What is the real cost of liver fluke?

Liver Fluke in Australia are estimated to cost cattle producers over $100 million in lost production through reductions in growth and weight gain, infertility, and poor milk production.

- As little as 30-40 fluke can reduce weight gain by 8-9%.
- In feedlots, animals infected with fluke will grow 5.5 – 9.5% less than treated cattle.
- Visible liver damage from fluke lowers carcass value.
- Reduced milk quantity, and quality, by up to 0.7kg per cow per day.
- Reduced conception rate of 39 days.
- Fluke infection can cause fatal blood loss in young cattle.

Successful fluke control can be challenging because it’s not enough to just remove fluke from cattle; you also need to consider the fluke population present in the environment.

Effective control of fluke in cattle

1. Strategic treatments at the right time
2. The right product at the right time
3. Effective control of fluke in cattle
4. The right product at the right time
5. Effective control of fluke in cattle

The right product at the right time

Fluke have a complex life cycle with several stages of growth both on pasture and inside cattle. This means that strategic treatments at the right time can break the reproduction cycle and reduce the presence of fluke on pastures.

The liver fluke can be found in young cattle and adult cattle. The parasite multiplies within the liver tissue as they develop and migrate to the liver. The larval stage is passed out in manure. Young fluke migrate through the snail, leaving as a tadpole and becoming the infective cysts like cercaria. The cercaria attach to pasture, or water and become the infective metacercariae. The metacercariae are ingested by cattle where they hatch, penetrate the intestinal wall and migrate to the liver. The parasite multiplies within the liver tissue as they develop and migrate to the liver.

REFERENCES:
Successful fluke control can be challenging because it’s not enough to just remove fluke from cattle, you also need to consider the fluke population present in the environment.

Effective control of fluke in cattle

Use the most effective product

A more potent chemical treatment means less fluke survive to breed resistance and less pasture contamination.

Rotate to a different active

Resistance can develop when one chemical is used for an extended period of time. Rotating to a different active such as Nitrofluke or Nitrofluke Injection can help combat or prevent resistance.

Monitor the effectiveness of treatment

Often by the time you’ve found fluke resistance, the damage is already done. Monitor your treatment through regular testing.

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**Control 2 week old fluke**

**COMBINED ACTIVES FOR GREATER CONTROL**

<table>
<thead>
<tr>
<th>Liver migration</th>
<th>Bile duct entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active ingredients</td>
<td>2</td>
</tr>
<tr>
<td>Triclabendazole + Oxfendazole</td>
<td>YES</td>
</tr>
<tr>
<td>Triclabendazole + Oxyclozanide</td>
<td>YES</td>
</tr>
<tr>
<td>Triclabendazole + Albendazole</td>
<td>YES</td>
</tr>
<tr>
<td>Triclabendazole + Oxyclozanide + Albendazole</td>
<td>YES</td>
</tr>
</tbody>
</table>

Product synergy refers to the combination of two products achieving a greater efficacy than either of these two products used alone. The synergistic effect of the actives in Flukazole C, Nitromec Injection as well as NitroFluke Injection means they are the only fluke treatments available that provide effective control of 2 week old fluke.

**Pour on saves time, but at what cost?**

To control 2 week old fluke, triclabendazole needs to reach a high concentration in the liver. The concentration of the active in the blood is 8 times higher in an oral drench than in a pour on.

**Migrating Fluke**

The damage is done sooner than you think.

It isn’t enough to kill adult fluke. Migrating fluke begin causing irreparable damage from the first week they are ingested.

- At 1 week old, liver fluke are already causing damage to cattles liver
- At 4 weeks old, much of the damage is already done
- At 8-12 weeks liver flukes are fully grown adults and have migrated through the liver into the bile duct

**TREATING 2 WEEK OLD FLUKE PAYS**

**PERCENTAGE REDUCTION OF 2 WEEK OLD FLUKE**

<table>
<thead>
<tr>
<th>Treatment Duration</th>
<th>Percentage Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 weeks</td>
<td>100%</td>
</tr>
<tr>
<td>4-6 weeks</td>
<td>80%</td>
</tr>
<tr>
<td>8-12 weeks</td>
<td>60%</td>
</tr>
</tbody>
</table>

**REFERENCES:**

**Complete Fluke Management Programs**

**Beef cattle**

- **INJECT – 2 WEEK OLD FLUKE**
  - Keeping stock at least 140 days
- **INJECT – 12 WEEK OLD FLUKE**
  - Keeping stock at least 60 days
- **ORAL – 4 WEEK OLD FLUKE**
  - Keeping stock at least 56 days
- **POUR – 6 WEEK OLD FLUKE**
  - Keeping stock at least 160 days

**Does not control down to two weeks**

**Dairy cattle**

- **INJECT – 12 WEEK OLD FLUKE NIL MILK WHP**
  - Keeping stock at least 42 days
- **ORAL – 2-4 WEEK OLD FLUKE**
  - Keeping stock at least 56 days

**ADDITIONAL INFORMATION**

If a triclabendazole drench was used as your last fluke treatment it is recommended that nitroxynil and clorsulon based drench such as NitroFluke Injection or Nitromec Injection be used even if resistance is not suspected.

- Nitroxynil + Clorsulon (NitroFluke)
- Nitroxynil + Clorsulon + Ivermectin (Nitromec)
- Triclabendazole + Oxfendazole (Flukazole C)
- Triclabendazole
- Nitroxynil
- Clorsulon
- Albendazole
- Oxyclozanide
- More effective in cattle than sheep

**GOLD STANDARD in Fluke Control**

**Fluke Control**

**REFERENCES:***
1. **Gold Standard in Fluke Control**
2. **Standards**
3. **IN ––– Fluke Control**

**Shaping the future of animal health**
Control 2 week old fluke

COMBINED ACTIVES FOR GREATER CONTROL

Liver migration Bile duct entry

Table: Migrating Flukes
- 2 weeks
- 4 weeks
- 6 weeks
- 8 weeks
- 10 weeks
- 12 weeks

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To control 2 week old fluke, triclabendazole needs to reach a high concentration in the liver. The concentration of the active in the blood is 8 times higher in an oral drench than in a pour on.

PERCENTAGE REDUCTION OF 2 WEEK OLD FLUKE

- Flukazole C plus Selenium
- Flukazole C
- Nitroxynil + Clorsulon (NitroFluke)
- Nitroxynil + Clorsulon + Ivermectin (Nitromec)
- Triclabendazole + Oxfendazole (Flukazole C)
- Triclabendazole
- Nitroxynil
- Clorsulon
- Albendazole
- Oxyclozanide

More effective in cattle than sheep

REFERENCES:

TREATING 2 WEEK OLD FLUKE PAYS

- Weight Gain (Kg) over 20 weeks
- Treated at 1-2 weeks
- Treated at 4-6 weeks
- Treated at 8-12 weeks

DOES control down to two weeks

DOES NOT control down to two weeks

Additional information
- If a triclabendazole drench was used as your last fluke treatment it is recommended that nitroxynil and clorsulon based drench such as NitroFluke Injection or Nitromec Injection be used even if resistance is not suspected.

**Can be used with Cydectin LA for broad spectrum worm control and S. bovis.**

WHP = Withholding Period
ESI = Export Slaughter Interval
TCI = Treatment to Calving Interval

Complete Fluke Management Programs

- INJECT – 2 WEEK OLD FLUKE
- KEEPING STOCK AT LEAST 140 DAYS
- NITROFLUKE INJECTION

- INJECT – 2 WEEK OLD FLUKE
- KEEPING STOCK AT LEAST 120 DAYS
- NITROMEC INJECTION

- ORAL – 2 WEEK OLD FLUKE
- KEEPING STOCK AT LEAST 56 DAYS
- FLUKAZOLE C

- ORAL – 2 WEEK OLD FLUKE
- KEEPING STOCK AT LEAST 56 DAYS
- FLUKARE

- INJECT – 12 WEEK OLD FLUKE
- KEEPING STOCK AT LEAST 42 DAYS
- VIRBAMEC PLUS

- POUR ON – 6 WEEK OLD FLUKE
- KEEPING STOCK AT LEAST 160 DAYS
- CYDECTIN FLUKE POUR ON

- LACTATING COW
- INJECT – 12 WEEK OLD FLUKE
- NILE MILK WHP

- VIREMARCE PLUS

- DRY COW
- ORAL – 4 WEEK OLD FLUKE

- FLUKAZOLE C / FLUKARE

- DOBIES DE 25-65 KG

- Controls down to 2 weeks
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- Infertility, and poor weight gain, reductions in growth and sexual performance, will grow 8-9% less than treated cattle. Fluke infection can cause fatal blood loss in young cattle.

The right product at the right time

It is critical to consider the duration of steps of growth on pasture and inside cattle. This means that strategic treatments at the right time can break the reproduction cycle and reduce the presence of fluke on pasture.

Liver Fluke cycle

1. Snails infected by eggs from infected cattle. Larvae (miracidia) are released from eggs and invade lymnaeid snails (intermediate hosts) to become the infective cysts like cercaria.
2. The parasite multiplies within the snail, leaving as a tadpole (metacercariae).
3. Young fluke migrate through the snail's intestine and migrate to the liver.
4. The parasites which in pasture and become the infective cysts like cercaria.
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References:

Flukekill Resistance Management Program

There are a number of key elements in an effective management program.

1. Use the most effective product. A more potent chemical treatment means less fluke survive to breed resistance and less pasture contamination.
2. Rotate to a different active resistance control. Treatment must control early immature, mature and adult fluke. Often by the time you’ve found fluke resistance, the damage is already done. Monitor your treatment through regular testing.
3. Monitor the effectiveness of treatment. Often by the time you’ve found fluke resistance, the damage is already done. Monitor your treatment through regular testing.

The Gold Standard in Liver Fluke Control

Control 2 week old fluke
Resistance management & expertise
Complete fluke management programs

REFERENCES: