

Table 8: Antibiotic feed or powder mixed with liquid hog and turkey manures before composting.

Antibiotic feed or antibiotic powder	Hog Manure	Turkey Manure
	-----Amount added, g-----	
CTC-50 ¹	2043.0	1319.2
Tylan-40 ²	2565.4	1648.0
Rumensin-80 ³	1285.0	824.5
Sulfamethazine powder	226.1	145.3
Stefac-20 ⁴	-	3289.3

¹ CTC-50 contains 50 grams of chlortetracycline per pound of feed

² Tylan-40 contains 40 grams of tylosin per pound of feed

³ Rumesnin-80 contains 80 grams of monensin per pound of feed

⁴ Stefac-20 contains 20 grams of virginiamycin per pound of feed



Figure 6: Mixing of liquid hog manure and wood shaving on a cement pad. Figure 6a shows injection of liquid manure into wood shavings. Figure 6b shows mixing of shavings and manure with a front end loader.



Figure 7: Figure 7a shows steam from heat from wood shavings during composting. Compost mixing was done by transferring shavings from one bin to another bin every two weeks. Figure 7b shows the compost material being sprayed with water as it was transferred from the left to the right bin.

Table 9: Variation in temperature and water content of the hog manure composting piles.

Date	Water Content, g/100 g wet weight	Temperature, °C	Remarks
10 July	66.1± 0.5	44.6±1.3	No water added
24 July	62.8 ±1.6	62.2±0.4	Water added
8 August	64.9 ±1.0	55.7±1.6	Water added
21 August	65.2±1.6	59.0±2.7	1200 gallons manure added from finishing barn
5 September	66.5±2.2	34.2±4.1	No water added
18 September	66.2±0.7	42.0±9.8	No water added
2 October	65.22±0.54	41.4±1.9	No water added
9 October	65.1±1.8	41.4±1.8	No water added

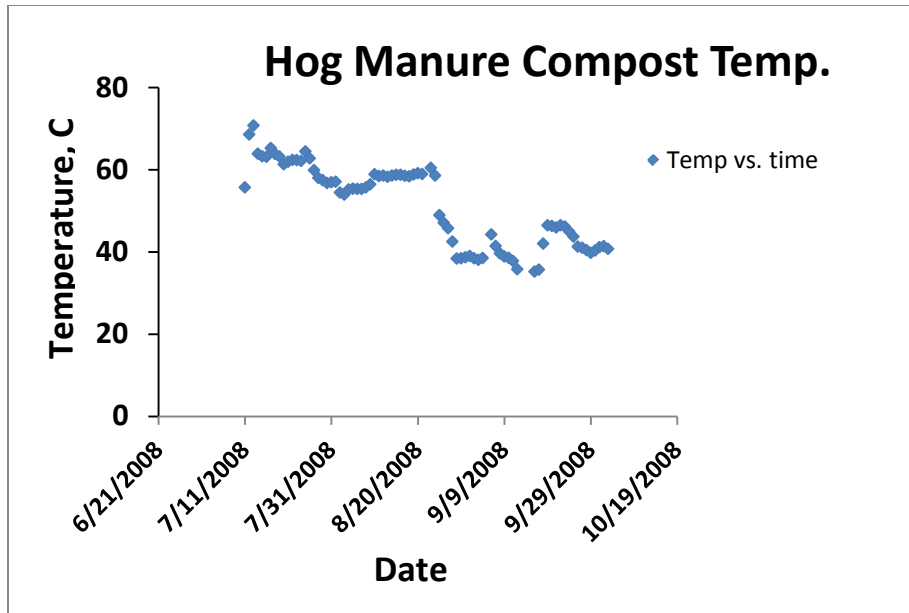


Figure 8. Daily temperature variation in hog manure mixed-wood shaving pile during composting.



Figure 9: Turkey manure compost pile is being inverted/mixed using a front end loader.

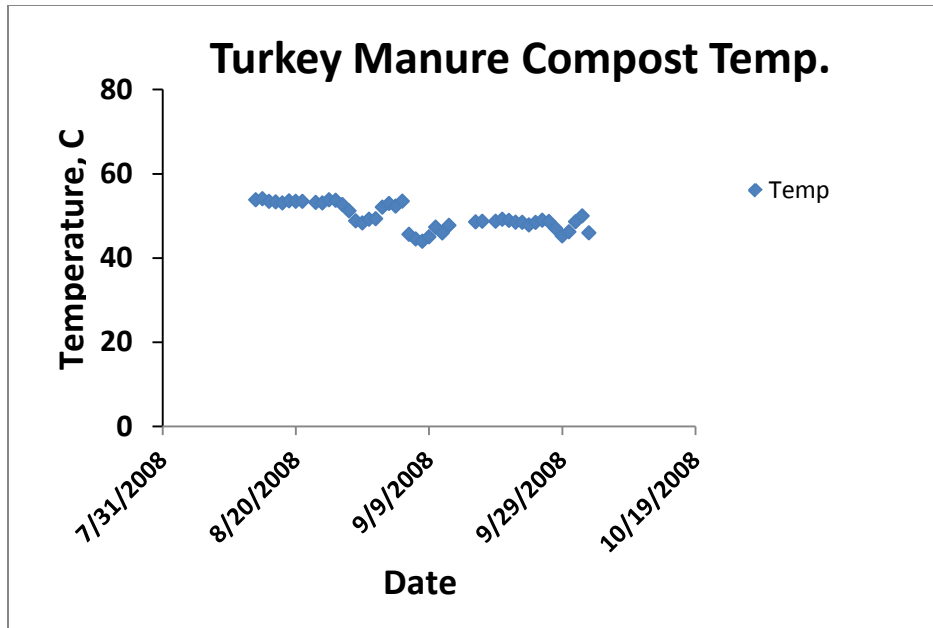


Figure 10. Daily temperature variation in turkey manure pile during composting.

Table 10: Water content of turkey manure as it was composting.

Date	Water Content, g per 100g wet weight	Temperature, °C	Remarks
12 August 2008	50.15±3.60	NM [§]	Water added
21 August 2008	54.68±1.39	53.5	No water added
5 September 2008	48.20±0.22	53.5	No water added
18 September 2008	45.03±2.04	NM	No water added
2 October 2008	42.86±2.41	50.0	No water added
9 October 2008	45.22±2.13	NM	No water added

[§]NM=Not measured

Table 11: TKN, NH₄-N, ash content and moisture content of hog and turkey manure composts.

Compost pile	TKN, mg N kg ⁻¹	NH ₄ -N¶, mg N kg ⁻¹	% Ash§ 550 °C	% Moisture 65°C
Hog	2694.2±408.7	350.7±89.7	5.14±0.35	64.38±1.81
Turkey	27867.1	4695.3±835.8	26.25±0.35	43.05±2.76

¶ On a moist weight basis

§ On a dry weight basis

Table 12: Moisture and nutrient analysis in fresh turkey manure. All analysis is on fresh weight basis.

Property	Concentration	Property	Concentration
Moisture, %	32.54	Mg, %	1.37
Dry Matter, %	67.46	Na, %	0.52
N, %	2.53	S, %	0.56
Organic-N, %	1.97	Cu, ppm	305.0
NH ₄ -N, %	0.56	Fe, ppm	3232.0
P ₂ O ₅ , %	3.99	Mn, ppm	563.0
K ₂ O, %	2.27	Zn, ppm	312.0
Ca, %	4.29	pH	8.5

Table 13: Spacing and planting dates for various crops at Staples and Waseca, MN

Crop	Spacing (cm)	Staples	Waseca
		Planting Date	
Garlic	15	30 Oct. 2008 10 Nov. 2008	3 Nov. 2008
Corn	20-23	14 May 2009	15 June 2009
Onions	15	7 May 2009	14 May 2009
Carrots	8	14 May 2009	23 April 2009
Potatoes	20-25	7 May 2009	4 May 2009
Lettuce	10	14 May 2009	23 April 2009
Spinach	10	14 May 2009	23 April 2009
Radish	3	14 May 2009	23 April 2009
Transplanting			
Cabbage	46	27 May	4 June 2009
Pepper	46	27 May	28 May 2009
Tomatoes	76	27 May	27-28 May 2009

Figure 11: Plot layout at Central Lakes College Agricultural Station Staples, MN. RH, CH, RT, CT, and Fer refers to raw hog manure, composted hog manure, raw turkey manure, composted turkey manure, and fertilizer treatment, respectively.

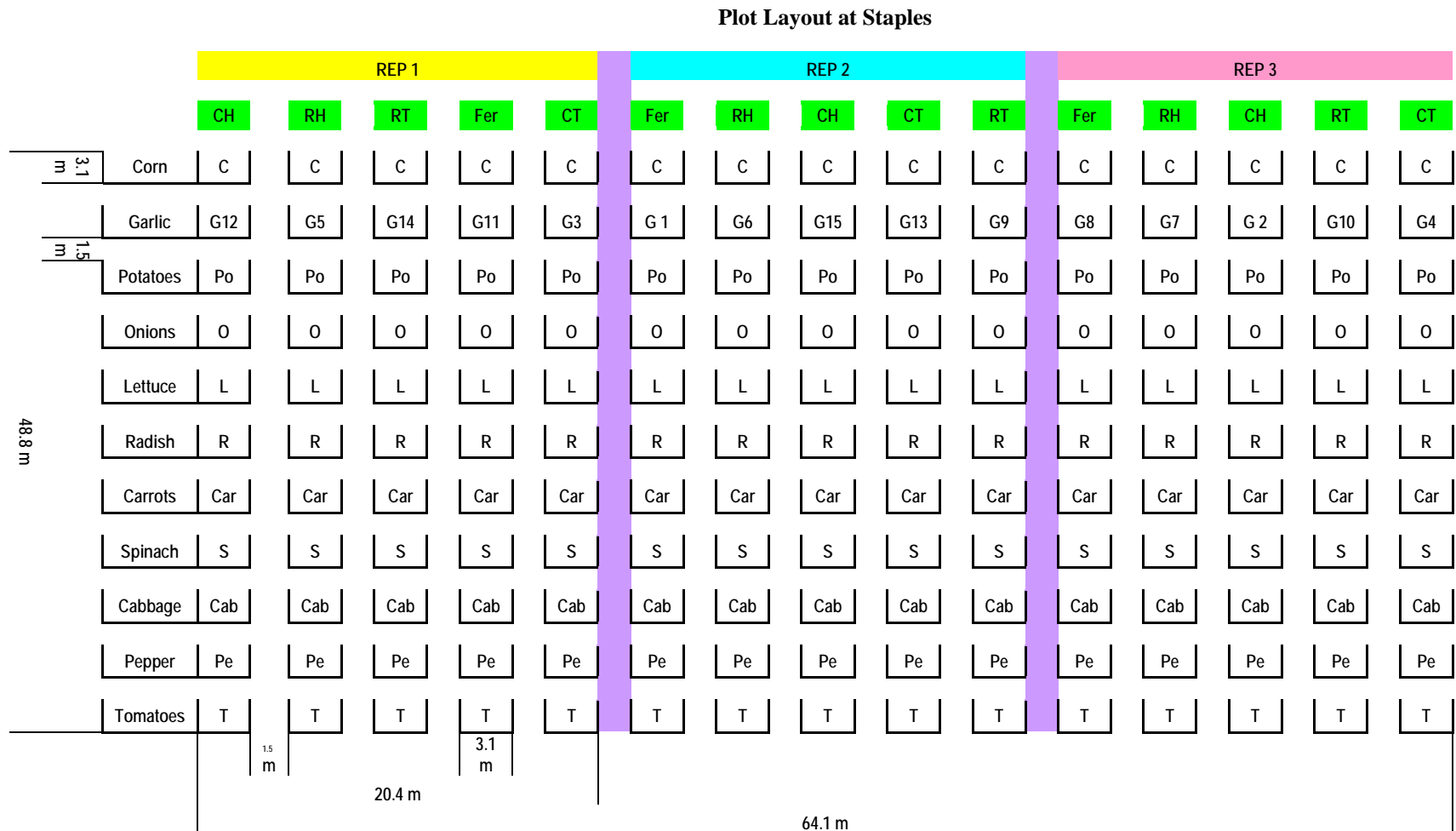


Figure 12: Plot layout at SROC Waseca, MN. RH, CH, RT, CT, and Fer refers to raw hog manure, composted hog manure, raw turkey manure, composted turkey manure, and fertilizer treatment, respectively.

