



# CISA

community  
involved in sustaining  
agriculture

## Insights on vegetable farm financial benchmarks

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# Acknowledgements

- Thank you to the many **farmers** who participated in and contributed their time, insights, and data to this program.
- **Pasa Sustainable Agriculture** initiated the program and did much to refine the survey, analyze data, and develop farm benchmark reports.
- John Hendrickson, Brad Barham, and Matthew Klein at the **University of Wisconsin** also helped design the original survey and analyze data.
- Massachusetts-area farmers' participation in this vegetable benchmark program was supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the **Northeast Sustainable Agriculture Research and Education** program under subaward number LNE20-394.



# Background: Vegetable Farm Financial Benchmark Program

- Five years now complete
- All participants diversified commercial vegetable farms
  - Average farm had 75% of gross revenue from vegetables (but varied)
- A mix of marketing strategies represented, with no farms exclusively wholesaling, and most farms marketing through more than one of the following channels:
  - Farmers' markets
  - Farmstands/stores
  - CSAs
  - Direct wholesale
  - Distributor/food hub wholesale

# Participants in the original vegetable farm financial benchmark study:

- Started by Pasa in 2017
- Original participants:
  - 36 farms in 2017
  - 32 farmers in 2018
  - 23 farms in 2019
- Numbers synthesized in Pasa's report, available at: <https://pasafarming.org/resources/financial-benchmarks-for-direct-market-vegetable-farms>

FIGURE 1. ACRES IN VEGETABLE PRODUCTION

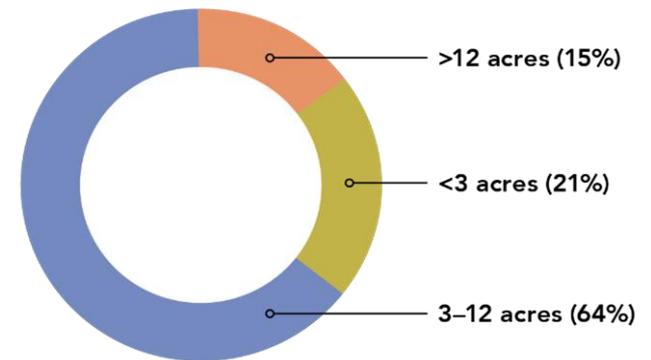
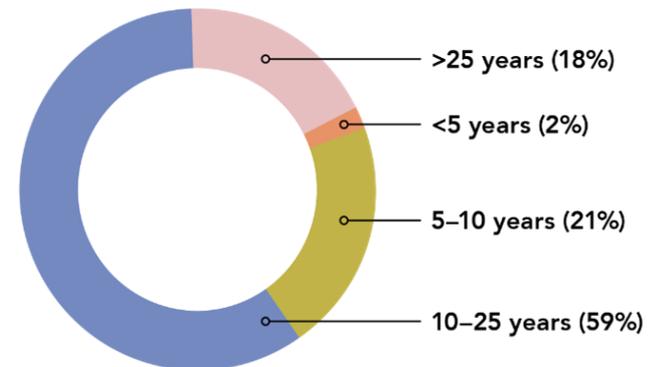


FIGURE 2. YEARS OF FARMING EXPERIENCE

*Includes experience as farm managers and farm workers*



# Participants in the current vegetable farm financial benchmark program:

Starting in 2020, Pasa partnered with CISA and CFSA to coordinate an expanded vegetable financial benchmark program, with three separate cohorts and about 50 farms taking part each year:

2020

- 28 farms in PA + surrounding area
- 15 farms in MA + surrounding area
- 8 farms in the Carolinas

2021

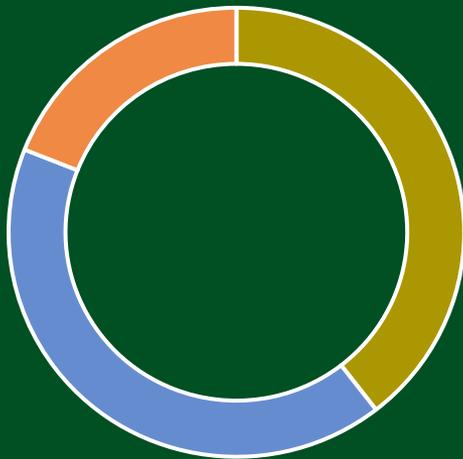
- 23 farms in PA + surrounding area
- 16 farms in MA + surrounding area
- 9 farms in the Carolinas



# Participants in the current vegetable farm financial benchmark program:

2020

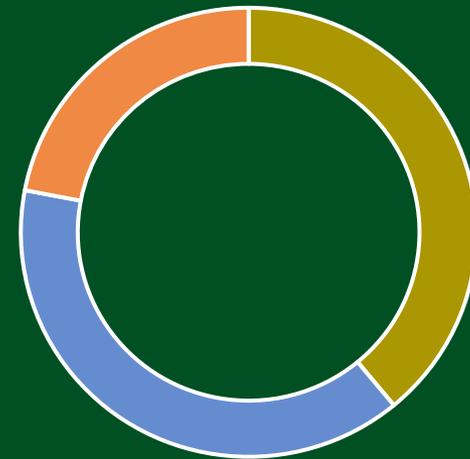
ACRES IN ACTIVE VEG PRODUCTION



■ <3 acres (39.5%) ■ 3-12 acres (41.5%) ■ >12 acres (19%)

2021

ACRES IN ACTIVE VEG PRODUCTION



■ <3 acres (39%) ■ 3-12 acres (39%) ■ >12 acres (22%)

# A Whole Farm Survey

- Farm context
- Revenues by market channel
- Expenses by Schedule F categories
- Assets and debts

\* Schedule F as a *guideline*

*In addition to schedule F, farmers used profit & loss statements, balance sheets, and often their chart of accounts to complete survey.*

# Financial analysis performed for both:

Vegetable Enterprise =

sales of fresh vegetables (+ berries) raised on the farm

Whole Farm Business =

vegetable sales PLUS resale, other crops, livestock, value-added, agritourism, COVID relief, grants, etc.

- *Almost all participating farms had non vegetable income too*
- *Separating out veg enterprise important for apples-apples comparison*
- *Income relatively easy to split between enterprises*
- *Dividing expenses between veg and non-veg relied on estimates*

Key metrics included in  
our analysis...

# Gross Vegetable Enterprise Revenue

2017-19  
(average)

TABLE 2. GROSS VEGETABLE ENTERPRISE REVENUE

Scale	Percentile				
	10	25	median	75	90
< 3 acres	\$17,264	\$41,844	\$64,704	\$82,260	\$114,761
3-12 acres	\$32,752	\$44,543	\$92,030	\$140,370	\$218,435
> 12 acres	\$457,584	\$464,974	\$488,773	\$606,969	\$750,297

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	6,932	33,234	84,439	169,609	199,460
3-12	46,800	73,210	130,246	205,640	270,241
12 or more	96,000	268,782	395,771	624,126	877,502

2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	10,355	41,283	71,658	178,791	246,815
3-12	27,851	48,585	134,114	218,374	257,935
12 or more	450,416	513,258	602,067	967,026	1,170,195

- Benchmarks are broken into percentiles based on **active vegetable acreage**
- Data showed for each period to show **variability**
- Gross sales for all vegetables grown on-farm, sold through any market

# Gross Vegetable Enterprise Revenue per Acre

2017-19  
(average)

TABLE 3. GROSS VEGETABLE ENTERPRISE REVENUE PER ACRE

Scale	Percentile				
	10	25	median	75	90
< 3 acres	\$19,882	\$27,032	\$46,413	\$56,193	\$64,820
3-12 acres	\$8,393	\$11,223	\$20,655	\$29,194	\$33,565
> 12 acres	\$11,600	\$20,854	\$23,250	\$33,834	\$35,342

= gross vegetable enterprise revenue / acres in vegetable production

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	11,216	20,750	43,620	72,757	130,632
3-12	9,277	17,788	24,269	36,666	41,991
12 or more	8,000	11,781	18,807	25,739	28,620

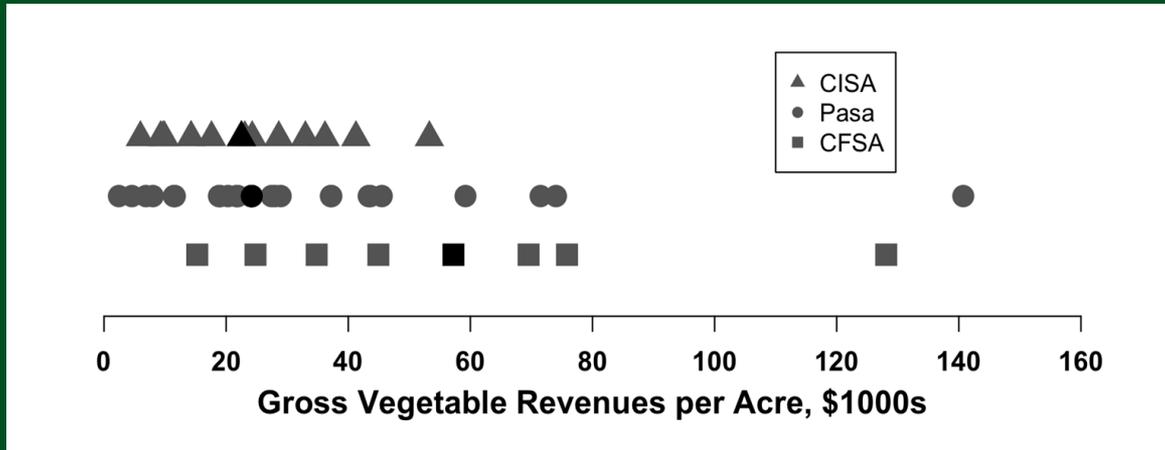
2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	21,012	27,878	43,138	96,442	144,972
3-12	5,139	10,850	22,167	31,235	39,517
12 or more	11,661	16,889	19,641	30,273	35,689

- How much revenue a vegetable enterprise generates per acre
- Only acres used for veg production for at least part of the year (not farm lanes, cover crops, etc.)
- Higher values may reflect productive soil, better marketing opportunities, or intensive management

# Gross Vegetable Enterprise Revenue per Acre

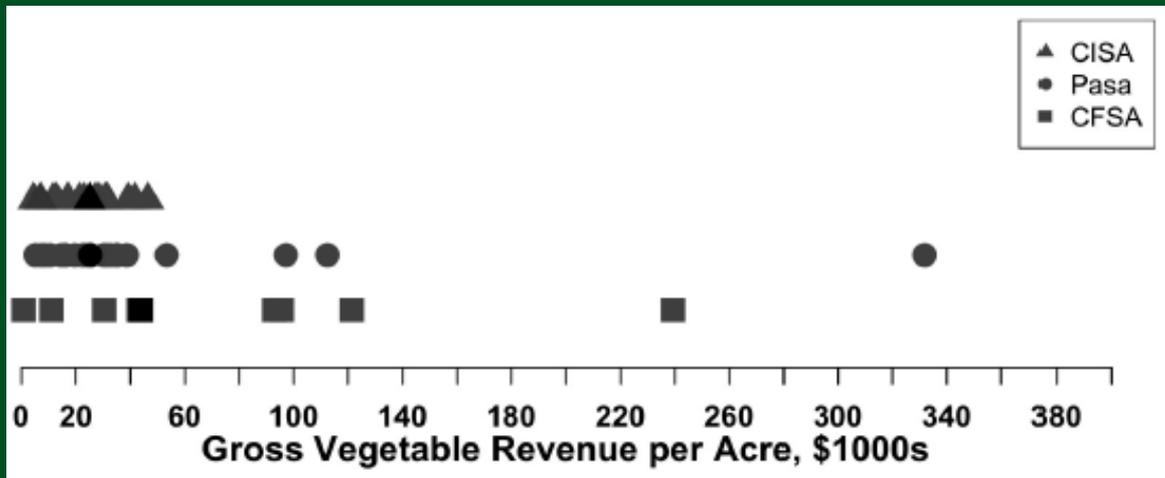
2020



- This chart shows the same benchmark, but plots each participating farm alongside peers in its respective geographic cohort – so you can see the full range of variability among farms

- The bolded black symbol indicates the median value for each geographic cohort

2021



- Triangles = CISA's farms

- Circles = Pasa's farms

- Squares = Carolina farms

What is the net income  
per acre for a typical  
vegetable farm?

# Net Income per Acre in Vegetables

2017-19  
(average)

TABLE 5. NET INCOME PER ACRE IN VEGETABLES

Scale	Percentile				
	10	25	median	75	90
< 3 acres	-\$4,310	-\$101	\$2,163	\$2,901	\$8,180
3-12 acres	-\$7,337	-\$1,166	\$2,890	\$6,464	\$9,094
> 12 acres	\$1,950	\$2,139	\$2,968	\$3,232	\$7,016

= (gross vegetable enterprise revenue – vegetable enterprise operating expenses) /  
acres in vegetable production

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-1,497	2,226	9,300	19,154	37,198
3-12	-3,086	130	4,980	12,982	15,027
12 or more	-584	1,378	3,025	4,973	6,378

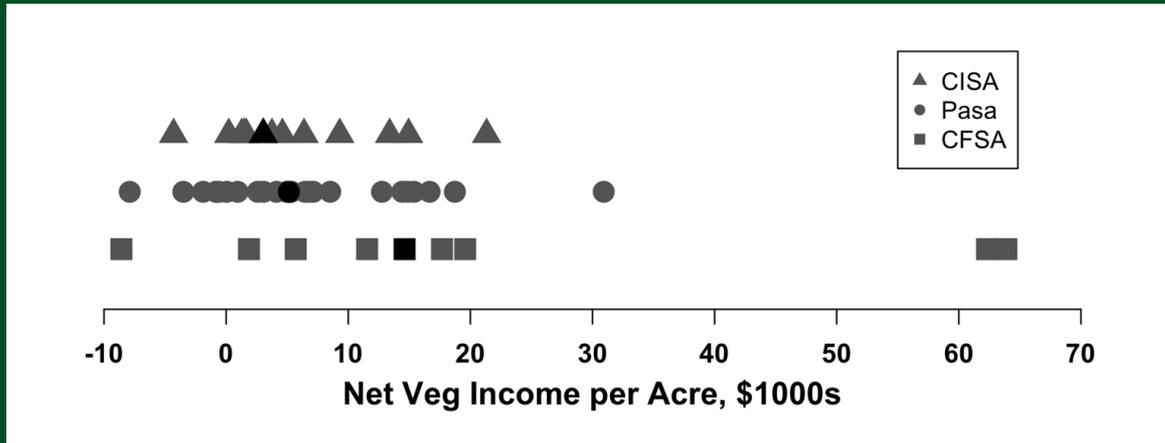
2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-42,747	-3,521	8,664	20,591	40,747
3-12	-3,791	-483	2,129	7,400	14,663
12 or more	-571	-102	3,748	6,936	7,343

- Only acres used for active veg production counted
- This is the money left to cover salaries for farm owners, any unpaid family labor, and depreciation costs/farm investments
- Range in medians:
  - >3 acres: \$2,000-\$9,000
  - 3-12 acres: \$2,000-5,000
  - >12 acres: \$3,000-4,000

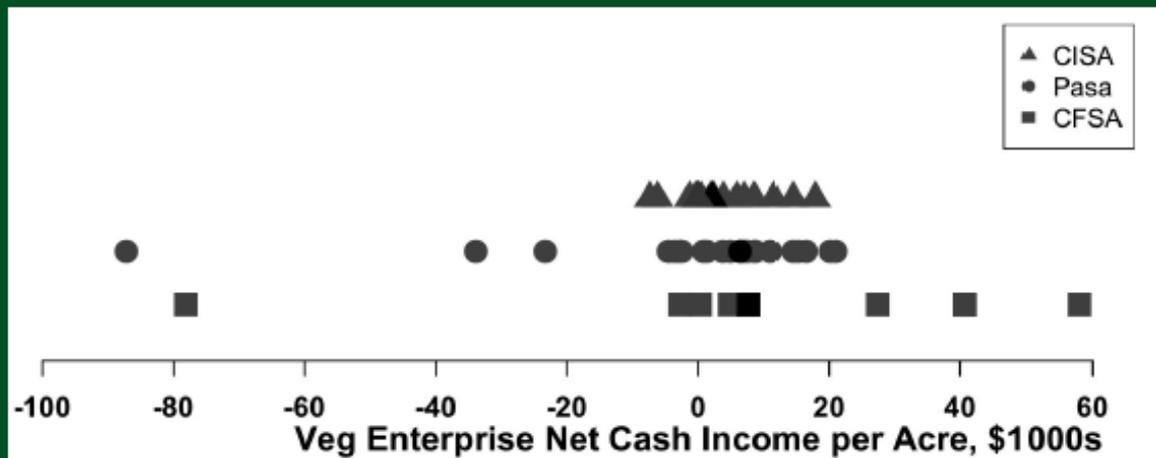
# Net Income per Acre in Vegetables

2020



- This shows the range in net income per acre across each of the three geographic cohorts for 2020 and 2021

2021



# Vegetable Enterprise Net Income

2017-19  
(average)

TABLE 4. VEGETABLE ENTERPRISE NET INCOME

Scale	Percentile				
	10	25	median	75	90
< 3 acres	-\$8,764	\$77	\$1,844	\$6,435	\$8,684
3-12 acres	-\$27,064	-\$5,216	\$12,079	\$30,825	\$53,096
> 12 acres	\$54,052	\$74,207	\$86,964	\$116,079	\$161,947

= gross vegetable enterprise revenue - vegetable enterprise operating expenses

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-1,066	2,732	18,600	36,593	65,307
3-12	-15,717	1,041	24,901	68,602	89,272
12 or more	-16,365	16,590	75,050	138,593	216,406

- Again, this is the total money left to cover salaries for farm owners, any unpaid family labor, and depreciation costs/farm investments

2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-22,608	-2,739	25,993	49,184	76,593
3-12	-26,936	-1,815	13,085	59,604	72,395
12 or more	-45,375	-4,092	61,840	205,175	216,812

# Veg Enterprise Net Income to Revenue Ratio

2017-19  
(average)

TABLE 7. VEGETABLE ENTERPRISE NET INCOME TO REVENUE RATIO

Scale	Percentile				
	10	25	median	75	90
< 3 acres	-12%	-4%	3%	12%	15%
3-12 acres	-87%	-6%	14%	22%	38%
> 12 acres	9%	9%	14%	26%	34%

= 100% \* (gross vegetable enterprise revenue – vegetable enterprise operating expenses / gross vegetable enterprise revenue)

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-14.4	3.2	25.8	44.2	53.7
3-12	-22.3	0.5	16.6	37.8	45.0
12 or more	-3.1	8.8	21.3	22.2	24.7

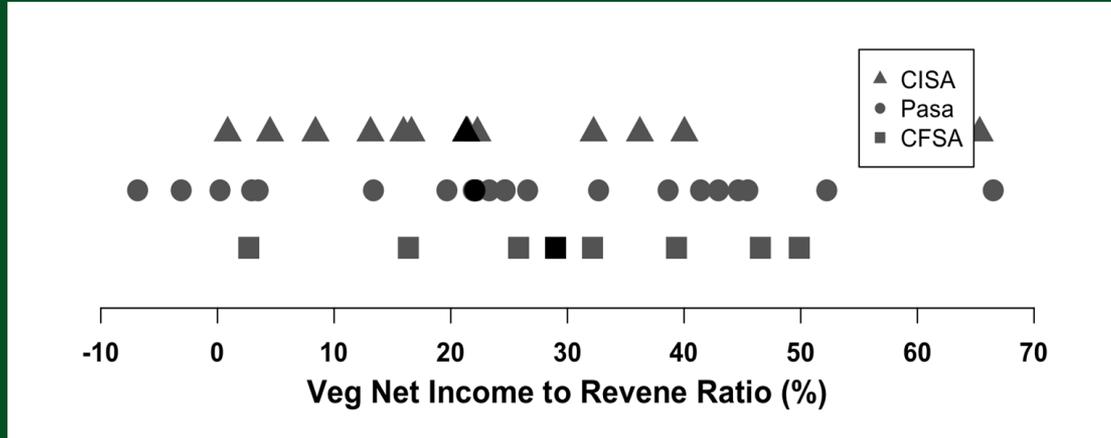
2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-59.6	-15.5	24.2	38.0	45.7
3-12	-25.9	0.3	12.4	34.2	46.5
12 or more	-3.4	-0.8	10.7	22.3	27.6

- Net as a % of gross income – aka **Net Profit Margin**
- Negative numbers indicate a net loss. A vegetable enterprise is probably not financially viable if this is consistently close to zero.
- A Purdue University study of 437 farms recommended **20%+** as a benchmark to properly compensate owners

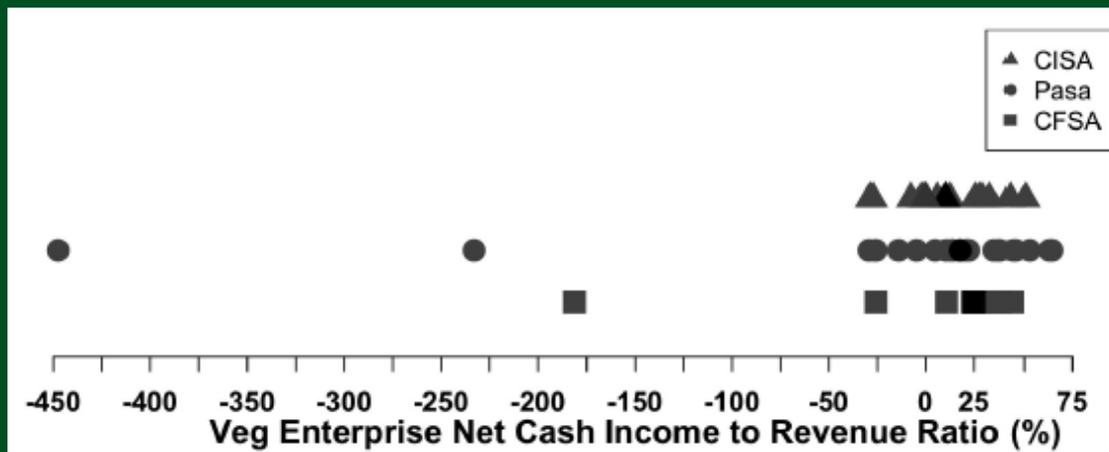
# Veg Enterprise Net Income to Revenue Ratio

2020



- This shows the range in net profit margin across each of the three geographic cohorts for 2020 and 2021

2021



# Farm Business Net Income

2017-19  
(average)

TABLE 11. FARM BUSINESS NET INCOME

Scale	Percentile				
	10	25	median	75	90
< 3 acres	-\$9,536	\$2,968	\$5,791	\$13,577	\$21,186
3-12 acres	-\$8,266	\$9,915	\$29,907	\$52,145	\$65,048
> 12 acres	-\$12,134	\$48,915	\$81,151	\$162,695	\$228,083

= gross farm business revenue – farm business operating expenses

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	688	11,470	36,985	68,790	99,459
3-12	-2,438	13,440	40,579	99,060	154,725
12 or more	-88	65,360	149,113	172,742	228,695

2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-17,868	2,848	57,968	81,287	103,597
3-12	-3,097	45,800	66,307	113,815	239,626
12 or more	131,983	152,666	270,852	461,340	794,422

- Net income generated by the whole farm business (not just the veg enterprise)
- Key note: includes COVID relief and grant income, a key factor increasing farm business net income in 2020 and 2021 (less so in 2017-19)
- Net income must often cover multiple FTEs and capital improvements, especially on larger farms

How many hours of labor  
are needed per acre for a  
typical vegetable farm?

# Total FTEs per Acre for Veg Enterprise

(Note: data collected starting in 2020)

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	0.55	0.79	1.25	2.17	3.83
3-12	0.46	0.55	0.66	0.79	1.17
12 or more	0.21	0.26	0.43	0.52	0.65

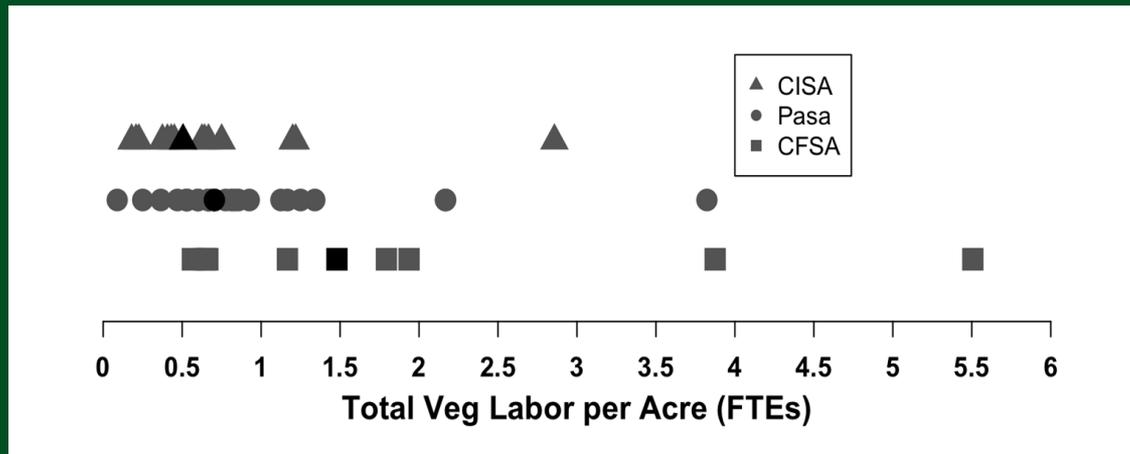
2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	0.60	0.82	1.75	2.55	4.28
3-12	0.29	0.39	0.63	0.82	0.99
12 or more	0.25	0.30	0.41	0.48	0.49

- Total FTEs per acre shows the total Full Time Equivalents (FTEs) of work the farm put into their veg enterprise, including any paid farm employees as well as farm owners and unpaid family
- 1 FTE = 2,080 hours over a calendar year (40 hours x 52 weeks, though most hours occur in spring/summer/fall)
- Median annual hours/acre:
  - <3 acres: 2,600-3,600
  - 3-12 acres: ; 1,300-1,400
  - >12 acres: 900

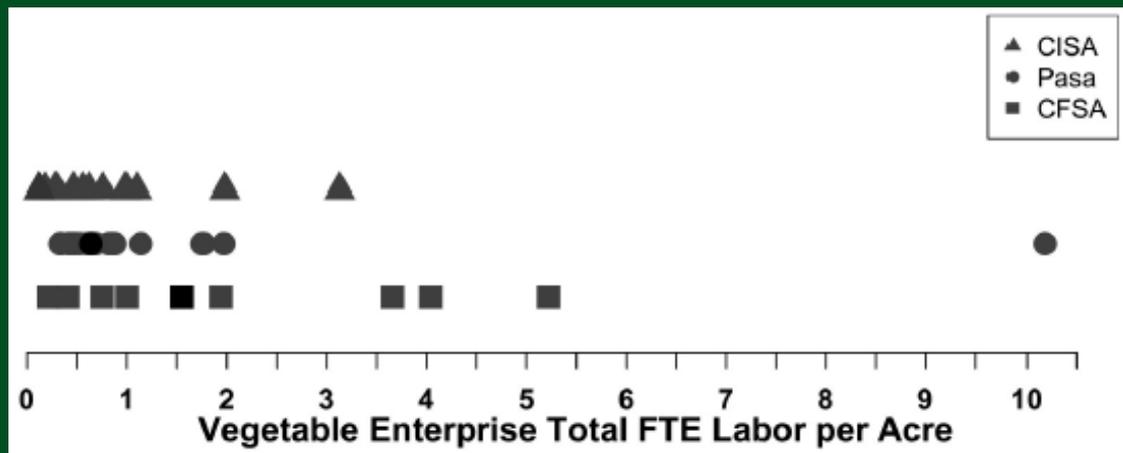
# Total FTEs per Acre for Veg Enterprise

2020



- This shows the range in FTEs per acre across each of the three geographic cohorts for 2020 and 2021.

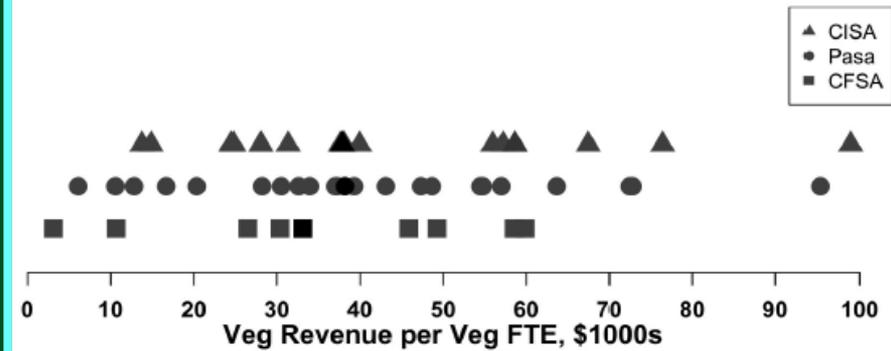
2021



# Gross revenue per FTE (2021 only)

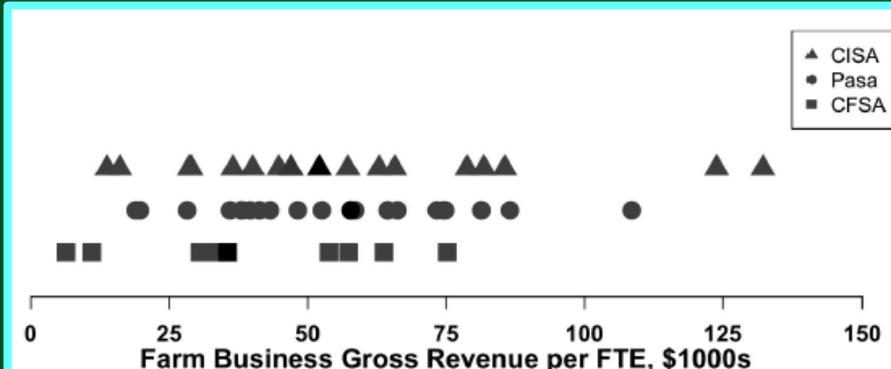
## Gross veg enterprise revenue per FTE

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	13,562	24,198	33,135	51,850	57,569
3-12	10,117	24,712	37,647	44,141	59,398
12 or more	11,661	16,889	19,641	30,273	35,689



## Gross farm business revenue per FTE

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	15,607	31,035	41,295	64,076	73,548
3-12	27,646	34,279	50,388	67,146	81,774
12 or more	11,661	16,889	19,641	30,273	35,689



- Gross revenue / number of FTEs
- A key indicator of performance tracked from year to year in many industries
- Can help evaluate labor efficiency, profitability, and if prices need to increase

What are typical wages  
paid to hired vegetable  
farm workers?

# If you hired employees, what was the approximate wage paid?...

2021 numbers reported by 16-farm CISA cohort

	For an entry-level employee	For a hired manager
25th percentile	\$ 13.75	\$ 16
Median	\$ 14.50	\$ 18
75th percentile	\$ 15	\$ 19.50

\* MA minimum wage was \$13.50 in 2021

*(Note: rapid increases have occurred in past two years, especially for entry-level employees -- MA minimum wage is now \$15 in 2023)*

What percentage of farm revenue is spent on payroll for a typical veg farm?

# Veg Enterprise Payroll to Revenue Ratio

2017-19  
(average)

TABLE 6. VEGETABLE ENTERPRISE LABOR PAYROLL TO REVENUE RATIO

Scale	Percentile				
	10	25	median	75	90
< 3 acres	0%	3%	12%	19%	70%
3-12 acres	11%	19%	26%	31%	53%
> 12 acres	32%	32%	33%	33%	35%

= 100% \* paid labor for vegetable enterprise / gross vegetable enterprise revenue

2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	0.0	2.1	26.1	31.7	43.4
3-12	10.2	23.0	31.2	43.9	76.1
12 or more	25.1	30.5	37.8	49.5	56.2

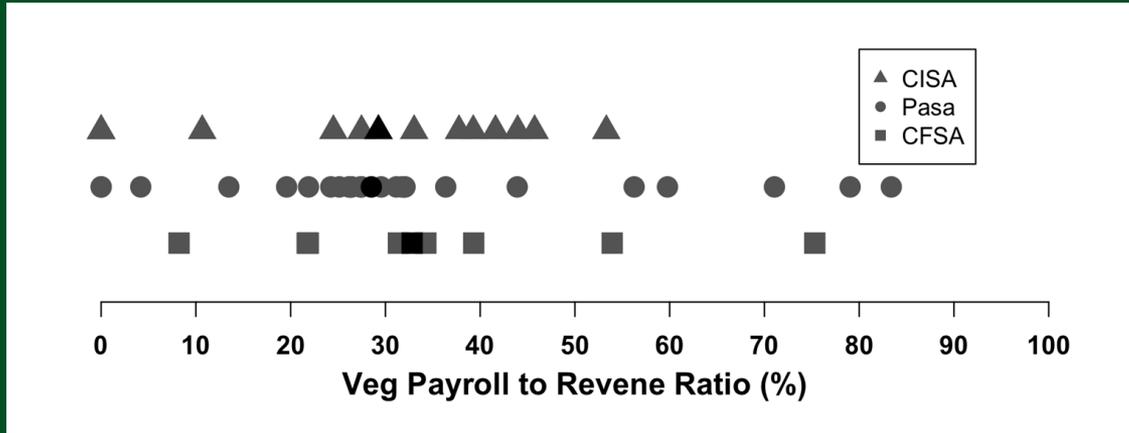
2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	9.2	17.6	25.0	37.6	60.6
3-12	5.4	22.5	31.3	47.4	58.7
12 or more	35.7	41.7	46.4	53.1	56.5

- Cost of paid labor associated with veg enterprise relative to gross veg enterprise revenue
- Does not include wages paid to farm owners or family
- On small farms with no workers, this ratio is zero.
- On large farms, typical range was 30% to 50+% - and very likely trending upwards?

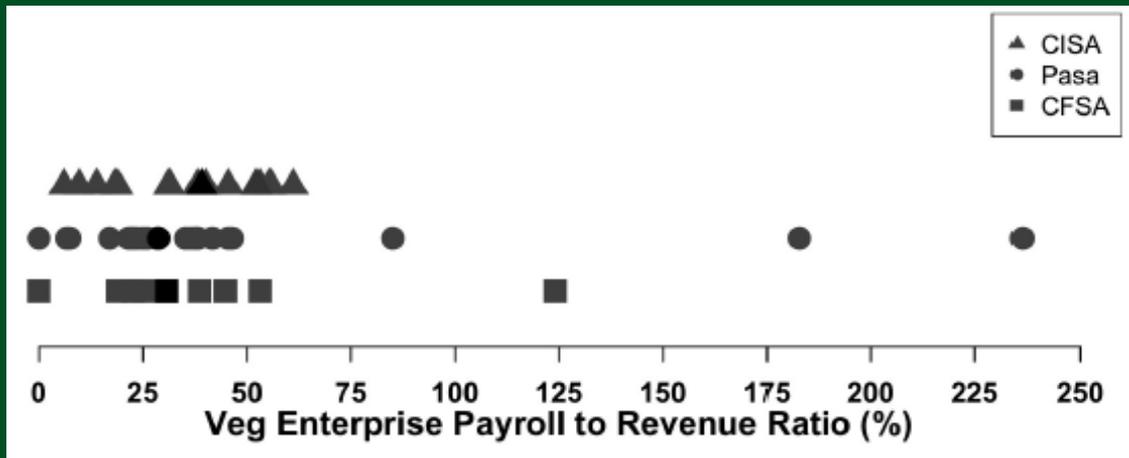
# Veg Enterprise Payroll to Revenue Ratio

2020



- This shows the range in veg enterprise payroll to revenue ratio across each of the three geographic cohorts for 2020 and 2021.

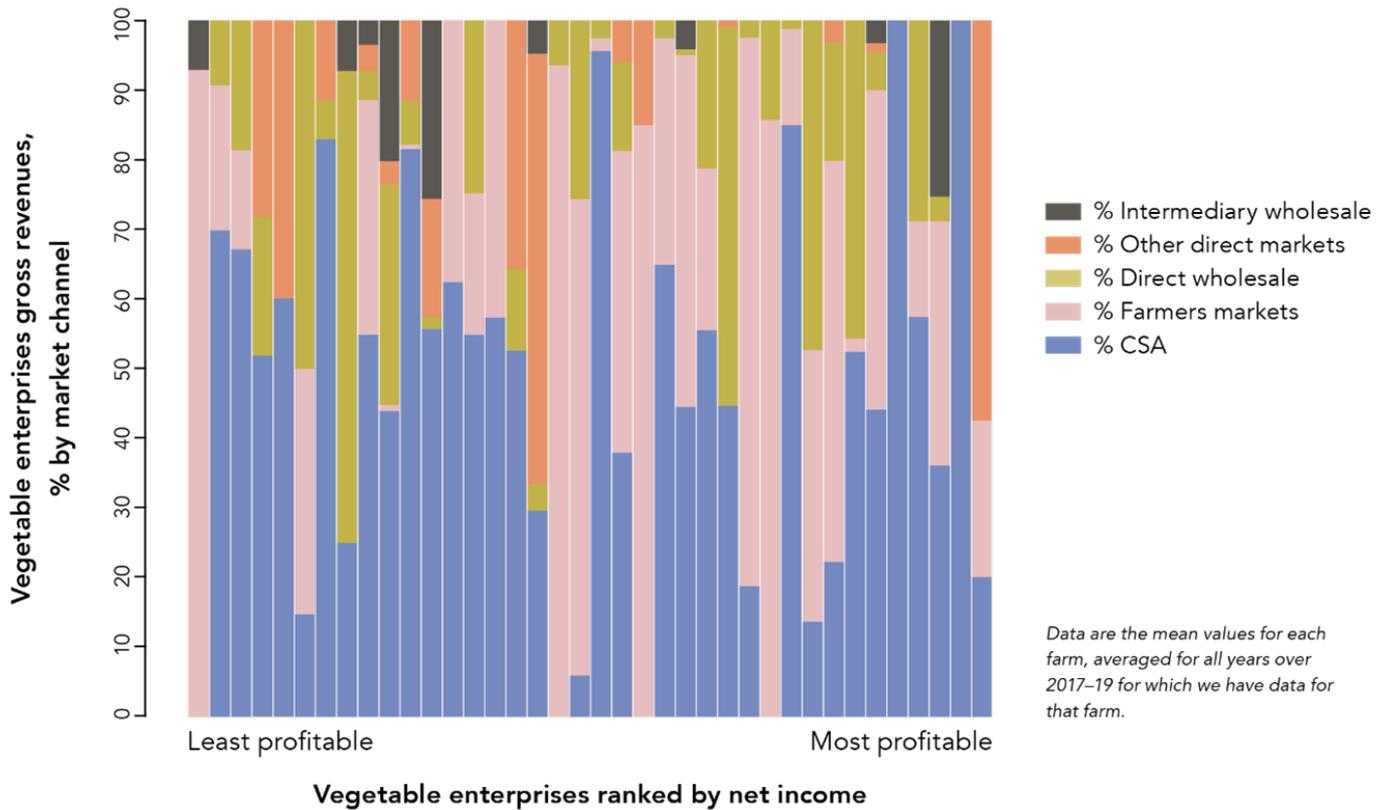
2021



Some other insights and  
lessons learned...

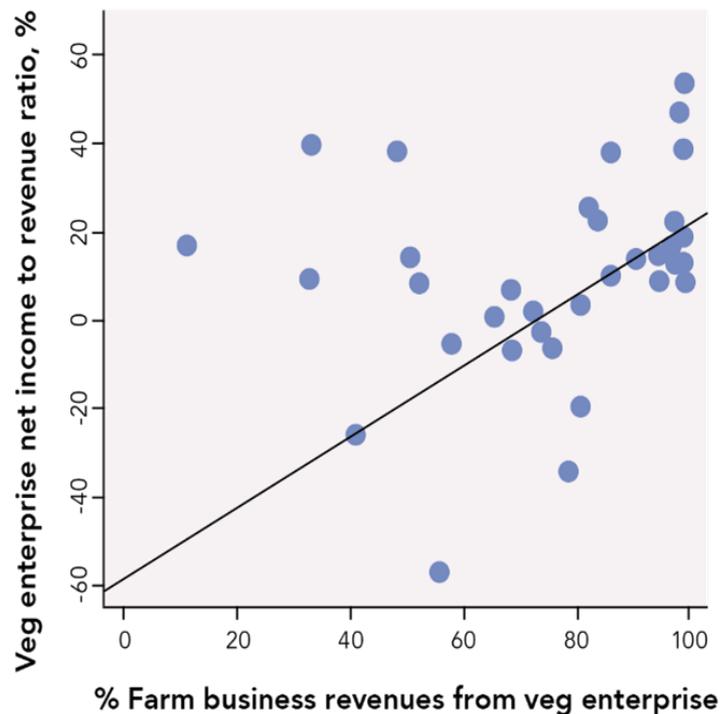
# Among original Pasa farms -- No market channel was a clear winner

FIGURE 5. NET VEGETABLE ENTERPRISE INCOME & MARKET CHANNEL COMPOSITION

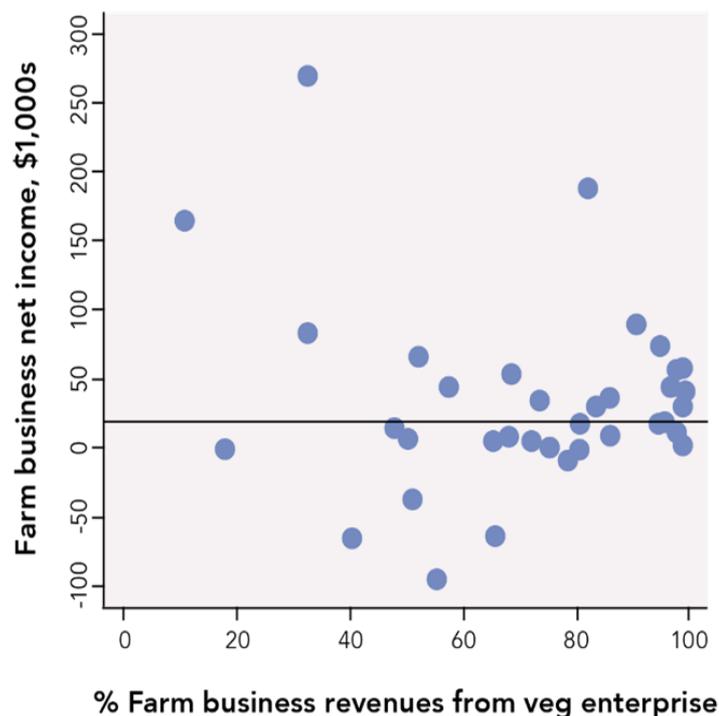


# Farms that focus on veggies may make more \$ on veggies \*

Veg enterprise net profit margin related to focus on veg enterprise, 2017-19



Farm business net income related to focus on veg enterprise, 2017-19



*Data are the mean values for each farm, averaged for all years over 2017–19 for which we have data for that farm*

**\* BUT are not necessarily more profitable overall...**

# ...and very likely miss out on other opportunities!

2020

Farm business net income, 2020

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	688	11,470	36,985	68,790	99,459
3-12	-2,438	13,440	40,579	99,060	154,725
12 or more	-88	65,360	149,113	172,742	228,695

2021

Farm business net income, 2021

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Veg enterprise net income, 2020

Vegetable Acres	Percentile				
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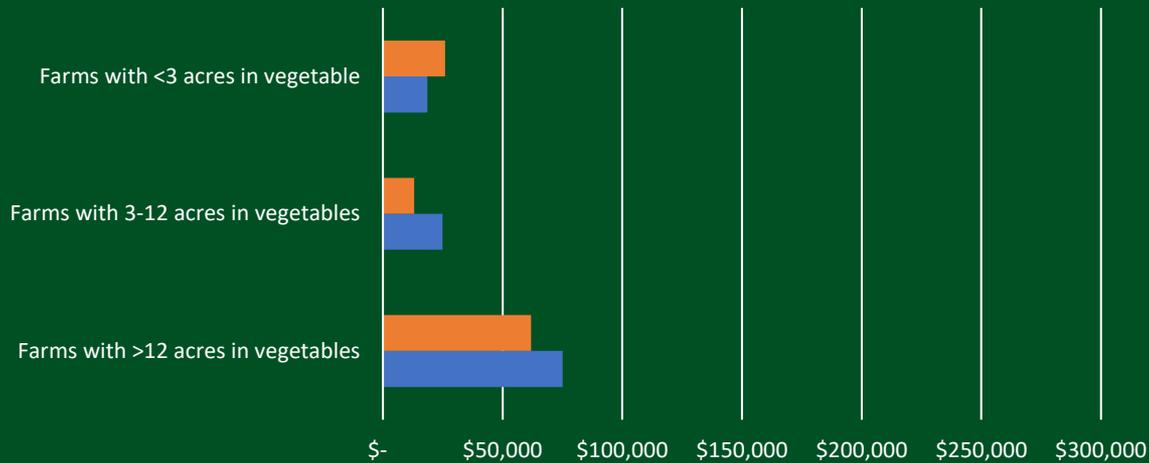
Veg enterprise net income, 2021

Vegetable Acres	Percentile				
	10	25	Median	75	90
3 or less	-22,608	-2,739	25,993	49,184	76,593
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12 or more	-45,375	-4,092	61,840	205,175	216,812

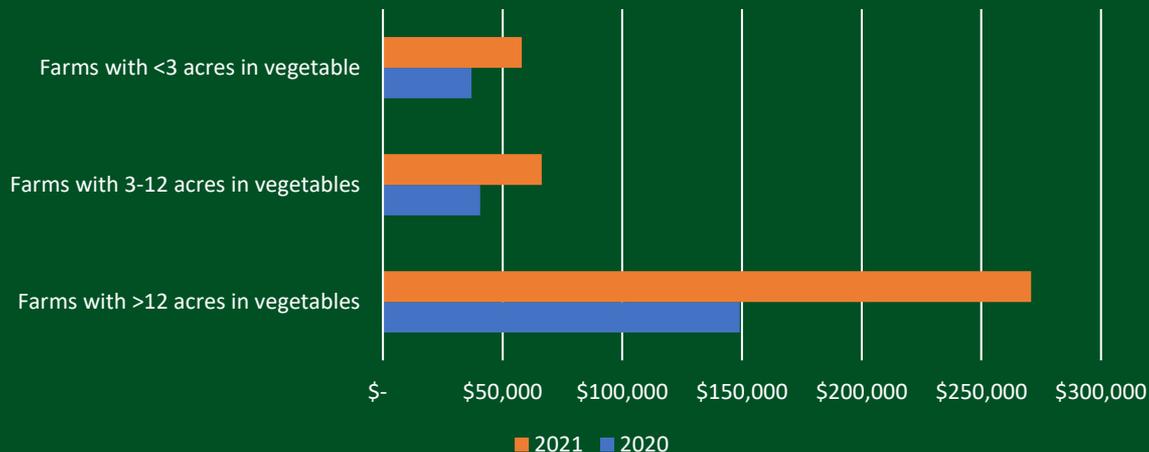
- The median net from vegetables was only 20%-60% of median total farm business net
- Other enterprises besides vegetables were key contributors to profitability on most farms
- But note: COVID-relief and other grant funding played an unusually large role in 2020-21

# Can veg farmers make a middle-class living growing vegetables?

Median veg enterprise net income for all participating farms



Median farm net income for all participating farms



- 2021 median household incomes by state were:

--\$89,026 for MA

--\$67,587 for PA

--\$60,516 for NC

## Key Notes & Caveats:

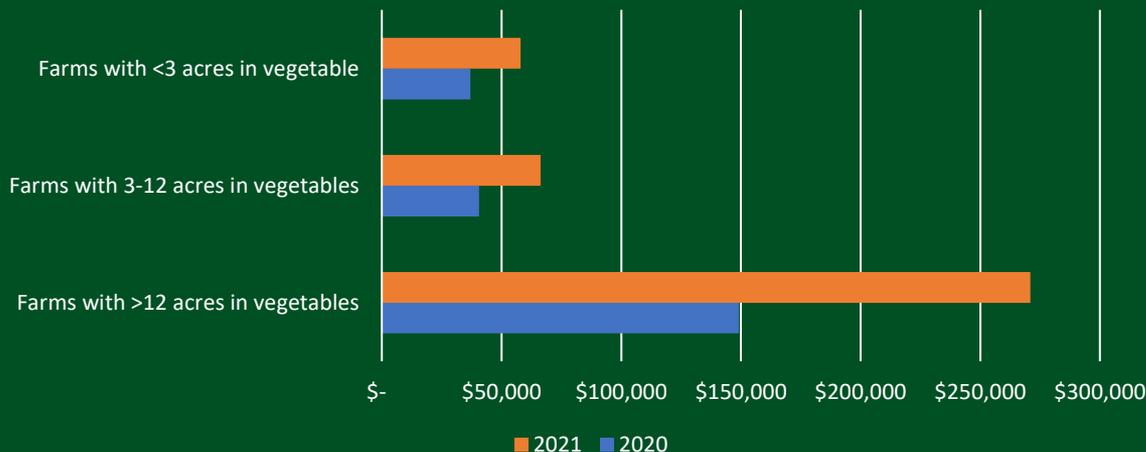
- Depreciation NOT included
- Remember, in 2020 and 2021, COVID relief temporarily & significantly inflated net farm income
- Most farms in the study had off-farm income. On study farms, median household income was about 70% higher than median farm net income

# Can veg farmers make a middle-class living growing vegetables?

2021 income reported by 16-farm CISA cohort:

	Percentile				
	10	25	Median	75	90
Total Farm Net Income With Grants	\$ (1,074)	\$ 32,675	\$ <b>56,411</b>	\$ 150,865	\$ 212,951
Farm Net Without Grants	\$ (9,938)	\$ (216)	\$ <b>37,268</b>	\$ 62,613	\$ 127,233
Farm Net <b>per Owner FTE</b> Without Grants	\$ (7,935)	\$ 579	\$ <b>17,641</b>	\$ 31,471	\$ 64,716
Farm Net Without Grants + Household Off-farm Income	\$ 15,903	\$ 41,245	\$ <b>68,032</b>	\$ 134,078	\$ 167,233

Median farm net income for all participating farms



- 2021 median household income in MA: --\$89,026
- Grant income was more common and substantial on larger farms
- Off-farm income was more common and substantial on smaller farms

# Can veg farmers make a middle-class living growing vegetables?

2017-19 veg rate of return per FTE of owner/family labor (39 Pasa farms):

TABLE 8. VEGETABLE ENTERPRISE RATE OF RETURN ON FARM OWNER LABOR

Scale	Percentile				
	10	25	median	75	90
< 3 acres	-\$45,956	-\$278	\$1,462	\$2,273	\$5,135
3-12 acres	-\$60,109	-\$2,101	\$9,819	\$16,770	\$31,882
> 12 acres	\$19,840	\$20,307	\$34,319	\$49,248	\$56,039

= 100% \* (gross vegetable enterprise revenue – vegetable enterprise operating expenses) /  
FTEs farm owner labor for vegetable enterprise

2021 whole farm rate of return per FTE of owner/family labor (16 CISA farms):

	Percentile				
	10	25	Median	75	90
Farm Net per Owner FTE Without Grants	\$ (7,935)	\$ 579	\$ 17,641	\$ 31,471	\$ 64,716

Review: key indicators of  
farm financial health to  
track from year to year...

# Some key points and lessons learned

- Numbers vary widely from year to year, and from farm to farm -- based on farm size, markets, overhead, **accounting methods**, and many other factors
- No one (or few) indicators or benchmarks give clear answers in isolation – but considering a combination can provide a great deal of food for thought in understanding
  - The interlocking puzzle pieces of your farm, and
  - How they relate to your goals for your farm
- Comparing your farm's numbers to others can provide food for thought... AND tracking and comparing your own farm's year-over-year numbers, using consistent accounting methods, is especially valuable

## *VEGETABLE ENTERPRISE INDICATORS: REVENUE & INCOME:*

1. Gross vegetable enterprise revenue
2. Percent farm business revenue from vegetable enterprise
3. Gross vegetable enterprise revenue per acre
4. Vegetable enterprise EBITDA (Earnings Before Interest, income Taxes, Depreciation, and Amortization)
5. Vegetable enterprise net cash income
6. Vegetable enterprise net cash income per acre
7. Vegetable enterprise net cash income to revenue ratio

Note: **EBIDTA** can be a useful variation on net income

- Main difference in this study: subtracts out interest
- Facilitates more apples-to-apples comparisons between farm

***VEGETABLE ENTERPRISE INDICATORS: LABOR & PAYROLL:***

8. Vegetable enterprise labor payroll to revenue ratio
9. Vegetable enterprise labor payroll per acre
10. Vegetable enterprise total Full Time Equivalent (FTE) labor per acre
11. Vegetable enterprise revenue per FTE

## *FARM BUSINESSES INDICATORS*

12. Gross farm business revenue
13. Farm business EBITDA (Earnings Before Interest, income Taxes, Depreciation, and Amortization)
14. Net cash income
15. Net cash income to gross revenue ratio
16. Farm business revenue per FTE

# Questions -

- Do you currently track financial benchmarks on your farm?
- Do you have ideas for how you'd like to track more key benchmarks on your farm?
- Any other takeaways?

# CISA

community  
involved in sustaining  
agriculture

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## Questions?

