Table 11. Effect of pH on nutrient availability and productivity of onions grown on muck soils in Western New York, field survey, 2010: Mid-season plant size and harvest yield and bulb size distribution.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field\*** | **pH** | **% OM** | **Plant size** | | **Harvest: Star – Aug 18 & 19; LS – Aug 24-25; Mort & Panek – Sept 2** | | | | | | |
| **July 15 (Panek) &**  **July 28 (all others)** | | **Total Marketable Yield** | | **Bulb size distribution and culls**  **weight per 40 ft of row (lbs)** | | | | |
| **No. leaves per plant** | **Height of tallest leaf (cm)** | **lb per 40 ft row** | **cwt/A** | **Small**  **(1.25-2”)** | **Medium**  **(2-3”)** | **Jumbo**  **(3-4”)** | **Culls undersized** | **Culls**  **decay** |
| ***Below optimum pH (<5.2):*** | | | | | | | | | | | |
| **Mort B** | 4.8 e | 46 cd | 7.8 bc | 70.0 ab | 34.4 bcd | 374 bcd | 7.7 de | 26.5 cd | 0.2 b | 0.2 bc | 0.8 |
| **Mort A** | 5.0 e | 42 d | 7.3 c | 63.7 e | 31.7 cde | 345 cde | 12.2 bcd | 19.5 d | 0.0 b | 0.1 c | 1.2 |
| ***Optimum pH (5.2-5.8):*** | | | | | | | | | | | |
| **Panek A** | 5.3 de | 51 bc | 8.6 a | 71.9 a | 40.1 abc | 436 abc | 2.2 f | 37.4 a | 0.5 b | 2.9 a | 0.0 |
| **Panek B** | 5.3 de | 57 a | 8.4 a | 68.5 abc | 37.9 abcd | 412 a-d | 2.0 f | 34.6 abc | 1.3 a | 2.8 a | 1.1 |
| **LS 1 A** | 5.3 cde | 53 ab | 8.2 ab | 66.5 cde | 45.4 a | 494 a | 8.5 cde | 36.8 ab | 0.0 b | 0.1 c | 0.3 |
| **LS 2 A** | 5.6 cd | 50 bc | 7.5 c | 66.5 cde | 43.0 ab | 469 ab | 6.1 ef | 37.0 a | 0.0 b | 0.0 c | 0.4 |
| **LS 2 B** | 5.8 bcd | 51 bc | 7.5 c | 68.7 abc | 45.9 a | 500 a | 13.2 bc | 32.7 abc | 0.0 b | 0.1 bc | 0.7 |
| ***Above optimum pH (>5.8)*** | | | | | | | | | | | |
| **Star A** | 5.9 bc | 53 ab | 6.6 d | 68.2 bcd | 31.0 de | 337 de | 22.1 a | 8.8 e | 0.0 b | 0.7 bc | 0.2 |
| **LS 1 A** | 6.2 ab | 19 e | 8.2 ab | 65.0 de | 36.5 bcd | 397 bcd | 9.5 cde | 26.7 bcd | 0.2 b | 0.1 bc | 0.3 |
| **Star B** | 6.5 a | 51 bc | 7.3 c | 63.3 e | 24.6 e | 268 e | 15.7 b | 9.0 e | 0.0 b | 0.9 b | --\*\* |
| ***P Value (α=0.5)*** | ***0.0001*** | ***0.0000*** | ***0.0000*** | ***0.0000*** | ***0.0011*** | ***0.0011*** | ***0.0000*** | ***0.0000*** | ***0.0373*** | ***0.0000*** | ***NS*** |

\*Within each field, two areas were selected for low (A) and high (B) pH. Three sub-samples were set up in each area A and B.

\*\*Culls were not divided into undersized and decay in this field. The undersized cull category is the total cull weight of undersized and decayed bulbs.