



Current forecast update (variation regarding the September forecast):  
 Total orange crop production forecast: 264.14 million boxes (decreased of 1.39%)  
 Hamlin, Westin and Rubi: 47.16 million boxes (increased of 0.70%)  
 Other early season: 14.85 million boxes (increased of 0.81%)  
 Pera Rio: 74.87 million boxes (decreased of 4.05%)  
 Valencia and Valencia Folha Murcha: 97.26 million boxes (decreased of 0.28%)  
 Natal: 30.00 million boxes (decreased of 2.44%)

December, 10 2021

**Publication Schedule 2021-2022**

3<sup>rd</sup> Crop forecast update: February 10, 2022  
 Final crop forecast: April 11, 2022

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

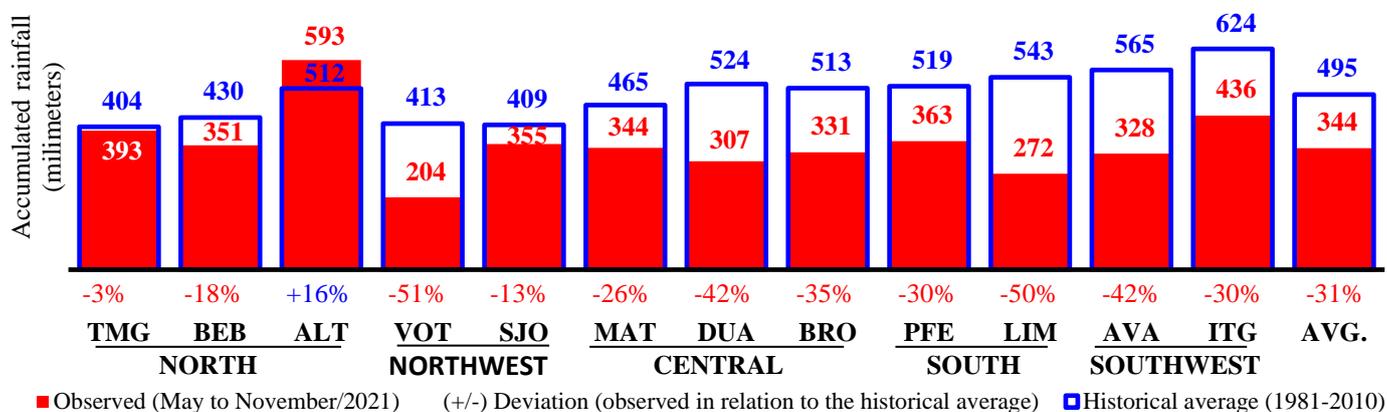
Month	Forecast components				Crop forecast update 2021-2021			Crop forecast update 2021-2021		
	September/2021 and December/2021 (strike-through values were presented in September, to their left are their respective values updated in December)				September/2021			December/2021		
Sector and variety group	Bearing trees	Fruit per tree at stripping	Fruit estimated per box	Estimated drop rate	Per tree	Per hectare	Total	Per tree	Per hectare	Total
	(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....	25,410	780	332 <del>334</del>	12.0	1.84	813	46.83	1.86	819	47.16
Other early.....	9,003	614	289 <del>291</del>	13.5	1.64	798	14.73	1.65	804	14.85
Pera Rio.....	59,147	531	290 <del>278</del>	23.0	1.32	681	78.03	1.27	654	74.87
Valencia and Folha Murcha	54,121	696	264 <del>263</del>	24.0	1.80	846	97.53	1.80	844	97.26
Natal.....	18,878	638	274 <del>267</del>	24.0	1.63	763	30.75	1.59	744	30.00
<b>Total.....</b>	<b>166,560</b>	<b>639</b>	<b>287 <del>283</del></b>	<b>20.9</b>	<b>1.61</b>	<b>774</b>	<b>267.87</b>	<b>1.59</b>	<b>763</b>	<b>264.14</b>
<b>NORTH SECTOR</b>										
Hamlin, Westin and Rubi....	6,620	826	332 <del>334</del>	12.0	1.95	803	12.92	1.97	808	13.01
Other early.....	2,088	770	289 <del>291</del>	13.5	2.05	1,013	4.28	2.07	1,022	4.32
Pera Rio.....	13,007	540	290 <del>278</del>	23.0	1.34	729	17.44	1.29	700	16.74
Valencia and Folha Murcha	13,637	765	264 <del>263</del>	24.0	1.98	896	27.04	1.98	893	26.96
Natal.....	4,313	635	274 <del>267</del>	24.0	1.62	732	6.99	1.58	714	6.82
<b>Subtotal.....</b>	<b>39,665</b>	<b>688</b>	<b>287 <del>283</del></b>	<b>20.9</b>	<b>1.73</b>	<b>818</b>	<b>68.67</b>	<b>1.71</b>	<b>808</b>	<b>67.85</b>
<b>NORTHWEST SECTOR</b>										
Hamlin, Westin and Rubi....	2,245	553	332 <del>334</del>	12.0	1.31	593	2.93	1.31	597	2.95
Other early.....	1,661	512	289 <del>291</del>	13.5	1.37	665	2.27	1.37	668	2.28
Pera Rio.....	6,697	604	290 <del>278</del>	23.0	1.50	689	10.04	1.44	661	9.63
Valencia and Folha Murcha	3,597	575	264 <del>263</del>	24.0	1.49	726	5.36	1.49	724	5.35
Natal.....	1,771	411	274 <del>267</del>	24.0	1.05	505	1.86	1.02	491	1.81
<b>Subtotal.....</b>	<b>15,971</b>	<b>559</b>	<b>287 <del>283</del></b>	<b>20.9</b>	<b>1.41</b>	<b>661</b>	<b>22.46</b>	<b>1.38</b>	<b>648</b>	<b>22.02</b>
<b>CENTRAL SECTOR</b>										
Hamlin, Westin and Rubi....	7,062	791	332 <del>334</del>	12.0	1.87	844	13.19	1.88	850	13.28
Other early.....	3,169	563	289 <del>291</del>	13.5	1.50	688	4.76	1.51	692	4.79
Pera Rio.....	17,647	485	290 <del>278</del>	23.0	1.21	627	21.27	1.16	601	20.41
Valencia and Folha Murcha	13,967	680	264 <del>263</del>	24.0	1.76	817	24.58	1.76	815	24.52
Natal.....	4,634	701	274 <del>267</del>	24.0	1.79	787	8.28	1.74	768	8.08
<b>Subtotal.....</b>	<b>46,479</b>	<b>617</b>	<b>287 <del>283</del></b>	<b>20.9</b>	<b>1.55</b>	<b>742</b>	<b>72.08</b>	<b>1.53</b>	<b>732</b>	<b>71.08</b>
<b>SOUTH SECTOR</b>										
Hamlin, Westin and Rubi....	4,590	687	332 <del>334</del>	12.0	1.62	731	7.45	1.63	736	7.50
Other early.....	494	850	289 <del>291</del>	13.5	2.27	1,006	1.12	2.29	1,015	1.13
Pera Rio.....	12,310	488	290 <del>278</del>	23.0	1.21	616	14.93	1.16	591	14.32
Valencia and Folha Murcha	11,123	670	264 <del>263</del>	24.0	1.74	788	19.30	1.73	786	19.25
Natal.....	2,738	565	274 <del>267</del>	24.0	1.44	705	3.94	1.41	689	3.85
<b>Subtotal.....</b>	<b>31,255</b>	<b>595</b>	<b>287 <del>283</del></b>	<b>20.9</b>	<b>1.50</b>	<b>713</b>	<b>46.74</b>	<b>1.47</b>	<b>702</b>	<b>46.05</b>
<b>SOUTHWEST SECTOR</b>										
Hamlin, Westin and Rubi....	4,894	895	332 <del>334</del>	12.0	2.11	962	10.34	2.13	969	10.42
Other early.....	1,591	544	289 <del>291</del>	13.5	1.45	823	2.30	1.46	834	2.33
Pera Rio.....	9,486	609	290 <del>278</del>	23.0	1.51	803	14.35	1.45	770	13.77
Valencia and Folha Murcha	11,796	695	264 <del>263</del>	24.0	1.80	921	21.25	1.80	918	21.18
Natal.....	5,422	699	274 <del>267</del>	24.0	1.78	884	9.68	1.74	862	9.44
<b>Subtotal.....</b>	<b>33,189</b>	<b>694</b>	<b>287 <del>283</del></b>	<b>20.9</b>	<b>1.75</b>	<b>885</b>	<b>57.92</b>	<b>1.72</b>	<b>873</b>	<b>57.14</b>



### Orange<sup>1</sup> production forecast update totals 264.14 million boxes

The second 2021-2022 orange crop forecast update for the São Paulo and West-Southwest Minas Gerais citrus belt, published on December 10, 2021, by Fundecitrus – performed in cooperation with Markestrat, FEA-RP/USP and FCAV/Unesp<sup>2</sup> – is 264.14 million boxes of 40.8 kg (90 lb) each. With this new projection, the crop is down 1.39% from September’s forecast update and continues in a downward trend, having since May totaled a loss of 30 million boxes or 10.21% in relation to the initial expectation. Approximately 23.46 million boxes of the total crop are expected to be produced in the Triângulo Mineiro region.

Adverse climate conditions this season, including the most severe drought in almost a century and successive frosts, stunted orange growth and increased premature fruit drop. Average accumulated rainfall from May to November 2021 was 344 millimeters in the regions of the citrus belt, or 31% below the climatological normal (1981-2020), according to data from Somar/Climatempo Meteorologia. This pattern, which is lower than the historical average, was present in 11 regions at different intensities: -3% in Triângulo Mineiro; -18% in Bebedouro; -51% in Votuporanga; -13% in São José do Rio Preto; -26% in Matão; -42% in Duartina; -35% in Brotas; -30% in Porto Ferreira; -50% in Limeira; -42% in Avaré; and -30% in Itapetininga. The rainfall volume stood out only in the region of Altinópolis, being 16% above average, as presented in Graph 1. The intense drought reduced the water level of rivers and reservoirs, affecting water availability even to irrigated groves comprising more than 30% of the citrus belt area. In general, drought severity only started to decrease in October, the one month since the beginning of the crop season when rainfall was above historical average. The rainfall outlook with regional droughts is typical of the La Niña climate phenomenon that has occurred since spring and should last until fall 2022.



**Graph 1: Accumulated rainfall (observed and historical average) from May to November 2021 of the citrus belt**

Source: Fundecitrus, according to data from Somar/Climatempo Meteorologia.

Harvest progressed and reached 65% completion through mid-November, despite still being slower than average due to both adverse weather conditions and a higher amount of fruit from the second bloom. Harvest of the early varieties Hamlin, Westin and Rubi is complete. Harvest reached 90% completion for the other earlies Valencia Americana, Seleta and Pineapple; 70% for Pera Rio, 43% for Valencia and Valencia Folha Murcha, and 39% for Natal.

All varieties considered, the average size projected in September 2021, of 283 fruits to fill a 40.8 kg box, which corresponds to an average orange weight of 144.2 grams (5.09 oz) is updated to 287 fruits per box, equivalent to a weight of 142.2 grams (5.01 oz) per fruit, which is 15.9% lower than that in the last five crop seasons (169 grams/5.96 oz average). The average fruit size for the varieties Hamlin, Westin and Rubi, projected in September 2021, of 334 fruits per box (122 grams/4.30 oz per fruit) is updated to 332 fruits per box (123 grams/4.33 oz per fruit). The weight of oranges of other early varieties is updated from 291 fruits per box (140 grams/4.94 oz per fruit) to 289 fruits per box (141 grams/4.98 oz per fruit). The projection of 278 fruits per box (147 grams/5.19 oz per fruit) for the Pera Rio variety is updated to 290 fruits per box (141 grams/4.96 oz per fruit). The average fruit size for the varieties Valencia and Valencia Folha Murcha, projected at 263 fruits per box (155 grams/5.47 oz per fruit) is updated to 264 fruits per box (154.5 grams/5.45 oz per fruit). The projection for the Natal variety is updated from 267 fruits per box (153 grams/5.40 oz per fruit) to 274 fruits per box (149 grams/5.25 oz per fruit).

The increased premature fruit drop was observed in the months of October and November after rains resumed, which was already accounted for in the projected average rate of 20.90%, all varieties considered. The drop rate distributed among varieties is maintained at 12.00% for Hamlin, Westin and Rubi, 13.50% for other earlies, 23% for Pera Rio, 24% for Valencia and Valencia Folha Murcha and 24% 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, Pera Rio, Valencia, Valencia Folha Murcha and Natal.

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