



## CLOSTRIDIUM PERFRINGENS TYPE A

*Clostridium perfringens* Type A is commonly found on dairies, from the soil and water to the intestinal tract of the cattle themselves. Normally it is a harmless part of regular intestinal flora. Under certain conditions, however, it will proliferate with potentially fatal results for cattle of all ages. Calf ranches have struggled for many years with losses resulting from enteric diseases attributed to *C. perfringens* and its toxins, and dairy producers have begun to see it affecting adult cows as an implicated agent of hemorrhagic bowel syndrome<sup>1</sup>.

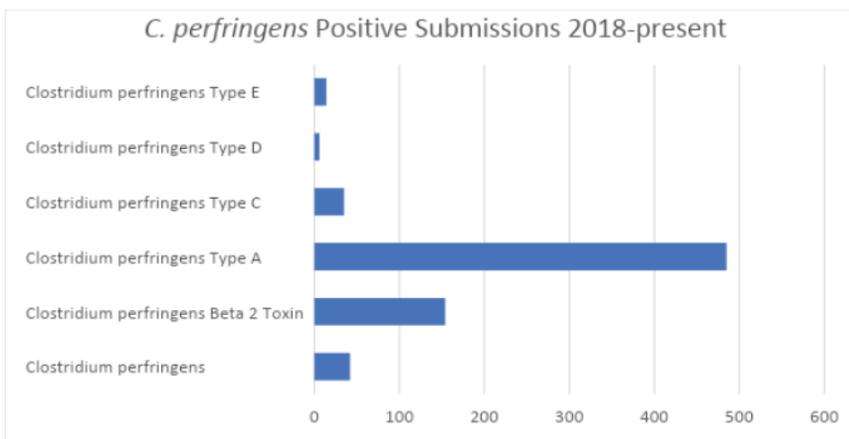
By the time clinical signs of a *C. perfringens*-related issue are noticeable, it is usually too late for treatment. Death or severe illness tend to come almost overnight. Even if a producer is fortunate enough to see it early, antibiotic treatment is generally unsuccessful. The issues are caused by the Alpha toxin as opposed to the bacterium itself, which is what an antibiotic would target<sup>2</sup>.

**To help animals stave off *C. perfringens* Type A-associated enteric disorders, novel vaccines are needed<sup>3</sup>.**

**Innovative veterinarians from around the country are turning to Cambridge Technologies and Precision Vaccinology® to formulate a science-based solution backed by a combination of next-generation diagnostic technology and quality-focused vaccine production techniques.**

From the moment a sample arrives at the lab for diagnosis, the team at Cambridge Technologies puts their experience and innovation to work. All *Clostridium* isolates are sequenced, allowing diagnosticians to determine a toxin typing profile.

Armed with that information, an experienced Technical Service veterinarian will work with vets in the field to formulate a custom vaccine built to the specific needs of the end-user.



Frequency of identification of various types of *C. perfringens* in Cambridge Technologies Diagnostic Laboratory, 2018-present

A *Clostridium perfringens* product from Cambridge will represent the toxin types that are circulating in the herd. Cambridge utilizes a dual fermentation manufacturing process for the Alpha and Beta-2 toxins.



**FOR ORDER PLACEMENT AND ORDER STATUS:**

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### PRECISION VACCINOLOGY™

Autogenous vaccines from Cambridge Technologies employ next generation diagnostics and state of the art production technology to create a customized product targeting the disease-causing agents in the affected herd(s). Our industry-leading molecular diagnostics, including whole-genome sequencing, identify the specific antigens threatening the herd(s) which may need to be included in the product. Then, the experienced production team can formulate and manufacture a vaccine customized to the needs of each individual customer, including antigen concentration, multiple adjuvant choices, dose sizes, and the option of SoliDose® implants. SoliDose® implants offer the convenience of two doses in one application via the technology of Immediate Release and Extended Release pellets.

### WHY AUTOGENOUS?

**SPECIFIC:** Autogenous vaccines from Cambridge Technologies are the most targeted, science-driven solution available. The vaccines will be built around the disease strains that are identified as potential threats to the herd in question.

**SPEED AND FLEXIBILITY:** The nature of autogenous products means a speedy turnaround, so that emerging threats can be dealt with in a timely fashion. Should a new strain or agent emerge, future manufacturing runs of the autogenous product can be altered to include the new threat.

**ANTIBIOTIC STEWARDSHIP:** Many cases of clinical disease are treated with antibiotics. However, the recent implementation of FDA guidance 209 and 213 along with the expansion of the Veterinary Feed Directive has created a need for an alternative to managing animal health. Autogenous vaccines offer veterinarians and their clients a flexible management tool to counter emerging and evolving diseases.

**SERVICE AND SOLUTIONS:** The customer and technical service at Cambridge Technologies extends beyond the vaccine bottle. Our experienced team partners with veterinarians and cattlemen through every step of the process, from initial diagnostics through product testing and shipment, and continued monitoring moving forward.

#### SOURCES:

1. Van Metre D, Callan R. Hemorrhagic bowel syndrome. Integrated Livestock Management. Colorado State University Veterinary Teaching Hospital. Updated 2019. Accessed December 17, 2021. <http://csu-cvms.colostate.edu/vth/livestock/integrated-livestock-management/Pages/hemmoragic-bowel-syndrome.aspx>
2. Daly R, Rotert L. Clostridium perfringens infections in baby calves. South Dakota State University Cooperative Extension Service. The Cattle Site. Updated January 18, 2008. Accessed December 17, 2021. <https://www.thecattlesite.com/articles/1272/clostridium-perfringens-i-infections-in-baby-calves/>
3. Goossens E, Valgaeren BR, Pardon B, et al. Rethinking the role of alpha toxin in Clostridium perfringens-associated enteric diseases: a review on bovine necro-haemorrhagic enteritis. Vet Res. 2017; 48(9). <https://doi.org/10.1186/s13567-017-0413-x>



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