

Table (21): Effect of irrigation level on some physical characteristics of tomato fruits in 1988 and 1989.

Irrigation level	Average fruit weight g./fruit	Early summer season (average of two years)					Juice (%)
		Fruit length (cm)	Fruit diameter (cm)	No. of locules/fruit	Flesh thickness (cm)		
High (80-90% F.C.)	76.75	5.15	6.22	5.68	0.52	91.67	
Medium (70-80% F.C.)	76.71	5.16	6.12	5.49	0.48	91.41	
Low (60-70% F.C.)	80.80	5.02	6.04	5.53	0.48	90.82	
L.S.D. at 5%	1.78	N.S.	N.S.	N.S.	N.S.	N.S.	
Fall season (average of two years)							
High (80-90% F.C.)	48.92	3.83	3.92	5.44	0.46	91.29	
Medium (70-80% F.C.)	47.69	3.72	3.84	5.51	0.49	91.21	
Low (60-70% F.C.)	47.79	3.50	3.63	5.44	0.45	90.30	
L.S.D. at 5%	0.76	0.13	0.11	N.S.	N.S.	N.S.	

Moreover, the favourable effect of the high irrigation level on fruit weight may be also attributed to the increase in nutrients absorption and metabolic activities as mentioned by Abdelhafeez et al. (1975), Snyder and Buerl (1985), Rudich and Luchinsky (1986). The accumulation and translocation of metabolites showed to be also higher under conditions of well water supply (Ackerson et al., 1977; Rudich and Luchinsky, 1986).

Concerning fruit diameter and fruit length as affected by irrigation level, data in Table (21) showed that tomato fruits had a larger fruit size (average fruit weight, length and diameter) in the early summer season as compared with that of the fall season. Increasing level of irrigation from low up to medium or high level significantly improved fruit dimensions in the fall season. Although the same trend was noticed in the early summer season but variances failed to reach the level of significance.

Results also showed that number of locules per fruit, flesh thickness and Juice % were not significantly affected by irrigation level, as shown in both seasons. This result means that those characteristics of tomato fruit are mainly controlled by genetical factors due to the cultivar itself as shown in Table (22). Added to that, fruit water content and juice % were less affected by irrigation level especially

that all used levels of irrigation are still quite enough to supply tomato plants with adequate requirements. This may be also due to that plants give the periority of water supply to fruit tissues under conditions of water stress. (Atherton and Rudich, 1986).

4.4.2.2. Effect of cultivar on physical characteristics of tomato fruits:

Data presented in Table (22) show that all studied physical characteristics of tomato fruit were significantly differed due to cultivar. Average fruit weight was considerably affected by cultivar, were it is evident that; cv. AceVF₅₅ recorded the heveist fruit weight followed by cvs. Super Marmand and UC-97-3, whereas, the lowest fruit weight was recorded by cv. Strain-B, as shown in both seasons. This result could be referred to the size of fruits of cv. AceVF₅₅ which showed the highest values of fruit diameter and length as compared with the other tested cultivars.

Concerning the fruit dimensions, as affected by cultivar, results showed the same trend of average fruit weight whereas cv. AceVF₅₅ had a globular fruit shape with a larger fruit length and diameter, followed by cv. Super Marmand which had a flat fruit shape followed by cvs. UC-97-3 and strain-B which had a long date shape with the lowest values of fruit length and diameter.

Table (22): Effect of cultivar on some physical characteristics of tomato fruits in 1988 and 1989.

Cultivar	Average fruit weight g./fruit	Fruit length (cm)	Fruit diameter (cm)	No. of locules/ fruit	Flesh thickness (cm)	Juice (%)
Early summer season (average of two years)						
UC-97-3	64.75	5.34	5.75	4.08	0.68	87.92
Strain B	60.08	5.30	5.18	3.92	0.42	90.39
Ace VF 55	100.98	5.47	7.23	5.57	0.49	95.08
Super marmand	86.52	4.31	6.35	8.61	0.38	91.81
L.S.D. at 5%	1.99	0.36	0.17	0.44	0.04	0.90
Fall season (average of two years)						
UC-97-3	39.98	3.84	3.65	4.10	0.63	87.34
Strain B	35.43	3.54	3.42	3.71	0.38	89.71
Ace VF 55	63.75	4.02	4.19	5.52	0.42	94.16
Super marmand	53.35	3.32	3.93	8.53	0.34	92.41
L.S.D. at 5%	1.23	0.15	0.18	0.39	0.02	0.79