



**Current forecast update (variation regarding the May forecast):**  
**Total orange crop production forecast: 314.09 million boxes (decreased of 0.9%)**  
**Hamlin, Westin and Rubi: 57.10 million boxes (decreased of 4.0%)**  
**Other early season: 17.04 million boxes (decreased of 2.7%)**  
**Pera Rio: 93.95 million boxes (unchanged)**  
**Valencia and Valencia Folha Murcha: 106.78 million boxes (unchanged)**  
**Natal: 39.22 million boxes (unchanged)**

September, 12 2022

Publication Schedule 2022-2023	
2 <sup>nd</sup> Crop forecast update:	December 12, 2022
3 <sup>rd</sup> Crop forecast update:	February 10, 2023
Final crop forecast:	April 10, 2023

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

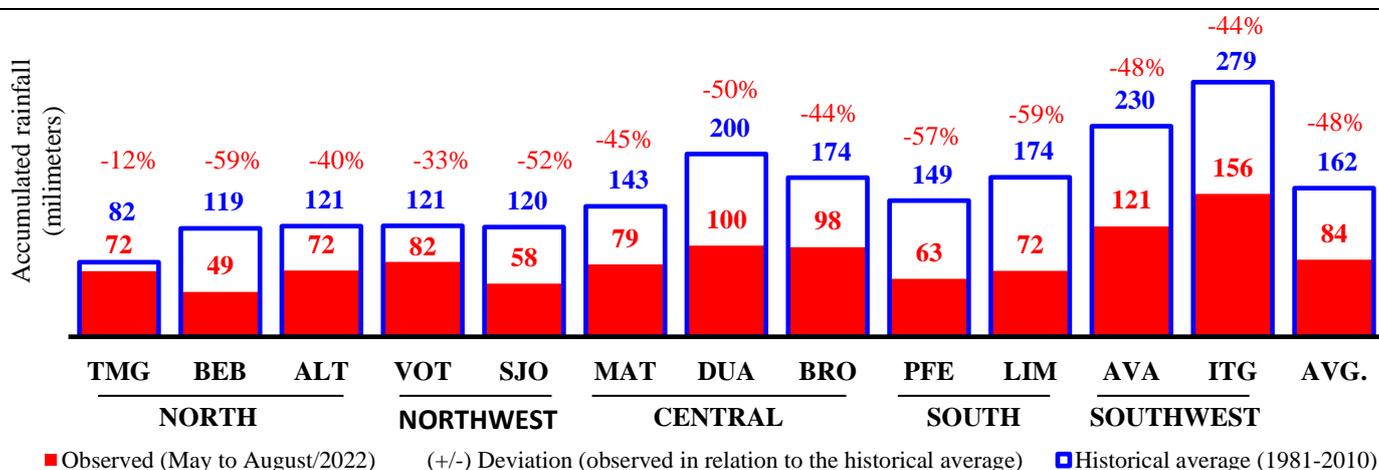
Month	Forecast components				Crop forecast 2022-2023			Crop forecast update 2022-2023		
	May/2022 and September/2022 (strike-through values were presented in May, to their left are their respective values updated in September)				May/2022			September/2022		
	Bearing trees	Fruit per tree at stripping	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)
<b>CITRUS BELT</b>										
Hamlin, Westin and Rubi....	26,151	859	311 <del>300</del>	10.80 <del>11.50</del>	2.27	1,047	59.48	2.18	1,005	57.10
Other early.....	9,044	638	267 <del>260</del>	11.00 <del>12.00</del>	2.88	971	17.52	1.88	945	17.04
Pera Rio.....	62,037	560	260	21.70	1.51	791	93.95	1.51	791	93.95
Valencia and Folha Murcha	53,741	686	237	23.50	1.99	955	106.78	1.99	955	106.78
Natal.....	18,999	722	240	23.50	2.06	1,006	39.22	2.06	1,006	39.22
<b>Total.....</b>	<b>169,972</b>	<b>668</b>	<b>261 <del>258</del></b>	<b>19.80 <del>20.00</del></b>	<b>1.86</b>	<b>920</b>	<b>316.95</b>	<b>1.85</b>	<b>912</b>	<b>314.09</b>
<b>NORTH SECTOR</b>										
Hamlin, Westin and Rubi....	6,891	744	304	9.80 <del>10.70</del>	1.96	852	13.5	1.96	852	13.49
Other early.....	1,887	726	268 <del>253</del>	7.20 <del>9.40</del>	2.27	1,022	4.28	2.18	981	4.11
Pera Rio.....	12,908	705	249	18.10	1.41	741	18.26	1.41	741	18.26
Valencia and Folha Murcha	13,428	481	224	21.80	1.91	887	25.64	1.91	887	25.64
Natal.....	4,069	609	229	21.00	2.25	1,002	9.15	2.25	1,002	9.15
<b>Subtotal.....</b>	<b>39,183</b>	<b>607</b>	<b>251 <del>247</del></b>	<b>17.30 <del>17.70</del></b>	<b>1.81</b>	<b>856</b>	<b>70.83</b>	<b>1.80</b>	<b>854</b>	<b>70.65</b>
<b>NORTHWEST SECTOR</b>										
Hamlin, Westin and Rubi....	2,060	680	332 <del>291</del>	15.50 <del>13.00</del>	1.83	811	3.76	1.54	683	3.17
Other early.....	1,733	725	279 <del>257</del>	9.20 <del>17.00</del>	1.57	856	2.72	1.57	856	2.72
Pera Rio.....	7,289	540	244	16.80	1.88	846	13.72	1.88	846	13.72
Valencia and Folha Murcha	3,142	617	236	27.00	1.75	845	5.51	1.75	845	5.51
Natal.....	1,497	631	255	24.70	1.92	876	2.88	1.92	876	2.88
<b>Subtotal.....</b>	<b>15,721</b>	<b>630</b>	<b>259 <del>250</del></b>	<b>18.80 <del>19.20</del></b>	<b>1.82</b>	<b>845</b>	<b>28.59</b>	<b>1.78</b>	<b>827</b>	<b>28.00</b>
<b>CENTRAL SECTOR</b>										
Hamlin, Westin and Rubi....	6,951	886	302 <del>294</del>	11.10 <del>12.50</del>	2.37	1,136	16.44	2.31	1,111	16.08
Other early.....	3,046	625	253 <del>257</del>	10.40 <del>13.80</del>	2.02	980	6.15	2.12	1,028	6.45
Pera Rio.....	18,673	670	274	23.80	1.31	713	24.46	1.31	713	24.46
Valencia and Folha Murcha	14,585	526	249	25.40	1.65	814	24.11	1.65	814	24.11
Natal.....	4,484	614	239	22.50	1.82	881	8.16	1.82	881	8.16
<b>Subtotal.....</b>	<b>47,739</b>	<b>624</b>	<b>267 <del>265</del></b>	<b>20.60 <del>21.10</del></b>	<b>1.66</b>	<b>844</b>	<b>79.32</b>	<b>1.66</b>	<b>844</b>	<b>79.26</b>
<b>SOUTH SECTOR</b>										
Hamlin, Westin and Rubi....	4,802	932	326 <del>304</del>	11.30 <del>13.60</del>	2.38	1,115	11.41	2.25	1,055	10.80
Other early.....	477	895	304 <del>265</del>	18.20 <del>20.00</del>	1.66	741	0.79	1.47	657	0.70
Pera Rio.....	12,219	611	265	26.40	1.59	821	19.46	1.59	821	19.46
Valencia and Folha Murcha	9,934	641	247	27.90	2.17	963	21.54	2.17	963	21.54
Natal.....	2,956	827	253	29.80	2.23	1,152	6.59	2.23	1,152	6.59
<b>Subtotal.....</b>	<b>30,388</b>	<b>772</b>	<b>269 <del>263</del></b>	<b>24.30 <del>24.80</del></b>	<b>1.97</b>	<b>948</b>	<b>59.79</b>	<b>1.94</b>	<b>937</b>	<b>59.09</b>
<b>SOUTHWEST SECTOR</b>										
Hamlin, Westin and Rubi....	5,447	975	314 <del>302</del>	9.70 <del>8.90</del>	2.64	1,235	14.37	2.49	1,165	13.56
Other early.....	1,901	705	287 <del>276</del>	16.00 <del>6.00</del>	1.88	1,076	3.58	1.61	920	3.06
Pera Rio.....	10,949	614	255	19.70	1.65	907	18.05	1.65	907	18.05
Valencia and Folha Murcha	12,652	585	232	18.70	2.37	1,232	29.98	2.37	1,232	29.98
Natal.....	5,992	753	239	21.50	2.08	1,073	12.44	2.08	1,073	12.44
<b>Subtotal.....</b>	<b>36,941</b>	<b>721</b>	<b>257 <del>252</del></b>	<b>17.50 <del>16.90</del></b>	<b>2.12</b>	<b>1,107</b>	<b>78.42</b>	<b>2.09</b>	<b>1,089</b>	<b>77.09</b>



### Updated orange<sup>1</sup> production forecast totals 314.09 million boxes

The first 2022-2023 orange crop forecast update for the São Paulo and West-Southwest Minas Gerais citrus belt published on September 12, 2022, by Fundecitrus – performed in cooperation with Markestrat, FEA-RP/USP and FCAV/Unesp<sup>2</sup> –, is 314.09 million boxes of 40.8 kg each. That figure represents a decrease of 2.86 million boxes in relation to the initial estimate published in May this year and corresponds to -0.9%. Approximately 22.97 million boxes of the total crop are expected to be produced in the Triângulo Mineiro.

The reason for that reduction is the low rainfall volume in the last months. Although the current scenario is more favorable in comparison to last year's, due to a higher precipitation index and a better rainfall distribution, the volume was well below historical average. According to data from Somar/Climatempo, the average rainfall in the citrus belt accumulated from May to August 2022 was 84 millimeters, which is 48% below the climatological normal (1981-2010). A drier- and hotter-than-normal weather was observed in all regions in that period. Rains in the four first crop months totaled 49 millimeters in Bebedouro (-59% in relation to the historical average), 58 millimeters (-52%) in São José do Rio Preto, 63 millimeters (-57%) in Porto Ferreira, 72 millimeters (-12%) in the Triângulo Mineiro, 72 millimeters (-59%) in Limeira, 72 millimeters (-40%) in Altinópolis, 79 millimeters (-45%) in Matão, 82 millimeters (-33%) in Votuporanga, 98 millimeters (-44%) in Brotas, 100 millimeters (-50%) in Duartina, 121 millimeters (-48%) in Avaré, and 156 millimeters (-44%) in Itapetininga, as shown in Graph 1.



**Graph 1 – Accumulated rainfall from May to August 2022 (observed and historical averages) in the citrus belt regions**  
Source: Fundecitrus, according to data from Somar/Climatempo Meteorologia.

The lower rainfall volume affected fruit growth, as seen in the harvest of early orange varieties. The average fruit weight for the Hamlin, Westin and Rubi varieties projected at 300 fruits per box (136 grams/4.80 oz per fruit) in May 2022 is updated to 311 fruits per box (131 grams/4.62 oz per fruit). The weight of oranges of other early varieties is updated from 260 fruits per box (157 grams/5.54 oz per fruit) to 267 fruits per box (153 grams/5.40 per fruit). Fruit size for the other varieties remains unchanged in this update because the data available for those varieties are still insufficient due to the low volume of fruit harvested so far. All varieties considered, the projected average size in May 2022, of 258 fruits to fill a 40.8 kg box, in that oranges had an average weight of 158 grams or 5.57 oz, is updated to 261 fruits per box, with a weight of 156 grams/5.50 oz per fruit, equaling the average weight observed in the last five crop seasons. Fruit sizes per sector and variety are presented on Table 2.

**Table 2 – Average fruit sizes by sector and variety<sup>1</sup>**

Group of varieties	Sector					
	North	Northwest	Central	South	Southwest	Total
	(Fruits per box)					
Hamlin, Westin and Rubi.....	304	332 <del>291</del>	302 <del>294</del>	326 <del>304</del>	314 <del>302</del>	<b>311</b> <del>300</del>
Other earlies.....	268 <del>253</del>	279 <del>257</del>	253 <del>257</del>	304 <del>265</del>	287 <del>276</del>	<b>267</b> <del>260</del>
Pera Rio.....	249	244	274	265	255	<b>260</b>
Valencia and V. Folha Murcha...	224	236	249	247	232	<b>237</b>
Natal.....	229	255	239	253	239	<b>240</b>
<b>Total.....</b>	<b>251</b> <del>247</del>	<b>259</b> <del>250</del>	<b>267</b> <del>265</del>	<b>269</b> <del>263</del>	<b>257</b> <del>252</del>	<b>261</b> <del>258</del>

<sup>1</sup> 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 projected fruit drop rate decreases from 20.0% to 19.80% in average, all varieties considered. The drop rate distributed among varieties shows an updated 10.80% (-0.70 percentage point in relation to the projection in May this year) for Hamlin, Westin and Rubi, and 11.00% (- 1.00 percentage point for other early varieties). Drop rate for the other varieties remain unchanged due to the low volume of fruit harvested. Drop rates per sector and variety are presented on Table 3.

**Table 3 – Average drop rates by sector and variety<sup>1</sup>**

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.....	9.80 <del>10.70</del>	15.50 <del>13.00</del>	11.10 <del>12.50</del>	11.30 <del>13.60</del>	9.70 <del>8.90</del>	<b>10.80</b> <del>11.50</del>
Other earlies.....	7.20 <del>9.40</del>	9.20 <del>17.00</del>	10.40 <del>13.80</del>	18.20 <del>20.00</del>	16.00 <del>6.00</del>	<b>11.00</b> <del>12.00</del>
Pera Rio.....	18.10	16.80	23.80	26.40	19.70	<b>21.70</b>
Valencia and V. Folha Murcha....	21.80	27.00	25.40	27.90	18.70	<b>23.50</b>
Natal.....	21.00	24.70	22.50	29.80	21.50	<b>23.50</b>
<b>Total.....</b>	<b>17.30</b> <del>17.70</del>	<b>18.80</b> <del>19.20</del>	<b>20.60</b> <del>21.10</del>	<b>24.30</b> <del>24.80</del>	<b>17.50</b> <del>16.90</del>	<b>19.80</b> <del>20.00</del>

<sup>1</sup> 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.

Field survey data show that harvest started later in this crop season due to the higher concentration of fruit from the second bloom and only picked up in mid-June. In August, harvest reached 30% completion. Harvest of the early varieties Hamlin, Westin and Rubi reached 88% completion. Harvest completion is 76% for the other earlies, 21% for Pera Rio, 3% for Valencia and Valencia Folha Murcha, and 2% for Natal.

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.

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

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