Innovative Alternatives to Traditional Piling of Sugarbeets

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Keith Kalso
Michigan Sugar Company
Increasing Beet Piling Efficiency
Ropa Maus Beet Machine

- Direct Delivery
- Stacking field cleaned sugarbeets
Timeline of Ropa Maus Operations at Michigan Sugar Co.

- 2002: Field piling; Maus @ Lambton, Ontario
- 2004: Field piling; Maus @ Lansing, MI (Moore)
- 2006: Field piling; Maus @ Ruth, MI (Roggenbuck)
- 2006: Large pile recovery test @ Dover pile station
- 2007: Michigan Sugar leases Maus for pile recovery
- 2008: Field piling; Maus cleans & loads all of growers pre-pile crop @ Dover ("Dover-Direct")
- 2010: Field piling; grower Maus cleans & loads all of growers pre-pile crop @ Ruth ("Ruth-Direct")

Stacking of field piled beets begins @ 2 stations
Direct Delivery – loading system brought to growers fields
Direct Delivery – loading system brought to growers fields

- Grower harvests & piles crop in field
- Crop cleaned/loaded in field by Maus then…..
- *Delivered Directly* to processing facility on large transfer trucks
- Growers delivery to piling yards bypassed
Maus Cleaning System

• 1st Stage: header roll bed
Maus Cleaning System
• half of header underside roll bed shown
Maus Cleaning System
• 2nd Stage: front belted chain conveyor
Maus Cleaning System

• 3rd Stage: grab roll bed
Maus Cleaning System
- 4th Stage: back belted chain conveyor
Field Loading With Maus
Field Loading With Maus
Direct Delivery – How it Works

- Lottery system used to determine grower’s eligibility for field selection
- Piling sites evaluated before harvest for efficient and safe truck loading in all weather
- Co-op employee takes tare in field
Direct Delivery – Field Employee
Direct Delivery – How it Works

Field Accessibility very important
Direct Delivery – Accessibility

Field Accessible?
Growers Responsibility

- Harvest field when scheduled by Co-op
- Allowed to harvest entire field
- Growers use trucks & carts to build piles
- Pile crop with roadside loading in mind
Roadside Loading
Roadside Loading

- Safety was promoted to the public
- Meetings held with county road commissions
- Municipality approved the system
- Safety training to establish “work zone”
- Sustainable
Field Loading With Maus
Direct Delivery Statistics - 2010

- Pre-pile harvest began August 26th 2010
- Two receiving stations kept closed
- All early delivery beets shipped direct
- Delivered to three factory wet hoppers
Last Pre-Pile Beets shipped 10/22/10
Direct Delivery - Grower

- Grower transfer freight costs same as delivering to piling ground
- No additional trucking cost incurred
- No waiting in long lines at pilers
- Reduced labor costs
- No harvest pressure in the field
- Allowed to harvest on the farms time-line
Direct Delivery - Cooperative

• Piling facility remains idle from start of harvest to time of permanent piling
• Eliminates early harvest havoc
• No labor or electricity spent
• Less repair & maintenance needed for pilers
• Less traffic on roads: safer & saves roads
• Co-op pays Maus owner for cleaning/loading
• Extra cost of freight being evaluated
• Fresher beet going into plant
Field Loading With Maus

Dura Mats for truck in field
Field Loading With Maus
Stacking

- The next phase of Direct-Delivery
- Field pile the crop for *brief* time
- Clean & load by Maus
- Deliver to piling site
- Use “Stacker” to pile the crop
- Place crop in long-term storage piles
Stacker – A Converted Beet Piler
Why Stack???

- Disconnects harvester from piling yard
- Convert old beet pilers to Stackers
- May reduce freight costs
- Tare dirt stays in field where it belongs
- Maus cleans & handles beets very well
- Maus adjusts to conditions
- Operator monitors screen/cleaning bed
Stacking Advantages (Growers)

- Harvest/piling are disconnected
- Less freight (?)
- Less trucks required for same job
- No line ups
- Eliminates cross contamination at piler
- Mud up loading zone only
- Eliminates working shifts
Stacking Advantages (Cooperative)

- No line up = less stress
- Less labor
- Continuous supply
- Predictability >> Efficiency
- 24-hr stack easily done
- Grower or Grassroots partnership for cleaning and handling crop
Stacking of Field Piled Beets
Stacking Protocols/Procedures

- Fresh!!!
- Lay beets down and pick them up ASAP
- 3-day window to stale date
- Day 1 Great >> same as piler
- Day 2 Good >> same as overnight in truck
- Day 3 OK >>
- Day 4 ??????? >> Why??
Requirements of Stacking

- Intense management
- Control
- Co-operation
- Commitment
- Resources
- Communication
Stacking Increases Piling Efficiencies
Stacking Disadvantages (Grower)

- Accessibility is paramount
- Can’t go when you want to >> must be governed by management
- Tare dirt >> hot strips
Stacking Disadvantages (Cooperative)

- Requires intense management
- Creating too many priority beets !!!!!!!!
- Freeze
- Stale date expires
Chute Installed in Dump Hopper
Reduce Spillage & Labor
Uses of Maus System - Harvest 2010

- Michigan Sugar extends Maus lease
- Storage pile recovery in Dover, Ontario
- Storage pile recovery in Sandusky, MI
- Direct delivery of field piles in Lambton, ON
- Direct delivery of field piles in Dover, ON (*)
- Direct delivery of field piles in Ruth, MI (*)
- Direct delivery of field piles in Gratiot, MI
Uses of Maus System - Harvest 2010

- Field piling with stacking in Dover, ON
- Field piling with stacking in Sandusky, MI
Where Does MSC Go From Here?

Direct Delivery in 2011

- Expand from 4 to 7 operations
Where Does MSC Go From Here?

Direct Delivery in 2011
- Expand from 4 to 7 operations

Stacking in 2011
- Expand from 2 to 3 operations
Where will the Future Bring Us Next?

Thank you!

Questions?