



Hard Working Protection for Cattle



BEEF



DAIRY



zoetis

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.

LEPTOSPIROSIS	WHAT ARE THE SYMPTOMS OF LEPTOSPIROSIS?	HOW IS IT SPREAD?	THE RISKS TO HUMANS	WHAT DOES THIS MEAN FOR YOU?
<i>Leptospira Hardjo*</i> – the main type of leptospirosis infecting Australian cattle	<i>L. hardjo</i> <ul style="list-style-type: none"> • “Mastitis” • Sharp drop in milk production¹ • Acute illness with fever and anorexia¹ • Abortion ‘storm’ in cows >5 months pregnant, stillbirths and birth of weak calves¹⁻³ • Reduced fertility^{4,5} 	<p>Infected animals shed bacteria in their urine and during calving and abortion⁶</p> <p>Leptospirosis can spread through contaminated water supplies, food, pastures and soil⁷</p>	<p>Leptospirosis is a debilitating disease</p> <p>Signs include:</p> <ul style="list-style-type: none"> • Severe flu-like symptoms • Headaches, chills • Muscle pains <p>Humans can become infected:</p> <ul style="list-style-type: none"> • While assisting during calving without proper personal protection⁷ • When mucous membranes of the nose, throat or eyes are contacted by fine droplets of urine splashing from infected cows during milking or calving⁶ • Indirectly via contaminated water, food or soil • By drinking unboiled or unpasteurised milk from cows who have leptospirosis • By handling an aborted foetus or afterbirth membranes 	<p>The economic impact of leptospirosis can be significant:</p> <ul style="list-style-type: none"> • Calf deaths • Abortions and stillbirths • Reduced milk production • Treatment costs • Disease in you, your family, workers or contractors and associated Workplace Health and Safety (WH&S) issues • Relief staff costs • Legal liability for preventable diseases contracted by staff at work⁶
<i>Leptospira Pomona**</i>	<p><i>L. pomona</i></p> <p>In calves:</p> <ul style="list-style-type: none"> • Jaundice and anaemia • Reddish brown urine • Fever and death¹ <p>In cows:</p> <ul style="list-style-type: none"> • Significantly reduced milk production • Abortion • Delivery of weak or stillborn calves^{1,3} 	<p>Flooding after heavy rainfall can spread leptospirosis. Outbreaks are more common in wet years⁷</p> <p>Many infected animals do not display signs of illness but are carriers of the disease⁷</p>		

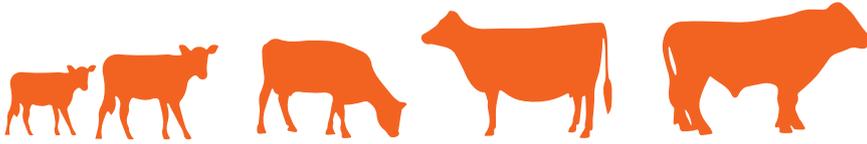
*Caused by *Leptospira borgpetersenii* serovar Hardjo type hardjo-bovis. **Caused by *Leptospira interrogans* serovar Pomona.

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.

LEPTO CAN PUT YOU AND YOUR FAMILY IN HOSPITAL



ULTRAVAC® 7in1 VACCINATION SIMPLE AND HIGHLY EFFECTIVE



CALVES
1ST DOSE MARKING (6-10 wks)
2ND DOSE WEANING (12-16 wks)

HEIFERS
PRE-JOINING
Booster vaccination 2-4 weeks pre-joining

COWS
PRE-CALVING
Vaccinate 4-6 weeks pre-calving

BULLS
PRE-JOINING
Booster vaccination 2-4 weeks pre-joining
Vaccinate unvaccinated bulls twice



THE ONLY VACCINE TO PREVENT SHEDDING OF LEPTOSPIRES*

*Only Ultravac®7in1 prevents urinary shedding of *Leptospira borgpetersenii* serovar Hardjo type *Hardjobovis* and *Letospira interrogans* serovar *Pomona*, while also protecting against the key clostridial diseases. Zoetis Australia Pty Ltd. ABN 94 156 476 425. Level 6, 5 Rider Boulevard, Rhodes NSW 2138. ©2021 Zoetis Inc. All rights reserved. 02/21. ZL1326



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ULTRAVAC 7IN1

STOP THE SPREAD OF LEPTOSPIROSIS

ONLY ULTRAVAC 7in1 (2.5mL 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

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 DISEASE¹

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

CLOSTRIDIAL DISEASE	WHAT IS IT?	HOW IS IT SPREAD?	WHAT ARE THE SYMPTOMS?	WHAT DOES THIS MEAN FOR YOU?
Blackleg <i>Clostridium chauvoei</i>	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: <ul style="list-style-type: none"> • Herd losses • Loss of income • Profitability
Tetanus <i>Clostridium tetani</i>	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) <i>Clostridium perfringens</i> 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 <i>Clostridium novyi</i>	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 <i>Clostridium septicum</i>	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	

ULTRAVAC 7IN1

YOUR BEST PRACTICE VACCINATION PROGRAM

ULTRAVAC 7in1 VACCINE	
All calves	Vaccination can begin from 4 weeks of age [#] This prevents calves becoming infected and shedding leptospire 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
Breeding cows and heifers	Vaccinate prior to calving to protect unborn calf and to prevent infertility and abortion
All other cattle, including steers, bulls and newly purchased animals	Vaccinate early to prevent chronic kidney infection and the shedding of leptospire in the urine, followed by annual vaccinations

[#]The vaccination of calves can begin from 4 weeks of age and is recommended for high risk properties. When the initial two doses are completed before 3 months of age an additional dose should be given 6 months later and then annually.

ULTRAVAC 7IN1 TICKS ALL THE BOXES. THERE'S ONLY ONE CHOICE.

	Ultravac 7 in 1 vaccine	Other 7 in 1 vaccines
Prevents shedding in urine and from the reproductive tract when used prior to natural exposure	✓	No claim
Prevents reproductive tract colonisation*	✓	No claim
Prevents placental and foetal infection*	✓	No claim
Calves can be vaccinated from 4 weeks[#]	✓	4-6 months
Low volume 2.5mL dose	✓	4 mL
Can be used for up to 30 days after opening**	✓	24 hours

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

[#]The vaccination of calves can begin from 4 weeks of age and is recommended for high risk properties. When the initial two doses are completed before 3 months of age, an additional dose should be given 6 months later and then annually.

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

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

There's only one choice to prevent leptospirosis.



ULTRAVAC 5IN1

PREVENTION IS THE KEY TO MANAGING CLOSTRIDIAL DISEASES

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.

ULTRAVAC 5IN1 PREVENTS THE FIVE COMMON CLOSTRIDIAL DISEASES IN AUSTRALIA

- ✓ Blackleg
- ✓ Tetanus
- ✓ Pulpy Kidney
- ✓ Black Disease
- ✓ Malignant Oedema

“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 Victoria²

CAN BE USED FOR 30 DAYS AFTER OPENING*

*PROVIDED STORAGE INSTRUCTIONS ARE FOLLOWED

Protect your livestock and your livelihood with Ultravac 5in1.



Don't let pestivirus rob you blind



zoetis

Always on guard

PESTIGARD

BOVINE PESTIVIRUS

40-60%
HEIFERS
SUSCEPTIBLE¹⁻³

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 PESTIVIRUS¹⁻³

- 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.

PRODUCTIVITY LOSSES ARE A RISK

- 40-60% of heifers have never been infected and are susceptible to future infection.¹⁻³
- A pestivirus crash can reduce calves 25-50%.⁴⁻⁶

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.¹⁻³

DON'T LEAVE IT TO CHANCE

- Only Pestigard prevents nasal shedding of pestivirus to safeguard your heifers and cows reproductive potential.
- Start by vaccinating your heifers with Pestigard®.

1. MLA report B.NBP.0382. 2014. 2. Taylor LF, Black PF, Pitt DJ *et al. Aust Vet J.* 2006;84:163-168. 3. Taylor L. *The Australian Cattle Veterinarian* 2010;57:14-28. 4. Taylor LF, Rodwell BJ. *Aust Vet J* 2001;79:682-685. 5. Morton JM, Phillips NJ, Taylor LF, McGowan MR. *Aust Vet J* 2013;91:517-524. 6. McGowan MR *et al.* In: Proceedings Northern Beef Research Update Conference 2013, 61-66.

PESTIGARD

PROTECTION IS SIMPLE AND EFFECTIVE

PESTIVIRUS
 2ND BIGGEST
 BEEF INDUSTRY
 COST
 \$114 MILLION¹⁰

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.

PESTIGARD VACCINE						
	HEIFERS		COWS	1ST SEASON/NEW BULLS		BULLS
Dose	1st Dose	2nd Dose	Booster	1st Dose	2nd Dose	Booster
Age/Time	6-8 weeks pre-joining*	2-4 weeks pre-joining	2-4 weeks pre-joining*	6-8 weeks pre-joining*	2-4 weeks pre-joining	2-4 weeks pre-joining*

CALVES can be safely vaccinated from 3 months of age:
 – two doses (4-6 weeks apart)
 – followed by a third dose 2-4 weeks before joining/insemination.

***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 per cow per 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.

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

Pestivirus causes significant reproductive and performance issues, and weakens immune systems.

Protect your herd and optimise your returns with Pestigard.

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



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.

STAGE WHEN INFECTED			
	AROUND TIME OF MATING OR AI	FIRST TRIMESTER	SECOND TRIMESTER
Clinical Effect	<ul style="list-style-type: none"> Disrupts ovulation and fertilisation Early embryonic death¹¹ 	<ul style="list-style-type: none"> Production of PI calves Abortions, late embryonic death, stillbirths 	<ul style="list-style-type: none"> Abortions Late delivery of unviable or abnormal calves Central nervous system problems Eye defects
Outcome	<ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> Reduces number of calves born and viability of calves



It pays to be on Pestigard

Australia's best protection against pestivirus



Always on guard

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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%.³

WHAT IS IT?	HOW IS IT SPREAD?	WHAT ARE THE SYMPTOMS?	WHAT DOES THIS MEAN FOR YOU?
Vibriosis is a sexually transmitted disease of cattle caused by the bacteria <i>Campylobacter fetus</i> subspecies <i>venerealis</i>	Bulls spread vibriosis during breeding	Impact of vibriosis is in the female reproductive tract: <ul style="list-style-type: none"> • Localised infection and delayed conception • Abortions at all stages of pregnancy • Permanent infertility in up to 11% of infected heifers² 	Impact on breeding performance and productivity: <ul style="list-style-type: none"> • Reduced pregnancy rates and calving percentages • Greater proportion of late calves • Increase in “barren” heifers • Significant reproductive and economic losses
Widespread throughout the Australian cattle herd	Infected bulls can act as carriers for many years		
Vibriosis infection causes no visible external signs in infected cows or bulls	Vibriosis has no direct effect on a bull's fertility ¹		

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.³

Up to 90% of northern beef herds are infected with vibriosis.¹

CONCEPTION RATES CAN DROP AS LOW AS 40%³

In newly infected herds, conception rates can drop as low as 40%³

11% IMPROVEMENT IN FIRST ROUND PREGNANCY RATES⁴

Vaccinating heifers against Vibriosis in a large northern herd significantly improved (+11%) first round pregnancy rates⁴

5 mL Safeshot Injector (recommended for safety and to reduce the incidence of lumps)



Protect your livestock and your livelihood with Vibrovax.



PREPARE YOUR BULLS BEFORE JOINING



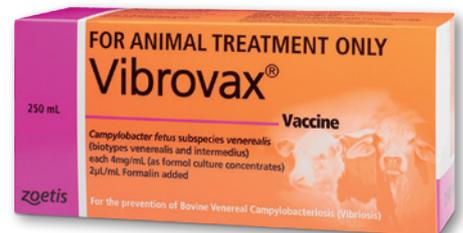
Vaccinating bulls is the key to prevention of vibriosis.

Vibriosis is a major venereal disease and can cause infertility and abortion in cattle.

Conception rates can drop as low as **40%**¹

Vaccinating bulls is effective and practical

- It can lead to increased pregnancy rates
- It has no adverse impact on testicular function and semen morphology²



1. Hum S. NSW Department of Primary Industries (DPI) February 2007. *Primefact*, 451.
2. Zoetis Study Number B930R-AU-14-285. Data on file.

AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

VIBROVAX

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.

VIBROVAX — PRACTICAL VACCINATION FOR CATTLE IN TEMPERATE REGIONS OF AUSTRALIA

	FIRST DOSE	SECOND DOSE	ANNUAL BOOSTER
Bulls (5mL dose)	At least 8-12 weeks prior to joining	4-6 weeks prior to joining	4-6 weeks prior to joining

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.⁵

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

START PROTECTION BEFORE CONCEPTION

Heifer vaccination against vibriosis has a positive impact.

Vibriosis is a major venereal disease and can cause infertility and abortion in cattle.

11% improvement in 1st round pregnancy rates¹

Protect your maiden heifers (over 18 months of age)

- One shot of Vibrovax® = 2 Years Protection (this covers the main period of risk)
- Prevent disrupted calving patterns and improve pregnancy rates



1. Schatz TJ, Colm RM, Hearnden MN, Australian Society of Animal Production 26th Biennial Conference 2006.

AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

VIBROVAX — PRACTICAL VACCINATION FOR CATTLE IN TROPICAL REGIONS OF AUSTRALIA			
	FIRST DOSE	SECOND DOSE	ANNUAL BOOSTER
Bulls (5mL dose)	At least 8-12 weeks prior to joining	4-6 weeks prior to joining	Annually
Heifers 18 months and older & Cows	1 x 5mL dose 4-6 weeks prior to joining for 2 years protection		Annually 4-6 weeks prior to joining

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.⁴

VACCINATING MAIDEN HEIFERS WITH VIBROVAX SIGNIFICANTLY INCREASES ECONOMIC RETURNS FROM YOUR HERD:⁴

- More calves at the right time.
- Improves pregnancy rates.⁴
- Increases number of calves weaned first round.
- 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.



Missing cattle this year?



**Once a year. Every year.
Optimal Protection from Botulism.**

Longrange – the easy to use single dose botulism vaccine.



**FASTEST
IMMUNITY**

**28
DAYS**

within 28 days¹



Don't miss with Longrange.

One dose for trusted annual botulism protection.

¹Refer to product label for details. Reference: 1. Zoetis Data on File.

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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

WHAT IS IT?	HOW IS IT SPREAD?	WHAT ARE THE SYMPTOMS?	WHAT DOES THIS MEAN FOR YOU?
A major disease of livestock, particularly of cattle in the extensive grazing areas of northern Australia	In northern Australia, cattle commonly suffer from phosphorus and protein deficiency	Symptoms vary dramatically depending on the amount of toxin ingested, pre-existing immunity and the stage of poisoning	Animal deaths
Paralysis is caused by a potent nerve toxin	These cattle often chew on carcasses and bones	Progressive symptoms: <ul style="list-style-type: none"> • Paralysis of the tongue, throat and stomach • Inability to drink • Dehydration • Reduced feed intake • Depression • Muscular weakness • Incoordination – cattle go down • Progressive paralysis • Aggression 	Economic losses
<i>Clostridium botulinum</i> Types C and D and their associated toxins are the most common cause of botulism in Australia	<p>Bones and carcasses are the principle sources of botulism toxin</p> <p>In southern Australia, toxin is ingested from contaminated hay and silage or from pasture fertilised with chicken litter</p>	Death can take up to 14 days. In severe cases, animals can die in less than 24 hours without signs of illness	At current market prices, if botulism impacted even 1% of a 5000 head herd, it could cost over \$35,000

“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 NT¹

THE OPTIMUM BOTULISM VACCINATION PROGRAM FOR NORTHERN HERDS

BOTULISM VACCINATION	WEANERS	BREEDERS (INCLUDING BULLS)
Longrange	One shot at first muster	4-6 weeks prior to joining
Ultravac Botulinum		Alternative annual booster to Longrange

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.



INSURE YOUR DAIRY HERD AGAINST THE RISK OF BOTULISM

While botulism in dairy herds is still relatively uncommon, the consequences of an outbreak can be significant.

Botulism is a disease caused by the bacterium, *Clostridium botulinum* and the toxin it produces. Toxin types C and D are most commonly associated with disease and death in Australian cattle.

Conserved feeds, such as silage and hay, can contain decaying animal matter creating a **high risk** of botulism. For baled silage, damage to the wrapping of the bale can also cause deterioration of the silage and production of toxin if bacterial spores are present.

The practice of feeding total and partial **mixed rations** is associated with a significant increase in the risk of botulism and the potential for contaminated feed materials to affect multiple animals simultaneously.

Chicken litter, used as a fertiliser on some farms, may contain the carcasses of dead poultry and can therefore present a significant risk of botulism.

Few cattle survive botulism and there is **no effective treatment**. An outbreak can lead to serious productivity and stock loss. Prevention is the key.

Ultravac® Botulinum is a convenient two dose vaccine to increase botulism protection of your herd.



VACCINATION PROTOCOL SUGGESTED FOR AUSTRALIAN DAIRY HERDS

PROTOCOL FOR LACTATING COWS, HEIFERS, DRY COWS AND BULLS USING ULTRAVAC BOTULINUM

Initial course	Ultravac Botulinum	Two doses given 4-6 weeks apart, with the second dose at least 1 month before starting to feed silage or other conserved feeds
Annual boosters	Ultravac Botulinum	A single dose at least 1 month before starting to feed silage or other conserved feeds

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 (2.5 mL 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 (2.5 mL DOSE)

- Cost-effective annual booster vaccination.
- Convenient vaccine for lactating dairy cattle.

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



PREVENTION OF BOVINE RESPIRATORY DISEASE

BRD OCCURS AT WEANING, BACKGROUNDING AND LOT FEEDING

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 pastured cattle and calves to BRD. These include stress caused by weaning, transportation, mixing and sudden changes in environment, climate or diet.

COST TO YOUR ANIMALS

- reductions in average daily weight gain of up to 0.2-0.4kg/hd/day²
- impact on meat quality² (i.e. reduced marbling)
- increased death rate¹
- lifetime impacts on growth and reproduction³

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**¹
 - 10-30% of COST due to **drugs for treatment**¹

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. The most common secondary bacterial pneumonia is caused by *Mannheimia haemolytica* or MH.

UNIQUE VACCINES

Zoetis manufactures unique single dose 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 is to use both vaccines.



VACCINATE WITH RHINO-GARD AND BOVI-SHIELD MH-ONE ONCE AT WEANING, BACKGROUNDING AND LOT FEEDING TO PROTECT AGAINST BRD

THE BENEFITS OF USING RHINO-GARD IBR WITH BOVI-SHIELD MH-ONE

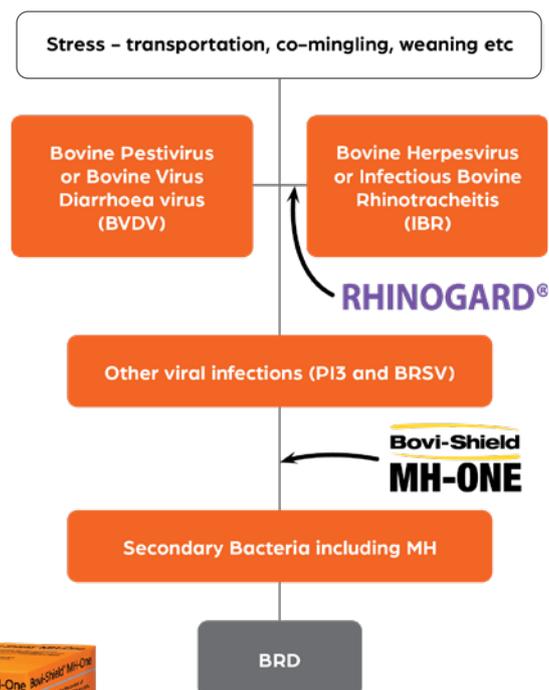
The most comprehensive vaccination program utilising Rhinogard includes co-administration of Bovi-Shield MH-ONE.

The flow chart demonstrates that when both vaccines are used together, there are two different stages in the disease process where the cascade of events leading up to a BRD outbreak are inhibited.

Rhinogard works at the early stage of disease development to reduce the impact of IBR in the chain of events. For cases where other viruses are involved early on, Bovi-Shield works later to prevent pneumonia's caused by MH. Together, they have a broader impact on pulling up the course of disease than either product used in isolation. In addition, both vaccines are single dose and are rapidly efficacious.

References:

1. MLA Animal Health Survey of the Australian Feedlot Industry (2010) P.PSH.0547.
2. Blakebrough-Hall C et al Journal of Animal Science, 2020, 1-11.
3. A field investigation of the effects of bovine viral diarrhoea virus infection around the time of insemination on the reproductive performance of cattle. Theriogenology 39:443-449. <https://pubmed.ncbi.nlm.nih.gov/16727224/>.



BREATHE EASY

with **RHINO**GARD, the only live single dose intra-nasal vaccine for highly effective **IBR** control in cattle

RHINO**GARD**®

New formulation for easy on farm use

- ✓ RAPID onset of immunity
- ✓ No priming dose required
- ✓ Simple to use, **SINGLE DOSE** intra-nasal spray
- ✓ Labour saving and convenient
- ✓ Reduce wastage with a 50 dose and 10 dose pack



YOU ONLY NEED ONE

Rapid protection from **BRD** caused by *Mannheimia haemolytica* (MH)



Potent **ONE-SHOT** MH vaccine



Unique adjuvant technology with **PROVEN** protection



Mixed **FRESH** for **MAXIMUM POTENCY** on-farm



RAPID onset that **PROTECTS** within 7 days



LOW IRRITANT formulation to minimise injection site reactions



Protection at time of challenge on-farm (e.g. weaning) or at feedlot entry



Reduced wastage with a 50 dose and 10 dose pack



Independently proven: Protection against Australian strains of MH

Bovi-Shield

MH-ONE

www.youonlyneedone.com.au





THREE-DAY SICKNESS (BEF)

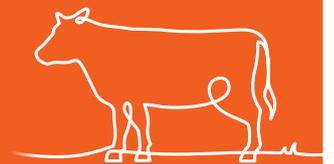
Three-Day Sickness or Bovine Ephemeral Fever (BEF) is a viral disease of cattle with the potential to cause economic losses due to deaths, loss of condition, decreased weight gain and reduced fertility in bulls. For dairy producers it can also lead to decreased milk production.

KEY FACTS

- The disease can affect cattle of all ages. The BEF virus is spread by biting insects and is often more prevalent after significant summer rain. The impact can also be greater following extended dry spells due to a lack of immunity in the herd.
- BEF is seasonally widespread across northern Australia and may occasionally spread as far south as northern Victoria and the south coast of NSW.¹

IMPACT

- About 1% die or are destroyed due to being down for long periods. Losses as high as 5–10% have been reported in some mobs²
- Milk production can drop suddenly and sharply by at least 50%²



CLINICAL SIGNS

Include sudden fever 40°C+; stiff gait, arched back; abortions; muscular stiffness, lameness, paralysis.

PREVENTATIVE ACTIONS

Vaccinate herds prior to 'at risk' times to prevent costly losses.

BEF Vaccination programs can be integrated into your annual vaccination program.

BEF Vaccination		
1st Dose	2nd Dose	Booster*
Heifers and Steers	2 weeks to 6 months after the 1st dose	Prior to risk period every year
Bulls more than 6 months old	2 weeks to 6 months after the 1st dose	Prior to risk period every year
Dairy Cows	2 weeks to 6 months after the 1st dose	Prior to risk period every year

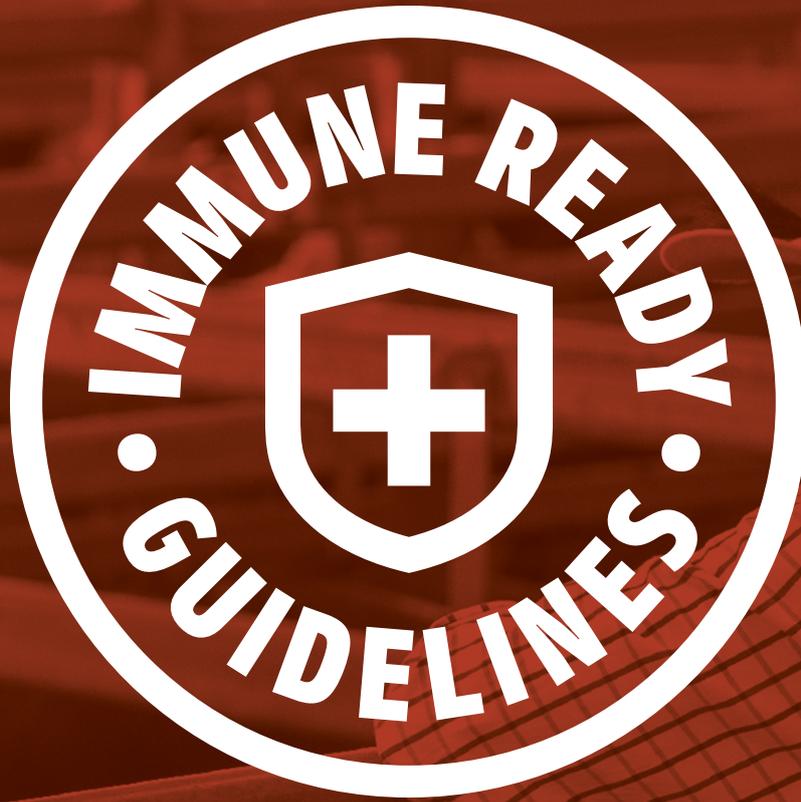


*BEF typically starts to occur during spring in northern Australia and spreads into southern regions over the summer months. Refer to: <https://www.animalhealthaustralia.com.au/what-we-do/disease-surveillance/national-arbovirus-monitoring-program/>

 **Further Information** | Consult your veterinarian

References: 1. <https://www.animalhealthaustralia.com.au/our-publications/namp-report>. 2. Parkinson TJ et al., 2010, Diseases of cattle in Australasia, VetLearn, Wellington, 727-29.

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IT'S A SIGN OF BETTER PRODUCTIVITY AND ANIMAL HEALTH

'Immune Ready' is a guideline for the care of sale cattle. It helps protect cattle in the preparation, transport and arrival post sale.

FOR BUYERS

- It reduces the risk of disease in purchased cattle
- It improves farm biosecurity
- It improves animal health and welfare

FOR SELLERS

- It prepares your cattle for potential disease challenges
- It allows you to promote and sell premium cattle
- It helps safeguard against disease and improve productivity



Learn more about
Immune Ready Guidelines

ENDORSED BY



zoetis

Virbac

COOPERS

GET TWICE AS TOUGH ON WORMS

DECTOMAX



LEVAMISOLE

NEW

DECTOMAX V[®]
doramectin and levamisole injection

Dectomax V achieved
99.7% EFFICACY*



**EFFECTIVELY KILLS:
ROUND WORMS**



**EFFECTIVELY CONTROLS:
CATTLE TICKS
FOR 30 DAYS**



**EFFECTIVELY CONTROLS:
SUCKING LICE
FOR UP TO 56 DAYS**

AUSTRALIA'S FIRST DUAL ACTIVE INJECTABLE DRENCH FOR CATTLE

Introducing Dectomax V...the first injectable harnessing the trusted power of Dectomax, with the added strength of levamisole, in a single injection.

- New Dual Active Drench Technology - resistance breaking
- High efficacy, broad spectrum parasiticide*
- Easy injectable administration for highly reliable dosing
- Treats gastrointestinal worms, cattle tick, sucking lice

**Dectomax V for victory.
Stop resistance developing
on your property.**

**PREMIUM PERFORMANCE FOR
LEADING CATTLE PRODUCERS**



Dectomax V
500 mL bottle
inside a sleeve



**Dectomax V –
Victory Pack**
(includes 6 x 500 mL
bottles & metal injector)



SCAN ME

PRODUCT PROFILE

LABEL CLAIMS

- For the treatment and control of adult and L4 larval stages of gastrointestinal worms including both ML and levamisole resistant strains
- For the treatment and control of **sucking Lice** for up to 56 days
- For the treatment and control of **cattle tick** including SP, OP and amide resistant strains. Prevents the development of viable ticks for a period of 30 days

DOSING / ADMINISTRATION

- **Subcutaneous injection at 1 mL per 25 kg**
- **No more than 10 mL to be injected at one site**

WITHHOLDING PERIODS

- **MEAT WHP & ESI:** 35 days
- **MILK WHP:** Do not use in cattle during lactation or less than 60 days before calving when milk or milk products are to be used for human consumption or processing
- **RETREATMENT INTERVAL:** Do not re-treat animals for 28 days after last treatment

FORMULATION & PACKAGING

- Packaged in a 500 mL amber glass bottle in a recyclable protective sleeve
- **Store below 25°C** (air-conditioning)
- **Use within 45 days of first broaching** the bottle

SAFETY

- **Safe for use in calves from 3 months of age**
- **Safe for use in pregnant animals** at all stages
- **No long term impact on dung beetle populations** as per all MLs

Consult product label for any further safety information and registered product claims.

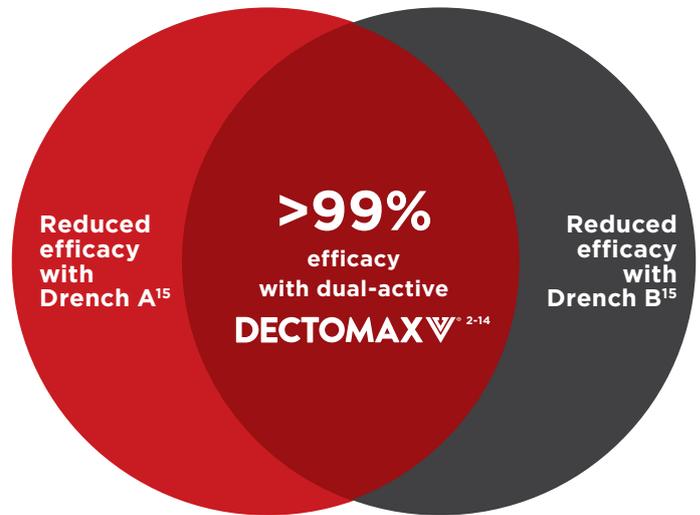
*Overall mean efficacy (GM) of 99.7% across twenty one field studies. Zoetis data on file.

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INTRODUCING DECTOMAX V, A POWERFUL NEW COMBINATION CONTAINING DORAMECTIN AND LEVAMISOLE

DECTOMAX V is an evolution from Dectomax which has been trusted and used across Australia for over 20 years. DECTOMAX V combines the trusted performance of doramectin, from Dectomax, with the added strength of an active called levamisole. DECTOMAX V provides a dual active killing power with unsurpassed efficacy against key parasites, including those often resistant to other drenches.¹⁻¹⁴

As an injectable formulation, DECTOMAX V ensures your cattle get the right dose every time, helping them stay healthy, as well as ahead of resistance.¹



DECTOMAX V KILLS MORE WORMS

When you treat a population of worms with a single active drench some worms may be resistant and this leads to an ineffective kill and reduced efficacy.

But when treating with DECTOMAX V, a drench that combines two powerful actives with different modes of action, both of which are targeting the same worm to ensure an effective kill, even resistant worms are killed, unlocking your herd's full productivity potential.¹⁻¹⁴

GASTROINTESTINAL WORMS ARE GETTING TOUGHER

WORMS ARE GROWING INCREASINGLY RESISTANT TO DRENCHES

Drench resistance has been reported everywhere cattle are raised, with worms growing particularly resistant to macrocyclic lactones (MLs), the active ingredient in drenches like Ivomec and Cydectin, because of their widespread use in cattle over the past 30 years.

➤ **59%**

of 19 Western Australian beef farms reported ML-resistant worms¹⁶

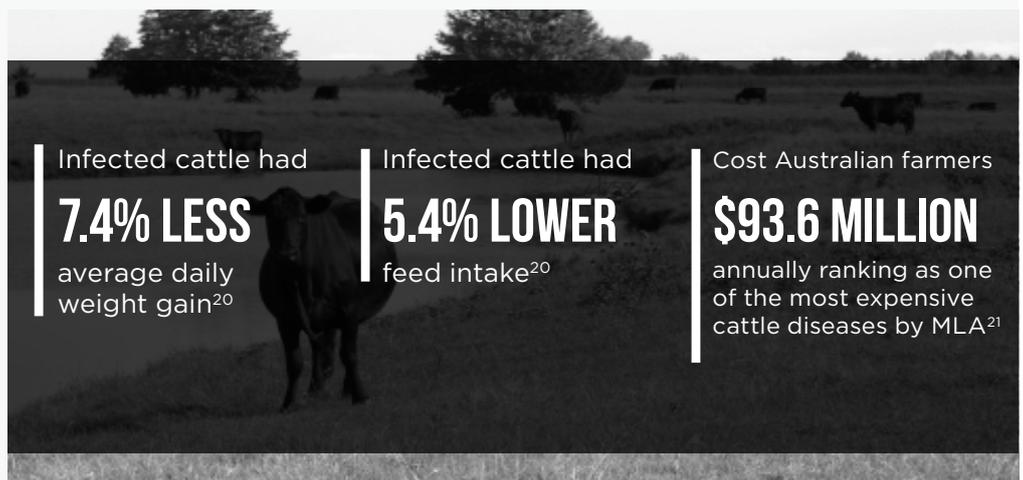
➤ **50%+**

of 23 beef farms in Victoria reported ML-resistant worms^{17,18}

➤ **50%**

of feedlot pens in a study conducted in a commercial QLD feedlot operation identified resistance to ML's¹⁹

THE ECONOMIC IMPACT OF WORMS ON FARMS

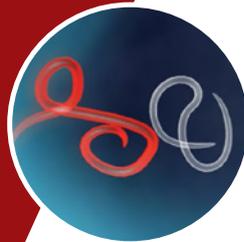


PREMIUM PROTECTION FOR ALL CATTLE PRODUCERS

WHY USE DECTOMAX V

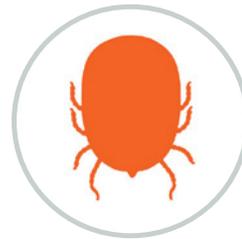
Dectomax V has a dual-killing mode. It is the first and only injectable combination in Australia using doramectin and levamisole to defeat performance stealing parasites.

EFFECTIVELY KILLS



Gastrointestinal
round worms

+



Cattle
Ticks

+



Sucking
Lice

IDEAL FOR



WEANERS AND ALL YOUNG CATTLE

- ▶ Young cattle are rapidly growing and are yet to develop natural immunity against worms, hence the importance of using a highly efficacious dual active injectable drench. This will ensure a healthier animal and that they achieve target weight for joining or sale.



AS A QUARANTINE / INDUCTION DRENCH

- ▶ so producers do not introduce resistant worms onto their properties.



REPLACEMENT BREEDING STOCK

- ▶ for producers wanting to provide a premium efficacious drench to their cattle, including growing breeders and steers.



FOR ADULT CATTLE

- ▶ to protect the individual property resistance profile, to slow the development of resistance.



FOR ARRIVAL AT BACKGROUNDING AND INDUCTION AT THE FEEDLOT

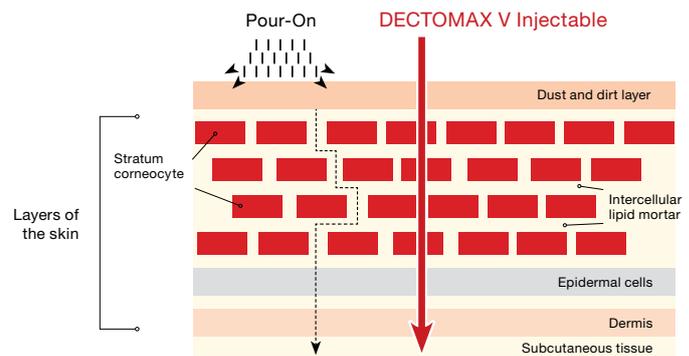
- ▶ so you can be guaranteed to remove all performance robbing worms (resistant and sensitive) and therefore to maximise daily weight gains.

AN INJECTABLE FORMULATION FOR THE RIGHT DOSE EVERY TIME

INJECTION V POUR-ON

When dealing with resistant parasites, delivering the right dose is vital. DECTOMAX V is an injectable formulation that provides you with easy reliable dosing so you can keep resistance at bay.

- When a drug is delivered by injection, all of the potential barriers to absorption are avoided.
- An injectable drench is deposited below the skin and absorbed directly into the bloodstream.
- Injectable drenches therefore achieve higher peak blood and tissue levels compared to pour-ons.
- Pour-on products result in variable dosing of cattle, as some of the pour-on product is absorbed across the skin and some is absorbed by cattle licking the product off themselves and other cattle. Therefore the licking behaviours of different cattle can result in unreliable dosing and even underdosing.



THE ADVANTAGES OF INJECTABLE OVER POUR-ON ADMINISTRATION

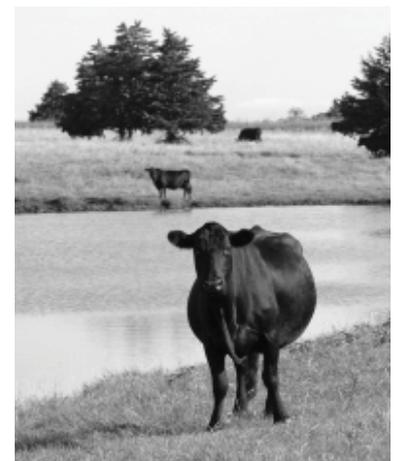
- ① Gives a reliable dose to every animal^{18,19}
- ② Gives a higher dose into plasma²⁰
- ③ Higher efficacy for mucosa-dwelling parasites (*Ostertagia*)²¹
- ④ Leads to a higher concentration absorbed by both *Cooperia* and *Ostertagia* worms²²
- ⑤ Slows the onset of resistance²¹

DECTOMAX V HELPS YOUR HERD PERFORM BETTER... AND HELPS YOUR FARM STAY AHEAD OF RESISTANCE

DECTOMAX V SLOWS DOWN THE CYCLE OF RESISTANCE

DECTOMAX V kills resistant worms, keeping them from reproducing and contaminating your pastures. That helps you stay ahead of resistance and keeps your herd healthy and productive.

The worms on your pasture today ultimately become the worms in your animals tomorrow and then, if not treated, go back onto your pastures the day after that. Over time, the continuous use of ineffective drenches gradually leads to increased prevalence of resistant worms on your farm.



DECTOMAX

KILLS KEY PARASITES

THE TWO UNIQUE MODELS OF DECTOMAX INJECTABLE AND DECTOMAX POUR-ON GIVE YOU TWO POWERFUL CHOICES TO CONTROL THE PARASITES THAT COUNT.

DECTOMAX POUR-ON

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

- Convenient, easy-to-administer.
- Broad-spectrum efficacy.
- Persistent activity against the 5 major worms.
- Controls cattle ticks.
- Controls lice and mites.
- Maximise weight gains.
- Nil milk withholding period.
- Rainfast.
- Meat withholding period of 42 days.
- Export slaughter interval of 42 days.

NIL MILK WITHHOLD PERIOD

POUR-ON DRENCHES – DAYS OF PERSISTENT ACTIVITY*

MAJOR WORM TYPES	DECTOMAX POUR-ON	CYDECTIN* POUR-ON	EPRINEX* POUR-ON
Cooperia spp. (Small intestinal worm)	35 days ¹	NO CLAIM	28 days
Ostertagia ostertagi (Small brown stomach worm)	35 days	42 days	28 days
Haemonchus placei (Barber's pole worm)	35 days	28 days	21 days
Trichostrongylus axei (Stomach hair worm)	35 days	28 days	21 days
Oesophagostomum radiatum (Nodule worm)	21 days	42 days	28 days

*Provides up to 21 days of persistent activity against *Cooperia oncophora* as per label claim.

KILL THE CATTLE PARASITES THAT COUNT

Cooperia spp. infections can decrease average daily weight gain by 7.5%¹

Cooperia spp. (Small Intestinal worm) is the most prevalent worm type in Australia.

Dectomax has broad spectrum efficacy and provides outstanding persistent days of activity on both *Cooperia* spp. and *Ostertagia ostertagi* (one of the most pathogenic worms), as well as other key cattle worms*. Injectable and Pour On available.

65%
of worms are
Cooperia
spp.²



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

1. Kloosterman A, Albers G, van den Brink R. Negative interactions between *Ostertagia ostertagi* and *Cooperia oncophora* in calves. Veterinary Parasitology. Vet Parasitology 1984; 15: 135-150. 2. Australian national average of FEC results from 70,000 dung samples. Wormtrax™ - wormtrax.com.au
*Refer to product label for registered claims.



AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

KILL TROPICAL AND SUB-TROPICAL PARASITES

Dectomax Injectable offers long acting protection against the major parasites of Northern Australia: cattle tick, small intestinal worm and barber's pole worm.



Dectomax Injectable:

- has broad spectrum efficacy
- prevents the development of viable cattle tick for 28 days following treatment
- controls sucking lice & mange mites
- is suitable for cattle of all classes and all ages
- has outstanding persistent days of activity on *Cooperia* spp. as well as other key cattle worms*.



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

1. Zoetis Studies 1430C-60-90-003; 1430C-60-90-005. Date on file. 2. NRA Special Review of Macrocytic Lactones, May 1998. Available from <http://apvma.gov.au/node/12576>. *Refer to product label for registered claims.



Dung beetles are a valuable natural resource.

Use Dectomax with confidence. It has no adverse effect on dung beetle populations^{1,2}



AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

DECTOMAX INJECTABLE

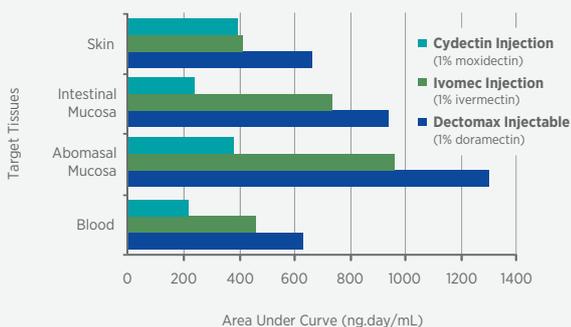
This high performance model provides injected performance where it's needed.



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

INJECTABLE DRENCH COMPARISON – CATTLE

Drench availability in key parasite locations following injection¹⁻³



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

INJECTABLES – DAYS OF PERSISTENT ACTIVITY*

MAJOR WORM TYPES	DECTOMAX INJECTABLE	CYDECTIN® INJECTION	IVOMECS® INJECTION
<i>Cooperia</i> spp. (Small intestinal worm)	21 days [#]	NO CLAIM	7 days
<i>Ostertagia ostertagi</i> (Small brown stomach worm)	21 days	21 days	7 days
<i>Haemonchus placei</i> (Barber's pole worm)	21 days	14 days	NO CLAIM
<i>Trichostrongylus axei</i> (Stomach hair worm)	21 days	14 days	NO CLAIM
<i>Oesophagostomum radiatum</i> (Nodule worm)	21 days	NO CLAIM	NO CLAIM

*Provides up to 14 days of persistent activity against *Cooperia oncophora* as per label claim. *Maximum number of days approved.

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.

Dectomax – protection for your cattle with fewer treatments and reduced pasture contamination.

THE PROVEN POWER OF MOXIDECTIN



CATTLEGUARD® LA INJECTABLE

KILL WORMS AND TICKS FOR LONGER

For the treatment and control of moxidectin sensitive internal and external parasites in cattle.

- 120 days protection against *Haemonchus*
- 112 days protection against *Ostertagia*
- 65 days prevention of cattle ticks eggs†
- Dung Beetle Friendly†
- Available in 200 mL and 500 mL bottles

PROTECTION PERIOD

When CattleGuard Long Acting Injection for Cattle is used at the recommended dose rate as a single subcutaneous injection, it prevents re-infection of cattle with parasites as in the following table:

PARASITE SPECIES	PERSISTENT PROTECTION PERIOD
<i>Ostertagia</i> spp.	112 days
<i>Haemonchus</i> spp.	120 days
<i>Trichostrongylus axei</i> .	72 days
<i>Cooperia</i> spp.	21 days
<i>Dictyocaulus viviparus</i>	120 days
<i>Oesophagostomum radiatum</i>	120 days
<i>Linognathus vituli</i>	133 days
<i>Rhipicephalus (Boophilus) microplus</i>	51 days

WITHHOLDING PERIODS	
WHP Meat	56 days
WHP Milk	80 days
ESI	108 days

†Refer to product label for registered label claims.

CATTLEGUARD® POUR-ON

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

- Nil meat and Nil milk withholding periods.
- 42 days control of *Ostertagia*, and other worms* in the mix.
- Dung Beetle Safety† — it has the same safety profile as the original moxidectin formulation.
- Effective use† against cattle tick and buffalo fly. It is the trusty all rounder.
- Available in 1L, 2.5L, 5L backpack and 15L drum.



POUR-ONS: DAYS OF PERSISTENT ACTIVITY			
INTERNAL PARASITE	CATTLEGUARD® (MOXIDECTIN)	CYDECTIN® (MOXIDECTIN)	GENESIS® (IVERMECTIN)
<i>Ostertagia ostertagi</i> (Small brown stomach worm)	42 days	42 days	14 days
<i>Oesophagostomum radiatum</i> (Nodule worm)	42 days	42 days	NO CLAIM
<i>Haemonchus placei</i> (Barber's pole worm)	28 days	28 days	NO CLAIM
<i>Trichostrongylus axei</i> (Stomach hair worm)	28 days	28 days	NO CLAIM
<i>Cooperia</i> spp. (Small intestinal worm)	NO CLAIM	NO CLAIM	NO CLAIM

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			
	CATTLEGUARD®	CYDECTIN®	GENESIS®
WHP Meat	0 days	0 days	21 days
WHP Milk	0 days	0 days	0 days
ESI	0 days	0 days	21 days

*Days of activity vary by worm species. See label for details. †Refer to product label for registered label claims. ®Registered trademarks.

EXTERNAL PARASITES



OZTIK® POUR-ON TICK INHIBITOR

BEEF UP YOUR PROFITS WITH OZTIK

Oztik® Pour-On Tick Inhibitor for Cattle contains 25g/L of fluzaron which is a tick development inhibitor that kills susceptible ticks progressively. Oztik will break the tick breeding life cycle, lower pasture contamination, decrease labour costs and increase productivity*

- ✓ Cattle tick control
- ✓ Reduced handling and labour
- ✓ Increased productivity
- ✓ Easy pour-on application
- ✓ Available: 2.5L, 5L, 15L

WITHHOLDING PERIODS	
WHP Meat	42 days. Calves which have suckled on treated cows must not be slaughtered less than 4 months after the last treatment of these cows.
WHP Milk	Not approved for use in cattle which are producing or may in the future produce milk for human consumption.
ESI	42 days.

*The cost of ticks.

A recent MLA research project estimated that the annual on-farm cost of ticks (production losses plus control costs) to the Australian cattle industry is approximately \$146m. Additional costs are incurred maintaining the 'tick line' inspection points between New South Wales and Queensland and the tick line within Queensland. <http://www.mla.com.au/Livestock-production/Animal-health/welfare-and-biosecurity/Parasites/Identification/Ticks>.

BARRICADE® 'S'

CATTLE DIP AND SPRAY

- 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.
- Export Slaughter Interval (ESI): 21 days.
- Do NOT use in dairy cattle.
- Available in 800mL, 5L and 20L drums.



SUPONA®

BUFFALO FLY INSECTICIDE

- 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 WHP.



*WHP: Withhold Period. ESI: Export Slaughter Interval.

PARASITICIDES

PARAMECTIN® POUR-ON

A BROAD SPECTRUM ANTHELMINTIC FOR THE TREATMENT AND CONTROL OF INTERNAL AND EXTERNAL PARASITES OF CATTLE

Paramectin® Pour-On for cattle is ideal for a cost-effective integrated worm management system, where the use of more expensive longer acting parasiticides may not be necessary.¹ A combination of strategic drenching and the post-treatment rotation of cattle onto safe pasture minimises re-infestation and is effective at breaking the worm life cycle, keeping cattle healthy for longer.^{1,2}

- Broad spectrum worm control
- Up to 14 days *Ostertagia* control
- Up to 28 days lungworm control
- Up to 14 days buffalo fly control
- Nil milk withholding period
- Highly effective against biting and sucking lice
- Control of cattle tick

WITHHOLDING PERIODS

WHP Meat	35 days
WHP Milk	0 days
ESI	42 days

Pack Sizes

- 1L, 2.5L, 5L, 20L and 10L RV.



References: 1. Rolls, N & Webb, J., Managing production risk on high input farms. Optimising key animal health issues. Mackinnon Project, Faculty of Veterinary Science University of Melbourne, Nov 2011. 2. Meat & Livestock Australia (2005). The cattle parasite atlas. A regional guide to cattle parasite control in Australia. Retrieved from <https://www.mla.com.au/research-and-development/animalhealthwelfare-and-biosecurity/parasites/cattle-parasite-atlas>

STRATEGIK® MINI-DOSE

WORMING DRENCH FOR CATTLE

Strategik Mini-Dose broad spectrum white drench for the treatment and control in cattle of susceptible mature and immature gastrointestinal roundworms (including inhibited Type II *Ostertagia* larvae), large lungworms and tapeworms; to aid in the control of adult liver fluke; and to reduce the output of viable worm and fluke eggs.

Dose Rate

- Roundworms, Lungworms, Tapeworms Only: 3 mL per 45kg bodyweight.
- Roundworms, Lungworms, Tapeworms, Adult Liver Fluke: 4 mL per 45kg bodyweight.

WITHHOLDING PERIODS

WHP Meat	10 days
WHP Milk	DO NOT ADMINISTER to cattle producing milk for human consumption
ESI	10 days

Pack Sizes

- 5L, 10L and 20L.



TREMACIDE® 120

FAST, EFFECTIVE ELIMINATION OF ALL THREE STAGES OF LIVER FLUKE

Tremacide is for the treatment of susceptible early immature, immature and mature liver fluke (*Fasciola hepatica*) in cattle and sheep. Liver Fluke infestations are bad news for sheep and cattle productivity. Tremacide 120 offers powerful protection by eliminating all three stages of fluke — early immature, immature and adult. Tremacide 120 contains the active component Triclabendazole in a free-flowing formulation that won't clog your gun.

WITHHOLDING PERIODS

WHP Meat	21 days
WHP Milk	21 days
ESI	56 days

Pack Sizes

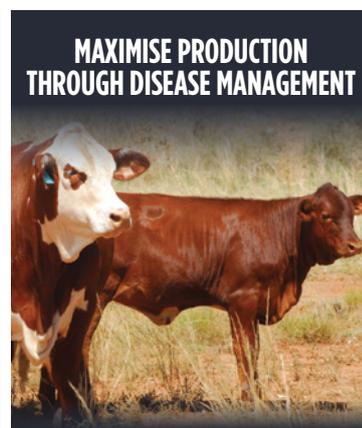
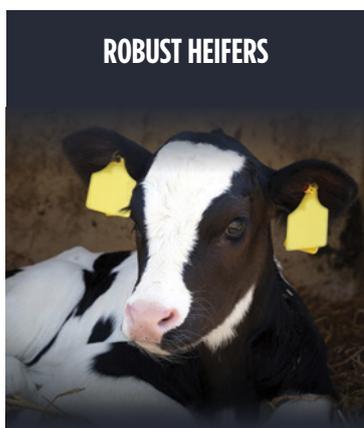
- 5L and 10L.





Livestock Solutions

A central point for livestock producers to access valuable **tools and information** which can assist you in the management of your operation



Farm Planner Tool Allows you to:

- **Personalise** your management plans with **best practice** recommendations
- Receive **email reminders** for upcoming management activities
- **Easily update your plans** online

FARM PLANNER MANAGEMENT CALENDAR



For more information visit
zoetis.com.au

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HOME



DAIRY



SHEEP



NORTHERN BEEF



SOUTHERN BEEF



FARM PLANNER

NUTRITION, METABOLISM & SPECIALISED PRODUCTS

VYTRATE®

SACHET & LIQUID CONCENTRATE

Vytrate Liquid Concentrate is an oral fluid chiefly for the treatment of diarrhoea in large animal species. Diarrhoea can cause massive fluid loss from an animal. Vytrate Scour Sachets are available in a sachet. Each duo sachet makes 2 litres of prepared solution and each box contains 12 sachets.

Vytrate

- is a non antibiotic supportive treatment to replace lost fluids and electrolytes in scouring or dehydrated calves, lambs & ewes, pigs & piglets, foals, dogs, and cats.
- combats dehydration and replaces lost fluids and electrolytes. It contains a balanced mix of glucose, glycine, citrate and electrolytes. Vytrate liquid aids in the treatment of pregnancy toxæmia.
- fights acidosis and supports in the treatment of dogs and cats suffering debilitating viral disease such as canine parvovirus or feline *panleucopaenia*.
- is registered for six species, calves, lambs, foals, pigs, cats and dogs.

Pack Sizes:

- Box of 12 sachets, each duo sachet makes 2L
- 1L pack makes 12.5L solution
- 5L pack makes 62.5L solution
- 20L pack makes 250L solution



COBALEX 2000 B12

Cobalex 2000 B12 provides a readily absorbed source of vitamin B12 in sheep and cattle. Vitamin B12 is an essential component of a number of enzymes involved in normal metabolism. It is stored in the liver and is necessary for appetite, maintenance of energy, production and growth.

Broached Vial Claim: 60 days.



COBALEX 2000 B12 PLUS SELENIUM

This also contains selenium, which is required by sheep and cattle for growth, and is needed to produce a number of enzymes that are important to normal function. Selenium also appears to have a role in the resistance of animals to disease being involved in the production of antibodies and in eliminating pathogens.

Broached Vial Claim: 60 days.



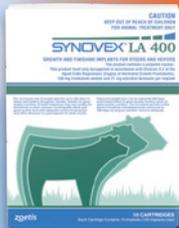
CETON

Ceton is an easy to use oral treatment of pregnancy toxæmia in sheep and aceto-naemia in cattle. It can be used as an oral drench or mixed in with feed. It has three active constituents: propylene glycol is an effective antiketogenic agent; cobalt chloride promotes the synthesis and utilisation of volatile fatty acids; choline chloride is a lipotropic agent which assists in fatty acid metabolism.



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.



SYNOVEX® LA 400 LONG ACTING GROWTH AND FINISHING IMPLANTS FOR STEERS AND HEIFERS

Increases weight gain and feed efficiency in steers and heifers for up to 400 days in pastured cattle.

- ✓ Each implant contains 21mg of oestradiol benzoate and 150mg of trenbolone acetate in a novel, patented, slow release formulation.



SYNOVEX® S GROWTH AND FINISHING IMPLANTS FOR STEERS

Increases weight gain and feed efficiency in steers on pasture and in the feedlot.

- ✓ Combination implant - contains 20mg of oestradiol benzoate and 200mg of progesterone.



SYNOVEX® TBA GROWTH AND FINISHING IMPLANTS FOR FEEDLOT STEERS AND HEIFERS

The most potent Synovex® implant available, increasing weight gain and feed efficiency in feedlot steers and heifers.

- ✓ Contains 28mg of oestradiol benzoate and 200mg of trenbolone acetate.



SYNOVEX® H GROWTH AND FINISHING IMPLANTS FOR HEIFERS

Increases weight gain and feed efficiency in heifers on pasture and in the feedlot.

- ✓ Combination implant - contains 20mg of oestradiol benzoate and 200mg of testosterone propionate.

AUSTRALIA'S MOST TRUSTED HGP DELIVERS MORE FLEXIBILITY FOR CATTLE ON PASTURE AND IN THE FEEDLOT

TERRAMYCIN®

POWDER & AEROSOL

Pinkeye infects the eye and produces a toxin. It generally occurs when the bacteria is present and the animal suffers some form of irritation or trauma to the eye from events such as dust, dryness or ultraviolet light.

Terramycin treats eye infections of animals including infectious keratitis (pink eye) of cattle and other associated agents associated with these diseases. It is flexible, with no meat or milk withholding period. It has the option of an easy to use puffer pack or a convenient aerosol formulation.



BOVATEC®

FOR WEIGHT GAIN AND FEED EFFICIENCY IN BEEF AND DAIRY CATTLE, PLUS IMPROVED MILK PRODUCTION

CONTROLS	IMPROVES	AIDS
The clinical signs of coccidiosis and the reduction of faecal shedding caused by <i>Eimeria bovis</i> and <i>Eimeria zuernii</i> in growing cattle	Liveweight gains and feed conversion efficiency in growing cattle and lot fed beef cattle	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.



VET ONLY PRODUCTS

ULTRAVAC SCOURSHIELD®

■ 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.¹ 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.

Scours can change the future for you and her

ULTRAVAC SCOURSHIELD VACCINE

- ✓ Flexible dosing to fit in with other heifer and cow management practices
- ✓ Water-based formulation to minimise injection site reactions
- ✓ Nil withholding periods



TEATSEAL®

teatseal
PREVENTION IS BETTER THAN CURE

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.

Teatseal feeling



TEATSEAL SYRINGES CAN NOW BE RECYCLED

at participating vet clinics



COWS

Reduce mastitis cases in early lactation by up to 70%
(Teatseal + dry cow antibiotics vs antibiotics alone)¹



HEIFERS

Mastitis is 56% less likely within 30 days of calving in heifers treated with Teatseal²



CUT THE COST

Potentially save yourself thousands of dollars by treating your herd with Teatseal

References: 1. Runciman DJ, Malmo J, Deighton M. The use of an internal teat sealant in combination with cloxacillin dry cow therapy for the prevention of clinical and subclinical mastitis in seasonal calving dairy cows. J Dairy Sci 2010; 93(10): 4582-91. 2. Clyne, L. A study investigating the prevalence and associated risk factors for heifer mastitis in the Macalister Irrigation District. Countdown Symposium, Melbourne, Australia. 2013.

VET ONLY PRODUCTS

EAZI-BREED CIDR®

FOR REPRODUCTION [VET ONLY PRODUCT]



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 tightening 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.

Take the labour out of breeding.



Easy, slimline, comfortable and accurate.

SILIRUM®

FOR BOVINE JOHNE'S DISEASE [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.



Silirum

KEY ADVANTAGES:

- ✓ Now registered in every state of Australia, with the exception of WA.
- ✓ Inactivated (killed) vaccine and will not introduce the disease into the herd.
- ✓ A single 1mL dose provides lifelong immunity.



GENOMIC 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.

HD 50K | THE SCIENCE OF SELECTION

'HD 50K for Angus' and 'HD 50K for Wagyu' are the latest innovation in genomic technologies for the respective breeds. These genomic evaluation services increase the accuracies of EBVs and indexes for both bulls and heifers, with limited or no progeny, daughters or carcase information.



INHERIT SELECT | MULTI-BREED GENOMIC EVALUATION

INHERIT Select™ supports commercial beef breeding enterprises seeking to improve productivity and profitability through genetic improvement. INHERIT Select™ provides genetic estimates for three selection indexes and nineteen (19) traits for eight major breeds and their crosses.



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

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.



HORN POLL | 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® | CLARIFY YOUR DAIRY 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.



SEARCHPOINT™ | MANAGEMENT INFORMATION SYSTEM FOR CLARIFIDE®

This advanced online data analysis site provides you with the right tools to select the right animals, to breed them in the right way and produce more valuable offspring.

- customise your test results to suit your needs
- sort, group your animals, create charts, tables and graphs to assist your decisions.

SearchPoint enables you to easily understand the full genetic variation and potential of your dairy cattle. Build a better herd. 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/>**



THE SCIENCE OF SELECTION

The advanced genomic selection tool for Australian Angus breeders



The new HD 50K for Angus is the latest innovation in genomic technology

Get reliable solutions sooner:

- Increase the accuracy of EBVs and indexes for young Angus bulls and heifers
- Select, mate and market Angus seedstock with greater confidence
- Identify your best young sire/dam prospects
- Obtain accurate parent verification

ZOETIS IS THE LEADING INNOVATOR — BUILD A HISTORY WITH THE COMPANY CREATING THE FUTURE

HD 50K is available to Angus Australia members who are enrolled in Angus BREEDPLAN

To take your breeding decisions to the next level call: **1300 768 400**

CLARIFIDE ALLOWS INFORMED SELECTION & BREEDING DECISIONS



Select your best replacement animals

Increase the rate of genetic gain

Avoid the expense of raising genetically inferior animals

Better allocation of higher value or sexed semen

IT PAYS TO SELECT THE BEST = \$300 MORE PER COW PER YEAR*

For more information on CLARIFIDE Testing, please contact your local Genetics Professional Sales Representative: NSW & QLD - Lachlan Ayoub 0437 226 122 | VIC, TAS, SA & WA - Jake Bourne 0419 664 834, ZL1087.

*Improving Herds Project (2018) found that "On average, the top 25% of cows (based on BPI) have a \$300/cow/year greater margin over feed and herd costs than the bottom 25%".





INHERIT™ Select

Multi-breed genomic test and evaluation
for commercial crossbred females

INHERIT Select™ supports commercial breeding enterprises seeking to improve productivity and profitability through genetic improvement, INHERIT™ genomic predictions are reported via SearchPoint which helps turn genetic prediction results into profitable management decisions

- Three Economic Selection Indexes; Total Return Index, Cow-Calf Index, Feedlot-Carcase Index
- Nineteen (19) profit driving traits including growth, fertility, feed intake, carcass, confirmation and meat quality traits
- DNA sire and dam verification
- Genomic breed composition spanning eight major breeds

To take your breeding decisions to the next level contact
<https://genetics.zoetis.com/australia/products/beef/inherit.aspx>
Northern Region – NSW & QLD - Lachlan Ayoub 0437 226 122
Southern Region – VIC/TAS/SA/WA - Jake Bourne 0419 664 834

ANNUAL VACCINATION

ANNUAL VACCINATION ENHANCES THE LEVEL OF IMMUNITY OF YOUR HERD, MAXIMISING THE HEALTH OF YOUR HERD AND OUR BUSINESS, PREVENTING DISEASE BEFORE IT OCCURS

Your: Joining Date: _____
 Calving Date: _____

ANNUAL VACCINATION PROGRAM													
Age/ Time	CALVES		HEIFERS			COWS		1ST SEASON/ NEW BULLS		BULLS	STEERS [#]		
	6 weeks	12 weeks	6-8 weeks pre-joining	2-4 weeks pre-joining	Pre-calving	2-4 weeks pre-joining	Pre-calving	6-8 weeks pre-joining	2-4 weeks pre-joining	2-4 weeks pre-joining	1st dose or annual booster	4 weeks to 6 months after 1st dose	
Ultravac 7in1	✓	✓		✓	✓		✓	✓	✓	✓	✓ [†]		
Pestigard		*	✓ [§]	✓ [*]		✓		✓	✓	✓	✓	✓ [§]	
Vibrovax			✓ [^]	✓		✓		✓	✓	✓			
Your Dates													
Dectomax													

WEANING OPTION: A SINGLE SPRAY of RHINO GARD provides rapid protection against *Infectious bovine rhinotracheitis* (IBR) and a SINGLE DOSE of Bovi-Shield MH-One provides protection within 7 days from *Mannheimia haemolytica* (MH) in calves for the most comprehensive BRD protection from a single treatment (NO BOOSTER REQUIRED).

[†]Ultravac 7in1: Two doses required if previously unvaccinated.

[§]Pestigard: The interval between the priming and booster doses can be extended to 6 months.

^{*}Pestigard: Calves can be safely vaccinated from 3 months of age – two doses (4-6 weeks apart), followed by a third dose 2-4 weeks before joining/insemination.

[^]Vibrovax: In heifers and cows over 18 months of age, only one dose of 5 mL is necessary for the primary course. In younger animals it is recommended to give two doses of 5 mL at the intervals shown above.

[#]Steers: Ideally it is best to coincide steer vaccination with heifer vaccination.

BOTULISM VACCINATION		
VACCINE	WEANERS	BREEDERS (INCLUDING BULLS)
Longrange	One shot at first muster	1st dose for previously unvaccinated cattle Annual booster every year
Ultravac Botulinum		Alternative annual booster to Longrange Convenient for lactating dairy cattle

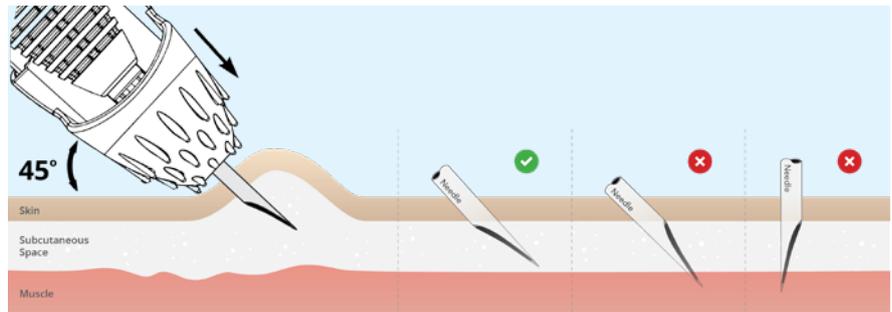
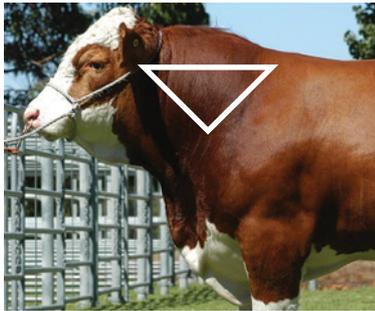
Botulism vaccination may be integrated into your annual vaccination program. The above program is specific to extensive northern beef herds where the majority of botulism vaccination occurs.

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 14).

VACCINATION TECHNIQUE

VACCINATIONS ARE GIVEN BY SUBCUTANEOUS INJECTION



INJECTIONS SHOULD BE GIVEN IN THE AREA OUTLINED BY THE TRIANGLE

- The vaccine should be injected under the skin and not into the muscle.
- 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.

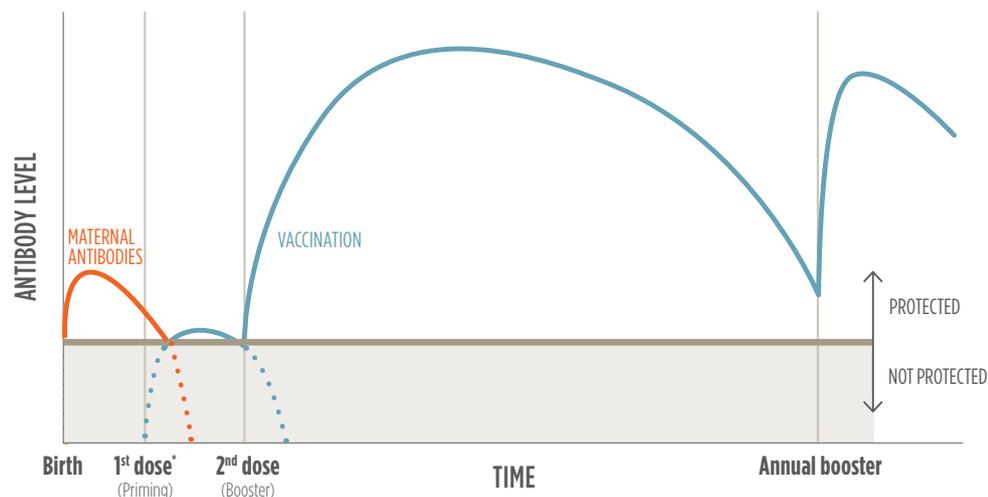
LS | LivestockSolutions | INSTRUCTIONAL VIDEOS

For a variety of best practice instructional videos on vaccination techniques and much more visit Livestock Solutions at zoetis.com.au/LS or use the camera on your smart phone to focus on the QR code, then click the link that will appear on your phone to go to the website.



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 time². 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 (5 mL of Vibrovax for heifers >18 months).

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

Zoetis Livestock Solutions	zoetis.com.au/ls
Zoetis WormTRAX	wormtrax.com.au
Zoetis Australia	zoetis.com.au
Zoetis Product Support	1800 814 883

Zoetis proudly supports mental health in rural Australia. By the end of 2023 Zoetis will have contributed \$800,000 over 8 years, to assist mental health in Australian rural communities.



REFERENCES

Clostridial Diseases 1. Meat and Livestock Australia. April 2006 AHW.087 Available from www.mla.com.au/. **2.** Department of Primary Industries Victoria. Sheep Notes. Spring 2010 www.dpi.vic.gov.au/agriculture/. **Leptospirosis 1.** Radostits OM, Gay CC, Hinchcliff KW, Constable PD (2007) *Veterinary Medicine* 10th Ed: 1094-1113. **2.** Slee KJ, McOrist S, Skilbeck NW. *Aust Vet J.* 1983;60:204-206. **3.** Bolin CA, Alt DP. AACV Proceedings. Sydney, 1998;899-904. **4.** Dhaliwal GS, Murray RD, Dobson H, *et al.*, *Vet Rec* 1996;139:110-114. **5.** Guitian J, Thurmond MC, Hietala SK. *JAVMA* 1999;215:515-518. **6.** The Cattle Site. Accessed 11/11/11 www.thecattlesite.com/ **7.** Zelski R. NSW Department of Primary Industries (DPI) February 2007. Primefact 445. www.dpi.nsw.gov.au/. **Bovine Pestivirus 1.** St George TD, Snowdon WA, Parsonson IM, French EL. *Aust Vet J.* 1967;43:549-557. **2.** Taylor LF, Black PF, Pitt DJ *et al.* *Aust Vet J.* 2006;84:163-168. **3.** Taylor L. The Australian Cattle Veterinarian 2010;57:14-28. **4.** Phil Holmes 2010. The Economic Impact of BVDV on a dairy herd. Zoetis data on file. **5.** Modelling assumptions for estimated cost of pestivirus of \$53/cow/year based on a milk price of \$0.34. In an endemic herd with a viral strain causing reproductive losses and birth of persistently infected calves. **6.** Taylor LF, Rodwell BJ. *Aust Vet J.* 2001;79:682-685. **7.** Morton JM, Phillips NJ, Taylor LF, McGowan MR. *Aust Vet J.* 2013;91:517-524. **8.** Parkinson TJ, Vermunt JJ, Malmo J, Anderson N. Diseases of Cattle in Australasia. Eds Parkinson TJ, Vermunt JJ, Malmo J, VetLearn, Wellington, 2010: 127-181. **9.** McGowan MR *et al.*, In: Proceedings Northern Beef Research Update Conference 2013, 61-66. **10.** MLA Report B.AHE.0010, 2015. **11.** McGowan M *et al.*, 2008. Guidelines for investigation and control of BVDV, BVDV Technical Advisory Group, p13 – Zoetis data on file. **Vibriosis 1.** Jayawardhana G. Agnote No.K43. Vibriosis in the Northern Territory. February 2011 http://www.nt.gov.au/d/Content/File/p/Anim_Dis/745.pdf. **2.** McCool CJ *et al.*, *Aust Vet J.* 1988 65:153-156. **3.** Hum S. NSW Department of Primary Industries (DPI) February 2007. Primefact 451. **4.** Schatz TJ, Colm RM, Hearnden MN. Australian Society of Animal Production 26th Biennial Conference 2006. **5.** Zoetis Study Number B930R-AU-14-285. Data on file. **Botulism 1.** Fitzpatrick S. Agnote K29. Botulism Poisoning in Cattle in the Northern Territory. September 2006. **2.** Smith PC *et al.*, Industry initiatives to improve young breeder performance in the Pilbara and Kimberley of W.A, NBP.345, Meat and Livestock Australia, North Sydney, 2010, 28-29. (Heifers were deemed to have died if they missed 3 or more musters). **3.** Zoetis Data on File. **4.** Lehrbach PR and Robinson SR, Comparative immunogenicity of single doses of four vaccines against botulism in cattle, *AVA Proceedings*, 145-148 (2001). **5.** Zoetis Data on File. **Dectomax 1.** Lanusse *et al.*, 1997. *J. Vet. Pharmacol. Therap.* 20, 91-99. **2.** Lifschitz *et al.*, 1999. *J. Vet. Pharmacol. Therap.* 22, 266-273. **3.** Lifschitz *et al.*, 2000. *Veterinary Parasitology*: 87, 327-338. **Calf Scours 1.** Parkinson, TJ, Vermunt, JJ and Malmo, J. Diseases of Cattle in Australasia. *VetLearn*, 2010. **Vaccination Technique 1.** Robson S. NSW Department of Primary Industries (DPI) February 2007. Primefact 431. **2.** Walker B. NSW Agriculture Agnote DAI/190. *How Vaccination Works*. July 2000. http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/179847/how-vaccination-works.pdf.

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