

# 2023-2024

## TREE INVENTORY AND ORANGE CROP FORECAST FOR THE SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT



ACESSE O VÍDEO E  
ACOMPANHE A PESQUISA





# **TREE INVENTORY AND 2023-2024 ORANGE CROP FORECAST FOR THE SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT**

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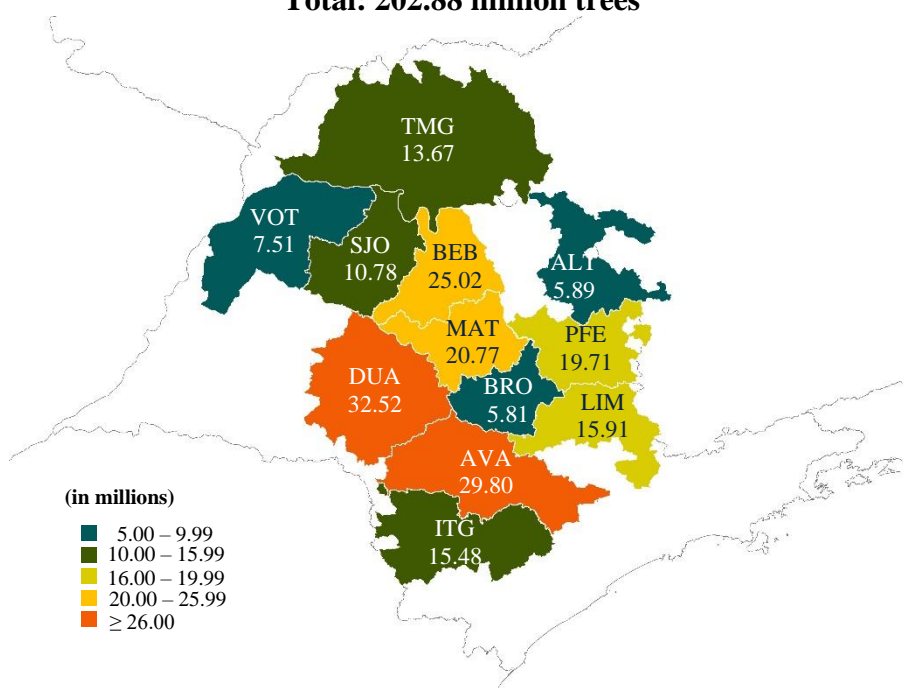
# TREE INVENTORY OF THE SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT

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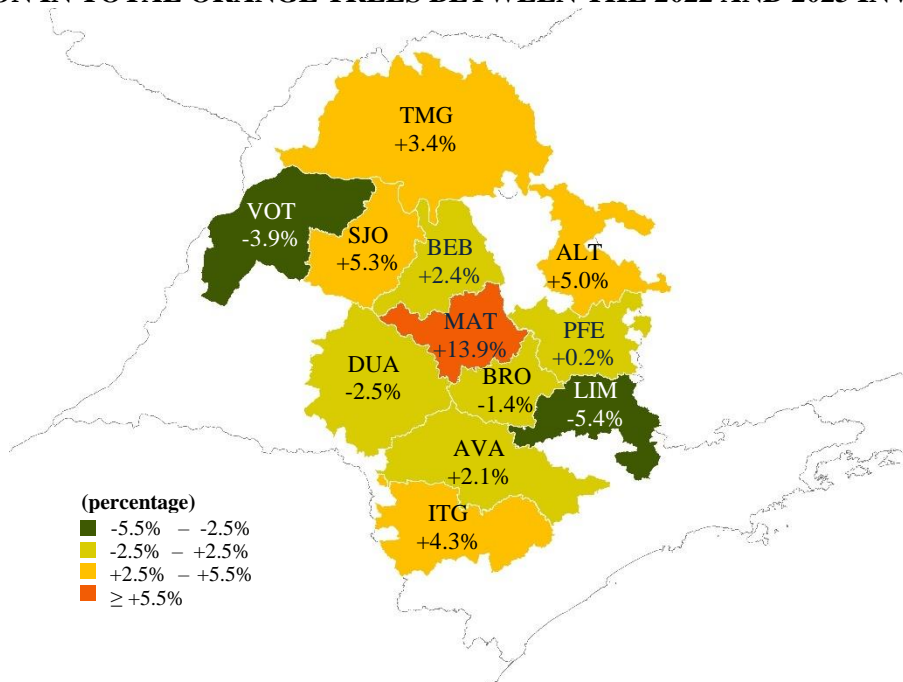
SNAPSHOT OF GROVES  
IN MARCH 2023

## TOTAL ORANGE TREES<sup>1</sup> BY REGION

Total: 202.88 million trees



## VARIATION IN TOTAL ORANGE TREES BETWEEN THE 2022 AND 2023 INVENTORIES



Abbreviation	Region	Total orange trees <sup>1</sup>			Abbreviation	Region	Total orange trees <sup>1</sup>		
		2022 Inventory <sup>2</sup>	2023 Inventory <sup>2</sup>	Variation			2022 Inventory <sup>2</sup>	2023 Inventory <sup>2</sup>	Variation
		(millions)	(millions)	(%)			(millions)	(millions)	(%)
MAT.....	Matão.....	18.23	20.77	13.93%	AVA.....	Avaré.....	29.20	29.80	2.07%
SJO.....	S. J. do Rio Preto	10.23	10.78	5.34%	PFE.....	P. Ferreira.....	19.66	19.71	0.25%
ALT.....	Altinópolis.....	5.61	5.89	4.97%	BRO.....	Brotas.....	5.89	5.81	-1.36%
ITG.....	Itapetininga.....	14.85	15.48	4.29%	DUA.....	Duartina.....	33.34	32.52	-2.47%
TMG.....	Triâng. Mineiro..	13.22	13.67	3.39%	VOT.....	Votuporanga.....	7.82	7.51	-3.94%
BEB.....	Bebedouro.....	24.44	25.02	2.38%	LIM.....	Limeira.....	16.81	15.91	-5.36%

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

<sup>2</sup> Snapshot of groves in March

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# **TREE INVENTORY OF THE SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT – SNAPSHOT OF GROVES IN MARCH 2023**

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**Published on June 05, 2023<sup>1</sup>**

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## **Publication Schedule**

### **2023-2024 Crop Year**

Executive summary of the 2023-2024 orange crop forecast: May 10, 2023

March 2023 tree inventory: June 05, 2023

Crop forecast: June 05, 2023

1<sup>st</sup> Crop forecast update: September 11, 2023

2<sup>nd</sup> Crop forecast update: December 11, 2023

3<sup>rd</sup> Crop forecast update: February 09, 2024

Final crop forecast: April 10, 2024

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This is a live document in that it serves to know and explore the citrus belt in rich detail and provide support to agents in this sector. In that sense and with the aim of meeting the demands both from the citrus segment and the press, we reserve the right to enlarge, review and deepen the information already published. It is therefore recommended that the most recent publication available at [www.fundecitrus.com.br](http://www.fundecitrus.com.br) be used.

<sup>1</sup> Year 9 – N° 1 – June 05, 2023

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**Performed by FUNAECITRUS in cooperation with MARKESTRAT and  
full professors from FEA-RP/USP and the department of Math and Science of FCAV/Unesp**

**TREE INVENTORY OF THE SÃO PAULO  
AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT**  
SNAPSHOT OF GROVES IN MARCH 2023

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2023

Catalog card in Fundecitrus Library

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Fundecitrus President and citrus grower

With the 2023-2024 harvest beginning, citrus growers seek reliable information about the supply of fruits from each producing region, in a valued market due to the shortage of stocks and the end of the pandemic. In this context, Crop Forecast Survey is an essential tool for independently evaluating groves, providing reliable data for projections and negotiations. The new harvest is forecast to reach 309.34 million boxes, a slight decrease of 1.55% compared to the previous crop, which registered 314.21 million boxes. It is important to highlight the biennial cycle, with regions previously affected by low productivity recovering, while others will produce less. Fortunately, the current weather conditions are favorable, which should result in larger fruits and a more efficient harvest. But orange agribusiness faces challenges in both the short and long term, making it crucial to adopt practices and advance research aimed at preserving production capacity. Greening continues to affect productivity, but the management recommended by Fundecitrus allows production to be carried out, albeit at higher costs. It is essential to properly manage the losses faced by producers, seeking effective solutions. A notable challenge is fruit drop, which ranges from 10.5% to 26.50% for Hamlin and Natal varieties, respectively. To address this challenge, nutritional research projects should be conducted, in addition to research that seeks to improve the quality of early varieties for juice production, which can be an important alternative to reduce production losses and bloom uniformity. It emphasizes, once again, the importance of the private sector having acted reliably, eliminating distortions in production forecasts in different regions. The sector is constantly advancing in the structuring of "big data" and in the continuous improvement of the relationship between production and market. Fundecitrus, in turn, will continue to improve the production process and the connection with sustainability, seeking a deeper understanding of the possible scenarios of this important source of work and economic development. Fundecitrus focuses its efforts on structural, research, and extension aspects, both in groves and with citrus growers. Even in the face of the dynamism of the sector, the focus will be on the management of greening and the development of new varieties with superior quality, allowing the mechanization of the harvest, in addition to strengthening genetic resistance and adaptation to various ecological conditions.

### **Antonio Juliano Ayres**

Fundecitrus General Manager

Embarking on the journey that the institutional film of the Crop Forecast Survey and the Fundecitrus Tree inventory invited us to, it is possible to see through the window what is behind the groves of the Citrus Belt of São Paulo and West-Southwest Minas Gerais: the pioneering, resistant and courageous spirit of the São Paulo and Minas Gerais citrus farmer, as reported in last year's film. One relates to the other. Because what was seen in the announcement of the 2023-2024 crop was the pioneering nature of our citrus industry when quantifying the carbon stock present in the soil, citrus trees and preserved vegetation of the citrus properties of the citrus planted area, an enormity: 36 million tons of carbon (the equivalent of what the city of São Paulo releases in eight years); the resistance to the worst of all diseases in global citriculture, greening, which affects one in four orange trees in São Paulo and Minas Gerais (an average incidence of 24.42%, according to the Fundecitrus 2022 greening survey), damaging the capacity to renew groves in the citrus belt and threatening its viability like never before; and the courage to continue investing in research and development, with exchanges with the main centers of education and science in Brazil and the world, in transfer of technology, training and professional updating and corporate governance. The Crop Forecast Survey is, at the same time, a working instrument, a basis for decision-making, and transparency, in full respect of the international orange juice markets. For all these riches, economic, social, environmental and cultural, to be conserved, we need to fight greening with the information and weapons we have available. It's possible. If we act urgently, rigorously and collectively. We have no time to lose.

## **Marcos Fava Neves**

PES Political-Institutional and Methodological Coordinator, part-time Full Professor at FEA-RP/USP, advisor to Markestrat and other organizations

Citrus is one of the most relevant chains for Brazilian agribusiness. In 2022, orange juice exports totaled about US\$ 2 billion or R\$ 10.6 billion, according to the Ministry of Agriculture, Livestock and Supply. To get a sense of the relevance of these figures, every minute, foreign sales of orange juice add up to R\$ 20 thousand, so, it is very likely that at the end of your reading, another R\$ 20 thousand will have been added to the trade balance of the sector. In volumes, Brazil accounts for more than 70% of production and almost 76% of exports of the main concentrated juice. Not to mention movements in domestic trade, job creation, economic development and other contributions. All these results were only possible thanks to the commitment and actions of many agents in the sector. Among them, the Crop Forecast Survey stands out, which reaches its 9th edition in 2023 and is configured as a global reference in agglutination of efforts and generation of information to the sector. More than generating forecasts for citrus production, PES has contributed to demonstrating the sustainability of production. This year, we also started ahead in the quantification of carbon stock in groves, a work developed together with Embrapa and which demonstrated once again the contribution of groves to carbon storage. Congratulations to Fundecitrus, who, together with Markestrat, FEA-RP/USP and FCAV/UNESP, deliver another great work in 2023! We continue to build value through transparency and joint efforts. And let's go together, towards 10 years of PES in 2024. Good harvest to all!

## **Vinícius Gustavo Trombin**

Executive Coordinator of PES and partner at Markestrat

Throughout these nine years dedicated to Crop Forecast Survey, we have been driven by an incessant desire to outperform ourselves. Each stage was an opportunity to improve our work, constantly striving for excellence, reliability and comprehensiveness of our results. We have found that our purpose goes beyond simply dealing with numbers and scientific methods. We realize how much the human factor is decisive to achieve excellent results, because it is the people who give life to the process, who put their heart into each step of the way. On this journey, we do not walk alone. We found exceptional partners who contributed valuable knowledge that we didn't have. In addition to a Technical Committee committed to the accuracy of results, we had the privilege of counting on Embrapa Digital Agriculture, which embraced the challenge of developing research using artificial intelligence to count fruits on trees. We also had the precise guidance of Embrapa Territorial, which led us in the dimensioning of areas dedicated to environmental preservation, carbon stock and, more recently, in the mapping that we are starting of the rich wildlife that lives on citrus properties. This journey has been long and full of challenges, but we do not intend to stop here. We follow with enthusiasm and determination, with our eyes fixed on the most distant horizons, as we prepare to reach new heights of excellence and contribute to the sustainable growth of this sector that is so important. It is a journey we take alongside the citrus growers.

## **José Carlos Barbosa**

Methodological Analyst at PES and (Voluntary) Full Professor at FCAV/Unesp

The Crop Forecast Survey is carried out for the ninth year by Fundecitrus and each year uses new methodologies and tools to increase the accuracy and reliability of the estimates. The methodologies incorporated in 2022, projecting the weight of the fruit in the plots harvested using the weight growth rate, and the projection of the drop rate per variety in each sector, due to the great variation in the incidence of greening between sectors, improved the estimates of weight and fruit drop rates. This year, control charts were introduced for counting the number of fruits and weighing the fruits from fruit stripping, in order to improve the estimate of the number of fruits per tree. Once again, Fundecitrus delivers to citrus growers, juice factories and other agents of the productive sector an inventory of trees and a crop forecast carried out with the greatest rigor and reliability possible.

## ACKNOWLEDGEMENTS

We would like to express our gratitude to all those involved who collaborated directly and indirectly to carry out this survey. Their valuable support was key to achieving unbiased and relevant results, benefiting the entire production chain.

We especially want to highlight the citrus growers, who have generously provided data on their citrus production areas, trusting Fundecitrus to maintain complete confidentiality of individual information and respect the privacy of personal data.

We also thank the São Paulo state department of agriculture and supply for sharing the information on the amount of nursery citrus plants marketed under the permit to transit in 2022.

We cannot fail to mention the orange juice companies Citrosuco, Cutrale and Louis Dreyfus, for allowing their groves to be included in our field survey and for sharing information on the average size of the fruits received for industrial processing over the past crop season.

Special thanks also to the Technical Committee, whose informed recommendations enriched our results and improved our surveys.

We would like to express our gratitude to the Fundecitrus employees, who work in various areas supporting the work of PES, and to the outsourced teams that have tirelessly dedicated themselves to this challenging project. With exceptional commitment and skill, they carried out the surveys with the highest quality and strictly adhered to the established deadlines.

We thank Embrapa, with whom we quantified carbon stocks in production and conservation areas, and began the survey of wildlife on citrus farms. We also want to thank Innocent Drinks, who generously provided the necessary financial resources for the execution of this project, through the Farmer Innovation Fund, which supports initiatives aimed at reducing carbon in agriculture and inspires other farmers to adopt similar practices. In particular, we also thank Agroterenas and Citrosuco for the trees provided for carbon analysis.

Last but not least, we would like to thank the farms that kindly allowed us to use their properties as the setting for the production of this year's PES institutional video. Our thanks go to Faro Capital, in Altinópolis (São Paulo); Fazenda Aratama - Cronos Agrícola, in São Sebastião do Paraíso (Minas Gerais); Fazenda Santo Ignacio de Loyola, in Brotas (São Paulo) and Fazenda São Francisco, in Jacuí (Minas Gerais).

Finally, we want to express our deep gratitude to the Fundecitrus management board, whose support for this survey based on measurable indicators reinforces the importance of the value of data, transparency and democratization.



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## 1 – INTRODUCTION

This publication presents the results of the ninth survey on the tree inventory of São Paulo and west-southwest Minas Gerais citrus belt carried out by Fundecitrus in cooperation with Markestrat, full professors from FEA-RP/USP and the department of Math and Science of FCAV/Unesp from January 2021 to May 2023.

Fundecitrus has carried out, starting from 2014 – year it took over the responsibility of performing a public and reliable forecast of the crop and the profile of groves – all activities involving field data collection, laboratory work and information processing. Since then, (Voluntary) Professor José Carlos Barbosa, from the department of Math and Science at FCAV/Unesp has been in charge of analyzing methodologies. Markestrat, represented by Vinícius Gustavo Trombin, is responsible for the survey governance, with professor Marcos Fava Neves of FEA-RP/USP and also linked to Markestrat serving as the institutional and methodological coordinator.

One of the governance measures adopted at the time of survey implementation that is still in force is the follow-up on activities being performed, which is done by a technical committee comprising citrus growers, representatives of orange juice companies, academics, as well as Fundecitrus researchers and supervisors. The committee's objective is to monitor the performance of field activities and propose solutions toward operational improvements.

Results from this study were obtained all along the survey, then compiled and restricted until the crop announcement date to the following professionals: Antonio Juliano Ayres (Fundecitrus general manager); Fernando Alvarinho Delgado (PES supervisor) and Roseli Reina (PES Specialist); Vinícius Gustavo Trombin (executive coordinator linked to Markestrat); Marcos Fava Neves (institutional and methodological coordinator linked to FEA-RP/USP and Markestrat); and José Carlos Barbosa (methodology analyst, working as a volunteer linked to the department of Math and Science of FCAV/Unesp). All of them are subject to confidentiality obligations with regard to PES information before its announcement is made public, according to agreements signed between each of them and Fundecitrus.

As for antitrust practices, all of them are complied with through the adoption of measures necessary to prevent any communication or sharing of individual information with a competitive content among the orange juice companies that collaborate with Fundecitrus in this project or between these and citrus growers.

### 1.1 – BUDGET

The Fundecitrus Management Board decided on the execution of this research having approved the budget of R\$ 6.96 million for the 2022/23 cycle, of which 53% refer to expenses with the entire technical and administrative staff and labor charges; 35%, to expenses with travel, lodging, meals and maintenance; and the other 12% to do with investments that include satellite images, softwares licenses, computer equipment, materials, dispute compensation and others. This budget provides financial support for the implementation of the planned activities until May 31, 2023. After that date, the budget for the financial year from June 2023 to May 2024 shall apply.

### 1.2 – GENERAL FIGURES

- **98 professionals directly involved in the survey**

Field personnel: 24 agents, 8 drivers and 48 assistants;

Laboratory personnel: 15 assistants;

Office personnel: 1 coordinator, 1 supervisor and 1 specialist.

- **More than 410 thousand kilometers covered**

Accumulated distance in travelling to count 5% of orange plots: 183,184 km;

Accumulated distance in travelling to fruit stripping: 226,994 km.

- **Approximately 3,500 plots visited.**

### 1.3 – DEFINITION OF TECHNICAL TERMS

**Citrus belt:** region in Brazil with the largest concentration of commercial orange producing farms, encompassing cities in the state of São Paulo as well as some located in the west-southwest state of Minas Gerais.

**Farm:** rural estate with continuous area of land (physical interruptions may be present such as roads and water streams) under the control of one owner, with more than 200 citrus trees, with the possibility of there being areas in the same estate that are allocated for different purposes such as growing other crops or raising livestock.

**Plot:** farm fraction or portion separated by lanes, roads, tracks or any other passageway that is usually wider than the spacing between planting rows.

**Non-bearing tree:** tree planted in 2021 and 2022 that has not yet entered into production.

**Bearing tree:** tree planted in 2020 and in previous years.

**Dead tree:** defoliated tree where at least 75% of branches are dry, with no evidence of recovery.

**Vacancy:** empty space on the ground within the planting row that should be occupied by a citrus tree, according to the tree spacing defined when the plot was planted.

**Planting hole:** central spot in the space occupied by each tree (plant-area) where the earth is dug out and a nursery plant is set; spot in the planting row where there is a potential tree.

**Young grove:** plot planted in 2021 and 2022.

**Mature grove:** plot planted in 2020 and in previous years.

**Eradicated grove:** area where citrus trees were removed, which can refer to the whole plot or to part of it.

**Box:** one orange box is equivalent to 40.8 kg or 90 lb.

**Hectare:** one hectare is equivalent to 2.4710439 US acres.

**Kilometer:** one kilometer is equivalent to 0.621371192 miles.

## 2 – METHODOLOGICAL PROCEDURES

### 2.1 – OBJECTIVE METHOD FOR MAPPING CITRUS GROVES

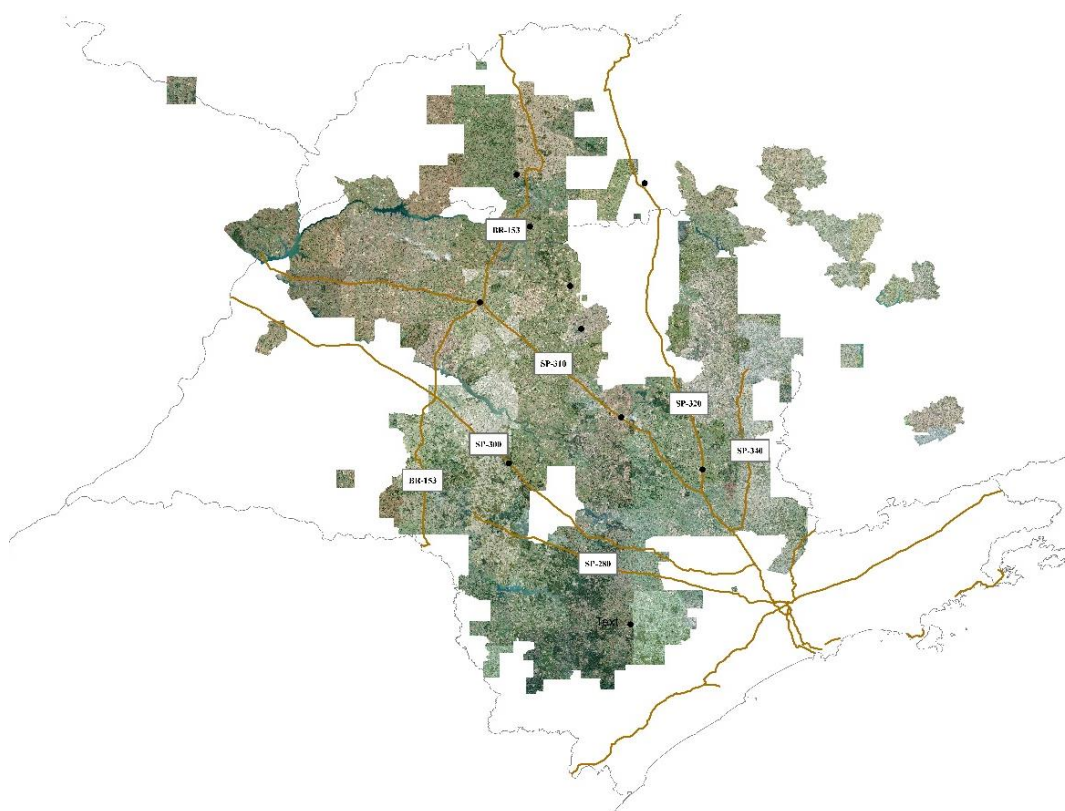
The georeferenced mapping, performed for the first time when the 2015 inventory was taken and renewed in 2018, has been updated in the 2022 inventory. In all of them, the method employed is objective and aims at producing and conveying quality technical information with scientific rigor and the least possibility of subjective interference.

The mapping method can be divided into four steps, as follows: (1) collection of satellite images, (2) data collection on farms, (3) checking data in the office and in the field, (4) organizing data.

#### COLLECTION OF SATELLITE IMAGES

New high-definition images were obtained by satellites SPOT 6&7 from the European operator Airbus Defence and Space between May 1 and August 13, 2021. Such months were chosen due to favorable meteorological conditions, with lower incidence of clouds and lower rainfall, which allowed for a better contrast between vegetated and bare soil areas such as roads and tracks. Scenes covered 160,000 km<sup>2</sup> in 419 cities in the state of São Paulo, Minas Gerais, Goiás and Mato Grosso do Sul. This coverage area is represented in Figure 1.

**Figure 1 – Area covered by new satellite images including regions of São Paulo, Minas Gerais, Goiás e Mato Grosso do Sul**



Spatial resolution for scenes is 1.50 meters per pixel, which provides a fairly sharp view of plots. Canopy hues and diameter seen in the images made it possible to differentiate between mature groves from those still in early development and facilitated discerning citrus plantings from those of other fruit also significantly present in the citrus belt, such as mango, avocado and guava. Furthermore, images are orthorectified, which allowed precise measurements to be made, both linear ones in the case of spacing between rows or plants and those used in the calculation of the area of plots.

Images were georeferenced into geographic coordinates with Datum WGS 84, enabling their synchronicity to GPS for assisted navigation to farms and outlines of groves that had not been caught in images at the time they were taken. Mapping of totally or partially eradicated plots was also facilitated by this technology.

## DATA COLLECTION ON FARMS

Satellite images were made available to survey agents in August 2021, and so were the outlines of plots identified in the previous mapping, which was overlaid on the images to ease visualization of spots to be visited for *in loco* data collection. No information relative to a plot other than its outline was supplied to survey agents, which required a new collection of all data: variety, planting year, spacing, visual aspect of plants and irrigation system, if any.

Before going to the field, survey agents visually inspected satellite images to identify younger groves planted from 2018 to 2021 that should be included in the visiting route and registered with the use of geoprocessing and data collection software. Data was entered on electronic forms that were specifically designed for that. With the use of GPS signaling the route on top of digital images of a region, survey agents travelled to cities to be scanned for location of groves.

The standard procedure to begin activities on any farm included disinfecting vehicles, personnel and equipment as well as obtaining a permit to enter and move through citrus plots before data could be collected in each of them – a total of 90% of the mapped area, including all oranges, had new data collected in this manner.

On farms corresponding to 7% of the mapped area, entry was not permitted but complete data on groves was supplied and inserted in the system to be used as such for calculations in the inventory.

When the owner or responsible was not found after several attempts or when the authorization was not granted, the survey was done remotely, if the citrus plots identified from the image could be viewed externally from the farm, or by statistical inference, based on the average data of their region, which occurred in 1% of the mapped area. But, when possible, their data was sought in the previous mapping, which occurred in 2% of the mapped area.

Criteria for outlining new plantings were the same used in 2018, that is, areas relative to any farm structures within plots, such as farmhouses, dams or sheds for the distribution of agricultural inputs, were not accounted for, so the net areas for each plot were obtained, i.e., only areas occupied by plants, automatically calculated by the geoprocessing software<sup>1</sup>. In case plots underwent changes after the 2018 mapping, their outlines were redrawn to correspond to their current area.

Planting configuration data (spatial tree arrangement) was also collected again. Hence, spacing was measured between rows and between plants located in the center of plots. To determine the spacing between rows, the distance between three trees in parallel rows was measured, whereas to determine the spacing between plants, 11 consecutive planting holes in the same row were measured.

Information on the variety and planting year for each plot was requested from the grower or the person in charge of the farm. In many cases the identification was made in the field by the agent themselves, upon considering a series of factors such as characteristics of leaves, shape of the canopy, presence and shape of fruit, tree size, use of dwarfing rootstock or not, and trunk width, among others.

The field visit identified plots that were abandoned or eradicated after the 2018 inventory. Plots already identified as such in the mapping that year were revisited for data update.

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<sup>1</sup> Procedures described as of this point apply only to orange. For other citrus including acid limes, lemons and tangerines, a simplified mapping methodology was used.

Finally, the outline drawing of all citrus farms and the collection of registration information made it possible to accurately update the number of farms.

### **Information storage and security**

In order to preserve the confidentiality of individualized information, all data collected and entered by agents was encrypted and securely sent through a private network from the agents' work computers to the Fundecitrus server, on a daily base.

Information was transferred to the Fundecitrus Geographic Information System whose database is stored in a secure environment that undergoes continuous improvement to be kept stable along time. This system is accessed by survey agents and supervisors who are part of the survey team through workstations that are not connected to the internet and have blocked entry/exit data ports to render communication with peripheral devices impossible. Access to individualized information is also managed by a login system with permit levels and validated by username and password verification.

According to compliance rules, survey agents should deliver filled out form sheets and any printed information they receive from citrus growers to Fundecitrus. These documents are confidential and are stored in a secured place at Fundecitrus for a period of four years after which they are destroyed. Data collection took place from August 16, 2021 to January 28, 2022. Each survey agent mapped an average of 243 hectares per day.

### **CHECKING DATA AT THE OFFICE AND IN THE FIELD**

After data for all plots in a certain city was collected by agents, it was serially checked to prevent errors that could influence results. Technicians responsible for data processing at the office scanned images again to adjust the drawings of plots and verify if the citrus areas identified as such were mapped in totality by survey agents. Divergences were informed to agents that in turn went back to the cities for checks in the field and registration of farms in case the collected information was confirmed. Newly collected data relative to variety and planting year that differed from the previous registration was audited for validation.

In total, approximately 1,600 orange plots had their data audited *in loco* during mapping. Quality of registration information for plots was also assessed during the plot counting step. Out of roughly 2,500 plots visited in this step, registration errors were found in only 0.5% of them in reference to variety, and in 0.3% in reference to planting year.

## DATA ORGANIZATION

After the data collected was submitted to verification, it was grouped and organized in regions, variety group and age group, as presented in item 2.3.

Therefore, data for each plot or farm is not individually published so as to preserve the privacy of each citrus grower.

This volume of data, encrypted and saved in the Fundecitrus Geographic Information System forms the new primary base (2022) that replaces that of 2018 and will now be preserved for use in future updates until a new mapping is performed, which is planned to start in the second half of 2024 for taking the 2025 inventory.

### 2.2 – OBJECTIVE METHOD FOR TAKING THE ORANGE TREE INVENTORY

For the tree inventory, 5% of plots in the primary base (2022) are drawn to be visited and to have their planting holes classified and quantified. In the 2015 and 2016 inventories, the counting of planting holes was stratified into four categories: bearing, non-bearing, dead trees and vacancies. Starting from the 2017 inventory, the categorizing method has been refined. Each tree present in a plot was classified into up to four age categories: zero (up to two years old), one (from three to five years old), two (from six to ten years old) and three (over 10 years old). Dead trees and vacancies were also accounted for.

This reformulation provides a detailed overview of the number of trees within a same plot in each age category, since each tree is classified and counted at its own age and no longer considered as old as the original planted grove. For the categorized counting, survey agents are informed by the citrus grower whether a grove has been reset and when. Next, they visit the block and define the visual pattern of the tree for each age category present in the plot, by combining the information provided by the citrus grower with visual evidence such as trunk circumference, height and shape of canopy.

The visual pattern of age is specific to each plot since plant development varies according to management, variety, rootstock and scion genetics, irrigation and edaphoclimatic aspects, among other factors. Therefore, count results represent an approximate tree age and not effectively its chronological age, calculated from its exact planting year. Age base for the plot remains being the year it was planted.

If eradicated plots are found among the drawn plots, their areas are used to calculate the eradication rate of the sample. This eradication rate is applied to the primary base. The same calculation is done in case abandoned plots are found. After those two rates are applied to the primary base, the estimated area occupied by groves in the current crop is determined. This new area multiplied by the tree density of the primary base results in its updated number of planting holes. That number in turn is corrected by the index generated from the comparison between the number of planting holes found in the sample and its respective number in the primary base. Indexes resulting from counts are applied to that number of planting holes, i.e., percentages of trees in each age category, as well as percentages of dead trees and vacancies, aiming at the determination of the new tree inventory.

In years when farm mapping is not performed, as was the case in the development of this 2023 inventory, an estimation is made of plantings that occurred in the years following the mapping.

Hence, all farms in the sample are checked for the presence of groves planted after the survey agent's visit at the time the previous mapping was performed to form the primary base. An index for new plantings is generated from the rate between the additional area and the respective total area for a variety on the farm. Indexes per variety are extrapolated to the whole region to estimate plantings in the year.

Data used to estimate the number of trees planted is supplied by the animal and plant health protection agency for the state of São Paulo (CDA-SP), of the São Paulo state agriculture and supply department, on the number of citrus nursery plants marketed under the permit to transit plants in the state of São Paulo.

In strata where stratified plantings per region and variety in the field survey show a higher number of trees than that supplied by the CDA-SP, the field survey data prevails. This difference results from the production of nursery plants by growers in nurseries within their farms and allocated to their own use, without the need of a permit to transit plants. Therefore, the final number of nursery plants planted in a given year includes nursery plants produced with and without permits to transit plants. The survey of the amount of these nursery plants is carried out by Fundecitrus from research with the main producers that have nurseries on their farms.

To estimate the area of these groves, the average density stratified by variety and region of these newly implemented plots and mapped during counting is used. From the sum of the number of trees from the CDA-SP with those from the research carried out with such growers, the nursery plants used for resetting are subtracted, thus obtaining the estimate of the number of trees planted in the groves that year.

To calculate the number of nursery plants allocated for resetting, the number of existing non-bearing trees in mature groves (resets) is divided by two, based on the assumption that such resetting occurred at the same rate in the two previous years. The density found in sampling 5% of plots is used to calculate the area occupied by new groves.

In years when mapping is performed, information once estimated for these new plantings is updated to its actual figures.

Lastly, auditing is performed with a plot recount to assess the quality of the data collected.

Plots are randomly drawn for counting through the proportional stratified sampling technique. Stratification variables are: 12 regions, five orange variety groups and four age groups, totaling 240 strata. Counting of groves was concentrated between January 10 and March 15, 2023. Each survey agent counted an average of 16,380 planting holes per day.

## **2.3 – CITRUS BELT STRATIFICATION**

### **Sectors and regions**

The citrus belt is divided into five sectors that in turn are subdivided into 12 regions. Each of them comprises several cities and has been named after one of them for reference. The division considered the soil and climate characteristics and historical aspects related to citriculture development that, in general, resulted in a technological pattern for similar farms in the region. Figure 2 presents sectors and regions of the citrus belt and following that, Chart 1 details the cities and abbreviations used to designate regions.

Figure 2 – Division of the citrus belt into 5 sectors

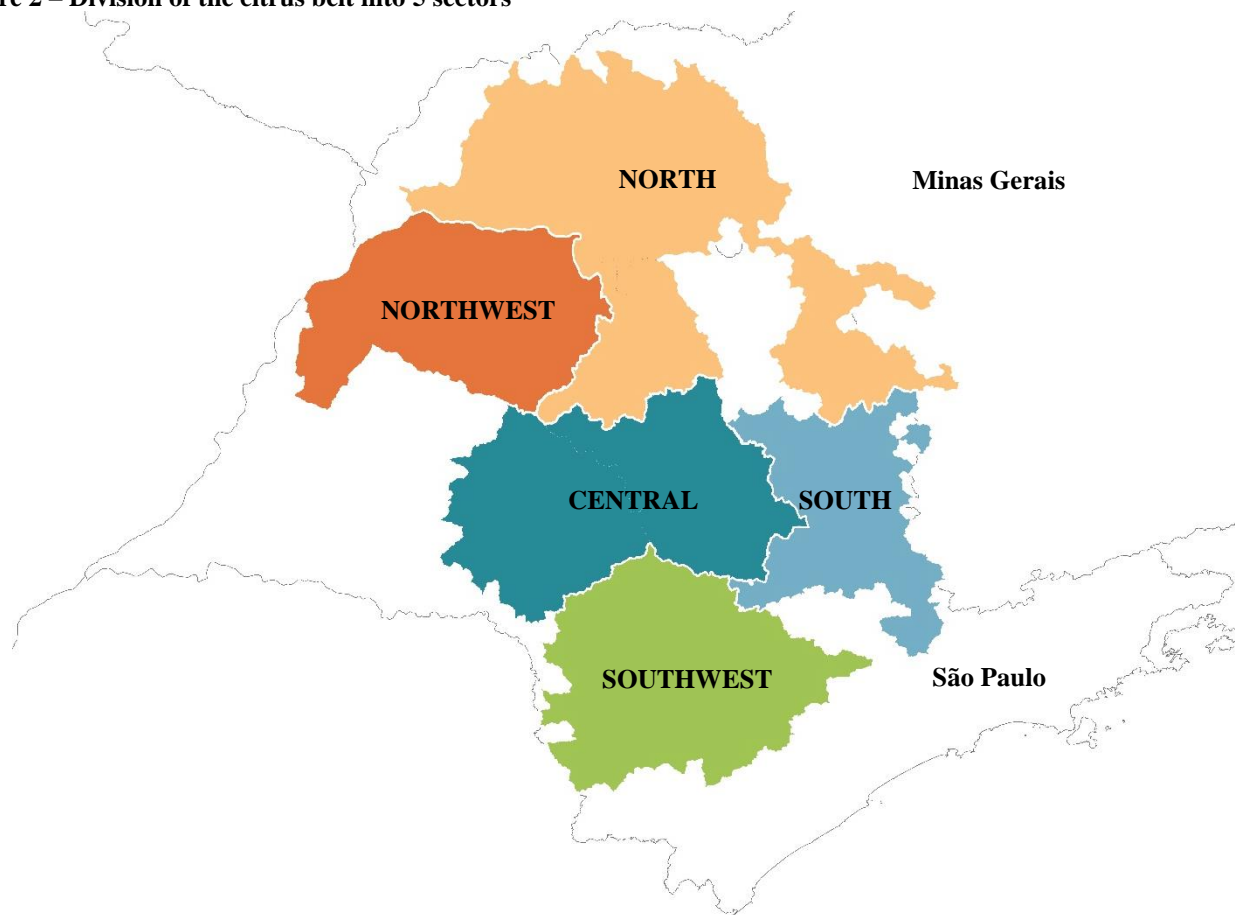
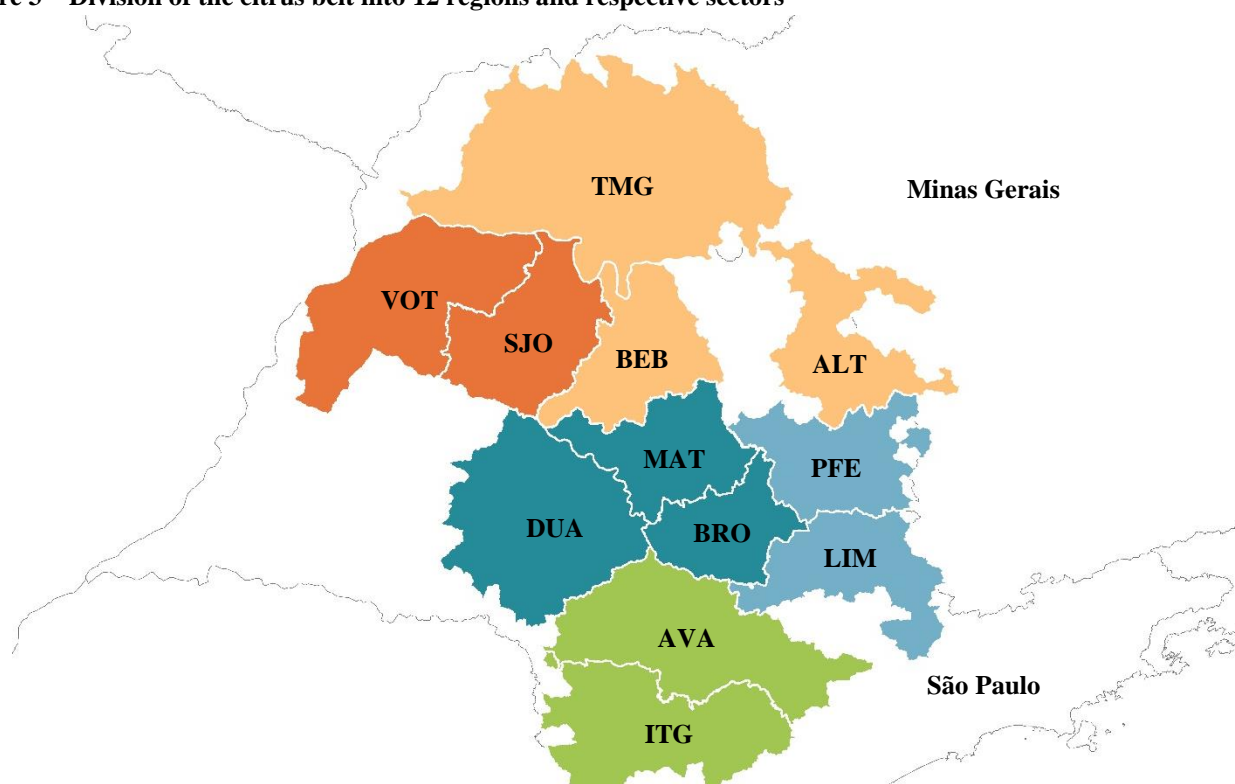


Figure 3 – Division of the citrus belt into 12 regions and respective sectors



**NORTH:** Triângulo Mineiro (TMG); Bebedouro (BEB); Altinópolis (ALT)  
**NORTHWEST:** Votuporanga (VOT); São José do Rio Preto (SJO)  
**CENTRAL:** Duartina (DUA); Matão (MAT); Brotas (BRO)  
**SOUTH:** Porto Ferreira (PFE); Limeira (LIM)  
**SOUTHWEST:** Avaré (AVA); Itapetininga (ITG)

**Chart 1 – Division of cities with citrus farms in sectors and regions**

Sector	Region	Cities
North 75 cities	Triângulo Mineiro (TMG) 16 cities	Campina Verde, Campo Florido, Canápolis, Comendador Gomes, Conceição das Alagoas, Frutal, Gurinhata, Itapagipe, Ituiutaba, Iturama, Monte Alegre de Minas, Planura, Prata, São Francisco de Sales, Uberaba, Uberlândia
	Bebedouro (BEB) 36 cities	Ariranha, Barretos, Bebedouro, Cajobi, Catanduva, Catiguá, Colina, Colômbia, Elisiário, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Jaborandi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Palmares Paulista, Paraíso, Pindorama, Pirangi, Pitangueiras, Sales, Santa Adélia, Severínia, Tabapuã, Taiaçu, Taiuva, Taquaral, Terra Roxa, Uchoa, Urupês, Viradouro, Vista Alegre do Alto
	Altinópolis (ALT) 23 cities	Alterosa, Altinópolis, Batatais, Brodowski, Cajuru, Cassia dos Coqueiros, Cristais Paulista, Delfinópolis, Fortaleza de Minas, Franca, Ibiraci, Igarapava, Jacuí, Jeriquara, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Sacramento, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso, São Tomás de Aquino
Northwest 89 cities	Votuporanga (VOT) 54 cities	Alvares Florence, Américo de Campos, Andradina, Aparecida d'Oeste, Aspásia, Auriflama, Cardoso, Dirce Reis, Dolcinópolis, Estrela d'Oeste, Fernandópolis, General Salgado, Guaraçá, Guarani d'Oeste, Guzelândia, Indaiópolis, Jales, Macedônia, Marinópolis, Meridiano, Mesópolis, Mira Estrela, Mirandópolis, Murutinga do Sul, Nova Canaã Paulista, Ouroeste, Palmeira d'Oeste, Paranapuã, Parisi, Pedranópolis, Pereira Barreto, Pontalinda, Pontes Gestal, Populina, Rioldândia, Rubineia, Santa Albertina, Santa Clara d'Oeste, Santa Fé do Sul, Santa Rita d'Oeste, Santa Salete, Santana da Ponte Pensa, Santo Antônio do Aracanguá, São Francisco, São João das Duas Pontes, São João de Iracema, Sud Mennucci, Suzanópolis
	São José do Rio Preto (SJO) 35 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Floreal, Guapiaçu, Icem, Ipiranga, Jaci, José Bonifácio, Macaúba, Magda, Mendonça, Mirassol, Mirassolândia, Monte Aprazível, Neves Paulista, Nhandeara, Nipoã, Nova Aliança, Nova Granada, Onda Verde, Orindiúva, Palestina, Paulo de Faria, Planalto, Poloni, Potirendaba, São José do Rio Preto, Sebastianópolis do Sul, Tanabi, Ubarana, Zacarias
Central 76 cities	Matão (MAT) 21 cities	Américo Brasiliense, Araraquara, Bariri, Boa Esperança do Sul, Borborema, Candido Rodrigues, Fernando Prestes, Gavião Peixoto, Ibitinga, Itaju, Itápolis, Jaboticabal, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Rincão, Santa Lucia, Tabatinga, Taquaritinga
	Duartina (DUA) 40 cities	Agudos, Alvinlândia, Arealva, Avaí, Balbinos, Bauru, Boraceia, Cabralia Paulista, Cafelândia, Campos Novos Paulista, Duartina, Echaporã, Espírito Santo do Turvo, Fernão, Gália, Garça, Getulina, Guaiçara, Guaimbê, Guarantã, Iacanga, Júlio Mesquita, Lins, Lucianópolis, Lupércio, Marília, Ocaçu, Paulistânia, Pederneiras, Pirajuí, Piratininga, Pongai, Presidente Alves, Quatã, Reginópolis, Sabino, Santa Cruz do Rio Pardo, São Pedro do Turvo, Ubirajara, Uru
	Brotas (BRO) 15 cities	Análândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Dourado, Ibaté, Itirapina, Mineiros do Tietê, Ribeirão Bonito, Santa Maria da Serra, São Carlos, São Pedro, Torrinha, Trabiju
South 48 cities	Porto Ferreira (PFE) 18 cities	Aguai, Casa Branca, Descalvado, Guaranésia, Itobi, Luiz Antônio, Mococa, Pirassununga, Porto Ferreira, Santa Cruz da Conceição, Santa Cruz das Palmeiras, Santa Rita do Passa Quatro, Santa Rosa de Viterbo, São João da Boa Vista, São José do Rio Pardo, São Simão, Tambaú, Vargem Grande do Sul
	Limeira (LIM) 30 cities	Amparo, Araras, Artur Nogueira, Atibaia, Bragança Paulista, Charqueada, Conchal, Cordeirópolis, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Iracemópolis, Itapira, Jaguariúna, Jarinu, Leme, Limeira, Lindóia, Mogi Guaçu, Mogi Mirim, Monte Alegre do Sul, Paulínia, Pinhalzinho, Piracicaba, Rio Claro, Santo Antônio de Posse, Serra Negra, Socorro
Southwest 48 cities	Avaré (AVA) 29 cities	Águas de Santa Bárbara, Angatuba, Anhembi, Araçoiaba da Serra, Arandu, Avaré, Bofete, Borebi, Botucatu, Capela do Alto, Cerqueira César, Cesário Lange, Conchas, Guareí, Iaras, Iperó, Itatinga, Lençóis Paulista, Manduri, Óleo, Pardinho, Piraju, Porangaba, Porto Feliz, Pratânia, Salto de Pirapora, São Manuel, Sorocaba, Tatuí
	Itapetininga (ITG) 19 cities	Alambari, Buri, Campina do Monte Alegre, Capão Bonito, Coronel Macedo, Itaberá, Itaí, Itapetininga, Itapeva, Itaporanga, Itararé, Nova Campina, Paranapanema, Pilar do Sul, São Miguel Arcanjo, Sarapuá, Sarutaiá, Taquaritinga, Taquarivaí
5 sectors	12 regions	336 cities with citrus farms

## Variety groups

**Chart 2 – Division of citrus species per variety group**

Group of citrus species	Varieties
Oranges.....	Early: Hamlin, Westin and Rubi Other early: Valencia Americana, Seleta, Pineapple and Alvorada <sup>1</sup> Mid-season: Pera Rio Late: Valencia and Valencia Folha Murcha Late: Natal
Other oranges.....	Washington Navel and Baianinha Charmute de Brotas Acidless sweet oranges and sweet lime: Lima Verde, Lima Late, Piralima, Lima Sorocaba, Lima Roque, João Nunes and Palestine sweet lime Other varieties
Acid limes and lemons.....	Tahiti acid lime (Persian lime) and Galego acid lime (Mexican lime) Sicilian lemon Other varieties including non-identified ones
Tangerines.....	Ponkan Murcott Other tangerines

<sup>1</sup> The full nomenclature is "Mapa - EECB IAC Alvorada", however the shortened name "Alvorada" was used in this report to represent this variety due to space constraints in the tables. This variety was included in this 2022 inventory in the group of main oranges, while in previous inventories it belonged to the group called "other oranges"

## Age groups

**Chart 3 – Classification by tree planting years and grove age groups**

Age group	Planting years
1 to 2 years.....	2022, 2021
3 to 5 years.....	2020, 2019, 2018
6 to 10 years.....	2017, 2016, 2015, 2014, 2013
Over 10 years.....	2012 and previous years

### 3 – RESULTS

#### 3.1 – MAIN CONCLUSIONS ON THE TREE INVENTORY

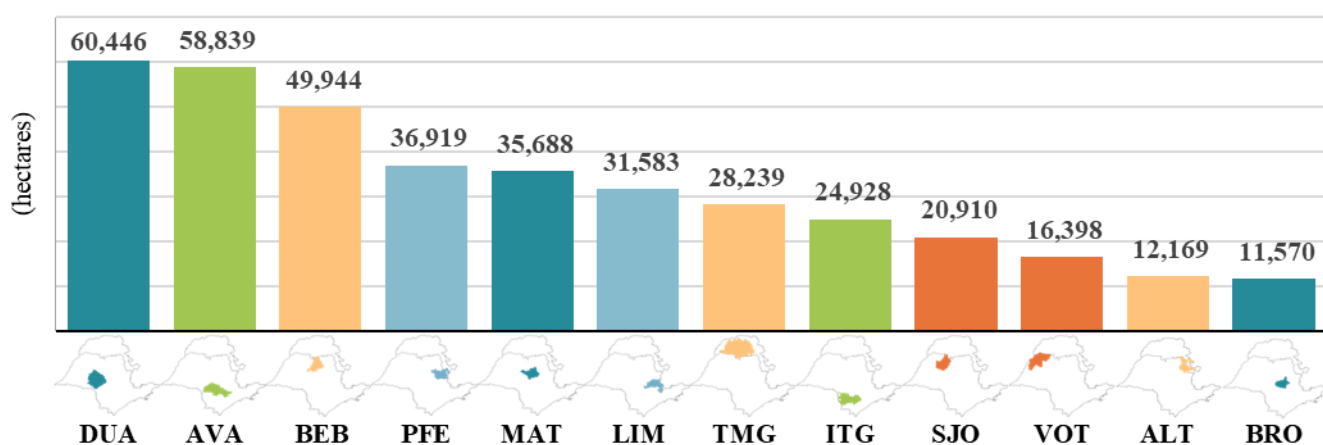
This publication presents the results of the ninth tree inventory carried out by Fundecitrus, which depicts the estimated status of orange groves in the Citrus Belt of São Paulo and West-Southwest Minas Gerais, updated in March 2023. The data regarding acid limes, lemon and tangerine groves, as well as the number of properties and the percentage of irrigated area, remain the same as in the 2022 inventory, since its update depends on the next sweep of the citrus region, scheduled to begin in the second half of 2024, for the preparation of the 2025 inventory.

In the case of orange groves, the total of 5,134 properties and the number of plots in these properties also remain unchanged until the new mapping is carried out. However, the data of these groves are updated in the 2023 inventory through a sample survey that encompassed 5% of the plots of the citrus region, allowing a reassessment of the area and the proportion of trees by age, as well as the identification of dead trees and vacancies.

It is important to note that the groves implemented in 2022 were estimate based on three data sources, and that the actual data of these groves will be obtained only in the next scan of the citrus region. The sources used are: (1) the São Paulo state department of agriculture and supply, for the amount of nursery citrus plants marketed under the permit to transit plans; (2) nurseries, for the amount of nursery citrus plants produced for own consumption; and (3) farms selected in the count of 5% of the plots of the citrus belt, where recent plantings were also identified and density information was collected to infer the newly planted areas.

Orange groves, encompassing all varieties, now occupy 399,415 hectares, which represents an increase of 0.41% compared to the previous year. Of this total area, 387,633 hectares, corresponding to 97%, are planted with the varieties Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Alvorada, Pera Rio, Valencia, Valencia Folha Murcha and Natal. These varieties are grouped as "oranges" in the tables that make up this report.

As shown in Graph 1, half of the area planted with these varieties is concentrated in four main regions: Duartina, with 60,446 hectares; Avaré, with 58,839 hectares; Bebedouro, with 49,944 hectares; and Porto Ferreira, with 36,919 hectares. The other half is distributed in eight different regions: Matão, with 35,688 hectares; Limeira, with 31,583 hectares; Triângulo Mineiro, with 28,239 hectares; Itapetininga, with 24,928 hectares; São José do Rio Preto, with 20,910 hectares; Votuporanga, with 16,398 hectares; Altinópolis, with 12,169 hectares; and Brotas, with 11,570 hectares acres.



Graph 1 – Oranges: Groves area of the varieties of the group called "oranges" [2023 inventory]

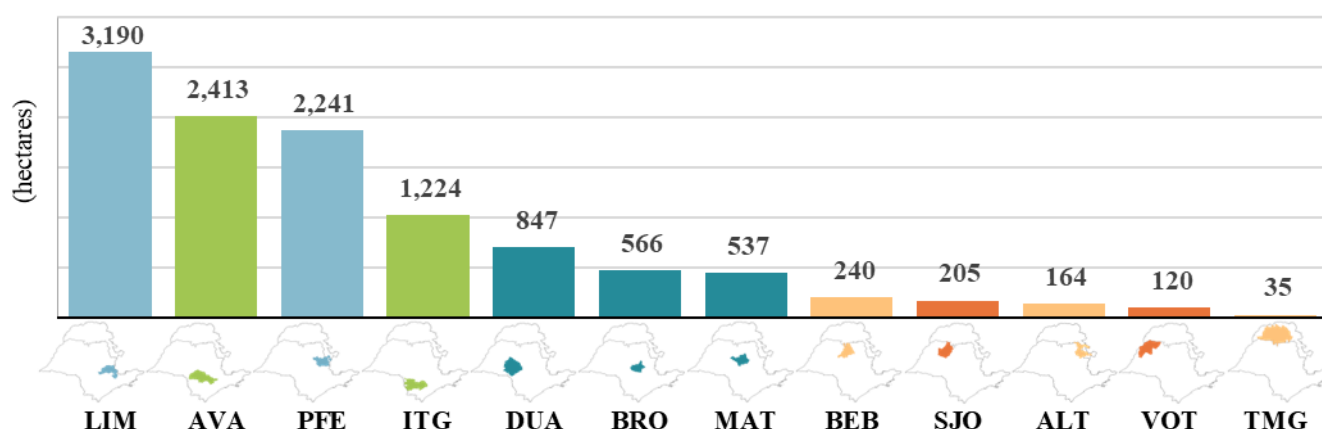
About 3% of the planted area in the Citrus Belt, equivalent to 11,782 hectares, consists of groves that are dedicated to the production of oranges intended mainly for consumption *in natura*. This parcel is grouped under the category of 'other oranges' and includes varieties such as Washington Navel, Baianinha, Charmute de Brotas, acidless sweet oranges, sweet lime and others.

The area occupied by the groves of this group of varieties increased by 1,326 hectares compared to that of the previous inventory, which represents a growth of approximately 13%.

The growth observed in this group of varieties (1,326 hectares) represents more than double the area growth that was forecast in groves of the main orange varieties (560 hectares).

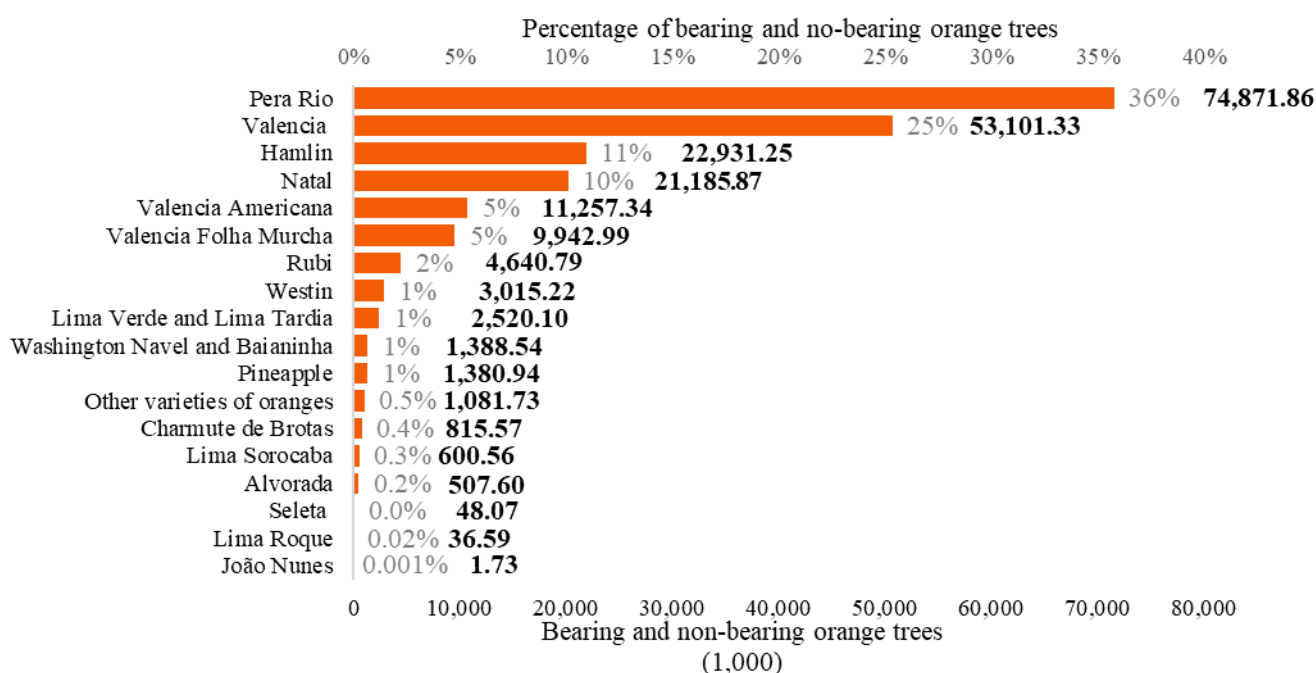
Graph 2 shows that the groves of this group are mainly concentrated in the South and Southwest sectors, totaling 77% of the area of these varieties: the Limeira region has 3,190 hectares; Avaré, 2,413 hectares; Porto Ferreira, 2,241 hectares; and Itapetininga, 1,224 hectares.

The other eight regions together have 2,714 hectares. As for the distribution of the varieties, approximately half of the area is occupied by acidless sweet oranges, encompassing varieties such as Lima Verde, Lima Sorocaba, Lima Roque and Lima Tardia. Bahia and Baianinha correspond to 22% of the area, Charmute De Brotas to 13% and the other varieties to 15%.



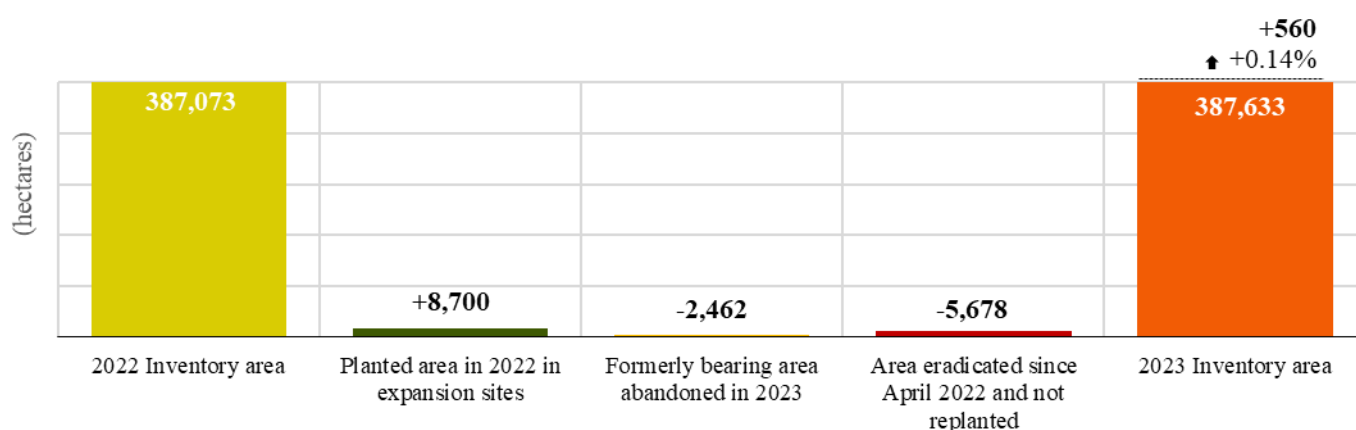
Graph 2 – Other Oranges: Grove's area of the varieties of the group called "other oranges" [2023 inventory]

Considering only the main orange varieties, more than 90% of the citrus belt consists of five varieties: Pera Rio (mid-season); Valencia (late); Hamlin (early); Natal (late); and Valencia Americana (early). In graph 3 it is possible to visualize the complete distribution of the volume of trees per variety, as well as the share of each variety in relation to the total number of orange trees. The Pera Rio variety, for example, has almost 75 million trees, which corresponds to 36% of the total trees in the citrus belt.



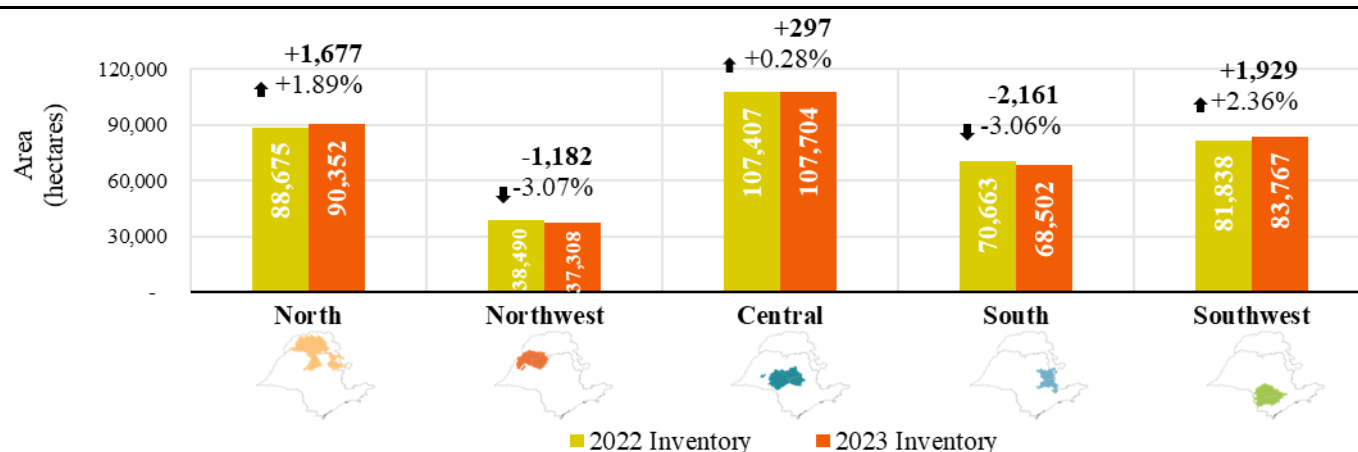
**Graph 3 – All oranges: Distribution of bearing and non-bearing orange trees by variety [2023 inventory]**

The area with groves with the main varieties of oranges totals, in this inventory, 387,633 hectares, which represents an increase of 560 hectares in relation to the existing area in 2022, as shown in Graph 4. This increase means a net change of +0.14%. The calculation of this value is obtained from the groves area of the 2022 inventory (387,073 hectares) plus the expansion area (+8,700 hectares), which refers to plantings in new areas that occurred in 2022 (areas were not dedicated to orange cultivation when the last mapping was carried out). From this total, the loss of groves (hectares) that occurred in 2022 is discounted, referring to the eradicated areas (-5,678 hectares), which were not replanted with orange, and to the areas that were abandoned (-2,462 hectares).



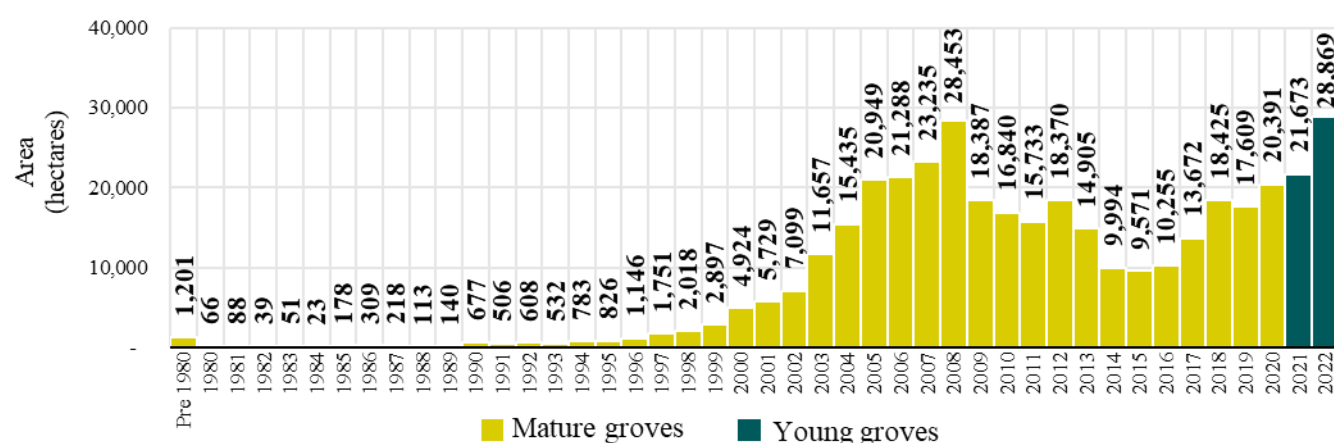
**Graph 4 – Oranges: Update of cultivated area in hectares [2022 and 2023 inventories]**

The variation of 560 hectares, which has occurred since the publication of the 2022 inventory, is distributed unevenly among the five sectors, with positive and negative variations that have practically compensated for each other. The Southwest sector showed a growth of 1,929 hectares, followed by the North sector with 1,677 hectares and the center sector with 297 hectares. On the other hand, the South and Northwest sectors showed a decrease in their areas. The most significant decline occurred in the southern sector, where most groves with a high incidence of greening are located, with a reduction of 2,161 hectares. The Northwest sector also had a decrease of 1,182 hectares in its area. The data are presented in Chart 5.



Graph 5 – Oranges: Area of groves by sector [2022 and 2023 inventories]

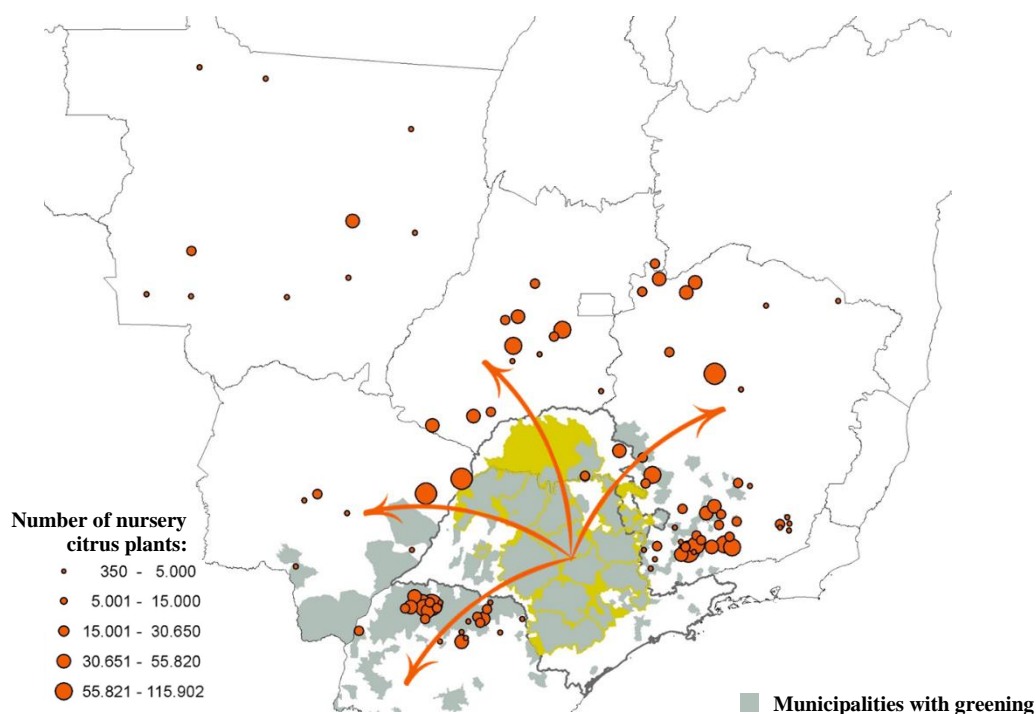
The total area of the groves deployed in 2022 is forecast at 28,869 hectares, representing a significant growth compared to the plantings of previous years, which can be seen in Graph 6. Regarding the varietal distribution, the Pera Rio continues to occupy the largest share, corresponding to 39% of these plantings, followed by Valência with 29%. The Hamlin variety accounts for 12%, while the Valência Americana, Natal and Valência Folha Murcha contribute about 5% each. The Ruby, Westin, Alvorada and Pineapple varieties together add up to approximately 5%. More than half of these groves are concentrated in two sectors of the citrus belt, 33% located in the Central sector and 21% in the North. The Southwest sector covers 18%; the South, 16%; and the Northwest, 13%.



Graph 6 – Oranges: Area of groves per year of planting [2023 inventories]

Analyzing the data regarding the amount of nursery citrus plants marketed with a permit to transit plants, provided by the São Paulo state department of agriculture and supply, it is observed that 91% of these nursery citrus plants were destined for the municipalities of the citrus belt, while the remaining 9% were directed to other states, which are indicated on the map shown in Figure 4. Among these, 4% went to Minas Gerais, 2% to Paraná, 1% to Mato Grosso do Sul, 1% to Mato Grosso and 1% to Goiás. These figures indicate the continuity of the movement of citrus expansion beyond the citrus belt, which had been verified in the last scan of the citrus belt carried out in the second half of 2021, when the plots located in 11 municipalities adjacent to the border regions of the citrus belt were mapped, which totaled 6,339 hectares of citrus, mostly varieties intended for *in natura*.

**Figure 4 – Destination of nursery citrus plants marketed under the permit to transit plants outside the belt**

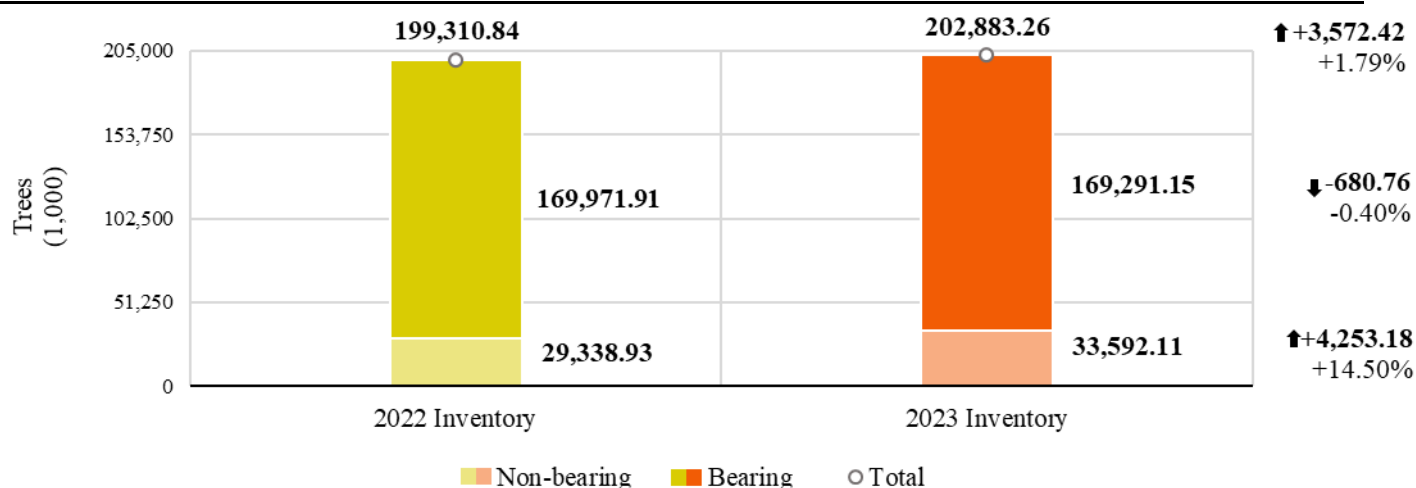


Source: Fundecitrus, from data from the São Paulo state department of agriculture and supply

This migration has been observed towards regions with few citrus groves, mainly due to the absence or low incidence of greening. These factors contribute to slowing the progression of the disease in these regions, which provides greater security to citrus growers in relation to their new ventures. The significant advance of greening observed recently in traditional regions is due to the keeping of diseased plants in groves, new plantings near groves with high incidence of the disease and insufficient control of the psyllidae, due to the low quality of application, inadequate intervals between applications and resistance to insecticides, which has recently led to a large increase in the population of infective psyllidae within commercial groves. The disease survey that will be conducted this year, 2023, will provide accurate information on the incidence and severity of the disease, which should present even higher levels compared to last year, as a result of the significant increase in the psyllidae population.

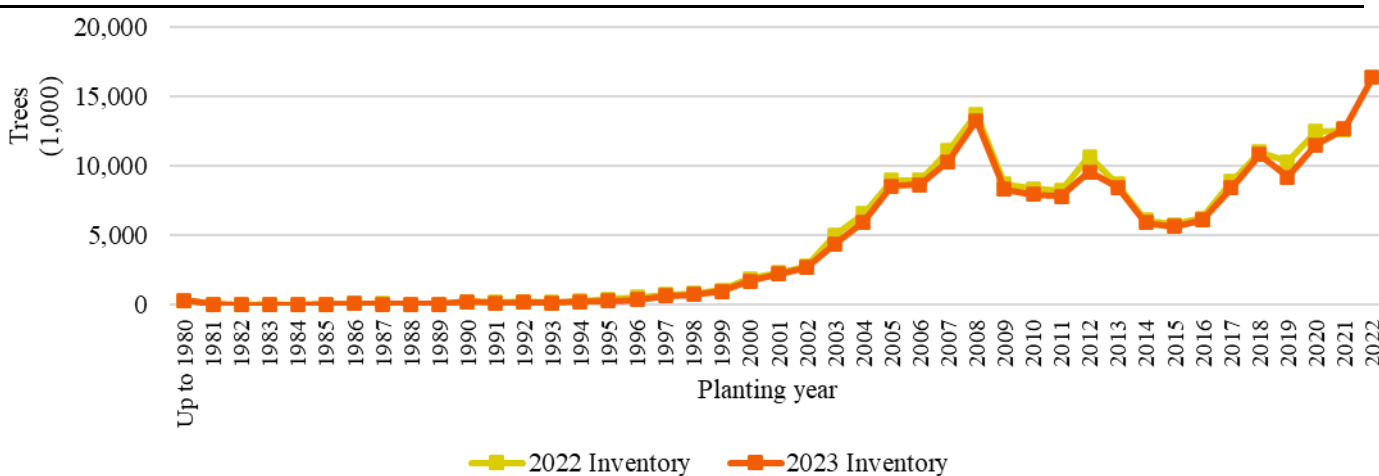
In addition to stimulating the displacement of citrus cultivation, greening has caused an increase in the eradication of groves in the citrus belt. During the period from April 2022 to March 2023, the average eradication rate of the citrus belt was 6.68%, a significantly higher rate compared to the first mappings, in which this rate did not exceed 5%. However, compared to the previous year, there was a reduction in the eradication rate. In the 2022 inventory, the eradicated area was 29,603 hectares, corresponding to a rate of 7.65%, while in the current inventory, the eradicated area fell to 25,847 hectares. Of this eradicated total (25,847 hectares), it is estimated that the area equivalent to 20,169 hectares has already been renewed. This renewed area, together with planting in expansion areas (8,700 hectares), totals the 28,869 hectares that were planted in 2022. The area of abandoned groves remains unchanged from the previous inventory, comprising 2,724 hectares considering only the main orange varieties.

When considering the entire area planted with the main varieties, there are a total of 202.88 million trees in the citrus belt, being 169.29 million bearing trees and 33.59 million non-bearing trees, as shown in Graph 7.



**Graph 7 – Oranges: Total, bearing and non-bearing trees [2022 and 2023 inventories]**

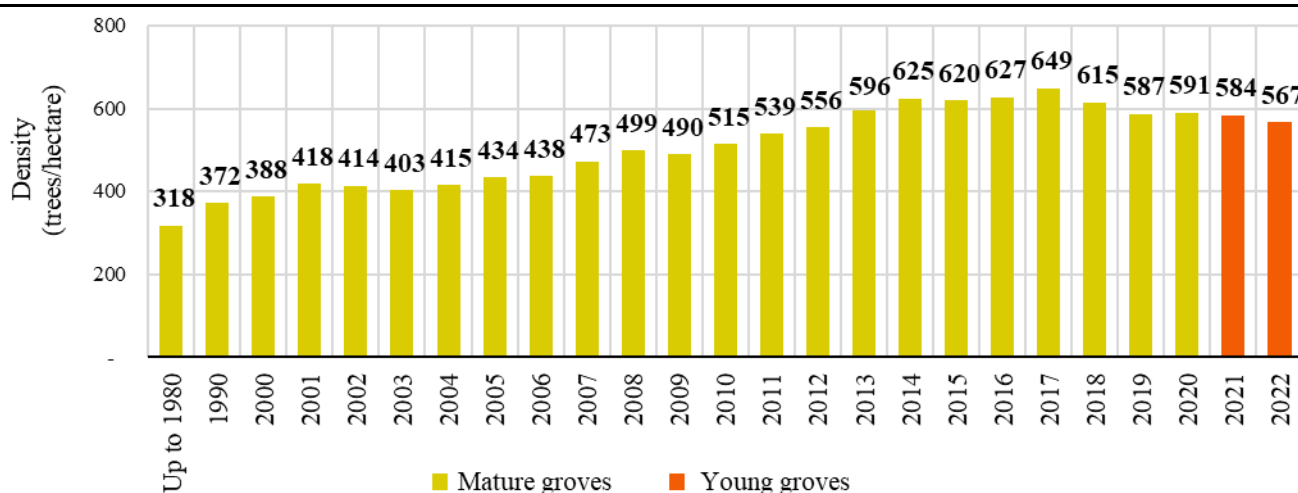
Compared to the 2022 inventory, there was an increase in total trees by approximately 3.57 million plants, representing an increase of 1.79%. This increase is the result of new plantings, as shown in Figure 8, which had a significant impact on the increase in total trees. In the newer plantings, the density of plants per hectare is higher compared to the older stands, which were established about two decades ago or more and are now being eradicated. This explains why the increase in the number of trees is significantly higher than the increase in area, which was only 0.14%.



**Graph 8 – Oranges: Trees per plot planting year, resets not included [2022 and 2023 inventories]**

Graph 9 shows a downward trend in planting density, due to the significant challenges faced by high-density groves in terms of management. Although higher density is able to increase grove productivity from the initial stage to the age of 8 years, after this time, higher density can result in a reduction in productivity due to competition between adult orange trees for fertilizer, water and sun. In addition, when there is an excessive reduction in the space between the planting rows, the grove closes quickly, which presents additional challenges related to management.

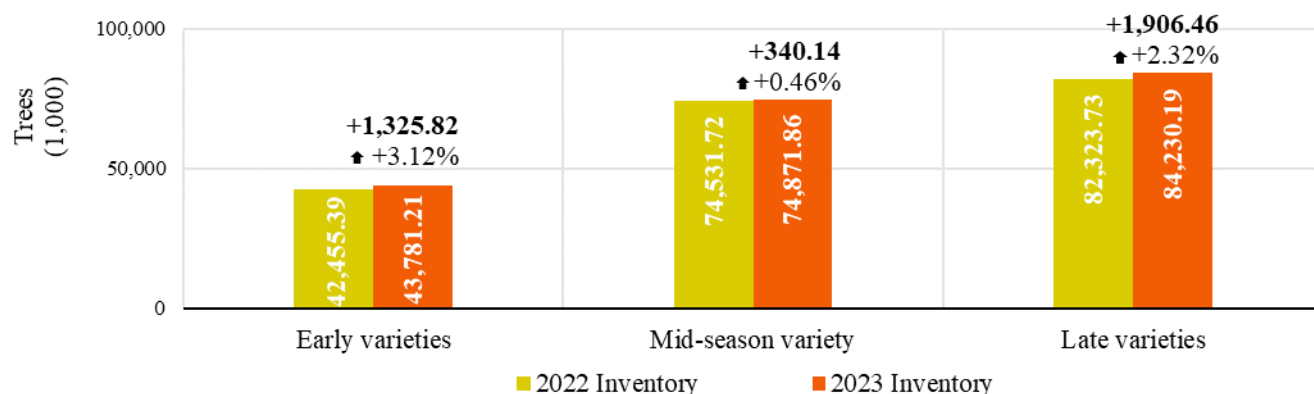
Given these characteristics of high-density groves, it is crucial to adopt proper pruning management and make use of irrigation systems. In response to these challenges, planting strategy has focused on reducing high density, increasing row spacing but still tolerating reduced plant spacing. In this inventory, the average density of mature groves is 574 trees per hectare, while the average density of adult groves is 516 trees per hectare. The overall average density is 523 trees per hectare.



**Graph 9 – Oranges: Average density of groves per year of planting**

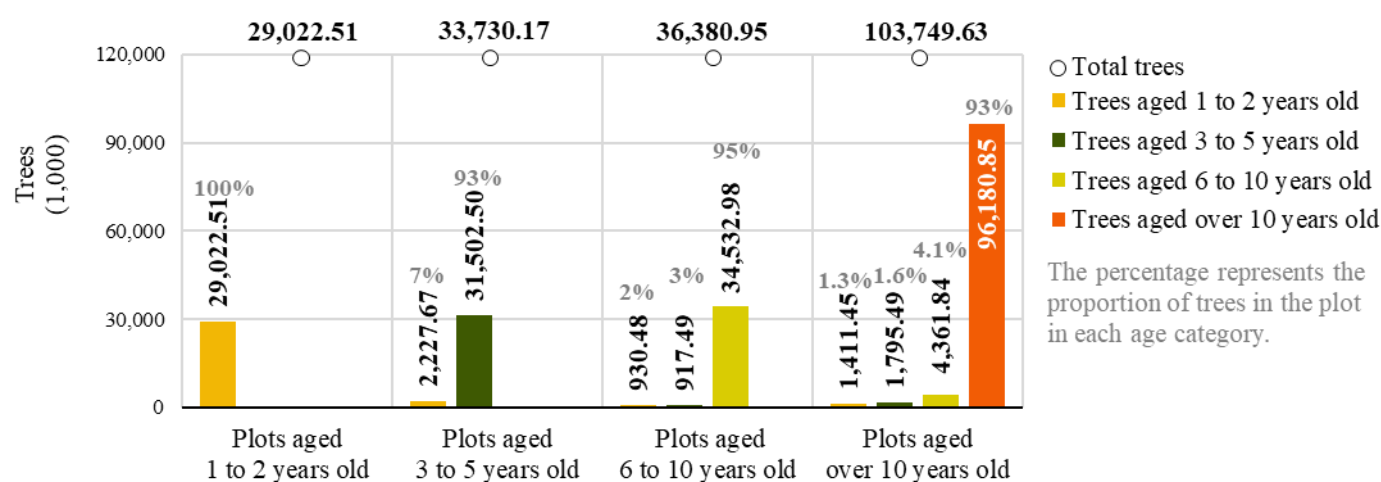
When analyzing the distribution of varieties according to the maturation season, it is found that, compared to the 2022 inventory, there were significant increments in different categories. Trees of early varieties, including both bearing and non-bearing, increased by 3.12%. The mid-season variety had an increase of 0.46%, while the late varieties registered a growth of 2.32%.

Currently, there are 43.78 million trees of early varieties, which are usually harvested between May and August. Trees of mid-season varieties number 74.87 million, with the harvest usually taking place between July and October. Trees of late varieties total 84.23 million, with the harvest normally occurring between October and January, as indicated in Figure 10. It is important to note that climatic variations and other factors, such as the size of the crop, can influence the harvest period, being able to anticipate it or extend it from one year to another.



**Graph 10 – Oranges: Trees by variety ripening season [inventories from 2022 to 2023]**

The average age of mature groves is 10.7 years. The segregation of the plots in the different age categories reveals that most of the trees are in the older age range, that is, in plots older than 10 years. In these plots, there are 103.75 million trees; of which 93% belong to the same age group as the plots and the remaining trees have been reset after implementation: 4.1% are between 6 and 10 years old; 1.6%, from 3 to 6 years; and 1.3%, less than 3 years old. The 6-to 10-year-old plots, formed between 2013 and 2017, have 36.38 million trees. The plots with 3 to 5 years were planted between 2018 and 2020 and have 33.73 million trees. The plots less than 3 years old, that is, implemented in 2021 and 2022, did not reach the maturity, and contain 29.02 million plants. In the general average, the percentage of dead trees in the citrus belt is 1.39%, and of vacancies, 4.76%. Graph 11 shows the distribution of trees by age category in all age groups of groves.

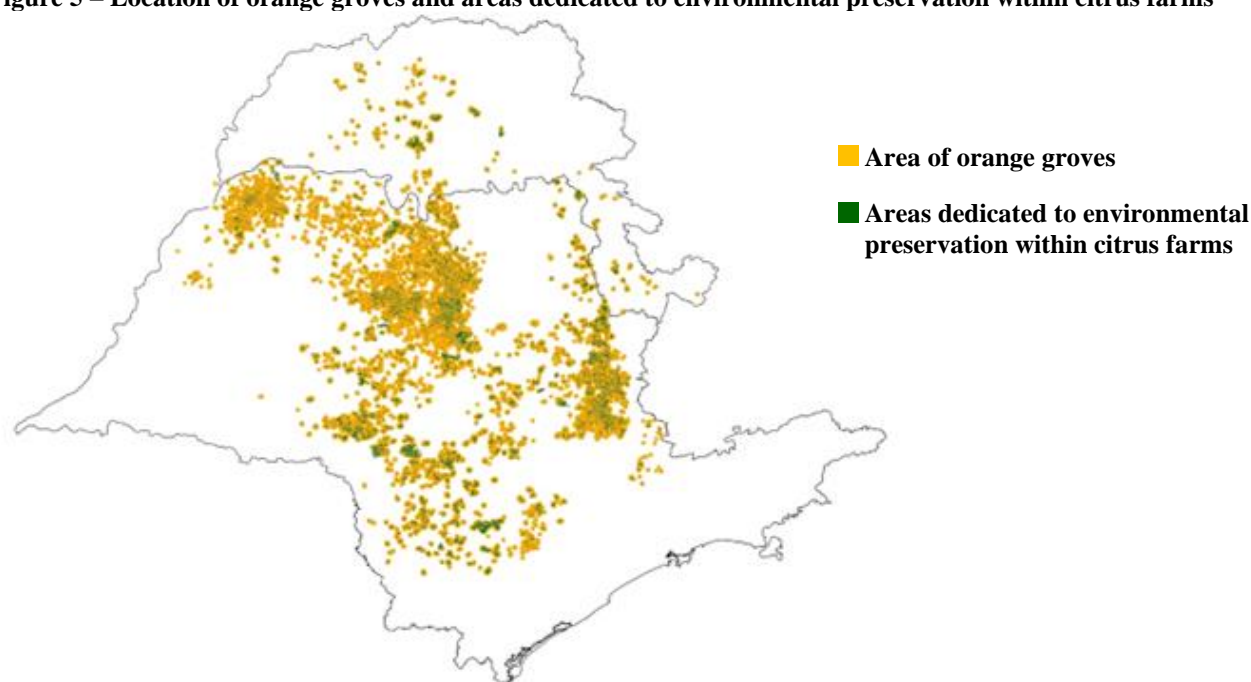


**Graph 11 – Oranges: Trees by age groups and age ranges of the plot**

Finally, in an unprecedented way, in 2023, Embrapa and Fundecitrus quantified carbon stocks in São Paulo and Minas Gerais citrus belt. This research took advantage of existing data on tree inventory, highlighted in Figure 5, to achieve new knowledge related to sustainability. Funding for the project was provided by the British company Innocent Drinks, through an innovation fund. The carbon stock estimate includes orange trees over 3 years of age of the main varieties, as well as the preservation areas present in the citrus belt.

Preliminary results were released in a report made available on the Fundecitrus website on May 10, 2023. These results revealed that approximately 36 million tons of carbon are stored in the soil and biomass of groves and preservation areas, which corresponds to 133 million tons of carbon dioxide equivalent (CO<sub>2</sub>eq.) in the citrus belt. This information emphasizes the importance of the participation of citrus growers in maintaining carbon stocks in rural orange growing properties, highlighting their potential to contribute to the mitigation of climate change. The data obtained so far demonstrate the positive impact that the preservation of these areas can have, highlighting the relevance of this joint project for the citrus sector and for the environment in general.

**Figure 5 – Location of orange groves and areas dedicated to environmental preservation within citrus farms**



### 3.2 – TABLES OF DATA

Calculations used whole numbers and all decimal points, the same way they are stored in the data bank. Occasional divergences between figures on tables result from rounding numbers. The word “oranges” in the title of tables indicates that their figures comprise the Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Alvorada, Pera Rio, Valencia, Natal and Valencia Folha Murcha varieties.

**Table 1 – All citrus: Area of groves by sector [2022 and 2023 inventories and accumulated variation]**

Inventory, sector and variation	Oranges <sup>1</sup>	Other oranges <sup>2</sup>	Acid limes and lemons <sup>3, 5</sup>	Tangerines <sup>4, 5</sup>	Total	Percentage of sectors
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
<b>2022 inventory</b>						
North.....	88,675	439	20,016	1,977	111,107	24.05
Northwest.....	38,490	284	6,867	1,937	47,578	10.30
Central.....	107,407	1,933	16,558	2,712	128,610	27.84
South.....	70,663	4,400	6,010	3,428	84,501	18.29
Southwest.....	81,838	3,400	2,358	2,529	90,125	19.51
<b>Total.....</b>	<b>387,073</b>	<b>10,456</b>	<b>51,809</b>	<b>12,583</b>	<b>461,921</b>	<b>100.00</b>
<b>Citrus percentage.....</b>	<b>83.80</b>	<b>2.26</b>	<b>11.22</b>	<b>2.72</b>	<b>100.00</b>	<b>(X)</b>
<b>2023 inventory</b>						
North.....	90,352	439	20,016	1,977	112,784	24.32
Northwest.....	37,308	325	6,867	1,937	46,437	10.01
Central.....	107,704	1,950	16,558	2,712	128,924	27.80
South.....	68,502	5,431	6,010	3,428	83,371	17.98
Southwest.....	83,767	3,637	2,358	2,529	92,291	19.90
<b>Total.....</b>	<b>387,633</b>	<b>11,782</b>	<b>51,809</b>	<b>12,583</b>	<b>463,807</b>	<b>100.00</b>
<b>Citrus percentage.....</b>	<b>83.58</b>	<b>2.54</b>	<b>11.17</b>	<b>2.71</b>	<b>100.00</b>	<b>(X)</b>
<b>Accumulated variation</b>						
<b>Hectares.....</b>	<b>560</b>	<b>1,326</b>	-	-	<b>1,886</b>	<b>(X)</b>
<b>Percentage.....</b>	<b>0.14</b>	<b>12.68</b>	-	-	<b>0.41</b>	<b>(X)</b>

(X) Not applicable

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

<sup>2</sup> Other oranges: Washington Navel, Baianinha, Charmute de Brotas, Lima Verde, Lima Tardia, Piralima, Lima Sorocaba, Lima Roque, João Nunes, Palestine sweet lime and other varieties

<sup>3</sup> Acid limes and lemons: Tahiti acid lime (Persian lime), Galego acid lime (Mexican lime), Sicilian lemon and other varieties including non-identified ones.

<sup>4</sup> Tangerines: Ponkan, Murcott and other varieties

<sup>5</sup> Inventory data 2022. They will be updated in the next mapping that is expected to begin in the second half of 2024 in preparation of the 2025 inventory

**Table 2 – All citrus<sup>1</sup>: Farms with citrus groves, stratified by sector [2015, 2018 and 2022 inventories]**

Sector	2015 inventory		2018 inventory		2022 inventory	
	(number)	(%)	(number)	(%)	(number)	(%)
North.....	3,149	27.24	2,526	25.66	3,148	32.79
Northwest.....	2,756	23.84	2,128	21.62	1,677	17.47
Central.....	2,511	21.72	1,873	19.02	2,083	21.70
South.....	2,735	23.66	2,919	29.65	2,228	23.21
Southwest.....	410	3.54	399	4.05	464	4.83
<b>Total.....</b>	<b>11,561</b>	<b>100.00</b>	<b>9,845</b>	<b>100.00</b>	<b>9,600</b>	<b>100.00</b>

Inventory data 2022. They will be updated in the next mapping that is expected to begin in the second half of 2024 in preparation of the 2025 inventory

**Table 3 – Oranges: Farms with orange groves, stratified by size of area with oranges [2022 and 2023 inventories]**

Range of the farm size considering the total orange area	2022 inventory				2023 inventory			
	Farms with orange groves		Orange area		Farms with orange groves		Orange area	
			Total	Irrigate area			Total	Irrigate area
(hectares)	(número)	(%)	(hectares)	(%)	(número)	(%)	(hectares)	(%)
0.1 – 10.....	2,025	39.44	8,933	29.62	2,025	39.44	11,046	30.58
10.1 – 50.....	1,881	36.64	40,470	27.77	1,881	36.64	41,833	28.35
50.1 – 100.....	495	9.64	33,562	24.22	495	9.64	34,626	27.17
100.1 – 500.....	578	11.26	114,037	27.29	578	11.26	116,892	28.73
500.1 – 1,000.....	95	1.85	64,562	36.50	95	1.85	55,789	36.99
Above 1,000.....	60	1.17	125,509	50.90	60	1.17	127,446	48.58
<b>Total.....</b>	<b>5,134</b>	<b>100.00</b>	<b>387,073</b>	<b>36.32</b>	<b>5,134</b>	<b>100.00</b>	<b>387,633</b>	<b>36.32</b>
<b>Average per farm....</b>			<b>75.39</b>				<b>75.50</b>	

**Table 4 – Oranges: Farms with orange groves, stratified by number of orange trees [2022 and 2023 inventories]**

Range of the number of orange trees in the farm	2022 inventory			2023 inventory			
	Farms with orange groves		Non-bearing and bearing trees	Farms with orange groves		Non-bearing and bearing trees	
(árvores)	(number)		(1,000 trees)	(número)	(%)	(1,000 trees)	(%)
Below 10 thousand...	3,056		11,217.08	3,056	59.52	12,260.06	6.04
10.1 – 19 thousand....	681		9,191.01	681	13.26	9,329.99	4.60
20 – 29 thousand.....	317		7,521.88	317	6.17	8,385.82	4.13
30 – 49 thousand.....	333		12,259.56	333	6.49	12,383.22	6.10
50 – 99 thousand.....	348		23,468.88	348	6.78	25,306.05	12.47
100 – 199 thousand...	198		26,637.65	198	3.86	25,911.21	12.77
Above 200 thousand.	201		109,014.78	201	3.92	109,306.91	53.88
<b>Total.....</b>	<b>5,134</b>		<b>199,310.84</b>	<b>5,134</b>	<b>100.00</b>	<b>202,883.26</b>	<b>100.00</b>
<b>Average per farm....</b>			<b>38.82</b>			<b>39.52</b>	

**Table 5 – Oranges: Orange plots stratified by plot area size<sup>1</sup> [2015, 2018 and 2022 inventories]**

Plot area	2022 inventory	
(hectares)	(number)	(%)
Below 1.....	2,331	5.15
1.1 – 4.....	11,588	25.60
4.1 – 10.....	17,103	37.79
10.1 – 20.....	10,120	22.36
Above 20.....	4,118	9.10
<b>Total.....</b>	<b>45,260</b>	<b>100.00</b>
	(hectares)	
<b>Average per plot.....</b>	<b>8.55</b>	

Inventory data 2022. They will be updated in the next mapping that is expected to begin in the second half of 2024 in preparation of the 2025 inventory

**Table 6 – Oranges and others<sup>1</sup>: Area of groves by sector [2022, 2023 inventories and accumulated variation]**

Inventory and sector	Total	Changes				Variation
		Estimate of groves planted in expansion areas in 2022	Estimate of bearing groves abandoned in 2022	Estimate of eradicated groves from April 2022 to March 2023, which were not renovated	Accumulated loss of groves due to eradication and abandonment	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
<b>2022 inventory</b>						
North.....	89,114	-	-	-	-	-
Northwest.....	38,774	-	-	-	-	-
Central.....	109,340	-	-	-	-	-
South.....	75,063	-	-	-	-	-
Southwest.....	85,238	-	-	-	-	-
<b>Total.....</b>	<b>397,529</b>	-	-	-	-	-
<b>2023 inventory</b>						
North.....	90,791	1,977	-2	-298	1,677	1.88
Northwest.....	37,633	788	-841	-1,088	-1,141	-2.94
Central.....	109,654	2,821	-656	-1,851	314	0.29
South.....	73,933	934	-964	-1,100	-1,130	-1.51
Southwest.....	87,404	2,371	-	-205	2,166	2.54
<b>Total.....</b>	<b>399,415</b>	<b>8,891</b>	<b>-2,462</b>	<b>-4,542</b>	<b>1,886</b>	<b>0.47</b>

- Not available.

<sup>1</sup> Oranges: Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Alvorada, Pera Rio, Valencia, Valencia Folha Murcha and Natal  
 Other oranges: Washington Navel, Baianinha, Charmute de Brotas, Lima Verde, Lima Tardia, Piralima, Lima Sorocaba, Lima Roque, João Nunes, Palestine sweet lime and other varieties

**Table 7 – Other oranges: Area of groves by variety [2022 and 2023 inventories]**

Variety	2022 inventory	2023 inventory	
	Area	Area	Percentage
	(hectares)	(hectares)	(%)
Washington Navel and Baianinha.....	2,295	2,634	22.36
Charmute de Brotas.....	1,509	1,590	13.50
Acidless sweet oranges and sweet lime.....	5,219	5,843	49.59
Other varieties .....	1,433	1,715	14.56
<b>Total.....</b>	<b>10,456</b>	<b>11,782</b>	<b>100.00</b>

**Table 8 – Acid limes and lemons: Area of groves by variety [2015, 2018 and 2022 inventories]**

Variety	2015 inventory	2018 inventory	2022 inventory	
	Area	Area	Area	Area
	(hectares)	(hectares)	(hectares)	(hectares)
Tahiti acid lime (Persian lime) .....	-	35,076	45,872	88.54
Sicilian lemon.....	-	3,577	5,474	10.57
Other varieties including non-identified ones.....	-	425	463	0.89
<b>Total.....</b>	<b>27,936</b>	<b>39,078</b>	<b>51,809</b>	<b>100.00</b>

**Table 9 – Tangerines: Area of groves by variety [2015, 2018 and 2022 inventories]**

Variety	2015 inventory	2018 inventory	2022 inventory	
	Area	Area	Area	Percentage
	(hectares)	(hectares)	(hectares)	(%)
Ponkan.....	-	5,286	5,065	40.25
Murcott.....	-	5,607	5,810	46.17
Other varieties .....	-	1,311	1,708	13.57
<b>Total.....</b>	<b>10,070</b>	<b>12,204</b>	<b>12,583</b>	<b>100.00</b>

**Table 10 – Oranges: Area of groves by sector [2022 and 2023 inventories and accumulated variation]**

Inventory and sector	Total	Changes				Variation
		Estimate of groves planted in expansion areas in 2022	Estimate of bearing groves abandoned in 2022	Estimate of eradicated groves from April 2022 to March 2023, which were not renovated	Accumulated loss of groves due to eradication and abandonment	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
<b>2022 inventory</b>						
North.....	88,675	-	-	-	-	-
Northwest.....	38,490	-	-	-	-	-
Central.....	107,407	-	-	-	-	-
South.....	70,663	-	-	-	-	-
Southwest.....	81,838	-	-	-	-	-
<b>Total.....</b>	<b>387,073</b>	-	-	-	-	-
<b>2023 inventory</b>						
North.....	90,352	1,963	-2	-284	1,677	1.89
Northwest.....	37,308	769	-841	-1,110	-1,182	-3.07
Central.....	107,704	2,785	-656	-1,832	297	0.28
South.....	68,502	890	-964	-2,087	-2,161	-3.06
Southwest.....	83,767	2,293	-	-364	1,929	2.36
<b>Total.....</b>	<b>387,633</b>	<b>8,700</b>	<b>-2,462</b>	<b>-5,678</b>	<b>560</b>	<b>0.14</b>

- Not available

**Table 11 – Oranges: Groves planted in 2022 in expansion and renovation areas [2023 inventory]**

Sector	Groves planted in 2022 (after the 2022 inventory)				
	Total	In expansion areas		In renovation areas	
	(hectares)	(hectares)	(%)	(hectares)	(hectares)
North.....	6,160	1,963	31.87	4,197	68.13
Northwest.....	3,664	769	20.98	2,895	79.02
Central.....	9,409	2,785	29.60	6,624	70.40
South.....	4,571	890	19.47	3,681	80.53
Southwest.....	5,065	2,293	45.28	2,772	54.72
<b>Total.....</b>	<b>28,869</b>	<b>8,700</b>	<b>30.14</b>	<b>20,169</b>	<b>69.86</b>

**Table 12 – Oranges: Trees by sector [2022 and 2023 inventories and accumulated variation]**

Inventory and sector	Total	Accumulated variation		Non-bearing trees			Bearing trees		
				Total	Accumulated variation		Total	Accumulated variation	
	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)
<b>2022 inventory</b>									
North.....	43,272.67	-	-	4,090.08	-	-	39,182.59	-	-
Northwest.....	18,052.05	-	-	2,330.78	-	-	15,721.27	-	-
Central.....	57,466.71	-	-	9,727.43	-	-	47,739.28	-	-
South.....	36,472.67	-	-	6,084.79	-	-	30,387.88	-	-
Southwest.....	44,046.74	-	-	7,105.85	-	-	36,940.89	-	-
<b>Total.....</b>	<b>199,310.84</b>	-	-	<b>29,338.93</b>	-	-	<b>169,971.91</b>	-	-
<b>2023 inventory</b>									
North.....	44,582.43	1,309.76	3.03	5,650.00	1,559.92	38.14	38,932.43	-250.16	-0.64
Northwest.....	18,290.06	238.01	1.32	3,291.47	960.69	41.22	14,998.59	-722.68	-4.60
Central.....	59,103.07	1,636.36	2.85	11,426.37	1,698.94	17.47	47,676.70	-62.58	-0.13
South.....	35,621.03	-851.64	-2.34	6,168.95	84.16	1.38	29,452.08	-935.80	-3.08
Southwest.....	45,286.67	1,239.93	2.82	7,055.32	-50.53	-0.71	38,231.35	1,290.46	3.49
<b>Total.....</b>	<b>202,883.26</b>	<b>3,572.42</b>	<b>1.79</b>	<b>33,592.11</b>	<b>4,253.18</b>	<b>14.50</b>	<b>169,291.15</b>	<b>-680.76</b>	<b>-0.40</b>

- Not available

**Table 13 – Oranges: Area of groves by variety group [2022 and 2023 inventories and accumulated variation]**

Inventory and variety group	Total	Changes				Variation
		Estimate of groves planted in expansion areas in 2022	Estimate of bearing groves abandoned in 2022	Estimate of eradicated groves from April 2022 to March 2023, which were not renovated	Accumulated loss of groves due to eradication and abandonment	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
<b>2022 inventory</b>						
Hamlin, Westin and Rubi.....	62,722	-	-	-	-	-
Other early <sup>1</sup> .....	22,701	-	-	-	-	-
Pera Rio.....	137,863	-	-	-	-	-
Valencia and V.Folha Murcha <sup>2</sup>	121,531	-	-	-	-	-
Natal.....	42,256	-	-	-	-	-
<b>Total.....</b>	<b>387,073</b>	-	-	-	-	-
<b>2023 inventory</b>						
Hamlin, Westin and Rubi.....	62,740	1,384	-215	-1,150	18	0.03
Other early <sup>1</sup> .....	23,623	935	-	-13	922	4.06
Pera Rio.....	137,304	2,943	-1,609	-1,893	-559	-0.41
Valencia and V.Folha Murcha <sup>2</sup>	123,300	2,943	-503	-671	1,769	1.46
Natal.....	40,666	495	-135	-1,949	-1,590	-3.76
<b>Total.....</b>	<b>387,633</b>	<b>8,700</b>	<b>-2,462</b>	<b>-5,678</b>	<b>560</b>	<b>0.14</b>

- Not available

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> Valencia Folha Murcha**Table 14 – Oranges: Trees by variety group [2022 and 2023 inventories and accumulated variation]**

Inventory and sector	Total	Accumulated variation		Non-bearing trees			Bearing trees		
				Total	Accumulated variation		Total	Accumulated variation	
	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)
<b>2022 inventory</b>									
Hamlin, Westin and Rubi.....	30,300.19	-	-	4,149.61	-	-	26,150.58	-	-
Other early <sup>1</sup> .....	12,155.20	-	-	3,111.05	-	-	9,044.15	-	-
Pera Rio.....	74,531.72	-	-	12,494.55	-	-	62,037.17	-	-
Valencia and V.Folha Murcha <sup>2</sup>	60,873.46	-	-	7,132.62	-	-	53,740.84	-	-
Natal.....	21,450.27	-	-	2,451.10	-	-	18,999.17	-	-
<b>Total.....</b>	<b>199,310.84</b>	-	-	<b>29,338.93</b>	-	-	<b>169,971.91</b>	-	-
<b>2023 inventory</b>									
Hamlin, Westin and Rubi.....	30,587.26	287.07	0.95	4,871.22	721.61	17.39	25,716.04	-434.54	-1.66
Other early <sup>1</sup> .....	13,193.95	1,038.75	8.55	3,327.62	216.57	6.96	9,866.33	822.18	9.09
Pera Rio.....	74,871.86	340.14	0.46	13,363.19	868.64	6.95	61,508.67	-528.50	-0.85
Valencia and V.Folha Murcha <sup>2</sup>	63,044.32	2,170.86	3.57	9,395.40	2,262.78	31.72	53,648.92	-91.92	-0.17
Natal.....	21,185.87	-264.40	-1.23	2,634.68	183.58	7.49	18,551.19	-447.98	-2.36
<b>Total.....</b>	<b>202,883.26</b>	<b>3,572.42</b>	<b>1.79</b>	<b>33,592.11</b>	<b>4,253.18</b>	<b>14.50</b>	<b>169,291.15</b>	<b>-680.76</b>	<b>-0.40</b>

- Not available

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> Valencia Folha Murcha

**Table 15 – Oranges: Stratification of total planting holes of groves [2023 inventory and accumulated variation] (continues next page)**

Region and variety group	Non-bearing trees	Bearing trees	Dead trees	Vacancies	Total
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 holes)	(1,000 trees and holes)
<b>Triângulo Mineiro</b>					
Hamlin, Westin and Rubi.....	148.39	1,969.49	26.54	82.39	2,226.81
Other early <sup>1</sup> .....	174.72	257.29	5.50	7.76	445.27
Pera Rio.....	832.97	4,426.87	37.37	91.39	5,388.60
Valencia and V.Folha Murcha <sup>2</sup> .....	419.38	3,917.46	40.17	82.94	4,459.95
Natal.....	90.78	1,431.05	12.56	16.44	1,550.83
<b>Subtotal.....</b>	<b>1,666.24</b>	<b>12,002.16</b>	<b>122.14</b>	<b>280.92</b>	<b>14,071.46</b>
<b>Bebedouro</b>					
Hamlin, Westin and Rubi.....	513.31	3,806.16	46.01	239.78	4,605.26
Other early <sup>1</sup> .....	691.54	1,819.91	7.45	79.66	2,598.56
Pera Rio.....	1,232.11	7,340.69	138.14	261.22	8,972.16
Valencia and V.Folha Murcha <sup>2</sup> .....	555.86	7,044.53	119.68	250.99	7,971.06
Natal.....	85.04	1,932.97	10.33	69.47	2,097.81
<b>Subtotal.....</b>	<b>3,077.86</b>	<b>21,944.26</b>	<b>321.61</b>	<b>901.12</b>	<b>26,244.85</b>
<b>Altinópolis</b>					
Hamlin, Westin and Rubi.....	36.72	728.26	62.15	82.37	909.50
Other early <sup>1</sup> .....	16.56	114.61	5.88	10.05	147.10
Pera Rio.....	388.81	1,767.72	96.31	141.83	2,394.67
Valencia and V.Folha Murcha <sup>2</sup> .....	456.17	1,964.94	92.68	106.58	2,620.37
Natal.....	7.64	410.48	3.62	21.93	443.67
<b>Subtotal.....</b>	<b>905.90</b>	<b>4,986.01</b>	<b>260.64</b>	<b>362.76</b>	<b>6,515.31</b>
<b>Votuporanga</b>					
Hamlin, Westin and Rubi.....	112.01	359.67	4.92	19.25	495.85
Other early <sup>1</sup> .....	60.79	164.63	6.45	8.14	240.01
Pera Rio.....	1,125.61	4,245.65	72.48	247.99	5,691.73
Valencia and V.Folha Murcha <sup>2</sup> .....	334.22	711.56	5.95	24.81	1,076.54
Natal.....	49.86	346.49	1.97	16.23	414.55
<b>Subtotal.....</b>	<b>1,682.49</b>	<b>5,828.00</b>	<b>91.77</b>	<b>316.42</b>	<b>7,918.68</b>
<b>São José do Rio Preto</b>					
Hamlin, Westin and Rubi.....	133.89	1,635.01	27.67	51.00	1,847.57
Other early <sup>1</sup> .....	580.94	1,553.56	29.26	72.57	2,236.33
Pera Rio.....	574.54	2,424.16	59.05	76.29	3,134.04
Valencia and V.Folha Murcha <sup>2</sup> .....	265.63	2,347.37	71.45	82.47	2,766.92
Natal.....	53.98	1,210.49	8.03	68.06	1,340.56
<b>Subtotal.....</b>	<b>1,608.98</b>	<b>9,170.59</b>	<b>195.46</b>	<b>350.39</b>	<b>11,325.42</b>
<b>Matão</b>					
Hamlin, Westin and Rubi.....	1,059.30	2,270.98	44.57	162.56	3,537.41
Other early <sup>1</sup> .....	530.06	1,640.47	13.33	272.10	2,455.96
Pera Rio.....	1,395.01	5,948.40	36.22	286.87	7,666.50
Valencia and V.Folha Murcha <sup>2</sup> .....	1,154.97	4,406.25	75.83	375.53	6,012.58
Natal.....	884.55	1,483.12	10.20	173.53	2,551.40
<b>Subtotal.....</b>	<b>5,023.89</b>	<b>15,749.22</b>	<b>180.15</b>	<b>1,270.59</b>	<b>22,223.85</b>
<b>Duartina</b>					
Hamlin, Westin and Rubi.....	495.57	3,730.90	110.68	276.15	4,613.30
Other early <sup>1</sup> .....	659.71	1,568.53	24.90	114.09	2,367.23
Pera Rio.....	1,816.46	10,183.85	301.83	664.28	12,966.42
Valencia and V.Folha Murcha <sup>2</sup> .....	2,259.26	8,842.10	157.12	418.17	11,676.65
Natal.....	213.35	2,750.76	29.61	271.49	3,265.21
<b>Subtotal.....</b>	<b>5,444.35</b>	<b>27,076.14</b>	<b>624.14</b>	<b>1,744.18</b>	<b>34,888.81</b>
<b>Brotas</b>					
Hamlin, Westin and Rubi.....	49.15	605.11	29.66	47.88	731.80
Other early <sup>1</sup> .....	11.48	264.28	13.36	37.89	327.01
Pera Rio.....	395.07	1,795.55	41.94	116.78	2,349.34
Valencia and V.Folha Murcha <sup>2</sup> .....	466.69	1,788.31	71.04	95.95	2,421.99
Natal.....	35.74	398.09	8.71	53.73	496.27
<b>Subtotal.....</b>	<b>958.13</b>	<b>4,851.34</b>	<b>164.71</b>	<b>352.23</b>	<b>6,326.41</b>

**Table 15 – Oranges: Stratification of total planting holes of groves [2023 inventory and accumulated variation] (continued)**

Region and variety group	Non-bearing trees	Bearing trees	Dead trees	Vacancies	Total
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 holes)	(1,000 trees and holes)
<b>Porto Ferreira</b>					
Hamlin, Westin and Rubi.....	710.71	2,584.31	45.49	186.42	3,526.93
Other early <sup>1</sup> .....	60.70	351.21	1.83	29.99	443.73
Pera Rio.....	1,594.19	6,473.96	61.75	389.05	8,518.95
Valencia and V.Folha Murcha <sup>2</sup> .....	878.24	5,055.63	51.76	301.03	6,286.66
Natal.....	389.39	1,609.59	15.79	140.96	2,155.73
<b>Subtotal.....</b>	<b>3,633.23</b>	<b>16,074.70</b>	<b>176.62</b>	<b>1,047.45</b>	<b>20,932.00</b>
<b>Limeira</b>					
Hamlin, Westin and Rubi.....	243.74	2,382.42	47.89	174.64	2,848.69
Other early <sup>1</sup> .....	93.06	191.47	2.97	27.66	315.16
Pera Rio.....	1,399.11	5,290.77	118.46	317.95	7,126.29
Valencia and V.Folha Murcha <sup>2</sup> .....	612.67	4,536.44	116.08	301.93	5,567.12
Natal.....	187.14	976.28	27.35	42.28	1,233.05
<b>Subtotal.....</b>	<b>2,535.72</b>	<b>13,377.38</b>	<b>312.75</b>	<b>864.46</b>	<b>17,090.31</b>
<b>Avaré</b>					
Hamlin, Westin and Rubi.....	908.96	4,172.85	131.04	477.29	5,690.14
Other early <sup>1</sup> .....	226.06	775.33	7.89	75.68	1,084.96
Pera Rio.....	1,854.29	7,503.61	160.27	688.25	10,206.42
Valencia and V.Folha Murcha <sup>2</sup> .....	1,074.59	9,137.69	96.46	512.82	10,821.56
Natal.....	421.56	3,727.65	28.71	329.18	4,507.10
<b>Subtotal.....</b>	<b>4,485.46</b>	<b>25,317.13</b>	<b>424.37</b>	<b>2,083.22</b>	<b>32,310.18</b>
<b>Itapetininga</b>					
Hamlin, Westin and Rubi.....	459.47	1,470.88	36.94	141.17	2,108.46
Other early <sup>1</sup> .....	222.00	1,165.04	2.37	70.83	1,460.24
Pera Rio.....	755.02	4,107.44	50.50	255.71	5,168.67
Valencia and V.Folha Murcha <sup>2</sup> .....	917.72	3,896.64	30.12	143.27	4,987.75
Natal.....	215.65	2,274.22	13.27	103.39	2,606.53
<b>Subtotal.....</b>	<b>2,569.86</b>	<b>12,914.22</b>	<b>133.20</b>	<b>714.37</b>	<b>16,331.65</b>
<b>Total.....</b>	<b>33,592.11</b>	<b>169,291.15</b>	<b>3,007.56</b>	<b>10,288.11</b>	<b>216,178.93</b>
<b>Percentage.....</b>	<b>15.54</b>	<b>78.31</b>	<b>1.39</b>	<b>4.76</b>	<b>100.00</b>
<b>Accumulated variation</b>					
<b>Trees/holes.....</b>	<b>4,253.18</b>	<b>-680.76</b>	<b>-66.21</b>	<b>511.07</b>	<b>4,017.28</b>
<b>Percentage.....</b>	<b>14.50</b>	<b>-0.40</b>	<b>-2.15</b>	<b>5.23</b>	<b>1.89</b>

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> V.Folha Murcha – Valencia Folha Murcha**Table 16 – Oranges: Trees by age group and age group of plot – Citrus belt [2023 inventory]**

Plot age <sup>1</sup>	Tree age <sup>2</sup>				Total	Percentage
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years		
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(%)
1 – 2 years.....	29,022.51	-	-	-	29,022.51	14.31
3 – 5 years.....	2,227.67	31,502.50	-	-	33,730.17	16.63
6 – 10 years.....	930.48	917.49	34,532.98	-	36,380.95	17.93
Over 10 years.....	1,411.45	1,795.49	4,361.84	96,180.85	103,749.63	51.14
<b>Total.....</b>	<b>33,592.11</b>	<b>34,215.48</b>	<b>38,894.82</b>	<b>96,180.85</b>	<b>202,883.26</b>	<b>100.00</b>
<b>Percentage.....</b>	<b>16.56</b>	<b>16.86</b>	<b>19.17</b>	<b>47.41</b>	<b>100.00</b>	

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 17 – Oranges: Trees by age group, age group of plot and sector [2023 inventory]**

Plot age and sector	Tree age				Total	Percentage
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years		
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(%)
<b>North</b>						
1 – 2 years .....	5,131.60	-	-	-	5,131.60	11.51
3 – 5 years .....	189.78	4,792.73	-	-	4,982.51	11.18
6 – 10 years .....	81.68	135.24	7,495.66	-	7,712.58	17.30
Over 10 years.....	246.94	281.94	1,081.98	25,144.88	26,755.74	60.01
<b>Subtotal.....</b>	<b>5,650.00</b>	<b>5,209.91</b>	<b>8,577.64</b>	<b>25,144.88</b>	<b>44,582.43</b>	<b>21.97</b>
<b>Northwest</b>						
1 – 2 years .....	2,874.86	-	-	-	2,874.86	15.72
3 – 5 years .....	234.72	3,213.05	-	-	3,447.77	18.85
6 – 10 years .....	28.97	38.86	3,617.62	-	3,685.45	20.15
Over 10 years.....	152.92	131.45	235.02	7,762.59	8,281.98	45.28
<b>Subtotal.....</b>	<b>3,291.47</b>	<b>3,383.36</b>	<b>3,852.64</b>	<b>7,762.59</b>	<b>18,290.06</b>	<b>9.02</b>
<b>Central</b>						
1 – 2 years .....	10,210.31	-	-	-	10,210.31	17.28
3 – 5 years .....	530.74	10,591.16	-	-	11,121.90	18.82
6 – 10 years .....	473.64	401.14	12,784.23	-	13,659.01	23.11
Over 10 years.....	211.68	334.51	916.38	22,649.28	24,111.85	40.80
<b>Subtotal.....</b>	<b>11,426.37</b>	<b>11,326.81</b>	<b>13,700.61</b>	<b>22,649.28</b>	<b>59,103.07</b>	<b>29.13</b>
<b>South</b>						
1 – 2 years .....	5,060.20	-	-	-	5,060.20	14.21
3 – 5 years .....	417.64	5,874.13	-	-	6,291.77	17.66
6 – 10 years .....	254.35	250.78	5,496.69	-	6,001.82	16.85
Over 10 years.....	436.76	508.77	1,351.56	15,970.15	18,267.24	51.28
<b>Subtotal.....</b>	<b>6,168.95</b>	<b>6,633.68</b>	<b>6,848.25</b>	<b>15,970.15</b>	<b>35,621.03</b>	<b>17.56</b>
<b>Southwest</b>						
1 – 2 years .....	5,745.54	-	-	-	5,745.54	12.69
3 – 5 years .....	854.79	7,031.43	-	-	7,886.22	17.41
6 – 10 years .....	91.84	91.47	5,138.78	-	5,322.09	11.75
Over 10 years.....	363.15	538.82	776.90	24,653.95	26,332.82	58.15
<b>Subtotal.....</b>	<b>7,055.32</b>	<b>7,661.72</b>	<b>5,915.68</b>	<b>24,653.95</b>	<b>45,286.67</b>	<b>22.32</b>
<b>Total.....</b>	<b>33,592.11</b>	<b>34,215.48</b>	<b>38,894.82</b>	<b>96,180.85</b>	<b>202,883.26</b>	<b>100.00</b>

**Table 18 – Oranges: Trees by age group, age group of plot and variety [2023 inventory]**

Plot age and variety	Tree age				Total	Percentage
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years		
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(%)
<b>Hamlin, Westin, Rubi</b>						
1 – 2 years .....	4,348.57	-	-	-	4,348.57	14.22
3 – 5 years .....	243.51	4,509.03	-	-	4,752.54	15.54
6 – 10 years .....	73.78	49.11	3,335.58	-	3,458.47	11.31
Over 10 years.....	205.36	310.86	821.10	16,690.36	18,027.68	58.94
<b>Subtotal.....</b>	<b>4,871.22</b>	<b>4,869.00</b>	<b>4,156.68</b>	<b>16,690.36</b>	<b>30,587.26</b>	<b>15.08</b>
<b>Other early</b>						
1 – 2 years .....	2,830.82	-	-	-	2,830.82	21.46
3 – 5 years .....	357.35	3,342.17	-	-	3,699.52	28.04
6 – 10 years .....	53.30	56.39	1,817.75	-	1,927.44	14.61
Over 10 years.....	86.15	54.19	239.14	4,356.69	4,736.17	35.90
<b>Subtotal.....</b>	<b>3,327.62</b>	<b>3,452.75</b>	<b>2,056.89</b>	<b>4,356.69</b>	<b>13,193.95</b>	<b>6.50</b>
<b>Pera Rio</b>						
1 – 2 years .....	11,317.07	-	-	-	11,317.07	15.12
3 – 5 years .....	1,055.01	13,321.99	-	-	14,377.00	19.20
6 – 10 years .....	444.19	492.08	16,574.85	-	17,511.12	23.39
Over 10 years.....	546.92	655.11	1,357.11	29,107.53	31,666.67	42.29
<b>Subtotal.....</b>	<b>13,363.19</b>	<b>14,469.18</b>	<b>17,931.96</b>	<b>29,107.53</b>	<b>74,871.86</b>	<b>36.90</b>
<b>Valencia, V.F. Murcha</b>						
1 – 2 years .....	8,450.83	-	-	-	8,450.83	13.40
3 – 5 years .....	363.52	7,248.10	-	-	7,611.62	12.07
6 – 10 years .....	191.52	215.18	8,428.94	-	8,835.64	14.01
Over 10 years.....	389.53	552.19	1,505.64	35,698.87	38,146.23	60.51
<b>Subtotal.....</b>	<b>9,395.40</b>	<b>8,015.47</b>	<b>9,934.58</b>	<b>35,698.87</b>	<b>63,044.32</b>	<b>31.07</b>
<b>Natal</b>						
1 – 2 years .....	2,075.22	-	-	-	2,075.22	9.80
3 – 5 years .....	208.28	3,081.21	-	-	3,289.49	15.53
6 – 10 years .....	167.69	104.73	4,375.86	-	4,648.28	21.94
Over 10 years.....	183.49	223.14	438.85	10,327.40	11,172.88	52.74
<b>Subtotal.....</b>	<b>2,634.68</b>	<b>3,409.08</b>	<b>4,814.71</b>	<b>10,327.40</b>	<b>21,185.87</b>	<b>10.44</b>
<b>Total.....</b>	<b>33,592.11</b>	<b>34,215.48</b>	<b>38,894.82</b>	<b>96,180.85</b>	<b>202,883.26</b>	<b>100.00</b>

**Table 19 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – North Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of North Sector	Age trees <sup>2</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Triângulo Mineiro</b>					
1 – 2 years.....	138.76	-	-	-	138.76
3 – 5 years.....	2.29	88.59	-	-	90.88
6 – 10 years.....	3.22	0.59	161.28	-	165.09
Over 10 years.....	4.12	1.85	45.35	1,671.83	1,723.15
<b>Subtotal.....</b>	<b>148.39</b>	<b>91.03</b>	<b>206.63</b>	<b>1,671.83</b>	<b>2,117.88</b>
<b>Bebedouro</b>					
1 – 2 years.....	459.33	-	-	-	459.33
3 – 5 years.....	6.58	439.74	-	-	446.32
6 – 10 years.....	6.18	3.57	388.63	-	398.38
Over 10 years.....	41.22	44.53	150.80	2,778.89	3,015.44
<b>Subtotal.....</b>	<b>513.31</b>	<b>487.84</b>	<b>539.43</b>	<b>2,778.89</b>	<b>4,319.47</b>
<b>Altinópolis</b>					
1 – 2 years.....	35.35	-	-	-	35.35
3 – 5 years.....	0.86	36.00	-	-	36.86
6 – 10 years.....	0.36	0.30	47.26	-	47.92
Over 10 years.....	0.15	4.24	12.88	627.58	644.85
<b>Subtotal.....</b>	<b>36.72</b>	<b>40.54</b>	<b>60.14</b>	<b>627.58</b>	<b>764.98</b>
<b>North</b>					
1 – 2 years.....	633.44	-	-	-	633.44
3 – 5 years.....	9.73	564.33	-	-	574.06
6 – 10 years.....	9.76	4.46	597.17	-	611.39
Over 10 years.....	45.49	50.62	209.03	5,078.30	5,383.44
<b>Total.....</b>	<b>698.42</b>	<b>619.41</b>	<b>806.20</b>	<b>5,078.30</b>	<b>7,202.33</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlements occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 20 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – Northwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Northwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Votuporanga</b>					
1 – 2 years.....	106.99	-	-	-	106.99
3 – 5 years.....	0.73	115.67	-	-	116.40
6 – 10 years.....	2.21	0.10	19.38	-	21.69
Over 10 years.....	2.08	3.86	1.98	218.68	226.60
<b>Subtotal.....</b>	<b>112.01</b>	<b>119.63</b>	<b>21.36</b>	<b>218.68</b>	<b>471.68</b>
<b>São José do Rio Preto</b>					
1 – 2 years.....	108.16	-	-	-	108.16
3 – 5 years.....	1.19	206.81	-	-	208.00
6 – 10 years.....	0.26	-	166.49	-	166.75
Over 10 years.....	24.28	11.64	31.39	1,218.68	1,285.99
<b>Subtotal.....</b>	<b>133.89</b>	<b>218.45</b>	<b>197.88</b>	<b>1,218.68</b>	<b>1,768.90</b>
<b>Northwest</b>					
1 – 2 years.....	215.15	-	-	-	215.15
3 – 5 years.....	1.92	322.48	-	-	324.40
6 – 10 years.....	2.47	0.10	185.87	-	188.44
Over 10 years.....	26.36	15.50	33.37	1,437.36	1,512.59
<b>Total.....</b>	<b>245.90</b>	<b>338.08</b>	<b>219.24</b>	<b>1,437.36</b>	<b>2,240.58</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 21 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – Central Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Central Sector	Age trees <sup>2</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Matão</b>					
1 – 2 years.....	1,039.56	-	-	-	1,039.56
3 – 5 years.....	2.18	419.77	-	-	421.95
6 – 10 years.....	4.64	4.69	622.68	-	632.01
Over 10 years.....	12.92	15.36	60.57	1,147.91	1,236.76
<b>Subtotal.....</b>	<b>1,059.30</b>	<b>439.82</b>	<b>683.25</b>	<b>1,147.91</b>	<b>3,330.28</b>
<b>Duartina</b>					
1 – 2 years.....	433.40	-	-	-	433.40
3 – 5 years.....	38.31	880.74	-	-	919.05
6 – 10 years.....	18.14	7.49	641.63	-	667.26
Over 10 years.....	5.72	60.67	102.82	2,037.55	2,206.76
<b>Subtotal.....</b>	<b>495.57</b>	<b>948.90</b>	<b>744.45</b>	<b>2,037.55</b>	<b>4,226.47</b>
<b>Brotas</b>					
1 – 2 years.....	38.65	-	-	-	38.65
3 – 5 years.....	7.24	94.49	-	-	101.73
6 – 10 years.....	0.68	0.95	26.33	-	27.96
Over 10 years.....	2.58	4.10	17.83	461.41	485.92
<b>Subtotal.....</b>	<b>49.15</b>	<b>99.54</b>	<b>44.16</b>	<b>461.41</b>	<b>654.26</b>
<b>Central</b>					
1 – 2 years.....	1,511.61	-	-	-	1,511.61
3 – 5 years.....	47.73	1,395.00	-	-	1,442.73
6 – 10 years.....	23.46	13.13	1,290.64	-	1,327.23
Over 10 years.....	21.22	80.13	181.22	3,646.87	3,929.44
<b>Total.....</b>	<b>1,604.02</b>	<b>1,488.26</b>	<b>1,471.86</b>	<b>3,646.87</b>	<b>8,211.01</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 22 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – South Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of South Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Porto Ferreira</b>					
1 – 2 years.....	627.31	-	-	-	627.31
3 – 5 years.....	22.68	805.72	-	-	828.40
6 – 10 years.....	10.09	7.23	351.01	-	368.33
Over 10 years.....	50.63	36.61	119.41	1,264.33	1,470.98
<b>Subtotal.....</b>	<b>710.71</b>	<b>849.56</b>	<b>470.42</b>	<b>1,264.33</b>	<b>3,295.02</b>
<b>Limeira</b>					
1 – 2 years.....	213.46	-	-	-	213.46
3 – 5 years.....	12.95	407.28	-	-	420.23
6 – 10 years.....	5.53	17.57	291.78	-	314.88
Over 10 years.....	11.80	16.18	128.06	1,521.55	1,677.59
<b>Subtotal.....</b>	<b>243.74</b>	<b>441.03</b>	<b>419.84</b>	<b>1,521.55</b>	<b>2,626.16</b>
<b>South</b>					
1 – 2 years.....	840.77	-	-	-	840.77
3 – 5 years.....	35.63	1,213.00	-	-	1,248.63
6 – 10 years.....	15.62	24.80	642.79	-	683.21
Over 10 years.....	62.43	52.79	247.47	2,785.88	3,148.57
<b>Total.....</b>	<b>954.45</b>	<b>1,290.59</b>	<b>890.26</b>	<b>2,785.88</b>	<b>5,921.18</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 23 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – Southwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Southwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Avaré</b>					
1 – 2 years.....	792.06	-	-	-	792.06
3 – 5 years.....	62.34	630.19	-	-	692.53
6 – 10 years.....	4.96	5.68	181.49	-	192.13
Over 10 years.....	49.60	107.94	149.07	3,098.48	3,405.09
<b>Subtotal.....</b>	<b>908.96</b>	<b>743.81</b>	<b>330.56</b>	<b>3,098.48</b>	<b>5,081.81</b>
<b>Itapetininga</b>					
1 – 2 years.....	355.54	-	-	-	355.54
3 – 5 years.....	86.16	384.03	-	-	470.19
6 – 10 years.....	17.51	0.94	437.62	-	456.07
Over 10 years.....	0.26	3.88	0.94	643.47	648.55
<b>Subtotal.....</b>	<b>459.47</b>	<b>388.85</b>	<b>438.56</b>	<b>643.47</b>	<b>1,930.35</b>
<b>Southwest</b>					
1 – 2 years.....	1,147.60	-	-	-	1,147.60
3 – 5 years.....	148.50	1,014.22	-	-	1,162.72
6 – 10 years.....	22.47	6.62	619.11	-	648.20
Over 10 years.....	49.86	111.82	150.01	3,741.95	4,053.64
<b>Total.....</b>	<b>1,368.43</b>	<b>1,132.66</b>	<b>769.12</b>	<b>3,741.95</b>	<b>7,012.16</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 24 – Other early<sup>1</sup>: Trees by age group and age group of plot – North Sector [2023 inventory]**

Plot age <sup>2</sup> and regions of North Sector	Age trees <sup>3</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Triângulo Mineiro</b>					
1 – 2 years.....	174.70	-	-	-	174.70
3 – 5 years.....	-	165.78	-	-	165.78
6 – 10 years.....	0.02	0.02	1.63	-	1.67
Over 10 years.....	-	-	0.18	89.68	89.86
<b>Subtotal.....</b>	<b>174.72</b>	<b>165.80</b>	<b>1.81</b>	<b>89.68</b>	<b>432.01</b>
<b>Bebedouro</b>					
1 – 2 years.....	609.05	-	-	-	609.05
3 – 5 years.....	22.55	658.77	-	-	681.32
6 – 10 years.....	4.26	1.73	168.97	-	174.96
Over 10 years.....	55.68	16.70	79.12	894.62	1,046.12
<b>Subtotal.....</b>	<b>691.54</b>	<b>677.20</b>	<b>248.09</b>	<b>894.62</b>	<b>2,511.45</b>
<b>Altinópolis</b>					
1 – 2 years.....	16.35	-	-	-	16.35
3 – 5 years.....	-	-	-	-	-
6 – 10 years.....	0.07	0.03	2.83	-	2.93
Over 10 years.....	0.14	1.08	12.36	98.31	111.89
<b>Subtotal.....</b>	<b>16.56</b>	<b>1.11</b>	<b>15.19</b>	<b>98.31</b>	<b>131.17</b>
<b>North</b>					
1 – 2 years.....	800.10	-	-	-	800.10
3 – 5 years.....	22.55	824.55	-	-	847.10
6 – 10 years.....	4.35	1.78	173.43	-	179.56
Over 10 years.....	55.82	17.78	91.66	1,082.61	1,247.87
<b>Total.....</b>	<b>882.82</b>	<b>844.11</b>	<b>265.09</b>	<b>1,082.61</b>	<b>3,074.63</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada

<sup>2</sup> Calculation based on the year the original plot was planted

<sup>3</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 25 – Other early<sup>1</sup>: Trees by age group and age group of plot – Northwest Sector [2023 inventory]**

Plot age <sup>2</sup> and regions of Northwest Sector	Age trees <sup>3</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Votuporanga</b>					
1 – 2 years.....	51.36	-	-	-	51.36
3 – 5 years.....	0.61	85.41	-	-	86.02
6 – 10 years.....	-	0.03	4.98	-	5.01
Over 10 years.....	8.82	0.83	2.35	71.03	83.03
<b>Subtotal.....</b>	<b>60.79</b>	<b>86.27</b>	<b>7.33</b>	<b>71.03</b>	<b>225.42</b>
<b>São José do Rio Preto</b>					
1 – 2 years.....	454.88	-	-	-	454.88
3 – 5 years.....	123.79	830.13	-	-	953.92
6 – 10 years.....	1.20	2.64	75.33	-	79.17
Over 10 years.....	1.07	3.44	14.10	627.92	646.53
<b>Subtotal.....</b>	<b>580.94</b>	<b>836.21</b>	<b>89.43</b>	<b>627.92</b>	<b>2,134.50</b>
<b>Northwest</b>					
1 – 2 years.....	506.24	-	-	-	506.24
3 – 5 years.....	124.40	915.54	-	-	1,039.94
6 – 10 years.....	1.20	2.67	80.31	-	84.18
Over 10 years.....	9.89	4.27	16.45	698.95	729.56
<b>Total.....</b>	<b>641.73</b>	<b>922.48</b>	<b>96.76</b>	<b>698.95</b>	<b>2,359.92</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> Calculation based on the year the original plot was planted<sup>3</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 26 – Other early<sup>1</sup>: Trees by age group and age group of plot – Central Sector [2023 inventory]**

Plot age <sup>2</sup> and regions of Central Sector	Age trees <sup>3</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Matão</b>					
1 – 2 years.....	516.13	-	-	-	516.13
3 – 5 years.....	0.55	355.33	-	-	355.88
6 – 10 years.....	4.41	9.48	546.56	-	560.45
Over 10 years.....	8.97	11.31	52.78	665.01	738.07
<b>Subtotal.....</b>	<b>530.06</b>	<b>376.12</b>	<b>599.34</b>	<b>665.01</b>	<b>2,170.53</b>
<b>Duartina</b>					
1 – 2 years.....	584.74	-	-	-	584.74
3 – 5 years.....	44.83	435.56	-	-	480.39
6 – 10 years.....	29.97	34.07	471.23	-	535.27
Over 10 years.....	0.17	1.01	26.29	600.37	627.84
<b>Subtotal.....</b>	<b>659.71</b>	<b>470.64</b>	<b>497.52</b>	<b>600.37</b>	<b>2,228.24</b>
<b>Brotas</b>					
1 – 2 years.....	2.60	-	-	-	2.60
3 – 5 years.....	1.15	8.38	-	-	9.53
6 – 10 years.....	7.73	2.71	119.31	-	129.75
Over 10 years.....	-	0.05	11.64	122.19	133.88
<b>Subtotal.....</b>	<b>11.48</b>	<b>11.14</b>	<b>130.95</b>	<b>122.19</b>	<b>275.76</b>
<b>Central</b>					
1 – 2 years.....	1,103.47	-	-	-	1,103.47
3 – 5 years.....	46.53	799.27	-	-	845.80
6 – 10 years.....	42.11	46.26	1,137.10	-	1,225.47
Over 10 years.....	9.14	12.37	90.71	1,387.57	1,499.79
<b>Total.....</b>	<b>1,201.25</b>	<b>857.90</b>	<b>1,227.81</b>	<b>1,387.57</b>	<b>4,674.53</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> Calculation based on the year the original plot was planted<sup>3</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 27 – Other early<sup>1</sup>: Trees by age group and age group of plot – South Sector [2023 inventory]**

Plot age <sup>2</sup> and regions of South Sector	Age trees <sup>3</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Porto Ferreira</b>					
1 – 2 years.....	52.65	-	-	-	52.65
3 – 5 years.....	1.80	148.33	-	-	150.13
6 – 10 years.....	1.57	1.43	18.47	-	21.47
Over 10 years.....	4.68	9.84	17.03	156.11	187.66
<b>Subtotal.....</b>	<b>60.70</b>	<b>159.60</b>	<b>35.50</b>	<b>156.11</b>	<b>411.91</b>
<b>Limeira</b>					
1 – 2 years.....	90.37	-	-	-	90.37
3 – 5 years.....	0.61	22.33	-	-	22.94
6 – 10 years.....	-	-	10.48	-	10.48
Over 10 years.....	2.08	1.69	5.71	151.26	160.74
<b>Subtotal.....</b>	<b>93.06</b>	<b>24.02</b>	<b>16.19</b>	<b>151.26</b>	<b>284.53</b>
<b>South</b>					
1 – 2 years.....	143.02	-	-	-	143.02
3 – 5 years.....	2.41	170.66	-	-	173.07
6 – 10 years.....	1.57	1.43	28.95	-	31.95
Over 10 years.....	6.76	11.53	22.74	307.37	348.40
<b>Total.....</b>	<b>153.76</b>	<b>183.62</b>	<b>51.69</b>	<b>307.37</b>	<b>696.44</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> Calculation based on the year the original plot was planted<sup>3</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 28 – Other early<sup>1</sup>: Trees by age group and age group of plot – Southwest Sector [2023 inventory]**

Plot age <sup>2</sup> and regions of Southwest Sector	Age trees <sup>3</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Avaré</b>					
1 – 2 years.....	195.26	-	-	-	195.26
3 – 5 years.....	27.47	135.80	-	-	163.27
6 – 10 years.....	0.47	3.69	80.35	-	84.51
Over 10 years.....	2.86	0.83	16.67	537.99	558.35
<b>Subtotal.....</b>	<b>226.06</b>	<b>140.32</b>	<b>97.02</b>	<b>537.99</b>	<b>1,001.39</b>
<b>Itapetininga</b>					
1 – 2 years.....	82.73	-	-	-	82.73
3 – 5 years.....	133.99	496.35	-	-	630.34
6 – 10 years.....	3.60	0.56	317.61	-	321.77
Over 10 years.....	1.68	7.41	0.91	342.20	352.20
<b>Subtotal.....</b>	<b>222.00</b>	<b>504.32</b>	<b>318.52</b>	<b>342.20</b>	<b>1,387.04</b>
<b>Southwest</b>					
1 – 2 years.....	277.99	-	-	-	277.99
3 – 5 years.....	161.46	632.15	-	-	793.61
6 – 10 years.....	4.07	4.25	397.96	-	406.28
Over 10 years.....	4.54	8.24	17.58	880.19	910.55
<b>Total.....</b>	<b>448.06</b>	<b>644.64</b>	<b>415.54</b>	<b>880.19</b>	<b>2,388.43</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>2</sup> Calculation based on the year the original plot was planted<sup>3</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 29 – Pera Rio: Trees by age group and age group of plot – North Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of North Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Triângulo Mineiro</b>					
1 – 2 years.....	815.50	-	-	-	815.50
3 – 5 years.....	3.10	755.03	-	-	758.13
6 – 10 years.....	11.11	4.16	1,337.12	-	1,352.39
Over 10 years.....	3.26	3.80	39.86	2,286.90	2,333.82
<b>Subtotal.....</b>	<b>832.97</b>	<b>762.99</b>	<b>1,376.98</b>	<b>2,286.90</b>	<b>5,259.84</b>
<b>Bebedouro</b>					
1 – 2 years.....	1,079.87	-	-	-	1,079.87
3 – 5 years.....	112.73	1,155.91	-	-	1,268.64
6 – 10 years.....	12.52	75.46	2,415.21	-	2,503.19
Over 10 years.....	26.99	78.28	234.58	3,381.25	3,721.10
<b>Subtotal.....</b>	<b>1,232.11</b>	<b>1,309.65</b>	<b>2,649.79</b>	<b>3,381.25</b>	<b>8,572.80</b>
<b>Altinópolis</b>					
1 – 2 years.....	379.52	-	-	-	379.52
3 – 5 years.....	4.64	182.27	-	-	186.91
6 – 10 years.....	0.69	1.14	272.85	-	274.68
Over 10 years.....	3.96	8.15	9.72	1,293.59	1,315.42
<b>Subtotal.....</b>	<b>388.81</b>	<b>191.56</b>	<b>282.57</b>	<b>1,293.59</b>	<b>2,156.53</b>
<b>North</b>					
1 – 2 years.....	2,274.89	-	-	-	2,274.89
3 – 5 years.....	120.47	2,093.21	-	-	2,213.68
6 – 10 years.....	24.32	80.76	4,025.18	-	4,130.26
Over 10 years.....	34.21	90.23	284.16	6,961.74	7,370.34
<b>Total.....</b>	<b>2,453.89</b>	<b>2,264.20</b>	<b>4,309.34</b>	<b>6,961.74</b>	<b>15,989.17</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 30 – Pera Rio: Trees by age group and age group of plot – Northwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Northwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Votuporanga</b>					
1 – 2 years.....	1,024.28	-	-	-	1,024.28
3 – 5 years.....	30.78	898.63	-	-	929.41
6 – 10 years.....	14.51	15.29	1,070.43	-	1,100.23
Over 10 years.....	56.04	30.90	96.67	2,133.73	2,317.34
<b>Subtotal.....</b>	<b>1,125.61</b>	<b>944.82</b>	<b>1,167.10</b>	<b>2,133.73</b>	<b>5,371.26</b>
<b>São José do Rio Preto</b>					
1 – 2 years.....	503.08	-	-	-	503.08
3 – 5 years.....	42.00	708.69	-	-	750.69
6 – 10 years.....	2.06	11.77	752.40	-	766.23
Over 10 years.....	27.40	36.56	55.19	859.55	978.70
<b>Subtotal.....</b>	<b>574.54</b>	<b>757.02</b>	<b>807.59</b>	<b>859.55</b>	<b>2,998.70</b>
<b>Northwest</b>					
1 – 2 years.....	1,527.36	-	-	-	1,527.36
3 – 5 years.....	72.78	1,607.32	-	-	1,680.10
6 – 10 years.....	16.57	27.06	1,822.83	-	1,866.46
Over 10 years.....	83.44	67.46	151.86	2,993.28	3,296.04
<b>Total.....</b>	<b>1,700.15</b>	<b>1,701.84</b>	<b>1,974.69</b>	<b>2,993.28</b>	<b>8,369.96</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 31 – Pera Rio: Trees by age group and age group of plot – Central Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Central Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Matão</b>					
1 – 2 years.....	1,241.54	-	-	-	1,241.54
3 – 5 years.....	35.35	836.41	-	-	871.76
6 – 10 years.....	61.52	53.83	2,835.32	-	2,950.67
Over 10 years.....	56.60	45.69	124.40	2,052.75	2,279.44
<b>Subtotal.....</b>	<b>1,395.01</b>	<b>935.93</b>	<b>2,959.72</b>	<b>2,052.75</b>	<b>7,343.41</b>
<b>Duartina</b>					
1 – 2 years.....	1,446.44	-	-	-	1,446.44
3 – 5 years.....	187.96	3,018.24	-	-	3,206.20
6 – 10 years.....	139.35	117.86	2,336.95	-	2,594.16
Over 10 years.....	42.71	70.08	98.55	4,542.17	4,753.51
<b>Subtotal.....</b>	<b>1,816.46</b>	<b>3,206.18</b>	<b>2,435.50</b>	<b>4,542.17</b>	<b>12,000.31</b>
<b>Brotas</b>					
1 – 2 years.....	346.86	-	-	-	346.86
3 – 5 years.....	39.24	285.44	-	-	324.68
6 – 10 years.....	7.97	22.14	762.85	-	792.96
Over 10 years.....	1.00	0.57	16.98	707.57	726.12
<b>Subtotal.....</b>	<b>395.07</b>	<b>308.15</b>	<b>779.83</b>	<b>707.57</b>	<b>2,190.62</b>
<b>Central</b>					
1 – 2 years.....	3,034.84	-	-	-	3,034.84
3 – 5 years.....	262.55	4,140.09	-	-	4,402.64
6 – 10 years.....	208.84	193.83	5,935.12	-	6,337.79
Over 10 years.....	100.31	116.34	239.93	7,302.49	7,759.07
<b>Total.....</b>	<b>3,606.54</b>	<b>4,450.26</b>	<b>6,175.05</b>	<b>7,302.49</b>	<b>21,534.34</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 32 – Pera Rio: Trees by age group and age group of plot – South Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of South Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Porto Ferreira</b>					
1 – 2 years.....	1,296.22	-	-	-	1,296.22
3 – 5 years.....	96.21	1,420.03	-	-	1,516.24
6 – 10 years.....	88.72	87.94	1,700.79	-	1,877.45
Over 10 years.....	113.04	112.97	242.45	2,909.78	3,378.24
<b>Subtotal.....</b>	<b>1,594.19</b>	<b>1,620.94</b>	<b>1,943.24</b>	<b>2,909.78</b>	<b>8,068.15</b>
<b>Limeira</b>					
1 – 2 years.....	1,068.02	-	-	-	1,068.02
3 – 5 years.....	139.10	1,290.61	-	-	1,429.71
6 – 10 years.....	71.43	57.78	913.47	-	1,042.68
Over 10 years.....	120.56	109.14	245.27	2,674.50	3,149.47
<b>Subtotal.....</b>	<b>1,399.11</b>	<b>1,457.53</b>	<b>1,158.74</b>	<b>2,674.50</b>	<b>6,689.88</b>
<b>South</b>					
1 – 2 years.....	2,364.24	-	-	-	2,364.24
3 – 5 years.....	235.31	2,710.64	-	-	2,945.95
6 – 10 years.....	160.15	145.72	2,614.26	-	2,920.13
Over 10 years.....	233.60	222.11	487.72	5,584.28	6,527.71
<b>Total.....</b>	<b>2,993.30</b>	<b>3,078.47</b>	<b>3,101.98</b>	<b>5,584.28</b>	<b>14,758.03</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 33 – Pera Rio: Trees by age group and age group of plot – Southwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Southwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Avaré</b>					
1 – 2 years.....	1,640.20	-	-	-	1,640.20
3 – 5 years.....	126.43	1,561.74	-	-	1,688.17
6 – 10 years.....	14.66	40.67	863.37	-	918.70
Over 10 years.....	73.00	122.53	188.29	4,727.01	5,110.83
<b>Subtotal.....</b>	<b>1,854.29</b>	<b>1,724.94</b>	<b>1,051.66</b>	<b>4,727.01</b>	<b>9,357.90</b>
<b>Itapetininga</b>					
1 – 2 years.....	475.54	-	-	-	475.54
3 – 5 years.....	237.47	1,208.99	-	-	1,446.46
6 – 10 years.....	19.65	4.04	1,314.09	-	1,337.78
Over 10 years.....	22.36	36.44	5.15	1,538.73	1,602.68
<b>Subtotal.....</b>	<b>755.02</b>	<b>1,249.47</b>	<b>1,319.24</b>	<b>1,538.73</b>	<b>4,862.46</b>
<b>Southwest</b>					
1 – 2 years.....	2,115.74	-	-	-	2,115.74
3 – 5 years.....	363.90	2,770.73	-	-	3,134.63
6 – 10 years.....	34.31	44.71	2,177.46	-	2,256.48
Over 10 years.....	95.36	158.97	193.44	6,265.74	6,713.51
<b>Total.....</b>	<b>2,609.31</b>	<b>2,974.41</b>	<b>2,370.90</b>	<b>6,265.74</b>	<b>14,220.36</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 34 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – North Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Norte Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Triângulo Mineiro</b>					
1 – 2 years.....	386.77	-	-	-	386.77
3 – 5 years.....	0.39	75.15	-	-	75.54
6 – 10 years.....	0.55	0.63	618.21	-	619.39
Over 10 years.....	31.67	4.74	34.14	3,184.59	3,255.14
<b>Subtotal.....</b>	<b>419.38</b>	<b>80.52</b>	<b>652.35</b>	<b>3,184.59</b>	<b>4,336.84</b>
<b>Bebedouro</b>					
1 – 2 years.....	476.25	-	-	-	476.25
3 – 5 years.....	21.10	783.23	-	-	804.33
6 – 10 years.....	22.79	25.92	1,175.54	-	1,224.25
Over 10 years.....	35.72	60.10	293.92	4,705.82	5,095.56
<b>Subtotal.....</b>	<b>555.86</b>	<b>869.25</b>	<b>1,469.46</b>	<b>4,705.82</b>	<b>7,600.39</b>
<b>Altinópolis</b>					
1 – 2 years.....	432.52	-	-	-	432.52
3 – 5 years.....	1.38	107.67	-	-	109.05
6 – 10 years.....	0.60	-	112.07	-	112.67
Over 10 years.....	21.67	3.72	25.55	1,715.93	1,766.87
<b>Subtotal.....</b>	<b>456.17</b>	<b>111.39</b>	<b>137.62</b>	<b>1,715.93</b>	<b>2,421.11</b>
<b>North</b>					
1 – 2 years.....	1,295.54	-	-	-	1,295.54
3 – 5 years.....	22.87	966.05	-	-	988.92
6 – 10 years.....	23.94	26.55	1,905.82	-	1,956.31
Over 10 years.....	89.06	68.56	353.61	9,606.34	10,117.57
<b>Total.....</b>	<b>1,431.41</b>	<b>1,061.16</b>	<b>2,259.43</b>	<b>9,606.34</b>	<b>14,358.34</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 35 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – Northwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Northwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Votuporanga</b>					
1 – 2 years.....	321.97	-	-	-	321.97
3 – 5 years.....	0.83	72.33	-	-	73.16
6 – 10 years.....	0.65	-	12.48	-	13.13
Over 10 years.....	10.77	0.25	5.24	621.26	637.52
<b>Subtotal.....</b>	<b>334.22</b>	<b>72.58</b>	<b>17.72</b>	<b>621.26</b>	<b>1,045.78</b>
<b>São José do Rio Preto</b>					
1 – 2 years.....	247.00	-	-	-	247.00
3 – 5 years.....	7.59	97.61	-	-	105.20
6 – 10 years.....	2.72	2.94	672.57	-	678.23
Over 10 years.....	8.32	9.54	17.90	1,546.81	1,582.57
<b>Subtotal.....</b>	<b>265.63</b>	<b>110.09</b>	<b>690.47</b>	<b>1,546.81</b>	<b>2,613.00</b>
<b>Northwest</b>					
1 – 2 years.....	568.97	-	-	-	568.97
3 – 5 years.....	8.42	169.94	-	-	178.36
6 – 10 years.....	3.37	2.94	685.05	-	691.36
Over 10 years.....	19.09	9.79	23.14	2,168.07	2,220.09
<b>Total.....</b>	<b>599.85</b>	<b>182.67</b>	<b>708.19</b>	<b>2,168.07</b>	<b>3,658.78</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 36 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – Central Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Central Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Matão</b>					
1 – 2 years.....	1,048.31	-	-	-	1,048.31
3 – 5 years.....	21.75	495.48	-	-	517.23
6 – 10 years.....	44.80	32.94	1,398.92	-	1,476.66
Over 10 years.....	40.11	43.25	87.38	2,348.28	2,519.02
<b>Subtotal.....</b>	<b>1,154.97</b>	<b>571.67</b>	<b>1,486.30</b>	<b>2,348.28</b>	<b>5,561.22</b>
<b>Duartina</b>					
1 – 2 years.....	2,074.91	-	-	-	2,074.91
3 – 5 years.....	124.77	2,867.01	-	-	2,991.78
6 – 10 years.....	31.89	64.96	1,638.67	-	1,735.52
Over 10 years.....	27.69	49.35	149.74	4,072.37	4,299.15
<b>Subtotal.....</b>	<b>2,259.26</b>	<b>2,981.32</b>	<b>1,788.41</b>	<b>4,072.37</b>	<b>11,101.36</b>
<b>Brotas</b>					
1 – 2 years.....	427.34	-	-	-	427.34
3 – 5 years.....	16.98	48.26	-	-	65.24
6 – 10 years.....	21.49	4.16	188.41	-	214.06
Over 10 years.....	0.88	2.27	65.61	1,479.60	1,548.36
<b>Subtotal.....</b>	<b>466.69</b>	<b>54.69</b>	<b>254.02</b>	<b>1,479.60</b>	<b>2,255.00</b>
<b>Central</b>					
1 – 2 years.....	3,550.56	-	-	-	3,550.56
3 – 5 years.....	163.50	3,410.75	-	-	3,574.25
6 – 10 years.....	98.18	102.06	3,226.00	-	3,426.24
Over 10 years.....	68.68	94.87	302.73	7,900.25	8,366.53
<b>Total.....</b>	<b>3,880.92</b>	<b>3,607.68</b>	<b>3,528.73</b>	<b>7,900.25</b>	<b>18,917.58</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 37 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – South Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of South Sector	Age trees <sup>2</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Porto Ferreira</b>					
1 – 2 years.....	762.06	-	-	-	762.06
3 – 5 years.....	19.48	733.63	-	-	753.11
6 – 10 years.....	28.63	26.72	820.45	-	875.80
Over 10 years.....	68.07	92.21	301.23	3,081.39	3,542.90
<b>Subtotal.....</b>	<b>878.24</b>	<b>852.56</b>	<b>1,121.68</b>	<b>3,081.39</b>	<b>5,933.87</b>
<b>Limeira</b>					
1 – 2 years.....	459.54	-	-	-	459.54
3 – 5 years.....	87.48	457.90	-	-	545.38
6 – 10 years.....	23.14	32.01	613.48	-	668.63
Over 10 years.....	42.51	97.99	188.14	3,146.92	3,475.56
<b>Subtotal.....</b>	<b>612.67</b>	<b>587.90</b>	<b>801.62</b>	<b>3,146.92</b>	<b>5,149.11</b>
<b>South</b>					
1 – 2 years.....	1,221.60	-	-	-	1,221.60
3 – 5 years.....	106.96	1,191.53	-	-	1,298.49
6 – 10 years.....	51.77	58.73	1,433.93	-	1,544.43
Over 10 years.....	110.58	190.20	489.37	6,228.31	7,018.46
<b>Total.....</b>	<b>1,490.91</b>	<b>1,440.46</b>	<b>1,923.30</b>	<b>6,228.31</b>	<b>11,082.98</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 38 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – Southwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Southwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Avaré</b>					
1 – 2 years.....	954.01	-	-	-	954.01
3 – 5 years.....	29.80	926.74	-	-	956.54
6 – 10 years.....	5.92	17.81	619.57	-	643.30
Over 10 years.....	84.86	158.79	322.26	7,092.52	7,658.43
<b>Subtotal.....</b>	<b>1,074.59</b>	<b>1,103.34</b>	<b>941.83</b>	<b>7,092.52</b>	<b>10,212.28</b>
<b>Itapetininga</b>					
1 – 2 years.....	860.15	-	-	-	860.15
3 – 5 years.....	31.97	583.09	-	-	615.06
6 – 10 years.....	8.34	7.09	558.57	-	574.00
Over 10 years.....	17.26	29.98	14.53	2,703.38	2,765.15
<b>Subtotal.....</b>	<b>917.72</b>	<b>620.16</b>	<b>573.10</b>	<b>2,703.38</b>	<b>4,814.36</b>
<b>Southwest</b>					
1 – 2 years.....	1,814.16	-	-	-	1,814.16
3 – 5 years.....	61.77	1,509.83	-	-	1,571.60
6 – 10 years.....	14.26	24.90	1,178.14	-	1,217.30
Over 10 years.....	102.12	188.77	336.79	9,795.90	10,423.58
<b>Total.....</b>	<b>1,992.31</b>	<b>1,723.50</b>	<b>1,514.93</b>	<b>9,795.90</b>	<b>15,026.64</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 39 – Natal: Trees by age group and age group of plot – North Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Norte Sector	Age trees <sup>2</sup>				Total (1,000 trees)
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Triângulo Mineiro</b>					
1 – 2 years.....	86.90	-	-	-	86.90
3 – 5 years.....	0.90	47.33	-	-	48.23
6 – 10 years.....	0.71	1.45	98.67	-	100.83
Over 10 years.....	2.27	2.24	26.67	1,254.69	1,285.87
<b>Subtotal.....</b>	<b>90.78</b>	<b>51.02</b>	<b>125.34</b>	<b>1,254.69</b>	<b>1,521.83</b>
<b>Bebedouro</b>					
1 – 2 years.....	34.66	-	-	-	34.66
3 – 5 years.....	13.26	268.24	-	-	281.50
6 – 10 years.....	17.18	15.16	568.21	-	600.55
Over 10 years.....	19.94	50.63	107.49	923.24	1,101.30
<b>Subtotal.....</b>	<b>85.04</b>	<b>334.03</b>	<b>675.70</b>	<b>923.24</b>	<b>2,018.01</b>
<b>Altinópolis</b>					
1 – 2 years.....	6.07	-	-	-	6.07
3 – 5 years.....	-	29.02	-	-	29.02
6 – 10 years.....	1.42	5.08	127.18	-	133.68
Over 10 years.....	0.15	1.88	9.36	237.96	249.35
<b>Subtotal.....</b>	<b>7.64</b>	<b>35.98</b>	<b>136.54</b>	<b>237.96</b>	<b>418.12</b>
<b>North</b>					
1 – 2 years.....	127.63	-	-	-	127.63
3 – 5 years.....	14.16	344.59	-	-	358.75
6 – 10 years.....	19.31	21.69	794.06	-	835.06
Over 10 years.....	22.36	54.75	143.52	2,415.89	2,636.52
<b>Total.....</b>	<b>183.46</b>	<b>421.03</b>	<b>937.58</b>	<b>2,415.89</b>	<b>3,957.96</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 40 – Natal: Trees by age group and age group of plot – Northwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Northwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Votuporanga</b>					
1 – 2 years.....	44.02	-	-	-	44.02
3 – 5 years.....	0.59	136.67	-	-	137.26
6 – 10 years.....	1.25	4.69	69.64	-	75.58
Over 10 years.....	4.00	2.31	1.31	131.87	139.49
<b>Subtotal.....</b>	<b>49.86</b>	<b>143.67</b>	<b>70.95</b>	<b>131.87</b>	<b>396.35</b>
<b>São José do Rio Preto</b>					
1 – 2 years.....	13.12	-	-	-	13.12
3 – 5 years.....	26.61	61.10	-	-	87.71
6 – 10 years.....	4.11	1.40	773.92	-	779.43
Over 10 years.....	10.14	32.12	8.89	333.06	384.21
<b>Subtotal.....</b>	<b>53.98</b>	<b>94.62</b>	<b>782.81</b>	<b>333.06</b>	<b>1,264.47</b>
<b>Northwest</b>					
1 – 2 years.....	57.14	-	-	-	57.14
3 – 5 years.....	27.20	197.77	-	-	224.97
6 – 10 years.....	5.36	6.09	843.56	-	855.01
Over 10 years.....	14.14	34.43	10.20	464.93	523.70
<b>Total.....</b>	<b>103.84</b>	<b>238.29</b>	<b>853.76</b>	<b>464.93</b>	<b>1,660.82</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 41 – Natal: Trees by age group and age group of plot – Central Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Central Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Matão</b>					
1 – 2 years.....	858.87	-	-	-	858.87
3 – 5 years.....	1.65	354.30	-	-	355.95
6 – 10 years.....	23.94	21.91	635.99	-	681.84
Over 10 years.....	0.09	1.64	17.16	452.12	471.01
<b>Subtotal.....</b>	<b>884.55</b>	<b>377.85</b>	<b>653.15</b>	<b>452.12</b>	<b>2,367.67</b>
<b>Duartina</b>					
1 – 2 years.....	118.47	-	-	-	118.47
3 – 5 years.....	5.57	418.42	-	-	423.99
6 – 10 years.....	77.07	23.25	517.27	-	617.59
Over 10 years.....	12.24	29.16	62.34	1,700.32	1,804.06
<b>Subtotal.....</b>	<b>213.35</b>	<b>470.83</b>	<b>579.61</b>	<b>1,700.32</b>	<b>2,964.11</b>
<b>Brotas</b>					
1 – 2 years.....	32.49	-	-	-	32.49
3 – 5 years.....	3.21	73.33	-	-	76.54
6 – 10 years.....	0.04	0.70	42.11	-	42.85
Over 10 years.....	-	-	22.29	259.66	281.95
<b>Subtotal.....</b>	<b>35.74</b>	<b>74.03</b>	<b>64.40</b>	<b>259.66</b>	<b>433.83</b>
<b>Central</b>					
1 – 2 years.....	1,009.83	-	-	-	1,009.83
3 – 5 years.....	10.43	846.05	-	-	856.48
6 – 10 years.....	101.05	45.86	1,195.37	-	1,342.28
Over 10 years.....	12.33	30.80	101.79	2,412.10	2,557.02
<b>Total.....</b>	<b>1,133.64</b>	<b>922.71</b>	<b>1,297.16</b>	<b>2,412.10</b>	<b>5,765.61</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 42 – Natal: Trees by age group and age group of plot – South Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of South	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Porto Ferreira</b>					
1 – 2 years.....	351.81	-	-	-	351.81
3 – 5 years.....	12.16	407.18	-	-	419.34
6 – 10 years.....	23.71	19.67	573.70	-	617.08
Over 10 years.....	1.71	1.47	17.53	590.04	610.75
<b>Subtotal.....</b>	<b>389.39</b>	<b>428.32</b>	<b>591.23</b>	<b>590.04</b>	<b>1,998.98</b>
<b>Limeira</b>					
1 – 2 years.....	138.76	-	-	-	138.76
3 – 5 years.....	25.17	181.12	-	-	206.29
6 – 10 years.....	1.53	0.43	203.06	-	205.02
Over 10 years.....	21.68	30.67	86.73	474.27	613.35
<b>Subtotal.....</b>	<b>187.14</b>	<b>212.22</b>	<b>289.79</b>	<b>474.27</b>	<b>1,163.42</b>
<b>South</b>					
1 – 2 years.....	490.57	-	-	-	490.57
3 – 5 years.....	37.33	588.30	-	-	625.63
6 – 10 years.....	25.24	20.10	776.76	-	822.10
Over 10 years.....	23.39	32.14	104.26	1,064.31	1,224.10
<b>Total.....</b>	<b>576.53</b>	<b>640.54</b>	<b>881.02</b>	<b>1,064.31</b>	<b>3,162.40</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors**Table 43 – Natal: Trees by age group and age group of plot – Southwest Sector [2023 inventory]**

Plot age <sup>1</sup> and regions of Southwest Sector	Age trees <sup>2</sup>				Total
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)	
<b>Avaré</b>					
1 – 2 years.....	284.61	-	-	-	284.61
3 – 5 years.....	37.28	479.32	-	-	516.60
6 – 10 years.....	4.13	7.93	399.86	-	411.92
Over 10 years.....	95.54	57.30	69.76	2,713.48	2,936.08
<b>Subtotal.....</b>	<b>421.56</b>	<b>544.55</b>	<b>469.62</b>	<b>2,713.48</b>	<b>4,149.21</b>
<b>Itapetininga</b>					
1 – 2 years.....	105.44	-	-	-	105.44
3 – 5 years.....	81.88	625.18	-	-	707.06
6 – 10 years.....	12.60	3.06	366.25	-	381.91
Over 10 years.....	15.73	13.72	9.32	1,256.69	1,295.46
<b>Subtotal.....</b>	<b>215.65</b>	<b>641.96</b>	<b>375.57</b>	<b>1,256.69</b>	<b>2,489.87</b>
<b>Southwest</b>					
1 – 2 years.....	390.05	-	-	-	390.05
3 – 5 years.....	119.16	1,104.50	-	-	1,223.66
6 – 10 years.....	16.73	10.99	766.11	-	793.83
Over 10 years.....	111.27	71.02	79.08	3,970.17	4,231.54
<b>Total.....</b>	<b>637.21</b>	<b>1,186.51</b>	<b>845.19</b>	<b>3,970.17</b>	<b>6,639.08</b>

Ages and planting years: 1 – 2 years (2021 and 2022), 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and earlier)

- Represents zero

<sup>1</sup> Calculation based on the year the original plot was planted<sup>2</sup> Estimated both from information supplied by growers on years resettlings occurred in the plot and from visual aspects of the plant, such as trunk circumference, height and shape of canopy, among other factors

**Table 44 – Oranges: Area of young and mature groves by sector and region [2023 inventory and accumulated variation]**

Sector and region	2023 inventory			Accumulated variation (△) since 2022 inventory		
	Area of young groves <sup>1</sup>	Area of mature groves <sup>2</sup>	Total			
	(A)	(B)	(C)	(△ A)	(△ B)	(△ C)
	(hectares)	(hectares)	(hectares)	(%)	(%)	(%)
<b>North</b>						
Triângulo Mineiro.....	2,929	25,310	28,239	70.99	-1.82	2.72
Bebedouro.....	4,848	45,096	49,944	29.52	-1.97	0.40
Altinópolis.....	1,684	10,485	12,169	228.27	-4.02	6.40
<b>Subtotal .....</b>	<b>9,461</b>	<b>80,891</b>	<b>90,352</b>	<b>58.50</b>	<b>-2.19</b>	<b>1.89</b>
<b>Northwest</b>						
Votuporanga.....	3,354	13,044	16,398	23.54	-10.88	-5.50
São José do Rio Preto.....	2,604	18,306	20,910	34.99	-4.70	-1.08
<b>Subtotal.....</b>	<b>5,958</b>	<b>31,350</b>	<b>37,308</b>	<b>28.29</b>	<b>-7.37</b>	<b>-3.07</b>
<b>Central</b>						
Matão.....	7,280	28,408	35,688	70.05	-3.36	5.97
Duartina.....	7,855	52,591	60,446	-2.07	-1.92	-1.94
Brotas.....	1,387	10,183	11,570	18.14	-6.70	-4.29
<b>Subtotal.....</b>	<b>16,522</b>	<b>91,182</b>	<b>107,704</b>	<b>22.60</b>	<b>-2.93</b>	<b>0.28</b>
<b>South</b>						
Porto Ferreira.....	5,235	31,684	36,919	21.91	-4.25	-1.24
Limeira.....	3,354	28,229	31,583	2.44	-5.92	-5.10
<b>Subtotal.....</b>	<b>8,589</b>	<b>59,913</b>	<b>68,502</b>	<b>13.49</b>	<b>-5.04</b>	<b>-3.06</b>
<b>Southwest</b>						
Avaré.....	7,068	51,771	58,839	-5.01	2.76	1.76
Itapetininga.....	2,944	21,984	24,928	-17.90	7.61	3.80
<b>Subtotal .....</b>	<b>10,012</b>	<b>73,755</b>	<b>83,767</b>	<b>-9.20</b>	<b>4.16</b>	<b>2.36</b>
<b>Total.....</b>	<b>50,542</b>	<b>337,091</b>	<b>387,633</b>	<b>18.41</b>	<b>-2.12</b>	<b>0.14</b>
<b>Percentage.....</b>	<b>13.04</b>	<b>86.96</b>	<b>100.00</b>	<b>(X)</b>	<b>(X)</b>	<b>(X)</b>

(X) Not applicable

- Represents zero

<sup>1</sup> Groves planted in 2021 and 2022<sup>2</sup> Groves planted in 2020 and in previous years

**Table 45 – Oranges: Non-bearing and bearing trees by sector and region [2023 inventory and accumulated variation]**

Sector and region	2023 inventory					Accumulated variation (△) since 2022 inventory				
	Non-bearing trees <sup>1</sup>			Bearing trees <sup>4</sup>	Total					
	In young groves <sup>2</sup>	In mature groves <sup>3</sup> (resets)	Total							
	(A)	(B)	(C)	(D)	(E)	(△A)	(△B)	(△C)	(△D)	(△E)
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(%)	(%)	(%)	(%)	(%)
North										
Triângulo Mineiro.....	1,602.63	63.61	1,666.24	12,002.16	13,668.40	60.46	100.03	61.68	-1.54	3.39
Bebedouro.....	2,659.16	418.70	3,077.86	21,944.26	25,022.12	29.58	-34.60	14.32	0.91	2.38
Altinópolis.....	869.81	36.09	905.90	4,986.01	5,891.91	215.80	-60.65	146.75	-4.95	4.97
Subtotal .....	5,131.60	518.40	5,650.00	38,932.43	44,582.43	54.27	-32.12	38.14	-0.64	3.03
Northwest										
Votuporanga.....	1,548.62	133.87	1,682.49	5,828.00	7,510.49	34.30	24.60	33.47	-11.13	-3.94
S. J. do Rio Preto.....	1,326.24	282.74	1,608.98	9,170.59	10,779.57	33.77	259.03	50.34	0.08	5.34
Subtotal.....	2,874.86	416.61	3,291.47	14,998.59	18,290.06	34.05	123.76	41.22	-4.60	1.32
Central										
Matão.....	4,704.41	319.48	5,023.89	15,749.22	20,773.11	68.67	35.69	66.11	3.55	13.93
Duartina.....	4,657.96	786.39	5,444.35	27,076.14	32,520.49	-9.24	21.08	-5.84	-1.76	-2.47
Brotas.....	847.94	110.19	958.13	4,851.34	5,809.47	10.78	-29.24	4.01	-2.36	-1.36
Subtotal.....	10,210.31	1,216.06	11,426.37	47,676.70	59,103.07	17.54	16.85	17.47	-0.13	2.85
South										
Porto Ferreira.....	3,090.05	543.18	3,633.23	16,074.70	19,707.93	14.40	-9.18	10.13	-1.74	0.25
Limeira.....	1,970.15	565.57	2,535.72	13,377.38	15,913.10	-2.97	-25.11	-8.97	-4.64	-5.36
Subtotal.....	5,060.20	1,108.75	6,168.95	29,452.08	35,621.03	6.95	-18.07	1.38	-3.08	-2.34
Southwest										
Avaré.....	3,866.14	619.32	4,485.46	25,317.13	29,802.59	-0.58	-1.97	-0.78	2.59	2.07
Itapetininga.....	1,879.40	690.46	2,569.86	12,914.22	15,484.08	-17.68	128.50	-0.60	5.32	4.29
Subtotal.....	5,745.54	1,309.78	7,055.32	38,231.35	45,286.67	-6.91	40.24	-0.71	3.49	2.82
Total.....	29,022.51	4,569.60	33,592.11	169,291.15	202,883.26	15.81	6.82	14.50	-0.40	1.79
Percentage.....	86.40	13.60	16.56	83.44	100.00	(X)	(X)	(X)	(X)	(X)

(X) Not applicable

- Represents zero

<sup>1</sup> Trees planted in 2021 and 2022<sup>2</sup> Groves planted in 2021 and 2022<sup>3</sup> Groves planted in 2020 and in previous years<sup>4</sup> Trees planted in 2020 and in previous years

**Table 46 – Oranges: Area of groves by age group of plots, sector and region [2023 inventory]**

Sector and region	Plot age				Total
	1 – 2 years <sup>1</sup>	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>North</b>					
Triâng. Mineiro....	2,929	2,243	3,810	19,257	28,239
Bebedouro.....	4,848	6,321	8,287	30,488	49,944
Altinópolis.....	1,684	651	871	8,963	12,169
<b>Subtotal.....</b>	<b>9,461</b>	<b>9,215</b>	<b>12,968</b>	<b>58,708</b>	<b>90,352</b>
<b>Northwest</b>					
Votuporanga.....	3,354	3,235	2,543	7,266	16,398
S. J. Rio Preto.....	2,604	3,280	4,280	10,746	20,910
<b>Subtotal.....</b>	<b>5,958</b>	<b>6,515</b>	<b>6,823</b>	<b>18,012</b>	<b>37,308</b>
<b>Central</b>					
Matão.....	7,280	3,976	8,950	15,482	35,688
Duartina.....	7,855	12,743	10,207	29,641	60,446
Brotas.....	1,387	1,056	1,951	7,176	11,570
<b>Subtotal.....</b>	<b>16,522</b>	<b>17,775</b>	<b>21,108</b>	<b>52,299</b>	<b>107,704</b>
<b>South</b>					
Porto Ferreira....	5,235	6,055	5,844	19,785	36,919
Limeira.....	3,354	4,255	3,923	20,051	31,583
<b>Subtotal.....</b>	<b>8,589</b>	<b>10,310</b>	<b>9,767</b>	<b>39,836</b>	<b>68,502</b>
<b>Southwest</b>					
Avaré.....	7068	6,898	3,446	41,427	58,839
Itapetininga.....	2,944	5,712	4,285	11,987	24,928
<b>Subtotal.....</b>	<b>10,012</b>	<b>12,610</b>	<b>7,731</b>	<b>53,414</b>	<b>83,767</b>
<b>Total.....</b>	<b>50,542</b>	<b>56,425</b>	<b>58,397</b>	<b>222,269</b>	<b>387,633</b>
<b>Percentage.....</b>	<b>13.04</b>	<b>14.56</b>	<b>15.07</b>	<b>57.34</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Area of young orange groves

**Table 47 – Oranges: Trees by age group, age group of plot, sector and region [2023 inventory]**

Sector and region	Plot and tree ages										Total
	Plots 1 – 2 years	Plots 3 – 5 years		Plots 6 – 10 years			Plots Over 10 years				
	Trees 1 – 2 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
North											
Triâng.Mineiro..	1,602.63	6.68	1,131.88	15.61	6.85	2,216.91	41.32	12.63	146.20	8,487.69	13,668.40
Bebedouro.....	2,659.16	176.22	3,305.89	62.93	121.84	4,716.56	179.55	250.24	865.91	12,683.82	25,022.12
Altinópolis.....	869.81	6.88	354.96	3.14	6.55	562.19	26.07	19.07	69.87	3,973.37	5,891.91
Subtotal.....	5,131.60	189.78	4,792.73	81.68	135.24	7,495.66	246.94	281.94	1,081.98	25,144.88	44,582.43
Northwest											
Votuporanga.....	1,548.62	33.54	1,308.71	18.62	20.11	1,176.91	81.71	38.15	107.55	3,176.57	7,510.49
S J Rio Preto.....	1,326.24	201.18	1,904.34	10.35	18.75	2,440.71	71.21	93.30	127.47	4,586.02	10,779.57
Subtotal.....	2,874.86	234.72	3,213.05	28.97	38.86	3,617.62	152.92	131.45	235.02	7,762.59	18,290.06
Central											
Matão.....	4,704.41	61.48	2,461.29	139.31	122.85	6,039.47	118.69	117.25	342.29	6,666.07	20,773.11
Duartina.....	4,657.96	401.44	7,619.97	296.42	247.63	5,605.75	88.53	210.27	439.74	12,952.78	32,520.49
Brotas.....	847.94	67.82	509.90	37.91	30.66	1,139.01	4.46	6.99	134.35	3,030.43	5,809.47
Subtotal.....	10,210.31	530.74	10,591.16	473.64	401.14	12,784.23	211.68	334.51	916.38	22,649.28	59,103.07
South											
Porto Ferreira.....	3,090.05	152.33	3,514.89	152.72	142.99	3,464.42	238.13	253.10	697.65	8,001.65	19,707.93
Limeira.....	1,970.15	265.31	2,359.24	101.63	107.79	2,032.27	198.63	255.67	653.91	7,968.50	15,913.10
Subtotal.....	5,060.20	417.64	5,874.13	254.35	250.78	5,496.69	436.76	508.77	1,351.56	15,970.15	35,621.03
Southwest											
Avaré.....	3,866.14	283.32	3,733.79	30.14	75.78	2,144.64	305.86	447.39	746.05	18,169.48	29,802.59
Itapetininga.....	1,879.40	571.47	3,297.64	61.70	15.69	2,994.14	57.29	91.43	30.85	6,484.47	15,484.08
Subtotal.....	5,745.54	854.79	7,031.43	91.84	91.47	5,138.78	363.15	538.82	776.90	24,653.95	45,286.67
Total.....	29,022.51	2,227.67	31,502.50	930.48	917.49	34,532.98	1,411.45	1,795.49	4,361.84	96,180.85	202,883.26
Percentage.....	14.31	1.10	15.53	0.46	0.45	17.02	0.70	0.88	2.15	47.41	100.00

**Table 48 – Oranges: Area of groves of early varieties by sector and region [2023 inventory]**

Sector and region	Early varieties							
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	Alvorada	Total
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>North</b>								
Triâng. Mineiro.....	4,573	139	336	768	-	18	-	5,834
Bebedouro.....	7,605	1,118	790	4,223	3	209	-	13,948
Altinópolis.....	1,471	48	185	240	-	-	-	1,944
<b>Subtotal.....</b>	<b>13,649</b>	<b>1,305</b>	<b>1,311</b>	<b>5,231</b>	<b>3</b>	<b>227</b>	<b>-</b>	<b>21,726</b>
<b>Northwest</b>								
Votuporanga.....	534	51	362	461	-	14	-	1,422
S. J. Rio Preto.....	3,259	28	335	3,329	-	180	282	7,413
<b>Subtotal.....</b>	<b>3,793</b>	<b>79</b>	<b>697</b>	<b>3,790</b>	<b>-</b>	<b>194</b>	<b>282</b>	<b>8,835</b>
<b>Central</b>								
Matão.....	5,260	31	431	3,370	-	536	-	9,628
Duartina.....	6,674	197	1,466	3,685	31	73	122	12,248
Brotas.....	1,210	81	138	411	-	153	-	1,993
<b>Subtotal.....</b>	<b>13,144</b>	<b>309</b>	<b>2,035</b>	<b>7,466</b>	<b>31</b>	<b>762</b>	<b>122</b>	<b>23,869</b>
<b>South</b>								
Porto Ferreira.....	3,667	1,444	1,194	738	35	15	5	7,098
Limeira.....	3,816	1,420	400	516	20	3	30	6,205
<b>Subtotal.....</b>	<b>7,483</b>	<b>2,864</b>	<b>1,594</b>	<b>1,254</b>	<b>55</b>	<b>18</b>	<b>35</b>	<b>13,303</b>
<b>Southwest</b>								
Avaré.....	7,929	1,156	1,938	1,933	-	71	85	13,112
Itapetininga.....	2,070	328	1,056	827	1	967	269	5,518
<b>Subtotal.....</b>	<b>9,999</b>	<b>1,484</b>	<b>2,994</b>	<b>2,760</b>	<b>1</b>	<b>1,038</b>	<b>354</b>	<b>18,630</b>
<b>Total.....</b>	<b>48,068</b>	<b>6,041</b>	<b>8,631</b>	<b>20,501</b>	<b>90</b>	<b>2,239</b>	<b>793</b>	<b>86,363</b>
<b>Percentage.....</b>	<b>55.66</b>	<b>6.99</b>	<b>9.99</b>	<b>23.74</b>	<b>0.10</b>	<b>2.59</b>	<b>0.92</b>	<b>22.28</b>

- Represents zero

**Table 49 – Oranges: Trees of early varieties by sector and region [2023 inventory]**

Sector and region	Early varieties							
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	Alvorada	Total
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>North</b>								
Triâng.Mineiro.....	1,868.27	71.41	178.20	423.14	-	8.87	-	2,549.89
Bebedouro.....	3,342.16	522.83	454.48	2,391.51	2.13	117.81	-	6,830.92
Altinópolis.....	633.72	25.89	105.37	131.17	-	-	-	896.15
<b>Subtotal.....</b>	<b>5,844.15</b>	<b>620.13</b>	<b>738.05</b>	<b>2,945.82</b>	<b>2.13</b>	<b>126.68</b>	<b>-</b>	<b>10,276.96</b>
<b>Northwest</b>								
Votuporanga.....	258.54	23.32	189.82	217.93	-	7.49	-	697.10
S. J. Rio Preto.....	1,573.73	14.74	180.43	1,835.22	-	114.74	184.54	3,903.40
<b>Subtotal.....</b>	<b>1,832.27</b>	<b>38.06</b>	<b>370.25</b>	<b>2,053.15</b>	<b>-</b>	<b>122.23</b>	<b>184.54</b>	<b>4,600.50</b>
<b>Central</b>								
Matão.....	3,098.24	13.89	218.15	1,887.37	-	283.16	-	5,500.81
Duartina.....	3,240.52	112.64	873.31	2,084.80	17.54	46.42	79.48	6,454.71
Brotas.....	541.35	33.49	79.42	168.78	-	106.98	-	930.02
<b>Subtotal.....</b>	<b>6,880.11</b>	<b>160.02</b>	<b>1,170.88</b>	<b>4,140.95</b>	<b>17.54</b>	<b>436.56</b>	<b>79.48</b>	<b>12,885.54</b>
<b>South</b>								
Porto Ferreira.....	1,846.95	779.19	668.88	381.23	18.73	9.35	2.60	3,706.93
Limeira.....	1,747.70	682.11	196.35	257.02	9.05	1.24	17.22	2,910.69
<b>Subtotal.....</b>	<b>3,594.65</b>	<b>1,461.30</b>	<b>865.23</b>	<b>638.25</b>	<b>27.78</b>	<b>10.59</b>	<b>19.82</b>	<b>6,617.62</b>
<b>Southwest</b>								
Avaré.....	3,641.71	565.60	874.50	913.47	0.08	36.80	51.04	6,083.20
Itapetininga.....	1,138.36	170.11	621.88	565.70	0.54	648.08	172.72	3,317.39
<b>Subtotal.....</b>	<b>4,780.07</b>	<b>735.71</b>	<b>1,496.38</b>	<b>1,479.17</b>	<b>0.62</b>	<b>684.88</b>	<b>223.76</b>	<b>9,400.59</b>
<b>Total.....</b>	<b>22,931.25</b>	<b>3,015.22</b>	<b>4,640.79</b>	<b>11,257.34</b>	<b>48.07</b>	<b>1,380.94</b>	<b>507.6</b>	<b>43,781.21</b>
<b>Percentage.....</b>	<b>52.38</b>	<b>6.89</b>	<b>10.60</b>	<b>25.71</b>	<b>0.11</b>	<b>3.15</b>	<b>1.16</b>	<b>21.58</b>

- Represents zero

**Table 50 – Oranges: Area of groves of mid-season and late varieties by sector and region [2023 inventory]**

Sector and region	Mid-season and late varieties				
	Pera Rio	Valencia	Valencia Folha Murcha	Natal	Total
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>North</b>					
Triâng.Mineiro.....	9,554	9,027	376	3,448	22,405
Bebedouro.....	15,448	14,609	1,762	4,177	35,996
Altinópolis.....	4,296	4,665	465	799	10,225
<b>Subtotal.....</b>	<b>29,298</b>	<b>28,301</b>	<b>2,603</b>	<b>8,424</b>	<b>68,626</b>
<b>Northwest</b>					
Votuporanga.....	12,098	1,610	431	837	14,976
S. J. Rio Preto.....	5,774	4,371	855	2,497	13,497
<b>Subtotal.....</b>	<b>17,872</b>	<b>5,981</b>	<b>1,286</b>	<b>3,334</b>	<b>28,473</b>
<b>Central</b>					
Matão.....	12,395	8,776	1,168	3,721	26,060
Duartina.....	21,861	16,357	3,814	6,166	48,198
Brotas.....	4,085	3,801	686	1,005	9,577
<b>Subtotal.....</b>	<b>38,341</b>	<b>28,934</b>	<b>5,668</b>	<b>10,892</b>	<b>83,835</b>
<b>South</b>					
Porto Ferreira.....	14,432	9,582	2,176	3,631	29,821
Limeira.....	12,014	8,607	2,525	2,232	25,378
<b>Subtotal.....</b>	<b>26,446</b>	<b>18,189</b>	<b>4,701</b>	<b>5,863</b>	<b>55,199</b>
<b>Southwest</b>					
Avaré.....	17,663	18,352	1,714	7,998	45,727
Itapetininga.....	7,684	5,948	1623	4,155	19,410
<b>Subtotal.....</b>	<b>25,347</b>	<b>24,300</b>	<b>3,337</b>	<b>12,153</b>	<b>65,137</b>
<b>Total.....</b>	<b>137,304</b>	<b>105,705</b>	<b>17,595</b>	<b>40,666</b>	<b>301,270</b>
<b>Percentage.....</b>	<b>45.58</b>	<b>35.09</b>	<b>5.84</b>	<b>13.50</b>	<b>77.72</b>

**Table 51 – Oranges: Trees of mid-season and late varieties by sector and region [2023 inventory]**

Sector and region	Mid-season and late varieties				
	Pera Rio	Valencia	Valencia Folha Murcha	Natal	Total
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>North</b>					
Triâng.Mineiro.....	5,259.84	4,135.07	201.77	1,521.83	11,118.51
Bebedouro.....	8,572.80	6,667.37	933.02	2,018.01	18,191.20
Altinópolis.....	2,156.53	2,167.52	253.59	418.12	4,995.76
<b>Subtotal.....</b>	<b>15,989.17</b>	<b>12,969.96</b>	<b>1,388.38</b>	<b>3,957.96</b>	<b>34,305.47</b>
<b>Northwest</b>					
Votuporanga.....	5,371.26	824.98	220.80	396.35	6,813.39
S. J. Rio Preto.....	2,998.70	2,155.26	457.74	1,264.47	6,876.17
<b>Subtotal.....</b>	<b>8,369.96</b>	<b>2,980.24</b>	<b>678.54</b>	<b>1,660.82</b>	<b>13,689.56</b>
<b>Central</b>					
Matão.....	7,343.41	4,846.26	714.96	2,367.67	15,272.30
Duartina.....	12,000.31	8,846.47	2,254.89	2,964.11	26,065.78
Brotas.....	2,190.62	1,880.65	374.35	433.83	4,879.45
<b>Subtotal.....</b>	<b>21,534.34</b>	<b>15,573.38</b>	<b>3,344.20</b>	<b>5,765.61</b>	<b>46,217.53</b>
<b>South</b>					
Porto Ferreira.....	8,068.15	4,742.53	1,191.34	1,998.98	16,001.00
Limeira.....	6,689.88	3,868.97	1,280.14	1,163.42	13,002.41
<b>Subtotal.....</b>	<b>14,758.03</b>	<b>8,611.50</b>	<b>2,471.48</b>	<b>3,162.40</b>	<b>29,003.41</b>
<b>Southwest</b>					
Avaré.....	9,357.90	9,177.79	1034.49	4,149.21	23,719.39
Itapetininga.....	4,862.46	3,788.46	1025.90	2,489.87	12,166.69
<b>Subtotal.....</b>	<b>14,220.36</b>	<b>12,966.25</b>	<b>2,060.39</b>	<b>6,639.08</b>	<b>35,886.08</b>
<b>Total.....</b>	<b>74,871.86</b>	<b>53,101.33</b>	<b>9,942.99</b>	<b>21,185.87</b>	<b>159,102.05</b>
<b>Percentage.....</b>	<b>47.06</b>	<b>33.38</b>	<b>6.25</b>	<b>13.32</b>	<b>78.42</b>

**Table 52 – Oranges: Area of groves by age group of plots, region and variety – North Sector [2023 inventory]**

Sector and variety	Plot age				Total
	1 – 2 years <sup>1</sup>	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>TMG<sup>2</sup></b>					
Hamlin.....	96	171	210	4,096	4,573
Westin.....	-	2	30	107	139
Rubi.....	138	5	35	158	336
V.Americana <sup>3</sup> .....	298	280	-	190	768
Seleta.....	-	-	-	-	-
Pineapple.....	12	2	4	-	18
Alvorada.....	-	-	-	-	-
Pera Rio .....	1,403	1,544	2,216	4,391	9,554
Valencia.....	823	128	1,031	7,045	9,027
V.Folha Murcha <sup>4</sup>	49	7	84	236	376
Natal.....	110	104	200	3,034	3,448
<b>Subtotal.....</b>	<b>2,929</b>	<b>2,243</b>	<b>3,810</b>	<b>19,257</b>	<b>28,239</b>
<b>Percentage.....</b>	<b>10.37</b>	<b>7.94</b>	<b>13.49</b>	<b>68.19</b>	<b>31.25</b>
<b>BEB<sup>5</sup></b>					
Hamlin.....	624	594	358	6,029	7,605
Westin.....	214	140	275	489	1,118
Rubi.....	45	56	92	597	790
V.Americana <sup>3</sup> .....	1,038	1,144	232	1,809	4,223
Seleta.....	-	-	3	-	3
Pineapple.....	29	22	40	118	209
Alvorada.....	-	-	-	-	-
Pera Rio .....	1,853	2,346	4,089	7,160	15,448
Valencia.....	809	1,519	1,688	10,593	14,609
V.Folha Murcha <sup>4</sup>	179	91	512	980	1,762
Natal.....	57	409	998	2,713	4,177
<b>Subtotal.....</b>	<b>4,848</b>	<b>6,321</b>	<b>8,287</b>	<b>30,488</b>	<b>49,944</b>
<b>Percentage.....</b>	<b>9.71</b>	<b>12.66</b>	<b>16.59</b>	<b>61.04</b>	<b>55.28</b>
<b>ALT<sup>7</sup></b>					
Hamlin.....	53	31	17	1,370	1,471
Westin.....	11	10	-	27	48
Rubi.....	1	22	56	106	185
V.Americana <sup>3</sup> .....	28	-	6	206	240
Seleta.....	-	-	-	-	-
Pineapple.....	-	-	-	-	-
Alvorada.....	-	-	-	-	-
Pera Rio .....	621	362	427	2,886	4,296
Valencia.....	947	71	128	3,519	4,665
V.Folha Murcha <sup>4</sup>	14	110	59	282	465
Natal.....	9	45	178	567	799
<b>Subtotal.....</b>	<b>1,684</b>	<b>651</b>	<b>871</b>	<b>8,963</b>	<b>12,169</b>
<b>Percentage.....</b>	<b>13.84</b>	<b>5.35</b>	<b>7.16</b>	<b>73.65</b>	<b>13.47</b>
<b>Total.....</b>	<b>9,461</b>	<b>9,215</b>	<b>12,968</b>	<b>58,708</b>	<b>90,352</b>

- Represents zero

<sup>1</sup> Area of young orange groves<sup>2</sup> TMG – Triângulo Mineiro<sup>3</sup> V.Americana – Valencia Americana<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> BEB – Bebedouro<sup>6</sup> ALT – Altinópolis

**Table 53 – Oranges: Trees by age group, age group of plot, region and variety – North Sector [2023 inventory]**

Sector and region	Plot and tree ages										Total
	Plots 1 – 2 years	Plots 3 – 5 years		Plots 6 – 10 years			Plots over 10 years				
	Trees 1 – 2 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>TMG<sup>1</sup></b>											
Hamlin.....	57.90	2.20	85.12	-	0.04	125.14	4.09	1.81	44.94	1,547.03	1,868.27
Westin.....	-	0.03	1.10	-	-	17.57	0.02	-	-	52.69	71.41
Rubi.....	80.86	0.06	2.37	3.22	0.55	18.57	0.01	0.04	0.41	72.11	178.20
V.Americana <sup>2</sup> .....	168.47	-	164.81	-	-	-	-	-	0.18	89.68	423.14
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	6.23	-	0.97	0.02	0.02	1.63	-	-	-	-	8.87
Alvorada.....	-	-	-	-	-	-	-	-	-	-	-
Pera Rio .....	815.50	3.10	755.03	11.11	4.16	1,337.12	3.26	3.80	39.86	2,286.90	5,259.84
Valencia.....	364.00	0.36	71.06	0.27	0.57	567.47	25.27	4.46	32.87	3,068.74	4,135.07
V.Folha Murcha <sup>3</sup>	22.77	0.03	4.09	0.28	0.06	50.74	6.40	0.28	1.27	115.85	201.77
Natal.....	86.90	0.90	47.33	0.71	1.45	98.67	2.27	2.24	26.67	1,254.69	1,521.83
<b>Subtotal.....</b>	<b>1,602.63</b>	<b>6.68</b>	<b>1,131.88</b>	<b>15.61</b>	<b>6.85</b>	<b>2,216.91</b>	<b>41.32</b>	<b>12.63</b>	<b>146.20</b>	<b>8,487.69</b>	<b>3,668.40</b>
<b>Percentage.....</b>	<b>11.73</b>	<b>0.05</b>	<b>8.28</b>	<b>0.11</b>	<b>0.05</b>	<b>16.22</b>	<b>0.30</b>	<b>0.09</b>	<b>1.07</b>	<b>62.10</b>	<b>30.66</b>
<b>BEB<sup>4</sup></b>											
Hamlin.....	323.67	5.83	337.84	3.17	1.90	188.56	31.53	33.88	126.45	2,289.33	3,342.16
Westin.....	107.77	0.04	66.32	1.52	0.82	132.24	2.01	2.20	10.47	199.44	522.83
Rubi.....	27.89	0.71	35.58	1.49	0.85	67.83	7.68	8.45	13.88	290.12	454.48
V.Americana <sup>2</sup> .....	592.87	22.10	646.69	3.65	1.49	140.98	53.00	15.89	74.20	840.64	2,391.51
Seleta.....	-	-	-	0.05	0.02	2.06	-	-	-	-	2.13
Pineapple.....	16.18	0.45	12.08	0.56	0.22	25.93	2.68	0.81	4.92	53.98	117.81
Alvorada.....	-	-	-	-	-	-	-	-	-	-	-
Pera Rio .....	1,079.87	112.73	1,155.91	12.52	75.46	2,415.21	26.99	78.28	234.58	3,381.25	8,572.80
Valencia.....	387.75	19.96	734.46	19.32	20.27	894.24	30.35	55.44	263.38	4,242.20	6,667.37
V.Folha Murcha <sup>3</sup>	88.50	1.14	48.77	3.47	5.65	281.30	5.37	4.66	30.54	463.62	933.02
Natal.....	34.66	13.26	268.24	17.18	15.16	568.21	19.94	50.63	107.49	923.24	2,018.01
<b>Subtotal.....</b>	<b>2,659.16</b>	<b>176.22</b>	<b>3,305.89</b>	<b>62.93</b>	<b>121.84</b>	<b>4,716.56</b>	<b>179.55</b>	<b>250.24</b>	<b>865.91</b>	<b>12,683.82</b>	<b>25,022.12</b>
<b>Percentage.....</b>	<b>10.63</b>	<b>0.70</b>	<b>13.21</b>	<b>0.25</b>	<b>0.49</b>	<b>18.85</b>	<b>0.72</b>	<b>1.00</b>	<b>3.46</b>	<b>50.69</b>	<b>56.13</b>
<b>ALT<sup>5</sup></b>											
Hamlin.....	28.40	0.42	17.54	0.03	0.03	7.95	0.12	3.40	9.04	566.79	633.72
Westin.....	6.50	0.17	6.79	-	-	-	-	0.17	0.79	11.47	25.89
Rubi.....	0.45	0.27	11.67	0.33	0.27	39.31	0.03	0.67	3.05	49.32	105.37
V.Americana <sup>2</sup> .....	16.35	-	-	0.07	0.03	2.83	0.14	1.08	12.36	98.31	131.17
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	-	-	-	-	-	-	-	-	-	-	-
Alvorada.....	-	-	-	-	-	-	-	-	-	-	-
Pera Rio .....	379.52	4.64	182.27	0.69	1.14	272.85	3.96	8.15	9.72	1,293.59	2,156.53
Valencia.....	425.08	0.54	41.70	0.40	-	75.99	16.93	3.07	19.95	1,583.86	2,167.52
V.Folha Murcha <sup>3</sup>	7.44	0.84	65.97	0.20	-	36.08	4.74	0.65	5.60	132.07	253.59
Natal.....	6.07	-	29.02	1.42	5.08	127.18	0.15	1.88	9.36	237.96	418.12
<b>Subtotal.....</b>	<b>869.81</b>	<b>6.88</b>	<b>354.96</b>	<b>3.14</b>	<b>6.55</b>	<b>562.19</b>	<b>26.07</b>	<b>19.07</b>	<b>69.87</b>	<b>3,973.37</b>	<b>5,891.91</b>
<b>Percentage.....</b>	<b>14.76</b>	<b>0.12</b>	<b>6.02</b>	<b>0.05</b>	<b>0.11</b>	<b>9.54</b>	<b>0.44</b>	<b>0.32</b>	<b>1.19</b>	<b>67.44</b>	<b>13.22</b>
<b>Total.....</b>	<b>5,131.60</b>	<b>189.78</b>	<b>4,792.73</b>	<b>81.68</b>	<b>135.24</b>	<b>7,495.66</b>	<b>246.94</b>	<b>281.94</b>	<b>1,081.98</b>	<b>25,144.88</b>	<b>44,582.43</b>

- Represents zero

<sup>1</sup> TMG – Triângulo Mineiro<sup>2</sup> Valencia Americana<sup>3</sup> Valencia Folha Murcha<sup>4</sup> BEB – Bebedouro<sup>5</sup> ALT – Altinópolis

**Table 54 – Oranges: Area of groves by age group of plots, region and variety –Northwest Sector [2023 inventory]**

Sector and variety	Plot age				Total
	1 – 2 years <sup>1</sup>	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>VOT<sup>2</sup></b>					
Hamlin.....	32	155	14	333	534
Westin.....	1	12	-	38	51
Rubi.....	160	93	39	70	362
V.Americana <sup>3</sup> .....	84	198	9	170	461
Seleta.....	-	-	-	-	-
Pineapple.....	11	-	-	3	14
Alvorada.....	-	-	-	-	-
Pera Rio .....	2,365	2,251	2,309	5,173	12,098
Valencia.....	599	143	29	839	1,610
V.Folha Murcha <sup>4</sup>	26	66	1	338	431
Natal.....	76	317	142	302	837
<b>Subtotal.....</b>	<b>3,354</b>	<b>3,235</b>	<b>2,543</b>	<b>7,266</b>	<b>16,398</b>
<b>Percentage.....</b>	<b>20.45</b>	<b>19.73</b>	<b>15.51</b>	<b>44.31</b>	<b>43.95</b>
<b>SJO<sup>5</sup></b>					
Hamlin.....	175	306	229	2,549	3,259
Westin.....	-	4	-	24	28
Rubi.....	9	11	7	308	335
V.Americana <sup>3</sup> .....	744	1,071	201	1,313	3,329
Seleta.....	-	-	-	-	-
Pineapple.....	-	92	-	88	180
Alvorada.....	178	104	-	-	282
Pera Rio .....	1,000	1,394	1,462	1,918	5,774
Valencia.....	481	171	872	2,847	4,371
V.Folha Murcha <sup>4</sup>	-	-	208	647	855
Natal.....	17	127	1,301	1,052	2,497
<b>Subtotal.....</b>	<b>2,604</b>	<b>3,280</b>	<b>4,280</b>	<b>10,746</b>	<b>20,910</b>
<b>Percentage.....</b>	<b>12.45</b>	<b>15.69</b>	<b>20.47</b>	<b>51.39</b>	<b>56.05</b>
<b>Total.....</b>	<b>5,958</b>	<b>6,515</b>	<b>6,823</b>	<b>18,012</b>	<b>37,308</b>

- Represents zero

<sup>1</sup> Area of young orange groves<sup>2</sup> VOT – Votuporanga<sup>3</sup> V.Americana – Valencia Americana<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> SJO – São José do Rio Preto

**Table 55 – Oranges: Trees by age group, region and variety – Northwest Sector [2023 inventory]**

Sector and variety	Plot and tree ages										Total
	Plots 1 – 2 years	Plots 3 – 5 years		Plots 6 – 10 years			Plots over 10 years				
	Trees 1 – 2 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>VOT<sup>1</sup></b>											
Hamlin.....	16.25	0.40	62.86	0.69	0.03	6.01	1.51	2.80	1.43	166.56	258.54
Westin.....	0.64	0.03	5.46	-	-	-	0.18	0.33	0.17	16.51	23.32
Rubi.....	90.10	0.30	47.35	1.52	0.07	13.37	0.39	0.73	0.38	35.61	189.82
V.Americana <sup>2</sup> .....	45.43	0.61	85.41	-	0.03	4.98	8.54	0.82	2.28	69.83	217.93
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	5.93	-	-	-	-	-	0.28	0.01	0.07	1.20	7.49
Alvorada.....	-	-	-	-	-	-	-	-	-	-	-
Pera Rio .....	1,024.28	30.78	898.63	14.51	15.29	1,070.43	56.04	30.90	96.67	2,133.73	5,371.26
Valencia.....	308.61	0.53	46.41	0.63	-	12.19	7.29	0.17	3.56	445.59	824.98
V.Folha Murcha <sup>3</sup>	13.36	0.30	25.92	0.02	-	0.29	3.48	0.08	1.68	175.67	220.80
Natal.....	44.02	0.59	136.67	1.25	4.69	69.64	4.00	2.31	1.31	131.87	396.35
<b>Subtotal.....</b>	<b>1,548.62</b>	<b>33.54</b>	<b>1,308.71</b>	<b>18.62</b>	<b>20.11</b>	<b>1,176.91</b>	<b>81.71</b>	<b>38.15</b>	<b>107.55</b>	<b>3,176.57</b>	<b>7,510.49</b>
<b>Percentage.....</b>	<b>20.62</b>	<b>0.45</b>	<b>17.43</b>	<b>0.25</b>	<b>0.27</b>	<b>15.67</b>	<b>1.09</b>	<b>0.51</b>	<b>1.43</b>	<b>42.30</b>	<b>41.06</b>
<b>SJO<sup>4</sup></b>											
Hamlin.....	102.48	1.08	199.62	0.22	-	163.27	17.79	8.48	22.84	1,057.95	1,573.73
Westin.....	-	0.03	2.11	-	-	0.45	0.44	0.21	0.58	10.92	14.74
Rubi.....	5.68	0.08	5.08	0.04	-	2.77	6.05	2.95	7.97	149.81	180.43
V.Americana <sup>2</sup> .....	360.94	113.40	679.56	1.20	2.64	75.33	1.05	3.05	12.48	585.57	1,835.22
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	-	8.85	61.51	-	-	-	0.02	0.39	1.62	42.35	114.74
Alvorada.....	93.94	1.54	89.06	-	-	-	-	-	-	-	184.54
Pera Rio .....	503.08	42.00	708.69	2.06	11.77	752.40	27.40	36.56	55.19	859.55	2,998.70
Valencia.....	246.96	7.59	97.61	2.19	2.13	552.21	6.19	6.43	12.07	1,221.88	2,155.26
V.Folha Murcha <sup>3</sup>	0.04	-	-	0.53	0.81	120.36	2.13	3.11	5.83	324.93	457.74
Natal.....	13.12	26.61	61.10	4.11	1.40	773.92	10.14	32.12	8.89	333.06	1,264.47
<b>Subtotal.....</b>	<b>1,326.24</b>	<b>201.18</b>	<b>1,904.34</b>	<b>10.35</b>	<b>18.75</b>	<b>2,440.71</b>	<b>71.21</b>	<b>93.30</b>	<b>127.47</b>	<b>4,586.02</b>	<b>10,779.57</b>
<b>Percentage.....</b>	<b>12.30</b>	<b>1.87</b>	<b>17.67</b>	<b>0.10</b>	<b>0.17</b>	<b>22.64</b>	<b>0.66</b>	<b>0.87</b>	<b>1.18</b>	<b>42.54</b>	<b>58.94</b>
<b>Total.....</b>	<b>2,874.86</b>	<b>234.72</b>	<b>3,213.05</b>	<b>28.97</b>	<b>38.86</b>	<b>3,617.62</b>	<b>152.92</b>	<b>131.45</b>	<b>235.02</b>	<b>7,762.59</b>	<b>18,290.06</b>

- Represents zero

<sup>1</sup> VOT – Votuporanga<sup>2</sup> V.Americana – Valencia Americana<sup>3</sup> V.Folha Murcha – Valencia Folha Murcha<sup>4</sup> SJO – São José do Rio Preto

**Table 56 – Oranges: Area of groves by age group of plots, region and variety – Central Sector [2023 inventory]**

Sector and variety	Plot age				Total
	1 – 2 years <sup>1</sup>	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>MAT<sup>2</sup></b>					
Hamlin.....	1,510	739	794	2,217	5,260
Westin.....	1	-	9	21	31
Rubi.....	-	2	12	417	431
V.Americana <sup>3</sup> .....	812	577	499	1,482	3,370
Seleta.....	-	-	-	-	-
Pineapple.....	2	-	236	298	536
Alvorada.....	-	-	-	-	-
Pera Rio .....	2,128	1,454	4,225	4,588	12,395
Valencia.....	1,505	620	1,669	4,982	8,776
V.Folha Murcha <sup>4</sup>	100	54	638	376	1,168
Natal.....	1,222	530	868	1,101	3,721
<b>Subtotal.....</b>	<b>7,280</b>	<b>3,976</b>	<b>8,950</b>	<b>15,482</b>	<b>35,688</b>
<b>Percentage.....</b>	<b>20.40</b>	<b>11.14</b>	<b>25.08</b>	<b>43.38</b>	<b>33.14</b>
<b>DUA<sup>5</sup></b>					
Hamlin.....	566	1,093	647	4,368	6,674
Westin.....	16	78	36	67	197
Rubi.....	42	376	379	669	1,466
V.Americana <sup>3</sup> .....	789	748	910	1,238	3,685
Seleta.....	-	-	-	31	31
Pineapple.....	19	25	5	24	73
Alvorada.....	95	-	27	-	122
Pera Rio .....	2,703	5,102	4,148	9,908	21,861
Valencia.....	2,546	3,533	2,227	8,051	16,357
V.Folha Murcha <sup>4</sup>	915	1,076	585	1,238	3,814
Natal.....	164	712	1,243	4,047	6,166
<b>Subtotal.....</b>	<b>7,855</b>	<b>12,743</b>	<b>10,207</b>	<b>29,641</b>	<b>60,446</b>
<b>Percentage.....</b>	<b>13.00</b>	<b>21.08</b>	<b>16.89</b>	<b>49.04</b>	<b>56.12</b>
<b>BRO<sup>6</sup></b>					
Hamlin.....	25	70	32	1,083	1,210
Westin.....	11	2	13	55	81
Rubi.....	21	110	7	-	138
V.Americana <sup>3</sup> .....	3	17	40	351	411
Seleta.....	-	-	-	-	-
Pineapple.....	1	-	152	-	153
Alvorada.....	-	-	-	-	-
Pera Rio .....	636	563	1,321	1,565	4,085
Valencia.....	466	70	189	3,076	3,801
V.Folha Murcha <sup>4</sup>	181	52	114	339	686
Natal.....	43	172	83	707	1,005
<b>Subtotal.....</b>	<b>1,387</b>	<b>1,056</b>	<b>1,951</b>	<b>7,176</b>	<b>11,570</b>
<b>Percentage.....</b>	<b>11.99</b>	<b>9.13</b>	<b>16.86</b>	<b>62.02</b>	<b>10.74</b>
<b>Total.....</b>	<b>16,522</b>	<b>17,775</b>	<b>21,108</b>	<b>52,299</b>	<b>107,704</b>

- Represents zero

<sup>1</sup> Area of young orange groves<sup>2</sup> MAT – Matão<sup>3</sup> V.Americana – Valencia Americana<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> DUA – Duartina<sup>6</sup> BRO – Brotas

**Table 57 – Oranges: Trees by age group, age group of plot, region and variety – Central Sector [2023 inventory]**

Table 57 - Oranges: Trees by age group, age group of plot, Region and variety - Central Sector (2020 inventory)											
Sector and variety	Plot and tree ages										Total
	Plots 1 – 2 years	Plots 3 – 5 years		Plots 6 – 10 years			Plots Over 10 years				
	Trees 1 – 2 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>MAT<sup>1</sup></b>											
Hamlin.....	1,038.56	2.17	418.70	4.64	3.97	609.77	11.83	14.54	58.27	935.79	3,098.24
Westin.....	1.00	-	-	-	0.29	5.25	0.13	0.19	0.53	6.50	13.89
Rubi.....	-	0.01	1.07	-	0.43	7.66	0.96	0.63	1.77	205.62	218.15
V.Americana <sup>2</sup> .....	514.93	0.55	355.33	0.99	8.60	415.67	6.23	10.33	50.62	524.12	1,887.37
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	1.20	-	-	3.42	0.88	130.89	2.74	0.98	2.16	140.89	283.16
Alvorada.....	-	-	-	-	-	-	-	-	-	-	-
Pera Rio .....	1,241.54	35.35	836.41	61.52	53.83	2,835.32	56.60	45.69	124.40	2,052.75	7,343.41
Valencia.....	962.96	19.73	451.87	42.35	29.93	1,029.23	36.50	38.96	80.39	2,154.34	4,846.26
V.Folha Murcha <sup>3</sup>	85.35	2.02	43.61	2.45	3.01	369.69	3.61	4.29	6.99	193.94	714.96
Natal.....	858.87	1.65	354.30	23.94	21.91	635.99	0.09	1.64	17.16	452.12	2,367.67
<b>Subtotal.....</b>	<b>4,704.41</b>	<b>61.48</b>	<b>2,461.29</b>	<b>139.31</b>	<b>122.85</b>	<b>6,039.47</b>	<b>118.69</b>	<b>117.25</b>	<b>342.29</b>	<b>6,666.07</b>	<b>20,773.11</b>
<b>Percentage.....</b>	<b>22.65</b>	<b>0.30</b>	<b>11.85</b>	<b>0.67</b>	<b>0.59</b>	<b>29.07</b>	<b>0.57</b>	<b>0.56</b>	<b>1.65</b>	<b>32.09</b>	<b>35.15</b>
<b>DUA<sup>4</sup></b>											
Hamlin.....	390.45	25.95	596.86	10.20	3.76	385.68	4.32	46.50	77.49	1,699.31	3,240.52
Westin.....	13.30	2.06	47.15	0.64	0.30	20.30	0.11	1.08	1.93	25.77	112.64
Rubi.....	29.65	10.30	236.73	7.30	3.43	235.65	1.29	13.09	23.40	312.47	873.31
V.Americana <sup>2</sup> .....	514.04	43.36	421.29	29.89	33.68	448.02	0.16	0.96	24.74	568.66	2,084.80
Seleta.....	-	-	-	-	-	-	0.01	0.03	0.82	16.68	17.54
Pineapple.....	11.84	1.47	14.27	0.07	0.39	2.60	-	0.02	0.73	15.03	46.42
Alvorada.....	58.86	-	-	0.01	-	20.61	-	-	-	-	79.48
Pera Rio .....	1,446.44	187.96	3,018.24	139.35	117.86	2,336.95	42.71	70.08	98.55	4,542.17	12,000.31
Valencia.....	1,520.67	96.53	2,218.14	24.69	50.06	1,301.78	22.18	39.68	117.88	3,454.86	8,846.47
V.Folha Murcha <sup>3</sup>	554.24	28.24	648.87	7.20	14.90	336.89	5.51	9.67	31.86	617.51	2,254.89
Natal.....	118.47	5.57	418.42	77.07	23.25	517.27	12.24	29.16	62.34	1,700.32	2,964.11
<b>Subtotal.....</b>	<b>4,657.96</b>	<b>401.44</b>	<b>7,619.97</b>	<b>296.42</b>	<b>247.63</b>	<b>5,605.75</b>	<b>88.53</b>	<b>210.27</b>	<b>439.74</b>	<b>12,952.78</b>	<b>32,520.49</b>
<b>Percentage.....</b>	<b>14.32</b>	<b>1.23</b>	<b>23.43</b>	<b>0.91</b>	<b>0.76</b>	<b>17.24</b>	<b>0.27</b>	<b>0.65</b>	<b>1.35</b>	<b>39.83</b>	<b>55.02</b>
<b>BRO<sup>5</sup></b>											
Hamlin.....	18.17	2.72	35.45	0.44	0.62	17.16	2.40	3.48	16.52	444.39	541.35
Westin.....	7.06	0.11	1.54	0.14	0.19	5.32	0.18	0.62	1.31	17.02	33.49
Rubi.....	13.42	4.41	57.50	0.10	0.14	3.85	-	-	-	-	79.42
V.Americana <sup>2</sup> .....	1.65	1.15	8.38	3.60	0.48	19.64	-	0.05	11.64	122.19	168.78
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	0.95	-	-	4.13	2.23	99.67	-	-	-	-	106.98
Alvorada.....	-	-	-	-	-	-	-	-	-	-	-
Pera Rio .....	346.86	39.24	285.44	7.97	22.14	762.85	1.00	0.57	16.98	707.57	2,190.62
Valencia.....	319.18	9.95	28.30	12.36	2.43	117.86	0.88	2.17	56.22	1,331.30	1,880.65
V.Folha Murcha <sup>3</sup>	108.16	7.03	19.96	9.13	1.73	70.55	-	0.10	9.39	148.30	374.35
Natal.....	32.49	3.21	73.33	0.04	0.70	42.11	-	-	22.29	259.66	433.83
<b>Subtotal.....</b>	<b>847.94</b>	<b>67.82</b>	<b>509.90</b>	<b>37.91</b>	<b>30.66</b>	<b>1,139.01</b>	<b>4.46</b>	<b>6.99</b>	<b>134.35</b>	<b>3,030.43</b>	<b>5,809.47</b>
<b>Percentage.....</b>	<b>14.60</b>	<b>1.17</b>	<b>8.78</b>	<b>0.65</b>	<b>0.53</b>	<b>19.61</b>	<b>0.08</b>	<b>0.12</b>	<b>2.31</b>	<b>52.16</b>	<b>9.83</b>
<b>Total.....</b>	<b>10,210.31</b>	<b>530.74</b>	<b>10,591.16</b>	<b>473.64</b>	<b>401.14</b>	<b>12,784.23</b>	<b>211.68</b>	<b>334.51</b>	<b>916.38</b>	<b>22,649.28</b>	<b>59,103.07</b>

- Represents zero

<sup>1</sup> MAT – Matão<sup>2</sup> Valencia Americana<sup>3</sup> Valencia Folha Murcha<sup>4</sup> DUA – Duartina<sup>5</sup> BRO – Brotas

**Table 58 – Oranges: Area of groves by age group, region and variety – South Sector [2023 inventory]**

Sector and variety	Plot age				Total
	1 – 2 years <sup>1</sup>	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>PFE<sup>2</sup></b>					
Hamlin.....	702	774	136	2,055	3,667
Westin.....	181	297	139	827	1,444
Rubi.....	139	237	336	482	1,194
V.Americana <sup>3</sup> .....	72	232	19	415	738
Seleta.....	8	-	5	22	35
Pineapple.....	-	-	7	8	15
Alvorada.....	-	5	-	-	5
Pera Rio .....	2,287	2,696	2,857	6,592	14,432
Valencia.....	1,200	779	873	6,730	9,582
V.Folha Murcha <sup>4</sup> ....	139	419	478	1,140	2,176
Natal.....	507	616	994	1,514	3,631
<b>Subtotal.....</b>	<b>5,235</b>	<b>6,055</b>	<b>5,844</b>	<b>19,785</b>	<b>36,919</b>
<b>Percentage.....</b>	<b>14.18</b>	<b>16.40</b>	<b>15.83</b>	<b>53.59</b>	<b>53.89</b>
<b>LIM<sup>5</sup></b>					
Hamlin.....	280	380	353	2,803	3,816
Westin.....	53	201	185	981	1,420
Rubi.....	8	100	174	118	400
V.Americana <sup>3</sup> .....	136	26	15	339	516
Seleta.....	-	-	4	16	20
Pineapple.....	-	-	-	3	3
Alvorada.....	14	14	2	-	30
Pera Rio .....	1,870	2,271	1,676	6,197	12,014
Valencia.....	574	442	814	6,777	8,607
V.Folha Murcha <sup>4</sup> ....	228	486	388	1,423	2,525
Natal.....	191	335	312	1,394	2,232
<b>Subtotal.....</b>	<b>3,354</b>	<b>4,255</b>	<b>3,923</b>	<b>20,051</b>	<b>31,583</b>
<b>Percentage.....</b>	<b>10.62</b>	<b>13.47</b>	<b>12.42</b>	<b>63.49</b>	<b>46.11</b>
<b>Total.....</b>	<b>8,589</b>	<b>10,310</b>	<b>9,767</b>	<b>39,836</b>	<b>68,502</b>

- Represents zero

<sup>1</sup> Area of young orange groves<sup>2</sup> PFE – Porto Ferreira<sup>3</sup> V.Americana – Valencia Americana<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> LIM – Limeira

**Table 59 – Oranges: Trees of groves by age group of plots, region and variety – South Sector [2023 inventory]**

Sector and variety	Plot and tree ages										Total
	Plots 1 – 2 years	Plots 3 – 5 years		Plots 6 – 10 years			Plots over 10 years				
	Trees 1 – 2 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>PFE<sup>1</sup></b>											
Hamlin.....	418.80	16.34	453.37	2.32	1.61	78.86	29.66	21.61	77.02	747.36	1,846.95
Westin.....	117.36	3.45	191.90	2.48	1.71	84.72	15.01	10.25	17.32	334.99	779.19
Rubi.....	91.15	2.89	160.45	5.29	3.91	187.43	5.96	4.75	25.07	181.98	668.88
V.Americana <sup>2</sup> .....	47.59	1.77	145.76	1.02	0.93	12.00	4.14	9.30	16.25	142.47	381.23
Seleta.....	5.06	-	-	0.23	0.21	2.72	0.41	0.23	0.30	9.57	18.73
Pineapple.....	-	-	-	0.32	0.29	3.75	0.13	0.31	0.48	4.07	9.35
Alvorada.....	-	0.03	2.57	-	-	-	-	-	-	-	2.60
Pera Rio .....	1,296.22	96.21	1,420.03	88.72	87.94	1,700.79	113.04	112.97	242.45	2,909.78	8,068.15
Valencia.....	690.14	12.77	483.27	18.51	17.31	527.73	56.78	75.75	251.92	2,608.35	4,742.53
V.Folha Murcha <sup>3</sup>	71.92	6.71	250.36	10.12	9.41	292.72	11.29	16.46	49.31	473.04	1,191.34
Natal.....	351.81	12.16	407.18	23.71	19.67	573.70	1.71	1.47	17.53	590.04	1,998.98
<b>Subtotal.....</b>	<b>3,090.05</b>	<b>152.33</b>	<b>3,514.89</b>	<b>152.72</b>	<b>142.99</b>	<b>3,464.42</b>	<b>238.13</b>	<b>253.10</b>	<b>697.65</b>	<b>8,001.65</b>	<b>19,707.93</b>
<b>Percentage.....</b>	<b>15.68</b>	<b>0.77</b>	<b>17.83</b>	<b>0.77</b>	<b>0.73</b>	<b>17.58</b>	<b>1.21</b>	<b>1.28</b>	<b>3.54</b>	<b>40.60</b>	<b>55.33</b>
<b>LIM<sup>4</sup></b>											
Hamlin.....	175.45	8.15	211.31	1.73	8.04	147.48	8.30	11.20	99.20	1,076.84	1,747.70
Westin.....	32.97	3.29	134.00	0.38	4.90	76.02	3.12	4.45	25.79	397.19	682.11
Rubi.....	5.04	1.51	61.97	3.42	4.63	68.28	0.38	0.53	3.07	47.52	196.35
V.Americana <sup>2</sup> .....	83.16	0.38	13.85	-	-	7.37	1.94	1.57	5.45	143.30	257.02
Seleta.....	0.09	-	-	-	-	1.72	0.12	0.10	0.22	6.80	9.05
Pineapple.....	-	-	-	-	-	-	0.02	0.02	0.04	1.16	1.24
Alvorada.....	7.12	0.23	8.48	-	-	1.39	-	-	-	-	17.22
Pera Rio .....	1,068.02	139.10	1,290.61	71.43	57.78	913.47	120.56	109.14	245.27	2,674.50	6,689.88
Valencia.....	325.00	40.00	205.94	21.45	23.65	381.62	33.66	76.52	159.31	2,601.82	3,868.97
V.Folha Murcha <sup>3</sup>	134.54	47.48	251.96	1.69	8.36	231.86	8.85	21.47	28.83	545.10	1,280.14
Natal.....	138.76	25.17	181.12	1.53	0.43	203.06	21.68	30.67	86.73	474.27	1,163.42
<b>Subtotal.....</b>	<b>1,970.15</b>	<b>265.31</b>	<b>2,359.24</b>	<b>101.63</b>	<b>107.79</b>	<b>2,032.27</b>	<b>198.63</b>	<b>255.67</b>	<b>653.91</b>	<b>7,968.50</b>	<b>15,913.10</b>
<b>Percentage.....</b>	<b>12.38</b>	<b>1.67</b>	<b>14.83</b>	<b>0.64</b>	<b>0.68</b>	<b>12.77</b>	<b>1.25</b>	<b>1.61</b>	<b>4.11</b>	<b>50.08</b>	<b>44.67</b>
<b>Total.....</b>	<b>5,060.20</b>	<b>417.64</b>	<b>5,874.13</b>	<b>254.35</b>	<b>250.78</b>	<b>5,496.69</b>	<b>436.76</b>	<b>508.77</b>	<b>1,351.56</b>	<b>15,970.15</b>	<b>35,621.03</b>

- Represents zero

<sup>1</sup> PFE – Porto Ferreira<sup>2</sup> V.Americana – Valencia Americana<sup>3</sup> V.Folha Murcha – Valencia Folha Murcha<sup>4</sup> LIM – Limeira

**Table 60 – Oranges: Area of groves by age group of plots, region and variety – Southwest Sector [2023 inventory]**

Sector and variety	Plot age				Total
	1 – 2 years <sup>1</sup>	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>AVA<sup>2</sup></b>					
Hamlin.....	1,059	981	230	5,659	7,929
Westin.....	211	163	22	760	1,156
Rubi.....	292	156	87	1,403	1,938
V.Americana <sup>3</sup> .....	315	177	169	1,272	1,933
Seleta.....	-	-	-	-	-
Pineapple.....	21	-	-	50	71
Alvorada.....	-	85	-	-	85
Pera Rio .....	3,006	2,991	1,334	10,332	17,663
Valencia.....	1,513	1,352	726	14,761	18,352
V.Folha Murcha <sup>4</sup>	204	249	261	1,000	1,714
Natal.....	447	744	617	6,190	7,998
<b>Subtotal.....</b>	<b>7,068</b>	<b>6,898</b>	<b>3,446</b>	<b>41,427</b>	<b>58,839</b>
<b>Percentage.....</b>	<b>12.01</b>	<b>11.72</b>	<b>5.86</b>	<b>70.41</b>	<b>70.24</b>
<b>ITG<sup>5</sup></b>					
Hamlin.....	282	441	274	1,073	2,070
Westin.....	19	86	49	174	328
Rubi.....	304	196	279	277	1,056
V.Americana <sup>3</sup> .....	62	439	175	151	827
Seleta.....	-	-	-	1	1
Pineapple.....	10	379	154	424	967
Alvorada.....	79	73	117	-	269
Pera Rio .....	754	2,132	1,909	2,889	7,684
Valencia.....	788	578	630	3,952	5,948
V.Folha Murcha <sup>4</sup>	500	392	132	599	1,623
Natal.....	146	996	566	2,447	4,155
<b>Subtotal.....</b>	<b>2,944</b>	<b>5,712</b>	<b>4,285</b>	<b>11,987</b>	<b>24,928</b>
<b>Percentage.....</b>	<b>11.81</b>	<b>22.91</b>	<b>17.19</b>	<b>48.09</b>	<b>29.76</b>
<b>Total.....</b>	<b>10,012</b>	<b>12,610</b>	<b>7,731</b>	<b>53,414</b>	<b>83,767</b>

- Represents zero

<sup>1</sup> Area of young orange groves<sup>2</sup> AVA – Avaré<sup>3</sup> V.Americana – Valencia Americana<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> ITG – Itapetininga

**Table 61 – Oranges: Trees by age group, age group of plot, region and variety – Southwest Sector [2023 inventory]**

Sector and variety	Plot and tree ages										Total
	Plots 1 – 2 years	Plots 3 – 5 years		Plots 6 – 10 years			Plots over 10 years				
	Trees 1 – 2 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees 1 – 2 years	Trees 3 – 5 years	Trees 6 – 10 years	Trees Over 10 years	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
AVA <sup>1</sup>											
Hamlin.....	541.66	31.78	455.74	4.24	3.80	116.63	36.78	80.06	116.52	2,254.50	3,641.71
Westin.....	109.57	16.64	91.99	0.11	0.40	11.93	3.69	10.37	13.17	307.73	565.60
Rubi.....	140.83	13.92	82.46	0.61	1.48	52.93	9.13	17.51	19.38	536.25	874.50
V.Americana <sup>2</sup> .....	182.93	18.78	93.45	0.47	3.69	80.35	2.86	0.63	14.69	515.62	913.47
Seleta.....	0.08	-	-	-	-	-	-	-	-	-	0.08
Pineapple.....	12.25	-	-	-	-	-	-	0.20	1.98	22.37	36.80
Alvorada.....	-	8.69	42.35	-	-	-	-	-	-	-	51.04
Pera Rio .....	1,640.20	126.43	1,561.74	14.66	40.67	863.37	73.00	122.53	188.29	4,727.01	9,357.90
Valencia.....	821.77	24.25	758.87	4.69	12.77	454.48	74.45	134.65	277.38	6,614.48	9,177.79
V.Folha Murcha <sup>3</sup>	132.24	5.55	167.87	1.23	5.04	165.09	10.41	24.14	44.88	478.04	1,034.49
Natal.....	284.61	37.28	479.32	4.13	7.93	399.86	95.54	57.30	69.76	2,713.48	4,149.21
Subtotal.....	3,866.14	283.32	3,733.79	30.14	75.78	2,144.64	305.86	447.39	746.05	18,169.48	29,802.59
Percentage.....	12.97	0.95	12.53	0.10	0.25	7.20	1.03	1.50	2.50	60.97	65.81
ITG <sup>4</sup>											
Hamlin.....	166.41	58.31	225.06	5.31	0.13	229.62	0.23	2.45	0.60	450.24	1,138.36
Westin.....	10.52	9.49	45.96	3.41	0.23	32.64	-	0.68	0.15	67.03	170.11
Rubi.....	178.61	18.36	113.01	8.79	0.58	175.36	0.03	0.75	0.19	126.20	621.88
V.Americana <sup>2</sup> .....	33.81	92.96	223.79	1.08	0.33	123.89	1.26	7.37	0.90	80.31	565.70
Seleta.....	-	-	-	-	-	-	0.01	0.04	0.01	0.48	0.54
Pineapple.....	6.42	39.89	223.71	1.70	-	114.54	0.41	-	-	261.41	648.08
Alvorada.....	42.50	1.14	48.85	0.82	0.23	79.18	-	-	-	-	172.72
Pera Rio .....	475.54	237.47	1,208.99	19.65	4.04	1,314.09	22.36	36.44	5.15	1,538.73	4,862.46
Valencia.....	528.08	20.57	342.74	6.75	4.76	477.78	13.59	23.13	12.68	2,358.38	3,788.46
V.Folha Murcha <sup>3</sup>	332.07	11.40	240.35	1.59	2.33	80.79	3.67	6.85	1.85	345.00	1,025.90
Natal.....	105.44	81.88	625.18	12.60	3.06	366.25	15.73	13.72	9.32	1,256.69	2,489.87
Subtotal.....	1,879.40	571.47	3,297.64	61.70	15.69	2,994.14	57.29	91.43	30.85	6,484.47	15,484.08
Percentage.....	12.14	3.69	21.30	0.40	0.10	19.34	0.37	0.59	0.20	41.88	34.19
Total.....	5,745.54	854.79	7,031.43	91.84	91.47	5,138.78	363.15	538.82	776.9	24,653.95	45,286.67

- Represents zero

<sup>1</sup> AVA – Avaré<sup>2</sup> V.Americana – Valencia Americana<sup>3</sup> V.Folha Murcha – Valencia Folha Murcha<sup>4</sup> ITG – Itapetininga

**Table 62 – Oranges: Area of groves by sector and variety [2023 inventory]**

Variety	Sector					Total	Percentage of the variety group	Percentage of total
	North	Northwest	Central	South	Southwest			
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)	(%)
<b>Early</b>								
Hamlin.....	13,649	3,793	13,144	7,483	9,999	48,068	55.66	12.40
Westin.....	1,305	79	309	2,864	1,484	6,041	6.99	1.56
Rubi.....	1,311	697	2,035	1,594	2,994	8,631	9.99	2.23
Valencia Americana.....	5,231	3,790	7,466	1,254	2,760	20,501	23.74	5.29
Seleta.....	3	-	31	55	1	90	0.10	0.02
Pineapple.....	227	194	762	18	1,038	2,239	2.59	0.58
Alvorada.....	-	282	122	35	354	793	0.92	0.20
<b>Subtotal.....</b>	<b>21,726</b>	<b>8,835</b>	<b>23,869</b>	<b>13,303</b>	<b>18,630</b>	<b>86,363</b>	<b>100.00</b>	<b>22.28</b>
<b>Mid-season</b>								
Pera Rio .....	29,298	17,872	38,341	26,446	25,347	137,304	100.00	35.42
<b>Subtotal.....</b>	<b>29,298</b>	<b>17,872</b>	<b>38,341</b>	<b>26,446</b>	<b>25,347</b>	<b>137,304</b>	<b>100.00</b>	<b>35.42</b>
<b>Late</b>								
Valencia.....	28,301	5,981	28,934	18,189	24,300	105,705	64.47	27.27
V.Folha Murcha <sup>1</sup> .....	2,603	1,286	5,668	4,701	3,337	17,595	10.73	4.54
Natal.....	8,424	3,334	10,892	5,863	12,153	40,666	24.80	10.49
<b>Subtotal.....</b>	<b>39,328</b>	<b>10,601</b>	<b>45,494</b>	<b>28,753</b>	<b>39,790</b>	<b>163,966</b>	<b>100.00</b>	<b>42.30</b>
<b>Total.....</b>	<b>90,352</b>	<b>37,308</b>	<b>107,704</b>	<b>68,502</b>	<b>83,767</b>	<b>387,633</b>	<b>(X)</b>	<b>100.00</b>
<b>Percentage.....</b>	<b>23.31</b>	<b>9.62</b>	<b>27.79</b>	<b>17.67</b>	<b>21.61</b>	<b>100.00</b>	<b>(X)</b>	<b>(X)</b>

- Represents zero

(X) Not applicable

<sup>1</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 63 – Oranges: Trees by sector and variety [2023 inventory]**

Variety	Sector					Total	Percentage of the variety group	Percentage of total
	North	Northwest	Central	South	Southwest			
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(%)	(%)
<b>Early</b>								
Hamlin.....	5,844.15	1,832.27	6,880.11	3,594.65	4,780.07	22,931.25	52.38	11.30
Westin.....	620.13	38.06	160.02	1,461.30	735.71	3,015.22	6.89	1.49
Rubi.....	738.05	370.25	1,170.88	865.23	1,496.38	4,640.79	10.60	2.29
Valencia Americana.....	2,945.82	2,053.15	4,140.95	638.25	1,479.17	11,257.34	25.71	5.55
Seleta.....	2.13	-	17.54	27.78	0.62	48.07	0.11	0.02
Pineapple.....	126.68	122.23	436.56	10.59	684.88	1,380.94	3.15	0.68
Alvorada.....	-	184.54	79.48	19.82	223.76	507.60	1.16	0.25
<b>Subtotal.....</b>	<b>10,276.96</b>	<b>4,600.50</b>	<b>12,885.54</b>	<b>6,617.62</b>	<b>9,400.59</b>	<b>43,781.21</b>	<b>100.00</b>	<b>21.58</b>
<b>Mid-season</b>								
Pera Rio .....	15,989.17	8,369.96	21,534.34	14,758.03	14,220.36	74,871.86	100.00	36.90
<b>Subtotal.....</b>	<b>15,989.17</b>	<b>8,369.96</b>	<b>21,534.34</b>	<b>14,758.03</b>	<b>14,220.36</b>	<b>74,871.86</b>	<b>100.00</b>	<b>36.90</b>
<b>Late</b>								
Valencia.....	12,969.96	2,980.24	15,573.38	8,611.50	12,966.25	53,101.33	63.04	26.17
V.Folha Murcha <sup>1</sup> .....	1,388.38	678.54	3,344.20	2,471.48	2,060.39	9,942.99	11.80	4.90
Natal.....	3,957.96	1,660.82	5,765.61	3,162.40	6,639.08	21,185.87	25.15	10.44
<b>Subtotal.....</b>	<b>18,316.30</b>	<b>5,319.60</b>	<b>24,683.19</b>	<b>14,245.38</b>	<b>21,665.72</b>	<b>84,230.19</b>	<b>100.00</b>	<b>41.52</b>
<b>Total.....</b>	<b>44,582.43</b>	<b>18,290.06</b>	<b>59,103.07</b>	<b>35,621.03</b>	<b>45,286.67</b>	<b>202,883.26</b>	<b>(X)</b>	<b>100.00</b>
<b>Percentage.....</b>	<b>21.97</b>	<b>9.02</b>	<b>29.13</b>	<b>17.56</b>	<b>22.32</b>	<b>100.00</b>	<b>(X)</b>	<b>(X)</b>

- Represents zero

(X) Not applicable

<sup>1</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 64 – Oranges: Area of groves by planting year [2022 and 2023 inventories and accumulated variation]**

Planting year <sup>1</sup>	2022 inventory <sup>2</sup>	2023 inventory <sup>2</sup>	Accumulated variation <sup>3</sup>	
	(hectares)	(hectares)	(hectares)	(percentage)
1979 and previous years.....	1,292	1,201	-91	-7.04
1980.....	68	66	-2	-2.94
1981.....	98	88	-10	-10.20
1982.....	39	39	-	0.00
1983.....	169	51	-118	-69.82
1984.....	24	23	-1	-4.17
1985.....	190	178	-12	-6.32
1986.....	417	309	-108	-25.90
1987.....	278	218	-60	-21.58
1988.....	133	113	-20	-15.04
1989.....	194	140	-54	-27.84
1990.....	722	677	-45	-6.23
1991.....	690	506	-184	-26.67
1992.....	725	608	-117	-16.14
1993.....	616	532	-84	-13.64
1994.....	964	783	-181	-18.78
1995.....	1,067	826	-241	-22.59
1996.....	1,614	1,146	-468	-29.00
1997.....	1,917	1,751	-166	-8.66
1998.....	2,227	2,018	-209	-9.38
1999.....	3,158	2,897	-261	-8.26
2000.....	5,498	4,924	-574	-10.44
2001.....	6,126	5,729	-397	-6.48
2002.....	7,579	7,099	-480	-6.33
2003.....	13,992	11,657	-2,335	-16.69
2004.....	17,905	15,435	-2,470	-13.80
2005.....	23,078	20,949	-2,129	-9.23
2006.....	23,062	21,288	-1,774	-7.69
2007.....	25,774	23,235	-2,539	-9.85
2008.....	30,632	28,453	-2,179	-7.11
2009.....	19,871	18,387	-1,484	-7.47
2010.....	18,407	16,840	-1,567	-8.51
2011.....	17,060	15,733	-1,327	-7.78
2012.....	19,901	18,370	-1,531	-7.69
2013.....	15,671	14,905	-766	-4.89
2014.....	10,629	9,994	-635	-5.97
2015.....	10,257	9,571	-686	-6.69
2016.....	10,836	10,255	-581	-5.36
2017.....	14,508	13,672	-836	-5.76
2018.....	18,891	18,425	-466	-2.47
2019.....	18,110	17,609	-501	-2.77
2020 <sup>3</sup> .....	(X)	20,391	-625	-2.97
<b>Mature groves.....</b>	<b>344,389</b>	<b>337,091</b>	<b>-7,298</b>	<b>-2.12</b>
2020 <sup>3</sup> .....	21,016	(X)	-625	-2.97
2021.....	21,668	21,673	5	0.02
2022.....	(X)	28,869	(X)	(X)
<b>Young groves.....</b>	<b>42,684</b>	<b>50,542</b>	<b>7,858</b>	<b>18.41</b>
<b>Total.....</b>	<b>387,073</b>	<b>387,633</b>	<b>560</b>	<b>0.14</b>

(X) Not applicable

<sup>1</sup> Snapshot of groves in March of the year the inventory is published<sup>2</sup> Estimate of eradicated and abandoned groves from March 2022 to March 2023<sup>3</sup> Groves planted in 2020 belonged to the group of young groves in the 2022 inventory and moved to the group of mature groves in this 2023 inventory

**Table 65 – Oranges: Trees by planting year [2022 and 2023 inventories and accumulated variation]**

Planting year <sup>1</sup>	2022 inventory <sup>2</sup>	2023 inventory <sup>2</sup>	Accumulated variation <sup>3</sup>	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(percentage)
1979 and previous years.....	329.79	330.18	0.39	0.12
1980.....	17.01	16.62	-0.39	-2.29
1981.....	37.50	35.69	-1.81	-4.83
1982.....	13.19	13.42	0.23	1.74
1983.....	44.52	17.06	-27.46	-61.68
1984.....	12.15	11.29	-0.86	-7.08
1985.....	35.60	33.72	-1.88	-5.28
1986.....	113.28	85.42	-27.86	-24.59
1987.....	75.57	53.37	-22.20	-29.38
1988.....	43.49	38.19	-5.30	-12.19
1989.....	56.52	39.92	-16.60	-29.37
1990.....	219.88	230.30	10.42	4.74
1991.....	203.97	154.12	-49.85	-24.44
1992.....	245.87	207.57	-38.30	-15.58
1993.....	188.55	162.20	-26.35	-13.98
1994.....	285.94	219.32	-66.62	-23.30
1995.....	420.41	301.19	-119.22	-28.36
1996.....	559.86	389.90	-169.96	-30.36
1997.....	728.03	644.30	-83.73	-11.50
1998.....	821.04	759.06	-61.98	-7.55
1999.....	1,067.39	975.04	-92.35	-8.65
2000.....	1,905.92	1,735.68	-170.24	-8.93
2001.....	2,304.72	2,208.41	-96.31	-4.18
2002.....	2,767.24	2,707.07	-60.17	-2.17
2003.....	5,031.45	4,383.76	-647.69	-12.87
2004.....	6,565.79	5,958.85	-606.94	-9.24
2005.....	8,988.42	8,543.51	-444.91	-4.95
2006.....	8,990.88	8,639.70	-351.18	-3.91
2007.....	11,082.95	10,331.43	-751.52	-6.78
2008.....	13,730.34	13,259.90	-470.44	-3.43
2009.....	8,698.05	8,323.93	-374.12	-4.30
2010.....	8,373.92	7,962.13	-411.79	-4.92
2011.....	8,245.15	7,823.45	-421.70	-5.11
2012.....	10,683.82	9,585.15	-1,098.67	-10.28
2013.....	8,703.83	8,479.01	-224.82	-2.58
2014.....	6,085.87	5,918.66	-167.21	-2.75
2015.....	5,779.72	5,635.21	-144.51	-2.50
2016.....	6,248.58	6,094.43	-154.15	-2.47
2017.....	8,879.46	8,405.67	-473.79	-5.34
2018.....	10,992.29	10,798.86	-193.43	-1.76
2019.....	10,315.98	9,207.74	-1,108.24	-10.74
2020 <sup>2</sup> .....	(X)	11,495.90	(X)	(X)
6 to 10 years old resets <sup>3</sup> .....	5,951.61	4,361.84	-1,589.77	-26.71
3 to 5 years old resets <sup>3</sup> .....	4,126.36	2,712.98	-1,413.38	-34.25
<b>Bearing trees.....</b>	<b>169,971.91</b>	<b>169,291.15</b>	<b>-680.76</b>	<b>-0.40</b>
0 to 2 years old resets.....	4,277.83	4,569.60	291.77	6.82
2020 <sup>2</sup> .....	12,469.17	(X)	-973.27	-7.81
2021.....	12,591.93	12,665.19	73.26	0.58
2022.....	(X)	16,357.32	(X)	(X)
<b>Non-bearing trees.....</b>	<b>29,338.93</b>	<b>33,592.11</b>	<b>4,253.18</b>	<b>14.50</b>
<b>Total.....</b>	<b>199,310.84</b>	<b>202,883.26</b>	<b>3,572.42</b>	<b>1.79</b>

(X) Not applicable

<sup>1</sup> Snapshot of groves in March of the year the inventory is published<sup>2</sup> Groves planted in 2020 belonged to the group of young groves in the 2022 inventory and moved to the group of mature groves in this 2023 inventory<sup>3</sup> Trees from resettlings after the original plot was planted were estimated at their respective ages

Table 66 – Oranges: Area of groves by sector and planting year [2023 inventory]

Planting year <sup>1</sup>	Sector					Total
	North	Northwest	Central	South	Southwest	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
1979 and previous years.....	190	-	82	899	30	1,201
1980.....	-	19	-	47	-	66
1981.....	7	-	5	31	45	88
1982.....	3	-	-	36	-	39
1983.....	20	-	-	31	-	51
1984.....	-	-	-	-	23	23
1985.....	5	-	24	149	-	178
1986.....	5	-	-	269	35	309
1987.....	-	-	-	218	-	218
1988.....	16	-	24	47	26	113
1989.....	20	42	3	59	16	140
1990.....	80	27	241	191	138	677
1991.....	99	-	9	241	157	506
1992.....	236	-	-	164	208	608
1993.....	100	34	43	190	165	532
1994.....	73	10	98	76	526	783
1995.....	295	26	89	214	202	826
1996.....	234	-	332	414	166	1,146
1997.....	405	-	76	306	964	1,751
1998.....	546	5	342	464	661	2,018
1999.....	1,680	5	145	573	494	2,897
2000.....	2,172	60	804	1,264	624	4,924
2001.....	2,128	152	537	2,337	575	5,729
2002.....	1,425	188	1,414	1,773	2,299	7,099
2003.....	3,180	376	2,227	2,435	3,439	11,657
2004.....	4,351	712	3,832	2,374	4,166	15,435
2005.....	4,815	587	6,384	2,968	6,195	20,949
2006.....	5,412	1,224	5,432	2,835	6,385	21,288
2007.....	6,225	1,029	5,964	3,401	6,616	23,235
2008.....	5,388	3,678	7,683	3,406	8,298	28,453
2009.....	5,170	2,016	4,258	2,673	4,270	18,387
2010.....	4,618	2,290	3,783	3,844	2,305	16,840
2011.....	3,753	3,020	3,454	3,209	2,297	15,733
2012.....	6,057	2,512	5,014	2,698	2,089	18,370
2013.....	4,600	1,586	5,511	1,574	1,634	14,905
2014.....	2,097	1,089	4,115	1,608	1,085	9,994
2015.....	2,198	1,599	2,639	1,929	1,206	9,571
2016.....	2,152	1,514	2,859	2,382	1,348	10,255
2017.....	1,921	1,035	5,984	2,274	2,458	13,672
2018.....	3,167	2,280	7,002	3,237	2,739	18,425
2019.....	3,415	2,160	4,621	3,524	3,889	17,609
2020.....	2,633	2,075	6,152	3,549	5,982	20,391
<b>Mature groves.....</b>	<b>80,891</b>	<b>31,350</b>	<b>91,182</b>	<b>59,913</b>	<b>73,755</b>	<b>337,091</b>
2021.....	3,301	2,294	7,113	4,018	4,947	21,673
2022.....	6,160	3,664	9,409	4,571	5,065	28,869
<b>Young groves.....</b>	<b>9,461</b>	<b>5,958</b>	<b>16,522</b>	<b>8,589</b>	<b>10,012</b>	<b>50,542</b>
<b>Total.....</b>	<b>90,352</b>	<b>37,308</b>	<b>107,704</b>	<b>68,502</b>	<b>83,767</b>	<b>387,633</b>
<b>Percentage.....</b>	<b>23.31</b>	<b>9.62</b>	<b>27.79</b>	<b>17.67</b>	<b>21.61</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time

Table 67 – Oranges: Trees by sector and planting year [2023 inventory]

Planting year <sup>1</sup>	Sector					Total
	North	Northwest	Central	South	Southwest	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
1979 and previous years.....	72.25	-	28.00	222.32	7.61	330.18
1980.....	-	4.16	-	12.46	-	16.62
1981.....	2.57	-	2.66	8.96	21.50	35.69
1982.....	1.70	-	-	11.72	-	13.42
1983.....	8.47	-	-	8.59	-	17.06
1984.....	-	-	-	-	11.29	11.29
1985.....	2.54	-	8.32	22.86	-	33.72
1986.....	0.93	-	-	67.54	16.95	85.42
1987.....	-	-	-	53.37	-	53.37
1988.....	5.65	-	7.05	14.10	11.39	38.19
1989.....	6.86	7.34	1.17	18.03	6.52	39.92
1990.....	33.22	6.67	86.93	58.51	44.97	230.30
1991.....	31.80	-	2.39	79.45	40.48	154.12
1992.....	75.41	-	-	62.86	69.30	207.57
1993.....	26.01	13.22	10.32	64.15	48.50	162.20
1994.....	22.57	2.64	26.49	29.26	138.36	219.32
1995.....	103.57	7.79	26.91	82.69	80.23	301.19
1996.....	69.18	-	109.69	149.62	61.41	389.90
1997.....	144.61	-	30.08	106.43	363.18	644.30
1998.....	179.44	2.19	151.99	181.74	243.70	759.06
1999.....	530.17	1.03	57.58	180.52	205.74	975.04
2000.....	698.63	19.59	294.60	455.57	267.29	1,735.68
2001.....	747.80	73.88	199.65	863.39	323.69	2,208.41
2002.....	498.04	73.62	559.86	658.42	917.13	2,707.07
2003.....	1,172.61	141.91	756.83	926.95	1,385.46	4,383.76
2004.....	1,611.34	249.14	1,473.06	892.67	1,732.64	5,958.85
2005.....	1,808.83	226.86	2,505.93	1,162.08	2,839.81	8,543.51
2006.....	2,158.38	478.84	2,186.35	1,077.31	2,738.82	8,639.70
2007.....	2,799.87	407.88	2,597.79	1,362.31	3,163.58	10,331.43
2008.....	2,539.30	1,788.39	3,454.43	1,390.49	4,087.29	13,259.90
2009.....	2,403.10	841.45	1,838.72	1,133.58	2,107.08	8,323.93
2010.....	2,248.15	994.95	1,738.68	1,754.28	1,226.07	7,962.13
2011.....	1,924.56	1,329.56	1,849.28	1,467.76	1,252.29	7,823.45
2012.....	3,217.32	1,091.48	2,644.52	1,390.16	1,241.67	9,585.15
2013.....	2,752.89	759.07	3,066.94	895.89	1,004.22	8,479.01
2014.....	1,243.03	545.84	2,518.35	938.85	672.59	5,918.66
2015.....	1,247.51	964.36	1,576.90	1,106.69	739.75	5,635.21
2016.....	1,230.25	831.52	1,755.48	1,311.34	965.84	6,094.43
2017.....	1,021.98	516.83	3,866.56	1,243.92	1,756.38	8,405.67
2018.....	1,654.39	1,295.10	4,210.01	1,876.31	1,763.05	10,798.86
2019.....	1,752.37	896.71	2,603.54	2,037.97	1,917.15	9,207.74
2020.....	1,385.97	1,021.24	3,777.61	1,959.85	3,351.23	11,495.90
6 to 10 years old resets <sup>2</sup> .....	1,081.98	235.02	916.38	1,351.56	776.9	4,361.84
3 to 5 years old resets <sup>2</sup> .....	417.18	170.31	735.65	759.55	630.29	2,712.98
<b>Bearing trees.....</b>	<b>38,932.43</b>	<b>14,998.59</b>	<b>47,676.70</b>	<b>29,452.08</b>	<b>38,231.35</b>	<b>169,291.15</b>
0 to 2 years old resets <sup>2</sup> .....	518.40	416.61	1,216.06	1,108.75	1,309.78	4,569.60
2021.....	1,834.19	1,002.87	4,621.17	2,522.40	2,684.56	12,665.19
2022.....	3,297.41	1,871.99	5,589.14	2,537.80	3,060.98	16,357.32
<b>Non-bearing trees.....</b>	<b>5,650.00</b>	<b>3,291.47</b>	<b>11,426.37</b>	<b>6,168.95</b>	<b>7,055.32</b>	<b>33,592.11</b>
<b>Total.....</b>	<b>44,582.43</b>	<b>18,290.06</b>	<b>59,103.07</b>	<b>35,621.03</b>	<b>45,286.67</b>	<b>202,883.26</b>
<b>Percentage.....</b>	<b>21.97</b>	<b>9.02</b>	<b>29.13</b>	<b>17.56</b>	<b>22.32</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time<sup>2</sup> Trees from resettings after the original plot was planted were estimated at their respective ages

**Table 68 – Oranges: Area of groves of early varieties by planting year [2023 inventory]**

Planting year <sup>1</sup>	Early varieties							Total
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	Alvorada	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
1979 and previous	265	-	-	-	-	-	-	265
1980.....	-	-	-	-	-	-	-	-
1981.....	1	-	-	-	-	-	-	1
1982.....	-	-	-	-	-	-	-	-
1983.....	-	-	-	-	-	-	-	-
1984.....	-	-	-	-	-	-	-	-
1985.....	1	-	95	-	-	-	-	96
1986.....	5	-	67	75	-	-	-	147
1987.....	96	-	-	27	-	-	-	123
1988.....	16	-	-	4	-	-	-	20
1989.....	5	-	-	-	-	-	-	5
1990.....	9	13	-	2	-	-	-	24
1991.....	124	14	-	-	-	-	-	138
1992.....	301	-	-	-	-	11	-	312
1993.....	225	-	-	9	-	-	-	234
1994.....	406	-	-	-	-	-	-	406
1995.....	68	10	-	-	-	-	-	78
1996.....	173	-	-	5	-	2	-	180
1997.....	125	42	-	4	-	-	-	171
1998.....	283	10	20	119	-	-	-	432
1999.....	567	136	6	174	-	-	-	883
2000.....	817	29	5	12	1	-	-	864
2001.....	564	36	62	33	7	1	-	703
2002.....	1,228	211	153	642	-	-	-	2,234
2003.....	2,581	132	120	363	-	-	-	3,196
2004.....	2,257	162	69	389	-	20	-	2,897
2005.....	3,753	241	188	444	-	9	-	4,635
2006.....	3,967	320	573	673	7	86	-	5,626
2007.....	4,383	310	212	1,246	4	26	-	6,181
2008.....	4,919	552	672	1,367	8	22	-	7,540
2009.....	2,045	517	621	1,059	12	41	-	4,295
2010.....	1,368	339	523	462	31	69	-	2,792
2011.....	1,222	275	620	1,068	-	277	-	3,462
2012.....	1,861	221	599	759	-	452	-	3,892
2013.....	653	140	200	618	1	225	-	1,837
2014.....	206	47	146	132	2	176	-	709
2015.....	459	56	245	273	-	7	70	1,110
2016.....	406	113	381	218	-	19	40	1,177
2017.....	1,570	402	531	1,034	9	171	36	3,753
2018.....	1,612	273	304	1,771	-	253	116	4,329
2019.....	1,810	408	580	1,515	-	113	50	4,476
2020.....	2,313	314	480	1,623	-	154	115	4,999
<b>Mature groves....</b>	<b>42,664</b>	<b>5,323</b>	<b>7,472</b>	<b>16,120</b>	<b>82</b>	<b>2,134</b>	<b>427</b>	<b>74,222</b>
2021.....	1,971	308	491	2,541	8	51	93	5,463
2022.....	3,433	410	668	1,840	-	54	273	6,678
<b>Young groves.....</b>	<b>5,404</b>	<b>718</b>	<b>1,159</b>	<b>4,381</b>	<b>8</b>	<b>105</b>	<b>366</b>	<b>12,141</b>
<b>Total.....</b>	<b>48,068</b>	<b>6,041</b>	<b>8,631</b>	<b>20,501</b>	<b>90</b>	<b>2,239</b>	<b>793</b>	<b>86,363</b>
<b>Percentage.....</b>	<b>55.66</b>	<b>6.99</b>	<b>9.99</b>	<b>23.74</b>	<b>0.10</b>	<b>2.59</b>	<b>0.92</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time

Table 69 – Oranges: Trees of early varieties by planting year [2022 inventory]

Planting year <sup>1</sup>	Early varieties							Total
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	Alvorada	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
1979 and previous years.....	58.86	-	-	-	-	-	-	58.86
1980.....	-	-	-	-	-	-	-	-
1981.....	0.53	-	-	-	-	-	-	0.53
1982.....	-	-	-	-	-	-	-	-
1983.....	-	-	-	-	-	-	-	-
1984.....	-	-	-	-	-	-	-	-
1985.....	0.71	-	9.41	-	-	-	-	10.12
1986.....	0.93	-	12.92	19.23	-	-	-	33.08
1987.....	21.68	-	-	5.09	-	-	-	26.77
1988.....	6.42	-	-	1.52	-	-	-	7.94
1989.....	1.64	-	-	-	-	-	-	1.64
1990.....	2.17	3.57	-	0.54	-	-	-	6.28
1991.....	29.32	3.78	-	-	-	-	-	33.10
1992.....	92.00	-	-	-	-	3.72	-	95.72
1993.....	55.93	-	-	4.03	-	-	-	59.96
1994.....	79.13	-	-	-	-	-	-	79.13
1995.....	24.44	4.34	-	-	-	-	-	28.78
1996.....	49.52	-	-	1.79	-	0.28	-	51.59
1997.....	34.66	11.80	-	1.71	-	-	-	48.17
1998.....	78.83	3.86	5.15	35.14	-	-	-	122.98
1999.....	144.86	46.20	2.41	53.92	-	-	-	247.39
2000.....	244.24	8.69	2.10	3.30	0.48	-	-	258.81
2001.....	196.40	13.51	28.03	14.11	3.00	0.81	-	255.86
2002.....	458.46	79.82	48.61	212.32	-	-	-	799.21
2003.....	961.98	56.59	33.74	127.68	-	-	-	1,179.99
2004.....	839.35	59.58	26.24	128.81	-	8.15	-	1,062.13
2005.....	1,451.14	86.99	70.67	182.33	-	5.12	-	1,796.25
2006.....	1,488.96	119.96	218.70	279.32	2.03	38.31	-	2,147.28
2007.....	1,825.07	125.41	88.71	518.27	2.10	11.10	-	2,570.66
2008.....	2,146.17	229.31	307.34	599.09	3.58	13.08	-	3,298.57
2009.....	898.21	210.35	287.63	492.46	5.66	17.30	-	1,911.61
2010.....	589.51	157.12	266.47	212.04	-	43.95	-	1,285.77
2011.....	539.05	121.68	300.01	507.23	-	167.86	-	1,635.83
2012.....	915.92	104.70	298.87	380.77	-	232.78	-	1,933.04
2013.....	375.28	66.71	119.56	305.17	0.89	109.72	-	977.33
2014.....	102.37	25.28	83.74	69.83	1.17	110.27	-	392.66
2015.....	269.63	32.11	149.96	146.56	-	3.75	45.17	647.18
2016.....	239.67	64.31	218.42	118.51	-	12.35	29.99	683.25
2017.....	1,089.18	198.03	301.33	690.99	4.44	142.92	26.02	2,452.91
2018.....	910.74	149.40	163.08	1,181.26	-	170.23	96.17	2,670.88
2019.....	989.97	255.22	353.63	728.01	-	41.18	23.22	2,391.23
2020.....	1,198.76	189.70	298.53	929.05	-	101.13	71.92	2,789.09
6 to 10 years old resets <sup>2</sup> .....	650.32	72.21	98.57	225.79	1.35	12	-	1,060.24
3 to 5 years old resets <sup>2</sup> .....	254.14	39.39	66.44	102.95	0.63	6.77	0.23	470.55
<b>Bearing trees.....</b>	<b>19,316.1</b>	<b>2,539.6</b>	<b>3,860.2</b>	<b>8,278.82</b>	<b>42.01</b>	<b>1252.78</b>	<b>292.72</b>	<b>35,582.3</b>
0 to 2 years old resets <sup>2</sup> .....	336.9	68.91	116.84	416.35	0.83	67.16	12.46	1,019.45
2021.....	1149.34	180.43	281.14	1531.99	4.76	29.68	49.62	3,226.96
2022.....	2,128.86	226.26	382.54	1030.18	0.47	31.32	152.8	3,952.43
<b>Non-bearing trees.....</b>	<b>3,615.10</b>	<b>475.6</b>	<b>780.52</b>	<b>2,978.52</b>	<b>6.06</b>	<b>128.16</b>	<b>214.88</b>	<b>8,198.84</b>
<b>Total.....</b>	<b>22,931.2</b>	<b>3,015.2</b>	<b>4,640.7</b>	<b>11,257.34</b>	<b>48.07</b>	<b>1,380.94</b>	<b>507.60</b>	<b>43,781.2</b>
<b>Percentage.....</b>	<b>52.38</b>	<b>6.89</b>	<b>10.60</b>	<b>25.71</b>	<b>0.11</b>	<b>3.15</b>	<b>1.16</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time<sup>2</sup> Trees from resettings after the original plot was planted were estimated at their respective ages

**Table 70 – Oranges: Area of groves of mid-season and late varieties by planting year [2022 inventory]**

Planting year <sup>1</sup>	Mid-season and late varieties				Total
	Pera Rio	Valencia	Valencia Folha Murcha	Natal	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
1979 and previous years...	248	560	10	118	936
1980.....	-	66	-	-	66
1981.....	7	8	23	49	87
1982.....	-	39	-	-	39
1983.....	5	44	-	2	51
1984.....	19	-	-	4	23
1985.....	17	30	-	35	82
1986.....	75	51	-	36	162
1987.....	-	76	-	19	95
1988.....	45	18	-	30	93
1989.....	34	42	11	48	135
1990.....	279	213	34	127	653
1991.....	83	277	6	2	368
1992.....	81	150	25	40	296
1993.....	129	80	26	63	298
1994.....	126	101	130	20	377
1995.....	193	459	35	61	748
1996.....	190	464	133	179	966
1997.....	393	1,069	75	43	1,580
1998.....	328	978	222	58	1,586
1999.....	438	1,295	174	107	2,014
2000.....	941	2,305	244	570	4,060
2001.....	664	2,936	632	794	5,026
2002.....	792	2,657	125	1,291	4,865
2003.....	2,045	4,759	152	1,505	8,461
2004.....	3,532	5,805	462	2,739	12,538
2005.....	4,804	7,586	477	3,447	16,314
2006.....	4,559	7,079	685	3,339	15,662
2007.....	6,243	7,379	815	2,617	17,054
2008.....	8,641	7,456	1,485	3,331	20,913
2009.....	7,852	4,260	752	1,228	14,092
2010.....	7,738	4,526	731	1,053	14,048
2011.....	6,100	4,725	531	915	12,271
2012.....	6,998	5,679	603	1,198	14,478
2013.....	7,106	3,324	784	1,854	13,068
2014.....	5,232	1,811	1,116	1,126	9,285
2015.....	4,450	1,775	676	1,560	8,461
2016.....	5,656	1,837	376	1,209	9,078
2017.....	5,529	2,129	508	1,753	9,919
2018.....	8,229	3,214	1,106	1,547	14,096
2019.....	7,634	2,751	872	1,876	13,133
2020.....	9,243	3,441	1,024	1,684	15,392
<b>Mature groves.....</b>	<b>116,678</b>	<b>93,454</b>	<b>15,060</b>	<b>37,677</b>	<b>262,869</b>
2021.....	9,487	4,015	1,154	1,554	16,210
2022.....	11,139	8,236	1,381	1,435	22,191
<b>Young groves.....</b>	<b>20,626</b>	<b>12,251</b>	<b>2,535</b>	<b>2,989</b>	<b>38,401</b>
<b>Total.....</b>	<b>137,304</b>	<b>105,705</b>	<b>17,595</b>	<b>40,666</b>	<b>301,270</b>
<b>Percentage.....</b>	<b>45.58</b>	<b>35.09</b>	<b>5.84</b>	<b>13.50</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time

Table 71– Oranges: Trees of mid-season and late varieties by planting year [2022 inventory]

Planting year <sup>1</sup>	Mid-season and late varieties				Total
	Pera Rio	Valencia	Valencia Folha Murcha	Natal	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
1979 and previous years...	90.95	133.09	5.06	42.22	271.32
1980.....	-	16.62	-	-	16.62
1981.....	3.47	1.58	7.38	22.73	35.16
1982.....	-	13.42	-	-	13.42
1983.....	2.46	13.55	-	1.05	17.06
1984.....	9.55	-	-	1.74	11.29
1985.....	7.37	9.41	-	6.82	23.6
1986.....	24.76	15.28	-	12.30	52.34
1987.....	-	21.67	-	4.93	26.6
1988.....	16.50	4.50	-	9.25	30.25
1989.....	13.78	11.84	3.21	9.45	38.28
1990.....	101.99	61.30	14.38	46.35	224.02
1991.....	31.42	87.00	1.70	0.90	121.02
1992.....	31.89	58.47	9.60	11.89	111.85
1993.....	44.97	26.02	10.63	20.62	102.24
1994.....	46.24	35.85	52.77	5.33	140.19
1995.....	67.92	168.11	14.79	21.59	272.41
1996.....	74.74	152.05	54.55	56.97	338.31
1997.....	168.36	387.48	23.93	16.36	596.13
1998.....	133.03	372.11	112.35	18.59	636.08
1999.....	173.90	443.95	66.98	42.82	727.65
2000.....	392.65	793.69	91.94	198.59	1,476.87
2001.....	267.98	1,157.53	245.54	281.50	1,952.55
2002.....	298.51	1,066.72	43.26	499.37	1,907.86
2003.....	789.12	1,787.48	55.55	571.62	3,203.77
2004.....	1,428.17	2,248.97	182.60	1,036.98	4,896.72
2005.....	2,056.52	3,134.93	191.94	1,363.87	6,747.26
2006.....	1,947.31	2,958.50	320.67	1,265.94	6,492.42
2007.....	2,813.00	3,368.24	395.42	1,184.11	7,760.77
2008.....	4,038.35	3,615.47	777.27	1,530.24	9,961.33
2009.....	3,481.09	2,012.05	371.80	547.38	6,412.32
2010.....	3,746.97	2,114.69	357.75	456.95	6,676.36
2011.....	3,035.52	2,422.42	281.47	448.21	6,187.62
2012.....	3,769.04	2,971.81	320.53	590.73	7,652.11
2013.....	4,139.42	1,913.75	454.78	993.73	7,501.68
2014.....	3,138.65	1,054.49	660.17	672.69	5,526.00
2015.....	2,693.96	960.95	397.30	935.82	4,988.03
2016.....	3,365.53	1,158.58	230.26	656.81	5,411.18
2017.....	3,237.29	1,304.81	293.85	1,116.81	5,952.76
2018.....	4,568.22	1,908.25	652.67	998.84	8,127.98
2019.....	3,785.98	1,508.11	501.65	1,020.77	6,816.51
2020.....	4,967.79	2,064.01	613.41	1,061.60	8,706.81
6 to 10 years old resets <sup>2</sup> .....	1,357.11	1,287.61	218.03	438.85	3,301.60
3 to 5 years old resets <sup>2</sup> .....	1,147.19	624.31	143.06	327.87	2,242.43
<b>Bearing trees.....</b>	<b>61,508.67</b>	<b>45,470.67</b>	<b>8,178.25</b>	<b>18,551.19</b>	<b>133,708.78</b>
0 to 2 years old resets <sup>2</sup> .....	2,046.12	730.46	214.11	559.46	3,550.15
2021.....	5,224.18	2,434.54	782.06	997.45	9,438.23
2022.....	6,092.89	4,465.66	768.57	1,077.77	12,404.89
<b>Non-bearing trees.....</b>	<b>13,363.19</b>	<b>7,630.66</b>	<b>1,764.74</b>	<b>2,634.68</b>	<b>25,393.27</b>
<b>Total.....</b>	<b>74,871.86</b>	<b>53,101.33</b>	<b>9,942.99</b>	<b>21,185.87</b>	<b>159,102.05</b>
<b>Percentage.....</b>	<b>47.06</b>	<b>33.38</b>	<b>6.25</b>	<b>13.32</b>	<b>100.00</b>

- Represents zero

<sup>1</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time<sup>2</sup> Trees from resettlements after the original plot was planted were estimated at their respective ages

**Table 72 – Oranges: Density<sup>1</sup> of young and mature groves by sector and region [2022 and 2023 inventories]**

Sector and region	2022 inventory		2023 inventory	
	Young groves <sup>2</sup>	Mature groves <sup>3</sup>	Young groves <sup>2</sup>	Mature groves <sup>3</sup>
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
<b>North</b>				
Triângulo Mineiro.....	583	474	547	477
Bebedouro.....	548	487	548	496
Altinópolis.....	536	489	516	479
<b>Average.....</b>	<b>557</b>	<b>483</b>	<b>542</b>	<b>488</b>
<b>Northwest</b>				
Votuporanga.....	424	455	462	457
São José do Rio Preto.....	514	481	509	516
<b>Average.....</b>	<b>462</b>	<b>470</b>	<b>482</b>	<b>492</b>
<b>Central</b>				
Matão.....	651	525	646	565
Duartina.....	640	526	593	530
Brotas.....	653	469	611	487
<b>Average.....</b>	<b>644</b>	<b>519</b>	<b>618</b>	<b>536</b>
<b>South</b>				
Porto Ferreira.....	629	513	590	524
Limeira.....	620	492	587	494
<b>Average.....</b>	<b>625</b>	<b>503</b>	<b>589</b>	<b>510</b>
<b>Southwest</b>				
Avaré.....	523	502	547	501
Itapetininga.....	637	615	638	619
<b>Average.....</b>	<b>560</b>	<b>535</b>	<b>574</b>	<b>536</b>
<b>Average.....</b>	<b>587</b>	<b>506</b>	<b>574</b>	<b>516</b>

<sup>1</sup> Weighted average density per stratum area<sup>2</sup> Groves planted in 2021 and 2022<sup>3</sup> Calculation considers total trees in the plot, that is, bearing and non-bearing trees (resets in 2021 and 2022)

**Table 73 – Oranges: Density<sup>1</sup> of young and mature groves by variety [2022 and 2023 inventories]**

Variety	2022 inventory		2023 inventory	
	Young groves <sup>2</sup>	Mature groves <sup>3</sup>	Young groves <sup>2</sup>	Mature groves <sup>3</sup>
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
<b>Early</b>				
Hamlin.....	539	461	607	461
Westin.....	645	511	564	489
Rubi.....	619	577	573	532
Valencia Americana.....	614	499	585	539
Seleta.....	606	503	605	527
Pineapple.....	612	584	574	617
Alvorada.....	639	788	553	712
<b>Average.....</b>	<b>585</b>	<b>484</b>	<b>591</b>	<b>493</b>
<b>Mid-season</b>				
Pera Rio.....	557	538	549	545
<b>Average.....</b>	<b>557</b>	<b>538</b>	<b>549</b>	<b>545</b>
<b>Late</b>				
Valencia.....	617	483	563	494
Valencia Folha Murcha.....	675	537	612	557
Natal.....	641	496	694	507
<b>Average.....</b>	<b>633</b>	<b>491</b>	<b>592</b>	<b>504</b>
<b>Average.....</b>	<b>587</b>	<b>506</b>	<b>574</b>	<b>516</b>

NA Not available

<sup>1</sup> Weighted average density per stratum area<sup>2</sup> Groves planted in 2021 and 2022<sup>3</sup> Calculation considers total trees in the plot, that is, bearing and non-bearing trees (resets in 2021 and 2022)

**Table 74 – Oranges: Density<sup>1</sup> of young groves by variety and region [2023 inventory]**

Variety	Region												Average
	TMG <sup>2</sup>	BEB <sup>3</sup>	ALT <sup>4</sup>	VOT <sup>5</sup>	SJO <sup>6</sup>	MAT <sup>7</sup>	DUA <sup>8</sup>	BRO <sup>9</sup>	PFE <sup>10</sup>	LIM <sup>11</sup>	AVA <sup>12</sup>	ITG <sup>13</sup>	
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
<b>Early</b>													
Hamlin.....	600	519	536	498	586	688	689	717	597	628	512	589	607
Westin.....	NA	502	613	480	NA	718	799	639	644	622	518	551	564
Rubi.....	586	601	613	564	661	718	699	650	655	622	484	589	573
Valencia Americana.....	565	571	567	536	485	634	652	614	654	616	580	538	585
Seleta.....	NA	NA	NA	NA	NA	NA	NA	NA	606	612	540	NA	605
Pineapple.....	496	559	NA	529	NA	776	613	833	NA	NA	564	659	574
Alvorada.....	NA	NA	NA	NA	528	NA	620	NA	NA	493	NA	538	553
<b>Average.....</b>	<b>575</b>	<b>547</b>	<b>555</b>	<b>547</b>	<b>509</b>	<b>669</b>	<b>666</b>	<b>678</b>	<b>616</b>	<b>620</b>	<b>520</b>	<b>579</b>	<b>591</b>
<b>Mid-season</b>													
Pera Rio.....	581	583	611	433	503	583	535	545	567	571	546	631	549
<b>Average.....</b>	<b>581</b>	<b>583</b>	<b>611</b>	<b>433</b>	<b>503</b>	<b>583</b>	<b>535</b>	<b>545</b>	<b>567</b>	<b>571</b>	<b>546</b>	<b>631</b>	<b>549</b>
<b>Late</b>													
Valencia.....	442	480	449	515	513	640	598	686	575	566	543	670	563
VFolha Murcha <sup>14</sup> .....	469	493	527	513	515	854	607	596	517	589	648	665	612
Natal.....	788	610	676	584	794	702	720	757	694	725	637	721	694
<b>Average.....</b>	<b>482</b>	<b>489</b>	<b>452</b>	<b>522</b>	<b>523</b>	<b>674</b>	<b>605</b>	<b>667</b>	<b>603</b>	<b>602</b>	<b>573</b>	<b>673</b>	<b>592</b>
<b>Average.....</b>	<b>547</b>	<b>548</b>	<b>516</b>	<b>462</b>	<b>509</b>	<b>646</b>	<b>593</b>	<b>611</b>	<b>590</b>	<b>587</b>	<b>547</b>	<b>638</b>	<b>574</b>

NA Not available

<sup>1</sup> Weighted average density per stratum area<sup>2</sup> TMG – Triângulo Mineiro<sup>3</sup> BEB – Bebedouro<sup>4</sup> ALT – Altinópolis<sup>5</sup> VOT – Votuporanga<sup>6</sup> SJO – São José do Rio Preto<sup>7</sup> MAT – Matão<sup>8</sup> DUA – Duartina<sup>9</sup> BRO – Brotas<sup>10</sup> PFE – Porto Ferreira<sup>11</sup> LIM – Limeira<sup>12</sup> AVA – Avaré<sup>13</sup> ITG – Itapetininga<sup>14</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 75 – Oranges: Density<sup>1</sup> of mature groves by variety and region [2023 inventory]**

Variety	Region												Average
	TMG <sup>2</sup>	BEB <sup>3</sup>	ALT <sup>4</sup>	VOT <sup>5</sup>	SJO <sup>6</sup>	MAT <sup>7</sup>	DUA <sup>8</sup>	BRO <sup>9</sup>	PFE <sup>10</sup>	LIM <sup>11</sup>	AVA <sup>12</sup>	ITG <sup>13</sup>	
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
<b>Early</b>													
Hamlin.....	404	432	427	481	477	549	467	442	481	444	451	544	461
Westin.....	511	459	513	443	490	426	546	376	524	475	484	512	489
Rubi.....	491	573	569	491	535	507	592	568	548	488	446	590	532
Valencia Americana.....	542	564	542	459	570	536	542	409	503	457	452	696	539
Seleta.....	NA	828	NA	NA	NA	NA	572	NA	508	446	NA	510	527
Pineapple.....	467	557	NA	552	635	528	636	697	631	427	486	670	617
Alvorada.....	NA	NA	NA	NA	869	NA	789	NA	555	589	600	681	712
<b>Average.....</b>	<b>423</b>	<b>480</b>	<b>456</b>	<b>474</b>	<b>529</b>	<b>540</b>	<b>507</b>	<b>460</b>	<b>505</b>	<b>456</b>	<b>455</b>	<b>604</b>	<b>493</b>
<b>Mid-season</b>													
Pera Rio.....	545	551	483	447	522	594	551	535	558	554	527	633	545
<b>Average.....</b>	<b>545</b>	<b>551</b>	<b>483</b>	<b>447</b>	<b>522</b>	<b>594</b>	<b>551</b>	<b>535</b>	<b>558</b>	<b>554</b>	<b>527</b>	<b>633</b>	<b>545</b>
<b>Late</b>													
Valencia.....	460	455	469	511	491	534	530	468	483	441	496	632	494
VFolha Murcha <sup>14</sup> .....	551	534	547	511	535	590	586	529	549	498	598	620	557
Natal.....	430	481	521	463	505	602	474	418	527	503	512	594	507
<b>Average.....</b>	<b>454</b>	<b>467</b>	<b>484</b>	<b>494</b>	<b>501</b>	<b>555</b>	<b>523</b>	<b>464</b>	<b>503</b>	<b>462</b>	<b>507</b>	<b>616</b>	<b>504</b>
<b>Average.....</b>	<b>477</b>	<b>496</b>	<b>479</b>	<b>457</b>	<b>516</b>	<b>565</b>	<b>530</b>	<b>487</b>	<b>524</b>	<b>494</b>	<b>501</b>	<b>619</b>	<b>516</b>

NA Not available

<sup>1</sup> Weighted average density per stratum area. Calculation for groves over 2 years of age considers the total trees of the plot, that is, bearing and non-bearing trees (resets of 2021 and 2022)<sup>2</sup> TMG – Triângulo Mineiro<sup>3</sup> BEB – Bebedouro<sup>4</sup> ALT – Altinópolis<sup>5</sup> VOT – Votuporanga<sup>6</sup> SJO – São José do Rio Preto<sup>7</sup> MAT – Matão<sup>8</sup> DUA – Duartina<sup>9</sup> BRO – Brotas<sup>10</sup> PFE – Porto Ferreira<sup>11</sup> LIM – Limeira<sup>12</sup> AVA – Avaré<sup>13</sup> ITG – Itapetininga

<sup>14</sup> V.Folha Murcha – Valencia Folha Murcha**Table 76 – Oranges: Density<sup>1</sup> of groves of up to 10 years old by variety and region [2023 inventory]**

Variety	Region												Average
	TMG <sup>2</sup>	BEB <sup>3</sup>	ALT <sup>4</sup>	VOT <sup>5</sup>	SJO <sup>6</sup>	MAT <sup>7</sup>	DUA <sup>8</sup>	BRO <sup>9</sup>	PFE <sup>10</sup>	LIM <sup>11</sup>	AVA <sup>12</sup>	ITG <sup>13</sup>	
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
<b>Early</b>													
Hamlin.....	566	546	543	428	658	683	613	588	602	545	509	686	600
Westin.....	580	491	654	446	564	613	635	555	649	574	580	658	581
Rubi.....	596	697	658	522	513	641	656	580	633	512	547	637	610
Valencia Americana.....	576	583	553	468	611	686	609	586	648	597	574	704	615
Seleta.....	NA	828	NA	NA	NA	NA	NA	NA	616	427	540	NA	603
Pineapple.....	487	603	NA	529	762	573	619	698	646	NA	564	711	667
Alvorada.....	NA	NA	NA	NA	654	NA	656	NA	555	545	600	639	639
<b>Average.....</b>	<b>574</b>	<b>564</b>	<b>593</b>	<b>478</b>	<b>629</b>	<b>678</b>	<b>619</b>	<b>618</b>	<b>622</b>	<b>551</b>	<b>534</b>	<b>678</b>	<b>608</b>
<b>Mid-season</b>													
Pera Rio.....	567	586	596	441	524	649	606	581	598	609	579	680	586
<b>Average.....</b>	<b>567</b>	<b>586</b>	<b>596</b>	<b>441</b>	<b>524</b>	<b>649</b>	<b>606</b>	<b>581</b>	<b>598</b>	<b>609</b>	<b>579</b>	<b>680</b>	<b>586</b>
<b>Late</b>													
Valencia.....	506	517	474	477	596	667	628	675	613	545	578	692	594
VFolha Murcha <sup>14</sup> .....	560	548	603	429	583	639	617	624	619	613	667	655	617
Natal.....	569	626	726	481	610	723	547	509	655	658	672	700	642
<b>Average.....</b>	<b>519</b>	<b>546</b>	<b>527</b>	<b>476</b>	<b>602</b>	<b>684</b>	<b>612</b>	<b>626</b>	<b>629</b>	<b>590</b>	<b>616</b>	<b>687</b>	<b>611</b>
<b>Average.....</b>	<b>554</b>	<b>567</b>	<b>562</b>	<b>450</b>	<b>581</b>	<b>669</b>	<b>611</b>	<b>599</b>	<b>614</b>	<b>593</b>	<b>582</b>	<b>682</b>	<b>599</b>

NA Not available

<sup>1</sup> Weighted average density per stratum area. Calculation for groves over 2 years of age considers the total trees of the plot, that is, bearing and non-bearing trees (resets of 2021 and 2022)<sup>2</sup> TMG – Triângulo Mineiro<sup>3</sup> BEB – Bebedouro<sup>4</sup> ALT – Altinópolis<sup>5</sup> VOT – Votuporanga<sup>6</sup> SJO – São José do Rio Preto<sup>7</sup> MAT – Matão<sup>8</sup> DUA – Duartina<sup>9</sup> BRO – Brotas<sup>10</sup> PFE – Porto Ferreira<sup>11</sup> LIM – Limeira<sup>12</sup> AVA – Avaré<sup>13</sup> ITG – Itapetininga

<sup>14</sup> V.Folha Murcha – Valencia Folha Murcha**Table 77 – Oranges: Density<sup>1</sup> of groves over 10 years old by variety and region [2023 inventory]**

Variety	Region												Average
	TMG <sup>2</sup>	BEB <sup>3</sup>	ALT <sup>4</sup>	VOT <sup>5</sup>	SJO <sup>6</sup>	MAT <sup>7</sup>	DUA <sup>8</sup>	BRO <sup>9</sup>	PFE <sup>10</sup>	LIM <sup>11</sup>	AVA <sup>12</sup>	ITG <sup>13</sup>	
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
<b>Early</b>													
Hamlin.....	390	412	422	514	434	460	418	431	426	426	440	423	424
Westin.....	491	438	447	443	477	351	432	345	457	438	443	387	441
Rubi.....	457	536	502	527	540	502	523	NA	452	439	415	457	475
Valencia Americana.....	474	543	544	482	458	398	480	381	416	448	420	595	463
Seleta.....	NA	NA	NA	NA	NA	NA	572	NA	480	453	NA	510	515
Pineapple.....	NA	522	NA	552	503	493	650	NA	620	427	486	617	553
Alvorada.....	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Average.....</b>	<b>398</b>	<b>449</b>	<b>442</b>	<b>502</b>	<b>451</b>	<b>445</b>	<b>443</b>	<b>416</b>	<b>436</b>	<b>431</b>	<b>434</b>	<b>476</b>	<b>439</b>
<b>Mid-season</b>													
Pera Rio.....	531	520	456	448	510	497	480	464	513	508	495	555	498
<b>Average.....</b>	<b>531</b>	<b>520</b>	<b>456</b>	<b>448</b>	<b>510</b>	<b>497</b>	<b>480</b>	<b>464</b>	<b>513</b>	<b>508</b>	<b>495</b>	<b>555</b>	<b>498</b>
<b>Late</b>													
Valencia.....	445	433	462	544	438	464	451	452	445	424	481	609	461
VFolha Murcha <sup>14</sup> .....	529	515	509	534	520	556	535	467	483	423	558	597	510
Natal.....	424	405	439	461	365	427	446	399	403	440	474	529	446
<b>Average.....</b>	<b>440</b>	<b>434</b>	<b>462</b>	<b>525</b>	<b>433</b>	<b>463</b>	<b>458</b>	<b>445</b>	<b>443</b>	<b>426</b>	<b>483</b>	<b>580</b>	<b>462</b>
<b>Average.....</b>	<b>451</b>	<b>458</b>	<b>456</b>	<b>468</b>	<b>454</b>	<b>468</b>	<b>462</b>	<b>443</b>	<b>465</b>	<b>452</b>	<b>475</b>	<b>556</b>	<b>467</b>

NA Not available

<sup>1</sup> Weighted average density per stratum area. Calculation for groves over 2 years of age considers the total trees of the plot, that is, bearing and non-bearing trees (resets of 2021 and 2022)<sup>2</sup> TMG – Triângulo Mineiro<sup>3</sup> BEB – Bebedouro<sup>4</sup> ALT – Altinópolis<sup>5</sup> VOT – Votuporanga<sup>6</sup> SJO – São José do Rio Preto<sup>7</sup> MAT – Matão<sup>8</sup> DUA – Duartina<sup>9</sup> BRO – Brotas<sup>10</sup> PFE – Porto Ferreira<sup>11</sup> LIM – Limeira<sup>12</sup> AVA – Avaré<sup>13</sup> ITG – Itapetininga<sup>14</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 78 – Oranges: Density<sup>1</sup> of groves by planting year [2023 inventory]**

Planting year <sup>2</sup>	Density
	(trees/hectare)
1979 and previous years.....	342
1980.....	294
1981.....	459
1982.....	419
1983.....	381
1984.....	509
1985.....	299
1986.....	342
1987.....	327
1988.....	381
1989.....	328
1990.....	372
1991.....	355
1992.....	372
1993.....	375
1994.....	379
1995.....	416
1996.....	391
1997.....	399
1998.....	422
1999.....	375
2000.....	388
2001.....	418
2002.....	414
2003.....	403
2004.....	415
2005.....	434
2006.....	438
2007.....	473
2008.....	499
2009.....	490
2010.....	515
2011.....	539
2012.....	556
2013.....	596
2014.....	625
2015.....	620
2016.....	627
2017.....	649
2018.....	615
2019.....	587
2020.....	591
<b>Mature groves.....</b>	<b>516</b>
2021.....	584
2022.....	567
<b>Young groves.....</b>	<b>574</b>
<b>Average.....</b>	<b>523</b>

<sup>1</sup> Weighted average density per stratum area. Calculation for groves over 2 years of age considers the total trees of the plot, that is, bearing and non-bearing trees (resets of 2021 and 2022)

<sup>2</sup> Information per planting year considers the year the original plot was planted and refers to remaining groves at the time data were collected to take inventory. Therefore, information does not depict the totality of groves established in such years, since eradication and renovation occurred along time

**Table 79 – Oranges: Area of irrigated and non-irrigated groves and of groves with no information on irrigation, by sector and region [2022 and 2023 inventories]**

Sector and region	2022 inventory		2023 inventory	
	Irrigated area	Non-irrigated area or without irrigation information	Irrigated Area <sup>1</sup>	Non-irrigated area or without irrigation information
	(hectares)	(hectares)	(hectares)	(hectares)
<b>North</b>				
Triângulo Mineiro.....	23,959	3,533	24,242	3,997
Bebedouro.....	36,751	12,997	36,599	13,345
Altinópolis.....	582	10,854	831	11,338
<b>Subtotal .....</b>	<b>61,292</b>	<b>27,384</b>	<b>61,671</b>	<b>28,681</b>
<b>Northwest</b>				
Votuporanga.....	12,337	5,014	11,343	5,055
São José do Rio Preto.....	11,451	9,685	11,733	9,177
<b>Subtotal.....</b>	<b>23,788</b>	<b>14,699</b>	<b>23,076</b>	<b>14,232</b>
<b>Central</b>				
Matão.....	20,097	13,585	20,806	14,882
Duartina.....	10,321	51,325	10,418	50,028
Brotas.....	2,760	9,329	2,584	8,986
<b>Subtotal.....</b>	<b>33,178</b>	<b>74,239</b>	<b>33,809</b>	<b>73,895</b>
<b>South</b>				
Porto Ferreira.....	9,646	27,736	9,437	27,482
Limeira.....	7,396	25,882	7,322	24,261
<b>Subtotal.....</b>	<b>17,042</b>	<b>53,618</b>	<b>16,758</b>	<b>51,744</b>
<b>Southwest</b>				
Avaré.....	4,891	52,932	5,018	53,821
Itapetininga.....	392	23,618	453	24,475
<b>Subtotal .....</b>	<b>5,283</b>	<b>76,550</b>	<b>5,471</b>	<b>78,296</b>
<b>Total.....</b>	<b>140,583</b>	<b>246,490</b>	<b>140,786</b>	<b>246,847</b>
<b>Percentage.....</b>	<b>36.32</b>	<b>63.68</b>	<b>36.32</b>	<b>63.68</b>

<sup>1</sup> Based on the same proportions of irrigated area and area in the rainfed system identified in the 2022 mapping, the complete data will be updated in the next mapping, scheduled to begin in the second half of 2024, aiming at the preparation of the 2025 inventory

**Table 80 – Oranges: Area of irrigated and non-irrigated groves and of groves with no information on irrigation, by variety [2022 and 2023 inventories]**

Variety	2022 inventory		2023 inventory	
	Irrigated area	Non-irrigated area or without irrigation information	Irrigated area	Non-irrigated area or without irrigation information
	(hectares)	(hectares)	(hectares)	(hectares)
<b>Early</b>				
Hamlin.....	18,651	29,478	18,240	29,828
Westin.....	1,455	4,473	1,452	4,589
Rubi.....	2,841	5,828	2,770	5,861
Valencia Americana.....	6,613	13,208	6,948	13,553
Seleta.....	0	93	-	90
Pineapple.....	963	1,302	967	1,272
Alvorada.....	130	391	201	592
<b>Subtotal.....</b>	<b>30,653</b>	<b>54,773</b>	<b>30,578</b>	<b>55,785</b>
<b>Mid-season</b>				
Pera Rio .....	50,855	87,005	50,839	86,465
<b>Subtotal.....</b>	<b>50,855</b>	<b>87,005</b>	<b>50,839</b>	<b>86,465</b>
<b>Late</b>				
Valencia.....	38,135	66,007	38,890	66,815
Valencia Folha Murcha.....	4,731	12,654	4,811	12,784
Natal.....	16,209	26,051	15,669	24,997
<b>Subtotal.....</b>	<b>59,075</b>	<b>104,712</b>	<b>59,369</b>	<b>104,597</b>
<b>Total.....</b>	<b>140,583</b>	<b>246,490</b>	<b>140,786</b>	<b>246,847</b>

**Table 81– Oranges: Area of irrigated and non-irrigated groves and of groves with no information on irrigation, by age groups [2022 and 2023 inventories]**

Grove age	2022 inventory		2023 inventory	
	Irrigated area	Non-irrigated area or without irrigation information	Irrigated area	Non-irrigated area or without irrigation information
	(hectares)	(hectares)	(hectares)	(hectares)
1 – 2 years.....	6,804	35,880	9,382	41,160
3 – 5 years.....	17,178	34,331	17,967	38,458
6 – 10 years.....	34,337	32,962	28,774	29,623
Over 10 years.....	82,264	143,317	84,663	137,606
<b>Total.....</b>	<b>140,583</b>	<b>246,490</b>	<b>140,786</b>	<b>246,847</b>

**Table 82 – Oranges: Area of irrigated groves by irrigation method [2022 and 2023 inventories]**

Irrigation method	2022 inventory		2023 inventory	
	Irrigated area	Percentage	Irrigated area	Percentage
	(hectares)	(%)	(hectares)	(%)
Sprinkling.....	8,546	6.08	8,559	6.08
Localized.....	132,037	93.92	132,228	93.92
<b>Total.....</b>	<b>140,583</b>	<b>100.00</b>	<b>140,786</b>	<b>100.00</b>

<sup>1</sup> Based on the same proportions of irrigated area and area in the rainfed system identified in the 2022 mapping, the complete data will be updated in the next mapping, scheduled to begin in the second half of 2024, aiming at the preparation of the 2025 inventory

**Table 83 – Oranges: Average age<sup>1</sup> of mature groves by sector and region [2015 to 2023 inventories]**

Sector and region	Inventory								
	2015 <sup>2</sup>	2016 <sup>3</sup>	2017 <sup>4</sup>	2018 <sup>5</sup>	2019 <sup>6</sup>	2020 <sup>7</sup>	2021 <sup>8</sup>	2022 <sup>9</sup>	2023 <sup>10</sup>
	(years)	(years)	(years)	(years)	(years)	(years)	(years)	(years)	(years)
<b>North</b>									
Triângulo Mineiro.....	11.1	7.8	8.6	9.3	10.0	10.5	11.1	11.5	11.6
Bebedouro.....	9.2	9.5	10.1	10.6	10.9	11.2	11.5	11.7	11.7
Altinópolis.....	9.5	10.3	11.0	11.6	12.0	12.8	12.9	14.3	13.0
<b>Average.....</b>	<b>9.6</b>	<b>9.1</b>	<b>9.8</b>	<b>10.3</b>	<b>10.8</b>	<b>11.2</b>	<b>11.5</b>	<b>12.0</b>	<b>11.8</b>
<b>Northwest</b>									
Votuporanga.....	7.9	8.3	8.9	9.5	10.1	9.5	9.1	9.0	8.8
São José do Rio Preto	8.0	8.0	7.9	8.5	8.3	8.7	9.2	9.1	9.3
<b>Average.....</b>	<b>7.9</b>	<b>8.2</b>	<b>8.3</b>	<b>8.9</b>	<b>9.0</b>	<b>9.0</b>	<b>9.1</b>	<b>9.1</b>	<b>9.1</b>
<b>Central</b>									
Matão.....	9.3	8.9	9.4	9.0	9.2	9.8	10.0	8.9	8.5
Duartina.....	9.6	9.3	9.8	9.5	10.1	10.3	10.2	9.5	9.4
Brotas.....	7.6	10.9	11.5	12.7	13.3	13.8	13.1	11.0	11.5
<b>Average.....</b>	<b>9.0</b>	<b>9.4</b>	<b>9.9</b>	<b>9.8</b>	<b>10.3</b>	<b>10.6</b>	<b>10.5</b>	<b>9.5</b>	<b>9.3</b>
<b>South</b>									
Porto Ferreira.....	10.2	9.9	10.6	11.4	11.6	11.8	11.5	10.8	10.5
Limeira.....	10.6	11.7	12.5	12.1	12.7	12.9	13.1	11.7	12.3
<b>Average.....</b>	<b>10.3</b>	<b>10.8</b>	<b>11.6</b>	<b>11.8</b>	<b>12.1</b>	<b>12.3</b>	<b>12.3</b>	<b>11.2</b>	<b>11.3</b>
<b>Southwest</b>									
Avaré.....	11.7	10.7	11.6	12.2	12.9	13.1	12.7	12.7	12.6
Itapetininga.....	11.2	10.6	10.5	9.5	9.3	9.0	8.6	9.1	9.4
<b>Average.....</b>	<b>11.5</b>	<b>10.7</b>	<b>11.3</b>	<b>11.4</b>	<b>11.8</b>	<b>11.8</b>	<b>11.4</b>	<b>11.5</b>	<b>11.5</b>
<b>Average.....</b>	<b>9.8</b>	<b>9.8</b>	<b>10.3</b>	<b>10.5</b>	<b>10.9</b>	<b>11.2</b>	<b>11.1</b>	<b>10.8</b>	<b>10.7</b>

<sup>1</sup> Average age weighted by sector trees<sup>2</sup> Groves planted in 2012 and previous years<sup>3</sup> Groves planted in 2013 and previous years<sup>4</sup> Groves planted in 2014 and previous years<sup>5</sup> Groves planted in 2015 and previous years<sup>6</sup> Groves planted in 2016 and previous years<sup>7</sup> Groves planted in 2017 and previous years<sup>8</sup> Groves planted in 2018 and previous years<sup>9</sup> Groves planted in 2019 and previous years<sup>10</sup> Groves planted in 2020 and previous years

**Table 84 – Oranges: Area of eradicated groves, eradication and renovation rates by sector and region [2022 and 2023 inventories]**

Sector e region	2022 inventory		2023 inventory			
	Estimated eradication from April 2021 to March 2022		Estimated eradication from April 2022 to March 2023		Accumulated renovation from April 2022 to March 2023	Net loss due to eradication from April 2022 to March 2023
	Area	Rate	Area	Rate	Area	Area
	(hectares)	(%)	(hectares)	(%)	(hectares)	(hectares)
<b>North</b>						
Triângulo Mineiro..	-528	-1.91	-1,056	-3.84	974	-82
Bebedouro.....	-3,512	-6.71	-2,591	-5.21	2,447	-144
Altinópolis.....	-1	-0.01	-834	-7.29	775	-59
<b>Subtotal.....</b>	<b>-4,041</b>	<b>-4.40</b>	<b>-4,481</b>	<b>-5.05</b>	<b>4,197</b>	<b>-284</b>
<b>Northwest</b>						
Votuporanga.....	-1,513	-10.22	-2,532	-14.59	1,468	-1,064
S. J. Rio Preto.....	-3,443	-14.05	-1,473	-6.97	1,427	-46
<b>Subtotal</b>	<b>-4,956</b>	<b>-12.61</b>	<b>-4,005</b>	<b>-10.41</b>	<b>2,895</b>	<b>-1,110</b>
<b>Central</b>						
Matão.....	-5,371	-14.72	-2,656	-7.89	2,524	-132
Duartina.....	-2,923	-5.27	-4,662	-7.56	3,595	-1,068
Brotas.....	-2,856	-17.30	-1,138	-9.41	505	-633
<b>Subtotal.....</b>	<b>-11,150</b>	<b>-10.28</b>	<b>-8,456</b>	<b>-7.87</b>	<b>6,624</b>	<b>-1,832</b>
<b>South</b>						
Porto Ferreira.....	-1,283	-3.47	-3,423	-9.16	2,394	-1,029
Limeira.....	-6,266	-17.70	-2,345	-7.05	1,287	-1,059
<b>Subtotal.....</b>	<b>-7,549</b>	<b>-10.43</b>	<b>-5,768</b>	<b>-8.16</b>	<b>3,681</b>	<b>-2,087</b>
<b>Southwest</b>						
Avaré.....	-1,486	-2.72	-2,726	-4.71	2,478	-248
Itapetininga.....	- 421	-2.05	-410	-1.71	293	-117
<b>Subtotal.....</b>	<b>-1,907</b>	<b>-2.54</b>	<b>-3,136</b>	<b>-3.83</b>	<b>2,772</b>	<b>-364</b>
<b>Total.....</b>	<b>-29,603</b>	<b>-7.65</b>	<b>-25,847</b>	<b>-6.68</b>	<b>20,169</b>	<b>-5,678</b>

**Table 85 – Oranges: Area of eradicated groves, eradication and renovation rates by variety [2022 and 2023 inventories]**

Variety	2022 inventory		2023 inventory			
	Estimated eradication from April 2021 to March 2022		Estimated eradication from April 2022 to March 2023		Accumulated renovation from April 2022 to March 2023	Net loss due to eradication from April 2022 to March 2023
	Area	Rate	Area	Rate	Area	Area
	(hectares)	(%)	(hectares)	(%)	(hectares)	(hectares)
Hamlin, Westin and Rubi.....	-2,719	-4.32	-4,278	-6.82	3,127	-1,150
Other earlies.....	-1,580	-7.22	-1,245	-5.48	1,232	-13
Pera Rio.....	-8,254	-6.22	-10,089	-7.32	8,196	-1,893
Valência and V. Folha Murcha.....	-6,852	-5.47	-7,345	-6.04	6,674	-671
Natal.....	-10,198	-22.97	-2,890	-6.84	940	-1,949
<b>Total.....</b>	<b>-29,603</b>	<b>-7.65</b>	<b>-25,847</b>	<b>-6.68</b>	<b>20,169</b>	<b>-5,678</b>

**Table 86 – Oranges: Area of eradicated groves, eradication and renovation rates by age group [2022 and 2023 inventories]**

Age	2022 inventory		2023 inventory			
	Estimated eradication from April 2021 to March 2022		Estimated eradication from April 2022 to March 2023		Accumulated renovation from April 2022 to March 2023	Net loss due to eradication from April 2022 to March 2023
	Area	Rate	Area	Rate	Area	Area
	(hectares)	(%)	(hectares)	(%)	(hectares)	(hectares)
1 – 2 years.....	-	-	-	-	-	-
3 – 5 years.....	-432	-1.19	-2,212	-4.29	119	-2,093
6 – 10 years.....	-3,716	-4.92	-2,747	-4.08	317	-2,430
Over 10 years.....	-25,455	-10.86	-20,888	-9.26	19,733	-1,155
<b>Total.....</b>	<b>-29,603</b>	<b>-7.65</b>	<b>-25,847</b>	<b>-6.68</b>	<b>20,169</b>	<b>-5,678</b>

**Table 87 – Oranges: Area of eradicated groves and eradication rate stratified by farm size, considering the number of orange trees on the farm [2022 and 2023 inventories]**

Range of the number of orange trees in the farm	2022 inventory		2023 inventory			
	Estimated eradication from April 2021 to March 2022		Estimated eradication from April 2022 to March 2023		Accumulated renovation from April 2022 to March 2023	Net loss due to eradication from April 2022 to March 2023
	Area	Rate	Area	Rate	Area	Area
(1,000 trees)	(hectares)	(%)	(hectares)	(%)	(hectares)	(hectares)
Below 10.....	-10,463	-30.13	-2,708	-11.07	2,113	-595
10 – 19.....	-3,750	-16.57	-1,516	-7.97	1,183	-333
20 – 29.....	-1,498	-8.22	-1,272	-8.32	993	-279
30 – 49.....	-3,761	-14.87	-1,658	-6.82	1,294	-364
50 – 99.....	-3,018	-6.97	-3,568	-7.94	2,785	-784
100 – 199.....	-423	-1.01	-10,394	-20.76	8,111	-2,283
Above 200.....	-6,690	-3.32	-4,730	-2.26	3,691	-1,039
<b>Total.....</b>	<b>-29,603</b>	<b>-7.65</b>	<b>-25,847</b>	<b>-6.68</b>	<b>20,169</b>	<b>-5,678</b>

**Table 88 – Oranges: Dead trees and mortality rate by sector and region [2018 to 2023 inventories]**

Sector and region	2018 inventory		2019 inventory		2020 inventory		2021 inventory		2022 inventory		2023 inventory	
	Trees	Rate	Trees	Rate	Trees	Rate	Trees	Rate	Trees	Rate	Trees	Rate
	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(%)
<b>North</b>												
Triângulo Mineiro.....	66.98	0.52	83.17	0.63	107.29	0.81	91.87	0.69	83.76	0.62	122.14	0.87
Bebedouro.....	249.00	0.99	210.41	0.79	356.64	1.33	156.23	0.60	335.79	1.30	321.61	1.23
Altinópolis.....	79.60	1.34	136.30	2.28	111.57	1.82	148.42	2.39	159.03	2.61	260.64	4.00
<b>Subtotal.....</b>	<b>395.58</b>	<b>0.90</b>	<b>429.88</b>	<b>0.94</b>	<b>575.50</b>	<b>1.25</b>	<b>396.52</b>	<b>0.87</b>	<b>578.58</b>	<b>1.27</b>	<b>704.39</b>	<b>1.50</b>
<b>Northwest</b>												
Votuporanga.....	150.03	1.61	271.07	3.15	168.83	2.09	158.17	2.28	254.00	3.04	91.77	1.16
S. J. do Rio Preto.....	155.17	1.31	133.46	1.06	240.50	1.83	257.88	1.94	231.32	2.11	195.46	1.73
<b>Subtotal.....</b>	<b>305.20</b>	<b>1.45</b>	<b>404.53</b>	<b>1.91</b>	<b>409.33</b>	<b>1.93</b>	<b>416.05</b>	<b>2.06</b>	<b>485.32</b>	<b>2.52</b>	<b>287.23</b>	<b>1.49</b>
<b>Central</b>												
Matão.....	166.99	0.78	305.46	1.47	611.65	2.95	284.74	1.39	268.75	1.37	180.15	0.81
Duartina.....	324.49	1.13	342.38	1.20	609.85	2.07	682.31	2.26	580.44	1.62	624.14	1.79
Brotas.....	204.18	2.14	200.96	2.11	204.00	2.22	162.82	1.97	129.18	2.01	164.71	2.60
<b>Subtotal.....</b>	<b>695.66</b>	<b>1.17</b>	<b>848.80</b>	<b>1.44</b>	<b>1,425.50</b>	<b>2.40</b>	<b>1,129.87</b>	<b>1.92</b>	<b>978.37</b>	<b>1.58</b>	<b>969.00</b>	<b>1.53</b>
<b>South</b>												
Porto Ferreira.....	312.34	1.49	186.46	0.90	282.42	1.30	301.27	1.47	233.59	1.13	176.62	0.84
Limeira.....	474.32	2.31	318.00	1.67	493.21	2.56	263.79	1.43	414.62	2.27	312.75	1.83
<b>Subtotal.....</b>	<b>786.66</b>	<b>1.90</b>	<b>504.46</b>	<b>1.27</b>	<b>775.63</b>	<b>1.89</b>	<b>565.06</b>	<b>1.45</b>	<b>648.21</b>	<b>1.66</b>	<b>489.37</b>	<b>1.29</b>
<b>Southwest</b>												
Avaré.....	574.08	1.95	307.15	1.03	913.55	3.07	527.93	1.77	291.66	0.93	424.37	1.31
Itapetininga.....	89.30	0.80	156.52	1.27	295.53	2.26	72.05	0.54	91.63	0.60	133.20	0.82
<b>Subtotal.....</b>	<b>663.38</b>	<b>1.63</b>	<b>463.67</b>	<b>1.10</b>	<b>1,209.08</b>	<b>2.83</b>	<b>599.98</b>	<b>1.39</b>	<b>383.29</b>	<b>0.82</b>	<b>557.57</b>	<b>1.15</b>
<b>Total.....</b>	<b>2,846.48</b>	<b>1.38</b>	<b>2,651.34</b>	<b>1.28</b>	<b>4,395.04</b>	<b>2.09</b>	<b>3,107.48</b>	<b>1.50</b>	<b>3,073.77</b>	<b>1.45</b>	<b>3,007.56</b>	<b>1.39</b>

**Table 89 – Oranges: Dead trees and mortality rate by variety [2018 to 2023 inventories]**

Variety	2018 inventory		2019 inventory		2020 inventory		2021 inventory		2022 inventory		2023 inventory	
	Trees	Rate	Trees	Rate	Trees	Trees	Rate	Trees	Rate	Trees	Rate	Trees
	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)
<b>Early</b>												
Hamlin.....	345.94	1.43	414.30	1.74	738.07	3.02	426.84	1.79	478.29	1.80	493.17	1.98
Westin.....	52.12	1.70	39.69	1.41	67.67	2.17	44.95	1.47	44.97	1.82	46.35	1.43
Rubi.....	51.98	1.18	77.06	1.70	132.33	2.86	74.51	1.55	54.74	1.46	74.04	1.47
Valência Americana..	79.05	0.92	88.18	0.93	256.13	2.73	152.41	1.44	132.12	1.19	114.93	0.95
Seleta.....	0.70	0.77	0.29	0.33	1.42	1.93	2.86	3.37	0.25	0.50	0.75	1.45
Pineapple.....	2.14	0.18	15.80	1.10	75.12	5.08	10.61	0.70	12.39	0.87	4.63	0.31
Alvorada.....	-	-	-	-	-	-	-	-	0.55	0.14	0.88	0.16
<b>Subtotal.....</b>	<b>531.93</b>	<b>1.28</b>	<b>635.32</b>	<b>1.50</b>	<b>1,270.7</b>	<b>2.94</b>	<b>712.18</b>	<b>1.62</b>	<b>723.31</b>	<b>1.58</b>	<b>734.75</b>	<b>1.55</b>
<b>Mid-season</b>												
Pera Rio.....	1,158.2	1.56	1,121.	1.48	1,690.1	2.22	1,299.4	1.72	1,201.	1.52	1,174.3	1.48
<b>Subtotal.....</b>	<b>1,158.2</b>	<b>1.56</b>	<b>1,121.</b>	<b>1.48</b>	<b>1,690.1</b>	<b>2.22</b>	<b>1,299.4</b>	<b>1.72</b>	<b>1,201.</b>	<b>1.52</b>	<b>1,174.3</b>	<b>1.48</b>
<b>Late</b>												
Valência.....	713.58	1.22	627.73	1.09	873.03	1.51	719.22	1.30	797.99	1.45	812.31	1.44
V. Folha Murcha.....	115.50	1.25	97.94	1.10	105.32	1.13	112.09	1.25	120.02	1.26	116.03	1.11
Natal.....	327.19	1.42	169.20	0.73	455.84	1.90	264.58	1.13	231.04	1.01	170.15	0.75
<b>Subtotal.....</b>	<b>1,156.2</b>	<b>1.28</b>	<b>894.87</b>	<b>1.00</b>	<b>1,434.1</b>	<b>1.57</b>	<b>1,095.8</b>	<b>1.25</b>	<b>1,149.</b>	<b>1.32</b>	<b>1,098.4</b>	<b>1.23</b>
<b>Total.....</b>	<b>2,846.4</b>	<b>1.38</b>	<b>2,651.</b>	<b>1.28</b>	<b>4,395.0</b>	<b>2.09</b>	<b>3,107.4</b>	<b>1.50</b>	<b>3,073.</b>	<b>1.45</b>	<b>3,007.5</b>	<b>1.39</b>

**Table 90 – Oranges: Dead trees and mortality rate by age group [2018 to 2023 inventory]**

Age groves	2018 inventory		2019 inventory		2020 inventory		2021 inventory		2022 inventory		2023 inventory	
	Trees	Rate	Trees	Rate	Trees	Trees	Rate	Trees	Rate	Trees	Rate	Trees
	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)	(%)	(1,000 trees)
1 – 2 years .....	25.27	0.17	11.63	0.07	24.19	0.12	30.86	0.13	114.99	0.45	67.55	0.23
3 – 5 years .....	42.84	0.18	39.85	0.19	176.36	0.77	29.55	0.12	56.95	0.18	41.25	0.12
6 – 10 years.....	554.35	0.80	393.97	0.66	682.32	1.28	309.48	0.66	296.05	0.71	123.94	0.33
Over 10 years.....	2,224.02	2.29	2,205.89	2.00	3,512.17	3.06	2,737.59	2.45	2,605.78	2.32	2,774.82	2.44
<b>Total.....</b>	<b>2,846.48</b>	<b>1.38</b>	<b>2,651.34</b>	<b>1.28</b>	<b>4,395.04</b>	<b>2.09</b>	<b>3,107.48</b>	<b>1.50</b>	<b>3,073.77</b>	<b>1.45</b>	<b>3,007.56</b>	<b>1.39</b>

**Table 91 – Oranges: Vacancies by sector and region [2018 to 2023 inventories]**

Sector and region	2018 inventory		2019 inventory		2020 inventory		2021 inventory		2022 inventory		2023 inventory	
	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate
	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)
<b>North</b>												
Triângulo Mineiro.....	165.42	1.29	116.91	0.89	234.72	1.78	224.03	1.67	307.26	2.26	280.92	2.00
Bebedouro.....	783.02	3.12	852.32	3.22	872.17	3.25	741.00	2.82	956.36	3.72	901.12	3.43
Altinópolis.....	230.29	3.89	161.83	2.71	263.84	4.30	303.63	4.88	326.52	5.35	362.76	5.57
<b>Subtotal.....</b>	<b>1,178.73</b>	<b>2.69</b>	<b>1,131.06</b>	<b>2.48</b>	<b>1,370.73</b>	<b>2.97</b>	<b>1,268.66</b>	<b>2.77</b>	<b>1,590.14</b>	<b>3.50</b>	<b>1,544.80</b>	<b>3.30</b>
<b>Northwest</b>												
Votuporanga.....	314.99	3.39	356.90	4.15	364.63	4.52	241.71	3.48	274.2	3.29	316.42	4.00
S. J. do Rio Preto.....	437.31	3.70	427.31	3.41	533.09	4.06	522.77	3.93	485.15	4.43	350.39	3.09
<b>Subtotal.....</b>	<b>752.30</b>	<b>3.56</b>	<b>784.21</b>	<b>3.71</b>	<b>897.72</b>	<b>4.24</b>	<b>764.48</b>	<b>3.78</b>	<b>759.35</b>	<b>3.94</b>	<b>666.81</b>	<b>3.47</b>
<b>Central</b>												
Matão.....	1,121.38	5.27	1,333.33	6.41	1,022.83	4.93	1,428.07	6.96	1,077.32	5.50	1,270.59	5.72
Dartina.....	1,412.58	4.93	1,508.27	5.27	1,201.20	4.08	1,676.98	5.56	1,813.07	5.07	1,744.18	5.00
Brotas.....	545.29	5.72	582.93	6.13	432.25	4.70	497.99	6.03	397.54	6.20	352.23	5.57
<b>Subtotal.....</b>	<b>3,079.25</b>	<b>5.18</b>	<b>3,424.53</b>	<b>5.81</b>	<b>2,656.28</b>	<b>4.47</b>	<b>3,603.04</b>	<b>6.11</b>	<b>3,287.93</b>	<b>5.33</b>	<b>3,367.00</b>	<b>5.31</b>
<b>South</b>												
Porto Ferreira.....	1,185.73	5.66	1,117.48	5.40	1,136.22	5.24	1,045.93	5.12	828.73	4.00	1,047.45	5.00
Limeira.....	1,045.33	5.10	1,113.70	5.84	931.81	4.83	861.54	4.68	1,004.63	5.51	864.46	5.06
<b>Subtotal.....</b>	<b>2,231.06</b>	<b>5.38</b>	<b>2,231.18</b>	<b>5.61</b>	<b>2,068.03</b>	<b>5.05</b>	<b>1,907.47</b>	<b>4.91</b>	<b>1,833.36</b>	<b>4.71</b>	<b>1,911.91</b>	<b>5.03</b>
<b>Southwest</b>												
Avaré.....	1,709.49	5.79	1,737.32	5.84	1,150.69	3.87	1,745.05	5.85	1,857.96	5.93	2,083.22	6.45
Itapetininga.....	331.40	2.96	261.77	2.12	248.64	1.91	341.57	2.58	448.3	2.91	714.37	4.37
<b>Subtotal.....</b>	<b>2,040.89</b>	<b>5.02</b>	<b>1,999.09</b>	<b>4.75</b>	<b>1,399.33</b>	<b>3.27</b>	<b>2,086.62</b>	<b>4.84</b>	<b>2,306.26</b>	<b>4.93</b>	<b>2,797.59</b>	<b>5.75</b>
<b>Total.....</b>	<b>9,282.23</b>	<b>4.49</b>	<b>9,570.07</b>	<b>4.61</b>	<b>8,392.09</b>	<b>3.99</b>	<b>9,630.27</b>	<b>4.65</b>	<b>9,777.04</b>	<b>4.61</b>	<b>10,288.1</b>	<b>4.76</b>

**Table 92 – Oranges: Vacancies by variety [2018 to 2023 inventories]**

Variety	2018 inventory		2019 inventory		2020 inventory		2021 inventory		2022 inventory		2023 inventory	
	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate
	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)
<b>Early</b>												
Hamlin.....	1,176.62	4.85	1,288.55	5.40	1,109.18	4.53	1,499.49	6.30	1,559.97	5.88	1,443.06	5.80
Westin.....	176.84	5.76	154.40	5.49	148.63	4.76	184.16	6.01	129.72	5.26	178.02	5.50
Rubi.....	199.44	4.54	218.92	4.84	207.90	4.49	315.50	6.55	164.57	4.39	319.82	6.35
Val. Americana.....	548.96	6.40	646.45	6.81	382.52	4.07	623.92	5.88	562.72	5.08	689.08	5.71
Seleta.....	4.77	5.24	4.68	5.33	5.53	7.53	6.51	7.67	2.21	4.45	2.96	5.72
Pineapple.....	27.24	2.33	21.58	1.50	20.99	1.42	65.51	4.34	86.91	6.07	86.04	5.85
Alvorada.....	-	-	-	-	-	-	-	-	8.43	2.16	28.34	5.28
<b>Subtotal.....</b>	<b>2,133.87</b>	<b>5.14</b>	<b>2,334.58</b>	<b>5.53</b>	<b>1,874.75</b>	<b>4.34</b>	<b>2,695.09</b>	<b>6.14</b>	<b>2,514.53</b>	<b>5.50</b>	<b>2,747.32</b>	<b>5.81</b>
<b>Mid-season</b>												
Pera Rio.....	3,122.28	4.20	3,264.58	4.31	3,249.25	4.26	3,127.90	4.15	3,488.39	4.40	3,537.61	4.45
<b>Subtotal.....</b>	<b>3,122.28</b>	<b>4.20</b>	<b>3,264.58</b>	<b>4.31</b>	<b>3,249.25</b>	<b>4.26</b>	<b>3,127.90</b>	<b>4.15</b>	<b>3,488.39</b>	<b>4.40</b>	<b>3,537.61</b>	<b>4.45</b>
<b>Late</b>												
Valência.....	2,563.32	4.39	2,484.80	4.32	1,919.37	3.32	2,246.68	4.05	2,275.19	4.14	2,325.02	4.13
V.Folha Murcha.....	396.72	4.31	412.50	4.62	395.37	4.26	345.16	3.85	393.94	4.13	371.47	3.56
Natal.....	1,066.04	4.62	1,073.61	4.65	953.35	3.97	1,215.44	5.21	1,104.99	4.85	1,306.69	5.77
<b>Subtotal.....</b>	<b>4,026.08</b>	<b>4.44</b>	<b>3,970.91</b>	<b>4.44</b>	<b>3,268.09</b>	<b>3.59</b>	<b>3,807.28</b>	<b>4.34</b>	<b>3,774.12</b>	<b>4.33</b>	<b>4,003.18</b>	<b>4.48</b>
<b>Total.....</b>	<b>9,282.23</b>	<b>4.49</b>	<b>9,570.07</b>	<b>4.61</b>	<b>8,392.09</b>	<b>3.99</b>	<b>9,630.27</b>	<b>4.65</b>	<b>9,777.04</b>	<b>4.61</b>	<b>10,288.1</b>	<b>4.76</b>

**Table 93 – Oranges: Vacancies by age group [2018 to 2023 inventories]**

Groves age	2018 inventory		2019 inventory		2020 inventory		2021 inventory		2022 inventory		2023 inventory	
	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate	Vacancies	Rate
	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)	(1,000 holes)	(%)
1 – 2 years .....	121.30	0.79	68.33	0.40	9.00	0.05	78.93	0.32	386.03	1.51	346.02	1.18
3 – 5 years .....	475.06	1.95	469.40	2.26	348.21	1.52	487.67	2.05	773.14	2.38	1,071.44	3.08
6 – 10 years.....	2,491.35	3.58	2,084.41	3.50	1,774.43	3.33	1,676.86	3.57	1,555.11	3.71	1,563.81	4.11
Over 10 years.....	6,194.52	6.37	6,947.93	6.30	6,260.45	5.45	7,386.81	6.61	7,062.76	6.29	7,306.84	6.42
<b>Total.....</b>	<b>9,282.23</b>	<b>4.49</b>	<b>9,570.07</b>	<b>4.61</b>	<b>8,392.09</b>	<b>3.99</b>	<b>9,630.27</b>	<b>4.65</b>	<b>9,777.04</b>	<b>4.61</b>	<b>10,288.1</b>	<b>4.76</b>

**Table 94 – Other oranges: Area and number of trees by region, variety and age [2023 inventory] (continues next page)**

Region and variety	Area	Trees 0 – 2 years			Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Total
		2021	2022	Resets				
	(hectares)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Triângulo Mineiro</b>								
Washington Navel and Baianinha.....	12	-	-	0.62	0.19	1.33	1.90	4.04
Charmute de Brotas.....	-	-	-	-	-	-	-	-
Acidless sweet oranges and sweet lime <sup>1</sup> .....	7	0.62	-	0.65	0.03	-	1.98	3.28
Other.....	16	-	4.20	0.20	0.02	0.05	1.03	5.50
<b>Subtotal.....</b>	<b>35</b>	<b>0.62</b>	<b>4.20</b>	<b>1.47</b>	<b>0.24</b>	<b>1.38</b>	<b>4.91</b>	<b>12.82</b>
<b>Bebedouro</b>								
Washington Navel and Baianinha.....	11	-	-	0.87	4.90	0.47	0.88	7.12
Charmute de Brotas.....	4	-	1.00	0.13	0.04	0.15	0.80	2.12
Acidless sweet oranges and sweet lime <sup>1</sup> .....	52	4.69	3.46	2.02	7.35	3.44	5.55	26.51
Other.....	173	0.38	32.79	6.42	56.75	0.84	6.51	103.69
<b>Subtotal.....</b>	<b>240</b>	<b>5.07</b>	<b>37.25</b>	<b>9.44</b>	<b>69.04</b>	<b>4.90</b>	<b>13.74</b>	<b>139.44</b>
<b>Altinópolis</b>								
Washington Navel and Baianinha.....	15	-	0.07	-	-	0.01	3.08	3.16
Charmute de Brotas.....	60	-	-	-	0.82	7.18	10.61	18.61
Acidless sweet oranges and sweet lime <sup>1</sup> .....	85	-	0.10	1.28	7.51	1.16	18.19	28.24
Other.....	4	-	-	0.01	0.08	-	1.10	1.19
<b>Subtotal.....</b>	<b>164</b>	<b>-</b>	<b>0.17</b>	<b>1.29</b>	<b>8.41</b>	<b>8.35</b>	<b>32.98</b>	<b>51.20</b>
<b>Votuporanga</b>								
Washington Navel and Baianinha.....	18	-	0.20	0.01	0.03	0.32	10.50	11.06
Charmute de Brotas.....	-	-	-	-	-	-	-	-
Acidless sweet oranges and sweet lime <sup>1</sup> .....	98	0.12	-	0.01	2.29	23.95	29.79	56.16
Other.....	4	-	-	-	-	1.84	-	1.84
<b>Subtotal.....</b>	<b>120</b>	<b>0.12</b>	<b>0.20</b>	<b>0.02</b>	<b>2.32</b>	<b>26.11</b>	<b>40.29</b>	<b>69.06</b>
<b>São José do Rio Preto</b>								
Washington Navel and Baianinha.....	10	-	-	-	0.17	5.37	-	5.54
Charmute de Brotas.....	-	-	-	-	-	-	-	-
Acidless sweet oranges and sweet lime <sup>1</sup> .....	26	-	1.45	0.41	1.49	1.38	7.99	12.72
Other.....	169	-	39.18	36.11	3.92	-	6.72	85.93
<b>Subtotal.....</b>	<b>205</b>	<b>-</b>	<b>40.63</b>	<b>36.52</b>	<b>5.58</b>	<b>6.75</b>	<b>14.71</b>	<b>104.19</b>
<b>Matão</b>								
Washington Navel and Baianinha.....	12	-	0.75	0.01	0.10	1.25	2.45	4.56
Charmute de Brotas.....	8	-	-	0.01	0.08	0.65	1.53	2.27
Acidless sweet oranges and sweet lime <sup>1</sup> .....	400	2.95	23.31	1.16	39.31	75.69	55.60	198.02
Other.....	117	23.17	4.10	0.12	21.03	40.34	3.00	91.76
<b>Subtotal.....</b>	<b>537</b>	<b>26.12</b>	<b>28.16</b>	<b>1.30</b>	<b>60.52</b>	<b>117.93</b>	<b>62.58</b>	<b>296.61</b>

**Table 94 – Other oranges: Area and number of trees by region, variety and age [2023 inventory] (continued)**

Region and variety	Area	Trees 0 – 2 years			Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Total
		2021	2022	Resets				
	(hectares)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
<b>Duartina</b>								
Washington Navel and Baianinha.....	110	-	11.45	2.14	35.03	7.38	18.24	74.24
Charmute de Brotas.....	197	-	0.47	1.98	13.90	20.78	47.79	84.92
Acidless sweet oranges and sweet lime <sup>2</sup> .....	512	-	6.48	6.65	38.29	86.14	165.86	303.42
Other.....	28	-	6.07	0.36	2.29	14.88	-	23.60
<b>Subtotal.....</b>	<b>847</b>	<b>-</b>	<b>24.47</b>	<b>11.13</b>	<b>89.51</b>	<b>129.18</b>	<b>231.89</b>	<b>486.18</b>
<b>Brotas</b>								
Washington Navel and Baianinha.....	65	-	13.38	0.60	15.46	1.62	2.76	33.82
Charmute de Brotas.....	90	-	-	0.88	3.03	4.44	25.15	33.50
Acidless sweet oranges and sweet lime <sup>2</sup> .....	308	-	28.60	6.51	28.31	30.68	46.52	140.62
Other.....	103	7.08	3.34	2.31	11.09	10.66	4.95	39.43
<b>Subtotal.....</b>	<b>566</b>	<b>7.08</b>	<b>45.32</b>	<b>10.30</b>	<b>57.89</b>	<b>47.40</b>	<b>79.38</b>	<b>247.37</b>
<b>Porto Ferreira</b>								
Washington Navel and Baianinha.....	396	28.80	0.23	7.01	27.17	119.19	67.66	250.06
Charmute de Brotas.....	209	0.98	-	4.20	7.42	34.09	60.56	107.25
Acidless sweet oranges and sweet lime <sup>2</sup> .....	1,600	5.46	62.93	30.83	75.56	323.88	412.45	911.11
Other.....	36	4.10	5.04	0.70	7.06	1.70	1.87	20.47
<b>Subtotal.....</b>	<b>2,241</b>	<b>39.34</b>	<b>68.20</b>	<b>42.74</b>	<b>117.21</b>	<b>478.86</b>	<b>542.54</b>	<b>1,288.89</b>
<b>Limeira</b>								
Washington Navel and Baianinha.....	654	18.64	21.73	19.30	83.99	124.26	85.57	353.49
Charmute de Brotas.....	331	3.33	6.28	11.65	53.84	73.52	38.98	187.60
Acidless sweet oranges and sweet lime <sup>2</sup> .....	1,697	54.55	14.37	54.91	183.44	356.99	261.26	925.52
Other.....	508	32.13	52.30	11.95	48.33	38.29	107.04	290.04
<b>Subtotal.....</b>	<b>3,190</b>	<b>108.65</b>	<b>94.68</b>	<b>97.81</b>	<b>369.60</b>	<b>593.06</b>	<b>492.85</b>	<b>1,756.65</b>
<b>Avaré</b>								
Washington Navel and Baianinha.....	917	1.98	48.42	10.72	62.32	65.16	239.29	427.89
Charmute de Brotas.....	544	-	7.90	7.60	41.03	133.52	107.73	297.78
Acidless sweet oranges and sweet lime <sup>2</sup> .....	906	0.93	7.32	16.09	79.82	117.03	248.85	470.04
Other.....	46	-	3.83	9.69	0.15	5.66	5.57	24.90
<b>Subtotal.....</b>	<b>2,413</b>	<b>2.91</b>	<b>67.47</b>	<b>44.10</b>	<b>183.32</b>	<b>321.37</b>	<b>601.44</b>	<b>1,220.61</b>
<b>Itapetininga</b>								
Washington Navel and Baianinha.....	414	11.96	20.41	5.55	16.02	40.44	119.18	213.56
Charmute de Brotas.....	147	7.39	3.05	2.43	5.22	20.99	42.44	81.52
Acidless sweet oranges and sweet lime <sup>2</sup> .....	152	-	2.03	2.46	4.01	24.21	50.63	83.34
Other.....	511	-	-	12.13	161.46	192.81	26.98	393.38
<b>Subtotal.....</b>	<b>1,224</b>	<b>19.35</b>	<b>25.49</b>	<b>22.57</b>	<b>186.71</b>	<b>278.45</b>	<b>239.23</b>	<b>771.80</b>
<b>Total.....</b>	<b>11,782</b>	<b>209.26</b>	<b>436.24</b>	<b>278.69</b>	<b>1,150.35</b>	<b>2,013.74</b>	<b>2,356.54</b>	<b>6,444.82</b>

- Represents zero

<sup>1</sup> Resets were considered as old as the original planted grove<sup>2</sup> Acidless sweet oranges: Lima Verde, Lima Tardia, Piralima, Lima Sorocaba, Lima Roque and João Nunes  
Sweet lime: Palestine sweet lime

**Table 95 – Acid limes and lemons: Area and planting holes estimated<sup>1</sup> by region, variety and age of plot [2022 inventory]**

Region and variety	Area	Plots 0 – 2 years		Plots 3 – 5 years	Plots 6 – 10 years	Plots over 10 years	Total
		2020	2021				
	(hectares)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)
<b>Triângulo Mineiro</b>							
Tahiti acid lime .....	343	1.29	1.96	-	53.74	56.09	113.08
Sicilian lemon.....	-	-	-	-	-	-	-
Other including non-identified ones.....	1	-	-	0.21	-	0.96	1.17
<b>Subtotal.....</b>	<b>344</b>	<b>1.29</b>	<b>1.96</b>	<b>0.21</b>	<b>53.74</b>	<b>57.05</b>	<b>114.25</b>
<b>Bebedouro</b>							
Tahiti acid lime .....	19,368	652.38	588.49	2,878.81	1,914.60	721.59	6,755.87
Sicilian lemon.....	154	5.17	2.06	43.67	14.03	9.99	74.92
Other including non-identified ones.....	10	4.74	0.04	0.50	0.72	2.35	8.35
<b>Subtotal.....</b>	<b>19,532</b>	<b>662.29</b>	<b>590.59</b>	<b>2,922.98</b>	<b>1,929.35</b>	<b>733.93</b>	<b>6,839.14</b>
<b>Altinópolis</b>							
Tahiti acid lime .....	52	-	-	7.28	19.65	6.72	33.65
Sicilian lemon.....	74	-	-	47.73	-	-	47.73
Other including non-identified ones.....	14	-	-	-	6.21	-	6.21
<b>Subtotal.....</b>	<b>140</b>	<b>-</b>	<b>-</b>	<b>55.01</b>	<b>25.86</b>	<b>6.72</b>	<b>87.59</b>
<b>Votuporanga</b>							
Tahiti acid lime .....	5,269	337.97	189.02	802.08	811.77	196.18	2,337.02
Sicilian lemon.....	7	-	-	2.75	-	-	2.75
Other including non-identified ones.....	9	-	-	0.72	-	2.15	2.87
<b>Subtotal.....</b>	<b>5,285</b>	<b>337.97</b>	<b>189.02</b>	<b>805.55</b>	<b>811.77</b>	<b>198.33</b>	<b>2,342.64</b>
<b>São José do Rio Preto</b>							
Tahiti acid lime .....	1,579	84.51	43.61	252.98	142.91	91.55	615.56
Sicilian lemon.....	-	-	-	0.06	-	-	0.06
Other including non-identified ones.....	3	-	0.22	-	0.86	0.39	1.47
<b>Subtotal.....</b>	<b>1,582</b>	<b>84.51</b>	<b>43.83</b>	<b>253.04</b>	<b>143.77</b>	<b>91.94</b>	<b>617.09</b>
<b>Matão</b>							
Tahiti acid lime .....	13,871	357.21	648.42	1,622.34	1,775.07	988.47	5,391.51
Sicilian lemon.....	127	4.49	-	25.50	22.49	-	52.48
Other including non-identified ones.....	-	-	-	-	0.15	-	0.15
<b>Subtotal.....</b>	<b>13,998</b>	<b>361.70</b>	<b>648.42</b>	<b>1,647.84</b>	<b>1,797.71</b>	<b>988.47</b>	<b>5,444.14</b>
<b>Duartina</b>							
Tahiti acid lime .....	942	75.32	64.93	153.43	108.44	22.35	424.47
Sicilian lemon.....	579	1.01	5.85	86.03	8.99	135.56	237.44
Other including non-identified ones.....	3	-	1.19	-	0.10	-	1.29
<b>Subtotal.....</b>	<b>1,524</b>	<b>76.33</b>	<b>71.97</b>	<b>239.46</b>	<b>117.53</b>	<b>157.91</b>	<b>663.20</b>
<b>Brotas</b>							
Tahiti acid lime .....	149	0.48	7.64	62.03	15.21	1.42	86.78
Sicilian lemon.....	750	147.51	1.01	119.00	112.82	1.41	381.75
Other including non-identified ones.....	137	11.68	10.14	-	0.63	22.10	44.55
<b>Subtotal.....</b>	<b>1,036</b>	<b>159.67</b>	<b>18.79</b>	<b>181.03</b>	<b>128.66</b>	<b>24.93</b>	<b>513.08</b>
<b>Porto Ferreira</b>							
Tahiti acid lime .....	523	15.17	47.50	42.56	103.16	83.61	292.00
Sicilian lemon.....	734	46.12	3.39	65.56	102.13	167.75	384.95
Other including non-identified ones.....	29	0.25	1.47	-	2.77	11.07	15.56
<b>Subtotal.....</b>	<b>1,286</b>	<b>61.54</b>	<b>52.36</b>	<b>108.12</b>	<b>208.06</b>	<b>262.43</b>	<b>692.51</b>
<b>Limeira</b>							
Tahiti acid lime .....	3,581	116.55	143.81	537.66	637.48	369.28	1,804.78
Sicilian lemon.....	1,125	55.59	15.58	166.68	289.36	112.59	639.80
Other including non-identified ones.....	18	-	-	9.38	-	-	9.38
<b>Subtotal.....</b>	<b>4,724</b>	<b>172.14</b>	<b>159.39</b>	<b>713.72</b>	<b>926.84</b>	<b>481.87</b>	<b>2,453.96</b>
<b>Avaré</b>							
Tahiti acid lime .....	164	14.97	0.16	74.94	13.29	2.92	106.28
Sicilian lemon.....	1,470	-	51.26	161.72	368.09	133.68	714.75
Other including non-identified ones.....	206	53.32	-	40.74	-	-	94.06
<b>Subtotal.....</b>	<b>1,840</b>	<b>68.29</b>	<b>51.42</b>	<b>277.40</b>	<b>381.38</b>	<b>136.60</b>	<b>915.09</b>
<b>Itapetininga</b>							
Tahiti acid lime .....	31	-	-	2.58	13.59	0.35	16.52
Sicilian lemon.....	454	66.29	-	101.66	20.08	28.13	216.16
Other including non-identified ones.....	33	9.08	-	-	0.37	4.29	13.74
<b>Subtotal.....</b>	<b>518</b>	<b>75.37</b>	<b>-</b>	<b>104.24</b>	<b>34.04</b>	<b>32.77</b>	<b>246.42</b>
<b>Total.....</b>	<b>51,809</b>	<b>2,061.10</b>	<b>1,827.75</b>	<b>7,308.60</b>	<b>6,558.71</b>	<b>3,172.95</b>	<b>20,929.11</b>

- Represents zero

The method employed for mapping groves of acid limes and lemons was reduced to the outline of the plots, and data about variety and number of trees were supplied by the farmer or person in charge. Whenever such information was not provided, the number of holes was calculated by the area of the plot divided by the spacing, which was identified by visual evaluation. The counting of 5% of the plots was not performed for this group of citrus species

**Table 96 – Tangerines: Area and planting holes<sup>1</sup> estimated by region, variety and age of plot [2022 inventory]**

Region and variety	Area	Plots 0 – 2 years		Plots 3 – 5 years	Plots 6 – 10 years	Plots over 10 years	Total
		2020	2021				
	(hectares)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)
<b>Triângulo Mineiro</b>							
Ponkan.....	126	2.92	11.83	9.28	18.68	12.51	55.22
Murcott.....	37	-	20.92	-	-	-	20.92
Other.....	16	-	-	-	2.86	2.21	5.07
<b>Subtotal.....</b>	<b>179</b>	<b>2.92</b>	<b>32.75</b>	<b>9.28</b>	<b>21.54</b>	<b>14.72</b>	<b>81.21</b>
<b>Bebedouro</b>							
Ponkan.....	890	33.93	19.77	91.17	234.88	105.74	485.49
Murcott.....	386	32.15	15.60	94.01	69.93	4.88	216.57
Other.....	214	8.75	14.03	42.57	39.61	11.88	116.84
<b>Subtotal.....</b>	<b>1,490</b>	<b>74.83</b>	<b>49.40</b>	<b>227.75</b>	<b>344.42</b>	<b>122.50</b>	<b>818.90</b>
<b>Altinópolis</b>							
Ponkan.....	126	3.73	2.80	3.73	38.01	33.23	81.50
Murcott.....	129	40.12	7.05	5.83	2.94	21.11	77.05
Other.....	53	0.43	9.83	15.10	8.36	3.13	36.85
<b>Subtotal.....</b>	<b>308</b>	<b>44.28</b>	<b>19.68</b>	<b>24.66</b>	<b>49.31</b>	<b>57.47</b>	<b>195.40</b>
<b>Votuporanga</b>							
Ponkan.....	1,280	28.32	120.86	101.62	246.91	152.14	649.85
Murcott.....	135	3.25	11.42	36.51	19.08	0.44	70.70
Other.....	114	9.05	9.36	16.76	22.00	2.95	60.12
<b>Subtotal.....</b>	<b>1,529</b>	<b>40.62</b>	<b>141.64</b>	<b>154.89</b>	<b>287.99</b>	<b>155.53</b>	<b>780.67</b>
<b>São José do Rio Preto</b>							
Ponkan.....	327	12.27	11.09	21.79	92.67	29.62	167.44
Murcott.....	56	15.83	-	3.43	4.17	4.36	27.79
Other.....	25	-	0.07	3.42	12.25	0.19	15.93
<b>Subtotal.....</b>	<b>408</b>	<b>28.10</b>	<b>11.16</b>	<b>28.64</b>	<b>109.09</b>	<b>34.17</b>	<b>211.16</b>
<b>Matão</b>							
Ponkan.....	353	26.25	18.92	57.01	92.29	28.74	223.21
Murcott.....	593	28.28	17.56	91.94	113.37	71.63	322.78
Other.....	121	9.56	9.21	25.26	23.66	3.87	71.56
<b>Subtotal.....</b>	<b>1,067</b>	<b>64.09</b>	<b>45.69</b>	<b>174.21</b>	<b>229.32</b>	<b>104.24</b>	<b>617.55</b>
<b>Duartina</b>							
Ponkan.....	268	4.61	1.62	4.43	148.83	40.30	199.79
Murcott.....	809	52.00	9.00	17.71	51.88	463.20	593.79
Other.....	152	1.07	-	2.26	22.62	89.75	115.70
<b>Subtotal.....</b>	<b>1,229</b>	<b>57.68</b>	<b>10.62</b>	<b>24.40</b>	<b>223.33</b>	<b>593.25</b>	<b>909.28</b>
<b>Brotas</b>							
Ponkan.....	25	-	6.65	4.80	5.74	-	17.19
Murcott.....	295	4.11	77.01	23.05	110.56	7.74	222.47
Other.....	96	4.93	14.91	-	28.84	8.01	56.69
<b>Subtotal.....</b>	<b>416</b>	<b>9.04</b>	<b>98.57</b>	<b>27.85</b>	<b>145.14</b>	<b>15.75</b>	<b>296.35</b>
<b>Porto Ferreira</b>							
Ponkan.....	209	2.17	1.94	28.95	34.60	63.85	131.51
Murcott.....	1,061	21.76	14.02	141.89	186.09	242.48	606.24
Other.....	177	18.55	8.85	16.04	36.18	24.09	103.71
<b>Subtotal.....</b>	<b>1,447</b>	<b>42.48</b>	<b>24.81</b>	<b>186.88</b>	<b>256.87</b>	<b>330.42</b>	<b>841.46</b>
<b>Limeira</b>							
Ponkan.....	501	25.04	23.95	68.75	141.00	60.81	319.55
Murcott.....	1,219	57.14	47.70	211.18	228.16	191.94	736.12
Other.....	261	13.30	26.51	61.89	67.99	6.02	175.71
<b>Subtotal.....</b>	<b>1,981</b>	<b>95.48</b>	<b>98.16</b>	<b>341.82</b>	<b>437.15</b>	<b>258.77</b>	<b>1,231.38</b>
<b>Avaré</b>							
Ponkan.....	123	5.76	0.91	11.07	22.01	30.82	70.57
Murcott.....	748	41.53	14.68	58.23	191.52	134.83	440.79
Other.....	170	18.06	7.86	14.49	53.01	14.82	108.24
<b>Subtotal.....</b>	<b>1,041</b>	<b>65.35</b>	<b>23.45</b>	<b>83.79</b>	<b>266.54</b>	<b>180.47</b>	<b>619.60</b>
<b>Itapetininga</b>							
Ponkan.....	837	22.79	48.26	157.02	123.52	162.49	514.08
Murcott.....	342	2.63	14.31	36.79	48.17	96.90	198.80
Other.....	309	18.24	36.63	35.56	58.19	45.88	194.50
<b>Subtotal.....</b>	<b>1,488</b>	<b>43.66</b>	<b>99.20</b>	<b>229.37</b>	<b>229.88</b>	<b>305.27</b>	<b>907.38</b>
<b>Total.....</b>	<b>12,583</b>	<b>568.53</b>	<b>655.13</b>	<b>1,513.54</b>	<b>2,600.58</b>	<b>2,172.56</b>	<b>7,510.34</b>

- Represents zero

<sup>1</sup> The method employed for mapping tangerines groves was reduced to the outline of the plots, and data about variety and number of trees were supplied by the farmer or person in charge. Whenever such information was not provided, the number of holes was calculated by the area of the plot divided by the spacing, which was identified by visual evaluation. The counting of 5% of the plots was not performed for this group of citrus species

**Table 97 – Oranges: Cities with groves by sector and region [2022 inventory]**

Sector	Region	Cities
North 72 cities	Triângulo Mineiro (TMG) 15 cities	Campina Verde, Campo Florido, Canápolis, Comendador Gomes, Conceição das Alagoas, Frutal, Gurinhatã, Itapagipe, Ituiutaba, Monte Alegre de Minas, Planura, Prata, São Francisco de Sales, Uberaba, Uberlândia
	Bebedouro (BEB) 34 cities	Ariranha, Barretos, Bebedouro, Cajobi, Catanduva, Catiguá, Colina, Colômbia, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Jaborandi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Palmares Paulista, Paraíso, Pirangi, Pitangueiras, Sales, Santa Adélia, Severínia, Tabapuã, Taiaçu, Taiuva, Taquaral, Terra Roxa, Uchoa, Urupês, Viradouro, Vista Alegre do Alto
	Altinópolis (ALT) 23 cities	Alterosa, Altinópolis, Batatais, Brodowski, Cajuru, Cassia dos Coqueiros, Cristais Paulista, Delfinópolis, Fortaleza de Minas, Franca, Ibiraci, Igarapava, Jacuí, Jeriquara, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Sacramento, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso, São Tomás de Aquino
Northwest 80 cities	Votuporanga (VOT) 48 cities	Alvares Florence, Américo de Campos, Aparecida d'Oeste, Aspásia, Auriflama, Cardoso, Dirce Reis, Dolcinópolis, Estrela d'Oeste, Fernandópolis, Guaraçaí, Guarani d'Oeste, Guzelândia, Indiaporã, Jales, Macedônia, Marinópolis, Meridiano, Mesópolis, Mira Estrela, Nova Canaã Paulista, Ouroeste, Palmeira d'Oeste, Paranapuã, Parisi, Pedranópolis, Pontalinda, Pontes Gestal, Populina, Rioldândia, Santa Albertina, Santa Clara d'Oeste, Santa Fé do Sul, Santa Rita d'Oeste, Santa Salete, Santana da Ponte Pensa, Santo Antônio do Aracanguá, São Francisco, São João das Duas Pontes, São João de Iracema, Sud Mennucci, Suzanópolis, Três Fronteiras, Turmalina, Urandia, Valentim Gentil, Vitória Brasil, Votuporanga
	São José do Rio Preto (SJO) 32 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Floreal, Guapiáçu, Icem, Ipiúá, Jaci, Jose Bonifácio, Magda, Mendonça, Mirassol, Mirassolândia, Monte Aprazível, Neves Paulista, Nhandeara, Nipoã, Nova Aliança, Nova Granada, Onda Verde, Orindiúva, Palestina, Paulo de Faria, Poloni, Potirendaba, São José do Rio Preto, Tanabi, Ubarana, Zacarias
Central 72 cities	Matão (MAT) 20 cities	Américo Brasiliense, Araraquara, Bariri, Boa Esperança do Sul, Borborema, Candido Rodrigues, Fernando Prestes, Gavião Peixoto, Ibitinga, Itaju, Itápolis, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Rincão, Santa Lucia, Tabatinga, Taquaritinga
	Duartina (DUA) 39 cities	Agudos, Alvinlândia, Arealva, Avaí, Balbinos, Bauru, Cabralia Paulista, Cafelândia, Campos Novos Paulista, Duartina, Echaporã, Espírito Santo do Turvo, Fernão, Gália, Garça, Getulina, Guaíçara, Guaimbê, Guarantã, Iacanga, Júlio Mesquita, Lins, Lucianópolis, Lupércio, Marília, Ocaçu, Paulistânia, Pederneiras, Pirajuí, Piratininga, Pongai, Presidente Alves, Quatá, Reginópolis, Sabino, Santa Cruz do Rio Pardo, São Pedro do Turvo, Ubarajara, Uru
	Brotas (BRO) 13 cities	Analândia, Bocaina, Brotas, Corumbataí, Dourado, Ibaté, Itirapina, Ribeirão Bonito, Santa Maria da Serra, São Carlos, São Pedro, Torrinha, Trabiçu
South 43 cities	Porto Ferreira (PFE) 17 cities	Aguaí, Casa Branca, Descalvado, Guaranésia, Itobi, Luiz Antônio, Mococa, Pirassununga, Porto Ferreira, Santa Cruz da Conceição, Santa Cruz das Palmeiras, Santa Rita do Passa Quatro, Santa Rosa de Viterbo, São João da Boa Vista, São Simão, Tambaú, Vargem Grande do Sul
	Limeira (LIM) 26 cities	Amparo, Araras, Artur Nogueira, Atibaia, Bragança Paulista, Conchal, Cordeirópolis, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Iracemápolis, Itapira, Jaguariúna, Jarinu, Leme, Limeira, Mogi Guaçu, Mogi Mirim, Paulínia, Piracicaba, Rio Claro, Santo Antônio de Posse, Serra Negra, Socorro
Southwest 47 cities	Avaré (AVA) 28 cities	Águas de Santa Bárbara, Angatuba, Anhembi, Araçoiaba da Serra, Arandu, Avaré, Bofete, Borebi, Botucatu, Capela do Alto, Cerqueira Cesar, Cesário Lange, Conchas, Iaras, Iperó, Itatinga, Lençóis Paulista, Manduri, Óleo, Pardinho, Piraju, Porangaba, Porto Feliz, Pratânia, Salto de Pirapora, São Manuel, Sorocaba, Tatuí
	Itapetininga (ITG) 19 cities	Alambari, Buri, Campina do Monte Alegre, Capão Bonito, Coronel Macedo, Itaberá, Itai, Itapetininga, Itapeva, Itaporanga, Itararé, Nova Campina, Paranapanema, Pilar do Sul, São Miguel Arcanjo, Sarapuí, Sarutaiá, Taquarituba, Taquarivaí
Total 5 sectors	Total 12 regions	Total 314 cities

**Table 98 – Other oranges: Cities with groves by sector and region [2022 inventory]**

Sector	Region	Cities
North 36 cities	Triângulo Mineiro (TMG) 3 cities	Conceição das Alagoas, Monte Alegre de Minas, Uberaba
	Bebedouro (BEB) 19 cities	Ariranha, Bebedouro, Cajobi, Colômbia, Embaúba, Irapuã, Itajobi, Marapoama, Monte Azul Paulista, Olímpia, Paraíso, Pirangi, Santa Adélia, Severínia, Taiacu, Taiuva, Uchoa, Urupês, Vista Alegre do Alto
	Altinópolis (ALT) 14 cities	Altinópolis, Batatais, Brodowski, Cajuru, Cassia dos Coqueiros, Ibiraci, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Sacramento, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso
Northwest 28 cities	Votuporanga (VOT) 17 cities	Alvares Florence, Aspásia, Estrela d'Oeste, Fernandópolis, Jales, Palmeira d'Oeste, Paranapuã, Pontalinda, Santa Clara d'Oeste, Santa Fé do Sul, Santa Salete, São João das Duas Pontes, Sud Mennucci, Turmalina, Urania, Vitória Brasil, Votuporanga
	São José do Rio Preto (SJO) 11 cities	Bálsamo, Cedral, Cosmorama, José Bonifácio, Mendonça, Mirassolândia, Monte Aprazível, Nhandeara, Nova Aliança, Potirendaba, São José do Rio Preto
Central 45 cities	Matão (MAT) 12 cities	Américo Brasiliense, Bariri, Boa Esperança do Sul, Borborema, Candido Rodrigues, Fernando Prestes, Ibitinga, Itápolis, Monte Alto, Novo Horizonte, Tabatinga, Taquaritinga
	Duartina (DUA) 21 cities	Agudos, Avaí, Bauru, Cabralia Paulista, Cafelândia, Campos Novos Paulista, Duartina, Echaporã, Espírito Santo do Turvo, Fernão, Iacanga, Lucianópolis, Marília, Paulistânia, Pederneiras, Pirajuí, Piratininga, Presidente Alves, Santa Cruz do Rio Pardo, São Pedro do Turvo, Ubirajara
	Brotas (BRO) 12 cities	Analândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Dourado, Itirapina, Mineiros do Tietê, Ribeirão Bonito, São Carlos, Torrinha, Trabiju.
South 29 cities	Porto Ferreira (PFE) 10 cities	Aguai, Casa Branca, Descalvado, Mococa, Pirassununga, Santa Cruz das Palmeiras, São João da Boa Vista, São Simão, Tambaú, Vargem Grande do Sul
	Limeira (LIM) 19 cities	Amparo, Araras, Artur Nogueira, Bragança Paulista, Conchal, Cordeirópolis, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Jaguariúna, Leme, Limeira, Mogi Guaçu, Mogi Mirim, Paulínia, Piracicaba, Santo Antônio de Posse
Southwest 32 cities	Avaré (AVA) 20 cities	Águas de Santa Bárbara, Angatuba, Anhembi, Araçoiaba da Serra, Arandu, Avaré, Botucatu, Capela do Alto, Cerqueira Cesar, Conchas, Guareí, Iperó, Itatinga, Manduri, Óleo, Porto Feliz, Pratânia, Salto de Pirapora, Sorocaba, Tatuí
	Itapetininga (ITG) 12 cities	Alambari, Buri, Capão Bonito, Coronel Macedo, Itaberá, Itaí, Itapetininga, Itapeva, Itaporanga, Itararé, Paranapanema, São Miguel Arcanjo
Total 5 sectors	Total 12 regions	Total 170 cities

**Table 99 – Acid limes and lemons: Cities with groves by sector and region [2022 inventory]**

Sector	Region	Cities
North 50 cities	Triângulo Mineiro (TMG) 8 cities	Campina Verde, Frutal, Ituiutaba, Iturama, Monte Alegre de Minas, Prata, Uberaba
	Bebedouro (BEB) 33 cities	Ariranha, Barretos, Bebedouro, Cajobi, Catanduva, Catiguá, Colina, Elisiário, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Palmares Paulista, Paraíso, Pindorama, Pirangi, Pitangueiras, Sales, Santa Adélia, Severínia, Tabapuã, Taiaçu, Taiuva, Taquaral, Uchoa, Urupês, Viradouro, Vista Alegre do Alto
	Altinópolis (ALT) 9 cities	Altinópolis, Brodowski, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Sacramento, Santo Antônio da Alegria, São Sebastião do Paraíso
Northwest 74 cities	Votuporanga (VOT) 45 cities	Álvares Florence, Aparecida d'Oeste, Aspásia, Dolcinópolis, Estrela d'Oeste, Fernandópolis, Guaraçaí, Guarani d'Oeste, Jales, Macedônia, Marinópolis, Meridiano, Mesópolis, Mira Estrela, Murutinga do Sul, Palmeira d'Oeste, Paranapuã, Parisi, Pedranópolis, Pontalinda, Populina, Rubinéia, Santa Albertina, Santa Fé do Sul, Santa Rita d'Oeste, Santa Salete, Santana da Ponte Pensa, Santo Antônio do Aracanguá, São Francisco, São João das Duas Pontes, São João de Iracema, Sud Mennucci, Três Fronteiras, Turmalina, Urânia, Valentim Gentil, Vitória Brasil, Votuporanga, Mirandópolis, Dirce Reis, Guzolândia, Nova Canaã Paulista, Ouroeste, Pereira Barreto, Pontes Gestal
	São José do Rio Preto (SJO) 29 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Floreal, Guapiaçu, Ipiúá, Jaci, Jose Bonifácio, Macaubal, Mendonca, Mirassol, Mirassolândia, Neves Paulista, Nhandeara, Nova Aliança, Nova Granada, Onda Verde, Palestina, Paulo de Faria, Planalto, Potirendaba, São José do Rio Preto, Sebastianópolis Do Sul, Tanabi, Ubarana, Zacarias
Central 53 cities	Matão (MAT) 17 cities	Araraquara, Bariri, Boa Esperança do Sul, Borborema, Candido Rodrigues, Fernando Prestes, Ibitinga, Itaju, Itápolis, Jaboticabal, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Tabatinga, Taquaritinga
	Duartina (DUA) 25 cities	Arealva, Avaí, Bauru, Boraceia, Cabrália Paulista, Cafelândia, Campos Novos Paulista, Duartina, Echaporã, Espírito Santo do Turvo, Gália, Getulina, Guaiçara, Guaimbê, Guarantã, Iacanga, Lins, Lucianópolis, Marília, Pederneiras, Pirajuí, Piratininga, Presidente Alves, São Pedro do Turvo, Ubirajara
	Brotas (BRO) 11 cities	Analândia, Brotas, Corumbataí, Dois Córregos, Dourado, Ibaté, Itirapina, Ribeirão Bonito, São Carlos, Torrinha, Trabiçu
South 37 cities	Porto Ferreira (PFE) 14 cities	Aguai, Casa Branca, Itobi, Mococa, Pirassununga, Porto Ferreira, Santa Cruz da Conceição, Santa Rita do Passa Quatro, Santa Rosa de Viterbo, São João da Boa Vista, São José do Rio Pardo, São Simão, Tambaú, Vargem Grande do Sul
	Limeira (LIM) 23 cities	Araras, Artur Nogueira, Charqueada, Conchal, Cordeirópolis, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Iracemápolis, Itapira, Jaguariúna, Leme, Limeira, Lindóia, Mogi Guaçu, Mogi Mirim, Monte Alegre do Sul, Paulínia, Piracicaba, Rio Claro, Santo Antônio de Posse
Southwest 22 cities	Avaré (AVA) 11 cities	Águas de Santa Bárbara, Angatuba, Araçoiaba da Serra, Arandu, Avaré, Botucatu, Capela do Alto, Itatinga, Óleo, Porto Feliz, Sorocaba
	Itapetininga (ITG) 11 cities	Buri, Capão Bonito, Coronel Macedo, Itaberá, Itai, Itapetininga, Itaporanga, Paranapanema, São Miguel Arcanjo, Sarapuí, Taquarivaí
Total 5 sectors	Total 12 regions	Total 236 cities

**Table 100 – Tangerines: Cities with groves by sector and region [2022 inventory]**

Sector	Region	Cities
North 50 cities	Triângulo Mineiro (TMG) 6 cities	Campina Verde, Frutal, Itapagipe, Monte Alegre de Minas, Prata, Uberaba
	Bebedouro (BEB) 31 cities	Ariranha, Barretos, Bebedouro, Cajobi, Catiguá, Colina, Colômbia, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Jaborandi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Paraíso, Pindorama, Pirangi, Pitangueiras, Sales, Santa Adélia, Severínia, Tabapuã, Taiaçu, Taiuva, Taquaral, Uchoa, Urupês, Vista Alegre do Alto
	Altinópolis (ALT) 13 cities	Altinópolis, Cajuru, Cassia dos Coqueiros, Franca, Ibiraci, Jacuí, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Sacramento, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso
Northwest 62 cities	Votuporanga (VOT) 44 cities	Alvares Florence, Américo de Campos, Andradina, Aparecida d'Oeste, Aspásia, Dolcinópolis, Estrela d'Oeste, Fernandópolis, Guaraçai, Guarani d'Oeste, Indaiópolis, Jales, Macedônia, Marinópolis, Meridiano, Mesópolis, Mira Estrela, Murutinga do Sul, Palmeira d'Oeste, Paranapuã, Parisi, Pedranópolis, Pereira Barreto, Pontalinda, Populina, Rubineia, Santa Albertina, Santa Clara d'Oeste, Santa Fé do Sul, Santa Rita d'Oeste, Santa Salete, Santana da Ponte Pensa, Santo Antônio do Aracanguá, São Francisco, São João das Duas Pontes, São João de Iracema, Sud Mennucci, Suzanópolis, Três Fronteiras, Turmalina, Urania, Valentim Gentil, Vitória Brasil, Votuporanga
	São José do Rio Preto (SJO) 18 cities	Altair, Bálamo, Cedral, Cosmorama, Floreal, Guapiaçu, Iguatã, Jaci, José Bonifácio, Mirassolândia, Monte Aprazível, Nhandeara, Nova Aliança, Nova Granada, Palestina, Potirendaba, São José do Rio Preto, Tanabi
Central 42 cities	Matão (MAT) 16 cities	Américo Brasiliense, Bariri, Boa Esperança do Sul, Borborema, Candido Rodrigues, Fernando Prestes, Gavião Peixoto, Ibitinga, Itápolis, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Tabatinga, Taquaritinga
	Duartina (DUA) 17 cities	Avaí, Cabralia Paulista, Cafelândia, Campos Novos Paulista, Duartina, Fernão, Gália, Garça, Iacanga, Lins, Marília, Paulistânia, Pederneiras, Piratininga, Presidente Alves, São Pedro do Turvo, Ubirajara
	Brotas (BRO) 9 cities	Analândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Itirapina, São Carlos, Torrinha, Trabiçu
South 34 cities	Porto Ferreira (PFE) 11 cities	Aguai, Casa Branca, Mococa, Pirassununga, Porto Ferreira, Santa Cruz da Conceição, Santa Cruz das Palmeiras, Santa Rita do Passa Quatro, São João da Boa Vista, São Simão, Tambaú
	Limeira (LIM) 23 cities	Amparo, Araras, Artur Nogueira, Atibaia, Bragança Paulista, Conchal, Cordeirópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Jaguariúna, Jarinu, Leme, Limeira, Mogi Guaçu, Mogi Mirim, Monte Alegre do Sul, Paulínia, Pinhalzinho, Piracicaba, Santo Antônio de Posse, Socorro
Southwest 26 cities	Avaré (AVA) 14 cities	Águas de Santa Bárbara, Anhembi, Avaré, Botucatu, Capela do Alto, Guareí, Iperó, Itatinga, Manduri, Porto Feliz, Pratânia, Salto de Pirapora, Sorocaba, Tatuí
	Itapetininga (ITG) 12 cities	Alambari, Buri, Capão Bonito, Itaberá, Itaí, Itapetininga, Itapeva, Itaporanga, Paranapanema, Pilar Do Sul, São Miguel Arcanjo, Sarapuí
Total 5 sectors	Total 12 regions	Total 214 cities

### 3.3 – ABANDONED ORANGE GROVES

Abandoned groves are citrus plots in which no signs of management are identified, such as lack of pruning/weeding, unsatisfactory phytosanitary control, with a high degree of pest and disease infestation, often with rotted fruits on the ground and the presence of livestock in the plot. The areas of these groves are counted separately and do not make up the inventory of productive and non-productive trees.

**Table 101 – Oranges: Area and percentage of abandoned groves in relation to the total area [2022 and 2023 inventories]**

Sector and region	2022 inventory			2023 inventory			
	Abandoned area found in the mapping (scan)	Abandoned area found in the 2022 sample survey (area that was bearing in the mapping but has been abandoned)	Total	Update on the abandoned area found in the mapping (scan)	Abandoned area found in the 2023 sample survey (area that was bearing in the 2022 inventory but has been abandoned)	Total	Percentage of abandoned area in relation to the total area of the citrus belt
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
<b>North</b>							
Triângulo Mineiro..	87	-	87	-	0	0	0.00
Bebedouro.....	57	301	357	14	-	14	0.03
Altinópolis.....	7	0	7	-	2	2	0.01
<b>Subtotal.....</b>	<b>151</b>	<b>301</b>	<b>452</b>	<b>14</b>	<b>2</b>	<b>16</b>	<b>0.02</b>
<b>Northwest</b>							
Votuporanga.....	351	119	470	92	279	372	2.22
S. J. do Rio Preto...	684	94	778	60	562	621	2.88
<b>Subtotal.....</b>	<b>1,035</b>	<b>213</b>	<b>1,249</b>	<b>152</b>	<b>841</b>	<b>993</b>	<b>2.59</b>
<b>Central</b>							
Matão.....	11	29	40	11	-	11	0.03
Duartina.....	337	0	337	9	656	665	1.09
Brotas.....	226	204	430	45	-	45	0.39
<b>Subtotal.....</b>	<b>574</b>	<b>234</b>	<b>808</b>	<b>65</b>	<b>656</b>	<b>720</b>	<b>0.66</b>
<b>South</b>							
Porto Ferreira.....	126	-	126	18	-	18	0.05
Limeira.....	68	145	212	2	964	965	2.97
<b>Subtotal.....</b>	<b>194</b>	<b>145</b>	<b>338</b>	<b>20</b>	<b>964</b>	<b>983</b>	<b>1.42</b>
<b>Southwest</b>							
Avaré.....	22	-	22	11	-	11	0.02
Itapetininga.....	26	-	26	-	-	-	-
<b>Subtotal.....</b>	<b>48</b>	<b>-</b>	<b>48</b>	<b>11</b>	<b>-</b>	<b>11</b>	<b>0.01</b>
<b>Total.....</b>	<b>2,002</b>	<b>892</b>	<b>2,894</b>	<b>262</b>	<b>2,462</b>	<b>2,724</b>	<b>0.70</b>

**Table 102 – Other oranges: Area and percentage of abandoned groves in relation to the total area [2022 and 2023 inventories]**

Sector and region	2022 inventory			2023 inventory			
	Abandoned area found in the mapping (scan)	Abandoned area found in the 2022 sample survey (area that was bearing in the mapping but has been abandoned)	Total	Update on the abandoned area found in the mapping (scan)	Abandoned area found in the 2023 sample survey (area that was bearing in the 2022 inventory but has been abandoned)	Total	Percentage of abandoned area in relation to the total area of the citrus belt
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
<b>North</b>							
Triângulo Mineiro..	147	-	147	29	0	29	0.10
Bebedouro.....	79	-	79	-	-	-	-
Altinópolis.....	3	-	3	-	-	-	-
<b>Subtotal.....</b>	<b>228</b>	<b>-</b>	<b>228</b>	<b>29</b>	<b>0</b>	<b>29</b>	<b>0.03</b>
<b>Northwest</b>							
Votuporanga.....	34	-	34	1	-	1	0.01
S. J. do Rio Preto...	3	-	3	-	-	-	-
<b>Subtotal.....</b>	<b>37</b>	<b>-</b>	<b>37</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>0.00</b>
<b>Central</b>							
Matão.....	55	-	55	-	-	-	-
Duartina.....	-	0	0	-	-	-	-
Brotas.....	33	-	33	4	-	4	0.03
<b>Subtotal.....</b>	<b>88</b>	<b>0</b>	<b>88</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>0.00</b>
<b>South</b>							
Porto Ferreira.....	59	-	59	6	-	6	0.02
Limeira.....	9	-	9	1	-	1	0.00
<b>Subtotal.....</b>	<b>67</b>	<b>-</b>	<b>67</b>	<b>7</b>	<b>-</b>	<b>7</b>	<b>0.01</b>
<b>Southwest</b>							
Avaré.....	-	-	-	-	-	-	-
Itapetininga.....	-	-	-	-	-	-	-
<b>Subtotal.....</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total.....</b>	<b>420</b>	<b>-</b>	<b>420</b>	<b>41</b>	<b>-</b>	<b>41</b>	<b>0.01</b>

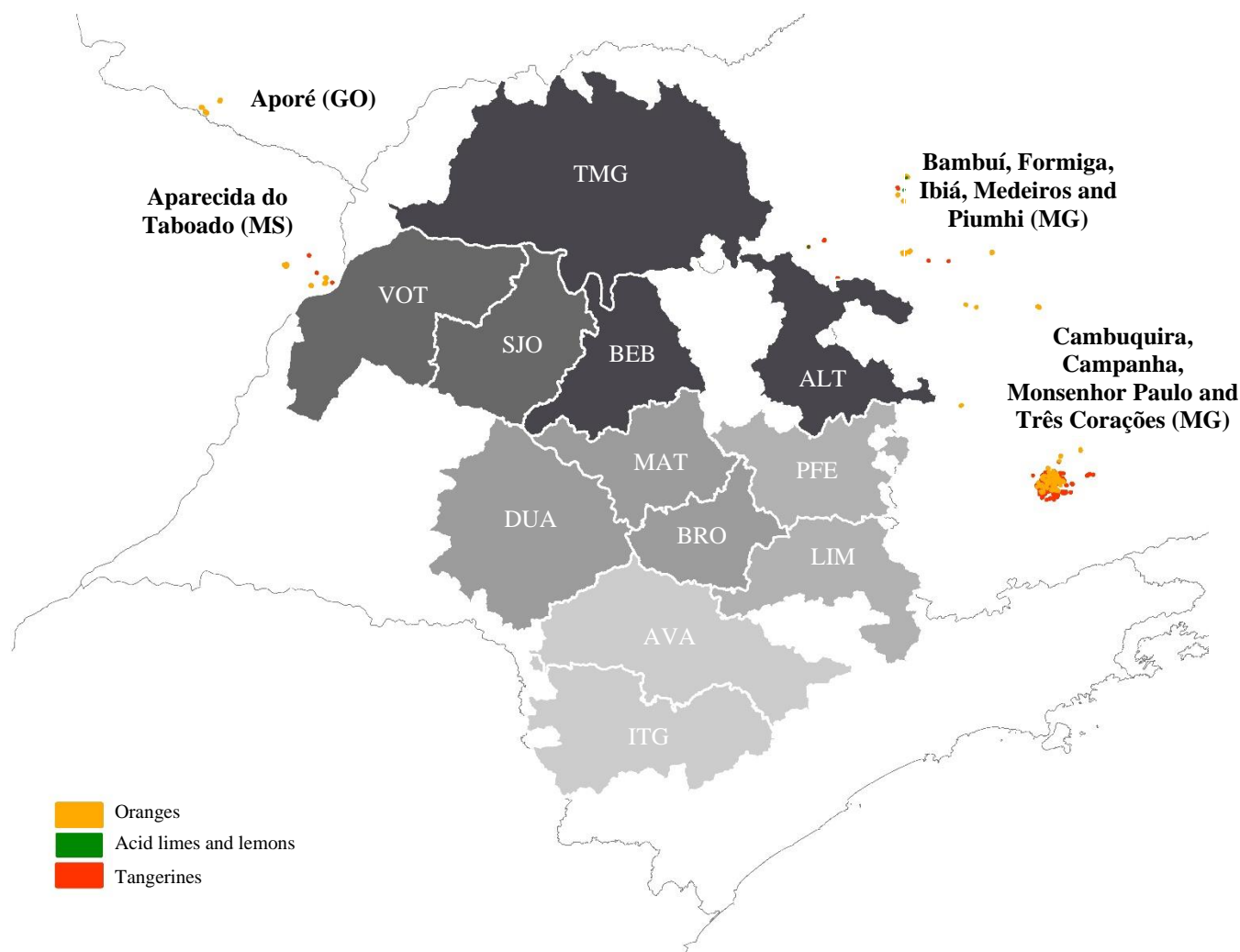
### 3.4 – NEW CITRUS AREAS IN MUNICIPALITIES NEAR THE CITRUS BELT IDENTIFIED IN THE MAPPING CARRIED OUT IN 2022

In the mapping that gave rise to the 2022 inventory, the scan also contemplated municipalities outside the citrus belt, which are close to the bordering areas, in order to monitor the evolution of citrus plantings in these borders. Commercial groves were mapped, but not those whose purpose is still to analyze the behavior of citrus varieties in the regions. The selection of municipalities was based on the volume of nursery plants received in recent years, according to data from the animal and plant health protection agency for the state of São Paulo (CDA-SP), informed by the Brazilian statistics institute (IBGE) and indication by the PES technical committee.

In these new areas, the plant counting step was not performed in 5% of the mapped plots, a technique used to estimate the number of trees in each age category, dead trees and vacancies. The method in these areas contemplated only the registration of the plots, so it is possible to accurately measure the area and estimate the number of planting holes, which results from the total area of the plot and the estimate of the area occupied by each plant, given by the spacing between plants and between rows.

The plantings are distributed in 11 municipalities and cover an area of 6,339 hectares, with an estimated 3.508 million planting holes. Most of the fruits produced in these regions are intended for consumption *in natura*: 47% of the area is occupied with tangerines, 43% with oranges and 10% with acid limes and lemons. The data is presented in the following figure and tables.

**Figura 6 – Location of citrus plots in new planting areas in municipalities near the citrus belt**



**Table 103 – All citrus: Groves area by variety and age in the newly mapped areas [inventory 2022]**

Cities and varieties	Plot age				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
<b>Aparecida do Taboado (MS) and Aporé</b>					
Hamlin.....	-	39	-	-	39
Rubi.....	-	82	-	-	82
Pera Rio.....	89	208	209	465	971
Natal.....	-	-	14	49	63
Tahiti acid lime.....	267	57	232	-	556
Ponkan.....	9	55	29	7	100
<b>Subtotal.....</b>	<b>365</b>	<b>441</b>	<b>484</b>	<b>521</b>	<b>1,811</b>
<b>Cambuquira, Campanha, Monsenhor Paulo and Três Corações (MG)</b>					
Rubi.....	2	-	-	-	2
Westin.....	-	-	11	1	12
Pera Rio.....	101	23	74	50	248
Valencia.....	9	-	1	9	19
Valencia Folha Murcha.....	26	46	51	42	165
Natal.....	71	114	30	30	245
Washington Navel and Baianinha.....	12	2	10	42	66
Charmute de Brotas.....	9	26	11	-	46
Acidless sweet oranges and sweet lime.....	20	9	25	18	72
Tahiti acid lime.....	2	12	18	-	32
Other lemons.....	3	-	-	-	3
Murcott.....	15	-	17	-	32
Ponkan.....	358	373	1,006	993	2,730
Other tangerines.....	14	17	22	17	70
<b>Subtotal.....</b>	<b>642</b>	<b>622</b>	<b>1,276</b>	<b>1,202</b>	<b>3,742</b>
<b>BambuÍ, Formiga, Ibiá, Medeiros and Piumhi (MG)</b>					
Hamlin.....	101	-	-	-	101
Rubi.....	-	-	86	-	86
Pera Rio.....	21	82	203	53	359
Valencia.....	-	-	-	35	35
Valencia Folha Murcha.....	7	17	9	21	54
Natal.....	-	13	-	-	13
Charmute de Brotas.....	-	-	-	9	9
Acidless sweet oranges and sweet lime.....	-	-	12	9	21
Other oranges.....	-	-	28	3	31
Tahiti acid lime.....	-	7	-	25	32
Ponkan.....	-	13	16	16	45
<b>Subtotal.....</b>	<b>129</b>	<b>132</b>	<b>354</b>	<b>171</b>	<b>786</b>
<b>Subtotal oranges.....</b>	<b>468</b>	<b>661</b>	<b>774</b>	<b>836</b>	<b>2,739</b>
<b>Subtotal acid limes and lemons.....</b>	<b>272</b>	<b>76</b>	<b>250</b>	<b>25</b>	<b>623</b>
<b>Subtotal tangerines.....</b>	<b>396</b>	<b>458</b>	<b>1,090</b>	<b>1,033</b>	<b>2,977</b>
<b>Total.....</b>	<b>1,136</b>	<b>1,195</b>	<b>2,114</b>	<b>1,894</b>	<b>6,339</b>

- Represents zero

**Table 104 – All citrus: Planting holes area by variety and age in the newly mapped areas [inventory 2022]**

Cities and varieties	Plot age				Total
	1 – 2 years	3 – 5 years	6 – 10 years	Over 10 years	
	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)
<b>Aparecida do Taboado (MS) and Aporé (GO)</b>					
Hamlin.....	-	20.86	-	-	20.86
Rubi.....	-	42.67	-	-	42.67
Pera Rio.....	46.17	103.79	114.23	236.66	500.85
Natal.....	-	-	7.92	24.23	32.15
Tahiti acid lime.....	123.3	25.65	83.63	-	232.58
Ponkan.....	4.3	28.75	18	3.48	54.53
<b>Subtotal.....</b>	<b>173.77</b>	<b>221.72</b>	<b>223.78</b>	<b>264.37</b>	<b>883.64</b>
<b>Cambuquira, Campanha, Monsenhor Paulo and Três Corações (MG)</b>					
Rubi.....	0.92	-	-	-	0.92
Westin.....	-	-	6.65	0.39	7.04
Pera Rio.....	59.6	12.56	40.91	24.45	137.52
Valencia.....	5.82	-	0.38	4.48	10.68
Valencia Folha Murcha.....	14.21	27.2	26.38	20.11	87.9
Natal.....	36.11	59.6	20.28	13.44	129.43
Washington Navel and Baianinha.....	7.86	1.58	5.19	20.62	35.25
Charmute de Brotas.....	5.97	14.99	7.38	-	28.34
Acidless sweet oranges and sweet lime.....	13.6	5.37	15.19	8.49	42.65
Tahiti acid lime.....	0.98	9.56	9.11	-	19.65
Other lemons.....	1.5	-	-	-	1.5
Murcott.....	10.53	-	9.78	-	20.31
Ponkan.....	233.45	238.03	622.38	514.89	1608.75
Other tangerines.....	8.95	10.73	12.75	9.22	41.65
<b>Subtotal.....</b>	<b>399.50</b>	<b>379.62</b>	<b>776.38</b>	<b>616.09</b>	<b>2,171.59</b>
<b>BambuÍ, Formiga, Ibiá, Medeiros and Piumhi (MG)</b>					
Hamlin.....	52.63	-	-	-	52.63
Rubi.....	-	-	57.85	-	57.85
Pera Rio.....	11.74	36.09	128.14	28.66	204.63
Valencia.....	-	-	-	17.66	17.66
Valencia Folha Murcha.....	4.05	10.82	4.68	10.18	29.73
Natal.....	-	8.70	-	-	8.70
Charmute de Brotas.....	-	-	-	4.56	4.56
Acidless sweet oranges and sweet lime.....	-	-	6.09	4.30	10.39
Other oranges.....	-	-	14.68	1.34	16.02
Tahiti acid lime.....	-	2.89	-	15.41	18.30
Ponkan.....	-	10.28	11.80	11.12	33.20
<b>Subtotal.....</b>	<b>68.42</b>	<b>68.78</b>	<b>223.24</b>	<b>93.23</b>	<b>453.67</b>
<b>Subtotal oranges.....</b>		<b>344.23</b>	<b>455.95</b>	<b>419.57</b>	<b>1,478.43</b>
<b>Subtotal acid limes and lemons.....</b>		<b>38.10</b>	<b>92.74</b>	<b>15.41</b>	<b>272.03</b>
<b>Subtotal tangerines.....</b>		<b>287.79</b>	<b>674.71</b>	<b>538.71</b>	<b>1,758.44</b>
<b>Total.....</b>	<b>641.69</b>	<b>670.12</b>	<b>1,223.40</b>	<b>973.69</b>	<b>3,508.90</b>

- Represents zero

<sup>1</sup> For the new mapped areas, the tree count of 5% of the plots was not performed

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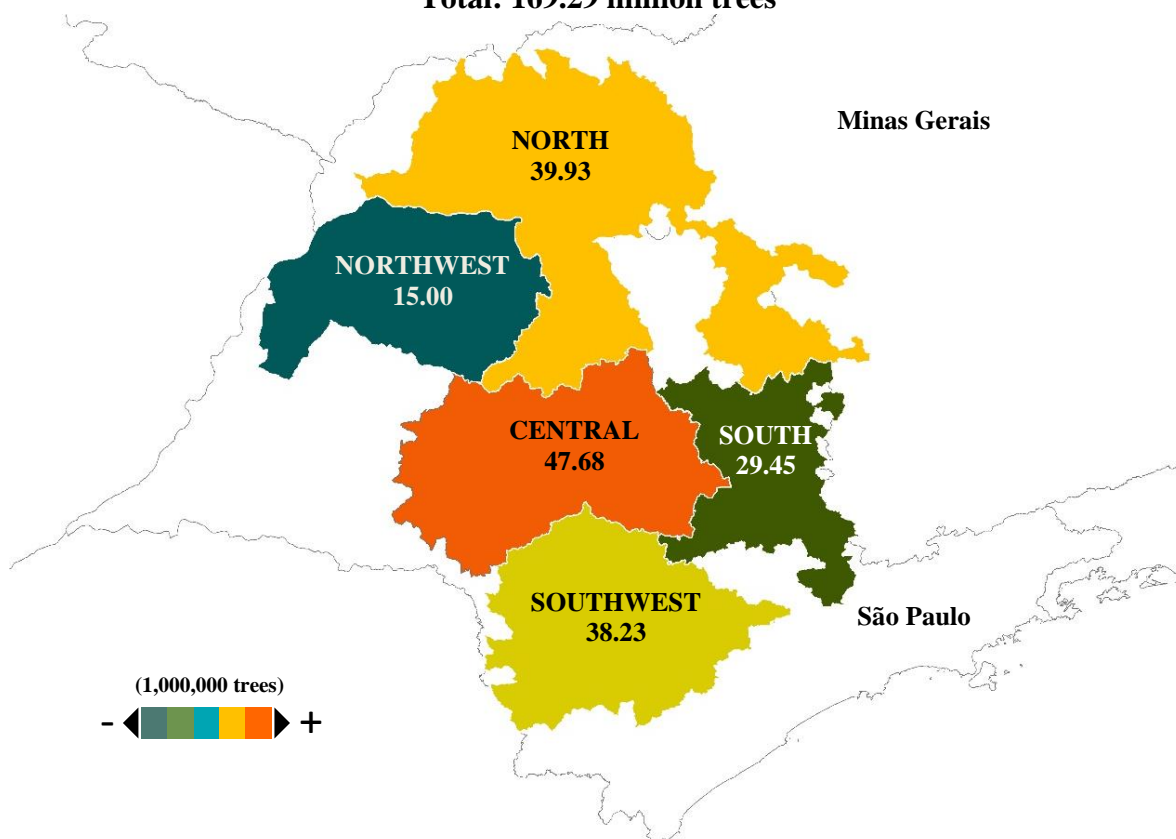
# 2023-2024 ORANGE CROP FORECAST FOR THE SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT

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SCENARIO  
IN MAY 2023

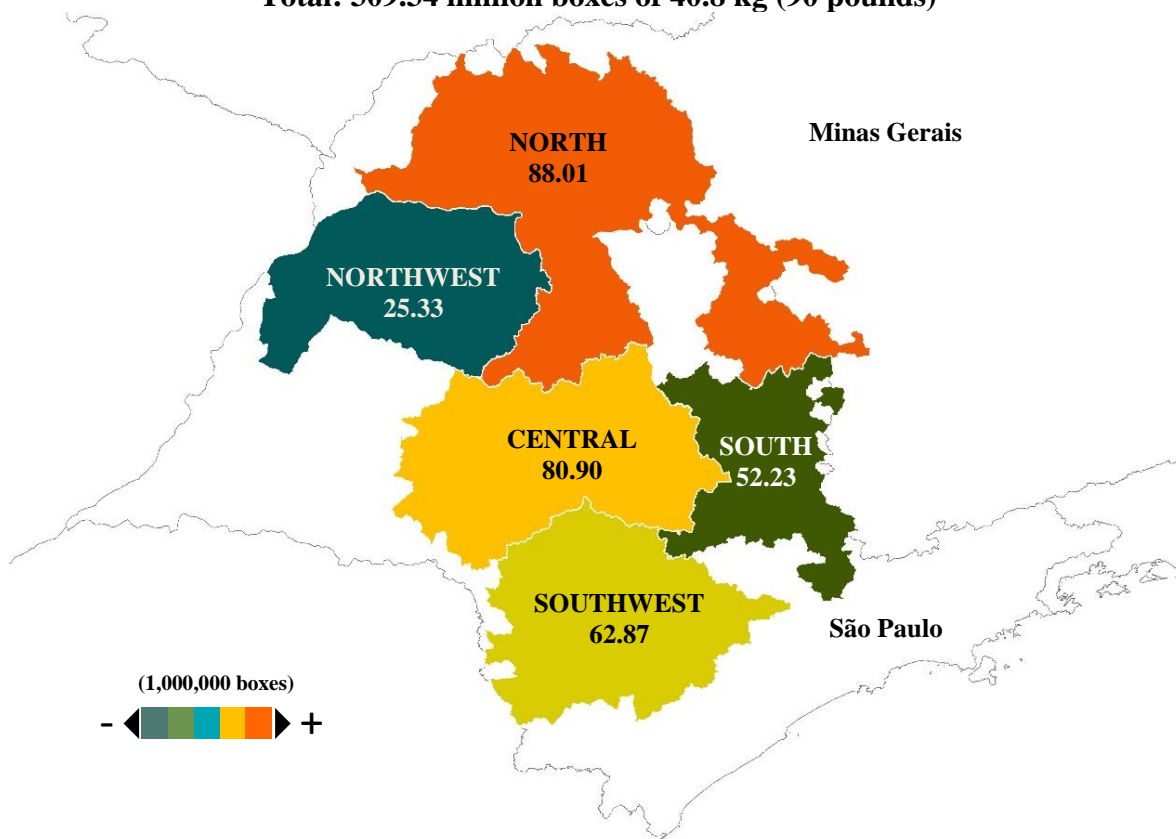
## ORANGE<sup>1</sup> BEARING TREES BY SECTOR

Total: 169.29 million trees



## 2023-2024 ORANGE CROP FORECAST BY SECTOR<sup>2</sup>

Total: 309.34 million boxes of 40.8 kg (90 pounds)



<sup>1</sup> Snapshot in March 2023. Varieties: Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Alvorada, Pera Rio, Valencia, Valencia Folha Murcha and Natal

<sup>2</sup> Status in May 2023

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## **2023-2024 ORANGE CROP FORECAST FOR THE SÃO PAULO ANA WEST-SOUTHWEST MINAS GERAIS CITRUS BELT – MAY FORECAST**

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**Executive summary of the 2023-2024 orange crop forecast published on May 10, 2023<sup>1</sup>**

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### **Publication Schedule**

#### **2023-2024 Crop Year**

Executive summary of the 2023-2024 orange crop forecast: May 10, 2023

March 2023 tree inventory: June 05, 2023

Crop forecast: June 05, 2023

1<sup>st</sup> Crop forecast update: September 11, 2023

2<sup>nd</sup> Crop forecast update: December 11, 2023

3<sup>rd</sup> Crop forecast update: February 09, 2024

Final crop forecast: April 10, 2024

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This is a live document in that it serves to know and explore the citrus belt in rich detail and provide support to agents in this sector. In that sense and with the aim of meeting the demands both from the citrus segment and the press, we reserve the right to enlarge, review and deepen the information already published. It is therefore recommended that the most recent publication available at [www.fundecitrus.com.br](http://www.fundecitrus.com.br) be used.

<sup>1</sup> Year 9 – N° 1 – June 05, 2023 (Executive summary of the orange crop forecast on May 10, 2023)

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**Performed by FUNAECITRUS in cooperation with MARKESTRAT and  
full professors from FEA-RP/USP and the department of Math and Science of FCAV/Unesp**

**2023-2024 ORANGE CROP FORECAST FOR  
THE SÃO PAULO AND WEST-SOUTHWEST  
MINAS GERAIS CITRUS BELT**  
SCENARIO IN MAY 2023

Fundecitrus  
Araraquara, São Paulo  
2023

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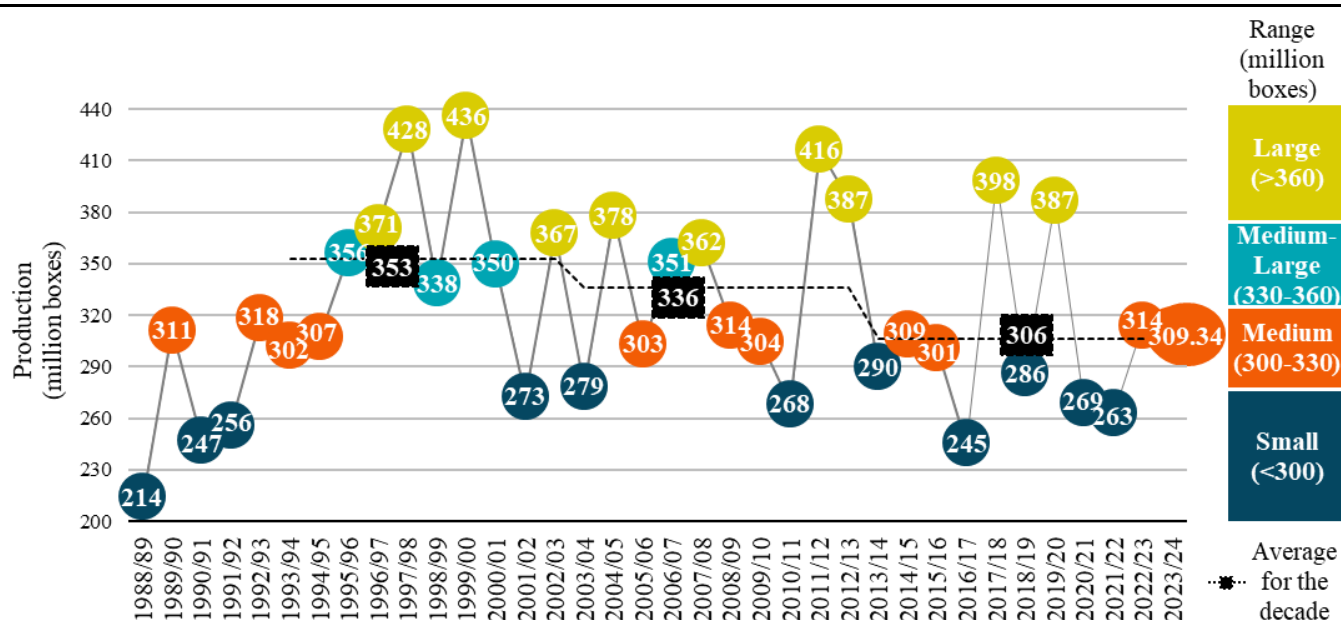
## 1 – 2023-2024 ORANGE CROP FORECAST

The 2023-2024 orange crop forecast for the São Paulo and West-Southwest Minas Gerais citrus belt, published on May 10, 2023 by Fundecitrus in cooperation with Markestrat and full professors from FEA-RP/USP<sup>1</sup> and FCAV/Unesp<sup>2</sup>, is 309.34 million boxes (40.8 kg). Total orange production includes:

- 56.11 million boxes of the Hamlin, Westin and Rubi varieties;
- 18.22 million boxes of the Valencia Americana, Seleta, Pineapple and Alvorada;
- 98.95 million boxes of the Pera Rio variety;
- 105.23 million boxes of the Valencia and Valencia Folha Murcha varieties;
- 30.83 million boxes of the Natal variety.

Approximately 27.02 million boxes are expected to be produced in the Triângulo Mineiro region.

The projected volume is lower only by 1.55 percent as compared to the previous crop, which totaled 314.21 million boxes. That minor difference maintains the production at the same level as in the previous crop season and within the average range for the last ten years, as shown in Graph 1. As compared to the average volume produced in the last decade, the current crop shows a slight increase of 1.04 percent.



Graph 1 – Orange production from 1988-1989 to 2022-2023 and 2023-2024 crop forecast

Sources: CitrusBR (1988-1989 to 2014-2015) and Fundecitrus (2015-2016 to 2023-2024)

One of the causes leading to that variation is the biennial bearing cycle, which results in a lower fruit load per tree in the off-year, such as this crop year. Therefore, just as the average number of fruits per tree increased approximately five percent in the previous crop, it decreased at the same rate in the current crop. Should the assumptions used to estimate the crop hold, that is, the increased average weight of oranges harvested and the reduced early fruit drop rate, it will be possible to minimize the impact resulting from the lower quantity of fruit.

The first significant rains after last year's water stress period were recorded in August in the regions of Avaré, Itapetininga and Duartina. Rains encouraged flowering of orange trees under rainfed conditions in those areas and were followed by heavier rains in September that fell in the same regions and also reached

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Bebedouro. In the remainder of the citrus belt, accumulated rains ranged from 40 to 80 millimeters. In October, heavy rains spread throughout the citrus belt, when flowering was observed in trees under rainfed conditions that had not yet produced their first bloom. A low-intensity second summer was also observed and reached only some cities mostly located in the North, Northwest and Central sectors. Since then, monthly rainfall volumes have remained high until the publication of this forecast. The average rainfall in the citrus belt accumulated from August 2022 to April 2023 was 1,391 millimeters, which is 45 percent higher than the volume accumulated in the same period last year.

The high rainfall volume results from an extremely high frequency of rains in practically all the citrus belt. In Avaré, Itapetininga and Duartina, rains fell in more than half the days in September 2022, whereas in October and November 2022, rains fell in approximately 30 percent of the days throughout the citrus belt. In December 2022 and January 2023, the rainfall frequency increased even further, reaching an average 22 rainy days in each month.

Those consecutive rainfalls during flowering in addition to prolonged periods of soil wetting set favorable conditions for post-bloom fruit drop, a usually sporadic disease caused by a fungus that under continuous moisture at flowering affects flower petals and reduces fruit setting. Post-bloom fruit drop was mostly observed in the regions of Itapetininga, Avaré and Limeira, whereas in Duartina and Brotas it was less significant. Furthermore, it was more pronounced in debilitated plants in lowlands, of late varieties and older, whose trees had at least one bloom during the rainiest period.

Despite causing problems in some specific situations, rains generally favored the growth of fruit that already weigh slightly more than that in the past crop season at the same stage. Fruit is expected to continue to develop well until harvest is complete.

Forecasted rains above historical average in the citrus belt corroborate this expected increase in the average orange weight. This prognosis has the end of the La Niña phenomenon that lasted three years as its main indication, in addition to the expected onset of the El Niño phenomenon in the second half of 2023, according to information from Somar Meteorologia /Climatempo. That will make heavy rains that fell since last year throughout the citrus belt to continue during all crop season.

Thus, the weight of oranges at harvest is projected at 165 grams/5.83 ounces (247 fruits per box), which represents a 3.71 percent increase in relation to the average weight of 159 grams/5.61 ounces recorded in the previous crop (256 fruits per box) and is 1.23 percent above the average weight of the last 10 seasons (163 grams/5.75 ounces, resulting in 250 fruits per box). The regression model used to project the average fruit size is explained in item “2.4 – Fruits per Box.”

Another important aspect of the crop that was influenced by climatic conditions is the definition of the flowering profile. Rains that fell earlier this crop season as compared to the previous one caused an increased production of fruit from the first bloom in rainfed plots. That production added to first bloom fruit in irrigated groves (that account for 39 percent of the fruit bearing area) increased from 27.5 percent in the last crop to 36.2 percent in the current one. The second bloom represents 46.1 percent, the third bloom 16.3 percent, and the fourth bloom 1.5 percent.

Due to a higher percentage of fruit from the first bloom, harvest is expected to start earlier, allowing processing to gain speed faster than in the previous season. This sped-up harvest is advantageous since it may prevent the early fruit drop to reach rates as high as those in the previous crop when harvests lasted until April 2023. Other factors that help reduce fruit loss include soil moisture reserve, which has remained high since spring 2022, and the sharper decrease in the production in the South and Southwest, where fruit drop rate was higher in the last crop.

Despite these positive factors, greening incidence and severity continue to increase, posing intense pressure on fruit drop rate. That disease ranked second in causing fruit drop in the previous crop, accounting for more than a quarter of the total rate of 21.30 percent. Because of this scenario, the drop rate is projected at 21 percent, which is similar to last year's.

Average yield this season is practically the same as last year's, of 918 boxes per hectare and 1.83 boxes per tree, as compared to the 912 boxes per hectare and 1.85 boxes per tree harvested in the 2022-2023 crop.

In the estimation of yield per variety, what stands out is a significant decline in the production of the Natal variety that presented the highest increase in the last crop season (33.2 percent) and now is expected to show the largest decrease, of 16.3 percent. That decreased yield for Natal may be attributed to several factors such as depletion of reserves, fruit remaining too long on trees due to delayed harvest and the incidence of post-bloom fruit drop, which was more pronounced in this variety as compared to the others. Conversely, the Pera Rio and Valencia varieties are expected to present increased yield. Tables 1 and 2 present yields by variety and variations in relation to the previous crop season.

**Table 1 – Yield per hectare and variety for the 2018-2019 crop to the 2023-2024 crop<sup>e</sup>**

Group of varieties	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024 <sup>e</sup>
	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)
Hamlin, Westin and Rubi...	833	1,319	797	819	1,021	1,012
Other earlies.....	810	1,121	827	804	925	971
Subtotal for earlies.....	828	1,273	804	815	998	1,001
Pera Rio.....	633	943	671	653	811	848
Valencia and V.Folha Murcha.	826	998	739	838	940	970
Natal.....	765	1,082	803	734	978	818
<b>Total.....</b>	<b>756</b>	<b>1,045</b>	<b>737</b>	<b>760</b>	<b>912</b>	<b>918</b>

<sup>e</sup> Estimate

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

Group of varieties	2019-2020 in comparison to 2018-2019		2020-2021 in comparison to 2019-2020		2021-2022 in comparison to 2020-2021		2022-2023 in comparison to 2021-2022		2023-2024 <sup>e</sup> in comparison to 2022-2023	
	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%
Hamlin, Westin and Rubi...	486	58.4%	-522	-39.6%	22	2.8%	202	24.7%	-9	-0.9%
Other earlies.....	311	38.4%	-294	-26.2%	-23	-2.8%	121	15.0%	46	5.0%
Subtotal for earlies.....	445	53.8%	-469	-36.9%	11	1.4%	183	22.5%	3	0.3%
Pera Rio.....	310	48.9%	-272	-28.8%	-18	-2.7%	158	24.2%	37	4.6%
Valencia and V.Folha Murcha.	172	20.9%	-259	-26.0%	99	13.4%	102	12.2%	30	3.2%
Natal.....	316	41.3%	-279	-25.8%	-69	-8.6%	244	33.2%	-160	-16.3%
<b>Total.....</b>	<b>290</b>	<b>38.3%</b>	<b>-308</b>	<b>-29.5%</b>	<b>23</b>	<b>3.1%</b>	<b>152</b>	<b>20.0%</b>	<b>6</b>	<b>0.6%</b>

<sup>e</sup> Estimate

Regarding yield per sector, the North stands out, including the regions of Triângulo Mineiro, Bebedouro and Altinópolis, where the highest yield of the citrus belt is expected for this crop, of 1,088 boxes per hectare, representing an increase of 25.3 percent in relation to last crop. It is worth mentioning that in the previous season the North presented the lowest increase in yield in the citrus belt. As for the Southwest, sector that encompasses the regions of Avaré and Itapetininga, the second-lowest yield among the five sectors is expected at 852 boxes per hectare, whereas it was the best performing sector in the last crop. This alternation evidences the biennial bearing cycle but also relates to the incidence of post-bloom fruit drop,

especially in the Southwest. 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 2018-2019 crop to the 2023-2024 crop<sup>e</sup>**

Sector	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024 <sup>e</sup>
	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)	(boxes/ hectare)
North.....	606	1,070	648	804	868	1,088
Northwest.....	404	924	468	646	750	808
Central.....	707	1,032	667	729	928	887
South.....	770	936	725	699	926	872
Southeast.....	1,195	1,217	1,106	869	1,008	852
<b>Total.....</b>	<b>756</b>	<b>1,045</b>	<b>737</b>	<b>760</b>	<b>912</b>	<b>918</b>

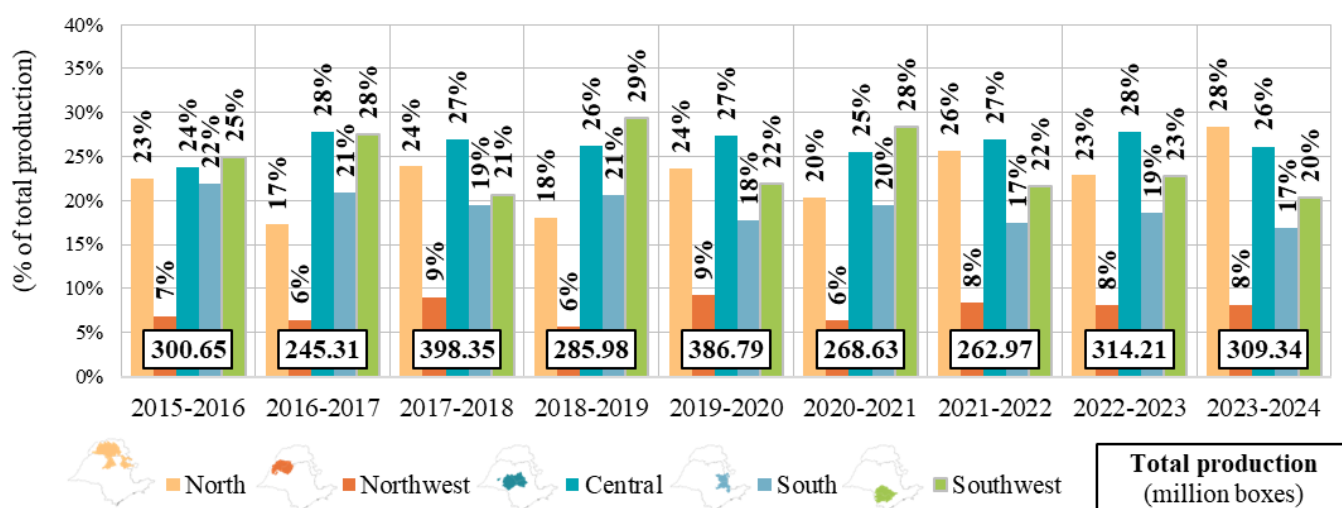
<sup>e</sup> Estimate

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

Sector	2019-2020 in comparison to 2018-2019		2020-2021 in comparison to 2019-2020		2021-2022 in comparison to 2020-2021		2022-2023 in comparison to 2021-2022		2023-2024 <sup>e</sup> in comparison to 2022-2023	
	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%	(boxes/ hectare)	%
North.....	464	76.6%	-422	-39.4%	156	24.1%	64	8.0%	220	25.3%
Northwest.....	520	128.7%	-456	-49.4%	178	38.0%	104	16.1%	58	7.7%
Central.....	325	46.0%	-365	-35.4%	62	9.3%	199	27.3%	-41	-4.4%
South.....	166	21.6%	-211	-22.5%	-26	-3.6%	227	32.5%	-54	-5.9%
Southwest.....	22	1.8%	-111	-9.1%	-237	-21.4%	139	16.0%	-156	-15.4%
<b>Total.....</b>	<b>289</b>	<b>38.2%</b>	<b>-308</b>	<b>-29.5%</b>	<b>23</b>	<b>3.1%</b>	<b>152</b>	<b>20.0%</b>	<b>6</b>	<b>0.6%</b>

<sup>e</sup> Estimate

According to data in Graph 2, it is possible to observe that production is distributed among sectors as follows: 28 percent in the North, 26 percent in the Central, 20 percent in the Southwest, 17 percent in the South and 8 percent in the Northwest.



**Graph 2 – Share of sectors in total orange production in the 2015-2016 to 2023-2024 crops**

## 2 – OBJECTIVE SURVEY METHOD FOR THE ORANGE CROP FORECAST

In order to perform this estimate, the objective method used in previous crop seasons was maintained, which is based on quantitative data – field measurements, counting and weighing of fruit – applied to the equation represented below.

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

where CF is the correction factor

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 general manager); Fernando Alvarinho Delgado (technical supervisor); Roseli Reina (specialist); Vinícius Gustavo Trombin (executive coordinator linked to Markestrat); Marcos Fava Neves (political-institutional and methodological coordinator linked to Markestrat and Part-time Full Professor at FEA-RP/USP); and José Carlos Barbosa (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.

Together with Fundecitrus president Lourival Carmo Monaco, the crop forecast was finalized on May 10, 2023 at 9:30 a.m., in an in-person meeting at Fundecitrus, with no external communication channel beyond participants. This year Professor Marcos Fava Neves participated by video-conference in only the presentation and discussion of the data. Following that, at 10 a.m., Fundecitrus president 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](http://www.youtube.com/fundecitrus)). Next, Fundecitrus general manager Antonio Juliano Ayres presented the detailed data.

After the crop forecast announcement, the Executive Summary of the 2023-2024 orange crop forecast was made available on the Fundecitrus website. The complete report, including the 2022 tree inventory and the 2022-2023 orange crop forecast, was available on June 05, 2023, at [www.fundecitrus.com.br](http://www.fundecitrus.com.br).

### 2.1 – BEARING TREES

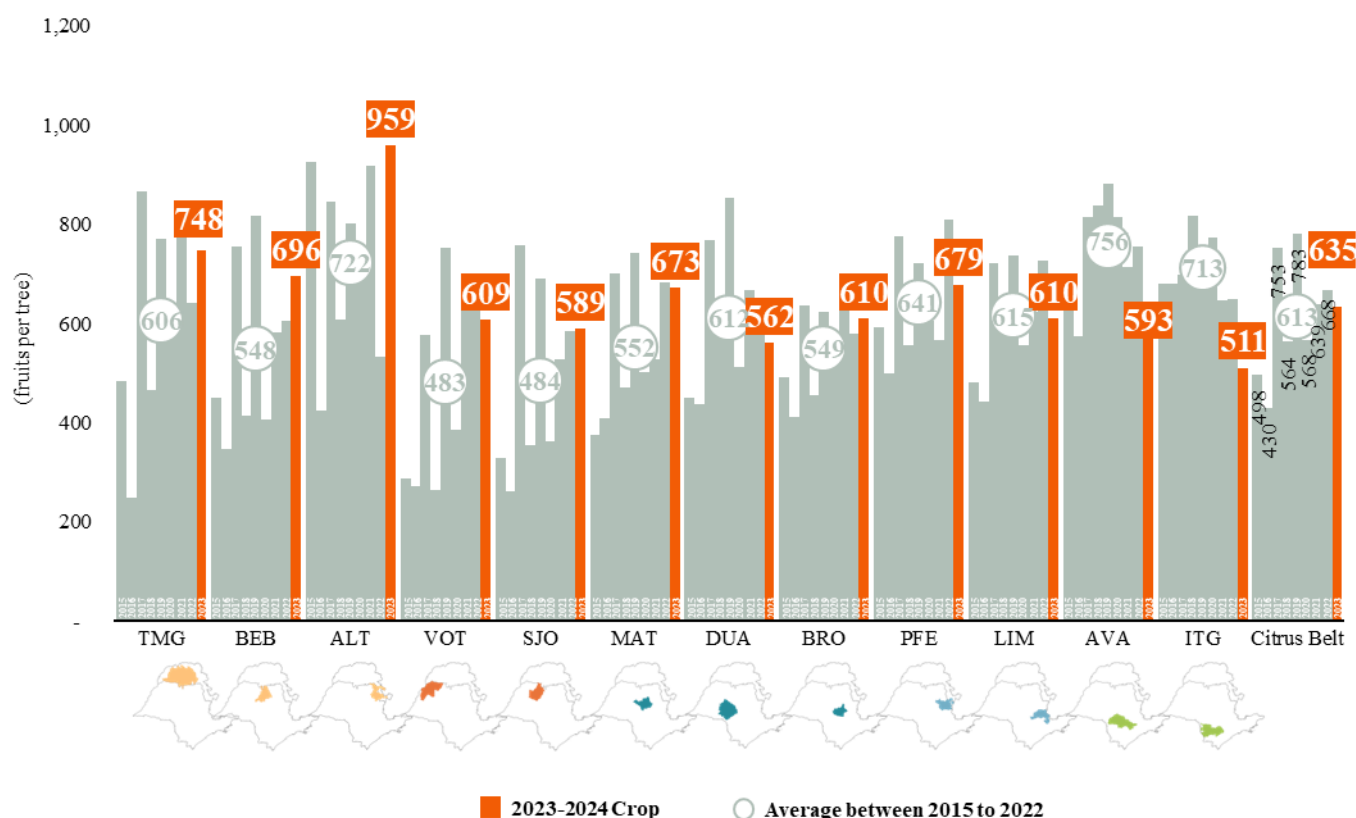
Bearing trees total 169.29 million and occupy an area of 337,091 hectares in this crop season. These figures represent an decrease of 681 thousand trees, equivalent to -0.40% above the 2022 inventory and a decrease in the production area of 2.12%, evidencing the effect of the higher planting density in the last years.

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 in March 2023”, taken from the 2022 primary base – created by mapping groves from August 16, 2021 to January 28, 2022 – and from counting existing trees in approximately 5% of orange plots from January 10 to March 15, 2023.

## 2.2 – FRUIT PER TREE

The average number of fruits per tree in April 2023, without considering the drop that occurs throughout the season, is 635, which represents a decrease of 4,9% in relation to the previous crop. The average number of fruits per tree may have a variation of plus or minus 16 units, which is equivalent to  $\pm 2.6\%$  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.

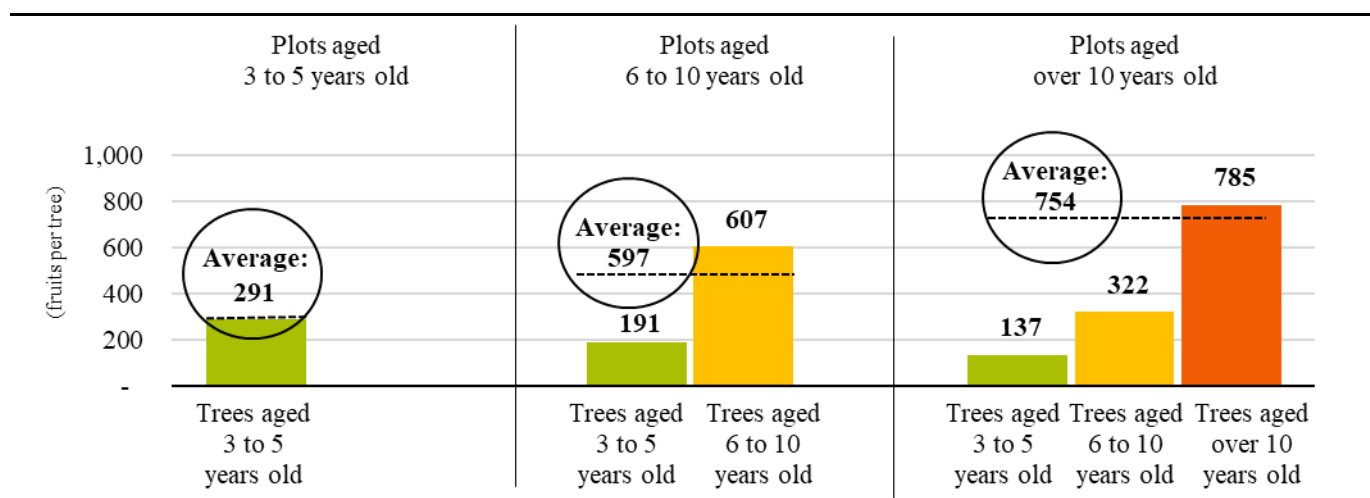
Graph 3 shows the number of fruits per tree at stripping from 2015 to 2023, separately for the 12 regions. Data precision for regions is smaller than that of the general average due to a lower number of samples per stratum. The error in the average number of fruits per tree is  $\pm 9.2\%$  in the Triângulo Mineiro,  $\pm 9.1\%$  in Bebedouro,  $\pm 7.6\%$  in Altinópolis,  $\pm 11\%$  in Votuporanga,  $\pm 9.5\%$ ; in São José do Rio Preto,  $\pm 8.8\%$  in Matão,  $\pm 7.1\%$  in Duartina,  $\pm 9.9\%$  in Brotas,  $\pm 8.4\%$  in Porto Ferreira,  $\pm 8.7\%$  in Limeira,  $\pm 7.7\%$  in Avaré, and  $\pm 9.1\%$  in Itapetininga.



Graph 3 – Number of fruits per fruit-stripped tree by region from 2015 to 2023

For the forecast calculation, fruits from the first, second and third blooms were considered in full. A fruit set rate of 50% was applied to fruits from the fourth bloom, since it was a late bloom and because the physiological drop of small and weak fruits had not taken place before stripping ended this year. 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 291 fruits per tree this crop season. For six to 10-year-old plots, an average of 597 fruits per tree is estimated, with 607 fruits per tree for original plantings and 191 fruits per tree for three to five-year-old resets. Plots over 10 years old have an average of 754 fruits per tree and a yield of 785 fruits per tree for original plantings, 322 fruits per tree for six to 10-year-old resets and 137 fruits per tree for three to five-year-old resets. Yield rates are presented in Graph 4.



Ages and planting years: 3 – 5 years (2018 to 2020), 6 – 10 years (2013 to 2017) and over 10 years (2012 and previous years)

**Graph 4 – Age-stratified number of fruits per tree in the plot**

An average of 828 fruits per tree were counted for the group of earlies Hamlin, Westin and Rubi, 653 fruits per tree for the late season Valencia and Valencia Folha Murcha varieties, 597 fruits per tree for other earlies, 573 per tree for the late Natal variety, and 563 for the mid-season Pera Rio variety.

The stratification of the data considering the presence or absence of an irrigation system in the plot shows that the trees of irrigated groves present, in this crop, 32% more fruits compared to the trees in rainfed groves. However, it is important to emphasize that this analysis is merely exploratory and is not an experiment aimed at proving the contribution of irrigation to productivity. This analysis was limited only to tabulating data based on the presence or absence of an irrigation system, without considering specific information on irrigation use. In addition, other factors may have played a significant role in increasing fruit production per tree, such as management practices, tree age, cultivated varieties, among others. Importantly, the conclusion that irrigation is responsible for the increase in fruit yield cannot be drawn solely on the basis of this exploratory analysis. Therefore, this evaluation points to a higher productivity in irrigated fields, but it is the more in-depth studies, considering additional variables and employing an appropriate experimental design, that provide more conclusive and reliable results about the impact of irrigation.

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 13 to April 28, 2022. Fruits harvested were taken to a fruit stripping laboratory 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 was 1,560 trees selected by a drawing. An initial drawing by the method of stratified random sampling included 1,200 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 Rio
Late.....	Valencia and Valencia Folha Murcha
	Natal

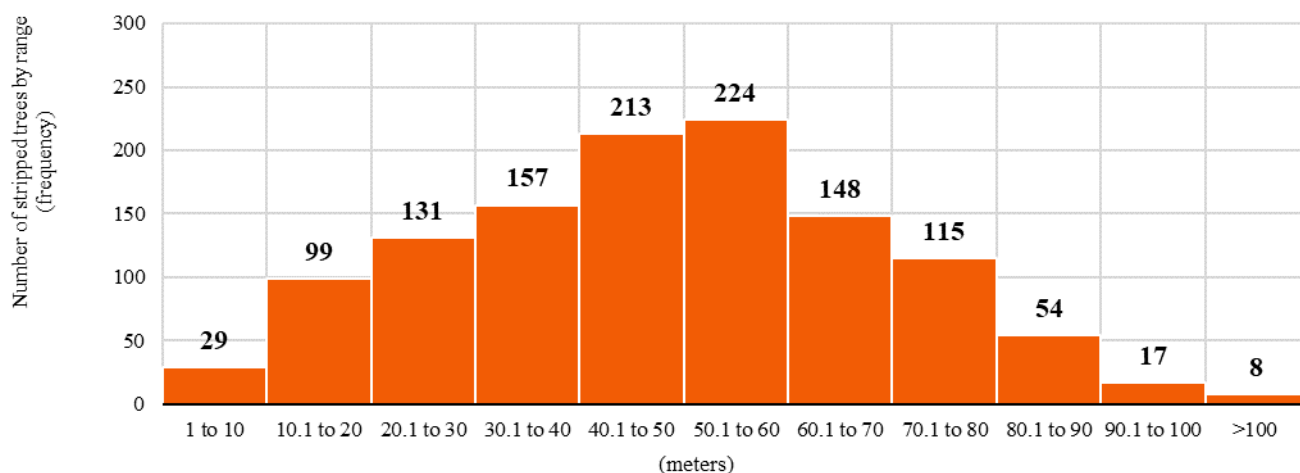
**Chart 3 – Age groups from the combined age of plots and age of trees**

Age of plots <sup>1</sup>	Age of trees <sup>2</sup>
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

<sup>1</sup> Ages and planting years: 3 to 5 years (2018 to 2020), 6 to 10 years (2013 to 2017) and over 10 years (2012 and previous years)

For the 1,200 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 2023-2024 crop, the tree in the drawn plot was the one located in the 22<sup>rd</sup> planting hole in the 13<sup>th</sup> 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 third plant 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 13 or more planting rows, the counting restarted in the existing rows until number 13 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.

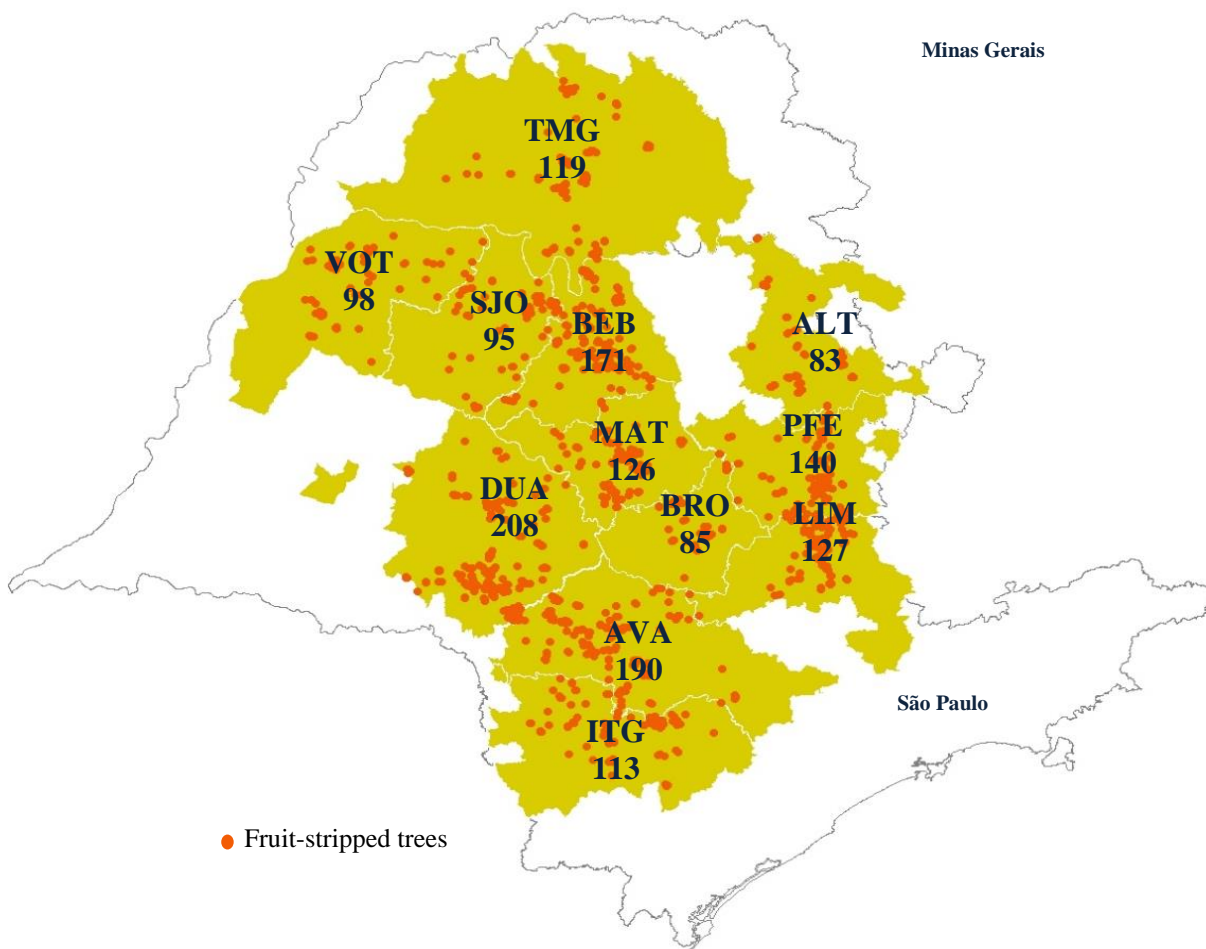
Graph 5 presents the distance (in meters) from the fruit-stripped tree originally planted in the plot to the nearest border of the plot, which shows the majority of classes with similar frequencies, with a central figure between 40 and 60 meters of distance from the fruit-stripped tree to the nearest border.



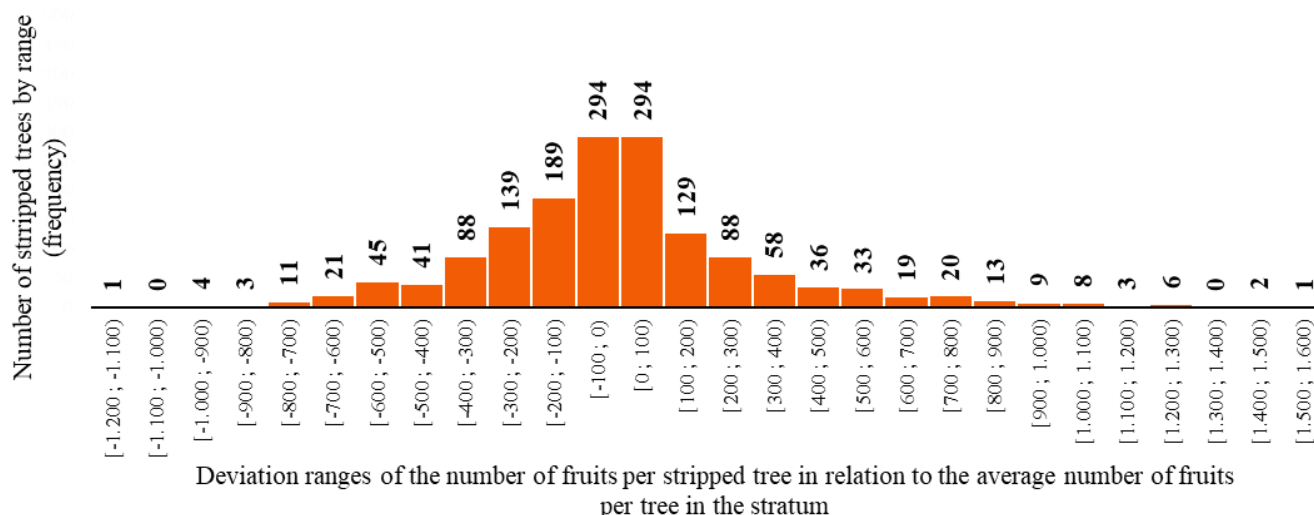
**Graph 5 – Histogram of distances from the fruit-stripped tree to the nearest border of the plot**

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**

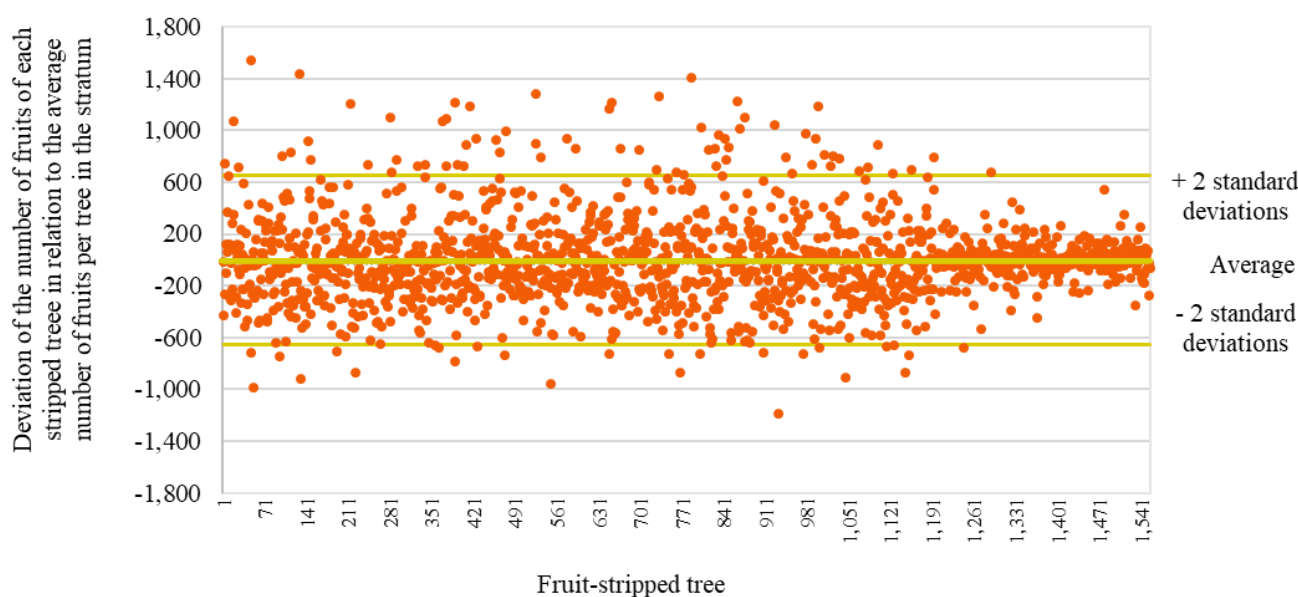


The yield deviation distribution analysis for each fruit-stripped tree in relation to the stratum average shows that sample data are randomly distributed according to a normal distribution, as presented in Graph 6. Out of the total samples, five were discarded upon showing great discrepancy in relation to the others.



**Graph 6 – Histogram of deviations of fruits per tree at stripping**

Graph 7 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 (635 fruits)  $\pm$  2 standard deviations.



**Graph 7 – 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\$ 50.00 through an online payment system where citrus growers can register and redeem the amount due.

### 2.3 – DROP RATE – fruit drop index from tree stripping to final plot harvest

The projected average drop rate is 21.00%, distributed as follows: 10.50% for the early Hamlin, Westin and Rubi varieties, 12.60% for other early varieties, 22.50% for the mid-season Pera Rio variety, 25.50% for the late Valencia and Valencia Folha Murcha varieties, and 26.50% for the late Natal variety. This rate is applied to the number of fruits in the tree in April 2023, 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 Chart 5, the South sector has the highest drop rate at an average 22.40%, whereas the North sector has the lowest one at 18.20%.

**Table 5 – Projected fruit drop rates by sector and variety**

Group of varieties	Sector					
	North	Northwest	Central	South	Southwest	Total
	(percentual)	(percentual)	(percentual)	(percentual)	(percentual)	(percentual)
Hamlin, Westin and Rubi.....	9.50	13.80	11.60	12.10	8.50	<b>10.50</b>
Other earlies.....	9.00	18.00	13.90	22.50	9.80	<b>12.60</b>
Pera Rio.....	19.50	17.50	25.20	23.60	23.90	<b>22.50</b>
Valencia and V. Folha Murcha..	22.90	29.50	26.60	26.40	26.00	<b>25.50</b>
Natal.....	23.90	28.90	23.10	28.50	29.60	<b>26.50</b>
<b>Total.....</b>	<b>18.20</b>	<b>21.00</b>	<b>22.20</b>	<b>22.40</b>	<b>21.70</b>	<b>21.00</b>

Monthly and continuous monitoring carried out by Fundecitrus as of May 2023 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 247 fruits per 40.8 kg box (165 grams/5.83 ounces per fruit), namely 304 fruits per box for the group of early varieties comprising Hamlin, Westin and Rubi (134 grams/ 4.73 ounces per fruit), 253 fruits per box for the group of other early varieties (161 grams/5.69 ounces per fruit), 243 fruits per box for the mid-season Pera Rio variety (168 grams/5.92 ounces per fruit), 222 fruits per box for the late Valencia and Valencia Folha Murcha varieties (184 grams/6.48 ounces per fruit), and 227 fruits per box for the late Natal variety (180 grams/6.34 ounces per fruit). Table 6 presents projected fruit sizes by variety and sector.

**Table 6 – Projected fruit sizes by sector and variety**

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.....	306	301	301	309	302	<b>304</b>
Other earlies.....	249	250	250	264	269	<b>253</b>
Pera Rio.....	240	249	246	251	232	<b>243</b>
Valencia and V. Folha Murcha..	214	229	226	230	221	<b>222</b>
Natal.....	219	246	235	237	219	<b>227</b>
<b>Total.....</b>	<b>244</b>	<b>251</b>	<b>249</b>	<b>255</b>	<b>242</b>	<b>247</b>

The average size of 247 fruits per box is equivalent to oranges weighing approximately 165 grams (5.82 oz) at harvest. 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 eleven crops, 2011-2012 to 2022-2023, 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 adjusted  $R^2$  of 0.90. This means that the four independent variables together explain 90% 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 eleven crops presents an average absolute error of 2.6%.

Data relative to final fruit size (fruits per box at harvest), number of fruits per tree counted at stripping, initial fruit size (fruits per box at stripping), the sum of the production percentages from the first and second blooms in relation to the total production for the series from 2011-2012 to 2014-2015 were provided by orange juice companies associated to Fundecitrus – Citrosuco, Cutrale and Louis Dreyfus –, which separately have estimated the production for the citrus region since 1988, with the use of objective methodology. Data were supplied individually and under a formal confidentiality agreement to an independent consulting firm for the determination of the average. Individual data supplied by each company were kept confidential. Data relative to the 2015-2016 to 2022-2023 crops come from results of estimates developed by Fundecitrus. Data on rainfall accumulated from May to July were supplied by Somar Meteorologia/Climatempo.

Data used in the model to estimate the final fruit size in this crop comprise figures from the 2023 stripping and the rainfall from May to July 2023 in a volume equivalent to 150 millimeters. This size (248) 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, resulting in a projection of 247 fruits per box.

**Table 7 – Data for the 2011-2012 crop to the 2022-2023 crop used to estimate the final fruit size in the 2023-2024 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)	(%)	(%)
2011/12....	859	401	96%	116	269	265	-1%	1,5%
2012/13....	764	439	95%	268	250	239	-4%	4,3%
2013/14....	515	338	87%	247	224	218	-3%	2,7%
2014/15....	646	373	92%	102	256	248	-3%	3,1%
2015/16....	498	391	90%	204	226	233	3%	3,2%
2016/17....	430	358	90%	214	222	224	1%	0,7%
2017/18....	753	393	91%	184	246	252	3%	2,6%
2018/19....	564	446	82%	36	259	252	-3%	2,9%
2019/20....	783	411	94%	95	261	266	2%	1,8%
2020/21....	568	511	85%	96	258	252	-3%	2,5%
2022/23....	668	462	86%	59	256	265	3%	3,3%
2023/24....	635	452	82%	150	(X)	248	(X)	(X)

Sources: Fundecitrus (2015-2016 crop to 2023-2024 crop), CitrusBr (2008-2009 crop to 2014-2015 crop), Somar Meteorologia/Climatempo

(X) Not applicable

The result of the equation used in the crop estimate is corrected by the application of a correction factor. That is necessary because of variables not accounted for in the calculations, such as harvested fruits that wind up not being used, diverse planting densities that are not considered in the stratification of groves, and losses of trees throughout the crop season caused by eradications, abandonments or deaths. The correction factor of 0.10 applied in this crop is the same used since the 2017-2018 crop, which represents the average of the indexes for the 2015-2016 and 2016-2017 crops estimated by Fundecitrus.

### 3 – TABLES OF DATA

The following tables present the 2023-2024 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 – 2023-2024 Orange crop forecast by sector**

Sector	Mature groves area	Average density <sup>1</sup> of mature groves	Bearing trees	Fruit per tree at stripping <sup>2</sup>	2023-2024 Orange crop forecast		
					Per tree	Per hectare	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(number)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
North.....	80,891	488	38,932.43	746	2.26	1,088	88.01
Northwest.....	31,350	492	14,998.59	597	1.69	808	25.33
Central.....	91,182	536	47,676.70	603	1.70	887	80.90
South.....	59,913	510	29,452.08	648	1.77	872	52.23
Southwest.....	73,755	536	38,231.35	566	1.64	852	62.87
<b>Total.....</b>	<b>337,091</b>	<b>516</b>	<b>169,291.15</b>	<b>635</b>	<b>1.83</b>	<b>918</b>	<b>309.34</b>

<sup>1</sup> Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2021 and 2022 resets)

<sup>2</sup> Weighted average per total stratum fruit

**Table 9 – 2023-2024 Orange crop forecast by tree age group (continues below)**

Age of plots	Mature groves area	Average density <sup>1</sup> of mature groves	Bearing trees by age group				Fruit per tree at stripping by age group of trees <sup>2</sup>			
			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.....	56,425	598	31,502.50	-	-	31,502.50	<b>291</b>	-	-	291
6 – 10 years.....	58,397	623	917.49	34,532.98	-	35,450.47	191	<b>607</b>	-	597
Over 10 years.....	222,269	467	1,795.49	4,361.84	96,180.85	102,338.18	137	322	<b>785</b>	754
<b>Total.....</b>	<b>337,091</b>	<b>516</b>	<b>34,215.48</b>	<b>38,894.82</b>	<b>96,180.85</b>	<b>169,291.15</b>	<b>280</b>	<b>575</b>	<b>785</b>	<b>635</b>

<sup>1</sup> Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2021 and 2022 resets)

<sup>2</sup> Weighted average per total stratum fruit

**Table 9 – 2023-2024 Orange crop forecast by tree age group (continued)**

Plots age	2023-2024 Orange crop forecast by tree age group				2023-2024 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.....	0.84	-	-	0.84	<b>26.56</b>	-	-	26.56
6 – 10 years.....	0.56	1.75	-	1.72	0.51	<b>60.52</b>	-	61.03
Over 10 years.....	0.39	0.92	2.26	2.17	0.70	4.02	<b>217.03</b>	221.75
<b>Total.....</b>	<b>0.81</b>	<b>1.66</b>	<b>2.26</b>	<b>1.83</b>	<b>27.77</b>	<b>64.54</b>	<b>217.03</b>	<b>309.34</b>

<sup>1</sup> Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2021 and 2022 resets)

**Table 10 – 2023-2024 Orange crop forecast by bloom**

Bloom	2023-2024 Orange crop forecast	Percentage of the orange crop forecast by bloom
	(1,000,000 boxes)	(percentage)
1 <sup>st</sup> .....	111.83	36.2%
2 <sup>nd</sup> .....	142.56	46.1%
3 <sup>rd</sup> .....	50.43	16.3%
4 <sup>th</sup> .....	4.52	1.5%
<b>Total.....</b>	<b>309.34</b>	<b>100.00%</b>

**Table 11 – 2023-2024 Orange crop forecast in percentage of bloom by region**

Bloom	North <sup>1</sup>				Northwest <sup>2</sup>			Central <sup>3</sup>				South <sup>4</sup>			Southwest <sup>5</sup>			Total
	TMG	BEB	ALT	AVE <sup>6</sup>	VOT	SJO	AVE <sup>6</sup>	MAT	DUA	BRO	AVE <sup>6</sup>	PFE	LIM	AVE <sup>6</sup>	AVA	ITG	AVE <sup>6</sup>	
1 <sup>st</sup> .....	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1 <sup>st</sup> .....	37.5	42.8	10.7	<b>35.9</b>	64.3	24.6	<b>40.3</b>	33.0	47.2	13.5	<b>38.5</b>	17.3	39.3	<b>26.7</b>	40.9	43.8	<b>41.8</b>	<b>36.2</b>
2 <sup>nd</sup> .....	54.8	40.1	68.2	<b>49.3</b>	18.4	63.7	<b>45.8</b>	52.7	29.8	62.0	<b>41.6</b>	59.4	42.2	<b>52.0</b>	39.9	43.2	<b>40.9</b>	<b>46.1</b>
3 <sup>rd</sup> .....	6.5	16.1	19.1	<b>13.6</b>	17.2	11.5	<b>13.8</b>	12.7	22.4	23.5	<b>18.9</b>	21.0	15.8	<b>18.8</b>	18.6	8.0	<b>15.4</b>	<b>16.3</b>
4 <sup>th</sup> .....	1.2	1.0	2.0	<b>1.2</b>	0.1	0.2	<b>0.1</b>	1.6	0.6	1.0	<b>1.0</b>	2.4	2.7	<b>2.5</b>	0.6	4.9	<b>1.9</b>	<b>1.5</b>

<sup>1</sup> North: TMG – Triângulo Mineiro, BEB – Bebedouro, ALT – Altinópolis<sup>2</sup> Northwest: VOT – Votuporanga, SJO – São José do Rio Preto<sup>3</sup> Central: MAT – Matão, DUA – Duartina, BRO – Brotas<sup>4</sup> South: PFE – Porto Ferreira, LIM – Limeira<sup>5</sup> Southwest: AVA – Avaré, ITG – Itapetininga<sup>6</sup> AVE – Weighted average per total stratum fruit**Table 12 – 2023-2024 Orange crop forecast and its components by variety group**

Variety group	Mature groves area	Average density <sup>1</sup> of mature groves	Components of May/2023 forecast				2023-2024 crop forecast		
			Bearing trees	Fruit per tree at stripping <sup>2</sup>	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)
<b>Early:</b>									
Hamlin, Westin and Rubi.....	55,459	473	25,716.04	828	304	10.50	2.18	1,012	56.11
<b>Other early:</b>									
Valencia Americana, Seleta, Pineapple and Alvorada.....	18,763	552	9,866.33	597	253	12.60	1.85	971	18.22
<b>Mid-season:</b>									
Pera Rio.....	116,678	545	61,508.67	563	243	22.50	1.61	848	98.95
<b>Late:</b>									
Valencia and VFolha Murcha <sup>3</sup>	108,514	503	53,648.92	653	222	25.50	1.96	970	105.23
Natal.....	37,677	507	18,551.19	573	227	26.50	1.66	818	30.83
<b>Total.....</b>	<b>337,091</b>	<b>516</b>	<b>169,291.15</b>	<b>635</b>	<b>247</b>	<b>21.00</b>	<b>1.83</b>	<b>918</b>	<b>309.34</b>

(X) Not applicable

<sup>1</sup> Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2021 and 2022 resets)<sup>2</sup> Weighted average per total stratum fruit<sup>3</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 13 – 2023-2024 Orange crop forecast by variety group and sector**

Variety group	2023-2024 crop forecast					
	Sector					
	North	Northwest	Central	South	Southwest	Total
	(1,000,000 boxes)	(1,000,000 boxes)	(1,000,000 boxes)	(1,000,000 boxes)	(1,000,000 boxes)	(1,000,000 boxes)
<b>Early:</b> Hamlin, Westin and Rubi.....	17.33	2.98	12.99	10.83	11.98	56.11
<b>Other early:</b> Valencia Americana, Seleta, Pineapple and Alvorada	5.59	2.09	7.25	0.49	2.80	18.22
<b>Mid-season:</b> Pera Rio.....	24.07	12.09	27.85	17.01	17.93	98.95
<b>Late:</b> Valencia and V.Folha Murcha <sup>3</sup>	33.33	6.12	25.12	20.14	20.52	105.23
Natal.....	7.69	2.05	7.69	3.76	9.64	30.83
<b>Average.....</b>	<b>88.01</b>	<b>25.33</b>	<b>80.90</b>	<b>52.23</b>	<b>62.87</b>	<b>309.34</b>

**Table 14 – 2023-2024 Orange crop forecast by variety group – North Sector**

Variety group	Mature groves area	Average density <sup>1</sup> of mature groves	Components of May/2023 forecast				2023-2024 crop forecast		
			Bearing trees	Fruit per tree at stripping <sup>2</sup>	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)
<b>Early:</b> Hamlin, Westin and Rubi.....	15,083	435	6,503.91	1,005	306	9.5	2.66	1,149	17.33
<b>Other early:</b> Valencia Americana, Seleta, Pineapple and Alvorada.....	4,056	560	2,191.81	779	249	9.0	2.55	1,378	5.59
<b>Mid-season:</b> Pera Rio.....	25,421	539	13,535.28	592	240	19.5	1.78	947	24.07
<b>Late:</b> Valencia and VFolha Murcha <sup>3</sup>	28,083	465	12,926.93	798	214	22.9	2.58	1,187	33.33
Natal.....	8,248	464	3,774.50	655	219	23.9	2.04	932	7.69
<b>Total.....</b>	<b>80,891</b>	<b>488</b>	<b>38,932.43</b>	<b>746</b>	<b>244</b>	<b>18.2</b>	<b>2.26</b>	<b>1,088</b>	<b>88.01</b>

**Table 15 – 2023-2024 Orange crop forecast by variety group – Northwest Sector**

Variety group	Mature groves area	Average density <sup>1</sup> of mature groves	Components of May/2023 forecast				2023-2024 crop forecast		
			Bearing trees	Fruit per tree at stripping <sup>2</sup>	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)
<b>Early:</b> Hamlin, Westin and Rubi.....	4,192	482	1,994.68	582	301	13.8	1.49	711	2.98
<b>Other early:</b> Valencia Americana, Seleta, Pineapple and Alvorada.....	3,249	570	1,718.19	414	250	18.0	1.22	643	2.09
<b>Mid-season:</b> Pera Rio.....	14,507	472	6,669.81	611	249	17.5	1.81	833	12.09
<b>Late:</b> Valencia and VFolha Murcha <sup>3</sup>	6,161	501	3,058.93	725	229	29.5	2.00	993	6.12
Natal.....	3,241	495	1,556.98	508	246	28.9	1.32	633	2.05
<b>Total.....</b>	<b>31,350</b>	<b>492</b>	<b>14,998.59</b>	<b>597</b>	<b>251</b>	<b>21.0</b>	<b>1.69</b>	<b>808</b>	<b>25.33</b>

<sup>1</sup> Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2021 and 2022 resets)<sup>2</sup> Weighted average per total stratum fruit<sup>3</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 16 – 2023-2024 Orange crop forecast by variety group – Central Sector**

Variety group	Mature groves area	Average density <sup>1</sup> of mature groves	Components of May/2023 forecast				2023-2024 crop forecast		
			Bearing trees	Fruit per tree at stripping <sup>2</sup>	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)
<b>Early:</b> Hamlin, Westin and Rubi.....	13,296	504	6,606.99	747	301	11.6	1.97	977	12.99
<b>Other early:</b> Valencia Americana, Seleta, Pineapple and Alvorada.....	6,660	536	3,473.28	677	250	13.9	2.09	1,089	7.25
<b>Mid-season:</b> Pera Rio.....	32,874	563	17,927.80	570	246	25.2	1.55	847	27.85
<b>Late:</b> Valencia and VFolha Murcha <sup>3</sup>	28,889	532	15,036.66	574	226	26.6	1.67	870	25.12
Natal.....	9,463	502	4,631.97	567	235	23.1	1.66	813	7.69
<b>Total.....</b>	<b>91,182</b>	<b>536</b>	<b>47,676.70</b>	<b>603</b>	<b>249</b>	<b>22.2</b>	<b>1.70</b>	<b>887</b>	<b>80.90</b>

**Table 17 – 2023-2024 Orange crop forecast by variety group – South Sector**

Variety group	Mature groves area	Average density <sup>1</sup> of mature groves	Components of May/2023 forecast				2023-2024 crop forecast		
			Bearing trees	Fruit per tree at stripping <sup>2</sup>	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)
<b>Early:</b> Hamlin, Westin and Rubi.....	10,578	480	4,966.73	855	309	12.1	2.18	1,024	10.83
<b>Other early:</b> Valencia Americana, Seleta, Pineapple and Alvorada.....	1,132	490	542.68	342	264	22.5	0.90	433	0.49
<b>Mid-season:</b> Pera Rio.....	22,289	556	11,764.73	530	251	23.6	1.45	763	17.01
<b>Late:</b> Valencia and VFolha Murcha <sup>3</sup>	20,749	475	9,592.07	732	230	26.4	2.10	971	20.14
Natal.....	5,165	517	2,585.87	539	237	28.5	1.45	728	3.76
<b>Total.....</b>	<b>59,913</b>	<b>510</b>	<b>29,452.08</b>	<b>648</b>	<b>255</b>	<b>22.4</b>	<b>1.77</b>	<b>872</b>	<b>52.23</b>

**Table 18 – 2023-2024 Orange crop forecast by variety group – Southwest Sector**

Variety group	Mature groves area	Average density <sup>1</sup> of mature groves	Components of May/2023 forecast				2023-2024 crop forecast		
			Bearing trees	Fruit per tree at stripping <sup>2</sup>	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)
<b>Early:</b> Hamlin, Westin and Rubi.....	12,310	477	5,643.73	781	302	8.5	2.12	973	11.98
<b>Other early:</b> Valencia Americana, Seleta, Pineapple and Alvorada.....	3,666	576	1,940.37	481	269	9.8	1.44	764	2.80
<b>Mid-season:</b> Pera Rio.....	21,587	561	11,611.05	526	232	23.9	1.54	831	17.93
<b>Late:</b> Valencia and VFolha Murcha <sup>3</sup>	24,632	536	13,034.33	524	221	26.0	1.57	833	20.52
Natal.....	11,560	541	6,001.87	558	219	29.6	1.61	834	9.64
<b>Total.....</b>	<b>73,755</b>	<b>536</b>	<b>38,231.35</b>	<b>566</b>	<b>242</b>	<b>21.7</b>	<b>1.64</b>	<b>852</b>	<b>62.87</b>

<sup>1</sup> Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2020 or 2021 resets)<sup>2</sup> Weighted average per total stratum fruit<sup>3</sup> V.Folha Murcha – Valencia Folha Murcha

**Table 19 – Fruit per tree at stripping<sup>1</sup> by age group, region and variety – North Sector [April 2023 stripping]**

Region and variety groups	Plots 3 – 5 years	Plots 6 – 10 years			Plots over 10 years				Average
	Trees 3 – 5 years	Trees 3 – 5 years	Trees 6 – 10 years	Average	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Average	
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
<b>TMG<sup>2</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	749	286	800	798	237	356	1,227	1,203	1,149
Other early varieties <sup>3</sup> .....	154	117	1,420	1,407	243	614	495	496	282
<b>Mid-season:</b>									
Pera Rio.....	278	270	439	438	200	297	705	697	547
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	251	239	915	915	68	248	789	782	793
Natal.....	232	175	634	627	89	243	821	808	776
<b>Average<sup>1</sup></b> .....	<b>293</b>	<b>248</b>	<b>607</b>	<b>606</b>	<b>136</b>	<b>294</b>	<b>854</b>	<b>844</b>	<b>748</b>
<b>BEB<sup>5</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	116	364	1,230	1,222	45	371	1,018	971	898
Other early varieties <sup>3</sup> .....	590	42	630	624	123	264	1,138	1,051	844
<b>Mid-season:</b>									
Pera Rio.....	294	204	510	501	261	145	839	783	610
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	622	80	515	505	272	409	766	739	686
Natal.....	174	43	739	720	96	190	570	510	527
<b>Average<sup>1</sup></b> .....	<b>397</b>	<b>160</b>	<b>602</b>	<b>591</b>	<b>182</b>	<b>290</b>	<b>853</b>	<b>805</b>	<b>696</b>
<b>ALT<sup>6</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	118	261	535	533	127	184	1,307	1,277	1,171
Other early varieties <sup>3</sup> .....	ND	42	637	631	172	211	953	863	857
<b>Mid-season:</b>									
Pera Rio.....	264	93	539	537	84	180	706	698	628
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	202	ND	813	813	211	196	1,315	1,297	1,209
Natal.....	206	184	694	674	132	343	1,026	993	835
<b>Average<sup>1</sup></b> .....	<b>226</b>	<b>171</b>	<b>629</b>	<b>624</b>	<b>128</b>	<b>214</b>	<b>1,089</b>	<b>1,070</b>	<b>959</b>
<b>Average sector</b> .....	<b>360</b>	<b>165</b>	<b>606</b>	<b>598</b>	<b>176</b>	<b>286</b>	<b>891</b>	<b>858</b>	<b>746</b>

<sup>1</sup> Weighted average per total stratum fruit<sup>2</sup> TMG – Triângulo Mineiro<sup>3</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> BEB – Bebedouro<sup>6</sup> ALT – Altinópolis

**Table 20 – Fruit per tree at stripping<sup>1</sup> by age group, region and variety – Northwest Sector [April 2023 stripping]**

Region and variety groups	Plots 3 – 5 years	Plots 6 – 10 years			Plots over 10 years				Average
	Trees 3 – 5 years	Trees 3 – 5 years	Trees 6 – 10 years	Average	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Average	
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
<b>VOT<sup>2</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	445	31	157	157	303	162	264	264	316
Other early varieties <sup>3</sup> .....	185	221	327	327	181	169	736	712	427
<b>Mid-season:</b>									
Pera Rio.....	194	342	760	754	113	111	760	723	619
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	256	ND	425	425	231	640	802	800	738
Natal.....	588	218	1,098	1,043	35	457	420	414	618
<b>Average<sup>1</sup></b> .....	<b>260</b>	<b>311</b>	<b>765</b>	<b>757</b>	<b>129</b>	<b>143</b>	<b>719</b>	<b>694</b>	<b>609</b>
<b>SJO<sup>5</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	474	ND	326	326	114	443	722	709	641
Other early varieties <sup>3</sup> .....	362	94	423	412	106	317	484	478	413
<b>Mid-season:</b>									
Pera Rio.....	274	70	648	639	127	451	853	802	596
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	150	114	711	708	50	236	773	763	721
Natal.....	160	51	354	353	47	381	867	785	477
<b>Average<sup>1</sup></b> .....	<b>324</b>	<b>78</b>	<b>543</b>	<b>540</b>	<b>89</b>	<b>399</b>	<b>742</b>	<b>720</b>	<b>589</b>
<b>Average sector</b> .....	<b>298</b>	<b>199</b>	<b>615</b>	<b>611</b>	<b>101</b>	<b>282</b>	<b>733</b>	<b>709</b>	<b>597</b>

<sup>1</sup> Weighted average per total stratum fruit<sup>2</sup> VOT – Votuporanga<sup>3</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> SJO - São José do Rio Preto

**Table 21 – Fruit per tree at stripping<sup>1</sup> by age group, region and variety – Central Sector [April 2023 stripping]**

Region and variety groups	Plots 3 – 5 years	Plots 6 – 10 years			Plots over 10 years				Average
	Trees 3 – 5 years	Trees 3 – 5 years	Trees 6 – 10 years	Average	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Average	
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
<b>MAT<sup>2</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	231	614	779	778	127	202	995	945	767
Other early varieties <sup>3</sup> .....	213	757	784	783	287	220	860	804	669
<b>Mid-season:</b>									
Pera Rio.....	460	274	757	748	81	226	638	604	653
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	307	180	739	726	105	95	693	662	643
Natal.....	178	45	776	751	354	299	1,042	1,013	697
<b>Average<sup>1</sup></b> .....	<b>314</b>	<b>258</b>	<b>759</b>	<b>749</b>	<b>119</b>	<b>191</b>	<b>769</b>	<b>730</b>	<b>673</b>
<b>DUA<sup>6</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	253	290	343	343	216	363	1,106	1,047	737
Other early varieties <sup>3</sup> .....	364	155	644	611	62	396	881	859	642
<b>Mid-season:</b>									
Pera Rio.....	321	159	658	634	66	261	626	610	530
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	247	234	599	585	281	602	690	682	522
Natal.....	633	283	416	410	165	128	550	529	522
<b>Average<sup>1</sup></b> .....	<b>305</b>	<b>194</b>	<b>581</b>	<b>565</b>	<b>173</b>	<b>390</b>	<b>723</b>	<b>704</b>	<b>562</b>
<b>BRO<sup>7</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	163	240	606	593	151	414	870	847	729
Other early varieties <sup>3</sup> .....	326	240	810	797	374	437	1,150	1,088	929
<b>Mid-season:</b>									
Pera Rio.....	179	87	525	512	178	71	687	672	524
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	215	87	429	422	413	284	722	703	659
Natal.....	221	101	203	201	ND	228	482	462	389
<b>Average<sup>1</sup></b> .....	<b>188</b>	<b>105</b>	<b>529</b>	<b>518</b>	<b>240</b>	<b>278</b>	<b>733</b>	<b>713</b>	<b>610</b>
<b>Average sector.....</b>	<b>301</b>	<b>207</b>	<b>661</b>	<b>647</b>	<b>156</b>	<b>299</b>	<b>738</b>	<b>713</b>	<b>603</b>

<sup>1</sup> Weighted average per total stratum fruit<sup>2</sup> MAT – Matão<sup>3</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>6</sup> DUA – Duartina<sup>7</sup> BRO – Brotas

**Table 22 – Fruit per tree at stripping<sup>1</sup> by age group, region and variety – South Sector [April 2023 stripping]**

Region and variety groups	Plots 3 – 5 years	Plots 6 – 10 years			Plots over 10 years				Average
	Trees 3 – 5 years	Trees 3 – 5 years	Trees 6 – 10 years	Average	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Average	
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
<b>PFE<sup>2</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	309	53	814	799	67	982	1,033	1,004	758
Other early varieties <sup>3</sup> .....	118	233	518	498	81	257	415	383	277
<b>Mid-season:</b>									
Pera Rio.....	242	349	529	520	111	279	892	819	610
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	205	89	631	613	212	340	1,015	935	775
Natal.....	364	160	501	489	173	248	923	901	614
<b>Average<sup>1</sup></b> .....	<b>258</b>	<b>258</b>	<b>577</b>	<b>565</b>	<b>140</b>	<b>424</b>	<b>955</b>	<b>890</b>	<b>679</b>
<b>LIM<sup>5</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	172	89	436	416	113	501	1,329	1,254	960
Other early varieties <sup>3</sup> .....	119	ND	408	408	44	280	526	512	461
<b>Mid-season:</b>									
Pera Rio.....	165	121	441	422	184	243	592	549	432
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	250	120	392	378	131	509	837	799	683
Natal.....	274	165	345	345	95	312	538	482	415
<b>Average<sup>1</sup></b> .....	<b>190</b>	<b>116</b>	<b>416</b>	<b>401</b>	<b>148</b>	<b>379</b>	<b>825</b>	<b>773</b>	<b>610</b>
<b>Average sector</b> .....	<b>231</b>	<b>197</b>	<b>518</b>	<b>504</b>	<b>144</b>	<b>402</b>	<b>890</b>	<b>832</b>	<b>648</b>

<sup>1</sup> Weighted average per total stratum fruit<sup>2</sup> PFE – Porto Ferreira<sup>3</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> LIM – Limeira

**Table 23 – Fruit per tree at stripping<sup>1</sup> by age group, region and variety – Southwest Sector [April 2023 stripping]**

Region and variety groups	Plots 3 – 5 years	Plots 6 – 10 years			Plots over 10 years				Average
	Trees 3 – 5 years	Trees 3 – 5 years	Trees 6 – 10 years	Average	Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Average	
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
<b>AVA<sup>2</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	282	135	1,033	1,006	143	333	878	830	755
Other early varieties <sup>3</sup> .....	140	284	499	490	95	304	842	825	669
<b>Mid-season:</b>									
Pera Rio.....	273	105	570	549	145	547	689	670	573
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	126	196	597	586	35	88	624	589	542
Natal.....	375	97	560	551	107	211	617	597	564
<b>Average<sup>1</sup></b> .....	<b>246</b>	<b>136</b>	<b>613</b>	<b>596</b>	<b>101</b>	<b>269</b>	<b>690</b>	<b>660</b>	<b>593</b>
<b>ITG<sup>5</sup></b>									
<b>Early:</b>									
Hamlin, Westin and Rubi.....	382	205	973	971	144	225	1,062	1,055	854
Other early varieties <sup>3</sup> .....	278	131	318	318	142	123	513	504	357
<b>Mid-season:</b>									
Pera Rio.....	275	250	514	513	239	278	509	502	439
<b>Late:</b>									
Valencia and V.Folha Murcha <sup>4</sup> ....	424	92	419	415	29	221	515	509	482
Natal.....	260	182	460	458	159	476	726	718	550
<b>Average<sup>1</sup></b> .....	<b>311</b>	<b>158</b>	<b>536</b>	<b>534</b>	<b>146</b>	<b>304</b>	<b>609</b>	<b>601</b>	<b>511</b>
<b>Average sector</b> .....	<b>277</b>	<b>140</b>	<b>568</b>	<b>560</b>	<b>108</b>	<b>270</b>	<b>669</b>	<b>645</b>	<b>566</b>

<sup>1</sup> Weighted average per total stratum fruit<sup>2</sup> AVA – Avaré<sup>3</sup> Valencia Americana, Seleta, Pineapple and Alvorada<sup>4</sup> V.Folha Murcha – Valencia Folha Murcha<sup>5</sup> ITG – Itapetininga

**Table 24 – Fruit per tree at stripping (considers only the trees of the original plantings, excludes resets), from non-irrigated and irrigated groves, by sector and region [April 2023 stripping]**

Sector and region	Non-irrigated groves (trees from the original planting)	Irrigated groves (trees from the original planting)	Average (trees from the original planting)	Variation	Percentage of bearing trees in irrigated groves in the citrus belt
	(number)	(number)	(number)	(%)	(%)
<b>North</b>					
Triângulo Mineiro.....	297	819	754	175%	88%
Bebedouro.....	592	764	723	29%	76%
Altinópolis.....	982	731	974	-26%	3%
<b>Subtotal .....</b>	<b>719</b>	<b>785</b>	<b>766</b>	<b>9%</b>	<b>70%</b>
<b>Northwest</b>					
Votuporanga.....	414	697	623	68%	74%
São José do Rio Preto.....	331	793	598	140%	58%
<b>Subtotal.....</b>	<b>354</b>	<b>750</b>	<b>608</b>	<b>112%</b>	<b>64%</b>
<b>Central</b>					
Matão.....	588	737	691	25%	69%
Duartina.....	544	693	571	27%	18%
Brotas.....	680	477	624	-30%	27%
<b>Subtotal.....</b>	<b>567</b>	<b>704</b>	<b>616</b>	<b>24%</b>	<b>36%</b>
<b>South</b>					
Porto Ferreira.....	671	784	704	17%	29%
Limeira.....	506	1,065	637	111%	23%
<b>Subtotal.....</b>	<b>593</b>	<b>896</b>	<b>674</b>	<b>51%</b>	<b>27%</b>
<b>Southwest</b>					
Avaré.....	607	683	614	13%	9%
Itapetininga.....	512	677	515	32%	2%
<b>Subtotal .....</b>	<b>572</b>	<b>682</b>	<b>580</b>	<b>19%</b>	<b>7%</b>
<b>Total.....</b>	<b>580</b>	<b>767</b>	<b>651</b>	<b>32%</b>	<b>38%</b>

The data in this table are stratified by the presence or absence of irrigation system in the stands of the stripped trees, but Fundecitrus did not have access to information on the use of irrigation, in addition, it is important to consider that other factors such as management practices, age of trees, cultivated varieties, among others, can affect the amount of fruit per tree

**Table 25 – Fruit per tree at stripping (considers only the trees of the original plantings, excludes resets), from non-irrigated and irrigated groves, by age group [April 2023 stripping]**

Age group	Non-irrigated groves (trees from the original planting)	Irrigated groves (trees from the original planting)	Average (trees from the original planting)	Variation	Percentage of bearing trees in irrigated groves in the citrus belt
	(number)	(number)	(number)	(%)	(%)
3 – 5 years.....	244	397	291	62.3%	31%
6 – 10 years.....	506	715	607	41.2%	49%
Over 10 years.....	722	893	785	23.8%	37%
<b>Total.....</b>	<b>580</b>	<b>767</b>	<b>651</b>	<b>32%</b>	<b>38%</b>

The data in this table are stratified by the presence or absence of irrigation system in the stands of the stripped trees, but Fundecitrus did not have access to information on the use of irrigation, in addition, it is important to consider that other factors such as management practices, age of trees, cultivated varieties, among others, can affect the amount of fruit per tree

**Table 26 – Fruit per tree at stripping (considers only the trees of the original plantings, excludes resets), from non-irrigated and irrigated groves, by variety group [April 2023 stripping]**

Variety group	Non-irrigated groves (trees from the original planting)	Irrigated groves (trees from the original planting)	Average (trees from the original planting)	Variation	Percentage of bearing trees in irrigated groves in the citrus belt
	(number)	(number)	(number)	(%)	(%)
<b>Early:</b>					
Hamlin, Westin and Rubi.....	751	1,012	850	35%	38%
<b>Other early:</b>					
Valencia Americana, Seleta, Pineapple and Alvorada.....	497	778	609	56%	40%
<b>Mid-season:</b>					
Pera Rio.....	523	661	578	26%	39%
<b>Late:</b>					
Valencia and VFolha Murcha <sup>3</sup>	588	812	670	38%	36%
Natal.....	543	666	590	23%	38%
<b>Total.....</b>	<b>580</b>	<b>767</b>	<b>651</b>	<b>32%</b>	<b>38%</b>

The data in this table are stratified by the presence or absence of irrigation system in the stands of the stripped trees, but Fundecitrus did not have access to information on the use of irrigation, in addition, it is important to consider that other factors such as management practices, age of trees, cultivated varieties, among others, can affect the amount of fruit per tree

**Table 27 – Fruit per tree at stripping (considers only the trees of the original plantings, excludes resets), from non-irrigated and irrigated groves, by bloom [April 2023 stripping]**

Irrigation system	1st. bloom	2nd. bloom	3rd. bloom	4nd. bloom	Total
	(number)	(number)	(number)	(number)	(number)
Non-irrigated groves (trees from the original planting).....	181	275	115	8	580
Irrigated groves (trees from the original planting).....	330	334	92	11	767
<b>Total.....</b>	<b>238</b>	<b>298</b>	<b>106</b>	<b>9</b>	<b>651</b>
	(%)	(%)	(%)	(%)	(%)
Non-irrigated groves (trees from the original planting).....	31%	48%	20%	1%	<b>100%</b>
Irrigated groves (trees from the original planting).....	43%	44%	12%	1%	100%
<b>Total.....</b>	<b>37%</b>	<b>46%</b>	<b>16%</b>	<b>1%</b>	<b>100%</b>

The data in this table are stratified by the presence or absence of irrigation system in the stands of the stripped trees, but Fundecitrus did not have access to information on the use of irrigation, in addition, it is important to consider that other factors such as management practices, age of trees, cultivated varieties, among others, can affect the amount of fruit per tree









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