

Why should you  
“Get Caught Up To The Topper”



## Definition:

A warning text/sign that may be posted at anytime, day or night. Dependent on a forecasted Heat or Frost event.

Distance to get lifter caught up to toppler when a Heat or Frost event occurs should be a Maximum of a **couple hundred feet.**

# The Reason

- Beet canopy acts as an insulating barrier toward heat and cold.
- The longer the canopy is present the shorter the beets are exposed to adverse temps.
- Beets will increase in temperature 20-30 degrees when placed in a pile.
- We can pile 1,173,000 tons/day.
  - Beets need to be in good condition for storage
  - Minimize down time

# Why We Care

- **Hot Beets over 65°** can go to 90°
  - Can't cool down
  - Respire & burn more sugar
  - Causes storage losses
    - heat compounds through out pile = juicing
- **Frozen beets**
  - Increase in temperature – trying to heal
  - Frozen tissues disintegrate/melt
  - Causes storage losses
    - heat compounds through out pile = juicing

# Heat Policy:

- 55 degrees – Non-ventilated piles over 20 ft. high.
- 65 degrees – Ventilated pile and/or 20 ft. high or less.
  - Lows are forecasted to be 45 degrees or less within 60 hours
  - There is sufficient storage capacity at the station

# Procedure:

Start taking root temps when air temp hits 55 degrees  
Noticeable differences appear between Harvest Units.  
Can tell who's behind topper and who's not.

## Have observed following differences:

Topper a few rounds ahead = **65** degree root temps  
Lifter right behind topper = **58** degree root temps

# Consequences:

- Try to work with individual growers to get them caught up to toppler.
  - Hard to manage, too many individuals across all stations.
  - Frustrating when some at 58 degrees and others at 65.
- Shut station down when too many hot loads are coming in.

# Benefit to being close to toppler:

- Get to maximize harvest time for that day, even if we get shutdown.
- Might get through day without a heat shutdown.
- Improve harvest efficiency and your employee productivity by having station open longer.

# Frost Policy:

- @ 32 degrees – start checking beets for frost damage.
- First sign of frost – notify driver/grower.
- Frost at ½ inch deep grower is notified to discontinue harvesting until they can bring a frost free product.
  - Sometimes frost comes to fast or crew loads beets from a previously topped area from earlier in the day. If frozen too bad we are not able to give a warning and may have to reject.

# What's Close?

- Beets will freeze on a 12 row topper/6 row lifter harvest set up by the time you come back to lift the 2<sup>nd</sup> pass.
  - Match topper to lifter
  - Hang additional topper rows over edge
- 1 topper – 2 Lifters?
  - Use one lifter
  - Wait until 2 trucks return to field and load at same time.

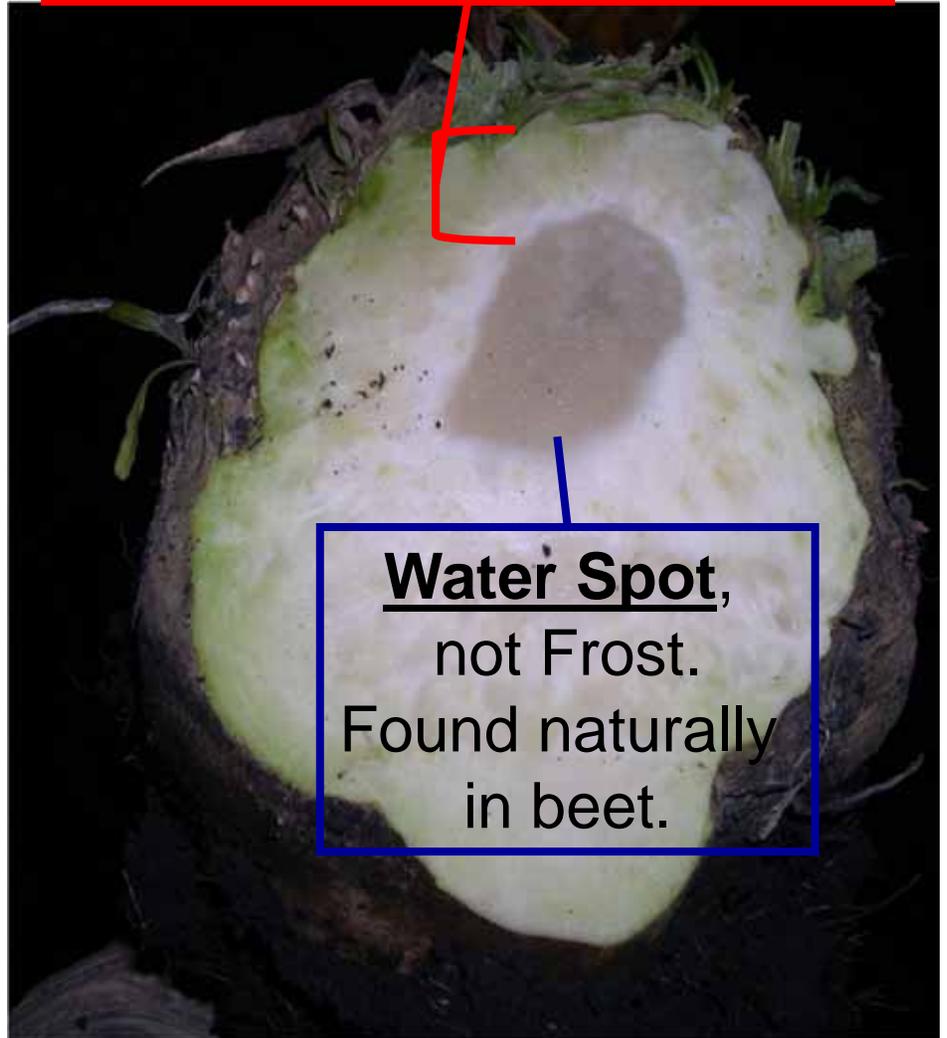
# Preparation

- Get daily weather forecasts for your area.
  - We use the same forecasts.
  - **Fargo is always warmer at night.**
- Leave yourself an out.
  - Be in a position to be on fresh topped beets when Heat or Frost conditions occur.
- Learn to identify what frost looks like so you can check in the field before loading or in between loading trucks.
- If you see frost, you can shut yourself down.

**Frost** ½ inch deep on crown  
Freezes Outside to In



No  
Frost



**Water Spot,**  
not Frost.  
Found naturally  
in beet.

Frost





# Previously Frozen but Healed



Damaged water spot won't go away

Depending on how well they are healed determines if they are fit for storage

Beets that are larger and stick out of the ground higher,  
usually **freeze 1st**



# What May Happen If Topped Too Far Ahead

- Heat events are often followed by Frost events and vice versa. Leaves beets exposed if piler was shut down and you're not able to get them picked up.
- Extended Heat Shutdown occurs for a couple of days. Results in topped beets not being able to put on more sugar for that time period. Beets will also burn sugar from the injury trying to heal and put on new leaves resulting in sugar lost.
- If piler shuts down for heat – Do Not Reload Trucks
  - Beets cool down better if left in the ground. Prevents a hot load from being dumped in the middle of the pile.

It's a Game of Feet,  
Not Rounds  
Questions?

