

# Litter Pasteurization by In-house Windrow Composting

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*Improving Lives. Improving Texas.*

# Litter Pasteurization

- Also called
  - In-house windrow composting
  - Windrow composting
  - Windrowing
  - Composting
- Not a true composting process
- More of an “abbreviated composting”

# Litter Pasteurization

- Pasteurization is a more accurate term
  - **Definition:** the treatment of a substance with mild heat, irradiation, or chemical agents to improve keeping quality or inactivate disease-causing organisms.
  - **Goal:** attain temperatures within the litter pile long enough to kill pathogenic organisms.

# Temperature and Time for Pathogen Destruction

Microbe	Temp (°F)	Time (Minutes)
Salmonella typhosa	131	30
Salmonella sp.	131	60
Shigella sp.	131	60
Tanea	131	2-3
Trichinella spiralis larvae	131	2-3
Micrococcus pyogenes	122	10
Streptococcus pyogenes	131	10
Corynebacterium diphtheria	131	45
Necator americanus	113	50
Escherichia coli	131	60

# The process

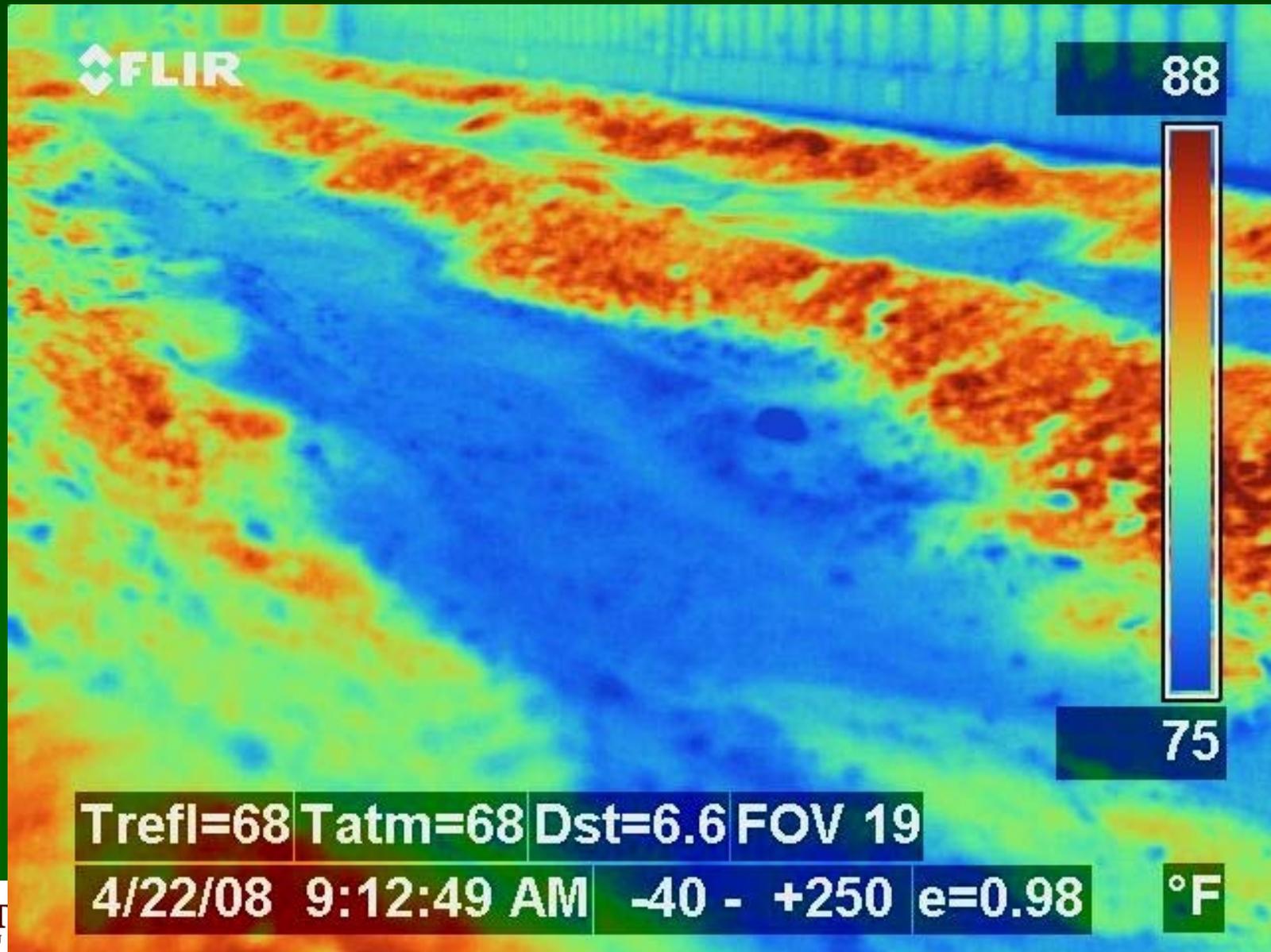
- Create windrows with tractor and blade or special equipment designed for the job
- Bacteria metabolism generates heat
  - Aerobic
  - Self-limiting based on nutrients and moisture available to bacteria
  - Moisture is important



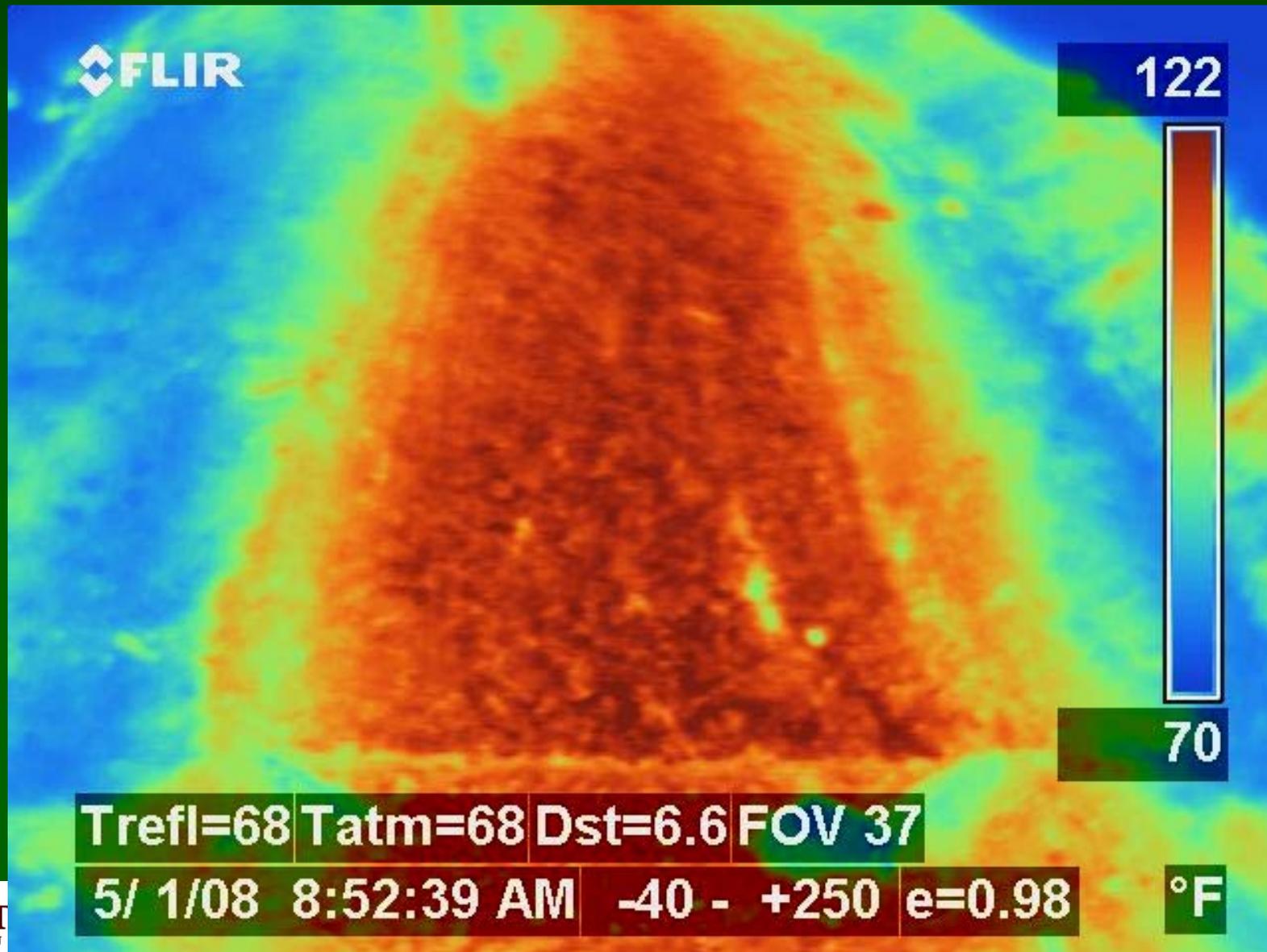
# 2 windrows in Miss.



# 3 windrows (Day 2)



# House 1 – Day 13



# Litter

- Shown to reduce the number of pathogenic bacteria in litter in-between flocks
- Why not compost litter prior to land application?
  - Reduce bacterial & nutrient runoff from sites of application?
  - Reduce odor associated with litter application?

# Litter

- Raw and Composted litter
  - Tested for bacteria & nutrients
  - Tested for volatile compounds
  - Applied to fields @ USDA-ARS Riesel
  - Volunteers smell fields
  - Edge of field runoff monitored 1 year prior, 2 years post
- Results will be disseminated at producer field days & through

<http://windrowlitter.tamu.edu/>

# Partners

- TWRI, AgriLife Extension Poultry Science, Soil & Crop Sciences, WTAMU Olfactometry Lab, Sanderson Farms, Texas Poultry Foundation, USDA-ARS, USDA-NRCS, Limestone-Falls SWCD
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## Reference

- Bud Malone, "Management Guidelines for In-house Composting of Litter" University of Delaware website, <http://poultryextension.udel.edu/poultryextension/index.htm>