Harvest Policies

Properly managing harvest during either high or low temperatures is critically important to successful sugarbeet storage at American Crystal Sugar Company. Harvest in subfreezing temperatures is a two-edged sword. On the one hand, if frost free beets can be delivered, they will go into the pile in the best conditions possible, reducing respiration sugar losses. On the other hand, if frost damaged beets are delivered and piled, the storage problems that result can be disastrous. Experience indicates that harvesting beets warmer than 55 to 65 degrees Fahrenheit can also have a disastrous impact on storage. Therefore, it is critically important for shareholders to understand both the letter and intent of the ACSC heat and frost policies.

Experience has shown that defoliating practices are the most important factor for preventing frost damage. A solid, healthy leaf canopy can protect the beet root from frost damage through several hours of subfreezing temperatures. Therefore, it is possible and even beneficial to continue harvest operations through fairly low temperatures on freshly topped beets. This means the defoliator must be **immediately** in front of the lifter during subfreezing harvest operations. The leaf canopy is also important for keeping the beet roots cool during warm sunny days. Whenever frost or heat is in the forecast, defoliating whole fields ahead of the lifter is an undesirable practice. In order to facilitate harvest operations in the widest range of weather circumstances while at the same time safeguarding the storage piles from either frost damaged or hot beets, the following guidelines will be utilized.

Frost Policy

When air temperature reaches 32° F, monitoring of individual beet roots will begin. The chop stands will be manned and each truck load checked for frozen beets with a beet knife. At the first sign of frost, ask the truck driver to contact grower and tell them to tighten up interval between the defoliator and the lifter, or move to area with heavier canopy or move to a different field in order to deliver frost free beets. Once a ½" frost line is seen in the crown of the beet, that individual grower will be asked to discontinue harvest unless they can deliver a frost-free product.

If excessive frost appears in multiple loads the entire station may be shut down. **No loads will be accepted after the time prescribed by frost shutdown policy. Defoliating and truck loading will cease.**

Once a frost shutdown is in place, monitoring of root conditions will continue and stockpiling will resume only when roots are free of the evidence of frost damage and are "healed". The Harvest/Maintenance Supervisor or their assistant will make the determination when harvest will resume.

Heat Policy

When air temperature reaches 55° F, temperature monitoring of individual beet roots will begin. Take root temperatures from random, fresh beets from face of pile. If the air temperature is rising and the internal root temperature reaches 55° F, harvest will be stopped. **No loads will be accepted after the time prescribed by heat shutdown policy. Defoliating and truck loading will cease.**

Heat Policy Exceptions for Ventilated and 20-foot Piles

At sites with ventilated or 20-foot piles, stockpiling may be allowed at the discretion of the Harvest/Maintenance Supervisor or their assistant. The decision will be made based on meeting the following criteria:

- Internal root temperatures are 65° F or less.
- Predicted nighttime low temperatures are forecast to be 45° F or lower within 60 hours.
- Dirt and trash load is low so pile ventilation is not hampered.
- There is storage capacity at the station.

If the criteria regarding ventilated or 20-foot piles are not met, heat shutdown will go into effect when root temperatures reach 55° F. Once a heat shutdown is in place, monitoring of root temperatures will continue and stockpiling will resume only when root temperatures have fallen below 55° F.

Load Rejection

Poor ventilation is often the result of dirt, weeds and leaf trash (beet leaves and petioles). These enemies of storage quality are controllable through both cultural and mechanical means.

All load rejections will be the responsibility of the foreman at the sites. Any load that is determined to be unfit for storage will be sent back to the field to be dumped. The agriculturist on duty in the area will then be contacted and will verify the location of the rejected load. This load will then remain where dumped until deemed fit for storage. This may be at the end of harvest. Growers delivering loads approaching an unacceptable level of dirt, weeds or leaf trash will receive a written warning. If immediate improvement is not seen, the grower will be shutdown until he or she can deliver beets acceptable for long term storage. It's important that every effort is made to deliver loads acceptable for long term storage.

Dirt: Any loads containing dirt in the amounts in excess of the cleaning capacity of the beet receiving equipment or the redelivery of previous tare will be considered unacceptable for storage and will be rejected. Solution: Adjust lifter depth, slow down and allow the lifter to clean better or find a field with better conditions. Tare needs to be dumped in the field before reloading. If clean loads cannot be delivered, the grower will be shut down.

Weeds: Loads containing excessive weeds will be unacceptable for storage and will not be unloaded. Weeds ride over the screen area of the piler and are placed directly into storage, causing immediate ventilation problems. Solution: proper cultural practices throughout the growing season and proper operation of harvesting equipment. A shredder may help where weeds are a problem.

Leaf Trash: Loads with excessive leaf trash will not be acceptable for storage. Solution: proper maintenance and/or operation of the defoliator, i.e., speed, adjustments, etc. Poorly defoliated fields will result in subsequent refection of loads for storage.