

Supplementary Information:**Table S1. Average temperature and rainfall recorded each month across growing season during 2018 and 2019**

Month	Temperature (°C)		Rainfall (Inch)	
	2018	2019	2018	2019
May	19.3	18.1	2.20	2.76
June	22.9	23.3	5.43	6.30
July	24.1	24.0	2.95	2.36
August	24.9	25.4	0.79	0.24
September	19.8	19.7	0.55	0.79

Table S2. Soil content details of the experimental field

Parameter	Unit	Measured Content
pH		6.7 - 6.9
Electrical Conductivity (EC)	mS cm ⁻¹	0.07 - 0.10
NO₃	mg dm ³	5.0 - 25.0
P	mg dm ³	8.1 - 12.1
K	mg dm ³	16.6 - 38.2
Ca	mg dm ³	8.0 - 16.0
Mg	mg dm ³	7.2 - 9.6
Total Nitrogen	%	0.08 - 0.10
Organic Matter (OM)	%	4.3 - 5.0

Table S3. Evaluation of productivity and plant traits according to varietal type

Descriptors	Plant height (cm)	Stem height (cm)	Branches (number)	Productivity (kg/plant)
<i>Corniforme</i>				
Max	95.00	40.00	3.00	0.67
Min	55.00	15.00	2.00	0.28
Average	75.42	25.25	2.42	0.50
SD	13.39	7.56	0.51	0.15
<i>Dolma (Blocky)</i>				
Max	105.00	40.00	4.00	1.24
Min	45.00	15.00	2.00	0.27
Average	80.17	22.58	2.80	0.58
SD	15.07	6.14	0.51	0.25
<i>Ratund (Pumpkin Shape)</i>				
Max	110.00	40.00	4.00	1.04
Min	45.00	10.00	2.00	0.34
Average	76.15	21.82	2.76	0.60
SD	12.72	5.43	0.54	0.17
<i>Kapia</i>				
Max	110.00	40.00	4.00	1.22
Min	45.00	10.00	2.00	0.24
Average	71.90	25.06	2.79	0.59
SD	14.33	5.78	0.47	0.19
<i>All</i>				
Max	110.00	40.00	4.00	1.24
Min	45.00	10.00	2.00	0.24
Average	75.65	23.25	2.76	0.59
SD	14.44	5.98	0.51	0.20

Table S4. Evaluation of fruit traits according to varietal type

Descriptors	Length (cm)	Width (cm)	Wall thickness (mm)	Locules (number)	Weight (g)	Edible part (%)
<i>Corniforme</i>						
Max	27.50	2.50	2.98	3.00	42.90	90.38
Min	18.00	1.70	1.48	2.00	15.50	67.01
Average	22.67	2.12	2.09	2.17	29.29	84.98
SD	2.72	0.29	0.46	0.39	8.47	6.11
<i>Dolma (Blocky)</i>						
Max	9.70	7.60	6.14	5.00	139.90	92.21
Min	4.50	4.10	2.33	2.00	24.20	71.59
Average	7.41	6.23	3.76	3.35	83.60	85.34
SD	0.97	0.74	0.88	0.58	21.84	4.13
<i>Ratund (Pumpkin Shape)</i>						
Max	6.40	10.40	8.14	4.00	245.00	93.86
Min	2.00	5.60	2.67	2.00	53.50	69.36
Average	3.91	7.62	5.69	3.07	124.13	86.74
SD	1.00	1.02	1.09	0.53	36.67	4.57
<i>Kapia</i>						
Max	21.20	8.60	6.56	4.00	217.90	93.45
Min	9.10	4.00	1.59	2.00	56.20	71.69
Average	13.58	6.12	4.30	2.49	123.16	87.65
SD	2.02	1.19	1.04	0.55	37.70	3.58
<i>All</i>						
Max	27.50	10.40	8.14	5.00	245.00	93.86
Min	2.00	1.70	1.48	2.00	15.50	67.01
Average	8.86	6.53	4.60	2.90	109.64	86.63
SD	5.36	1.57	1.40	0.66	41.31	4.32

Table S5. Evaluation of biochemical traits according to varietal type

Descriptors	Dry matter (%)	TSS (Brix)	Antioxidant activity ($\mu\text{mol Fe}^{2+}/\text{g FW}$)	TP (mg GAE/100 g FW)
<i>Corniforme</i>				
Max	9.77	5.40	6.46	105.87
Min	8.15	3.90	2.92	46.43
Average	8.93	4.90	4.37	79.01
SD	0.53	0.55	1.34	25.92
<i>Dolma (Blocky)</i>				
Max	8.89	5.60	4.37	92.90
Min	5.96	3.60	1.41	40.98
Average	7.15	4.40	2.88	62.64
SD	0.65	0.47	0.76	15.72
<i>Ratund (Pumpkin Shape)</i>				
Max	12.34	10.50	18.69	257.61
Min	8.68	6.30	2.70	73.49
Average	10.09	7.82	9.59	164.27
SD	0.81	0.86	3.95	44.73
<i>Kapia</i>				
Max	12.55	10.20	12.72	196,76
Min	8.86	7.40	4.98	27.58
Average	10.68	8.63	7.75	133,72
SD	0.86	0.68	2.05	85,24
<i>All</i>				
Max	12.55	10.50	18.69	257.61
Min	5.96	3.60	1.41	40.98
Average	9.53	7.13	7.13	125.83
SD	1.59	1.86	3.82	52.32

Table S6. Evaluation of insect pest infestation according to a varietal type

Descriptors	Pests					
	Green peach aphid		Thrips		Cotton bollworm	
	Damaged plants (%)	Degree of infestation	Damaged plants (%)	Degree of infestation	Damaged plants (%)	Damaged fruits (%)
<i>Corniforme</i>						
Max	0.00	0.00	55.00	2.00	6.90	10.00
Min	0.00	0.00	6.90	0.83	5.00	3.33
Average	0.00	0.00	30.95	1.42	5.95	6.67
SD	0.00	0.00	34.01	0.83	1.34	4.72
<i>Dolma (Blocky)</i>						
Max	16.00	1.00	56.67	2.00	31.25	23.33
Min	0.00	0.00	8.00	0.83	6.67	0.00
Average	3.51	0.33	33.77	1.17	14.89	11.67
SD	5.04	0.47	22.25	0.36	7.12	7.07
<i>Ratund (Pumpkin Shape)</i>						
Max	5.00	0.33	61.67	1.33	18.18	60.00
Min	0.00	0.00	10.53	0.83	0.00	0.00
Average	0.83	0.04	36.82	1.03	9.75	12.92
SD	1.72	0.10	20.11	0.11	4.54	13.87
<i>Kapia</i>						
Max	6.67	1.00	65.00	2.00	20.00	13.33
Min	0.00	0.00	9.68	0.50	6.45	0.00
Average	1.95	0.23	30.06	1.20	10.01	8.21
SD	2.38	0.35	18.62	0.49	4.42	4.21

Figure S1. PCA variance plot depicting variance contributed by each principal component. Blue line depicts the cumulative variance whereas red line discerns variance contributed by each principal component.

