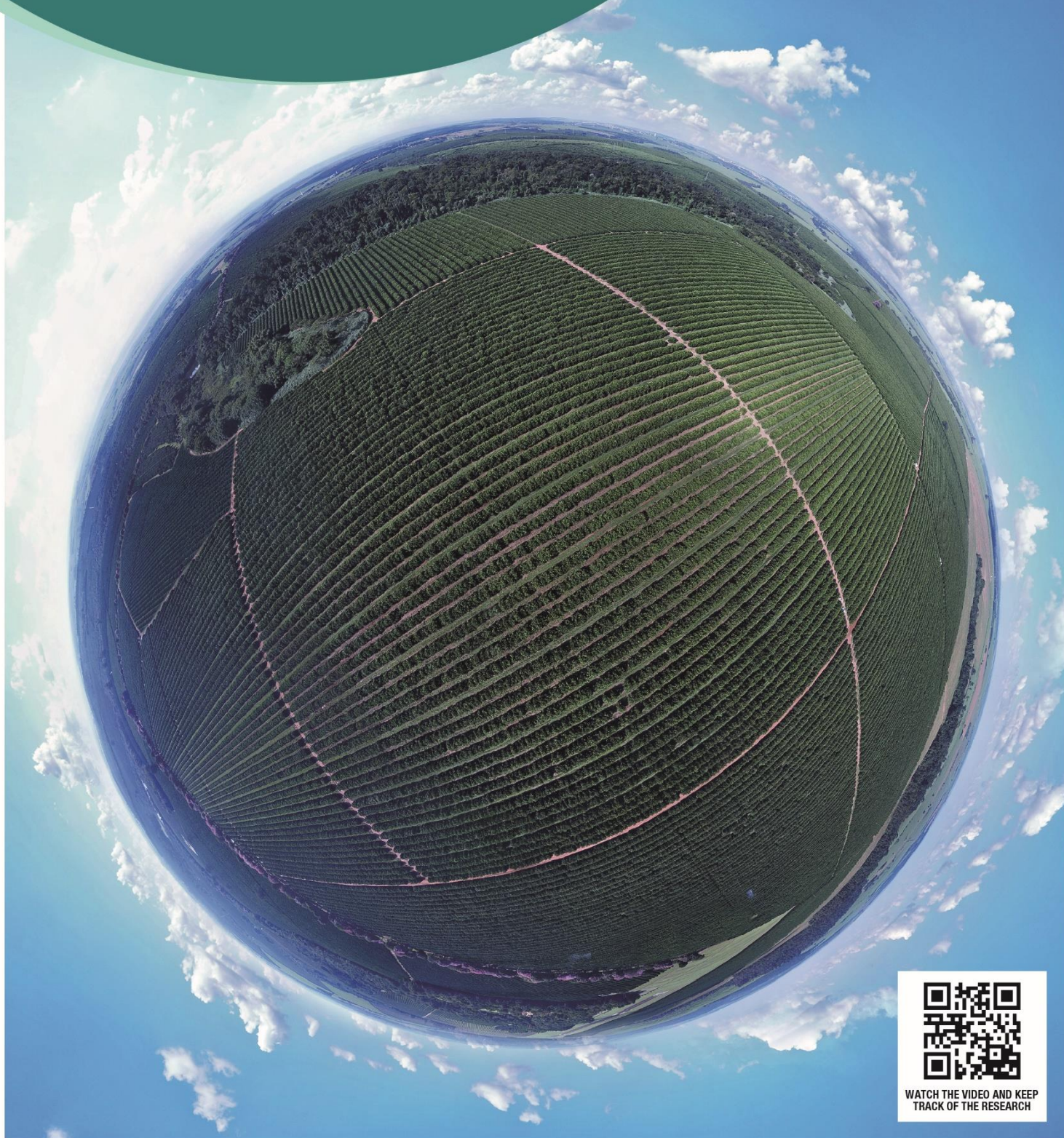


2019-2020

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



WATCH THE VIDEO AND KEEP
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TREE INVENTORY AND 2019-2020 ORANGE CROP FORECAST FOR SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT

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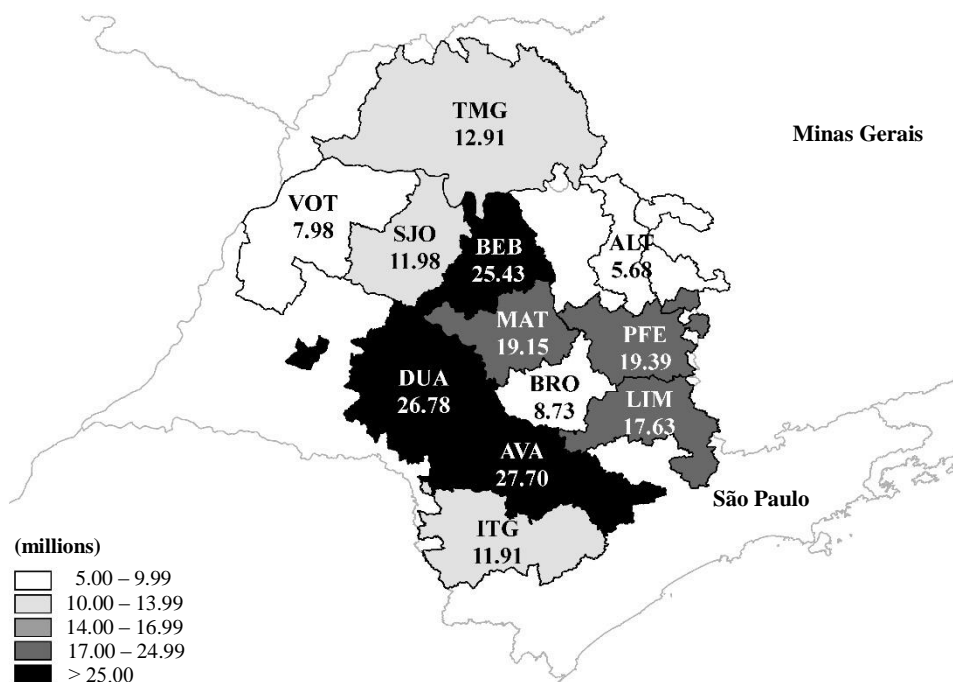


**TREE INVENTORY OF SÃO PAULO
AND WEST-SOUTHWEST MINAS GERAIS
CITRUS BELT**

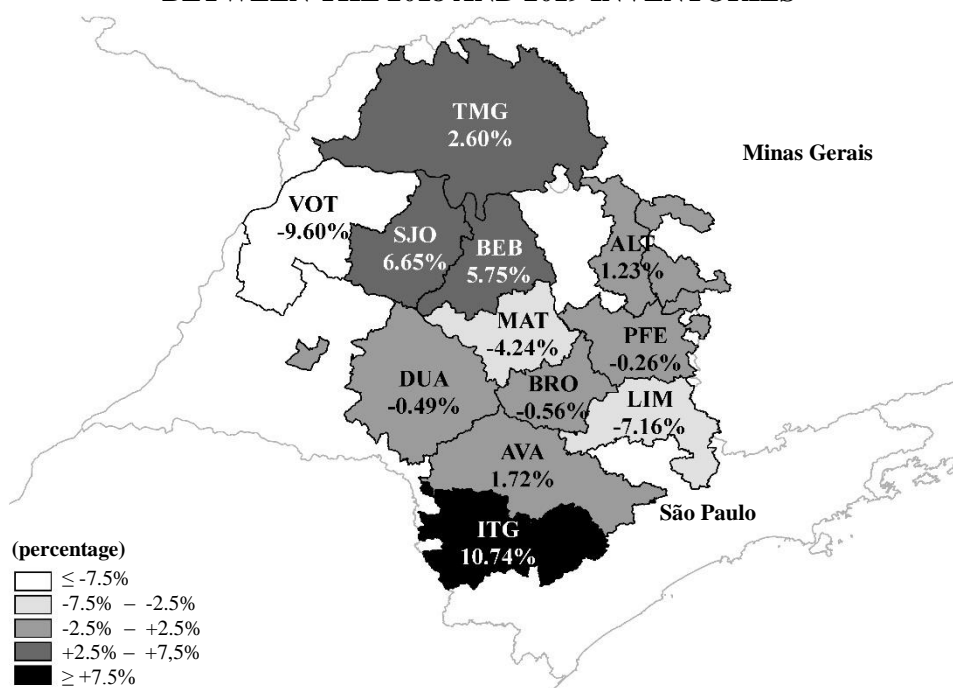
SNAPSHOT OF GROVES IN MARCH 2019

TOTAL ORANGE TREES¹ BY REGION

Total: 195.27 million trees



VARIATION IN TOTAL ORANGE TREES¹ BETWEEN THE 2018 AND 2019 INVENTORIES



Abbreviation	Region	Total orange trees ¹			Abbreviation	Region	Total orange trees ¹		
		2018 Inventory ²	2019 Inventory ²	Variation			2018 Inventory ²	2019 Inventory ²	Variation
		(millions)	(millions)	(%)			(millions)	(millions)	(%)
TMG	Triângulo Mineiro	12.58	12.91	2.60	BEB	Bebedouro	26.06	25.43	5.75
VOT	Votuporanga	8.83	7.98	-9.60	ALT	Altinópolis	5.41	5.68	1.23
SJO	S. J. do Rio Preto	11.23	11.98	6.65	MAT	Matão	20.75	19.15	-4.24
DUA	Duartina	26.91	26.78	-0.49	PFE	P.Ferreira	18.85	19.39	-0.26
AVA	Avaré	27.22	27.70	1.72	BRO	Brotas	8.96	8.73	-0.56
ITG	Itapetininga	10.76	11.91	10.74	LIM	Limeira	21.04	17.63	-7.16

¹ Varieties: Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Pera Rio, Valencia, Valencia Folha Murcha and Natal. Snapshot of groves in March. Calculations made used whole numbers and all decimal points.

TREE INVENTORY OF SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT – SNAPSHOT OF GROVES IN MARCH 2019

Published on May 24, 2019¹

Publication Schedule

2019-2020 Crop Year

Executive summary of the 2019-2020 orange crop forecast: May 10, 2019

March 2019 tree inventory: May 24, 2019

Crop forecast: May 24, 2019

1st Crop forecast update: September 10, 2019

2nd Crop forecast update: December 10, 2019

3rd Crop forecast update: February 11, 2020

Final crop forecast: April 10, 2020

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 be used.

¹ Year 5 – N° 1 – May 24, 2019 (Portuguese version only)

Year 5 – N° 2 – May 27, 2019 (Portuguese version only)

Year 5 – N° 3 – May 29, 2019 (Portuguese and English versions)

Improvements resulting from text review and information included are presented in a consolidated form on the last page of this report.

**Performed by FUNDECITRUS in cooperation with MARKESTRAT,
FEA-RP/USP and the department of Math and Science of FCAV/Unesp**

**TREE INVENTORY OF SÃO PAULO
AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT
SNAPSHOT OF GROVES IN MARCH 2019**

Fundecitrus
Araraquara, São Paulo
2019

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FOREWORDS

Dr. Lourival Carmo Monaco

Fundecitrus President and citrus grower

The month of May has definitely been incorporated into the citrus production chain schedule. The Crop Forecast Survey (PES) strategy, implemented by request from the Fundecitrus Management Board, confirms citrus growers' expectations of applying concepts of good practices in citriculture. The initiative, now in its fifth round, has evolved. The credibility it has gained shows its importance to the future, towards continuous improvement and acknowledgement by the market.

Knowing the profile of our citriculture in different climatic, historical and social conditions sets the context to comprehensively bring sustainability concepts into harmony with economic, social and environmental variables.

This crop season once again has highlighted the biennial behavior of this perennial crop. Production, quite similar to that of 2017-2018 and well above last year's, confirms this pattern. The challenge in this area is to work on research and development in order to define how best management conditions can contribute to a lower biennial variability.

In the 2019-2020 crop season, results have shown a positive trend in our citriculture with the adoption of the commandments to manage greening, influencing its expansion dynamics, with decreased abandoned groves, a slight rise in new plantings and increased yield.

PES has become the source of fundamental knowledge to the process of intensifying recognized measures toward sustainability. Plenty of information available should be studied and interpreted in the analysis of solutions for each type of farm. The citrus production chain will demand ever more integration of its links in order to maintain its competitiveness in meeting market needs.

Antonio Juliano Ayres

Fundecitrus General Manager

The 2019-2020 crop forecast and tree inventory for São Paulo and West-Southwest Minas Gerais, in their fifth consecutive year, bring precise and reliable information to citrus growers. The record yield presented confirms the leadership trend of our citriculture, even amid adversities caused by pests and diseases. Climatic factors largely influenced the increased yield. After the drought from April to July, when rainfall was nearly a third of the average amount for that time period [1981-2010], August rains in the Central, South and Southwest sectors, and September rains in the North and Northwest sectors moved flowering to the harvest. During post-bloom, mild temperatures in addition to summer rains that kept the water available favored the setting of fruits and fruitlets, which resulted in a highly productive crop. However, it is necessary to remark that citriculture in São Paulo started a revolution twenty years ago. Climate is a conjunctural issue and the high yield must be assessed in a structural manner. Yield results from a series of factors such as protected nurseries, soil tillage and cultural practices especially regarding nutrition and irrigation, evaluation of the best planting regions, grove density, proper combination of rootstock and scion and control of CVC (citrus variegated chlorosis) and greening. PES, developed with the support from citrus growers and credible institutions, contributes to the evolution and revolution in citriculture by ensuring the democratization of information to the whole sector, with transparency and precision.

Marcos Fava Neves

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

I am extremely pleased to participate once again in the PES announcement event, in its fifth round in this year of 2019. Our baggage of knowledge has evolved along these five years, ensuring greater precision to the methodology and the survey. The result of all this is an accurate image of São Paulo and West-Southwest Minas Gerais citrus belt, which provides relevant contributions to all production chain agents. Such collective efforts are made by Fundecitrus, the main organization in the sector, and its loyal research partners, namely Markestrat, FEA-RP/USP and FCAV/Unesp, aiming at democratizing the access to information with transparency in the sector. Undoubtedly, this initiative inspires other agribusiness production chains in Brazil and abroad. On our part, in addition to the political and institutional coordination, I would like to also highlight the efforts we made towards international visibility of PES, in our participation in the Citrus Summit this year, in Port Elizabeth (South Africa) and by launching the book “Orange Juice Chain - Past, Present and Future” in that same town, with wide publicity both physical and digital. Congratulations to all involved and may we have excellent results this crop season, “creating, capturing and sharing value” and “accomplishing the winning mission” of Brazilian citriculture.

Vinícius Gustavo Trombin

Executive Coordinator of PES and partner at Markestrat

Upon the 2019-2020 crop forecast announcement, citrus growers already worry about the next season. Although thinking of times ahead is necessary, understanding the present is equally important. We hope the information published in this fifth round of PES helps all citrus growers understand the current status of groves and develop studies and comparisons between their data and those for the sector. The analysis of indexes such as average productivity in the region their farms are located shows whether their performance is above or below average. This self-assessment should not be an end in itself but must be incorporated as a continuous learning and improvement process. Incidentally, all those willing to reach exceptional results in their work should constantly seek the enhancement of what they do. This is the philosophy we have adopted at PES since its beginning and have therefore improved its methodology. It is worth mentioning the regression model we introduced last season, through which we were able to estimate still in May the weight of oranges at harvest, with an error of only 1%. This season we are testing two new methodologies that should bring even more precision to the surveys. The first one is related to surveying fruit drop by the use of collecting nets and the second is associated with monitoring the weight of oranges throughout the crop season with a tool we developed to make fruit sampling random. Now, back to the initial question: for obvious reasons we cannot at this time respond to the concerns of citrus growers regarding the next crop season, but we can assure the efforts of the whole PES team are directed to our doing our best work in a serious and ethical way and keeping data confidential. This is our duty to citrus growers, who not by chance are scoring big in terms of productivity this crop season.

José Carlos Barbosa

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

In the fifth year of the Crop Forecast Survey carried out by Fundecitrus, new models to estimate fruit weight have been used. New methodologies to monitor fruit weight and drop have been developed and are under implementation. PES team remains consolidated and is increasingly more capable of carrying out the crop forecast with every passing year. The productive sector’s trust on the crop estimate carried out by Fundecitrus is further developed each year.

ACKNOWLEDGEMENTS

We start by thanking citrus growers and the orange juice companies Citrosuco, Cutrale and Louis Dreyfus Company, which enabled and funded this survey and voluntarily made their farms available so that we could gather reliable and updated information for the benefit of all.

We also thank the São Paulo State department of agriculture and supply, which through CDA-SP (São Paulo State animal and plant health protection agency) provided information on the number of nursery citrus plants marketed under the permit to transit plants in 2018.

We acknowledge the important support from the Technical Committee through permanent exchange of field experiences and joint efforts to face all challenges and encourage the refinement of the methodology.

We thank those who collaborate to Fundecitrus and the outsourced personnel for their commitment, zeal and efforts so that goals were met within the deadlines set and with maximum quality.

Lastly, we would like to express our appreciation to the Fundecitrus Management Board for its approval and trust, which were fundamental for us to be able to deliver the current portrait of our citriculture to all links of the productive chain at the same time, confirming our commitment to democratizing the information on this important sector.

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1 – INTRODUCTION

This publication presents the results of the fifth survey on the tree inventory of São Paulo and West-Southwest Minas Gerais citrus belt carried out by Fundecitrus in cooperation with Markestrat, FEARP/USP and the department of math and science at FCAV/Unesp from January 2019 to May 2019.

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 aims at monitoring the performance of field activities and proposing 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 and Roseli Reina (PES supervisors); 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 were subject to confidentiality obligations regarding 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 competitive content among the orange juice companies that collaborate with Fundecitrus in this project or between them and citrus growers.

1.1 – BUDGET

On April 26, 2018, the Fundecitrus Management Board formally approved this survey, with an allowed budget of R\$ 6.396 million, of which 56% refer to expenses with technical and administrative staff and labor-related charges; 30% to travel expenses, accommodations, meals and maintenance; and the remaining 14% refer to expenses with software licenses, IT equipment, supplies, indemnity for tree stripping and others. This budget provides financial support to activities performed until May 31, 2019. After that date the budget referring to the period from June 2019 to May 2020 will come into force.

1.2 – GENERAL FIGURES

- **More than 120 professionals directly involved in the survey;**
Field personnel: 40 agents and 56 assistants.
Laboratory personnel: 23 assistants.
Office personnel: 1 coordinator and 2 supervisors.
- **More than 400,000 kilometers covered from January to April 2019;**
Accumulated distance in travelling to count 5% of orange plots: 180,498 km.
Accumulated distance in travelling to strip orange trees: 231,317 km.
- **248 cities 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 2017 or 2018 that has not yet entered into production.

Bearing tree: tree planted in 2016 or 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 2017 or 2018. Plots planted in 2019 were not accounted for in this inventory since the field data survey included only the first quarter of said year.

Mature grove: plot planted in 2016 or 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 second mapping of groves performed by Fundecitrus used georeferenced and high definition orthorectified images that enable precise measurements to be made. Images were obtained by satellites SPOT 6&7 from the European operator Airbus Defence and Space from May to August 2017. The georeferenced mapping was performed by survey agents *in situ*, that is, in person, on each citrus farm located in the 347 cities included in the 151,000 km² of images, from September 08, 2017 to January 29, 2018.

Data for each plot included variety, planting year, area occupied exclusively by trees, spacing, visual aspect of plants and irrigation system, if any. Only for a fraction of 1% of the mapped area, data was estimated by remote sensing and statistical inference. The data volume was encrypted and saved to the Fundecitrus Geographic Information System to form a new primary database (2018), to be stored until next mapping, expected to be performed in the second half of 2020 for the 2021 inventory to be taken.

2.2 – OBJECTIVE METHOD FOR TAKING THE ORANGE TREE INVENTORY

For the tree inventory, 5% of plots in the primary base (2018) are drawn to be visited and to have their planting holes classified and quantified. 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.

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.

If eradicated plots are found among the drawn plots, their areas are used to calculate the eradication rate of the sample. This proportion, called 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 it is the case in this 2019 inventory, an estimate is made of plantings that occurred in the years following the most recent 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 each 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 São Paulo State animal and plant health protection agency (CDA-SP), of the São Paulo State department of agriculture and supply, on the number of citrus nursery plants marketed under the permit to transit plants (PTV) 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. To estimate the area of newly planted groves, their stratified average density per variety and region is used. From the sum of the number of trees supplied by the CDA-SP and that found in the survey with growers, nursery plants used for resetting are subtracted so that the number of trees planted in groves is estimated for that year.

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 07 and March 08, 2019. Each survey agent counted an average of 15,500 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 region 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 1 presents sectors and regions of the citrus belt and following that, Chart 1 details the cities and abbreviations used to designate regions.

Figure 1 – Division of the citrus belt into 12 regions and respective sectors



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

Sector	Region	Cities
North 72 cities	Triângulo Mineiro (TMG) 16 cities	Campina Verde, Campo Florido, Canápolis, Comendador Gomes, Conceição das Alagoas, Frutal, Gurinhatã, Itapagipe, Ituiutaba, Iturama, Monte Alegre de Minas, Planura, Prata, São Francisco de Sales, Uberaba, Uberlândia.
	Bebedouro (BEB) 35 cities	Ariranha, Barretos, Bebedouro, Cajobi, Catanduva, Catiguá, Colina, Colômbia, Elisiário, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Palmares Paulista, Paraíso, Pindorama, Pirangi, Pitangueiras, Sales, Santa Adélia, Severínia, Tabapuã, Taiapuçu, Taiúva, Taquaral, Terra Roxa, Uchoa, Urupês, Viradouro, Vista Alegre do Alto.
	Altinópolis (ALT) 21 cities	Altinópolis, Batatais, Brodowski, Cajuru, Cássia dos Coqueiros, Cristais Paulista, Fortaleza de Minas, Franca, Ibiraci, Igarapava, Itamogi, Jacuí, Jequara, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso, São Tomás de Aquino.
Northwest 91 cities	Votuporanga (VOT) 54 cities	Álvares Florence, Américo de Campos, Andradina, Aparecida d'Oeste, Aspásia, Auriflama, Cardoso, Dirce Reis, Dolcinópolis, Estrela d'Oeste, Fernandópolis, General Salgado, Guaraçá, Guarani d'Oeste, Guzolândia, Indiaporã, Jales, Macedônia, Marinópolis, Meridiano, Mesópolis, Mira Estrela, Mirandópolis, Murutinga do South, Nova Canaã Paulista, Ouroeste, Palmeira d'Oeste, Paranapuã, Parisi, Pedranópolis, Pereira Barreto, Pontalinda, Pontes Gestal, Populina, Riolândia, Rubinéia, Santa Albertina, Santa Clara d'Oeste, Santa Fé do South, 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, Suzanápolis, Três Fronteiras, Turmalina, Urânia, Valentim Gentil, Vitória Brasil, Votuporanga.
	São José do Rio Preto (SJO) 37 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Floreal, Guapiaçu, Icém, Ipiгуá, Jaci, José Bonifácio, Macaubal, Magda, Mendonça, Mirassol, Mirassolândia, Monções, 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 South, Tanabi, Ubarana, União Paulista, Zacarias.
Central 79 cities	Matão (MAT) 21 cities	Américo Brasiliense, Araraquara, Bariri, Boa Esperança do South, Borborema, Cândido Rodrigues, Fernando Prestes, Gavião Peixoto, Ibitinga, Itaju, Itápolis, Jaboticabal, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Rincão, Santa Lúcia, Tabatinga, Taquaritinga.
	Duartina (DUA) 43 cities	Agudos, Álvaro de Carvalho, Alvinlândia, Arealva, Avaí, Balbinos, Bastos, Bauru, Boracéia, Cabrália 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, Parapuã, Paulistânia, Pederneiras, Pirajuí, Piratininga, Pongá, Presidente Alves, Promissão, Reginópolis, Sabino, Santa Cruz do Rio Pardo, São Pedro do Turvo, Ubarajara, Uru.
	Brotas (BRO) 15 cities	Analândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Dourado, Ibaté, Itirapina, Mineiros do Tietê, Ribeirão Bonito, Santa Maria da Serra, São Carlos, São Pedro, Torrinha, Trabiју.
South 54 cities	Porto Ferreira (PFE) 20 cities	Aguai, Caconde, Casa Branca, Descalvado, Guaranésia, Guaxupé, Itobi, Luís 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) 34 cities	Águas de Lindóia, Americana, Amparo, Araras, Artur Nogueira, Atibaia, Bragança Paulista, Charqueada, Conchal, Cordeirópolis, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Ipeúna, Iracemápolis, Itapira, Itatiba, Jaguariúna, Jarinu, Leme, Limeira, Lindóia, Mogi Guaçu, Mogi Mirim, Monte Alegre do South, Paulínia, Pinhalzinho, Piracicaba, Rio Claro, Santo Antônio de Posse, Serra Negra, Socorro.
Southwest 51 cities	Avaré (AVA) 31 cities	Águas de Santa Bárbara, Angatuba, Anhemi, Araçoiaba da Serra, Arandu, Avaré, Bofete, Borebi, Botucatu, Cabreúva, Capela do Alto, Cerqueira César, Cesário Lange, Conchas, Guareí, Iaras, Iperó, Itatinga, Lençóis Paulista, Manduri, Óleo, Pardinho, Porangaba, Porto Feliz, Pratânia, Quadra, Salto de Pirapora, São Manuel, Sorocaba, Tatuí, Tietê.
	Itapetininga (ITG) 20 cities	Alambari, Buri, Campina do Monte Alegre, Capão Bonito, Coronel Macedo, Itaberá, Itaí, Itapetininga, Itapeva, Itaporanga, Itararé, Nova Campina, Paranapanema, Pilar do South, São Miguel Arcanjo, Sarapuí, Sarutaiá, Taquarituba, Taquarivaí, Tejuapá.
5 sectors	12 regions	347 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 ¹ , Seleta and Pineapple 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

¹ Plots registered as Valencia Argentina in the 2015 mapping were updated to Valencia Americana in this mapping

Age groups

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

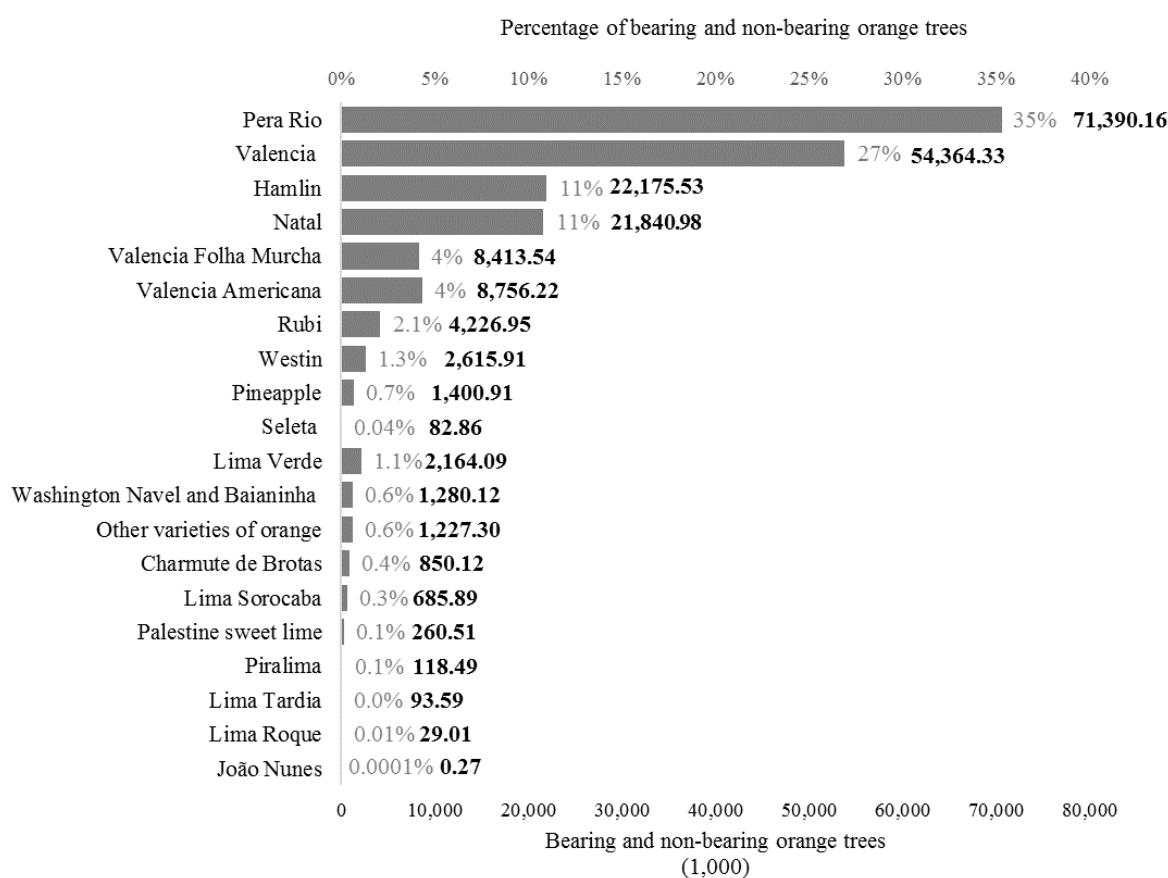
Age group	Planting years
1 to 2 years.....	2018, 2017
3 to 5 years.....	2016, 2015, 2014
6 to 10 years.....	2013, 2012, 2011, 2010, 2009
Over 10 years.....	2008 and previous years

3 – RESULTS

3.1 – MAIN CONCLUSIONS ON THE TREE INVENTORY

This publication presents the fifth tree inventory taken by Fundecitrus and portrays the estimated status of citrus groves in the São Paulo and West-Southwest Minas Gerais citrus belt, updated in March 2019. Data on groves of acid limes, lemons and tangerines, as well the number of farms and the percentage of irrigated area are the same presented in the 2018 inventory because their updating depends on a scan of the whole citrus planted area, scheduled to start in the second half of 2020, for the 2021 inventory to be taken. The number of 5,882 orange growing farms also remains unchanged until a new mapping is performed, but the data on their orange groves has been updated in this 2019 inventory, by means of a survey sampling 5% of the plots in the area, which enables a reassessment of the area and the percentage of trees in each age category, dead trees and vacancies in groves.

The 2019 sample survey showed that the area planted with orange groves, including all varieties, totals 408,825 hectares, which is 1.33% smaller as compared to the figure in the 2018 inventory. Of this total, 395,764 hectares, that is, 97% of that area, are planted with the varieties Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Pera Rio, Valencia, Valencia Folha Murcha and Natal. These varieties comprise the group called “oranges” in the tables in this report. The remaining 3%, that is, 13,061 hectares, comprise the group called “other oranges” with the varieties Bahia, Baianinha, Charmute de Brotas, acidless sweet oranges, sweet lime and others. Graph 1 shows the complete distribution of the volume of trees per variety and their share in relation to the total orange trees.



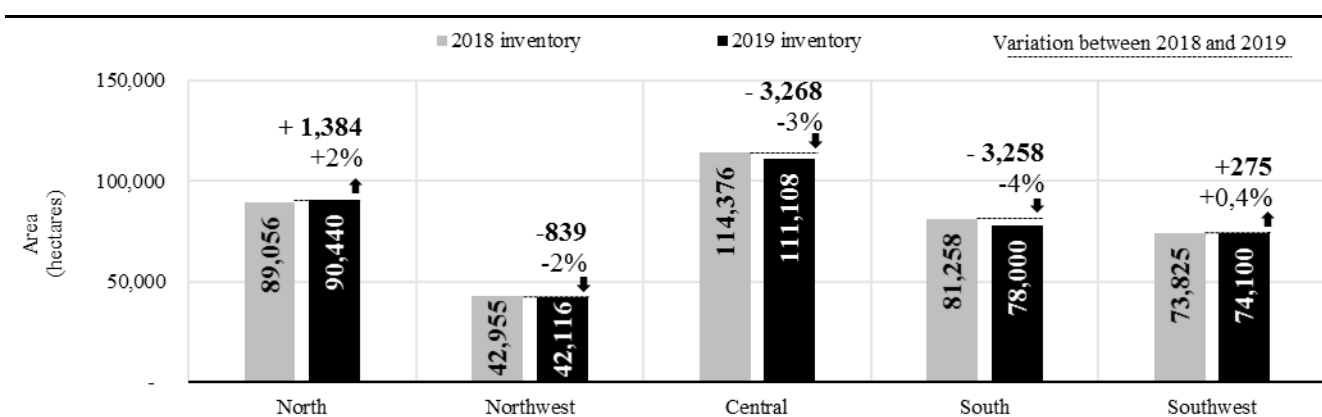
Graph 1 – Oranges and other oranges: Distribution of bearing and non-bearing orange trees per variety

From this point on in the text, just like in previous inventories, statements are specific to the group called oranges, which is more representative of the citrus belt.

The area with groves of the main varieties of oranges (395,764 hectares) presented in this inventory is 5,706 hectares smaller than that in 2018. This decrease corresponds to a net variation of -1.42%. This figure is determined from the area of groves in the 2018 inventory (401,470 hectares) to which the expansion area (8,474 hectares) relative to plantings in new areas in 2018 was added, as well as the area of currently recovered groves, accounted for as abandoned in 2018 (468 hectares). From this total, the area accounted for as having bearing trees in the previous inventory but that is now abandoned (1,521 hectares) is deducted. Eradicated areas that were not replanted with orange (13,127 hectares) in 2018 are also deducted.

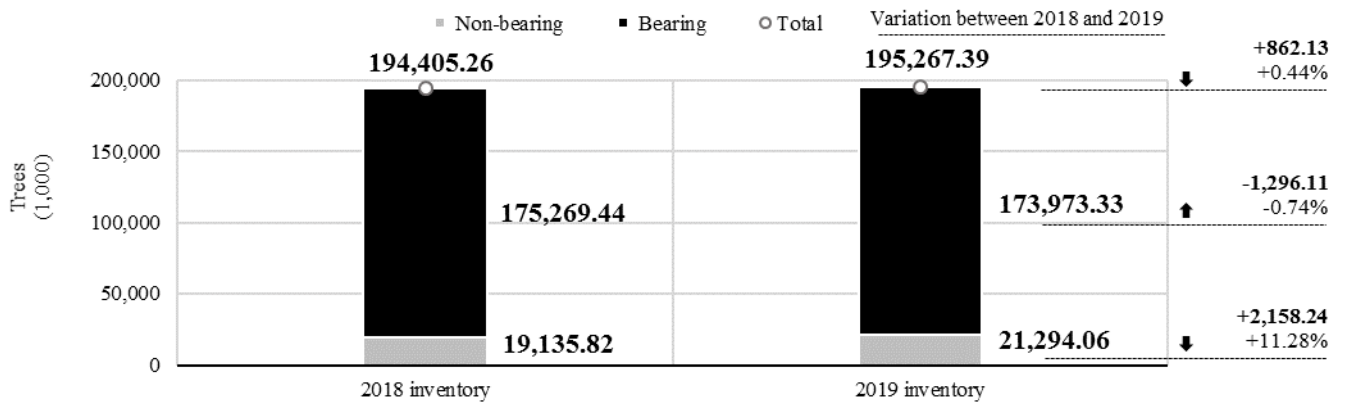
The area of groves planted in 2018 totals 13,532 hectares. Of this total, 63% are plantings that occurred in expansion areas and 37% in renovation areas. In the varietal distribution, the Pera Rio variety accounts for 38% of these plantings; Valencia for 23%; Natal for 11%; Hamlin for 8%; Valencia Americana for 8%; Rubi for 4%; Valencia Folha Murcha for 4%; and Westin, Pineapple and Seleta altogether for approximately 4%. The probable explanation for a greater interest in Pera Rio is the quality of its fruit for fresh consumption and juice processing. New groves are well distributed in all sectors of the citrus belt, in that 23% of them are in the North sector; 17% in the Northwest sector; 24% in the Central sector; 19% in the South sector and 17% in the Southwest sector. This data is estimated, actual figures will be disclosed after the next scan of the citrus belt. Once data is confirmed, the trend of increased planting will be proven true, with a rise of approximately 10% as compared to the area planted in 2017, or approximately 3.5% in relation to the total area, which is still slight.

Among the five sectors of the citrus belt only the North and Southwest sectors present a positive variation of the area planted with orange as compared to the previous inventory, as shown in Graph 2. This balance indicates that the loss of groves was less significant in those sectors, which should be related to lower greening incidence rates. According to the survey carried out by Fundecitrus in 2018, symptomatic trees are present in 5.21% of groves in the North sector, 8.20% of groves in the Southwest sector, and more than 30% of groves in the Central and South sectors. The negative balance in the Northwest sector, in addition to being affected by the water deficit and higher temperatures resulting in lower yield, was probably more influenced by citrus canker, since according to the same survey, the disease is present in approximately half of the plots and 40% of the trees, in addition to the water deficit and higher temperatures resulting in lower yield.



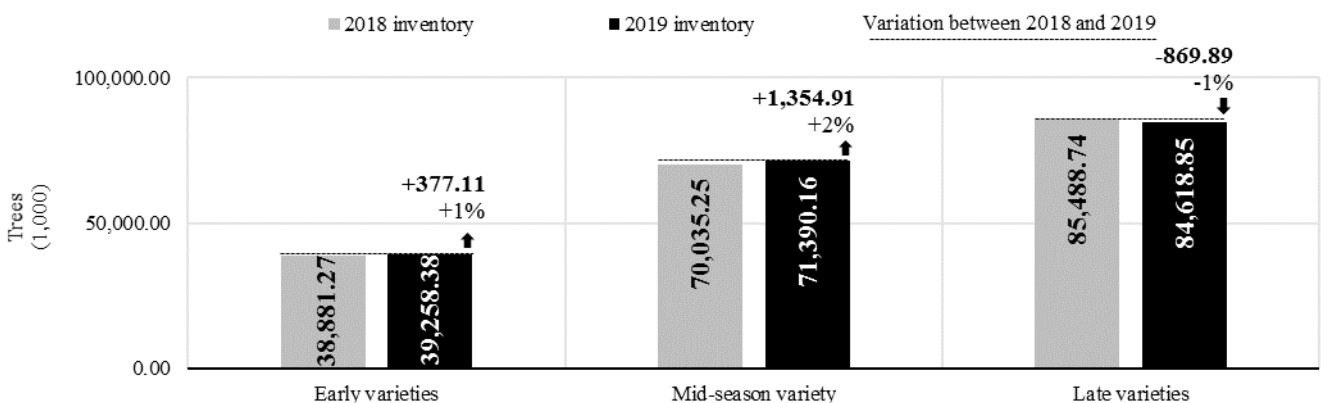
Graph 2 – Oranges: Area of groves per sector [2018 and 2019 inventories]

Bearing orange trees add up to 173.97 million and non-bearing orange trees to 21.29 million, totaling 195.27 million trees. In comparison to the 2018 inventory, the total increase in trees was of approximately 862 thousand, which is equivalent to 0.44%, as shown in Graph 3. This data points to the continuity of the scenario of previous years of a reduction that is sharper in area than in number of trees, which results from the eradication of low-density groves and planting of denser groves.



Graph 3 – Oranges: total trees, bearing and non-bearing trees [2018 and 2019 inventories]

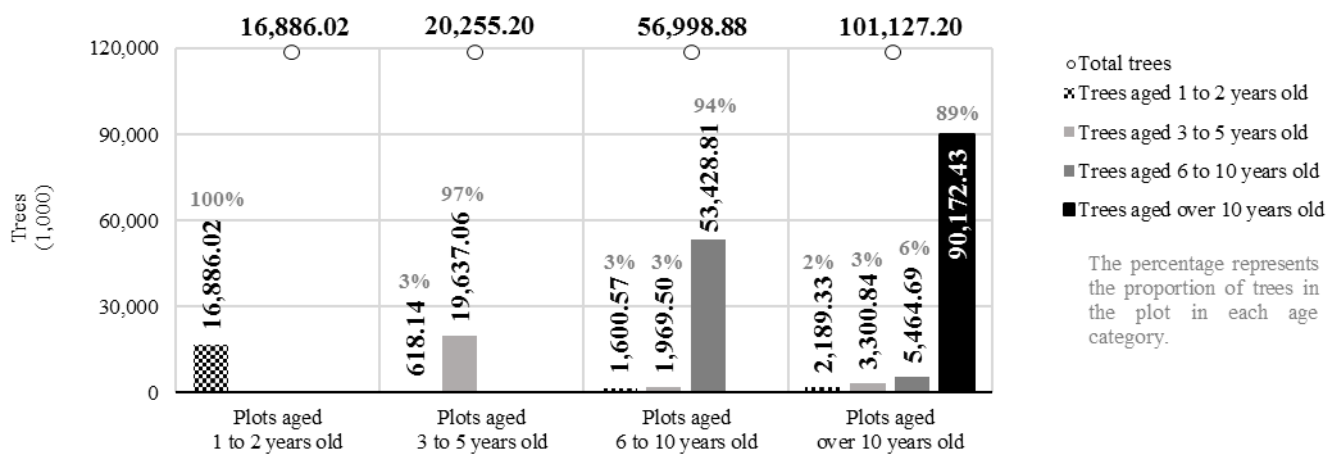
The distribution of citrus varieties by fruit harvesting time shows that the share of trees of early varieties in relation to the total 195.27 million trees increased approximately 1%, whereas the share of mid-season varieties increased 2% and that of late varieties decreased 1%, in comparison to the previous inventory. Currently, 39.6 million trees are of early varieties, usually harvested between May and August; 71.39 million are of mid-season varieties, usually harvested between July and October; and 84.62 million are of late varieties, usually harvested between October and January, as shown in Graph 4. Climatic variations and other factors such as crop size and fruit maturity stage may advance or extend the harvesting time from one year to the next.



Graph 4 – Oranges: Trees grouped by maturity time of varieties [2018 and 2019 inventories]

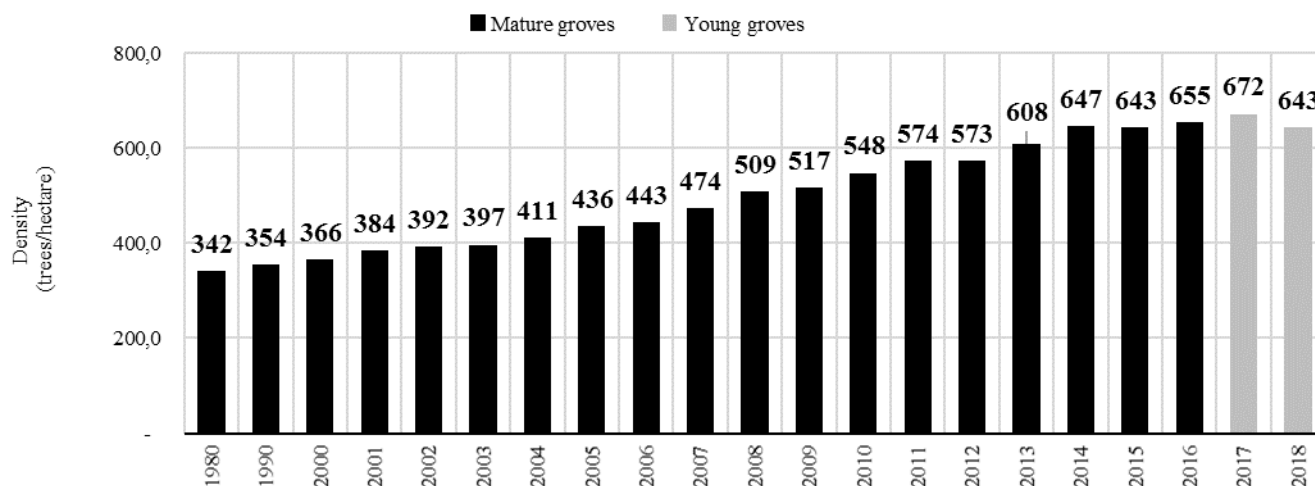
The average age of mature groves rose to 10.9 years. This systematic aging since the 2015 inventory results from more modest plantings observed in the last five years. The share of groves of up to ten years old in the total area equaled 46% in the previous inventory and decreased to 40% in this one; groves from 11 to 15 years old increased their share from 34% to 36%; those from 16 to 20 years old increased their share from 12% to 15%; and those over 20 years old remained with their share of 9%.

Groves of up to two years old, that is, planted in 2017 and 2018, comprise 16.89 million non-bearing trees. Groves from three to five years old, planted from 2014 to 2016, comprise 20.26 million trees – approximately 97% of those trees are in the same age group of plots and 3% are resets of the age group of one to two years old. Groves from six to ten years old were planted from 2009 to 2013 and comprise approximately 56.99 million trees; 94% of trees remain in the category of six to ten years old (same age group of plots); 3% are in the age group of three to five years old; and 3% are in the age group from one to two years old. In the group of groves over ten years old, that is, planted until 2008 and totaling 101.13 million trees, 89% of trees are over ten years old; 6% are between six and ten years old; 3% are between three and five years old; and 2% are between one and two years old. Graph 5 shows the distribution of trees per age category in all age groups of groves.



Graph 5 – Oranges: Trees per age groups and age groups of plots

The average density of groves planted in 2018, as estimated by the sample survey, is 643 trees per hectare, as compared to 672 trees in groves planted in 2017, and 655 trees in groves planted in 2016. This data indicates a stabilization in the increased planting density trend, as highlighted in Graph 6. The average density of young groves in this inventory is 657 trees per hectare whereas for mature groves that density is 482 trees per hectare.



Graph 6 – Oranges: Average density of groves per planting year

The average eradication rate in the citrus belt is 4.53%, as estimated for the period from April 2018 to March 2019, which is slightly higher than the rate for the same period in the previous year (3.84%). The eradicated area is estimated to be 18,185 hectares. Of this total, 5,058 hectares have been renovated. Therefore, the net loss due to eradication is 13,127 hectares, in that 83% of this area is in the regions of Matão (24%), Limeira (20%), Porto Ferreira (16%), Duartina (12%) and Votuporanga (11%). Abandoned groves including all orange varieties totaled 5,115 hectares in the 2018 inventory, whereas in this inventory it was reduced to 3,148 hectares. Regions that concentrate approximately 80% of abandoned groves are: Limeira (28%), Brotas (18%), Votuporanga (15%), Matão (11%) and Bebedouro (7%). The percentage of dead trees in the citrus belt remained stable at 1.28% and vacancies correspond to 4.61% of existing planting holes.

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, Pera Rio, Valencia, Natal and Valencia Folha Murcha varieties.

Table 1 – All citrus: Area of groves by sector [2018 and 2019 inventories and variation]

Inventory, sector and variation	Oranges ¹	Other oranges ²	Acid limes and lemons ^{3,5}	Tangerines ^{4,5}	Total	Percentage of sectors
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
2018 inventory						
North.....	89,056	842	15,469	1,788	107,155	23.01
Northwest.....	42,955	300	4,768	1,534	49,557	10.64
Central.....	114,376	2,448	11,855	2,579	131,258	28.19
South.....	81,258	6,059	5,462	3,954	96,733	20.77
Southwest.....	73,825	3,234	1,524	2,349	80,932	17.38
Total.....	401,470	12,883	39,078	12,204	465,635	100.00
Citrus percentage.....	86.22	2.77	8.39	2.62	100.00	(X)
2019 inventory						
North.....	90,440	904	15,469	1,788	108,601	23.60
Northwest.....	42,116	435	4,768	1,534	48,853	10.62
Central.....	111,108	2,667	11,855	2,579	128,209	27.87
South.....	78,000	5,546	5,462	3,954	92,962	20.20
Southwest.....	74,100	3,509	1,524	2,349	81,482	17.71
Total.....	395,764	13,061	39,078	12,204	460,107	100.00
Citrus percentage.....	86.02	2.84	8.49	2.65	100.00	(X)
Variation						
Hectares.....	-5,706	178	-	-	-5,528	(X)
Percentage.....	-1.42	1.38	-	-	-1.19	(X)

(X) Not applicable.

¹ Oranges: Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Pera Rio, Valencia, Valencia Folha Murcha and Natal.

² 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.

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

⁴ Tangerines: Ponkan, Murcott and other varieties.

⁵ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 2 – All citrus: Farms¹ with citrus groves, stratified by sector [2018 inventory]

Sector	2018 inventory	
	(number)	(%)
North.....	2,526	25.66
Northwest.....	2,128	21.62
Central.....	1,873	19.02
South.....	2,919	29.65
Southwest.....	399	4.05
Total.....	9,845	100.00

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 3 – Oranges: Farms¹ with orange groves, stratified by size of area with oranges [2018 and 2019 inventories]

Range of the farm size considering the total orange area (hectares)	2018 inventory				2019 inventory			
	Farms with orange groves		Orange area		Farms with orange groves ¹		Orange area	
			Total	Irrigate area			Total	Irrigate area
	(number)	(%)	(hectares)	(%)	(number)	(%)	(hectares)	(%)
0.1 – 10.....	2,514	42.74	12,003	10.95	2,594	44.10	12,470	10.92
10.1 – 50.....	2,169	36.88	48,914	13.60	2,103	35.75	46,599	13.57
50.1 – 100.....	521	8.86	36,628	16.82	493	8.38	34,282	16.78
100.1 – 500.....	528	8.98	110,664	22.21	543	9.23	112,337	22.16
500.1 – 1,000.....	84	1.43	59,287	34.64	82	1.39	56,876	34.57
Above 1,000.....	66	1.12	133,974	46.09	67	1.14	133,200	46.00
Total.....	5,882	100.00	401,470	30.14	5,882	100.00	395,764	30.14
Average per farm.....			68.25				67.28	

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 4 – Oranges: Farms¹ with orange groves, stratified by number of orange trees [2018 and 2019 inventories]

Range of the number of orange trees in the farm (trees)	2018 inventory				2019 inventory			
	Farms with orange groves ¹		Non-bearing and bearing trees		Farms with orange groves ¹		Non-bearing and bearing trees	
			(1,000 trees)	(%)			(1,000 trees)	(%)
	(number)	(%)	(1,000 trees)	(%)	(number)	(%)	(1,000 trees)	(%)
Below 10 thousand.....	3,780	64.26	13,830.44	7.11	3,819	64.93	14,061.68	7.20
10.1 – 19 thousand.....	720	12.24	9,847.82	5.07	746	12.68	10,164.74	5.21
20 – 29 thousand.....	360	6.12	8,395.74	4.32	317	5.39	7,814.59	4.00
30 – 49 thousand.....	339	5.76	12,710.74	6.54	323	5.49	12,092.27	6.19
50 – 99 thousand.....	314	5.34	21,233.87	10.92	315	5.36	20,832.32	10.67
100 – 199 thousand.....	171	2.91	22,645.08	11.65	164	2.79	21,993.46	11.26
Above 200 thousand.....	198	3.37	105,741.56	54.39	198	3.37	108,308.35	55.47
Total.....	5,882	100.00	194,405.26	100.00	5,882	100.00	195,267.39	100.00
Average per farm.....			33.05				33.20	

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 5 – Oranges: Orange plots stratified by plot area size [2018 and 2019 inventories]

Plot area (hectares)	2018 inventory				2019 inventory			
	Oranges		All oranges		Oranges		All oranges	
	(número)	(%)	(número)	(%)	(número)	(%)	(número)	(%)
Below 1.....	2,826	6.74	3,398	6.74	2,425	5.32	2,902	5.96
1.1 – 4.....	13,023	28.49	14,368	28.49	12,282	26.94	13,551	27.82
4.1 – 10.....	17,423	36.36	18,335	36.36	17,054	37.41	17,983	36.92
10.1 – 20.....	9,759	19.91	10,042	19.91	9,609	21.08	9,958	20.44
Above 20.....	4,235	8.49	4,283	8.49	4,217	9.25	4,318	8.86
Total.....	47,266	100.00	50,426	100.00	45,587	100.00	48,712	100.00
Average per plot.....	8.49		8.22		8.68		8.39	

Table 6 – Oranges and others¹: Area of groves by sector [2018 and 2019 inventories and variation]

Inventory and sector	Total ¹	Changes				Variation	
		Estimate of groves planted in expansion areas in 2018	Estimate of abandoned groves recovered in 2019	Estimate of bearing groves abandoned in 2019	Estimate of eradicated groves from April 2018 to March 2019, which were not renovated		
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
2018 inventory							
North.....	89,898	-	-	-	-	-	-
Northwest.....	43,255	-	-	-	-	-	-
Central.....	116,824	-	-	-	-	-	-
South.....	87,317	-	-	-	-	-	-
Southwest.....	77,059	-	-	-	-	-	-
Total.....	414,353	-	-	-	-	-	-
2019 inventory							
North.....	91,344	1,897	-	-226	-225	1,446	1.61
Northwest.....	42,551	1,510	117	-234	-2,097	-704	-1.63
Central.....	113,775	2,042	184	-511	-4,764	-3,049	-2.61
South.....	83,546	2,053	167	-698	-5,293	-3,771	-4.32
Southwest.....	77,609	1,475	-	-	-925	550	0.71
Total.....	408,825	8,977	468	-1,669	-13,304	-5,528	-1.33

¹ Oranges: Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, 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 [2019 inventory]

Variety	Area	Percentage
	(hectares)	(%)
Washington Navel and Baianinha.....	2,566	19.65
Charmute de Brotas.....	1,984	15.19
Acidless sweet oranges and sweet lime.....	6,729	51.52
Other varieties	1,782	13.64
Total.....	13,061	100.00

Table 8 – Acid limes and lemons: Area of groves by variety [2018 inventory]¹

Variety	Area	Percentage
	(hectares)	(%)
Tahiti acid lime (Persian lime)	35,076	89.76
Sicilian lemon.....	3,577	9.15
Other varieties including non-identified ones.....	425	1.09
Total.....	39,078	100.00

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 9 – Tangerines: Area of groves by variety [2018 inventory]¹

Variety	Area	Percentage
	(hectares)	(%)
Ponkan.....	5,286	43.31
Murcott.....	5,607	45.94
Other varieties	1,311	10.74
Total.....	12,204	100.00

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 10 – Oranges: Area of groves by sector [2018 and 2019 inventories and variation]

Inventory and sector	Total	Changes				Variation	
		Estimate of groves planted in expansion areas in 2018	Estimate of abandoned groves recovered in 2019	Estimate of bearing groves abandoned in 2019	Estimate of eradicated groves from April 2018 to March 2019, which were not renovated		
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
2018 inventory							
North.....	89,056	-	-	-	-	-	-
Northwest.....	42,955	-	-	-	-	-	-
Central.....	114,376	-	-	-	-	-	-
South.....	81,258	-	-	-	-	-	-
Southwest.....	73,825	-	-	-	-	-	-
Total.....	401,470	-	-	-	-	-	-
2019 inventory							
North.....	90,440	1,836	-	-226	-226	1,384	1.55
Northwest.....	42,116	1,462	117	-234	-2,184	-839	-1.95
Central.....	111,108	1,959	184	-511	-4,900	-3,268	-2.86
South.....	78,000	1,859	167	-550	-4,734	-3,258	-4.01
Southwest.....	74,100	1,358	-	-	-1,083	275	0.37
Total.....	395,764	8,474	468	-1,521	-13,127	-5,706	-1.42

Table 11 – Oranges: Estimate of groves planted in 2018 in expansion and renovation areas [2019 inventory]

Sector	Estimate of groves planted in 2018				
	Total	In expansion areas		In renovation areas	
	(hectares)	(hectares)	(%)	(hectares)	(%)
North.....	3,169	1,836	57.94	1,333	42.06
Northwest.....	2,363	1,462	61.87	901	38.13
Central.....	3,195	1,959	61.31	1,236	38.69
South.....	2,555	1,859	72.76	696	27.24
Southwest.....	2,250	1,358	60.36	892	39.64
Total.....	13,532	8,474	62.62	5,058	37.38

Table 12 – Oranges: Trees by sector [2018 and 2019 inventories and variation]

Inventory and sector	Total	Variation		Non-bearing trees			Bearing trees		
				Total	Variation		Total	Variation	
	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)
2018 inventory									
North.....	42,246.10	-	-	2,922.44	-	-	39,323.66	-	-
Northwest.....	20,059.25	-	-	1,709.58	-	-	18,349.67	-	-
Central.....	55,687.95	-	-	7,095.08	-	-	48,592.87	-	-
South.....	38,432.10	-	-	4,096.92	-	-	34,335.18	-	-
Southwest.....	37,979.86	-	-	3,311.80	-	-	34,668.06	-	-
Total.....	194,405.26	-	-	19,135.82	-	-	175,269.44	-	-
2019 inventory									
North.....	44,024.29	1,778.19	4.21	3,727.12	804.68	27.53	40,297.17	973.51	2.48
Northwest.....	19,958.89	-100.36	-0.50	2,328.81	619.23	36.22	17,630.08	-719.59	-3.92
Central.....	54,658.24	-1029.71	-1.85	6,896.20	-198.88	-2.80	47,762.04	-830.83	-1.71
South.....	37,022.95	-1,409.15	-3.67	4,023.03	-73.89	-1.80	32,999.92	-1,335.26	-3.89
Southwest.....	39,603.02	1,623.16	4.27	4,318.90	1,007.10	30.41	35,284.12	616.06	1.78
Total.....	195,267.39	862.13	0.44	21,294.06	2,158.24	11.28	173,973.33	-1,296.11	-0.74

Table 13 – Oranges: Area of groves by variety group [2018 and 2019 inventories and variation]

Inventory and variety group	Total	Changes				Variation	
		Estimate of groves planted in expansion areas in 2018	Estimate of abandoned groves recovered in 2019	Estimate of bearing groves abandoned in 2019	Estimate of eradicated groves from April 2018 to March 2019, which were not renovated		
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
2018 inventory							
Hamlin, Westin and Rubi.....	64,172	-	-	-	-	-	-
Other early ¹	19,406	-	-	-	-	-	-
Pera Rio.....	136,195	-	-	-	-	-	-
Valencia and V.Folha Murcha ² ..	135,214	-	-	-	-	-	-
Natal.....	46,483	-	-	-	-	-	-
Total.....	401,470	-	-	-	-	-	-
2019 inventory							
Hamlin, Westin and Rubi.....	62,105	421	-	-	-2,488	-2,067	-3.22
Other early ¹	20,008	659	-	-23	-34	602	3.10
Pera Rio.....	136,067	3,687	-	-855	-2,960	-128	-0.09
Valencia and V.Folha Murcha ² ..	131,577	2,604	468	-643	-6,066	-3,637	-2.69
Natal.....	46,007	1,103	-	-	-1,579	-476	-1.02
Total.....	395,764	8,474	468	-1,521	-13,127	-5,706	-1.42

¹ Valencia Americana, Seleta and Pineapple.

² Valencia Folha Murcha.

Table 14 – Oranges: Trees by variety group [2018 and 2019 inventories and variation]

Inventory and variety group	Total	Variation		Non-bearing trees			Bearing trees		
				Total	Variation		Total	Variation	
	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)	(1,000 trees)	(1,000 trees)	(%)
2018 inventory									
Hamlin, Westin and Rubi.....	29,702.55	-	-	3,054.56	-	-	26,647.99	-	-
Other early ¹	9,178.72	-	-	1,219.42	-	-	7,959.30	-	-
Pera Rio.....	70,035.25	-	-	8,459.13	-	-	61,576.12	-	-
Valencia and V.Folha Murcha ² ..	63,822.70	-	-	4,239.05	-	-	59,583.65	-	-
Natal.....	21,666.04	-	-	2,163.66	-	-	19,502.38	-	-
Total.....	194,405.26	-	-	19,135.82	-	-	175,269.44	-	-
2019 inventory									
Hamlin, Westin and Rubi.....	29,018.39	-684.16	-2.30	3,536.29	481.73	15.77	25,482.10	-1,165.89	-4.38
Other early ¹	10,239.99	1,061.27	11.56	2,224.11	1,004.69	82.39	8,015.88	56.58	0.71
Pera Rio.....	71,390.16	1,354.91	1.93	8,521.20	62.07	0.73	62,868.96	1,292.84	2.10
Valencia and V.Folha Murcha ² ..	62,777.87	-1,044.83	-1.64	4,508.86	269.81	6.36	58,269.01	-1,314.64	-2.21
Natal.....	21,840.98	174.94	0.81	2,503.60	339.94	15.71	19,337.38	-165.00	-0.85
Total.....	195,267.39	862.13	0.44	21,294.06	2,158.24	11.28	173,973.33	-1,296.11	-0.74

¹ Valencia Americana, Seleta and Pineapple.

² Valencia Folha Murcha.

Table 15 – Oranges: Stratification of total planting holes of groves [2019 inventory and 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)
Triângulo Mineiro					
Hamlin, Westin and Rubi.....	44.50	2,240.91	10.78	28.32	2,324.51
Other early ¹	7.26	157.91	0.53	1.36	167.06
Pera Rio.....	344.28	4,293.72	26.90	40.70	4,705.60
Valencia and V.Folha Murcha ²	84.66	4,175.87	21.31	23.26	4,305.10
Natal.....	43.12	1,519.18	23.65	23.27	1,609.22
Subtotal.....	523.82	12,387.59	83.17	116.91	13,111.49
Bebedouro					
Hamlin, Westin and Rubi.....	518.99	3,888.02	62.17	160.75	4,629.93
Other early ¹	240.45	1,753.25	19.70	122.36	2,135.76
Pera Rio.....	879.10	6,956.90	59.91	226.54	8,122.45
Valencia and V.Folha Murcha ²	515.31	8,065.58	58.78	274.81	8,914.48
Natal.....	441.85	2,169.86	9.85	67.86	2,689.42
Subtotal.....	2,595.70	22,833.61	210.41	852.32	26,492.04
Altinópolis					
Hamlin, Westin and Rubi.....	88.32	841.20	31.69	31.47	992.68
Other early ¹	7.80	117.71	2.65	5.72	133.88
Pera Rio.....	293.32	1,736.60	56.70	49.19	2,135.81
Valencia and V.Folha Murcha ²	118.32	2,149.80	40.46	65.67	2,374.25
Natal.....	99.84	230.66	4.80	9.78	345.08
Subtotal.....	607.60	5,075.97	136.30	161.83	5,981.70
Votuporanga					
Hamlin, Westin and Rubi.....	21.90	400.42	4.46	19.66	446.44
Other early ¹	0.70	192.04	7.09	5.03	204.86
Pera Rio.....	427.69	5,920.74	226.67	273.89	6,848.99
Valencia and V.Folha Murcha ²	5.47	614.16	15.49	28.59	663.71
Natal.....	16.51	380.87	17.36	29.73	444.47
Subtotal.....	472.27	7,508.23	271.07	356.90	8,608.47
São José do Rio Preto					
Hamlin, Westin and Rubi.....	284.60	2,164.44	53.01	134.78	2,636.83
Other early ¹	607.56	1,214.71	11.39	53.56	1,887.22
Pera Rio.....	332.22	2,356.81	37.22	104.79	2,831.04
Valencia and V.Folha Murcha ²	261.97	2,986.13	22.82	96.39	3,367.31
Natal.....	370.19	1,399.76	9.02	37.79	1,816.76
Subtotal.....	1,856.54	10,121.85	133.46	427.31	12,539.16
Matão					
Hamlin, Westin and Rubi.....	636.77	2,432.15	46.03	184.65	3,299.60
Other early ¹	378.65	1,539.75	27.62	203.54	2,149.56
Pera Rio.....	1,110.37	6,148.00	129.86	531.25	7,919.48
Valencia and V.Folha Murcha ²	461.52	4,887.61	95.13	312.21	5,756.47
Natal.....	375.87	1,178.84	6.82	101.68	1,663.21
Subtotal.....	2,963.18	16,186.35	305.46	1,333.33	20,788.32
Duartina					
Hamlin, Westin and Rubi.....	633.34	3,120.33	103.41	325.44	4,182.52
Other early ¹	249.93	1,128.57	1.71	121.52	1,501.73
Pera Rio.....	1,277.96	9,586.48	148.59	461.80	11,474.83
Valencia and V.Folha Murcha ²	884.81	6,970.85	70.07	450.57	8,376.30
Natal.....	261.27	2,667.66	18.60	148.94	3,096.47
Subtotal.....	3,307.31	23,473.89	342.38	1,508.27	28,631.85
Brotas					
Hamlin, Westin and Rubi.....	36.67	837.16	16.28	45.93	936.04
Other early ¹	16.98	297.72	1.93	3.95	320.58
Pera Rio.....	307.27	2,339.21	54.17	122.20	2,822.85
Valencia and V.Folha Murcha ²	210.42	3,976.90	120.63	331.05	4,639.00
Natal.....	54.37	650.81	7.95	79.80	792.93
Subtotal.....	625.71	8,101.80	200.96	582.93	9,511.40

Table 15 – Oranges: Stratification of total planting holes of groves [2019 inventory and 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)
Porto Ferreira					
Hamlin, Westin and Rubi.....	221.16	1,986.32	19.67	180.08	2,407.23
Other early ¹	21.40	256.77	9.48	45.74	333.39
Pera Rio.....	1,100.62	7,005.99	72.14	390.09	8,568.84
Valencia and V.Folha Murcha ²	582.51	6,154.14	66.14	352.79	7,155.58
Natal.....	223.97	1,839.25	19.03	148.78	2,231.03
Subtotal.....	2,149.66	17,242.47	186.46	1,117.48	20,696.07
Limeira					
Hamlin, Westin and Rubi.....	203.29	2,347.75	54.45	201.33	2,806.82
Other early ¹	18.10	193.65	1.44	17.52	230.71
Pera Rio.....	993.29	6,170.99	171.94	420.62	7,756.84
Valencia and V.Folha Murcha ²	497.40	5,691.57	80.88	392.83	6,662.68
Natal.....	161.29	1,353.49	9.29	81.40	1,605.47
Subtotal.....	1,873.37	15,757.45	318.00	1,113.70	19,062.52
Avaré					
Hamlin, Westin and Rubi.....	469.16	4,287.40	108.18	295.68	5,160.42
Other early ¹	145.02	654.65	6.69	82.04	888.40
Pera Rio.....	494.19	7,601.28	93.14	563.39	8,752.00
Valencia and V.Folha Murcha ²	427.81	9,389.49	68.53	501.90	10,387.73
Natal.....	255.51	3,963.76	30.61	294.31	4,544.19
Subtotal.....	1,791.69	25,896.58	307.15	1,737.32	29,732.74
Itapetininga					
Hamlin, Westin and Rubi.....	377.59	936.00	20.92	53.78	1,388.29
Other early ¹	530.26	509.15	14.04	10.37	1,063.82
Pera Rio.....	960.89	2,752.24	43.91	80.12	3,837.16
Valencia and V.Folha Murcha ²	458.66	3,206.91	65.43	67.23	3,798.23
Natal.....	199.81	1,983.24	12.22	50.27	2,245.54
Subtotal.....	2,527.21	9,387.54	156.52	261.77	12,333.04
Total.....	21,294.06	173,973.33	2,651.34	9,570.07	207,488.80
Percentage.....	10.26	83.85	1.28	4.61	100.00
Variation					
Trees/holes.....	2,158.24	-1,296.11	-195.14	287.84	954.83
Percentage.....	11.28	-0.74	-6.86	3.10	0.46

¹ Valencia Americana, Seleta and Pineapple.² V.Folha Murcha – Valencia Folha Murcha.**Table 16 – Oranges: Trees by age group and age group of plot – Citrus belt [2019 inventory]**

Plot age ¹	Tree age ²				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.....	16,886.02	-	-	-	16,886.02	8.65
3 – 5 years.....	618.14	19,637.06	-	-	20,255.20	10.37
6 – 10 years.....	1,600.57	1,969.50	53,428.81	-	56,998.88	29.19
Over 10 years.....	2,189.33	3,300.84	5,464.69	90,172.43	101,127.29	51.79
Total.....	21,294.06	24,907.40	58,893.50	90,172.43	195,267.39	100.00
Percentage.....	10.91	12.76	30.16	46.18	100.00	

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.² 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 17 – Oranges: Trees by age group, age group of plot and sector [2019 inventory]

Plot age and sector	Tree age				Total (1,000 trees)	Percentage (%)
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)		
North						
1 – 2 years	2,919.07	-	-	-	2,919.07	6.63
3 – 5 years	53.66	3,823.24	-	-	3,876.90	8.81
6 – 10 years	296.25	352.91	14,378.21	-	15,027.37	34.13
Over 10 years.....	458.14	792.38	1,254.41	19,696.02	22,200.95	50.43
Subtotal.....	3,727.12	4,968.53	15,632.62	19,696.02	44,024.29	22.55
Northwest						
1 – 2 years	2,048.14	-	-	-	2,048.14	10.26
3 – 5 years	40.05	2,679.07	-	-	2,719.12	13.62
6 – 10 years	110.51	166.25	7,588.23	-	7,864.99	39.41
Over 10 years.....	130.11	102.33	82.23	7,011.97	7,326.64	36.71
Subtotal.....	2,328.81	2,947.65	7,670.46	7,011.97	19,958.89	10.22
Central						
1 – 2 years	5,675.37	-	-	-	5,675.37	10.38
3 – 5 years	167.41	6,179.32	-	-	6,346.73	11.61
6 – 10 years	526.28	672.63	15,161.83	-	16,360.74	29.93
Over 10 years.....	527.14	834.11	1,793.30	23,120.85	26,275.40	48.07
Subtotal.....	6,896.20	7,686.06	16,955.13	23,120.85	54,658.24	27.99
South						
1 – 2 years	2,972.39	-	-	-	2,972.39	8.03
3 – 5 years	278.30	4,312.67	-	-	4,590.97	12.40
6 – 10 years	364.62	480.25	9,191.64	-	10,036.51	27.11
Over 10 years.....	407.72	781.03	1,480.70	16,753.63	19,423.08	52.46
Subtotal.....	4,023.03	5,573.95	10,672.34	16,753.63	37,022.95	18.96
Southwest						
1 – 2 years	3,271.05	-	-	-	3,271.05	8.26
3 – 5 years	78.72	2,642.76	-	-	2,721.48	6.87
6 – 10 years	302.91	297.46	7,108.90	-	7,709.27	19.47
Over 10 years.....	666.22	790.99	854.05	23,589.96	25,901.22	65.40
Subtotal.....	4,318.90	3,731.21	7,962.95	23,589.96	39,603.02	20.28
Total.....	21,294.06	24,907.40	58,893.50	90,172.43	195,267.39	100.00

Table 18 – Oranges: Trees by age group, age group of plot and variety [2019 inventory]

Plot age and variety	Tree age				Total (1,000 trees)	Percentage (%)
	1 – 2 years (1,000 trees)	3 – 5 years (1,000 trees)	6 – 10 years (1,000 trees)	Over 10 years (1,000 trees)		
Hamlin, Westin, Rubi						
1 – 2 years	2,716.83	-	-	-	2,716.83	9.36
3 – 5 years	29.14	1,140.72	-	-	1,169.86	4.03
6 – 10 years	255.61	328.27	6,604.21	-	7,188.09	24.77
Over 10 years.....	534.71	749.26	1,095.62	15,564.02	17,943.61	61.84
Subtotal.....	3,536.29	2,218.25	7,699.83	15,564.02	29,018.39	14.86
Other early						
1 – 2 years	1,940.95	-	-	-	1,940.95	18.95
3 – 5 years	16.37	440.09	-	-	456.46	4.46
6 – 10 years	79.00	119.95	3,457.03	-	3,655.98	35.70
Over 10 years.....	187.79	164.11	207.21	3,627.49	4,186.60	40.88
Subtotal.....	2,224.11	724.15	3,664.24	3,627.49	10,239.99	5.24
Pera Rio						
1 – 2 years	6,870.38	-	-	-	6,870.38	9.62
3 – 5 years	332.71	10,410.26	-	-	10,742.97	15.05
6 – 10 years	650.34	794.40	23,255.97	-	24,700.71	34.60
Over 10 years.....	667.77	747.79	1,340.04	26,320.50	29,076.10	40.73
Subtotal.....	8,521.20	11,952.45	24,596.01	26,320.50	71,390.16	36.56
Valencia, V.F. Murcha						
1 – 2 years	3,325.12	-	-	-	3,325.12	5.30
3 – 5 years	173.66	5,070.66	-	-	5,244.32	8.35
6 – 10 years	396.49	562.21	16,190.93	-	17,149.63	27.32
Over 10 years.....	613.59	1,299.50	2,174.76	32,970.95	37,058.80	59.03
Subtotal.....	4,508.86	6,932.37	18,365.69	32,970.95	62,777.87	32.15
Natal						
1 – 2 years	2,032.74	-	-	-	2,032.74	9.31
3 – 5 years	66.26	2,575.33	-	-	2,641.59	12.09
6 – 10 years	219.13	164.67	3,920.67	-	4,304.47	19.71
Over 10 years.....	185.47	340.18	647.06	11,689.47	12,862.18	58.89
Subtotal.....	2,503.60	3,080.18	4,567.73	11,689.47	21,840.98	11.19
Total.....	21,294.06	24,907.40	58,893.50	90,172.43	195,267.39	100.00

Table 19 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – North Sector [2019 inventory]

Plot age ¹ and regions of North Sector	Age trees ²				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)
Triângulo Mineiro					
1 – 2 years.....	38.54	-	-	-	38.54
3 – 5 years.....	-	8.06	-	-	8.06
6 – 10 years.....	2.05	8.59	464.50	-	475.14
Over 10 years.....	3.91	38.45	27.62	1,693.69	1,763.67
Subtotal.....	44.50	55.10	492.12	1,693.69	2,285.41
Bebedouro					
1 – 2 years.....	341.46	-	-	-	341.46
3 – 5 years.....	0.52	85.86	-	-	86.38
6 – 10 years.....	47.86	45.21	856.47	-	949.54
Over 10 years.....	129.15	99.74	208.34	2,592.40	3,029.63
Subtotal.....	518.99	230.81	1,064.81	2,592.40	4,407.01
Altinópolis					
1 – 2 years.....	53.60	-	-	-	53.60
3 – 5 years.....	0.81	24.46	-	-	25.27
6 – 10 years.....	9.45	26.63	76.92	-	113.00
Over 10 years.....	24.46	70.70	52.45	590.04	737.65
Subtotal.....	88.32	121.79	129.37	590.04	929.52
North					
1 – 2 years.....	433.60	-	-	-	433.60
3 – 5 years.....	1.33	118.38	-	-	119.71
6 – 10 years.....	59.36	80.43	1,397.89	-	1,537.68
Over 10 years.....	157.52	208.89	288.41	4,876.13	5,530.95
Total.....	651.81	407.70	1,686.30	4,876.13	7,621.94

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 20 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – Northwest Sector [2019 inventory]

Plot age ¹ and regions of Northwest Sector	Age trees ²				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)	
Votuporanga					
1 – 2 years.....	19.21	-	-	-	19.21
3 – 5 years.....	-	3.60	-	-	3.60
6 – 10 years.....	0.09	3.40	170.97	-	174.46
Over 10 years.....	2.60	2.89	11.30	208.26	225.05
Subtotal.....	21.90	9.89	182.27	208.26	422.32
São José do Rio Preto					
1 – 2 years.....	199.30	-	-	-	199.30
3 – 5 years.....	0.15	152.07	-	-	152.22
6 – 10 years.....	54.46	55.24	970.15	-	1,079.85
Over 10 years.....	30.69	13.11	3.84	970.03	1,017.67
Subtotal.....	284.60	220.42	973.99	970.03	2,449.04
Northwest					
1 – 2 years.....	218.51	-	-	-	218.51
3 – 5 years.....	0.15	155.67	-	-	155.82
6 – 10 years.....	54.55	58.64	1,141.12	-	1,254.31
Over 10 years.....	33.29	16.00	15.14	1,178.29	1,242.72
Total.....	306.50	230.31	1,156.26	1,178.29	2,871.36

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Central Sector	Age trees ²				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)	
Matão					
1 – 2 years.....	610.85	-	-	-	610.85
3 – 5 years.....	0.82	12.16	-	-	12.98
6 – 10 years.....	21.56	41.60	1,232.64	-	1,295.80
Over 10 years.....	3.54	39.35	58.25	1,048.15	1,149.29
Subtotal.....	636.77	93.11	1,290.89	1,048.15	3,068.92
Duartina					
1 – 2 years.....	498.02	-	-	-	498.02
3 – 5 years.....	17.38	241.98	-	-	259.36
6 – 10 years.....	50.07	62.51	692.25	-	804.83
Over 10 years.....	67.87	119.40	129.91	1,874.28	2,191.46
Subtotal.....	633.34	423.89	822.16	1,874.28	3,753.67
Brotas					
1 – 2 years.....	29.88	-	-	-	29.88
3 – 5 years.....	0.14	12.64	-	-	12.78
6 – 10 years.....	1.44	19.57	132.49	-	153.50
Over 10 years.....	5.21	18.90	72.34	581.22	677.67
Subtotal.....	36.67	51.11	204.83	581.22	873.83
Central					
1 – 2 years.....	1,138.75	-	-	-	1,138.75
3 – 5 years.....	18.34	266.78	-	-	285.12
6 – 10 years.....	73.07	123.68	2,057.38	-	2,254.13
Over 10 years.....	76.62	177.65	260.50	3,503.65	4,018.42
Total.....	1,306.78	568.11	2,317.88	3,503.65	7,696.42

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of South Sector	Age trees ²				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)	
Porto Ferreira					
1 – 2 years.....	154.84	-	-	-	154.84
3 – 5 years.....	3.58	200.53	-	-	204.11
6 – 10 years.....	22.28	48.13	773.13	-	843.54
Over 10 years.....	40.46	68.92	220.54	675.07	1,004.99
Subtotal.....	221.16	317.58	993.67	675.07	2,207.48
Limeira					
1 – 2 years.....	157.30	-	-	-	157.30
3 – 5 years.....	0.95	169.86	-	-	170.81
6 – 10 years.....	3.84	3.60	334.61	-	342.05
Over 10 years.....	41.20	66.38	119.25	1,654.05	1,880.88
Subtotal.....	203.29	239.84	453.86	1,654.05	2,551.04
South					
1 – 2 years.....	312.14	-	-	-	312.14
3 – 5 years.....	4.53	370.39	-	-	374.92
6 – 10 years.....	26.12	51.73	1,107.74	-	1,185.59
Over 10 years.....	81.66	135.30	339.79	2,329.12	2,885.87
Total.....	424.45	557.42	1,447.53	2,329.12	4,758.52

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 23 – Hamlin, Westin and Rubi: Trees by age group and age group of plot – Southwest Sector [2019 inventory]

Plot age ¹ and regions of Southwest Sector	Age trees ²				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)	
Avaré					
1 – 2 years.....	245.48	-	-	-	245.48
3 – 5 years.....	1.68	79.02	-	-	80.70
6 – 10 years.....	39.39	12.77	654.84	-	707.00
Over 10 years.....	182.61	208.50	190.56	3,141.71	3,723.38
Subtotal.....	469.16	300.29	845.40	3,141.71	4,756.56
Itapetininga					
1 – 2 years.....	368.35	-	-	-	368.35
3 – 5 years.....	3.11	150.48	-	-	153.59
6 – 10 years.....	3.12	1.02	245.24	-	249.38
Over 10 years.....	3.01	2.92	1.22	535.12	542.27
Subtotal.....	377.59	154.42	246.46	535.12	1,313.59
Southwest					
1 – 2 years.....	613.83	-	-	-	613.83
3 – 5 years.....	4.79	229.50	-	-	234.29
6 – 10 years.....	42.51	13.79	900.08	-	956.38
Over 10 years.....	185.62	211.42	191.78	3,676.83	4,265.65
Total.....	846.75	454.71	1,091.86	3,676.83	6,070.15

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 24 – Other early¹: Trees by age group and age group of plot – North Sector [2019 inventory]

Plot age ² and regions of North Sector	Age trees ³				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)	
Triângulo Mineiro					
1 – 2 years.....	7.16	-	-	-	7.16
3 – 5 years.....	-	-	-	-	-
6 – 10 years.....	0.09	0.12	56.67	-	56.88
Over 10 years.....	0.01	0.15	0.67	100.30	101.13
Subtotal.....	7.26	0.27	57.34	100.30	165.17
Bebedouro					
1 – 2 years.....	146.98	-	-	-	146.98
3 – 5 years.....	2.06	37.22	-	-	39.28
6 – 10 years.....	20.83	8.14	870.80	-	899.77
Over 10 years.....	70.58	62.30	79.32	695.47	907.67
Subtotal.....	240.45	107.66	950.12	695.47	1,993.70
Altinópolis					
1 – 2 years.....	-	-	-	-	-
3 – 5 years.....	-	-	-	-	-
6 – 10 years.....	6.09	5.71	33.71	-	45.51
Over 10 years.....	1.71	4.39	6.71	67.19	80.00
Subtotal.....	7.80	10.10	40.42	67.19	125.51
North					
1 – 2 years.....	154.14	-	-	-	154.14
3 – 5 years.....	2.06	37.22	-	-	39.28
6 – 10 years.....	27.01	13.97	961.18	-	1,002.16
Over 10 years.....	72.30	66.84	86.70	862.96	1,088.80
Total.....	255.51	118.03	1,047.88	862.96	2,284.38

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Valencia Americana, Seleta and Pineapple.

² Calculation based on the year the original plot was planted.

³ 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 early¹: Trees by age group and age group of plot – Northwest Sector [2019 inventory]

Plot age ² and regions of Northwest Sector	Age trees ³				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)	
Votuporanga					
1 – 2 years.....	-	-	-	-	-
3 – 5 years.....	0.03	5.65	-	-	5.68
6 – 10 years.....	0.42	8.02	59.46	-	67.90
Over 10 years.....	0.25	1.02	1.71	116.18	119.16
Subtotal.....	0.70	14.69	61.17	116.18	192.74
São José do Rio Preto					
1 – 2 years.....	561.07	-	-	-	561.07
3 – 5 years.....	0.80	49.31	-	-	50.11
6 – 10 years.....	19.88	17.07	702.08	-	739.03
Over 10 years.....	25.81	38.64	0.92	406.69	472.06
Subtotal.....	607.56	105.02	703.00	406.69	1,822.27
Northwest					
1 – 2 years.....	561.07	-	-	-	561.07
3 – 5 years.....	0.83	54.96	-	-	55.79
6 – 10 years.....	20.30	25.09	761.54	-	806.93
Over 10 years.....	26.06	39.66	2.63	522.87	591.22
Total.....	608.26	119.71	764.17	522.87	2,015.01

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Valencia Americana, Seleta and Pineapple.

² Calculation based on the year the original plot was planted.

³ 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 26 – Other early¹: Trees by age group and age group of plot – Central Sector [2019 inventory]

Plot age ² and regions of Central Sector	Age trees ³				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)	
Matão					
1 – 2 years.....	351.01	-	-	-	351.01
3 – 5 years.....	0.06	0.97	-	-	1.03
6 – 10 years.....	7.51	32.28	625.80	-	665.59
Over 10 years.....	20.07	9.36	60.12	811.22	900.77
Subtotal.....	378.65	42.61	685.92	811.22	1,918.40
Duartina					
1 – 2 years.....	215.42	-	-	-	215.42
3 – 5 years.....	0.53	105.70	-	-	106.23
6 – 10 years.....	17.97	25.06	468.59	-	511.62
Over 10 years.....	16.01	14.86	18.51	495.85	545.23
Subtotal.....	249.93	145.62	487.10	495.85	1,378.50
Brotas					
1 – 2 years.....	13.28	-	-	-	13.28
3 – 5 years.....	2.51	109.17	-	-	111.68
6 – 10 years.....	0.64	9.04	67.63	-	77.31
Over 10 years.....	0.55	1.86	12.61	97.41	112.43
Subtotal.....	16.98	120.07	80.24	97.41	314.70
Central					
1 – 2 years.....	579.71	-	-	-	579.71
3 – 5 years.....	3.10	215.84	-	-	218.94
6 – 10 years.....	26.12	66.38	1,162.02	-	1,254.52
Over 10 years.....	36.63	26.08	91.24	1,404.48	1,558.43
Total.....	645.56	308.30	1,253.26	1,404.48	3,611.60

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Valencia Americana, Seleta and Pineapple.

² Calculation based on the year the original plot was planted.

³ 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 27 – Other early¹: Trees by age group and age group of plot – South Sector [2019 inventory]

Plot age ² and regions of South Sector	Age trees ³				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)	
Porto Ferreira					
1 – 2 years.....	6.66	-	-	-	6.66
3 – 5 years.....	-	-	-	-	-
6 – 10 years.....	2.57	4.57	77.04	-	84.18
Over 10 years.....	12.17	5.00	8.51	161.65	187.33
Subtotal.....	21.40	9.57	85.55	161.65	278.17
Limeira					
1 – 2 years.....	0.74	-	-	-	0.74
3 – 5 years.....	0.05	5.04	-	-	5.09
6 – 10 years.....	0.71	3.67	25.75	-	30.13
Over 10 years.....	16.60	13.17	0.13	145.89	175.79
Subtotal.....	18.10	21.88	25.88	145.89	211.75
South					
1 – 2 years.....	7.40	-	-	-	7.40
3 – 5 years.....	0.05	5.04	-	-	5.09
6 – 10 years.....	3.28	8.24	102.79	-	114.31
Over 10 years.....	28.77	18.17	8.64	307.54	363.12
Total.....	39.50	31.45	111.43	307.54	489.92

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Valencia Americana, Seleta and Pineapple.

² Calculation based on the year the original plot was planted.

³ 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 early¹: Trees by age group and age group of plot – Southwest Sector [2019 inventory]

Plot age ² and regions of Southwest Sector	Age trees ³				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)	
Avaré					
1 – 2 years.....	124.80	-	-	-	124.80
3 – 5 years.....	0.21	11.32	-	-	11.53
6 – 10 years.....	0.29	2.47	114.35	-	117.11
Over 10 years.....	19.72	12.72	18.00	495.79	546.23
Subtotal.....	145.02	26.51	132.35	495.79	799.67
Itapetinga					
1 – 2 years.....	513.83	-	-	-	513.83
3 – 5 years.....	10.12	115.71	-	-	125.83
6 – 10 years.....	2.00	3.80	355.15	-	360.95
Over 10 years.....	4.31	0.64	-	33.85	38.80
Subtotal.....	530.26	120.15	355.15	33.85	1,039.41
Southwest					
1 – 2 years.....	638.63	-	-	-	638.63
3 – 5 years.....	10.33	127.03	-	-	137.36
6 – 10 years.....	2.29	6.27	469.50	-	478.06
Over 10 years.....	24.03	13.36	18.00	529.64	585.03
Total.....	675.28	146.66	487.50	529.64	1,839.08

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Valencia Americana, Seleta and Pineapple.

² Calculation based on the year the original plot was planted.

³ 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 [2019 inventory]

Plot age ¹ and regions of North Sector	Age trees ²				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)	
Triângulo Mineiro					
1 – 2 years.....	330.27	-	-	-	330.27
3 – 5 years.....	2.29	736.02	-	-	738.31
6 – 10 years.....	11.37	43.48	2,707.06	-	2,761.91
Over 10 years.....	0.35	13.34	15.22	778.60	807.51
Subtotal.....	344.28	792.84	2,722.28	778.60	4,638.00
Bebedouro					
1 – 2 years.....	711.10	-	-	-	711.10
3 – 5 years.....	31.40	1,329.01	-	-	1,360.41
6 – 10 years.....	93.94	83.70	3,647.79	-	3,825.43
Over 10 years.....	42.66	60.80	133.20	1,702.40	1,939.06
Subtotal.....	879.10	1,473.51	3,780.99	1,702.40	7,836.00
Altinópolis					
1 – 2 years.....	240.62	-	-	-	240.62
3 – 5 years.....	3.60	195.07	-	-	198.67
6 – 10 years.....	21.93	5.11	246.25	-	273.29
Over 10 years.....	27.17	57.03	117.66	1,115.48	1,317.34
Subtotal.....	293.32	257.21	363.91	1,115.48	2,029.92
North					
1 – 2 years.....	1,281.99	-	-	-	1,281.99
3 – 5 years.....	37.29	2,260.10	-	-	2,297.39
6 – 10 years.....	127.24	132.29	6,601.10	-	6,860.63
Over 10 years.....	70.18	131.17	266.08	3,596.48	4,063.91
Total.....	1,516.70	2,523.56	6,867.18	3,596.48	14,503.92

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Northwest Sector	Age trees ²				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)	
Votuporanga					
1 – 2 years.....	386.04	-	-	-	386.04
3 – 5 years.....	13.66	569.54	-	-	583.20
6 – 10 years.....	9.57	40.30	2,797.93	-	2,847.80
Over 10 years.....	18.42	13.19	43.19	2,456.59	2,531.39
Subtotal.....	427.69	623.03	2,841.12	2,456.59	6,348.43
São José do Rio Preto					
1 – 2 years.....	287.45	-	-	-	287.45
3 – 5 years.....	9.11	536.37	-	-	545.48
6 – 10 years.....	10.94	12.29	904.97	-	928.20
Over 10 years.....	24.72	14.98	3.83	884.37	927.90
Subtotal.....	332.22	563.64	908.80	884.37	2,689.03
Northwest					
1 – 2 years.....	673.49	-	-	-	673.49
3 – 5 years.....	22.77	1,105.91	-	-	1,128.68
6 – 10 years.....	20.51	52.59	3,702.90	-	3,776.00
Over 10 years.....	43.14	28.17	47.02	3,340.96	3,459.29
Total.....	759.91	1,186.67	3,749.92	3,340.96	9,037.46

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 31 – Pera Rio: Trees by age group and age group of plot – Central Sector [2019 inventory]

Plot age ¹ and regions of Central Sector	Age trees ²				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)	
Matão					
1 – 2 years.....	936.27	-	-	-	936.27
3 – 5 years.....	55.28	1,719.43	-	-	1,774.71
6 – 10 years.....	46.32	100.33	2,919.77	-	3,066.42
Over 10 years.....	72.50	17.35	32.81	1,358.31	1,480.97
Subtotal.....	1,110.37	1,837.11	2,952.58	1,358.31	7,258.37
Duartina					
1 – 2 years.....	1,068.59	-	-	-	1,068.59
3 – 5 years.....	30.23	1,292.63	-	-	1,322.86
6 – 10 years.....	104.79	143.76	2,706.98	-	2,955.53
Over 10 years.....	74.35	169.63	237.41	5,036.07	5,517.46
Subtotal.....	1,277.96	1,606.02	2,944.39	5,036.07	10,864.44
Brotas					
1 – 2 years.....	208.82	-	-	-	208.82
3 – 5 years.....	6.25	651.48	-	-	657.73
6 – 10 years.....	40.98	13.09	382.14	-	436.21
Over 10 years.....	51.22	27.73	175.87	1,088.90	1,343.72
Subtotal.....	307.27	692.30	558.01	1,088.90	2,646.48
Central					
1 – 2 years.....	2,213.68	-	-	-	2,213.68
3 – 5 years.....	91.76	3,663.54	-	-	3,755.30
6 – 10 years.....	192.09	257.18	6,008.89	-	6,458.16
Over 10 years.....	198.07	214.71	446.09	7,483.28	8,342.15
Total.....	2,695.60	4,135.43	6,454.98	7,483.28	20,769.29

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 32 – Pera Rio: Trees by age group and age group of plot – South Sector [2019 inventory]

Plot age ¹ and regions of South Sector	Age trees ²				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)	
Porto Ferreira					
1 – 2 years.....	864.31	-	-	-	864.31
3 – 5 years.....	50.84	1,369.95	-	-	1,420.79
6 – 10 years.....	102.08	121.03	2,212.23	-	2,435.34
Over 10 years.....	83.39	131.22	356.34	2,815.22	3,386.17
Subtotal.....	1,100.62	1,622.20	2,568.57	2,815.22	8,106.61
Limeira					
1 – 2 years.....	684.17	-	-	-	684.17
3 – 5 years.....	102.60	851.88	-	-	954.48
6 – 10 years.....	112.54	89.52	2,247.02	-	2,449.08
Over 10 years.....	93.98	81.59	54.88	2,846.10	3,076.55
Subtotal.....	993.29	1,022.99	2,301.90	2,846.10	7,164.28
South					
1 – 2 years.....	1,548.48	-	-	-	1,548.48
3 – 5 years.....	153.44	2,221.83	-	-	2,375.27
6 – 10 years.....	214.62	210.55	4,459.25	-	4,884.42
Over 10 years.....	177.37	212.81	411.22	5,661.32	6,462.72
Total.....	2,093.91	2,645.19	4,870.47	5,661.32	15,270.89

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Southwest Sector	Age trees ²				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)	
Avaré					
1 – 2 years.....	238.76	-	-	-	238.76
3 – 5 years.....	9.24	609.36	-	-	618.60
6 – 10 years.....	69.73	116.79	1,337.42	-	1,523.94
Over 10 years.....	176.46	152.85	156.37	5,228.49	5,714.17
Subtotal.....	494.19	879.00	1,493.79	5,228.49	8,095.47
Itapetininga					
1 – 2 years.....	913.98	-	-	-	913.98
3 – 5 years.....	18.21	549.52	-	-	567.73
6 – 10 years.....	26.15	25.00	1,146.41	-	1,197.56
Over 10 years.....	2.55	8.08	13.26	1,009.97	1,033.86
Subtotal.....	960.89	582.60	1,159.67	1,009.97	3,713.13
Southwest					
1 – 2 years.....	1,152.74	-	-	-	1,152.74
3 – 5 years.....	27.45	1,158.88	-	-	1,186.33
6 – 10 years.....	95.88	141.79	2,483.83	-	2,721.50
Over 10 years.....	179.01	160.93	169.63	6,238.46	6,748.03
Total.....	1,455.08	1,461.60	2,653.46	6,238.46	11,808.60

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Norte Sector	Age trees ²				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)	
Triângulo Mineiro					
1 – 2 years.....	73.17	-	-	-	73.17
3 – 5 years.....	1.85	93.15	-	-	95.00
6 – 10 years.....	5.32	14.30	2,099.43	-	2,119.05
Over 10 years.....	4.32	21.44	19.33	1,928.22	1,973.31
Subtotal.....	84.66	128.89	2,118.76	1,928.22	4,260.53
Bebedouro					
1 – 2 years.....	392.75	-	-	-	392.75
3 – 5 years.....	7.09	1,007.28	-	-	1,014.37
6 – 10 years.....	47.02	86.85	2,227.35	-	2,361.22
Over 10 years.....	68.45	194.56	337.50	4,212.04	4,812.55
Subtotal.....	515.31	1,288.69	2,564.85	4,212.04	8,580.89
Altinópolis					
1 – 2 years.....	56.47	-	-	-	56.47
3 – 5 years.....	0.08	22.86	-	-	22.94
6 – 10 years.....	18.35	8.67	142.22	-	169.24
Over 10 years.....	43.42	98.47	141.75	1,735.83	2,019.47
Subtotal.....	118.32	130.00	283.97	1,735.83	2,268.12
North					
1 – 2 years.....	522.39	-	-	-	522.39
3 – 5 years.....	9.02	1,123.29	-	-	1,132.31
6 – 10 years.....	70.69	109.82	4,469.00	-	4,649.51
Over 10 years.....	116.19	314.47	498.58	7,876.09	8,805.33
Total.....	718.29	1,547.58	4,967.58	7,876.09	15,109.54

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Northwest Sector	Age trees ²				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)	
Votuporanga					
1 – 2 years.....	4.50	-	-	-	4.50
3 – 5 years.....	-	6.63	-	-	6.63
6 – 10 years.....	0.51	4.57	192.07	-	197.15
Over 10 years.....	0.46	2.67	6.79	401.43	411.35
Subtotal.....	5.47	13.87	198.86	401.43	619.63
São José do Rio Preto					
1 – 2 years.....	217.37	-	-	-	217.37
3 – 5 years.....	6.35	636.11	-	-	642.46
6 – 10 years.....	13.44	23.48	1,529.27	-	1,566.19
Over 10 years.....	24.81	7.54	2.04	787.69	822.08
Subtotal.....	261.97	667.13	1,531.31	787.69	3,248.10
Northwest					
1 – 2 years.....	221.87	-	-	-	221.87
3 – 5 years.....	6.35	642.74	-	-	649.09
6 – 10 years.....	13.95	28.05	1,721.34	-	1,763.34
Over 10 years.....	25.27	10.21	8.83	1,189.12	1,233.43
Total.....	267.44	681.00	1,730.17	1,189.12	3,867.73

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 36 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – Central Sector [2019 inventory]

Plot age ¹ and regions of Central Sector	Age trees ²				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)	
Matão					
1 – 2 years.....	384.73	-	-	-	384.73
3 – 5 years.....	5.50	585.77	-	-	591.27
6 – 10 years.....	27.25	51.17	2,478.21	-	2,556.63
Over 10 years.....	44.04	59.82	183.69	1,528.95	1,816.50
Subtotal.....	461.52	696.76	2,661.90	1,528.95	5,349.13
Duartina					
1 – 2 years.....	648.54	-	-	-	648.54
3 – 5 years.....	39.81	827.00	-	-	866.81
6 – 10 years.....	118.03	111.88	1,600.48	-	1,830.39
Over 10 years.....	78.43	204.54	206.27	4,020.68	4,509.92
Subtotal.....	884.81	1,143.42	1,806.75	4,020.68	7,855.66
Brotas					
1 – 2 years.....	122.71	-	-	-	122.71
3 – 5 years.....	2.63	103.41	-	-	106.04
6 – 10 years.....	43.12	33.30	701.39	-	777.81
Over 10 years.....	41.96	44.28	334.93	2,759.59	3,180.76
Subtotal.....	210.42	180.99	1,036.32	2,759.59	4,187.32
Central					
1 – 2 years.....	1,155.98	-	-	-	1,155.98
3 – 5 years.....	47.94	1,516.18	-	-	1,564.12
6 – 10 years.....	188.40	196.35	4,780.08	-	5,164.83
Over 10 years.....	164.43	308.64	724.89	8,309.22	9,507.18
Total.....	1,556.75	2,021.17	5,504.97	8,309.22	17,392.11

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 37 – Valencia and Valencia Folha Murcha: Trees by age group and age group of plot – South Sector [2019 inventory]

Plot age ¹ and regions of South Sector	Age trees ²				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)	
Porto Ferreira					
1 – 2 years.....	421.74	-	-	-	421.74
3 – 5 years.....	38.71	712.41	-	-	751.12
6 – 10 years.....	43.77	95.70	1,478.84	-	1,618.31
Over 10 years.....	78.29	190.35	393.07	3,283.77	3,945.48
Subtotal.....	582.51	998.46	1,871.91	3,283.77	6,736.65
Limeira					
1 – 2 years.....	375.11	-	-	-	375.11
3 – 5 years.....	52.70	405.02	-	-	457.72
6 – 10 years.....	29.96	54.29	1,290.17	-	1,374.42
Over 10 years.....	39.63	172.81	198.34	3,570.94	3,981.72
Subtotal.....	497.40	632.12	1,488.51	3,570.94	6,188.97
South					
1 – 2 years.....	796.85	-	-	-	796.85
3 – 5 years.....	91.41	1,117.43	-	-	1,208.84
6 – 10 years.....	73.73	149.99	2,769.01	-	2,992.73
Over 10 years.....	117.92	363.16	591.41	6,854.71	7,927.20
Total.....	1,079.91	1,630.58	3,360.42	6,854.71	12,925.62

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Southwest Sector	Age trees ²				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)	
Avaré					
1 – 2 years.....	229.88	-	-	-	229.88
3 – 5 years.....	3.52	386.39	-	-	389.91
6 – 10 years.....	44.60	69.97	1,482.31	-	1,596.88
Over 10 years.....	149.81	279.62	344.08	6,827.12	7,600.63
Subtotal.....	427.81	735.98	1,826.39	6,827.12	9,817.30
Itapetininga					
1 – 2 years.....	398.15	-	-	-	398.15
3 – 5 years.....	15.42	284.63	-	-	300.05
6 – 10 years.....	5.12	8.03	969.19	-	982.34
Over 10 years.....	39.97	23.40	6.97	1,914.69	1,985.03
Subtotal.....	458.66	316.06	976.16	1,914.69	3,665.57
Southwest					
1 – 2 years.....	628.03	-	-	-	628.03
3 – 5 years.....	18.94	671.02	-	-	689.96
6 – 10 years.....	49.72	78.00	2,451.50	-	2,579.22
Over 10 years.....	189.78	303.02	351.05	8,741.81	9,585.66
Total.....	886.47	1,052.04	2,802.55	8,741.81	13,482.87

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Norte Sector	Age trees ²				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)	
Triângulo Mineiro					
1 – 2 years.....	40.94	-	-	-	40.94
3 – 5 years.....	0.07	8.62	-	-	8.69
6 – 10 years.....	0.92	0.93	396.48	-	398.33
Over 10 years.....	1.19	13.65	22.99	1,076.51	1,114.34
Subtotal.....	43.12	23.20	419.47	1,076.51	1,562.30
Bebedouro					
1 – 2 years.....	412.17	-	-	-	412.17
3 – 5 years.....	3.49	256.94	-	-	260.43
6 – 10 years.....	6.65	11.82	507.03	-	525.50
Over 10 years.....	19.54	46.75	88.61	1,258.71	1,413.61
Subtotal.....	441.85	315.51	595.64	1,258.71	2,611.71
Altinópolis					
1 – 2 years.....	73.84	-	-	-	73.84
3 – 5 years.....	0.40	18.69	-	-	19.09
6 – 10 years.....	4.38	3.65	45.53	-	53.56
Over 10 years.....	21.22	10.61	3.04	149.14	184.01
Subtotal.....	99.84	32.95	48.57	149.14	330.50
North					
1 – 2 years.....	526.95	-	-	-	526.95
3 – 5 years.....	3.96	284.25	-	-	288.21
6 – 10 years.....	11.95	16.40	949.04	-	977.39
Over 10 years.....	41.95	71.01	114.64	2,484.36	2,711.96
Total.....	584.81	371.66	1,063.68	2,484.36	4,504.51

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Northwest Sector	Age trees ²				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)	
Votuporanga					
1 – 2 years.....	16.24	-	-	-	16.24
3 – 5 years.....	-	31.43	-	-	31.43
6 – 10 years.....	0.05	0.23	50.10	-	50.38
Over 10 years.....	0.22	1.59	1.80	295.72	299.33
Subtotal.....	16.51	33.25	51.90	295.72	397.38
São José do Rio Preto					
1 – 2 years.....	356.96	-	-	-	356.96
3 – 5 years.....	9.95	688.36	-	-	698.31
6 – 10 years.....	1.15	1.65	211.23	-	214.03
Over 10 years.....	2.13	6.70	6.81	485.01	500.65
Subtotal.....	370.19	696.71	218.04	485.01	1,769.95
Northwest					
1 – 2 years.....	373.20	-	-	-	373.20
3 – 5 years.....	9.95	719.79	-	-	729.74
6 – 10 years.....	1.20	1.88	261.33	-	264.41
Over 10 years.....	2.35	8.29	8.61	780.73	799.98
Total.....	386.70	729.96	269.94	780.73	2,167.33

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 41 – Natal: Trees by age group and age group of plot – Central Sector [2019 inventory]

Plot age ¹ and regions of Central Sector	Age trees ²				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)	
Matão					
1 – 2 years.....	356.51	-	-	-	356.51
3 – 5 years.....	1.01	180.45	-	-	181.46
6 – 10 years.....	17.45	5.15	318.02	-	340.62
Over 10 years.....	0.90	31.28	86.24	557.70	676.12
Subtotal.....	375.87	216.88	404.26	557.70	1,554.71
Duartina					
1 – 2 years.....	181.02	-	-	-	181.02
3 – 5 years.....	4.57	198.66	-	-	203.23
6 – 10 years.....	25.19	19.18	729.48	-	773.85
Over 10 years.....	50.49	68.42	128.71	1,523.21	1,770.83
Subtotal.....	261.27	286.26	858.19	1,523.21	2,928.93
Brotas					
1 – 2 years.....	49.72	-	-	-	49.72
3 – 5 years.....	0.69	137.87	-	-	138.56
6 – 10 years.....	3.96	4.71	105.96	-	114.63
Over 10 years.....	-	7.33	55.63	339.31	402.27
Subtotal.....	54.37	149.91	161.59	339.31	705.18
Central					
1 – 2 years.....	587.25	-	-	-	587.25
3 – 5 years.....	6.27	516.98	-	-	523.25
6 – 10 years.....	46.60	29.04	1,153.46	-	1,229.10
Over 10 years.....	51.39	107.03	270.58	2,420.22	2,849.22
Total.....	691.51	653.05	1,424.04	2,420.22	5,188.82

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 42 – Natal: Trees by age group and age group of plot – South Sector [2019 inventory]

Plot age ¹ and regions of South	Age trees ²				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)	
Porto Ferreira					
1 – 2 years.....	164.20	-	-	-	164.20
3 – 5 years.....	28.42	433.63	-	-	462.05
6 – 10 years.....	29.87	40.52	441.77	-	512.16
Over 10 years.....	1.48	45.73	110.46	767.14	924.81
Subtotal.....	223.97	519.88	552.23	767.14	2,063.22
Limeira					
1 – 2 years.....	143.32	-	-	-	143.32
3 – 5 years.....	0.45	164.35	-	-	164.80
6 – 10 years.....	17.00	19.22	311.08	-	347.30
Over 10 years.....	0.52	5.86	19.18	833.80	859.36
Subtotal.....	161.29	189.43	330.26	833.80	1,514.78
South					
1 – 2 years.....	307.52	-	-	-	307.52
3 – 5 years.....	28.87	597.98	-	-	626.85
6 – 10 years.....	46.87	59.74	752.85	-	859.46
Over 10 years.....	2.00	51.59	129.64	1,600.94	1,784.17
Total.....	385.26	709.31	882.49	1,600.94	3,578.00

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory]

Plot age ¹ and regions of Southwest Sector	Age trees ²				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)	
Avaré					
1 – 2 years.....	57.89	-	-	-	57.89
3 – 5 years.....	10.92	297.79	-	-	308.71
6 – 10 years.....	107.98	53.01	487.06	-	648.05
Over 10 years.....	78.72	99.99	122.83	2,903.08	3,204.62
Subtotal.....	255.51	450.79	609.89	2,903.08	4,219.27
Itapetinga					
1 – 2 years.....	179.93	-	-	-	179.93
3 – 5 years.....	6.29	158.54	-	-	164.83
6 – 10 years.....	4.53	4.60	316.93	-	326.06
Over 10 years.....	9.06	2.27	0.76	1,500.14	1,512.23
Subtotal.....	199.81	165.41	317.69	1,500.14	2,183.05
Southwest					
1 – 2 years.....	237.82	-	-	-	237.82
3 – 5 years.....	17.21	456.33	-	-	473.54
6 – 10 years.....	112.51	57.61	803.99	-	974.11
Over 10 years.....	87.78	102.26	123.59	4,403.22	4,716.85
Total.....	455.32	616.20	927.58	4,403.22	6,402.32

Ages and planting years: 1 – 2 years (2017 and 2018), 3 – 5 years (2014 to 2016), 6 – 10 years (2009 to 2013) and over 10 years (2008 and earlier).

¹ Calculation based on the year the original plot was planted.

² 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 [2019 inventory and variation]

Sector and region	2019 inventory			Variation (Δ) since 2018 inventory		
	Area of young groves ¹	Area of mature groves ²	Total			
	(A)	(B)	(C)	(Δ A)	(Δ B)	(Δ C)
	(hectares)	(hectares)	(hectares)	(%)	(%)	(%)
North						
Triângulo Mineiro.....	936	25,962	26,898	-11.95	2.14	1.57
Bebedouro.....	3,315	49,051	52,366	45.84	0.09	2.12
Altinópolis.....	527	10,649	11,176	18.43	-1.84	-1.04
Subtotal	4,778	85,662	90,440	26.37	0.45	1.55
Northwest						
Votuporanga.....	957	17,541	18,498	-13.94	-6.21	-6.65
São José do Rio Preto.....	2,398	21,220	23,618	40.73	-1.01	2.07
Subtotal.....	3,355	38,761	42,116	19.14	-3.43	-1.95
Central						
Matão.....	3,375	35,121	38,496	14.17	-7.58	-6.01
Duartina.....	4,384	49,279	53,663	-4.13	-1.43	-1.66
Brotas.....	736	18,213	18,949	4.10	0.37	0.51
Subtotal.....	8,495	102,613	111,108	3.14	-3.32	-2.86
South						
Porto Ferreira.....	2,473	37,237	39,710	-4.48	-1.88	-2.05
Limeira.....	2,236	36,054	38,290	1.13	-6.37	-5.96
Subtotal.....	4,709	73,291	78,000	-1.90	-4.14	-4.01
Southwest						
Avaré.....	1,452	53,263	54,715	46.37	-0.25	0.60
Itapetininga.....	2,927	16,458	19,385	20.85	-3.28	-0.27
Subtotal	4,379	69,721	74,100	28.27	-0.98	0.37
Total.....	25,716	370,048	395,764	11.58	-2.21	-1.42
Percentage.....	6.50	93.50	100.00	(X)	(X)	(X)

(X) Not applicable.

¹ Groves planted in 2017 and 2018.² Groves planted in 2016 and in previous years.

Table 45 – Oranges: Non-bearing and bearing trees by sector and region [2019 inventory and variation]

Sector and region	2019 inventory					Variation (Δ) since 2018 inventory				
	Non-bearing trees ¹			Bearing trees ⁴	Total					
	In young groves ²	In mature groves ³ (resets)	Total							
	(A)	(B)	(C)	(D)	(E)	(Δ A)	(Δ B)	(Δ C)	(Δ D)	(Δ E)
(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(%)	(%)	(%)	(%)	(%)	
North										
Triângulo Mineiro.....	490.08	33.74	523.82	12,387.59	12,911.41	-15.35	-35.89	-17.07	3.64	2.60
Bebedouro.....	2,004.46	591.24	2,595.70	22,833.61	25,429.31	53.86	17.45	43.72	2.66	5.75
Altinópolis.....	424.53	183.07	607.60	5,075.97	5,683.57	38.66	2.55	25.36	-1.05	1.23
Subtotal	2,919.07	808.05	3,727.12	40,297.17	44,024.29	33.42	10.01	27.53	2.48	4.21
Northwest										
Votuporanga.....	425.99	46.28	472.27	7,508.23	7,980.50	-11.04	-20.90	-12.11	-9.44	-9.60
S. J. do Rio Preto.....	1,622.15	234.39	1,856.54	10,121.85	11,978.39	53.58	102.06	58.38	0.63	6.65
Subtotal.....	2,048.14	280.67	2,328.81	17,630.08	19,958.89	33.42	60.83	36.22	-3.92	-0.50
Central										
Matão.....	2,639.37	323.81	2,963.18	16,186.35	19,149.53	11.22	-6.29	8.99	-6.32	-4.24
Duartina.....	2,611.59	695.72	3,307.31	23,473.89	26,781.20	-12.45	-9.62	-11.87	1.35	-0.49
Brotas.....	424.41	201.30	625.71	8,101.80	8,727.51	-6.12	17.27	0.31	-0.62	-0.56
Subtotal.....	5,675.37	1,220.83	6,896.20	47,762.04	54,658.24	-2.29	-5.14	-2.80	-1.71	-1.85
South										
Porto Ferreira.....	1,611.75	537.91	2,149.66	17,242.47	19,392.13	-4.86	10.86	-1.36	-0.12	-0.26
Limeira.....	1,360.64	512.73	1,873.37	15,757.45	17,630.82	5.13	-17.76	-2.31	-7.70	-7.16
Subtotal.....	2,972.39	1,050.64	4,023.03	32,999.92	37,022.95	-0.53	-5.23	-1.80	-3.89	-3.67
Southwest										
Avaré.....	896.81	894.88	1,791.69	25,896.58	27,688.27	35.05	46.27	40.43	-0.19	1.72
Itapetininga.....	2,374.24	152.97	2,527.21	9,387.54	11,914.75	22.12	66.72	24.13	7.62	10.74
Subtotal.....	3,271.05	1,047.85	4,318.90	35,284.12	39,603.02	25.41	48.93	30.41	1.78	4.27
Total.....	16,886.02	4,408.04	21,294.06	173,973.33	195,267.39	11.62	9.98	11.28	-0.74	0.44
Percentage.....	79.30	20.70	10.91	89.09	100.00	(X)	(X)	(X)	(X)	(X)

(X) Not applicable.

¹ Trees planted in 2017 and 2018.² Groves planted in 2017 and 2018.³ Groves planted in 2016 and in previous years.⁴ Trees planted in 2016 and in previous years.

Table 46 – Oranges: Area of groves by age group of plots, sector and region [2019 inventory]

Sector and region	Plot age				Total
	1 – 2 years ¹	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
North					
Triâng.Mineiro.....	936	1,499	10,465	13,998	26,898
Bebedouro.....	3,315	4,517	15,333	29,201	52,366
Altinópolis.....	527	392	1,110	9,147	11,176
Subtotal.....	4,778	6,408	26,908	52,346	90,440
Northwest					
Votuporanga.....	957	1,316	7,152	9,073	18,498
S. J. Rio Preto.....	2,398	3,265	8,913	9,042	23,618
Subtotal.....	3,355	4,581	16,065	18,115	42,116
Central					
Matão.....	3,375	3,662	14,138	17,321	38,496
Duartina.....	4,384	4,328	11,608	33,343	53,663
Brotas.....	736	1,541	2,711	13,961	18,949
Subtotal.....	8,495	9,531	28,457	64,625	111,108
South					
Porto Ferreira.....	2,473	4,226	9,123	23,888	39,710
Limeira.....	2,236	2,948	8,578	24,528	38,290
Subtotal.....	4,709	7,174	17,701	48,416	78,000
Southwest					
Avaré.....	1,452	1,947	7,630	43,686	54,715
Itapetininga.....	2,927	1,621	4,864	9,973	19,385
Subtotal.....	4,379	3,568	12,494	53,659	74,100
Total.....	25,716	31,262	101,625	237,161	395,764
Percentage.....	6.50	7.90	25.68	59.92	100.00

¹ Area of young orange groves.

Table 47 – Oranges: Trees by age group, age group of plot, sector and region [2019 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...	490.08	4.21	845.85	19.75	67.42	5,724.14	9.78	87.03	85.83	5,577.32	12,911.41
Bebedouro.....	2,004.46	44.56	2,716.31	216.30	235.72	8,109.44	330.38	464.15	846.97	10,461.02	25,429.31
Altinópolis.....	424.53	4.89	261.08	60.20	49.77	544.63	117.98	241.20	321.61	3,657.68	5,683.57
Subtotal.....	2,919.07	53.66	3,823.24	296.25	352.91	14,378.21	458.14	792.38	1,254.41	19,696.02	44,024.29
Northwest											
Votuporanga.....	425.99	13.69	616.85	10.64	56.52	3,270.53	21.95	21.36	64.79	3,478.18	7,980.50
S J Rio Preto.....	1,622.15	26.36	2,062.22	99.87	109.73	4,317.70	108.16	80.97	17.44	3,533.79	11,978.39
Subtotal.....	2,048.14	40.05	2,679.07	110.51	166.25	7,588.23	130.11	102.33	82.23	7,011.97	19,958.89
Central											
Matão.....	2,639.37	62.67	2,498.78	120.09	230.53	7,574.44	141.05	157.16	421.11	5,304.33	19,149.53
Duartina.....	2,611.59	92.52	2,665.97	316.05	362.39	6,197.78	287.15	576.85	720.81	12,950.09	26,781.20
Brotas.....	424.41	12.22	1,014.57	90.14	79.71	1,389.61	98.94	100.10	651.38	4,866.43	8,727.51
Subtotal.....	5,675.37	167.41	6,179.32	526.28	672.63	15,161.83	527.14	834.11	1,793.30	23,120.85	54,658.24
South											
Porto Ferreira.....	1,611.75	121.55	2,716.52	200.57	309.95	4,983.01	215.79	441.22	1,088.92	7,702.85	19,392.13
Limeira.....	1,360.64	156.75	1,596.15	164.05	170.30	4,208.63	191.93	339.81	391.78	9,050.78	17,630.82
Subtotal.....	2,972.39	278.30	4,312.67	364.62	480.25	9,191.64	407.72	781.03	1,480.70	16,753.63	37,022.95
Southwest											
Avaré.....	896.81	25.57	1,383.88	261.99	255.01	4,075.98	607.32	753.68	831.84	18,596.19	27,688.27
Itapetininga.....	2,374.24	53.15	1,258.88	40.92	42.45	3,032.92	58.90	37.31	22.21	4,993.77	11,914.75
Subtotal.....	3,271.05	78.72	2,642.76	302.91	297.46	7,108.90	666.22	790.99	854.05	23,589.96	39,603.02
Total.....	16,886.02	618.14	19,637.06	1,600.57	1,969.50	53,428.81	2,189.33	3,300.84	5,464.69	90,172.43	195,267.39
Percentage.....	8.65	0.32	10.06	0.82	1.01	27.36	1.12	1.69	2.80	46.18	100.00

Table 48 – Oranges: Area of groves of early varieties by sector and region [2019 inventory]

Sector and region	Early varieties						
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	Total
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
North							
Triâng.Mineiro.....	4,660	212	265	287	-	4	5,428
Bebedouro.....	7,860	1,288	824	3,711	2	220	13,905
Altinópolis.....	1,582	42	264	194	-	14	2,096
Subtotal.....	14,102	1,542	1,353	4,192	2	238	21,429
Northwest							
Votuporanga.....	748	55	137	315	-	74	1,329
S. J. Rio Preto.....	4,153	163	874	3,122	-	197	8,509
Subtotal.....	4,901	218	1,011	3,437	-	271	9,838
Central							
Matão.....	5,730	124	612	3,784	-	544	10,794
Duartina.....	6,492	236	1,310	2,466	69	103	10,676
Brotas.....	1,796	142	61	417	-	159	2,575
Subtotal.....	14,018	502	1,983	6,667	69	806	24,045
South							
Porto Ferreira.....	2,838	1,014	933	781	23	11	5,600
Limeira.....	4,037	1,433	337	384	52	3	6,246
Subtotal.....	6,875	2,447	1,270	1,165	75	14	11,846
Southwest							
Avaré.....	7,005	878	1,712	1,684	23	112	11,414
Itapetininga.....	1,417	212	659	538	2	713	3,541
Subtotal.....	8,422	1,090	2,371	2,222	25	825	14,955
Total.....	48,318	5,799	7,988	17,683	171	2,154	82,113
Percentage.....	58.84	7.06	9.73	21.53	0.21	2.62	20.75

Table 49 – Oranges: Trees of early varieties by sector and region [2019 inventory]

Sector and region	Early varieties						
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	Total
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
North							
Triâng.Mineiro.....	2,035.53	97.00	152.88	163.49	-	1.68	2,450.58
Bebedouro.....	3,392.07	575.33	439.61	1,882.82	0.81	110.07	6,400.71
Altinópolis.....	764.16	16.86	148.50	113.36	-	12.15	1,055.03
Subtotal.....	6,191.76	689.19	740.99	2,159.67	0.81	123.90	9,906.32
Northwest							
Votuporanga.....	328.97	21.34	72.01	143.41	-	49.33	615.06
S. J. Rio Preto.....	1,965.33	64.34	419.37	1,703.82	-	118.45	4,271.31
Subtotal.....	2,294.30	85.68	491.38	1,847.23	-	167.78	4,886.37
Central							
Matão.....	2,711.11	45.48	312.33	1,602.92	-	315.48	4,987.32
Duartina.....	2,918.48	90.55	744.64	1,288.62	40.76	49.12	5,132.17
Brotas.....	792.53	58.11	23.19	206.27	-	108.43	1,188.53
Subtotal.....	6,422.12	194.14	1,080.16	3,097.81	40.76	473.03	11,308.02
South							
Porto Ferreira.....	1,209.02	498.19	500.27	263.40	10.42	4.35	2,485.65
Limeira.....	1,769.02	615.13	166.89	189.18	20.86	1.71	2,762.79
Subtotal.....	2,978.04	1,113.32	667.16	452.58	31.28	6.06	5,248.44
Southwest							
Avaré.....	3,474.00	425.63	856.93	744.17	8.82	46.68	5,556.23
Itapetininga.....	815.31	107.95	390.33	454.76	1.19	583.46	2,353.00
Subtotal.....	4,289.31	533.58	1,247.26	1,198.93	10.01	630.14	7,909.23
Total.....	22,175.53	2,615.91	4,226.95	8,756.22	82.86	1,400.91	39,258.38
Percentage.....	56.49	6.66	10.77	22.30	0.21	3.57	20.10

Table 50 – Oranges: Area of groves of mid-season and late varieties by sector and region [2019 inventory]

Sector and region	Mid-season and late varieties				
	Pera Rio	Valencia	Valencia Folha Murcha	Natal	Total
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
North					
Triâng.Mineiro.....	8,629	8,914	309	3,618	21,470
Bebedouro.....	13,960	16,399	2,332	5,770	38,461
Altinópolis.....	3,642	4,326	395	717	9,080
Subtotal.....	26,231	29,639	3,036	10,105	69,011
Northwest					
Votuporanga.....	14,760	1,103	369	937	17,169
S. J. Rio Preto.....	5,184	5,013	1,437	3,475	15,109
Subtotal.....	19,944	6,116	1,806	4,412	32,278
Central					
Matão.....	13,362	9,631	1,315	3,394	27,702
Duartina.....	20,636	13,673	2,364	6,314	42,987
Brotas.....	5,282	8,706	708	1,678	16,374
Subtotal.....	39,280	32,010	4,387	11,386	87,063
South					
Porto Ferreira.....	14,940	12,526	2,138	4,506	34,110
Limeira.....	14,368	11,854	2,562	3,260	32,044
Subtotal.....	29,308	24,380	4,700	7,766	66,154
Southwest					
Avaré.....	15,262	18,249	1,358	8,432	43,301
Itapetininga.....	6,042	5,075	821	3,906	15,844
Subtotal.....	21,304	23,324	2,179	12,338.0	59,145
Total.....	136,067	115,469	16,108	46,007	313,651
Percentage.....	43.38	36.81	5.14	14.67	79.25

Table 51 – Oranges: Trees of mid-season and late varieties by sector and region [2019 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)
North					
Triâng.Mineiro.....	4,638.00	4,089.16	171.37	1,562.30	10,460.83
Bebedouro.....	7,836.00	7,409.74	1,171.15	2,611.71	19,028.60
Altinópolis.....	2,029.92	2,064.05	204.07	330.50	4,628.54
Subtotal.....	14,503.92	13,562.95	1,546.59	4,504.51	34,117.97
Northwest					
Votuporanga.....	6,348.43	453.51	166.12	397.38	7,365.44
S. J. Rio Preto.....	2,689.03	2,502.65	745.45	1,769.95	7,707.08
Subtotal.....	9,037.46	2,956.16	911.57	2,167.33	15,072.52
Central					
Matão.....	7,258.37	4,593.93	755.20	1,554.71	14,162.21
Duartina.....	10,864.44	6,547.93	1,307.73	2,928.93	21,649.03
Brotas.....	2,646.48	3,834.75	352.57	705.18	7,538.98
Subtotal.....	20,769.29	14,976.61	2,415.50	5,188.82	43,350.22
South					
Porto Ferreira.....	8,106.61	5,618.98	1,117.67	2,063.22	16,906.48
Limeira.....	7,164.28	5,002.24	1,186.73	1,514.78	14,868.03
Subtotal.....	15,270.89	10,621.22	2,304.40	3,578.00	31,774.51
Southwest					
Avaré.....	8,095.47	9,064.84	752.46	4,219.27	22,132.04
Itapetininga.....	3,713.13	3,182.55	483.02	2,183.05	9,561.75
Subtotal.....	11,808.60	12,247.39	1,235.48	6,402.32	31,693.79
Total.....	71,390.16	54,364.33	8,413.54	21,840.98	156,009.01
Percentage.....	45.76	34.85	5.39	14.00	79.90

Table 52 – Oranges: Area of groves by age group of plots, region and variety – North Sector [2019 inventory]

Sector and variety	Plot age				Total
	1 – 2 years ¹	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
TMG²					
Hamlin.....	58	-	561	4,041	4,660
Westin.....	-	-	42	170	212
Rubi.....	14	12	239	-	265
V.Americana ³	9	-	96	182	287
Seleta.....	-	-	-	-	-
Pineapple.....	-	-	4	-	4
Pera Rio	629	1,297	4,845	1,858	8,629
Valencia.....	137	162	3,779	4,836	8,914
V.Folha Murcha ⁴	-	12	173	124	309
Natal.....	89	16	726	2,787	3,618
Subtotal.....	936	1,499	10,465	13,998	26,898
Percentage.....	3.48	5.57	38.91	52.04	29.74
BEB⁵					
Hamlin.....	298	79	1,096	6,387	7,860
Westin.....	358	28	117	785	1,288
Rubi.....	8	44	625	147	824
V.Americana ³	175	68	1,564	1,904	3,711
Seleta.....	-	2	-	-	2
Pineapple.....	13	8	87	112	220
Pera Rio	1,165	2,179	6,342	4,274	13,960
Valencia.....	699	1,267	3,989	10,444	16,399
V.Folha Murcha ⁴	9	407	559	1,357	2,332
Natal.....	590	435	954	3,791	5,770
Subtotal.....	3,315	4,517	15,333	29,201	52,366
Percentage.....	6.33	8.63	29.28	55.76	57.90
ALT⁷					
Hamlin.....	28	12	92	1,450	1,582
Westin.....	-	-	-	37	42
Rubi.....	82	22	79	81	264
V.Americana ³	-	-	54	140	194
Seleta.....	-	-	-	-	-
Pineapple.....	-	-	14	-	14
Pera Rio	216	279	435	2,712	3,642
Valencia.....	76	5	208	4,037	4,326
V.Folha Murcha ⁴	7	33	108	247	395
Natal.....	118	41	115	443	717
Subtotal.....	527	392	1,110	9,147	11,176
Percentage.....	4.72	3.51	9.93	81.85	12.36
Total.....	4,778	6,408	26,908	52,346	90,440

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

Table 53 – Oranges: Trees by age group, age group of plot, region and variety – North Sector [2019 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)	(1,000 trees)
TMG¹											
Hamlin.....	31.92	-	-	1.14	6.67	311.38	3.86	35.08	25.94	1,619.54	2,035.53
Westin.....	-	-	-	0.03	1.10	16.62	0.05	3.37	1.68	74.15	97.00
Rubi.....	6.62	-	8.06	0.88	0.82	136.50	-	-	-	-	152.88
V.Americana ²	7.16	-	-	0.09	0.12	54.99	0.01	0.15	0.67	100.30	163.49
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	-	-	-	-	-	1.68	-	-	-	-	1.68
Pera Rio	330.27	2.29	736.02	11.37	43.48	2,707.06	0.35	13.34	15.22	778.60	4,638.00
Valencia.....	73.17	1.50	85.54	5.09	13.90	1,997.61	3.89	21.43	19.22	1,867.81	4,089.16
V.Folha Murcha ³	-	0.35	7.61	0.23	0.40	101.82	0.43	0.01	0.11	60.41	171.37
Natal.....	40.94	0.07	8.62	0.92	0.93	396.48	1.19	13.65	22.99	1,076.51	1,562.30
Subtotal.....	490.08	4.21	845.85	19.75	67.42	5,724.14	9.78	87.03	85.83	5,577.32	12,911.41
Percentage.....	3.80	0.03	6.55	0.15	0.52	44.33	0.08	0.67	0.66	43.20	29.33
BEB⁴											
Hamlin.....	150.69	0.30	44.04	27.73	25.88	494.12	108.41	89.33	185.61	2,265.96	3,392.07
Westin.....	186.72	0.06	14.46	2.31	2.21	56.11	15.44	8.96	20.11	268.95	575.33
Rubi.....	4.05	0.16	27.36	17.82	17.12	306.24	5.30	1.45	2.62	57.49	439.61
V.Americana ³	140.07	2.00	31.57	19.69	7.70	823.26	68.65	59.53	75.05	655.30	1,882.82
Seleta.....	-	0.05	0.76	-	-	-	-	-	-	-	0.81
Pineapple.....	6.91	0.01	4.89	1.14	0.44	47.54	1.93	2.77	4.27	40.17	110.07
Pera Rio	711.10	31.40	1,329.01	93.94	83.70	3,647.79	42.66	60.80	133.20	1,702.40	7,836.00
Valencia.....	387.31	5.92	764.35	39.64	73.34	1,945.05	55.76	172.50	305.38	3,660.49	7,409.74
V.Folha Murcha ⁴	5.44	1.17	242.93	7.38	13.51	282.30	12.69	22.06	32.12	551.55	1,171.15
Natal.....	412.17	3.49	256.94	6.65	11.82	507.03	19.54	46.75	88.61	1,258.71	2,611.71
Subtotal.....	2,004.46	44.56	2,716.31	216.30	235.72	8,109.44	330.38	464.15	846.97	10,461.02	25,429.31
Percentage.....	7.88	0.18	10.68	0.85	0.93	31.89	1.30	1.83	3.33	41.14	57.76
ALT⁵											
Hamlin.....	13.70	0.39	6.36	2.98	16.95	41.81	21.84	68.13	51.24	540.76	764.16
Westin.....	-	-	-	0.33	0.48	1.77	0.71	0.54	0.23	12.80	16.86
Rubi.....	39.90	0.42	18.10	6.14	9.20	33.34	1.91	2.03	0.98	36.48	148.50
V.Americana ³	-	-	-	3.99	3.98	25.39	1.71	4.39	6.71	67.19	113.36
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	-	-	-	2.10	1.73	8.32	-	-	-	-	12.15
Pera Rio	240.62	3.60	195.07	21.93	5.11	246.25	27.17	57.03	117.66	1,115.48	2,029.92
Valencia.....	52.47	0.01	2.98	10.66	6.18	93.47	40.78	94.32	132.45	1,630.73	2,064.05
V.Folha Murcha ⁴	4.00	0.07	19.88	7.69	2.49	48.75	2.64	4.15	9.30	105.10	204.07
Natal.....	73.84	0.40	18.69	4.38	3.65	45.53	21.22	10.61	3.04	149.14	330.50
Subtotal.....	424.53	4.89	261.08	60.20	49.77	544.63	117.98	241.20	321.61	3,657.68	5,683.57
Percentage.....	7.47	0.09	4.59	1.06	0.88	9.58	2.08	4.24	5.66	64.36	12.91
Total.....	2,919.07	53.66	3,823.24	296.25	352.91	14,378.21	458.14	792.38	1,254.41	19,696.02	44,024.29

¹ TMG – Triângulo Mineiro.² Valencia Americana.³ Valencia Folha Murcha.⁴ BEB – Bebedouro.⁵ ALT – Altinópolis.

Table 54 – Oranges: Area of groves by age group of plots, region and variety –Northwest Sector [2019 inventory]

Sector and variety	Plot age				Total
	1 – 2 years ¹	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
VOT²					
Hamlin.....	20	-	256	472	748
Westin.....	-	-	9	46	55
Rubi.....	12	6	68	51	137
V.Americana ³	-	16	128	171	315
Seleta.....	-	-	-	-	-
Pineapple.....	-	-	6	68	74
Pera Rio	881	1,190	6,145	6,544	14,760
Valencia.....	8	20	329	746	1,103
V.Folha Murcha ⁴	2	-	93	274	369
Natal.....	34	84	118	701	937
Subtotal.....	957	1,316	7,152	9,073	18,498
Percentage.....	5.17	7.11	38.66	49.05	43.92
SJO⁵					
Hamlin.....	268	190	1,724	1,971	4,153
Westin.....	3	1	20	139	163
Rubi.....	20	12	425	417	874
V.Americana ³	592	98	1,378	1,054	3,122
Seleta.....	-	-	-	-	-
Pineapple.....	52	2	46	97	197
Pera Rio	487	930	1,737	2,030	5,184
Valencia.....	297	750	2,766	1,200	5,013
V.Folha Murcha ⁵	139	267	408	623	1,437
Natal.....	540	1,015	409	1,511	3,475
Subtotal.....	2,398	3,265	8,913	9,042	23,618
Percentage.....	10.15	13.82	37.74	38.28	56.08
Total.....	3,355	4,581	16,065	18,115	42,116

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

Table 55 – Oranges: Trees by age group, region and variety – Northwest Sector [2019 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)	(1,000 trees)
VOT¹											
Hamlin.....	12.23	-	-	0.07	2.97	137.11	2.04	2.26	8.87	163.42	328.97
Westin.....	-	-	-	-	0.06	4.66	0.19	0.22	0.83	15.38	21.34
Rubi.....	6.98	-	3.60	0.02	0.37	29.20	0.37	0.41	1.60	29.46	72.01
V.Americana ²	-	0.03	5.65	0.42	7.97	57.06	0.16	0.62	1.03	70.47	143.41
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	-	-	-	-	0.05	2.40	0.09	0.40	0.68	45.71	49.33
Pera Rio	386.04	13.66	569.54	9.57	40.30	2,797.93	18.42	13.19	43.19	2,456.59	6,348.43
Valencia.....	3.50	-	6.63	0.34	3.83	150.92	0.33	1.87	4.75	281.34	453.51
V.Folha Murcha ³	1.00	-	-	0.17	0.74	41.15	0.13	0.80	2.04	120.09	166.12
Natal.....	16.24	-	31.43	0.05	0.23	50.10	0.22	1.59	1.80	295.72	397.38
Subtotal.....	425.99	13.69	616.85	10.64	56.52	3,270.53	21.95	21.36	64.79	3,478.18	7,980.50
Percentage.....	5.34	0.17	7.73	0.13	0.71	40.98	0.28	0.27	0.81	43.58	39.98
SJO⁴											
Hamlin.....	186.17	0.15	145.60	34.12	35.72	754.69	26.82	11.42	0.72	769.92	1,965.33
Westin.....	1.82	-	0.32	0.84	0.80	8.87	1.67	0.73	-	49.29	64.34
Rubi.....	11.31	-	6.15	19.50	18.72	206.59	2.20	0.96	3.12	150.82	419.37
V.Americana ²	517.53	0.78	48.20	19.26	16.33	683.01	21.96	32.87	0.79	363.09	1,703.82
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	43.54	0.02	1.11	0.62	0.74	19.07	3.85	5.77	0.13	43.60	118.45
Pera Rio	287.45	9.11	536.37	10.94	12.29	904.97	24.72	14.98	3.83	884.37	2,689.03
Valencia.....	159.79	5.63	484.52	11.49	18.99	1,317.81	14.81	4.50	1.30	483.81	2,502.65
V.Folha Murcha ³	57.58	0.72	151.59	1.95	4.49	211.46	10.00	3.04	0.74	303.88	745.45
Natal.....	356.96	9.95	688.36	1.15	1.65	211.23	2.13	6.70	6.81	485.01	1,769.95
Subtotal.....	1,622.15	26.36	2,062.22	99.87	109.73	4,317.70	108.16	80.97	17.44	3,533.79	11,978.39
Percentage.....	13.54	0.22	17.22	0.83	0.92	36.05	0.90	0.68	0.15	29.50	60.02
Total.....	2,048.14	40.05	2,679.07	110.51	166.25	7,588.23	130.11	102.33	82.23	7,011.97	19,958.89

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

Table 56 – Oranges: Area of groves by age group of plots, region and variety – Central Sector [2019 inventory]

Sector and variety	Plot age				Total
	1 – 2 years ¹	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
MAT²					
Hamlin.....	735	27	1,865	3,103	5,730
Westin.....	5	-	41	78	124
Rubi.....	3	2	595	12	612
V.Americana ³	339	2	636	2,807	3,784
Seleta.....	-	-	-	-	-
Pineapple.....	31	-	513	-	544
Pera Rio	1,288	2,430	5,249	4,395	13,362
Valencia.....	556	541	4,082	4,452	9,631
V.Folha Murcha ⁴ ..	21	393	504	397	1,315
Natal.....	397	267	653	2,077	3,394
Subtotal.....	3,375	3,662	14,138	17,321	38,496
Percentage.....	8.77	9.51	36.73	44.99	34.65
DUA⁵					
Hamlin.....	507	343	925	4,717	6,492
Westin.....	36	-	27	173	236
Rubi.....	327	87	489	407	1,310
V.Americana ³	312	166	770	1,218	2,466
Seleta.....	-	-	69	-	69
Pineapple.....	8	-	38	57	103
Pera Rio	1,808	2,077	5,032	11,719	20,636
Valencia.....	943	1,051	2,405	9,274	13,673
V.Folha Murcha ⁴ ..	144	261	539	1,420	2,364
Natal.....	299	343	1,314	4,358	6,314
Subtotal.....	4,384	4,328	11,608	33,343	53,663
Percentage.....	8.17	8.07	21.63	62.13	48.30
BRO⁶					
Hamlin.....	39	12	266	1,479	1,796
Westin.....	10	8	17	107	142
Rubi.....	30	1	-	30	61
V.Americana ³	20	11	131	255	417
Seleta.....	-	-	-	-	-
Pineapple.....	-	152	-	7	159
Pera Rio	347	1,013	753	3,169	5,282
Valencia.....	171	97	1,093	7,345	8,706
V.Folha Murcha ⁴ ..	45	52	204	407	708
Natal.....	74	195	247	1,162	1,678
Subtotal.....	736	1,541	2,711	13,961	18,949
Percentage.....	3.88	8.13	14.31	73.68	17.05
Total.....	8,495	9,531	28,457	64,625	111,108

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

Table 57 – Oranges: Trees by age group, age group of plot, region and variety – Central Sector [2019 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)	
MAT¹											
Hamlin.....	606.07	0.76	11.33	15.64	34.37	923.30	3.42	38.62	56.89	1,020.71	2,711.11
Westin.....	2.78	-	-	0.29	0.66	16.46	0.10	0.63	1.16	23.40	45.48
Rubi.....	2.00	0.06	0.83	5.63	6.57	292.88	0.02	0.10	0.20	4.04	312.33
V.Americana ²	319.50	0.06	0.97	5.63	27.41	348.58	20.07	9.36	60.12	811.22	1,602.92
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	31.51	-	-	1.88	4.87	277.22	-	-	-	-	315.48
Pera Rio	936.27	55.28	1,719.43	46.32	100.33	2,919.77	72.50	17.35	32.81	1,358.31	7,258.37
Valencia.....	372.57	2.59	334.11	25.79	45.99	2,180.35	39.11	54.90	167.64	1,370.88	4,593.93
V.Folha Murcha ³	12.16	2.91	251.66	1.46	5.18	297.86	4.93	4.92	16.05	158.07	755.20
Natal.....	356.51	1.01	180.45	17.45	5.15	318.02	0.90	31.28	86.24	557.70	1,554.71
Subtotal.....	2,639.37	62.67	2,498.78	120.09	230.53	7,574.44	141.05	157.16	421.11	5,304.33	19,149.53
Percentage.....	13.78	0.33	13.05	0.63	1.20	39.55	0.74	0.82	2.20	27.70	35.04
DUA⁴											
Hamlin.....	265.11	12.79	192.94	32.10	44.56	437.84	64.47	116.63	117.52	1,634.52	2,918.48
Westin.....	16.13	-	-	0.74	0.74	10.50	0.81	0.68	3.00	57.95	90.55
Rubi.....	216.78	4.59	49.04	17.23	17.21	243.91	2.59	2.09	9.39	181.81	744.64
V.Americana ²	210.42	0.53	105.70	16.21	22.96	407.69	15.65	14.55	18.10	476.81	1,288.62
Seleta.....	-	-	-	1.11	1.32	38.33	-	-	-	-	40.76
Pineapple.....	5.00	-	-	0.65	0.78	22.57	0.36	0.31	0.41	19.04	49.12
Pera Rio	1,068.59	30.23	1,292.63	104.79	143.76	2,706.98	74.35	169.63	237.41	5,036.07	10,864.44
Valencia.....	571.64	35.35	666.01	94.09	89.58	1,274.11	66.25	184.55	185.91	3,380.44	6,547.93
V.Folha Murcha ⁴	76.90	4.46	160.99	23.94	22.30	326.37	12.18	19.99	20.36	640.24	1,307.73
Natal.....	181.02	4.57	198.66	25.19	19.18	729.48	50.49	68.42	128.71	1,523.21	2,928.93
Subtotal.....	2,611.59	92.52	2,665.97	316.05	362.39	6,197.78	287.15	576.85	720.81	12,950.09	26,781.20
Percentage.....	9.75	0.35	9.95	1.18	1.35	23.14	1.07	2.15	2.69	48.36	49.00
BRO⁵											
Hamlin.....	14.16	0.08	7.23	1.44	19.54	124.36	5.21	18.80	66.82	534.89	792.53
Westin.....	4.84	0.05	4.73	-	0.03	8.13	-	0.08	4.29	35.96	58.11
Rubi.....	10.88	0.01	0.68	-	-	-	-	0.02	1.23	10.37	23.19
V.Americana ²	13.28	0.17	6.69	0.64	9.04	67.63	0.55	1.85	12.36	94.06	206.27
Seleta.....	-	-	-	-	-	-	-	-	-	-	-
Pineapple.....	-	2.34	102.48	-	-	-	-	0.01	0.25	3.35	108.43
Pera Rio	208.82	6.25	651.48	40.98	13.09	382.14	51.22	27.73	175.87	1,088.90	2,646.48
Valencia.....	95.58	1.69	66.61	36.41	27.02	597.07	39.65	42.41	318.87	2,609.44	3,834.75
V.Folha Murcha ⁴	27.13	0.94	36.80	6.71	6.28	104.32	2.31	1.87	16.06	150.15	352.57
Natal.....	49.72	0.69	137.87	3.96	4.71	105.96	-	7.33	55.63	339.31	705.18
Subtotal.....	424.41	12.22	1,014.57	90.14	79.71	1,389.61	98.94	100.10	651.38	4,866.43	8,727.51
Percentage.....	4.86	0.14	11.62	1.03	0.91	15.92	1.13	1.15	7.46	55.76	15.97
Total.....	5,675.37	167.41	6,179.32	526.28	672.63	15,161.83	527.14	834.11	1,793.30	23,120.85	54,658.24

¹ MAT – Matão.² Valencia Americana.³ Valencia Folha Murcha.⁴ DUA – Duartina.⁵ BRO – Brotas.

Table 58 – Oranges: Area of groves by age group, region and variety – South Sector [2019 inventory]

Sector and variety	Plot age				Total
	1 – 2 years ¹	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
PFE²					
Hamlin.....	90	61	625	2,062	2,838
Westin.....	45	49	406	514	1,014
Rubi.....	122	245	338	228	933
V.Americana ³	9	-	185	587	781
Seleta.....	-	-	23	-	23
Pineapple.....	3	-	8	-	11
Pera Rio	1,260	2,003	3,996	7,681	14,940
Valencia.....	544	639	2,302	9,041	12,526
V.Folha Murcha ⁴	159	497	352	1,130	2,138
Natal.....	241	732	888	2,645	4,506
Subtotal.....	2,473	4,226	9,123	23,888	39,710
Percentage.....	6.23	10.64	22.97	60.16	50.91
LIM⁵					
Hamlin.....	118	173	325	3,421	4,037
Westin.....	89	54	289	1,001	1,433
Rubi.....	101	63	83	90	337
V.Americana ³	1	8	54	321	384
Seleta.....	-	-	4	48	52
Pineapple.....	-	-	-	3	3
Pera Rio	1,084	1,494	4,415	7,375	14,368
Valencia.....	445	510	1,894	9,005	11,854
V.Folha Murcha ⁴	186	328	809	1,239	2,562
Natal.....	212	318	705	2,025	3,260
Subtotal.....	2,236	2,948	8,578	24,528	38,290
Percentage.....	5.84	7.70	22.40	64.06	49.09
Total.....	4,709	7,174	17,701	48,416	78,000

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

Table 59 – Oranges: Trees of groves by age group of plots, region and variety – South Sector [2019 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)	(1,000 trees)
PFE¹											
Hamlin.....	56.23	0.68	35.25	9.62	22.23	338.09	29.63	56.10	147.87	513.32	1,209.02
Westin.....	27.84	0.59	30.54	6.61	15.26	232.15	7.78	7.44	40.24	129.74	498.19
Rubi.....	70.77	2.31	134.74	6.05	10.64	202.89	3.05	5.38	32.43	32.01	500.27
V.Americana ²	5.25	-	-	1.92	3.79	65.11	12.17	5.00	8.51	161.65	263.40
Seleta.....	-	-	-	0.59	0.46	9.37	-	-	-	-	10.42
Pineapple.....	1.41	-	-	0.06	0.32	2.56	-	-	-	-	4.35
Pera Rio	864.31	50.84	1,369.95	102.08	121.03	2,212.23	83.39	131.22	356.34	2,815.22	8,106.61
Valencia.....	329.35	20.63	393.91	37.19	81.26	1,274.91	67.72	167.90	345.02	2,901.09	5,618.98
V.Folha Murcha ³ ...	92.39	18.08	318.50	6.58	14.44	203.93	10.57	22.45	48.05	382.68	1,117.67
Natal.....	164.20	28.42	433.63	29.87	40.52	441.77	1.48	45.73	110.46	767.14	2,063.22
Subtotal.....	1,611.75	121.55	2,716.52	200.57	309.95	4,983.01	215.79	441.22	1,088.92	7,702.85	19,392.13
Percentage.....	8.31	0.63	14.01	1.03	1.60	25.70	1.11	2.28	5.62	39.72	52.38
LIM⁴											
Hamlin.....	64.10	0.85	87.52	1.82	1.71	158.52	32.97	57.03	97.84	1,266.66	1,769.02
Westin.....	50.52	0.06	39.21	1.50	1.41	131.28	7.56	8.08	19.68	355.83	615.13
Rubi.....	42.68	0.04	43.13	0.52	0.48	44.81	0.67	1.27	1.73	31.56	166.89
V.Americana ²	0.74	0.05	5.04	0.66	3.39	23.84	14.93	10.92	0.04	129.57	189.18
Seleta.....	-	-	-	0.05	0.28	1.91	1.44	2.12	0.09	14.97	20.86
Pineapple.....	-	-	-	-	-	-	0.23	0.13	-	1.35	1.71
Pera Rio	684.17	102.60	851.88	112.54	89.52	2,247.02	93.98	81.59	54.88	2,846.10	7,164.28
Valencia.....	256.34	25.35	242.70	21.55	38.13	920.68	34.28	154.28	180.64	3,128.29	5,002.24
V.Folha Murcha ³ ...	118.77	27.35	162.32	8.41	16.16	369.49	5.35	18.53	17.70	442.65	1,186.73
Natal.....	143.32	0.45	164.35	17.00	19.22	311.08	0.52	5.86	19.18	833.80	1,514.78
Subtotal.....	1,360.64	156.75	1,596.15	164.05	170.30	4,208.63	191.93	339.81	391.78	9,050.78	17,630.82
Percentage.....	7.72	0.89	9.05	0.93	0.97	23.87	1.09	1.93	2.22	51.33	47.62
Total.....	2,972.39	278.30	4,312.67	364.62	480.25	9,191.64	407.72	781.03	1,480.70	16,753.63	37,022.95

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

Table 60 – Oranges: Area of groves by age group of plots, region and variety – Southwest Sector [2019 inventory]

Sector and variety	Plot age				Total
	1 – 2 years ¹	3 – 5 years	6 – 10 years	Over 10 years	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
AVA²					
Hamlin.....	281	62	634	6,028	7,005
Westin.....	9	5	324	540	878
Rubi.....	116	60	273	1,263	1,712
V.Americana ³	210	19	188	1,267	1,684
Seleta.....	-	-	-	23	23
Pineapple.....	-	-	-	112	112
Pera Rio	372	867	2,494	11,529	15,262
Valencia.....	322	435	2,124	15,368	18,249
V.Folha Murcha ⁴ ..	46	94	486	732	1,358
Natal.....	96	405	1,107	6,824	8,432
Subtotal.....	1,452	1,947	7,630	43,686	54,715
Percentage.....	2.65	3.56	13.94	79.84	73.84
ITG⁵					
Hamlin.....	196	41	231	949	1,417
Westin.....	13	27	76	96	212
Rubi.....	257	118	130	154	659
V.Americana ³	255	140	90	53	538
Seleta.....	-	-	-	2	2
Pineapple.....	287	20	389	17	713
Pera Rio	1,077	726	1,854	2,385	6,042
Valencia.....	559	313	1,196	3,007	5,075
V.Folha Murcha ⁴ ..	39	24	324	434	821
Natal.....	244	212	574	2,876	3,906
Subtotal.....	2,927	1,621	4,864	9,973	19,385
Percentage.....	15.10	8.36	25.09	51.45	26.16
Total.....	4,379	3,568	12,494	53,659	74,100

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

Table 61 – Oranges: Trees by age group, age group of plot, region and variety – Southwest Sector [2019 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)	(1,000 trees)
AVA¹											
Hamlin.....	169.30	0.51	35.93	23.24	6.67	336.04	139.73	175.60	176.21	2,410.77	3,474.00
Westin.....	6.00	0.10	3.61	4.64	3.12	162.91	18.02	11.45	6.15	209.63	425.63
Rubi.....	70.18	1.07	39.48	11.51	2.98	155.89	24.86	21.45	8.20	521.31	856.93
V.Americana ²	124.80	0.21	11.32	0.29	2.47	114.35	17.33	11.27	13.35	448.78	744.17
Seleta.....	-	-	-	-	-	-	0.66	0.32	0.29	7.55	8.82
Pineapple.....	-	-	-	-	-	-	1.73	1.13	4.36	39.46	46.68
Pera Rio	238.76	9.24	609.36	69.73	116.79	1,337.42	176.46	152.85	156.37	5,228.49	8,095.47
Valencia.....	200.92	3.07	321.35	35.42	54.61	1,211.41	138.59	265.37	323.05	6,511.05	9,064.84
V.Folha Murcha ³ ...	28.96	0.45	65.04	9.18	15.36	270.90	11.22	14.25	21.03	316.07	752.46
Natal.....	57.89	10.92	297.79	107.98	53.01	487.06	78.72	99.99	122.83	2,903.08	4,219.27
Subtotal.....	896.81	25.57	1,383.88	261.99	255.01	4,075.98	607.32	753.68	831.84	18,596.19	27,688.27
Percentage.....	3.24	0.09	5.00	0.95	0.92	14.72	2.19	2.72	3.00	67.16	69.91
ITG⁴											
Hamlin.....	213.40	2.99	40.91	1.80	0.33	131.44	2.04	1.97	0.83	419.60	815.31
Westin.....	6.00	0.08	18.79	0.66	0.12	36.72	0.42	0.42	0.17	44.57	107.95
Rubi.....	148.95	0.04	90.78	0.66	0.57	77.08	0.55	0.53	0.22	70.95	390.33
V.Americana ²	248.56	10.12	100.39	2.00	2.69	57.79	4.16	0.62	-	28.43	454.76
Seleta.....	-	-	-	-	-	-	0.15	0.02	-	1.02	1.19
Pineapple.....	265.27	-	15.32	-	1.11	297.36	-	-	-	4.40	583.46
Pera Rio	913.98	18.21	549.52	26.15	25.00	1,146.41	2.55	8.08	13.26	1,009.97	3,713.13
Valencia.....	373.38	15.39	264.24	3.08	6.89	775.22	32.29	19.62	6.82	1,685.62	3,182.55
V.Folha Murcha ³ ...	24.77	0.03	20.39	2.04	1.14	193.97	7.68	3.78	0.15	229.07	483.02
Natal.....	179.93	6.29	158.54	4.53	4.60	316.93	9.06	2.27	0.76	1,500.14	2,183.05
Subtotal.....	2,374.24	53.15	1,258.88	40.92	42.45	3,032.92	58.90	37.31	22.21	4,993.77	11,914.75
Percentage.....	19.93	0.45	10.57	0.34	0.36	25.46	0.49	0.31	0.19	41.91	30.09
Total.....	3,271.05	78.72	2,642.76	302.91	297.46	7,108.90	666.22	790.99	854.05	23,589.96	39,603.02

¹ AVA – Avaré.² V.Americana – Valencia Americana.³ V.Folha Murcha – Valencia Folha Murcha.⁴ ITG – Itapetininga.

Table 62 – Oranges: Area of groves by sector and variety [2019 inventory]

Variety	Sector					Total	Percentage of the variety group	Percentage of total
	North	Northwest	Central	South	Southwest			
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)	(%)
Early								
Hamlin.....	14,102	4,901	14,018	6,875	8,422	48,318	58.84	12.21
Westin.....	1,542	218	502	2,447	1,090	5,799	7.06	1.47
Rubi.....	1,353	1,011	1,983	1,270	2,371	7,988	9.73	2.02
Valencia Americana.....	4,192	3,437	6,667	1,165	2,222	17,683	21.53	4.47
Seleta.....	2	-	69	75	25	171	0.21	0.04
Pineapple.....	238	271	806	14	825	2,154	2.62	0.54
Subtotal.....	21,429	9,838	24,045	11,846	14,955	82,113	100.00	20.75
Mid-season								
Pera Rio	26,231	19,944	39,280	29,308	21,304	136,067	100.00	34.38
Subtotal.....	26,231	19,944	39,280	29,308	21,304	136,067	100.00	34.38
Late								
Valencia.....	29,639	6,116	32,010	24,380	23,324	115,469	65.02	29.18
V.Folha Murcha ¹	3,036	1,806	4,387	4,700	2,179	16,108	9.07	4.07
Natal.....	10,105	4,412	11,386	7,766	12,338	46,007	25.91	11.62
Subtotal.....	42,780	12,334	47,783	36,846	37,841	177,584	100.00	44.87
Total.....	90,440	42,116	111,108	78,000	74,100	395,764	(X)	100.00
Percentage.....	22.85	10.64	28.07	19.71	18.72	100.00	(X)	(X)

(X) Not applicable.

¹ V.Folha Murcha – Valencia Folha Murcha.

Table 63 – Oranges: Trees by sector and variety [2019 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)	(%)	(%)
Early								
Hamlin.....	6,191.76	2,294.30	6,422.12	2,978.04	4,289.31	22,175.53	56.49	11.36
Westin.....	689.19	85.68	194.14	1,113.32	533.58	2,615.91	6.66	1.34
Rubi.....	740.99	491.38	1,080.16	667.16	1,247.26	4,226.95	10.77	2.16
Valencia Americana.....	2,159.67	1,847.23	3,097.81	452.58	1,198.93	8,756.22	22.30	4.48
Seleta.....	0.81	-	40.76	31.28	10.01	82.86	0.21	0.04
Pineapple.....	123.90	167.78	473.03	6.06	630.14	1,400.91	3.57	0.72
Subtotal.....	9,906.32	4,886.37	11,308.02	5,248.44	7,909.23	39,258.38	100.00	20.10
Mid-season								
Pera Rio	14,503.92	9,037.46	20,769.29	15,270.89	11,808.60	71,390.16	100.00	36.56
Subtotal.....	14,503.92	9,037.46	20,769.29	15,270.89	11,808.60	71,390.16	100.00	36.56
Late								
Valencia.....	13,562.95	2,956.16	14,976.61	10,621.22	12,247.39	54,364.33	64.25	27.84
V.Folha Murcha ¹	1,546.59	911.57	2,415.50	2,304.40	1,235.48	8,413.54	9.94	4.31
Natal.....	4,504.51	2,167.33	5,188.82	3,578.00	6,402.32	21,840.98	25.81	11.19
Subtotal.....	19,614.05	6,035.06	22,580.93	16,503.62	19,885.19	84,618.85	100.00	43.33
Total.....	44,024.29	19,958.89	54,658.24	37,022.95	39,603.02	195,267.39	(X)	100.00
Percentage.....	22.55	10.22	27.99	18.96	20.28	100.00	(X)	(X)

(X) Not applicable.

¹ V.Folha Murcha – Valencia Folha Murcha.

Table 64 – Oranges: Area of groves by planting year [2018 and 2019 inventories and variation]

Planting year ¹	2018 inventory ²	2019 inventory ²	Variation ³	
	(hectares)	(hectares)	(hectares)	(percentage)
1979 and previous years.....	1,656	1,616	-40	-2.42
1980.....	130	132	2	1.54
1981.....	152	139	-13	-8.55
1982.....	162	151	-11	-6.79
1983.....	676	652	-24	-3.55
1984.....	237	165	-72	-30.38
1985.....	1,017	877	-140	-13.77
1986.....	1,485	1,383	-102	-6.87
1987.....	1,094	1,061	-33	-3.02
1988.....	922	828	-94	-10.20
1989.....	1,815	1,670	-145	-7.99
1990.....	2,891	2,554	-337	-11.66
1991.....	2,645	2,163	-482	-18.22
1992.....	2,562	1,976	-586	-22.87
1993.....	3,355	2,778	-577	-17.20
1994.....	2,292	2,130	-162	-7.07
1995.....	2,998	2,752	-246	-8.21
1996.....	3,093	2,871	-222	-7.18
1997.....	5,035	4,657	-378	-7.51
1998.....	5,616	4,581	-1,035	-18.43
1999.....	6,598	6,113	-485	-7.35
2000.....	10,208	9,677	-531	-5.20
2001.....	10,497	9,968	-529	-5.04
2002.....	15,331	14,528	-803	-5.24
2003.....	20,569	19,395	-1,174	-5.71
2004.....	22,598	21,522	-1,076	-4.76
2005.....	29,503	28,424	-1,079	-3.66
2006.....	26,748	25,716	-1,032	-3.86
2007.....	35,828	34,193	-1,635	-4.56
2008.....	35,004	32,489	-2,515	-7.18
2009.....	24,379	23,620	-759	-3.11
2010.....	20,562	19,752	-810	-3.94
2011.....	19,252	18,474	-778	-4.04
2012.....	24,041	23,359	-682	-2.84
2013.....	17,019	16,420	-599	-3.52
2014.....	8,703	8,611	-92	-1.06
2015.....	11,750	11,742	-8	-0.07
2016 ⁴	(X)	10,909	(X)	(X)
Mature groves.....	378,423	370,048	-8,375	-2.21
2016.....	10,946	(X)	-37	-0.34
2017.....	12,101	12,184	83	0.69
2018.....	NA	13,532	(X)	(X)
Young groves.....	23,047	25,716	2,669	11.58
Total.....	401,470	395,764	-5,706	-1.42

NA – Non-available data, as 2018 plantings took place after the mapping for the 2018 inventory.

(X) Not applicable.

¹ 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.

² Snapshot of groves in March of the year the inventory is published.

³ Estimate of eradicated and abandoned groves from September 2017 to March 2019.

⁴ Groves planted in 2016 belonged to the group of young groves in the 2018 inventory and moved to the group of mature groves in this 2019 inventory.

Table 65 – Oranges: Trees by planting year [2018 and 2019 inventories and variation]

Planting year ¹	2018 inventory ²		2019 inventory ²		Variation ³	
	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(percentage)	
1979 and previous years.....	350.96	360.75	9.79	2.79		
1980.....	36.71	36.88	0.17	0.46		
1981.....	42.98	38.04	-4.94	-11.49		
1982.....	57.12	53.32	-3.80	-6.65		
1983.....	184.85	184.15	-0.70	-0.38		
1984.....	59.21	38.95	-20.26	-34.22		
1985.....	247.55	216.35	-31.20	-12.60		
1986.....	411.97	377.83	-34.14	-8.29		
1987.....	316.38	305.20	-11.18	-3.53		
1988.....	268.93	238.74	-30.19	-11.23		
1989.....	549.49	489.64	-59.85	-10.89		
1990.....	910.80	789.67	-121.13	-13.30		
1991.....	774.32	654.05	-120.27	-15.53		
1992.....	779.40	616.61	-162.79	-20.89		
1993.....	960.97	819.88	-141.09	-14.68		
1994.....	706.80	650.08	-56.72	-8.02		
1995.....	1,109.56	1,012.23	-97.33	-8.77		
1996.....	1,060.47	988.62	-71.85	-6.78		
1997.....	1,682.06	1,544.02	-138.04	-8.21		
1998.....	1,924.41	1,557.28	-367.13	-19.08		
1999.....	2,132.14	1,983.32	-148.82	-6.98		
2000.....	3,298.30	3,126.96	-171.34	-5.19		
2001.....	3,660.14	3,471.13	-189.01	-5.16		
2002.....	5,363.03	5,112.69	-250.34	-4.67		
2003.....	7,300.13	6,918.22	-381.91	-5.23		
2004.....	8,179.32	7,910.45	-268.87	-3.29		
2005.....	11,369.03	11,022.10	-346.93	-3.05		
2006.....	10,631.59	10,197.87	-433.72	-4.08		
2007.....	15,027.37	14,364.49	-662.88	-4.41		
2008.....	17,075.24	15,092.91	-1,982.33	-11.61		
2009.....	11,810.95	11,420.30	-390.65	-3.31		
2010.....	10,600.37	10,108.95	-491.42	-4.64		
2011.....	10,332.29	9,945.54	-386.75	-3.74		
2012.....	12,961.26	12,593.92	-367.34	-2.83		
2013.....	10,255.73	9,360.10	-895.63	-8.73		
2014.....	5,448.35	5,431.24	-17.11	-0.31		
2015.....	7,292.29	7,303.94	11.65	0.16		
2016 ⁴	(X)	6,901.88	(X)	(X)		
6 to 10 years old resets ⁵	4,955.29	5,464.69	509.40	10.28		
3 to 5 years old resets ⁵	5,141.68	5,270.34	128.66	2.50		
Bearing trees.....	175,269.44	173,973.33	-1,296.11	-0.74		
0 a 2 years old resets ⁵	4,008.22	4,408.04	399.82	9.98		
2016.....	7,050.06	(X)	148.18	-2.10		
2017.....	8,077.54	8,185.02	107.48	1.33		
2018.....	NA	8,701.00	(X)	(X)		
Non-bearing trees.....	19,135.82	21,294.06	2,158.24	11.28		
Total.....	194,405.26	195,267.39	862.13	0.44		

NA – Non-available data, as 2018 plantings took place after the mapping for the 2018 inventory.

(X) Not applicable.

¹ 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.

² Snapshot of groves in March of the year the inventory is published.

³ Estimate of eradicated and abandoned groves from September 2017 to March 2019.

⁴ Groves planted in 2016 belonged to the group of young groves in the 2018 inventory and moved to the group of mature groves in this 2019 inventory.

⁵ Trees from resettings after the original plot was planted were estimated at their respective ages.

Table 66 – Oranges: Area of groves by sector and planting year [2019 inventory]

Planting year ¹	Sector					Total
	North	Northwest	Central	South	Southwest	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
1979 and previous	299	6	107	1,174	30	1,616
1980.....	50	9	-	73	-	132
1981.....	53	-	-	42	44	139
1982.....	23	-	-	128	-	151
1983.....	267	-	261	124	-	652
1984.....	9	8	2	128	18	165
1985.....	137	69	280	375	16	877
1986.....	85	482	90	685	41	1,383
1987.....	103	37	-	666	255	1,061
1988.....	35	92	363	299	39	828
1989.....	76	215	428	596	355	1,670
1990.....	292	54	937	879	392	2,554
1991.....	110	31	427	1,010	585	2,163
1992.....	357	26	152	631	810	1,976
1993.....	221	78	466	459	1,554	2,778
1994.....	148	106	420	521	935	2,130
1995.....	398	110	655	971	618	2,752
1996.....	299	80	1,014	840	638	2,871
1997.....	696	32	1,542	1,041	1,346	4,657
1998.....	823	111	1,603	1,465	579	4,581
1999.....	2,269	77	1,375	1,438	954	6,113
2000.....	3,379	201	2,596	2,483	1,018	9,677
2001.....	2,680	1,198	2,330	2,716	1,044	9,968
2002.....	2,187	686	5,240	3,741	2,674	14,528
2003.....	4,894	654	5,548	3,457	4,842	19,395
2004.....	5,463	1,768	5,492	3,807	4,992	21,522
2005.....	6,313	1,398	8,831	4,930	6,952	28,424
2006.....	6,124	2,353	6,113	4,210	6,916	25,716
2007.....	8,059	3,000	10,382	5,342	7,410	34,193
2008.....	6,497	5,234	7,971	4,185	8,602	32,489
2009.....	6,135	3,725	6,111	3,749	3,900	23,620
2010.....	5,266	2,912	4,682	4,447	2,445	19,752
2011.....	4,380	3,847	4,699	3,299	2,249	18,474
2012.....	6,169	3,990	6,633	4,166	2,401	23,359
2013.....	4,958	1,591	6,332	2,040	1,499	16,420
2014.....	1,811	943	3,477	1,343	1,037	8,611
2015.....	2,396	1,815	3,134	3,141	1,256	11,742
2016.....	2,201	1,823	2,920	2,690	1,275	10,909
Mature groves.....	85,662	38,761	102,613	73,291	69,721	370,048
2017.....	1,609	992	5,300	2,154	2,129	12,184
2018.....	3,169	2,363	3,195	2,555	2,250	13,532
Young groves.....	4,778	3,355	8,495	4,709	4,379	25,716
Total.....	90,440	42,116	111,108	78,000	74,100	395,764
Percentage.....	22.85	10.64	28.07	19.71	18.72	100.00

¹ 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 [2019 inventory]

Planting year ¹	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.....	84.95	1.71	17.70	247.34	9.05	360.75
1980.....	16.54	2.26	-	18.08	-	36.88
1981.....	14.18	-	-	5.35	18.51	38.04
1982.....	7.37	-	-	45.95	-	53.32
1983.....	57.26	-	88.70	38.19	-	184.15
1984.....	2.90	2.93	0.67	27.95	4.50	38.95
1985.....	26.45	26.43	80.72	77.46	5.29	216.35
1986.....	25.02	136.67	28.09	175.38	12.67	377.83
1987.....	22.84	14.63	-	164.46	103.27	305.20
1988.....	12.84	41.62	94.08	79.23	10.97	238.74
1989.....	17.41	67.20	118.14	183.81	103.08	489.64
1990.....	99.40	15.42	286.98	260.20	127.67	789.67
1991.....	32.02	13.35	129.53	298.23	180.92	654.05
1992.....	106.41	6.70	39.83	197.97	265.70	616.61
1993.....	67.49	25.28	99.71	158.76	468.64	819.88
1994.....	42.15	40.78	110.85	153.93	302.37	650.08
1995.....	146.57	34.52	229.65	325.09	276.40	1,012.23
1996.....	91.91	24.65	321.99	285.61	264.46	988.62
1997.....	244.92	10.33	413.12	345.89	529.76	1,544.02
1998.....	268.55	32.80	547.59	495.43	212.91	1,557.28
1999.....	719.84	27.57	424.71	457.89	353.31	1,983.32
2000.....	1,065.06	58.02	783.58	845.08	375.22	3,126.96
2001.....	941.31	334.06	748.01	949.86	497.89	3,471.13
2002.....	745.95	232.29	1,710.40	1,309.36	1,114.69	5,112.69
2003.....	1,839.13	233.37	1,747.63	1,210.91	1,887.18	6,918.22
2004.....	1,937.03	587.69	1,986.24	1,377.25	2,022.24	7,910.45
2005.....	2,277.02	531.21	3,268.96	1,793.98	3,150.93	11,022.10
2006.....	2,345.33	898.49	2,270.99	1,556.48	3,126.58	10,197.87
2007.....	3,450.11	1,163.61	4,035.40	1,994.17	3,721.20	14,364.49
2008.....	2,988.06	2,448.38	3,537.58	1,674.34	4,444.55	15,092.91
2009.....	3,066.14	1,655.16	2,857.61	1,801.71	2,039.68	11,420.30
2010.....	2,690.40	1,412.16	2,339.53	2,295.27	1,371.59	10,108.95
2011.....	2,391.24	1,834.22	2,650.49	1,704.87	1,364.72	9,945.54
2012.....	3,355.51	1,865.74	3,654.05	2,253.89	1,464.73	12,593.92
2013.....	2,874.92	820.95	3,660.15	1,135.90	868.18	9,360.10
2014.....	1,112.21	512.13	2,252.21	823.23	731.46	5,431.24
2015.....	1,428.04	1,084.31	2,031.78	1,883.80	876.01	7,303.94
2016.....	1,282.99	1,082.63	1,895.33	1,605.64	1,035.29	6,901.88
6 to 10 years old resets ²	1,254.41	82.23	1,793.30	1,480.70	854.05	5,464.69
3 to 5 years old resets ²	1,145.29	268.58	1,506.74	1,261.28	1,088.45	5,270.34
Bearing trees.....	40,297.17	17,630.08	47,762.04	32,999.92	35,284.12	173,973.33
0 to 2 years old resets ²	808.05	280.67	1,220.83	1,050.64	1,047.85	4,408.04
2017.....	918.66	513.40	3,779.90	1,299.02	1,674.04	8,185.02
2018.....	2,000.41	1,534.74	1,895.47	1,673.37	1,597.01	8,701.00
Non-bearing trees.....	3,727.12	2,328.81	6,896.20	4,023.03	4,318.90	21,294.06
Total.....	44,024.29	19,958.89	54,658.24	37,022.95	39,603.02	195,267.39
Percentage.....	22.55	10.22	27.99	18.96	20.28	100.00

¹ 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.

² 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 [2019 inventory]

Planting year ¹	Early varieties						Total (hectares)
	Hamlin (hectares)	Westin (hectares)	Rubi (hectares)	Valencia Americana (hectares)	Seleta (hectares)	Pineapple (hectares)	
1979 and previous years....	314	-	-	-	26	-	340
1980.....	-	-	-	-	-	-	-
1981.....	39	-	-	-	-	-	39
1982.....	3	-	-	-	-	-	3
1983.....	7	-	-	-	-	-	7
1984.....	63	-	-	-	-	-	63
1985.....	70	7	95	-	-	-	172
1986.....	73	-	67	75	-	-	215
1987.....	129	2	-	27	-	-	158
1988.....	148	7	-	-	3	-	158
1989.....	39	-	-	-	-	-	39
1990.....	96	64	-	27	-	-	187
1991.....	220	59	-	-	-	-	279
1992.....	568	-	-	27	-	11	606
1993.....	677	5	-	375	-	61	1,118
1994.....	693	9	24	114	-	-	840
1995.....	201	32	-	-	-	-	233
1996.....	340	3	-	172	-	2	517
1997.....	282	162	8	489	-	36	977
1998.....	506	127	38	140	-	17	828
1999.....	831	275	-	216	2	-	1,324
2000.....	1,193	84	29	268	-	-	1,574
2001.....	622	80	29	503	-	24	1,258
2002.....	2,040	246	182	733	3	19	3,223
2003.....	3,126	249	121	817	25	4	4,342
2004.....	2,916	411	373	740	3	26	4,469
2005.....	4,665	379	187	856	-	48	6,135
2006.....	4,688	407	728	931	-	69	6,823
2007.....	6,163	440	246	1,867	11	52	8,779
2008.....	5,368	638	753	1,582	-	104	8,445
2009.....	2,480	446	782	1,619	77	53	5,457
2010.....	1,689	345	669	618	11	99	3,431
2011.....	1,501	269	823	1,291	6	247	4,137
2012.....	2,232	187	761	1,137	-	476	4,793
2013.....	698	126	309	609	2	230	1,974
2014.....	169	16	94	44	-	167	490
2015.....	381	63	206	205	2	2	859
2016.....	450	93	372	279	-	13	1,207
Mature groves.....	45,680	5,231	6,896	15,761	171	1,760	75,499
2017.....	1,492	383	540	852	-	159	3,426
2018.....	1,146	185	552	1,070	-	235	3,188
Young groves.....	2,638	568	1,092	1,922	-	394	6,614
Total.....	48,318	5,799	7,988	17,683	171	2,154	82,113
Percentage.....	58.84	7.06	9.73	21.53	0.21	2.62	100.00

¹ 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 [2019 inventory]

Planting year ¹	Early varieties						Total
	Hamlin	Westin	Rubi	Valencia Americana	Seleta	Pineapple	
	(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.....	60.68	-	-	-	6.58	-	67.26
1980.....	-	-	-	-	-	-	9.59
1981.....	9.59	-	-	-	-	-	9.59
1982.....	1.05	-	-	-	-	-	1.05
1983.....	2.44	-	-	-	-	-	2.44
1984.....	10.02	-	-	-	-	-	10.02
1985.....	15.46	1.42	8.97	-	-	-	25.85
1986.....	14.82	-	4.12	20.16	-	-	39.10
1987.....	24.75	0.82	-	4.45	-	-	30.02
1988.....	36.20	2.88	-	-	1.05	-	40.13
1989.....	9.25	-	-	-	-	-	9.25
1990.....	23.16	18.63	-	7.10	-	-	48.89
1991.....	48.52	14.51	-	-	-	-	63.03
1992.....	158.33	-	-	6.69	-	3.83	168.85
1993.....	179.91	2.14	-	77.56	-	16.11	275.72
1994.....	186.03	3.63	8.28	26.43	-	-	224.37
1995.....	75.14	12.62	-	-	-	-	87.76
1996.....	106.86	0.86	-	45.32	-	0.73	153.77
1997.....	88.47	48.55	2.18	85.79	-	11.65	236.64
1998.....	153.64	36.16	11.39	38.24	-	4.70	244.13
1999.....	239.02	89.21	-	61.53	1.02	-	390.78
2000.....	362.11	29.42	11.49	61.88	-	-	464.90
2001.....	201.53	26.10	14.42	112.23	-	7.92	362.20
2002.....	684.11	97.53	70.72	233.51	0.99	6.80	1,093.66
2003.....	1,128.24	83.98	39.56	260.42	8.37	1.21	1,521.78
2004.....	1,005.23	121.14	121.18	248.64	0.95	10.03	1,507.17
2005.....	1,714.64	133.65	72.05	299.11	-	21.78	2,241.23
2006.....	1,785.11	139.76	305.10	379.66	-	29.32	2,638.95
2007.....	2,505.28	160.25	112.24	749.31	4.58	18.17	3,549.83
2008.....	2,330.48	254.39	344.60	688.84	-	64.83	3,683.14
2009.....	1,139.88	210.19	366.76	830.54	41.96	24.74	2,614.07
2010.....	788.59	185.61	343.12	329.23	3.26	63.07	1,712.88
2011.....	730.00	134.10	442.71	669.52	3.10	190.21	2,169.64
2012.....	1,132.64	87.81	399.65	571.04	0.11	274.68	2,465.93
2013.....	397.59	68.47	177.09	328.37	1.18	126.02	1,098.72
2014.....	84.58	10.44	59.47	24.55	-	111.87	290.91
2015.....	252.41	41.00	143.82	124.20	0.76	1.11	563.30
2016.....	270.12	60.22	218.66	166.78	-	10.82	726.60
6 to 10 years old resets ²	936.36	97.54	61.72	196.73	0.38	10.10	1,302.83
3 to 5 years old resets ²	888.57	68.59	120.37	258.98	4.52	20.56	1,361.59
Bearing trees.....	19,780.81	2,241.62	3,459.67	6,906.81	78.81	1,030.26	33,507.57
0 to 2 years old resets ²	611.64	71.64	136.18	262.10	4.05	17.01	1,102.62
2016.....	1,139.34	205.30	368.85	647.98	-	154.21	2,515.68
2017.....	643.74	97.35	262.25	939.33	-	199.43	2,142.10
Non-bearing trees.....	2,394.72	374.29	767.28	1,849.41	4.05	370.65	5,760.40
Total.....	22,175.53	2,615.91	4,226.95	8,756.22	82.86	1,400.91	39,267.97
Percentual.....	56.47	6.66	10.76	22.30	0.21	3.57	100.00

¹ 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.

² 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 [2019 inventory]

Planting year ¹	Mid-season and late varieties				Total
	Pera Rio	Valencia	Valencia Folha Murcha	Natal	
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)
1979 and previous years...	355	710	-	211	1,276
1980.....	33	57	-	42	132
1981.....	2	31	-	67	100
1982.....	50	78	-	20	148
1983.....	191	236	6	212	645
1984.....	44	26	-	32	102
1985.....	327	153	3	222	705
1986.....	562	270	17	319	1,168
1987.....	269	273	34	327	903
1988.....	363	154	27	126	670
1989.....	679	692	36	224	1,631
1990.....	676	1,022	182	487	2,367
1991.....	494	907	32	451	1,884
1992.....	460	500	70	340	1,370
1993.....	661	371	65	563	1,660
1994.....	638	331	155	166	1,290
1995.....	864	1,126	177	352	2,519
1996.....	756	862	310	426	2,354
1997.....	1,350	1,703	81	546	3,680
1998.....	1,432	1,721	356	244	3,753
1999.....	1,816	2,323	326	324	4,789
2000.....	2,019	4,392	600	1,092	8,103
2001.....	2,472	3,849	548	1,841	8,710
2002.....	2,763	6,110	347	2,085	11,305
2003.....	5,354	7,160	181	2,358	15,053
2004.....	5,720	7,154	503	3,676	17,053
2005.....	7,711	9,785	801	3,992	22,289
2006.....	6,763	7,886	721	3,523	18,893
2007.....	9,892	10,801	1,216	3,505	25,414
2008.....	10,955	8,072	1,590	3,427	24,044
2009.....	10,111	5,452	1,176	1,424	18,163
2010.....	8,495	5,271	1,051	1,504	16,321
2011.....	7,509	5,081	702	1,045	14,337
2012.....	9,611	6,504	792	1,659	18,566
2013.....	7,571	3,859	838	2,178	14,446
2014.....	4,591	1,603	1,036	891	8,121
2015.....	6,057	1,943	910	1,973	10,883
2016.....	5,837	2,244	422	1,199	9,702
Mature groves.....	125,453	110,712	15,311	43,073	294,549
2017.....	5,428	1,635	304	1,391	8,758
2018.....	5,186	3,122	493	1,543	10,344
Young groves.....	10,614	4,757	797	2,934	19,102
Total.....	136,067	115,469	16,108	46,007	313,651
Percentage.....	43.38	36.81	5.14	14.67	100.00

¹ 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 [2019 inventory]

Planting year ¹	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....	98.63	145.99	-	48.87	293.49
1980.....	11.72	12.92	-	12.24	36.88
1981.....	0.48	3.25	-	24.72	28.45
1982.....	17.30	29.04	-	5.93	52.27
1983.....	62.24	77.52	1.63	40.32	181.71
1984.....	11.38	8.34	-	9.21	28.93
1985.....	93.91	48.30	1.17	47.12	190.50
1986.....	170.87	73.13	5.81	88.92	338.73
1987.....	113.55	77.66	6.18	77.79	275.18
1988.....	116.19	40.52	9.55	32.35	198.61
1989.....	212.14	191.10	12.06	65.09	480.39
1990.....	211.33	313.86	55.59	160.00	740.78
1991.....	170.59	281.41	11.27	127.75	591.02
1992.....	158.57	154.30	22.08	112.81	447.76
1993.....	216.14	117.73	23.15	187.14	544.16
1994.....	224.26	103.43	56.88	41.14	425.71
1995.....	352.08	397.01	59.49	115.89	924.47
1996.....	293.56	271.44	137.45	132.40	834.85
1997.....	530.17	592.26	31.93	153.02	1,307.38
1998.....	477.20	602.03	157.89	76.03	1,313.15
1999.....	615.49	762.26	110.12	104.67	1,592.54
2000.....	705.69	1,403.18	213.66	339.53	2,662.06
2001.....	895.18	1,439.61	207.34	566.80	3,108.93
2002.....	930.07	2,211.35	121.66	755.95	4,019.03
2003.....	2,020.23	2,474.27	61.16	840.78	5,396.44
2004.....	2,249.29	2,540.86	193.72	1,419.41	6,403.28
2005.....	3,183.13	3,730.11	324.09	1,543.54	8,780.87
2006.....	2,788.99	3,127.01	300.54	1,342.38	7,558.92
2007.....	4,254.18	4,464.68	548.69	1,547.11	10,814.66
2008.....	5,135.94	3,816.42	786.85	1,670.56	11,409.77
2009.....	4,929.25	2,628.26	587.81	660.91	8,806.23
2010.....	4,494.48	2,649.75	530.04	721.80	8,396.07
2011.....	4,053.69	2,801.50	401.86	518.85	7,775.90
2012.....	5,351.71	3,475.98	444.08	856.22	10,127.99
2013.....	4,426.84	2,183.12	488.53	1,162.89	8,261.38
2014.....	2,917.36	987.29	641.88	593.80	5,140.33
2015.....	3,851.78	1,105.02	532.68	1,251.16	6,740.64
2016.....	3,641.12	1,540.64	263.15	730.37	6,175.28
6 to 10 years old resets ²	1,340.04	1,991.05	183.71	647.06	4,161.86
3 to 5 years old resets ²	1,542.19	1,643.37	218.34	504.85	3,908.75
Bearing trees.....	62,868.96	50,516.97	7,752.04	19,337.38	140,475.35
0 to 2 years old resets ²	1,650.82	971.34	212.40	470.86	3,305.42
2017.....	3,457.15	1,064.88	175.48	971.83	5,669.34
2018.....	3,413.23	1,811.14	273.62	1,060.91	6,558.90
Non-bearing trees.....	8,521.20	3,847.36	661.50	2,503.60	15,533.66
Total.....	71,390.16	54,364.33	8,413.54	21,840.98	156,009.01
Percentage.....	45.76	34.85	5.39	14.00	100.00

¹ 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.

² Trees from resettings after the original plot was planted were estimated at their respective ages.

Table 72 – Oranges: Density¹ of young and mature groves by sector and region [2018 and 2019 inventories]

Sector and region	2018 inventory		2019 inventory	
	Young groves ²	Mature groves ³	Young groves ²	Mature groves ³
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
North				
Triângulo Mineiro.....	545	472	524	479
Bebedouro.....	573	464	604	478
Altinópolis.....	689	489	807	494
Average.....	579	470	611	480
Northwest				
Votuporanga.....	431	446	445	431
São José do Rio Preto.....	620	475	676	488
Average.....	545	461	610	462
Central				
Matão.....	803	464	782	470
Duartina.....	652	479	596	490
Brotas.....	638	459	575	456
Average.....	705	470	668	477
South				
Porto Ferreira.....	654	468	652	478
Limeira.....	586	459	609	451
Average.....	623	464	631	465
Southwest				
Avaré.....	670	497	617	503
Itapetininga.....	802	518	811	580
Average.....	764	502	747	521
Average.....	656	474	657	482

¹ Weighted average density per stratum area.

² Groves planted in 2017 and 2018.

³ Groves planted in 2016 and previous years. Calculation considers total trees in the plot, that is, bearing and non-bearing trees (resets in 2017 and 2018).

Table 73 – Oranges: Density¹ of young and mature groves by variety [2018 and 2019 inventories]

Variety	2018 inventory		2019 inventory	
	Young groves ²	Mature groves ³	Young groves ²	Mature groves ³
	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)	(trees/ hectare)
Early				
Hamlin.....	715	443	675	446
Westin.....	502	437	532	443
Rubi.....	659	524	579	522
Valencia Americana.....	735	440	825	455
Seleta.....	(ND)	502	(ND)	486
Pineapple.....	903	560	896	595
Average.....	695	452	704	458
Mid-season				
Pera Rio.....	634	503	647	514
Average.....	634	503	647	514
Late				
Valencia.....	683	457	605	465
Valencia Folha Murcha.....	623	519	563	520
Natal.....	658	455	693	460
Average.....	668	462	631	469
Average.....	656	474	657	482

NA Non-available data.

¹ Weighted average density per stratum area.² Groves planted in 2017 and 2018.³ Groves planted in 2016 and previous years. Calculation considers total trees in the plot, that is, bearing and non-bearing trees (resets in 2017 and 2018).

Table 74 – Oranges: Density¹ of young groves by variety and region [2019 inventory]

Variety	Region												Average
	TMG ²	BEB ³	ALT ⁴	VOT ⁵	SJO ⁶	MAT ⁷	DUA ⁸	BRO ⁹	PFE ¹⁰	LIM ¹¹	AVA ¹²	ITG ¹³	
	(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)
Early													
Hamlin.....	547	505	495	598	695	823	523	365	625	542	601	1.084	675
Westin.....	NA	521	NA	NA	545	593	453	461	611	567	667	476	532
Rubi.....	478	508	490	598	566	593	663	365	581	427	605	580	579
Valencia Americana.....	786	802	NA	NA	875	942	673	659	535	520	594	974	825
Seleta.....	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pineapple.....	NA	504	NA	NA	837	1.018	593	NA	503	NA	NA	926	896
Average.....	562	573	491	598	813	863	599	435	598	512	600	875	704
Mid-season													
Pera Rio.....	525	610	1.115	438	590	727	591	601	686	631	642	848	647
Average.....	525	610	1.115	438	590	727	591	601	686	631	642	848	647
Late													
Valencia.....	539	554	689	413	539	671	606	558	606	577	623	668	605
V.Folha Murcha ¹⁴	NA	578	575	413	413	577	537	598	582	642	626	632	563
Natal.....	465	699	625	479	660	898	606	671	682	676	604	741	693
Average.....	510	620	647	463	588	761	599	593	621	616	620	687	631
Average.....	524	604	807	445	676	782	596	575	652	609	617	811	657

NA Non-available data.

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

Table 75 – Oranges: Density¹ of mature groves by variety and region [2019 inventory]

Variety	Region												Average
	TMG ²	BEB ³	ALT ⁴	VOT ⁵	SJO ⁶	MAT ⁷	DUA ⁸	BRO ⁹	PFE ¹⁰	LIM ¹¹	AVA ¹²	ITG ¹³	
	(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)
Early													
Hamlin.....	435	429	482	435	458	421	443	443	419	435	492	493	446
Westin.....	461	417	391	387	393	361	373	406	486	420	484	516	443
Rubi.....	584	535	597	521	478	509	538	399	529	530	493	602	522
Valencia Americana.....	561	493	588	454	469	373	500	485	334	489	420	726	455
Seleta.....	NA	430	NA	NA	NA	NA	592	NA	463	402	378	592	486
Pineapple.....	425	498	849	672	517	554	461	683	353	577	418	747	595
Average.....	450	453	504	459	464	416	466	462	436	438	480	581	458
Mid-season													
Pera Rio.....	538	557	522	430	511	524	520	494	530	488	528	564	514
Average.....	538	557	522	430	511	524	520	494	530	488	528	564	514
Late													
Valencia.....	458	447	473	411	497	465	470	438	442	416	494	622	465
V.Folha Murcha ¹⁴	556	501	515	451	530	575	554	490	518	449	552	586	520
Natal.....	431	424	428	422	481	400	457	409	445	450	499	547	460
Average.....	453	448	471	422	496	461	475	437	451	427	499	588	469
Average.....	479	478	494	431	488	470	490	456	478	451	503	580	482

NA Non-available data.

¹ 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 2017 and 2018).² TMG – Triângulo Mineiro.³ BEB – Bebedouro.⁴ ALT – Altinópolis.⁵ VOT – Votuporanga.⁶ SJO – São José do Rio Preto.⁷ MAT – Matão.⁸ DUA – Duartina.⁹ BRO – Brotas.¹⁰ PFE – Porto Ferreira.¹¹ LIM – Limeira.¹² AVA – Avaré.¹³ ITG – Itapetininga.¹⁴ V.Folha Murcha – Valencia Folha Murcha.

Table 76 – Oranges: Density¹ of groves of up to 10 years old by variety and region [2019 inventory]

Variety	Region												Average
	TMG ²	BEB ³	ALT ⁴	VOT ⁵	SJO ⁶	MAT ⁷	DUA ⁸	BRO ⁹	PFE ¹⁰	LIM ¹¹	AVA ¹²	ITG ¹³	
	(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)
Early													
Hamlin.....	566	504	619	551	530	605	555	526	596	509	586	833	569
Westin.....	422	521	467	499	524	440	450	511	626	518	535	540	542
Rubi.....	578	551	586	471	575	513	609	372	606	536	625	630	580
Valencia Americana.....	587	567	632	495	621	719	611	597	389	533	607	868	624
Seleta.....	NA	430	NA	NA	NA	NA	592	NA	463	565	NA	NA	558
Pineapple.....	425	558	849	468	654	580	618	689	390	NA	NA	833	699
Average.....	565	539	611	521	576	612	583	571	585	518	590	780	591
Mid-season													
Pera Rio.....	566	609	766	465	559	644	600	616	650	585	638	732	601
Average.....	566	609	766	465	559	644	600	616	650	585	638	732	601
Late													
Valencia.....	534	540	573	461	524	572	621	606	614	528	634	696	576
V.Folha Murcha ¹⁴	599	566	554	453	525	623	651	606	649	531	623	626	592
Natal.....	540	606	533	417	646	667	592	586	612	531	631	652	606
Average.....	537	558	554	445	560	595	617	601	619	530	632	675	586
Average.....	554	575	662	466	565	620	603	603	629	556	626	723	594

NA Non-available data.

¹ 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 2017 and 2018).² TMG – Triângulo Mineiro.³ BEB – Bebedouro.⁴ ALT – Altinópolis.⁵ VOT – Votuporanga.⁶ SJO – São José do Rio Preto.⁷ MAT – Matão.⁸ DUA – Duartina.⁹ BRO – Brotas.¹⁰ PFE – Porto Ferreira.¹¹ LIM – Limeira.¹² AVA – Avaré.¹³ ITG – Itapetininga.¹⁴ V.Folha Murcha – Valencia Folha Murcha.

Table 77 – Oranges: Density¹ of groves over 10 years old by variety and region [2019 inventory]

Variety	Region												Average
	TMG ²	BEB ³	ALT ⁴	VOT ⁵	SJO ⁶	MAT ⁷	DUA ⁸	BRO ⁹	PFE ¹⁰	LIM ¹¹	AVA ¹²	ITG ¹³	
	(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)
Early													
Hamlin.....	417	415	470	373	411	361	410	423	362	425	482	448	422
Westin.....	471	398	379	364	374	328	362	377	361	391	455	481	399
Rubi.....	NA	458	514	620	377	343	482	393	318	396	456	471	439
Valencia Americana.....	557	451	571	420	398	321	431	427	319	481	387	620	395
Seleta.....	NA	NA	NA	NA	NA	NA	NA	NA	NA	388	378	592	391
Pineapple.....	NA	441	NA	688	548	NA	352	534	NA	577	418	255	478
Average.....	425	422	478	425	405	342	416	421	351	421	462	458	416
Mid-season													
Pera Rio.....	435	454	485	387	457	337	471	424	441	417	496	434	443
Average.....	435	454	485	387	457	337	471	424	441	417	496	434	443
Late													
Valencia.....	396	402	470	387	421	366	412	410	385	389	471	580	422
VFolha Murcha ¹⁴	492	455	493	450	509	464	488	418	410	391	495	555	458
Natal.....	400	373	416	427	331	326	406	347	350	425	470	526	412
Average.....	399	399	466	413	397	360	417	402	380	395	471	554	422
Average.....	412	414	474	395	414	348	436	409	396	407	476	513	426

NA Non-available data.

¹ 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 2017 and 2018).² TMG – Triângulo Mineiro.³ BEB – Bebedouro.⁴ ALT – Altinópolis.⁵ VOT – Votuporanga.⁶ SJO – São José do Rio Preto.⁷ MAT – Matão.⁸ DUA – Duartina.⁹ BRO – Brotas.¹⁰ PFE – Porto Ferreira.¹¹ LIM – Limeira.¹² AVA – Avaré.¹³ ITG – Itapetininga.¹⁴ V.Folha Murcha – Valencia Folha Murcha.

Table 78 – Oranges: Density¹ of groves by planting year [2019 inventory]

Planting year ²	Density
	(trees/hectare)
1979 and previous years.....	339
1980.....	342
1981.....	354
1982.....	416
1983.....	343
1984.....	280
1985.....	321
1986.....	325
1987.....	348
1988.....	322
1989.....	331
1990.....	354
1991.....	346
1992.....	355
1993.....	341
1994.....	357
1995.....	414
1996.....	381
1997.....	370
1998.....	389
1999.....	374
2000.....	366
2001.....	384
2002.....	392
2003.....	397
2004.....	411
2005.....	436
2006.....	443
2007.....	474
2008.....	509
2009.....	517
2010.....	548
2011.....	574
2012.....	573
2013.....	608
2014.....	647
2015.....	643
2016.....	655
Mature groves.....	482
2017.....	672
2018.....	643
Young groves.....	657
Average.....	493

¹ 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 2017 and 2018).

² 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 region¹ [2018 and 2019 inventories]

Sector and region	2018 inventory		2019 inventory	
	Irrigated area	Non-irrigated area or without irrigation information	Irrigated area	Non-irrigated area or without irrigation information
	(hectares)	(hectares)	(hectares)	(hectares)
North				
Triângulo Mineiro.....	21,353	5,128	21,539	5,359
Bebedouro.....	34,314	16,967	34,797	17,569
Altinópolis.....	974	10,320	957	10,219
Subtotal	56,641	32,415	57,293	33,147
Northwest				
Votuporanga.....	6,781	13,034	6,286	12,212
São José do Rio Preto.....	10,150	12,990	10,288	13,330
Subtotal.....	16,931	26,024	16,574	25,542
Central				
Matão.....	18,132	22,824	16,925	21,571
Duartina.....	9,304	45,263	9,086	44,577
Brotas.....	1,296	17,557	1,294	17,655
Subtotal.....	28,732	85,644	27,305	83,803
South				
Porto Ferreira.....	8,060	32,480	7,840	31,870
Limeira.....	5,445	35,273	5,085	33,205
Subtotal.....	13,505	67,753	12,925	65,075
Southwest				
Avaré.....	4,941	49,446	4,935	49,780
Itapetininga.....	238	19,200	236	19,149
Subtotal	5,179	68,646	5,171	68,929
Total.....	120,988	280,482	119,268	276,496
Percentage.....	30.14	69.86	30.14	69.86

Table 80 – Oranges: Area of irrigated and non-irrigated groves and of groves with no information on irrigation, by variety¹ [2018 and 2019 inventories]

Variety	2018 inventory		2019 inventory	
	Irrigated area	Non-irrigated area or without irrigation information	Irrigated area	Non-irrigated area or without irrigation information
	(hectares)	(hectares)	(hectares)	(hectares)
Early				
Hamlin.....	15,635	34,433	15,075	33,243
Westin.....	1,693	4,746	1,523	4,276
Rubi.....	2,267	5,398	2,360	5,628
Valencia Americana.....	5,745	11,562	5,864	11,819
Seleta.....	33	138	33	138
Pineapple.....	842	1,086	940	1,214
Subtotal.....	26,215	57,363	25,795	56,318
Mid-season				
Pera Rio	41,570	94,625	41,493	94,574
Subtotal.....	41,570	94,625	41,493	94,574
Late				
Valencia.....	33,872	84,745	32,944	82,525
Valencia Folha Murcha.....	4,143	12,454	4,017	12,091
Natal.....	15,188	31,295	15,019	30,988
Subtotal.....	53,203	128,494	51,980	125,604
Total.....	120,988	280,482	119,268	276,496

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 81– Oranges: Area of irrigated and non-irrigated groves and of groves with no information on irrigation, by age groups¹ [2018 and 2019 inventories]

Grove age	2018 inventory		2019 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.....	4,854	18,193	5,448	20,268
3 – 5 years.....	16,362	21,110	13,731	17,531
6 – 10 years.....	34,704	88,534	28,788	72,837
Over 10 years.....	65,068	152,645	71,301	165,860
Total.....	120,988	280,482	119,268	276,496

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 82 – Oranges: Area of irrigated groves by irrigation method¹ [2018 and 2019 inventories]

Irrigation method	2018 inventory		2019 inventory	
	Irrigated area	Percentage	Irrigated area	Percentage
	(hectares)	(%)	(hectares)	(%)
Sprinkling.....	13,068	10.80	12,882	10.80
Localized.....	107,920	89.20	106,386	89.20
Total.....	120,988	100.00	119,268	100.00

¹ Data will be updated in the next mapping expected to begin in the second half of 2020 for the 2021 inventory to be taken.

Table 83 – Oranges: Average age¹ of mature groves by sector and region [2015 to 2019 inventories]

Sector and region	2015 inventory ² (years)	2016 inventory ³ (years)	2017 inventory ⁴ (years)	2018 inventory ⁵ (years)	2019 inventory ⁶ (years)
North					
Triângulo Mineiro.....	11.1	7.8	8.6	9.3	10.0
Bebedouro.....	9.2	9.5	10.1	10.6	10.9
Altinópolis.....	9.5	10.3	11.0	11.6	12.0
Average.....	9.6	9.1	9.8	10.3	10.8
Northwest					
Votuporanga.....	7.9	8.3	8.9	9.5	10.1
São José do Rio Preto.....	8.0	8.0	7.9	8.5	8.3
Average.....	7.9	8.2	8.3	8.9	9.0
Central					
Matão.....	9.3	8.9	9.4	9.0	9.2
Duartina.....	9.6	9.3	9.8	9.5	10.1
Brotas.....	7.6	10.9	11.5	12.7	13.3
Average.....	9.0	9.4	9.9	9.8	10.3
South					
Porto Ferreira.....	10.2	9.9	10.6	11.4	11.6
Limeira.....	10.6	11.7	12.5	12.1	12.7
Average.....	10.3	10.8	11.6	11.8	12.1
Southwest					
Avaré.....	11.7	10.7	11.6	12.2	12.9
Itapetininga.....	11.2	10.6	10.5	9.5	9.3
Average.....	11.5	10.7	11.3	11.4	11.8
Average.....	9.8	9.8	10.3	10.5	10.9

¹ Average age weighted by sector trees.² Groves planted in 2012 and previous years.³ Groves planted in 2013 and previous years.⁴ Groves planted in 2014 and previous years.⁵ Groves planted in 2015 and previous years.⁶ Groves planted in 2016 and previous years.

Table 84 – Oranges: Area of eradicated groves, eradication and renovation rates by sector and region [2019 inventory]

Sector and region	2019 inventory			
	Eradication from April 2018 to March 2019		Renovation from April 2018 to March 2019	Net loss due to eradication from April 2018 to March 2019
	Area	Rate	Area	Area
	(hectares)	(%)	(hectares)	(hectares)
North				
Triângulo Mineiro.....	239	0.90	231	8
Bebedouro.....	1,017	1.98	938	79
Altinópolis.....	303	2.68	164	139
Subtotal.....	1,559	1.75	1,333	226
Northwest				
Votuporanga.....	1,637	8.26	171	1,466
S. J. do Rio Preto.....	1,448	6.26	730	718
Subtotal.....	3,085	7.18	901	2,184
Central				
Matão.....	3,409	8.32	280	3,129
Duartina.....	2,494	4.57	854	1,640
Brotas.....	233	1.24	102	131
Subtotal.....	6,136	5.36	1,236	4,900
South				
Porto Ferreira.....	2,316	5.71	235	2,081
Limeira.....	3,114	7.65	461	2,653
Subtotal.....	5,430	6.68	696	4,734
Southwest				
Avaré.....	587	1.08	424	163
Itapetininga.....	1,388	7.14	468	920
Subtotal.....	1,975	2.68	892	1,083
Total.....	18,185	4.53	5,058	13,127

Table 85 – Oranges: Area of eradicated groves, eradication and renovation rates by variety [2019 inventory]

Variety	2019 inventory			
	Eradication from April 2018 to March 2019		Renovation from April 2018 to March 2019	Net loss due to eradication from April 2018 to March 2019
	Area	Rate	Area	Area
	(hectares)	(%)	(hectares)	(hectares)
Early				
Hamlin.....	2,896	5.78	1,146	1,750
Westin.....	825	12.81	132	693
Rubi.....	229	2.99	184	45
Valencia Americana.....	679	3.92	646	33
Seleta.....	-	-	-	-
Pineapple.....	1	0.05	-	1
Subtotal.....	4,630	5.54	2,108	2,522
Mid-season				
Pera Rio.....	4,459	3.27	1,499	2,960
Subtotal.....	4,459	3.27	1,499	2,960
Late				
Valencia.....	6,085	5.13	915	5,170
V.Folha Murcha ¹	992	5.97	96	896
Natal.....	2,019	4.34	440	1,579
Subtotal.....	9,096	5.01	1,451	7,645
Total.....	18,185	4.53	5,058	13,127

¹ V.Folha Murcha – Valencia Folha Murcha.

Table 86 – Oranges: Area of eradicated groves, eradication and renovation rates by age group [2019 inventory]

Plot age	2019 inventory			
	Eradication from April 2018 to March 2019		Renovation from April 2018 to March 2019	Net loss due to eradication from April 2018 to March 2019
	Area (hectares)	Rate (%)	Area (hectares)	Area (hectares)
1 – 2 years.....	-	-	-	-
3 – 5 years.....	142	0.38	14	128
6 – 10 years.....	3,157	2.56	1,038	2,119
Over 10 years.....	14,886	6.84	4,006	10,880
Total.....	18,185	4.53	5,058	13,127

Table 87 – Oranges: Area of eradicated groves and eradication rate stratified by farm size, considering the number of orange trees on the farm [2019 inventory]

Range of the number of orange trees in the farm (trees)	2019 inventory			
	Eradication from April 2018 to March 2019		Renovation from April 2018 to March 2019	Net loss due to eradication from April 2018 to March 2019
	Area (hectares)	Rate (%)	Area (hectares)	Area (hectares)
Below 10 thousand.....	129	0.42	127	2
10 – 19 thousand.....	1,479	6.20	92	1,387
20 – 29 thousand.....	466	2.80	154	312
30 – 49 thousand.....	713	2.84	390	323
50 – 99 thousand.....	2,762	6.10	1,068	1,694
100 – 199 thousand.....	3,085	6.79	239	2,846
Above 200 thousand.....	9,551	4.45	2,988	6,563
Total.....	18,185	4.53	5,058	13,127

Table 88 – Oranges: Dead trees and mortality rate by sector and region [2018 and 2019 inventories]

Sector and region	2018 inventory		2019 inventory	
	Trees	Rate	Trees	Rate
	(1,000 trees)	(%)	(1,000 trees)	(%)
North				
Triângulo Mineiro.....	66.98	0.52	83.17	0.63
Bebedouro.....	249.00	0.99	210.41	0.79
Altinópolis.....	79.60	1.34	136.30	2.28
Subtotal.....	395.58	0.90	429.88	0.94
Northwest				
Votuporanga.....	150.03	1.61	271.07	3.15
S. J. do Rio Preto.....	155.17	1.31	133.46	1.06
Subtotal.....	305.20	1.45	404.53	1.91
Central				
Matão.....	166.99	0.78	305.46	1.47
Duartina.....	324.49	1.13	342.38	1.20
Brotas.....	204.18	2.14	200.96	2.11
Subtotal.....	695.66	1.17	848.80	1.44
South				
Porto Ferreira.....	312.34	1.49	186.46	0.90
Limeira.....	474.32	2.31	318.00	1.67
Subtotal.....	786.66	1.90	504.46	1.27
Southwest				
Avaré.....	574.08	1.95	307.15	1.03
Itapetininga.....	89.30	0.80	156.52	1.27
Subtotal.....	663.38	1.63	463.67	1.10
Total.....	2,846.48	1.38	2,651.34	1.28

Table 89 – Oranges: Dead trees and mortality rate by variety [2018 and 2019 inventories]

Variety	2018 inventory		2019 inventory	
	Trees	Rate	Trees	Rate
	(1,000 trees)	(%)	(1,000 trees)	(%)
Early				
Hamlin.....	345.94	1.43	414.30	1.74
Westin.....	52.12	1.70	39.69	1.41
Rubi.....	51.98	1.18	77.06	1.70
Valencia Americana.....	79.05	0.92	88.18	0.93
Seleta.....	0.70	0.77	0.29	0.33
Pineapple.....	2.14	0.18	15.80	1.10
Subtotal.....	531.93	1.28	635.32	1.50
Mid-season				
Pera Rio.....	1,158.28	1.56	1,121.15	1.48
Subtotal.....	1,158.28	1.56	1,121.15	1.48
Late				
Valencia.....	713.58	1.22	627.73	1.09
V. Folha Murcha ¹	115.5	1.25	97.94	1.10
Natal.....	327.19	1.42	169.20	0.73
Subtotal.....	1,156.27	1.28	894.87	1.00
Total.....	2,846.48	1.38	2,651.34	1.28

Table 90 – Oranges: Dead trees and mortality rate by age group [2015 to 2019 inventory]

Age groves	2018 inventory		2019 inventory	
	Trees	Rate	Trees	Rate
	(1,000 trees)	(%)	(1,000 trees)	(%)
1 – 2 years.....	25.27	0.17	11.63	0.07
3 – 5 years.....	42.84	0.18	39.85	0.19
6 – 10 years.....	554.35	0.80	393.97	0.66
Over 10 years.....	2,224.02	2.29	2,205.89	2.00
Total.....	2,846.48	1.38	2,651.34	1.28

Table 91 – Oranges: Vacancies by sector and region [2018 and 2019 inventories]

Sector and region	2018 inventory		2019 inventory	
	Vacancies (1,000 holes)	Percentage (%)	Vacancies (1,000 holes)	Percentage (%)
North				
Triângulo Mineiro.....	165.42	1.29	116.91	0.89
Bebedouro.....	783.02	3.12	852.32	3.22
Altinópolis.....	230.29	3.89	161.83	2.71
Subtotal.....	1,178.73	2.69	1,131.06	2.48
Northwest				
Votuporanga.....	314.99	3.39	356.90	4.15
S. J. do Rio Preto.....	437.31	3.70	427.31	3.41
Subtotal.....	752.30	3.56	784.21	3.71
Central				
Matão.....	1,121.38	5.27	1,333.33	6.41
Duartina.....	1,412.58	4.93	1,508.27	5.27
Brotas.....	545.29	5.72	582.93	6.13
Subtotal.....	3,079.25	5.18	3,424.53	5.81
South				
Porto Ferreira.....	1,185.73	5.66	1,117.48	5.40
Limeira.....	1,045.33	5.10	1,113.70	5.84
Subtotal.....	2,231.06	5.38	2,231.18	5.61
Southwest				
Avaré.....	1,709.49	5.79	1,737.32	5.84
Itapetininga.....	331.40	2.96	261.77	2.12
Subtotal.....	2,040.89	5.02	1,999.09	4.75
Total.....	9,282.23	4.49	9,570.07	4.61

Table 92 – Oranges: Vacancies by variety [2018 and 2019 inventories]

Variety	2018 inventory		2019 inventory	
	Vacancies (1,000 holes)	Percentage (%)	Vacancies (1,000 holes)	Percentage (%)
Early				
Hamlin.....	1,176.62	4.85	1,288.55	5.40
Westin.....	176.84	5.76	154.40	5.49
Rubi.....	199.44	4.54	218.92	4.84
Valencia Americana.....	548.96	6.40	646.45	6.81
Seleta.....	4.77	5.24	4.68	5.33
Pineapple.....	27.24	2.33	21.58	1.50
Subtotal.....	2,133.87	5.14	2,334.58	5.53
Mid-season				
Pera Rio.....	3,122.28	4.20	3,264.58	4.31
Subtotal.....	3,122.28	4.20	3,264.58	4.31
Late				
Valencia.....	2,563.32	4.39	2,484.80	4.32
Valencia Folha Murcha....	396.72	4.31	412.50	4.62
Natal.....	1,066.04	4.62	1,073.61	4.65
Subtotal.....	4,026.08	4.44	3,970.91	4.44
Total.....	9,282.23	4.49	9,570.07	4.61

Table 93 – Oranges: Vacancies by age group [2018 and 2019 inventories]

Groves age	2018 inventory		2019 inventory	
	Vacancies (1,000 holes)	Percentage (%)	Vacancies (1,000 holes)	Percentage (%)
1 – 2 years.....	121.30	0.79	68.33	0.40
3 – 5 years.....	475.06	1.95	469.40	2.26
6 – 10 years.....	2,491.35	3.58	2,084.41	3.50
Over 10 year.....	6,194.52	6.37	6,947.93	6.30
Total.....	9,282.23	4.49	9,570.07	4.61

Table 94 – Other oranges¹: Area and number of trees by region, variety and age [2019 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
		2017	2018	Resets				
	(hectares)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
Triângulo Mineiro								
Washington Navel and Baianinha.....	34	-	4.00	0.14	0.26	6.18	4.72	15.30
Charmute de Brotas.....	4	-	-	0.04	0.09	0.14	1.54	1.81
Acidless sweet oranges and sweet lime ²	15	-	-	0.08	0.39	4.31	3.06	7.84
Other.....	7	-	-	-	0.22	2.72	-	2.94
Subtotal.....	60	-	4.00	0.26	0.96	13.35	9.32	27.89
Bebedouro								
Washington Navel and Baianinha.....	36	-	4.77	0.20	2.04	1.70	8.75	17.46
Charmute de Brotas.....	4	-	-	0.04	0.01	2.44	-	2.49
Acidless sweet oranges and sweet lime ²	459	6.86	9.59	4.58	69.57	122.42	27.52	240.54
Other.....	144	0.38	35.74	1.42	6.17	46.42	15.64	105.77
Subtotal.....	643	7.24	50.10	6.24	77.79	172.98	51.91	366.26
Altinópolis								
Washington Navel and Baianinha.....	30	-	10.79	0.01	0.33	0.22	3.90	15.25
Charmute de Brotas.....	48	-	0.09	0.19	0.79	3.35	14.98	19.40
Acidless sweet oranges and sweet lime ²	119	6.94	0.18	0.79	13.49	10.55	19.60	51.55
Other.....	4	-	0.06	-	0.08	0.08	1.49	1.71
Subtotal.....	201	6.94	11.12	0.99	14.69	14.20	39.97	87.91
Votuporanga								
Washington Navel and Baianinha.....	16	5.10	0.10	-	0.19	0.03	3.34	8.76
Charmute de Brotas.....	-	-	-	-	-	-	-	-
Acidless sweet oranges and sweet lime ²	201	-	21.05	0.43	45.52	41.34	11.13	119.47
Other.....	32	-	-	0.09	2.24	7.51	1.43	11.27
Subtotal.....	249	5.10	21.15	0.52	47.95	48.88	15.90	139.50
São José do Rio Preto								
Washington Navel and Baianinha.....	35	-	-	1.61	0.58	17.82	0.08	20.09
Charmute de Brotas.....	1	-	-	0.05	0.02	0.61	-	0.68
Acidless sweet oranges and sweet lime ²	33	-	0.11	1.13	1.48	12.50	6.09	21.31
Other.....	117	-	96.92	0.46	0.10	6.89	-	104.37
Subtotal.....	186	-	97.03	3.25	2.18	37.82	6.17	146.45
Matão								
Washington Navel and Baianinha.....	6	-	2.70	0.05	0.30	0.11	0.61	3.77
Charmute de Brotas.....	10	-	3.50	0.29	2.20	0.20	-	6.19
Acidless sweet oranges and sweet lime ²	311	6.31	13.84	9.96	25.62	54.03	30.26	140.02
Other.....	65	43.51	0.50	0.56	4.08	2.43	0.88	51.96
Subtotal.....	392	49.82	20.54	10.86	32.20	56.77	31.75	201.94

Table 94 – Other oranges¹: Area and number of trees by region, variety and age [2019 inventory] (continued)

Region and variety	Area	Trees 0 – 2 years			Trees 3 – 5 years	Trees 6 – 10 years	Trees over 10 years	Total
		2017	2018	Resets				
	(hectares)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)
Duartina								
Washington Navel and Baianinha.....	58	-	4.96	0.48	12.14	20.08	0.04	37.70
Charmute de Brotas.....	256	-	0.07	1.02	5.50	31.54	61.13	99.26
Acidless sweet oranges and sweet lime ²	549	-	13.45	3.25	81.12	93.38	89.10	280.30
Other.....	69	33.00	23.04	0.01	6.56	0.74	-	63.35
Subtotal.....	932	33.00	41.52	4.76	105.32	145.74	150.27	480.61
Brotas								
Washington Navel and Baianinha.....	34	-	1.43	1.07	0.72	5.20	4.70	13.12
Charmute de Brotas.....	519	-	3.88	4.75	12.82	34.89	96.61	152.95
Acidless sweet oranges and sweet lime ²	561	5.42	12.57	6.68	49.58	39.52	99.24	213.01
Other.....	229	-	0.50	3.55	6.46	21.27	41.54	73.32
Subtotal.....	1,343	5.42	18.38	16.05	69.58	100.88	242.09	452.40
Porto Ferreira								
Washington Navel and Baianinha.....	496	7.03	20.45	13.09	60.62	62.51	82.98	246.68
Charmute de Brotas.....	334	3.86	4.13	10.19	10.26	48.76	70.38	147.58
Acidless sweet oranges and sweet lime ²	1,933	38.03	60.03	54.77	162.14	221.68	396.52	933.17
Other.....	65	-	28.85	0.34	2.79	1.00	2.01	34.99
Subtotal.....	2,828	48.92	113.46	78.39	235.81	333.95	551.89	1,362.42
Limeira								
Washington Navel and Baianinha.....	618	37.42	28.97	10.94	96.73	69.43	81.80	325.29
Charmute de Brotas.....	295	24.18	12.95	5.24	25.36	48.98	42.29	159.00
Acidless sweet oranges and sweet lime ²	1,385	26.05	70.95	30.84	185.67	239.52	212.88	765.91
Other.....	420	0.24	25.08	5.89	69.78	143.15	16.06	260.20
Subtotal.....	2,718	87.89	137.95	52.91	377.54	501.08	353.03	1,510.40
Avaré								
Washington Navel and Baianinha.....	799	21.66	13.94	15.94	43.61	75.96	195.69	366.80
Charmute de Brotas.....	335	8.83	0.43	10.14	9.58	34.71	100.38	164.07
Acidless sweet oranges and sweet lime ²	907	29.70	14.39	25.52	79.96	98.98	206.32	454.87
Other.....	104	22.70	20.77	0.07	0.05	0.90	9.65	54.14
Subtotal.....	2,145	82.89	49.53	51.67	133.20	210.55	512.04	1,039.88
Itapetininga								
Washington Navel and Baianinha.....	404	3.92	11.45	5.22	15.90	81.61	91.80	209.90
Charmute de Brotas.....	178	5.90	1.80	3.12	8.78	38.61	38.48	96.69
Acidless sweet oranges and sweet lime ²	256	1.05	5.04	2.72	16.04	23.42	75.59	123.86
Other.....	526	40.85	173.60	0.71	223.52	8.60	16.00	463.28
Subtotal.....	1,364	51.72	191.89	11.77	264.24	152.24	221.87	893.73
Total.....	13,061	378.94	756.67	237.67	1,361.46	1,788.44	2,186.21	6,709.39

¹ Resets were considered as old as the original planted grove.² 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 estimated¹ by region, variety and age of plot [2018 inventory]

Region and variety	Area	Plots 0 – 2 years		Plots 3 – 5 years	Plots 6 – 10 years	Plots over 10 years	Plots of non- identified age	Total
		2016	2017					
	(hectares)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)
Triângulo Mineiro								
Tahiti acid lime	369	4.76	-	73.58	76.16	52.99	-	207.49
Sicilian lemon.....	-	-	-	-	-	-	-	-
Other including non-identified ones	-	-	-	-	-	-	-	-
Subtotal.....	369	4.76	-	73.58	76.16	52.99	-	207.49
Bebedouro								
Tahiti acid lime	14,881	527.99	612.93	-	2,414.03	937.61	42.14	5,944.09
Sicilian lemon.....	74	1.98	8.22	8.68	30.84	0.35	-	50.07
Other including non-identified ones	100	1.03	-	8.69	27.02	5.04	3.25	45.03
Subtotal.....	15,055	531.00	621.15	-	2,471.89	943.00	45.39	6,039.19
Altinópolis								
Tahiti acid lime	45	3.19	4.65	1.31	7.81	2.65	4.23	23.84
Sicilian lemon.....	-	-	-	-	-	-	-	-
Other including non-identified ones	-	-	-	0.59	-	-	-	0.59
Subtotal.....	45	3.19	4.65	1.90	7.81	2.65	4.23	24.43
Votuporanga								
Tahiti acid lime	3,762	101.49	195.81	325.18	415.35	245.70	73.54	1,357.07
Sicilian lemon.....	1	-	-	-	-	0.43	-	0.43
Other including non-identified ones	8	-	4.87	1.14	-	-	0.56	6.57
Subtotal.....	3,771	101.49	200.68	326.32	415.35	246.13	74.10	1,364.07
São José do Rio Preto								
Tahiti acid lime	996	42.09	20.57	60.77	67.15	143.67	16.58	350.83
Sicilian lemon.....	1	-	-	0.52	-	-	-	0.52
Other including non-identified ones	-	-	-	-	-	-	-	-
Subtotal.....	997	42.09	20.57	61.29	67.15	143.67	16.58	351.35
Matão								
Tahiti acid lime	10,179	479.49	763.09	-	1,101.25	1,122.12	16.32	4,642.18
Sicilian lemon.....	37	-	15.14	-	0.26	-	-	15.40
Other including non-identified ones	122	13.98	2.83	18.73	16.02	0.61	1.68	53.85
Subtotal.....	10,338	493.47	781.06	-	1,117.53	1,122.73	18.00	4,711.43
Duartina								
Tahiti acid lime	446	23.99	7.73	99.79	19.09	41.00	18.35	209.95
Sicilian lemon.....	489	12.82	35.89	14.91	175.03	0.95	12.61	252.21
Other including non-identified ones	14	0.13	0.71	6.30	-	-	1.38	8.52
Subtotal.....	949	36.94	44.33	121.00	194.12	41.95	32.34	470.68
Brotas								
Tahiti acid lime	62	10.07	2.01	2.28	6.80	5.85	8.67	35.68
Sicilian lemon.....	368	0.40	1.49	84.39	2.79	38.00	5.87	132.94
Other including non-identified ones	138	0.25	-	15.67	7.39	22.11	-	45.42
Subtotal.....	568	10.72	3.50	102.34	16.98	65.96	14.54	214.04
Porto Ferreira								
Tahiti acid lime	639	40.24	34.27	65.82	173.30	48.70	0.84	363.17
Sicilian lemon.....	495	53.33	58.36	71.79	57.04	6.85	-	247.37
Other including non-identified ones	20	7.15	-	1.88	1.92	-	-	10.95
Subtotal.....	1,154	100.72	92.63	139.49	232.26	55.55	0.84	621.49
Limeira								
Tahiti acid lime	3,629	119.32	214.31	380.42	507.02	334.80	34.08	1,589.95
Sicilian lemon.....	657	64.11	22.03	92.78	178.92	4.96	2.24	365.04
Other including non-identified ones	22	0.06	2.83	2.89	1.87	3.56	-	11.21
Subtotal.....	4,308	183.49	239.17	476.09	687.81	343.32	36.32	1,966.20
Avaré								
Tahiti acid lime	35	2.05	1.35	8.05	4.28	0.78	1.99	18.50
Sicilian lemon.....	1,343	43.18	26.40	98.93	445.28	12.71	-	626.50
Other including non-identified ones	-	-	-	-	-	-	-	-
Subtotal.....	1,378	45.23	27.75	106.98	449.56	13.49	1.99	645.00
Itapetininga								
Tahiti acid lime	33	-	-	12.14	4.36	-	4.97	21.47
Sicilian lemon.....	112	-	-	9.12	30.35	-	2.30	41.77
Other including non-identified ones	1	-	-	1.14	-	-	-	1.14
Subtotal.....	146	-	-	22.40	34.71	-	7.27	64.38
Total.....	39,078	1,553.10	2,035.49	-	5,771.33	3,031.44	251.60	16,679.75

¹ 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 holes¹ estimated by region, variety and age of plot [2018 inventory]

Region and variety	Area	Plots 0 – 2 years		Plots 3 – 5 years	Plots 6 – 10 years	Plots over 10 years	Plots of non- identified age	Total
		2016	2017					
	(hectares)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)	(1,000 holes)
Triângulo Mineiro								
Ponkan.....	176	2.14	11.11	15.63	10.71	34.39	2.47	76.45
Murcott.....	14	-	-	-	0.87	3.82	-	4.69
Other.....	44	0.47	-	0.64	11.63	9.03	0.97	22.74
Subtotal.....	234	2.61	11.11	16.27	23.21	47.24	3.44	103.88
Bebedouro								
Ponkan.....	914	65.70	43.55	115.08	199.41	53.35	20.22	497.31
Murcott.....	281	12.89	14.19	20.62	57.73	30.50	2.23	138.16
Other.....	159	6.60	19.80	17.45	19.88	12.00	1.10	76.83
Subtotal.....	1,354	85.19	77.54	153.15	277.02	95.85	23.55	712.30
Altinópolis								
Ponkan.....	104	1.16	30.18	17.84	11.66	5.01	0.43	66.28
Murcott.....	80	-	-	11.66	18.85	4.39	-	34.90
Other.....	16	-	-	3.10	-	1.96	3.19	8.25
Subtotal.....	200	1.16	30.18	32.60	30.51	11.36	3.62	109.43
Votuporanga								
Ponkan.....	945	28.60	65.65	176.44	122.64	45.52	68.20	507.05
Murcott.....	83	19.14	5.10	19.31	1.47	-	-	45.02
Other.....	58	4.08	9.48	14.61	4.21	1.40	1.63	35.41
Subtotal.....	1,086	51.82	80.23	210.36	128.32	46.92	69.83	587.48
São José do Rio Preto								
Ponkan.....	337	9.46	24.14	60.74	54.23	48.00	2.99	199.56
Murcott.....	81	0.30	-	-	2.19	25.17	-	27.66
Other.....	30	2.45	-	12.49	3.27	0.79	0.31	19.31
Subtotal.....	448	12.21	24.14	73.23	59.69	73.96	3.30	246.53
Matão								
Ponkan.....	321	30.94	2.55	63.77	28.23	27.59	19.14	172.22
Murcott.....	433	29.26	5.80	82.25	11.17	86.05	3.82	218.35
Other.....	35	0.95	-	12.05	3.95	2.61	1.21	20.77
Subtotal.....	789	61.15	8.35	158.07	43.35	116.25	24.17	411.34
Duartina								
Ponkan.....	351	37.20	0.45	102.14	23.08	39.29	4.97	207.13
Murcott.....	865	34.69	-	31.29	23.82	253.89	-	343.69
Other.....	202	0.52	0.76	9.04	183.09	3.27	0.49	197.17
Subtotal.....	1,418	72.41	1.21	142.47	229.99	296.45	5.46	747.99
Brotas								
Ponkan.....	34	3.09	5.77	9.72	0.60	0.04	2.10	21.32
Murcott.....	204	17.25	-	50.20	8.30	23.90	24.99	124.64
Other.....	134	3.01	-	6.67	1.94	50.17	1.61	63.40
Subtotal.....	372	23.35	5.77	66.59	10.84	74.11	28.70	209.36
Porto Ferreira								
Ponkan.....	246	12.68	7.86	35.69	28.64	35.46	25.57	145.90
Murcott.....	1,094	47.52	43.05	112.89	53.79	254.01	46.24	557.50
Other.....	82	-	5.08	10.27	2.14	11.98	21.43	50.90
Subtotal.....	1,422	60.20	55.99	158.85	84.57	301.45	93.24	754.30
Limeira								
Ponkan.....	1,074	24.82	23.97	181.92	214.49	197.10	6.12	648.42
Murcott.....	1,326	67.70	57.60	215.48	53.58	307.42	4.94	706.72
Other.....	132	9.45	17.59	35.84	7.55	25.96	-	96.39
Subtotal.....	2,532	101.97	99.16	433.24	275.62	530.48	11.06	1,451.53
Avaré								
Ponkan.....	214	3.13	4.28	7.07	44.11	38.62	1.76	98.97
Murcott.....	725	45.61	37.08	25.62	81.26	122.58	69.31	381.46
Other.....	145	15.43	2.36	19.22	10.63	14.84	-	62.48
Subtotal.....	1,084	64.17	43.72	51.91	136.00	176.04	71.07	542.91
Itapetininga								
Ponkan.....	570	4.99	5.45	48.11	80.33	55.12	99.15	293.15
Murcott.....	421	12.47	2.83	28.75	70.73	52.08	71.65	238.51
Other.....	274	5.34	27.56	24.65	35.78	38.05	11.63	143.01
Subtotal.....	1,265	22.80	35.84	101.51	186.84	145.25	182.43	674.67
Total.....	12,204	559.04	473.24	1,598.25	1,485.96	1,915.36	519.87	6,551.72

¹ 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 [2018 inventory]

Sector	Region	Cities
North 69 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, Elisiário, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Palmares Paulista, Paraíso, Pirangi, Pitangueiras, Sales, Santa Adélia, Severínia, Tabapuã, Taiapuçu, Taiúva, Taquaral, Terra Roxa, Uchoa, Urupês, Viradouro, Vista Alegre do Alto.
	Altinópolis (ALT) 20 cities	Altinópolis, Batatais, Brodowski, Cajuru, Cássia dos Coqueiros, Cristais Paulista, Fortaleza de Minas, Franca, Ibiraci, Igarapava, Jacuí, Jeriquara, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso, São Tomás de Aquino.
Northwest 86 cities	Votuporanga (VOT) 52 cities	Álvares Florence, Américo de Campos, Andradiana, Aparecida d'Oeste, Aspásia, Auriflama, Cardoso, Dirce Reis, Dolcinópolis, Estrela d'Oeste, Fernandópolis, General Salgado, Guaraçaí, Guarani d'Oeste, Guzulândia, Indiaporã, Jales, Macedônia, Marinópolis, Meridiano, Mesópolis, Mira Estrela, Murutinga do Sul, Nova Canaã Paulista, Ouroeste, Palmeira d'Oeste, Paranapuã, Parisi, Pedranópolis, Pontalinda, Pontes Gestal, Populina, Riolândia, Rubinéia, 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, Suzanápolis, Três Fronteiras, Turmalina, Urânia, Valentim Gentil, Vitória Brasil, Votuporanga.
	São José do Rio Preto (SJO) 34 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Floreal, Guapiaçu, Icém, Ipiçua, Jaci, José Bonifácio, Magda, Mendonça, Mirassol, Mirassolândia, Monções, 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, Tanabi, Ubarana, Zacarias.
Central 73 cities	Matão (MAT) 20 cities	Américo Brasiliense, Araraquara, Bariri, Boa Esperança do Sul, Borborema, Cândido Rodrigues, Fernando Prestes, Gavião Peixoto, Ibitinga, Itaju, Itápolis, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Rincão, Santa Lúcia, Tabatinga, Taquaritinga.
	Duartina (DUA) 38 cities	Agudos, Alvinlândia, Arealva, Avaí, Balbinos, Bauru, Cabrália 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, Reginópolis, Sabino, Santa Cruz do Rio Pardo, São Pedro do Turvo, Ubirajara, Uru.
	Brotas (BRO) 15 cities	Analândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Dourado, Ibaté, Itirapina, Mineiros do Tietê, Ribeirão Bonito, Santa Maria da Serra, São Carlos, São Pedro, Torrinha, Trabiju.
South 43 cities	Porto Ferreira (PFE) 17 cities	Aguaí, Caconde, Casa Branca, Descalvado, Itobi, Luís 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	Águas de Lindóia, Amparo, Araras, Artur Nogueira, 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 49 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, Porangaba, Porto Feliz, Pratânia, Salto de Pirapora, São Manuel, Sorocaba, Tatuí, Tietê.
	Itapetininga (ITG) 20 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, Sarapuí, Sarutaiá, Taquarituba, Taquarivaí, Tejuπά.
Total 5 sectors	Total 12 regions	Total 320 cities

Table 98 – Other oranges: Cities with groves by sector and region [2018 inventory]

Sector	Region	Cities
North 37 cities	Triângulo Mineiro (TMG) 4 cities	Monte Alegre de Minas, Prata, Uberaba, Conceição das Alagoas.
	Bebedouro (BEB) 21 cities	Ariranha, Barretos, Bebedouro, Cajobi, Colômbia, Embaúba, Itajobi, Marapoama, Monte Azul Paulista, Olímpia, Paraíso, Pirangi, Pitangueiras, Santa Adélia, Severínia, Taiapu, Taiúva, Uchoa, Urupês, Vista Alegre do Alto, Terra Roxa.
	Altinópolis (ALT) 12 cities	Altinópolis, Batatais, Brodowski, Cássia dos Coqueiros, Ibiraci, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso.
Northwest 36 cities	Votuporanga (VOT) 25 cities	Álvares Florence, Aspásia, Estrela d'Oeste, Fernandópolis, Jales, Macedônia, Mesópolis, Murutinga do Sul, Palmeira d'Oeste, Paranapuã, Parisi, Pontalinda, Santa Albertina, Santa Clara d'Oeste, Santa Fé do Sul, Santa Salete, Santana da Ponte Pensa, São João das Duas Pontes, Sud Mennucci, Três Fronteiras, Turmalina, Urânia, Vitória Brasil, Votuporanga, Auriflana.
	São José do Rio Preto (SJO) 11 cities	Altair, Bálamo, Cedral, Ipiruá, José Bonifácio, Mendonça, Mirassolândia, Monte Aprazível, Nhandeara, Nova Aliança, Potirendaba.
Central 48 cities	Matão (MAT) 12 cities	Américo Brasiliense, Bariri, Boa Esperança do Sul, Borborema, Fernando Prestes, Ibitinga, Itaju, Itápolis, Monte Alto, Novo Horizonte, Tabatinga, Taquaritinga.
	Duartina (DUA) 23 cities	Alvinlândia, Arealva, Avaí, Cabrália Paulista, Cafelândia, Campos Novos Paulista, Duartina, Fernão, Guaimbê, Iacanga, Lucianópolis, Marília, Paulistânia, Pederneiras, Piratininga, Presidente Alves, São Pedro do Turvo, Ubirajara, Agudos, Echaporã, Espírito Santo do Turvo, Guarantã, Santa Cruz do Rio Pardo.
	Brotas (BRO) 13 cities	Analândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Itirapina, Mineiros do Tietê, Santa Maria da Serra, Torrinha, Trabiju, Ribeirão Bonito, São Carlos, São Pedro.
South 31 cities	Porto Ferreira (PFE) 12 cities	Aguai, Casa Branca, Descalvado, Mococa, Pirassununga, Porto Ferreira, Santa Cruz das Palmeiras, Santa Rita do Passa Quatro, 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, Piracicaba, Santo Antônio de Posse, Águas de Lindóia.
Southwest 36 cities	Avaré (AVA) 19 cities	Águas de Santa Bárbara, Angatuba, Anhembí, Araçoiaba da Serra, Avaré, Botucatu, Capela do Alto, Guareí, Iperó, Itatinga, Manduri, Porto Feliz, Pratânia, Salto de Pirapora, Sorocaba, Tatuí, Arandu, Cerqueira César, Conchas.
	Itapetininga (ITG) 17 cities	Alambari, Buri, Capão Bonito, Itaberá, Itaipá, Itapetininga, Itapeva, Itaporanga, Paranapanema, São Miguel Arcanjo, Sarapuí, Tejupá, Coronel Macedo, Itararé, Pilar do Sul, Sarutaiá, Taquarivaí.
Total 5 sectors	Total 12 regions	Total 188 cities

Table 99 – Acid limes and lemons: Cities with groves by sector and region [2018 inventory]

Sector	Region	Cities
North 47 cities	Triângulo Mineiro (TMG) 8 cities	Campina Verde, Campo Florido, Frutal, Monte Alegre de Minas, Prata, Uberaba, Conceição das Alagoas, Iturama.
	Bebedouro (BEB) 33 cities	Ariranha, Barretos, Bebedouro, Cajobi, Colina, Colômbia, Elisiário, Embaúba, Guaraci, Ibirá, Irapuã, Itajobi, Marapoama, Monte Azul Paulista, Novais, Olímpia, Paraíso, Pirangi, Sales, Santa Adélia, Severínia, Tabapuã, Taiáçu, Taiúva, Taquaral, Uchoa, Urupês, Viradouro, Vista Alegre do Alto, Catanduva, Catiguá, Palmares Paulista, Pindorama.
	Altinópolis (ALT) 6 cities	Altinópolis, Brodowski, Monte Santo de Minas, Patrocínio Paulista, Santo Antônio da Alegria, São Sebastião do Paraíso.
Northwest 70 cities	Votuporanga (VOT) 45 cities	Álvares Florence, Aparecida d'Oeste, Aspásia, Dolcinópolis, Estrela d'Oeste, Fernandópolis, Guaraçai, 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) 25 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Jaci, Ipiruá, José Bonifácio, Mendonça, Mirassolândia, Nhandeara, Nova Aliança, Palestina, Nova Granada, Planalto, Potirendaba, São José do Rio Preto, Tanabi, Macaubal, Guapiaçu, Neves Paulista, Onda Verde, Sebastianópolis do Sul, Zacarias.
Central 57 cities	Matão (MAT) 17 cities	Bariri, Boa Esperança do Sul, Borborema, Cândido Rodrigues, Fernando Prestes, Ibitinga, Itápolis, Itaju, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Taquaritinga, Tabatinga, Araraquara, Jaboticabal.
	Duartina (DUA) 31 cities	Arealva, Avaí, Bauru, Cabralia Paulista, Cafelândia, Campos Novos Paulista, Fernão, Duartina, Getulina, Guaimbê, Iacanga, Lins, Lucianópolis, Pederneiras, Marília, Piratininga, Presidente Alves, São Pedro do Turvo, Ubirajara, Álvaro de Carvalho, Boracéia, Echaporã, Gália, Guaiçara, Guarantã, Ocaucu, Pirajuí, Pongá, Promissão, Reginópolis, Uru.
	Brotas (BRO) 9 cities	Analândia, Bocaina, Corumbataí, Brotas, Dois Córregos, Itirapina, Mineiros do Tietê, Trabiju, Ribeirão Bonito.
South 40 cities	Porto Ferreira (PFE) 16 cities	Aguai, Casa Branca, Pirassununga, Mococa, Porto Ferreira, Santa Rita do Passa Quatro, São João da Boa Vista, São Simão, Tambaú, Guaxupé, Guaranésia, Itobi, Luís Antônio, Santa Rosa de Viterbo, São José do Rio Pardo, Vargem Grande do Sul.
	Limeira (LIM) 24 cities	Araras, Artur Nogueira, Cordeirópolis, Conchal, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Iracemápolis, Jaguariúna, Leme, Limeira, Mogi Guaçu, Mogi Mirim, Piracicaba, Rio Claro, Santo Antônio de Posse, Serra Negra, Itatiba, Monte Alegre do Sul, Pinhalzinho, Charqueada, Itapira.
Southwest 20 cities	Avaré (AVA) 13 cities	Águas de Santa Bárbara, Angatuba, Avaré, Araçoiaba da Serra, Botucatu, Capela do Alto, Itatinga, Porto Feliz, Sorocaba, Tatuí, Arandu, Cabreúva, Cerqueira César.
	Itapetininga (ITG) 7 cities	Buri, Itaberá, Itapeva, Itaí, Itaporanga, Paranapanema, São Miguel Arcanjo.
Total 5 sectors	Total 12 regions	Total 234 cities

Table 100 – Tangerines: Cities with groves by sector and region [2018 inventory]

Sector	Region	Cities
North 49 cities	Triângulo Mineiro (TMG) 7 cities	Campina Verde, Campo Florido, Frutal, Itapagipe, Monte Alegre de Minas, Prata, Uberaba.
	Bebedouro (BEB) 30 cities	Ariranha, Barretos, Bebedouro, Cajobi, Colina, Colômbia, Elisiário, Embaúba, Ibirá, Irapuã, Marapoama, Guaraci, Itajobi, Monte Azul Paulista, Novais, Olímpia, Paraíso, Pirangi, Pitangueiras, Sales, Severínia, Santa Adélia, Tabapuã, Taiacu, Taiúva, Taquaral, Uchoa, Urupês, Viradouro, Vista Alegre do Alto.
	Altinópolis (ALT) 12 cities	Altinópolis, Cajuru, Ibiraci, Itamogi, Jacuí, Monte Santo de Minas, Nova Resende, Patrocínio Paulista, Pedregulho, Santo Antônio da Alegria, São Pedro da União, São Sebastião do Paraíso.
Northwest 66 cities	Votuporanga (VOT) 44 cities	Álvares Florence, Américo de Campos, Andradina, Aparecida d'Oeste, Aspásia, Cardoso, 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 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, Suzanápolis, Três Fronteiras, Turmalina, Urânia, Valentim Gentil, Vitória Brasil, Votuporanga, Mirandópolis.
	São José do Rio Preto (SJO) 22 cities	Adolfo, Altair, Bady Bassitt, Bálsamo, Cedral, Cosmorama, Floreal, Ipiruá, Jaci, José Bonifácio, Mendonça, Mirassolândia, Monte Aprazível, Nhandeara, Nova Aliança, Nova Granada, Palestina, Paulo de Faria, Planalto, Potirendaba, São José do Rio Preto, Tanabi.
Central 49 cities	Matão (MAT) 18 cities	Américo Brasiliense, Bariri, Boa Esperança do Sul, Borborema, Cândido Rodrigues, Fernando Prestes, Gavião Peixoto, Ibitinga, Itaju, Itápolis, Matão, Monte Alto, Motuca, Nova Europa, Novo Horizonte, Santa Lúcia, Tabatinga, Taquaritinga.
	Duartina (DUA) 21 cities	Alvinlândia, Arealva, Avaí, Bauru, Cabrália Paulista, Cafelândia, Campos Novos Paulista, Duartina, Fernão, Getulina, Guaimbê, Iacanga, Lins, Lucianópolis, Marília, Paulistânia, Pederneiras, Piratininga, Presidente Alves, São Pedro do Turvo, Ubirajara.
	Brotas (BRO) 10 cities	Analândia, Bocaina, Brotas, Corumbataí, Dois Córregos, Itirapina, Mineiros do Tietê, Santa Maria da Serra, Torrinha, Trabiju.
South 42 cities	Porto Ferreira (PFE) 13 cities	Aguai, Casa Branca, Descalvado, 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, Guaxupé.
	Limeira (LIM) 29 cities	Amparo, Araras, Artur Nogueira, Bragança Paulista, Conchal, Cordeirópolis, Cosmópolis, Engenheiro Coelho, Espírito Santo do Pinhal, Estiva Gerbi, Holambra, Iracemápolis, Jaguariúna, Jarinu, Leme, Limeira, Mogi Guaçu, Mogi Mirim, Paulínia, Piracicaba, Rio Claro, Santo Antônio de Posse, Serra Negra, Socorro, Atibaia, Itatiba, Lindóia, Monte Alegre do Sul, Pinhalzinho.
Southwest 28 cities	Avaré (AVA) 16 cities	Águas de Santa Bárbara, Angatuba, Anhemi, Araçoiaba da Serra, 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, Parapanema, São Miguel Arcanjo, Sarapuí, Tejuapá.
Total 5 sectors	Total 12 regions	Total 234 cities

3.3 – ABANDONED ORANGE GROVES

Abandoned groves are plots where no management signs are identified, therefore showing no pruning/mowing, insufficient plant health control, high infestation of pests and diseases, with frequent rotten fruit on the ground, and cattle present in the plot. In many cases, the grove degradation is so severe that it prevents agents entering to collect data such as tree spacing, planting year and variety.

Table 101 – Oranges: Area and percentage of abandoned groves in relation to the total area [2018 and 2019 inventories]

Sector and region	2018 inventory			2019 inventory			
	Abandoned area found in the mapping (scan)	Abandoned area found in the 2018 sample survey	Total	Updated abandoned area found in the mapping (scan)	Abandoned area found in the 2019 sample survey (previously bearing groves, abandoned in 2018)	Total	Percentage of abandoned area in relation to total
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
North							
Triângulo Mineiro...	30	-	30	11	-	11	0.04
Bebedouro.....	158	-	158	79	111	190	0.36
Altinópolis.....	14	-	14	6	115	121	1.07
Subtotal.....	202	-	202	95	226	321	0.35
Northwest							
Votuporanga.....	502	258	760	329	141	470	2.48
S. J. do Rio Preto....	438	81	519	-	93	93	0.39
Subtotal.....	940	339	1,279	329	234	563	1.32
Central							
Matão.....	179	42	221	60	281	341	0.88
Duartina.....	691	-	691	228	-	228	0.42
Brotas.....	249	414	663	245	230	475	2.45
Subtotal.....	1,119	456	1,575	533	511	1,044	0.93
South							
Porto Ferreira.....	165	-	165	165	-	165	0.41
Limeira.....	396	716	1,112	117	550	667	1.71
Subtotal.....	561	716	1,277	282	550	832	1.06
Southwest							
Avaré.....	68	-	68	5	-	5	0.01
Itapetininga.....	-	-	-	-	-	-	-
Subtotal.....	68	-	68	5	-	5	0.01
Total.....	2,890	1,511	4,401	1,244	1,521	2,765	0.69

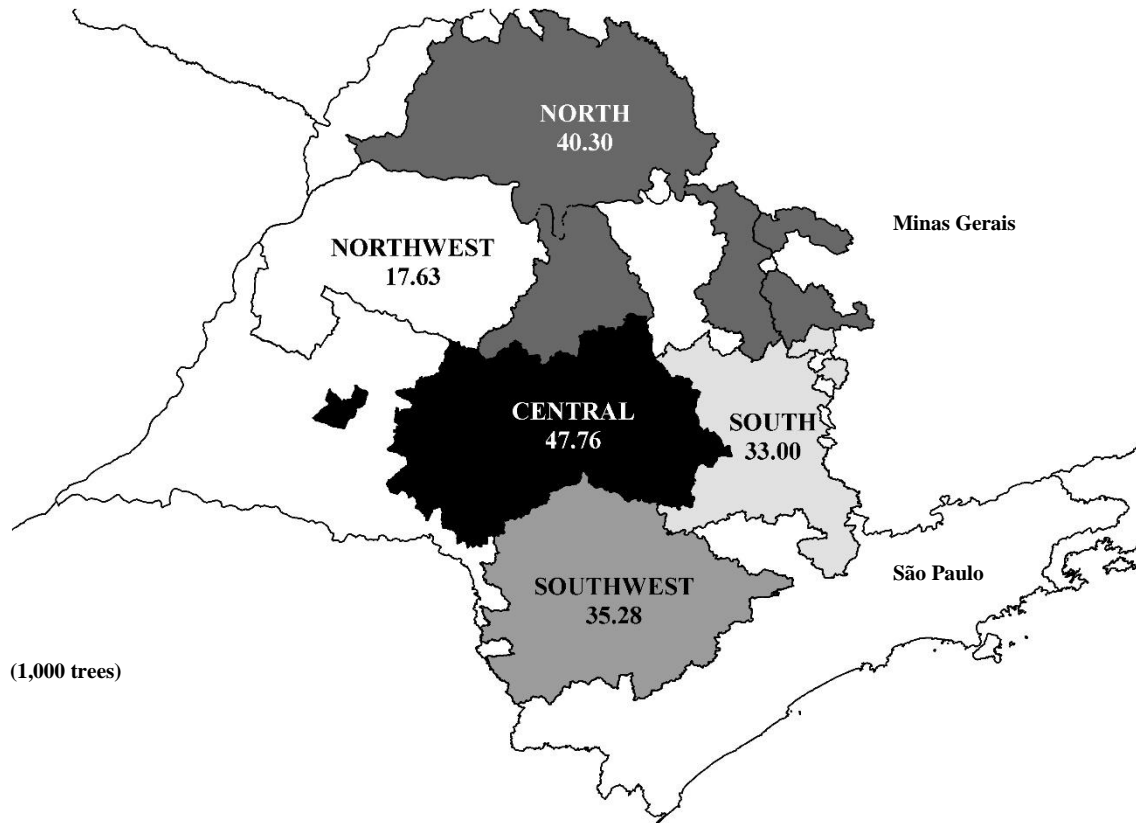
Table 102 – Other oranges: Area and percentage of abandoned groves in relation to the total area [2018 and 2019 inventories]

Sector and region	2018 inventory			2019 inventory			
	Abandoned area found in the mapping (scan)	Abandoned area found in the 2018 sample survey	Total	Updated abandoned area found in the mapping (scan)	Abandoned area found in the 2019 sample survey (previously bearing groves, abandoned in 2018)	Total	Percentage of abandoned area in relation to total
	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(hectares)	(%)
North							
Triângulo Mineiro...	42	-	42	15	-	15	19.69
Bebedouro.....	82	-	82	41	-	41	5.96
Altinópolis.....	-	-	-	-	-	-	-
Subtotal.....	124	-	124	55	-	55	5.78
Northwest							
Votuporanga.....	-	-	-	-	-	-	-
S. J. do Rio Preto....	-	-	-	-	-	-	-
Subtotal.....	-	-	-	-	-	-	-
Central							
Matão.....	13	-	13	4	-	4	1.10
Duartina.....	55	262	317	18	-	18	1.91
Brotas.....	101	-	101	99	-	99	6.89
Subtotal.....	169	262	431	122	-	122	4.37
South							
Porto Ferreira.....	-	-	-	-	-	-	-
Limeira.....	74	-	74	52	148	200	6.86
Subtotal.....	74	-	74	52	148	200	3.48
Southwest							
Avaré.....	84	-	84	6	-	6	0.27
Itapetininga.....	1	-	1	-	-	-	-
Subtotal.....	85	-	85	6	-	6	0.17
Total.....	452	262	714	235	148	383	2.85

**2019-2020 ORANGE CROP FORECAST FOR
SÃO PAULO AND WEST-SOUTHWEST
MINAS GERAIS CITRUS BELT
MAY 2019 FORECAST**

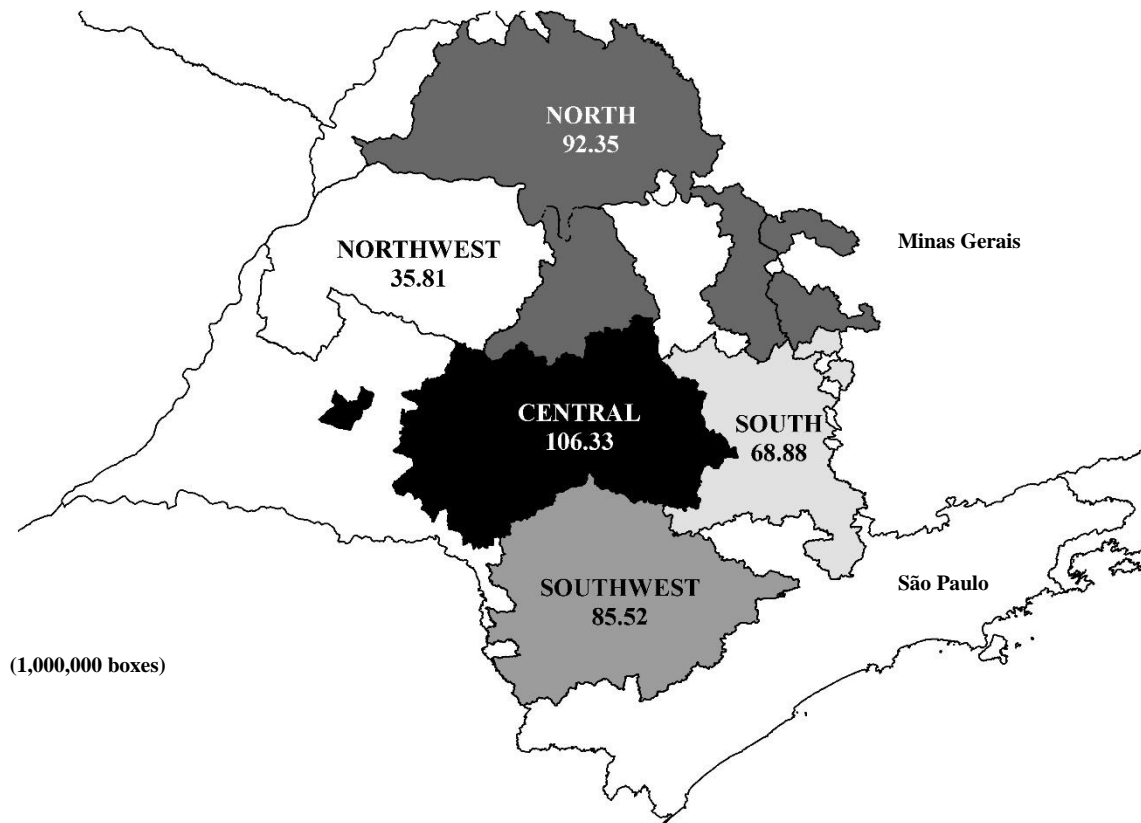
ORANGE BEARING TREES¹ BY SECTOR

Total: 173.97 million trees



2019-2020 ORANGE CROP FORECAST¹ BY SECTOR²

Total: 388.89 million boxes of 40.8 kg



¹ Snapshot in March 2019. Varieties: Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Pera Rio, Valencia, Valencia Folha Murcha and Natal.

² Status in May 2019.

2019-2020 ORANGE CROP FORECAST FOR SÃO PAULO AND WEST-SOUTHWEST MINAS GERAIS CITRUS BELT – MAY FORECAST

Published on May 24, 2019¹

Publication Schedule

2019-2020 Crop Year

2019-2020 Crop executive summary: May 10, 2019

March 2019 Tree inventory: May 24, 2019

Crop forecast: May 24, 2019

1st Crop forecast update: September 10, 2019

2nd Crop forecast update: December 10, 2019

3rd Crop forecast update: February 11, 2020

Final crop forecast: April 10, 2020

Throughout the crop year, the crop forecast will be updated in the months mentioned in the schedule above with data on fruit drop and fruit size (fruit per box) collected in the months previous to the forecast updates. With the aim of meeting the demands both from the citrus sector 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 be used.

¹ Year 5 – N° 1 – May 24, 2019 (Portuguese version only)

Year 5 – N° 2 – May 27, 2019 (Portuguese version only)

Year 5 – N° 3 – May 29, 2019 (Portuguese and English versions)

Improvements resulting from text review and from information included are presented in a consolidated form on the last page of this report.

**Performed by FUNDECITRUS in cooperation with MARKESTRAT, FEA-RP/USP and the
department of Math and Science of FCAV/Unesp**

**2019-2020 ORANGE CROP FORECAST FOR
SÃO PAULO AND WEST-SOUTHWEST
MINAS GERAIS CITRUS BELT
MAY 2019 FORECAST**

Fundecitrus
Araraquara, São Paulo
2019

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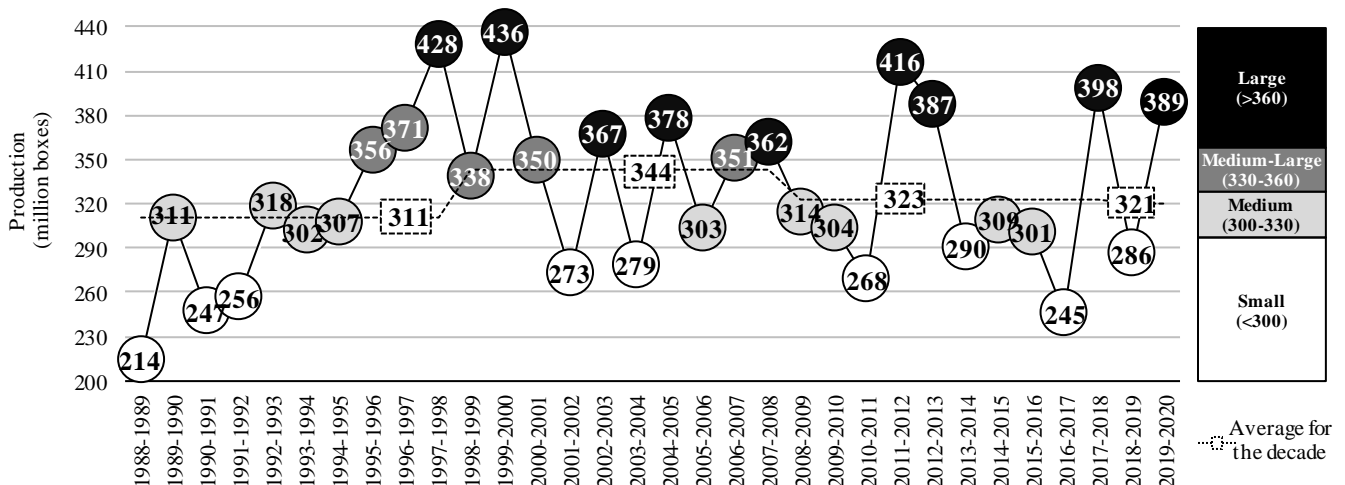
1 – 2019-2020 ORANGE CROP FORECAST

The 2019-2020 orange crop forecast for São Paulo and West-Southwest Minas Gerais citrus belt, published on May 10, 2019 by Fundecitrus in cooperation with Markestrat, FEA-RP/USP and FCAV/Unesp, is 388.89 million boxes (40.8 kg or 90 lb). The total orange production includes:

- 76.97 million boxes of the Hamlin, Westin and Rubi varieties;
- 19.75 million boxes of the Valencia Americana, Seleta and Pineapple varieties;
- 116.20 million boxes of the Pera Rio variety;
- 128.30 million boxes of Valencia and Valencia Folha Murcha varieties;
- 47.67 million boxes of the Natal variety.

27.21 million boxes of the estimated crop are expected to be produced in the Triângulo Mineiro.

The projected figure is 36% above the previous one of 285.98 million boxes, and 21% larger than the average crop size for the last ten years. Succeeding irregular crops in alternate years show the biennial production cycle of orange trees, as presented in Graph 1.



Graph 1 – Orange production from 1988-1989 to 2018-2019 and 2019-2020 crop forecast

Source: CitrusBR (1988-1989 to 2014-2015) and Fundecitrus (2015-2016 to 2019-2020)

In addition to the alternance in production, the climate favored bloom and fruit set, contrarily to what was observed in the last crop season. Average yield per hectare in this crop season is estimated at 1,051 boxes per hectare and 2.24 boxes per tree, which represents an increase in comparison to the 756 boxes per hectare and 1.63 boxes per tree harvested in the 2018-2019 crop.

Among citrus belt sectors, the Southwest presents the largest yield, with 1,227 boxes per hectare and 2.42 boxes per tree, keeping its position with above average rates and smaller variation between crop seasons, of exact 2.7% as compared to the yield of the previous cycle. The largest yield increases are seen in the Northwest and North sectors, of 128% and 78% respectively. Yield grew 47% in the Central sector and 22% in the South sector.

The expected yield per hectare this season is a historical record. In addition to the climate, which is a conjunctural factor, structural factors also contributed to such performance: protected nurseries, cultural practices especially related to nutrition and irrigation, high density groves, increased plantings in regions of more favorable climate, proper combination of rootstock and scion; control of CVC (citrus variegated chlorosis) and greening.

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 fruits – applied to the equation represented below.

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

where CF is the correction factor

For increased critical mass and transparency, this survey has since its implementation developed activities with the follow-up from a technical committee organized in the 2015-2016 crop year with the purpose of offering operational improvement. This committee is made up by citrus growers, representatives of orange juice companies, academics, as well as Fundecitrus researchers and supervisors.

Results from the inventory and tree stripping were obtained throughout the survey, then compiled and restricted until the date of this publication to the following professionals: Antonio Juliano Ayres (Fundecitrus general manager); Fernando Alvarinho Delgado and Roseli Reina (PES supervisors); Vinícius Gustavo Trombin (executive coordinator linked to Markestrat); Marcos Fava Neves (political-institutional and methodological coordinator linked to FEA-RP/USP and Markestrat); and José Carlos Barbosa (methodology analyst linked to 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 them and citrus growers.

This team, together with Fundecitrus vice-president Roberto Hugo Jank Junior, representing president Lourival Carmo Monaco, who was absent due to commitments abroad, concluded the crop forecast on May 10, 2019, at 9:30 a.m., in a closed meeting with no external communication channel beyond participants. Following that, at 10 a.m., Fundecitrus vice-president began the public announcement of the crop forecast at the Fundecitrus auditorium in Araraquara-SP, which was broadcast live on the website (www.fundecitrus.com.br). Fundecitrus general manager Antonio Juliano Ayres presented the detailed data. After the crop forecast announcement, the 2019-2020 Crop Executive Summary was made available on the Fundecitrus website.

Details on the estimate for the four components of the equation follow.

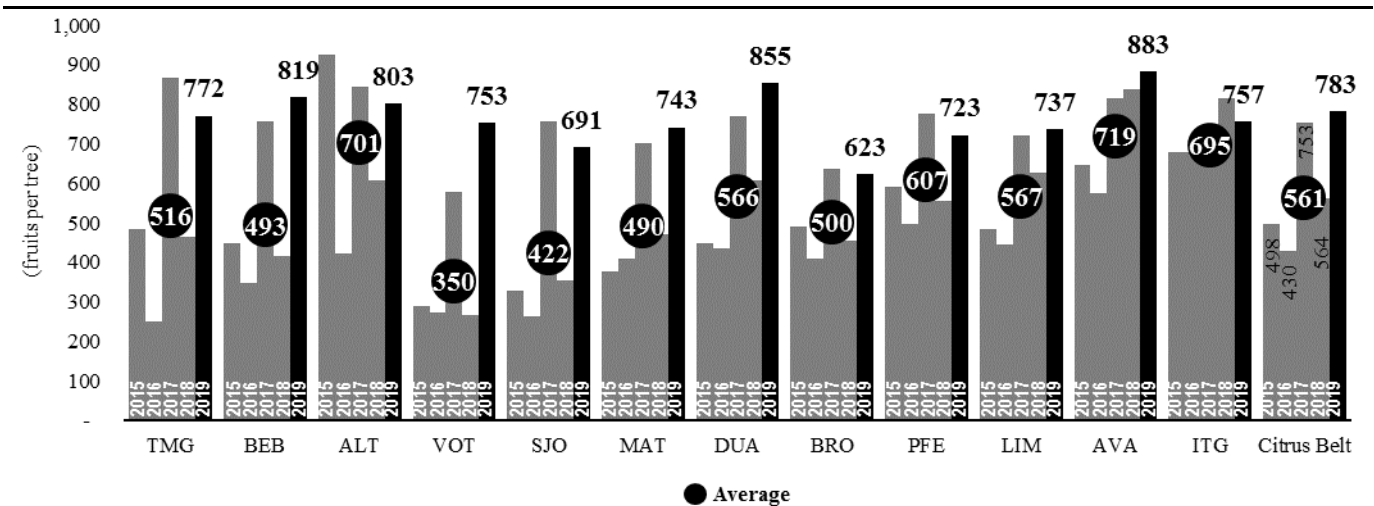
BEARING TREES

Bearing trees total 173.973 million, which is 0.74% below the previous inventory. Trees planted in 2016 and previous years are considered bearing trees in this crop. Varieties included in this estimate represent 97% of trees and also 97% of the area of orange groves comprising the inventory in the current crop year.

Information on bearing trees was obtained from the Tree Inventory of São Paulo and West-Southwest Minas Gerais Citrus Belt: Snapshot of Groves in March 2019, taken from the 2018 primary base – created by mapping groves from September 8, 2017 to January 29, 2018 – and from counting the trees present in 5% of orange plots, from January 7 to March 8, 2019.

FRUIT PER TREE

The average number of fruits per tree in April 2019, disregarding the fruit that will drop throughout the crop season, is 783. In this season, groves presented a more intense bloom determined both by the low production in the previous crop, with increased nutritional reserves in plants, and the long-term water stress trees were subject to during floral induction. Graph 2 shows the number of fruits per tree stripped in 2015 to 2019 in the citrus belt, and separately for each of the twelve regions.



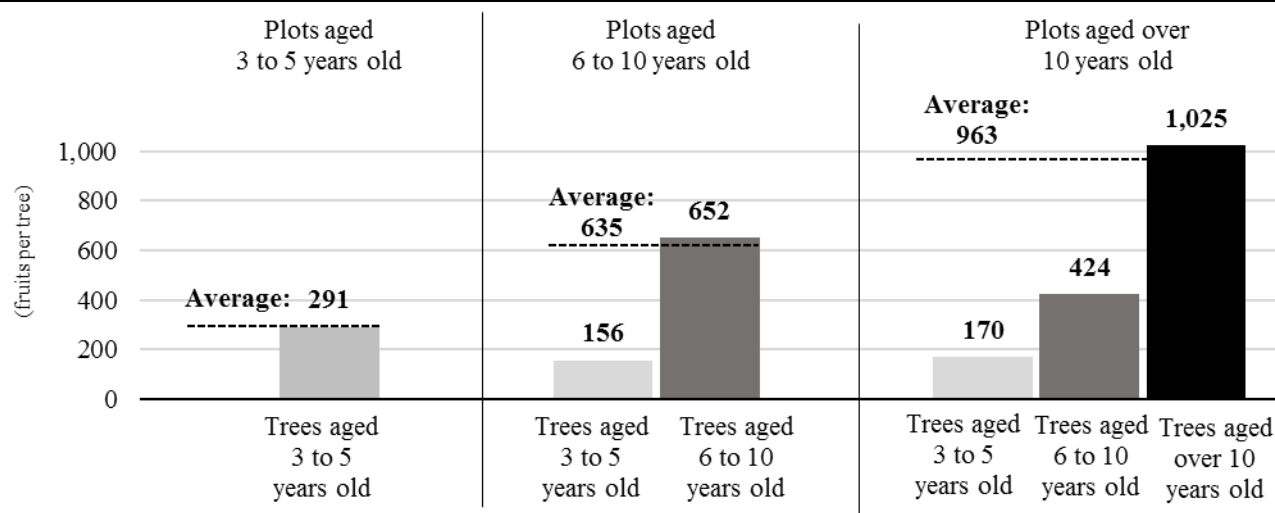
Graph 2 – Number of fruits per tree stripped in 2015 to 2019 per region

The average rainfall in the citrus belt from April to July 2018 totaled only 69 millimeters, which is nearly a third of the rain that usually falls in that time period (1981-2010). After the prolonged drought, non-irrigated groves bloomed following rains that fell in early August in the Central, South and Southwest sectors, and in mid-September, in the North and Northwest sectors. Regions where rains fell only in September have the largest concentration of irrigated areas in the citrus belt, except for Altinópolis, located in the North sector. In order to advance flowering, irrigation started in July 2018.

During post-bloom, temperatures remained mild. In some cities, maximum temperatures reached 35°C (95°F), although just for few consecutive days. In addition to mild temperatures, spring and summer rains kept the water available, favoring the setting of flowers and fruitlets, which resulted in a more homogeneous production.

The first bloom from July to September 2018, accounts for 84.1% of the total production. The second bloom, which started in October and November 2018, is estimated at 10.2%. Together, these blooms correspond to 94.3% of the production and should be harvested at the same time. The third bloom, in December 2018 and January 2019, corresponds to 3.2%. The fourth bloom, which started in February 2019, corresponds to 2.5%. For the forecast, all fruits from first, second and third blooms were fully considered. A fruit set rate of 33% was applied to fruits from the fourth bloom. In the separation of fruits per bloom, off-season fruits were also identified and resulted from late and sporadic flowers from the previous crop season, not accounted for in the current crop forecast.

The yield of three to five years old plots is 291 fruits per tree in this crop season. In six to ten years old plots an average of 635 fruits per tree is estimated, with 652 fruits per tree for original plantings and 156 fruits per tree for three to five years old resets. Plots over 10 years old have an expected average of 963 fruits per tree and a yield of 1,025 fruits per tree for the original plantings, 424 fruits per tree for six to ten years old resets and 170 fruits per tree for three to five years old resets. Yields are presented in Graph 3.



Ages and planting years: 1 to 2 years old (2017 and 2018), 3 to 5 years old (2014 to 2016), 6 to 10 years old (2009 to 2013) and over 10 years old (2008 and previous years).

Graph 3 – Age-stratified number of fruit per tree in the plot

The number of fruits per tree is closely related to the variety characteristics. When trees were stripped in April 2019, an average of 1,114 fruits per tree were counted for the group of early varieties Hamlin, Westin and Rubi. As already known, varieties of these groups are more productive than the others, therefore their production is estimated to be 42% above average in this crop season. Next in the sequence are the late variety Natal with 853 fruits per tree, the other early varieties with 834 fruits per tree, the late varieties Valencia and Valencia Folha Murcha with 735 fruits per tree, and last the Pera Rio variety with 665 fruits per tree.

The method used consists of tree stripping, that is, the advanced harvest of all fruits in the tree, regardless of the bloom they are from. Tree stripping in this crop season occurred in the period from March 14 to April 25, 2019. Fruit harvested was taken to a tree stripping laboratory in Araraquara, where each sample was separated into the different blooms they were from. Fruit was quantified by automatic counting equipment and then weighed.

A total of 2,560 trees were stripped. Trees were drawn for stripping in two phases. The first drawing, by the method of stratified random sampling, included 2,200 trees distributed proportionally to the total orange trees in the citrus belt and stratified according to their region, variety and age. The second drawing was aimed at increasing the estimate precision and included 360 resets of ages lower than those in the age groups of the groves they were part of. These resets correspond to replacements made mainly to offset tree losses caused by greening, citrus canker and other diseases. The tree population in this second drawing comprehends 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 – Make-up by sector of regions of the citrus belt included in the drawing

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 – Make-up by maturity time of variety groups included in the drawing

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

Chart 3 – Make-up of age groups from the combined age of plots and age of trees

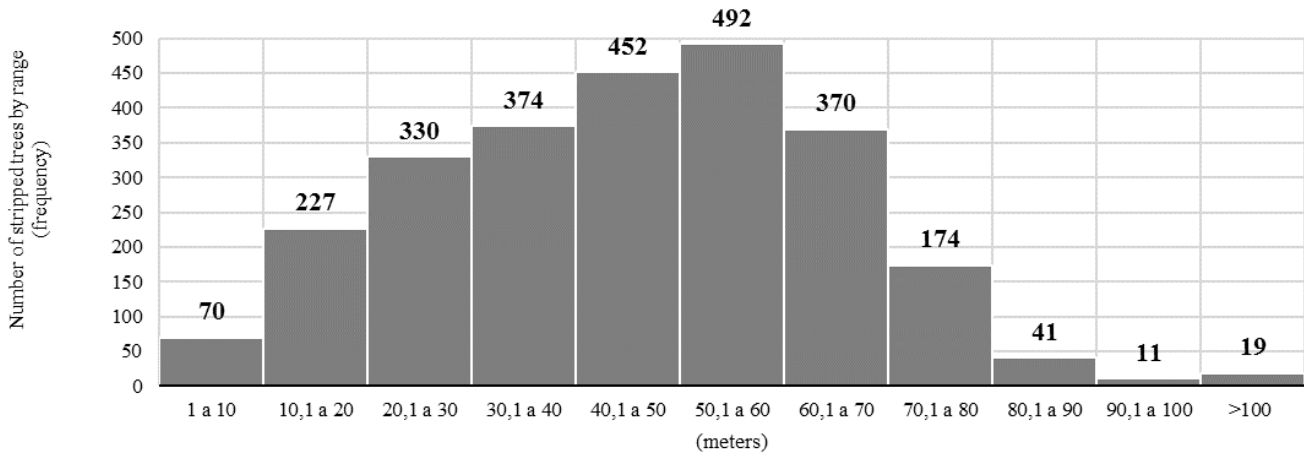
Age of plots ¹	Age of trees ²
3 to 5 years old.....	3 to 5 years old
6 to 10 years old.....	3 to 5 years old
6 to 10 years old.....	6 to 10 years old
Over 10 years old.....	3 to 5 years old
Over 10 years old.....	6 to 10 years old
Over 10 years old.....	Over 10 years old

¹ Ages and planting years: 1 to 2 years old (2017 and 2018), 3 to 5 years old (2014 to 2016), 6 to 10 years old (2009 to 2013) and over 10 years old (2008 and previous years).

² Estimated from information provided by growers on years resets were planted in the plot and from visual aspects of plants such as trunk circumference, height and shape of canopy, among other factors.

For the 2,200 trees in the first drawing, the location in the plot of the tree to be stripped is predetermined and varies every crop season. This makes the selection of the tree to be 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 2019-2020 crop, the tree in the drawn plot is the one located in the 22nd planting hole in the 11th row. In case there is 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 is selected. Should that situation repeat itself three more plants down are counted, until a tree of the drawn age is found. If the plot does not have 11 or more planting rows, the counting restarts in the existing rows until number 11 is reached. For the second drawing of 360 resets, the stripped tree is found in the plot after visual aspects are considered, such as trunk circumference and size of canopy.

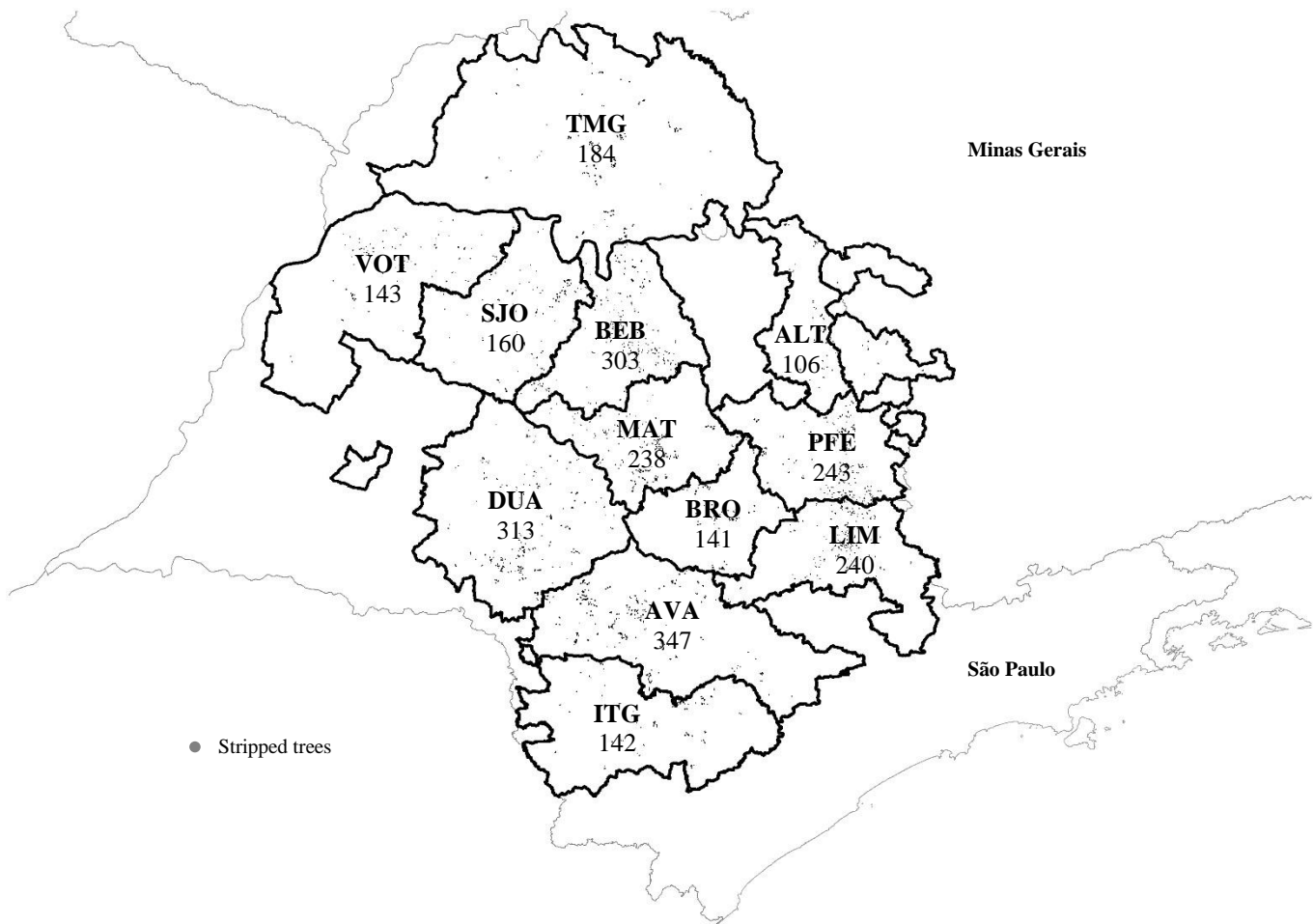
Graph 4 presents the distance (in meters) from the stripped tree to the nearest border of the plot, which shows the majority of ranges with similar frequencies, with a central figure between 50 and 60 meters of distance from the stripped tree to the nearest border. Most of the 70 plots with the shortest distances, from one to ten meters, are small – approximately 80% of them have up to four hectares.



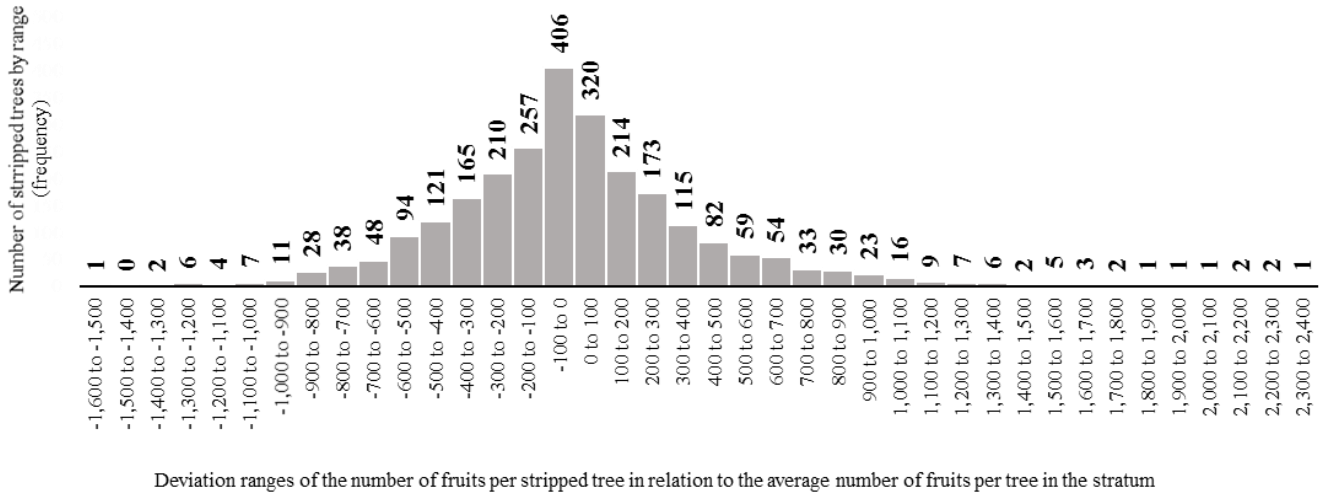
Graph 4 – Histogram of the distance from the stripped tree to the nearest border of the plot

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

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

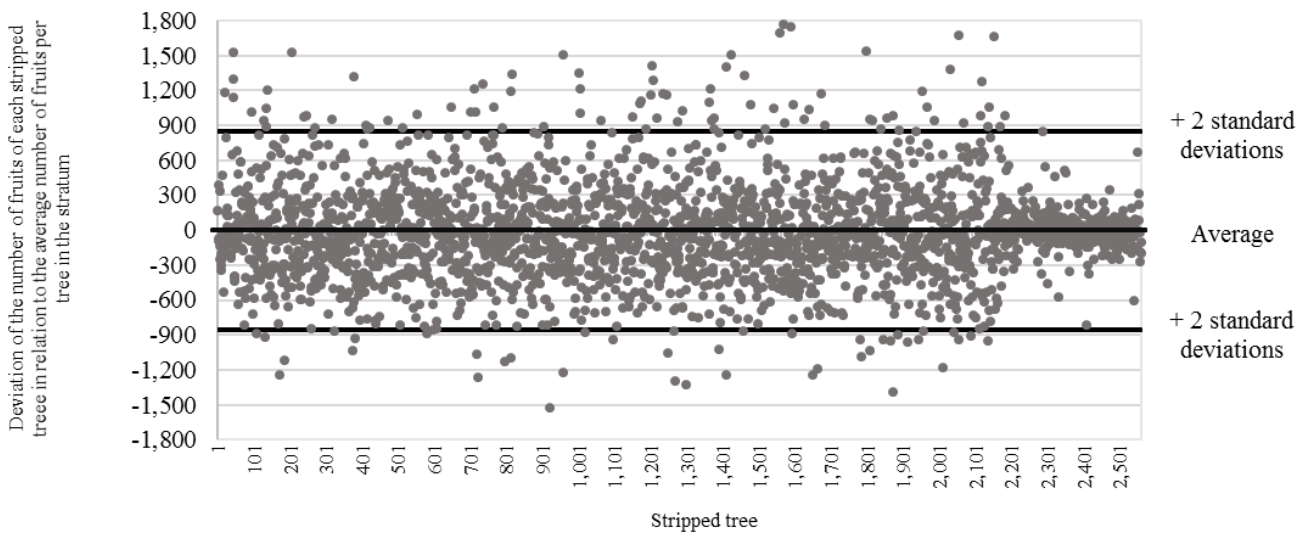


The average number of fruits per tree may vary plus or minus 17 fruits, which corresponds to 2.1% of the average number of fruits per tree obtained at stripping. This figure is within the expected error of 2% to 3% used in sizing the sample. The yield deviation distribution analysis for each stripped tree in relation to the stratum average shows that sample data is randomly distributed according to a normal distribution, as presented in Graph 5.



Graph 5 – Histogram of deviation of fruit per tree at stripping

Graph 6 shows the dispersion of deviations of each stripped tree in relation to the stratum average. It is observed that 95% of samples fall within the average \pm 2 standard deviations, that is 783 fruits.



Graph 6 – Deviation on the number of fruit at each stripping in relation to the stratum average

The tree harvested upon permit from citrus growers is indemnified at R\$ 40.00 through an online payment system where citrus growers can register and redeem the amount due.

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

The projected average drop rate is 17.5%, distributed as follows: 10.5% for the early Hamlin, Westin and Rubi, 11.0% for other early varieties; 17.5% for the mid-season Pera Rio variety; 21.5% for the late Valencia and Valencia Folha Murcha varieties; and 22.0% for the late Natal variety. This rate is applied to the number of fruits in the tree in April 2019, when trees are 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 throughout that period due to physiological drop, damage caused by machines, pests and diseases and adverse climatic conditions.

Should this fruit drop rate hold, it will be one of the highest rates since the first crop forecast by Fundecitrus. Major reasons for this projection are the increased greening severity and the rise in the populations of fruit borer and fruit fly during the last crop season, which then became the main cause of fruit drop, as presented in Table 1. Losses caused by these pests are expected to remain large this crop season, due to the availability of fruit in the transition between the last and the current crop. This is what likely enabled the continuity of the insect life cycle, since they could have migrated from the fruit produced from the third and fourth blooms of the previous crop, which were atypically produced in a larger proportion, to the fruit from the first and second blooms of this crop.

Other reason supporting this projection of a larger drop rate is the highly concentrated fruit production from the first and second blooms, which may result in some operational difficulties.

Table 1 – Fruit drop rates by causes from the 2015-2016 crop to the 2018-2019 crop

Causes	Drop rate			
	2015-2016 (percentage)	2016-2017 (percentage)	2017-2018 (percentage)	2018-2019 (percentage)
Physiological and mechanical.....	NA	5.99	7.45	5.16
Greening.....	NA	1.37	4.06	2,70
Fruit borer and Fruit fly.....	NA	2.34	2.70	5.70
Black spot.....	NA	3.75	2.16	2.02
Leprosis.....	NA	0.25	0.62	0.82
Canker.....	NA	0.03	0.31	0.30
Total.....	17.49	13.73	17.31	16.70

NA – Non-available data, as survey of causes for fruit drop started in the 2016-2017 crop.

Monthly and continuous monitoring by Fundecitrus as of May 2019 in 1,200 orange plots visited up to their complete harvest serves as basis to correct the rate projected at the time of this publication and consequently to correct the production estimate as well.

This year, fruit collection nets were added to 300 plots to be monitored with the aim of both obtaining a more precise drop rate and identifying fruit drop causes. Counting of fruits on branches of monitored trees in all 1,200 sample plots will also be part of the test.

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 260 fruits per 40.8 kg box, that is 296 fruits per box for the group of early varieties made up by Hamlin, Westin and Rubi; 270 fruits per box for the group of other early varieties; 266 fruits per box for the mid-season variety Pera Rio; 235 fruits per box for the late varieties Valencia and Valencia Folha Murcha; and 242 fruits per box for the late variety Natal.

The average size of 260 fruits per box is equivalent to oranges weighing 157 grams at harvest. The high number of fruits per tree is one of the factors that should limit the development of fruits in this crop season, due to increased competition for plant reserves, since number of fruits and fruit size at harvest are inversely proportional.

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 from the first and second blooms in relation to the total production and the rainfall accumulated from May to July as independent variables. Data from the last eleven crops, 2008-2009 to 2018-2019, was used in the regression and is presented in Table 1. The result obtained shows an adjusted R^2 of 0.92 that means the four independent variables together explain 92% of the variation in the final fruit size (fruits per box at harvest), at a coefficient that can vary from 0 to 100%, 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 the last eleven crops presents an average error of $\pm 2\%$.

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) and the sum of the production from the first and second blooms in relation to the total production for the series from 2008-2009 to 2014-2015 was provided by orange juice companies associated to Fundecitrus – Citrusuco, Cutrale and Louis Dreyfus, which separately have estimated the production for the citrus region since 1988, with the use of objective methodology. Data was 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 was kept confidential. Data relative to the crops 2015-2016 to 2018-2019 comes from results of estimates performed by Fundecitrus. Data on rainfall accumulated from May to July was supplied by Somar Meteorologia.

Data used in the model to estimate the final fruit size in this crop comprises figures from the 2019 stripping and the rainfall predicted for May to July 2019 in volumes equivalent to the climatological average (1981 – 2010) calculated with information from the Climatempo website. Final fruit size estimated by the regression is 263 for the 2019-2020 crop. This size was corrected by the regression that used the observed size as the dependent variable and the estimated size as the independent variable. The size projected by this other regression is 260 fruits per box for the 2019-2020 crop.

Table 2 – Data for the 2008-2009 crop to the 2018-2019 crop and data used to estimate the final fruit size in the 2019-2020 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)s)	(fruits/box)	(fruits/box)	(%)	(%)
2008-2009	659	421	79%	80	255	256	1%	1%
2009-2010	624	431	77%	143	250	242	-3%	3%
2010-2011	532	457	97%	64	271	257	-5%	5%
2011-2012	859	401	96%	116	269	270	0%	0%
2012-2013	764	439	95%	268	250	244	-2%	2%
2013-2014	515	338	87%	247	224	215	-4%	4%
2014-2015	646	373	92%	102	256	252	-2%	2%
2015-2016	498	391	90%	204	226	235	4%	4%
2016-2017	430	358	90%	214	222	224	1%	1%
2017-2018	753	393	91%	184	246	251	2%	2%
2018-2019	564	446	82%	36	259	264	2%	2%
2019-2020	783	411	94%	133 ^e	(X)	263	(X)	(X)

Source: Fundecitrus (2015-2016 crop to 2019-2020 crop), CitrusBr (2008-2009 crop to 2014-2015 crop), Somar Meteorologia and Climatempo.

(X) Not applicable.

^e Estimated.

The result of the equation used in the crop estimate is corrected by the application of a correction factor. That is necessary because of the variables not considered in the calculations, such as harvested fruit that winds up not being used, diverse planting densities that are not included in the stratification of groves, or 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 and represents the average of the indexes of the 2015-2016 and 2016-2017 crops estimated by Fundecitrus.

3 – TABLES OF DATA

The following tables present the 2019-2020 orange crop forecast per sector, age, bloom and variety. In tables 14 to 18, the number of fruits per tree at stripping is presented separately for the 12 regions. If the estimate were made per region, the number of stripped trees would be statistically insufficient. Hence, the maximum detail on the estimate is per sector. Still, the margin of error of the production estimate per sector is higher than the production estimate for the citrus belt as a whole.

Unexpected variations in fruit size and drop rate may change the estimate performed and will be accounted for throughout the crop by ongoing field monitoring for production estimate updates. Calculations made used whole numbers and all decimal points. Occasional divergences between figures on tables result from rounding numbers.

Table 3 – 2019-2020 Orange crop forecast by sector

Sector	Mature groves area	Average density ¹ of mature groves	Bearing trees	Fruit per tree at stripping ²	2019-2020 Orange crop forecast		
					Per tree	Per hectare	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(number)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
North.....	85,662	480	40,297	802	2.29	1,078	92.35
Northwest.....	38,761	462	17,630	717	2.03	924	35.81
Central.....	102,613	477	47,762	778	2.23	1,036	106.33
South.....	73,291	465	33,000	729	2.09	940	68.88
Southwest.....	69,721	521	35,284	850	2.42	1,227	85.52
Total.....	370,048	482	173,973	783	2.24	1,051	388.89

¹ Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2017 and 2018 resets).

² Weighted average per total stratum fruit.

Table 4 – 2019-2020 Orange crop forecast by tree age group (continues below)

Age of plots	Mature groves area	Average density ¹ of mature groves	Bearing trees by age group				Fruit per tree at stripping by age group of trees ²			
			3 – 5 years	6 – 10 years	Over 10 years	Total	3 – 5 years	6 – 10 years	Over 10 years	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(1,000 trees)	(fruit/tree)	(fruit/tree)	(fruit/tree)	(fruit/tree)
3 – 5 years.....	31,262	648	19,637	-	-	19,637	291	-	-	291
6 – 10 years.....	101,625	561	1,970	53,429	-	55,399	156	652	-	635
Over 10 years.....	237,161	426	3,300	5,465	90,172	98,937	170	424	1,025	963
Total.....	370,048	482	24,907	58,894	90,172	173,973	264	631	1,025	783

¹ Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2017 and 2018 resets).

² Weighted average per total stratum fruit.

Table 4 – 2019-2020 Orange crop forecast by tree age group (continued)

Plots age	2019-2020 Orange crop forecast by tree age group				2019-2020 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.....	0.83	-	-	0.83	16.32	-	-	16.32
6 – 10 years.....	0.45	1.86	-	1.81	0.88	99.62	-	100.50
Over 10 years.....	0.48	1.21	2.93	2.75	1.58	6.60	263.89	272.07
Total.....	0.75	1.80	2.93	2.24	18.78	106.22	263.89	388.89

¹ Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2017 and 2018 resets).

Table 5 – 2019-2020 Orange crop forecast by bloom

Bloom	2019-2020 Orange crop forecast	Percentage of the orange crop forecast by bloom
	(1,000,000 boxes)	(percentage)
1 st	327.31	84.17%
2 nd	39.70	10.21%
3 rd	12.29	3.16%
4 th	9.59	2.47%
Total.....	388.89	100.00%

Table 6 – 2019-2020 Orange crop forecast in percentage of bloom by region

Bloom	North ¹				Northwest ²			Central ³				South ⁴			Southwest ⁵			Total
	TMG	BEB	ALT	AVE ⁶	VOT	SJO	AVE ⁶	MAT	DUA	BRO	AVE ⁶	PFE	LIM	AVE ⁶	AVA	ITG	AVE ⁶	
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1 st	89.9	77.8	66.0	79.9	84.0	83.1	83.5	83.0	86.4	87.0	85.4	85.7	82.0	83.9	87.7	88.3	87.9	84.2
2 nd	5.4	16.1	31.4	14.9	9.9	11.2	10.6	7.6	6.8	8.1	7.2	8.5	13.8	11.1	8.8	4.9	7.9	10.2
3 rd	2.6	2.8	2.0	2.6	3.4	3.4	3.4	5.1	3.7	2.7	4.0	3.4	2.7	3.1	2.1	4.4	2.6	3.2
4 th	2.1	3.4	0.7	2.7	2.7	2.3	2.5	4.2	3.1	2.3	3.3	2.4	1.5	2.0	1.4	2.4	1.6	2.5

¹ North: TMG – Triângulo Mineiro, BEB – Bebedouro, ALT – Altinópolis.

² Northwest: VOT – Votuporanga, SJO – São José do Rio Preto.

³ Central: MAT – Matão, DUA – Duartina, BRO – Brotas.

⁴ South: PFE – Porto Ferreira, LIM – Limeira.

⁵ Southwest: AVA – Avaré, ITG – Itapetininga.

⁶ AVE – Weighted average per total stratum fruit.

Table 7 – 2019-2020 Orange crop forecast and its components by variety group

Variety group	Mature groves area	Average density ¹ of mature groves	Components of May/2019 forecast				2019-2020 Orange crop forecast		
			Bearing trees	Fruit per tree at stripping ²	Fruit estimated per box	Estimated drop rate	Per tree	Per hectare	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(number)	(number)	(%)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
Early:									
Hamlin, Westin and Rubi.....	57,807	455	25,482	1,114	296	10.50	3.02	1,331	76.97
Other early:									
Valencia Americana, Seleta, Pineapple.....	17,692	469	8,016	834	270	11.00	2.88	1,269	19.75
Mid-season:									
Pera Rio.....	125,453	514	62,869	665	266	17.50	1.85	926	116.20
Late:									
Valencia and V.Folha Murcha ³	126,023	472	58,269	735	235	21.50	2.20	1,018	128.30
Natal.....	43,073	460	19,337	853	242	22.00	2.47	1,107	47.67
Average.....	(X)	482	(X)	783	260	17.50	2.24	1,051	(X)
Total.....	370,048	(X)	173,973	(X)	(X)	(X)	(X)	(X)	388.89

(X) Not applicable.

¹ Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2017 and 2018 resets).

² Weighted average per total stratum fruit.

³ V.Folha Murcha – Valencia Folha Murcha.

Table 8 – 2019-2020 Orange crop forecast by variety group and sector

Variety group	2019-2020 Orange 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)
Early:						
Hamlin, Westin and Rubi.....	22.86	7.16	17.14	9.63	20.17	76.96
Other early:						
Valencia Americana, Seleta, Pineapple.....	4.85	2.57	8.08	1.06	3.20	19.76
Mid-season:						
Pera Rio.....	21.67	15.09	33.75	24.96	20.73	116.20
Late:						
Valencia and V.Folha Murcha ³	32.65	7.33	35.39	25.51	27.43	128.31
Natal.....	10.32	3.66	11.97	7.72	13.99	47.66
Average.....	92.35	35.81	106.33	68.88	85.52	388.89

Table 9 – 2019-2020 Orange crop forecast by variety group – North Sector

Variety group	Mature groves area	Average density ¹ of mature groves	Bearing trees	Fruit per tree at stripping ²	2019-2020 Orange crop forecast		
					Per tree	Per hectare	Total
					(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
Early:							
Hamlin, Westin and Rubi.....	16,151	445	6,970	1,210	3.28	1,415	22.86
Other early:							
Valencia Americana, Seleta, Pineapple.....	4,235	503	2,029	808	2.39	1,145	4.85
Mid-season:							
Pera Rio.....	24,221	546	12,987	600	1.67	895	21.67
Late:							
Valencia and V.Folha Murcha ³	31,747	459	14,391	757	2.27	1,028	32.65
Natal.....	9,308	427	3,920	911	2.63	1,109	10.32
Average.....	(X)	480	(X)	802	2.29	1,078	(X)
Total.....	85,662	(X)	40,297	(X)	(X)	(X)	92.35

Table 10 – 2019-2020 Orange crop forecast by variety group – Northwest Sector

Variety group	Mature groves area	Average density ¹ of mature groves	Bearing trees	Fruit per tree at stripping ²	2019-2020 Orange crop forecast		
					Per tree	Per hectare	Total
					(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
Early:							
Hamlin, Westin and Rubi.....	5,807	457	2,565	1,031	2.79	1,233	7.16
Other early:							
Valencia Americana, Seleta, Pineapple.....	3,064	474	1,407	618	1.83	839	2.57
Mid-season:							
Pera Rio.....	18,576	450	8,278	655	1.82	812	15.09
Late:							
Valencia and V.Folha Murcha ³	7,476	488	3,600	679	2.04	980	7.33
Natal.....	3,838	467	1,781	711	2.06	954	3.66
Average.....	(X)	462	(X)	717	2.03	924	(X)
Total.....	38,761	(X)	17,630	(X)	(X)	(X)	35.81

(X) Not applicable.

¹ Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2017 and 2018 resets).² Weighted average per total stratum fruit.³ V.Folha Murcha – Valencia Folha Murcha.

Table 11 – 2019-2020 Orange crop forecast by variety group – Central Sector

Variety group	Mature groves area	Average density ¹ of mature groves	Bearing trees	Fruit per tree at stripping ²	2019-2020 Orange crop forecast		
					Per tree	Per hectare	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(number)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
Early:							
Hamlin, Westin and Rubi.....	14,811	443	6,390	989	2.68	1,157	17.14
Other early:							
Valencia Americana, Seleta, Pineapple.....	6,832	444	2,966	922	2.72	1,183	8.08
Mid-season:							
Pera Rio.....	35,837	518	18,074	671	1.87	942	33.75
Late:							
Valencia and V.Folha Murcha ³	34,517	470	15,835	746	2.23	1,025	35.39
Natal.....	10,616	433	4,497	921	2.66	1,128	11.97
Average.....	(X)	477	(X)	778	2.23	1,036	(X)
Total.....	102,613	(X)	47,762	(X)	(X)	(X)	106.33

Table 12 – 2019-2020 Orange crop forecast by variety group – South Sector

Variety group	Mature groves area	Average density ¹ of mature groves	Bearing trees	Fruit per tree at stripping ²	2019-2020 Orange crop forecast		
					Per tree	Por hectare	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(number)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
Early:							
Hamlin, Westin and Rubi.....	10,027	443	4,334	820	2.22	960	9.63
Other early:							
Valencia Americana, Seleta, Pineapple.....	1,241	388	450	792	2.36	854	1.06
Mid-season:							
Pera Rio.....	26,964	509	13,177	681	1.89	926	24.96
Late:							
Valencia and V.Folha Murcha ³	27,746	437	11,846	719	2.15	919	25.51
Natal.....	7,313	447	3,193	836	2.42	1,056	7.72
Average.....	(X)	465	(X)	729	2.09	940	(X)
Total.....	73,291	(X)	33,000	(X)	(X)	(X)	68.88

Table 13 – 2019-2020 Orange crop forecast by variety group – Southwest Sector

Variety group	Mature groves area	Average density ¹ of mature groves	Bearing trees	Fruit per tree at stripping ²	2019-2020 Orange crop forecast		
					Per tree	Por hectare	Total
	(hectares)	(trees/hectare)	(1,000 trees)	(number)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
Early:							
Hamlin, Westin and Rubi.....	11,011	496	5,223	1,424	3.86	1,832	20.17
Other early:							
Valencia Americana, Seleta, Pineapple.....	2,320	517	1,164	931	2.75	1,379	3.20
Mid-season:							
Pera Rio.....	19,855	537	10,353	720	2.00	1,044	20.73
Late:							
Valencia and V.Folha Murcha ³	24,537	524	12,596	727	2.18	1,118	27.43
Natal.....	11,998	514	5,947	814	2.35	1,166	13.99
Average.....	(X)	521	(X)	850	2.42	1,227	(X)
Total.....	69,721	(X)	35,284	(X)	(X)	(X)	85.52

(X) Not applicable.

¹ Calculation considers the total number of trees in the plot, that is, bearing and non-bearing trees (2017 and 2018 resets).² Weighted average per total stratum fruit.³ V.Folha Murcha – Valencia Folha Murcha.

Table 14 – Fruit per tree at stripping¹ by age group, region and variety – North Sector [April 2019 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)
TMG²									
Early:									
Hamlin, Westin and Rubi.....	243	142	695	685	23	239	1,454	1,403	1,248
Other early varieties ³	NA	221	843	841	125	336	708	705	754
Mid-season:									
Pera Rio.....	172	39	532	524	44	193	818	793	514
Late:									
Valencia and V.Folha Murcha ⁴	398	88	767	762	20	373	710	700	724
Natal.....	160	205	626	625	26	216	1,072	1,041	927
Average¹	197	65	641	634	26	255	1,021	994	772
BEB⁵									
Early:									
Hamlin, Westin and Rubi.....	261	201	561	543	86	581	1,542	1,423	1,193
Other early varieties ³	478	392	713	710	116	283	1,048	906	798
Mid-season:									
Pera Rio.....	257	96	603	592	257	394	1,133	1,053	654
Late:									
Valencia and V.Folha Murcha ⁴	358	104	661	640	42	205	1,008	911	764
Natal.....	226	153	709	696	88	765	1,161	1,100	900
Average¹	295	132	633	619	94	393	1,182	1,082	819
ALT⁶									
Early:									
Hamlin, Westin and Rubi.....	179	19	1,322	987	295	590	1,423	1,250	1,186
Other early varieties ³	NA	112	819	716	112	336	1,334	1,180	1,025
Mid-season:									
Pera Rio.....	113	93	781	767	226	179	707	637	597
Late:									
Valencia and V.Folha Murcha ⁴	44	120	664	632	61	492	887	817	796
Natal.....	234	172	1,098	1,030	306	621	1,008	955	912
Average¹	122	66	856	789	180	391	932	847	803
Average sector	261	110	645	632	113	383	1,090	1,013	802

NA Not Available

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

Table 15 – Fruit per tree at stripping¹ by age group, region and variety – Northwest Sector [April 2019 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)
VOT²									
Early:									
Hamlin, Westin and Rubi.....	252	28	652	639	265	413	965	927	796
Other early varieties ³	358	162	668	608	175	549	698	692	652
Mid-season:									
Pera Rio.....	214	228	652	646	137	447	911	899	712
Late:									
Valencia and V.Folha Murcha ⁴	485	273	962	946	79	227	982	964	953
Natal.....	153	95	1,130	1,125	141	867	1,164	1,157	1,070
Average¹	215	209	678	670	149	432	937	923	753
SJO⁵									
Early:									
Hamlin, Westin and Rubi.....	252	20	796	754	55	375	1,558	1,534	1,074
Other early varieties ³	91	82	429	421	45	526	1,068	978	612
Mid-season:									
Pera Rio.....	330	139	390	387	46	53	765	750	513
Late:									
Valencia and V.Folha Murcha ⁴	270	59	648	639	36	97	882	872	623
Natal.....	232	47	526	522	22	446	1,207	1,181	614
Average¹	267	52	586	572	44	308	1,104	1,077	691
Average sector	256	105	626	614	66	406	1,021	1,001	717

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

Table 16 – Fruit per tree at stripping¹ by age group, region and variety – Central Sector [April 2019 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)
MAT²									
Early:									
Hamlin, Westin and Rubi.....	403	230	711	695	160	226	1,247	1,158	911
Other early varieties ³	339	351	764	744	235	497	1,187	1,129	964
Mid-season:									
Pera Rio.....	310	174	559	546	89	301	1,014	986	581
Late:									
Valencia and V.Folha Murcha ⁴	412	327	638	632	131	405	1,054	956	723
Natal.....	339	215	721	713	227	768	1,525	1,368	1,031
Average¹	337	244	633	622	159	459	1,152	1,076	743
DUA⁶									
Early:									
Hamlin, Westin and Rubi.....	358	17	948	870	111	469	1,393	1,264	1,099
Other early varieties ³	290	138	762	730	253	437	1,318	1,257	936
Mid-season:									
Pera Rio.....	460	93	645	617	89	410	956	906	760
Late:									
Valencia and V.Folha Murcha ⁴	351	205	695	663	98	502	1,076	1,004	843
Natal.....	611	86	828	809	202	395	1,078	992	912
Average¹	421	117	722	689	114	445	1,085	1,013	855
BRO⁷									
Early:									
Hamlin, Westin and Rubi.....	420	180	778	701	120	339	924	838	807
Other early varieties ³	534	121	286	266	64	423	1,111	1,016	646
Mid-season:									
Pera Rio.....	307	86	503	489	100	253	772	687	547
Late:									
Valencia and V.Folha Murcha ⁴	200	123	320	311	79	502	720	687	605
Natal.....	147	119	790	761	23	362	1,090	969	760
Average¹	300	130	448	431	88	403	789	732	623
Average sector	367	162	653	632	120	433	1,038	966	778

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

Table 17 – Fruit per tree at stripping¹ by age group, region and variety – South Sector [April 2019 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)
PFE²									
Early:									
Hamlin, Westin and Rubi.....	38	125	516	493	65	1,009	1,665	1,400	888
Other early varieties ³	NA	193	705	677	151	1,846	829	859	801
Mid-season:									
Pera Rio.....	254	73	631	602	89	232	1,056	929	688
Late:									
Valencia and V.Folha Murcha ⁴	179	226	814	778	147	291	896	798	721
Natal.....	211	106	700	650	204	274	1,025	895	669
Average¹	212	134	675	643	123	427	1,033	918	723
LIM⁵									
Early:									
Hamlin, Westin and Rubi.....	96	108	508	503	190	522	924	871	762
Other early varieties ³	281	94	1,121	993	207	1,088	807	758	781
Mid-season:									
Pera Rio.....	224	187	665	647	194	443	848	822	673
Late:									
Valencia and V.Folha Murcha ⁴	361	238	580	566	156	356	860	804	716
Natal.....	562	102	1,065	1,009	144	544	1,202	1,180	1,063
Average¹	280	190	659	640	173	428	899	855	737
Average sector	237	154	667	642	145	428	961	886	729

NA Not Available

¹ Weighted average per total stratum fruit.² PFE – Porto Ferreira.³ V.Americana – Valencia Americana, Seleta and Pineapple⁴ V.Folha Murcha – Valencia Folha Murcha.⁵ LIM – Limeira.

Table 18 – Fruit per tree at stripping¹ by age group, region and variety – Southwest Sector [April 2019 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)
AVA²									
Early:									
Hamlin, Westin and Rubi.....	247	253	774	764	804	1,001	1,628	1,545	1,400
Other early varieties ³	290	232	966	951	278	578	1,169	1,127	1,081
Mid-season:									
Pera Rio.....	309	279	742	705	220	702	845	824	760
Late:									
Valencia and V.Folha Murcha ⁴	192	118	523	504	73	114	908	840	758
Natal.....	473	262	799	747	194	272	921	872	825
Average¹.....	308	230	681	654	324	461	1,021	972	883
ITG⁵									
Early:									
Hamlin, Westin and Rubi.....	260	86	1,106	1,102	287	1,001	2,101	2,089	1,535
Other early varieties ³	48	116	845	837	116	NA	2,054	2,018	738
Mid-season:									
Pera Rio.....	174	278	535	530	276	663	942	933	610
Late:									
Valencia and V.Folha Murcha ⁴	346	216	659	656	139	360	678	671	637
Natal.....	464	32	670	661	291	272	856	855	792
Average¹.....	248	220	671	665	190	573	947	940	757
Average sector.....	280	228	677	659	318	464	1,005	965	850

NA Not Available

¹ Weighted average per total stratum fruit.² AVA – Avaré.³ V.Americana – Valencia Americana, Seleta and Pineapple⁴ V.Folha Murcha – Valencia Folha Murcha.⁵ ITG – Itapetininga.

ANNEX: DIFFERENCES BETWEEN PUBLISHED VERSIONS

The following chart presents improvement resulting from text review and information included to meet demands from the citrus segment and the press. Slight text and formatting adjustments that do not change the meaning of the text are not shown on the chart.

Chart 4 – Differences between published versions

Section	Page in the version N° 1	Page in the version N° 2	Page in the version N° 3	Change
I	26	26	26	Included in the 3 rd paragraph: "...in addition to being affected by the water deficit and higher temperatures resulting in lower yield..."
I	31,32,33	31,32,33	31,32,33	In Tables 6, 10 and 13 the eradication period was included as being "April 2018 to March 2019".
I	40	41	41	Table 25 and subsequent ones were moved to the following page.
I	96	96	96	In Table 96 the planting holes subtotal for the region of Limeira was included.
I	-	-	-	Footnote "- Represents zero" was excluded in all tables.

