

October 2013:

Warmer-than-normal daytime highs and near-normal lows marked the month. Daily maximums averaged 1.9°C above normal in Niagara West and 1.8°C above normal in Niagara East. Daily minimums averaged 0.3°C below normal in Niagara West and 0.4°C above normal in Niagara East. Accordingly, the growing-degree-day accumulation in October was above normal, resulting in a seasonal total very close to normal, yet below the three most recent growing seasons.

Frequent rainfall events led to above-normal precipitation this month. October rainfall averaged 161% of normal across Niagara West and 160% of normal across Niagara East. Consequently, the October harvest period was challenging as compared to the more ideal September harvest conditions.

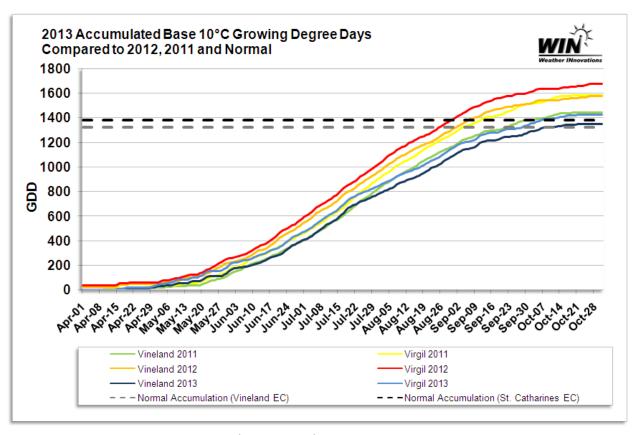


Figure 1: Growing Degree Days



Niagara West: Average Daily Maximums Compared to Normal (2013) Apr May June July Aug Sept Oct Normal (Vineland EC) 11.1 17.8 23.1 26.5 25.1 20.9 14.1 Winona 11.2 20.4 24.2 28.5 27.6 22.7 16.0 Grimsby 11.0 20.6 23.1 26.3 25.6 21.1 15.2 West Lincoln 11.2 21.3 22.9 26.3 25.9 21.3 15.5 Lincoln Fly Road 11.1 21.1 23.5 27.2 26.4 21.3 15.6 Beamsville 11.6 21.4 23.3 27.1 26.3 21.6 16.1 Lincoln Hwy 8 11.1 20.6 23.3 27.2 26.5 21.7 15.6 Lincoln Lakeshore 11.2 20.2 27.6 23.1 16.5 23.7 28.4 Vineland Cherry Ave 11.5 20.9 23.1 26.8 26.1 21.7 15.9 Vineland Escarpment 21.4 26.0 11.5 23.3 26.8 21.4 16.0 Jordan Escarpment 11.6 21.7 23.7 27.0 25.9 21.4 16.4 Jordan Hwy 8 12.2 21.9 23.7 26.9 26.2 21.7 16.6 Jordan Harbour 11.5 20.3 23.1 27.4 27.3 22.9 16.9 Rockway 11.9 21.8 23.3 26.7 25.8 21.4 16.3 Normal Above-normal Below-normal

Figure 2: Niagara West - Maximum Temperatures

	Apr May June July Aug					Sept Oct	Oct
Normal (St. Catharines EC)	12.2	19.4	24.3	27.1	25.9	21.5	14.9
St. Catharines Glass Ave	12.0	21.9	23.9	27.2	26.4	22.1	16.6
St. Catharines Third Ave	12.0	22.1	23.8	27.3	26.7	22.0	16.6
St. Catharines Fifth Ave	12.1	22.0	23.4	26.8	26.1	21.5	16.5
West St. Catharines	12.7	22.8	24.3	27.9	27.1	22.3	17.0
Niagara College	12.6	22.2	23.5	27.3	26.5	22.3	16.8
St. David's Bench	12.6	22.6	24.1	28.0	27.3	22.8	17.3
Niagara Airport	12.5	22.6	24.3	28.1	27.1	22.6	17.0
Virgil	12.7	22.5	23.8	27.1	26.1	22.3	16.9
Virgil East	12.4	22.2	23.6	27.1	26.3	22.1	16.6
NOTL Irvine Road	11.7	21.4	23.8	27.6	26.8	22.0	16.3
Lakeshore	11.7	21.1	23.5	27.0	26.4	21.7	16.4
Parkway	12.2	21.8	23.4	26.9	25.7	21.6	16.4
	13.6	23.6	24.7	28.1	26.9	22.5	17.4

Figure 3: Niagara East - Maximum Temperatures



Niagara West: Average Daily Minimums Compared to Normal (2013) Apr May June July Aug Sept Oct Normal (Vineland EC) 2.3 7.5 13.1 16.9 16.3 12.5 6.4 Winona 7.6 0.9 13.5 16.9 14.6 10.4 6.6 Grimsby 0.0 6.4 12.5 15.9 13.0 9.0 5.2 0.3 7.8 16.3 13.1 9.1 6.0 West Lincoln 13.3 Lincoln Fly Road 10.3 0.8 7.9 13.4 16.7 14.5 6.3 Beamsville 1.2 14.0 17.4 15.4 11.3 6.7 8.2 Lincoln Hwy 8 8.0 14.9 7.6 17.1 10.8 6.5 13.8 Lincoln Lakeshore 1.3 17.4 14.8 10.6 6.0 7.7 13.8 Vineland Cherry Ave 0.4 6.8 13.4 17.3 14.5 10.2 5.9 Vineland Escarpment 1.2 8.1 13.9 17.5 15.2 11.0 6.7 Jordan Escarpment 1.0 7.9 16.7 14.1 10.1 13.5 6.3 Jordan Hwy 8 1.2 8.0 13.9 17.5 15.0 10.8 6.5 Jordan Harbour 0.7 7.4 16.8 14.0 9.7 5.2 13.5 Rockway 0.6 7.1 13.2 16.8 14.2 9.7 5.6 Normal Above-normal Below-normal

Figure 4: Niagara West - Minimum Temperatures

	Apr May June July Aug					Sept Oct		
Normal (St. Catharines EC)	2.1	7.8	13.3	16.4	15.7	11.6	5.6	
St. Catharines Glass Ave	1.0	7.3	13.8	17.1	14.3	9.8	5.6	
St. Catharines Third Ave	0.6	7.1	13.6	16.8	13.9	9.8	5.2	
St. Catharines Fifth Ave	0.7	7.2	13.5	16.7	14.3	9.9	6.1	
West St. Catharines	1.3	7.6	13.4	16.6	14.0	9.9	5.9	
Niagara College	1.8	8.6	13.6	17.1	14.9	10.7	6.8	
St. David's Bench	1.6	8.2	13.6	17.2	14.9	10.3	6.2	
Niagara Airport	1.2	8.0	13.9	17.3	15.0	10.0	6.0	
Virgil	1.2	7.7	14.0	17.2	14.1	9.6	6.0	
Virgil East	1.1	7.5	13.7	16.9	14.0	9.6	5.7	
NOTL Irvine Road	1.5	8.1	14.1	17.6	15.3	10.7	6.4	
Lakeshore	1.6	7.8	13.7	17.2	14.7	10.0	6.1	
Parkway	1.7	7.8	13.9	17.4	14.4	10.1	6.2	
Queenston	1.8	8.1	13.8	17.4	15.0	10.5	6.4	

Figure 5: Niagara East - Minimum Temperatures



Niagara West: Base 10°C Growing Degree Days Compared to Normal (2013) Apr May June July Aug Sept Oct Normal (Vineland EC) 202.2 20 103.5 243.6 362.6 332.4 55.8 Winona 15.5 136.3 265.2 394.5 344.0 197.5 85.4 Grimsby 127.2 238.4 345.1 289.2 153.5 63.5 17.1 West Lincoln 19.0 158.8 243.9 352.5 294.2 157.6 75.6 Lincoln Fly Road 254.4 370.0 324.1 176.0 81.6 19.5 157.3 259.7 335.3 194.0 Beamsville 21.1 161.6 380.9 90.0 Lincoln Hwy 8 16.5 139.7 256.3 377.7 332.9 189.3 79.7 Lincoln Lakeshore 17.8 134.4 400.2 347.8 205.0 263.8 81.8 Vineland Cherry Ave 19.8 131.1 248.8 373.4 319.5 179.8 73.7 Vineland Escarpment 259.0 329.1 187.0 21.3 160.4 376.8 87.5 Jordan Escarpment 21.9 164.4 258.1 368.6 310.5 173.3 86.9 Jordan Hwy 8 23.3 165.4 265.8 378.7 330.4 188.7 89.8 Jordan Harbour 18.5 249.4 373.9 330.1 188.6 77.1 131.9 249.1 Rockway 20.4 152.9 364.6 310.6 168.2 77.4 Normal Above-normal Below-normal

Figure 6: Niagara West – Growing Degree Days

	Apr	May	June	July	Aug	Sept	Oct
Normal (St. Catharines EC)	24.7	126	264.4	365.6	335.3	199.9	59.2
St. Catharines Glass Ave	20.1	153.9	265.2	376.4	321.4	178.9	79.4
St. Catharines Third Ave	21.2	156.3	260.8	373.9	319.7	176.8	77.4
St. Catharines Fifth Ave	21.1	155.3	254.2	365.8	316.0	172.9	85.9
West St. Catharines	27.8	172.3	266.3	381.1	328.4	183.9	88.6
Niagara College	33.0	177.1	257.9	378.9	332.1	195.4	94.8
St. David's Bench	31.8	180.6	266.4	391.8	343.7	196.0	93.5
Niagara Airport	27.3	176.5	273.0	394.1	343.0	190.1	88.5
Virgil	29.0	169.9	267.7	376.6	313.5	180.8	86.5
Virgil East	27.1	162.1	247.0	371.9	315.5	177.6	80.8
NOTL Irvine Road	22.6	160.0	269.3	390.8	342.1	191.1	85.7
Lakeshore	22.5	148.4	258.8	375.8	327.5	177.4	80.7
Parkway	27.5	159.2	259.3	377.9	312.8	177.2	83.5
Queenston	36.7	192.5	277.0	395.6	339.3	194.7	95.5

Figure 7: Niagara East – Growing Degree Days



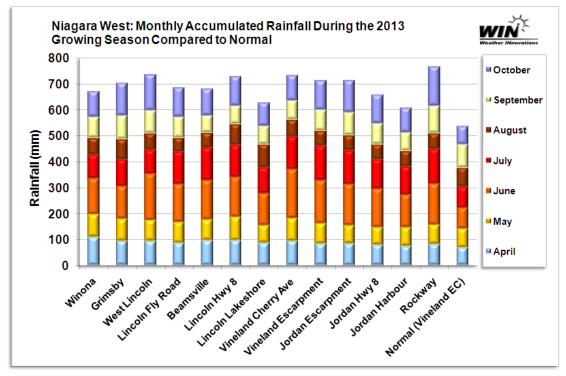


Figure 8: Niagara West - Rainfall

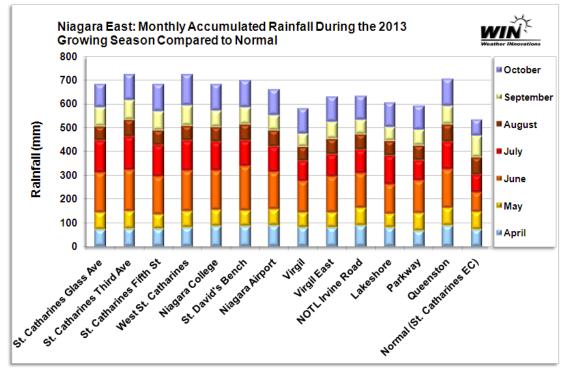


Figure 9: Niagara East - Rainfall