Executive summary

2026-2027 orange crop forecast

for the São Paulo and West-Southwest Minas Gerais citrus belt

Fundecitrus
SCIENCE AND SUSTAINABILITY IN CITRICULTURE

PES
Crop Forecast Survey

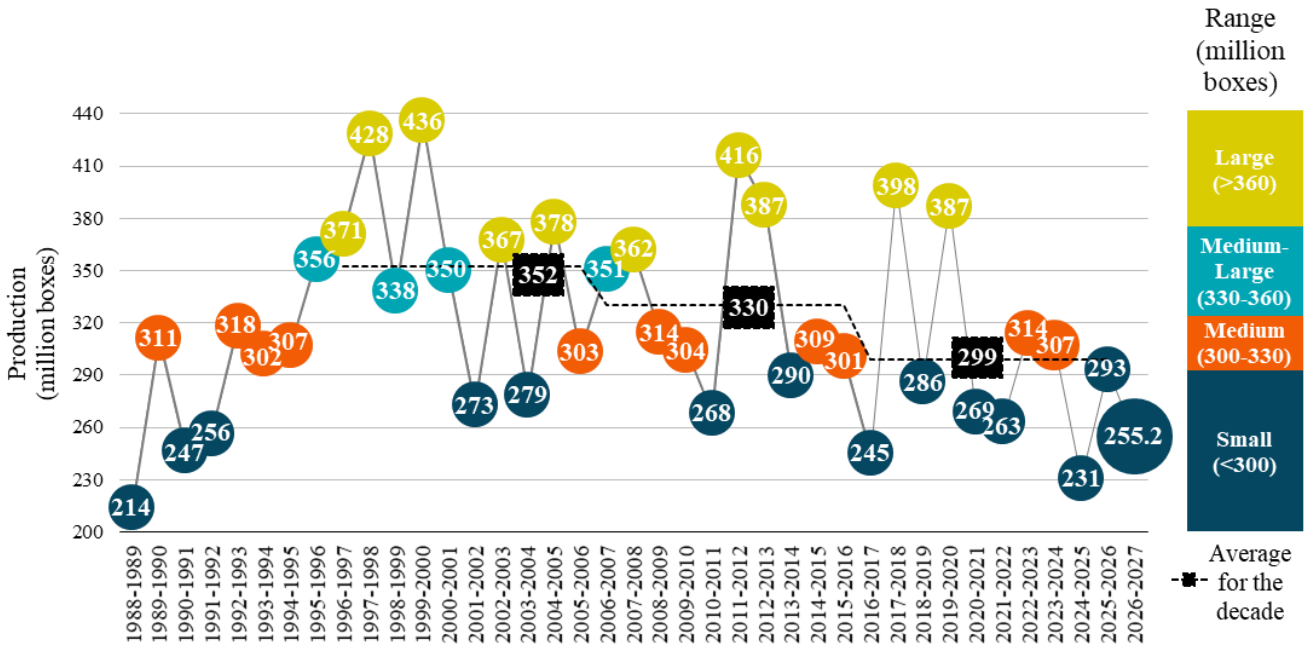
1 – 2026-2027 ORANGE CROP FORECAST

The 2026-2027 orange crop forecast for the São Paulo and West-Southwest Minas Gerais citrus belt, published on May 08, 2026, by Fundecitrus in cooperation with full professor (retired) at FCAV/Unesp[1], is 255.2 million boxes of 40.8 kg (90 lbs) each. This production is divided as follows (figures in parentheses indicate the variation in production as compared to the previous crop):

- 47.38 million boxes of the Hamlin, Westin, and Rubi varieties (+2.4%);
- 19.25 million boxes of the Valencia Americana, Seleta, Pineapple and Alvorada varieties (+9.1%);
- 83.20 million boxes of the Pera variety (-4.8%);
- 80.71 million boxes of the Valencia and Folha Murcha varieties (-22.8%);
- 24.66 million boxes of the Natal variety (-33.5%).

Approximately 26.77 million boxes are expected to be produced in the Triângulo Mineiro (+4.2%).

Overall, the projected volume represents a decrease of 12.9% compared to the previous crop season, whose final number was 292.94 million boxes, maintaining production within a small range of the last ten years, as shown in Graph 1. Compared to the average volume produced in the last decade, the current crop shows a decrease of 14.6%.



Graph 1 – Orange production from 1988-1989 to 2025-2026 and 2026-2027 crop forecast
Sources: CitrusBR (1988-1989 to 2014-2015) and Fundecitrus (2015-2016 to 2026-2027)

The outlook for a smaller crop compared to the previous crop season is due to the lower number of fruits per tree and to the increase in the premature fruit drop rate, which outweigh the positive effect of the higher fruit weight and the larger number of bearing trees detailed in item 2.1, namely, "Bearing Trees."

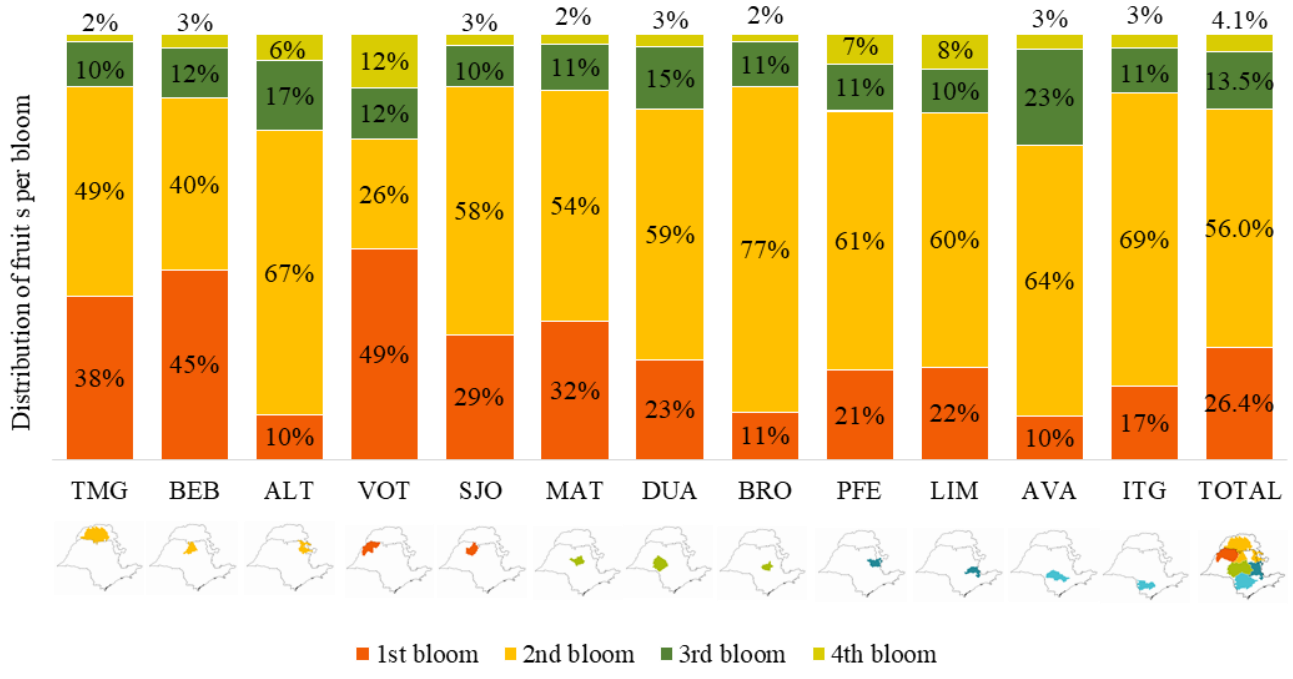
The development of the different blooms and fruit set was affected by regional variability in rainfall patterns, high temperatures, and irrigation availability. In this crop season, the drought conditions during May 2025 resulted in plant water stress and reserve accumulation. In regions with a higher proportion of irrigated areas, such as Triângulo Mineiro, Bebedouro, Votuporanga, São José do Rio Preto, and Matão,

[1] José Carlos Barbosa, full professor (retired) at FCAV/Unesp.

the water stress period was interrupted by irrigation measures between June and September 2025 to induce the first bloom. However, part of the newly formed fruit from this bloom was compromised by the high temperatures recorded in September, with maximum temperatures approximately 2°C above the historical average (1991–2020), according to data from Climatempo Meteorologia. In regions with a smaller irrigated area, such as Altinópolis, Duartina, Brotas, Porto Ferreira, Limeira, Avaré, and Itapetininga, the first bloom was prompted by heavy, localized rainfall in June and, in some cases, by supplemental irrigation, although the latter played a less significant role. Moreover, fruit set was impaired by the low rainfall volumes from July to September, which totaled approximately 37 mm on average across the citrus belt, combined with the high temperatures in September, resulting in higher evapotranspiration rates.

Rainfall became heavier and more evenly distributed across the citrus belt between October 2025 and March 2026, according to data from Climatempo Meteorologia. In October, accumulated rainfall reached 107 mm, close to the historical average, while in November it totaled 171 mm, 9% above the historical level. Following the prolonged dry period between July and September, the October rainfall strongly stimulated the development of the second bloom, especially in regions with a smaller irrigated area. In December, rainfall remained abundant and well distributed, amounting to 258 mm, a level 21% above the historical average. These rains helped mitigate the adverse effects on fruit set caused by the heat wave recorded in late December. During this period, maximum temperatures averaged 2°C above the historical level. Lastly, rainfall volumes of 212 mm in January, 153 mm in February, and 120 mm in March, combined with temperatures close to the historical average, were essential for promoting fruit set and overall fruit development.

Similarly to the previous crop season, the 2026-2027 crop season is also characterized by the predominance of second-bloom fruit, whereas first-bloom fruit is mainly concentrated in regions which benefit from more irrigated areas. Overall, the share of first-bloom fruit in the crop is 26.4%; second-bloom 56.0%; third-bloom 13.5%; and fourth-bloom 4.1%. The distribution of fruit by bloom in each region and according to the citrus belt average is presented in Graph 2.

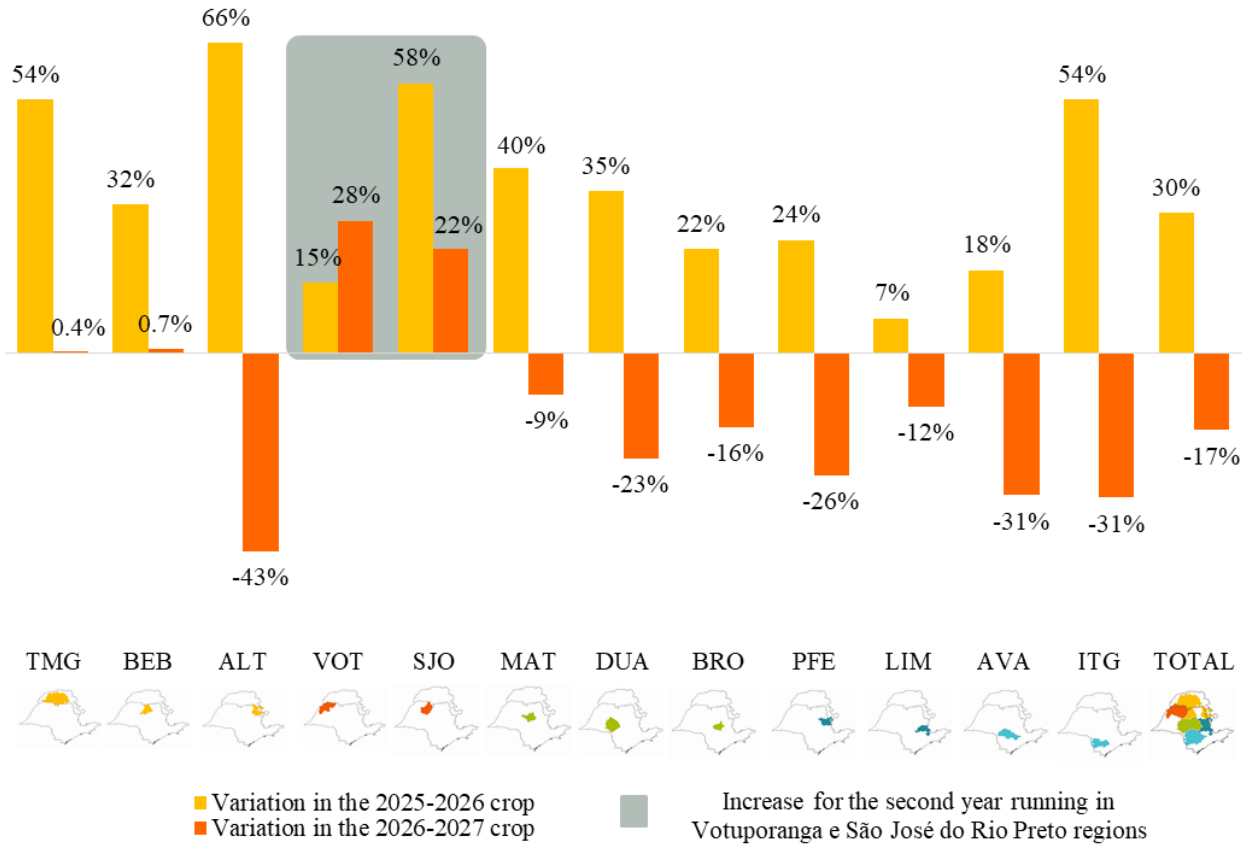


Graph 2 – Distribution of fruits per bloom in each region

In general, the fruit load per tree in the 2026-2027 crop season is 514, representing a decrease of 17% compared to the previous crop season due to climatic factors, the alternate biennial bearing cycle, and

greening disease. In regions with a high proportion of irrigated areas, such as Votuporanga, São José do Rio Preto, Bebedouro, and Triângulo Mineiro, positive variations of 28%, 22%, 0.7%, and 0.3%, respectively, were observed, while the remaining regions recorded negative oscillations. The Matão region is the exception among the more heavily irrigated regions, showing a negative variation of -9%, still below the citrus belt average, because of the December 2025 heat wave.

In regions with fewer irrigated areas, the heat wave associated with the prolonged water deficit in September impaired the first-bloom fruit set, while the December heat wave affected second-bloom fruit to a lesser extent. The largest negative variation was recorded in the Altinópolis region, with -43%, followed by Avaré (-31%), Itapetininga (-31%), , Porto Ferreira (-26%), and Duartina (-23%), whereas the regions of Brotas and Limeira recorded oscillations below the citrus belt average, at -16% and -12%, respectively. The variation in the number of fruits per tree compared to the previous crop season, by region, is presented in Graph 3.



Graph 3 – Variation in the number of fruits per tree in each region

At the time of fruit stripping, on average, the fruit weighed approximately 87 grams, a higher weight than in the same period of the previous crop season, when average fruit weight was 71 grams. This difference is associated with the lower fruit load per tree in the current crop season — which enhances fruit growth potential — as well as with more favorable water conditions during fruit development after fruit set. The accumulated rainfall from December 2024 to April 2025 on average in the citrus belt totaled 676 mm, while from December 2025 to April 2026 it reached 812 mm, according to data from Climatempo Meteorologia. For the critical period of peak fruit development, between May and October 2026, the forecast indicates rainfall slightly below the historical average, except for June, which is expected to record above-average rainfall volumes. Additionally, the combined effects of greening disease, the impending El Niño expected in the second half of 2026, and the later harvest — resulting from the predominance of second-bloom fruit

and the search for the optimal maturity stage — may lead to harvesting during periods of high temperatures and irregular rainfall, thereby limiting further fruit growth.

Orange weight at harvest is projected at 160 grams/5.64 oz (255 fruits per box), representing a higher weight than that recorded in the previous crop season (153 grams/5.41 oz or 266 fruits per box). This projection was developed based on the initial fruit weight, the predominance of the second bloom, the anticipated accumulated rainfall of 75 millimeters from May to July 2026, and the trend toward a later harvest. The regression model used to forecast average fruit size is explained in item "2.4 – Fruits per Box."

The projected fruit drop rate for the 2026-2027 crop season is 23.7%, while the fruit loss is 31.3%. This figure reflects the new measurement methodology, improved by the combination of monthly monitoring and fruit stripping at harvest, which already incorporates the correction factor. The enhanced methodology is explained in item "2.3 – Fruit Drop and Fruit Loss Rate." Furthermore, this projection is associated with the increased severity of greening disease, the effects of citrus leprosis, and the later harvest resulting from the second bloom predominance and the search for the optimal maturity stage.

Average yield in this crop season is 697 boxes per hectare and 1.38 boxes per tree, a decrease of 13.8% compared to the 809 boxes per hectare and 1.60 boxes per tree harvested in the 2025-2026 crop season. The variety-based yield analysis shows that with the exception of the other earlies, which recorded an increase of +2.9%, all groups recorded lower yield levels compared to the previous crop season. The early varieties Hamlin, Westin, and Rubi show a decrease of -1.5%; Pera -4.3%; Valência and Folha Murcha -23.6%; and Natal -32.7%. Tables 1 and 2 present the yields by variety and the variations compared to the previous crop season.

Table 1 – Yield per hectare and variety for the 2021-2022 crop to the 2026-2027 crop

Group of varieties	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027[e]
	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)
Hamlin, Westin and Rubi…	819	1,021	1,047	666	795	783
Other earlies.....	804	925	987	749	771	793
Subtotal for earlies.....	815	998	1,032	688	788	786
Pera….....	653	811	837	658	677	648
Valencia and Folha Murcha…..	838	940	969	703	914	698
Natal.....	734	978	738	723	983	661
Total.....	**760**	**912**	**911**	**687**	**809**	**697**

[e] Estimate

Table 2 – Variation in yield per hectare for varieties as compared to previous season's

Group of varieties	2022-2023 in comparison to 2021-2022		2023-2024 in comparison to 2022-2023		2024-2025 in comparison to 2023-2024		2025-2026 in comparison to 2024-2025		2026-2027[e] in comparison to 2025-2026	
	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%
Hamlin, Westin and Rubi…	202	24.7%	26	2.5%	-381	-36.4%	129	19.4%	-12	-1.5%
Other earlies.....	121	15.0%	62	6.7%	-238	-24.1%	22	2.9%	22	2.9%
Subtotal for earlies.....	183	22.5%	34	3.4%	-344	-33.3%	100	14.5%	-2	-0,3%
Pera….....	158	24.2%	26	3.2%	-179	-21.4%	19	2.9%	-29	-4.3%
Valencia and Folha Murcha….	102	12.2%	29	3.1%	-266	-27.5%	211	30.0%	-216	-23.6%
Natal.....	244	33.2%	-240	-24.5%	-15	-2.0%	260	36.0%	-322	-32.8%
Total.....	**152**	**20.0%**	**-1**	**-0.1%**	**-224**	**-24.6%**	**122**	**17.8%**	**-112**	**-13.8%**

[e] Estimate

Regarding the regional sector productivity, the main highlight is North, which includes the regions of Triângulo Mineiro, Bebedouro, and Altinópolis. This region is expected to achieve the highest productivity in the citrus belt, with 812 boxes per hectare, representing a decrease of -3.8% compared to the previous crop. The sector facing the lowest productivity is South, covering the regions of Porto Ferreira and Limeira. In this location, considerably low productivity is expected, totaling only 545 boxes per hectare, 19.4% lower than the previous crop. Tables 3 and 4 present yields by sector and variations in relation to the previous crop season.

Table 3 – Yield per hectare of sectors for the 2021-2022 crop to the 2026-2027[e] crop

Sector	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027[e]
	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)
North.....	804	868	1,117	627	844	812
Northwest.....	646	750	932	475	570	733
Central.....	729	928	879	621	816	688
South.....	699	926	831	698	676	545
Southeast.....	869	1,008	782	897	970	679
Total.....	**760**	**912**	**911**	**687**	**809**	**697**

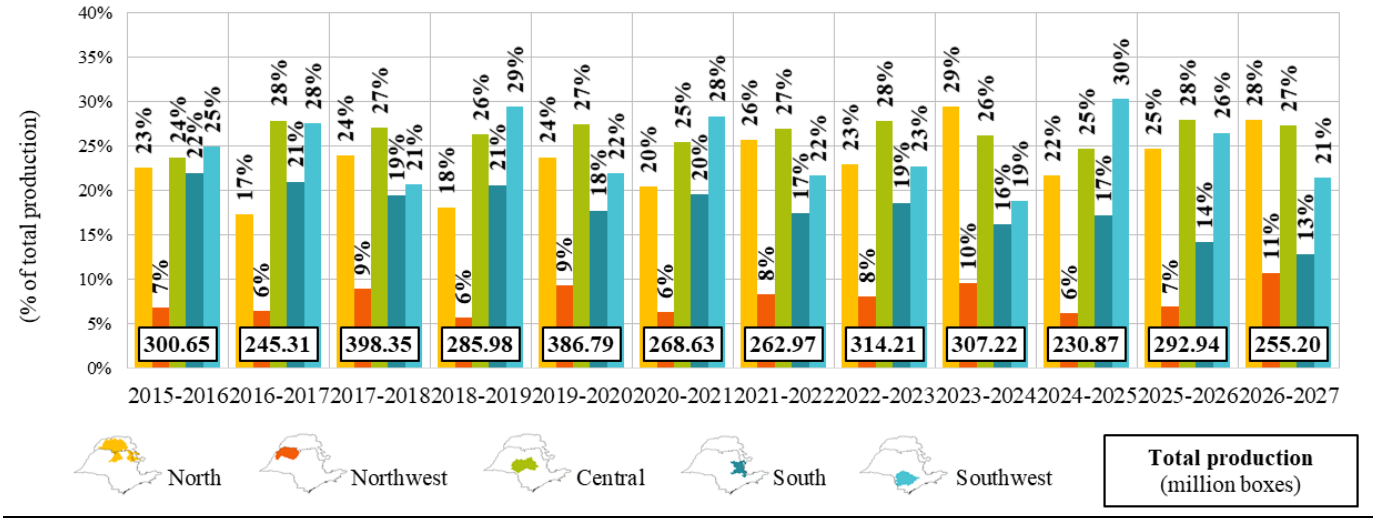
[e] Estimate

Table 4 – Variation in yield per hectare of sectors in relation to the previous crop season's

Sector	2022-2023 in comparison to 2021-2022		2023-2024 in comparison to 2022-2023		2024-2025 in comparison to 2023-2024		2025-2026 in comparison to 2024-2025		2026-2027[e] in comparison to 2025-2026	
	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%
North.....	64	8.0%	249	28.7%	-490	-43.9%	217	34.6%	-32	-3.8%
Northwest.....	104	16.1%	182	24.3%	-457	-49.0%	95	20.0%	163	28.5%
Central.....	199	27.3%	-49	-5.3%	-258	-29.4%	195	31.4%	-128	-15.7%
South.....	227	32.5%	-95	-10.3%	-133	-16.0%	-22	-3.2%	-131	-19.4%
Southwest.....	139	16.0%	-226	-22.4%	115	14.7%	73	8.1%	-291	-30.0%
Total.....	**152**	**20.0%**	**-1**	**-0.1%**	**-224**	**-24.6%**	**122**	**17.8%**	**-112**	**-13.8%**

[e] Estimate

As shown in Graph 4, the North stands out as the most productive, accounting for 28% of the citrus belt's production, followed by the Central region with 27%, the Southwest with 21%, the South with 13% and Northwest with 11%.



Graph 4 – Share of sectors in total orange production in the 2015-2016 to 2026-2027 crops

2 – OBJECTIVE SURVEY METHOD FOR THE ORANGE CROP FORECAST

For this forecast, the objective method used in recent crop seasons was improved by incorporating fruit stripping assessment at harvest as a complementary approach to measuring the fruit drop rate and by incorporting the correction factor into fruit loss, detailed in item 2.3, namely, “Fruit drop and fruit loss rate.”. The method continues to be based on quantitative data — field measurements, fruit counts, and fruit weighing — applied to the equation displayed below.

$$\text{Forecast production} = \frac{\text{Bearing trees} \times \text{Fruit per tree} \times (1 - \text{Fruit loss rate \%})}{\text{Fruit per box}}$$

Compiled results from the tree inventory and fruit stripping obtained throughout the survey were restricted, until the date of this publication, to the following professionals: Antonio Juliano Ayres (Fundecitrus executive director); Guilherme Maniezo Rodriguez (PES/Fundecitrus coordinator); Fernando Alvarinho Delgado (PES/Fundecitrus technical supervisor); Roseli Reina (PES/Fundecitrus specialist); Eduardo Cassettari Monteferrante (PES/Fundecitrus analyst); and José Carlos Barbosa (PES methodology analyst and Voluntary Full Professor at the department of Math and Science of FCAV/Unesp).

All of them were subject to confidentiality obligations with regard to PES information before its announcement was made public, according to agreements signed between each of them and Fundecitrus. As for antitrust practices, they were all complied with through the adoption of measures necessary to prevent any communication or sharing of individual information with competitive content among the orange juice companies that collaborate with Fundecitrus in this project or between these and citrus growers.

The crop forecast was finalized on May 08, 2026, at 9:30 a.m., in an in-person meeting at Fundecitrus, with no external communication channel beyond participants. Following that, at 10 a.m., Fundecitrus executive director began the public announcement of the crop forecast at the Fundecitrus auditorium in Araraquara - SP, broadcast live at the Fundecitrus channel on YouTube (www.youtube.com/fundecitrus). Next, Fundecitrus executive director, Antonio Juliano Ayres presented the detailed data. After the crop forecast announcement, this report was made available on the Fundecitrus website: www.fundecitrus.com.br.

2.1 – BEARING TREES

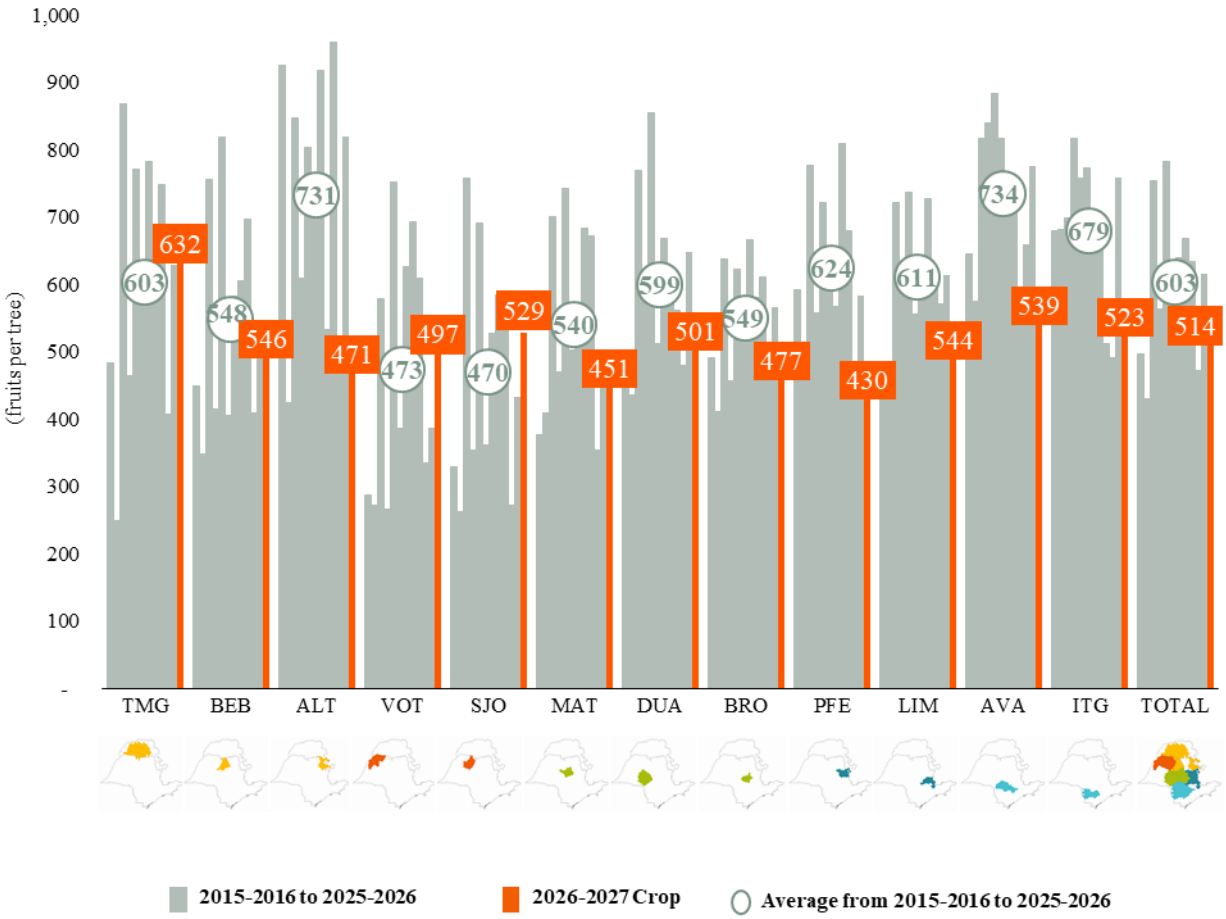
Bearing trees total 184.37 million and occupy an area of 366.089 hectares in this crop season. This corresponds to an increase of 3.9 thousand productive hectares and 1% of the productive area compared with the 2025 inventory.

Varieties included in this forecast are present in 97% of the area of orange groves in the citrus belt. Information on bearing trees was obtained from the “Tree inventory of the São Paulo and West-Southwest Minas Gerais citrus belt: Snapshot of groves in March 2026”, taken from the 2025 primary base – created by mapping groves from August 5, 2024 to January 31, 2025 – and from counting existing trees in approximately 5% of orange plots from January 5 to March 5, 2026.

2.2 – FRUIT PER TREE

The average number of fruits per tree in April 2026, without considering the drop that occurs throughout the season, is 514, which represents a decrease of 17% in relation to the previous crop. The average number of fruits per tree may have a variation of plus or minus 12 units, which is equivalent to ± 2.4% of the average number of fruits per tree at stripping. This figure is within the expected error of 2% to 3% used in sizing the sample.

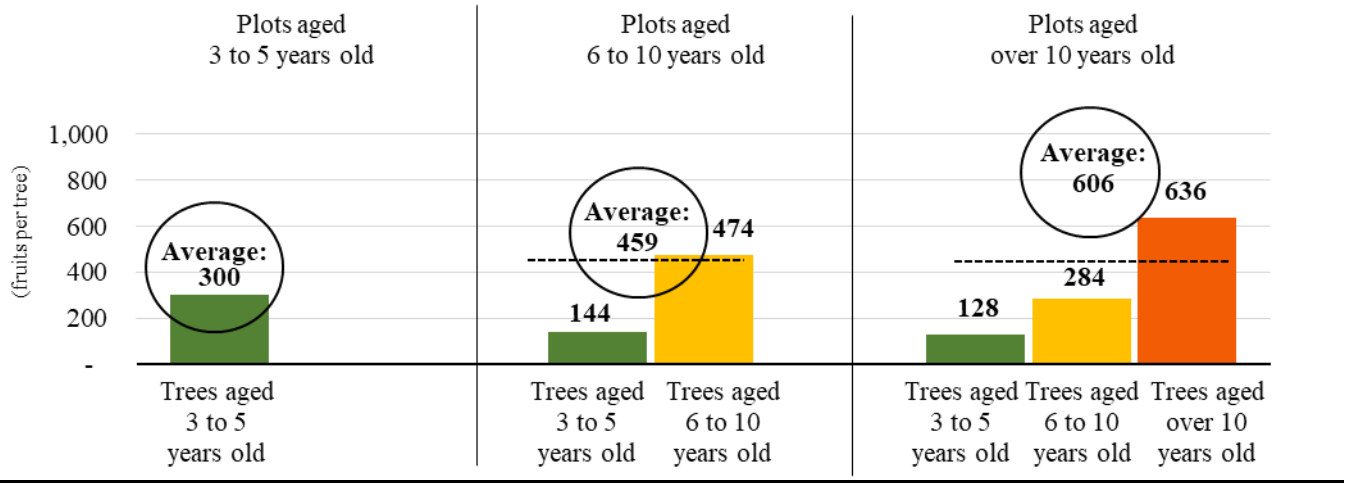
Graph 5 shows the number of fruits per tree at stripping from 2015 to 2026, separately for the 12 regions. Data precision for regions is smaller than that of the general average due to a lower number of samples per stratum.



Graph 5 – Number of fruits per fruit-stripped tree by region from 2015 to 2026

For the forecast calculation, fruits from the first, second and third blooms were considered in full. A fruit set rate of 80% was applied to fruits from the fourth bloom. In the separation of fruits per bloom, off-season fruits were also identified and resulted from late and sporadic flowers from the previous crop season, not accounted for in the current crop forecast.

Three to five-year-old plots present yield of 300 fruits per tree this crop season. For six to 10-year-old plots, an average of 459 fruits per tree is estimated, with 474 fruits per tree for original plantings and 144 fruits per tree for three to five-year-old resets. Plots over 10 years old have an average of 606 fruits per tree and a yield of 636 fruits per tree for original plantings, 284 fruits per tree for six to 10-year-old resets and 128 fruits per tree for three to five-year-old resets. Yield rates are presented in Graph 6.



Ages and planting years: 3 – 5 years (2021 to 2023), 6 – 10 years (2016 to 2020) and over 10 years (2015 and previous years)

Graph 6 – Age-stratified number of fruits per tree in the plot

An average of 660 fruits per tree for the earlies Hamlin, Westin and Rubi; 508 were counted for other earlies; 453 fruits per tree for the mid-season Pera variety; 517 fruits per tree for the late season Valencia and Folha Murcha varieties; and 513 fruits per tree for late Natal variety.

The method used consists in fruit stripping, that is, the advanced harvest of all fruits in the tree, regardless of the bloom they are from. In this crop season, fruits were stripped from trees from March 9 to April 29, 2026. Fruits harvested were taken to a fruit stripping center in Araraquara, where each sample was separated into the different blooms it was from. Fruits were quantified by automatic counting equipment and then weighed.

Sample size remained at 2,560 trees selected by a drawing, in the same way as last season. An initial drawing by the method of stratified random sampling included 2,200 trees distributed proportionally amongst all orange trees in the citrus belt and stratified according to their region, variety and age. An additional drawing included 360 resets of ages lower than the age groups of their groves. These resets correspond to replacements made mainly to offset tree losses caused by citrus greening, citrus blight, gomosis and other diseases. The tree population in this last drawing comprises plots that were counted in full to update the inventory and that meet the stratification criteria.

The stratification factor "region" is comprised of 12 groups encompassing the 320 cities where there are farms with mature orange groves. In addition to the subdivision into the 12 regions, the following charts present the five subdivisions of the factor "variety" and the six subdivisions of the factor "age". Combinations of these factors result in 360 strata.

Chart 1 – Regions of the citrus belt included in the drawing, by sector

Sector	Region	Abbreviation
North.....	Triângulo Mineiro	TMG
	Bebedouro	BEB
	Altinópolis	ALT
Northwest.....	Votuporanga	VOT
	São José do Rio Preto	SJO
Central.....	Matão	MAT
	Duartina	DUA
	Brotas	BRO
South.....	Porto Ferreira	PFE
	Limeira	LIM
Southwest.....	Avaré	AVA
	Itapetininga	ITG

Chart 2 – Variety groups included in the drawing, by maturity time

Maturity time	Variety group
Early	Hamlin, Westin and Rubi
Other early	Valencia Americana, Seleta, Pineapple and Alvorada
Mid-season	Pera
Late	Valencia and Folha Murcha
	Natal

Chart 3 – Age groups from the combined age of plots and age of trees

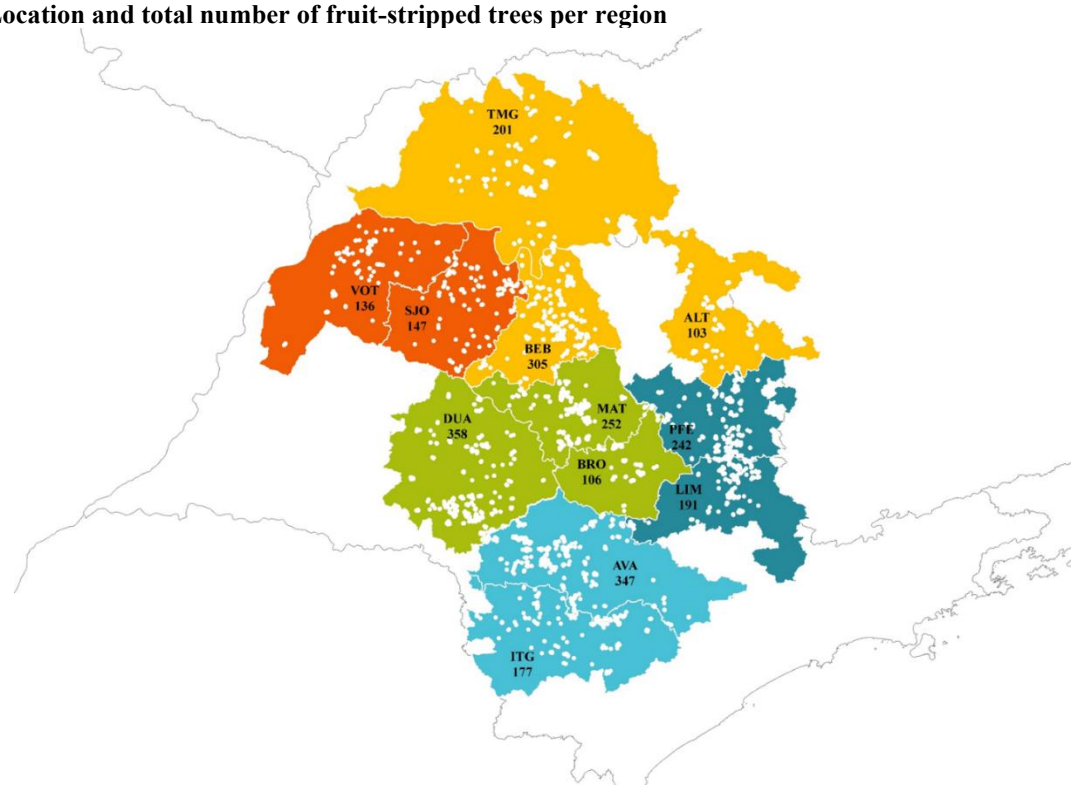
Age of plots[1]	Age of trees[2]
3 to 5 years	3 to 5 years
6 to 10 years	3 to 5 years
6 to 10 years	6 to 10 years
Over 10 years	3 to 5 years
Over 10 years	6 to 10 years
Over 10 years	Over 10 years

[1] Ages and planting years: 3 to 5 years (2021 to 2023), 6 to 10 years (2016 to 2020) and over 10 years (2015 and previous years)

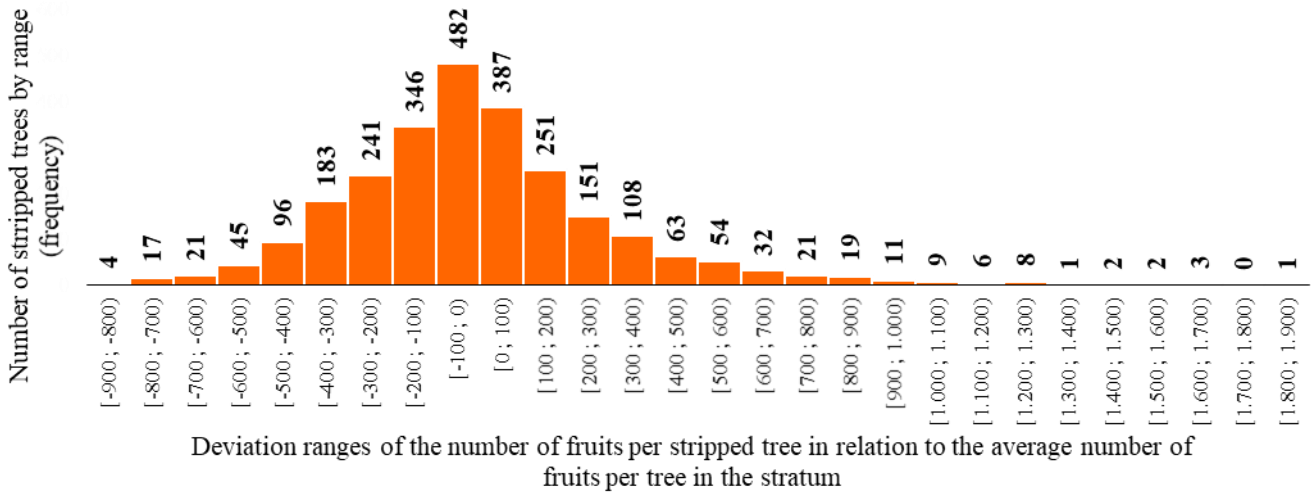
For the 2,200 trees in the first drawing, the location in the plot of the tree to have fruit stripped from is predetermined and varies every crop season. This makes the selection of the tree unbiased, that is, free from interference of the survey agent. Otherwise, the choice could be skewed towards trees with more or less fruit. For the 2026-2027 crop, the tree in the drawn plot was the one located in the 23rd planting hole in the 12th row. If there was a vacancy or dead tree in that position, or yet a tree of an age different from that of trees originally planted in the plot, the fourth tree down was selected. Should that situation repeat itself, three more plants down were counted, until a tree of the drawn age was found. If the plot did not have 12 or more planting rows, the counting restarted in the existing rows until number 12 was reached. For the second drawing of 360 resets, the tree was found in the plot after visual aspects were considered, such as trunk circumference and size of canopy.

Figure 1 shows the location and number of fruit-stripped trees in each sector of the citrus belt.

Figure 1 – Location and total number of fruit-stripped trees per region

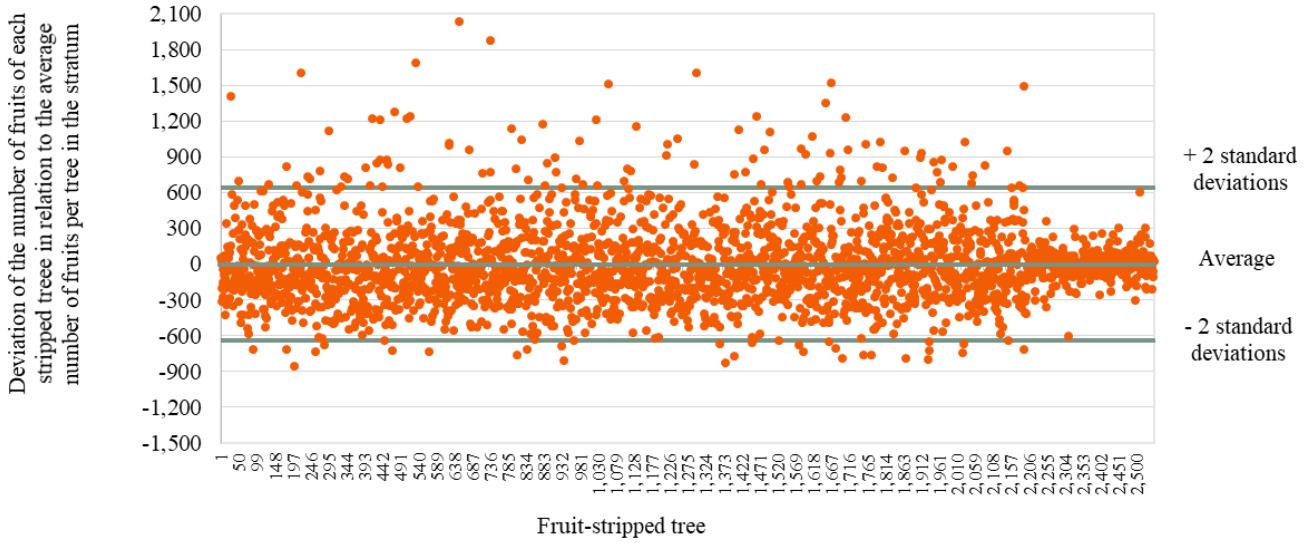


The yield deviation distribution analysis for each fruit-stripped tree in relation to the stratum average shows that sample data are randomly distributed according to a normal distribution, as presented in Graph 7. No samples were excluded, as the number of fruits per tree remained within the expected range for each variety.



Graph 7 – Histogram of deviations of fruits per tree at stripping

Graph 8 shows the dispersion of deviations of each fruit-stripped tree in relation to the stratum average. It is observed that 95% of samples fall within the average (514 fruits) ± 2 standard deviations.



Graph 8 – Deviation on the number of fruits at each stripping in relation to the stratum average

The tree harvested upon permit from citrus growers is indemnified at R$ 60.00 through an online payment system where citrus growers can register and redeem the amount due.

2.3 –FRUIT DROP AND FRUIT LOSS RATE – fruit drop index, either natural or caused by other reasons, from tree stripping to final plot harvest

In this crop season, the methodology for measuring fruit drop rate was improved by incorporating fruit stripping assessment at harvest. The soil-berm fruit-drop monitoring method, used in all previous forecasts and again this year, consists of constructing a soil barrier around the canopy drip line of three consecutive trees adjacent to the tree subjected to fruit stripping in March/April. Each month, field agents visit the plots monitored by the soil berm to quantify the number of fruits that have fallen within the marked area and identify the causes of fruit drop. In the current crop season, the fruit-stripping method at harvest was

implemented as a complement to the monitoring performed using the soil-berm method. This procedure consists of harvesting, counting, and weighing the fruit from the tree adjacent to the tree stripped in March/April, on the opposite side of the trees monitored through the soil-berm method, upon harvesting of the plots. Fruits already on the ground are not considered. Thus, the difference between the final number of fruits recorded on the harvest date and the number of fruits identified at the beginning of the crop season provides greater accuracy in estimating total fruit loss throughout the season.

The fruit stripping assessment at harvest was extensively studied on an experimental basis during the previous crop season to support the estimation of fruit loss in the current crop season. More than 1,000 blocks were evaluated both at the time of the initial fruit stripping in March/April and at harvest. Fruit stripping at harvest, together with monthly monitoring through the soil-berm method and the updated tree inventory, provide an even more accurate estimate of orange production in the groves.

The fruit loss rate obtained through fruit stripping at harvest incorporates the correction factor previously used in the crop forecast equation, which adjusted for variables not captured by the soil-berm method. The fruit drop rate measured using the soil-berm method and the correction factor are used to projecte total fruits loss at the beginning of the season. By the end of the season, these indices are replaced by actual fruit loss rate, measured directly in the field through fruit stripping assessment at harvest. As a result, fruit loss rate values in the current crop season are significantly higher than those recorded in the previous crop season, not only due to the increasing severity of greening, citrus leprosis, and the later harvest, but also because they incorporate losses effectively measured in the field that were previously embedded in the correction factor.

The projected average fruit drop rate and fruit loss rate are 23.7% and 31.3% respectively, distributed as follows: 18.4% and 26.6% for the early Hamlin, Westin and Rubi varieties, 20.0% and 28.0% for other early varieties, 22.0% and 29.8% for the mid-season Pera variety, 27.3% and 34.6% for the late Valencia and Folha Murcha varieties, and 30.9% and 37.8% for the late Natal variety. This rate is applied to the number of fruits in the tree in April 2026, when fruits were stripped. The result of this calculation is the estimate of the number of fruits that will be available in the tree at harvest, since part of the oranges in the tree in the beginning of the crop season will fall due to physiological drop, damage caused by machines, pests and diseases, and adverse climatic conditions. As shown in Table 5, the South sector has the highest drop and loss rates at an average 32.0% and 38.8%, whereas the Northwest sector has the lowest ones at 18.4% and 26.6%, respectively.

Table 5 – Projected fruit drop and fruit loss rates by sector and goup of varieties

Group of varieties	Sector											
	North		Northwest		Central		South		Southwest		Total	
	Fruit drop[a]	Fruit loss[b]	Fruit drop[a]	Fruit loss[b]	Fruit drop[a]	Fruit loss[b]	Fruit drop[a]	Fruit loss[b]	Fruit drop[a]	Fruit loss[b]	Fruit drop[a]	Fruit loss[b]
	(percentual)		(percentual)		(percentual)		(percentual)		(percentual)		(percentual)	
Hamlin, Westin, and Rubi	15.0	23.5	12.5	21.3	15.5	24.0	26.5	33.9	21.9	29.7	**18.4**	**26.6**
Other earlies	18.5	26.7	16.5	24.9	20.2	28.2	29.3	36.4	24.0	31.6	**20.0**	**28.0**
Pera	18.9	27.0	17.5	25.8	19.5	27.6	30.5	37.5	25.5	33.0	**22.0**	**29.8**
Valencia and Folha Murcha	23.4	31.1	24.3	31.9	26.2	33.6	35.5	42.0	28.2	35.4	**27.3**	**34.6**
Natal	26.2	33.6	25.3	32.8	29.0	36.1	37.0	43.3	32.8	39.5	**30.9**	**37.8**
Total	**20.0**	**28.0**	**18.4**	**26.6**	**21.8**	**29.6**	**32.0**	**38.8**	**26.7**	**34.0**	**23.7**	**31.3**

[a] based on monthly monitoring using the soil-berm method and not incorporating a correction fator
[b] based on fruit stripping assessment at harvest and incorporating a correction factor

Monthly and continuous monitoring carried out by Fundecitrus as of May 2026 in 1,200 orange plots visited up to their complete harvest serves as basis to correct the drop rate projected at the time of this publication and consequently to correct the production estimate as well.

2.4 – FRUIT PER BOX – fruit size, that is, number of oranges to reach the weight of 40.8 kg (box) at harvest

The final fruit size projection is 255 fruits per 40.8 kg box (160 grams/5.64 oz per fruit), namely 289 fruits per box for the group of early varieties comprising Hamlin, Westin and Rubi (141 grams/ 4.98 oz per fruit), 251 fruits per box for the group of other early varieties (163 grams/5.73 oz per fruit), 255 fruits per box for the mid-season Pera variety (160 grams/5.64 oz per fruit), 239 fruits per box for the late Valencia and Folha Murcha varieties (171 grams/6.02 oz per fruit), and 241 fruits per box for the late Natal variety (169 grams/5.97 oz per fruit). Table 6 presents projected fruit sizes by variety and sector.

Table 6 – Projected fruit sizes by sector and goup of varieties

Group of varieties	Sector					
	North	Northwest	Central	South	Southwest	Total
	(Fruits estimated per box)	(Fruits estimated per box)	(Fruits estimated per box)	(Fruits estimated per box)	(Fruits estimated per box)	(Fruits estimated per box)
Hamlin, Westin and Rubi……..	275	276	295	300	296	**289**
Other earlies.....	250	245	251	265	256	**251**
Pera…….....	245	242	251	282	260	**255**
Valencia and Folha Murcha…..	226	230	242	251	245	**239**
Natal.....	230	235	235	256	245	**241**
Total.....	**244**	**245**	**255**	**272**	**260**	**255**

The final fruit size was estimated by a regression model that considered the final fruit size (fruits per box at harvest) as the dependent variable, and the number of fruits per tree counted at stripping, the initial fruit size (fruits per box at stripping), the sum of the production percentages of the first and second blooms in relation to the total production and the rainfall accumulated from May to July as independent variables. Data from ten crops, 2015-2016 to 2025-2026, were used in the regression and are presented in Table 6. Data from the 2021-2022 crop were not used because that was a period of totally atypical climate conditions, with the worst drought in almost a century and high-intensity frosts. The result obtained shows an R^2 of 0.96. This means that the four independent variables together explain 96% of the variation in the final fruit size (fruits per box at harvest), which shows how important these variables are for the final fruit size. The comparison between the final fruit size estimated by this model and the final fruit size observed in these ten crops presents an average absolute error of 1%.

Data used in the model to estimate the final fruit size in this crop comprise figures from the 2026 stripping and the rainfall from May to July 2026 in a volume equivalent to 75 millimeters (avarege of the last three seasons). This size (255 fruits per box) obtained in the first regression was corrected by the second regression that used the observed size as the dependent variable and the estimated size as the independent variable. The result of the second regression was adjusted due to the high proportion of samples from areas with severe HLB incidence, reaching an estimated value of 255 fruit per box.

Table 7 – Data for the 2015-2016 crop to the 2025-2026 crop used to estimate the final fruit size in the 2026-2027 crop

Crop	Fruits per tree at stripping	Initial fruit size at stripping	Sum of productions from first and second blooms	Accumulated rainfall from May to July	Final fruit size observed at harvest	Final fruit size estimated by the model	Error	Absolute error
	(number)	(fruits/box)	(%)	(millimeters)	(fruits/box)	(fruits/box)	(%)	(%)
2015/16....	498	391	90%	204	226	231	2%	2%
2016/17....	430	358	90%	214	222	222	0%	0%
2017/18....	753	393	91%	184	246	240	-3%	3%
2018/19....	564	446	82%	36	259	259	0%	0%
2019/20....	783	411	94%	95	261	255	-2%	2%
2020/21....	568	511	85%	96	258	255	-1%	1%
2022/23....	668	462	86%	59	256	264	3%	3%
2023/24....	635	452	82%	90	255	255	0%	0%
2024/25....	474	426	82%	41	256	250	-2%	2%
2025/26....	617	573	90%	88	266	263	-1%	1%
2026/27…	514	469	83%	75	(X)	253	(X)	(X)

Sources: Fundecitrus (2015-2016 crop to 2026-2027 crop), Climatempo
(X) Not applicable

3 – TABLES OF DATA

The following tables present the 2026-2027 orange crop forecast per sector, age, bloom and variety. The margin of error of the production estimate in the strata is higher than that of the production estimate in the citrus belt as a whole. Possible subsequent variations in fruit size and fruit drop rate may change the forecast and will be accounted for throughout the crop season by ongoing field monitoring for production estimate updates.

Table 8 – 2026-2027 Orange crop forecast by sector

Sector	Mature groves area	Average density[1] of mature groves	Bearing trees	Fruit per tree at stripping[2]	2026-2027 Orange crop forecast		
					Per tree	Per hectare	Total
	(hectares)	(trees/ hectare)	(1,000 trees)	(number)	(boxes/ tree)	(boxes/ hectare)	(1,000,000 boxes)
North.....	87,644	501	42,823.87	567	1.66	812	71.19
Northwest.....	37,090	486	17,635.08	516	1.54	733	27.17
Central.....	101,153	543	52,717.27	480	1.32	688	69.61
South.....	59,677	546	30,693.20	474	1.06	545	32.52
Southwest.....	80,525	519	40,497.42	534	1.35	679	54.71
Total.....	**366,089**	**522**	**184,366.84**	**514**	**1.38**	**697**	**255.20**

[1] Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2024 and 2025 resets)
[2] Weighted average per total stratum fruit

Table 9 – 2026-2027 Orange crop forecast by tree age group (continues below)

Age of plots	Mature groves area	Average density[1] of mature groves	Bearing trees by age group				Fruit per tree at stripping by age group of trees[2]			
			3 – 5 years	6 – 10 years	Over 10 years	Total	3 – 5 years	6 – 10 years	Over 10 years	Total
	(hectares)	(trees/ hectare)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(fruit/ tree)	(fruit/ tree)	(fruit/ tree)	(fruit/ tree)
3 – 5 years.....	59,375	595	32,804.80	-	-	32,804.80	300	-	-	300
6 – 10 years.....	80,488	607	2,206.55	44,516.74	-	46,723.29	144	474	-	459
Over 10 years…..	226,226	473	2,120.34	5,830.29	96,888.12	104,838.75	128	284	636	606
Total.....	**366,089**	**522**	**37,131.69**	**50,347.03**	**96,888.12**	**184,366.84**	**281**	**452**	**636**	**514**

- Represents zero
[1] Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2024 and 2025 resets)
[2] Weighted average per total stratum fruit

Table 9 – 2026-2027 Orange crop forecast by tree age group (continued)

Plots age	2026-2027 Orange crop forecast by tree age group				2026-2027 Orange crop forecast by tree age group			
	3 – 5 years	6 – 10 years	Over 10 years	Total	3 – 5 years	6 – 10 years	Over 10 years	Total
	(boxes/ tree)	(boxes/ tree)	(boxes/ tree)	(boxes/ tree)	(1,000,000 boxes)	(1,000,000 boxes)	(1,000,000 boxes)	(1,000,000 boxes)
3 – 5 years.....	0.81	-	-	0.81	26.73	-	-	26.73
6 – 10 years.....	0.40	1.28	-	1.23	0.88	56.82	-	57.70
Over 10 years…..	0.34	0.74	1.71	1.63	0.73	4.30	165.74	170.77
Total.....	**0.76**	**1.21**	**1.71**	**1.38**	**28.34**	**61.12**	**165.74**	**255.20**

- Represents zero

Table 10 – 2026-2027 Orange crop forecast by bloom

Bloom	2026-2027 Orange crop forecast	Percentage of the orange crop forecast by bloom
	(1,000,000 boxes)	(percentage)
1st.....	67.52	26.4%
2nd	142.99	56.0%
3rd.....	34.26	13.5%
4th	10.43	4.1%
Total.....	255.20	100.00%

Table 11 – 2026-2027 Orange crop forecast in percentage of bloom by region

Bloom	North[1]				Northwest[2]			Central[3]				South[4]			Sothwest[5]			Total
	TMG	BEB	ALT	**AVE**[6]	VOT	SJO	**AVE**[6]	MAT	DUA	BRO	**AVE**[6]	PFE	LIM	**AVE**[6]	AVA	ITG	**AVE**[6]	
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1st.....	38.4	44.5	10.4	39.2	49.5	29.3	37.7	32.4	23.4	11.1	25.4	20.9	21.7	21.4	10.2	17.2	12.4	26.5
2nd.....	49.4	40.5	66.9	46.2	25.8	58.4	45.0	54.3	59.1	76.5	59.0	61.2	59.9	60.7	63.6	69.0	65.4	56.0
3rd.....	10.4	11.9	16.6	11.8	12.3	9.6	10.7	10.9	14.6	10.7	12.9	10.9	10.1	10.6	22.8	10.5	18.9	13.4
4th.....	1.7	3.1	6.2	2.8	12.5	2.6	6.6	2.4	3.0	1.7	2.7	7.0	8.3	7.4	3.3	3.3	3.4	4.1

[1] North: TMG – Triângulo Mineiro, BEB – Bebedouro, ALT – Altinópolis
[2] Northwest: VOT – Votuporanga, SJO – São José do Rio Preto
[3] Central: MAT – Matão, DUA – Duartina, BRO – Brotas
[4] South: PFE – Porto Ferreira, LIM – Limeira
[5] Southwest: AVA – Avaré, ITG – Itapetininga
[6] AVE – Weighted average per total stratum fruit

Table 12 – 2026-2027 Orange crop forecast and its components by variety group

Variety group	Mature groves area	Average density[1] of mature groves	Components of May/2026 forecast				2026-2027 crop forecast		
			Bearing trees	Fruit per tree at stripping[2]	Fruit estimated per box	Estimated drop rate	Per tree	Per hectare	Total
	(hectares)	(trees/ hectare)	(1,000 trees)	(number)	(number)	(%)	(boxes/ tree)	(boxes/ hectare)	(1,000,000 boxes)
Early:									
Hamlin, Westin and Rubi.....	60,506	491	28,332.86	660	289	18.40	1.67	783	47.38
Other early:									
Valencia Americana, Seleta, Pineapple and BRS Alvorada……	24,261	573	13,247.84	508	251	20.00	1.45	793	19.25
Mid-season:									
Pera.....	128,413	539	66,911.82	453	255	22.00	1.24	648	83.20
Late:									
Valencia and Folha Murcha...	115,613	511	57,191.83	517	239	27.30	1.41	698	80.71
Natal.....	37,296	519	18,682.49	513	241	30.90	1.32	661	24.66
Total.....	**366,089**	**522**	**184,366.84**	**514**	**255**	**23.70**	**1.38**	**697**	**255.20**

[1] Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2024 and 2025 resets)
[2] Weighted average per total stratum fruit