

# Drenching Deer – Where are we at?



DFA Conference 2014

# Drench practice

- 2-3 decades of single active drench been normal.  
Most common Cydectin Pour On
- Based on slaughter trials every farm investigated so far has shown GI resistance to MLs
- ML Pour On's shown to be under-dosing which encourages development of drench resistance

# Drench options

- Benzimidazoles = BZ = White
- Levamisole = Clear
- ML = mectins
- “New” drenches – Startect and Zolvix  
unsatisfactory results in deer

# BZ's

- Only oral drenches registered for deer  
eg Oxfen C , Bomatak
- Label dose rate same as cattle/sheep
- Efficacy against adult *Ostertagia*-types using label dose in 4 recent trials ranged 38% - 69%
- No records of trials in deer at label dose rate

# Oxfendazole dose rate for deer

Treatment Group	Adult Oster-type worms
CONTROL	3470
Oxfendazole label dose	1590
% efficacy	<b>54%</b>
Oxfendazole x triple dose	464
% efficacy	<b>87%</b>

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- Under-dosing encourages resistance development
- Triple dose rate (or greater) should be used in deer
- WT = 91days

# Levamisole

- No good for lungworm in deer (1980's)
- No been used in deer for 30 years
- Some effect against *Oster*-types in recent trials

# Levamisole dose rate for deer

Treatment Group	Efficacy against adult Oster-type worms
A. Sheep/Cattle dose rate	72%
B. Sheep/Cattle dose rate	39%
C. Sheep/Cattle dose rate	22%
2.5 times sheep/cattle dose rate	40%

# Levamisole dose rate for deer

- Issues of safety/toxicity at higher dose rates
- Exceeding sheep/cattle dose rate no benefit?
- Deer are considered to excrete levamisole more rapidly than sheep/cattle
- Synergistic role levamisole

# ML Group

- Most MLs in 3 different formulations – Injection, Oral and Pour On
- Based on slaughter trials every farm investigated so far has shown GI resistance to MLs
- Do not use Pour On
- Injection more effective than oral

# Best drench option

- Moxidectin inj “Cydectin Inj” + oral oxfendazole and levamisole “Scanda” combination is the only drench shown to be effective on resistant farms to date
- Use of combination anthelmintics will delay the onset of resistance – sheep and cattle

# Best Management options

- Alternative management options critical
  1. Quarantine Drench
  2. Refugia – **do not** drench weaners onto clean pasture
    - avoid drenching adults
    - avoid finisher blocks
    - integrate classes deer and livestock species
  3. Do not use long acting products
    - Single active drench – No
    - Triple combination - Yes

# Change in Farm Status over 3 years

<i>Ostertagia</i> -type species	<i>O. leptospicularis</i>	<i>S. spiculopectera</i>	<i>S. asymmetrica</i>
Moxidectin Injection 2010			
% efficacy	<b>91%</b>	<b>77%</b>	<b>100%</b>
Moxidectin Injection 2013			
% efficacy	<b>67%</b>	<b>96%</b>	<b>24%</b>



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Population Make up <i>Ostertagia</i> -type species	<i>O. leptospicularis</i>	<i>S. spiculopectera</i>	<i>S. asymmetrica</i>
<b>100%</b>	<b>33%</b>	<b>17%</b>	<b>50%</b>

# Change in Farm Status over 3 years

<i>Ostertagia</i> -type species	<i>O. leptospicularis</i>	<i>S. spiculoptera</i>	<i>S. asymmetrica</i>
Drench			
Oxfendazole	8%	84%	78%
Levamisole	40%	72%	29%
Moxidectin Inj	67%	96%	24%

# Outcomes

- Significant deterioration in status over 3 years
- Totally reliant of “x” factor of combination
- What is the drench resistance status of your farm ?
- What strategies have you put in place

# Thanks

- Funder – DEERResearch
- AgResearch (Colin Mackintosh & Dave Leathwick)
- Massey Prof Bill Pomroy
- Parasitologist Paul Mason
- Zoetis (Victoria Chapman and Andrew Hodge)
- Farmers John & Bruce Hamilton

# Costs for 70kg weaner

Cydectin Inj + Scanda Triple (ML + BZ + clear)	<b>\$1.00</b>
Cydectin Inj + Oxfen C Double (ML + BZ)	<b>\$0.88</b>
Trimox (oral) Triple (ML + BZ + clear)	<b>\$0.77</b>
Cydectin oral + Oxfen C Double (ML + BZ)	<b>\$0.48</b>

# Oster-type adults – NZ summary to date

	Massey 2005	Winton 2010	Te Anau 2010	Mararoa 2011	Waikato 2011	Otago 2012	Te Anau 2012	Taupo 2012
Control	273	18133	3367	1647	1745	1292	1495	
Abamectin Inj				99.9%		76%		
Moxidectin Inj		84%	87%	100%		79%	100%	98%
Ivomec Oral	31%							
Abamect Oral						72%		
Moxid Oral				100%		31%	98%	90%
Ivomec PO	68%							
Abamect PO						33%		
Moxid PO	94%	71%	19%	79%		27%		14%
Eprinex PO					74%			