

# TECH REPORT | Poultry

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## Litter Profiling Offers Effective Management Opportunities

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### Fecal Litter Profiling to Measure Poultry Health

Probably not a hot topic at the next dinner party you attend, but fecal/litter profiling can be an effective gauge on your flock or herd's health.

Today fecal/litter profiling is more important than ever. Many poultry producers are changing their management practices, including more reuse of litter and shifts in antimicrobial use. These changes can add stress and increase challenges by pathogens like *Salmonella* and *Clostridium*, concerns to everyone in poultry production.

So how can you gauge animal health? One very good way to start to address these concerns is to conduct fecal and litter profiling. Fecal/litter profiling is the microbial assaying of fresh (i.e. within 24 hours of excretion) fecal and litter material. The assays provides a noninvasive assessment of intestinal microbial populations. In particular, the profiling process looks at several key measurements:

- How much *Salmonella* and *Clostridium* are present in the feces and litter
- Prevalence of lactic acid producing bacteria in the gut of the birds
- Prevalence of total anaerobes
- Ratio of lactobacilli to total anaerobes

These key measures (and others) made during the assaying process can provide a good indicator of the performance, health and pathogen load of a bird or animal.

Of particular concern is the level of native lactobacilli in poultry and bifidobacteria in swine. These intestinal bacteria generate lactic and acetic acid, respectively, to suppress pathogen counts in the intestine, in the litter, and in the birds. Their presence is a positive indicator for your animal's health, related to the suppression of enterobacteria (*Salmonella* and *Coliforms*) and *Clostridium*. Their

levels can be affected by differing factors, especially antibiotic use. While knocking out harmful bacteria, antibiotics can also decrease these good bacteria.

### So What Do You Do?

What if testing indicates a lowered level of lactobacilli or bifidobacteria? Obviously you want to create conditions that will help these beneficial bacteria flourish. Lowering oxygen content in the gut is one key, decreasing aerobic bacteria and increasing beneficial anaerobes.

Oxygen consumption by the *Bacillus subtilis* C-3102 bacteria (the active ingredient in CALSPORIN®) can help by promoting a more anaerobic condition. In turn, this favors the proliferation of lactic acid producing bacteria and organic acid production.



## Conclusions

Fresh fecal sampling allows microbial profiling as an indicator for microflora of the gut without any invasive techniques. Certain antibiotics reduce native Lactobacilli counts as well as pathogens, and in some cases total bacteria populations. CALSPORIN® is unique in that the *Bacillus subtilis* C-3102 aerobic bacteria consume oxygen, creating a more anaerobic condition in the digesta, favoring proliferation of native lactobacilli which produce lactic acid to inhibit pathogens. Due to this mode of action, CALSPORIN® can be used alone or in combination with an antibiotic to enhance lactobacilli counts and live performance.

Fecal and Litter Profiling can be an effective guide to determining when and how products such as CALSPORIN® should be employed for maximum benefit in a flock or herd.

## How To Get A Profile

Assaying your fecal/litter samples means incubating cultures in the correct media in a minimum of a Level 2 laboratory, and then counting cultures for each test. But the good news is you don't have to do that yourself. QTI's Animal Health Department makes fecal/litter profiling a service that they can easily provide for your operation. Call to find out how to set it up!

## Predictions Anyone?



Analyzing remains isn't unique to the poultry industry. Did you know that reading tea leaves is referred to as *Tasseography*? It is an ancient Chinese practice that spread to Europe in the mid-1800s. After the tea has been consumed, the cup is swirled around and the fortune teller looks at patterns created in the bottom of the cup by the leftover leaves. These patterns indicate future happenings based on the shapes left behind. Today's tea is filtered in such a way that we don't have the leaf remnants at the bottom of the cup.

We think that analyzing fecal and litter samples using laboratory techniques is a more reliable way of predicting and improving the performance of your flocks.

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