

Comparing N Rates Using Solid and Composted Dairy Manure on Sandy Soils

Norfolk Soil & Crop Improvement Association Major Grant Project

2007 - 2009



OBJECTIVE:

- To determine the nitrogen and soil quality value of organic matter from solid and composted manure on sandy soils

METHOD:

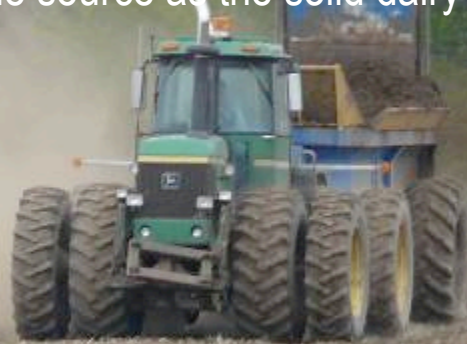
- compared solid dairy manure (10 ton/ac – applied fall 2007 and spring 2009), to composted dairy manure (5 ton/ac – applied spring 2008 and 2009) to commercial N
- subdivided – normal N (135 lbs) Calculator N (110 lbs) and Starter only (5 lbs N)
- supplemented plots with commercial N applied at side-dress as 28%



Organic Additions – Nutrients Applied

	Application Rate	Total N ¹	NH ₄ -N	Organic N	P ₂ O ₅	K ₂ O	Available N ²	Organic Matter	
	ton/ac	lbs/ac							
2008					C:N Ratio				
Compost	5 ton	25	1.3	24	19:1	22	37	8	930
Manure	10 ton	40	21	19	28:1	29	58	19	2100
2009									
Compost	5 ton	52	5	47	31:1	28	39	18	2900
Manure	10 ton	78	16	62	46:1	37	60	21	6340

- 1 Only a small portion of the Total N is available in the year of application
 - 2 Available N based on NMAN software – application rates determined before analysis was available
- Composted dairy manure is from the same source as the solid dairy manure
P₂O₅ represents the full long-term value



2008 Project Summary

Average Yield			Average Yield		
Treatment	bu/ac	Δ	Treatment	bu/ac	Δ
Compost	192	+ 22	Starter N only	140	---
Manure	186	+16	Calculator N rate	199	+ 59
Commercial N	170	---	Normal N rate	208	+ 68



2009 Project Summary

Average Yield			Average Yield		
Treatment	bu/ac	Δ	Treatment	bu/ac	Δ
Compost	168	+ 9	Starter N only	103	---
Manure	164	+ 5	Calculator N rate	191	+ 88
Commercial N	159	---	Normal N rate	197	+ 94



2008-2009 Project Summary

Average Yield			Average Yield		
Treatment	bu/ac	Δ	Treatment	bu/ac	Δ
Compost	180	+15	Starter N only	125	---
Manure	175	+10	Calculator N rate	196	+ 71
Commercial N	165	---	Normal N rate	203	+ 78

