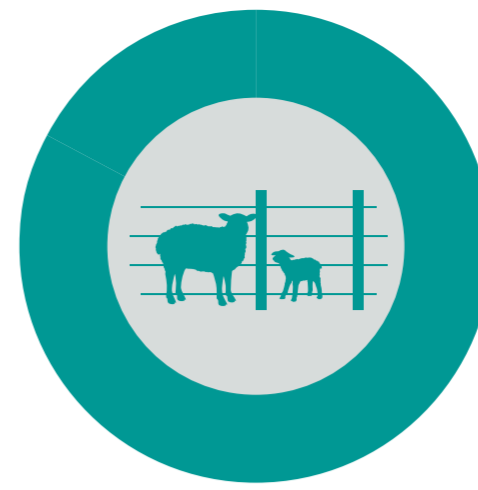
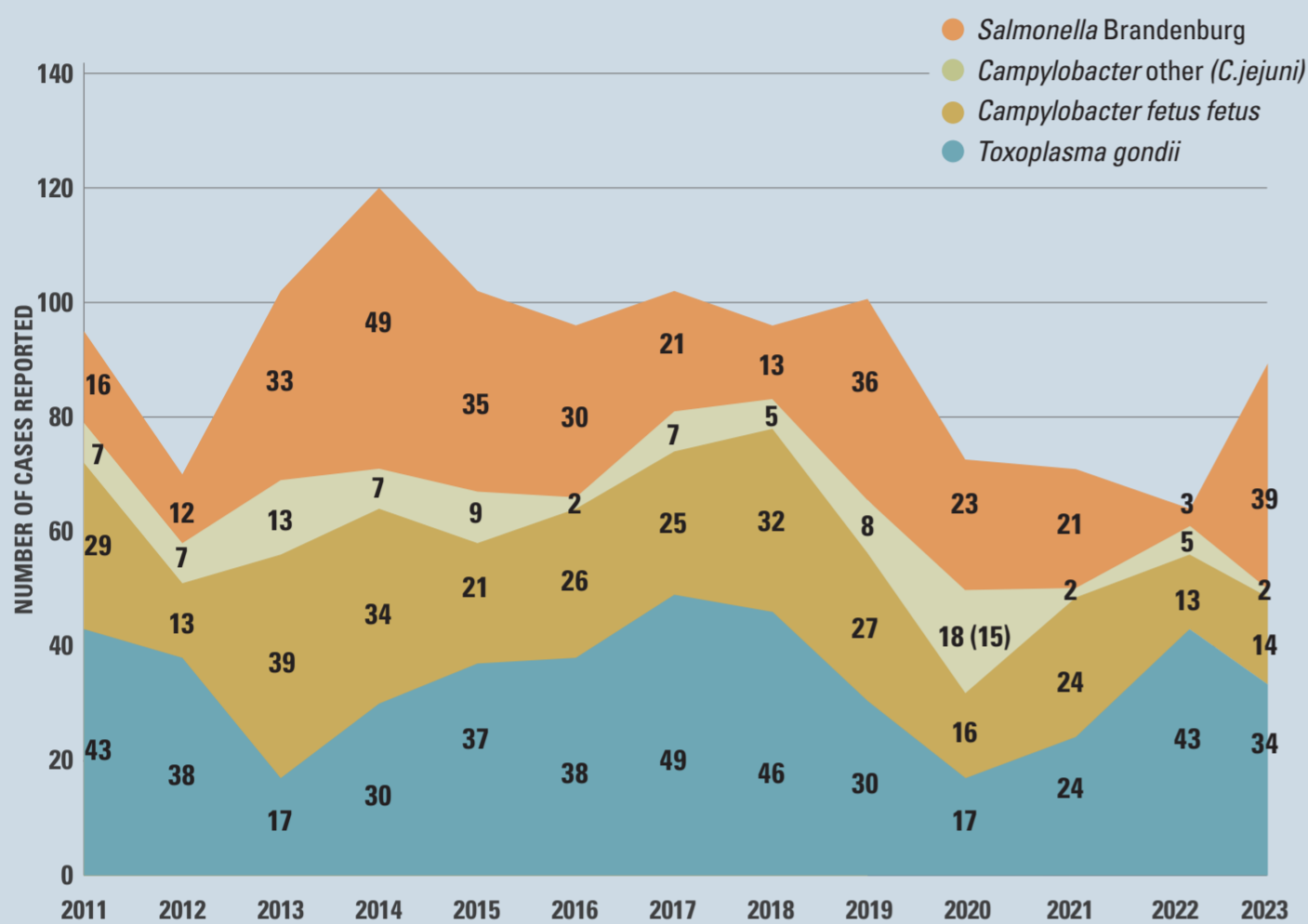


TOXOPLASMOSIS

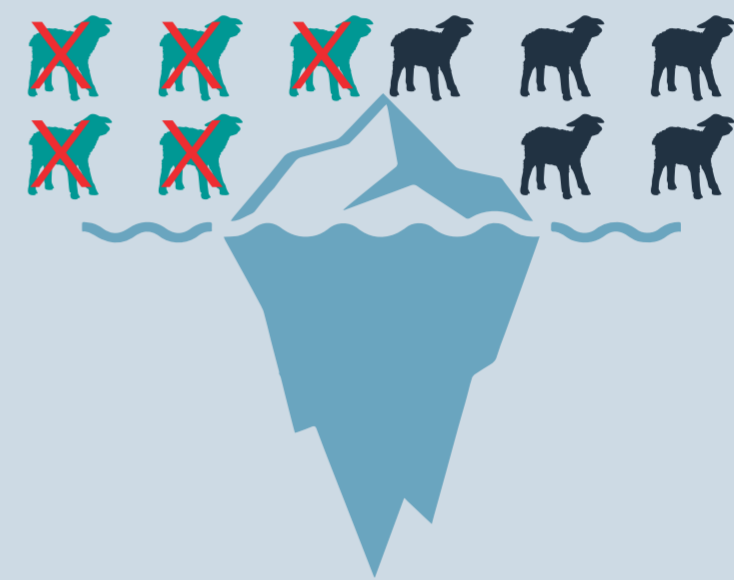


100% of NZ farms have Toxoplasma present¹

Toxoplasmosis is one of the most common causes of sheep abortions in New Zealand²



Toxoplasma can cause abortion rates of up to 30-50%^{3,6,7} BUT abortions are just the tip of the iceberg

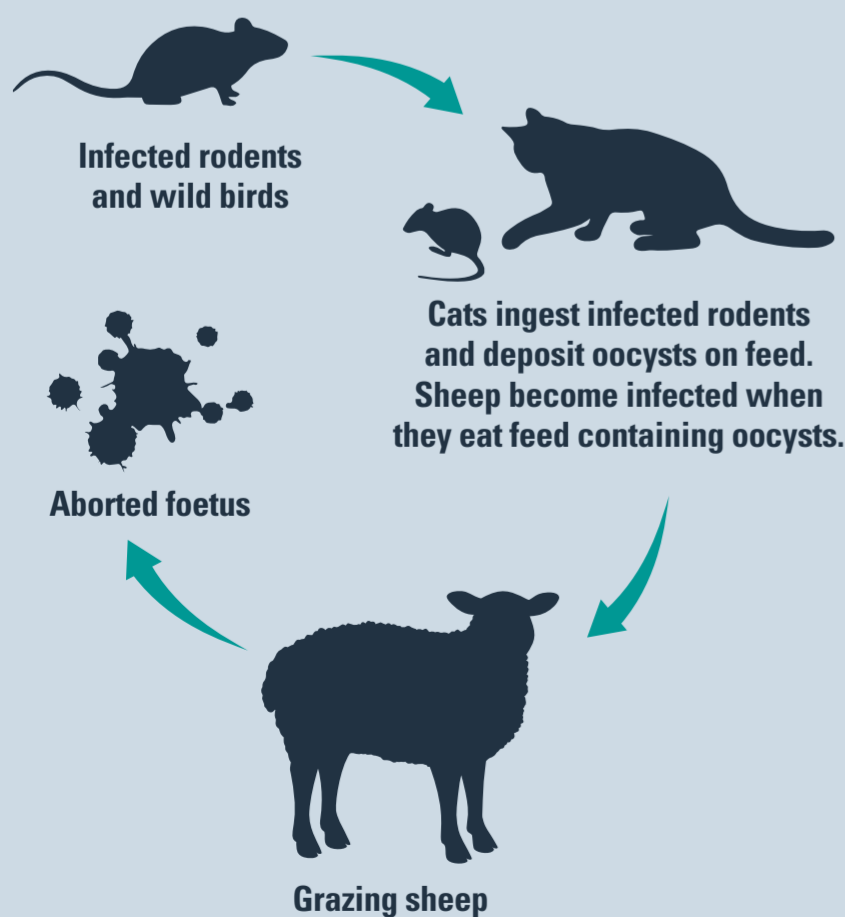


ALSO OF ECONOMIC IMPORTANCE:
Still births, weak lambs, more dry ewes, poor scanning results, losses between scanning and tailing...
(even when abortions are not observed).

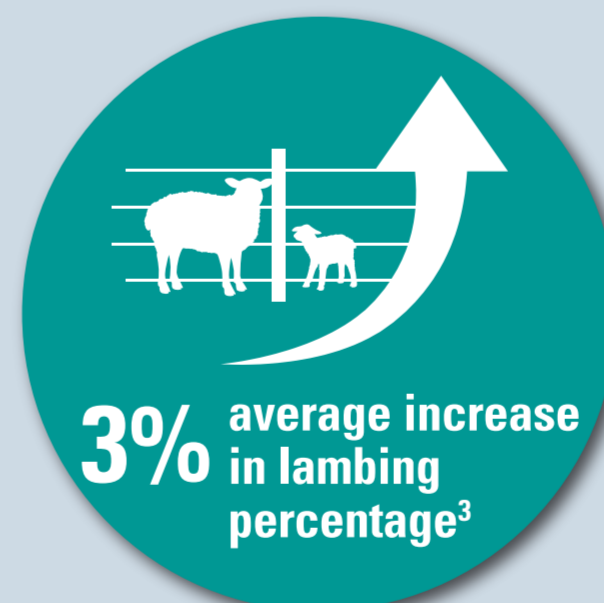
CONTROL THE RISK OF TOXOPLASMOSIS



TOXO LIFE CYCLE



- » As little as 200 oocysts can infect one ewe
- » Infected cats have 1,000,000 oocysts per gram of faeces
- » 1g of cat faeces is sufficient to infect 5,000 ewes!
- » These oocysts can survive for 2 years in the environment...



- » Protection against abortion storms
- » An increase in lambing percentage by an average of 3%³
- » A reduction in dry ewes by an average of 13.5%³

» 85% of Mixed age ewes have been exposed

» 20-26% of Hoggets have been exposed by 6 months

Further explanation of Toxoplasmosis talking points:

1. Toxoplasmosis is still one of the most common causes of sheep abortions on NZ farms:²

- Laboratory-diagnosed cases represent only a small proportion of the total abortion cases in NZ, but provides an insight into trends of overall cases of Toxoplasmosis over time.
- Outcome depends on stage of pregnancy, ranging from high dry rates, to mummified abortions, to stillbirths and birth of weak lambs. Laboratory confirmation is via histology, ewe serology and PCR testing.
- Vaccination is key to avoiding the devastating effects of Toxoplasmosis including abortion storms resulting in lamb losses of 30-50% in naïve flocks^{3,6,7}.

2. Large scale NZ and UK Toxovax® trials^{3,7} showed a marked improvement in flock reproductive performance:

- 3% increase in lambing percentage.
- 13.5% decrease in number of dry ewes.
- In the efficacy studies, the vaccination interval ranged from 4 to 12 weeks before mating with no difference in effectiveness.
- The UK trial results also showed that viable lambs born to vaccinated ewes were significantly heavier at birth than viable lambs born to unvaccinated ewes⁷

3. 100% of NZ farms have Toxoplasmosis present:¹

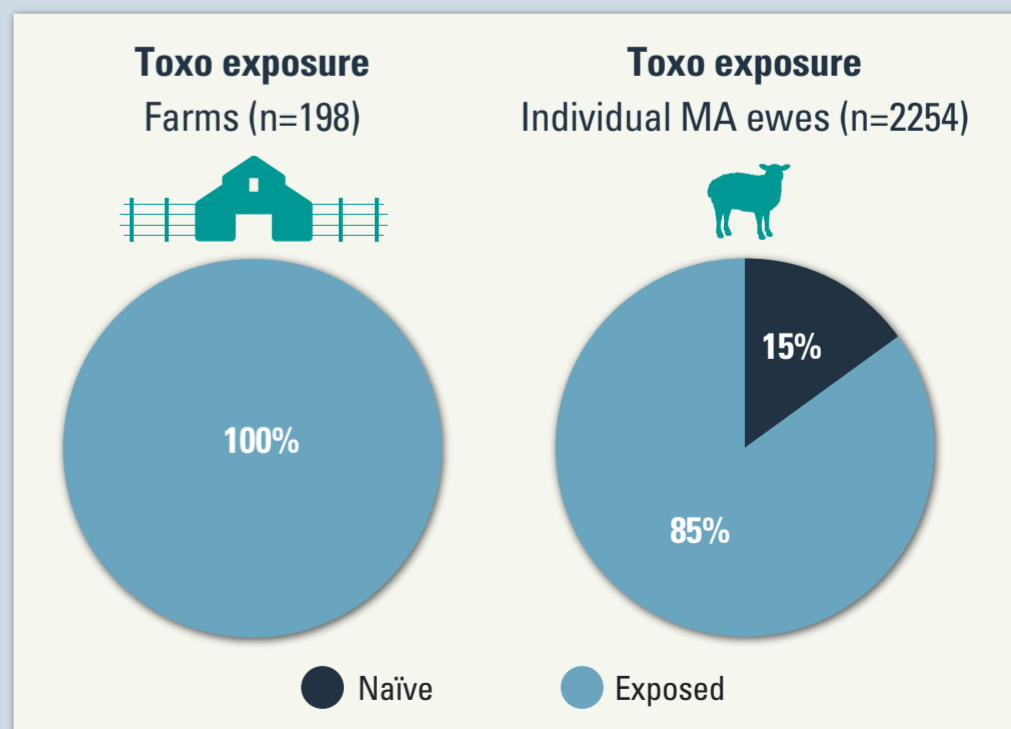
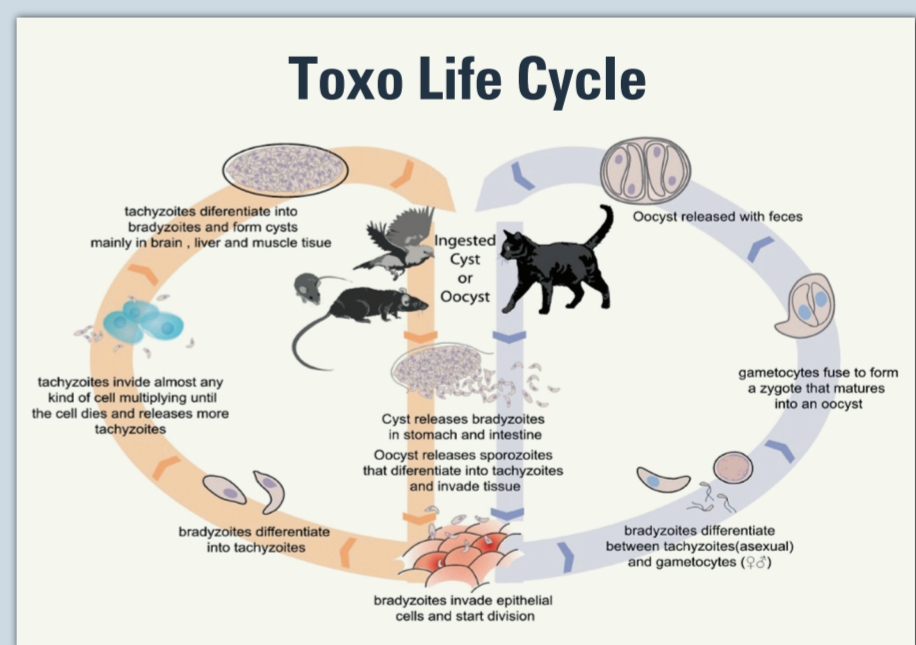
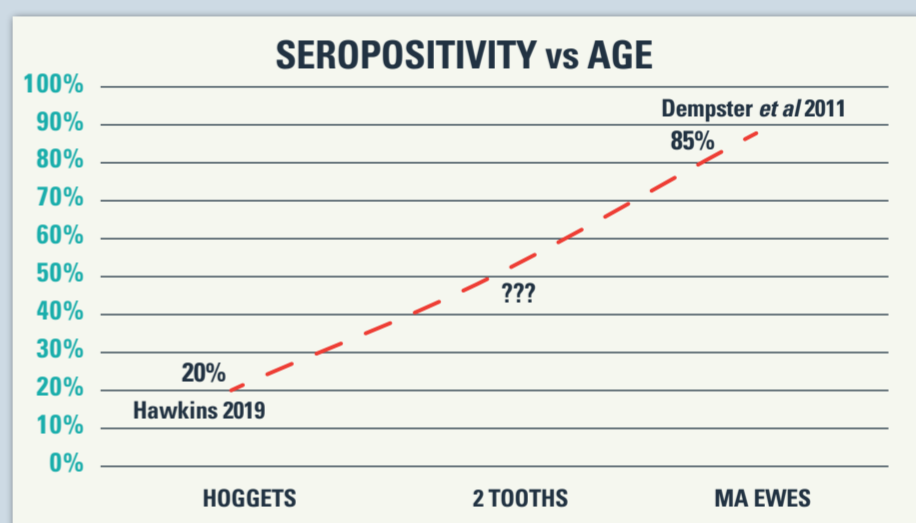
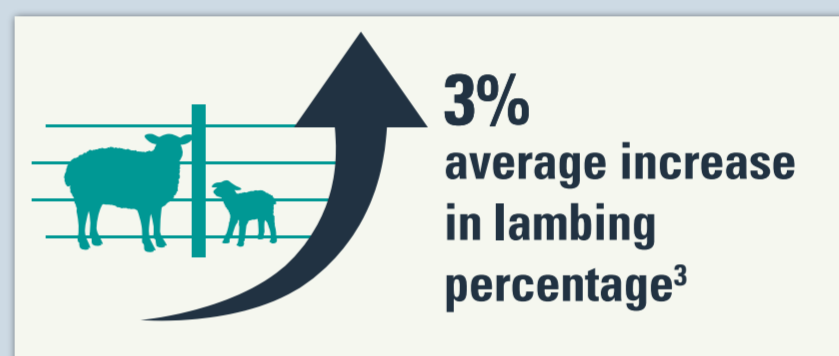
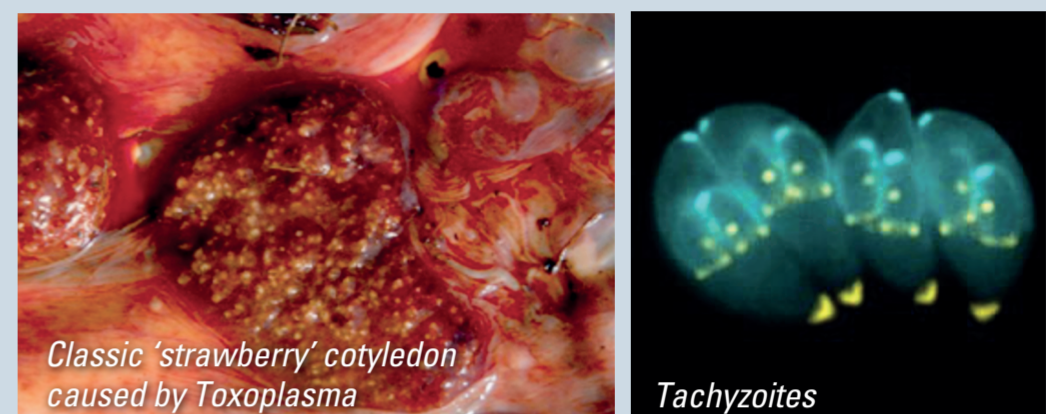
- Toxoplasma is present on 100% of farms (Campylobacter on 88% of farms).
- No difference between fine-wooled vs crossbreds⁶.
- Mixed age unvaccinated ewes have 85% chance of being exposed naturally¹, while hoggets at 6 months of age, only 20-26% chance⁸.
- Due to Toxoplasma being so widespread on NZ farms, it's not a case of 'if' your sheep will get exposed but 'when'. Vaccinate young animals before their first mating.

4. Cats are an essential part of Toxoplasmosis:

- Oocysts are shed in the faeces of cats for 2-3 weeks after infection for the first time; they then become immune and pose no risk.
- Kittens and non-neutered feral cats pose the highest risk; not pet cats.
- Large numbers of feral cats are present, and only 1 is required to infect a flock.
- Consider grazing systems, strategic use of contaminated hay, proximity to ofal pits when grazing stock to achieve natural exposure prior to mating. However relying on natural exposure alone is not recommended.
- Oocysts are very robust and survive for 2 years, even in the harshest environments.

5. Toxovax vaccine is unique in its "one shot for life" usage:

- NZ made vaccine, the only Toxoplasmosis vaccine in the world.
- S48 tachyzoites are attenuated so they have lost the ability to form cysts, so safe for meat producing animals.
- Pregnant women should avoid handling this live vaccine.
- Very tight ordering and usage guidelines must be followed.
- Immunity is 'topped up' by natural exposure as levels begin to decline later in life. Repeat vaccination has no serological advantage.⁸
- It is estimated 85-90% of maiden ewes in NZ receive Toxovax prior to their first mating.



1. Dempster, RP, Wilkins, M, Green, RS & de Lisle, GW (2011) Serological survey of Toxoplasma gondii and Campylobacter fetus in sheep from New Zealand, New Zealand Veterinary Journal, 59:4, 155-159.
 2. Surveillance, Vol's 39-50, No 3, September 2012 - 2024
 3. Wilkins M, O'Connell E. (1992) Vaccination of sheep against Toxoplasma abortion, Surveillance, 19:4,20-23
 4. O'Connell E, Wilkins M & Te Punga W (1988) Toxoplasmosis in sheep II, New Zealand Veterinary Journal, 36:1, 1-4
 5. Wilkins M, O'Connell E, & Te Punga W (1988) Toxoplasmosis in sheep III, New Zealand Veterinary Journal, 36:2, 86-89
 6. MSD data on file
 7. Buxton D., Thomson K., Maley S., Wright S. and Bos H.J. (1991) Vaccination of sheep with a live incomplete strain (S48) of Toxoplasma gondii and their immunity to challenge when pregnant. Veterinary Record 129, 89-93
 8. D Hawkins, K Watson, Q Domper (2019) Serological conversion following vaccination against toxoplasmosis in ewe hoggets. Conference Proceedings of the Society of Sheep & Beef Cattle Veterinarians and the Deer Branch of the NZVA