

Determine the prevalence and transmission of *Cyclospora cayetanensis* in the South-East Coast Region of the United States

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**Introduction:** *Cyclospora cayetanensis* is a coccidian protozoan parasite causing cyclosporiasis a diarrheal disease worldwide, associated with the consumption of fresh produce or water contaminated with the sporulated oocysts from the parasite.

**Purpose:** In this study we want to gain a better understanding of the prevalence and transmission routes of *C. cayetanensis* in environments where fresh produce is grown from the United States, specifically Florida.

**Methods:** Samples from irrigation water were pumped through hollow fiber ultrafilter Rexeed-25S filters and were sent to the lab where the FDA's BAM Chapter 19C was used to isolate and detect the parasite. Briefly, *Cyclospora* oocysts were recovered by backflushing and concentrating samples, followed by oocysts sorted using flowcytometry with the BD FACSAria III, and then visualized using the ImageStream<sup>X</sup> Mk II System. Samples were then disrupted and extracted for *Cyclospora* DNA and molecular detection of the parasite was determined by real-time PCR assays targeting the *C. cayetanensis* 18s rRNA gene. Positive samples will be further investigated by genome sequencing using the Oxford Nanopore MinION using 8 different markers produced by the CDC and one marker produced by the FDA as a second confirmation for *C. cayetanensis*.

**Results:** In 2021, 54 samples were collected from Florida and each sample has a sub sample, so there was then a total of 108 samples. 61.1% (33/54) of these samples were identified as positive and 40.7% (44/108) of the samples with subs included were identified as positives. In 2022, 105 samples were collected from Florida and most samples had a sub sample, so there was then a total of 180 samples. These samples are still being processed and there is no results summary available for these.

**Significance:** *Cyclospora cayetanensis* gets commonly mistaken for *Eimeria*, companies need to identify the prevalence of this parasite to better prevent outbreaks from occurring.