Table 3. Effect of brassica cover crops on **pre-plant potentially mineralizable nitrogen (PMN)** and **mid-season available nitrate-nitrogen ($NO_3$-N)** of onions grown in the muck soils in Elba, NY.

| | PRE-PLANT | | MID-SEASON (8-10 leaf) | | | | |
|---|---|---|---|---|---|---|---|
| **Field** | **Potentially Mineralizable Nitrogen (PMN)[1]** | **Amount N applied by grower** | **Available Nitrate-Nitrogen ($NO_3$-N)[1]** | | **Estimated Nitrogen used by crop or lost[3]** | **Plant Population Based on Stand[4] in mid-season** | **Potential Nitrogen used per plant[5]** |
| | **(lb/A)** | **(lb/A)** | **Sampling date (DAP[2])** | **(lb/A)** | **(lb/A)** | **(plants/A)** | **(lb/10,000 plants)** |
| **Triple G Case Study (Yellow direct seeded onion; c.v. Hendrix) (pre-plant soil samples collected on Apr-21-2014):** Brown/yellow mustard blend (c.v Caliente) 11 lb/A; optimally planted on Aug-20-2013; late planted on Aug-30-2013 (10 days). Incorporation: cover crops chopped, disked and culti-mulched on Oct-25-2016 when mustard was 2 feet tall with ~1% in bloom. | | | | | | | |
| Bare ground | 38.9 b[6] | 101 | Jul-17 (82) | 31.8 c | 108 | 218,768 a | 4.72 |
| Late Planted Mustard | 70.5 a | | Jul-25 (81) | 50.5 b | 99.8 | 182,952 b | 6.83 |
| Optimally Planted Mustard | 52.8 ab | | Jul-25 (81) | 62.8 a | 90.9 | 182,468 b | 5.10 |
| ***P Value (α=0.05)*** | ***0.0375*** | | **--** | ***0.0399*** | ***NS*** | ***0.0000*** | ***NS*** |
| **Mortellaro Case Study (Yellow transplanted onion; c.v. Bradley) (pre-plant soil samples collected on Apr-24-2014):** Brown/yellow mustard blend (c.v. Caliente) 12 lb/A; optimally planted on Aug-7-2013 and incorporated via chopping, plowing and rolling on Oct-23-2013 when mustard 5 feet tall with 70% in bloom; late planted on Sep 26-2013 (37 days late) and incorporated in the same manner on Oct-28-2013 when mustard was 4 feet tall with 30% bloom. Winter-killed late planted mustard was planted on Aug-27-2013 (7 days late). Forage radish (c.v Ecotill Buster) 8 lb/A was planted on Aug 30-2013 (10 days late). | | | | | | | |
| Incorporated Optimally Planted Mustard | 16.1 | 125 | Jun-22 (40) | 61.7 | 79.7 | 133,816 b | 6.03 |
| Incorporated Late Planted Mustard | 32.2 | | Jun-22 (41) | 58.5 | 98.8 | 144,232 a | 6.94 |
| Winter-killed Late Planted Mustard | 38.4 | | Jun-22 (42) | 56.4 | 107 | 145,200 a | 6.68 |
| Winter-killed Late Planted Forage Radish | 25.1 | | Jun-22 (44) | 54.4 | 95.7 | 134,068 b | 7.18 |
| ***P Value (α=0.05)*** | ***NS[7]*** | **--** | | ***NS*** | ***NS*** | ***0.0067*** | ***NS*** |

[1]Composite soil samples collected in each of replicates 1,3 and 5. **[2]DAP:** days after planting. **[3]Estimated Nitrogen used by crop or lost:** N pre-plant + N applied by grower – N remaining at mid-season. [4]See Table 5 for stand at mid-season. [5]Potential Nitrogen used by plant: Estimated Nitrogen used by crop divided by current plant population. Without tissue analysis, it is not known how much N was actually taken up by the crop. We assume that nitrogen use is proportionate to plant population. [6]Numbers in a column followed by the same letter are not significantly different, Fisher's Protected LSD test, $p<0.05$. **[7]NS:** Not significantly different, Fisher's Protected LSD test, $p>0.05$.