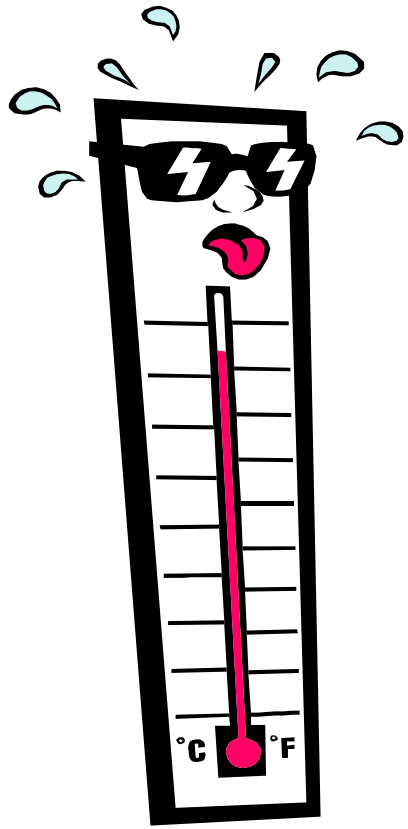
HEAT TREATMENT

PERSPECTIVE / EXPERIENCES



KRAFT

NAPERVILLE, IL

Post Cereal Plant

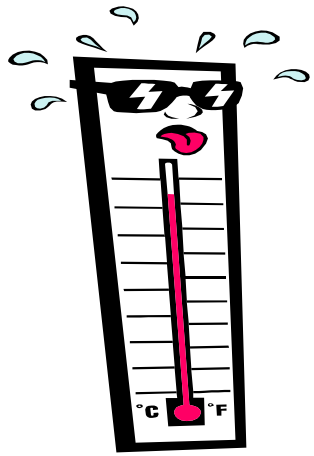
Deb Krug-Reyes

HEAT TREATMENT WORKSHOP

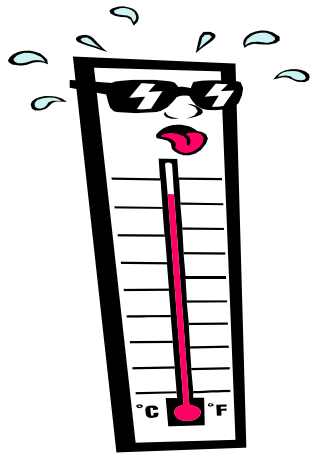
August 7, 2001

Kansas State University
Department of Grain Sciences

Naperville Heat Treatment Experiences



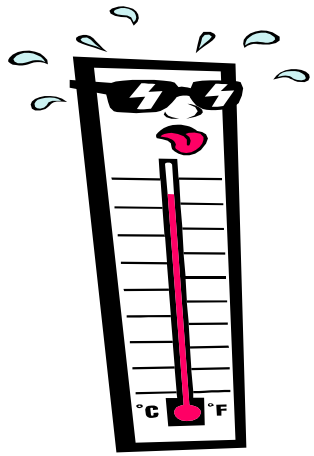
- **Why Heat Treat**
- **Naperville Plant HT Timeline**
- **Continuous Improvements**
- **Lessons Learned**
- **Future Plans**



WHY HEAT TREAT:

Advantages:

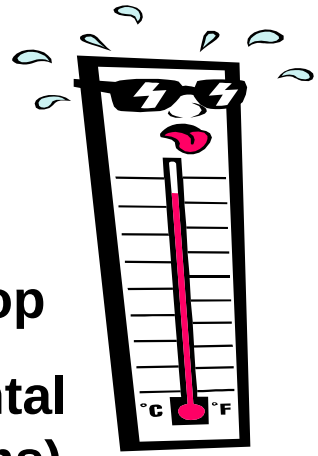
- **Alternative to Methyl Bromide**
- **Environmentally Friendly / Good Neighbor**
- **No need to evacuate building**
- **Some operations can continue in plant concurrently**
- **Experience has shown good kill-- potentially better than fumigation**
- **Less stringent building sealing requirements**
- **Cost effective after initial investment**



WHY HEAT TREAT:

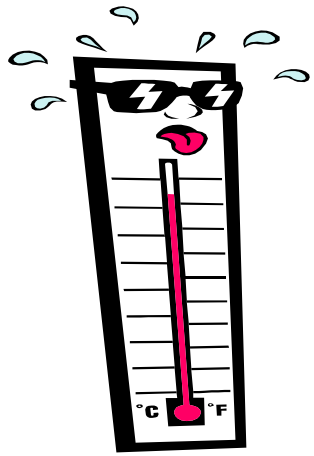
Disadvantages:

- **Still need to chemically treat non-heat treated areas (vs. entire plant fumigation)**
- **Potential structural or equipment damage if temperatures significantly exceeded**
- **Some additional preparation (remove computer controllers, other sensitive electrical)**



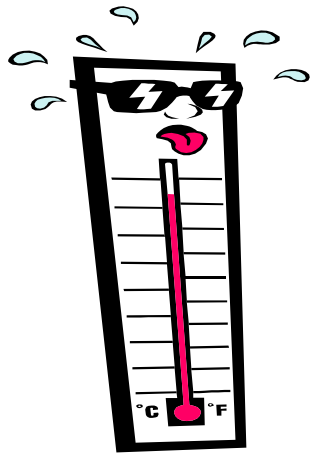
HEAT TREATMENT TIMELINE:

- **8/99 Q.Mgr + Sanitarian attend K-State HT Workshop**
- **3/00 Naperville plant trialed 1st HT with electric rental units-- treated 7 mill rooms + inside silo (bin rooms)**
- **1/01 Naperville plant installed steam drops, and prepared several areas for HT w/ KF**
- **3/01 Observed Champaign plant HT with portable shared heaters**
- **4/01 Performed HT in refuse / animal food compactor area**
- **6/01 Performed HT in inside grain use and weigh bin areas**
- **7/01 Performed HT in inside grain silo rooms (bin rooms)**
- **8/01 Performed 2nd HT in inside grain silo rooms**



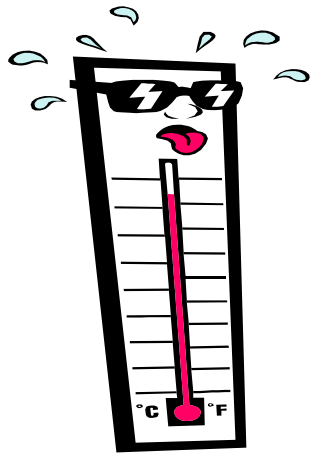
CONTINUOUS IMPROVEMENTS:

- **Improved temperature control**
  - ***Increased air movement (fans, fans, more fans)***
  - ***Improved heater, and fan positioning, more ducts***
- **Better sealing methods**
- **Improved temperature monitoring**
  - ***Continuous data loggers***
  - ***Temperature probes w/ digital remote box***
  - ***Non-contact thermometers (NIR guns)***
  - ***Insect check cards***
- **Ongoing support from IFC**



LESSONS LEARNED:

- **Air circulation / fan placement is key to getting uniform temperatures**
- **Need better sealing of outside vents / doors with inclement weather**
- **Check fire doors for temperature rating**
- **Avoid overheating, watch for hot spots**
- **Get maintenance and sanitation staffing commitment for HT schedule**
- **Document structural damage before heat-up**
- **Perform as much detail cleaning in advance as possible**
- **Coordinate confirmed time schedules with production**



FUTURE PLANS:

- **Continue HT in designated areas**
- **Explore potential of getting permanently installed heaters in specific areas**
- **Work with experts to detemine feasibility of HT in other plant areas**
- **Plan to trial heating an individual piece of equipment**
- **Continue to work with plant and corporate engineering to pursue short and long term strategy**