Liver Fluke (Fasciola hepatica) are large, flat, leaf shaped parasites found in the liver. Adults are approximately 2cm long and 1cm wide while immature fluke are millimetres long. Abattoir inspectors detect parasites (as they are clearly visible to the naked eye) and liver damage caused by the parasites.

Liver fluke is widespread across south-eastern Australia, especially in irrigated areas. In areas where it occurs, it can be a major economic burden.

### Economic Consequences

**On Farm**
- Reduced growth rate/weight loss – can be significant
- Reduced lambing percentages
- Reduced wool production (quality and quantity)
- Deaths
- Cost of drench

**At the Abattoir**
- Affected livers condemned
- Whole carcass condemned – Occasionally a carcass may be condemned if found to be emaciated or oedematous (accumulation of fluid in body tissues) that can result from liver fluke disease.

### The Lifecycle Of Liver Fluke

For the completion of the parasite’s complex life cycle two hosts are required. Different stages of the fluke’s life cycle occur in each of the following hosts:

1. **A ‘definitive (sheep) host’** (can also be numerous other species)
   - Sheep ingest cysts from contaminated pasture.
   - Immature fluke burrow through the gut wall and travel to the liver. They then burrow through the liver, potentially causing significant damage to the liver, until they reach the bile ducts. This takes 6-7 weeks.
   - Fluke mature in the bile ducts by feeding on blood. They produce eggs 8-10 weeks after infestation and can survive in the bile ducts for years.
   - Eggs pass back to the intestines and pass onto pasture in faeces.

2. **An ‘intermediate (snail) host’** – the fresh water snail, Lymnaea spp, is found in swamps, drains and irrigated pastures in certain districts. If these snails are not present on a property (or within a district) the liver fluke lifecycle cannot be completed.
   - Under suitable wet conditions larvae hatch from fluke eggs.
   - Larvae must invade the Lymnaea spp snail in order to develop (development takes 2-3 months).
   - Advanced stage larvae pass from the snail and form cysts on the pasture.
How do liver fluke cause disease in sheep?

There are three disease syndromes, with variable symptoms, associated with liver fluke infestation (fasciolosis).

1. **Acute (sudden onset) disease** – can occur as an outbreak due to the short-term ingestion of very large numbers of fluke cysts. This causes significant liver damage and results in:
   - Ill thrift and anaemia.
   - Sudden weakness and death due to sudden blood loss.
   - Jaundice (yellow tinge to the tissues usually noticed as yellow gums and whites of the eyes).
   - Abdominal pain and reluctance to move.
   - Some animals suffering acute disease may show no obvious symptoms.

2. **Chronic (slow onset) disease** – due to the accumulation of adult fluke within bile ducts. Clinical signs develop slowly and include:
   - Pale gums and weakness due to anaemia.
   - Bottle jaw (swellings below the jaw) and pot bellies.
   - Ill thrift and weight loss.

3. **Black disease** – is a clostridial (bacterial) disease usually triggered by liver fluke. Migrating immature fluke cause liver damage that stimulates the activation of *Clostridium novyi* spores in unvaccinated or incompletely vaccinated sheep.
   - Sudden death – these clostridial spores produce a lethal toxin and the disease is highly fatal.

**Treatment**

Drenching should be strategic and based on the level of infection present and seasonal conditions. Often three drenches are given:
   1. Late autumn
   2. Late winter/ early spring; and
   3. Mid summer.

Because most infections are picked up over summer and early autumn, the late autumn drench is the most important. Drenches containing triclabendazole, a drug which targets both mature and immature fluke, is recommended at this drenching time. However, resistance has been documented and drench groups should be rotated for other treatments. Consult your local veterinarian or animal health specialist for further advice and a drench plan for your property.

**Prevention**

1. **Good Biosecurity - stock introductions**
   - Avoid introducing sheep or cattle onto your property that are infected with fluke.
   - Quarantine and drench all sheep and cattle that come from a liver fluke area.

2. **Monitor fluke status**
   - Utilise fluke egg counts (or blood tests for early infections), abattoir surveillance reports and post-mortem findings.

3. **Snail habitat control**
   - Minimise snail habitat by improving drainage where possible (laser-levelled land is less at risk compared with areas where water can sit).
   - Alternatively convert areas to deeper, faster moving water and keep drains clean so water can flow freely.
   - Fix broken pipes/leaking troughs to stop permanent wet areas.

4. **Grazing management**
   - Fence off swampy areas to prevent access by sheep.
   - Provide clean trough water as an alternative to drinking from dams, swamps and drains etc.
   - If infested paddocks must be used, graze uninfected sheep over contaminated areas, moving them to a snail-free paddock after 8-10 weeks and drench. This prevents fluke eggs from reaching the snails and continuing their life cycle.

5. **Vaccination to prevent black disease**
   - Ensure stock are fully vaccinated, including correct timing of boosters, against black disease.
   - Commercial 5-in-1 and 6-in-1 vaccines cover black disease.

**For Further Information**


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