

# Importance of antiparasitic drugs in animal health and production

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# Importance of livestock for Rural communities

- Livestock is a critically important asset in rural communities across Africa
- The well being and health of livestock is important for the communities
- Parasitic diseases rank amongst top diseases which impact the productivity of livestock adversely



# Why should we control parasites / parasitic diseases?



- To reduce/ minimize economic losses
  - To safeguard animal health
  - To maintain animal welfare
  - To reduce / minimize risk of parasitic zoonoses
-

## Need for use of antiparasitics to reduce/ minimize economic losses

Tick species	Live-weight-gain loss (g)	Milk loss (g)
<i>Amblyomma hebraeum</i> (Norval et al., 1989)	10	7
<i>Amblyomma variegatum</i> (Pegram & Oosterwijk, 1990)	45-60*	-
<i>Amblyomma americanum</i> (Barnard, 1985)	16-29	-
<i>Amblyomma maculatum</i> (Williams, Hair & McNew, 1978)	33	-
<i>Boophilus microplus</i> (Sutherst et al., 1988)	0.6-1.5	-
<i>Rhipicephalus appendiculatus</i> (Norval et al., 1988)	4	7
<i>Rhipicephalus appendiculatus</i> (de Castro et al., 1985b)	NSD	-

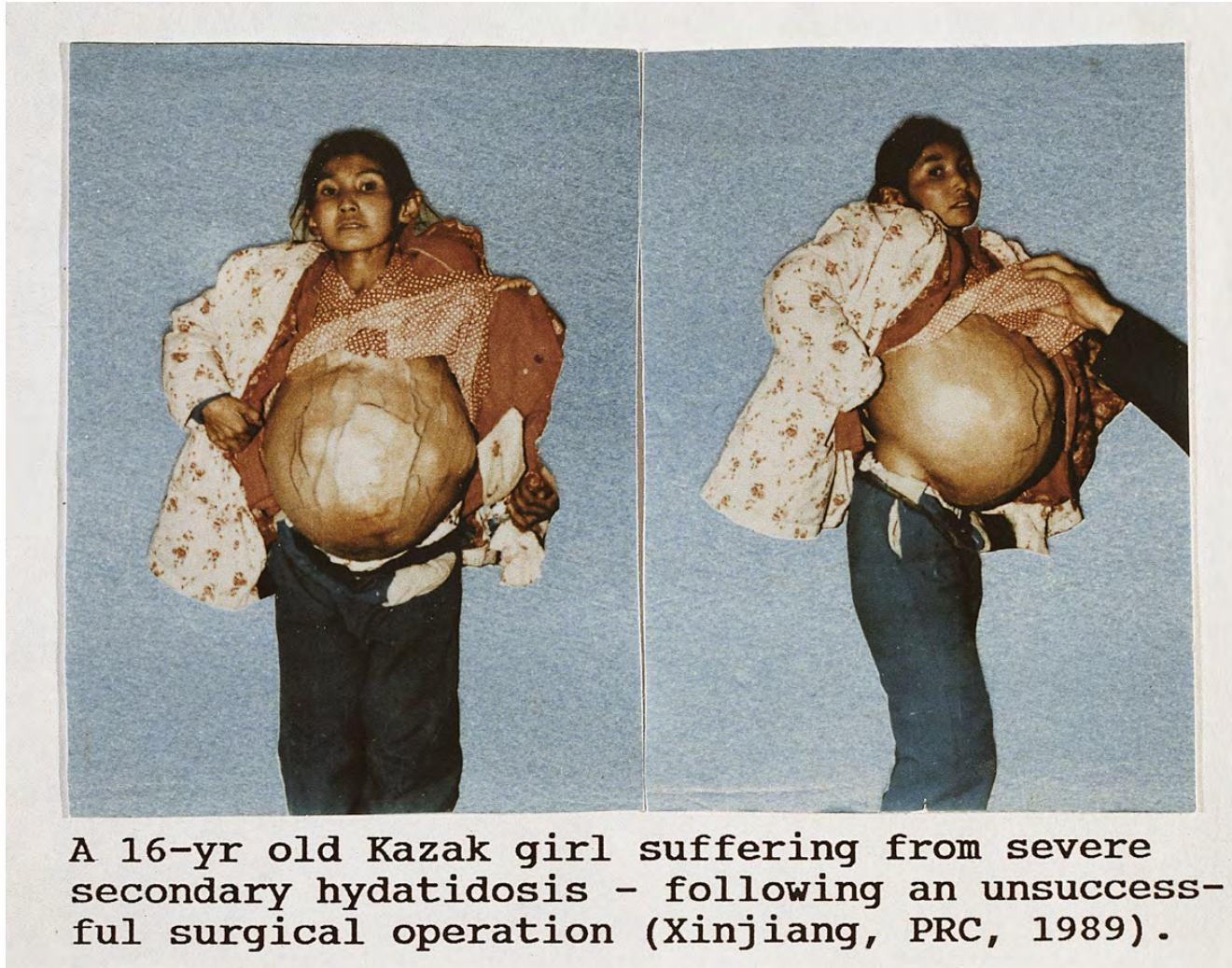
\*Excluding compensatory live-weight gain

• NSD Non sufficient data

# Need for use of antiparasitics to maintain animal welfare



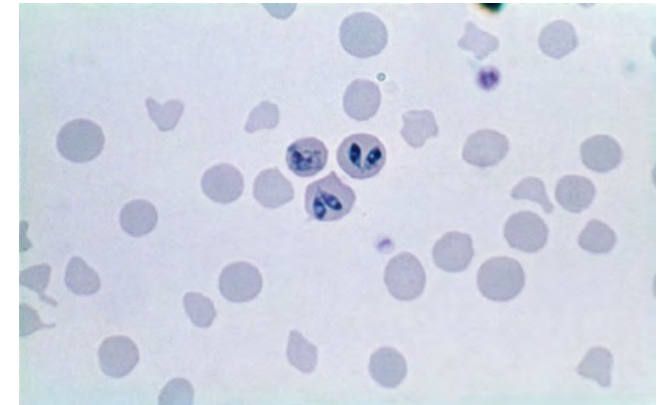
## Need for use of antiparasitics to reduce/ minimize risk of zoonotic diseases



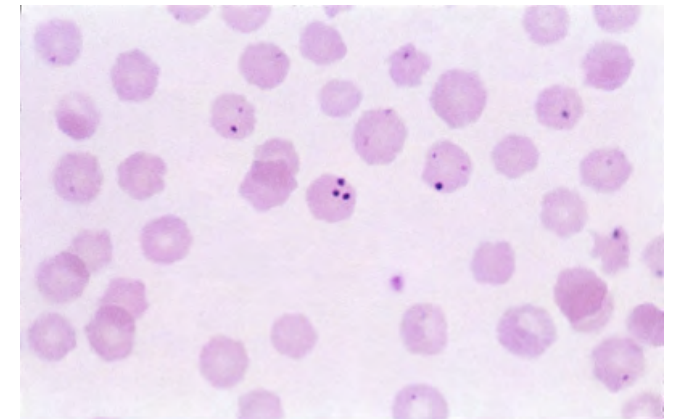
# Need for use of antiparasitics to safeguard animal health



*Boophilus microplus* engorged female



*Babesia bigemina*

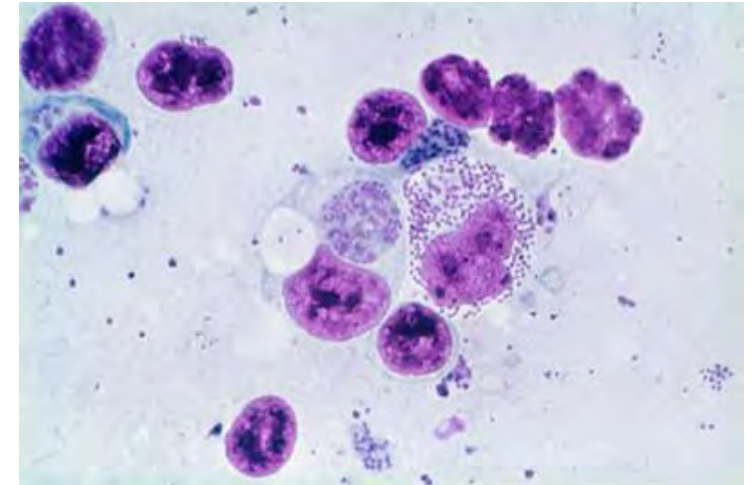


*Anaplasma marginale*

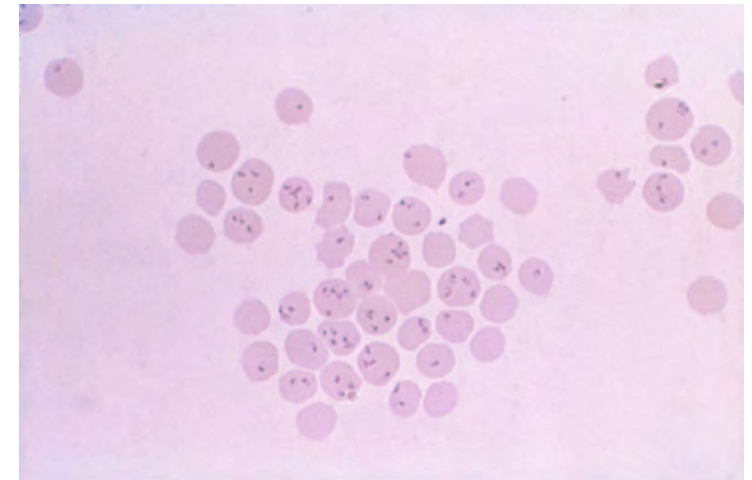
# Need for use of antiparasitics to safeguard animal health



*Rhipicephalus appendiculus*

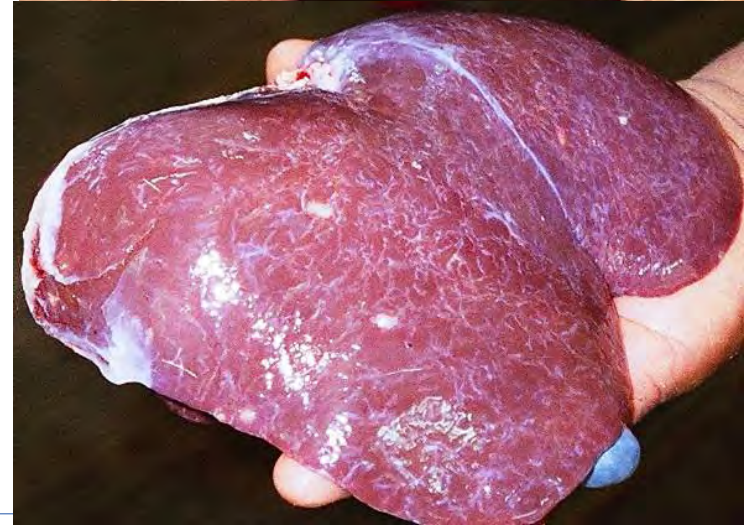


Theileria infection





# Need for use of antiparasitics to safeguard animal health



# Antiparasitic drugs

- Ectoparasiticides
- Endoparasiticides
- Endectocides

- Effectively kills/removes adult and immature parasite
  - Safe
  - Easy to administer
  - Economic for producer
  - With holding period
-

# Control of Ectoparasites : Ectoparasiticides



## Chemical control of Ectoparasites ( Chemical groups available)

- Organochlorines
  - Organophosphates (e.g. Coumaphos, Trichlorfon)
  - Carbamates ( e.g. Propoxur )
  - Synthetic pyrethroids (e.g. Flumethrin, Cypermethrin, Deltamethrin)
  - Amidines ( e.g. Amitraz, Cymiazole)
  - Macrocyclic lactones ( e.g. Ivermectin, Doramectin, Moxidectin )
  - IGR (e.g. Fluazuron)
  - Pyrazole group ( e.g. Fipronil)
  - Spinosad
-

# Formulations available to apply Ectoparasiticides

- Dips (herds)
  - Spray ( hand sprayer fewer animals, spray races )
  - Dust ( few animals)
  - Pour on ( herds)
  - Injectables ( herds)
  - Ear Tags ( herds)
  - Pheromone/ acaricide impregnated devices ( tail band):  
few animals
-

# Application of Ectoparasiticides

## Plunge dips:

Formulation used is EC,  
several thousands of litre of  
chemicals needed,  
chemical disposal is  
difficult, stress to animals,  
stripping, checking chemical  
quality from time to time



# Application of Ectoparasiticides

**Hand spray** : Formulation used are EC, WP, SC

Tedious, time consuming

**Spray races**: Formulation used are EC,

Time consuming, difficult to reach underbelly



# Application of Ectoparasiticides

## **Pour On :**

Less stress to animal,  
No requirement for  
disposal, No water  
requirement for  
solution, no pumps etc.  
Easy to apply.



# Application of Ectoparasiticides

## **Injectable:**

ML are used as injectable  
To control endo and  
ectoparasites

Disease transmission  
from one animal to other  
and lesions at injection  
sites





# Application of Ectoparasiticides

- Eartags:
- Effective way of controlling
- Flies, efficacy for 4-5 months



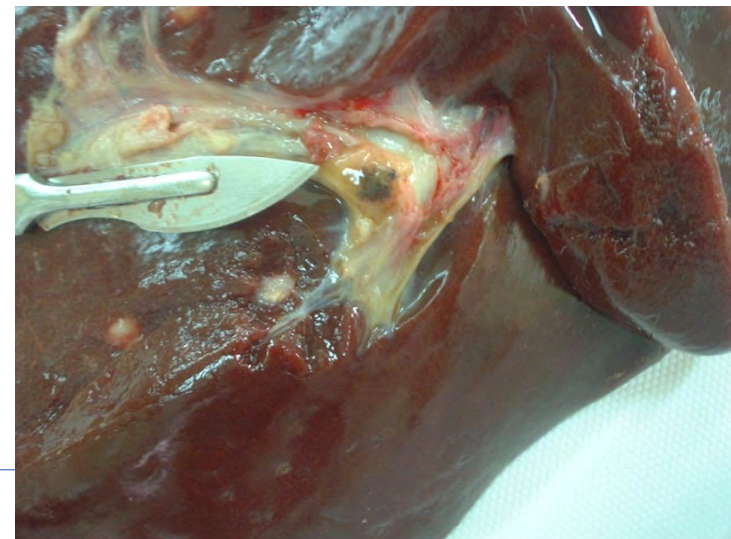
# Control of Endo parasites

- Chemical control of Endoparasites ( chemical groups available : anti nematodes)
- Benzimidazoles and Probenzimidazoles ( e.g. fenbendazole, albendazole, oxibendazole, febantel )
- Imidazothiazoles ( e.g. levamisole)
- Tetrahydropyrimidine ( e.g. Pyrantel)
- Piperazines
- Organophosphates ( e.g. trichlorphon)
- Octadepsipeptides ( e.g. emodepside)
- Amino acetonitrile derivatives ( Monepantel)



# Control of Endo parasites

- Chemical control of Endoparasites ( chemical groups available : anti cestodes)
  - Praziquantel
  - Epsiprantel
  - Benzimidazoles
- Chemical control of Endoparasites ( chemical groups available : anti trematodes)
  - Clorsulon
  - Salicylanilides ( e.g. closantel, rafoxanide)
  - Triclabendazole



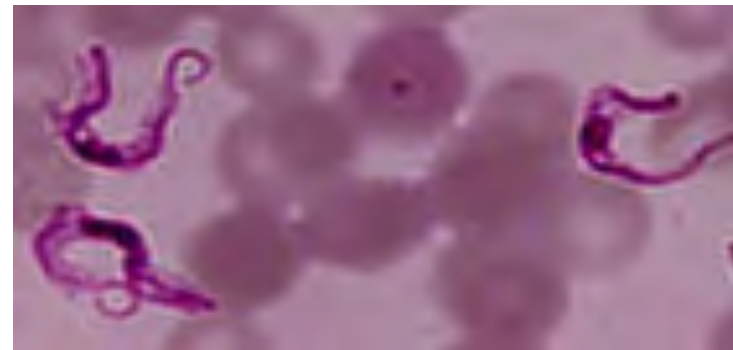
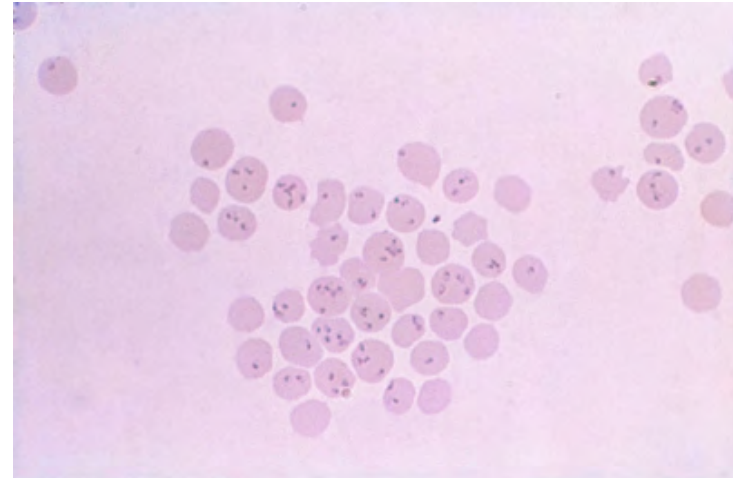
## Control of Endo parasites

- Chemical control of Endoparasites  
( chemical groups available : anti protozoal : anticoccidials)
- Ionophores ( e.g. monensin, lasalocid)
- Amprolium
- Diclazuril
- Toltrazuril
- Quinolones ( e.g. decoquinate)



# Control of Endo parasites

- Chemical control of Endoparasites ( chemical groups available : anti protozoal )
  - Imidocarb dipropionate
  - Diminazene acetuarate
  - Pantamidines
  - Buparvaquones
  - Quinapyramine
  - Isometamidium



# Formulations available to apply Endoparasiticides

- Oral suspensions
- Injections
- In feed



# Control of endo and ectoparasites : endectocides

Chemical control of endo and ecto parasites ( chemical groups available : Macrocyclic lactones

- Ivermectin
  - Doramectin
  - Eprinomectin
  - Moxidectin
  - Abamectin
  - Selamectin
  - Milbemycin oxime
- ⇒ Large spectrum: intestinal worms, lung worms , ectoparasites: mange , lice, oestus ovis, parafilaria, Thelazia, Horn flies (Cochliomyia), Hypoderma bovis, Ticks (Boophilus spp)



## Formulations available to apply Endoparasiticides



- Injectable: Cattle, Swine- broad spectrum
  - Oral drench / in feed : Sheep, Swine,Goat - mainly endoparasites + Itch mite (*Psorergates ovis*) + oestrus ovis
  - Pour on: Cattle - mainly endoparasites , Hypoderma bovis, Lice, Mange (*Sarcoptes* and *Chorioptes*),Horn flies (*Haematobia irritans*)
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# What you need to know about antiparasitic drugs before use



- Dosage
- Formulations and route of administration
- Any special concerns ?
- Is it toxic to host ?
- Mechanism of action
- Teratogenicity
- Resistance
- Withdrawal time