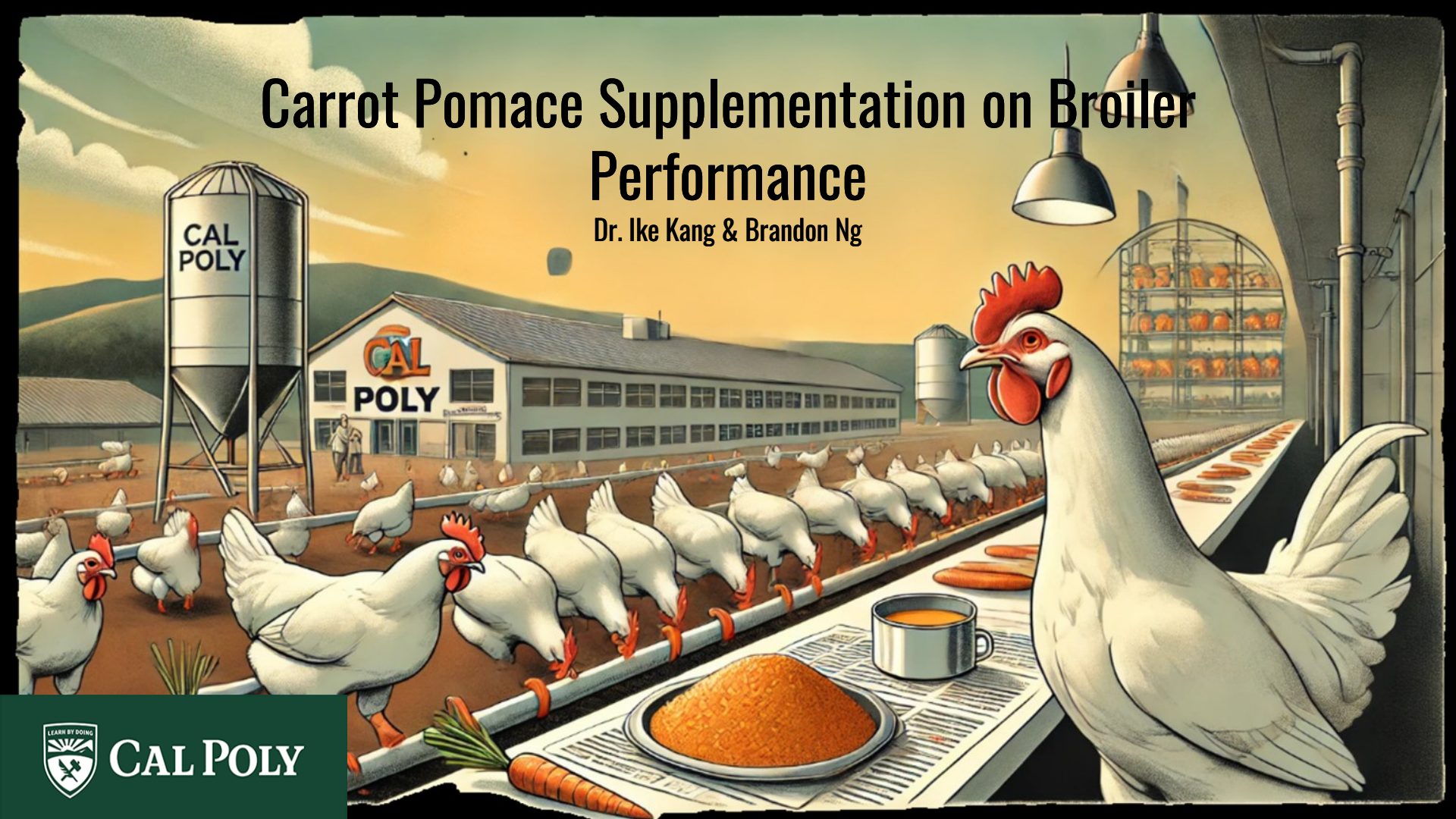


Carrot Pomace Supplementation on Broiler Performance

Dr. Ike Kang & Brandon Ng



CAL POLY

Meat Industry Tour

Winter

- Sci-Fi Foods
- Foster Farms Turkey
- Foster Farms Chicken
- Superior Farms
- Courage Production
- ABCO Lab
- Yosemite Foods
- Squab Producers of California
- Alpha Inc.
- Certified Foods

Summer

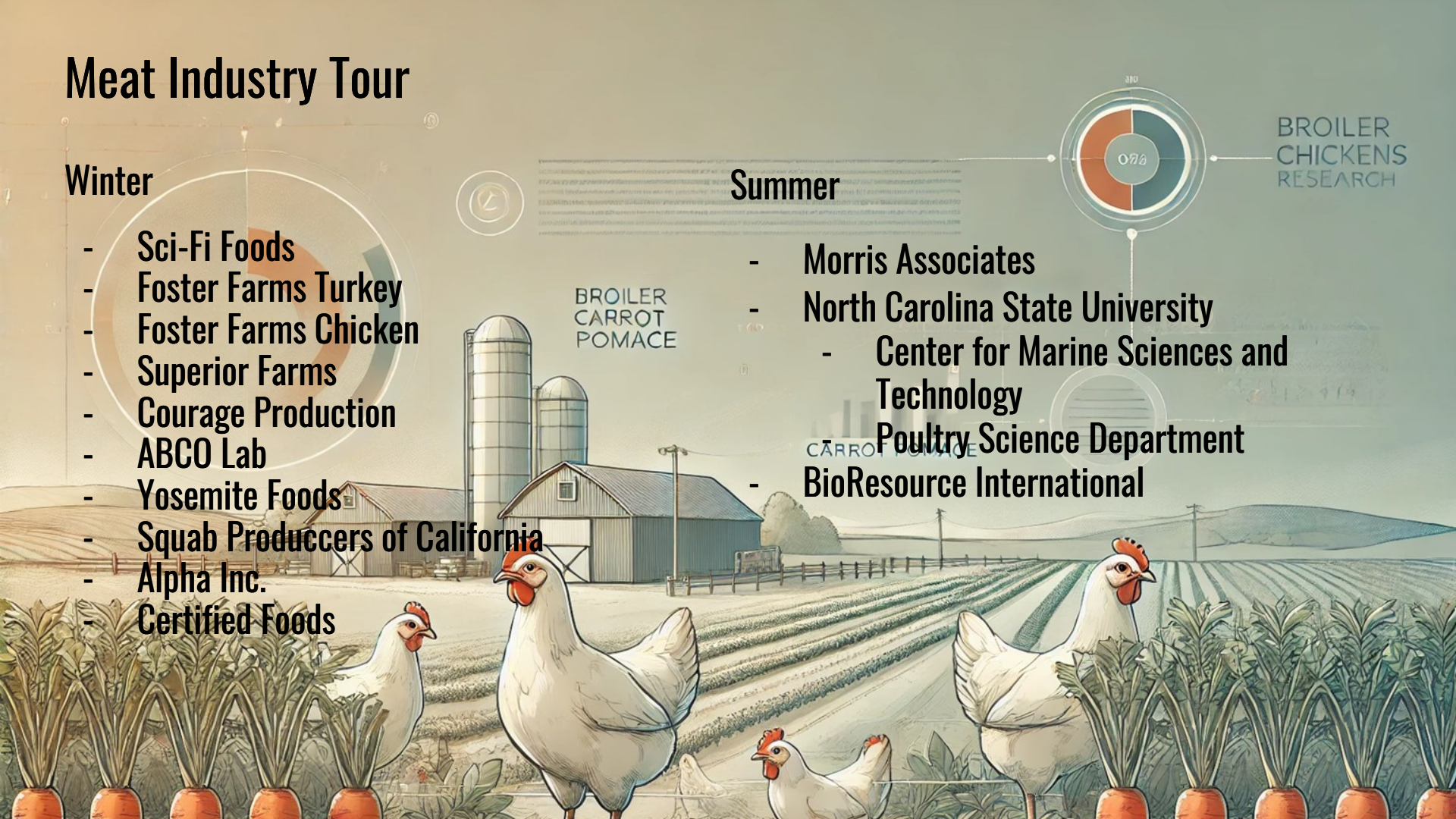
- Morris Associates
- North Carolina State University
 - Center for Marine Sciences and Technology
- Poultry Science Department
- BioResource International



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CHICKENS
RESEARCH

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CARROT
POMACE

CARROT
POMACE



Winter Meat Industry Tour



Superior Farms (Dixon, CA)



Foster Farms: Broiler Processing (Livingston, CA)



Foster Farms: Turkey Processing (Turlock, CA)



Summer Meat Industry Tour



Morris Associates (Garner, NC)

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NCSU: Center for Marine Sciences and Technology (Raleigh, NC)



BioResource International (Durham, NC)



NCSU: Poultry Science Department (Raleigh, NC)

Objective & Purpose

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To determine the effects of dietary carrot pomace on growth performance, feed intake and conversion ratio of broiler chickens



Background

- **Poultry diet: Corn and Soybean meal**
 - Increasing costs and competition for resources
- **Carrot pomace is a by-product from commercial juicing**
 - 30-50% carrot pomace produced
 - Rich in bioactive compounds
 - High in fiber, low in protein



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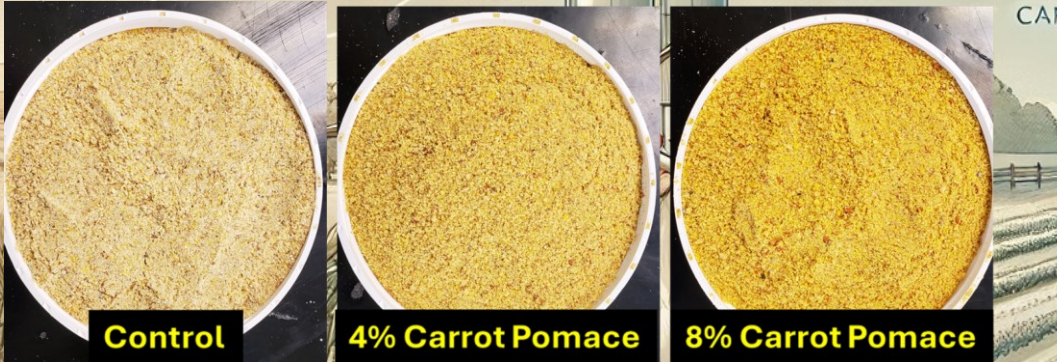


Methods

- **Grimmway Family Farms (Frozen Carrot Pomace)**
 - Freeze dried at -20°C and 6.67 Pa for 24 hours
 - Grinded with commercial spice grinder; passed through 20-mesh sieve (0.85mm)
- **360 one-day-old, unsexed Ross 708 broiler chicks**
 - Weighted and sorted into pens (24 floor pens, 1.2 m² of area per pen, 15 birds each)
 - 0% (control), 4%, and 8%
 - Three-phase feeding program (starter: d 1-14, grower: d 15-28, finisher: d 29-42)



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Corn-Soybean based meals, having carrot pomace at 0, 4, and 8%

Day 1: Broiler Chicks Arrive

Results

There was no significant treatment effect of dietary carrot pomace on body weight (Figure 1) and body weight gain (Figure 2) of broilers; in weeks 5 and 6, broiler feed diets containing 8% carrot pomace had reduced body weight and body weight gain

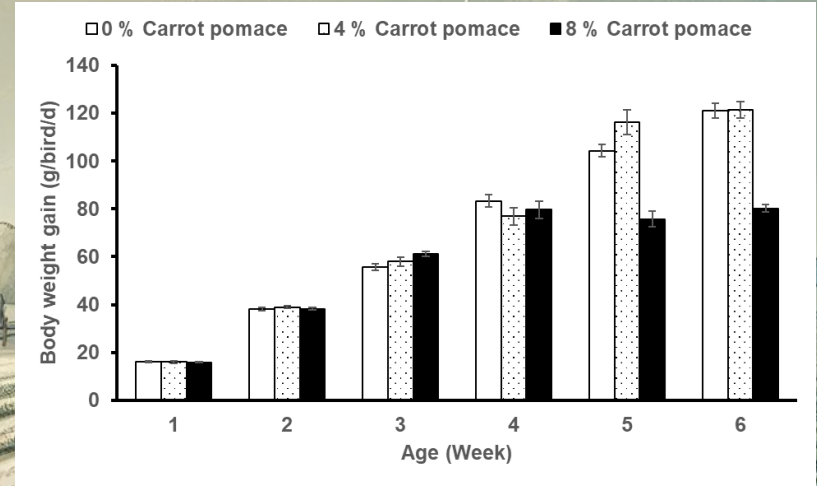
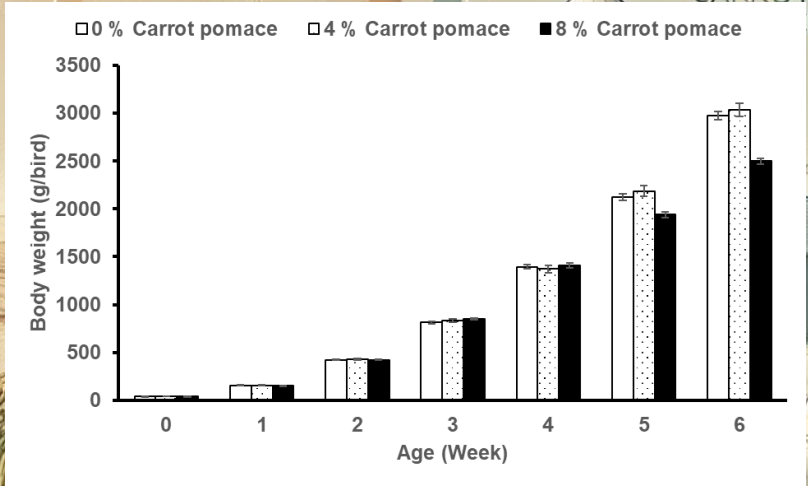


Figure 1. Effect of dietary carrot pomace on body weight of Ross 708 broiler chickens over the course of 6 weeks (n = 8 pens/dietary treatment) Data are presented as means \pm SEM

Figure 2. Effect of dietary carrot pomace on body weight gain of Ross 708 broiler chickens over the course of 6 weeks (n = 8 pens/dietary treatment) Data are presented as means \pm SEM

Results

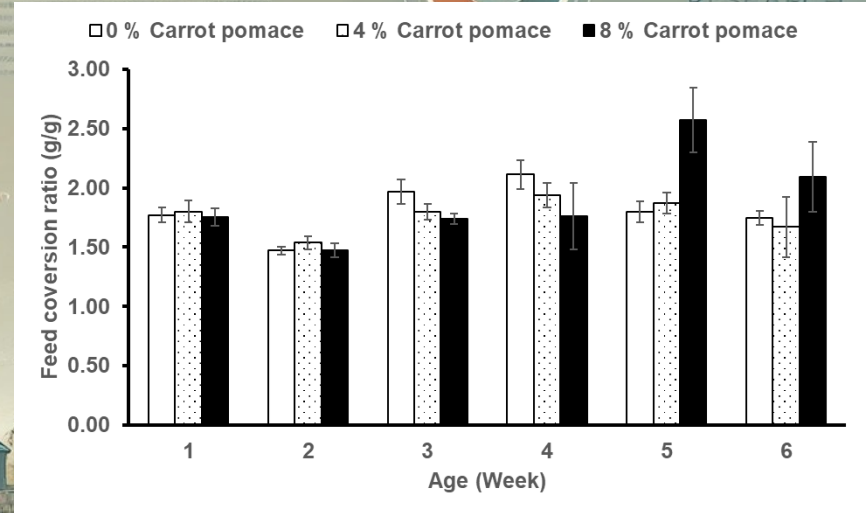
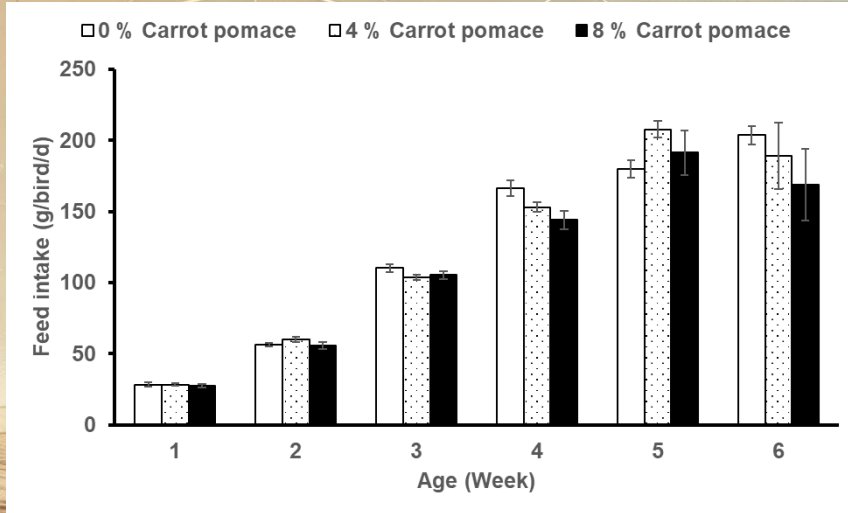


Figure 3. Effect of dietary carrot pomace on feed intake of Ross 708 broiler chickens over the course of 6 weeks (n = 8 pens/dietary treatment) Data are presented as means \pm SEM

Figure 4. Effect of dietary carrot pomace on feed conversion ratio of Ross 708 broiler chickens over the course of 6 weeks (n = 8 pens/dietary treatment) Data are presented as means \pm SEM

Conclusions & Recommendations

- **Carrot pomace is high in fiber, low in protein**
 - Birds fed with a carrot pomace diet experienced a higher feed conversion ratio; lower feed intake with greater weight gain
 - 4% dietary inclusion rates produced the best results
- **Future research should examine optimal inclusion ranges and costs for carrot pomace in broiler diets**



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Additional Experiences

Agriculture & Algae Growth

- **Dr. Sara Kuwahara**
 - Diverse characteristics & applications of algae
 - Microbubbles
 - Man-made self-sustaining ecosystems

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HACCP Training

- **Dr. Siroj Pokharel**
 - Types of potential hazards
 - Identify critical control points (CCPs)
 - Design procedures/systems



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Key Takeaways

- “Learn By Doing”
- Travel across the country

Acknowledgements

- Thank you to Dr. Kang & Dr. Bennet for providing us students with once in a lifetime opportunities
- Thank you to Dr. Kuwahara & Dr. Pokharel for educating and expanding our knowledge
- Thank you all for the attention and engagement from everyone during this presentation



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Questions?

