# The effects of medium chain fatty acids in mash and pelleted diets on growth performance of broilers.

G.E. Nichols, C. B. Paulk, C.R. Stark, C.J. Delfelder, R. S. Beyer, M.B. Braun, H.K. Wecker, C.E. Evans

Department of Grain Sciences and Industry, Kansas State University, Manhattan

## Introduction

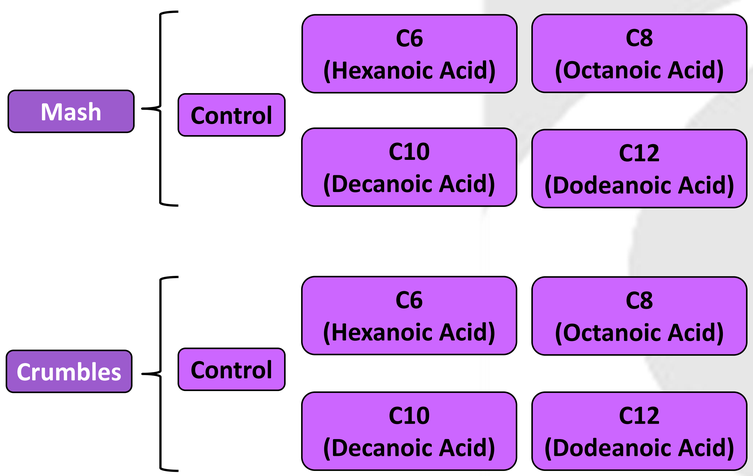
- Medium Chain Fatty Acids are Lipids that contain between 6 and 12 carbons.
- Previous research has shown that Medium Chain Fatty Acids can be used as replacements for antibiotic growth promoters in broiler diets. (Zantek et al. 2011)

## Objective

- Evaluation of medium chain fatty acids (MCFA) as a dietary additive in mash and pelleted broiler diets.

## Experimental Procedures

- A total of 400 day old male broilers (Cobb 500; initially 41.8g BW) were used in an 18 day feeding trial
- Chicks were housed in 4 Petersime batteries with 20 cages per battery, and 5 chicks per cage.
- Dietary treatments were assigned to cage in a completely randomized design.
- Dietary treatments were arranged in 2×5 factorial with the main effects of diet form and 0.05% MCFA inclusion.

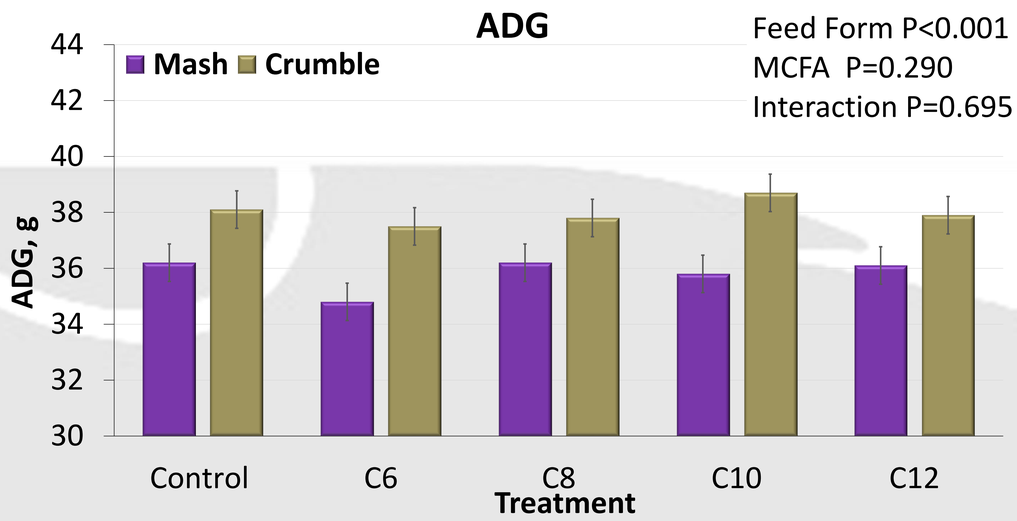


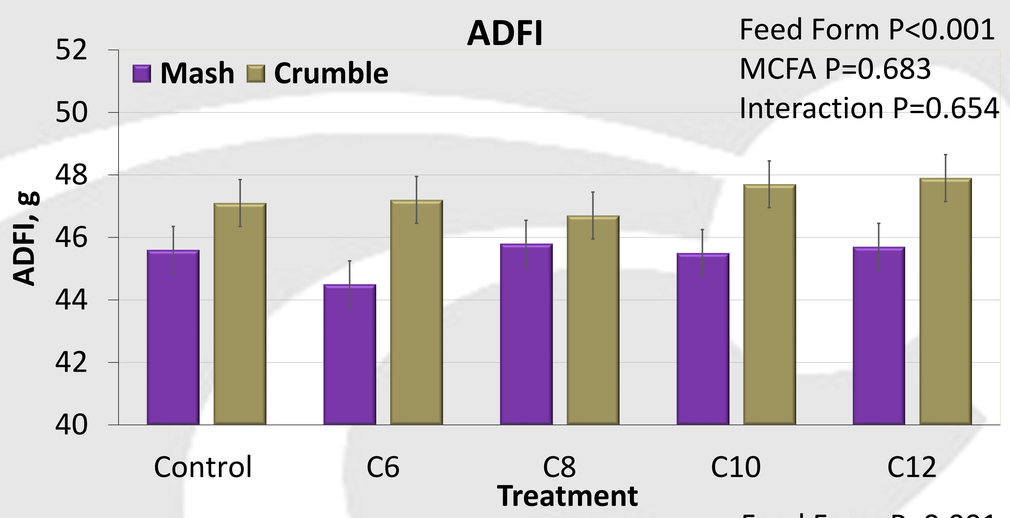

- Broilers and feeders were weighed at d 0, 6, 12, and 18 to calculate ADG, F/G, ADFI.

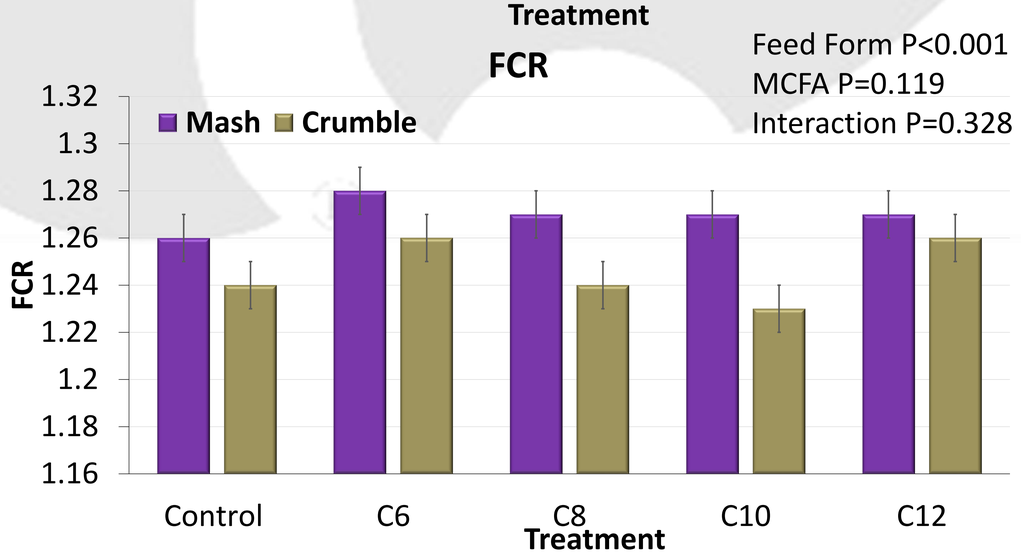
## Pelleting Procedures

- Feed was pelleting in a CPM (model CL%) pellet mill equipped with a 3.97 × 22.24 mm die.
- Feed was pelleted at a conditioning temperature and retention time of 85°C and 20 sec, respectively.
- Diets were crumbled after pelleting.

## Experimental Results (d 0 to 18)




## Experimental Diets

| | Control | MCFA Diets |
|---|---|---|
| **Ingredients, %** | **01.12% Lys** | **01.12% Lys** |
| Corn | 60.76 | 60.76 |
| Soybean meal, 46.5 % | 32.50 | 32.50 |
| Soy oil | 2.00 | 1.50 |
| L-lys HCl | 0.15 | 0.15 |
| DL- Met | 0.23 | 0.23 |
| L-Thr | 0.08 | 0.08 |
| Monocalcium P | 2.10 | 2.10 |
| Limestone | 1.40 | 1.40 |
| Salt | 0.23 | 0.23 |
| VTM premix | 0.25 | 0.25 |
| Sodium Bicarbonate | 0.20 | 0.20 |
| Choline Chloride | 0.10 | 0.10 |
| MCFA | 0.00 | 0.50 |
| **Total** | **100** | **100** |

## Conclusions

- There was no evidence for a MCFA × Feed form interaction or MCFA main effects.
- From d 0 to 18, broilers fed crumbled diets had improved ADG, ADFI, FCR, and final BW.
- Future research is needed to determine the optimal MCFA level and combination needed to influence broiler performance.