

Current forecast update (variation regarding the May forecast):

September, 10 2018

Total orange crop production forecast<sup>1</sup>: 273.34 million boxes (decreased of 5.19%)

Hamlin, Westin and Rubi: 50.70 million boxes (decreased of 9.16%)

Other early season<sup>2</sup>: 14.89 million boxes (decreased of 10.03%)

Pera Rio: 76.32 million boxes (decreased of 5.96%)

Valencia and Valencia Folha Murcha: 97.33 million boxes (decreased of 2.47%)

Natal: 34.10 million boxes (decreased of 2.49%)

#### Publication Schedule 2018-2019

2<sup>nd</sup> Crop forecast update: December 10, 2018

3<sup>rd</sup> Crop forecast update: February 11, 2019

Final crop forecast: April 10, 2019

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

Month	Forecast components				Crop forecast 2018-2019			Crop forecast update 2018-2019		
	May/2018 and September/2018 (strike-through values were presented in May, to their left are their respective values updated in September)				May/2018			September/2018		
	Bearing trees	Fruit per tree at stripping <sup>3</sup>	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.....	26,649	766	320 <del>292</del>	11.00	2.09	917	55.81	1.90	833	50.70
Other early <sup>2</sup> .....	7,959	664	282 <del>255</del>	11.00	2.08	914	16.55	1.87	823	14.89
Pera Rio.....	61,575	454	270 <del>255</del>	17.50	1.32	650	81.16	1.24	611	76.32
Valencia and Folha Murcha <sup>4</sup> ..	59,583	560	245 <del>240</del>	20.00	1.67	764	99.80	1.63	745	97.33
Natal.....	19,503	603	245 <del>240</del>	20.50	1.79	797	34.97	1.75	777	34.10
<b>Total.....</b>	<b>175,269</b>	<b>564</b>	<b>270 <del>256</del></b>	<b>17.00</b>	<b>1.64</b>	<b>762</b>	<b>288.29</b>	<b>1.56</b>	<b>722</b>	<b>273.34</b>
<b>NORTH SECTOR</b>										
Hamlin, Westin and Rubi.....	7,302	625	320 <del>292</del>	11.00	1.71	721	12.47	1.55	655	11.33
Other early <sup>2</sup> .....	2,014	525	282 <del>255</del>	11.00	1.64	758	3.31	1.48	682	2.98
Pera Rio.....	12,120	305	270 <del>255</del>	17.50	0.89	465	10.74	0.83	438	10.10
Valencia and Folha Murcha <sup>4</sup> ..	14,055	449	245 <del>240</del>	20.00	1.34	597	18.89	1.31	583	18.42
Natal.....	3,832	595	245 <del>240</del>	20.50	1.77	760	6.78	1.72	741	6.61
<b>Subtotal.....</b>	<b>39,323</b>	<b>456</b>	<b>270 <del>256</del></b>	<b>17.00</b>	<b>1.33</b>	<b>612</b>	<b>52.19</b>	<b>1.26</b>	<b>580</b>	<b>49.44</b>
<b>NORTHWEST SECTOR</b>										
Hamlin, Westin and Rubi.....	2,658	487	320 <del>292</del>	11.00	1.33	595	3.54	1.21	540	3.21
Other early <sup>2</sup> .....	1,303	596	282 <del>255</del>	11.00	1.86	798	2.43	1.68	719	2.19
Pera Rio.....	8,814	262	270 <del>255</del>	17.50	0.76	347	6.70	0.71	326	6.30
Valencia and Folha Murcha <sup>4</sup> ..	3,864	235	245 <del>240</del>	20.00	0.70	336	2.71	0.68	328	2.65
Natal.....	1,711	283	245 <del>240</del>	20.50	0.84	382	1.44	0.82	372	1.40
<b>Subtotal.....</b>	<b>18,350</b>	<b>314</b>	<b>270 <del>256</del></b>	<b>17.00</b>	<b>0.92</b>	<b>419</b>	<b>16.82</b>	<b>0.86</b>	<b>392</b>	<b>15.75</b>
<b>CENTRAL SECTOR</b>										
Hamlin, Westin and Rubi.....	6,782	685	320 <del>292</del>	11.00	1.87	804	12.70	1.70	730	11.54
Other early <sup>2</sup> .....	2,938	637	282 <del>255</del>	11.00	1.99	822	5.86	1.79	739	5.27
Pera Rio.....	17,777	465	270 <del>255</del>	17.50	1.35	675	23.97	1.27	635	22.54
Valencia and Folha Murcha <sup>4</sup> ..	16,511	511	245 <del>240</del>	20.00	1.53	688	25.24	1.49	671	24.61
Natal.....	4,585	587	245 <del>240</del>	20.50	1.74	725	7.99	1.70	707	7.79
<b>Subtotal.....</b>	<b>48,593</b>	<b>533</b>	<b>270 <del>256</del></b>	<b>17.00</b>	<b>1.56</b>	<b>714</b>	<b>75.76</b>	<b>1.48</b>	<b>676</b>	<b>71.75</b>
<b>SOUTH SECTOR</b>										
Hamlin, Westin and Rubi.....	4,923	833	320 <del>292</del>	11.00	2.28	1,035	11.22	2.07	940	10.19
Other early <sup>2</sup> .....	550	636	282 <del>255</del>	11.00	2.00	849	1.10	1.79	762	0.99
Pera Rio.....	12,628	554	270 <del>255</del>	17.50	1.61	750	20.29	1.51	705	19.08
Valencia and Folha Murcha <sup>4</sup> ..	12,911	537	245 <del>240</del>	20.00	1.61	699	20.73	1.57	682	20.21
Natal.....	3,323	583	245 <del>240</del>	20.50	1.73	756	5.75	1.69	738	5.61
<b>Subtotal.....</b>	<b>34,335</b>	<b>592</b>	<b>270 <del>256</del></b>	<b>17.00</b>	<b>1.72</b>	<b>773</b>	<b>59.09</b>	<b>1.63</b>	<b>734</b>	<b>56.08</b>
<b>SOUTHWEST SECTOR</b>										
Hamlin, Westin and Rubi.....	4,984	1,165	320 <del>292</del>	11.00	3.19	1,445	15.88	2.89	1,312	14.43
Other early <sup>2</sup> .....	1,154	1,066	282 <del>255</del>	11.00	3.34	1,698	3.85	3.01	1,530	3.46
Pera Rio.....	10,236	655	270 <del>255</del>	17.50	1.90	974	19.45	1.79	916	18.30
Valencia and Folha Murcha <sup>4</sup> ..	12,242	880	245 <del>240</del>	20.00	2.63	1,310	32.22	2.57	1,278	31.44
Natal.....	6,052	723	245 <del>240</del>	20.50	2.15	1,036	13.03	2.10	1,009	12.69
<b>Subtotal.....</b>	<b>34,668</b>	<b>834</b>	<b>270 <del>256</del></b>	<b>17.00</b>	<b>2.44</b>	<b>1,199</b>	<b>84.43</b>	<b>2.32</b>	<b>1,141</b>	<b>80.32</b>

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

<sup>2</sup> Valencia Americana, Seleta and Pineapple.

<sup>3</sup> Weighted average per stratum bearing trees.

<sup>4</sup> Folha Murcha – Valencia Folha Murcha.

### Updated orange<sup>1</sup> crop forecast totals 273.34 million boxes

The 2018-2019 orange crop forecast update for São Paulo and West-Southwest Minas Gerais citrus belt, published on September 10, 2018 by Fundecitrus – performed in cooperation with Markestrat, FEA-RP/USP and FCAV/Unesp<sup>2</sup> – is of 273.34 million boxes of 40.8 kg each. This figure corresponds to a decrease of 5.19% in relation to the estimate published in May/2018. Approximately 15.37 million boxes of the total crop should be produced in the Triângulo Mineiro.

Fruit of all varieties harvested up to August presented average weight below the May/2018 forecast. Smaller fruit resulted from a more severe drought than expected for May to July at the time of the estimate. Rainfall in that period is directly related to fruit development and consequently to final fruit weight at harvest. Climatological expectations at that time pointed to a less rainy year, with an accumulated average rainfall for those months of approximately 101 millimeters for the citrus belt, which is 24% below historical average (1981-2010). However, the actual accumulated rainfall volume for that period was 36 millimeters, 73% below historical average, characterizing the worst drought in the ten assessed years. More significant rain above historical average only fell in August in the South, Southwest and most of Central regions, with an average of 103 millimeters, whereas for the remainder of the citrus belt the average rainfall for that month was 38 millimeters.

Harvest reached 93% completion for the early Hamlin, Westin and Rubi varieties, and 75% for other earlys. Harvest totaled 29% for the Pera variety, 15% for the Valencia and Valencia Folha Murcha varieties, and 10% for the Natal variety. Approximately 36% of the total 2018-2019 crop was harvested. At the same time last crop season, harvest was 34% complete. The main difference between the two crop seasons is that the current harvest progressed faster to late varieties. That indicates the crop season will finish earlier. Although the harvest of the Pera and late varieties is still in early stages, it is already necessary to adjust fruit size due to the water deficit that affected full development.

Fruit size for the Hamlin, Westin and Rubi varieties changed from the 292 fruits per box estimated in May to 320 fruits per box in this update. Fruit size of other early varieties was updated to 282 fruits per box, instead of the 255 fruits per box initially estimated. For the Pera variety, fruit size was updated to 270 fruits per box, whereas the estimate in May was 255 fruits per box. Fruit size for the other late Valencia, Valencia Folha Murcha and Natal varieties, estimated before at 240 fruits per box, was updated to 245 fruits per box. All varieties considered, the average fruit size was updated to 270 fruits per box, instead of the 256 fruits per box estimated in May this year, to fill a standard 40.8 kg box.

Fruit drop rate promises to remain high this crop season, confirming the estimated 17% average for all varieties considered. One of the assumptions grounding such estimate was the prospects of increased greening severity, which was verified through the survey recently published by Fundecitrus. Another reason that contributed to keeping the fruit drop rate high was fruit cracking, which was observed in all regions and largely present in most of the citrus belt. This phenomenon, resulting mainly from severe drought in the first months of the crop season, followed by more intense rainfall in August, affected the Pera and late varieties the most, and early varieties to a lesser extent, whose harvest was already advanced when heavy rains fell.

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. Details on the methodology are provided in the document “Methodology for Updating the Orange Crop Estimate” available at [www.fundecitrus.com.br](http://www.fundecitrus.com.br). Other data used in this study was 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> Departament of Math and Science at FCAV/Unesp Campus Jaboticabal.