

Livestock Mortality Composting

2021 IREC Field Day

Nicole Stevens Lab Assistant II UCCE Siskiyou and Modoc
Laura Snell County Director, Livestock and Natural Resource Advisor UCCE Modoc County

Background

The agriculture community especially livestock producers in California are faced with many challenges. One of these is how to legally and properly dispose of livestock mortalities. This coupled with increased predation by wolves, bears, mountain lions, and coyotes etc. and increasingly limited predator control options poses an additional burden. A commonly used method for disposing livestock mortalities is to set aside an area on farm for a bone pile. This method has been shown to act as an attractant to large predators (wolves, bears, mountain lions and coyotes) which in turn could lead to increased predation and or harassment of livestock. The Oregon Department of Fish and Wildlife states that removing bone piles and attractants is the number one predator control option for reducing livestock/predator interactions. Limited removal options such as burial, incineration, rendering, and landfill disposal can be available in some specific circumstances but are not widely convenient, economical, or legal in most of California.

The goal of this research is demonstrate the effectiveness of livestock mortality composting in California. We are currently working on Best Management Practices to be approved through the California Department of Environmental Health. After livestock mortality composting is legal, we aim to streamline the regulatory process and increase communication to stakeholders to use this resource.

Current Process for Research Composting:

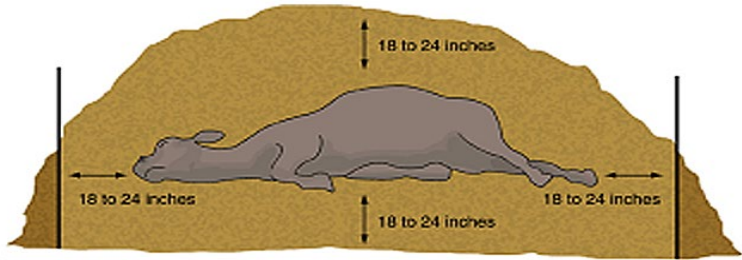
- ❖ California Environmental Protection Agency and State of California Regional Water Quality Control Board: Application/Report of Waste Discharge General Information Form For-Waste Discharge Requirements or NPDES Permit
- ❖ CalRecycle 169 Form. Enforcement Agency Notifications
- ❖ Letter to State Veterinarian for Research Approval
- ❖ Prove that there will be no discharge into nearby groundwater, streams etc.
- ❖ Dead Animal Hauler License to be able to transport carcasses
- ❖ Keep CDFA, CalREcycle, and Waterboard informed throughout composting process

Data Monitoring:

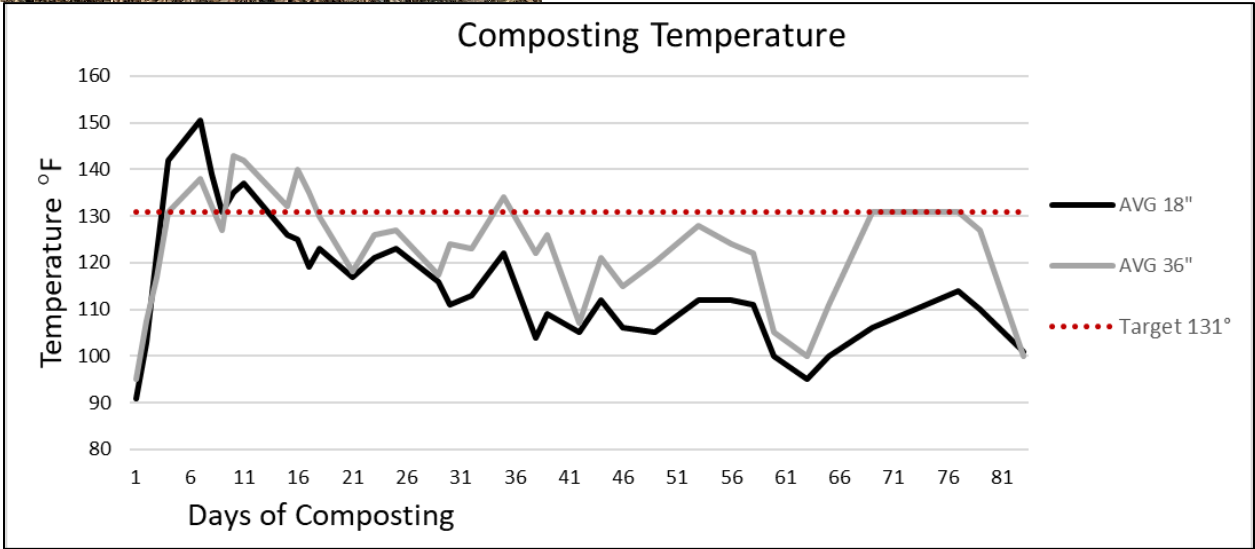
- ❖ **Temperature monitoring:** After new mortality added to pile temperature needs to reach 131 degrees F for 72 hours.
- ❖ **Moisture Monitoring and Carbon:Nitrogen ratio testing**
- ❖ **Compost pile turned every three months:** At time of compost pile rotation sample collect and sent to lab for complete compost analysis. Water applied to promote active composting
- ❖ **pH sample monitoring**
- ❖ **Scavenger Monitoring by trail camera**

Within our pile we have composted 4 cattle mortalities ranging in weight from 500-1200 lbs.

Left: Diagram to show needed material around mortality when creating pile and demonstration of what the inside of the pile looks like.



Left: Temperature monitoring 18" and 36" depths. Above: Rotating pile six months after mortality placed in pile. Notice large bones still present but the rest of the mortality has composted.



Above: Temperature monitoring over time for the first mortality. More detailed information can be found on our website, devilsgardenucce.org in a blog about our research titled "Livestock Mortality Composting." A huge thanks to Kasey DeAtley and Cari Rivers for their work on this project.