|  |
| --- |
| Table 4. Organic Sunflower - 2012 Soil C and N Analyses |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tillage | Sequence | Soil depth (cm) | | | |
| 0-5 | 5-15 | 15-30 | 30-60 |
| Flush of CO2-C following rewetting of dried soil (mg/kg/3 d) | | | | | |
| **CT** | **1** | 38 | 51 | 57 | 23 |
| **CT** | **2** | 37 | 61 | 56 | 20 |
| **NT** | **1** | 40 | 52 | 47 | 27 |
| **NT** | **2** | 46 | 57 | 54 | 22 |
|  |  | NS\* | NS | NT-1 low | NS |
| Potential C mineralization (mg/kg/24 d) | | | | | |
| **CT** | **1** | 139 | 130 | 155 | 97 |
| **CT** | **2** | 135 | 240 | 179 | 42 |
| **NT** | **1** | 116 | 161 | 146 | 52 |
| **NT** | **2** | 143 | 155 | 175 | 55 |
|  |  | NS | CT-2 high | NS | NS |
| Soil microbial biomass C (mg/kg) | | | | | |
| **CT** | **1** | 110 | 150 | 186 | 150 |
| **CT** | **2** | 123 | 201 | 205 | 107 |
| **NT** | **1** | 159 | 194 | 214 | 117 |
| **NT** | **2** | 136 | 239 | 235 | 127 |
|  |  | NS | CT-1 v NT-2 | NS | CT-1 v CT-2 |
| Sand (kg/kg) | | | | | |
| **CT** | **1** | 0.86 | 0.86 | 0.83 | 0.66 |
| **CT** | **2** | 0.87 | 0.88 | 0.85 | 0.69 |
| **NT** | **1** | 0.87 | 0.88 | 0.84 | 0.68 |
| **NT** | **2** | 0.86 | 0.87 | 0.84 | 0.69 |
|  |  | NS | CT-1 v NT-1 | NS | NS |
| Clay (kg/kg) | | | | | |
| **CT** | **1** | 0.10 | 0.09 | 0.13 | 0.27 |
| **CT** | **2** | 0.09 | 0.09 | 0.10 | 0.29 |
| **NT** | **1** | 0.10 | 0.08 | 0.12 | 0.30 |
| **NT** | **2** | 0.10 | 0.10 | 0.13 | 0.29 |
|  |  | NS | NS | NS | NS |
| Total organic C (g/kg) | | | | | |
| **CT** | **1** | 4.7 | 4.7 | 4.7 | 2.7 |
| **CT** | **2** | 4.6 | 4.5 | 4.4 | 2.8 |
| **NT** | **1** | 4.7 | 4.6 | 4.6 | 2.7 |
| **NT** | **2** | 4.6 | 4.8 | 4.4 | 2.7 |
|  |  | NS | NS | NS | NS |
| Total soil N (g/kg) | | | | | |
| **CT** | **1** | 0.42 | 0.42 | 0.42 | 0.40 |
| **CT** | **2** | 0.42 | 0.42 | 0.42 | 0.39 |
| **NT** | **1** | 0.41 | 0.42 | 0.41 | 0.39 |
| **NT** | **2** | 0.42 | 0.42 | 0.42 | 0.37 |
| Particulate organic C (g/kg) | | | | | |
|  |  | NS | NS | NS | NS |
| **CT** | **1** | 1.2 | 1.3 | 1.3 | 0.5 |
| **CT** | **2** | 1.2 | 1.4 | 1.3 | 0.5 |
| **NT** | **1** | 1.4 | 1.4 | 1.2 | 0.5 |
| **NT** | **2** | 1.3 | 1.3 | 1.2 | 0.5 |
|  |  | NS | NS | NS | NS |
| Particulate organic N (g/kg) | | | | | |
| **CT** | **1** | 0.15 | 0.15 | 0.14 | 0.11 |
| **CT** | **2** | 0.15 | 0.15 | 0.16 | 0.11 |
| **NT** | **1** | 0.15 | 0.15 | 0.15 | 0.11 |
| **NT** | **2** | 0.15 | 0.15 | 0.16 | 0.11 |
|  |  | NS | NS | NS | NS |
| Residual soil inorganic N (mg/kg) | | | | | |
| **CT** | **1** | 6 | 5 | 5 | 6 |
| **CT** | **2** | 7 | 5 | 6 | 5 |
| **NT** | **1** | 6 | 6 | 6 | 5 |
| **NT** | **2** | 7 | 6 | 7 | 6 |
|  |  | NS | NS | NS | NS |
| Net N mineralization (mg/kg/24 d) | | | | | |
| **CT** | **1** | 10 | 11 | 8 | 1 |
| **CT** | **2** | 11 | 13 | 10 | 2 |
| **NT** | **1** | 11 | 12 | 9 | 2 |
| **NT** | **2** | 11 | 13 | 10 | 2 |
|  |  | NS | NS | NS | NS |

\*NS, non-significant at *P* ≤ 0.05.

| **Obs** | **TILLAGE** | **SEQUENCE** | **REP** | **DEPTH** | **C03** | **CMIN** | **SMBC** | **SAND** | **CLAY** | **TOC** | **TSN** | **POC** | **INN** | **NMIN** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | CT | 1 | 1 | 1 | 25.72 | 90.67 | 108.56 | 0.8637 | 0.1000 | 4.5518 | 0.4113 | 1.1636 | 5.71 | 12.54 |
| **2** | CT | 1 | 2 | 1 | 50.44 | 246.95 | 132.68 | 0.8423 | 0.1000 | 5.1001 | 0.4207 | 1.2356 | 5.35 | 10.51 |
| **3** | CT | 1 | 3 | 1 | 32.64 | 79.79 | 65.14 | 0.8801 | 0.0750 | 4.3077 | 0.3907 | 1.2744 | 7.36 | 9.42 |
| **4** | CT | 1 | 4 | 1 | 42.53 | 139.13 | 132.68 | 0.8407 | 0.1250 | 4.9419 | 0.4651 | 1.2888 | 6.11 | 9.12 |
| **5** | CT | 1 | 1 | 2 | 58.36 | 141.11 | 180.93 | 0.8723 | 0.0817 | 4.5634 | 0.4293 | 1.0667 | 5.08 | 10.31 |
| **6** | CT | 1 | 2 | 2 | 28.68 | 99.57 | 156.81 | 0.8460 | 0.1000 | 5.1141 | 0.4179 | 1.2633 | 5.33 | 10.08 |
| **7** | CT | 1 | 3 | 2 | 52.42 | 110.45 | 108.56 | 0.8648 | 0.0750 | 4.2092 | 0.3731 | 1.2554 | 5.11 | 10.70 |
| **8** | CT | 1 | 4 | 2 | 63.30 | 169.80 | 151.98 | 0.8598 | 0.1083 | 4.9131 | 0.4505 | 1.4240 | 5.22 | 13.44 |
| **9** | CT | 1 | 1 | 3 | 56.38 | 146.06 | 147.16 | 0.8479 | 0.1150 | 4.3914 | 0.4032 | 1.1394 | 5.18 | 8.58 |
| **10** | CT | 1 | 2 | 3 | 50.44 | 88.69 | 219.53 | 0.8418 | 0.0900 | 5.2027 | 0.4150 | 1.3476 | 4.81 | 8.60 |
| **11** | CT | 1 | 3 | 3 | 57.37 | 182.65 | 219.53 | 0.8645 | 0.1367 | 4.1083 | 0.4006 | 1.1501 | 4.36 | 7.97 |
| **12** | CT | 1 | 4 | 3 | 63.30 | 201.45 | 156.81 | 0.7613 | 0.1900 | 5.0212 | 0.4572 | 1.7062 | 5.68 | 7.76 |
| **13** | CT | 1 | 1 | 4 | 38.57 | 91.66 | 127.86 | 0.6820 | 0.2950 | 2.5634 | 0.4053 | 0.4637 | 4.22 | 0.95 |
| **14** | CT | 1 | 2 | 4 | 5.93 | 34.29 | 180.93 | 0.6303 | 0.3117 | 2.9590 | 0.4089 | 0.5127 | 4.43 | 3.11 |
| **15** | CT | 1 | 3 | 4 | 18.79 | 36.27 | 156.81 | 0.7367 | 0.2200 | 2.2489 | 0.3543 | 0.4048 | 6.61 | 0.30 |
| **16** | CT | 1 | 4 | 4 | 28.68 | 224.20 | 132.68 | 0.5736 | 0.2367 | 3.0499 | 0.4387 | 0.4443 | 8.69 | 0.11 |
| **17** | CT | 2 | 1 | 1 | 37.59 | 128.25 | 171.28 | 0.8854 | 0.0750 | 5.8614 | 0.4660 | 1.6140 | 5.85 | 15.66 |
| **18** | CT | 2 | 2 | 1 | 25.72 | 90.67 | 84.44 | 0.8545 | 0.1000 | 3.8502 | 0.4127 | 0.9715 | 4.59 | 7.75 |
| **19** | CT | 2 | 3 | 1 | 42.53 | 141.11 | 98.91 | 0.8696 | 0.1000 | 3.8845 | 0.3774 | 1.1476 | 7.53 | 8.20 |
| **20** | CT | 2 | 4 | 1 | 41.54 | 179.69 | 137.51 | 0.8757 | 0.0917 | 4.7217 | 0.4242 | 1.2499 | 9.45 | 11.16 |
| **21** | CT | 2 | 1 | 2 | 60.34 | 166.83 | 301.55 | 0.8879 | 0.0733 | 5.3327 | 0.4559 | 1.7016 | 6.75 | 15.73 |
| **22** | CT | 2 | 2 | 2 | 50.44 | 300.36 | 127.86 | 0.8629 | 0.1067 | 4.1354 | 0.4067 | 1.3326 | 3.88 | 9.74 |
| **23** | CT | 2 | 3 | 2 | 47.48 | 152.98 | 253.31 | 0.8702 | 0.0900 | 4.0147 | 0.4059 | 1.1204 | 4.74 | 10.48 |
| **24** | CT | 2 | 4 | 2 | 87.04 | 337.94 | 123.03 | 0.8848 | 0.0750 | 4.6013 | 0.4151 | 1.4118 | 5.86 | 14.35 |
| **25** | CT | 2 | 1 | 3 | 62.31 | 274.64 | 156.81 | 0.8630 | 0.0900 | 5.2306 | 0.4803 | 1.7322 | 8.45 | 11.52 |
| **26** | CT | 2 | 2 | 3 | 51.43 | 189.58 | 137.51 | 0.8520 | 0.1150 | 3.9904 | 0.4000 | 1.0534 | 4.68 | 10.08 |
| **27** | CT | 2 | 3 | 3 | 52.42 | 144.08 | 253.31 | 0.8176 | 0.1233 | 3.8908 | 0.4198 | 1.0073 | 6.59 | 7.73 |
| **28** | CT | 2 | 4 | 3 | 57.37 | 109.46 | 272.61 | 0.8781 | 0.0733 | 4.5806 | 0.3988 | 1.3147 | 5.07 | 9.34 |
| **29** | CT | 2 | 1 | 4 | 29.67 | 46.16 | 55.49 | 0.7027 | 0.2700 | 3.0664 | 0.3988 | 0.6585 | 4.59 | 2.02 |
| **30** | CT | 2 | 2 | 4 | 12.86 | 53.08 | 123.03 | 0.6940 | 0.2867 | 2.3298 | 0.3905 | 0.4596 | 3.86 | 1.17 |
| **31** | CT | 2 | 3 | 4 | 24.73 | 51.10 | 142.33 | 0.6784 | 0.3034 | 2.7239 | 0.3904 | 0.4186 | 8.04 | 2.80 |
| **32** | CT | 2 | 4 | 4 | 13.85 | 18.46 | 108.56 | 0.6903 | 0.2867 | 2.9176 | 0.3944 | 0.4735 | 5.49 | 3.00 |
| **33** | NT | 1 | 1 | 1 | 35.61 | 118.36 | 176.11 | 0.8750 | 0.0833 | 5.0079 | 0.4098 | 1.3731 | 7.24 | 9.66 |
| **34** | NT | 1 | 2 | 1 | 30.66 | 115.40 | 113.38 | 0.8578 | 0.1000 | 5.5411 | 0.4211 | 1.6355 | 6.66 | 9.81 |
| **35** | NT | 1 | 3 | 1 | 34.62 | 99.57 | 200.23 | 0.8816 | 0.0833 | 3.4236 | 0.3785 | 1.0489 | 5.77 | 8.61 |
| **36** | NT | 1 | 4 | 1 | 57.37 | 129.24 | 147.16 | 0.8515 | 0.1250 | 4.8421 | 0.4190 | 1.4260 | 5.24 | 14.77 |
| **37** | NT | 1 | 1 | 2 | 55.39 | 161.88 | 180.93 | 0.8824 | 0.0817 | 5.1547 | 0.4522 | 1.4747 | 7.77 | 12.89 |
| **38** | NT | 1 | 2 | 2 | 37.59 | 120.34 | 219.53 | 0.8594 | 0.0817 | 4.5339 | 0.4198 | 1.5156 | 5.51 | 9.58 |
| **39** | NT | 1 | 3 | 2 | 43.52 | 151.00 | 243.66 | 0.8936 | 0.0733 | 3.7414 | 0.3650 | 1.0234 | 4.58 | 8.80 |
| **40** | NT | 1 | 4 | 2 | 72.20 | 211.34 | 132.68 | 0.8674 | 0.1000 | 5.0284 | 0.4299 | 1.3982 | 4.46 | 18.05 |
| **41** | NT | 1 | 1 | 3 | 43.52 | 104.51 | 248.48 | 0.8657 | 0.0900 | 4.7217 | 0.3866 | 1.2612 | 7.46 | 8.92 |
| **42** | NT | 1 | 2 | 3 | 45.50 | 246.95 | 248.48 | 0.8557 | 0.0733 | 5.6114 | 0.4346 | 1.5349 | 6.99 | 11.64 |
| **43** | NT | 1 | 3 | 3 | 47.48 | 134.19 | 209.88 | 0.8476 | 0.1450 | 3.4724 | 0.3808 | 0.9696 | 5.09 | 7.26 |
| **44** | NT | 1 | 4 | 3 | 50.44 | 98.58 | 147.16 | 0.7875 | 0.1817 | 4.6233 | 0.4450 | 1.1400 | 5.76 | 10.00 |
| **45** | NT | 1 | 1 | 4 | 34.62 | 70.89 | 118.21 | 0.6757 | 0.3034 | 2.2515 | 0.3583 | 0.4402 | 4.11 | 2.18 |
| **46** | NT | 1 | 2 | 4 | 33.63 | 57.04 | 94.09 | 0.6916 | 0.2867 | 3.3099 | 0.4100 | 0.6525 | 3.42 | 2.42 |
| **47** | NT | 1 | 3 | 4 | 22.75 | 34.29 | 151.98 | 0.6915 | 0.2867 | 2.4895 | 0.3887 | 0.3863 | 6.14 | 1.63 |
| **48** | NT | 1 | 4 | 4 | 18.79 | 45.17 | 103.73 | 0.6427 | 0.3367 | 2.7371 | 0.4148 | 0.5353 | 7.74 | 1.48 |
| **49** | NT | 2 | 1 | 1 | 75.17 | 190.57 | 161.63 | 0.8787 | 0.0667 | 5.3528 | 0.4623 | 1.5759 | 8.23 | 16.16 |
| **50** | NT | 2 | 2 | 1 | 28.68 | 112.43 | 127.86 | 0.8328 | 0.1250 | 4.1510 | 0.3840 | 1.0115 | 5.45 | 9.09 |
| **51** | NT | 2 | 3 | 1 | 35.61 | 114.41 | 132.68 | 0.8639 | 0.1000 | 3.5967 | 0.3916 | 1.0441 | 7.47 | 9.15 |
| **52** | NT | 2 | 4 | 1 | 46.49 | 155.95 | 123.03 | 0.8631 | 0.0917 | 5.1040 | 0.4536 | 1.5619 | 7.02 | 9.90 |
| **53** | NT | 2 | 1 | 2 | 65.28 | 176.72 | 306.38 | 0.8877 | 0.0733 | 5.2968 | 0.4278 | 1.7247 | 5.11 | 17.28 |
| **54** | NT | 2 | 2 | 2 | 57.37 | 174.74 | 200.23 | 0.8416 | 0.1150 | 5.3492 | 0.4289 | 1.2060 | 6.34 | 10.12 |
| **55** | NT | 2 | 3 | 2 | 52.42 | 137.16 | 253.31 | 0.8642 | 0.1067 | 3.8209 | 0.4062 | 1.0106 | 5.56 | 9.66 |
| **56** | NT | 2 | 4 | 2 | 52.42 | 133.20 | 195.41 | 0.8716 | 0.0917 | 4.8251 | 0.4297 | 1.4311 | 5.21 | 13.54 |
| **57** | NT | 2 | 1 | 3 | 60.34 | 249.91 | 291.91 | 0.8491 | 0.1450 | 4.8713 | 0.4511 | 1.4426 | 8.78 | 14.05 |
| **58** | NT | 2 | 2 | 3 | 46.49 | 212.33 | 185.76 | 0.8323 | 0.1233 | 4.1712 | 0.4056 | 1.0912 | 5.12 | 9.20 |
| **59** | NT | 2 | 3 | 3 | 53.41 | 136.17 | 214.71 | 0.8445 | 0.1534 | 3.8264 | 0.3980 | 1.0302 | 5.73 | 7.64 |
| **60** | NT | 2 | 4 | 3 | 54.40 | 101.55 | 248.48 | 0.8351 | 0.1150 | 4.7166 | 0.4427 | 1.3931 | 6.71 | 9.54 |
| **61** | NT | 2 | 1 | 4 | 17.80 | 54.07 | 137.51 | 0.6513 | 0.3367 | 2.6551 | 0.3611 | 0.4364 | 3.80 | 2.39 |
| **62** | NT | 2 | 2 | 4 | 25.72 | 76.82 | 123.03 | 0.7228 | 0.2450 | 2.5315 | 0.3861 | 0.5844 | 3.82 | 1.50 |
| **63** | NT | 2 | 3 | 4 | 19.78 | 45.17 | 137.51 | 0.7101 | 0.2617 | 2.5173 | 0.3748 | 0.4473 | 7.18 | 0.84 |
| **64** | NT | 2 | 4 | 4 | 22.75 | 42.20 | 108.56 | 0.6759 | 0.3034 | 3.0945 | 0.3767 | 0.5067 | 7.26 | 2.03 |

Depth = 0-5 cm

| **TILLAGE** | **SEQUENCE** | **C03 LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 37.8330750 | 7.0332244 | 0.0004 | 1 |
| **CT** | **2** | 36.8439750 | 7.0332244 | 0.0005 | 2 |
| **NT** | **1** | 39.5640000 | 7.0332244 | 0.0003 | 3 |
| **NT** | **2** | 46.4877000 | 7.0332244 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: C03** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.9230 | 0.8657 | 0.4068 |
| **2** | 0.9230 |  | 0.7907 | 0.3576 |
| **3** | 0.8657 | 0.7907 |  | 0.5039 |
| **4** | 0.4068 | 0.3576 | 0.5039 |  |

| **TILLAGE** | **SEQUENCE** | **CMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 139.133400 | 24.852231 | 0.0003 | 1 |
| **CT** | **2** | 134.929725 | 24.852231 | 0.0004 | 2 |
| **NT** | **1** | 115.642275 | 24.852231 | 0.0012 | 3 |
| **NT** | **2** | 143.337075 | 24.852231 | 0.0003 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.9074 | 0.5207 | 0.9074 |
| **2** | 0.9074 |  | 0.5965 | 0.8163 |
| **3** | 0.5207 | 0.5965 |  | 0.4510 |
| **4** | 0.9074 | 0.8163 | 0.4510 |  |

| **TILLAGE** | **SEQUENCE** | **SMBC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 109.765976 | 16.047707 | <.0001 | 1 |
| **CT** | **2** | 123.034390 | 16.047707 | <.0001 | 2 |
| **NT** | **1** | 159.220976 | 16.047707 | <.0001 | 3 |
| **NT** | **2** | 136.302805 | 16.047707 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SMBC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.5731 | 0.0573 | 0.2723 |
| **2** | 0.5731 |  | 0.1453 | 0.5731 |
| **3** | 0.0573 | 0.1453 |  | 0.3389 |
| **4** | 0.2723 | 0.5731 | 0.3389 |  |

| **TILLAGE** | **SEQUENCE** | **SAND LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.85670556 | 0.00530959 | <.0001 | 1 |
| **CT** | **2** | 0.87129444 | 0.00530959 | <.0001 | 2 |
| **NT** | **1** | 0.86647500 | 0.00530959 | <.0001 | 3 |
| **NT** | **2** | 0.85962778 | 0.00530959 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SAND** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.0839 | 0.2256 | 0.7062 |
| **2** | 0.0839 |  | 0.5370 | 0.1547 |
| **3** | 0.2256 | 0.5370 |  | 0.3856 |
| **4** | 0.7062 | 0.1547 | 0.3856 |  |

| **TILLAGE** | **SEQUENCE** | **CLAY LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.10000000 | 0.00834056 | <.0001 | 1 |
| **CT** | **2** | 0.09166667 | 0.00834056 | <.0001 | 2 |
| **NT** | **1** | 0.09791667 | 0.00834056 | <.0001 | 3 |
| **NT** | **2** | 0.09583333 | 0.00834056 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CLAY** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.4978 | 0.8637 | 0.7320 |
| **2** | 0.4978 |  | 0.6090 | 0.7320 |
| **3** | 0.8637 | 0.6090 |  | 0.8637 |
| **4** | 0.7320 | 0.7320 | 0.8637 |  |

| **TILLAGE** | **SEQUENCE** | **TOC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 4.72537500 | 0.29987497 | <.0001 | 1 |
| **CT** | **2** | 4.57945000 | 0.29987497 | <.0001 | 2 |
| **NT** | **1** | 4.70367500 | 0.29987497 | <.0001 | 3 |
| **NT** | **2** | 4.55112500 | 0.29987497 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TOC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.7387 | 0.9603 | 0.6908 |
| **2** | 0.7387 |  | 0.7762 | 0.9482 |
| **3** | 0.9603 | 0.7762 |  | 0.7274 |
| **4** | 0.6908 | 0.9482 | 0.7274 |  |

| **TILLAGE** | **SEQUENCE** | **TSN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.42195000 | 0.01158469 | <.0001 | 1 |
| **CT** | **2** | 0.42007500 | 0.01158469 | <.0001 | 2 |
| **NT** | **1** | 0.40710000 | 0.01158469 | <.0001 | 3 |
| **NT** | **2** | 0.42287500 | 0.01158469 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TSN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.9114 | 0.3883 | 0.9562 |
| **2** | 0.9114 |  | 0.4487 | 0.8681 |
| **3** | 0.3883 | 0.4487 |  | 0.3608 |
| **4** | 0.9562 | 0.8681 | 0.3608 |  |

| **TILLAGE** | **SEQUENCE** | **POC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 1.24059094 | 0.11288070 | <.0001 | 1 |
| **CT** | **2** | 1.24573145 | 0.11288070 | <.0001 | 2 |
| **NT** | **1** | 1.37086413 | 0.11288070 | <.0001 | 3 |
| **NT** | **2** | 1.29836197 | 0.11288070 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: POC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.9750 | 0.4355 | 0.7258 |
| **2** | 0.9750 |  | 0.4533 | 0.7492 |
| **3** | 0.4355 | 0.4533 |  | 0.6605 |
| **4** | 0.7258 | 0.7492 | 0.6605 |  |

| **TILLAGE** | **SEQUENCE** | **PON LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.14678116 | 0.00944298 | <.0001 | 1 |
| **CT** | **2** | 0.15288299 | 0.00944298 | <.0001 | 2 |
| **NT** | **1** | 0.15192089 | 0.00944298 | <.0001 | 3 |
| **NT** | **2** | 0.15069729 | 0.00944298 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: PON** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.6586 | 0.7093 | 0.7760 |
| **2** | 0.6586 |  | 0.9441 | 0.8736 |
| **3** | 0.7093 | 0.9441 |  | 0.9290 |
| **4** | 0.7760 | 0.8736 | 0.9290 |  |

| **TILLAGE** | **SEQUENCE** | **INN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 6.13125000 | 0.66839338 | <.0001 | 1 |
| **CT** | **2** | 6.85605000 | 0.66839338 | <.0001 | 2 |
| **NT** | **1** | 6.22770000 | 0.66839338 | <.0001 | 3 |
| **NT** | **2** | 7.04170000 | 0.66839338 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: INN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.4629 | 0.9210 | 0.3606 |
| **2** | 0.4629 |  | 0.5229 | 0.8487 |
| **3** | 0.9210 | 0.5229 |  | 0.4115 |
| **4** | 0.3606 | 0.8487 | 0.4115 |  |

| **TILLAGE** | **SEQUENCE** | **NMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 10.3977500 | 1.1820302 | <.0001 | 1 |
| **CT** | **2** | 10.6960500 | 1.1820302 | <.0001 | 2 |
| **NT** | **1** | 10.7131500 | 1.1820302 | <.0001 | 3 |
| **NT** | **2** | 11.0783000 | 1.1820302 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: NMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.8623 | 0.8545 | 0.6934 |
| **2** | 0.8623 |  | 0.9921 | 0.8242 |
| **3** | 0.8545 | 0.9921 |  | 0.8320 |
| **4** | 0.6934 | 0.8242 | 0.8320 |  |

|  |  |
| --- | --- |
| **Note:** | **To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.** |

Depth = 5-15 cm

| **TILLAGE** | **SEQUENCE** | **C03 LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 50.6913750 | 5.1809866 | <.0001 | 1 |
| **CT** | **2** | 61.3242000 | 5.1809866 | <.0001 | 2 |
| **NT** | **1** | 52.1750250 | 5.1809866 | <.0001 | 3 |
| **NT** | **2** | 56.8732500 | 5.1809866 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: C03** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.1807 | 0.8440 | 0.4207 |
| **2** | 0.1807 |  | 0.2433 | 0.5586 |
| **3** | 0.8440 | 0.2433 |  | 0.5374 |
| **4** | 0.4207 | 0.5586 | 0.5374 |  |

| **TILLAGE** | **SEQUENCE** | **CMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 130.231500 | 25.429983 | 0.0006 | 1 |
| **CT** | **2** | 239.527050 | 25.429983 | <.0001 | 2 |
| **NT** | **1** | 161.140875 | 25.429983 | 0.0001 | 3 |
| **NT** | **2** | 155.453550 | 25.429983 | 0.0002 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.0140 | 0.4124 | 0.5008 |
| **2** | 0.0140 |  | 0.0572 | 0.0442 |
| **3** | 0.4124 | 0.0572 |  | 0.8778 |
| **4** | 0.5008 | 0.0442 | 0.8778 |  |

| **TILLAGE** | **SEQUENCE** | **SMBC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 149.571220 | 24.944744 | 0.0002 | 1 |
| **CT** | **2** | 201.438659 | 24.944744 | <.0001 | 2 |
| **NT** | **1** | 194.201341 | 24.944744 | <.0001 | 3 |
| **NT** | **2** | 238.831463 | 24.944744 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SMBC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.1756 | 0.2376 | 0.0322 |
| **2** | 0.1756 |  | 0.8420 | 0.3168 |
| **3** | 0.2376 | 0.8420 |  | 0.2376 |
| **4** | 0.0322 | 0.3168 | 0.2376 |  |

| **TILLAGE** | **SEQUENCE** | **SAND LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.86074167 | 0.00436943 | <.0001 | 1 |
| **CT** | **2** | 0.87645000 | 0.00436943 | <.0001 | 2 |
| **NT** | **1** | 0.87570278 | 0.00436943 | <.0001 | 3 |
| **NT** | **2** | 0.86626944 | 0.00436943 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SAND** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.0316 | 0.0385 | 0.3943 |
| **2** | 0.0316 |  | 0.9064 | 0.1339 |
| **3** | 0.0385 | 0.9064 |  | 0.1612 |
| **4** | 0.3943 | 0.1339 | 0.1612 |  |

| **TILLAGE** | **SEQUENCE** | **CLAY LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.09125000 | 0.00673002 | <.0001 | 1 |
| **CT** | **2** | 0.08625000 | 0.00673002 | <.0001 | 2 |
| **NT** | **1** | 0.08416667 | 0.00673002 | <.0001 | 3 |
| **NT** | **2** | 0.09666667 | 0.00673002 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CLAY** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.6120 | 0.4757 | 0.5832 |
| **2** | 0.6120 |  | 0.8316 | 0.3022 |
| **3** | 0.4757 | 0.8316 |  | 0.2216 |
| **4** | 0.5832 | 0.3022 | 0.2216 |  |

| **TILLAGE** | **SEQUENCE** | **TOC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 4.69995000 | 0.19195494 | <.0001 | 1 |
| **CT** | **2** | 4.52102500 | 0.19195494 | <.0001 | 2 |
| **NT** | **1** | 4.61460000 | 0.19195494 | <.0001 | 3 |
| **NT** | **2** | 4.82300000 | 0.19195494 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TOC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.5263 | 0.7604 | 0.6611 |
| **2** | 0.5263 |  | 0.7382 | 0.2948 |
| **3** | 0.7604 | 0.7382 |  | 0.4623 |
| **4** | 0.6611 | 0.2948 | 0.4623 |  |

| **TILLAGE** | **SEQUENCE** | **TSN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.41770000 | 0.00888246 | <.0001 | 1 |
| **CT** | **2** | 0.42090000 | 0.00888246 | <.0001 | 2 |
| **NT** | **1** | 0.41672500 | 0.00888246 | <.0001 | 3 |
| **NT** | **2** | 0.42315000 | 0.00888246 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TSN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.8046 | 0.9398 | 0.6746 |
| **2** | 0.8046 |  | 0.7472 | 0.8618 |
| **3** | 0.9398 | 0.7472 |  | 0.6213 |
| **4** | 0.6746 | 0.8618 | 0.6213 |  |

| **TILLAGE** | **SEQUENCE** | **POC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 1.25235250 | 0.09586990 | <.0001 | 1 |
| **CT** | **2** | 1.39162269 | 0.09586990 | <.0001 | 2 |
| **NT** | **1** | 1.35295994 | 0.09586990 | <.0001 | 3 |
| **NT** | **2** | 1.34311633 | 0.09586990 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: POC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.3311 | 0.4770 | 0.5200 |
| **2** | 0.3311 |  | 0.7820 | 0.7288 |
| **3** | 0.4770 | 0.7820 |  | 0.9437 |
| **4** | 0.5200 | 0.7288 | 0.9437 |  |

| **TILLAGE** | **SEQUENCE** | **PON LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.14849887 | 0.00428648 | <.0001 | 1 |
| **CT** | **2** | 0.15400577 | 0.00428648 | <.0001 | 2 |
| **NT** | **1** | 0.14828697 | 0.00428648 | <.0001 | 3 |
| **NT** | **2** | 0.15161826 | 0.00428648 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: PON** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.3873 | 0.9729 | 0.6192 |
| **2** | 0.3873 |  | 0.3701 | 0.7029 |
| **3** | 0.9729 | 0.3701 |  | 0.5960 |
| **4** | 0.6192 | 0.7029 | 0.5960 |  |

| **TILLAGE** | **SEQUENCE** | **INN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 5.18430000 | 0.51250101 | <.0001 | 1 |
| **CT** | **2** | 5.30650000 | 0.51250101 | <.0001 | 2 |
| **NT** | **1** | 5.57810000 | 0.51250101 | <.0001 | 3 |
| **NT** | **2** | 5.55380000 | 0.51250101 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: INN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.8698 | 0.6001 | 0.6225 |
| **2** | 0.8698 |  | 0.7165 | 0.7408 |
| **3** | 0.6001 | 0.7165 |  | 0.9740 |
| **4** | 0.6225 | 0.7408 | 0.9740 |  |

| **TILLAGE** | **SEQUENCE** | **NMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 11.1333000 | 1.0445561 | <.0001 | 1 |
| **CT** | **2** | 12.5771500 | 1.0445561 | <.0001 | 2 |
| **NT** | **1** | 12.3268500 | 1.0445561 | <.0001 | 3 |
| **NT** | **2** | 12.6505000 | 1.0445561 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: NMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.3539 | 0.4399 | 0.3312 |
| **2** | 0.3539 |  | 0.8692 | 0.9615 |
| **3** | 0.4399 | 0.8692 |  | 0.8315 |
| **4** | 0.3312 | 0.9615 | 0.8315 |  |

|  |  |
| --- | --- |
| **Note:** | **To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.** |

Depth = 15-30 cm

| **TILLAGE** | **SEQUENCE** | **C03 LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 56.8732500 | 1.8741495 | <.0001 | 1 |
| **CT** | **2** | 55.8841500 | 1.8741495 | <.0001 | 2 |
| **NT** | **1** | 46.7349750 | 1.8741495 | <.0001 | 3 |
| **NT** | **2** | 53.6586750 | 1.8741495 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: C03** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.7177 | 0.0041 | 0.2561 |
| **2** | 0.7177 |  | 0.0073 | 0.4228 |
| **3** | 0.0041 | 0.0073 |  | 0.0282 |
| **4** | 0.2561 | 0.4228 | 0.0282 |  |

| **TILLAGE** | **SEQUENCE** | **CMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 154.711725 | 33.161725 | 0.0012 | 1 |
| **CT** | **2** | 179.439225 | 33.161725 | 0.0004 | 2 |
| **NT** | **1** | 146.057100 | 33.161725 | 0.0017 | 3 |
| **NT** | **2** | 174.988275 | 33.161725 | 0.0005 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.6108 | 0.8577 | 0.6757 |
| **2** | 0.6108 |  | 0.4946 | 0.9265 |
| **3** | 0.8577 | 0.4946 |  | 0.5526 |
| **4** | 0.6757 | 0.9265 | 0.5526 |  |

| **TILLAGE** | **SEQUENCE** | **SMBC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 185.757805 | 28.882178 | 0.0001 | 1 |
| **CT** | **2** | 205.057317 | 28.882178 | <.0001 | 2 |
| **NT** | **1** | 213.500854 | 28.882178 | <.0001 | 3 |
| **NT** | **2** | 235.212805 | 28.882178 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SMBC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.6478 | 0.5141 | 0.2568 |
| **2** | 0.6478 |  | 0.8408 | 0.4792 |
| **3** | 0.5141 | 0.8408 |  | 0.6079 |
| **4** | 0.2568 | 0.4792 | 0.6079 |  |

| **TILLAGE** | **SEQUENCE** | **SAND LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.82888889 | 0.01545855 | <.0001 | 1 |
| **CT** | **2** | 0.85268333 | 0.01545855 | <.0001 | 2 |
| **NT** | **1** | 0.83913333 | 0.01545855 | <.0001 | 3 |
| **NT** | **2** | 0.84026389 | 0.01545855 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SAND** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.3047 | 0.6505 | 0.6154 |
| **2** | 0.3047 |  | 0.5508 | 0.5839 |
| **3** | 0.6505 | 0.5508 |  | 0.9599 |
| **4** | 0.6154 | 0.5839 | 0.9599 |  |

| **TILLAGE** | **SEQUENCE** | **CLAY LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.13292667 | 0.01707713 | <.0001 | 1 |
| **CT** | **2** | 0.10041667 | 0.01707713 | 0.0002 | 2 |
| **NT** | **1** | 0.12251000 | 0.01707713 | <.0001 | 3 |
| **NT** | **2** | 0.13418667 | 0.01707713 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CLAY** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.2112 | 0.6764 | 0.9595 |
| **2** | 0.2112 |  | 0.3841 | 0.1955 |
| **3** | 0.6764 | 0.3841 |  | 0.6403 |
| **4** | 0.9595 | 0.1955 | 0.6403 |  |

| **TILLAGE** | **SEQUENCE** | **TOC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 4.68090000 | 0.25374470 | <.0001 | 1 |
| **CT** | **2** | 4.42310000 | 0.25374470 | <.0001 | 2 |
| **NT** | **1** | 4.60720000 | 0.25374470 | <.0001 | 3 |
| **NT** | **2** | 4.39637500 | 0.25374470 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TOC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.4907 | 0.8418 | 0.4482 |
| **2** | 0.4907 |  | 0.6203 | 0.9423 |
| **3** | 0.8418 | 0.6203 |  | 0.5713 |
| **4** | 0.4482 | 0.9423 | 0.5713 |  |

| **TILLAGE** | **SEQUENCE** | **TSN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.41900000 | 0.01541222 | <.0001 | 1 |
| **CT** | **2** | 0.42472500 | 0.01541222 | <.0001 | 2 |
| **NT** | **1** | 0.41175000 | 0.01541222 | <.0001 | 3 |
| **NT** | **2** | 0.42435000 | 0.01541222 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TSN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.7987 | 0.7470 | 0.8116 |
| **2** | 0.7987 |  | 0.5663 | 0.9866 |
| **3** | 0.7470 | 0.5663 |  | 0.5774 |
| **4** | 0.8116 | 0.9866 | 0.5774 |  |

| **TILLAGE** | **SEQUENCE** | **POC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 1.33582529 | 0.11914826 | <.0001 | 1 |
| **CT** | **2** | 1.27687203 | 0.11914826 | <.0001 | 2 |
| **NT** | **1** | 1.22642281 | 0.11914826 | <.0001 | 3 |
| **NT** | **2** | 1.23929265 | 0.11914826 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: POC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.7345 | 0.5324 | 0.5807 |
| **2** | 0.7345 |  | 0.7714 | 0.8285 |
| **3** | 0.5324 | 0.7714 |  | 0.9408 |
| **4** | 0.5807 | 0.8285 | 0.9408 |  |

| **TILLAGE** | **SEQUENCE** | **PON LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.14435869 | 0.00563746 | <.0001 | 1 |
| **CT** | **2** | 0.15573530 | 0.00563746 | <.0001 | 2 |
| **NT** | **1** | 0.15227529 | 0.00563746 | <.0001 | 3 |
| **NT** | **2** | 0.15517835 | 0.00563746 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: PON** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.1873 | 0.3467 | 0.2078 |
| **2** | 0.1873 |  | 0.6745 | 0.9458 |
| **3** | 0.3467 | 0.6745 |  | 0.7242 |
| **4** | 0.2078 | 0.9458 | 0.7242 |  |

| **TILLAGE** | **SEQUENCE** | **INN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 5.00610000 | 0.51572513 | <.0001 | 1 |
| **CT** | **2** | 6.19765000 | 0.51572513 | <.0001 | 2 |
| **NT** | **1** | 6.32380000 | 0.51572513 | <.0001 | 3 |
| **NT** | **2** | 6.58520000 | 0.51572513 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: INN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.1367 | 0.1043 | 0.0586 |
| **2** | 0.1367 |  | 0.8665 | 0.6080 |
| **3** | 0.1043 | 0.8665 |  | 0.7283 |
| **4** | 0.0586 | 0.6080 | 0.7283 |  |

| **TILLAGE** | **SEQUENCE** | **NMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 8.2295000 | 0.7478779 | <.0001 | 1 |
| **CT** | **2** | 9.6695000 | 0.7478779 | <.0001 | 2 |
| **NT** | **1** | 9.4551500 | 0.7478779 | <.0001 | 3 |
| **NT** | **2** | 10.1070000 | 0.7478779 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: NMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.2065 | 0.2763 | 0.1096 |
| **2** | 0.2065 |  | 0.8439 | 0.6888 |
| **3** | 0.2763 | 0.8439 |  | 0.5530 |
| **4** | 0.1096 | 0.6888 | 0.5530 |  |

|  |  |
| --- | --- |
| **Note:** | **To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.** |

Depth = 30-60 cm

| **TILLAGE** | **SEQUENCE** | **C03 LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 22.9965750 | 4.5117807 | 0.0006 | 1 |
| **CT** | **2** | 20.2765500 | 4.5117807 | 0.0015 | 2 |
| **NT** | **1** | 27.4475250 | 4.5117807 | 0.0002 | 3 |
| **NT** | **2** | 21.5129250 | 4.5117807 | 0.0010 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: C03** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.6799 | 0.5031 | 0.8213 |
| **2** | 0.6799 |  | 0.2902 | 0.8507 |
| **3** | 0.5031 | 0.2902 |  | 0.3766 |
| **4** | 0.8213 | 0.8507 | 0.3766 |  |

| **TILLAGE** | **SEQUENCE** | **CMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 96.6021000 | 25.0157159 | 0.0038 | 1 |
| **CT** | **2** | 42.2016000 | 25.0157159 | 0.1259 | 2 |
| **NT** | **1** | 51.8453250 | 25.0157159 | 0.0681 | 3 |
| **NT** | **2** | 54.5653500 | 25.0157159 | 0.0571 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.1585 | 0.2376 | 0.2652 |
| **2** | 0.1585 |  | 0.7913 | 0.7348 |
| **3** | 0.2376 | 0.7913 |  | 0.9404 |
| **4** | 0.2652 | 0.7348 | 0.9404 |  |

| **TILLAGE** | **SEQUENCE** | **SMBC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 149.571220 | 11.682630 | <.0001 | 1 |
| **CT** | **2** | 107.353537 | 11.682630 | <.0001 | 2 |
| **NT** | **1** | 117.003293 | 11.682630 | <.0001 | 3 |
| **NT** | **2** | 126.653049 | 11.682630 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SMBC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.0309 | 0.0802 | 0.1988 |
| **2** | 0.0309 |  | 0.5735 | 0.2728 |
| **3** | 0.0802 | 0.5735 |  | 0.5735 |
| **4** | 0.1988 | 0.2728 | 0.5735 |  |

| **TILLAGE** | **SEQUENCE** | **SAND LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.65565000 | 0.01871954 | <.0001 | 1 |
| **CT** | **2** | 0.69136667 | 0.01871954 | <.0001 | 2 |
| **NT** | **1** | 0.67536111 | 0.01871954 | <.0001 | 3 |
| **NT** | **2** | 0.69002778 | 0.01871954 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: SAND** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.2102 | 0.4755 | 0.2264 |
| **2** | 0.2102 |  | 0.5604 | 0.9608 |
| **3** | 0.4755 | 0.5604 |  | 0.5931 |
| **4** | 0.2264 | 0.9608 | 0.5931 |  |

| **TILLAGE** | **SEQUENCE** | **CLAY LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.26587333 | 0.01738887 | <.0001 | 1 |
| **CT** | **2** | 0.28670667 | 0.01738887 | <.0001 | 2 |
| **NT** | **1** | 0.30337333 | 0.01738887 | <.0001 | 3 |
| **NT** | **2** | 0.28670667 | 0.01738887 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: CLAY** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.4189 | 0.1616 | 0.4189 |
| **2** | 0.4189 |  | 0.5150 | 1.0000 |
| **3** | 0.1616 | 0.5150 |  | 0.5150 |
| **4** | 0.4189 | 1.0000 | 0.5150 |  |

| **TILLAGE** | **SEQUENCE** | **TOC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 2.70530000 | 0.17449589 | <.0001 | 1 |
| **CT** | **2** | 2.75942500 | 0.17449589 | <.0001 | 2 |
| **NT** | **1** | 2.69700000 | 0.17449589 | <.0001 | 3 |
| **NT** | **2** | 2.69960000 | 0.17449589 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TOC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.8313 | 0.9739 | 0.9821 |
| **2** | 0.8313 |  | 0.8060 | 0.8139 |
| **3** | 0.9739 | 0.8060 |  | 0.9918 |
| **4** | 0.9821 | 0.8139 | 0.9918 |  |

| **TILLAGE** | **SEQUENCE** | **TSN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.40180000 | 0.01011083 | <.0001 | 1 |
| **CT** | **2** | 0.39352500 | 0.01011083 | <.0001 | 2 |
| **NT** | **1** | 0.39295000 | 0.01011083 | <.0001 | 3 |
| **NT** | **2** | 0.37467500 | 0.01011083 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: TSN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.5770 | 0.5513 | 0.0903 |
| **2** | 0.5770 |  | 0.9688 | 0.2200 |
| **3** | 0.5513 | 0.9688 |  | 0.2332 |
| **4** | 0.0903 | 0.2200 | 0.2332 |  |

| **TILLAGE** | **SEQUENCE** | **POC LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.45637146 | 0.03944577 | <.0001 | 1 |
| **CT** | **2** | 0.50252547 | 0.03944577 | <.0001 | 2 |
| **NT** | **1** | 0.50355370 | 0.03944577 | <.0001 | 3 |
| **NT** | **2** | 0.49371128 | 0.03944577 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: POC** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.4294 | 0.4196 | 0.5201 |
| **2** | 0.4294 |  | 0.9857 | 0.8779 |
| **3** | 0.4196 | 0.9857 |  | 0.8639 |
| **4** | 0.5201 | 0.8779 | 0.8639 |  |

| **TILLAGE** | **SEQUENCE** | **PON LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 0.10677566 | 0.00219105 | <.0001 | 1 |
| **CT** | **2** | 0.11336275 | 0.00219105 | <.0001 | 2 |
| **NT** | **1** | 0.11077534 | 0.00219105 | <.0001 | 3 |
| **NT** | **2** | 0.11150015 | 0.00219105 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: PON** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.0624 | 0.2289 | 0.1617 |
| **2** | 0.0624 |  | 0.4253 | 0.5626 |
| **3** | 0.2289 | 0.4253 |  | 0.8203 |
| **4** | 0.1617 | 0.5626 | 0.8203 |  |

| **TILLAGE** | **SEQUENCE** | **INN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 5.98595000 | 0.45130304 | <.0001 | 1 |
| **CT** | **2** | 5.49435000 | 0.45130304 | <.0001 | 2 |
| **NT** | **1** | 5.35105000 | 0.45130304 | <.0001 | 3 |
| **NT** | **2** | 5.51615000 | 0.45130304 | <.0001 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: INN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.4609 | 0.3458 | 0.4804 |
| **2** | 0.4609 |  | 0.8274 | 0.9735 |
| **3** | 0.3458 | 0.8274 |  | 0.8017 |
| **4** | 0.4804 | 0.9735 | 0.8017 |  |

| **TILLAGE** | **SEQUENCE** | **NMIN LSMEAN** | **Standard Error** | **Pr > |t|** | **LSMEAN Number** |
| --- | --- | --- | --- | --- | --- |
| **CT** | **1** | 1.11855000 | 0.49384763 | 0.0498 | 1 |
| **CT** | **2** | 2.24515000 | 0.49384763 | 0.0014 | 2 |
| **NT** | **1** | 1.92750000 | 0.49384763 | 0.0036 | 3 |
| **NT** | **2** | 1.68930000 | 0.49384763 | 0.0076 | 4 |

| **Least Squares Means for effect TILLAGE\*SEQUENCE Pr > |t| for H0: LSMean(i)=LSMean(j) Dependent Variable: NMIN** | | | | |
| --- | --- | --- | --- | --- |
| **i/j** | **1** | **2** | **3** | **4** |
| **1** |  | 0.1412 | 0.2766 | 0.4349 |
| **2** | 0.1412 |  | 0.6600 | 0.4466 |
| **3** | 0.2766 | 0.6600 |  | 0.7409 |
| **4** | 0.4349 | 0.4466 | 0.7409 |  |

|  |  |
| --- | --- |
| **Note:** | **To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.** |