# The effect of feed crude protein content and feed form on broiler performance and litter quality

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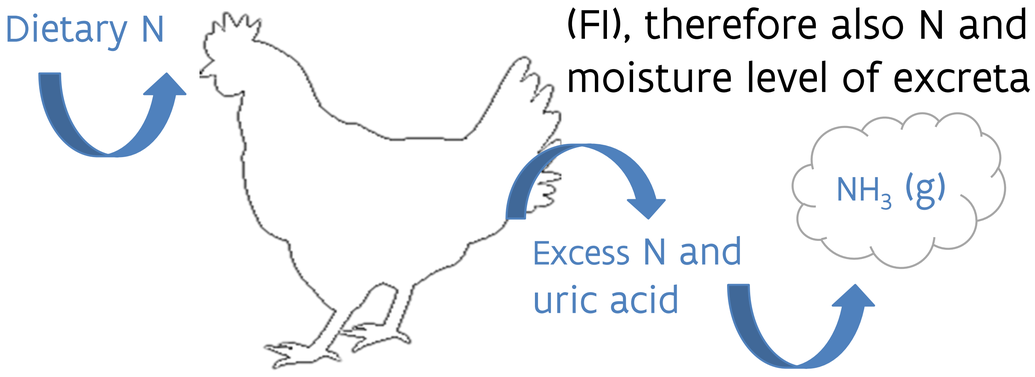
## Introduction

**Feed form** influences water- and feed intake (FI), therefore also N and moisture level of excreta




Reduce **dietary CP** while meeting AA requirements = reduce N excretion

## Material and Methods

- Male Ross 308 broilers (62/pen)
- Three-phase feeding:

Starter 0-10d → Grower 10-28d → Finisher 28-39d

✓ Determination of: FI, body weight gain (BWG), feed conversion ratio (FCR), litter quality, foot- and hock lesions

- 6 Treatments (**3 × 2**) & 6 repetitions:
  - **CP content:** Control, 10% and 20% reduction (grower and finisher)
  - **Feed form:** mash (**M**) and pellets (**P**)
  - Starter: equal CP content
  - AA ratio's are maintained!

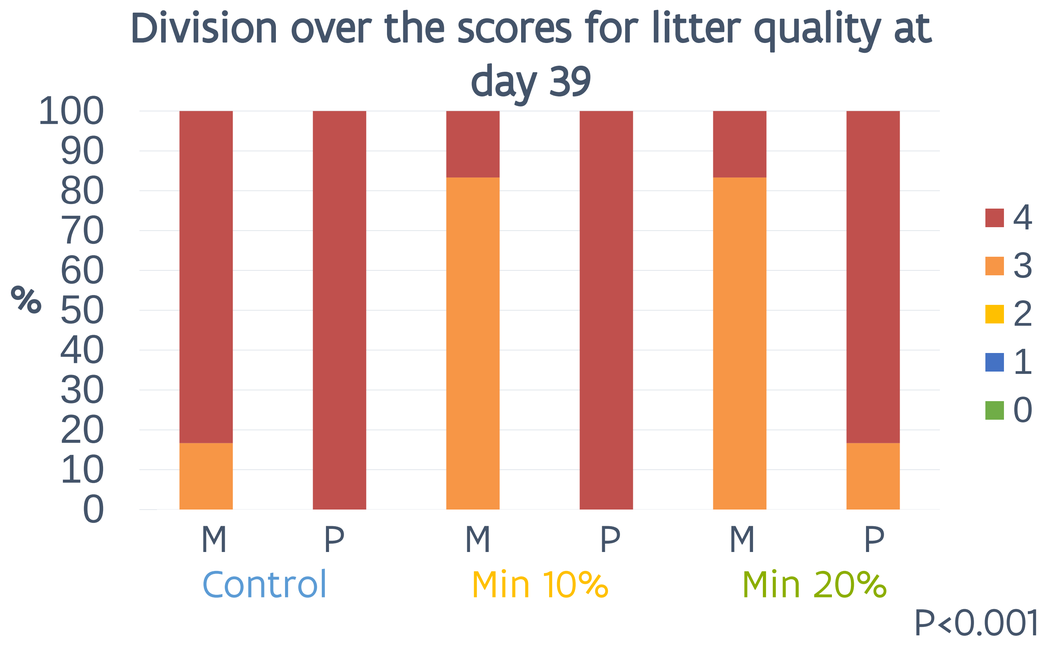
## Objective

To study the extent to which feed form and CP content influences performance and litter quality of broilers

## Results

For the finisher period, lsmeans and their SE as well as the litter score per treatment are shown below

| Treatment | BWG (g/bird/day) | FCR | Ammonia N (mg/g) |
|---|---|---|---|
| Control M | 88.38$^{c}$ | 1.85$^{a}$ | 1.77$^{b}$ |
| Control P | 110.26$^{a}$ | 1.60$^{b}$ | 2.30$^{a}$ |
| Min 10% CP M | 93.28$^{c}$ | 1.78$^{a}$ | 1.60$^{b}$ |
| Min 10% CP P | 112.52$^{a}$ | 1.60$^{b}$ | 2.13$^{a}$ |
| Min 20% CP M | 91.73$^{c}$ | 1.79$^{a}$ | 1.44$^{b}$ |
| Min 20% CP P | 104.73$^{b}$ | 1.63$^{b}$ | 1.97$^{a}$ |
| SE | 1.35 | 0.02 | 0.15 |
| P (CP content) | 0.001 | 0.004 | ns |
| P (Feed form) | <0.001 | <0.001 | <0.001 |
| P (CP content × Feed form) | <0.001 | 0.014 | ns |




*The same trends were observed for foot- and hock lesion scores.

## Conclusion

- Compared to mash feeds, pelleted feeds resulted in higher ammonia N concentrations in the litter, while a numerical decrease was observed with lowering CP content.
- Within pelleted diets, a 20% CP reduction leads to better litter quality, but poorer performance.
- Compared to pelleted diets, mash diets lead to better litter quality, but poorer performance in general.
- Based on this experiment, CP can be reduced with 10% within both mash and pelleted treatments.

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