

BEEF



DAIRY

HARD WORKING PROTECTION FOR CATTLE



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.

LEPTOSPIROSIS CAN CAUSE CHRONIC FLU-LIKE SYMPTOMS IN HUMANS

It can spread from cattle to humans and can lead to stillborn or aborted calves¹

Only Ultravac[®]7in1 prevents shedding of leptospires and can be used in calves from 4 weeks of age to provide early age protection

It also protects against five key clostridial diseases.

Don't risk the health of your family or your herd.

1. Zoetis (2013) Study Number: 6A33R-14-12-264.



AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

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 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
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 leptospires 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 leptospires. Any vaccines that just **minimise** shedding do not stop the spread of leptospires 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 RISK PESTIVIRUS IN YOUR HERD



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

40-60%
Heifers
susceptible¹⁻³

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®



AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

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

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 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.

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

PESTIGARD

INSURE YOUR HERD AGAINST PESTIVIRUS

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.

Guard against potential production losses caused by pestivirus.

**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

DON'T RISK PESTIVIRUS IN YOUR HERD

Pestivirus can lead to less calves, less profit.

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

Calves reduced
25-50%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. Taylor LF, Rodwell BJ. *Aust Vet J* 2001;79:682-685. 2. Morton JM, Phillips NJ, Taylor LF, McGowan MR, *Aust Vet J* 2013;91:517-524. 3. McGowan MR *et al*, In: Proceedings Northern Beef Research Update Conference 2013, 61-66. 4. MLA report B.NBP.0382, 2014. 5. Taylor LF, Black PF, Pitt DJ *et al*. *Aust Vet J*. 2006;84:163-168. 6. Taylor L. *The Australian Cattle Veterinarian* 2010;57:14-28.

AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

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



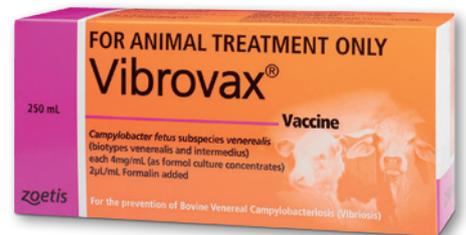
Vaccinating bulls is the key to prevention of vibriosis.

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

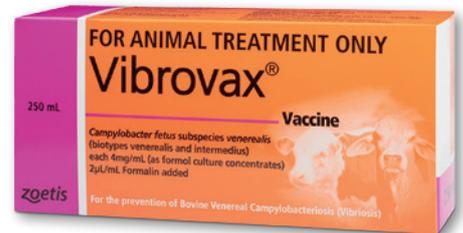
Heifer vaccination against vibriosis has a positive impact.

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



AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

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

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.



ARE YOUR BREEDERS MISSING?

**LONGRANGE®
REDUCED DEATHS
BY 7% OVER
3 YEARS¹**

Protect your greatest assets against botulism with trusted annual vaccination

Longrange provides a high level of immunity
– up to fifty (50) times the necessary protection levels²



LONGRANGE – BEST SCIENCE, BEST FOR BEEF

KEY BENEFITS	Longrange®	SingVac®
LATEST SCIENCE – THE LATEST FORMULATION	✓ Demonstrated to reduce death due to botulism using field trial data¹	✗ Not demonstrated to reduce death due to botulism using field trial data⁴
LESS SITE REACTIONS	✓ Unique water based formulation – less risk of site reactions, injection lumps and carcass trim Easy application	✗ Oil based vaccine – increases the risk of site reactions and carcass trim Over 3 times as many large site reactions³
FASTEST PROTECTION	✓ Fastest protection – within 28 days²	✗ 35 day onset of immunity claim
OPTIMAL IMMUNITY	✓ Annual booster doses ensure optimal immunity is achieved	? 3 year muster programs will miss animals – no vaccination means no protection

For more information talk to your Zoetis Cattle Representative, call **1800 963 847** or visit zoetis.com.au

References: 1. 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). 2. Zoetis Data on File. 3. Zoetis Data on File. 4. Lehbach PR and Robinson SR, Comparative immunogenicity of single doses of four vaccines against botulism in cattle, *AVA Proceedings*, 145-148 (2001).

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.



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.



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

65%
of worms are
Cooperia
spp.²

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.



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



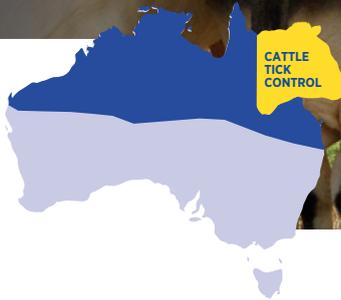
AVAILABLE AT YOUR LOCAL RURAL SUPPLIER

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.

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

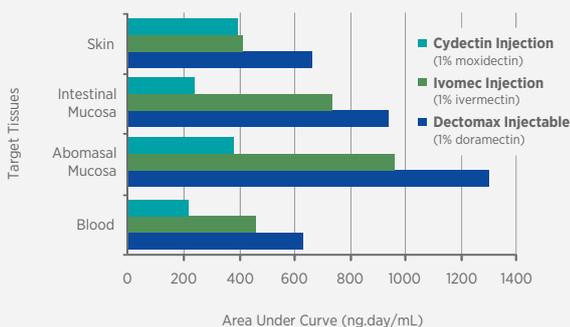
This high performance model provides injected performance where it's needed.



- 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	IVOMEC® 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.

CATTLEGUARD

THE PROVEN POWER OF MOXIDECTIN



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

CATTLEGUARD

- 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.

BARRICADE^{®S} – CATTLE DIP AND SPRAY

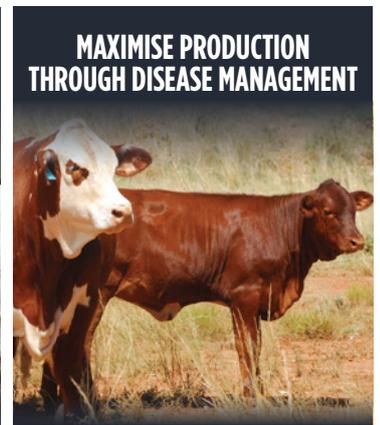
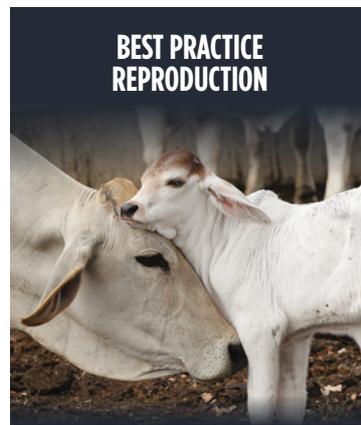
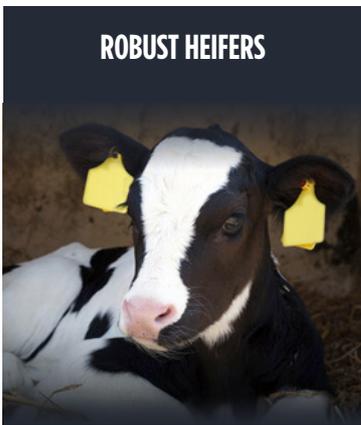
- Control of external parasites on cattle including cattle tick, buffalo fly and cattle lice.
- Suitable and safe for beef cattle.
- It's easy to maintain the effectiveness of Barricade 'S' dip, no messy powders.
- Kills susceptible ticks on contact.
- 21 days control of buffalo fly.
- Export Slaughter Interval (ESI): 21 days.
- Do NOT use in dairy cattle.
- Available in 800mL, 5L and 20L drums.





LivestockSolutions

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/LS



HOME



DAIRY



SHEEP



NORTHERN BEEF



SOUTHERN BEEF



FARM PLANNER

SPECIALISED PRODUCTS

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.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.

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.

BEF | BOVINE EPHEMERAL FEVER OR THREE-DAY SICKNESS



Bovine Ephemeral Fever (BEF) or Three-Day Sickness 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 will 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.

WITNESS™ BVDV | FOR IDENTIFICATION OF PI ANIMALS



[VET ONLY PRODUCT]

Witness BVDV is a BVDV antigen test kit for on-farm identification of Persistently Infected (PI) BVDV animals. It is useful to test new introductions to the herd, calves, during post mortems and prior to joining.

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.

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.

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.

YOU ONLY NEED ONE

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



The only true one-shot MH vaccine



Protection at time of challenge on farm or at feedlot entry



Rapid onset: immunity within 7 days so the benefit is seen on farm



Saves handling cattle twice and the added cost of a second dose



Protects for at least 17 weeks

Bovi-Shield

MH-ONE

www.youonlyneedone.com.au



FEEDLOTS, YARD WEANING AND BACKGROUNDING

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 ANIMALS¹

- 84% of animals pulled for illness while on feed are pulled for respiratory disease¹
- 4.1% of affected cattle die¹
- BRD is the major cause of morbidity and mortality in all feed categories

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 manufactures 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.

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.



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 FOR ANGUS | THE SCIENCE OF SELECTION

HD 50K for Angus is the latest innovation in genomic technologies which increases the accuracies of EBVs and indexes for young Angus bulls and heifers, with limited or no progeny, daughters, or carcase information.



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%".



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.

Visit www.starprogram.com.au for more information.



STAR BREEDER PROGRAM BUY WITH CONFIDENCE

The STAR BREEDER program aims to maximise the reproductive integrity and health of stud and commercial stock.

A STAR BREEDER certified animal has been:

- ✓ Tested to show that they are not Bovine Viral Diarrhoea Virus (BVDV) Persistently Infected (PI) animals
- ✓ **Vaccinated against Pestivirus (BVDV)** to ensure they are protected from the effects of this infection
- ✓ **Vaccinated against Leptospirosis**, a reproductive disease and potential WH&S risk for cattle handlers
- ✓ **Vaccinated against Vibriosis**, a sexually transmitted cattle disease



Be confident. Be sure. Buy a Star Breeder Bull. Visit starprogram.com.au

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													
	CALVES		HEIFERS			COWS		1ST SEASON/ NEW BULLS		BULLS	STEERS [#]		
Age/ Time	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: One (1) DOSE of Bovi-Shield MH-One provides at least 17 weeks protection from BRD caused by *Mannheimia haemolytica* (MH) in Calves 5+ months of age (your veterinarian can provide further information).

[†]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.

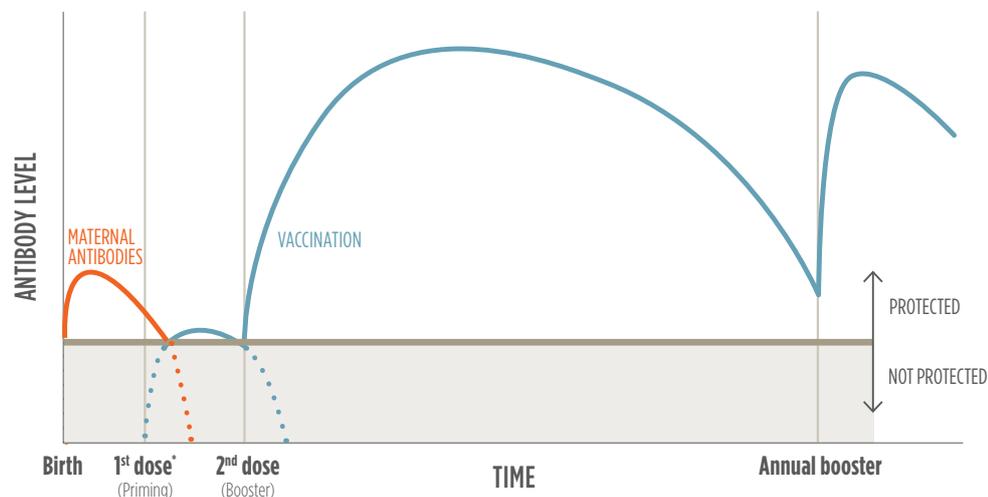
LS | LivestockSolutions | INSTRUCTIONAL VIDEOS

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 Star Breeder Program	starprogram.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 2019 Zoetis will have contributed \$400,000, over four years, to assist mental health in Australian rural communities.



REFERENCES

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