Composting separated dairy manure solids
Kaderly Ag 2024

Hauling & spreading costs

Hauser Ln Haul	1942 Ton SL 72	10 Miles $7900	$4.07 / Ton raw	$9.13 / Ton finished	
N2793 Cty S Haul	1446 Ton SL 55	6 Miles $5488	$3.79 / Ton raw	$7.63 / Ton finished	
Turning	Hauser 6 Cty S 5	$4313		$2.92 / Ton finished	
Hauser Ln Spread	865 Ton	$2313	55% reduction	$2.68 / Ton	
N2793 Cty S Spread	719 Ton	$2005	50% reduction	$2.78 / Ton	
Total cost	1480 T Compost + 104 T Gypsum	$22019	applied	$13.90 / Ton	

Lab Number: 66514

Sample ID: PINNECAL SDS

Manure Type: DAIRY, SOLID W/O BEDDING (6)

MANURE ANALYSIS

Date Sampled: 7/10/2024

Date Received: 7/12/2024

Date Reported: 7/19/2024

Analysis	Unit	Analysis Result (As Received)	Pounds Per Ton	First Year Availability @ Pounds Per Ton
Moisture	%	79.47	1589	
Solids	%	20.53	411	
Ash @ 550 C	%	3.22	64.5	
Organic Matter (LOI @ 550 C)	%	17.31	346.1	
Organic Carbon (LOI @ 550 C)	%	10.04	200.8	
Carbon:Nitrogen Ratio (C:N)	-		32.7:1	
Nitrogen, Total Kjeldahl (TKN)	%	0.307	6.1	3.8 *
Nitrogen, Ammonium (NH_4-N)	%	0.130	2.6	2.6 *
Nitrogen, Organic (N)	%	0.177	3.5	1.2 *
Phosphorus (P)	%	0.065	3.0 (as P_2O_5)	3.0 * (as P_2O_5)
Potassium (K)	%	0.183	4.4 (as K_2O)	4.4 * (as K_2O)
Sulfur (S)	%	0.05	1.0	0.6 #

1st compost turn. I should have had the door on!

Compost helps by:
* Improving soil structure and porosity - creating a better plant root environment
* Increasing moisture infiltration and permeability, and reducing bulk density of heavy soils, improving moisture infiltration rates and reducing erosion and runoff
* Improving the moisture holding capacity of light soils - reducing water loss and nutrient leaching, and improving moisture retention
* Improving the cation exchange capacity (CEC) of soils
* Supplying organic matter
* Increasing the proliferation of soil micro-organisms
* Supplying beneficial micro-organisms to soils and growing media
* Encouraging vigorous root growth
* Allowing plants to more effectively utilize nutrients, while reducing nutrient loss by leaching
* Enabling soils to retain nutrients longer
* Containing humus - assisting in soil aggregation, making nutrients available for plant uptake
* Buffering soil pH

Visitors to the compost

Learning the in’s and out of composting

- Each farm had 3 runs 320 ft long. The Hauser farm manure got 12” of rain in June. I was fighting gravity the first month. The piles keep getting wider. I had to spend about 60 hours with the skid steer pushing up the piles to get the 12ft wide turner to fit the runs. The manure was too wet to start with (80% moisture) it should be 50-65 %. To dry out the Hauser farm compost, I added 11 slinger loads of dry bedding in Aug. After the dry bedding addition, we got better heating 120-140 degrees. Bob Puritun with Larson Acres, had dryer compost at 60% moisture and got 140-160 degree temps.
- 300 ft runs are long enough, because as you turn the piles and clean up, you will make the runs longer. Make your runs go up and down the slope so water runs off and drains away. If you don’t and it rains a lot, you will have a muddy mess. Leave 20-25 ft. between the runs to have enough room to push up piles with the skid steer. The composting piles didn’t have an odor after the first turn. The 72 semi loads at Hauser (1950 ton) is approximately the same amount of manure produced by my neighbors 66 cow dairy with youngstock for a year.

Sample ID: COP
Lab Number: 68892

COMPOST ANALYSIS

Date Sampled: 10/10/2024
Date Received: 10/14/2024
Date Reported: 10/21/2024

Analysis	Unit	Analysis Result	Dry Basis Result	Analysis Method
Moisture @ 70 C	%	64.14		TMECC 03.09-A
Solids	%	35.86		TMECC 03.09-A
Total Nitrogen (N)	%	0.51	1.41	TMECC 04.02-D
Phosphorus (P)	%	0.08	0.21	TMECC 04.03-A
Phosphate (P_2O_5)	%	0.17	0.48	TMECC 04.03-A
Potassium (K)	%	0.30	0.84	TMECC 04.04-A
Potash (K_2O)	%	0.36	1.01	TMECC 04.04-A
Estimated Ash	%	22.69	63.28	TMECC 03.02-B (modified)
Organic Matter (LOI @ 550 C)	%	13.17	36.72	TMECC 05.07-A
Total Organic Carbon (C)	%	6.58	18.36	TMECC 04.01-A
Carbon:Nitrogen Ratio (C:N)	-	13.0:1	13.0:1	TMECC 05.02-A

Compost value

/ ton basis	Value as fertilizer		My application of 5 Ton / acre Compost with 600# gypsum		Ave. $77.20 / Ac
10.2 N	.50 / LB	$5.10	51 N	8 P	17 K
1.6 P	.62 / LB	$1.00	If compost made closer to the manure source. (My farms ave. 8 mile haul)	55% reduction in volume would saved ½ of the hauling cost.	The compost to fertilizer cost / unit NPK would be about the same.
3.4 K	.35 / LB	$1.19	Total value / ton as fertilizer **$7.30**	Compost cost / ton. less spread charge $18/ac for fertilizer & gypsum **$10.90**	compost cost **$3.60** / ton more than fertilizer

Mixing in
gypsum on final turning

Ready to load

loading

Mike Witt Compost spreading 5 Ton / Acre

Meyer spreader 24 Ton

Shielded twin vertical beater

60 ft spread

Equipped with scale.