Barber's pole infections of weaners: Impact and control

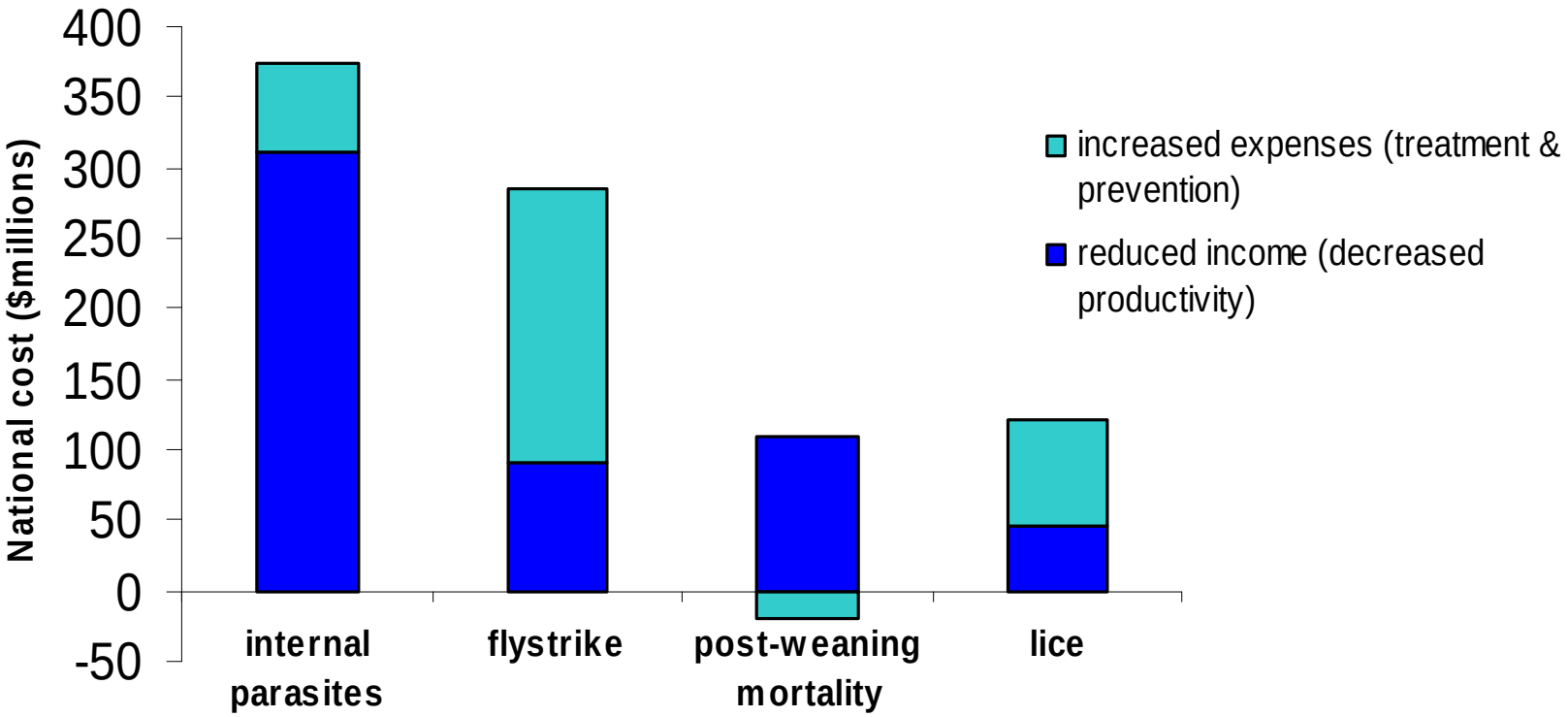
WormTest

http://www2.dpi.qld.gov.au/sheep/4723.html

Toward Q Tomorrow's Queensland

Queensland Government

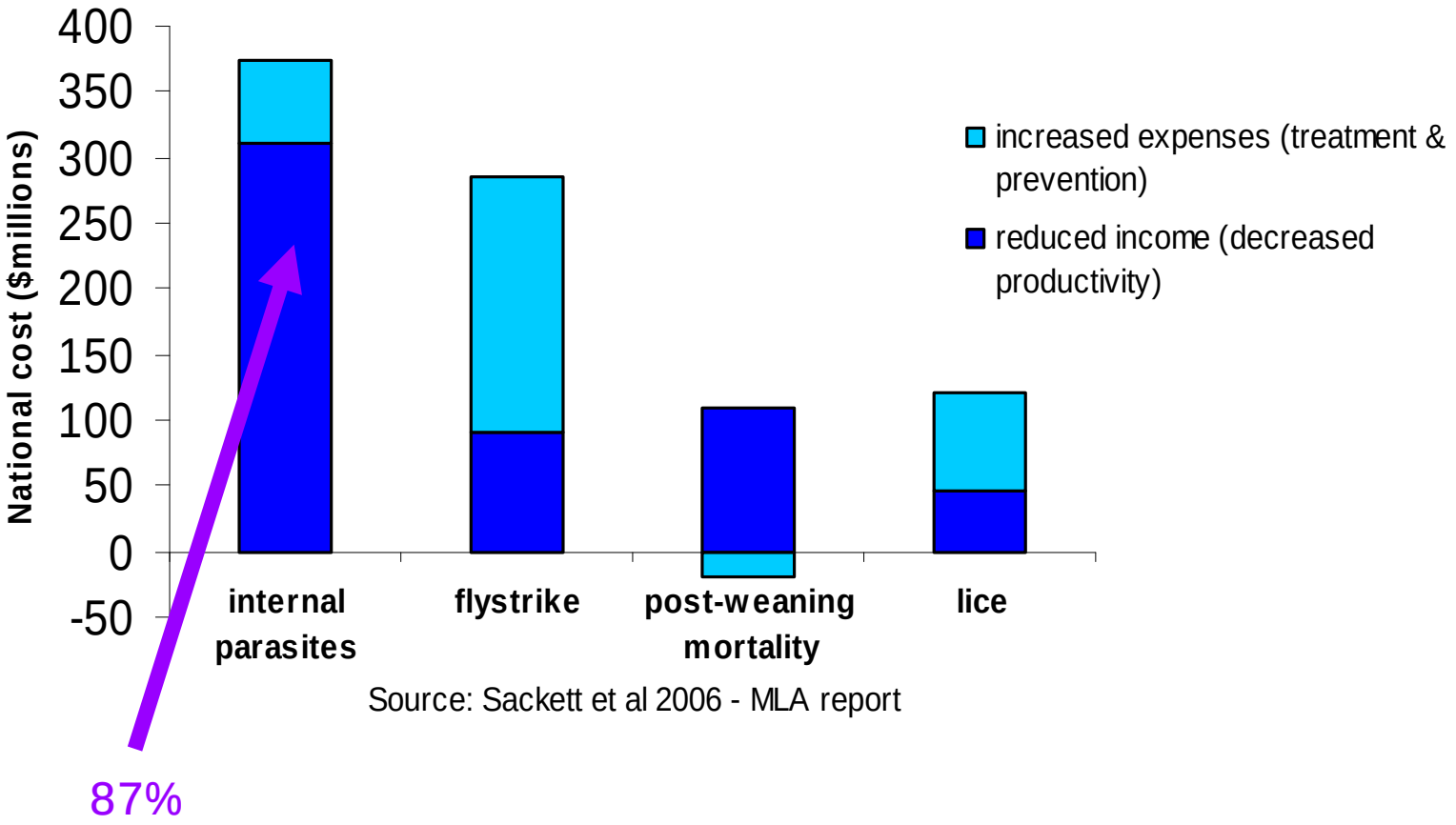
Cost of worm infections



Source: Sackett et al 2006 - MLA report

Av cost = $5 /hd
All genera of worms

Cost of worm infections



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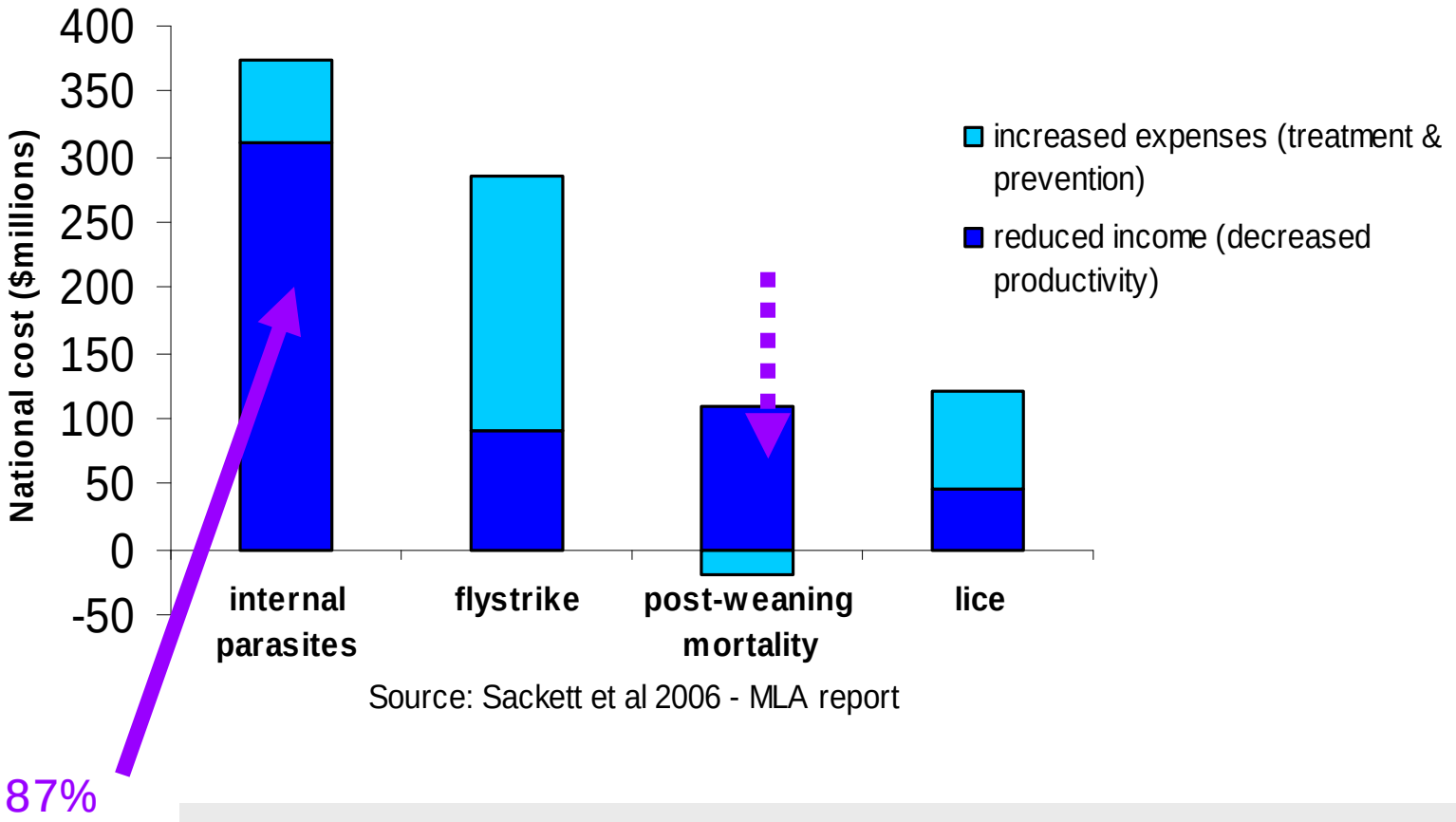
Cost of worm infections



Source: Sackett et al 2006 - MLA report

Worms = Decreased productivity
Greatest loss is from deaths of weaners

1. Barber’s pole infections
2. Impact on productivity
3. Early detection
4. Appropriate intervention

1. Barbers pole infections

- Predominant parasite in the summer rainfall zone
- Barber’s pole kills sheep
- Kills quickly
- Kills without any early warning

- WormTest Laboratory data 2010
  - Big worm season including pastoral zones
  - Disease seen into June – warm moist conditions in autumn

- Repeated pattern
  - Acute disease & deaths of weaners in Nov to Mar period
    - Sheep treated too late!
    - No visible signs of infection!

Key Fact - control opportunity

Key facts - control opportunities

- Huge egg output
  - 5 000-10 000 eggs per worm per day
  - Each with the potential to become a worm & infect other sheep in the mob

- Worm infections in weaners follow the 80/20 rule
  - By removing the tail of the mob the worm burden of the remaining animals is halved
  - Breeding strategies for increased immunity to worms

Source: Roberts & Swan 1982

Streter et al 1993

Blood loss 0.05ml /worm/ day

v 300ml / day in heavy infection

- Resident in the 4th stomach (abomasum)
- Blood letting parasite
- Causes lesions in the abomasum during feeding - haemorrhage
- Loss of protein (wound healing and growth)
- Loss of iron (red blood cells manufacture)

Source: wormboss.com.au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2. Impact on productivity

- Ewe is the **reservoir** of infection & contaminates the pasture

- Continuous grazing

  intensifies the infection

Source: Gordon 1948

Ewe & mothering

- Rise in worm infections 2 weeks before and 4 weeks after lambing

Reduced liveweight of ewes
Reduced lactation

- Subsequent reduction in fertility

Reduced lambing percentages

Next generation

- Lambs forced to forage earlier

Reduced weaner liveweight gain

Increased mortality in weaners

Ewe & mothering

- Rise in worm infections 2 weeks before and 4 weeks after lambing

Reduced liveweight of ewes — av. 13kg / lactation

Reduced lactation — av. 23%

Source: Thomas & Ali 1983

- Subsequent reduction in fertility

Reduced lambing percentages

Next generation

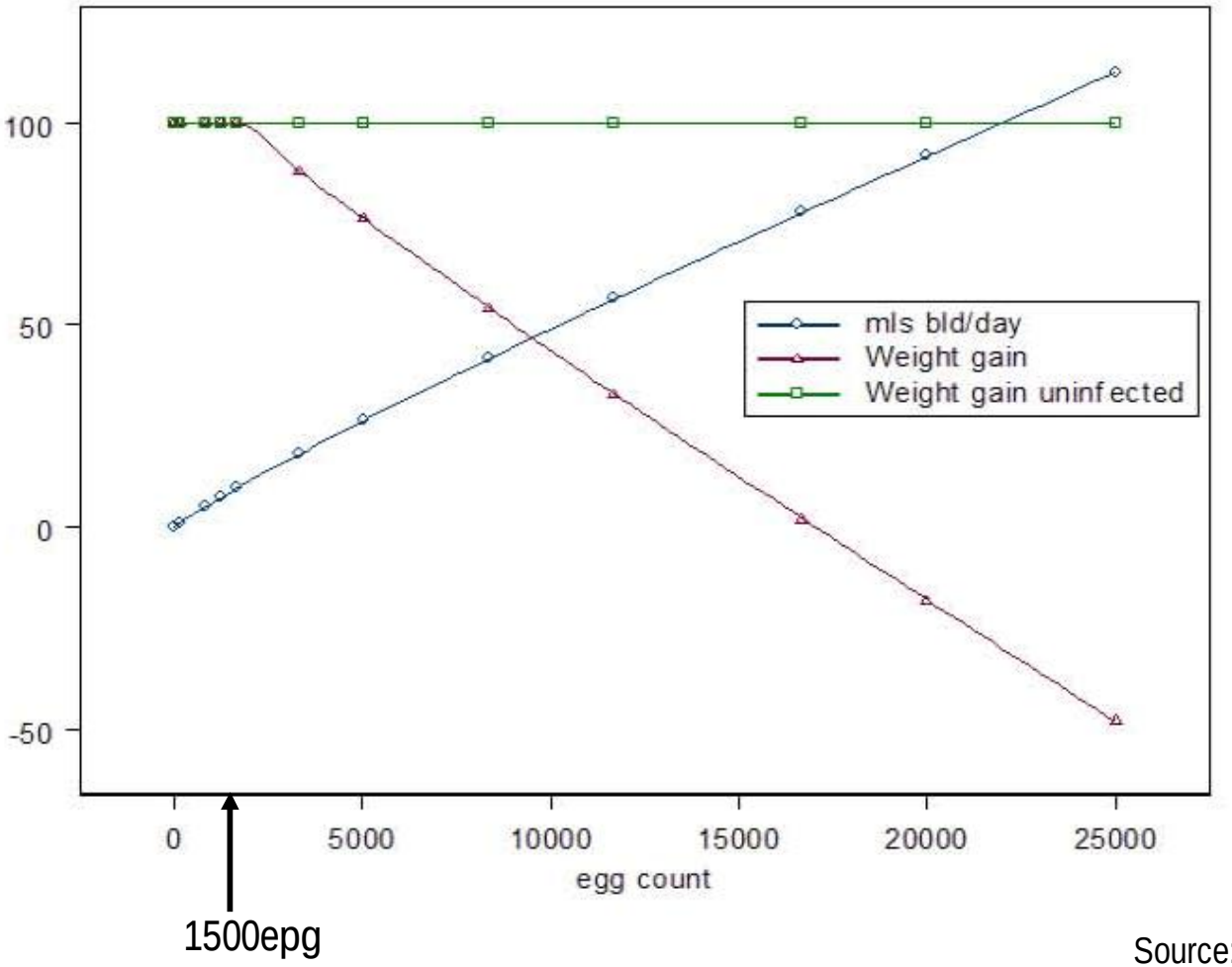
- Lambs forced to forage earlier

Reduced weaner liveweight gain — av. 38% Source: Albers et al 1989

Increased mortality in weaners — 10 - 20%

Source: Barger 1982
Barger 1990

Barber's pole infections & weight loss in weaners



Source: Le Jambre 1995

Barber’s pole infections

Barber’s pole

Sheep fail to gain weight

Black scour

Sheep loose weight

Appetite initially suppressed

Poor egg layer

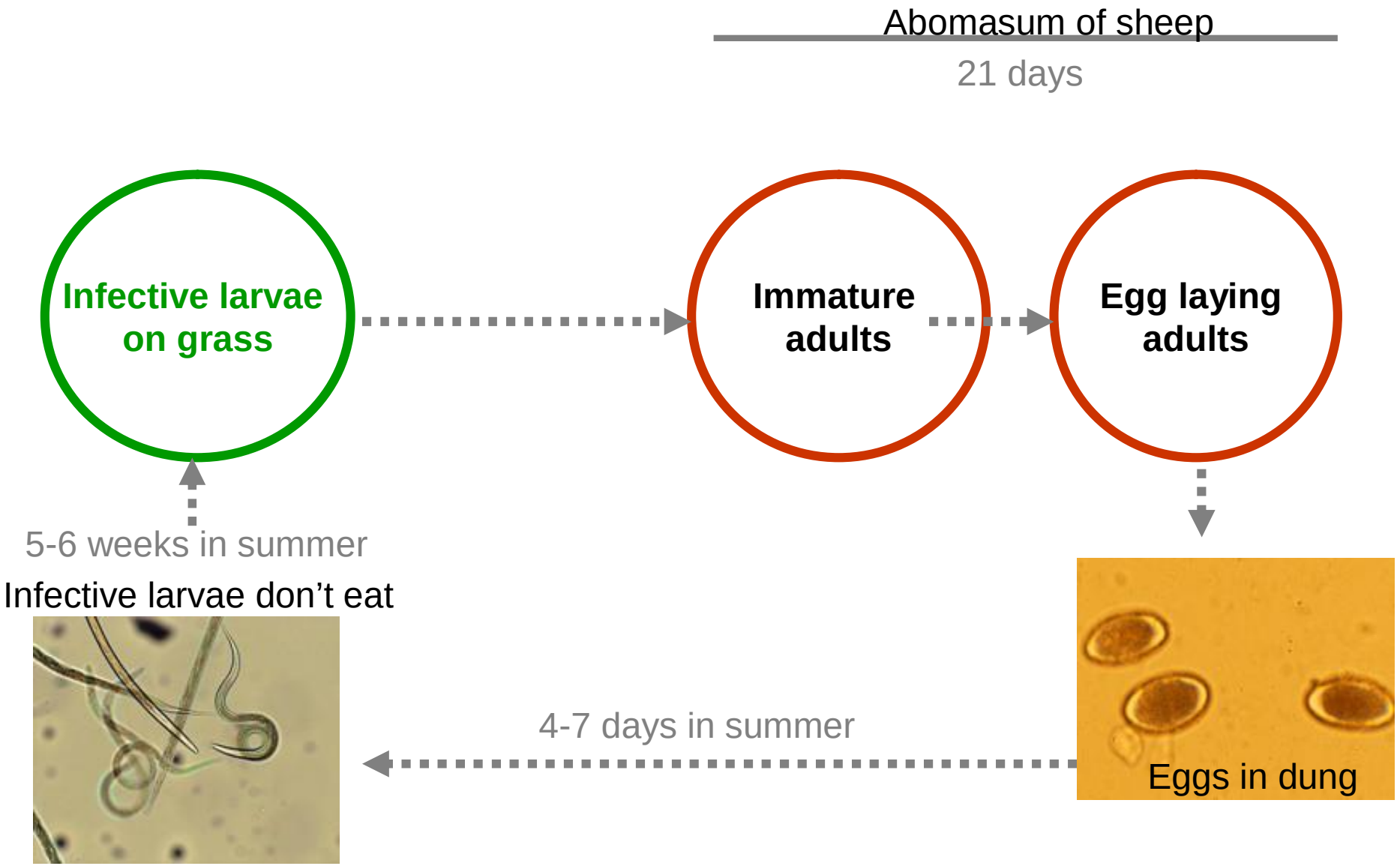
Infections buildup slowly

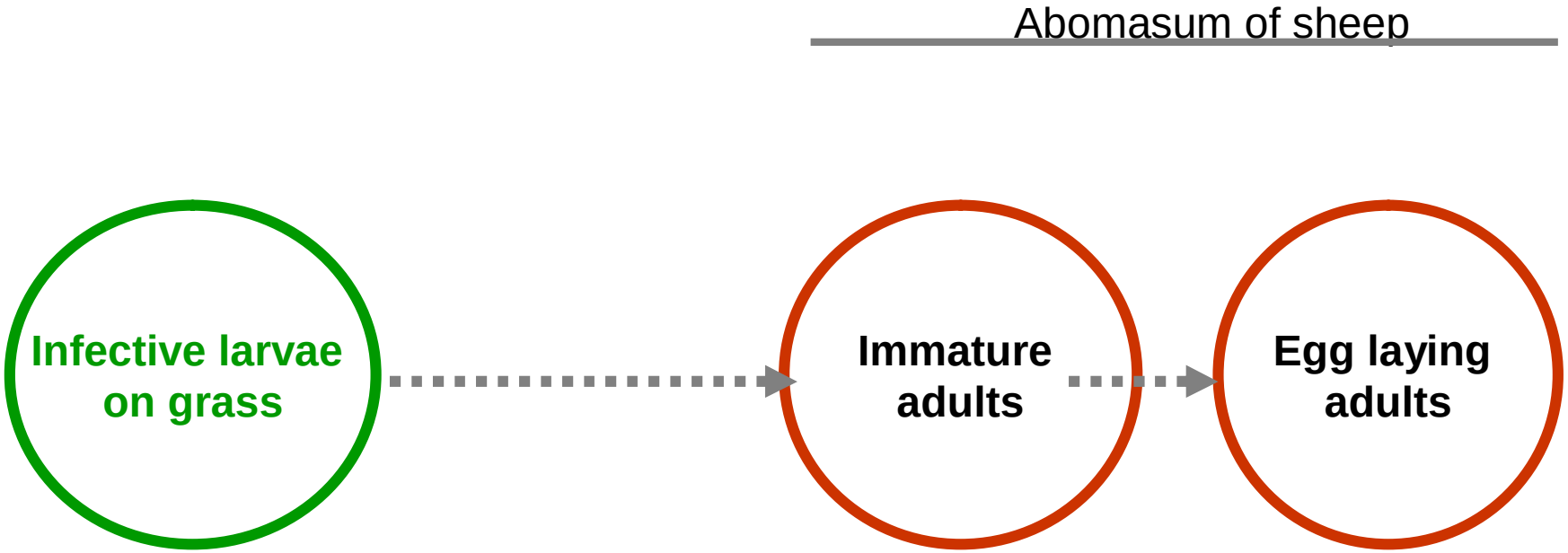
Source: Allonby &Urquhart 1975

Control opportunities

- Sheep treated too late
- Wormy tail to the mob
- Continuous grazing

3. Early detection


Abomasum of sheep
21 days
Infective larvae on grass
Immature adults
Egg laying adults
5-6 weeks in summer
Infective larvae don’t eat
4-7 days in summer
Eggs in dung



Key points – control opportunities

- Size of each population
- Size relative to each other

- Daily relentless reinfestation

Early detection

Pasture

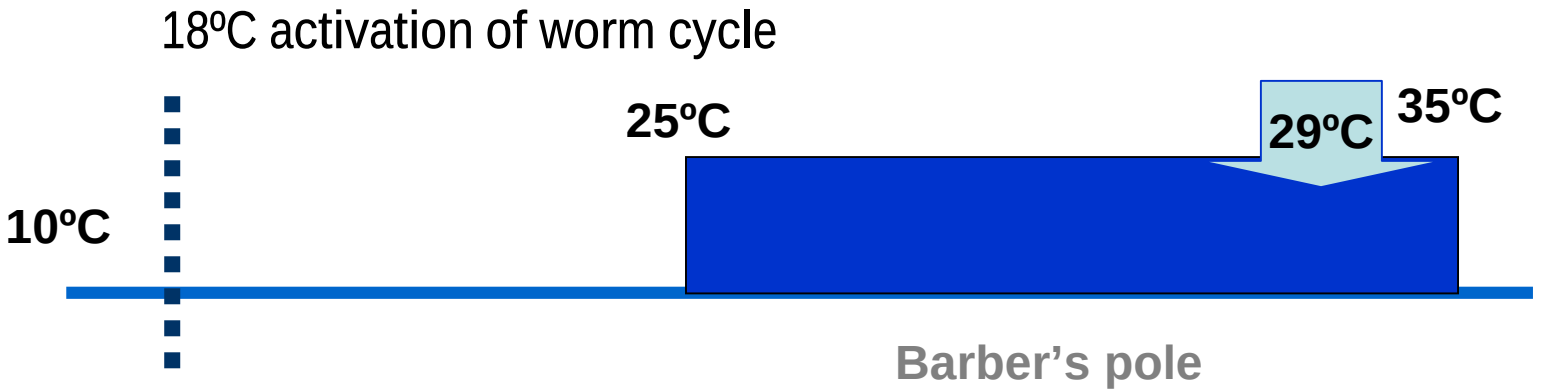
- Reinfection rate
  - Temperature
  - Rainfall
  - Grass cover / moisture / nutrition

Sheep

- WormTest for adult worms in sheep
- FAMACHA for anaemia

Temperature

Determines the speed of the cycle



Mark on calendar!

Source: O'Connor et al 2007

Rainfall

- Usually 4-5 days of showery & overcast weather

  (Rainfall must be greater than evaporation)

Often then limiting factor

Grass colour/cover

- is an indication of sufficient moisture for pasture larvae to survive

Mark on calendar!

WormTests

- WormTest counts worm eggs in a known weight of dung
  - Adult worm infection not the immature infection
  - Relates the worm egg count to the worm burden
- When to test
  - Aug, Nov, Feb, Apr, Jun (wet autumn/ winter)

Mark on calendar!

- When to drench
  - Worm egg counts 500 to 1000 epg
- Interpretation
  - Consider age, class, nutrition & most importantly the infection rate
  - Zero worm egg count & reinfection rate

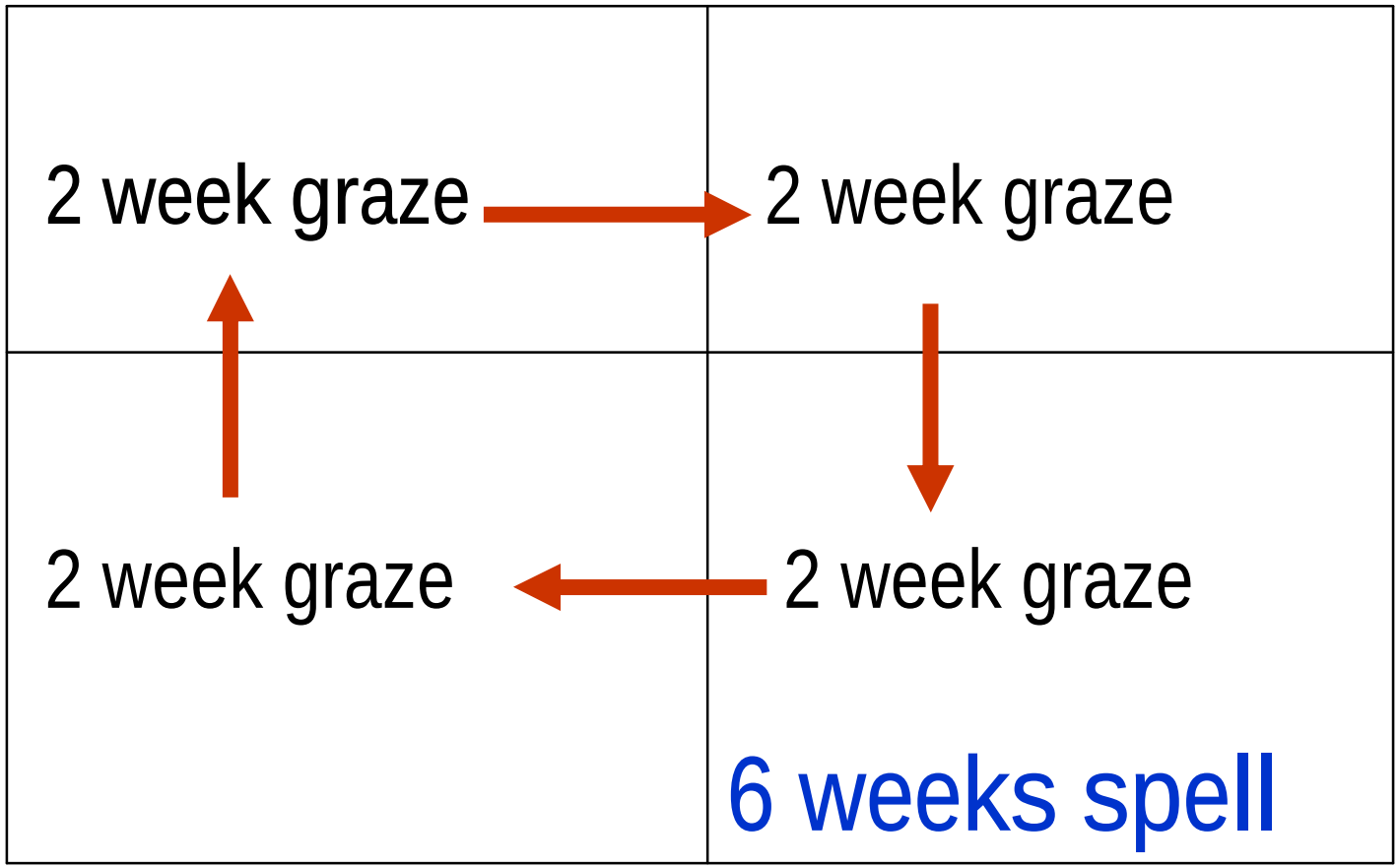
4. Appropriate intervention

Appropriate intervention

- Grazing rotations v continuous grazing
  - Improves ground cover over summer/ autumn
  - Set graze times and spell times
  - Eliminates sheep camps & patch grazing – worm hot spots
- Drenches
  - So important to use drenches that kill worms, especially during the peak worm season
- Genetics MLA lambplan.com.au

4-paddock weaner rotation

Nov - Mar



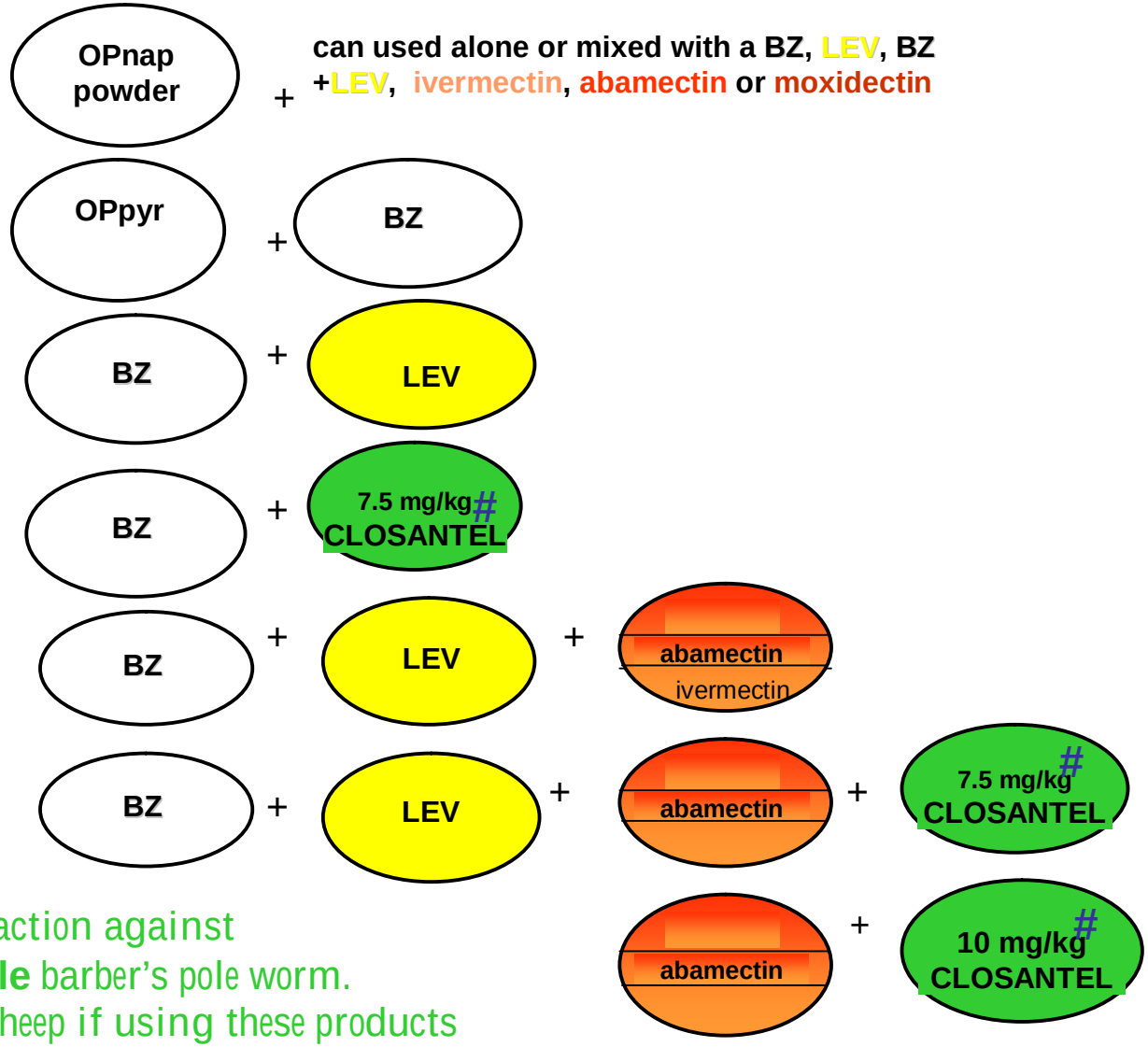
MLA Tips & Tools “Tools for Grazing Strategies”

Single-active drenches

These **single-active** ORAL drenches will control		these SUSCEPTIBLE worms	and are SOLD as
BZ		**barber's pole P** **black scour P** **nodule P**	Panacur Alben Valbazen *etc*
LEV			Nilverm Big L Levamisole *etc*
ML			
moxidectin#	**mox** is the most potent ML		Cydectin (**moxidectin**)
abamectin			Virbamec (**abamectin**)
ivermectin	**iver** is the least potent ML		Ivomectin (ivermectin)
OP		**barber's pole P** **black scour ±**	Rametin
closantel#		**barber's pole P**	Seponver Sustain Closicare *etc*

#extended action against susceptible barber's pole worm

Multi-active drenches



#extended action against **susceptible** barber's pole worm.
Set-stock sheep if using these products

Injections & Capsules

These drenches have **different treatment routes** and

are SOLD as

Injections

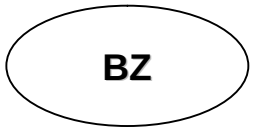
Not less than 91 days against moxidectin SUSCEPTIBLE barber's pole worm
Up to 49 days against moxidectin SUSCEPTIBLE black scour worm

Cydectin LA

Not less than 21 days against moxidectin SUSCEPTIBLE barber's pole worm
Not less than 7 days against moxidectin SUSCEPTIBLE black scour worm

Cydectin EWEGUARD
Cydectin WEANERGUARD

Capsules

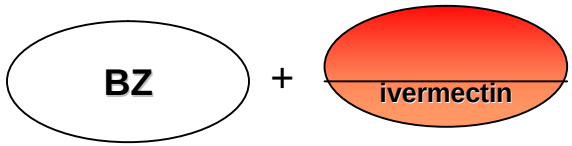


100 days against BZ SUSCEPTIBLE barber's pole worm
100 days against BZ SUSCEPTIBLE black scour worm

Extender JUNIOR
Extender 100 ADULT

100 days against ivermectin SUSCEPTIBLE barber's pole worm
100 days against ivermectin SUSCEPTIBLE black scour worm

Ivomec MAXIMIZER
WEANER & ADULT



100 days against ivermectin SUSCEPTIBLE barber's pole worm
100 days against ivermectin SUSCEPTIBLE black scour worm

Optamax

- Drenches are less than 100% effective
  - Multi-active & short acting
- Drenches that kill worms
  - WormTest : At-drench
  - WormTest : Day 10
- Long acting drenches (closantel/Cydectin®)
  - Return sheep to same paddocks
  - Use during peak worm seasons
- Drench and move
  - Nov to Mar
  - Short acting drench

Costs of Early Detection

- To determine the reinfection rate
  - Temperature
  - Rainfall/evaporation
  - Grass cover/ moisture/ colour/ feed days

    no cost: effort to mark on calendar

- WormTests – Aug, Nov, Feb, Apr, Jun

  cost: $33 / test /mob

Costs of Appropriate Intervention

- Pastures that grow sheep
  - Save $1.77 / head (integrated control)
  - Fencing costs?

Source: Kahn et al 2007

- Drenches that kill worms
  - WormTest: $66 per treatment group
  - WormTest: $66 for control group

Costs of Disease

- Deaths of 10% of weaner mob

100 / 1000 weaners	$8000?
replacement costs / 1000	$8000?
redrenching the mob/1000	$1000

- Loss of productivity of survivors

1.29 kg lighter at drenching	$1/head?
redrenching /1000	$1000
recovery & extra nutrition	$?

- Low weaning weight & slow growth signals a poor outcome for maiden ewe weaner

Source: Hatcher et al 2010

Cost of acting too late + cost of drench failure

Key messages

- Track the buildup of barber's pole & act quickly
- Use a drench that will kill worms
- Develop a grazing rotation for weaners & remove tail as soon as possible