

Microbial Contamination in a Chicken Slaughterhouse: Insights from Sampling Throughout Production

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MOTIVATION

In some slaughterhouses, the high volume of chicken processed (~190k chicks/day) creates a challenging environment where contamination of the carcasses may be difficult to avoid, even with proper hygienic measures.

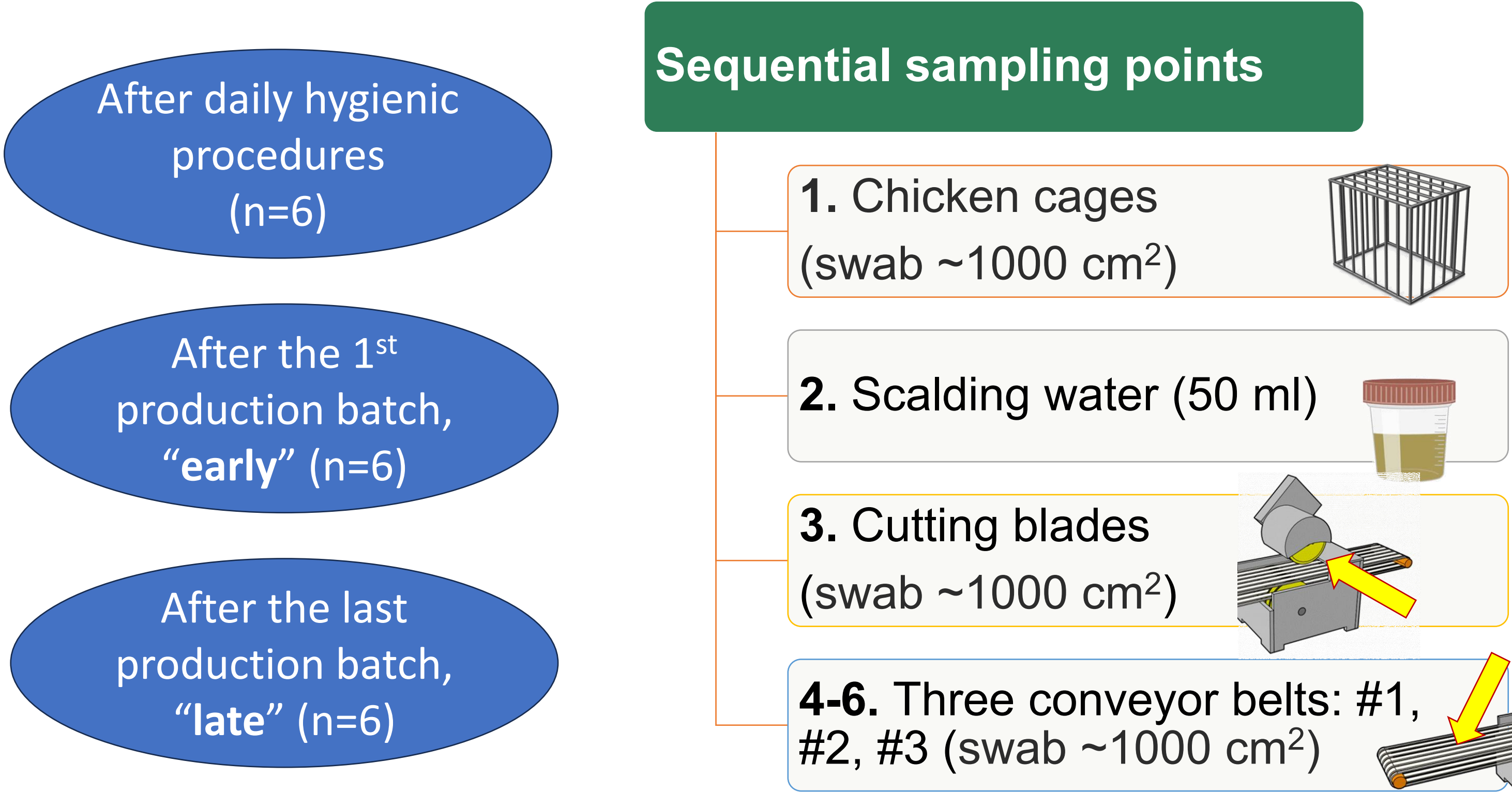
GOAL

To evaluate microbial contamination at various locations in the slaughterhouse throughout the production day



METHODOLOGY

1. Collection of samples between June and October 2024 (n=5), at 3 moments throughout the production day



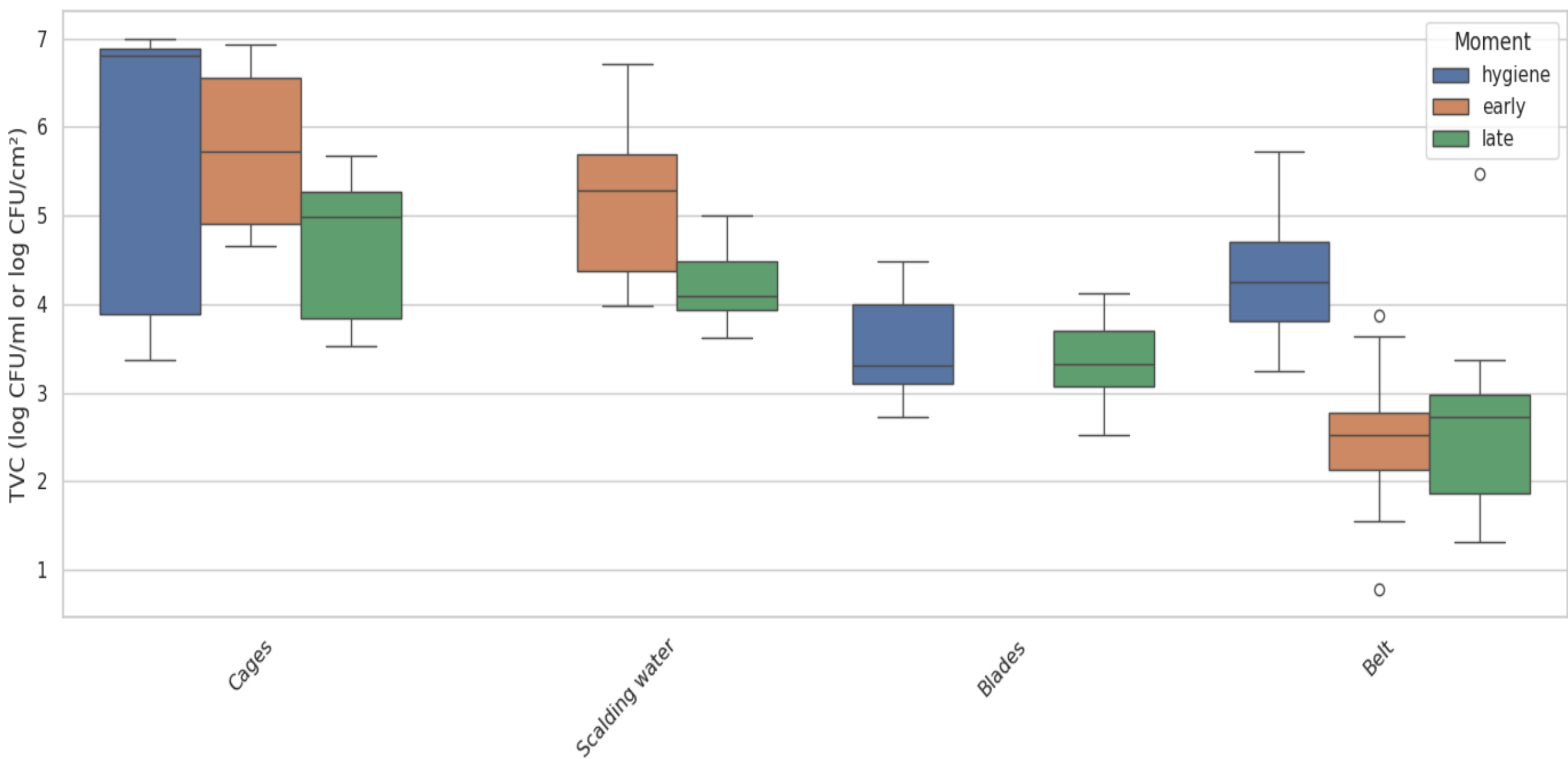
2. Microbiological analysis

- Addition of 50 mL of peptone water to wet SodiBox cloths
- Appropriate dilutions in peptone water
- Enumeration of total viable counts, TVC (PCA, 15 °C, 5-7 days)

3. Statistical analysis

- Kruskal-Wallis test
- Dunn-Bonferroni post-hoc test

RESULTS



- **Belt_early** is the most different group, especially compared to **Cages** and **Scalding water**
- The **biggest** and most significant **difference** was **Belt_early vs. Cages_early**
- **Scalding water_early** also differs considerably from the **Belt** groups

- Between the first and the last production batch, the **microbial load** of the **chicken cages** and of the **scalding water decreased**
- Microbial load of **blades remain stable** throughout production
- **No differences** between **Belts_early vs. Belts_late**
- This suggests that **cutting blades** and each **conveyor belt do not become increasingly contaminated throughout production**

Comparison	Z-value	p-adjusted
Belt_early vs. Cages_early	5.053	0.0000
Belt_late vs. Cages_early	4.664	0.0001
Belt_early vs. Scalding water_early	4.543	0.0002
Belt_early vs. Cages_hygiene	4.449	0.0004
Belt_late vs. Scalding water_early	4.150	0.0012

CONCLUSIONS

1. **Large variability** in microbial load at specific sampling points
2. **Hygiene samples with higher microbial levels than samples during production → must be investigated!**
3. **High volume of carcasses** processed and **lack of time** to stop production and **sanitize** the production line pose a **hindrance** to **reducing microbial levels** in the final product

ACKNOWLEDGMENTS