THE VIRBAC SOLUTION ... for comprehensive ectoparasite control



Shaping the future of animal health



ECONOMIC IMPACT

TICKS AND TICK CONTROL





THE PRODUCTS





ECONOMIC IMPACT OF PARASITES

ECONOMIC IMPACT

TICKS AND TICK CONTROL

Ticks are the most economically important external parasite of livestock

Heavy tick infestations lead to:
Production losses
Mechanical damage
Transmission of diseases

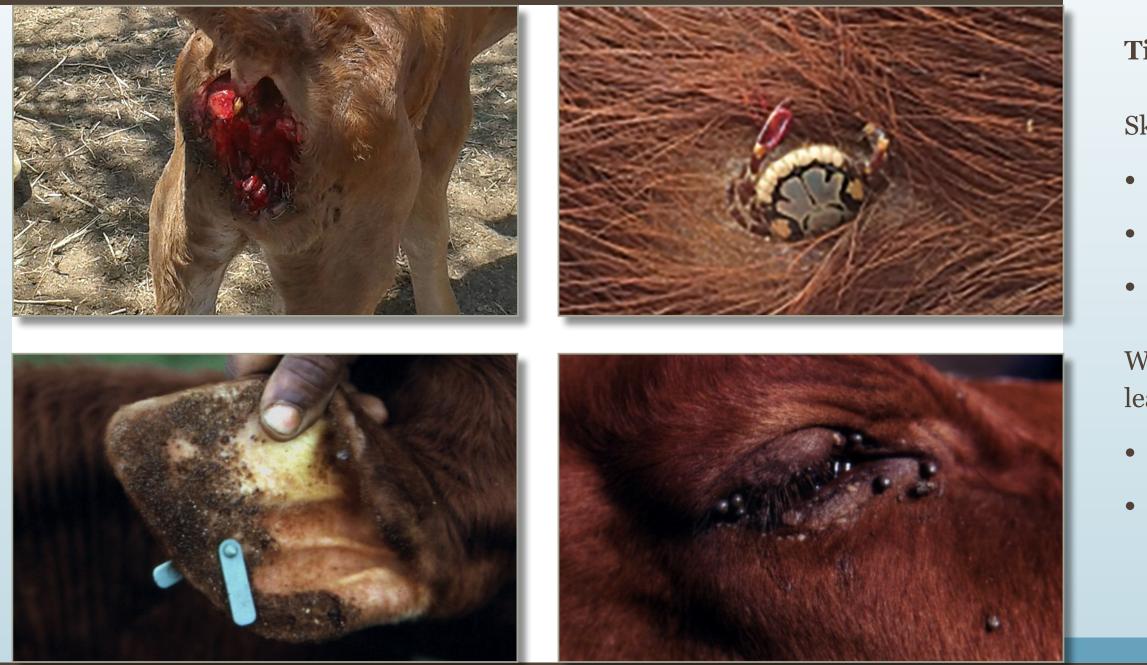






ECONOMIC IMPACT OF TICKS

MECHANICAL DAMAGE



ECONOMIC IMPACT

TICKS AND TICK CONTROL



- Tick bite wounds cause:
- Skin damage which leads to:
- Downgrade quality of hides
- Damage to reproductive organs
- Loss / damage to ears

Wounds & abscesses which may lead to:

- Secondary infections
- Blowfly strike / miasis





ECONOMIC IMPACT OF TICKS

TRANSMISSION OF DISEASE







ECONOMIC IMPACT

TICKS AND TICK CONTROL

Most important and well known tickborne diseases causing stock losses

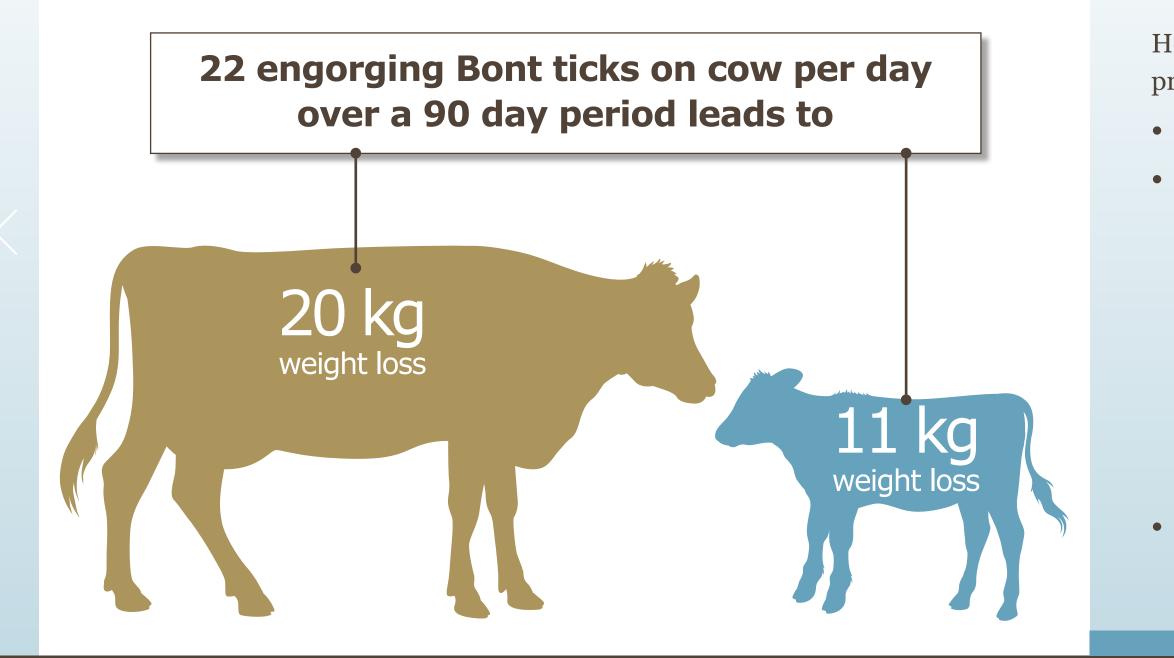
- Anaplasmosis
- Redwater
- Heartwater
- Tick toxicosis
- Lumpy skin disease (new research)





ECONOMIC IMPACT OF TICKS

PRODUCTION LOSSES



ECONOMIC IMPACT

TICKS AND TICK CONTROL

Heavy tick infestations also effects production:

Loss of condition

Decreased weight gain

A heavy Bont tick infestation reduce weight gain by a loss of
10 g per engorging female tick on cattle and has shown to reduce
milk yield, to the extend that a loss
of 6 g live weight gain was recorded
in calves per engorged tick on the
dams

• Reduction in milk yield

THE PRODUCTS



TICKS AND TICK CONTROL

ONE-HOST TICKS

TWO-HOST TICKS

THREE-HOST TICKS

ECONOMIC IMPACT

TICKS AND TICK CONTROL

Efficient control of ticks enables profitable stock farming

Important factors to consider for **a complete tick control strategy**:

• Different tick species

• Seasonal occurrences of the different tick species

• Tick control regimes

• Products







ONE-HOST TICKS

T d T E F

TICKS AND TICK CONTROL

ECONOMIC IMPACT

There are 2 different one-host ticks:

THE BLUE TICK Rhipicephalus (Boophilus) decoloratus

THE ASIATIC BLUE TICK

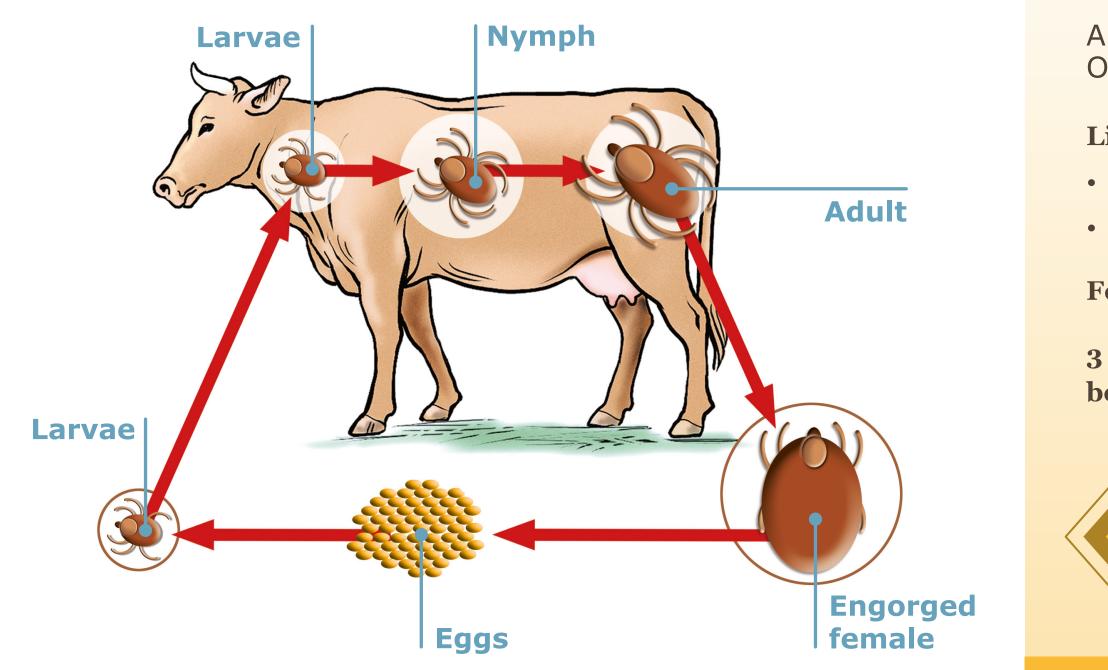
Rhipicephalus (Boophilus) microplus







ONE-HOST TICKS LIFECYCLE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



ALL THREE STAGES ON THE SAME HOST

Lifecycle lasts 2 months

- For eggs to hatch: $\pm 3 6$ weeks
- Larvae to adult: \pm 21 days

Female lays 2 500 – 3 000 eggs

3 – 4 generational cycles can be completed in 12 months

SURVIVAL PERIOD WITHOUT A HOST LARVAE: 8 MONTHS





BLUE TICK & ASIATIC BLUE TICK IDENTIFICATION AND DISEASES

ADULT FEMALE

ADULT MALE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



DISEASES

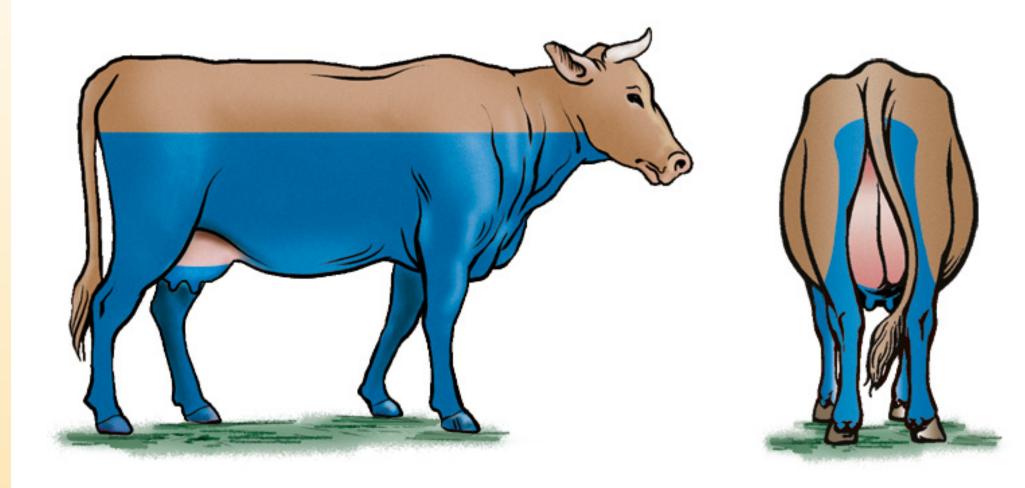
- Redwater
- Gallsickness
- Spirocheatosis

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$





BLUE TICK & ASIATIC BLUE TICK ATTACHMENT SITES





ECONOMIC IMPACT

TICKS AND TICK CONTROL



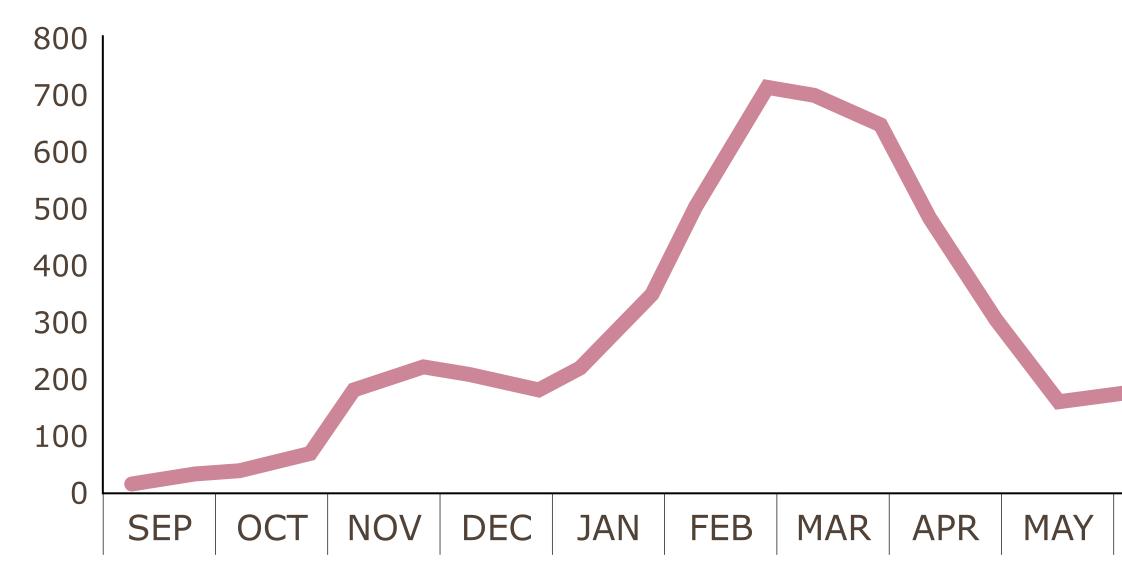
- Neck
- Dewlap
- Lower body
- Escutcheon (udder area)
- Back of head (poll)
- Legs

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$





ONE-HOST TICKS SEASONAL OCCURRENCE





ECONOMIC IMPACT

TICKS AND TICK CONTROL











VIRBAC SOLUTION FOR ONE-HOST TICK CONTROL

> Treat animals in **early spring** to reduce larvae and nymphs

> Follow up with a contact dip when endectocides are used

With high tick challenges or when animals are moved to rested camps:

- 1 x per week, dip for 3 weeks
- 5, 5, 4 day dip strategy
- Always use contact dips containing **amitraz**
 - AMIPOR[®]
 - AMIDIP[®] MAX / PRO-DIP[™] CYP 20 % combo



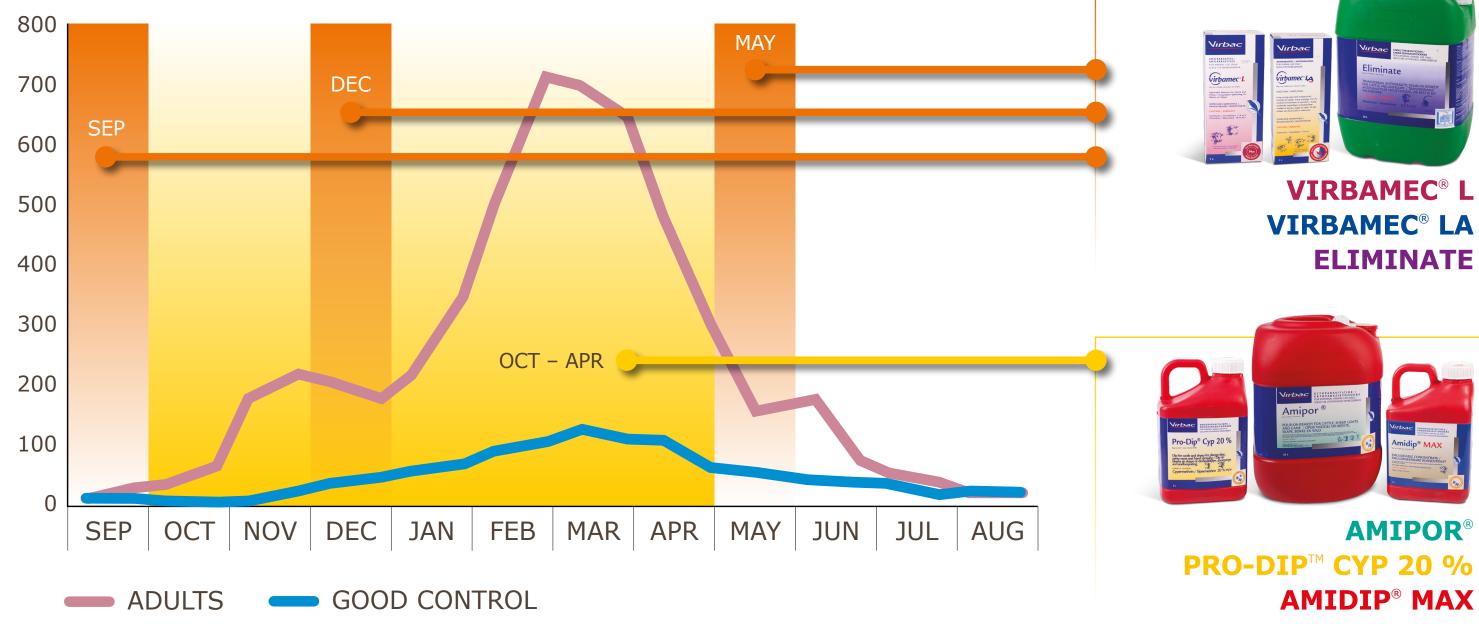


VIRBAMEC® LA ELIMINATE AMIPOR® PRO-DIP™ CYP 20 % AMIDIP® MAX





VIRBAC TREATMENT STRATEGY FOR **ONE-HOST TICK CONTROL**





ECONOMIC IMPACT

TICKS AND TICK CONTROL

THE PRODUCTS



TWO-HOST TICKS



ECONOMIC IMPACT

TICKS AND TICK CONTROL

There are 2 different two-host ticks:



RED-LEGGED TICK

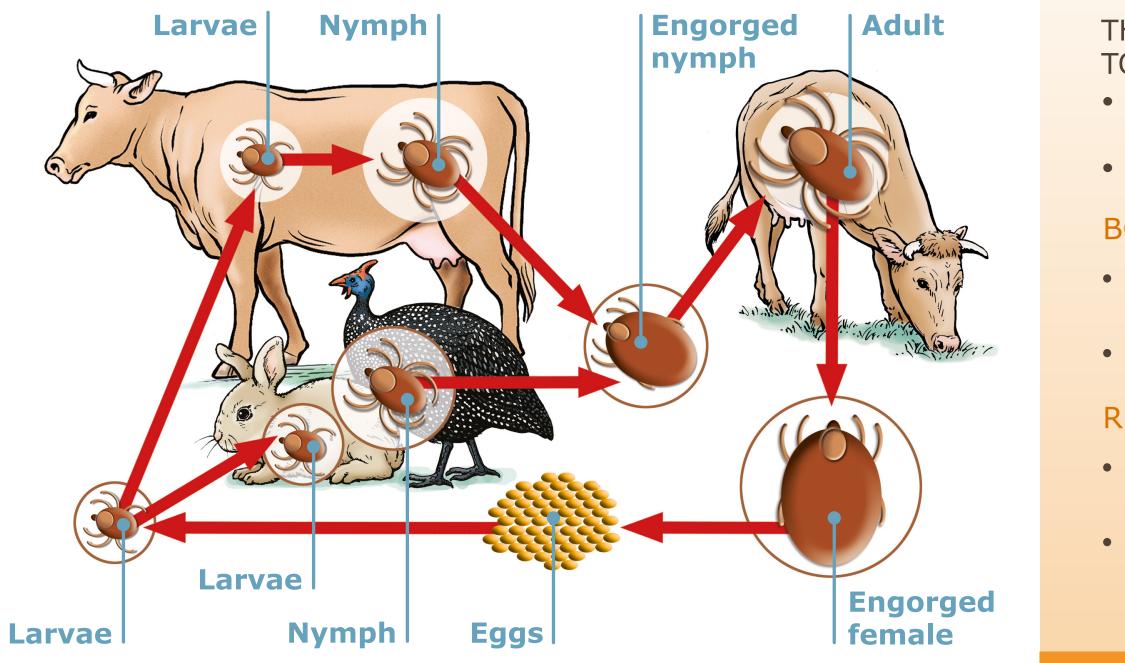
Rhipicephalus evertsi evertsi







TWO-HOST TICKS LIFECYCLE





ECONOMIC IMPACT

TICKS AND TICK CONTROL

- THESE TICKS NEED 2 ANIMALS TO COMPLETE THEIR LIFE CYCLE
- Larvae and nymph stages on the same host
- Adult stage on a different host

BONT-LEGGED TICK

- Lifecycle takes ± 1 year to complete
- Female lays 10 000 15 000 eggs

RED-LEGGED TICK

- Lifecycle takes ± 4 months to complete
- Female lays 7 000 eggs

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$

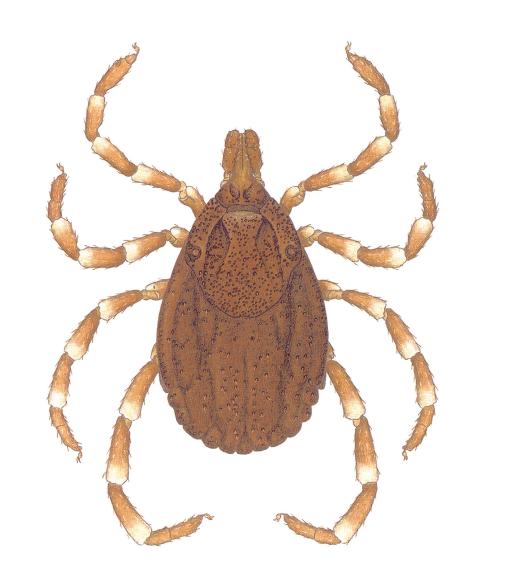


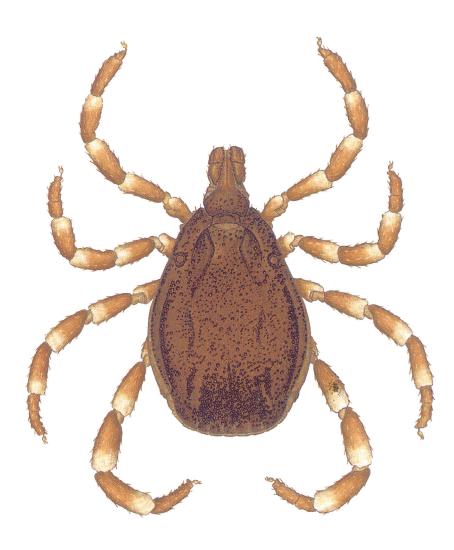


BONT-LEGGED TICK IDENTIFICATION AND DISEASES

ADULT FEMALE

ADULT MALE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



DISEASES

CATTLE

- Anaplasmosis
- Severe abscesses
- Sweating sickness
- Secondary infections
- Wounds that attract blowflies resulting in myiasis

LAMBS

• Lameness

HUMANS

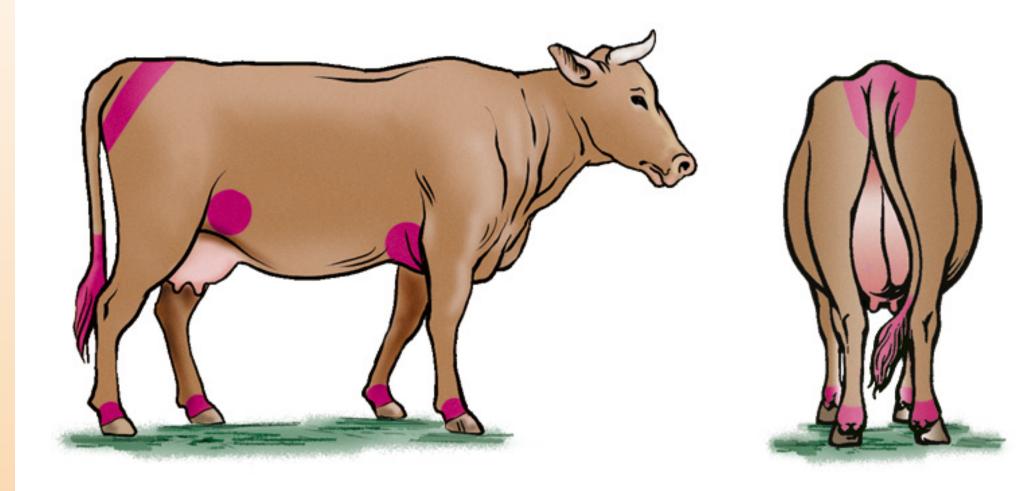
- Rikettsia conori
 - (tick-bite fever)

Adapted from Ticks and tick-borne diseases $^{\scriptscriptstyle 1}$





BONT-LEGGED TICK ATTACHMENT SITES





ECONOMIC IMPACT

TICKS AND TICK CONTROL



Anus Genitals

• Hocks





RED-LEGGED TICK IDENTIFICATION AND DISEASES

ADULT FEMALE

ADULT MALE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



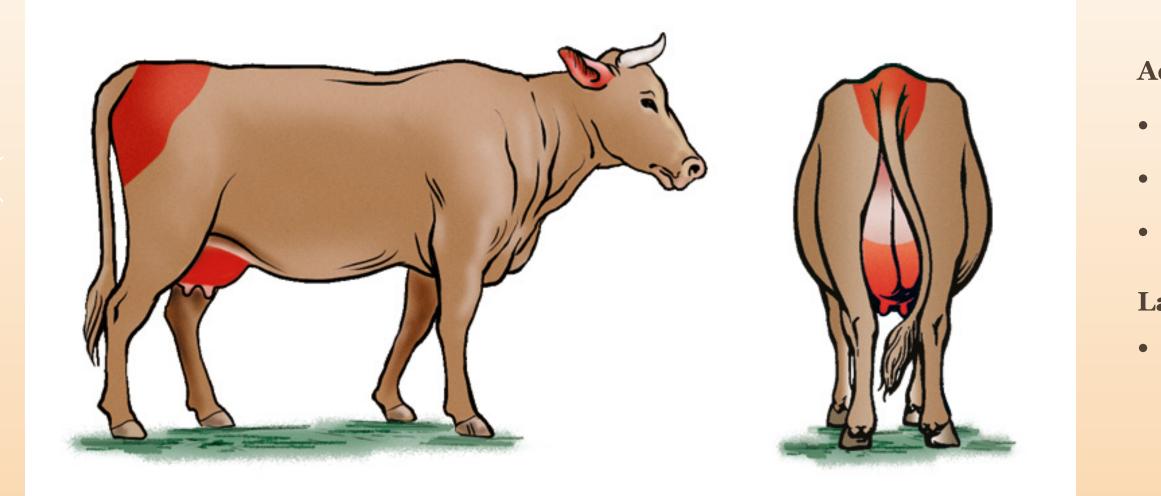
DISEASES

- Gallsickness in horse (equine) family
- African Redwater
- East Coast Fever
- Spring paralysis
- Cattle Theileriosis
- Anaplasmosis
- Spring lamb paralysis toxicosis





RED-LEGGED TICK ATTACHMENT SITES





ECONOMIC IMPACT

TICKS AND TICK CONTROL



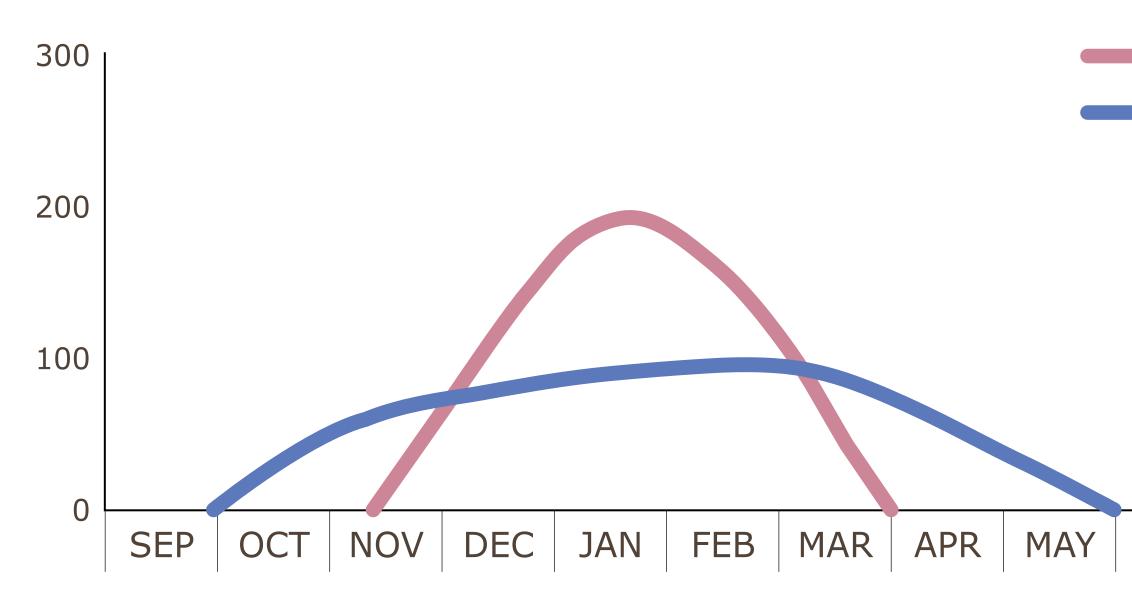
Adults:

- Under the tail around the anus
- Flank, axilla
- Sternum
- Larvae:
- Deep inside the ear canal





TWO-HOST TICKS SEASONAL OCCURRENCE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



ADULTS IMMATURES

JUN JUL AUG

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$





VIRBAC SOLUTION FOR TWO-HOST TICK CONTROL

> Dip animals in **summer** to reduce immature and adult stages

> Spot treatments can be done frequently

With high tick challenges or when animals are moved to rested camps:

- 1 x per week, dip for 3 weeks
- 5, 5, 4 day dip strategy
- Always use contact dips containing **amitraz**
 - AMIPOR[®]
 - AMIDIP[®] MAX / PRO-DIP[™] CYP 20 % combo





TICKS AND TICK CONTROL

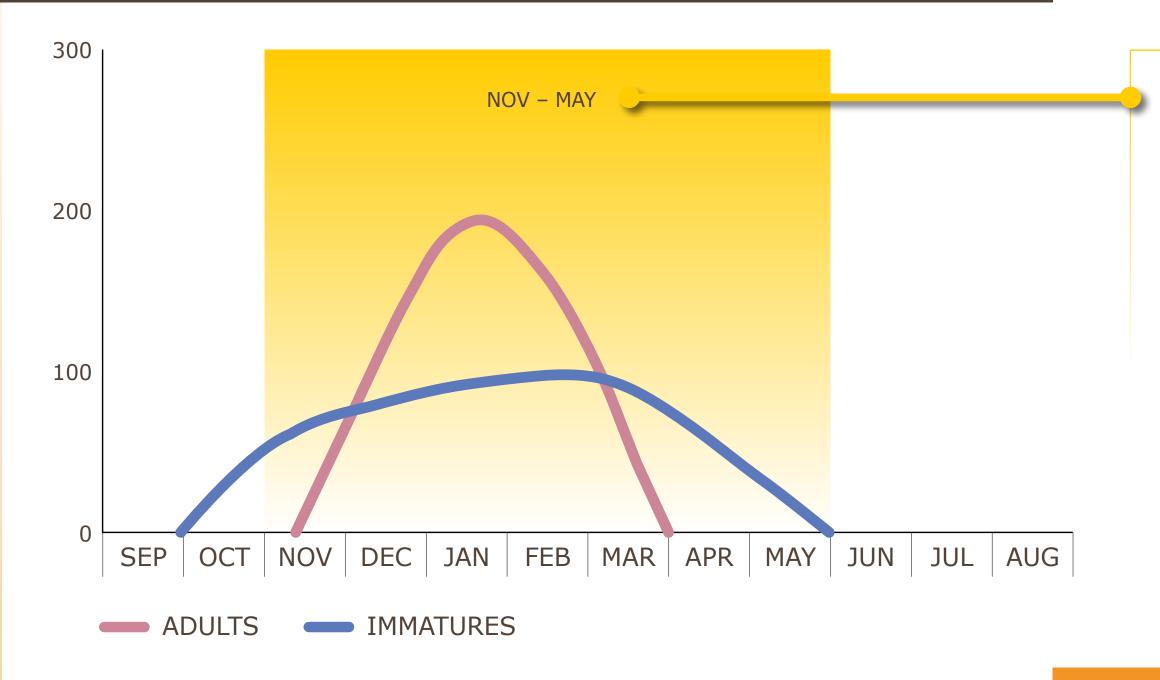
AMIPOR® PRO-DIP[™] CYP 20 % AMIDIP[®] MAX



THE PRODUCTS



VIRBAC TREATMENT STRATEGY FOR TWO-HOST TICK CONTROL





ECONOMIC IMPACT

TICKS AND TICK CONTROL

THE PRODUCTS



AMIPOR® PRO-DIP™ CYP 20 % AMIDIP® MAX









ECONOMIC IMPACT

TICKS AND TICK CONTROL

There are 3 different three-host ticks:

BONT TICK Amblyomma hebraeum

BROWN EAR TICK Rhipicephalus appendiculatus

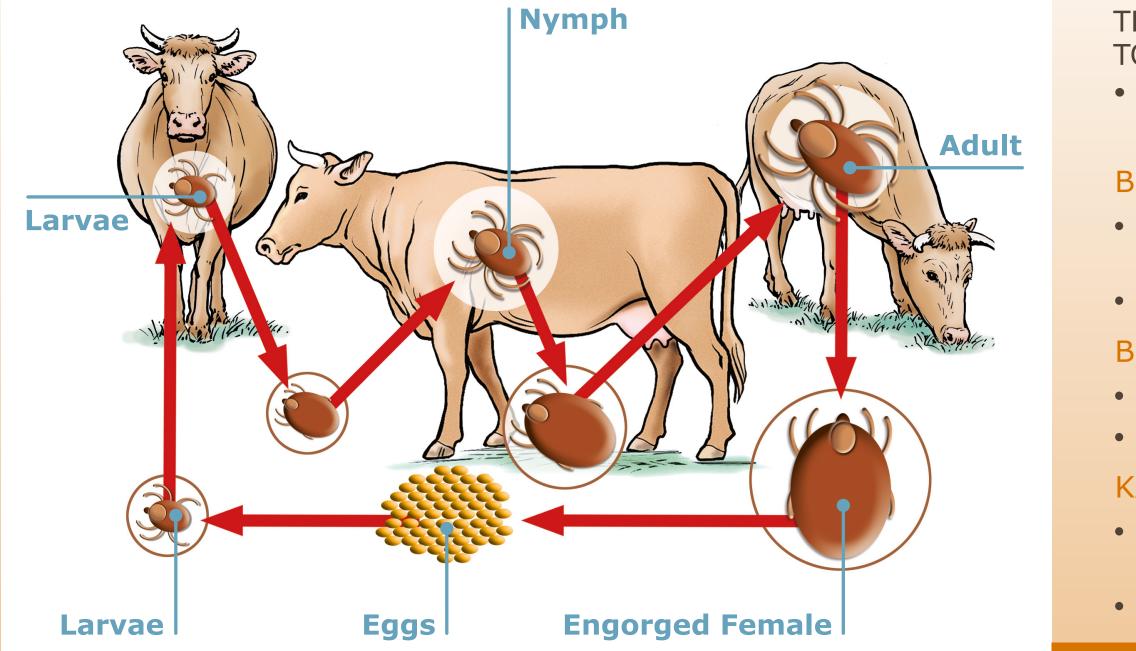
KAROO PARALYSIS TICK

Ixodes rubicundus





THREE-HOST TICKS LIFECYCLE





ECONOMIC IMPACT

TICKS AND TICK CONTROL

THESE TICKS NEED 3 ANIMALS TO COMPLETE THEIR LIFE CYCLE

 Larvae, nymph and adult stages are on different hosts

BONT TICK

- Lifecycle takes ± 1 3 years to complete
- Female lays 18 000 eggs

BROWN EAR TICK

- Lifecycle takes ± 1 year to complete
- Female lays 5 000 eggs

KAROO PARALYSIS TICK

- Lifecycle takes ± 1 2 years to complete
- Female lays 2 000 4 000 eggs

Adapted from Ticks and tick-borne diseases¹



THE PRODUCTS

BONT TICK IDENTIFICATION AND DISEASES

ADULT FEMALE

ADULT MALE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



DISEASES

- Heartwater
- Cattle Theileriosis
- Abscesses
- Maggots

HUMANS

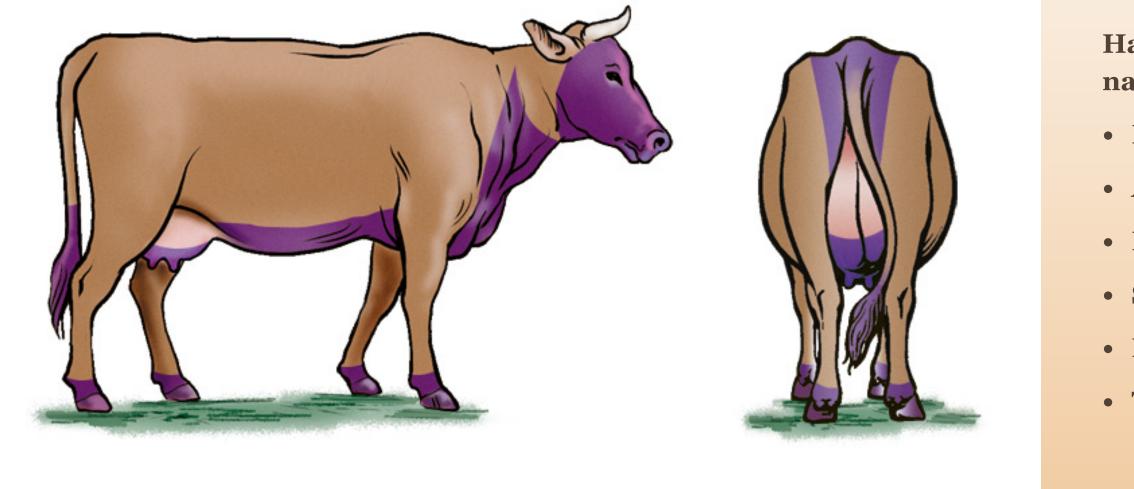
• *Rikettsia africae* (tick-bite fever)





BONT TICK ATTACHMENT SITES







ECONOMIC IMPACT

TICKS AND TICK CONTROL



- Hairless parts of the lower body, namely:
- Flank
- Axilla
- Dewlap and neck skin
- Stomach
- Perineum and perianal area
- **Tail floccus** (hair tufts)

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$





BROWN EAR TICK IDENTIFICATION AND DISEASES

ADULT FEMALE

ADULT MALE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



DISEASES

- Tick Toxicosis
- Corridor/buffalo disease
- Cattle Theileriosis
- East Coast Fever
- Lumpy skin disease

HUMANS

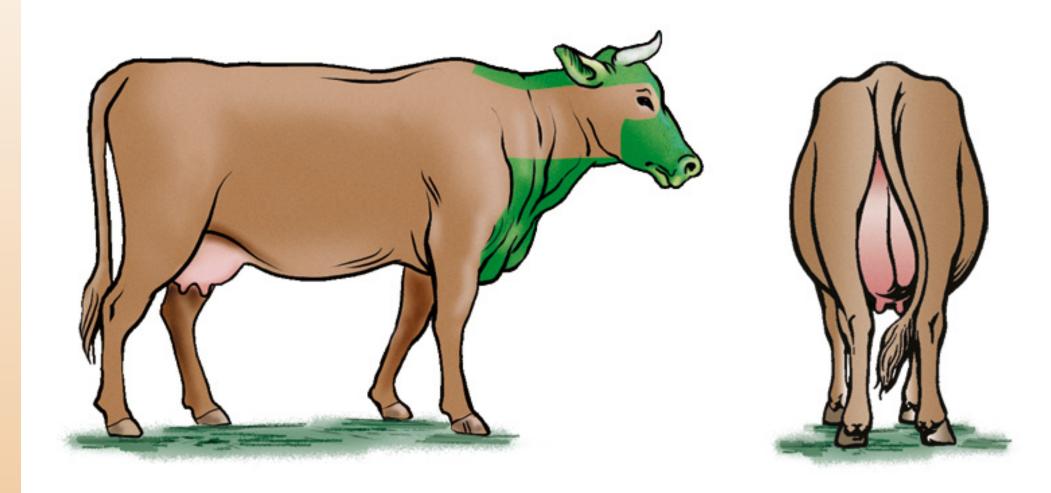
• *Rikettsia conori* (tick-bite fever)





BROWN EAR TICK ATTACHMENT SITES







ECONOMIC IMPACT

TICKS AND TICK CONTROL



Ears (pinna)
Around the eyes
Upper part of neck
Behind the crown of head (poll)
Perineum
Below the stomach

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$





KAROO PARALYSIS TICK IDENTIFICATION AND DISEASES

ADULT FEMALE

ADULT MALE





ECONOMIC IMPACT

TICKS AND TICK CONTROL



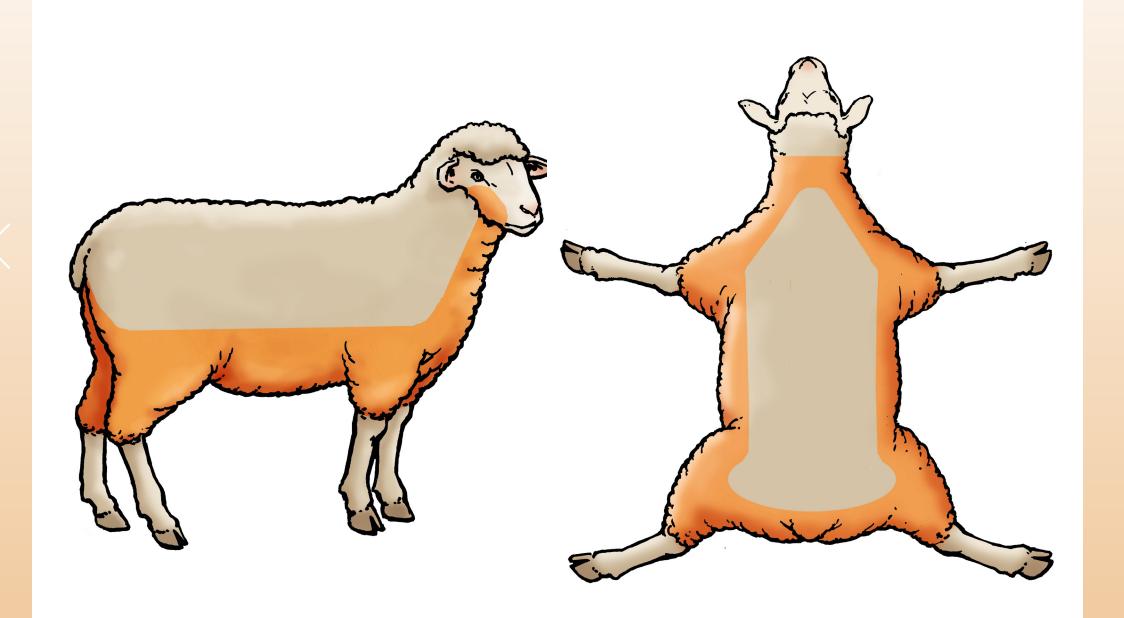
DISEASES

• Tick paralysis





KAROO PARALYSIS TICK ATTACHMENT SITES





ECONOMIC IMPACT

TICKS AND TICK CONTROL



• Undersides of body and neck

• Legs above the knees

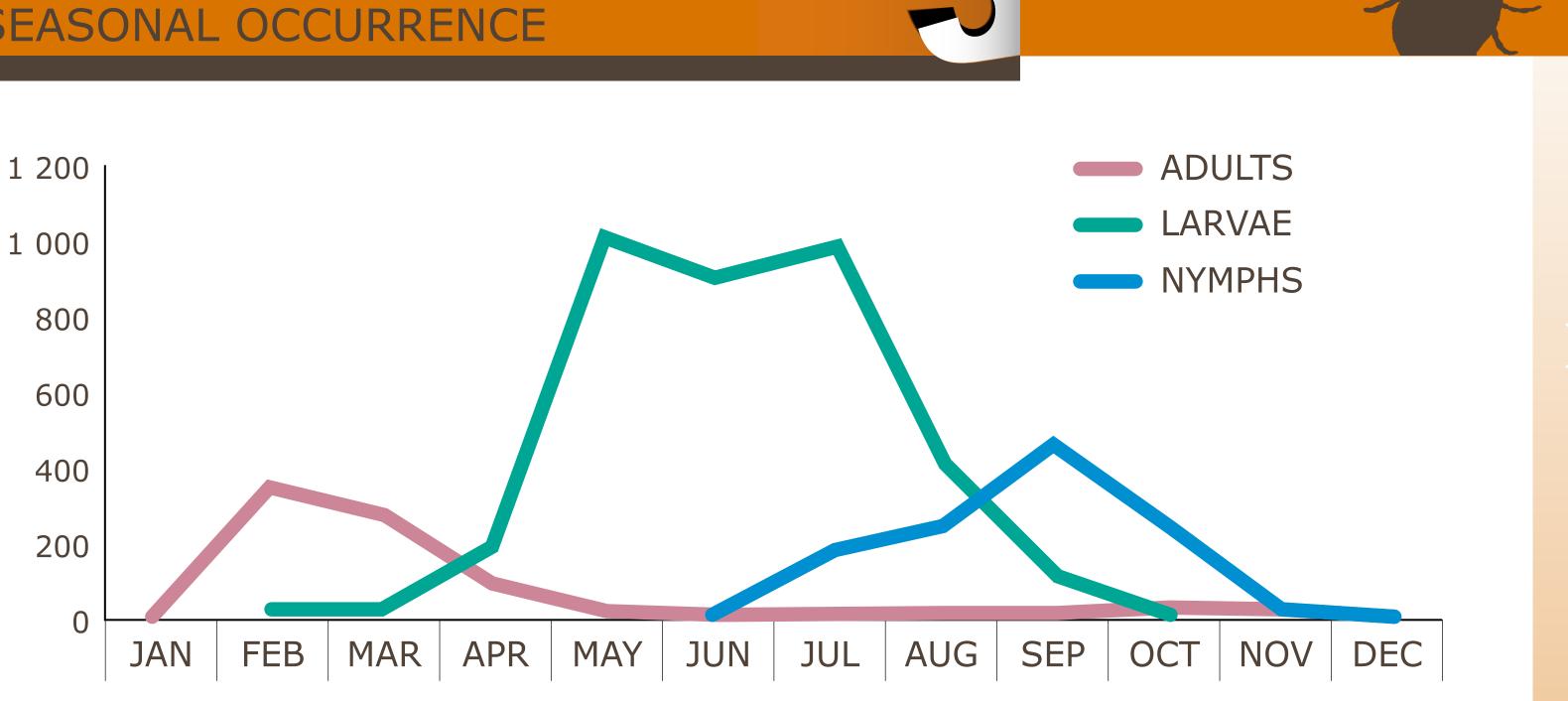
- Cheeks
- Lower jaw

Adapted from Ticks and tick-borne diseases $\ensuremath{^1}$





THREE-HOST TICKS SEASONAL OCCURRENCE





ECONOMIC IMPACT

TICKS AND TICK CONTROL





VIRBAC SOLUTION FOR THREE-HOST TICK CONTROL



Dip animals in **winter** to reduce immature stages

Dip animals in **summer** to reduce adult stages

> Spot treatments can be done frequently

With high tick challenges or when animals are moved to rested camps:

- 5, 5, 4 day dip strategy
- Always use contact dips containing **amitraz**
 - AMIPOR[®]
 - AMIDIP[®] MAX / PRO-DIP[™] CYP 20 % combo



TICKS AND TICK CONTROL

PRO-DIP[™] CYP 20 % AMIDIP[®] MAX



THE PRODUCTS



VIRBAC SOLUTION FOR THREE-HOST TICK CONTROL

KAROO PARALYSIS TICK CONTROL

Dip animals in **early winter** to reduce immature & adult stages

Treat animals frequently in karoo paralysis season

Spot treatments can be done frequently

With high tick challenges or when animals are moved to rested camps:

- 5, 5, 4 day dip strategy
- Always use contact dips
 - AMIPOR[®]
 - **PRO-DIP[™] CYP 20 %**

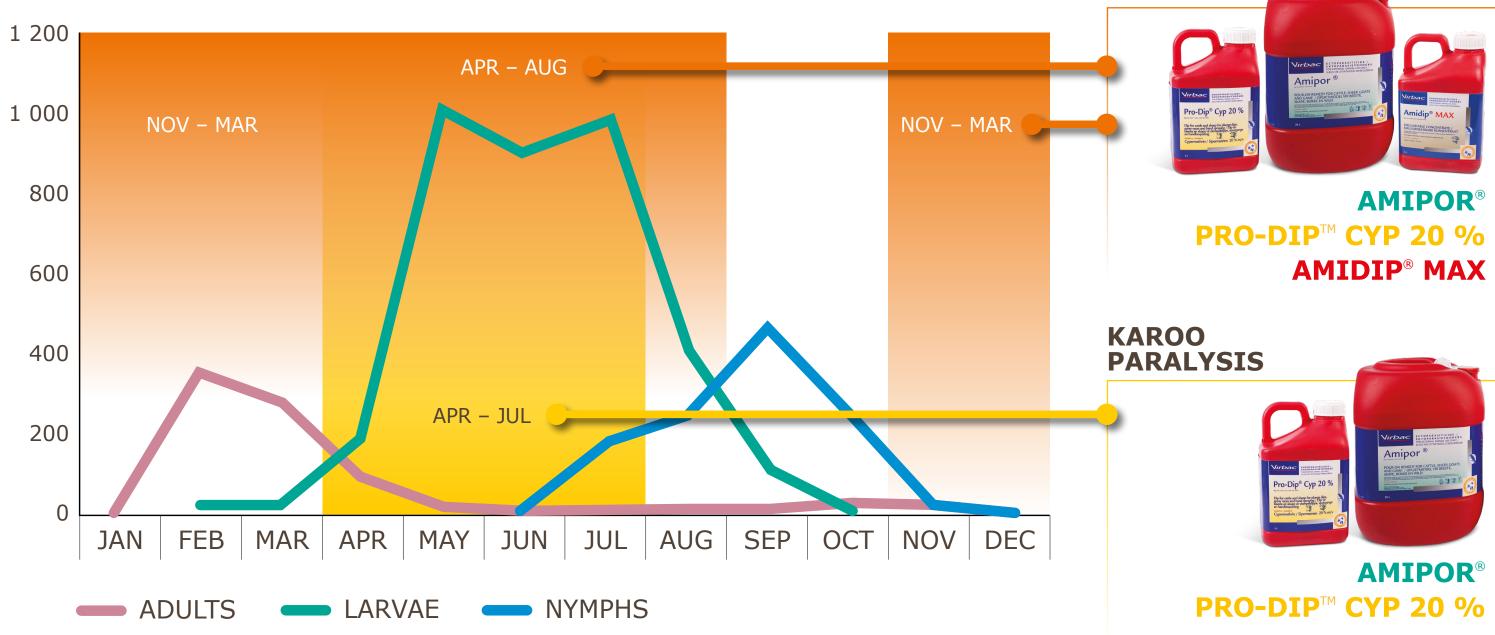
AMIPOR[®] PRO-DIP[™] CYP 20 %







VIRBAC TREATMENT STRATEGY FOR **THREE-HOST TICK CONTROL**



ECONOMIC IMPACT

TICKS AND TICK CONTROL

THE PRODUCTS







THE PRODUCTS

AMIPOR®

ELIMINATE

VIRBAMEC[®] LA

PRO-DIP[™] CYP 20%

R

ECONOMIC IMPACT

TICKS AND TICK CONTROL

The **Virbac** solution – **quality** and **reliability**

- Modern formulation technology
 Products choice for cattle, game and sheep
- Choice of internal and external parasite control
- Rotational program protection of chemical actives
- Environmentally friendly
 - ...making **Double Sure**



AMIDIP[®] MAX

PRO-DIP[™] CYP 20 % & AMIDIP[®] MAX COMBO









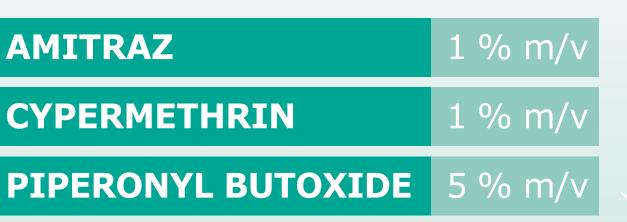
THE FIRST COMBINATION POUR-ON FOR COMPREHENSIVE ECTOPARASITE CONTROL



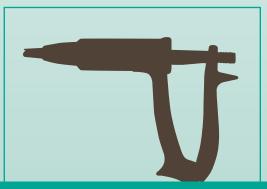


ECONOMIC IMPACT

TICKS AND TICK CONTROL



POUR-ON











THE FIRST COMBINATION POUR-ON FOR COMPREHENSIVE ECTOPARASITE CONTROL

DOUBLE SURE ON TICKS



Paralyse & detach ticks

- Limits disease transmission
- Inhibits larval development

- Broad-spectrum tick control
- Hyperstimulates nervous system
- Irreversible damage to nervous system

AMITRAZ



ECONOMIC IMPACT

TICKS AND TICK CONTROL

DOUBLE SURE ON FLIES

- Broadspectrum fly control
- Good knockdown effect
- Kills on contact

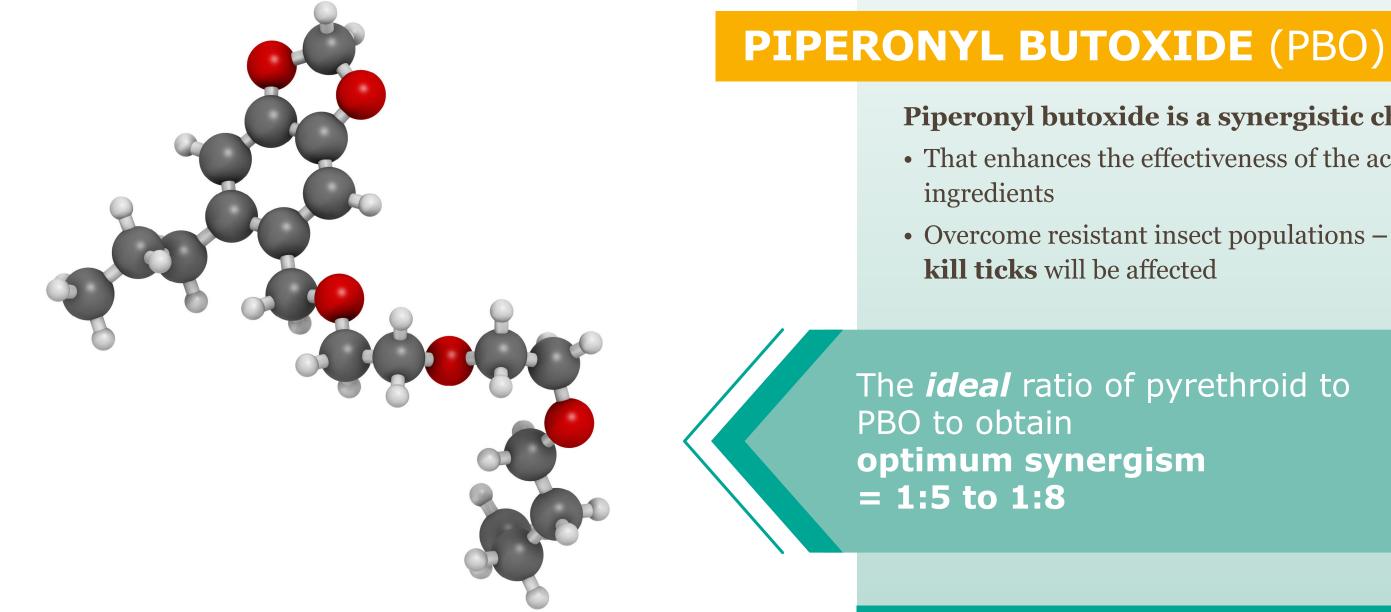
CYPERMETHRIN







THE FIRST COMBINATION POUR-ON FOR COMPREHENSIVE ECTOPARASITE CONTROL





ECONOMIC IMPACT

TICKS AND TICK CONTROL

Piperonyl butoxide is a synergistic chemical:

• That enhances the effectiveness of the active

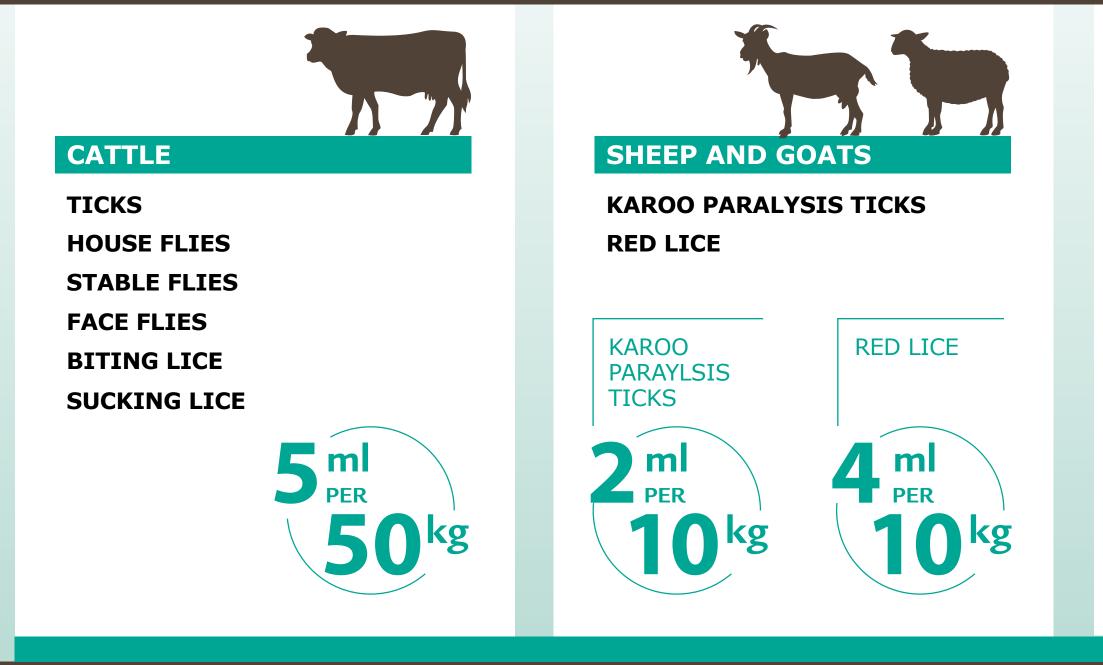
• Overcome resistant insect populations – **tough to**





AMIPOR®

THE FIRST COMBINATION POUR-ON FOR COMPREHENSIVE ECTOPARASITE CONTROL





ECONOMIC IMPACT

TICKS AND TICK CONTROL

GAME

TICKS





ELIMINATE

TRANSDERMAL INTERNAL AND EXTERNAL PARASITE CONTROL

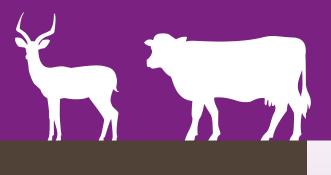






ECONOMIC IMPACT

TICKS AND TICK CONTROL





0,5 % m/v

POUR-ON







ELIMINATE

TRANSDERMAL INTERNAL AND EXTERNAL PARASITE CONTROL

NO NEED TO INJEC

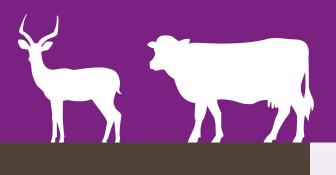
RAIN RESISTANT

The efficacy of ELIMINATE is not adversely affected if applied when the hide is wet, or if rain occurs shortly after application. However treatment of animals under these circumstances is not recommended.



ECONOMIC IMPACT

TICKS AND TICK CONTROL



TRANSDERMAL **TECHNOLOGY**

The formulation allows the active ingredient (abamectin) to be absorbed through the skin to deliver effective and reliable parasite control





ELIMINATE

TRANSDERMAL INTERNAL AND EXTERNAL PARASITE CONTROL

CATTLE AND GAME

INTERNAL PARASITES	IMMATURES	ADULTS	PERSISTENCY
WIREWORM			14 DAYS
BROWN STOMACHWORM *	\checkmark	\checkmark	14 DAYS
CATTLE BANKRUPTWORM	\checkmark	\checkmark	14 DAYS
HOOKWORM	\checkmark	\checkmark	
NODULAR WORM		\checkmark	21 DAYS
LUNG WORM	\checkmark	\checkmark	28 DAYS
EYEWORM		\checkmark	
			·

*including inhibited stages

KEY 🗸

Control (≥ 90 % effective) Aids in control (60 – 89 % effective)

EXTERNAL PARASITES

Controls **BLUE TICKS** for control of blue ticks – treatment must be repeated every 21 days

Aids in the control of **MULTI-HOST TICKS**

Kills SUCKING and BITING LICE

Controls MANGE MITES

Controls HORN FLY (Haematobia sp) for up to 21 days

ECONOMIC IMPACT









THE RELIABLE CHOICE FOR INTERNAL AND EXTERNAL PARASITE CONTROL



TICKS AND TICK CONTROL



1 % m/v

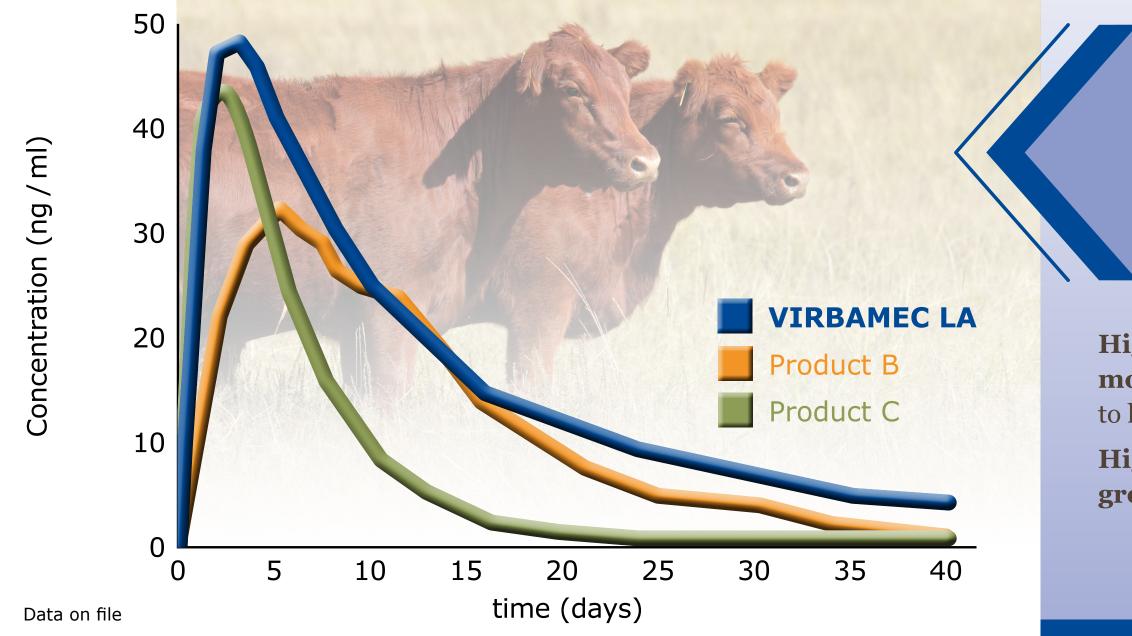
INJECTABLE







THE RELIABLE CHOICE FOR INTERNAL AND EXERNAL PARASITE CONTROL



ECONOMIC IMPACT

TICKS AND TICK CONTROL

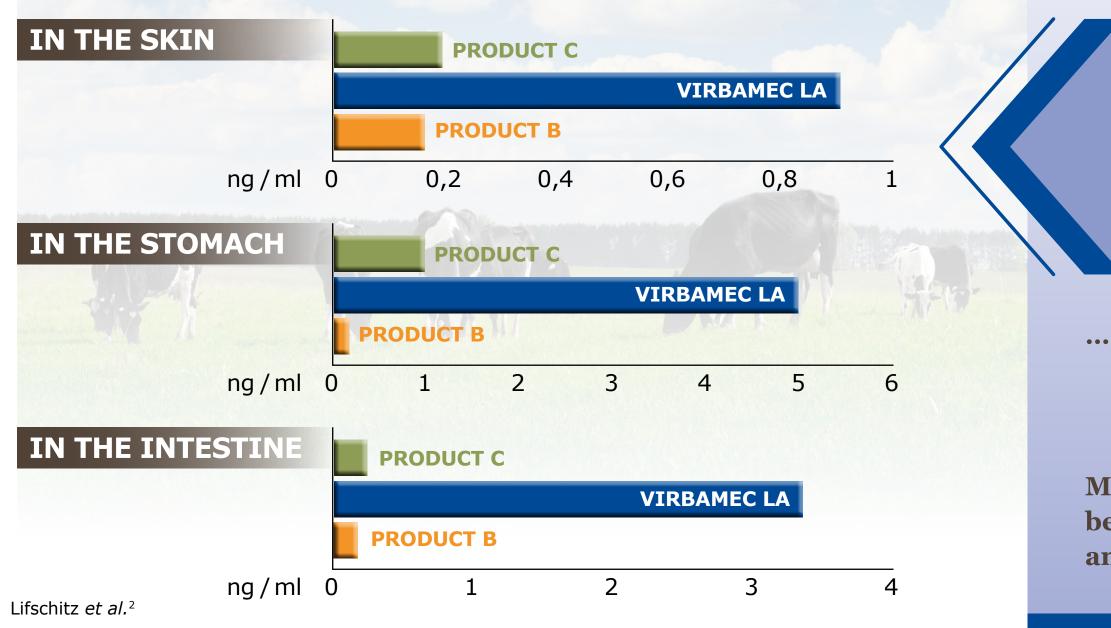
GREATER PEAK PLASMA LEVELS

Higher plasma levels means **more active available** to kill parasites under all conditions

Higher plasma level means greater therapeutic action



THE RELIABLE CHOICE FOR INTERNAL AND EXERNAL PARASITE CONTROL





ECONOMIC IMPACT

TICKS AND TICK CONTROL

MORE ACTIVE AVAILABLE IN TISSUES

... proof that **VIRBAMEC LA** has a better formulation technology – delivering more active to the tissues where the parasites live

More active means better action, better control and healthier animals under all conditions



THE RELIABLE CHOICE FOR INTERNAL AND EXERNAL PARASITE CONTROL



CA	T	E

INTERNAL PARASITES	IMMATURES	ADULTS	PERSISTENCY
WIREWORM*	\checkmark	\checkmark	35 DAYS
BROWN STOMACHWORM*	\checkmark	\checkmark	35 DAYS
BANKRUPTWORM	\checkmark	\checkmark	28 DAYS
HOOKWORM	\checkmark	\checkmark	42 DAYS
NODULAR WORM	\checkmark	\checkmark	49 DAYS
LUNGWORM	\checkmark	\checkmark	21 DAYS
EYEWORM		\checkmark	
LONG-NECKED BANKRUPTWORM		\checkmark	
WHITE BANKRUPTWORM		\checkmark	
ASCARIDS		\checkmark	
FALSE BRUISING		\checkmark	

EXTERNAL PARASITES BLUE TICKS up to 42 days SUCKING LICE WARBLE FLIES **MANGE MITES CATTLE SCREW WORM SANDTAMPANS**

*including inhibited stages



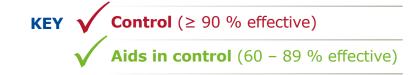








THE RELIABLE CHOICE FOR INTERNAL AND EXERNAL PARASITE CONTROL



SHEEP

INTERNAL PARASITES	IMMATURES	ADULTS
WIREWORM	\checkmark	
NOOITGEDACHT RESISTANT WIREWORM STRAIN		\checkmark
BROWN STOMACHWORM	\checkmark	
BANKRUPTWORM	\checkmark	\checkmark
HOOKWORM	\checkmark	
NODULAR WORM	\checkmark	\checkmark
LARGE-MOUTHED BOWELWORM		\checkmark
LUNGWORM		\checkmark
LONG-NECKED BANKRUPTWORM	\checkmark	\checkmark
WHIPWORM		
WHITE BANKRUPTWORM	\checkmark	\checkmark

EXTERNAL PARASITES SHEEP SCAB MANGE MITES **AUSTRALIAN ITCH MITE** SUCKING LICE NASALBOT controls all stages $(1^{st}, 2^{nd} \text{ and } 3^{rd} \text{ instar larvae})$



ECONOMIC IMPACT









THE RELIABLE CHOICE FOR INTERNAL AND EXERNAL PARASITE CONTROL



PIGS

INTERNAL PARASITES	IMMATURES	ADULTS
ASCARIDS	\checkmark	
WHITE BANKRUPTWORM	\checkmark	\checkmark
NODULAR WORM	\checkmark	\checkmark
LUNGWORM	\checkmark	\checkmark
WHIPWORM		\checkmark

EXTERNAL PARASITES SUCKING LICE (KILLS) **MANGE MITES**

with a persistent activity for 56 days



ECONOMIC IMPACT











PRO-DIP[™] CYP 20 %

THE VERSATILE SHEEP AND CATTLE DIP





ECONOMIC IMPACT

TICKS AND TICK CONTROL

THE PRODUCTS

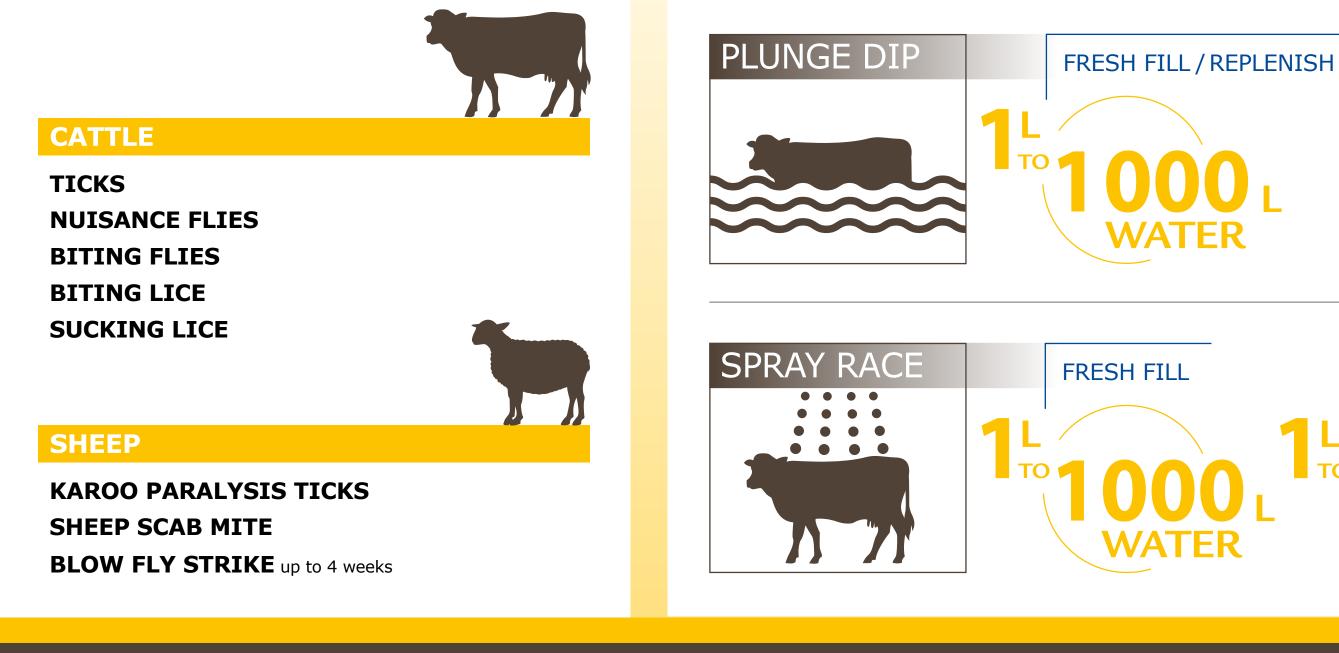


20 % m/v



PRO-DIP[™] CYP 20 %

THE VERSATILE SHEEP AND CATTLE DIP





ECONOMIC IMPACT

TICKS AND TICK CONTROL

REPLENISH



AMIDIP[®] MAX

THE VERSATILE CATTLE DIP



ECONOMIC IMPACT

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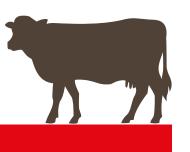
TICKS AND TICK CONTROL





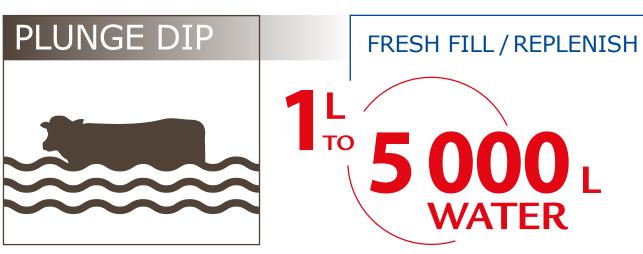
AMIDIP[®] MAX

THE VERSATILE CATTLE DIP



CATTLE

SINGLE-HOST TICKS MULTI-HOST TICKS LICE **MANGE MITES**







ECONOMIC IMPACT

TICKS AND TICK CONTROL



AMIDIP[®] MAX | PRO-DIP[™] CYP 20 %

USE IN COMBINATION FOR POWERFUL COMPREHENSIVE PARASITE CONTROL

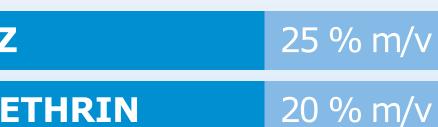


AMITRAZ CYPERMETHRIN

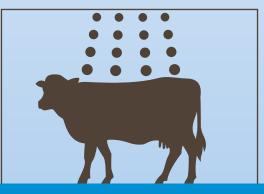


TICKS AND TICK CONTROL





SPRAY RACE

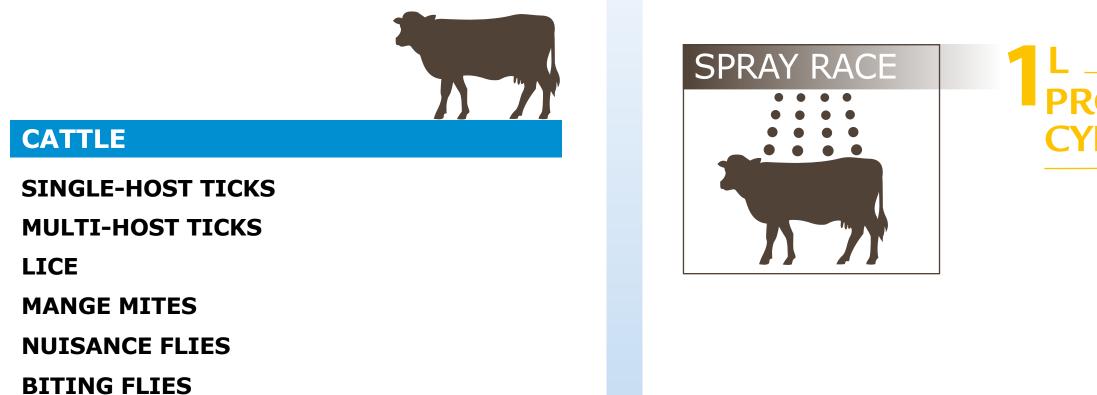






AMIDIP[®] MAX | PRO-DIP[™] CYP 20 %

USE IN COMBINATION FOR POWERFUL COMPREHENSIVE PARASITE CONTROL





ECONOMIC IMPACT

TICKS AND TICK CONTROL





Each product must be mixed with 20 litres of clean water **separately** prior to being included into the dip sump / tank



REFERENCES

- 1. Spickett AM. Ticks and tick-borne diseases
- 2. Lifschitz et al. Comparative distribution of ivermectin and doramectin to parasite location tissues in cattle. *Veterinary Parasitology*. 2000;87:327-448

AMIDIP[®] **MAX** – Reg. No. G3767 (Act 36/1947) Namibia Reg. No. V08/18.3.4/131 NS0 Botswana Reg. No: W130660 Contains: Amitraz 25 % m/v

July 2017



ECONOMIC IMPACT

TICKS AND TICK CONTROL



Virbac (Pty) Ltd (Reg. No. 1990/003743/07) Private Bag X115, Halfway House 1685, South Africa Tel: (012) 657-6000 Fax: (012) 657-6067

AMIPOR[®] – Reg. No. G2058 (Act 36/1947) Namibia Reg. No. V06/19.3.9/75 NS0 Botswana Reg. No: W130656 Contains: Amitraz 1 % m/v, Cypermethrin 1 % m/v and Piperonyl Butoxide 5 % m/v

ELIMINATE - Reg. No. G3348 (Act 36/1947) Namibia Reg. No. V09/18.1.2/77 NS0 Botswana Reg. No: W130659 Contains: Abamectin 0,5 % m/v

VIRBAMEC[®] LA – Reg. No. G2885 (Act 36/1947) Namibia Reg. No. V09/18.1.2/109 NS0 Contains: Ivermectin 1 % m/v

PRO-DIP™ CYP 20 % – Reg. No. G2311 (Act 36/1947) Namibia Reg. No. V04/18.3.4/119 NS0 Botswana Reg. No. W130658 Contains: Cypermethrin 20 % m/v

