

A successful pregnancy: preventing foetal losses

Are your hinds slipping fawns?

Foetal loss (abortion) can occur in all animal species. Research with farmed red deer has shown that foetal loss is unpredictable and often difficult to attribute to a specific cause.

Red deer hinds usually have a robust pregnancy. They are not prone to abortion following stress.

However disease, particularly toxoplasmosis can cause some hinds to 'slip' their fawns. The foetus can also be vulnerable to toxins or nutritional deficiencies in the diet of the hind.

It is very difficult to find aborted foetuses in the paddock.

Sometimes they are reabsorbed by the hind. If they are expelled they may be eaten by scavengers – like hawks, blackbacked gulls or feral animals – or even the hinds themselves.

If you suspect your hinds (particularly first-fawners) have been aborting, the best option is to double-scan the herd to identify missing pregnancies. This is a valuable diagnostic tool.

The first scan should be in early pregnancy 30-50 days after mating (late-May to mid-June). The second scan should be 5-6 weeks before fawning, in mid- to late-pregnancy (September to mid-October).

Pregnancies detected at the first scan that are missing at the second scan provide a minimum estimate of foetal losses in the herd. Some losses may also occur outside this window (early or late), but they are unlikely to be economically significant.

A Massey University survey of 85 volunteer farms recorded abortions in 73% of R2 herds, and 61% of MA herds respectively. The average mid-term abortion rate in R2

Key points

- Rates of foetal loss on deer farms vary greatly from farm to farm and season to season. There is no single cause.
- Toxoplasma infections, plant and fungal toxins and a lack of protein in the diet can cause abortion.
- Vaccination against toxoplasmosis has shown limited benefits.
- Swedes can be a high risk feed for hinds in late spring/early summer when toxic levels of glucosinolate plant chemicals may be present.
- Get swede crops tested before grazing to ensure crude protein levels are high enough for foetal development. If they are below 10% of dry matter, feed high protein supplements like peas or high protein deer nuts.
- If you suspect foetal loss on your farm, scan your hinds twice between mating and fawning, to see if pregnancies are being lost between scans. If the losses are of concern, consult your veterinarian.

herds with abortions was 3.9% and in MA herds was 2.2%. The highest recorded loss rate was 19%.

Disease

Disease is often blamed as a leading cause of abortion, but a 2016 Massey University study showed that – apart from *Toxoplasma gondii* – disease was not a significant cause of foetal loss in deer.



Photo: Ivor Evans

The name of the game – a healthy fawn born to every hind

Toxoplasmosis

About 8% of R2 abortions in the Massey study were attributed to *T. gondii*, a protozoan parasite. Sero-positive R2 hinds were 1.6 times more likely to have aborted than sero-negative hinds.

By the time hinds reach MA status they appear to acquire some immunity, from exposure to the parasite (primarily via cat faeces).

The research showed that toxoplasmosis outbreaks were unpredictable. In other words, losses in one year did not necessarily mean losses the next year. This probably reflects the presence or absence of the primary host, cats, in any one year. Infection does not transfer between deer.

At this stage it is not possible to make a general recommendation about vaccinating to prevent toxoplasmosis. It may be effective in some situations. Talk to your veterinarian about the pros and cons.

Leptospirosis

Leptospirosis is a bacterial disease that primarily affects the kidneys, in some cases causing death. It is a zoonosis – a disease transferred from animals to humans.

There are several serovars (strains) of the disease, some of which cause production losses in deer. Blood tests in the Massey survey showed that two of the most common serovars, Pomona and Hardjo-bovis, were not associated with abortion.

There are good reasons for vaccinating deer against leptospirosis, but at this stage there is no scientific evidence that the disease causes abortions.

For more information, refer to the *Deer Fact: Leptospirosis*

Nutrition

A successful pregnancy depends on appropriate feeding levels during the different stages of pregnancy, feeds that don't contain toxic levels of plant chemicals, and only gradual changes in feed type and quantity.

Toxicity from crops

The link between grazing swedes and foetal loss was investigated in an AgResearch study in 2016, following reports of losses in dairy cows and hinds grazing swedes the previous year.

In the study, MA and R2 mobs were fed either swedes or pasture/silage for 12 weeks. Levels of glucosinolate plant chemicals in the swedes were potentially toxic, but the hinds were unaffected. There was no significant difference in abortion rates between the treatment groups.

While this outcome is reassuring for farmers who over-winter deer on swedes, it is important to note that each season is different.

Avoid feeding swede crops late in the season (late spring/early summer) when the swede plants are 'bolting' (going into their reproductive stage) or at any time when climatic conditions (especially drought) cause the crop to be highly stressed. At these times glucosinolate levels in swedes can become highly elevated.

Some swede crops can become deficient in protein (<10% crude protein), and may not be able to meet the nutritional needs of the growing foetus. Protein content should be checked fairly regularly during grazing and other supplements added where needed to offset protein deficits.

Nitrate poisoning and fungi on supplementary feed are other potential causes of abortion in all livestock, including deer.

Feeding levels

Fawn birthweight and viability is affected by the body condition of the hind and protein levels in feed provided to hinds, especially during late pregnancy. Low protein and low body condition also make both the hind and foetus more vulnerable to diseases like toxoplasmosis. This, in turn, can lead to foetal losses.

For more detail, see the *Deer Fact: Best practice management of pregnant hinds*.

Feed requirements of hinds during pregnancy

Based on a 120 kg MA red hind

	Jun/Jul	Aug	Sept	Oct
Energy required MJME/day	24.7	25.9	27	29.3
Dry matter required kg/day*	2.5	2.6	2.7	2.9

* Assumes medium quality pasture (10 MJME/kg DM)
Hind appetite increases rapidly in the last third of pregnancy.

Epidemiological investigation into abortion in farmed red deer in New Zealand

This survey of the causes of abortion in farmed deer was carried out by Kandarp Patel, Massey University, as part of his PhD study.

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More >>

Massey PhD thesis by Kandarp Patel: bit.ly/KPatel_PHD

Deer Fact: Best practice management of pregnant hinds

Deer Fact: Setting reproductive targets

Deer Fact: Feeding hinds for maximum fawn growth

Massey University guide to Leptospirosis: bit.ly/Webinar_Lepto



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