

Table (6): Effect of some organic manures enriched with *Spirulina platensis* algae as partial replacement of inorganic N on some vegetative growth characteristics, total chlorophylls and leaf N of Superior grapevines during 2014, 2015 and 2016 seasons.

Treatment	Main shoot length (cm.)			Leaf area (cm.)			Wood ripening coefficient			Pruning wood weight /vine (kg.)			Cane thickness (cm)			Total chlorophylls (mg/100 g F.W)			Leaf N %		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Nas 100% Inorg.N	89.9	90.0	91.7	105.3	107.0	107.9	0.78	0.76	0.79	2.30	2.23	2.34	0.90	0.95	0.93	14.1	15.0	15.9	1.60	1.56	1.52
Nas 75% Inorg.N+25% P.C.+10ml SP	96.9	98.0	99.6	109.0	110.8	111.7	0.83	0.81	0.84	2.51	2.44	2.55	0.97	1.02	1.00	16.1	17.0	17.8	1.72	1.68	1.63
Nas 75% Inorg.N+25% FYM.+10ml SP	93.9	95.0	96.5	107.6	109.0	110.0	0.81	0.79	0.82	2.41	2.34	2.46	0.94	0.99	0.97	15.1	16.0	16.8	1.66	1.62	1.58
Nas 75% Inorg.N+25% P.M.+10ml SP	100.0	101.1	102.8	111.0	112.8	113.8	0.86	0.84	0.87	2.60	2.53	2.65	1.01	1.06	1.04	18.1	19.0	19.9	1.80	1.76	1.72
Nas 50% Inorg.N+50% P.C.+20ml SP	113.3	114.4	115.6	115.0	116.7	117.8	0.91	0.89	0.92	2.83	2.76	2.87	1.14	1.19	1.17	22.1	21.0	21.7	1.92	1.88	1.83
Nas 50% Inorg.N+50% P.M.+20ml SP	105.0	106.1	107.2	113.0	114.9	116.0	0.89	0.87	0.90	2.71	2.64	2.75	1.09	1.14	1.13	19.9	20.9	22.0	1.86	1.82	1.79
Nas 50% Inorg.N+50% FYM.+20ml SP	116.0	117.1	118.8	117.9	119.7	121.4	0.93	0.91	0.94	2.95	2.88	3.00	1.18	1.24	1.22	21.2	22.0	22.9	1.99	1.95	1.91
Nas 25% Inorg.N+75% P.C.+40ml SP	83.0	84.2	86.0	101.0	102.8	103.7	0.72	0.70	0.73	2.09	2.02	2.13	0.81	0.86	0.84	23.3	24.0	24.8	2.14	2.10	2.07
Nas 25% Inorg.N+75% FYM.+40ml SP	81.0	82.1	84.0	99.3	101.0	101.7	0.69	0.67	0.70	1.99	1.91	2.03	0.78	0.83	0.82	22.2	23.0	23.8	2.07	2.03	2.00
Nas 25% Inorg.N+75% PM+40ml SP	86.9	88.0	89.9	102.9	104.7	105.6	0.75	0.73	0.76	2.19	2.11	2.25	0.86	0.91	0.90	24.0	24.9	25.8	2.21	2.17	2.13
NewLSD.at 5%	1.4	1.7	1.5	0.9	1.0	1.1	0.02	0.02	0.2	0.09	0.10	0.12	0.03	0.03	0.03	0.5	0.4	0.6	0.04	0.05	0.04

PC= Plant compost (2.0 % N); FYM= Farmyard manure (0.25% N); PM = Poultry manure (2.5% N) and SP= *Spirulina platensis* algae

Table (7): Effect of some organic manures enriched with *Spirulina platensis* algae on P and K percentages, yield and cluster weight and dimensions of superior grapevines during 2014, 2015 and 2016 seasons

Treatment	Leaf P %			Leaf K %			No. of cluster/vine			Yield/vine (kg)			Cluster weight (g)			Cluster length (cm)			Cluster shoulder (cm)		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Nas 100% Inorg.N	0.11	0.09	0.10	1.11	1.14	1.18	22.0	23.0	23.0	7.9	8.6	8.3	357	360	361.7	21.9	22.0	22.2	13.6	13.8	13.7
Nas 75% Inorg.N+ 25% P.C.+10ml SP.	0.15	0.14	0.15	1.23	1.24	1.30	23.0	25.0	25.0	8.7	9.6	9.6	379	382	383.6	22.7	22.8	23.0	14.2	14.4	14.3
Nas 75% Inorg.N+ 25% F.Y.M.+10ml SP	0.13	0.12	0.13	1.17	1.19	1.24	23.0	24.0	24.0	8.5	8.9	9.0	369	371.9	373.5	22.4	22.5	22.7	13.9	14.1	14
Nas 75% Inorg.N+ 25% P.M.+10ml SP	0.17	0.16	0.17	1.30	1.30	1.37	23.0	26.0	26.0	9.0	10.2	10.3	390	392.9	394.7	23.0	23.1	23.3	14.6	14.8	14.7
Nas 50% Inorg.N+ 50% P.C.+20ml SP	0.21	0.20	0.20	1.42	1.40	1.49	23.0	28.0	29.0	9.4	11.6	12.0	410	412.8	414.7	24.5	24.7	25.0	15.2	15.4	15.3
Nas 50% Inorg.N+ 50% P.M.+20ml SP	0.19	0.18	0.19	1.36	1.35	1.43	23.0	27.0	28.0	9.2	10.9	11.3	399	402.9	404.9	23.9	24.0	24.3	14.9	15.1	15.0
Nas 50% Inorg.N+ 50% F.Y.M.+20ml SP	0.23	0.22	0.24	1.50	1.46	1.57	23.0	29.0	30.0	9.7	12.3	12.8	422	425	426.7	25.0	25.1	25.4	15.5	15.7	15.6
Nas 25% Inorg.N+ 75% P.C.+40ml SP	0.27	0.26	0.28	1.64	1.60	1.71	22.0	21.0	21.0	7.5	7.2	7.2	339	342	343.9	21.4	21.5	21.8	13.0	13.2	13.1
Nas 25% Inorg.N+ 75% F.Y.M.+40ml SP	0.25	0.24	0.25	1.57	1.52	1.64	22.0	20.0	20.0	7.3	6.7	6.7	330	332.5	334	24.0	21.1	21.4	12.8	13	12.9
Nas 25% Inorg.N+ 75% P.M.+40ml SP	0.28	0.27	0.29	1.71	1.65	1.78	22.0	22.0	22.0	7.6	7.7	7.8	348	351	352.7	21.7	21.8	22.1	13.3	13.5	13.4
New L.S.D.at 5%	0.02	0.02	0.02	0.04	0.05	0.05	NS	1.0	1.0	0.3	0.3	0.2	9.0	10.1	10.7	0.3	0.3	0.2	0.2	0.3	0.2

PC= Plant compost (2.0 % N); FYM= Farmyard manure (0.25% N); PM = Poultry manure (2 .5% N) and SP= *Spirulina platensis* algae

Table (8): Effect of using some organic manures enriched with *Spirulina platensis* algae on some berry physical characteristics and shot berries percentage of Superior grapevines during 2014, 2015 and 2016 seasons

Treatment	Shot berries %			Berry equatorial (cm)			Berry longitudinal (cm)			Berry weight (g)		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
N as 100% Inorg. N	5.9	6.4	7.0	1.91	1.89	1.92	2.11	2.12	2.10	3.33	3.35	3.40
N as 75 % Inorg. N + 25% P.C. + 10 ml S.P.	3.7	3.8	4.0	1.99	1.97	2.00	2.20	2.21	2.19	3.45	3.47	3.52
N as 75 % Inorg. N + 25 % F.Y.M. + 10 ml S.P	4.0	4.1	4.3	1.95	1.93	1.96	2.15	2.14	2.14	3.39	3.41	3.46
N as 75 % Inorg. N + 25% P.M. + 10 ml S.P	3.3	3.4	3.6	2.03	2.01	2.04	2.24	2.25	2.23	3.50	3.51	3.57
N as 50 % Inorg. N + 50 % P.C. + 20 ml S.P	3.0	3.1	3.3	2.10	2.08	2.11	2.32	2.32	2.31	3.61	3.63	3.68
N as 50 % Inorg. N + 50 % P.M.. + 20 ml S.P	3.3	3.4	3.6	2.07	2.05	2.08	2.28	2.29	2.27	3.56	3.58	3.63
N as 50 % Inorg. N + 50 % F.Y.M. + 20 ml S.P	2.8	2.9	3.1	2.14	2.12	2.15	2.36	2.36	2.35	3.69	3.71	3.76
N as 25 % Inorg. N + 75 % P.C. + 40 ml S.P	2.4	2.5	2.7	2.22	2.19	2.23	2.46	2.47	2.45	3.81	3.83	3.88
N as 25 % Inorg. N + 75 % F.Y.M + 40 ml S.P	2.6	2.7	2.9	2.18	2.15	2.19	2.41	2.42	2.40	3.75	3.78	3.82
N as 25 % Inorg. N + 75 % P.M + 40 ml S.P	2.0	2.1	1.9	2.26	2.23	2.27	2.50	2.51	2.49	3.88	3.91	3.95
New L.S.D. at 5%	0.2	0.2	0.2	0.03	0.03	0.03	0.04	0.03	0.04	0.05	0.05	0.04

PC= Plant compost (2.0 % N); FYM= Farmyard manure (0.25% N); PM = Poultry manure (2 .5% N) and SP= *Spirulina platensis* algae

Table (9): Effect of some organic manures enriched with *Spirulina platensis* algae on some berry chemical characteristics of Superior grapevines during 2014, 2015 and 2016 seasons

Treatment	T.S.S.%			Reducing sugars %			Total acidity %			Nitrite (ppm) in juice		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
N as 100% Inorg. N	18.1	17.9	18.0	15.9	16.0	15.7	0.721	0.730	0.725	1.95	1.90	1.80
N as 75 % Inorg. N + 25% P.C. + 10 ml S.P.	18.5	18.3	18.4	16.7	16.8	16.5	0.689	0.699	0.693	1.80	1.75	1.64
N as 75 % Inorg. N + 25 % F.Y.M. + 10 ml S.P	18.3	18.1	18.2	16.4	16.5	16.2	0.706	0.715	0.710	1.90	1.84	1.73
N as 75 % Inorg. N + 25% P.M. + 10 ml S.P	18.8	18.6	18.7	17.0	17.1	16.8	0.674	0.683	0.678	1.71	1.66	1.55
N as 50 % Inorg. N + 50 % P.C. + 20 ml S.P	19.2	19.0	19.1	17.6	17.7	17.4	0.635	0.644	0.640	1.11	1.06	0.95
N as 50 % Inorg. N + 50 % P.M.. + 20 ml S.P	19.0	18.8	18.9	17.3	17.4	17.1	0.650	0.659	0.655	1.41	1.36	1.25
N as 50 % Inorg. N + 50 % F.Y.M. + 20 ml S.P	19.5	19.3	19.4	18.0	18.1	17.8	0.610	0.620	0.615	1.00	0.95	0.84
N as 25 % Inorg. N + 75 % P.C. + 40 ml S.P	20.0	19.8	19.9	18.6	18.7	18.4	0.561	0.570	0.566	0.70	0.64	0.52
N as 25 % Inorg. N + 75 % F.Y.M + 40 ml S.P	19.8	19.6	19.7	18.3	18.4	18.1	0.580	0.590	0.586	0.90	0.85	0.74
N as 25 % Inorg. N + 75 % P.M + 40 ml S.P	20.2	19.9	20.1	19.0	19.1	18.8	0.541	0.550	0.546	0.61	0.55	0.44
New L.S.D. at 5%	0.2	0.2	0.2	0.3	0.3	0.2	0.011	0.014	0.016	0.02	0.03	0.04

PC= Plant compost (2.0 % N); FYM= Farmyard manure (0.25% N); PM = Poultry manure (2 .5% N) and SP= *Spirulina platensis* algae