

Current forecast update (variation regarding the May forecast):

September, 11 2023

Total orange crop production forecast: 309.34 million boxes (unchanged)

Hamlin, Westin and Rubi: 58.09 million boxes (increased of 3.5%)

Other early season: 18.51 million boxes (increased of 1.6%)

Pera Rio: 96.68 million boxes (decreased of 2.3%)

Valencia and Valencia Folha Murcha: 105.23 million boxes (unchanged)

Natal: 30.83 million boxes (unchanged)

Publication Schedule 2023-2024

2nd Crop forecast update: December 11, 2023

3rd Crop forecast update: February 09, 2024

Final crop forecast: April 10, 2024

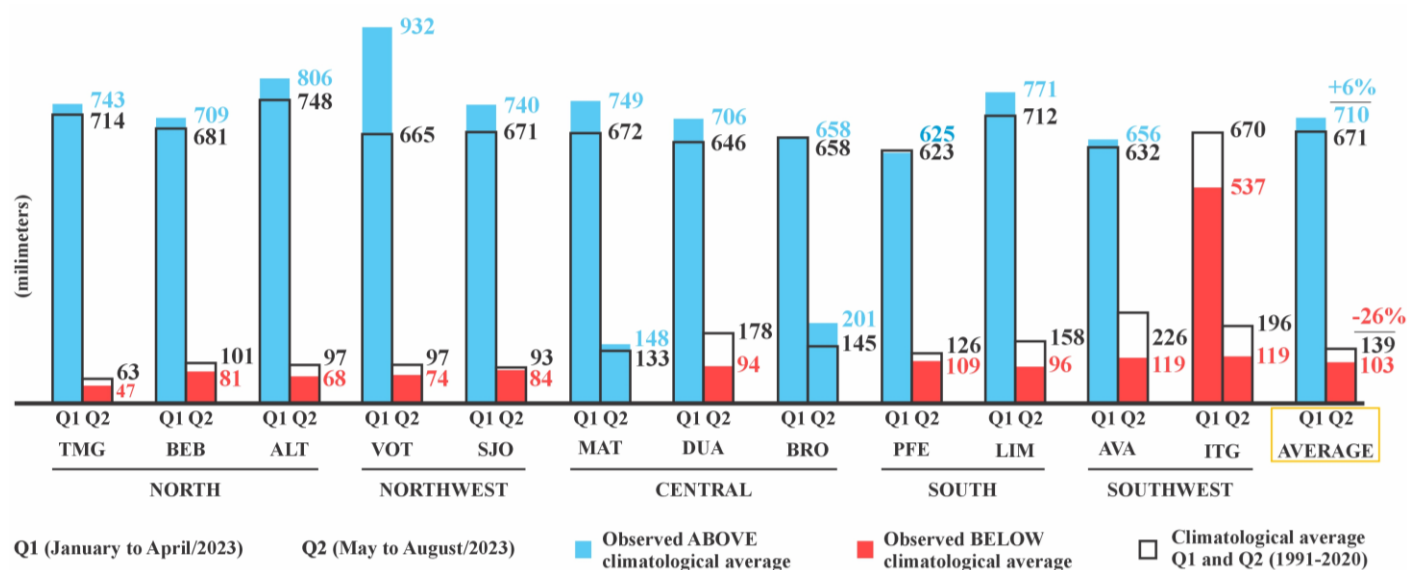
Table 1 – Orange crop forecast update by sector and variety group – citrus belt

Month	Forecast components				Crop forecast 2023-2024			Crop forecast update 2023-2024		
	May/2023 and September/2023 (strike-through values were presented in May, to their left are their respective values updated in September)				May/2023			September/2023		
	Bearing trees	Fruit per tree at stripping	Fruit estimated per box	Estimated drop rate	Per tree	Per hectare	Total	Per tree	Per hectare	Total
Sector and variety group	(1,000 trees)	(number)	(number)	(percentage)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
CITRUS BELT										
Hamlin, Westin and Rubi....	25,716.04	828	293 304	10.80 10.50	2.18	1,012	56.11	2.26	1,047	58.09
Other early.....	9,866.33	597	251 253	12.00 12.60	1.85	971	18.22	1.88	987	18.51
Pera Rio.....	61,508.67	563	249 243	22.50	1.61	848	98.95	1.57	829	96.68
Valencia and Folha Murcha	53,648.92	653	222	25.50	1.96	970	105.23	1.96	970	105.23
Natal.....	18,551.19	573	227	26.50	1.66	818	30.83	1.66	818	30.83
Total.....	169,291.15	635	247	21.00	1.83	918	309.34	1.83	918	309.34
NORTH SECTOR										
Hamlin, Westin and Rubi....	6,503.91	1,005	289 306	7.30 9.50	2.66	1,149	17.33	2.88	1,242	18.74
Other early.....	2,191.81	779	246 249	9.00	2.55	1,378	5.59	2.58	1,395	5.66
Pera Rio.....	13,535.28	592	242 240	19.50	1.78	947	24.07	1.76	939	23.86
Valencia and Folha Murcha	12,926.93	798	214	22.90	2.58	1,187	33.33	2.58	1,187	33.33
Natal.....	3,774.50	655	219	23.90	2.04	932	7.69	2.04	932	7.69
Subtotal.....	38,932.43	746	241 244	17.70 18.20	2.26	1,088	88.01	2.29	1,104	89.28
NORTHWEST SECTOR										
Hamlin, Westin and Rubi....	1,994.68	582	276 301	7.30 13.80	1.49	711	2.98	1.75	833	3.49
Other early.....	1,718.19	414	244 250	15.80 18.00	1.22	643	2.09	1.28	677	2.20
Pera Rio.....	6,669.81	611	242 249	17.50	1.81	833	12.09	1.87	858	12.44
Valencia and Folha Murcha	3,058.93	725	229	29.50	2.00	993	6.12	2.00	993	6.12
Natal.....	1,556.98	508	246	28.90	1.32	633	2.05	1.32	633	2.05
Subtotal.....	14,998.59	597	244 251	20.00 21.00	1.69	808	25.33	1.75	839	26.30
CENTRAL SECTOR										
Hamlin, Westin and Rubi....	6,606.99	747	289 301	9.80 11.60	1.97	977	12.99	2.08	1,036	13.77
Other early.....	3,473.28	677	247 250	13.00 13.90	2.09	1,089	7.25	2.14	1,114	7.42
Pera Rio.....	17,927.80	570	248 246	25.20	1.55	847	27.85	1.54	840	27.61
Valencia and Folha Murcha	15,036.66	574	226	26.60	1.67	870	25.12	1.67	870	25.12
Natal.....	4,631.97	567	235	23.10	1.66	813	7.69	1.66	813	7.69
Subtotal.....	47,676.70	603	247 249	21.80 22.20	1.70	887	80.90	1.71	895	81.61
SOUTH SECTOR										
Hamlin, Westin and Rubi....	4,966.73	855	302 309	17.60 12.10	2.18	1,024	10.83	2.09	979	10.36
Other early.....	542.68	342	274 264	17.00 22.50	0.90	433	0.49	0.92	442	0.50
Pera Rio.....	11,764.73	530	255 251	23.60	1.45	763	17.01	1.42	751	16.73
Valencia and Folha Murcha	9,592.07	732	230	26.40	2.10	971	20.14	2.10	971	20.14
Natal.....	2,585.87	539	237	28.50	1.45	728	3.76	1.45	728	3.76
Subtotal.....	29,452.08	648	255	23.60 22.40	1.77	872	52.23	1.75	859	51.49
SOUTHWEST SECTOR										
Hamlin, Westin and Rubi....	5,643.73	781	298 302	11.40 8.50	2.12	973	11.98	2.08	953	11.73
Other early.....	1,940.37	481	272 269	11.20 9.80	1.44	764	2.80	1.41	745	2.73
Pera Rio.....	11,611.05	526	259 232	23.90	1.54	831	17.93	1.38	743	16.04
Valencia and Folha Murcha	13,034.33	524	221	26.00	1.57	833	20.52	1.57	833	20.52
Natal.....	6,001.87	558	219	29.60	1.61	834	9.64	1.61	834	9.64
Subtotal.....	38,231.35	566	249 242	22.40 21.70	1.64	852	62.87	1.59	822	60.66

Total forecasted production of oranges¹ is maintained at 309.34 million boxes

The first update of the 2023-2024 orange crop forecast for the São Paulo and West-Southwest Minas Gerais citrus belt, published on September 11, 2023 by Fundecitrus, carried out in cooperation with Markestrat, and full professors from FEA-RP / USP and FCAV / Unesp², confirms the initial projection from May 2023, maintaining the estimated volume of 309.34 million boxes of 40.8 kg (90-lb boxes). Of this total production, approximately 27.44 million boxes are expected to be harvested in the Triângulo Mineiro region.

From January to April 2023, before the release of the crop forecast, rainfall was very frequent, reaching significant volumes that totaled 710 millimeters on average in the citrus belt, exceeding by 6% the climatological average (1991-2020). However, from May to August, with the arrival of the dry season, precipitation became scarce, accumulating only 103 millimeters, which resulted in a negative anomaly of 36 millimeters, 26% below the average for the period. These positive fluctuations in the first four months of the year and negative in the subsequent four months show that the irregular distribution of rainfall has intensified this year. However, the total volume of precipitation, which has reached 813 millimeters so far in 2023, equates to the climatological average, representing a variation of only 0.35%. Graph 1 shows the average rainfall in all regions of the citrus belt totaled in the period from January to April and from May to August 2023. Rainfall data were provided by Climatempo and are presented in Graph 1.



Graph 1 – Accumulated rainfall from January to April and from May to August 2023

Source: Fundecitrus, according to data from Climatempo Meteorologia

Abundant rains in the first four months of this year and milder temperatures made it possible to maintain soil moisture at satisfactory levels during the harvest period of early varieties. Consequently, the fruits harvested from these varieties had an average weight higher than the projections made in May, which justifies the positive revision of the estimate of these varieties. However, the scarcity of rainfall, which was below the historical average during the months of May to August, signals a negative impact on the development of the fruits of the Pera variety, making it necessary to slightly decrease the projected average weight of these fruits. An additional aspect that corroborates this review is the fact that the harvest of oranges of the Pera variety is much earlier this year, compared to the same period of the previous year. This means that a significant portion of the Pera crop will have already been harvested before the arrival of the voluminous rains predicted for spring, and this portion will not benefit from these precipitations for fruit filling. Based on this scenario, the decrease in the forecasted production of the Pera variety is being compensated by the increase in the production of early ones, which keeps the forecasted total value of the crop unchanged.

The average fruit size of Hamlin, Westin and Rubi varieties projected at 304 fruits per box (134 grams/4.73 oz per fruit) in May 2023 is revised to 293 fruits per box (139 grams/4.90 oz per fruit). Oranges of the other early varieties go from 253 fruits per box (161 grams/5.68 oz per fruit) to 251 fruits per box (163 grams/5.75 per fruit). Laranja Pera that was estimated at 243 fruits per box (168 grams/5.93 oz per fruit) now goes to 249 fruits per box (164 grams/5.78 oz per fruit). The fruit sizes of the other late varieties were not changed in this forecast because the available data of these varieties are still insufficient due to the low volume harvested so far. Considering all varieties, the average fruit size remains the same in relation to the projection made in May 2023, which is 247 fruits to compose a 40.8 kg box. This is equivalent to oranges of 165 grams/5.82 oz, weight slightly above the average of the last 10 years, which is 163 grams/5.75 oz. The sizes by sector and variety are shown in Table 2.

Table 2 – Average fruit sizes by sector and variety¹

Group of varieties	Sector					
	(hatched values were presented in May and their respective values updated in September are on the left)					
	North	Northwest	Central	South	Southwest	Total
	(Fruits per box)	(Fruits per box)	(Fruits per box)	(Fruits per box)	(Fruits per box)	(Fruits per box)
Hamlin, Westin and Rubi.....	289 306	276 301	289 301	302 309	298 302	293 304
Other earlies.....	246 249	244 250	247 250	274 264	272 269	251 253
Pera Rio.....	242 240	242 249	248 246	255 251	259 232	249 243
Valencia and V. Folha Murcha...	214	229	226	230	221	222
Natal.....	219	246	235	237	219	227
Total.....	241 244	244 251	247 249	255	249 242	247

¹ The precision of the overall average of the citrus belt is higher than that of the sectors, ages or variety groups, due to the larger sample size.

The projection of the fruit drop rate is maintained at 21.0%, on average, considering all varieties. In the distribution of the drop rate among the varieties, that of Hamlin, Westin and Rubi rose to 10,80% (+0,30 percentage points compared to the projected in May of this year) and of the other early varieties passes to 12,00% (- 0,60 percentage points). The rates of the remaining varieties remain unchanged. The drop rates by sector and variety are presented in Table 3.

Table 3 – Average drop rates by sector and variety¹

Group of varieties	Sector					
	(hatched values were presented in May and their respective values updated in September are on the left)					
	North	Northwest	Central	South	Southwest	Total
	(percentual)	(percentual)	(percentual)	(percentual)	(percentual)	(percentual)
Hamlin, Westin and Rubi.....	7.30 9.50	7.30 13.80	9.80 11.60	17.60 12.10	11.40 8.50	10.80 10.50
Other earlies.....	9.00	15.80 18.00	13.00 13.90	17.00 22.50	11.20 9.80	12.00 12.60
Pera Rio.....	19.50	17.50	25.20	23.60	23.90	22.50
Valencia and V. Folha Murcha....	22.90	29.50	26.60	26.40	26.00	25.50
Natal.....	23.90	28.90	23.10	28.50	29.60	26.50
Total.....	17.70 18.20	20.00 21.00	21.80 22.20	23.60 22.40	22.40 21.70	21.00

¹ The precision of the overall average of the citrus belt is higher than that of the sectors, ages or variety groups, due to the larger sample size.

The harvest reached 37% of production in mid-August, showing a faster pace compared to the previous year, which, at this time, was at 30%. The harvest of the early Hamlin, Westin and Rubi varieties reached 95%, while that of the other early varieties reached 86%. The Pera Rio variety is the one that is the most advanced and already adds 33%, compared to 21% last year. The late varieties, Valencia and Valencia Folha Murcha, are at 4%, while the Natal variety records 5% harvest.

The method used for the update is the same adopted in the previous crop season. Information was obtained from the monitoring survey started in May on 1,200 plots that are no longer visited when fruit harvest is complete. Other data used in this study is size of fruit received throughout the crop season by orange juice companies associated to Fundecitrus – Citrosuco, Cutrale and Louis Dreyfus – for industrial processing. Each processing company supplies individual data under confidentiality to the independent consulting firm for the calculation of the average size of processed fruit.

¹ Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Alvorada, Pera Rio, Valencia, Valencia Folha Murcha and Natal.

² Department of math and science, FCAV/Unesp Jaboticabal Campus.