

Table 3. Actual and optimal use of the most important economic resources under the constant return to scale for sugar beet crop in Sahl Al-Tina

categories		The amount of fertilizer m3				Number of machines work hours				Number of human labor man/day			
		actual	optimal	surplus or	surplus or	actual	optimal	surplus or	surplus or	actual	optimal	surplus or	surplus or
				deficit	deficit%			deficit	deficit%			deficit	deficit%
first category	AV	28	28.7	-0.7	-2.50	132	94.7	37.3	28.26	94	59.32	34.68	36.89
	MAX	45	39	6	13.33	180	71.2	108.8	60.44	132	97.58	34.42	26.08
	MIN	10	9.6	0.4	4.00	54	28.28	25.72	47.63	38	23.15	14.85	39.08
second category	AV	74	57.83	16.17	21.85	319	172.62	146.38	45.89	222	169.4	52.6	23.69
	MAX	98	78.6	19.4	19.80	420	129.48	290.52	69.17	287	274.6	12.4	4.32
	MIN	48	32.22	15.78	32.88	216	164	52	24.07	160	67.54	92.46	57.79
third category	AV	111	74.14	36.86	33.21	482	338.4	143.6	29.79	350	256.8	93.2	26.63
	MAX	150	100.15	49.85	33.23	540	262.1	277.9	51.46	420	133.88	286.12	68.12
	MIN	80	58.26	21.74	27.18	424	368.6	55.4	13.07	280	237.92	42.08	15.03
total	AV	69.2	53.1	16.1	23.27	301.33	197.7	103.63	34.39	214.98	156.79	58.19	27.07
	MAX	150	100.05	49.95	33.30	540	319.24	220.76	40.88	420	268.12	151.88	36.16
	MIN	10	8.77	1.23	12.30	54	28.18	25.82	47.81	38	23.15	14.85	39.08

Table 3. Cont.

		chemical fertilizers kg				Seeds kg				Aera feddan			
				surplus or	surplus or			surplus or	surplus or			surplus or	surplus or
categories		actual	optimal	deficit	deficit%	actual	optimal	deficit	deficit%	actual	optimal	deficit	deficit%
first category	AV	434	238.3	195.7	45.092	9	8.4	0.6	6.67	2.5	1.47	1.03	41.20
	MAX	2700	1272	1428	52.889	16.5	0	16.5	100.00	3	2.5	0.5	16.67
	MIN	134	0	134	100.000	4	2	2	50.00	1	0.7	0.3	30.00
second category	AV	745	548.8	196.2	26.336	21	16	5	23.81	5.6	4.76	0.84	15.00
	MAX	938	772.6	165.4	17.633	31.5	26.8	4.7	14.92	7	6.92	0.08	1.14
	MIN	528	297.7	230.3	43.617	12	7	5	41.67	4	2.75	1.25	31.25
third category	AV	11778	938.7	239.1	20.301	35	29	6	17.14	9.2	7.36	1.84	20.00
	MAX	1320	1133.2	186.8	14.152	40.5	34.6	5.9	14.57	10	8.97	1.03	10.30
	MIN	1008	796.3	211.7	21.002	28	22.5	5.5	19.64	7	4.37	2.63	37.57
total	AV	763	569.3	193.7	25.387	21.48	16.89	4.59	21.37	5.4	4.15	1.25	23.15
	MAX	2700	2323.9	376.1	13.930	40.5	33.87	6.63	16.37	10	8.27	1.73	17.30
total	MIN	134	0	134	100.000	4	2	2	50.00	1	0.7	0.3	30.00

Source: calculated from questionnaire data 2012

Table 4. Compared to actual use and optimal use of the most important economic resources under variable return to scale for sugar beet crop in Sahl Al-Tina

categories		The amount of fertilizer m3				Number of machines work hours				Number of human labor man/day			
		actual	optimal	surplus or	surplus or	actual	optimal	surplus or	surplus or	actual	optimal	surplus or	surplus or
				deficit	deficit%			deficit	deficit%			deficit	deficit%
first category	AV	28	28	0	0.00	132	88	44	33.33	94	69.6	24.4	25.96
	MAX	45	34.75	10.25	22.78	180	94.78	85.22	47.34	132	109.5	22.5	17.05
	MIN	10	13.35	-3.35	-33.50	54	86.6	-32.6	-60.37	38	38	0	0.00
second category	AV	74	61.65	12.35	16.69	319	220.8	98.2	30.78	222	190.35	31.65	14.26
	MAX	98	82.6	15.4	15.71	420	745	-325	-77.38	287	267.5	19.5	6.79
	MIN	48	48	0	0.00	216	151.3	64.7	29.95	160	160	0	0.00
third category	AV	111	74.14	36.86	33.21	482	285.9	196.1	40.68	350	264.55	85.45	24.41
	MAX	150	100.25	49.75	33.17	540	577	-37	-6.85	420	288.13	131.87	31.40
	MIN	80	81	-1	-1.25	424	294.8	129.2	30.47	280	280	0	0.00
total category	AV	69.2	51.57	17.63	25.48	301.33	211	90.33	29.98	214.98	194.5	20.48	9.53
	MAX	150	100.05	49.95	33.30	540	334	206	38.15	420	288.22	131.78	31.38
	MIN	10	6.77	3.23	32.30	54	86.5	-32.5	-60.19	38	38	0	0.00

Table 4. Cont.

categories		chemical fertilizers kg				Seeds kg				Aera feddan			
		actual	optimal	surplus or		actual	optimal	surplus		actual	optimal	surplus	
				deficit	deficit%			or	or			or	or
first category	AV	434	192.36	241.64	55.677	9	7.8	1.2	13.33	2.2	1.9	0.3	13.64
	MAX	2700	932.5	1767.5	65.463	16.5	14.6	1.9	11.52	3	3	0	0.00
	MIN	134	0	134	100.000	4	4	0	0.00	1	1	0	0.00
second category	AV	745	637.73	107.27	14.399	21	15	6	28.57	5.6	4.8	0.8	14.29
	MAX	938	938	0	0.000	31.5	31.6	-0.1	-0.32	7	7	0	0.00
	MIN	528	528	0	0.000	12	12	0	0.00	4	4	0	0.00
third category	AV	1177.8	998.9	178.9	15.189	35	29	6	17.14	9.2	9.3	-0.1	-1.09
	MAX	1320	1131.34	188.66	14.292	40.5	33.7	6.8	16.79	10	8.67	1.33	13.30
	MIN	1008	1008	0	0.000	28	28	0	0.00	7	7	0	0.00
total	AV	763	605.7	157.3	20.616	21.48	17.48	4	18.62	5.4	4.96	0.44	8.15
	MAX	2700	2312.9	387.1	14.337	40.5	33.67	6.83	16.86	10	8.67	1.33	13.30
	MIN	134	0	134	100.000	4	4	0	0.00	1	1	0	0.00

Source: calculated from questionnaire data 2012.