**SUPPLEMENTAL MATERIAL**

**1 Potato cultivar information**

Information about the six potato cultivars used in this study is listed below.

(1) Prospect is a mid-season maturing potato variety. It originated from a cross between 'Shepody' and 'Russette', made by Joyce Coffin on Prince Edward Island in 1990 (<https://inspection.canada.ca/english/plaveg/pbrpov/cropreport/pot/app00004150e.shtml>).

(2) Mountain Gem Russet is a medium maturing fresh and processing russet potato variety (<https://inspection.canada.ca/english/plaveg/pbrpov/cropreport/pot/app00010277e.shtml>).

(3) Dakota Russet is suitable for fresh consumption, frozen processing, as well as fresh processing. It has excellent french fry quality and resistance to environmental stresses. It is a medium-late vine maturing variety (<https://inspection.canada.ca/english/plaveg/pbrpov/cropreport/pot/app00009874e.shtml>)

(4) Alverstone Russet is especially suitable for processing into french fries and other frozen potato products. It is a high yielding, medium-late to late maturing variety (<https://inspection.canada.ca/english/plaveg/pbrpov/cropreport/pot/app00010716e.shtml>).

(5) Clearwater Russet is characterized as a fresh/processing cultivar, with medium-late

maturity (<https://inspection.canada.ca/english/plaveg/pbrpov/cropreport/pot/app00007565e.shtml>).

(6) Russet Burbank is a processing late maturing cultivar (<https://inspection.canada.ca/plant-health/potatoes/potato-varieties/russet-burbank/eng/1312587385873/1312587385874>).

**2 Effects of treatment on tuber yield, specific gravity, and postharvest soil nitrate content**

Where data were available, the SAS MIXED procedure (SAS Studio 3.81, 2012–2020, SAS Institute Inc., Cary, NC, USA) was used to analyze total and marketable tuber yield, specific gravity, and residual soil nitrate content for each field and year. The treatment zone was considered as a fixed factor and the samples collected from each treatment zone were used as pseudo-replications, with random effects disregarded. This exercise tested whether irrigation was beneficial for potato production in each field. Multiple comparisons among the fixed factors were performed using the DIFF option in SAS.

**2.1 2019 season**

In 2019 the implementation of SI in FA and Y100N (there was no Y80N treatment) resulted in a significant 47–72% increase in total tuber yield at RG19 and a 70–71% increase at KM19, compared to rainfed production (DA) (Table 1). At AT19 Y100N resulted in an 11% increase while FA did not have a significant effect on total yield. SI (FA and Y100N) led to a substantial (81–119%) increase in marketable yield at RG19, a 76–78% increase at KM19, and an 11–12% increase at AT19, compared to DA (Table 1). Although marketable yields were not significantly different between FA and Y100N at KM19 and AT19, they were different at RG19. Under SI (FA and Y100N), the highest total tuber yields were observed at RG19 (59.8 Mg/ha), KM19 (53.7 Mg/ha), and AT19 (49.6 Mg/ha), while RG19 and KM19 had the highest marketable yield (52.3 Mg/ha), followed by AT19 (39.3 Mg/ha). Marketable tuber yields constituted 87 to 97% of the total yield under SI. However, within the same field site, FA and Y100N did not have significantly different total or marketable tuber yields, except for total tuber yield at RG19 and AT19. This is likely due to the similar irrigation timing for the two treatments and the small difference in irrigation rates, as evidenced by the similar soil moisture readings. SI did not influence tuber yields for seed potatoes at GM19 (Table 1). Data from GM19 are not reported in the manuscript.

SI (FA and Y100N) resulted in either significantly lower or similar postharvest soil nitrate content compared to DA (Table 1). Even the late initiation of SI in August, as observed at the seed-producing GM19 site, contributed to a reduction in postharvest soil nitrate content. Part of the reason was that SI likely enhanced nitrogen use efficiency and increased tuber yields, particularly in cases where rainfall was insufficient for potato production, thereby minimizing nitrogen losses into the environment. Irrespective of SI, postharvest soil nitrate content was generally lower than the values reported in previous studies under similar production conditions (Liang et al. 2019; Jiang et al. 2022b). This is likely due to soil nitrate leaching out of the soil profile when soil moisture was above the field capacity in later August and following heavy rainfall (>90 mm) during Hurricane Dorian in September.

In general, SI significantly increased total and marketable tuber yields for processing french fries and reduced postharvest soil nitrate content during seasons characterized by extended droughts coinciding with the tuber initiation and bulking periods (i.e., July–early August). These effects were seen even when the total GS rainfall exceeded the long-term average and the water demand for the potato plant.

Table 1 Effects of treatment on tuber yield and postharvest soil nitrate content in 2019 (LSD α=5%)

**2.2 2020 season**

In 2020 the application of SI in the FA, Y100N, and Y80N treatments significantly increased total and marketable yields and reduced postharvest soil nitrate content compared to rainfed production (DA) across all sites (Table 2). CB20 had the highest increase in marketable yield (159%), followed by JW20 (74%), AS20 (68%), and JV21 (43%). CB20 also had the highest total yield increase (86%), followed by AS20 (59%), JW20 (58%), and JV21 (47%). Under SI, CB20 achieved the highest total and marketable tuber yields (52.6 vs. 40.2 Mg/ha), followed by JV20 (46.7 vs. 34.3 Mg/ha), JW20 (46.1 vs. 33.9 Mg/ha), and AS20 (41 vs. 30.8 Mg/ha). At CB20 there were no significant differences in total and marketable tuber yields or postharvest soil nitrate content between FA and Y100N, indicating that the irrigation timing, rates, and fertilizer rates were identical, and demonstrating the uniformity of the CB20 field (Table 2). SI (FA and Y100N) significantly increased tuber yields and decreased postharvest soil nitrate content compared to DA. SI combined with a 20% reduction in fertilizer input (Y80N) did not significantly change total and marketable tuber yields compared to FA and Y100N. Postharvest soil nitrate content was slightly higher under FA and Y100N than Y80N, but not significantly so. At JW20 increasing the irrigation rate by 55 mm without altering the fertilizer input (Y100N) boosted the total tuber yield by 32% compared to FA. However, this increase in total tuber yield did not translate into a significant marketable yield benefit, indicating that increasing the irrigation rate from 167 to 222 mm does not provide an economic benefit. Increasing the irrigation rate by 55 mm, combined with a 20% reduction in fertilizer (Y80N), did not significantly affect tuber yields compared to FA. Despite Y80N displaying the lowest numerical value, postharvest soil nitrate content under the three irrigation treatments did not exhibit significant differences. At JV20, for the Y100N treatment, applying 440 mm of irrigation did not significantly increase yield but did increase postharvest soil nitrate content compared to the rate of 294 mm (FA). The highest water supply (509 mm), combined with a 20% reduction in fertilizer input (Y80N), did not significantly change tuber yields or postharvest soil nitrate content compared to Y100N, indicating that there was no yield benefit from substantially increasing the water supply beyond the ETc. At AS20, there were no significant differences in total and marketable yields or postharvest soil nitrate content among FA, Y100N, and Y80N.

There were no significant differences in specific gravity among the treatments at CB20, JW20, and AS20 in 2020, indicating that SI and a 20% reduction in fertilizer did not have a significant impact on specific gravity at three out of four fields during the second driest season of the last 23 seasons. An exception was noted at JV20, where SI significantly increased specific gravity. Using SI to supply 156 mm of water above the optimal rate (Y100N) led to a notable reduction in specific gravity compared to the lower water supply treatment (69+225 = 294 mm) (FA) at JV20. However, the highest water supply, combined with a 20% reduction in fertilizer input (Y80N), resulted in a similar specific gravity to the lower water supply treatment (FA), indicating an interaction effect of fertilizer and irrigation on specific gravity.

In summary, SI significantly increased both total and marketable tuber yields and decreased postharvest soil nitrate content across all sites in a year when the GS rainfall was 39% lower than the long-term mean, and the period of rainfall deficiency coincided with the potato tuber initiation and bulking period. SI, and SI combined with a 20% reduction in fertilizer input, did not significantly affect specific gravity compared to rainfed production, with the exception of one site. An interaction effect of irrigation and fertilizer on specific gravity was apparent at JV20. Supplying 156 mm of water above the optimal rate (Y100N) did not significantly enhance tuber yields compared to a rate that was closer to the optimal rate (FA).

Table 2 Effects of treatment on tuber yield, specific gravity and postharvest soil nitrate content in 2020 (LSD α=5%)

**2.3 2021 season**

In 2021 CG21 and BC21 did not apply any irrigation, while AL21 and KS21 applied only 40 mm, due to high rainfall (Table 3). As a result, tuber yield, specific gravity, and postharvest soil nitrate content in the DA, FA, and Y100N treatments were consistent between CG21 and BC21, and FA and Y100N had similar responses at AL21 and KS21. Any significant disparities among the same treatments in the same field were attributed to spatial variation in the soil and management practices. At CG21 there were no significant differences in marketable tuber yield and specific gravity among DA, FA, and Y100N, with the variance in total tuber yield being significant. At BC21 there were no significant differences in total and marketable tuber yields and specific gravity among DA, FA, and Y100N. At AL21 there were no significant differences in total and marketable tuber yields and specific gravity between FA and Y100N. At KS21 no significant differences were observed in marketable tuber yield and specific gravity between FA and Y100N, with the variance in total tuber yield being significant. Collectively, these data suggest that the fields were relatively uniform. The total and marketable yields at BC21 without SI were 44 and 35.5 Mg/ha, which was comparable to 45.3 and 40 Mg/ha at KS21 with 40 mm of irrigation, considering that the data were obtained from different field sites. The relatively low tuber yields at CG21 were attributed to the fact that topsoil was mixed with poor-quality deep soil during the construction of a water holding pond near the experimental area in previous years. For this reason, data from CG21 were not included in the manuscript. Statistical analysis was not conducted for the postharvest soil nitrate content data due to limited data points, and they are presented for reference purposes only.

During the 2021 GS, when the total rainfall was 10.5% higher than the long-term average and was relatively evenly distributed, or when soil carry-over effects were able to partially mitigate temporal rainfall variations, there was not a significant difference in tuber yield and specific gravity between rainfed production and production using a low rate of SI. Similarly, reducing fertilizer input by 20% did not significantly affect tuber yield and quality, irrespective of the implementation of SI.

Table 3 Effects of treatment on tuber yield, specific gravity, and postharvest soil nitrate content in 2021 (LSD α=5%)

**2.4 2022 season**

In 2022 all five growers implemented irrigation at low rates, ranging from 20 to 88 mm, with no variation in the irrigation rates among FA, Y100N, and Y80N (Table 4). At CB22 no significant differences were observed in total and marketable yields or specific gravity between FA and Y100N (Table 4), suggesting that the field was relatively uniform. At HL22 total and marketable yields did not significantly differ under the same treatments (FA and Y100N), but specific gravity exhibited significant differences, suggesting that the field was relatively homogeneous in terms of productivity. At BC22 no significant differences were found in total and marketable yields or specific gravity between FA and Y100N, suggesting field uniformity. CB22, HL22, and BC22 were all planted with Mountain Gem Russet and exhibited higher specific gravity with reduced fertilizer in a high rainfall year. No significant differences were noted at RG22 for total and marketable yields and specific gravity between FA and Y100N, suggesting that the field was homogeneous. Neither irrigation at 21 mm (FA and Y100N), nor irrigation at 21 mm with 20% fertilizer reduction (Y80N), influenced total and marketable yield or specific gravity compared to DA. No significant differences were identified at AL22 in total and marketable yields and specific gravity between FA and Y100N, indicating that the field was homogeneous.

In 2022 implementing irrigation (FA and Y100N) in the 20 to 88 mm range, and combining irrigation with 20% fertilizer reduction (Y80N), did not significantly impact total and marketable yields, except for the marginal total yield increase observed at HL22 and the significant marketable yield increase observed with Y80N at CB22. The response of specific gravity to irrigation and reduced fertilizer input was mixed, but low-rate irrigation combined with reduced fertilizer significantly increased the specific gravity of Mountain Gem Russet in a wet season.

Table 4 Effects of treatment on tuber yield, specific gravity, and postharvest soil nitrate content in 2022 (LSD α=5%)

Table 1 Effects of treatment on tuber yield and postharvest soil nitrate content in 2019 (LSD α=5%)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treatment (Jul. to Sep. 18 rainfall + irrigation) | Total yield (Mg/ha) | Marketable yield (Mg/ha) | Specific gravity  (g/cm3) | Postharvest soil nitrate content (kg N/ha) |
| RG19/Russet Burbank | | | | |
| DA (329 mm) | 37.4a | 26.2a |  | 29.8b |
| FA (329 + 163 mm) | 64.5c | 57.3c |  | 14.1a |
| Y100N (329 + 193 mm) | 55.1b | 47.2b |  | 19.8a |
| Standard error | 2.9 | 3.1 |  | 2.4 |
| *p* value | <0.0001 | <0.0001 |  | 0.0013 |
| KM19/Prospect | | | | |
| DA (252 mm) | 31.5a | 29.6a |  | 22b |
| FA (252 + 65 mm) | 53.9b | 52.6b |  | 14.9a |
| Y100N (252 + 80 mm) | 53.5b | 52.1b |  | 13a |
| Standard error | 2.0 | 1.9 |  | 1.95 |
| *p* value | <0.0001 | <0.0001 |  | 0.0127 |
| AT19/Clearwater Russet | | | | |
| DA (228 mm) | 46.4a | 35.3a |  | 12.4 |
| FA (228+128 mm) | 47.8a | 39.2b |  | 13 |
| Y100N (228+103 mm) | 51.5b | 39.5b |  | 11.2 |
| Standard error | 1.2 | 0.9 |  | 1.5 |
| *p* value | 0.027 | 0.005 |  | 0.68 |
| GM19/Dakota Russet | | | | |
| DA (293 mm) | 27.1a | 26.8a |  | 43.6b |
| FA (293 + 55 mm) | 25.7a | 25.5a |  | 36.7ab |
| Y100N (293 + 92 mm) | 26.6a | 26.4a |  | 25.7a |
| Standard error | 1.8 | 1.8 |  | 3.7 |
| *p* value | 0.86 | 0.86 |  | 0.012 |

Notes: Six replicates were used for both tuber yield and postharvest soil nitrate content. Mean separations were done within each field and year with treatment-zone samples as replications. Means with the same letter are not significantly different at *p*=0.05. Multiple comparisons were not conducted unless *p*<0.05. There was no Y80N treatment in 2019. The variation in on-site rainfall was partially due to differences in the start of rainfall monitoring.

Table 2 Effects of treatment on tuber yield, specific gravity, and postharvest soil nitrate content in 2020 (LSD α=5%)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treatment (Jul. to Sep. 18 rainfall + irrigation) | Total yield (Mg/ha) | Marketable yield (Mg/ha) | Specific gravity  (g/cm3) | Postharvest soil nitrate content (kg N/ha) |
| CB20/Mountain Gem Russet | | | | |
| DA (99 mm) | 28.3a | 15.5a | 1.0905 | 123.8b |
| FA (99 + 356 mm) | 53.0b | 39.2b | 1.0855 | 78.5a |
| Y100N (99 + 356 mm) | 52.9b | 36.8b | 1.0813 | 74.8a |
| Y80N (99 + 356 mm) | 52.0b | 44.6b | 1.0850 | 56.6a |
| Standard error | 1.9 | 4.1 | 0.003 | 11.7 |
| *p* value | <0.0001 | 0.002 | 0.239 | 0.01 |
| JW20/Dakota Russet | | | | |
| DA (62mm) | 29.2a | 19.5a | 1.0918 | 176.2b |
| FA (62+167 mm) | 38.1b | 29.5b | 1.0893 | 57a |
| Y100N (62+222 mm) | 50.4c | 35.7b | N/A | 55.4a |
| Y80N (62+222 mm) | 50.0c | 36.5b | N/A | 47.8a |
| Standard error | 2.3 | 2.6 | 0.0011 | 12.2 |
| *p* value | <0.0001 | 0.002 | 0.173 | <0.0001 |
| JV20/Clearwater Russet | | | | |
| DA (69 mm) | 31.8a | 24.0a | 1.0848a | 194c |
| FA (69 + 225 mm) | 49.1b | 35.0b | 1.0948c | 23.7a |
| Y100N (69 + 440 mm) | 45.4b | 34.7b | 1.0895b | 86.2b |
| Y80N (69 + 440 mm) | 45.5b | 33.3b | 1.0935c | 29.8ab |
| Standard error | 1.3 | 2.7 | 0.001 | 19 |
| *p* value | <0.0001 | 0.047 | <0.0001 | 0.0001 |
| AS20/Clearwater Russet | | | | |
| DA (121 mm) | 25.8a | 18.3a | 1.0905 | 143b |
| FA (121 + 263 mm) | 43.8b | 31.9b | 1.0920 | 35a |
| Y100N (121 + 281 mm) | 41.0b | 32.8b | 1.0915 | 38.9a |
| Y80N (121 + 281 mm) | 38.2b | 27.6b | 1.0913 | 29.1a |
| Standard error | 2.0 | 2.6 | 0.0016 | 10.9 |
| *p* value | 0.0002 | 0.008 | 0.93 | <0.0001 |

Notes: Mean separations were done within each field and year with treatment-zone samples as replications. Means with the same letter are not significantly different at *p*=0.05. Multiple comparisons were not conducted unless *p*<0.05. The onsite rainfall data did not include data points from June. Additionally, the onsite rainfall data are for reference only, as the rainfall gauges were not regularly maintained due to COVID-19 restrictions. The GS rainfall at Summerside, New Glasgow, and Harrington (239 mm, 289 mm, and 201 mm, respectively) more accurately represented overall GS rainfall.

Table 3 Effects of treatment field section on tuber yield, specific gravity, and postharvest soil nitrate content in 2021 (LSD α=5%)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treatment (Jun. to Sep. rainfall + irrigation) | Total yield (Mg/ha) | Marketable yield (Mg/ha) | Specific gravity  (g/cm3) | Postharvest soil (0–0.3 m) nitrate content (kg N/ha) |
| CG21/Russet Burbank | | | | |
| DA (465 mm) | 24.2a | 19.5 | 1.0753 | 28.2/44.2 |
| FA (465 + 0 mm) | 35.4b | 24.7 | 1.075 | 31.7/33.9 |
| Y100N (465 + 0 mm) | 33.2b | 26.1 | 1.0765 | 29.1/22.6 |
| Y80N (465 + 0 mm) | 29.8ab | 22.1 | 1.073 | 76.3/19.9 |
| Standard error | 2.5 | 2.6 | 0.00126 |  |
| *p* value | 0.039 | 0.33 | 0.31 |  |
| BC21/Alverstone Russet | | | | |
| DA (334 mm) | 39.6 | 32.6 | 1.079 | 38 |
| FA (334 + 0 mm) | 45.8 | 34.9 | 1.077 | 81.9/49.9 |
| Y100N (334 + 0 mm) | 46.3 | 39.0 | 1.086 | 23.6 |
| Y80N (334 + 0 mm) | 49.2 | 37.7 | 1.0712 | 19/22.3 |
| Standard error | 2.4 | 2.5 | 0.0035 |  |
| *p* value | 0.088 | 0.33 | 0.768 |  |
| AL21/Clearwater Russet | | | | |
| DA (465 mm) | 42.4 | 34.0 | 1.0938 | 83/98.6 |
| FA (465 + 40 mm) | 43.6 | 34.7 | 1.0988 | 36.2/24.5 |
| Y100N (465 + 40 mm) | 47.0 | 35.3 | 1.0985 | 17.3/26.3 |
| Y80N (465 + 40 mm) | 41.5 | 34.4 | 1.1003 | 29.5/20.5 |
| Standard error | 3.2 | 2.6 | 0.0015 |  |
| *p* value | 0.66 | 0.986 | 0.052 |  |
| KS21/Alverstone Russet | | | | |
| DA (358 mm) | 49.0bc | 42.0 | 1.0835 | 26.9/26.3 |
| FA (358 + 40 mm) | 49.4c | 44.1 | 1.0853 | 13.7/81.2 |
| Y100N (358 + 40 mm) | 41.3ab | 35.8 | 1.087 | 20.7/14.5 |
| Y80N (358 + 40 mm) | 39.5a | 34.0 | 1.085 | 15.2/15.8 |
| Standard error | 2.6 | 2.6 | 0.0012 |  |
| *p* value | 0.037 | 0.056 | 0.34 |  |

Notes: Mean separations were done within each field and year with treatment-zone samples as replications. Means with the same letter are not significantly different at *p*=0.05. Multiple comparisons were not conducted unless *p*<0.05. The variation in on-site rainfall was partially due to differences in the start of rainfall monitoring.

Table 4 Effects of treatment on tuber yields, specific gravity, and postharvest soil nitrate content in 2022 (LSD α=5%)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treatment (Jun. to Sep. rainfall + irrigation) | Total yield (Mg/ha) | Marketable yield (Mg/ha) | Specific gravity (g/cm3) | Postharvest soil nitrate content (kg N/ha) |
| CB22/Mountain Gem Russet | | | | |
| DA (400 mm) | 55.2 | 50.8 | 1.0802a | 35.2 |
| FA (400 + 88 mm) | 50.3 | 46.0 | 1.0867ab | 28 |
| Y100N (400 + 88 mm) | 45.1 | 41.8 | 1.0914b | 19.8 |
| Y80N (400 + 88 mm) | 51.8 | 49.1 | 1.0881b | 21.1 |
| Standard error | 2.4 | 2.1 | 0.00218 |  |
| *p* value | 0.07 | 0.05 | 0.0227 |  |
| HL22/Mountain Gem Russet | | | | |
| DA (438 mm) | 41.7 | 37.1 | 1.0798a | 116.2 |
| FA (438 + 40 mm) | 46.2 | 38.9 | 1.0819a | 100.7 |
| Y100N (438 + 40 mm) | 48.4 | 43.0 | 1.0907b | 68.1 |
| Y80N (438 + 40 mm) | 50.6 | 44.9 | 1.0881b | 37.3 |
| Standard error | 2.5 | 2.3 | 0.00157 |  |
| *p* value | 0.128 | 0.118 | 0.001 |  |
| BC22/Mountain Gem Russet | | | | |
| DA (373 mm) | 62.0b | 56.9 | 1.0858 | 40.8 |
| FA (373 + 20 mm) | 57.1ab | 55.3 | 1.089 | 34.4 |
| Y100N (373 + 20 mm) | 54.6a | 51.0 | 1.0874 | 34.1 |
| Y80N (373 + 20 mm) | 52.7a | 49.2 | 1.0945 | 34.5 |
| Standard error | 1.9 | 2.4 | 0.00211 |  |
| *p* value | 0.027 | 0.125 | 0.059 |  |
| RG22/Dakota Russet | | | | |
| DA (423 mm) | 43.6 | 39.7 | 1.097 | 51.6 |
| FA (423 + 21 mm) | 50.0 | 43.2 | 1.1001 | 95.3 |
| Y100N (423 + 21 mm) | 46.2 | 41.6 | 1.1021 | 41.9 |
| Y80N (423 + 21 mm) | 52.3 | 45.7 | 1.1003 | 19.8 |
| Standard error | 4.0 | 3.9 | 0.00217 |  |
| *p* value | 0.46 | 0.76 | 0.446 |  |
| AL22/Clearwater Russet | | | | |
| DA (438 mm) | 48.7a | 41.8ab | 1.0957b | 51.4 |
| FA (438 + 40 mm) | 43.7a | 38.3a | 1.0956b | 23.4 |
| Y100N (438 + 40 mm) | 44.9a | 34.5a | 1.0928ab | 26.6 |
| Y80N (438 + 40 mm) | 59.0b | 48.2b | 1.0898a | 30.9 |
| Standard error | 2.9 | 2.8 | 0.00119 |  |
| *p* value | 0.01 | 0.027 | 0.013 |  |

Notes: Mean separations were done within each field and year with treatment-zone samples as replications. Means with the same letter are not significantly different at *p*=0.05. Multiple comparisons were not conducted unless *p*<0.05. Statistical analysis was not performed for postharvest soil nitrate content due to insufficient data.

Table 5 Growing season rainfall at New Glasgow, PEI, Canada

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | June (mm) | July (mm) | August (mm) | September (mm) | Total (mm) |
| 2000 | 49.8 | 138.8 | 83.2 | 79.1 | 350.9 |
| 2001 | 79.2 | 34.8 | 26.6 | 45.8 | 186.4 |
| 2002 | 106.2 | 78.6 | 84 | 233.5 | 502.3 |
| 2003 | 89.6 | 72.8 | 123.9 | 48.8 | 335.1 |
| 2004 | 120.2 | 49.8 | 112.6 | 65.9 | 348.5 |
| 2005 | 80.8 | 90.7 | 43.2 | 141.7 | 356.4 |
| 2006 | 147.7 | 105.5 | 62.7 | 61 | 376.9 |
| 2007 | 105.8 | 112.8 | 120.3 | 81.4 | 420.3 |
| 2008 | 68.4 | 32.4 | 169.6 | 146.6 | 417 |
| 2009 | 113.1 | 167 | 127.3 | 82 | 489.4 |
| 2010 | 165.4 | 118.7 | 53.4 | 137.5 | 475 |
| 2011 | 100.8 | 86.3 | 140 | 26.7 | 353.8 |
| 2012 | 61.5 | 33.6 | 69.6 | 268.1 | 432.8 |
| 2013 | 96.2 | 68.6 | 57.4 | 110.9 | 333.1 |
| 2014 | 90 | 73.7 | 121.5 | 67 | 352.2 |
| 2015 | 128.2 | 43.4 | 87.4 | 111.6 | 370.6 |
| 2016 | 70.2 | 45 | 113.8 | 75 | 304 |
| 2017 | 85.4 | 72.2 | 86.8 | 73.4 | 317.8 |
| 2018 | 192.2 | 34.9 | 74 | 118 | 419.1 |
| 2019 | 138.3 | 23.6 | 122 | 244.3 | 528.2 |
| 2020 | 43 | 81.2 | 60.2 | 97.1 | 281.5 |
| 2021 | 57 | 136 | 38 | 250.3 | 481.3 |
| 2022 | 132.6 | 79.4 | 199.8 | 107.5 | 519.3 |
| Minimum | 43.0 | 23.6 | 26.6 | 26.7 | 186.4 |
| Q1 | 74.7 | 44.2 | 61.5 | 70.2 | 341.8 |
| Median | 96.2 | 73.7 | 86.8 | 97.1 | 370.6 |
| Q3 | 124.2 | 98.1 | 121.8 | 139.6 | 453.9 |
| maximum | 192.2 | 167.0 | 199.8 | 268.1 | 528.2 |
| Mean | 100.9 | 77.4 | 94.7 | 116.2 | 389.2 |

Notes: Data were sourced from the Environment and Climate Change Canada weather station at New Glasgow (46°24′32.08"N, 63°21′01.04"W), with missing daily data filled using nearby weather stations.