

OHIO STATE UNIVERSITY EXTENSION



# OHIO VETERINARY NEWSLETTER

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## Location

## Research

Wolf, R., Barkema, H. W., De Buck, J., & Orsel, K. (2014). **Sampling location, herd size, and season influence *Mycobacterium avium* ssp. *paratuberculosis* environmental culture results.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2014-8676

**BACKGROUND:** The most commonly used environmental sampling protocol requires 6 samples collected at various locations on an individual dairy farm. Effects on sensitivity for origin of sample within a pen, season, herd size, and composition of the sample set are currently unknown or conflicting.

**PURPOSE:** The objectives of this study were to determine (1) location-specific odds of MAP-positive environmental sampling results and whether season and herd size influence results; (2) whether season and herd size affect the odds of including at least one manure storage area sample and one dry, sick, or calving pen sample in a sample set; and (3) whether the sample-set composition affects the odds of a positive set.

**RESULTS:** There were 5,588 samples collected from dairy farms in Alberta and Saskatchewan, Canada. Samples from sick-cow pens, calving pens, and dry-cow housing had lower odds of testing positive than lactating cow-pen samples. Samples from bedding packs and manure piles were less frequently positive than from alleyways and lagoons. Samples from spring and summer were more often positive than those from winter. Sample sets were smaller in winter which indicated difficulties accessing certain areas. Substitution of sample locations had minor effects on sets containing 6 samples. Sets with 2 manure storage-area samples detected 81% of farms with at least one positive environmental sample, sets with only dry, sick, or calving-pen samples detected only 59%.

**CONCLUSIONS:** The authors concluded that to ensure high sensitivity of environmental sampling, sample sets should only include samples collected from areas where manure from several cows can be well mixed; those include lactating-cow alleys and gutters over sick or calving pen bedding packs, and lagoons and pits instead of piles. Samples should be collected in spring and summer instead of in winter, because manure storage areas and outdoor pens are easier to access and culture of environmental samples is more accurate. Replacing sample locations with others had an effect on the sensitivity of sample sets containing only a small number of samples but had only a minor effect on the sensitivity of a set containing 6 environmental samples.

## Subscribe

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### [ACCESS THE ARTICLE...](#)

Neal-McKinney, J. M., Samuelson, D. R., Eucker, T. P., Nissen, M. S., Crespo, R., & Konkel, M. E. (2014). **Reducing *Campylobacter jejuni* Colonization of Poultry via Vaccination.** *PLoS One*, 9(12). doi: 10.1371/journal.pone.0114254

**BACKGROUND:** The authors hypothesized that vaccination of chickens with *C. jejuni* surface-exposed colonization proteins (SECPs) would reduce the ability of *C. jejuni* to colonize chickens, thereby reducing the contamination of poultry products at the retail level and potentially providing a safer food product for consumers.

**PURPOSE:** The objective of this study was to compare the efficacy of vaccination with *C. jejuni* SECPs in reducing the load of *C. jejuni* in the digestive tract of chickens. They chose to target the CadF, FlpA, FlaA, and CmeC proteins, as they are required for maximal chicken colonization, well-conserved amongst *C. jejuni* strains, and present on the surface of the bacterium.

**RESULTS:** Vaccination of chickens with the CadF, FlaA, and FlpA peptides resulted in a reduction in the number of *C. jejuni* in the ceca compared to the non-vaccinated *C. jejuni*-challenged group. The greatest reduction in *C. jejuni* colonization was observed in chickens injected with the FlaA, FlpA, or CadF-FlaA-FlpA fusion proteins. Vaccination of chickens with different SECPs resulted in the production of *C. jejuni*-specific IgY antibodies.

**CONCLUSIONS:** The authors propose that future immune intervention strategies include FlpA, particularly since the FlpA protein is extremely well-conserved amongst *C. jejuni* strains. Reducing the level of *C. jejuni* in the cecum by immunization of chickens with FlpA could create a safer food supply.

### [ACCESS THE ARTICLE...](#)

Dee, S., Neill, C., Clement, T., Christopher-Hennings, J., & Nelson, E. (2014). **An evaluation of a liquid antimicrobial (Sal CURB®) for reducing the risk of porcine epidemic diarrhea virus infection of naïve pigs during consumption of contaminated feed.** *BMC Veterinary Research*. Advance online publication. doi:10.1186/s12917-014-0220-9

**BACKGROUND:** Recently, proof of concept that contaminated feedstuffs can serve as a route of PEDv transmission to naïve pigs was reported. Since feed is a risk factor, it is imperative to seek solutions.

**PURPOSE:** The purpose was to evaluate whether a liquid antimicrobial product containing formaldehyde and organic acid could mitigate risk of infection from contaminated feed.

**RESULTS:** Treatment group consisted of 5 piglets fed Sal CURB®-treated feed spiked with stock PEDv; positive control group consisted of 5 piglets fed saline-treated feed spiked with stock PEDv; and negative control group consisted of 2 piglets fed saline-treated feed without PEDv. Clinical signs of PEDv infection and viral shedding in feces were observed in the positive control group 2–3 days post-consumption of non-treated feed. In contrast, no evidence of infection was observed in pigs fed Sal CURB®-treated feed or in the negative controls throughout the 14-day study period. In addition, the Sal CURB®-treated feed samples had higher mean PEDv Ct values than samples from the positive control group.

**CONCLUSIONS:** The authors concluded that the results provide initial proof of concept that the application of a liquid antimicrobial product (Sal CURB®) reduced the risk of PEDv infection through contaminated feed. Furthermore, data from the positive control group once again provide proof of concept regarding the ability of contaminated feed to serve as a risk factor for PEDv infection of naïve piglets.

## Calendar



A full calendar of all upcoming events and continuing education opportunities offered by the College of Veterinary Medicine is available on the website at <http://vet.osu.edu/>

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### [Ohio Dairy Health and Management Certificate Program](#)

Module 4 – Advanced Dairy Cattle Nutrition  
March 19-21, 2015

### [Ohio Dairy Veterinarians Meeting](#)

Precision Technologies in Dairy Production  
January 8-10, 2015

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The *Ohio Veterinary Newsletter* began in October of 1974 as a way for Veterinary Extension to relay relevant information to practicing veterinarians in Ohio. The aim is to communicate pertinent news from the Veterinary Extension Unit; unbiased, research-based information with practical relevance for veterinary practitioners working in food animal, equine, and shelter medicine; and a calendar of upcoming opportunities. Please feel free to provide your feedback and let us know what information is most helpful to you and your practice.

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