Florida Department of Citrus
Webinar Series

The Future of Florida's Commercial Citrus Tree Inventory

Presented by

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August 10, 2021

2019/20 ECONOMIC CONTRIBUTIONS OF

FLORIDA CITRUS

Contributing $6.67 billion in industry output to Florida's economy

TOTAL CITRUS PRODUCTION COULD FILL UP 10 ULTRA-LARGE CONTAINER VESSELS EACH WITH 15,000 20FT CARGO CONTAINERS

67.3 MILLION BOXES

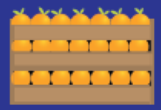
Oranges

4.9 MILLION BOXES

Grapefruit

1 MILLION BOXES

Specialty Citrus



Packed Citrus

11.2 MILLION CARTONS

=

CARTONS WOULD COVER THE BASE OF THE WASHINGTON MONUMENT AND STACK MORE THAN 8 TIMES AS HIGH

Citrus Juice

701 MILLION GALLONS

=

VOLUME OF JUICE WOULD FILL THE FUEL TANKS OF MORE THAN 100,000 BOEING 737s

Citrus Byproducts

281,406 TONS

=

MORE THAN 55x THE WEIGHT OF ALL NCAA FOOTBALL PLAYERS

Citrus Industry DIRECT CONTRIBUTIONS

INDUSTRY OUTPUT
$4.07 billion
citrus growers, processors, and packinghouses

EMPLOYMENT
15,635 jobs
(fulltime and part-time)

LABOR INCOME
$674 million
in income for Florida families

But it doesn't stop there.

Citrus industry activities support additional economic activity throughout Florida's economy.

Citrus Industry TOTAL CONTRIBUTIONS

Industry Output

For every $1 of direct output from the citrus industry, a total of $1.66 of output is generated throughout Florida's economy.

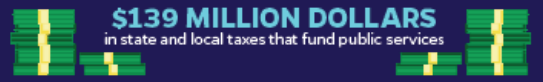
Employment

For every 1 job (direct) in the citrus industry, a total of 2.1 jobs are supported throughout Florida's economy.

Labor Income

Value Added

Florida State & Local Tax Contributions



UF|IFAS UNIVERSITY of FLORIDA ECONOMIC IMPACT ANALYSIS PROGRAM

fred.ifas.ufl.edu/economicimpactanalysis

PRODUCED FOR

Florida Citrus

CITATION

C. Court, J. Ferreira, and J. Cruz. "Economic Contributions of the Florida Citrus Industry in 2019-20". Economic Impact Analysis Program, Food and Resource Economics Department, Institute of Food and Agricultural Sciences, University of Florida. August 2021.

Florida Orange and Red Grapefruit Production Projections 2022-23 Through 2031-32

July 2021

Available on-line at:

https://www.floridacitrus.org/grower/economic-market-resources/economic-reports/

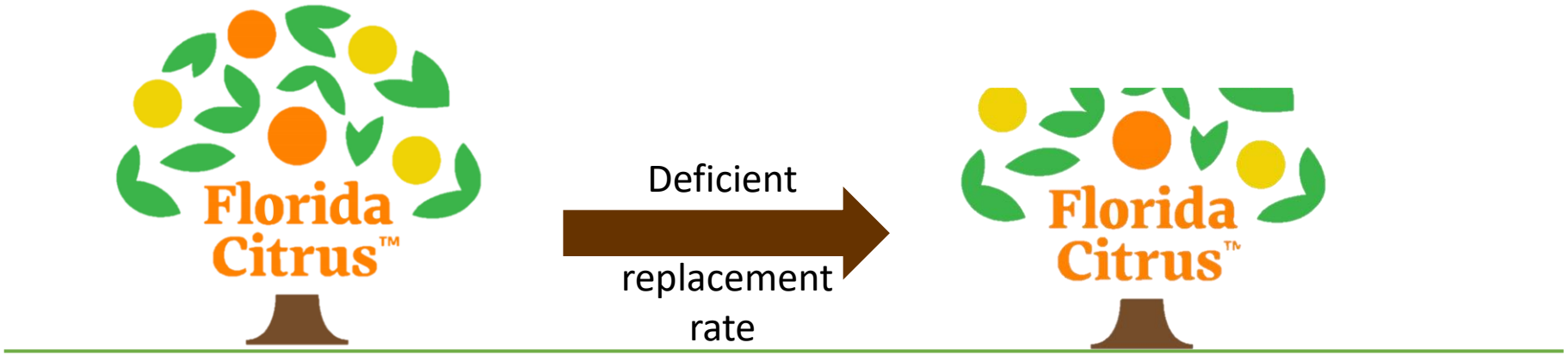
Production Projection Criteria

- Current bearing and non-bearing commercial tree inventory for round oranges and red grapefruit*
- Fruit per tree yields, by age
- Estimated annual tree replacement rates
- Nursery stock capacity

*disaggregated specialty citrus data not available due

Key Production Challenges

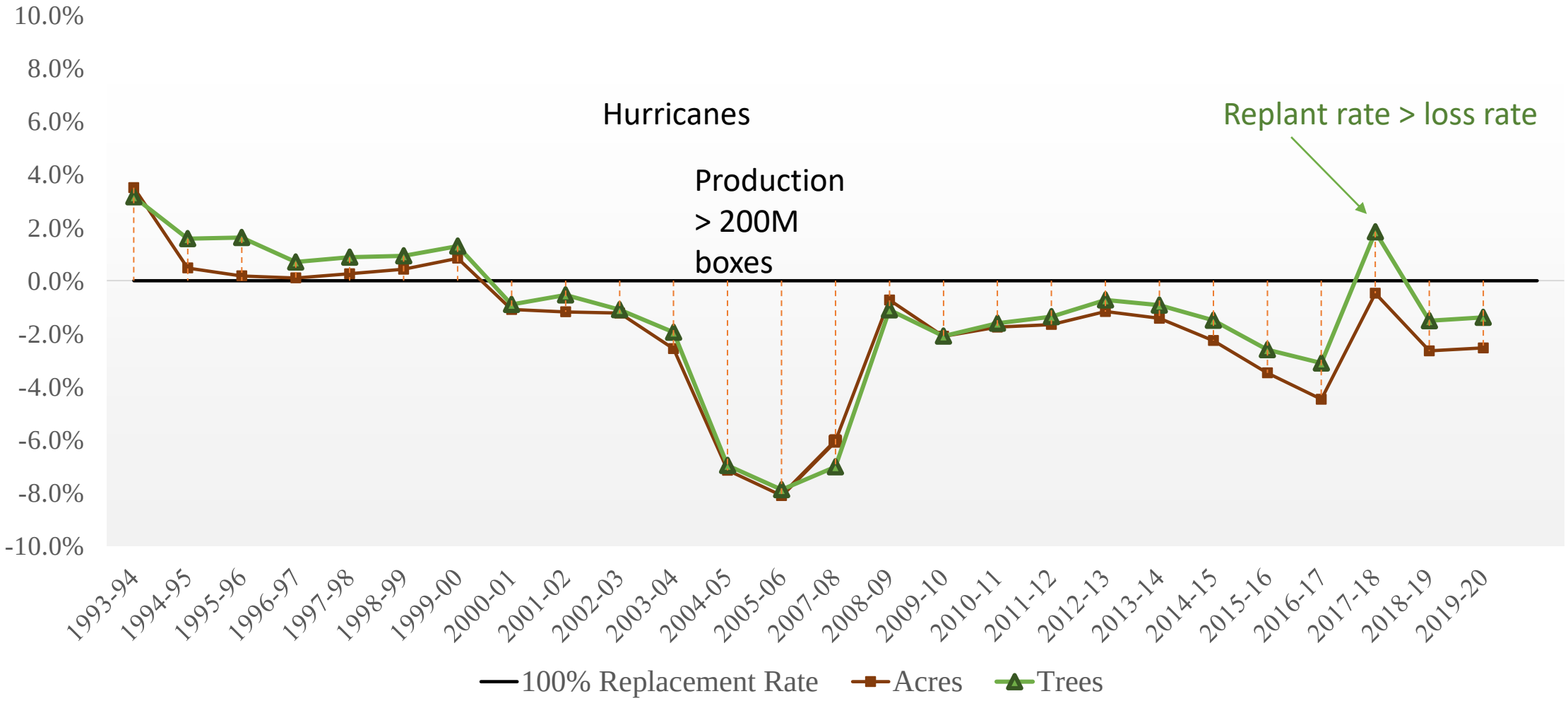
- Older inventory –Nearly 57% of round orange and 70% of red grapefruit commercial inventory is > 14 years old
- Declining fruit per tree yields, especially in older trees
- Insufficient tree replacement rates



Age Distribution of Florida Round-Orange Commercial Trees, by Year of Inventory

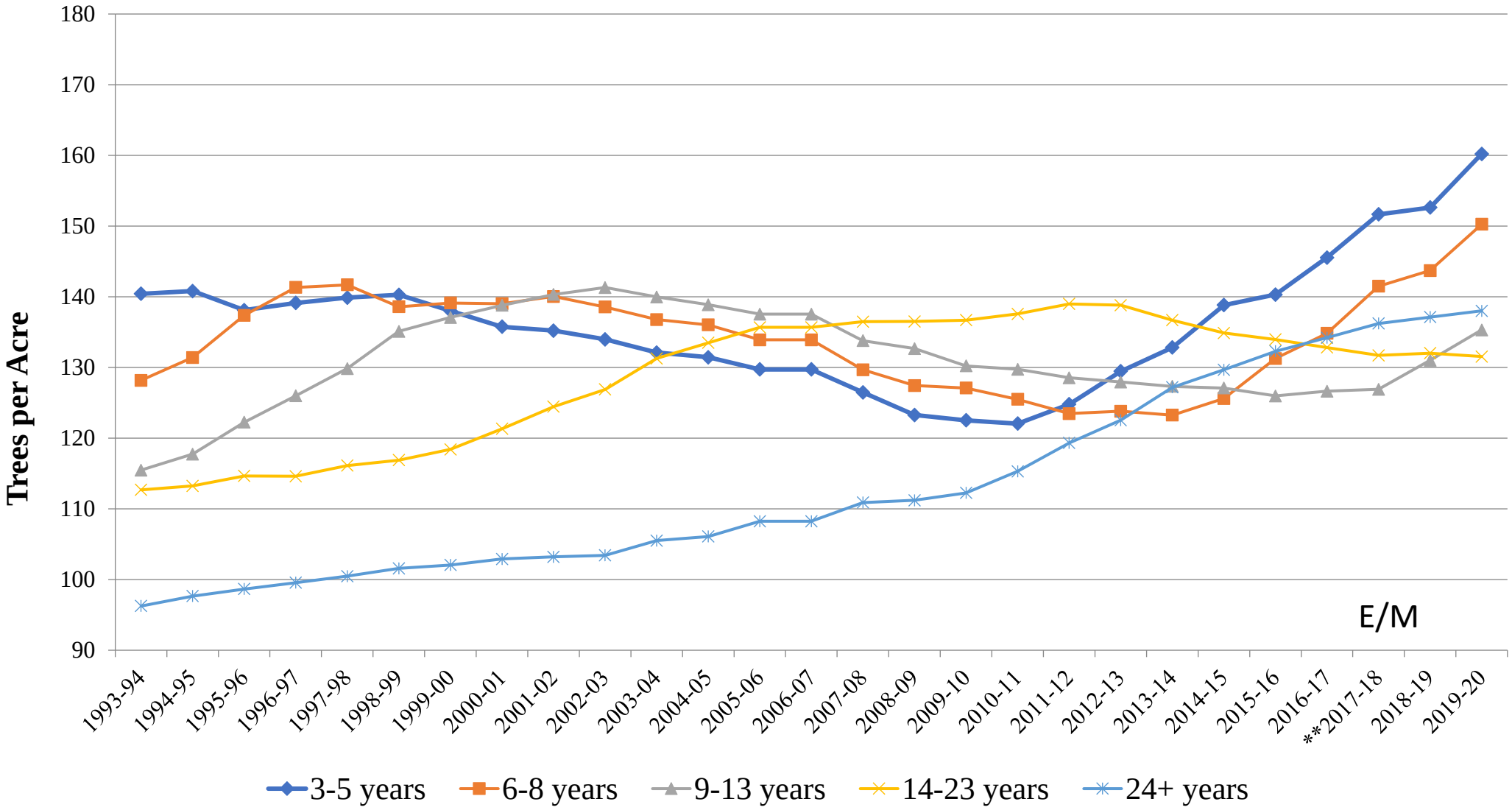
Year of Inventory	Tree Age						Total Trees	Bearing Trees
	≤2	3-5	6-8	9-13	14-23	≥24		
	- - - - - - - - - - - - - - - - - - - % -						- - - - millions - - - -	
1970	9.1	20.6	17.6	14.8	13.4	24.4	57.8015	49.4042
1980	7.2	4.7	3.8	13.0	39.1	32.2	51.9778	47.3663
1990	35.1	14.3	10.7	6.7	10.0	23.3	62.6134	40.6660
2000	9.7	7.2	21.4	33.7	13.6	14.4	87.2001	78.7210
2004	9.1	9.4	8.1	29.0	32.4	12.0	82.9875	75.3917
2010	6.6	6.7	9.7	14.6	48.6	13.8	63.7767	59.5608
2011	7.0	6.5	8.0	16.2	46.3	16.0	62.5289	58.1604
2012	6.8	7.1	7.4	15.5	42.9	20.2	61.6401	57.4604
2015	8.7	8.2	7.0	12.7	31.2	32.3	59.5712	54.3833
2016	9.9	8.3	7.5	14.6	14.9	44.8	57.9521	52.2028
2017	10.6	9.5	8.2	10.6	24.1	36.9	56.0223	50.0826
2018	12.3	10.6	7.9	10.2	22.3	36.6	57.0213	50.0331
2019	11.4	12.1	7.9	10.9	22.2	35.5	56,134.6	49,708.6
2020	9.4	13.5	9.0	11.5	21.6	35.0	55,343.2	50,146.1

Florida Round-orange tree replacement rate*



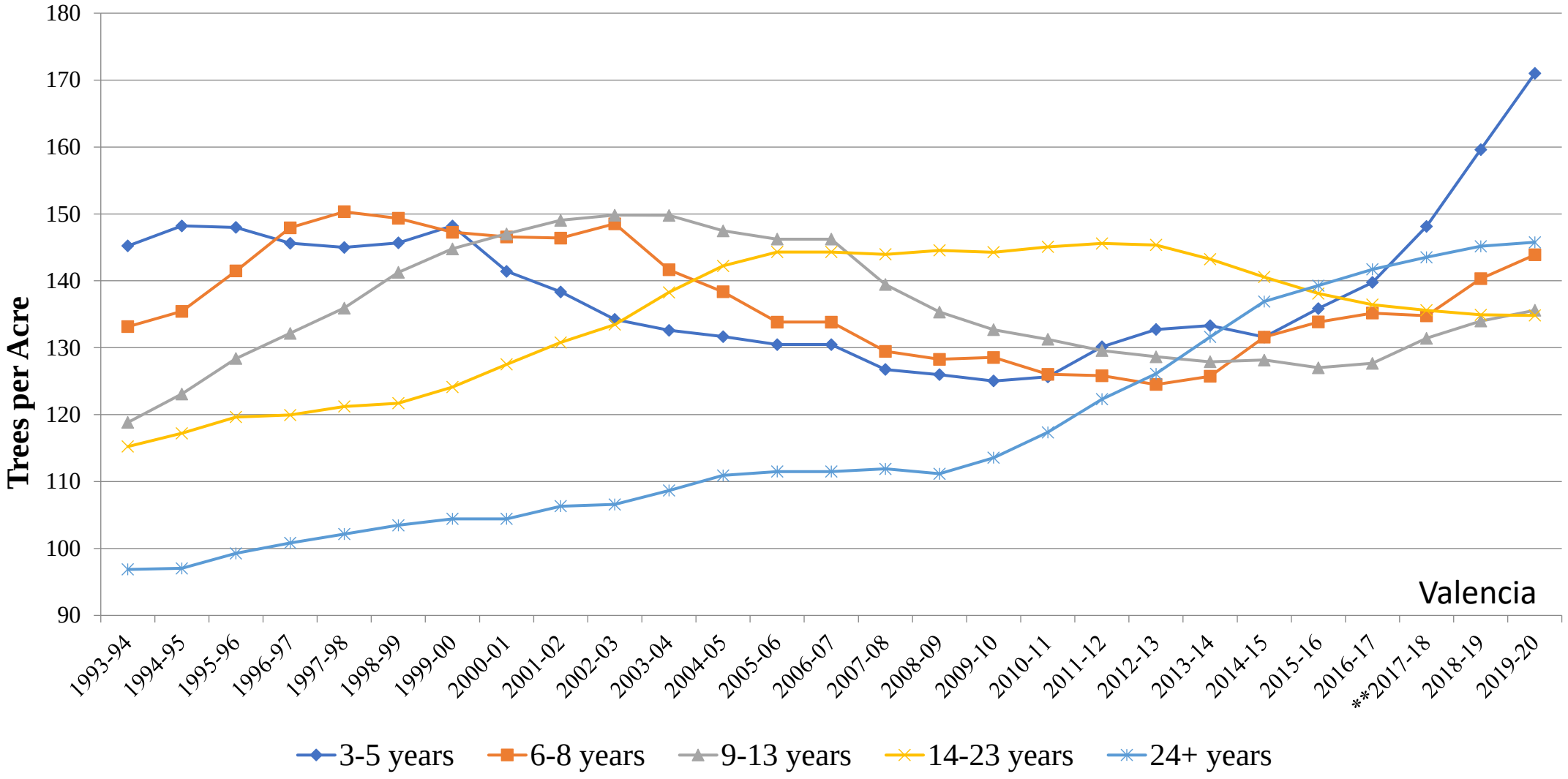
* Calculated as difference between loss rate and replanting rates

Historical Early-Mid Orange Tree Density by Tree Age



USDA/NASS Citrus Statistics Summary, *Various Issues*

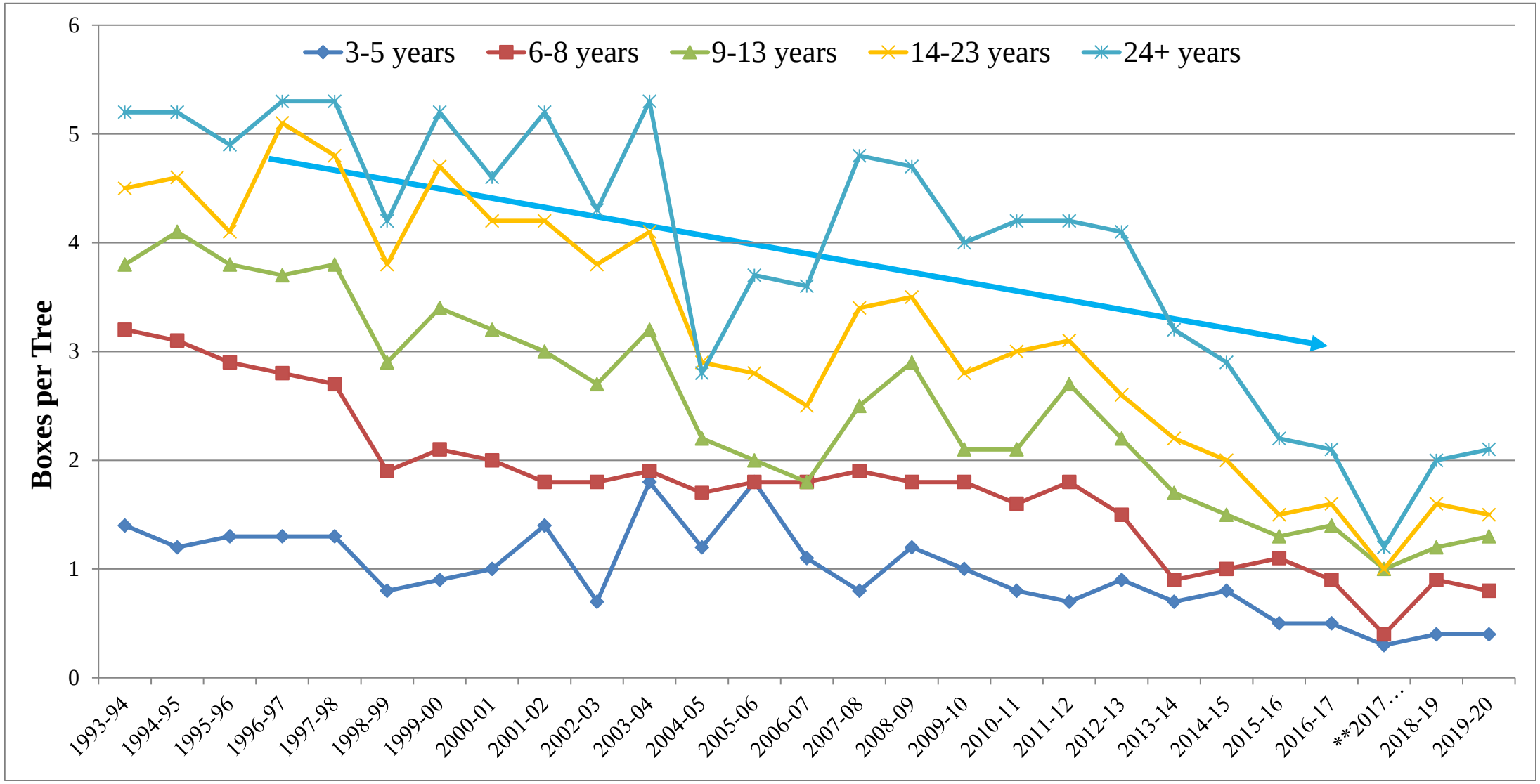
Historical Valencia Orange Tree Density by Tree Age



USDA/NASS Citrus Statistics Summary, *Various Issues*

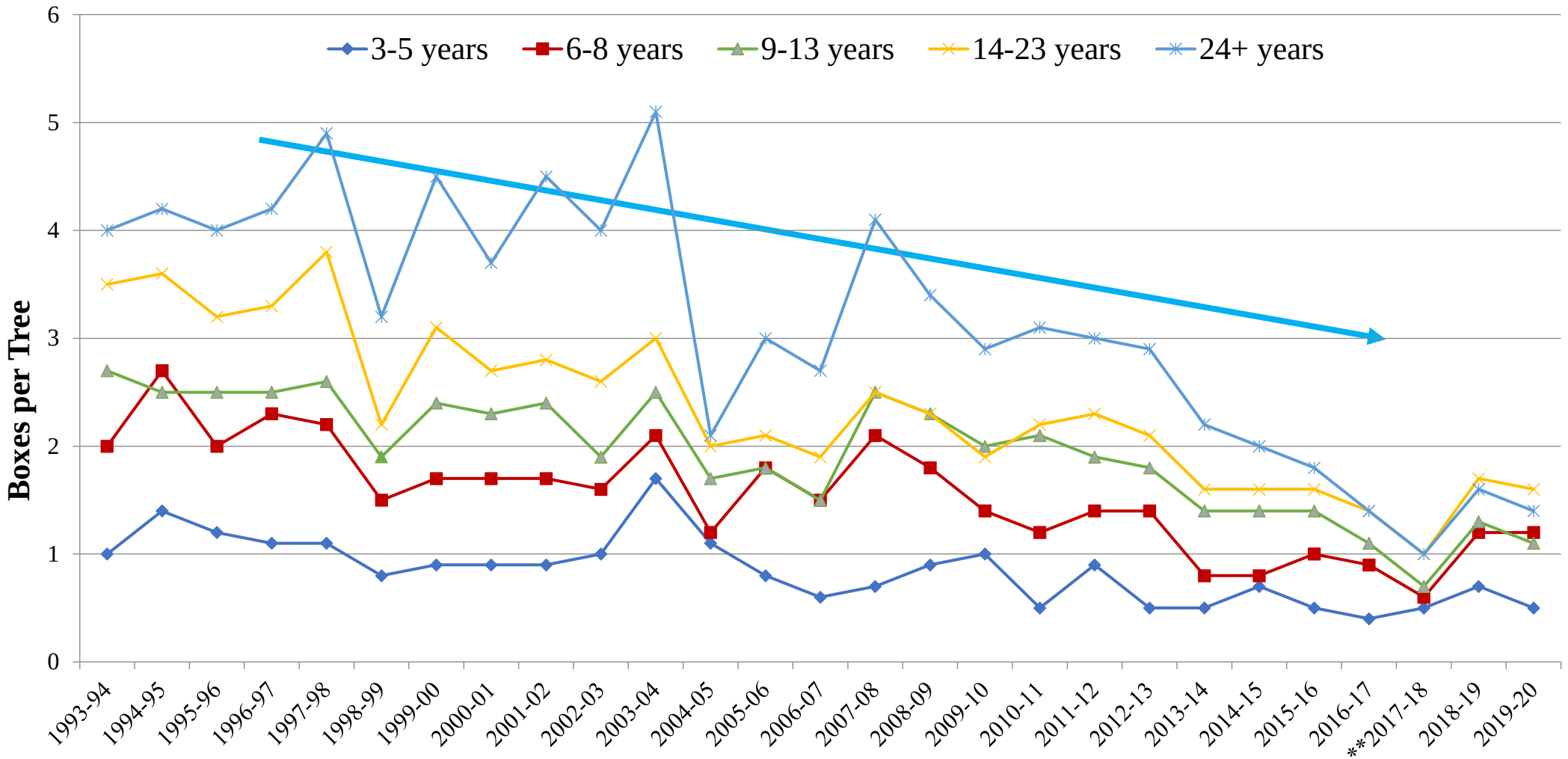
Commercial Round Orange Tree Yields

Historical Early-Mid Orange Tree Yields by Tree Age



USDA/NASS Citrus Statistics Summary, *Various Issues; ** 2017-18 Hurricane Irma season*

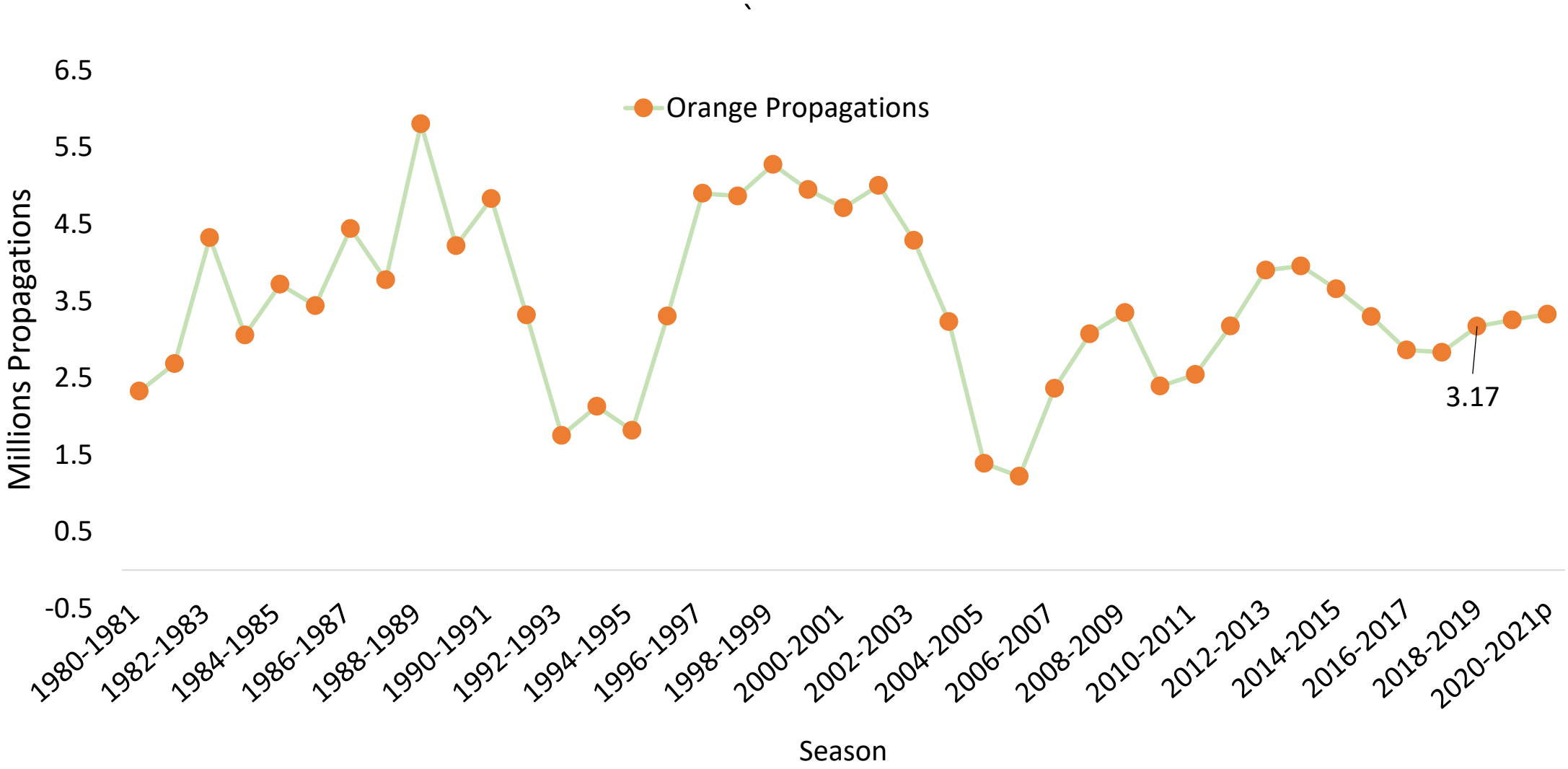
Historical Valencia Orange Tree Yields by Tree Age



USDA/NASS Citrus Statistics Summary, *Various Issues; ** 2017-18 Hurricane Irma season*

Nursery stock capacity

**It is estimated that between 55-60% of orange propagations will enter the commercial orange tree inventory 12-18 months later



Florida Orange Production Scenarios

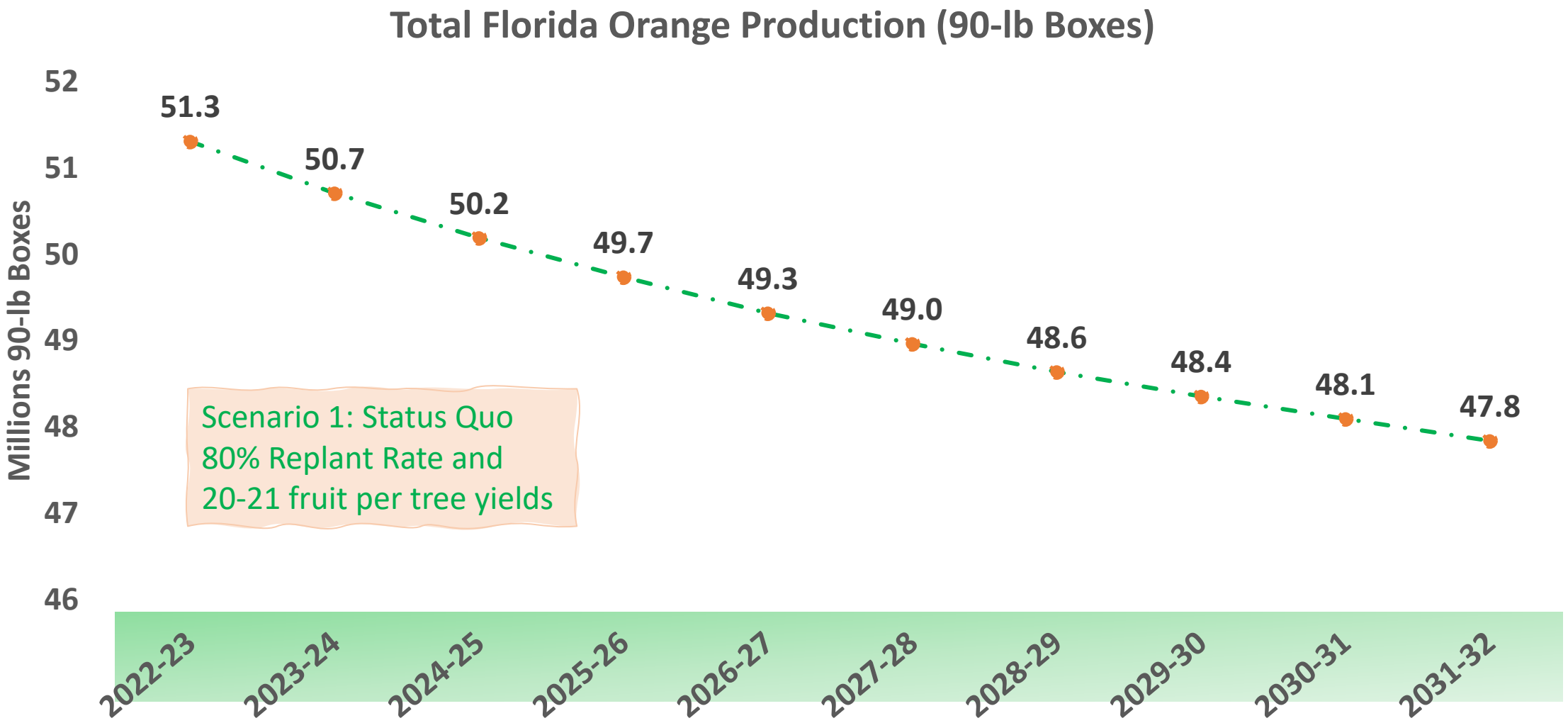
Baseline: 52.782 million 90-lb boxes using the estimated 20-21 fruit per tree yields.

Scenarios illustrated in report:

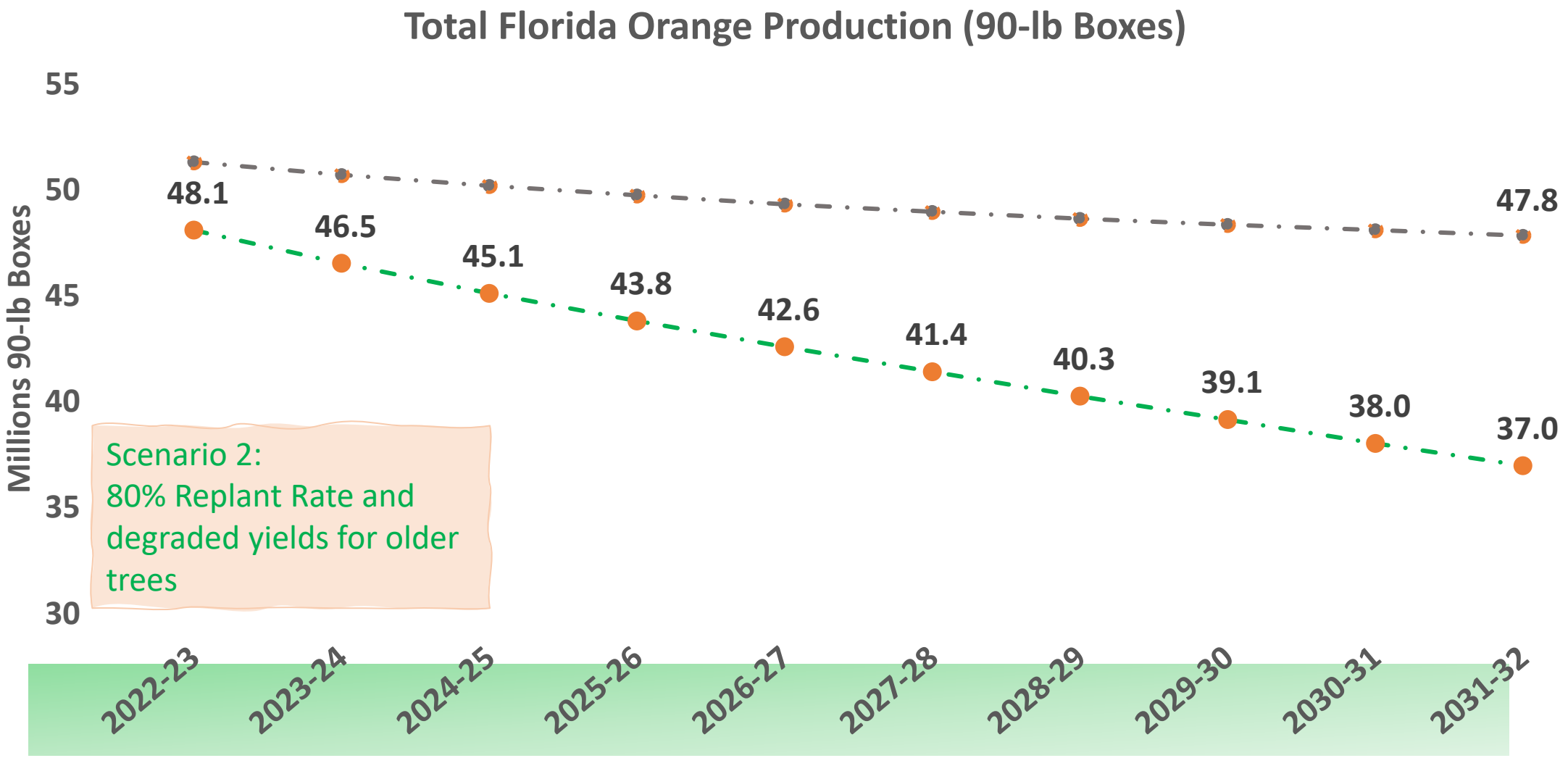
1. Status Quo: 80% tree replacement rate using estimated 2020-21 fruit yields
2. Current trajectory: 80% tree replacement rate using declining yields for trees aged 15 years and older.
3. Aggressive Replanting: 125% tree replacement rate with estimated 2020-21 fruit yields

****A forecast for the 2021-22 season will be made in October 2021 by the USDA/NASS**

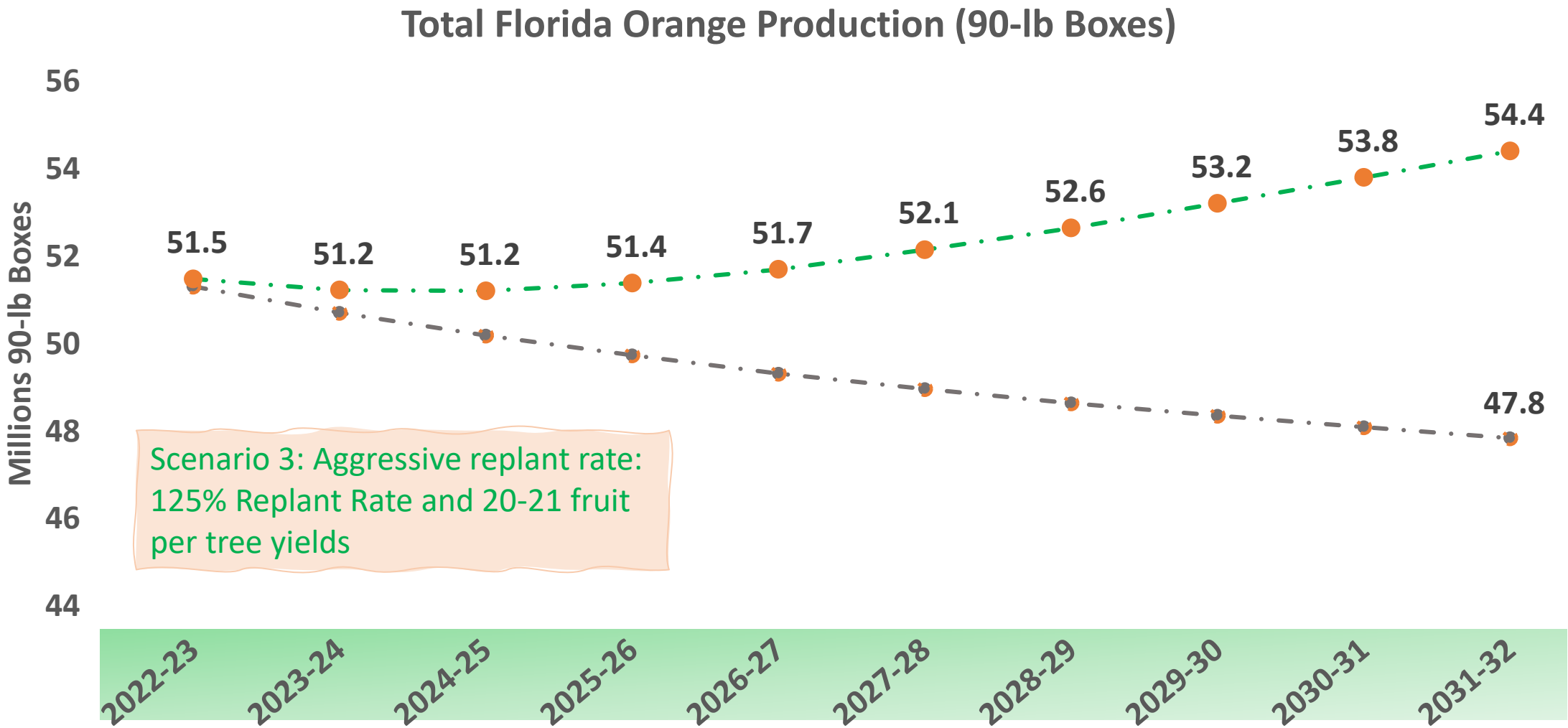
Florida Orange Projections



Florida Orange Projections



Florida Orange Projections



FL Orange Production Projections

Season	Scenario 1[a]			Scenario 2[b]			Scenario 3[c]		
	---------- millions 90-lb boxes ----------								
	Baseline Production 52.8								
	A forecast for the 2021-22 season will be made in October 2021 by the USDA/NASS								
Season	Early/Mid	Val	Total	Early/Mid	Val	Total	Early/Mid	Val	Total
2022-23	**21.8**	**29.5**	**51.3**	**20.6**	**27.4**	**48.1**	**21.9**	**29.6**	**51.5**
2023-24	**21.4**	**29.3**	**50.7**	**19.9**	**26.6**	**46.5**	**21.7**	**29.6**	**51.2**
2024-25	**21.2**	**29.0**	**50.2**	**19.3**	**25.9**	**45.1**	**21.6**	**29.6**	**51.2**
2025-26	**21.0**	**28.7**	**49.7**	**18.6**	**25.2**	**43.8**	**21.7**	**29.7**	**51.4**
2026-27	**20.8**	**28.5**	**49.3**	**18.1**	**24.5**	**42.6**	**21.8**	**29.9**	**51.7**
2027-28	**20.7**	**28.3**	**49.0**	**17.5**	**23.9**	**41.4**	**22.0**	**30.2**	**52.1**
2028-29	**20.5**	**28.1**	**48.6**	**17.0**	**23.3**	**40.3**	**22.2**	**30.5**	**52.6**
2029-30	**20.4**	**28.0**	**48.4**	**16.5**	**22.7**	**39.1**	**22.4**	**30.8**	**53.2**
2030-31	**20.3**	**27.8**	**48.1**	**16.0**	**22.0**	**38.0**	**22.6**	**31.2**	**53.8**
2031-32	**20.2**	**27.7**	**47.8**	**15.6**	**21.4**	**37.0**	**22.9**	**31.5**	**54.4**

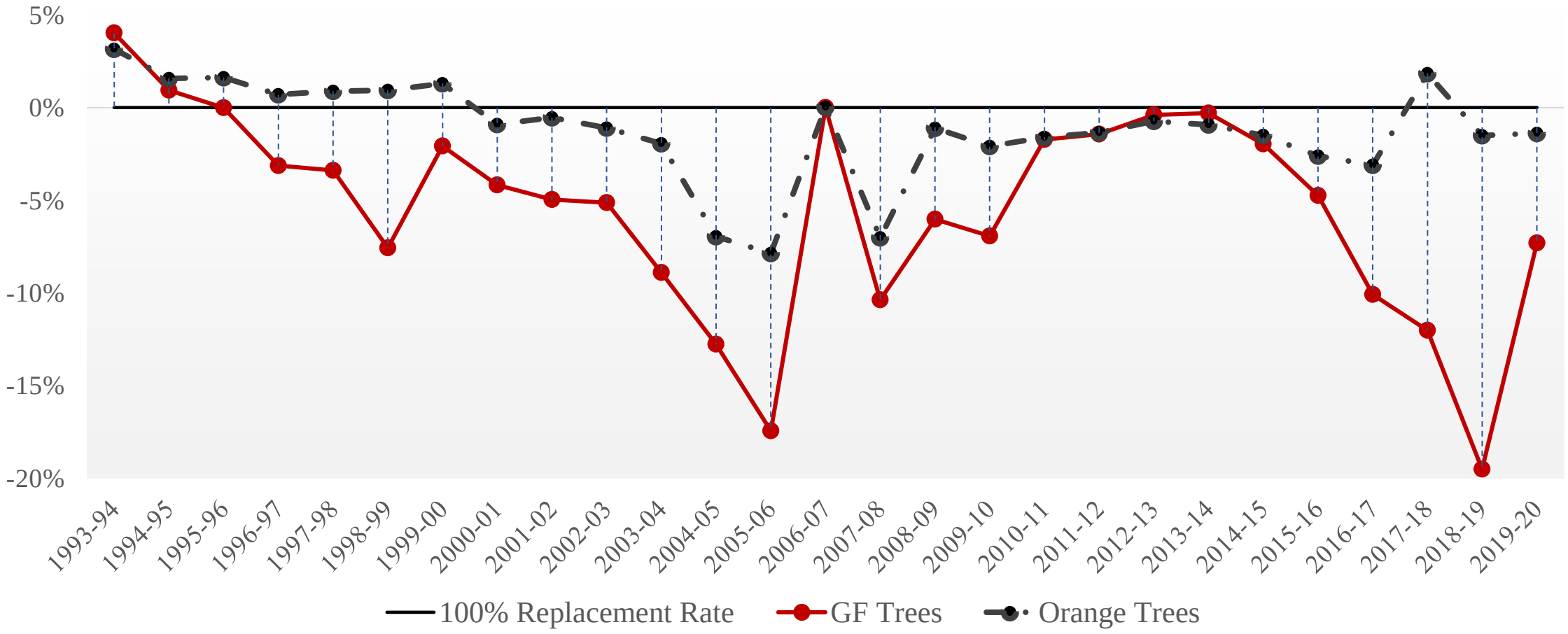
[a] Status Quo: **80% Replant Rate with 20-21 yields;** [b] Current trajectory:**80% Replant Rate with declining yields** [c] Aggressive replant rate: **125% of replacement planting level.**

Commercial Red Grapefruit Tree Inventory

Age Distribution of Red Florida Grapefruit Trees by Year of Inventory

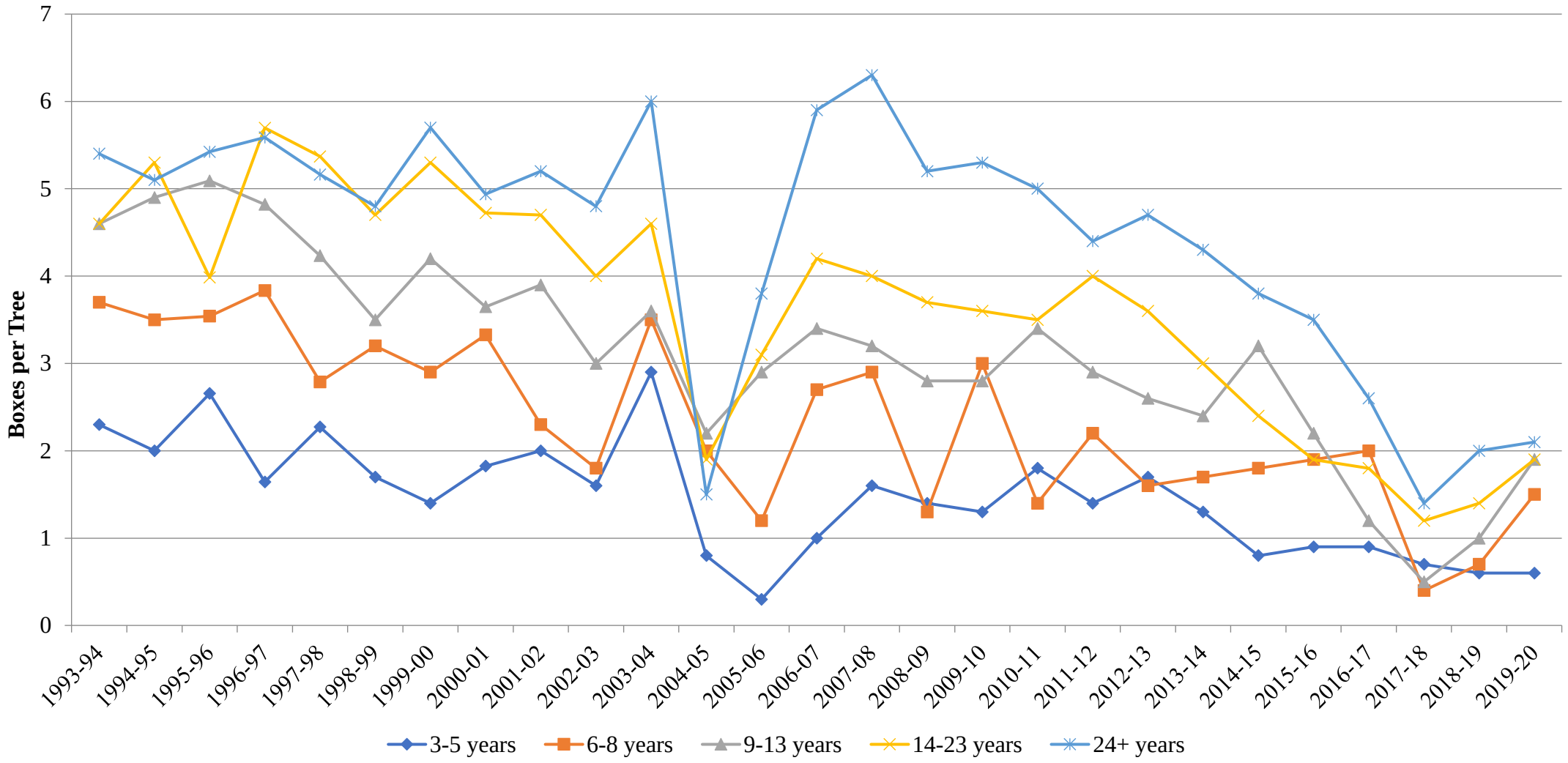
Year of Inventory	Tree Age						Total Trees	Bearing Trees
	≤2	3-5	6-8	9-13	14-23	≥24		
	- - - - - - - - - - - - - - - - - - - % -						- - - - millions - - - -	
1980	8.9	10.5	10.7	21.6	15.8	32.5	10,768.7	9,586.2
1984	11.4	6.7	7.5	15.7	32.1	26.7	10,582.9	9,192.8
1990	21.8	6.2	8.0	9.1	31.4	23.5	11,193.2	8,748.5
1992	27.2	14.0	5.5	8.6	19.1	25.6	13,119.2	9,556.9
2004	8.0	4.0	4.9	32.1	27.0	24.1	9,748.3	8,967.9
2010	4.5	5.5	5.5	5.7	50.1	28.8	5,445.9	5,201.0
2011	5.9	4.4	5.4	6.2	48.3	29.8	5,349.6	5,036.4
2012	6.4	4.2	5.7	6.3	44.9	32.5	5,272.3	4,934.6
2015	9.5	7.3	4.2	7.3	24.1	47.6	4,933.1	4,462.3
2016	8.4	10.2	4.4	7.1	20.1	49.8	4,582.0	4,198.5
2017	7.7	9.8	6.9	6.5	11.4	57.7	3,797.8	4,116.6
2018	4.3	13.1	7.7	5.8	9.0	60.1	3,597.9	3,440.8
2019	2.7	11.0	9.9	5.2	6.9	64.3	3,008.4	2,908.7
2020	4.0	7.2	10.6	8.3	9.2	60.7	2,714.9	2,594.1

Florida red grapefruit tree replacement rate*



* Calculated as difference between loss rate and replanting rates

Historical Red Grapefruit Tree Yields by Tree Age



USDA/NASS Citrus Statistics Summary, *Various Issues*

Florida Red Grapefruit Production Scenarios

Baseline: 3.48 million 85-lb boxes using the estimated 20-21 fruit per tree yields.

Scenarios illustrated in report:

1. Status Quo: 50% tree replacement rate using estimated 2020-21 fruit yields
2. Maintenance Replanting: 100% tree replacement rate with estimated 2020-21 fruit yields

****A forecast for the 2021-22 season will be made in October 2021 by the USDA/NASS**

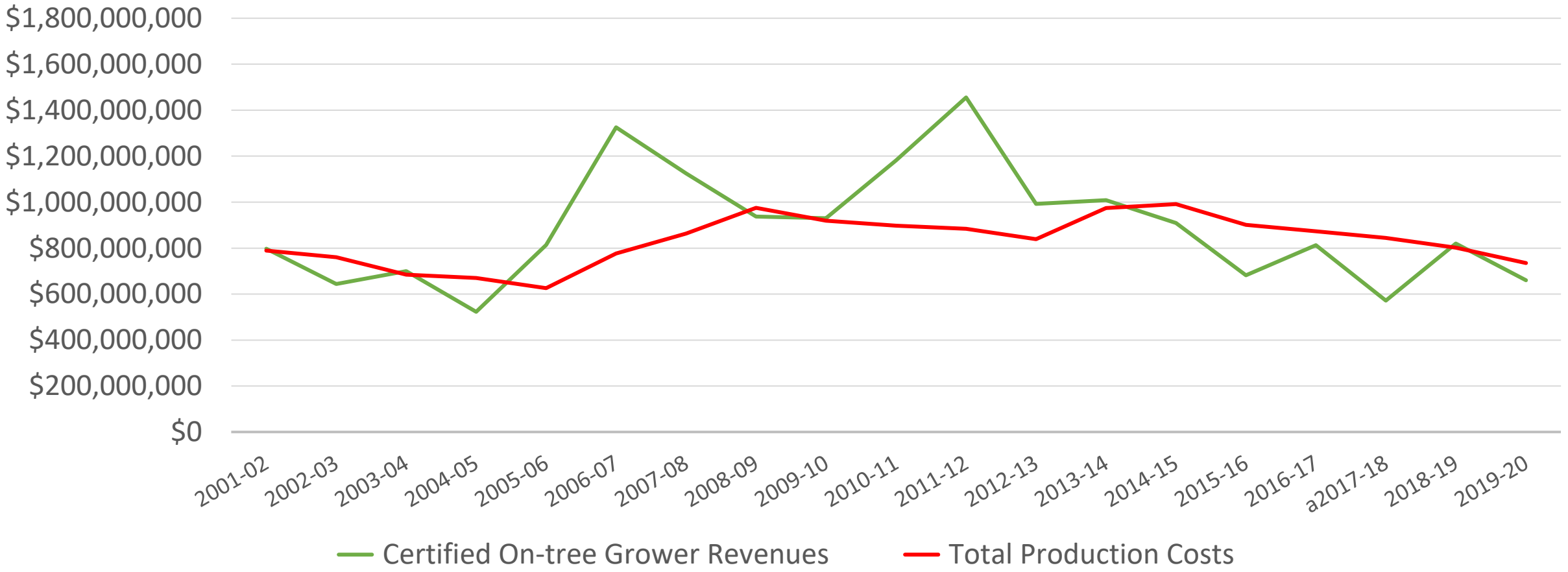
FL Red Grapefruit Production Projections

Season	50% Replant	100% Replant
	---------- millions 85-lb boxes ----------	
2022-23	3.16	3.16
2023-24	3.07	3.09
2024-25	2.97	3.04
2025-26	2.89	3.00
2026-27	2.80	2.96
2027-28	2.71	2.93
2028-29	2.63	2.90
2029-30	2.55	2.87
2030-31	2.48	2.86
2031-32	2.41	2.85

Implications of Current Commercial Tree Inventory

- The commercial tree inventory has aged, but in an era of reduced yields
- Fruit yields per tree have declined substantially over last 7 years.
- Declining bearing tree numbers resulting from insufficient tree replacement rate.
- The 2017-18 season is noteworthy in that round orange tree plantings exceeded tree losses for the first time since the 1999-00 season. From an industry standpoint, this event should have marked the beginning of a turn-around in Florida orange production.

Grower returns decrease over time with lost production



** *The listed estimated production costs are based on published costs per acre in Southwest Florida across total bearing acreage each seasor Production cost Includes Tree replacement, Management, Regulatory Costs, Interest on Operating Costs, and Interest on Capital Costs.

Incentives to replant

- The key findings were that incentive programs are a crucial component to accelerating the restoration of the commercial tree inventory.
- Incentive programs have shown success but must be inclusive for all growers.
- 2018 study on economic benefits of replanting provided a quantitative assessment of investing in new plantings over a 20-year time horizon and found substantial economic impacts under all replanting scenarios evaluated.*

Citation: Zansler, M., Spreen, T., & Court C. (2018). *The Economics of Restoring Florida's Commercial Orange Tree Inventory* [White paper]. Food and Resource Economics Department, University of Florida. https://www.floridacitrus.org/grower/economic-market-resources/research/

Concluding Remarks

- The results suggest that recovery of production of both round oranges and red grapefruit will be a lengthy process unless a major breakthrough is found that would substantially improve the yield curve and stimulate replanting efforts for Florida citrus.
- Aggressive replanting strategies in the near term are imperative or citrus production will continue to falter and impact the long-term sustainability of the industry in the State.
- The impact of declining production has had direct and indirect consequences on citrus infrastructure in the State.

Thank You