



## Canadian Feed Research Centre: Creating opportunities in feed processing

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# Outline

- Background
- Mill design and capabilities
- Current research
  - Graduate students
  - U of S researchers
  - Industrial clients
- Opportunities
- Feeds Innovation Institute



# Background

- Global feed production estimate – 1 billion MT
  - 30 million MT produced in Canada annually
- Feed makes up approx. 60 – 75% of total production costs
  - Feed processing ~0 – 5% of feed costs
- Geographically, SK is centrally located to primary feed ingredients



# Background

- New feed processing methods and additives are evolving
- Alternative feed ingredients
  - Improving value from low-quality ingredients
  - Novel feed ingredients
- There is an inherent need for feed research in the livestock industry

**2012**



The Canadian Feed  
Research Centre,  
North Battleford, SK

**2014**



# Canadian Feed Research Centre

- Supported through government (provincial and federal), industry and University of SK funding
- Construction began in 2012
  - Official Grand Opening held October 24<sup>th</sup>, 2014



# Canadian Feed Research Centre

## 3 Processing lines

- ❑ Lab-scale (bench top)
- ❑ Pilot-scale (1-5 tonne/hr)
- ❑ Industrial-scale line (up to 20 tonne/hr)

## Processing

### ➤ Sorting

- BoMill NIT technology

### ➤ Dehulling/cleaning

### ➤ Particle size reduction

- Grinding
- Rolling

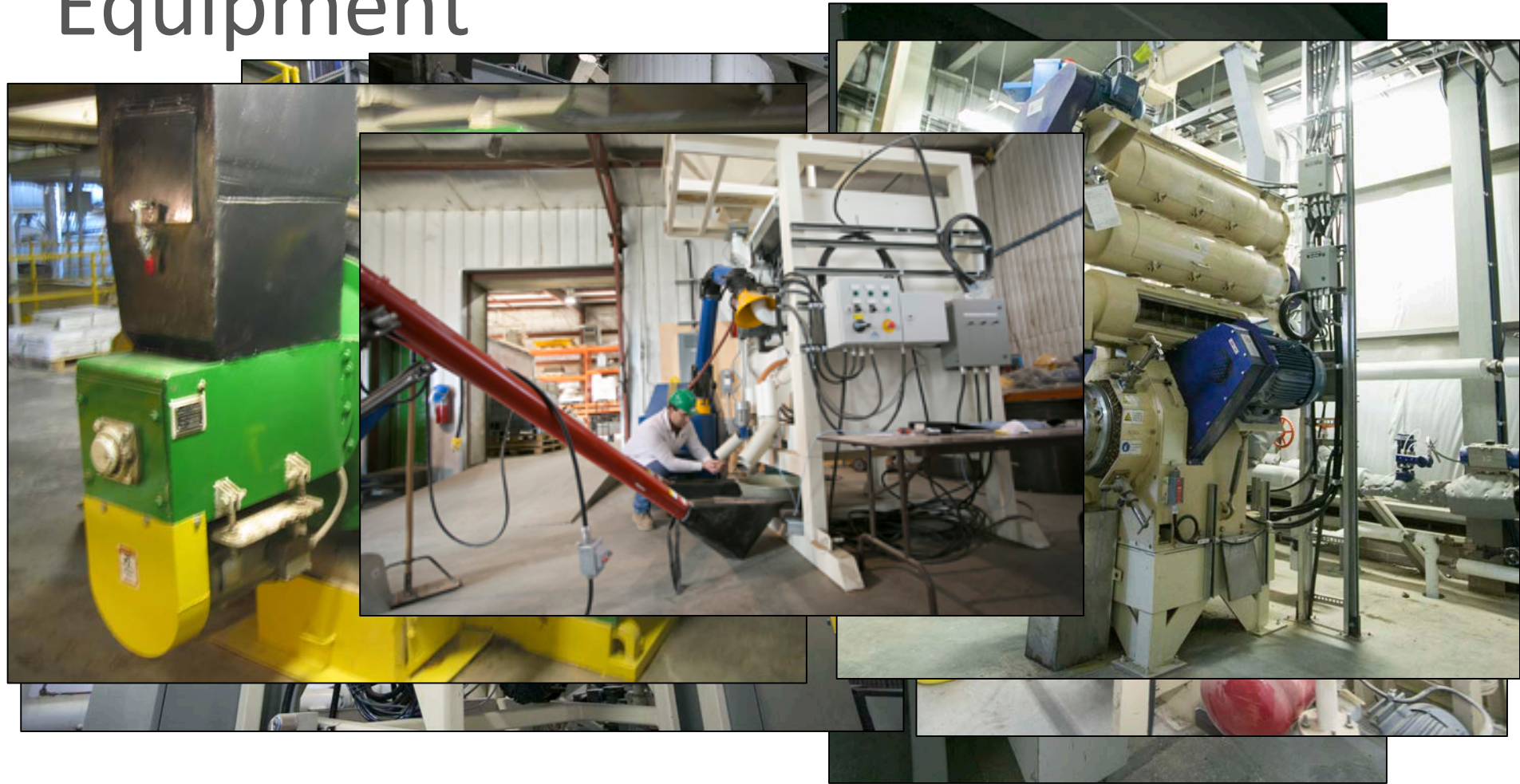
### ➤ Mixing

### ➤ Pelleting

### ➤ Extrusion

### ➤ Vacuum coating

# Equipment



# Canadian Feed Research Centre

- Close to 100% completed
- Over 300 experimental diets manufactured to date
  - Graduate student projects
  - U of S researchers
  - Industrial clients
  - University researchers (external)





# Current Research

## Graduate student research diets

- Evaluation of whey permeate to replace barley starch in dairy diets
- Oscillating dietary protein for lactating cows to improve N retention
- Corn vs barley silage feeding trial (concentrate manufactured at CFRC)

# Current Research

## U of S researchers

Mycotoxins – increasing incidence in feed worldwide

- Industry and producer demonstration events held
- Removing fusarium damaged kernels from wheat and durum
  - Use of BoMill seed sorting technology to reduce DON levels in grain and improve overall grade



March 2015 – BoMill/U of S seed sorting demonstration

# Current Research

## ➤ U of S researchers

- Glycerol as a source of energy in dairy rations
  - Recommend 5% inclusion for optimal cow performance while maintaining pellet quality
- Evaluation of hydrothermal processing on peas (steam flaking)
  - Increased by-pass protein, non-significant change in starch degradation

# Current Research

## ➤ U of S researchers

- Canola meal vs wheat DDGS comparison
  - Complete substitution and combinations of each protein source
- Use of steam flaked barley instead of rolled/ground barley
  - Rayner Dairy Research and Teaching Facility

## ➤ Industrial clients

- Ingredient registration with CFIA for dairy cattle
  - *Brassica carinata* and *Camelina sativa* meal

# Research Opportunities

## ➤ Feed processing research

- How can processing improve nutrient availability and retention?

## ➤ Feed ingredients and additives

- Can new by-products substitute conventional energy and protein sources?

## ➤ Training

- Students and industry
  - Graduate student projects
  - Equipment-specific training



# Fee-for-service research

- CFRC offers research services for industry, academic and government clients
- Access to nutritional expertise and research facilities within U of S
- A broad array of analytical services provided by in-house lab services

# Questions or Comments?

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