

CDT Vaccine: When, How, and Why

Kelvin Moore, Sade Payne, Elizabeth Spahr

Introduction

- There are many different vaccines available on the market for both sheep and goats, but there is only vaccine that is universally recommended: the CDT vaccine.



The CDT vaccine protects all small ruminants against *clostridium perfringens* type C and D, as well as *clostridium tetani* (tetanus). These organisms are commonly found in the environment including soil.

Clostridium perfringens types C & D

- Also known as “overeating disease”
- Type C
 - Commonly occurs with excessive milk intake in lambs – usually in single lambs
 - Leads to hemorrhagic/necrotic enteritis
- Type D – “Pulpy Kidney”
 - Generally affects the largest, fastest growing lambs
 - Commonly occurs with a sudden change in feed
 - Moving onto lush, rapidly-growing pastures
 - Increase in starch intake
 - The bacterial toxin leads to vascular damage in the brain and other tissues
 - Lambs often found dead, but in good condition
 - Lying on side, head thrown back, limbs extended
 - Autopsy demonstrates internal hemorrhages and soft red kidneys



“Pulpy” Kidneys



A lamb found dead of *clostridium perfringens* type D

Clostridium tetani - Tetanus

- Can infect animals through open wounds (shearing, docking, castration, etc.) or from unsanitary lambing practices
- Releases toxins into the blood that diffuses into the muscles and nerve endings of the central nervous system
- Typical signs:
 - Tetanic muscle spasms
 - Stiff ears, tails, and limbs
 - Extended head and limbs
 - Lock jaw
 - Dilated nostrils
- * Violent muscle contractions eventually lead to exhaustion and death
- Once clinical signs are visible, death is inevitable



A kid affected by tetanus

How to Administer the Vaccine

- CDT vaccine is given subcutaneously – just under the skin
 - Neck
 - Axilla (armpit)
 - Flank
 - Over the ribs
- “Tent” the skin by pinching and place the needle in the base of the tent and press the plunger of the syringe



Notes:

- For show and market lambs, the axilla is the best location for injection due to potential swelling associated with vaccination
- Needles should be changed between every 20-30 sheep
- IMMEDIATELY dispose of needles that have fallen on the ground
- Good hygiene measures should always be implemented

When to Vaccinate

- Pregnant ewes and does should be vaccinated in the last month of pregnancy to capitalize on passive immunity
- Colostrum immunity decreases over time, so lambs should be vaccinated at 6 weeks with a booster 2-4 weeks later at weaning.
- Rams and bucks should receive an annual CDT booster
- Any purchased animal whose vaccination status is unknown should be vaccinated
- Boosters are recommended in high-risk situations
 - Switching to lush pasture
 - Grain feeding

Health and Economics

- ~80% of producers vaccinated at least one sheep or lamb in 2011
 - Mortality for vaccinated lambs: 0.5%
 - Mortality for unvaccinated lambs: 5-10%, with severe outbreaks reporting losses up to 40%
- No real treatment for these clostridial diseases
 - Disease tends to progress so quickly that sheep and goats are often found dead without producers noticing any signs
- Prevention is both affordable and reliable
 - 250 mL bottle = \$40.79
 - CDT vaccine is 2mL/treatment
 - Bottle contains 125 doses
 - Cost per dose = \$0.33



Animals switched to lush pasture should receive a booster of CDT

Work Cited

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Pictures

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- https://www.valleyvet.com/swatches/16342_L_vvs_000.jpg
- <https://teara.govt.nz/en/photograph/17442/pulpy-kidney-disease>
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