

Table (1): Analysis of the tested soil before starting the study and after the second season:

Characters	Before	After						
		A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇
Sand (%)	21.15							
Silt (%)	31.55							
Clay (%)	48.30							
Texture	Clay							
pH (1:2.5)	7.61	7.56	7.23	7.23	7.39	7.42	7.16	7.24
E.C (1:2.5) (dS/m)	0.481	0.487	0.430	0.484	0.566	0.421	0.379	0.552
Organic matter (%)	1.38	1.36	1.38	1.41	1.39	1.59	1.64	1.75
CaCO ₃ (%)	3.46	3.48	3.40	3.39	3.35	3.37	3.28	3.36
Total N (%)	0.15	0.17	0.22	0.21	0.19	0.21	0.22	0.23
Total P (%)	0.15	0.16	0.20	0.21	0.20	0.22	0.18	0.18
Total K (%)	0.22	0.23	0.29	0.33	0.30	0.35	0.38	0.40
Available P (ppm)	48.25	54.26	55.62	57.93	47.92	60.59	65.07	74.69
Available K (ppm)	529.12	542.88	657.42	728.69	699.97	757.42	780.87	899.60

Table (2): Effect of different nitrogen fertilization sources on vegetative growth of Balady mandarin trees during 2006, 2007 and 2008 seasons.

Character Treatment	Shoot length (cm.)				No. of leaves /shoot				Leaf area (cm ²)			
	2006	2007	2008	Mean	2006	2007	2008	Mean	2006	2007	2008	Mean
T₁	45.15	38.50	42.37	42.00	30.73	34.07	31.60	32.13	8.00	7.07	7.63	7.57
T₂	53.83	45.30	46.13	48.42	35.50	38.40	33.83	35.91	9.03	7.93	8.47	8.48
T₃	52.10	44.47	44.90	47.16	34.90	37.90	33.43	35.41	8.80	7.73	8.07	8.20
T₄	49.23	42.77	44.23	45.41	32.23	36.90	32.13	33.75	8.10	7.10	7.90	7.70
T₅	44.07	38.17	43.77	42.00	29.83	34.50	30.90	31.74	8.07	6.87	7.73	7.56
T₆	44.83	39.13	43.00	42.32	30.77	35.80	33.00	33.19	8.63	7.50	7.83	7.99
T₇	46.93	40.90	44.13	43.99	32.37	36.87	32.97	34.07	8.57	8.03	8.23	8.28
L.S.D at 5%	1.84	1.72	1.54		2.16	2.00	1.46		0.74	0.63	0.57	

Table (3): Effect of different nitrogen fertilization sources on leaf N, P and K of Balady mandarin trees during 2006, 2007 and 2008 seasons.

Character Treatment	N (%)				P (%)				K (%)			
	2006	2007	2008	Mean	2006	2007	2008	Mean	2006	2007	2008	Mean
T₁	2.18	2.10	2.21	2.16	0.380	0.391	0.361	0.377	1.38	1.31	1.39	1.36
T₂	2.45	2.41	2.28	2.38	0.360	0.370	0.350	0.360	1.42	1.37	1.40	1.40
T₃	2.40	2.38	2.26	2.35	0.341	0.369	0.361	0.357	1.48	1.36	1.43	1.43
T₄	2.30	2.17	2.22	2.23	0.341	0.344	0.349	0.345	1.49	1.39	1.42	1.44
T₅	2.15	2.10	2.20	2.15	0.410	0.400	0.358	0.389	1.43	1.36	1.41	1.40
T₆	2.24	2.15	2.20	2.20	0.420	0.410	0.379	0.403	1.44	1.40	1.43	1.42
T₇	2.27	2.20	2.28	2.25	0.430	0.420	0.380	0.410	1.51	1.41	1.45	1.46
L.S.D at 5%	0.06	0.04	0.06		0.025	0.019	0.017		0.09	0.10	0.06	

Table (4): Effect of different nitrogen fertilization sources on shoot C, N and C\N ratio of Balady mandarin trees during 2006, 2007 and 2008 seasons.

Character Treatment	Total carbohydrates (%)				Nitrogen (%)				C/N Ratio			
	2006	2007	2008	Mean	2006	2007	2008	Mean	2006	2007	2008	Mean
T₁	11.10	10.00	10.95	10.68	1.52	1.43	1.53	1.49	7.30	6.99	7.16	7.15
T₂	12.10	10.92	11.78	11.60	1.56	1.47	1.55	1.53	7.76	7.43	7.60	7.59
T₃	12.00	10.78	11.60	11.46	1.55	1.45	1.55	1.52	7.74	7.42	7.48	7.55
T₄	11.80	10.60	11.40	11.27	1.53	1.43	1.51	1.49	7.71	7.41	7.55	7.56
T₅	11.47	10.40	11.40	11.09	1.49	1.42	1.50	1.47	7.70	7.32	7.60	7.54
T₆	11.63	10.44	11.50	11.19	1.50	1.40	1.51	1.47	7.75	7.46	7.62	7.61
T₇	11.80	10.57	11.72	11.36	1.51	1.41	1.53	1.48	7.81	7.50	7.66	7.66
L.S.D at 5%	0.26	0.20	0.14		N.S	N.S	N.S		0.18	0.15	0.12	

Table (5): Effect of different nitrogen fertilization sources on the yield and its components of Balady mandarin trees during 2006, 2007 and 2008 seasons.

Character Treatment	Fruit retention %				No. of fruits/tree				Yield/tree (kg)			
	2006	2007	2008	Mean	2006	2007	2008	Mean	2006	2007	2008	Mean
T₁	1.19	0.88	1.42	1.17	224.4	342.8	251.0	272.73	32.30	47.30	34.60	38.07
T₂	1.48	1.23	1.69	1.47	300.4	417.6	300.0	339.33	43.80	57.80	41.60	47.73
T₃	1.46	1.19	1.61	1.42	289.2	408.8	282.0	326.67	41.50	56.00	39.40	45.63
T₄	1.40	1.10	1.61	1.37	273.6	386.4	290.4	316.80	38.20	52.00	39.80	43.33
T₅	1.29	1.00	1.53	1.28	243.6	366.0	259.0	289.53	34.20	49.80	35.80	39.93
T₆	1.33	1.01	1.52	1.29	236.4	348.4	267.6	284.13	34.10	49.80	36.20	40.03
T₇	1.36	1.07	1.59	1.34	249.6	390.0	270.0	303.20	34.60	52.60	36.80	41.33
L.S.D at 5%	0.09	0.14	0.11		17.44	15.86	21.66		2.70	2.82	3.18	

Table (6): Effect of different nitrogen fertilization sources on fruit weight, total soluble solids (TSS) and total acidity of Balady mandarin fruits during 2006, 2007 and 2008 seasons.

Character Treatment	Fruit weight (g)				T.S.S (%)				Total acidity (g citric acid/ml juice)			
	2006	2007	2008	Mean	2006	2007	2008	Mean	2006	2007	2008	Mean
T₁	138.6	134.6	135.2	136.14	10.75	11.05	11.00	10.93	1.223	1.382	1.208	1.271
T₂	145.8	138.4	138.0	140.71	11.43	11.65	11.80	11.63	1.189	1.331	1.158	1.226
T₃	143.7	136.9	138.6	139.72	11.33	11.60	11.75	11.56	1.174	1.254	1.135	1.188
T₄	139.6	143.9	137.1	140.20	11.35	11.50	11.60	11.48	1.135	1.242	1.130	1.169
T₅	143.9	139.9	138.1	140.64	11.37	11.50	11.80	11.56	1.153	1.250	1.168	1.190
T₆	144.3	138.0	136.3	139.54	11.43	11.50	11.75	11.56	1.167	1.267	1.173	1.202
T₇	146.2	143.1	139.7	142.97	11.47	11.60	11.80	11.62	1.160	1.261	1.170	1.197
L.S.D at 5%	3.05	3.83	3.95		0.21	0.19	0.22		0.105	0.081	0.028	

Table (7): Effect of different nitrogen fertilization sources on total, reducing sugars and vitamin C (V.C) of Balady mandarin fruits during 2006, 2007 and 2008 seasons.

Character Treatment	Total sugars (%)				Reducing sugars (%)				V.C (mg/100g)			
	2006	2007	2008	Mean	2006	2007	2008	Mean	2006	2007	2008	Mean
T₁	8.06	8.35	8.18	8.20	3.03	3.37	3.15	3.18	33.90	32.47	33.40	33.26
T₂	8.81	8.97	8.75	8.84	3.42	3.78	3.41	3.54	36.87	35.77	34.23	35.62
T₃	8.68	8.82	8.62	8.71	3.38	3.68	3.38	3.48	36.23	35.37	34.10	35.23
T₄	8.51	8.65	8.52	8.56	3.23	3.58	3.35	3.39	34.77	34.07	34.23	34.36
T₅	8.53	8.63	8.57	8.58	3.27	3.57	3.35	3.40	34.70	34.67	34.60	34.66
T₆	8.59	8.77	8.60	8.65	3.29	3.65	3.33	3.42	34.03	35.30	34.03	34.45
T₇	8.78	8.95	8.64	8.79	3.32	3.71	3.37	3.47	34.67	35.73	34.97	35.12
L.S.D at 5%	0.40	0.41	0.19		0.17	0.23	0.10		1.57	1.32	0.85	

