarian on the following:

**TEATSEAL® for mastitis protection [VET ONLY PRODUCT]**

Teatseal is indicated for the prevention of mastitis in dairy cows during the non-lactating (dry) period and early post-calving. Teatseal provides a physical barrier in the teat canal after it is inserted. Teatseal mimics the teat plug, preventing the entry of bacterial pathogens into the udder. In cows that are being dried off, Teatseal can be administered concurrently with a dry cow antibiotic. When Teatseal is used at the same time as a dry cow antibiotic, it has been shown to cut the number of mastitis cases in early lactation by up to 70%, compared to when a dry cow antibiotic is used alone.

**ULTRAVAC SCOURSHIELD® for prevention of calf scours [VET ONLY PRODUCT]**

Calf Scours is one of the most stressful and costly disease syndromes to deal with, for vets and farmers. Calf scours can be caused by a range of pathogens and it is most frequent and most severe during the first three weeks of a calf’s life. The most efficient means of protecting the newborn calf is through vaccination of the dam during pregnancy. Ultravac Scourshield can aid in the prevention of calf scours caused by rotavirus, E.coli and coronavirus in both the dairy and beef industry.

**EAZI-BREED CIDR® for reproduction [VET OR BREEDING CENTRES ONLY]**

CIDR (Controlled Internal Drug Release) Cattle Devices contain the natural hormone progesterone. They release progesterone at a controlled rate into the blood stream. Breeding programs use the devices to obtain a range of benefits including tighten the oestrus synchronization so that animals come in oestrus in a narrow time period. This can result in more pregnancies, a more compact calving season, more even line of calves and a more profitable herd.

**BOVINE EPHEMERAL FEVER (THREE-DAY SICKNESS)**

Three-Day Sickness or Bovine Ephemeral Fever (BEF) is a viral disease of cattle with potential to cause economic losses in both beef and dairy herds due to deaths, loss of condition, decreased milk production and reduced fertility. It is seasonally widespread across northern Australia. Heavy animals are most affected by the illness. In beef herds, bulls and heavy steers close to slaughter weights often show severe signs of illness and often go down. In dairy herds it is usually the highest producing animals that are most severely affected with BEF. Consult your veterinarian for the best way to manage BEF.

**SILIRUM® for BJD [VET ONLY PRODUCT]**

Silirum vaccine is for the active immunisation of cattle against *Mycobacterium avium* subsp. *paratuberculosis* as an aid in the control of bovine Johne’s disease (BJD). In herds where a diagnosis of BJD has been confirmed or as part of a whole farm biosecurity plan to reduce the risk of infection entering the herd, it is recommended that all replacement calves are vaccinated at 3-6 weeks of age.

**BOVATEC® for weight gain and feed efficiency in beef and dairy cattle, plus improved milk production**

- **CONTROLS**
  - the clinical signs of coccidiosis and the reduction of faecal shedding caused by *Eimeria bovis* and *Eimeria zuernii* in growing cattle
- **IMPROVES**
  - liveweight gains and feed conversion efficiency in growing cattle and lot fed beef cattle
- **AIDS**
  - in the improvement of milk production by dairy cows fed high protein grass pasture and by lot fed dairy cattle

Consult your nutritionist, feed supplier or veterinarian for further information on Bovatec.
Genetic Tests

Genetics – The Fundamental Building Block

Stud cattle and commercial herds with a superior genetics profile have a fundamental advantage over other cattle and will outperform their contemporaries over their lifetime. It is in their DNA.

Genetic profiling can assist in making many Superior Decisions:
- Selection Decisions (Breeding, Culling, Bull Selection)
- Managing Inbreeding Decisions
- Marketing Decisions

The choice for producers is NOT: Optimise animal health OR Optimise genetics.
The choice for producers is: Optimise animal health AND Optimise genetics.

HD50K and i50K™ for Black Angus Cattle

- The science of selection
- Advanced genomic selection tools available for Australian Angus Breeders

HD 50K for Angus is a commercially available high density DNA test. HD 50K is the first and enduring gold standard for genomic prediction designed for superior and influential sires and dams in the Angus breed. It has been developed using EBVs supplied by Angus Australia.

i50K for Angus is an evolution of HD 50K for Angus. Delivering the same information in a more cost-effective package, i50K evaluates genetic potential across 22 economically important traits. The EBVs enhanced by i50K assist with the same variety of selection, mating and marketing decisions as HD 50K for Angus.

Angus HeiferSELECT

- Select your replacement heifers

This genomic selection tool helps inform the selection of Angus replacement heifers in a commercial breeding operation.

SireTRACE®

- Increase breeding precision with SireTRACE

Accurate pedigree records are a crucial ingredient in maximising genetic gain and profitability in cattle operations. SireTRACE can assist you in easily identifying the individual sire and dam of a calf, make educated breeding decisions and select genetically superior breeding stock.

HornPoll

- A new HornPoll test – helping you achieve your breeding objectives

Understanding the poll status of a bull is important when determining whether a potential new bull meets your breeding objectives. The HornPoll test is used to determine whether an animal is 'true polled' (homozygous -PP-), or is a carrier of horned genetics (heterozygous -PH-).

CLARIFIDE® for Dairy

- Clarify your herd’s potential

CLARIFIDE is an Australian genomic selection tool to assist in the identification of superior dairy heifers from as early as birth. CLARIFIDE is a selection tool that takes genetic information encoded in your heifers’ DNA and converts it to a practical decision making tool to optimise your selection and breeding decisions. When used as part of your annual planning calendar:

CLARIFIDE allows you to predict the future production, health and type potential of your heifers.
This can assist you in avoiding the expense of raising genetically inferior animals.

Management Information System

This is an online genetic information management system to assist producers. Visit: www.mysearchpoint.com.au

To take your breeding decisions to the next level contact your local Zoetis Genetics Professional Sales Representative. Call: 1300 768 400 or visit: https://genetics.zoetis.com/Australia/
Annual Vaccination

Annual vaccination enhances the level of immunity of your herd, maximising the health of your herd and your business, preventing disease before it occurs.

Annual Vaccination Program

<table>
<thead>
<tr>
<th>Age/Time</th>
<th>Calves</th>
<th>Heifers</th>
<th>Cows</th>
<th>1st Season/New Bulls</th>
<th>Bulls</th>
<th>Steers*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 weeks</td>
<td>12 weeks</td>
<td>6-8 weeks pre-joining</td>
<td>2-4 weeks pre-joining</td>
<td>Pre-calving</td>
<td>2-4 weeks pre-joining</td>
</tr>
<tr>
<td>Ultravac® 7in1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pestigard®</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Vibrovax®</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Your Dates

Botulism Vaccination may be integrated into your annual vaccination program. The above program is specific to extensive northern beef herds where the majority of botulism vaccination occurs. For Feedlots: One dose of Longrange will be sufficient but should be given no less than 28 days prior to feedlot entry. For Dairy Cattle: please refer to the table on Ultravac Botulinum (page 11).

STAR BREEDER PROGRAM

Giving confidence to breeders and buyers

Considering reproductive disease risk is essential when either selling or buying breeder cattle.

The Zoetis STAR (Steps Taken Against Reproductive Diseases) Breeder is a quality assurance program with benefits for both stud and commercial producers.

- Studs will protect their reputation by ensuring the sale stock offered are both free and protected from transmitting reproductive diseases
- Breeder buyers can be confident the animals they are purchasing are not going to introduce preventable reproductive diseases into their herds

Each bull/heifer has been certified by the seller as being:

- Tested to show they are not pestivirus (BVDV) Persistently Infected (PI) animals.
- Vaccinated against Pestivirus to ensure they are protected from the effects of this infection
- Vaccinated against Leptospirosis, a serious disease of cattle and WH&S risk for cattle handlers
- Vaccinated against Vibriosis*, a sexually transmitted cattle disease (*bulls only)
- Given two (2) vaccinations to ensure they have immunity established prior to leaving their property of origin
- Issued a Zoetis Star Breeder Certificate – valid for 12 months

Vaccination Technique

Vaccinations are given by subcutaneous injection

Injections should be given in the area outlined by the triangle in Figure 1.

- The vaccine is injected under the skin and not into the muscle
- Lift a fold of loose skin with your free hand, inject at the base of the 'tented' skin ensuring that the needle does not pass straight through the fold of skin
- Care is required to ensure that the hand holding the skin fold is placed to avoid accidental self-injection (Figure 2)
  It is possible to vaccinate animals without raising the skin fold to reduce the risk of self-injection
- Care with needle placement is required to ensure vaccine goes under the skin (Figure 3)
- Place the needle at about 45° angle to the skin
- Have the bevelled edge (flat open edge) of the needle parallel to the skin. Ensure the vaccine is placed under the skin, not into the top layer of muscle

Vaccination Tips

- Avoid vaccinating cattle when wet or in dusty yards
- Vaccinate high on the neck, near the base of the ear if possible to avoid carcass damage
- Avoid vaccinating through soiled skin. If required, clean skin with a paper towel
- Replace needles regularly so they remain clean and sharp

This graph is a schematic representation to demonstrate the principles of vaccination. Actual levels of antibody following vaccination will vary from vaccine to vaccine and animal to animal.
Why Vaccinate at the Recommended Time?

Vaccines stimulate the production of protective antibodies that fight against disease. In most cases, single doses of vaccine do not confer immediate protection against disease. The exception is where vaccines are formulated as one dose products, such as Longrange® or Vibrovax® in heifers >18 months.

Calves at 6 weeks
This is the primary dose of vaccine. It is important to vaccinate the calf to stimulate their own antibody production. Antibodies may rise for a few weeks. Depending on the disease you are vaccinating against, there may or may not be some level of protection following the first dose of vaccine. This is known as the primary response.

Calves at 12 weeks
The ‘booster’ dose of vaccine (following the ‘primary dose’ at 6 weeks) is given so that the body ‘remembers’ how to make antibodies. It also ensures that far greater quantities of antibodies are produced in a much shorter time. This is known as the ‘secondary response’ and results in longer lasting protection against disease.

Annually
This dose is given 12 months after the last to boost protective immunity for the next 12 month period. It is important not to miss this dose in steers and heifers as they may fall out of your ‘normal’ vaccination timing. Annual vaccinations in heifers, cows and bulls are recommended at specific times depending on the animal and the vaccine.

Pre-Calving
This annual booster is to protect the unborn calf and provide for the transfer of antibodies from the cow to the calf through colostrum, protecting the calf for a period after birth. This ‘passive’ immunity protects the calf until vaccination can be undertaken. Colostral antibody wears off in the first 2-3 months of life. Read the label to ensure that the vaccine you are using will work if given to calves with colostral immunity and to determine the youngest age that you can vaccinate cattle.

Pre-Joining
The timing of this annual booster is to protect the cow from infection during pregnancy. This is particularly important for Pestigard® to minimise the production of persistently infected animals. For bulls, this ensures immunity to reproductive disease is at optimal levels prior to exposure to females and minimises transmission of reproductive disease during joining.

Some vaccines are single dose. They can trickle antigen into the body resulting in the equivalent of a primary and secondary response from one dose of vaccine (for example Longrange® and Vibrovax®). They do however require annual or biennial boosters (5mL of Vibrovax® for heifers >18 months).
Zoetis Offers a Trusted and Complete Range of Herd Health Management Solutions

- Disease prevention through annual vaccination is the key to stopping the spread of disease in your herd and reducing the potentially devastating impact of disease.
- Annual vaccinations, parasite management and preventative programs maximise the health of your herd and your business.
- The Zoetis vaccine and herd health ranges insure your herd and your enterprise against the economic impact of disease.
- A large team of veterinarians and skilled representatives deliver vaccine, parasite management, reproductive and genomic programs to best suit your farm’s management practices.

Useful Contacts and Websites

- NSW Department of Primary Industries: www.dpi.nsw.gov.au
- Animal Health Australia: www.animalhealthaustralia.com.au or call (02) 6232 5522
- The Farm Biosecurity Initiative: www.farmbiosecurity.com.au
- Emergency Animal Disease Watch Hotline: Phone: 1800 675 888
- Meat and Livestock Australia: www.mla.com.au
- Zoetis Australia: www.zoetis.com.au
- Zoetis Australia Technical Services: 1800 814 883

References


Emergency Animal Disease Watch Hotline


Aust Vet J.


2000.


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