Consumer Panel Ratings of Chuck and Round Ground Beef from Cattle Fed an Omega-3 Enriched Diet

C. C. Catrett[1], A. M. Stelzleni[1], J. S. Drouillard[2], and J. M. Gonzalez[1]

[1]Department of Animal and Dairy Science, University of Georgia, United States of America
[2]Department of Animal Sciences and Industry, Kansas State University, United States of America

Introduction

- **Beef products are often criticized for containing elevated saturated fatty acids**
- **Red meat producers are interested in increasing their products' omega-3 fatty acid content**
- **Previous studies indicate increasing ground beef omega-3 with microalgae content causes detrimental palatability effects**

Objective

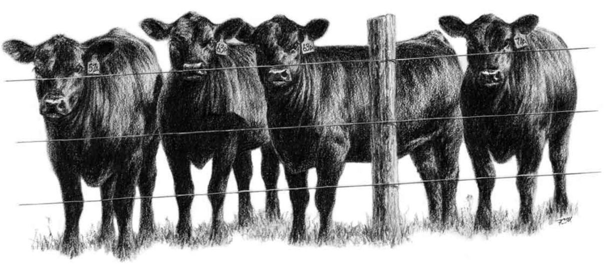
- **The study objective was to determine the effects of an microalgae-based omega-3 enhanced finishing diet on ground Round and Chuck beef patty consumer palatability ratings**

Statistical Analysis

- **Chuck and Round data analyzed separately as a completely randomized design**
  - **Experimental Unit: Carcass**
  - **Fixed effect: Treatment**
- **Statistical significance determined at $\alpha \leq 0.05$**
- **Tendencies declared at $0.05 > P \leq 0.10$**

Methods

1. **Steers weighed, stratified by weight, and allocated to 28 pens (N = 25 head/pen)**



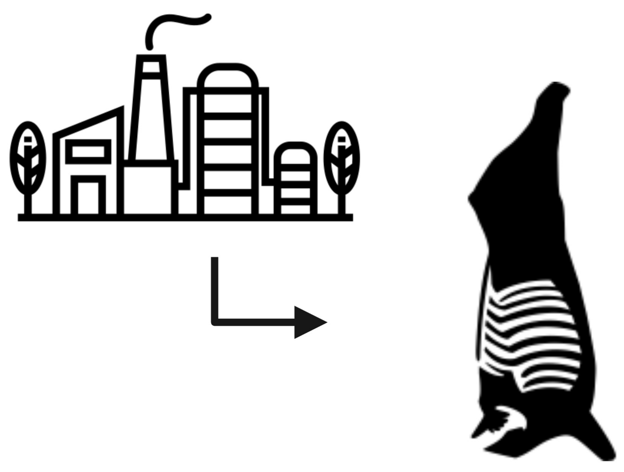
2. **Pens randomly assigned to one of two treatments (n = 14/treatment)**

CON – Conventional Feedlot Diet

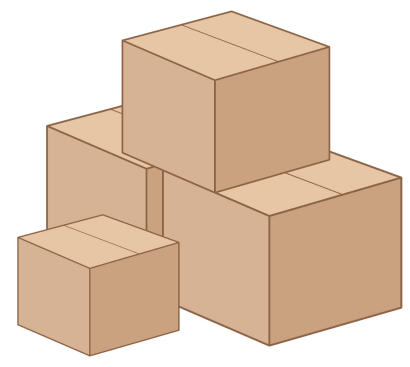
OMG – Conventional Feedlot Diet with greatOplus*

*10% extruded proprietary flaxseed, wheat middlings, and *Nannochloropsis* algae blend (greatOplus; NBO3 Technologies, Manhattan, KS).

3. **After 173 d, one head per pen (n = 28) randomly selected, transported, and harvested at a commercial abattoir**



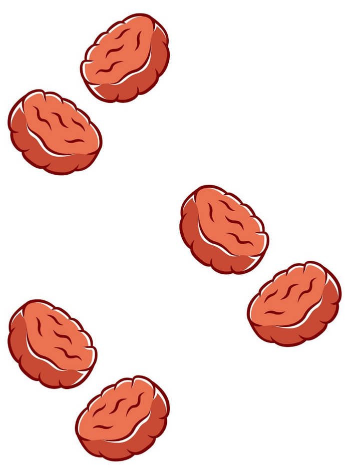
4. **Vacuum packaged subprimals shipped to University of Georgia**



5. **21-d postmortem round muscles ground targeting 90:10 beef**

24-d postmortem, chuck muscles ground targeting 80:20 beef

6. **130 patties (113 g, 13-mm thick) produced per carcass and primal with 40 randomly allocated to consumer sensory**



7. **Chuck and Round patties randomly assigned to consumers (N =112) over two days**

Panel d 1 → 14 Sessions ← Panel d 2

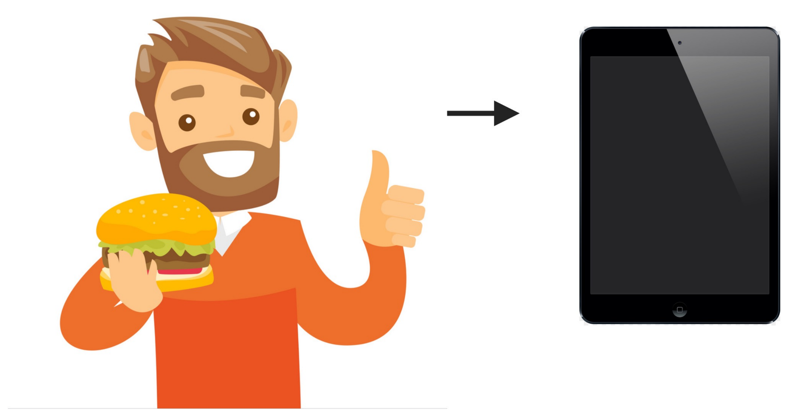
8 Samples/Session

4 CON | 4 OMG

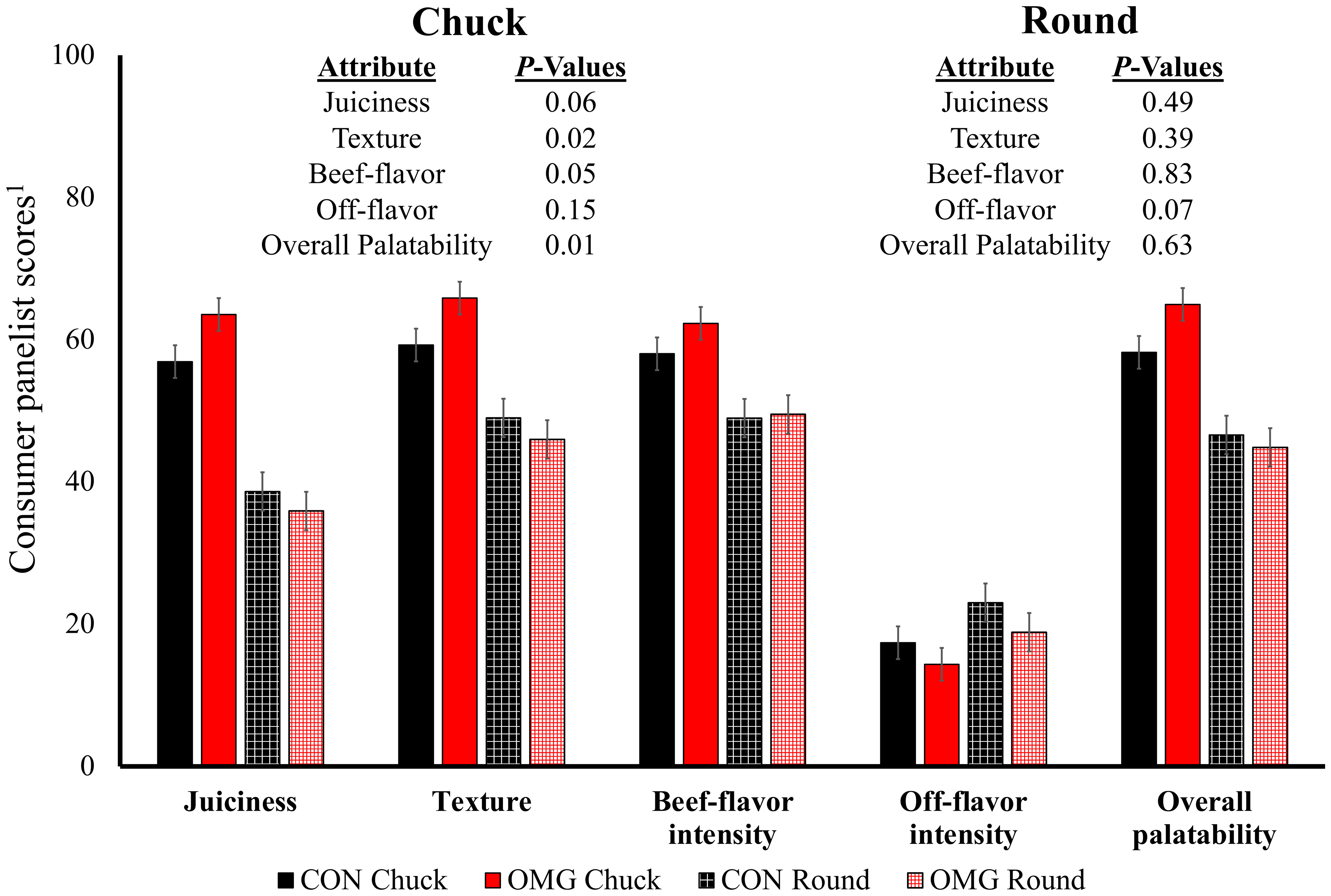
8. **Two patties per carcass and primal thawed for 20 h at 2°C**

9. **Patties cooked at 204°C to an internal temperature of 71°C and divided into 4 wedges**

10. **Consumers evaluated five palatability attributes on three-anchor 100-point line scales collected by Qualtrics software running on iPads**



Results



Chuck

Attribute	*P*-Values
Juiciness	0.06
Texture	0.02
Beef-flavor	0.05
Off-flavor	0.15
Overall Palatability	0.01

Round

Attribute	*P*-Values
Juiciness	0.49
Texture	0.39
Beef-flavor	0.83
Off-flavor	0.07
Overall Palatability	0.63

[1]Sensory ratings: 0, extremely dry, extremely dislike texture/flavor/overall, no off-flavor; 50 = neither dry nor juicy, neither dislike nor like texture/flavor/overall, moderate off-flavor; 100 = extremely juicy, extremely like texture/flavor/overall, extreme off-flavor.

Conclusions

- **Data indicated OMG Chuck ground beef patties had a better overall palatability rating due to having better juiciness, texture, and beef-flavor intensity ratings**
- **While omega-3 enhancement commonly results in increased off-flavor development, consumers indicated this feeding regimen did not affect Chuck off-flavor intensity and tended to reduce Round off-flavor intensity**

NBO3 Naturally Better Omega-3

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