

Bovine ephemeral fever (three-day sickness) in dairy cattle

Bovine ephemeral fever (BEF), also known as three-day sickness, is an important disease in dairy cattle because it is most severe in the more valuable classes of cattle such as bulls, pregnant and lactating cows, and fat, well-conditioned cattle. The disease spreads readily to infect many animals in the herd.

A vaccination program can produce long-term immunity and is integral in minimising the effects of disease caused by BEF in a dairy herd.

Cause

A virus, which is spread by insect bites. BEF is not transmissible to humans.

Signs of the disease

- Fever, stiffness, lameness, loss of appetite, excessive thirst, and recumbency
- Fever may cause heavily pregnant cows to abort
- Prolonged recumbency may result in animals requiring euthanasia
- Death can occur in severe cases of BEF infection

Potential risks

- BEF presents a significant risk to dairy herds due to the following factors:
- The disease spreads rapidly through the herd.
- Animals lose immunity during times of low exposure and become susceptible.
- Often a sporadic disease with outbreaks occurring every couple of years especially after drought-breaking rain.
- Usually more severe in bulls, fat, well-conditioned cows and pregnant and lactating cows.
- Outbreaks depend on rainfall and warm temperatures, which increase insect populations.
- Waves of disease occur with increases in insect populations, from north Queensland towards the south in January and February.

Potential economic losses

Significant economic losses can occur because the disease is most severe in the more valuable classes of cattle: bulls; pregnant and lactating cows; and fat, well-conditioned cattle.

Signs usually last only a few days but the disease can significantly affect the herd's production in the following ways:

- dramatic drop in milk production - over 70% is not uncommon
- milk yield after recovery is often reduced by 15% or more
- lactating cows can dry up completely
- abortion can occur in heavily pregnant cows
- occasional deaths (3%) or prolonged recumbency leading to 'downer syndrome' can occur
- most of the herd can be affected
- bulls may be temporarily infertile.

The potential cost of an outbreak based on 2003 costs with 15% milk loss and with milk being worth \$0.29 per L, a 3% death rate and cattle being worth \$1000 per head; the loss over one month in a 100-cow herd would be \$5700.

The cost of treatment for affected animals can also be considerable.

Prevention and control Vaccination program

- Give the first dose at six months of age (preferably in September or October)
- A second dose of vaccine is required 2 to 4 weeks later
- Give an annual booster 8 to 10 weeks before the BEF season

Vaccination costs It is important to compare the different brands and various retailers to ensure you get the most economical vaccination program.

These costs are based on 2003 prices for a 100-cow herd (100 cows, 3 bulls, 25 heifers and 40 replacement heifer calves) and do not include labour, materials or facility costs:

- vaccine costs \$1.70 per dose
- 100 cows, 3 bulls, 25 heifers and 40 replacement heifer calves (calves require two doses) totalling 208 doses a year @ \$1.70 a dose
- cost annually \$355

Therefore, the program would break-even if one cow (valued at \$1000) was saved every three years from BEF by vaccination.

Vaccination tips

- Follow the manufacturer's instructions.
- Store and handle vaccines correctly to ensure their effectiveness is not reduced.
- Adhere to safety precautions for workers handling vaccines and associated equipment.
- Ensure safe disposal of used equipment, avoiding environmental contamination.
- Make sure animals are in good health to optimise immunity.
- Vaccination does not provide instant protection - generally full protection doesn't occur until up to four weeks after the initial doses.

Source: Queensland Department of Agriculture, Fisheries and Forestry; 2009