

Table (2): Effect of foliar spray of different concentrations and frequencies with selenium and some vitamins on some vegetative growth aspects of Superior grapevines during 2015 and 2016 seasons

| Selenium and vitamin treatments | Leaf area (cm ²) | | Main shoot length (cm.) | | Number of leaves/shoot | |
|--|------------------------------|------------|-------------------------|------------|------------------------|------------|
| | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Control | 101.1 | 100.8 | 95.0 | 96.4 | 19.0 | 21.0 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25ppm Vit. D once | 103.3 | 104.3 | 100.0 | 105.3 | 21.0 | 23.0 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D twice | 105.5 | 107.0 | 103.0 | 105.0 | 23.0 | 23.0 |
| 25 ppm Se + 250 ppm Vit.B + 25 ppm Vit. A + 25 ppm Vit. D thrice | 106.0 | 107.3 | 103.3 | 106.0 | 23.0 | 24.0 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit. A + 50 ppm Vit. D once | 107.0 | 108.5 | 104.0 | 107.0 | 25.0 | 25.0 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit. A + 50ppm Vit. D twice | 110.0 | 111.0 | 110.0 | 112.0 | 27.0 | 26.0 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit. A + 50 ppm Vit. D thrice | 110.5 | 111.1 | 110.5 | 112.0 | 27.0 | 26.0 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D once | 107.5 | 108.6 | 104.4 | 107.3 | 25.0 | 25.0 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D twice | 110.5 | 111.1 | 110.5 | 112.3 | 27.0 | 26.0 |
| 100 ppm Se + 1000 ppm vit. B + 100 ppm Vit. A + 100 ppm Vit. D thrice | 110.6 | 111.2 | 111.0 | 112.4 | 27.0 | 26.0 |
| New L.S.D. at 5% | 0.9 | 0.7 | 0.9 | 1.1 | 1.0 | 1.0 |

Se: Selenium; Vit B: Vitamin B complex (B1: Thiamine; B2: Riboflavin; B6: Pyridoxine; B12: Cyanocobalamin); Vit. A: Vitamin A (Retinol); Vit. D: Vitamin D (Cholecalciferol).

Table (3): Effect of foliar spray of different concentrations and frequencies with selenium and some vitamins on some leaf pigments of Superior grapevines during 2015 and 2016 seasons

| Selenium and vitamin treatments | Chlorophyll a (mg/100 g F.W) | | Chlorophyll b (mg/100 g F.W) | | Total chlorophylls (mg/100 g F.W) | |
|--|---------------------------------|-------------|---------------------------------|-------------|---|-------------|
| | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Control | 3.11 | 3.12 | 2.05 | 2.18 | 5.16 | 5.30 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25ppm Vit. D once | 5.21 | 5.28 | 2.19 | 2.28 | 7.40 | 7.56 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D twice | 6.00 | 6.11 | 2.55 | 2.65 | 8.55 | 8.76 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D thrice | 6.06 | 6.14 | 2.64 | 2.66 | 8.70 | 8.80 |
| 50 ppm Se + 500 ppm Vit.B + 50 ppm Vit. A + 50 ppm Vit. D once | 6.55 | 6.42 | 2.81 | 2.70 | 9.36 | 9.12 |
| 50 ppm Se + 500 ppm Vit.. B + 50 ppm Vit. A + 50ppm Vit. D twice | 7.22 | 6.99 | 3.11 | 2.87 | 10.33 | 9.86 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit.A + 50 ppm Vit.D thrice | 7.24 | 7.12 | 3.12 | 2.90 | 10.36 | 10.02 |
| 100 ppm Se+ 1000 ppm Vit. B+ 100 ppm Vit. A+ 100 ppm Vit. D once | 6.57 | 6.44 | 2.62 | 2.71 | 9.19 | 9.15 |
| 100 ppm Se+ 1000 ppm Vit. B+ 100 ppm Vit.A+ 100 ppm Vit. D twice | 7.24 | 7.00 | 3.12 | 2.89 | 10.36 | 9.80 |
| 100 ppm Se+ 1000 ppm Vit. B+ 100 ppm Vit.A+ 100 ppm Vit. D thrice | 7.25 | 7.13 | 3.13 | 2.91 | 10.38 | 10.04 |
| New L.S.D. at 5% | 0.19 | 0.17 | 0.11 | 0.09 | 0.18 | 0.15 |

Se: Selenium; Vit B: Vitamin B complex (B1: Thiamine; B2: Riboflavin; B6: Pyridoxine; B12: Cyanocoblamine); Vit A: Vitamin A (Retinol); Vit D: Vitamin D (Cholecalciferol).

Table (4): Effect of foliar spray of different concentrations and frequencies with selenium and some vitamins on the percentages of N, P, K and Mg in the leaves of Superior grapevines during 2015 and 2016 seasons

| Selenium and vitamin treatments | Leaf N % | | Leaf P % | | Leaf K % | | Leaf Mg % | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Control | 1.69 | 1.78 | 0.16 | 0.17 | 1.16 | 1.18 | 0.45 | 0.51 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25ppm Vit. D once | 1.79 | 1.90 | 0.19 | 0.20 | 1.25 | 1.23 | 0.50 | 0.56 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D twice | 1.88 | 1.99 | 0.25 | 0.24 | 1.31 | 1.30 | 0.64 | 0.61 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D thrice | 1.89 | 2.00 | 0.26 | 0.25 | 1.32 | 1.31 | 0.65 | 0.62 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit. A + 50 ppm Vit. D once | 1.99 | 2.10 | 0.30 | 0.29 | 1.36 | 1.36 | 0.70 | 0.67 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit. A + 50ppm Vit.D twice | 2.09 | 2.16 | 0.35 | 0.34 | 1.39 | 1.42 | 0.76 | 0.73 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit. A + 50 ppm Vit. D thrice | 2.10 | 2.17 | 0.36 | 0.35 | 1.40 | 1.43 | 0.77 | 0.74 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D once | 2.00 | 2.11 | 0.31 | 0.30 | 1.37 | 1.37 | 0.71 | 0.68 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D twice | 2.10 | 2.17 | 0.36 | 0.35 | 1.40 | 1.43 | 0.77 | 0.74 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit.A + 100 ppm Vit. D thrice | 2.11 | 2.18 | 0.37 | 0.36 | 1.41 | 1.44 | 0.78 | 0.75 |
| New L.S.D. at 5% | 0.06 | 0.04 | 0.03 | 0.04 | 0.03 | 0.05 | 0.03 | 0.05 |

Se: Selenium; Vit B: Vitamin B complex (B1: Thiamine; B2: Riboflavin; B6: Pyridoxine; B12: Cyanocobalamin); Vit A: Vitamin A (Retinol); Vit D: Vitamin D (Cholecalciferol).

Table (5): Effect of foliar spray of different concentrations and frequencies with selenium and some vitamins on yield and weight and length of cluster in the leaves of Superior grapevines during 2015 and 2016 seasons

| Selenium and vitamin treatments | Number of clusters/vine | | Average cluster weight (g) | | Yield /vine (kg.) | | Average cluster length (cm) | |
|--|-------------------------|------------|----------------------------|-------------|-------------------|------------|-----------------------------|------------|
| | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Control | 23.0 | 24.0 | 310.0 | 314.9 | 7.1 | 7.6 | 17.0 | 16.9 |
| 25 ppm Se + 250 ppm Vit.B + 25 ppm Vit. A + 25ppm Vit. D once | 23.0 | 26.0 | 314.0 | 330.0 | 7.2 | 8.9 | 17.5 | 18.0 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D twice | 24.0 | 28.0 | 328.0 | 339.0 | 7.9 | 9.5 | 19.0 | 19.9 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D thrice | 24.0 | 28.0 | 330.0 | 341.0 | 7.9 | 9.5 | 19.3 | 20.0 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit. A + 50 ppm Vit. D once | 25.0 | 30.0 | 345.0 | 350.0 | 8.6 | 10.5 | 21.0 | 20.3 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit. A + 50ppm Vit. D twice | 26.0 | 33.0 | 360.0 | 366.9 | 9.4 | 12.1 | 22.0 | 21.0 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit.A + 50 ppm Vit. D thrice | 26.0 | 33.0 | 361.5 | 367.0 | 9.4 | 12.1 | 22.1 | 21.1 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D once | 26.0 | 31.0 | 346.0 | 351.9 | 9.0 | 10.9 | 21.1 | 20.4 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D twice | 26.0 | 33.0 | 361.0 | 367.0 | 9.4 | 12.1 | 22.1 | 21.1 |
| 100 ppm Se + 1000 ppm vit. B + 100 ppm Vit. A + 100 ppm Vit. D thrice | 26.0 | 33.0 | 362.9 | 368.0 | 9.4 | 12.1 | 22.2 | 21.2 |
| New L.S.D. at 5% | NS | 2.0 | 11.5 | 10.3 | 0.5 | 0.6 | 0.4 | 0.6 |

Se: Selenium; Vit B: Vitamin B complex (B1: Thiamine; B2: Riboflavin; B6: Pyridoxine; B12: Cyanocobalamin); Vit A: Vitamin A (Retinol); Vit D: Vitamin D (Cholecalciferol).

Table (6): Effect of foliar spray of different concentrations and frequencies with selenium and some vitamins on average cluster shoulder, shot berries% and weight and equatorial of berry of Superior grapevines during 2015 and 2016 seasons

| Selenium and vitamin treatments | Average cluster shoulder (cm) | | Shot berries % | | Average berry weight (g.) | | Average berry equatorial (cm) | |
|---|-------------------------------|------------|----------------|------------|---------------------------|-------------|-------------------------------|-------------|
| | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Control | 11.0 | 12.5 | 8.1 | 7.9 | 4.55 | 4.60 | 2.22 | 2.23 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25ppm Vit.D once | 12.0 | 12.9 | 5.6 | 5.2 | 5.00 | 4.95 | 2.32 | 2.33 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit.A + 25 ppm vit. D twice | 12.5 | 13.6 | 5.2 | 4.6 | 5.45 | 5.11 | 2.36 | 2.38 |
| 25 ppm Se + 250 ppm vit. B + 25 ppm Vit. A + 25 ppm vit. D thrice | 12.6 | 13.7 | 5.1 | 4.4 | 5.47 | 5.12 | 2.37 | 2.39 |
| 50 ppm Se + 500 ppm Vit. B + 50 ppm Vit. A + 50 ppm vit. D once | 13.0 | 14.1 | 4.8 | 4.9 | 6.12 | 6.29 | 2.49 | 2.52 |
| 50 ppm Se + 500 ppm Vit.B + 50 ppm Vit. A + 50ppm vit. D twice | 13.8 | 14.6 | 4.0 | 4.0 | 6.62 | 6.41 | 2.55 | 2.55 |
| 50 ppm Se + 500 ppm Vit.B + 50 ppm Vit. A + 50 ppm vit. D thrice | 14.0 | 14.7 | 3.9 | 3.9 | 6.63 | 6.42 | 2.56 | 2.60 |
| 100 ppm Se + 1000 ppm vit. B + 100 ppm Vit. A + 100 ppm Vit. D once | 13.1 | 14.2 | 4.7 | 4.8 | 6.13 | 6.30 | 2.50 | 2.53 |
| 100 ppm Se + 1000 ppm vit. B + 100 ppm Vit.A + 100 ppm Vit. D twice | 13.9 | 14.7 | 3.9 | 3.9 | 6.63 | 5.43 | 2.56 | 2.56 |
| 100 ppm Se + 1000 ppm vit. B + 100 ppm Vit. A + 100 ppm Vit. D thrice | 14.1 | 14.8 | 3.8 | 3.8 | 6.64 | 6.44 | 2.59 | 2.61 |
| New L.S.D. at 5% | 0.5 | 0.6 | 0.4 | 0.5 | 0.29 | 0.24 | 0.04 | 0.05 |

Se: Selenium; Vit B: Vitamin B complex (B1: Thiamine; B2: Riboflavin; B6: Pyridoxine; B12: Cyanocoblamine); Vit A: Vitamin A (Retinol); Vit D: Vitamin D (Cholecalciferol).

Table (7): Effect of foliar spray of different concentrations and frequencies with selenium and some vitamins on some physical and chemical characteristics of the berries of Superior grapevines during 2015 and 2016 seasons

| Selenium and vitamin treatments | Average berry equatorial (cm) | | T.S.S % | | Reducing sugars % | | Titratable acidity % | | T.S.S/acid | |
|---|-------------------------------|-------------|------------|------------|-------------------|------------|----------------------|--------------|------------|------------|
| | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Control | 1.95 | 1.97 | 17.5 | 17.6 | 15.1 | 14.9 | 0.700 | 0.701 | 25.0 | 25.1 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit.A + 25ppm Vit. D once | 1.99 | 2.01 | 18.1 | 18.2 | 15.7 | 15.9 | 0.671 | 0.666 | 27.0 | 27.3 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D twice | 2.11 | 2.05 | 18.7 | 19.0 | 16.4 | 16.7 | 0.639 | 0.636 | 29.3 | 29.9 |
| 25 ppm Se + 250 ppm Vit. B + 25 ppm Vit. A + 25 ppm Vit. D thrice | 2.12 | 2.06 | 18.8 | 19.1 | 16.5 | 16.8 | 0.637 | 0.635 | 29.5 | 30.1 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit.A + 50 ppm Vit.D once | 2.15 | 2.16 | 18.9 | 19.2 | 16.9 | 17.1 | 0.621 | 0.618 | 30.4 | 31.1 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit. A + 50ppm Vit. D twice | 2.19 | 2.22 | 19.5 | 19.7 | 17.8 | 18.0 | 0.591 | 0.588 | 33.0 | 33.5 |
| 50 ppm Se + 500 ppm vit. B + 50 ppm Vit. A + 50 ppm Vit.D thrice | 2.23 | 2.23 | 19.6 | 19.8 | 18.0 | 18.1 | 0.588 | 0.587 | 33.3 | 33.7 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A + 100 ppm Vit. D once | 2.16 | 2.17 | 19.0 | 19.3 | 17.0 | 17.2 | 0.620 | 0.617 | 30.6 | 31.3 |
| 100 ppm Se + 1000 ppm vit. B + 100 ppm Vit. A + 100 ppm Vit. D twice | 2.20 | 2.23 | 19.6 | 19.8 | 17.9 | 18.1 | 0.590 | 0.587 | 33.2 | 33.7 |
| 100 ppm Se + 1000 ppm Vit. B + 100 ppm Vit. A+ 100 ppm Vit. D thrice | 2.30 | 2.24 | 19.7 | 20.0 | 18.1 | 18.2 | 0.587 | 0.585 | 33.6 | 34.2 |
| New L.S.D. at 5% | 0.03 | 0.04 | 0.4 | 0.5 | 0.4 | 0.3 | 0.025 | 0.026 | 0.5 | 0.7 |

Se: Selenium; Vit B: Vitamin B complex (B1: Thiamine; B2: Riboflavin; B6: Pyridoxine; B12: Cyanocoblamine); Vit A: Vitamin A (Retinol); Vit D: Vitamin D (Cholecalciferol).