

What's Next in Feed Mill Technology

Adam Fahrenholz, Ph.D.



Advancement

- Efficiency
 - Profit
 - Quality, Safety, Morale
 - High \$ Value
- Necessity
 - Market Demands
 - Production Scale
 - Regulations



The Feed Mill

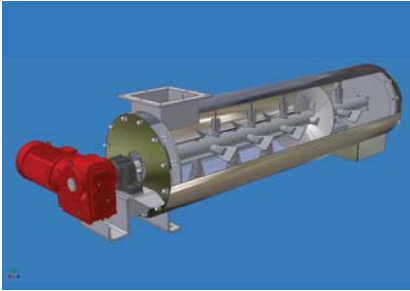


Equipment - Pelleting



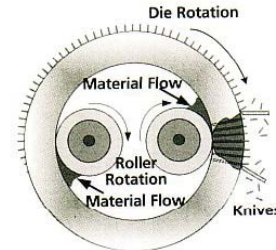
Equipment - Pelleting

- Long-Term Conditioning: Hot Start Conditioner



Equipment - Pelleting

- Inside the Die Chamber



Equipment - Pelleting

- Long-Term Conditioning: Hygienizer



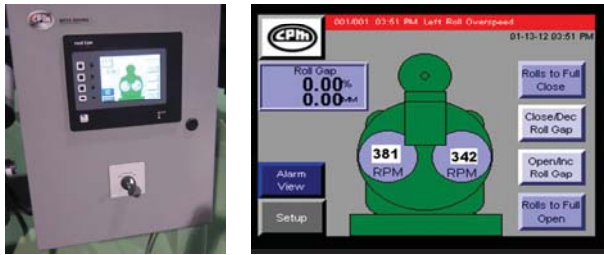
Equipment - Pelleting

- Pellet Mill Remote Roll Adjustment & Roll Speed Indication



Equipment - Pelleting

- Pellet Mill Remote Roll Adjustment & Roll Speed Indication



Equipment - Pelleting

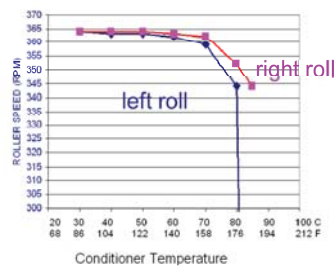
- New Pellet Mill Designs



- Direct Drive
- Variable Speed
- Small Relative Footprint

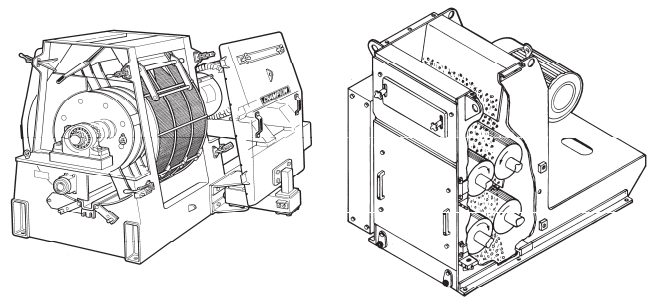
Equipment - Pelleting

- Pellet Mill Remote Roll Adjustment & Roll Speed Indication



Equipment - Grinding

- Manipulation of Particle Size



Equipment - VFDs

- Receiving
- Grinding
- Batching & Mixing
- Pelleting
- Cooling

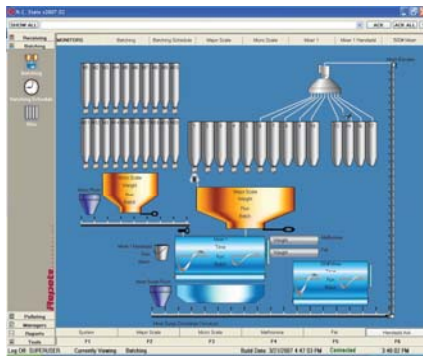


Ingredients

- Challenge Examples:
 - Removal of phosphates from diets
 - By/Co-product variability
 - Due to process
 - Intentional
 - More overall Ingredients
- Evolving Strategies
 - New practices
 - Changes in equipment and/or process

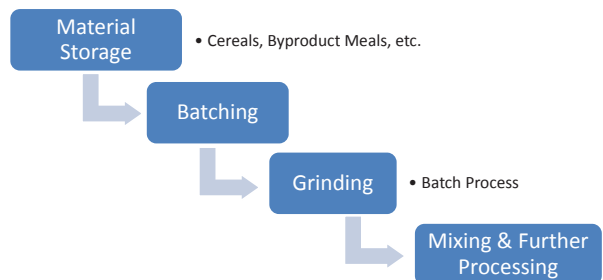
Equipment - Automation

- Efficiency
- SPC
- Integration



Ingredients - Strategies

- Post-Batch Grinding



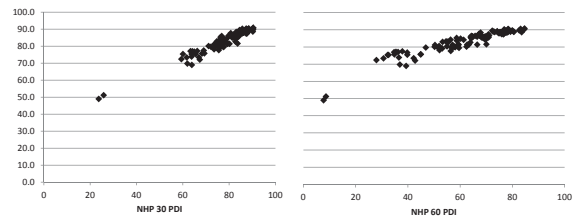
Ingredients – New Ingredients

- Enzymes
- Probiotics
- Binders
- Throughput Enhancers

- Impact equipment needs, formulation characteristics, production efficiencies

Analysis & Testing

- Pellet Quality – Method Correlations



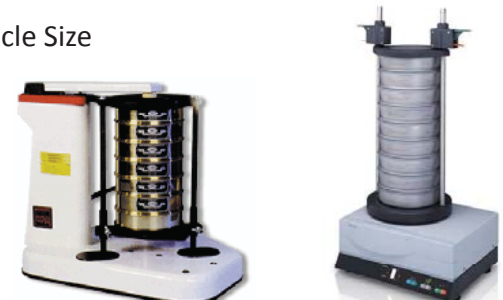
Analysis & Testing

- Pellet Quality



Analysis & Testing

- Particle Size



Analysis & Testing

- Near Infrared (NIR)



Feed Technology at NC State

- Academic Programs
 - Minor
 - Graduate Certificate
 - Certificate
- Extension
 - Service
 - Instruction
- Applied Research



Regulations

- FSMA is the biggest “what’s next” we’ve seen
- Will drive innovation in:
 - Recordkeeping
 - Sanitation
 - Training

Questions?

Adam Fahrenholz, Ph.D.
Prestage Department of Poultry Science
North Carolina State University
(919) 515-5408
Adam_Fahrenholz@ncsu.edu