

## **Draft Overview of composting animal carcass mortality as an option for livestock carcass disposal in New Mexico:**

Master composter training class project, Arlene Buchholz, June 2017

For owners of livestock and poultry in New Mexico, the options for disposal of animal carcasses include:

- a) Landfill
- b) Rendering
- c) Composting
- d) Burial

Depending on the farm's size, geography, location and carbon sources available, on farm composting may be an acceptable method of livestock carcass disposal. Composting is often used on farms for disposal of routine animal mortality and can provide a low cost and environmentally safe method of disposal. The composter needs to monitor and adjust the aeration, moisture, temperature, C:N ratio (approximately 12:1), to optimize composting. Considerations when deciding if composting will be a feasible option for carcass disposal:

1) Review methods of carcass disposal from NMLB: Winter Storm Cull Livestock and Carcass Disposal Options, 12/29/2015:

[https://www.env.nm.gov/swb/documents/WinterStormCarcassDisposalOptions\\_122915\\_2\\_NMLB.pdf](https://www.env.nm.gov/swb/documents/WinterStormCarcassDisposalOptions_122915_2_NMLB.pdf) and NMSU extension, Proper Disposal of Farm Mortalities: Guide B-123, [http://aces.nmsu.edu/pubs/\\_b/B123/welcome.html](http://aces.nmsu.edu/pubs/_b/B123/welcome.html) and guidance in Whole Animal Composting of Dairy Cattle: Guide D-108: [http://aces.nmsu.edu/pubs/\\_b/B123.pdf](http://aces.nmsu.edu/pubs/_b/B123.pdf)

2) Review and follow all NM regulations for animal carcass disposal, including state, county and city, requirements. In New Mexico animal carcass disposal is regulated by the Department of Environment, Solid Waste Bureau and the New Mexico Livestock Board. For Bernalillo County, Animal Ordinances: [http://www.bernco.gov/animal-care-services/animal\\_care\\_ord\\_9-2013.pdf](http://www.bernco.gov/animal-care-services/animal_care_ord_9-2013.pdf) and NMLB, <http://law.justia.com/codes/new-mexico/2011/chapter77> under NMSA 77 3-4, "The bodies of all dead animals shall be buried, burned or disposed of by the owners as provided by regulations of the board."

The Solid Waste Bureau Chief, Auralie Ashley-Marx, can be contacted at [505-827-2775](tel:505-827-2775), [Auralie.Ashley-Marx@state.nm.us](mailto:Auralie.Ashley-Marx@state.nm.us), for on-site composting guidance. The Natural Resources Conservation Services in New Mexico, also has resources for composting animal mortality: <https://www.nrcs.usda.gov/wps/portal/nrcs/site/nm/home/>

3) Determine if you have a suitable site on farm for composting:

- Location with easy access for moving equipment for handling carbon sources (manure, straw, old feed, wood chips, corn stover) and limited traffic
- Located away from neighbors, not visible from the road
- Location has access to water, but at least 200 feet from streams, wells or water sources
- Relatively flat area with a slope of 1-3% to allow good drainage
- Located downstream and away from livestock
- Locate site with firm soil to prepare composting pad

4) Determine if you have enough and the right type of carbon sources available for composting the size and type of livestock carcass: carbon sources with particle size 1/8 to 1/2 inch in diameter to increase porosity and allow aeration such as dry and porous manure, compost, sawdust with large particle size, wood chips (4-6 inches in length), manure mixed with straw, old feed, animal bedding, hay, grass clippings, leaves. Approximately 12 cubic yards of carbon sources are required to compost 1 adult cow. 12 cubic yards is equivalent to about 4 pick-up truck loads of carbon materials.

5) If you do not have enough carbon sources available on farm, determine if you can obtain the needed carbon and bulking materials from local sources:  
Check with your local city parks, landscaping businesses, for carbon materials: wood chips, mulch, grass clippings, leaves, sawdust.

NM Resources for Carbon Materials:

Bio-Grind Inc.  
US Hwy 70; MM 265.8  
P.O. Box 1580  
Ruidoso, NM 88355  
Contact: Jeff Shaw  
[575-937-1626](tel:575-937-1626)  
Call for availability

Sierra Contracting, Inc.  
Ruidoso Downs/Lincoln/26440 Highway 70 East  
P.O. Box 935  
Alto, NM 88312  
Paul Wetzel or Van Patton  
[575-378-1091](tel:575-378-1091)  
Woodchips grind mix available at no charge. Grind mix suitable for composting.  
Will deliver for fee

Roswell Municipal Landfill  
3006 West Brasher Road (1.5 Miles West of Sunset Ave.)  
Roswell, NM 88203  
Michael Mayes  
[575-624-6746](tel:575-624-6746)  
Large supply, no charge for chips

6) General Steps for Livestock Composting:

- Make a flat composting pad with 1-3% slope in area of firm soil and place 6" of sand, gravel or caliche
- If you are in an area with a high water table, place a 10' X 12' plastic sheet and then build the compost pile on top
- Check moisture content of carbon materials-they should be 50-60%. Squeeze a handful of compost material in your hand and if it sticks together and no water drips out, moisture content is about 50%.
- If carbon materials have less than 50% moisture content add water to moisten the materials as you build the pile
- Place a 9 X 10 foot square, 12 to 24 inch layer of an absorbent porous, bulky material (large wood chips, dry manure, manure mixed with straw) as the base that is not readily compacted and will allow aeration of the pile
- Place the carcass in the middle of the base layer on its side
- Pierce the abdomen and rumen to prevent bloating and displacement of carbon covering the carcass
- Place 12-24 inches of easily composted carbon material such as saw dust or manure mixed with straw around the carcass
- Completely cover the carcass with 18 to 24 inches of carbon material to maintain the high composting temperature, minimize odors and prevent scavenging by wildlife. The

finished compost pile will be about 6 feet tall

-You can place straw or hay bales around the base of the compost pile to help absorb leachate and maintain the structure of the pile

-Monitor the internal temperature of the compost pile in several evenly spaced places daily using a long stemmed thermometer at a depth of 2-3 feet. The temperature should reach 130-140 F within the first few days of completion if it was constructed with the correct amount of moisture, C:N ratio and aeration. A temperature of 131 F for three days will kill most livestock and plant pathogens and weed seeds in the compost material. If the temperature reaches 160 F, composting will slow down.

-Trouble Shooting: If the compost pile does not reach 131 F, leachate is noted at the base of the windrow, or odors are present, the windrow may need to be rebuilt by adding bulky carbon materials to increase aeration. In New Mexico moisture can evaporate and the materials may become too dry. Water may need to be added to the mixture if the temperature is too low. Adding a thicker carbon layer on top can decrease odors.

-Leave the completed composting windrow undisturbed for 4-6 months after it has reached 131 F or higher for 3 or more days

-After 4-6 months, open and turn the carcass and carbon materials in the compost pile. Place more bulky carbon on the base to provide aeration and absorption of moisture and cover the carcass completely with 18-24 inches of carbon materials.

-A cow carcass will be mostly decomposed after 8-10 months with only small bones remaining.

-The C:N ratio and nutrient content of the compost can be analyzed and it can be applied on farm using a manure spreader.

-The mortality compost should be used on farm and not sold

7) If you cannot compost the animal carcass on farm, you may be able to have the carcass composted at a commercial facility. Commercial mortality composting facilities in New Mexico that are permitted/licensed to accept animal carcasses for composting:

De Baca County Solid Waste Facility (C & D)

4 miles east of Fort Sumner, north of Highway 60

P.O. Box 347

Fort Sumner, NM 88119

Adolfo Lucero

[575-355-2601](tel:575-355-2601)

Estancia Valley Regional LF

Longhorn exit 7 Miles East of Moriarty; Landfill Road

PO Box 736

Estancia, NM 87016

Joseph Ellis

[505-384-4270](tel:505-384-4270)

References:

1) Livestock Mortality Composting for Large and Small Operations in the Semi-Arid West, Montana State University Extension Publication, EB0205,

<http://msuextension.org/publications/AgandNaturalResources/EB0205.pdf>

2) NMSU Cooperative Extension Service Publication, Whole Animal Composting of Dairy Cattle, Guide D-108

[http://www.nmlbonline.com/NMSU\\_Whole\\_Animal\\_Composting\\_of\\_Dairy\\_Cattle.pdf](http://www.nmlbonline.com/NMSU_Whole_Animal_Composting_of_Dairy_Cattle.pdf)

3) Cornell Waste Management Institute has many resources on their mortality composting website, <http://cwmi.ces.cornell.edu/mortality.htm>



Photo from Cornell Waste Management Institute  
website