

SPOILER INVESTIGATION - CONTAMINATION IN SLICED TURKEY BREAST

How to reduce customer complaints and start a robust traceability program to prevent future contamination events

Amid concerns of microbiological contamination in sliced turkey breast, a major meat and poultry manufacturer faced customer complaints **regarding yellow discoloration in finished products**. The situation was particularly **complex due to a split production process**: one facility manufactured the turkey breast logs, while another handled slicing and packaging. The brand suffered significant reputational damage as affected items reached supermarket shelves, leading to widespread consumer dissatisfaction.

Consequently, the manufacturer needed to understand what the contamination was, and which site was the source causing the issue.

Leveraging the SMARTBIOME™ platform, bioMérieux helped the customer **identify the root cause of the problem** and implement **targeted corrective and preventive measures**.



METHODOLOGY - POWERED BY SMARTBIOME™

A three-step approach was adopted, combining advanced microbiological analysis and risk-based monitoring

1

SPOT: Identification of the microorganisms responsible for the issue

2

ACT: Tracing the origin of the contamination and optimization of the process

3

PREVENT: Validation of corrective measures and traceability implementation

OUTCOMES

SPOT - Spoilage Investigation

The metagenomic analysis, conducted using next-generation DNA sequencing, bioinformatics and data science, **revealed a high diversity of species** in the affected products. Notably, *Leuconostoc gelidum* was consistently detected in samples exhibiting yellow stains. Drawing from the comprehensive SMARTBIOME™ knowledge base, *L. gelidum* is recognized as a key contributor to yellow staining.

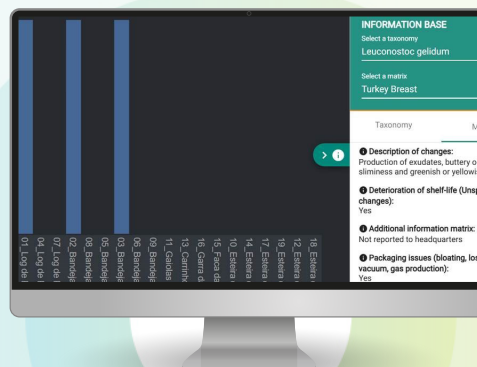


Fig. 1: Illustrative screenshot of the SMARTBIOME™ knowledge base showing actionable information about *L.gelidum*.

Samples were collected from **turkey breast logs, sliced products, and various points on the slicing equipment**. *Leuconostoc gelidum* was found in **both the logs and the sliced breast**, but not on the tip of the slicer. Genetic profiling established a direct link between the strains found in the finished product and those present earlier in the process.

Following this discovery, **targeted corrective actions were implemented to enhance Good Manufacturing Practices (GMP)** at the log production site. Although occasional issues still arise—given that *L. gelidum* is a common spoilage organism—the frequency and severity of incidents have been markedly reduced, rendering the problem far more manageable.

High-resolution microbial tracking was employed to optimize the investigation process. This advanced approach enabled precise identification of the contamination source, **allowing the company to avoid unnecessary corrective actions and focus efforts where they were truly needed**.

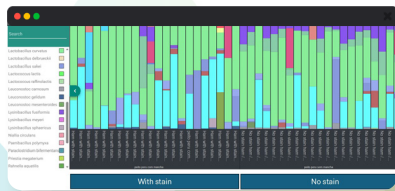


Fig. 2: Illustration of the SMARTBIOME™ microbiological spoiler profiles detected across the process



Fig. 3: Illustration of the presence of *L. gelidum* detected across the process (stain vs no stain).

In addition to confirming the presence of *L. gelidum*, the analysis **revealed other microbial contaminants**, including members of the Enterobacteriaceae (EB) family and Serratia species—even in products that showed no visible signs of yellow staining. These findings highlighted the **need for broader hygiene improvements** within the slicing unit. While this area was not pinpointed as the primary source of contamination, the detection of spoilage organisms in ostensibly unaffected products suggested latent vulnerabilities in sanitation protocols that warranted proactive attention.

GMP protocols were reinforced in the slicing area to maintain strict hygienic conditions and prevent future contamination.

To prevent future contamination events, **the company initiated a robust traceability program in the log facility**. This program enables comprehensive tracking of raw materials and process steps, ensuring early identification and containment of any potential sources of contamination. Ongoing risk monitoring and routine microbial surveillance have become integral parts of the facility's quality management system, **supporting sustained improvements in product safety and stability**.

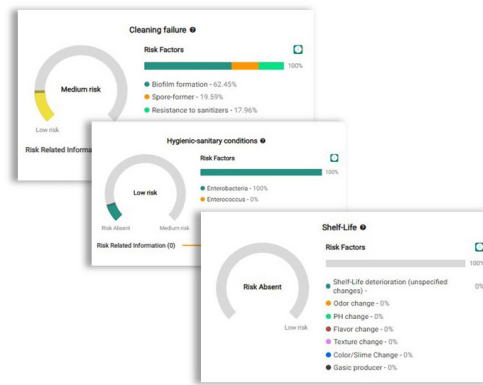


Fig. 4: Illustration of the prevent dashboard including risk scoring per zone and risk factors.

CONCLUSION & CREATED VALUE

By precisely identifying the contaminants responsible for the yellow stains and tracing their origin, the company was able to **implement targeted corrective actions**, dramatically **reducing customer complaints** and **enhancing product quality**.

Additionally, disagreements between the two processing units were eliminated, fostering a more collaborative environment and significantly improving overall process safety. The introduction of robust traceability and ongoing risk monitoring has enabled the company to transition from reactive problem-solving to preventive quality management, resulting in greater product stability, increased customer trust, and reduced production losses.

The Augmented Diagnostics approach not only resolved the immediate issue but also uncovered additional opportunities for process improvement, such as identifying microorganisms not responsible for the contamination in the first place.



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Learn more about our
Augmented Diagnostics Approach