SENATE COMMITTEE ON ENVIRONMENTAL QUALITY
Senator Blakespear, Chair
2025 - 2026 Regular

Bill No:	AB 411		
Author:	Papan		
Version:	4/23/2025	**Hearing Date:**	7/16/25
Urgency:	No	**Fiscal:**	Yes
Consultant:	Brynn Cook		

SUBJECT: Livestock carcasses: disposal: composting

DIGEST: Allows composting livestock carcasses on farms if specified criteria are met.

ANALYSIS:

Existing law:

1) Requires the Department of Resources Recycling and Recovery (CalRecycle) to adopt regulations establishing minimum standards for solid waste handling, transfer, composting, transformation, and disposal, as specified. (Public Resources Code (PRC) § 42030)

2) Pursuant to regulations adopted by CalRecycle under PRC § 42030, establishes requirements for the siting and operation of compost facilities in the state, including:
   a) Establishing regulatory tiers based on the size and operations of compost facilities, including an excluded tier, an enforcement agency notification tier, a registration permit tier, and a full solid waste facility permit (SWFP) tier.
   b) Prohibiting the composting of mammalian tissue, including flesh, organs, hide, blood, bone, and marrow, except when received from a food facility, as part of a research composting operation, or from a source approved by CalRecycle, the State Water Resources Control Board (SWRCB), and the California Department of Food and Agriculture (CDFA). (Chapter 3.1 of Division 7 of Title 14 of the California Code of Regulations)

3) Prohibits a dead animal hauler or other person from transporting any dead animal to any place other than a licensed rendering plant, a licensed collection center, an animal disease diagnostic laboratory, the nearest crematory, or to a destination in another state that has been approved for that purpose. (Food and Agriculture Code (FAC) § 19348)

4) Defines "animals" as burros, cattle, goats, horses, sheep, swine, other large domesticated animals, and poultry. (FAC § 19201)

5) Requires CDFA to publish a list, known as the List of Reportable Conditions for Animals and Animal Products, of reportable conditions that pose or may pose a significant threat to public health, animal health, the environment, or food supply, as specified. (FAC § 9101)

6) Establishes, pursuant to CalRecycle regulations, siting and operating requirements for compost operations; four regulatory tiers, from notification to a full SWFP, based on the feedstock and size of the facility; and a prohibition on the composting of mammalian tissue, except as specified. (Chapter 3.1 of Division 7 of Title 14 of the California Code of Regulations)

This bill:

1) Allows livestock carcasses on farms to be composted if all of the following requirements are met:
   a) The composting of the carcass is conducted in accordance with best management practices for livestock composting adopted by the Secretary of Food and Agriculture, in collaboration with CalRecycle and SWRCB.
   b) The total amount of composting material onsite at any one time does not exceed 100 cubic yards, including all livestock carcasses.
   c) All composting material, including livestock carcasses, comes from an agricultural site or sites owned or leased by the owner of the livestock carcasses.
   d) The composting activity occurs on an agricultural site owned or leased by the owner of the livestock carcasses. If the activity occurs on an agricultural site owned or leased by the owner that is not the site where the carcasses were generated:
      i) The activity shall occur in the county in which the carcass was generated or within an adjacent county; and
      ii) The transport of the carcasses shall comply with all applicable state and local laws and regulations.

   e) After the composting material is converted into cured compost, the cured compost is applied to an agricultural site owned or leased by the owner of the livestock carcasses that produced the cured compost and that meets the best management practices adopted pursuant to paragraph.

   f) The operator of the composting operation notifies the applicable local enforcement agency of the facility within 30 days of commencing operation, including the location and operator contact information.

Background

1) *Organic Waste and Short-Lived Climate Pollutants.* By weight, organic waste makes up 48% of the annual material added to landfills in California.

   When organic materials are discarded in a landfill, bacteria break down that material anaerobically (without oxygen), a process that releases methane, a potent greenhouse gas (GHG). While modern landfills have systems in place to capture this methane, significant amounts of methane and other short-lived climate pollutants (SLCPs) continue to escape from older landfills into the atmosphere. According to CalRecycle, landfills are the third largest source of methane in California, and organic waste in landfills emits 20% of the state's methane. Approximately 8.5 million tons of carbon dioxide equivalent were released by landfills in 2020[1].

   To reduce SLCPs, the Legislature passed SB 1383 (Lara, Chapter 395, Statutes of 2016) which set a target to reduce methane emissions by 40% relative to 2014 levels by 2030. SB 1383 targeted SLCPs emitted from landfills, and set a goal to reduce the landfill disposal of organic waste by 50% by 2020 and 75% by 2025 relative to the 2014 disposal level. Under SB 1383, the organic waste diverted from landfills must go to organics recovery facilities to be recycled into products like compost, mulch, or biogas.

2) *What is composting and how is it done?* Composting is the aerobic decomposition of organic waste (grass clippings, food waste, bones, etc.) into a humus material. Composting relies on microbes to break down organic materials in a process that generates heat and reduces pathogens. A succession of microbes and fungi, which thrive on different materials and at different temperature ranges in the compost heap, are essential to the composting process. As the organic material decomposes, it must be continually exposed to oxygen, which the microbes require to consume the organic materials for energy[2]. Compost facilities have significantly fewer emissions from organic waste compared to landfills, since aerobic (with oxygen) decomposition of this material does not produce methane.

3) *Regulatory tiers for composting*. In addition to reducing SLCP, composting has environmental benefits by recycling organic materials into a nutrient-rich soil amendment. Composting also has the potential, however, to cause nuisances to

[1] California's Short-Lived Climate Pollutant Reduction Strategy - CalRecycle Home Page

[2] August 2018 Discussion Paper COMPOSTING IN CALIFORNIA Addressing Air Quality Permitting and Regulatory Issues for Expanding Infrastructure

surrounding communities, including odors, pathogen vectors, and water and soil contamination if it is managed improperly. In order to minimize the potential risks associated with composting, the state has developed various statutes and regulatory processes to govern composting operations.

CalRecycle has established different regulatory tiers for composting facilities that have different requirements[3]. Facilities are slotted into tiers based on their size, activities, and the materials they process. These tiers are[4]:

a) Excluded tier: Operations under this tier are not considered compostable material handling operations and are not subject to CalRecycle regulations. It includes operations that handle agricultural material, derived from an agricultural site, and returns a similar amount of material to that same site, or an agricultural site owned or leased by the owner; vermicomposting; mushroom farming; composting green material agricultural material, food material, and vegetative food material if the total amount of feedstock and compost onsite does not exceed 100 cubic yards and 750 square feet at any one time.
b) Notification tier: Operations under this tier are required to notify the appropriate solid waste local enforcement agency (LEA) of their operation and comply with specified requirements. This tier includes agricultural materials composting operations, green material composting operations under 12,500 cubic yards, biosolids composting operations, research composting operations under 5,000 cubic yards, chipping and grinding operations under 200 tons per day, and authorized land application activities. Notification operations can require submittal of an "operation plan" or an "odor impact minimization plan" (OIMP).[5]
c) Registration permit tier: Operations under this tier are required to have a registration permit, which is less stringent and has fewer requirements than a full SWFP. This tier includes vegetative food material compost facilities under 12,500 cubic yards and chipping and grinding facilities between 200 and 500 tons per day.
d) Full SWFP tier: Operations under this tier are required to have a full SWFP. Operations under this tier include composting facilities handling biosolids, digestate, food material, mixed material, etc., green material composting facilities over 12,500 cubic yards, vegetative food material composting facilities over 12,500 cubic yards, and chipping and grinding facilities over 500 tons per day.

[4] Tiered Regulatory Placement - CalRecycle Home Page
[5] Permit Tasks and Tiers Charts - CalRecycle Home Page

None of the tiers permit established by CalRecycle's regulations allow the composting of mammalian tissue, but locally-approved, temporary waivers to do so exist during a local or state emergency.

4) *Livestock carcass management.* Managing livestock carcasses is regulated at the federal, state, and local level. Under existing laws, if livestock die, the carcasses can be sent off site to a rending facility, to a landfill, or to an incinerator. On site, animal carcasses may be buried, following specified requirements. In practice, animal carcasses may also be disposed of onsite in 'bone piles', where carcasses are put into a designated area to decompose naturally.

   Rendering happens at a rending facility that heats and dries the carcass to kill pathogens and converts the by-products to usable commodities, like animal feed, pet food, biofuels, fertilizers, and oleochemicals. According to CDFA, there are 21 traditional rendering facilities (though not all accept all carcasses) in California, served by 57 collection centers. Hauling carcasses to those facilities must be done by licensed haulers legally permitted to do so.

   Disposing of animal carcasses in municipal landfills is generally allowed under permits and Water Discharge Requirements issued for the landfills, and usually represents only a small volume of deadstock. In the event of a large animal mortality event, the person shipping the deadstock and the landfill operator are required to consult with a regional water quality control board staff prior to shipment and follow CDFA and local health agency restrictions on transportation of deadstock.

   Animal burying is, according to *Emergency Animal Disposal Guidance* (Guidance) put out by CalEPA, "the least desirable and environmentally safe alternative" that is legally permitted for dealing with animal carcasses in California. According to the Guidance, "On-site disposal should only be attempted after consideration of proximity to ground and surface water including domestic wells, drinking water reservoirs, and surface waters."

   The Guidance also includes recommendations on how carcasses should be buried, although burying carcasses on site is regulated by local jurisdictions. Each county in California has unique restrictions on where carcasses can be buried (i.e., distance from waterways, groundwater etc.). The Guidance also cautions that carcasses buried in this matter not only pose a risk to water quality, but can also affect future uses of the property, and that farmers should keep records of burial sites in case the location needs to be excavated in the future to remedy any groundwater threat or to support foundations, etc.

Bone piles, while a common solution for farmers to deal with animal carcasses on site, attract predators. One study, *Livestock Mortality Composting to Mitigate Livestock Predator Interactions*, found bone piles attracted an average of 390 predator visits in the first year and 292 in the second year.

5) *Risks and rewards of composting deadstock.* Composting animal carcasses, especially on farms outside of professionally managed composting facilities, can pose a risk of pathogen exposure to environmental and human health – especially if the composting is not done correctly to reach prolonged high temperatures or is not properly aerated. Microbial pathogens that cause illness in humans and other animals (such as various species of *Salmonella*[6], *Campylobacter*[7], *Escherichia coli*, and *Listeria monocytogenes*) can survive in composted material if the compost is not properly managed. Additionally, prions associated with *'transmissible spongiform encephalopathies'* (also known as mad cow disease) have been shown in some studies to resist conventional composting, although other studies show that when done correctly, composting can cause these prions to fully degrade[8].

   If present in the compost pile, these potentially dangerous pathogens can spread, either by leaching into groundwater, or by being vectored by insect, birds, rodents, and other animals. Some pathogens can even aerosolize during compost handling and spread through the air.[9]

   However, it bears repeating that these concerns around fostering and spreading pathogens in carcass composting are primarily related to *improper* composting, which can result if the compost piles are not properly managed to reach ideal temperature, moisture, and aeration parameters. Composting, if done correctly, can lead to a useable product that fully degrades pathogens. In addition, a study comparing the number of predator visits to bone piles and compost piles found that while bone piles attracted hundreds of predators per year, compost piles only attracted eight predators per year[10].

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[6] Sunar, N. M., Stentiford, E. I., Stewart, D. I., & Flecther, L. A. (2014). Survival of Salmonella spp. in composting using vial and direct inoculums technique. *arXiv preprint arXiv:1404.5212*.

[7] Inglis, G. D., McAllister, T. A., Larney, F. J., & Topp, E. (2010). Prolonged survival of Campylobacter species in bovine manure compost. *Applied and Environmental Microbiology*, *76*(4), 1110-1119.

[8] Xu, S., Abeysekara, S., Dudas, S. *et al.* Biodegradation of bovine spongiform encephalopathy prions in compost. *Sci Rep* **12**, 22233 (2022). https://doi.org/10.1038/s41598-022-26201-2

[9] Yang, S., Yin, Y., Zhang, W., Li, H., Wang, X., & Chen, R. (2024). Advances in understanding bioaerosol release characteristics and potential hazards during aerobic composting. *Science of the Total Environment*, 171796.

[10] Stevens, N. O., DeAtley, K. L., Woodmansee, G. L., & Snell, L. K. (2022). Livestock Mortality Composting to Mitigate Livestock Predator Interactions. In *Proceedings of the Vertebrate Pest Conference* (Vol. 30, No. 30).

6) *Composting carcasses in California*. Currently, composting carcasses on farm sites is illegal, except under declared states of emergency that cause a large number of animals to die off, such as extreme heat and drought. Even in that scenario, CDFA's *Emergency Mortality Disposal Advisory* lists on-site composting as a last resort –only to be used if rending facilities are no longer accepting carcasses, if storing the bodies at cold temperatures is not an option, and if landfilling is not a viable option. In this scenario, the advisory provides guidance for on-site composting, specifying that, "Compost must always be performed in a controlled manner by trained and experienced personnel. Proper site security measures such as fencing should be installed to protect the compost piles from predators, vermin, or other unwanted animals."

   The advisory further states that, "Producers should consult with the Regional Water Quality Control Board before starting the composting process and inquire about requirements for land application. It is likely that land application will require a management plan with monitoring and testing that shows the composted material will not be a threat to water quality. The producers should plan for the possibility that the only disposal option for the composted material is landfill. …Bones should be removed and properly disposed of prior to land applying the compost materials."

   Properly composting carcasses requires controlling a number of parameters. For instance, a compost site should have an impervious layer at the bottom such as a concrete pad or a waterproof liner to protect groundwater from infiltration. Adult carcasses should be placed on a 3-foot bed of dairy manure and covered with 3 feet of the same material. The compost pile should be protected from inundation, washout, runoff, ponding, and scavenging wild animals. The compost pile should be at least 50 feet from any domestic well.

   If done correctly, composting caracasses can be a low-impact way to, also according to the Advisory, composting can: "mitigate the immediate issue of decomposing animal carcasses by the roadside, control common human and animal pathogens, and create a more manageable material."

   Deadstock composting is currently allowed in 42 states. Researchers at California State University Chico and the University of California Agriculture and Natural Resources Cooperative Extension (UC Cooperative Extension) have conducted pilot research into the feasibility, efficacy, and safety of routine mortality composting in California under the supervision of CDFA, CalRecycle, and regional water boards. In September 2023, the UC Cooperative Extension published *Best Management Practices for Routine On-Farm Livestock Mortality and Animal By-Product Composting*. According to the BMP document, "routine on-farm composting is an effective, environmentally-

friendly, and economically viable alternative to current, unfeasible carcass disposal options."

Comments

1) *Purpose of Bill.* According to the author, "This bill offers ranchers a practical and environmentally friendly method of handling livestock carcasses by allowing them to compost the remains on-site. Currently, composting is not allowed. As such, many ranchers face significant challenges disposing of livestock remains. While they can transmit the remains to a rendering facility, often such facilities are out of reach, leaving ranchers with limited and less-than-ideal options. They can let carcasses decompose naturally, move them to disposal pits or bone piles or bury them. Unfortunately, decomposition and bone piles attract predators, leading to dangerous interactions with live animals. Decomposition can also lead to serious health and environmental concerns. Bone burial is subject to complex regional regulations that make the method costly. On-site composting is a sustainable, cost-effective option that allows ranchers to manage their operations efficiently, safely, and responsibly. This bill offers a proactive approach to protecting both livestock and the environment"

2) *Getting rid of the bodies.* When cattle or other livestock, such as chickens or goats, die on a farm, the farmer has a number of options to deal with the carcass. Shipping carcasses off to rending facilities is often the best solution for carcass management from a human and environmental health perspective. However, while there are many rendering facilities in the state overall, they may be out of reach for some ranchers, particularly in northern areas of the state. Shipping carcasses to rendering facilities may also be expensive for ranchers, given that carcasses are relatively heavy and thus expensive to haul long distances. Another disposal option—sending deadstock to landfills—also requires hauling the bodies off site.

   If hauling to a rendering facility or landfill is not a viable or attractive option, either because of distance to those facilities or the price associated with disposal, farmers may opt to deal with the carcasses on site. Burying carcasses on site is allowed under current regulations, but the burial must meet certain standards including distance from water sources and other requirements such as depth that carcasses should be buried; burying animal carcasses also does not result in a usable product, like compost.

   Due to these challenges, many ranchers choose to leave carcasses to decompose naturally, typically in bone piles. This unmanaged decomposition

can attract predators and scavengers, and can pose health or environmental hazards and create a public nuisance.

Compared to other on-site options, controlled composting—which follows a set protocol to minimize presence of pathogens, contamination, and odors—can be a good option for farmers.

AB 411 opens the door to composting deadstock on farms, adding some appropriate guardrails, including a requirement to prioritize best management practices, critically requiring that compost that resulting compost be applied on the land of the deadstock owner, and limiting the size of the compost pile to 100 tons (according to the author, this is between 6-12 cattle carcasses).

Given the potential risk of incorrectly done composting to water resources***, the author and committee may wish to require the ranchers to notify the regional and water control board of any on farm carcass composting operations pursuant to this bill.***

The author and committee may also wish to clarify that the best management practices for carcass composting required in this bill include specifications on protection protocol for groundwater, proper management of compost piles, enforcement and penalties for failing to follow best practices, collaboration with local enforcement agencies, and protection of public health and food supply practices.

3) *Committee amendments.* ***Staff recommends the committee adopt the bolded amendments contained in comments 3 above.***

DOUBLE REFERRAL:

This measure was heard in Senate Agricultural Committee on July 1, 2025, and passed out of committee with a vote of 5-0.

Related/Prior Legislation
AB 279 (McNearny, 2025) reduces the regulatory requirements for certain composting operations, including for agricultural operations that do not include large-scale animal die off events. This bill is pending hearing in the Assembly Natural Resources committee.

SOURCE: The California Cattlemen's Association

SUPPORT:

Agricultural Council of California
Butte County Local Food Network
California Association of Environmental Health Administrators (CAEHA)
California Cattlemen's Association
California Certified Organic Farmers (CCOF)
California Climate & Agriculture Network (CALCAN)
California Farm Bureau Federation
California Wool Growers Association
Californians Against Waste
Community Alliance With Family Farmers
Defenders of Wildlife
Modoc County Board of Supervisors
People Food and Land Foundation
Public Health Institute
Roots of Change
Slow Food Sonoma County North
Tomkat Ranch
Western United Dairies

OPPOSITION:

None received

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