

Table 3. Effect of yeast concentrations, potassium fertilization levels, varieties and their interaction involved on root length (cm) during 2015/2016 and 2016/2017 season

Seasons		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		kawemera	Glorius	Romulus	Mean	kawemera	Glorius	Romulus	Mean
0	12.5	45.10	38.00	42.80	41.96	50.00	43.00	48.26	47.08
	25	46.88	39.30	43.58	43.25	51.00	45.86	49.06	48.64
	37.5	48.51	40.93	44.30	44.58	51.93	47.20	49.60	49.57
Mean		46.83	39.41	43.56	43.26	50.97	45.35	48.97	48.43
1	12.5	46.00	38.66	43.00	42.55	50.00	44.60	48.53	47.71
	25	47.00	40.00	43.96	43.65	51.06	46.00	49.20	48.75
	37.5	49.00	41.00	43.73	44.91	52.53	47.46	49.73	49.91
Mean		25	39.88	43.90	43.70	51.20	46.02	49.15	48.79
2	12.5	46.03	39.00	43.00	42.67	50.40	45.00	48.66	48.02
	25	47.45	40.00	44.00	43.81	51.26	46.46	49.33	49.02
	37.5	49.56	41.80	45.00	45.45	53.01	47.80	49.86	50.24
Mean		47.68	40.26	44.00	43.98	51.57	46.42	49.28	49.09
3	12.5	46.65	39.00	43.03	42.89	50.73	45.33	49.00	48.35
	25	47.93	40.16	44.00	44.03	51.46	46.86	49.53	49.28
	37.5	50.16	42.15	45.00	45.77	45.80	48.13	50.00	50.97
Mean		48.25	40.43	44.01	44.23	52.35	46.77	49.51	49.54
General Mean		47.52	40.00	43.86	-	51.52	46.14	49.23	-
K x V	12.5	45.94	38.66	42.46	42.52	50.28	44.48	48.61	47.79
	25	47.31	39.86	43.86	43.69	51.20	46.30	49.28	48.92
	37.5	49.31	41.47	44.75	45.18	53.08	47.65	49.80	50.17
F Test and LSD 0.05value		F test		LSD 0.05		F Test		LSD 0.05	
Y		**		0.13		**		0.14	
K		**		0.13		**		0.12	
V		**		0.18		**		0.29	
Y x K		**		0.07		**		0.35	
Y x V		**		0.16		**		0.76	
K x V		**		0.13		**		0.61	
Y x K x V		**		0.35		**		1.31	

Table 4. Effect of yeast concentration, potassium fertilization levels, varieties and their interaction involved on root diameter(cm) during 2015/2016 and 2016/2017 season

Seasons		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		kawemera	Glorius	Romulus	Mean	kawemera	Glorius	Romulus	Mean
0	12.5	11.99	9.35	11.00	10.78	10.80	4.40	10.23	10.14
	25	12.28	10.18	11.27	11.24	11.30	9.80	10.40	10.41
	37.5	12.96	10.65	11.63	11.74	11.36	10.00	10.60	10.65
Mean		12.41	10.06	11.30	11.26	11.06	9.73	10.41	10.40
1	12.5	12.01	9.61	11.03	10.88	10.86	9.53	10.40	10.26
	25	12.34	10.33	11.44	11.37	11.20	9.83	10.43	10.48
	37.5	13.32	10.72	11.70	11.91	11.40	10.00	10.73	10.71
Mean		12.56	10.22	11.39	11.39	11.15	9.78	10.52	10.48
2	12.5	12.24	9.73	11.11	11.03	11.00	9.60	10.40	10.33
	25	12.46	10.46	11.51	11.48	11.20	10.00	10.56	10.58
	37.5	13.35	10.82	11.73	11.97	11.56	10.20	10.80	10.85
Mean		12.68	10.34	11.45	11.49	11.25	9.99	10.58	10.58
3	12.5	12.27	10.05	11.23	11.18	11.00	9.70	10.40	10.36
	25	12.75	10.61	11.57	11.65	11.23	10.00	10.60	10.61
	37.5	13.65	10.96	11.89	12.16	11.60	10.20	10.80	10.86
Mean		12.89	10.54	11.57	11.66	11.27	9.96	10.60	10.61
General Mean		12.63	10.29	11.42	-	11.18	9.86	10.53	-
K x V	12.5	12.13	9.68	11.09	10.97	10.91	9.55	10.35	10.27
	25	12.46	10.40	11.45	11.43	11.16	9.90	10.50	10.52
	37.5	13.32	10.79	11.73	11.95	11.48	10.10	10.73	10.77
F Test and LSD 0.05value		F test		LSD 0.05		F Test		LSD	
Y		**		0.04		**		0.03	
K		**		0.03		**		0.07	
V		**		0.02		**		0.04	
Y x K		**		0.03		**		0.02	
Y x V		**		0.07		**		0.05	
K x V		**		0.06		**		0.03	
Y x K x V		**		0.13		**		0.08	

Table 5. Effect of yeast concentrations, potassium fertilization levels, varieties and their interaction involved on single root weight of sugar beet during 2015/2016 and 2016/2017 Seasons

Season		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		Kawmeara	Glorius	Romulus	Mean	Kawmeara	Glorius	Romulus	Mean
0	12.5	2.20	1.13	1.78	1.70	1.99	1.17	1.76	1.64
	25	2.38	1.47	1.95	1.93	2.15	1.50	1.90	1.85
	37.5	2.59	1.67	2.00	2.08	2.30	1.63	1.95	1.96
Mean		2.39	1.42	1.91	1.91	2.15	1.43	1.87	1.82
1	12.5	2.22	1.25	1.84	1.77	2.00	1.37	1.82	1.73
	25	2.41	1.54	1.97	1.97	2.19	1.54	1.99	1.88
	37.5	2.68	1.73	2.05	2.15	2.35	1.64	1.97	1.99
Mean		2.44	1.51	1.96	1.97	2.18	1.51	1.90	1.86
2	12.5	2.27	1.32	1.87	1.82	2.00	1.41	1.84	1.75
	25	2.45	1.59	2.00	2.01	2.21	1.57	1.92	1.90
	37.5	2.82	1.76	2.09	2.22	2.43	1.71	1.98	2.04
Mean		2.51	1.55	1.98	2.02	2.21	1.56	1.91	1.89
3	12.5	2.31	1.43	1.91	1.88	2.10	1.44	1.86	1.80
	25	2.50	1.63	2.00	2.04	2.24	1.60	1.93	1.92
	37.5	2.94	1.76	2.12	2.27	2.58	1.75	1.98	2.10
Mean		2.58	1.61	2.01	2.07	2.30	1.59	1.92	1.97
General Mean		2.48	1.52	1.96	-	2.15	1.53	1.90	-
K x V	12.5	2.25	1.28	1.85	1.79	2.02	1.35	1.82	1.73
	25	2.44	1.55	1.98	1.99	2.19	1.55	1.92	1.89
	37.5	2.76	1.73	2.06	2.18	2.41	1.68	1.97	2.02
F Test and LSD 0.05 value		F test		LSD 0.05		F Test		LSD 0.05	
Y		**		0.042		**		0.011	
K		**		0.029		**		0.008	
V		**		0.030		**		0.013	
Y x K		**		0.03		**		0.15	
Y x V		**		0.04		**		0.02	
K x V		**		0.05		**		0.03	
Y x K x V		**		0.13		**		0.05	

Table 6. Effect of yeast concentrations, potassium fertilization levels, varieties and their interaction involved on root yield/fed. of sugar beet during 2015/2016 and 2016/2017 seasons

Season		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		Kawemera	Glorius	Romulus	Mean	Kawemera	Glorius	Romulus	Mean
0	12.5	27.81	23.19	26.00	25.66	29.25	22.86	26.67	26.26
	25	28.22	24.96	26.65	26.61	30.03	24.74	27.67	27.48
	37.5	29.02	25.56	27.00	27.19	31.51	25.92	28.42	28.62
Mean		28.35	24.57	26.55	26.49	30.26	24.51	27.98	27.45
1	12.5	27.93	27.29	26.00	26.07	29.39	23.34	26.70	26.48
	25	28.53	25.00	26.67	26.73	30.35	25.00	27.87	27.47
	37.5	29.73	25.60	27.45	27.59	31.93	26.29	28.57	28.93
Mean		28.73	24.96	26.70	26.80	30.56	24.87	27.71	27.71
2	12.5	28.00	24.47	26.07	26.18	29.66	24.22	27.16	27.01
	25	28.82	25.34	26.77	26.97	30.73	25.20	28.02	27.98
	37.5	30.00	25.64	27.64	27.80	32.30	26.64	28.57	29.17
Mean		28.94	25.15	26.87	26.98	30.89	25.35	27.91	28.05
3	12.5	28.06	24.57	26.49	26.37	29.77	24.40	27.36	27.18
	25	28.98	25.54	26.99	27.17	31.04	25.43	28.24	28.23
	37.5	31.01	25.81	27.80	28.20	33.00	26.67	28.98	29.55
Mean		29.35	25.31	27.09	27.70	31.27	25.50	28.90	28.32
General Mean		28.84	25.00	26.80	-	30.75	25.06	27.85	-
K x V	12.5	27.95	24.13	26.14	26.07	29.52	23.70	26.97	26.73
	25	28.64	25.21	26.77	26.87	30.54	25.07	27.95	27.86
	37.5	29.94	25.65	27.50	27.70	32.18	26.38	28.63	29.06
F Test and LSD 0.05 value		F test		LSD 0.05		F Test		LSD 0.05	
Y		**		0.05		**		0.05	
K		**		0.05		**		0.07	
V		**		0.13		**		0.09	
Y x K		**		0.04		**		0.04	
Y x V		**		0.09		**		0.07	
K x V		**		0.07		**		0.06	
Y x K x V		**		0.15		**		0.12	

Table 7. Effect of yeast concentrations, potassium fertilization levels, varieties and their interaction involved on pol percentage (%) of sugar beet during 2015/2016 and 2016/2017 seasons

Seasons		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		kawemera	Glorius	Romulus	Mean	Kawemera	Glorius	Romulus	Mean
0	12.5	18.04	16.00	17.33	17.12	18.13	16.24	17.64	17.34
	25	18.31	16.68	17.72	17.57	18.39	17.08	17.73	17.73
	37.5	18.76	17.00	17.92	17.89	18.87	17.31	17.95	18.04
Mean		18.37	16.56	17.66	17.53	18.46	16.88	17.77	17.70
1	12.5	18.09	16.00	17.47	17.18	18.14	16.57	17.68	17.46
	25	18.43	16.78	17.77	17.66	18.51	17.10	17.76	17.79
	37.5	18.88	17.02	18.00	17.96	19.01	17.37	17.99	18.12
Mean		18.46	16.60	17.74	17.61	18.55	17.01	17.81	17.79
2	12.5	18.12	16.26	17.53	17.30	18.16	16.94	17.69	17.60
	25	18.55	16.96	17.81	17.77	18.59	17.16	17.85	17.87
	37.5	19.21	17.12	18.00	18.11	19.10	17.53	18.03	18.22
Mean		18.62	16.78	17.18	17.73	18.62	17.21	17.85	17.89
3	12.5	18.21	16.61	17.65	17.49	18.24	17.04	17.70	17.66
	25	18.64	17.00	17.87	17.84	18.69	17.26	17.91	17.95
	37.5	19.97	17.20	18.00	18.39	19.45	17.60	18.09	18.38
Mean		18.94	16.93	17.84	17.91	18.79	17.30	17.90	18.00
General Mean		18.16	16.72	17.75	-	18.61	17.10	17.83	-
K x V	25	18.11	16.21	17.49	17.28	18.17	16.70	17.68	17.51
	50	18.48	16.85	17.79	17.71	18.54	17.15	17.81	17.84
	75	19.20	17.08	17.98	18.09	19.11	17.45	18.01	18.19
F Test and LSD0.05 vale		F test		LSD0.05		F Test		LSD0.05	
Y		**		0.08		**		0.03	
K		**		0.10		**		0.04	
V		**		0.20		**		0.06	
Y x K		**		0.06		**		0.03	
Y x V		**		0.16		**		0.06	
K x V		**		0.12		**		0.05	
Y x K x V		**		0.26		**		0.11	

Table 8. Effect of yeast concentrations, potassium fertilization levels, varieties and their interaction involved on sugar recovery percentage (%) of sugar beet during 2015/2016 and 2016/2017 seasons

Seasons		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		Kawemera	Glorius	Romulus	Mean	Kawemera	Glorius	Romulus	Mean
0	12.5	15.05	13.80	14.67	14.50	15.17	14.31	15.02	14.83
	25	15.22	14.23	14.95	14.80	15.31	14.77	15.03	15.03
	37.5	15.52	14.45	15.06	15.01	15.57	14.83	15.13	15.12
Mean		15.26	14.16	14.89	14.77	15.35	14.64	15.06	15.01
1	12.5	15.07	13.70	14.77	14.51	15.15	14.49	15.04	14.89
	25	15.30	14.30	14.99	14.86	15.39	14.76	15.04	15.06
	37.5	15.59	14.44	15.11	15.05	15.57	14.85	15.14	15.18
Mean		15.32	14.15	14.96	14.81	15.37	14.70	15.07	15.05
2	12.5	15.08	13.90	14.81	14.60	15.13	14.72	15.01	14.95
	25	15.38	14.44	15.01	14.94	15.41	14.79	15.09	15.10
	37.5	15.86	14.51	15.05	15.14	15.54	14.97	15.14	15.21
Mean		15.44	14.28	14.96	14.89	15.63	14.82	15.08	15.09
3	12.5	15.13	14.21	14.92	14.75	15.20	14.77	15.01	14.99
	25	15.43	14.46	15.03	14.97	15.44	14.85	15.12	15.14
	37.5	16.49	14.57	15.03	15.36	15.76	15.00	15.17	15.31
Mean		15.68	14.41	14.99	15.03	15.74	14.87	15.10	15.15
General Mean		15.43	14.25	14.95	-	15.38	14.76	15.08	-
K x V	12.5	15.08	13.80	14.79	14.59	15.16	14.57	15.02	14.92
	25	15.33	14.36	15.00	14.89	15.38	14.79	15.07	15.08
	37.5	15.86	14.49	15.06	15.14	15.61	14.91	15.14	15.22
F Test and LSD0.05 value		F test		LSD0.05		F Test		LSD0.05	
Y		**		0.10		**		0.02	
K		**		0.10		**		0.03	
V		**		0.10		**		0.10	
Y x K		**		0.06		**		0.02	
Y x V		**		0.16		**		0.05	
K x V		**		0.11		**		0.04	
Y x K x V		**		0.26		**		0.09	

Table 9. Effect of yeast concentrations, potassium fertilization levels, varieties and their interaction involved on recoverable sugar yield (ton/fed) of sugar beet during 2015/2016 and 2016/2017seasons

Season		2015/2016				2016/2017			
Yeast concentrations in kg fed. ⁻¹ (Y)	Potassium fertilization levels in kg K ₂ O fed. ⁻¹ (K)	varieties(V)				varieties(V)			
		kawamera	Glorius	Romulus	Mean	kawamera	Glorius	Romulus	Mean
0	12.5	4.18	3.20	3.21	3.73	4.43	3.27	4.00	3.90
	25	4.29	3.55	3.98	3.94	4.59	3.65	4.15	4.13
	37.5	4.50	3.69	4.07	4.09	4.90	3.84	4.30	4.35
Mean		4.33	3.48	3.95	3.92	4.64	3.59	4.15	4.13
1	12.5	4.21	3.33	3.84	3.79	4.45	3.38	4.01	3.95
	25	4.36	3.57	4.00	3.98	4.67	3.69	4.19	4.18
	37.5	4.63	3.700	4.15	4.16	4.97	3.90	4.32	4.40
Mean		4.40	3.53	3.99	3.97	4.69	3.65	4.17	4.17
2	12.5	4.22	3.40	3.86	3.83	4.49	3.56	4.07	4.04
	25	4.43	3.66	4.02	4.03	4.73	3.72	4.23	4.23
	37.5	4.76	3.72	4.18	4.33	5.02	3.99	4.32	4.44
Mean		4.47	3.59	4.02	4.03	4.77	3.76	4.21	4.24
3	12.5	4.25	3.49	3.95	3.89	4.52	3.60	4.10	4.07
	25	4.47	3.69	4.06	4.07	4.79	3.77	4.27	4.28
	37.5	5.11	3.76	4.18	4.35	5.20	4.00	4.39	4.53
Mean		4.61	3.64	4.06	4.10	4.84	3.79	4.25	4.29
General Mean		4.45	3.56	4.00	-	4.73	3.70	4.20	-
K x V	12.5	4.21	3.35	3.86	3.81	4.47	3.45	4.05	3.99
	25	4.39	3.62	4.01	4.00	4.69	3.71	4.21	4.20
	37.5	4.75	3.71	4.14	4.20	5.02	3.93	4.33	4.43
F Test and LSD 0.05 value		F test		LSD 0.05		F Test		LSD 0.05	
Y		**		0.039		**		0.002	
K		**		0.04		**		0.017	
V		**		0.06		**		0.01	
Y x K		**		0.02		**		0.50	
Y x V		**		0.09		**		0.02	
K x V		**		0.01		**		0.02	
Y x K x V		**		0.08		**		0.02	