



Hillsborough County Florida

PUBLIC WORKS

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MEMORANDUM

DATE December 6, 2017

TO: Steve Morgan, Environmental Permitting Manager, FDEP
Lance Kautz, Environmental Specialist I, FDEP

FROM: Larry Ruiz, Section Manager, Public Works, SWMD

SUBJECT: Hillsborough County Biosolids Composting Monthly Report: November 2017

BOARD OF COUNTY COMMISSIONERS

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SERVICES ADMINISTRATOR

Lucia E. Garsys

Biosolids Received (wet tons):	1529.54 tons of biosolids received for the month.
Source of Biosolids:	Hillsborough County Falkenburg AWWTP
Source of Bulking Agent:	Hillsborough County South County Yard Waste Processing Site
General Description of Activities:	All incoming biosolids were mixed with bulking agent and formed into windrows on the same day as received. 8 windrows were formed and in active composting as of 11/30/17. Windrow temperatures were monitored daily. 4 windrows has met temperature and time requirements of the Process to Further Reduce Pathogens (PFRP). 4 windrows have been turned. The previous 2 windrows have been moved to the curing section and combined for a total of 10 curing windrows. Sampling was performed on November 28, 2017. 1371.58 tons of finished compost was picked up by Life Soils.
Attachments:	A-I: Windrow construction and temperature records.

LER/rrw

Attachments

CC: Beth Schinella, Division Director, Utility Operations, PUD
Kim Byer, Division Director, Solid Waste Management Division, PWD
Ron Wiesman, Manager, Southeast County Landfill, PWD/SWMD

Attachment A

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-4	
Windrow Construction:			Date Commenced: 11-1-17		Date Completed: 11-4-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/1/17	Mike Bayne	22.45	29.19	60.00		
11/1/17	Mike Bayne	19.87	25.83	60.00		
11/1/17	Mike Bayne	21.17	27.52	60.00	44	
11/2/17	Jerry Devoe	22.21	28.87	60.00		
11/2/17	Jerry Devoe	14.50	18.85	60.00		
11/2/17	Jerry Devoe	19.60	25.48	60.00	44	
11/3/17	Oscar Ochoa	20.31	26.40	60.00		
11/3/17	Oscar Ochoa	17.39	22.61	60.00	36	
11/4/17	Oscar Ochoa	22.49	29.24	60.00	16	
Totals		179.99	233.99	540.00	140.00	0.00
Windrow Construction ratio:		2.91 /1				
Note: Yard waste yards = number of buckets * 4.00						

Attachment B

MSAP Process Temperature Chart Windrow# 17-11-4																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/5/17																					
2	11/6/17	124	123	122	122	133	132	127	125	122	114	111	111	126	125	123	123	126.25	123.5	120.75	120.25	
3	11/7/17	133	129	126	125	133	131	128	128	134	124	118	116	133	128	127	126	133.25	128	124.75	123.75	
4	11/8/17	138	129	126	126	140	134	132	132	139	127	122	119	140	136	132	132	139.25	131.5	128	127.25	
5	11/9/17	146	133	133	131	147	137	136	134	144	134	132	131	146	138	134	134	145.75	135.5	133.75	132.5	
6	11/10/17	138	136	136	133	147	140	138	138	146	140	136	133	146	145	138	136	144.25	140.25	137	135	
7	11/11/17	141	148	144	140	149	144	144	140	148	144	140	136	146	148	144	140	146	146	143	139	
8	11/12/17																					
9	11/13/17	156	150	148	148	150	155	160	156	151	145	143	145	146	153	152	156	150.75	150.75	150.75	151.25	
10	11/14/17	154	152	152	150	154	160	160	158	152	152	154	150	152	156	158	161	153	155	156	154.75	
11	11/15/17	152	153	158	160	162	160	158	160	152	156	158	152	155	160	158	160	155.25	157.25	158	158	
12	11/16/17	155	153	152	157	158	158	156	158	155	159	158	156	152	160	161	162	155	157.5	156.75	158.25	
13	11/17/17	150	152	150	156	152	154	150	152	151	156	158	156	148	158	160	161	150.25	155	154.5	156.25	
14	11/18/17	146	148	152	156	148	152	146	144	146	151	158	156	148	156	158	159	147	151.75	153.5	153.75	
15	11/19/17																					
16	11/20/17	145	145	154	154	143	146	147	147	139	142	159	156	147	158	150	152	143.5	147.75	152.5	152.25	
17	11/21/17	160	158	155	152	152	152	150	148	160	161	159	156	152	157	159	159	156	157	155.75	153.75	
18	11/22/17	145	146	152	154	143	147	148	148	156	155	156	152	151	152	154	156	148.75	150	152.5	152.5	
19	11/23/17																					
20	11/24/17	147	147	150	158	145	148	150	148	142	145	145	147	150	148	148	151	146	147	148.25	151	Turn
21	11/25/17	152	155	155	152	148	144	150	151	148	145	145	146	150	151	153	152	149.5	148.75	150.75	150.25	
22	11/26/17																					
23	11/27/17	146	152	158	160	152	160	158	160	152	158	160	162	155	160	162	162	151.25	157.5	159.5	161	
24	11/28/17	135	148	159	165	159	162	165	168	160	164	168	172	162	168	170	170	154	160.5	165.5	168.75	
25	11/29/17	134	146	160	165	156	160	166	170	160	162	166	171	160	164	170	171	152.5	158	165.5	169.25	
26	11/30/17	132	143	162	165	152	166	169	172	158	162	166	170	155	161	169	171	149.25	158	166.5	169.5	Turn

Attachment C

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-7	
Windrow Construction:			Date Commenced: 11-4-17		Date Completed: 11-7-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/4/17	Oscar Ochoa	15.52	20.18	60.00		
11/4/17	Oscar Ochoa	19.89	25.86	60.00	36.00	
11/6/17	Oscar Ochoa	23.45	30.49	60.00		
11/6/17	Oscar Ochoa	18.36	23.87	60.00		
11/6/17	Mike Bayne	21.19	27.55	60.00		
11/6/17	Mike Bayne	21.25	27.63	60.00	64.00	
11/7/17	Oscar Ochoa	23.45	30.49	60.00		
11/7/17	Oscar Ochoa	16.75	21.78	60.00		
11/7/17	Oscar Ochoa	22.34	29.04	60.00	44.00	
Totals		182.20	236.86	540.00	144.00	0.00
Windrow Construction ratio:		2.89 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-7																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/8/17	155	151	143	137	156	140	129	119	146	138	134	131	139	117	109	106	149	136.5	128.75	123.25	
2	11/9/17	162	158	148	140	156	148	139	130	157	145	134	127	150	132	121	117	156.25	145.75	135.5	128.5	
3	11/10/17	152	148	140	138	145	141	140	136	150	152	148	140	153	155	142	138	150	149	142.5	138	
4	11/11/17	153	154	144	140	154	150	142	138	158	154	152	146	153	152	145	140	154.5	152.5	145.75	141	
5	11/12/17																					
6	11/13/17	150	153	154	156	152	158	158	158	161	163	160	148	158	163	163	159	155.25	159.25	158.75	155.25	
7	11/14/17	148	153	156	156	150	158	159	159	161	162	160	156	156	163	164	161	153.75	159	159.75	158	
8	11/15/17	148	154	157	158	144	157	159	159	160	161	160	156	155	163	165	163	151.75	158.75	160.25	159	
9	11/16/17	146	155	155	153	143	154	159	159	160	161	156	152	152	162	162	164	150.25	158	158	157	
10	11/17/17	145	152	154	156	145	152	158	158	156	158	152	150	154	160	162	160	150	155.5	156.5	156	
11	11/18/17	145	150	151	157	148	151	156	156	143	156	143	148	152	157	160	160	147	153.5	152.5	155.25	
12	11/19/17																					
13	11/20/17	152	156	158	156	151	155	154	150	150	150	146	148	152	153	156	156	151.25	153.5	153.5	152.5	
14	11/21/17	158	158	154	152	155	154	150	146	152	151	144	146	147	148	154	154	153	152.75	150.5	149.5	
15	11/22/17	150	152	158	160	150	151	154	155	150	150	148	146	147	150	150	154	149.25	150.75	152.5	153.75	
16	11/23/17																					
17	11/24/17	152	160	161	162	153	155	155	153	152	152	151	148	150	155	153	150	151.75	155.5	155	153.25	
18	11/25/17	155	160	163	162	155	160	162	160	157	158	155	155	150	152	150	150	154.25	157.5	157.5	156.75	Turn
19	11/26/17																					
20	11/27/17	155	160	165	166	154	160	161	159	156	160	158	161	154	158	158	152	154.75	159.5	160.5	159.5	
21	11/28/17	156	160	165	166	153	159	160	158	154	160	162	163	152	156	161	155	153.75	158.75	162	160.5	
22	11/29/17	150	158	162	165	154	160	160	156	150	156	164	164	148	150	158	154	150.5	156	161	159.75	
23	11/30/17	146	157	160	164	157	162	161	156	143	152	167	169	142	152	160	158	147	155.75	162	161.75	

Attachment D

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-10	
Windrow Construction:			Date Commenced: 11-8-17		Date Completed: 11-10-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/8/17	Oscar Ochoa	22.45	29.19	60.00		
11/8/17	Oscar Ochoa	19.70	25.61	60.00		
11/8/17	Oscar Ochoa	22.36	29.07	60.00	44	
11/9/17	Jerry Devoe	22.26	28.94	60.00		
11/9/17	Jerry Devoe	21.24	27.61	60.00		
11/9/17	Jerry Devoe	19.91	25.88	60.00	44	
11/10/17	Oscar Ochoa	22.43	29.16	60.00		
11/10/17	Oscar Ochoa	19.69	25.60	60.00		
11/10/17	Oscar Ochoa	18.61	24.19	60.00	44	
Totals		188.65	245.25	540.00	132.00	0.00
Windrow Construction ratio:		2.74 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-10																		
Temperature: Shading equals temperature 131 or greater for PFRP.																		
Days	Date	Point 1				Point 2				Point 3				Point 4				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	
1	11/11/17	129	125	122	121	127	126	123	120	120	121	118	116	117	119	118	116	
2	11/12/17																	
3	11/13/17	146	142	133	130	140	136	134	131	141	132	130	130	148	138	131	126	
4	11/14/17	148	144	140	135	142	140	138	136	144	140	136	132	146	142	134	131	
5	11/15/17	149	145	144	140	143	141	141	140	145	149	140	140	146	146	143	141	
6	11/16/17	150	150	148	142	151	146	143	144	149	147	144	142	148	153	150	150	
7	11/17/17	152	150	147	141	152	148	144	144	148	147	144	142	150	150	148	148	
8	11/18/17	143	149	146	140	151	150	146	140	144	147	144	142	150	144	150	148	
9	11/19/17																	
10	11/20/17	148	148	145	141	151	153	152	150	155	157	156	151	148	148	145	140	
11	11/21/17	158	155	150	144	150	150	146	141	159	156	148	144	145	146	144	141	
12	11/22/17	147	150	150	148	146	150	155	155	157	160	156	152	147	148	148	146	
13	11/23/17																	
14	11/24/17	150	151	151	140	152	155	157	153	160	161	160	158	149	150	148	146	
15	11/25/17	150	153	155	158	148	156	163	158	140	154	157	155	140	148	140	136	
16	11/26/17																	
17	11/27/17	148	150	154	156	148	158	162	158	146	156	158	156	148	152	156	152	
18	11/28/17	149	148	156	156	150	158	161	159	152	160	159	157	151	161	160	158	
19	11/29/17	146	150	156	158	148	156	161	160	150	158	160	161	151	160	161	160	
20	11/30/17	155	151	146	142	142	143	141	140	156	160	160	156	156	158	155	152	Turn

Attachment E

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-14	
Windrow Construction:			Date Commenced: 11-11-17		Date Completed: 11-14-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/11/17	Jerry Devoe	22.30	28.99	60.00		
11/11/17	Jerry Devoe	14.22	18.49	60.00	32.00	
11/13/17	Mike Bayne	22.88	29.74	60.00		
11/13/17	Mike Bayne	23.32	30.32	60.00		
11/13/17	Mike Bayne	21.76	28.29	60.00	44	
11/14/17	Mike Bayne	23.33	30.33	60.00		
11/14/17	Mike Bayne	19.56	25.43	60.00		
11/14/17	Mike Bayne	22.48	29.22	60.00	44	
Totals		169.85	220.81	480.00	120.00	0.00
Windrow Construction ratio:		2.72 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-14																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/15/17	158	152	136	133	159	154	144	131	160	154	148	136	148	148	139	134	156.25	152	141.75	133.5	
2	11/16/17	160	154	148	140	160	154	148	136	165	162	154	138	146	148	140	132	157.75	154.5	147.5	136.5	
3	11/17/17	164	150	150	144	156	152	150	138	166	164	160	140	140	146	140	136	156.5	153	150	139.5	
4	11/18/17	141	147	155	157	143	147	148	140	145	149	148	144	146	148	144	140	143.75	147.75	148.75	145.25	
5	11/19/17																					
6	11/20/17	145	147	151	155	150	155	151	148	161	162	162	160	148	150	148	145	151	153.5	153	152	
7	11/21/17	141	146	153	156	151	153	150	145	153	159	157	153	143	146	138	145	147	151	149.5	149.75	
8	11/22/17	144	149	151	155	147	150	148	144	156	160	160	154	148	150	146	146	148.75	152.25	151.25	149.75	
9	11/23/17																					
10	11/24/17	148	150	152	155	148	152	150	147	160	163	162	160	150	152	148	146	151.5	154.25	153	152	
11	11/25/17	144	148	154	156	148	154	152	150	158	162	162	160	150	154	154	150	150	154.5	155.5	154	
12	11/26/17																					
13	11/27/17	140	146	154	158	148	154	154	152	154	162	162	161	150	154	156	156	148	154	156.5	156.75	
14	11/28/17	132	142	155	160	150	154	154	153	146	160	163	161	151	156	159	160	144.75	153	157.75	158.5	
15	11/29/17	132	142	154	160	144	154	152	152	144	158	162	162	148	154	160	160	142	152	157	158.5	Turn
16	11/30/17	132	141	153	160	140	144	148	147	141	148	155	158	142	150	153	155	138.75	145.75	152.25	155	

Attachment F

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-17	
Windrow Construction:			Date Commenced: 11-15-17		Date Completed: 11-17-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/15/17	Mike Bayne	22.06	28.68	60.00		
11/15/17	Mike Bayne	15.26	19.84	60.00		
11/15/17	Mike Bayne	18.77	24.40	60.00	44	
11/16/17	Mike Bayne	22.29	28.98	60.00		
11/16/17	Mike Bayne	20.51	26.66	60.00		
11/16/17	Oscar Ochoa	17.26	22.44	60.00	44	
11/17/17	Oscar Ochoa	20.42	26.55	60.00		
11/17/17	Oscar Ochoa	19.92	25.90	60.00		
11/17/17	Oscar Ochoa	22.84	29.69	60.00	44	
Totals		179.33	233.13	540.00	132.00	0.00
Windrow Construction ratio:		2.88 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-17																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/18/17	127	121	117	114	105	103	101	99	113	112	111	111	112	111	110	109	114.25	111.75	109.75	108.25	
2	11/19/17																					
3	11/20/17	142	139	133	129	140	139	136	130	135	133	131	129	133	131	128	126	137.5	135.5	132	128.5	
4	11/21/17	151	154	152	130	138	138	136	131	137	135	136	129	138	134	131	130	141	140.25	138.75	130	
5	11/22/17	144	138	136	132	136	137	136	136	137	140	144	136	138	140	142	147	138.75	138.75	139.5	137.75	
6	11/23/17																					
7	11/24/17	145	140	140	138	138	140	138	136	140	141	144	138	140	142	144	150	140.75	140.75	141.5	140.5	
8	11/25/17	136	146	157	158	145	148	144	147	142	150	153	150	140	144	151	155	140.75	147	151.25	152.5	
9	11/26/17																					
10	11/27/17	142	152	160	162	148	160	156	152	148	158	162	162	148	152	154	156	146.5	155.5	158	158	
11	11/28/17	138	158	162	162	146	158	158	154	144	154	160	163	154	156	158	160	145.5	156.5	159.5	159.75	
12	11/29/17	138	156	164	163	144	160	160	158	146	158	164	164	152	154	160	160	145	157	162	161.25	
13	11/30/17	140	154	164	164	140	160	160	158	150	160	165	166	150	154	161	162	145	157	162.5	162.5	

Attachment G

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-21	
Windrow Construction:			Date Commenced: 11-18-17		Date Completed: 11-21-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/18/17	Oscar Ochoa	22.42	29.15	60.00		
11/18/17	Oscar Ochoa	22.29	28.98	60.00		
11/18/17	Oscar Ochoa	21.82	28.37	60.00	44	
11/20/17	Oscar Ochoa	22.69	29.50	60.00		
11/20/17	Oscar Ochoa	19.40	25.22	60.00		
11/20/17	Oscar Ochoa	20.15	26.20	60.00	44	
11/21/17	Oscar Ochoa	19.98	25.97	60.00		
11/21/17	Oscar Ochoa	18.98	24.67	60.00		
11/21/17	Oscar Ochoa	22.22	28.89	60.00	44	
Totals		189.95	246.94	540.00	132.00	0.00
Windrow Construction ratio:		2.72 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-21																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/22/17	130	129	122	119	129	126	119	118	130	130	128	119	120	117	110	109	127.25	125.5	119.75	116.25	
2	11/23/17																					
3	11/24/17	131	130	128	126	132	130	129	126	136	132	130	127	131	120	119	116	132.5	128	126.5	123.75	
4	11/25/17	134	137	136	133	137	136	132	131	140	139	137	135	132	141	140	138	135.75	138.25	136.25	134.25	
5	11/26/17																					
6	11/27/17	148	150	140	138	140	138	134	132	138	138	138	136	136	142	148	148	140.5	142	140	138.5	
7	11/28/17	148	150	144	142	145	141	138	136	132	137	140	143	137	142	150	153	140.5	142.5	143	143.5	
8	11/29/17	146	148	148	145	146	144	141	140	132	138	142	144	146	150	152	152	142.5	145	145.75	145.25	
9	11/30/17	143	147	149	148	147	146	146	147	132	140	142	142	150	154	157	159	143	146.75	148.5	149	

Attachment H

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-27	
Windrow Construction:			Date Commenced: 11-22-17		Date Completed: 11-27-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/22/17	Oscar Ochoa	18.08	23.50	60.00		
11/22/17	Oscar Ochoa	20.03	26.04	60.00		
11/22/17	Oscar Ochoa	22.25	28.93	60.00	44	
11/24/17	Oscar Ochoa	21.53	27.99	60.00		
11/24/17	Oscar Ochoa	20.54	26.70	60.00		
11/24/17	Oscar Ochoa	20.31	26.40	60.00	44	
11/25/17	Oscar Ochoa	22.14	28.78	60.00		
11/25/17	Oscar Ochoa	21.83	28.38	60.00	36	
11/27/17	Oscar Ochoa	21.43	27.86	60.00	20	
Totals		188.14	244.58	540.00	144.00	0.00
Windrow Construction ratio:		2.80 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-27																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/28/17	132	135	145	147	142	146	148	146	141	144	141	140	146	156	159	158	140.25	145.25	148.25	147.75	
2	11/29/17	132	140	145	147	144	148	150	148	141	146	142	142	144	150	158	158	140.25	146	148.75	148.75	
3	11/30/17	132	141	145	147	145	150	152	151	141	146	144	144	140	149	152	154	139.5	146.5	148.25	149	

Attachment I

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-11-29	
Windrow Construction:			Date Commenced: 11-27-17		Date Completed: 11-29-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
11/27/17	Oscar Ochoa	22.21	28.87	60.00		
11/27/17	Oscar Ochoa	22.35	29.06	60.00		
11/27/17	Oscar Ochoa	22.88	29.74	60.00	44	
11/28/17	Oscar Ochoa	22.66	29.46	60.00		
11/28/17	Oscar Ochoa	17.27	22.45	60.00		
11/28/17	Oscar Ochoa	22.52	29.28	60.00	44	
11/29/17	Oscar Ochoa	22.89	29.76	60.00		
11/29/17	Oscar Ochoa	18.36	23.87	60.00		
11/29/17	Oscar Ochoa	18.93	24.61	60.00	44	
Totals		190.07	247.09	540.00	132.00	0.00
Windrow Construction ratio:		2.72 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-11-29																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	11/30/17	134	139	136	132	120	116	114	110	112	113	111	109	106	108	108	107	118	119	117.25	114.5	