Introduction

• Speakers
  • Jason Morehouse – Production Manager
  • Jason Geis – Production Agronomist in Atlanta, IN

• Beck’s Hybrids
  • Largest family-owned retail seed company in the US
  • 5 seed corn drying facilities

• TOMRA Zea 64 Sorters
  • Installed 6 in 2016
  • Installed 6 in 2017
  • Currently installing 8 for 2019 season
Why optically sort ears?

• Reduction of labor
• Consistency of sort/reliability
  • Improved quality of product
• Efficiencies
  • Staggered breaks
  • Ability to run non-stop throughout the day
Challenges with Seasonal Labor

- More supervision required
- Recruiting cost
- Housing cost
- Transportation cost
- Food cost
- Break area space
- Restroom capacity
- Availability of laborers
- Accident risk increases
Labor Reduction

6 People/Table

<table>
<thead>
<tr>
<th>Rehusk</th>
<th>Rehusk</th>
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<tbody>
<tr>
<td>Trash/Mold</td>
<td>Trash/Mold</td>
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<tr>
<td>Rogue</td>
<td>Rogue</td>
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2 People/Table

<table>
<thead>
<tr>
<th>Optical Ear Sorter</th>
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<tr>
<td>Rogue</td>
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How does it work?

• Utilizes color and NIR optical sensors to scan objects
• Sorts based on color, size of defect, and overall size of object
• 3-way sorting
  • Up – Reject
  • Stationary – Accept
  • Down - Rehusk
What do I want sorted?

- Mold and defects
- Stalks and shanks
- Foreign material
- Husk
- Rogues
Optical Sorting Challenges

- White husk vs. white mold
- Dark husk vs. dark mold
- Green trash vs. green husk
- Stalks tend to hang up in the sorters
- Often set one machine to reject “husk” to flush molds out of system
Maintenance

- Clean lenses with damp cloth weekly
- Air quality and supply
  - Regenerative dryer on air supply
  - Maintain air 24/7/365 to keep moisture out
  - “Exercise” system every 2 weeks
- Tracking belts on shaker tables
- Preventative maintenance by manufacturer annually
- Additional spare parts
Management Considerations

• Labor skillset
  • Value in eye vs. quick sorting
• Sort good out of discard
  • 2 extra people to sort “casualties”
• Skills of optical sorter operator
• End of lot system flush
  • Clean cycle
• Preset sorting programs
• Number of sorters per control panel
• Additional machine to “kernel clean” between lots
• Size of sorting tables and discard/rehusk conveyors
Questions?