

Table 2. Effect of different sources and methods of application of calcium and boron on some vegetative growth characters and pigments in the leaves of Washington Navel orange trees during 2013 and 2014 seasons

| Sources and Methods of application of Ca and B treatment | Shoot length (cm.) | | Shoot thickness (cm.) | | Leaf area (cm) ² | | Chlorophyll a (mg/ 100 g F.W.) | | Chlorophyll b (mg/ 100 g F.W.) | | Total chlorophylls (mg/ 100 g F.W.) | |
|--|--------------------|------|-----------------------|------|-----------------------------|------|--------------------------------|------|--------------------------------|------|-------------------------------------|------|
| | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 |
| Control | 6.1 | 5.3 | 0.11 | 0.11 | 25.0 | 24.9 | 5.1 | 5.0 | 2.1 | 2.0 | 7.2 | 7.0 |
| Soil addition of Ca-nitrate (1 kg/ tree) | 6.4 | 5.6 | 0.13 | 0.13 | 26.1 | 26.0 | 5.5 | 5.6 | 2.4 | 2.3 | 7.9 | 7.9 |
| Spraying chelated –Ca at 0.03% | 7.2 | 6.7 | 0.18 | 0.17 | 29.5 | 29.4 | 6.3 | 6.4 | 3.3 | 3.2 | 9.6 | 9.6 |
| Soil addition of borax at 25 g/ tree | 6.6 | 6.0 | 0.15 | 0.15 | 27.3 | 27.2 | 5.8 | 5.9 | 2.7 | 2.5 | 8.5 | 8.4 |
| Spraying chelated-B at 0.025% | 6.9 | 6.4 | 0.17 | 0.16 | 28.4 | 28.5 | 6.0 | 5.9 | 3.0 | 2.9 | 9.0 | 8.8 |
| Soil addition of Ca- nitrate+borax | 7.5 | 7.1 | 0.20 | 0.19 | 30.5 | 30.4 | 6.6 | 6.7 | 3.6 | 3.5 | 10.2 | 10.2 |
| Spraying chelated –Ca + chelated –B | 7.9 | 7.5 | 0.22 | 0.21 | 31.6 | 31.5 | 7.0 | 7.1 | 4.0 | 3.9 | 11.0 | 11.0 |
| New L.S.D. at 5% | 0.3 | 0.3 | 0.02 | 0.02 | 1.0 | 0.9 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |

Table 3. Effect of different sources and methods of application of calcium and boron on total carotenoids and percentages of N, P, K, Mg and Ca in the leaves of Washington Navel orange trees during 2013 and 2014 seasons

| Sources and Methods of application of Ca and B treatment | Total carotenoids (mg/ 100 g F.W.) | | Leaf N % | | Leaf P % | | Leaf K % | | Leaf Mg % | | Leaf Ca % | |
|--|------------------------------------|------|----------|------|----------|------|----------|------|-----------|------|-----------|------|
| | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 |
| Control | 1.7 | 1.5 | 1.66 | 1.61 | 0.13 | 0.14 | 1.19 | 1.12 | 0.61 | 0.59 | 2.11 | 2.17 |
| Soil addition of Ca-nitrate (1 kg/ tree) | 1.9 | 2.0 | 1.73 | 1.74 | 0.16 | 0.16 | 1.24 | 1.25 | 0.64 | 0.65 | 2.20 | 2.28 |
| Spraying chelated –Ca at 0.03% | 2.5 | 2.6 | 2.00 | 2.01 | 0.23 | 0.24 | 1.44 | 1.46 | 0.74 | 0.75 | 2.46 | 2.59 |
| Soil addition of borax at 25 g / tree | 2.1 | 2.2 | 1.81 | 1.82 | 0.19 | 0.20 | 1.30 | 1.30 | 0.67 | 0.68 | 2.30 | 2.38 |
| Spraying chelated-B at 0.025% | 2.3 | 2.4 | 1.90 | 1.91 | 0.21 | 0.21 | 1.37 | 1.38 | 0.70 | 0.71 | 2.39 | 2.49 |
| Soil addition of Ca- nitrate + borax | 2.8 | 2.9 | 2.10 | 2.11 | 0.26 | 0.27 | 1.52 | 1.53 | 0.79 | 0.80 | 2.55 | 2.66 |
| Spraying chelated –Ca + chelated –B | 3.1 | 3.2 | 2.22 | 2.23 | 0.29 | 0.30 | 1.60 | 1.61 | 0.82 | 0.83 | 2.64 | 2.81 |
| New L.S.D. at 5% | 0.2 | 0.2 | 0.06 | 0.06 | 0.02 | 0.02 | 0.04 | 0.04 | 0.03 | 0.03 | 0.07 | 0.07 |

Table 4. Effect of different sources and methods of application of calcium and boron on the percentages of initial fruit setting, June fruit dropping and fruit retention and yield of Washington navel orange trees during 2013 and 2014 seasons

| Sources and Methods of application of Ca and B treatment | Initial fruit setting | | June fruit dropping % | | Fruit retention % | | No. of fruits / tree | | Yield/ tree (kg.) | |
|--|-----------------------|------|-----------------------|------|-------------------|------|----------------------|-------|-------------------|------|
| | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 |
| Control | 2.41 | 2.25 | 2.2 | 2.2 | 1.11 | 1.09 | 319.6 | 307.7 | 63.3 | 64.0 |
| Soil addition of Ca-nitrate (1 kg/ tree) | 2.91 | 3.11 | 1.9 | 1.7 | 1.18 | 1.19 | 314.4 | 311.3 | 65.7 | 66.0 |
| Spraying chelated –Ca at 0.03% | 4.50 | 4.71 | 1.2 | 1.0 | 1.35 | 1.36 | 325.8 | 324.4 | 72.0 | 73.0 |
| Soil addition of borax at 25 g / tree | 3.81 | 4.01 | 1.6 | 1.5 | 1.23 | 1.24 | 319.2 | 319.4 | 68.0 | 69.0 |
| Spraying chelated-B at 0.025% | 4.32 | 4.53 | 1.4 | 1.2 | 1.29 | 1.30 | 322.6 | 223.5 | 70.0 | 71.5 |
| Soil addition of Ca- nitrate + borax | 4.26 | 4.50 | 1.0 | 0.8 | 1.41 | 1.42 | 326.0 | 340.6 | 74.0 | 78.0 |
| Spraying chelated –Ca + chelated –B | 4.66 | 4.81 | 0.8 | 0.6 | 1.46 | 1.48 | 333.3 | 357.4 | 77.0 | 84.0 |
| New L.S.D. at 5% | 0.05 | 0.04 | 0.2 | 0.2 | 0.05 | 0.04 | 4.0 | 4.1 | 1.5 | 1.9 |

Table 5. Effect of different sources and methods of application of calcium and boron on some physical characters of the fruits of Washington Navel orange trees during 2013 and 2014 seasons

| Sources and Methods of application of Ca and B treatment | Fruit weight (g.) | | Fruit size (cm) ³ | | Fruit height (cm) | | Fruit diameter (cm) | | Fruit peel weight % | | Fruit pulp % | |
|--|-------------------|-------|------------------------------|-------|-------------------|------|---------------------|------|---------------------|------|--------------|------|
| | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 |
| Control | 204.3 | 208.0 | 205.0 | 209.1 | 8.26 | 8.05 | 7.75 | 7.55 | 31.0 | 30.9 | 69.0 | 69.4 |
| Soil addition of Ca-nitrate (1 kg/ tree) | 209.0 | 212.0 | 210.0 | 213.1 | 8.43 | 8.22 | 8.00 | 7.75 | 30.4 | 30.6 | 69.6 | 69.4 |
| Spraying chelated –Ca at 0.03% | 221.0 | 225.0 | 221.7 | 226.1 | 8.86 | 8.66 | 8.36 | 8.25 | 27.1 | 27.0 | 72.9 | 73.0 |
| Soil addition of borax at 25 g / tree | 213.0 | 216.0 | 214.0 | 217.1 | 8.63 | 8.43 | 8.16 | 8.00 | 29.9 | 29.7 | 70.1 | 70.3 |
| Spraying chelated-B at 0.025% | 217.0 | 221.0 | 218.0 | 222.9 | 8.75 | 8.55 | 8.30 | 8.15 | 28.1 | 28.0 | 71.9 | 72.0 |
| Soil addition of Ca- nitrate + borax | 227.0 | 229.0 | 228.0 | 230.0 | 8.97 | 8.77 | 8.50 | 8.37 | 26.5 | 26.4 | 73.5 | 73.6 |
| Spraying chelated –Ca + chelated –B | 231.0 | 235.0 | 232.0 | 236.0 | 9.06 | 8.86 | 8.70 | 8.52 | 25.9 | 25.0 | 79.1 | 75.0 |
| New L.S.D. at 5% | 4.0 | 4.0 | 4.0 | 4.0 | 0.11 | 0.13 | 0.9 | 0.10 | 0.5 | 0.5 | 0.5 | 0.5 |

Table 6. Effect of different sources and methods of application of calcium and boron on some physical and chemical characteristics of the fruits of Washington Navel orange trees during 2013 and 2014 seasons

| Sources and Methods of application of Ca and B treatment | Fruit peel thickness (cm.) | | T.S.S. % | | Total acidity % | | Total sugars % | | Reducing sugars % | | Vitamin C content (mg / 100 ml juice) | |
|--|----------------------------|------|----------|------|-----------------|-------|----------------|------|-------------------|------|---------------------------------------|------|
| | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 |
| Control | 0.36 | 0.35 | 13.0 | 12.8 | 1.625 | 1.600 | 11.0 | 10.9 | 3.6 | 3.7 | 47.1 | 48.0 |
| Soil addition of Ca-nitrate (1 kg/ tree) | 0.33 | 0.33 | 13.3 | 13.5 | 1.600 | 1.570 | 11.4 | 11.3 | 4.0 | 4.1 | 49.0 | 49.5 |
| Spraying chelated –Ca at 0.03% | 0.26 | 0.26 | 14.5 | 14.7 | 1.500 | 1.480 | 12.9 | 12.7 | 5.0 | 5.2 | 53.5 | 54.0 |
| Soil addition of borax at 25 g / tree | 0.30 | 0.29 | 13.7 | 13.9 | 1.571 | 1.540 | 11.9 | 11.8 | 4.3 | 4.4 | 50.6 | 51.0 |
| Spraying chelated-B at 0.025% | 0.28 | 0.27 | 14.1 | 14.2 | 1.540 | 1.510 | 12.4 | 12.3 | 4.7 | 4.8 | 52.0 | 52.5 |
| Soil addition of Ca- nitrate + borax | 0.24 | 0.25 | 14.9 | 15.1 | 1.471 | 1.450 | 13.3 | 13.2 | 5.3 | 5.7 | 55.0 | 55.5 |
| Spraying chelated –Ca + chelated –B | 0.22 | 0.22 | 15.1 | 15.3 | 1.441 | 1.430 | 13.7 | 13.8 | 5.6 | 6.0 | 56.8 | 57.0 |
| New L.S.D. at 5% | 0.02 | 0.02 | 0.3 | 0.3 | 0.018 | 0.02 | 0.3 | 0.3 | 0.3 | 0.3 | 1.1 | 1.3 |