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| **Table 7.** Comparison of key factors for G, E, and M effects, including variety maturity class [Maturity Class], classified soil texture [Soil Texture], soil organic matter content [OM], mean growing season diurnal temperature difference [∆TDiurnal], cumulative growing season growing degree days [GDD], growing season mean daily incident solar radiation [Sol. Rad.], planting density [Density], and N fertilizer application source and timing, used to interpret differences in critical N dilution curve parameters and critical N concentration. | | | | | | | | | | | |
|  |  | **G** | **E** | | | | | | | **M** | |
| Location | Variety | Maturity Class† | Soil Texture§ | OM  [%] | TMean [ºC] | Precip [mm] | ∆TDiurnal [ºC] | GDD [ºC d] | Sol. Rad. [MJ m-2] | Density [plants ha-1] | N Source & Timing‡ |
| Argentina | Bannock Russet | L to VL | L | 4.2 to 5.2 | 18.4 | 428 | 13.6 | 1739 | 25.5 | 59,000 | Urea @ PL |
| Gem Russet | M to L |
| Innovator | E to M |
| Markies Russet | L to VL |
| Umatilla Russet | ML to L |
| Belgium | Bintje | L | SiCL, SiL, L, SL | 1.3 to 2.6 | 15.5 | 244 | 8.3 | 1313 | 20.0 | 38,000 | AN @ PL |
| Charlotte | M |
| Canada | Russet Burbank | L to VL | CL, L | 2.6 to 3.0 | 15.7 | 371 | 10.0 | 1150 | 19.1 | 29,000 | AN @ PL |
| Shepody | E to ME | 44,000 |
| Minnesota | Clearwater | ML | LS | 1.3 to 2.5 | 18.9 | 383 | 11.6 | 1638 | 22.7 | 36,000 | AN, Urea, UAN, and/or PCU @ PL, EM, and/or P-EM |
| Dakota Russet | ML |
| Easton | L |
| Russet Burbank | L to VL |
| Umatilla Russet | ML to L |
| † Early (E), medium-early (ME), medium (M), medium-late (ML), late (L), very late (VL)  ‡ Ammonium nitrate (AN), urea-ammonium nitrate (UAN), polymer-coated urea (PCU), planting (PL), emergence (EM), post-emergence (P-EM)  § Silty clay loam (SiCL), clay loam (CL), silt loam (SiL), loam (L), sandy loam (SL), loamy sand (LS) | | | | | | | | | | | |

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| Table 7. Comparison of key factors for G, E, and M effects, including variety maturity class [Maturity Class], mean growing season diurnal temperature difference [∆TDiurnal], cumulative growing season growing degree days [GDD], cumulative growing season incident solar radiation [Sol. Rad.], planting density [Density], and N fertilizer application source and timing, used to interpret differences in critical N dilution curve parameters and critical N concentration. | | | | | | | | | |
|  |  | G | E | | | M | | Parameter | |
| Location | Variety | Maturity Class† | ∆TDiurnal [ºC] | GDD [ºC d] | Sol. Rad. [MJ m-2] | Density [plants ha-1] | N Source & Timing‡ | *a* | *b* |
| Argentina | Bannock Russet | L to VL | 13.6 | 1739 | 3873 | 59,000 | Urea @ PL | 4.96 | 0.140 |
|  | Gem Russet | M to L |  |  |  |  |  | 4.96 | 0.178 |
|  | Innovator | E to M |  |  |  |  |  | 4.94 | 0.212 |
|  | Markies Russet | L to VL |  |  |  |  |  | 4.96 | 0.155 |
|  | Umatilla Russet | ML to L |  |  |  |  |  | 4.95 | 0.165 |
| Belgium | Bintje | L | 8.3 | 1313 | 3086 | 38,000 | AN @ PL | 4.72 | 0.579 |
|  | Charlotte | M |  |  |  |  |  | 4.74 | 0.559 |
| Canada | Russet Burbank | L to VL | 10.0 | 1150 | 2527 | 29,000 | AN @ PL | 4.74 | 0.489 |
|  | Shepody | E to ME |  |  |  | 44,000 |  | 4.77 | 0.412 |
| Minnesota | Clearwater | ML | 11.6 | 1638 | 3136 | 36,000 | AN, Urea, UAN, and/or PCU @ PL, EM, and/or P-EM | 4.75 | 0.585 |
|  | Dakota Russet | ML |  |  |  |  |  | 4.75 | 0.599 |
|  | Easton | L |  |  |  |  |  | 4.75 | 0.592 |
|  | Russet Burbank | L to VL |  |  |  |  |  | 4.74 | 0.566 |
|  | Umatilla Russet | ML to L |  |  |  |  |  | 4.75 | 0.588 |
| † Early (E), medium-early (ME), medium (M), medium-late (ML), late (L), very late (VL)  ‡ Ammonium nitrate (AN), urea-ammonium nitrate (UAN), polymer-coated urea (PCU), planting (PL), emergence (EM), post-emergence (P-EM) | | | | | | | | | |

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| **Table 8.** Discussion of the mechanisms of dilution according to G x E x M effects. | | | | | | | |
|  | G | E | | | M | |  |
| Mechanism of Dilution | Early | ∆TDiurnal | GDD | Sol. Rad. | Density | Soil N | Dilution |
| Tuber Initiation Timing | ↑ | ↑ | – | ↑ | – | ↓ | ↑ |
| Tuber Bulking Rate | – | ??? | – | ??? | ↓ | – | ↑ |