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THE CHANGING LANDSCAPE OF FARM LABOR CONDITIONS IN THE UNITED STATES:

WHAT THE FUTURE HOLDS AND HOW TO PREPARE FOR IT

Wednesday, September 18, 2024

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Farm Foundation
Accelerating people & ideas



TIM BRENNAN

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USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

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WELCOME



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A VIDEO MESSAGE FROM TOM VILSACK,

UNITED STATES SECRETARY OF AGRICULTURE

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Economic Research Service

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PHILIP MARTIN

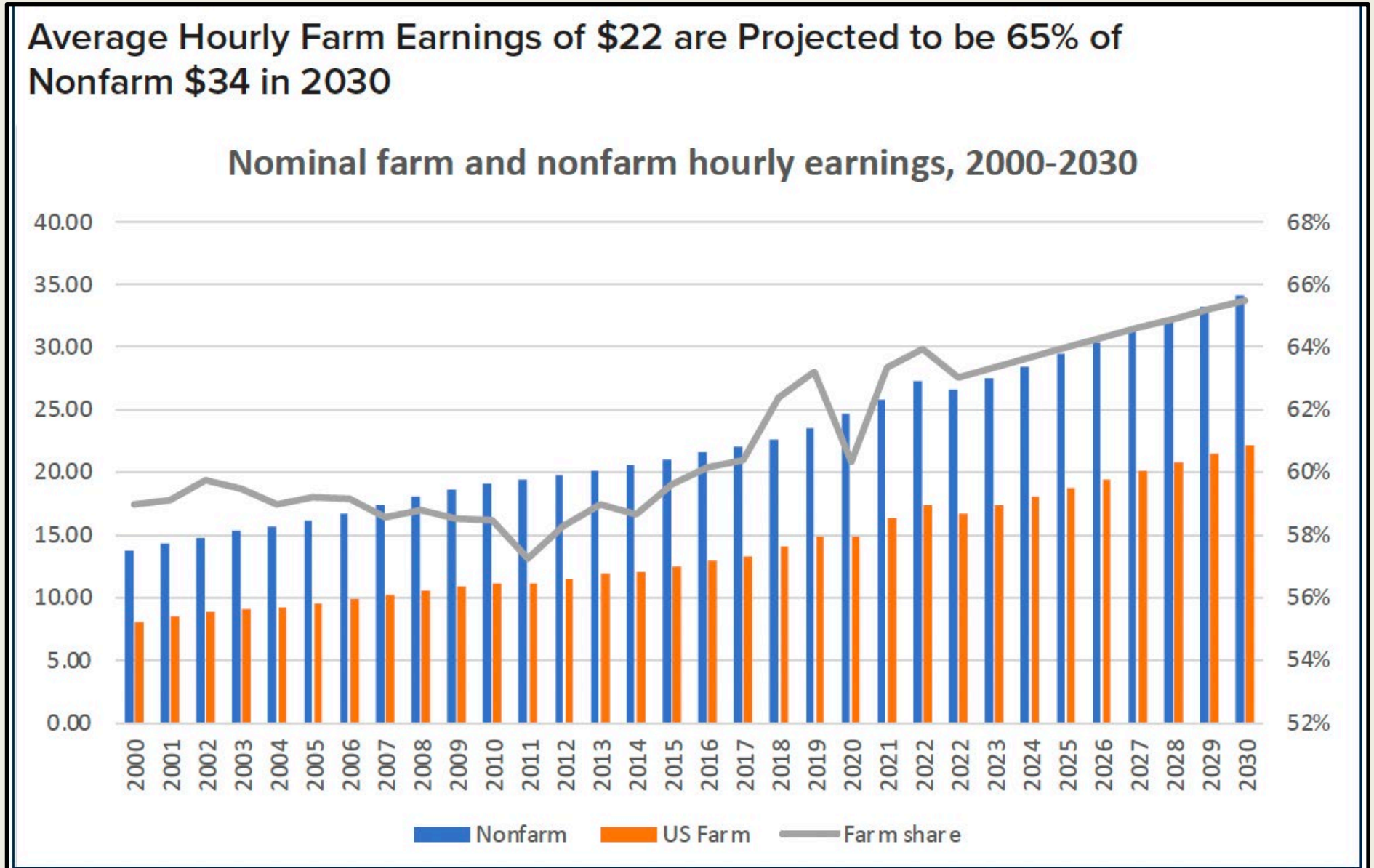
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Farm Labor: machines, migrants, imports

Philip Martin: plmartin@ucdavis.edu



Costs up: Demand>Supply, MMI responses

- **Stable D, shrinking S, costs up**
  - 1.5 mil average ag jobs; 2.5 million farm workers
  - NF crop support: 40%US; 60% CA; 50% H-2A
  - Ag wages up: D>S, min & AEWR, regs, H-2A
- **2 mil or 80% = Mex-born US farm workers**
  - 1.7 million non-H-2A; 50% unauthorized, average 42
  - 300,000 H-2A; average 32; 15 to 30% higher prody
- **MMI: Mechanization, Migrants, Imports**
  - Mech: pre-har vs har; mechanical aids; CEA (greenhouse)
  - H-2As: build housing or wait for FWMA?
  - Imports: 60% fresh fruit; 40% fresh vegs; Mex: 50 & 75%
- **Where to invest for F&V: all 3 MMI?**

US ag = 30+ sectors. Big 5 paid 2/3 of $57 bil UI farm wages in 2023
Crop support: $14b; Green $8b; F&N $6b; Dairy $5b; Vegs $4b
We do not know commodity of crop support















FLCs low wages: 55% of crop support emp; 43% of CS wages

3,100 US FLC estabs; 1,500 in CA

FLCs: Increase efficiency of worker-job matching OR act as risk absorbers for violations?

CALIFORNIA FARM LABOR CONTRACTOR ASSN.
CFLCA
SINCE 1969

FLCs: 183,000 or 21% of average US crop employment in 2023
QCEW: 542k direct hire, 333k CS (38%) of 875k average crop employ
UI covers 80% of US ag employment (1.1 million C+CS))







Greenhouse & Nursery: 10k estabs, 175,000 ave employ, $8b wages
½ G&N employ in nursery & tree production; ¼ in food under cover

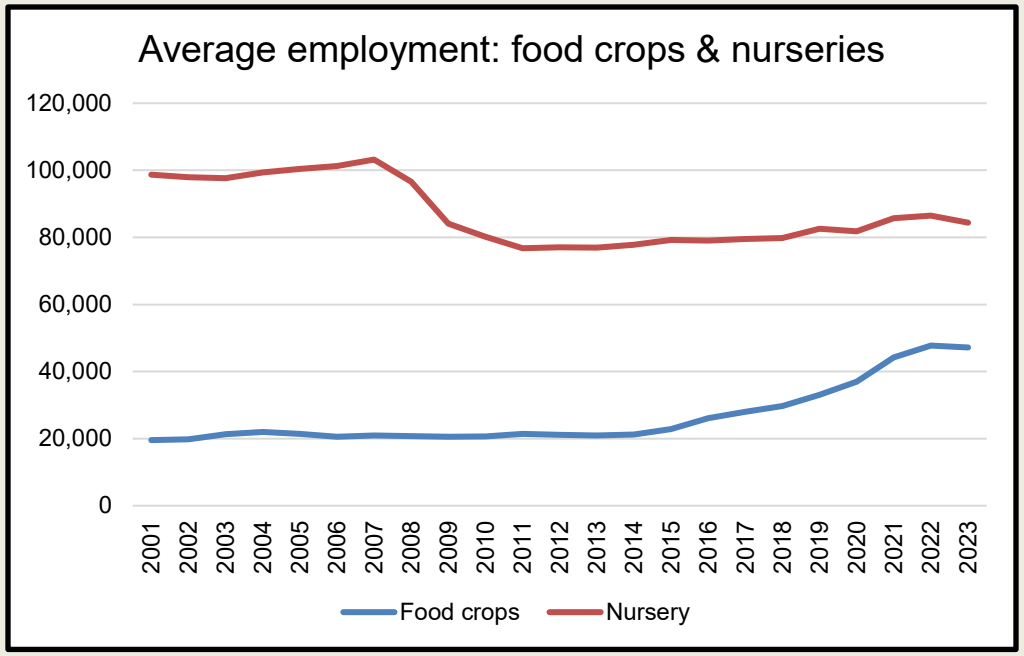








Food-under-cover employment up 140% in 21st century, up 2x since 2015
What is value of $10b in venture cap invested in CEA in past decade?









Apples = #1 US direct-hire employer; apples worth $3b/year
31,000 direct-hire workers = 20% of 162,000 in F&N









Oranges: worth $1 billion/year
Average 3,000 direct-hire workers in 2023
2% of 162,000 average direct-hire F&N: why? FLCs



EVERGLADES
HARVESTING, INC.
1331 Commerce Drive, LaBelle, Florida 33935

AG&Co.
AMADO GUERRERO & COMPANY

jackson citrus, inc.





F&N = 6 commodities have $1 bil in direct-hire QCEW wages
Apples, grapes, straws, other berries, tree nuts & other non-citrus fruit; each has 20k to 30k average employment



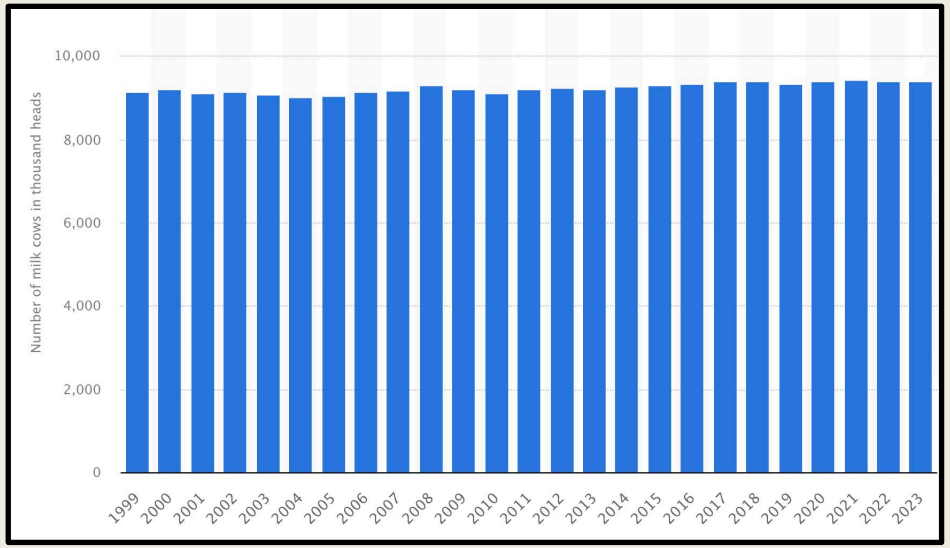




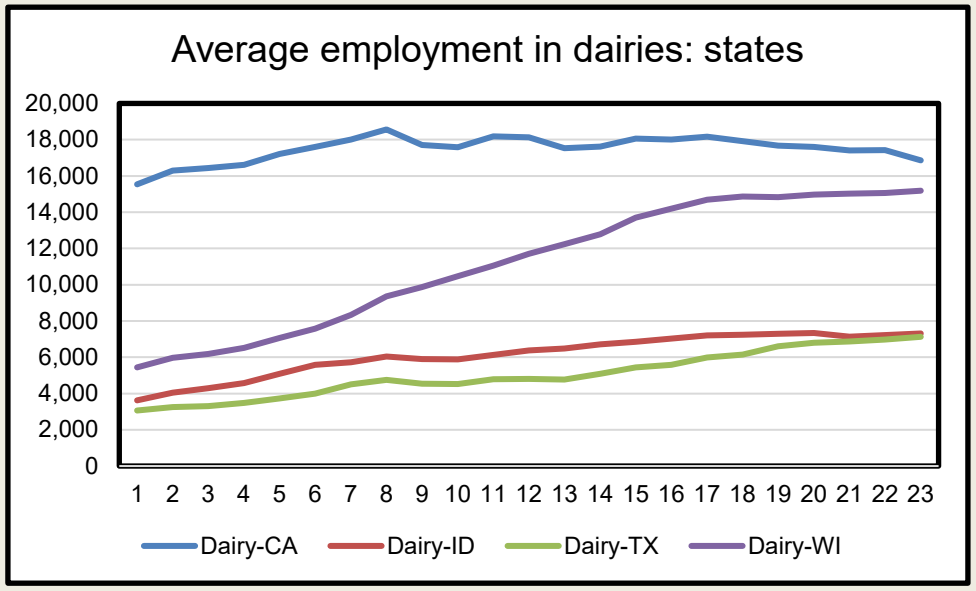




Dairy: # US cows stable at 9 million but UI dairy emp up: 64k to 105k
Why? Fewer & larger dairies are covered by UI outside CA









1.7 million non-H2A Mex-born in US: 42 & 8 yrs ed
750,000 on export farms in Mex: 32 & 9 years ed







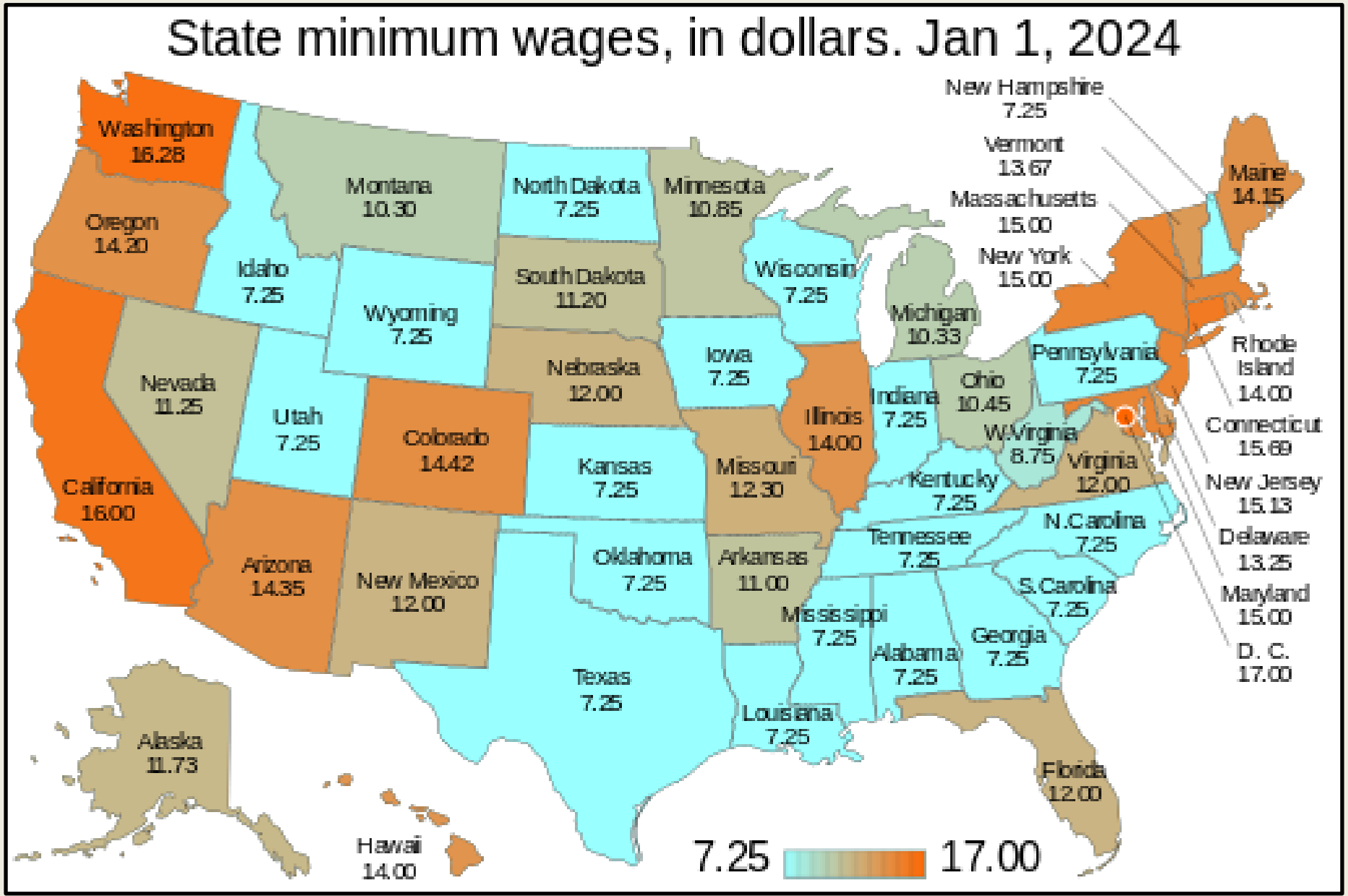




Few US-educated children of settled Mexican-born workers become seasonal farm workers

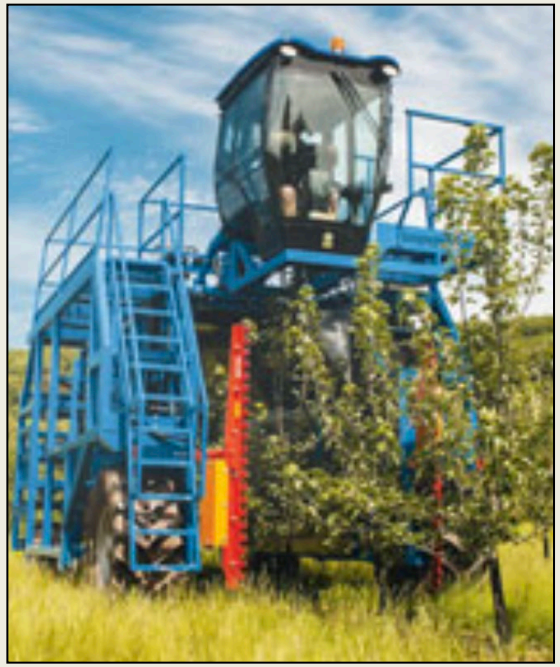


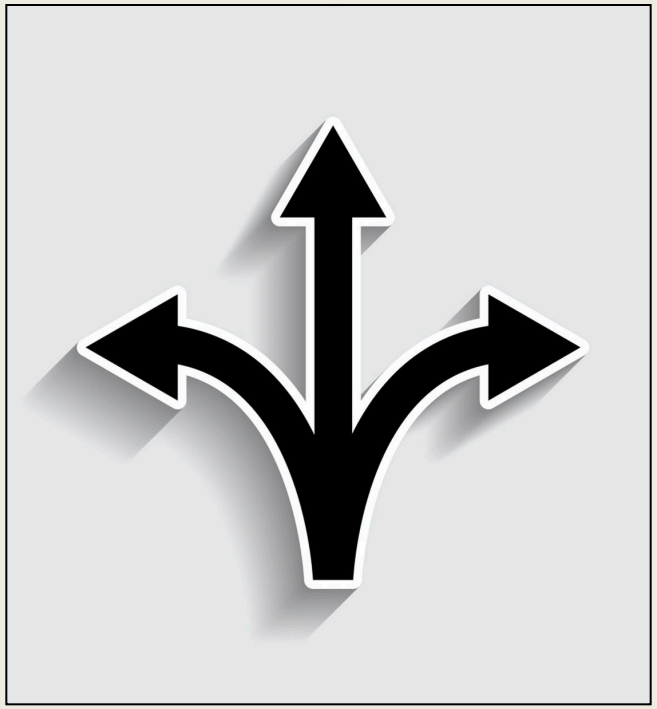
California: $16 min wage, #2 to WA $16.28 ($7.25 fed)
Minimum wages in CA & WA are 2x GA & NC



3 responses to rising farm labor costs
MMI: Machines, Migrant H-2As, Imports

We provide and manage H-2A Workforce



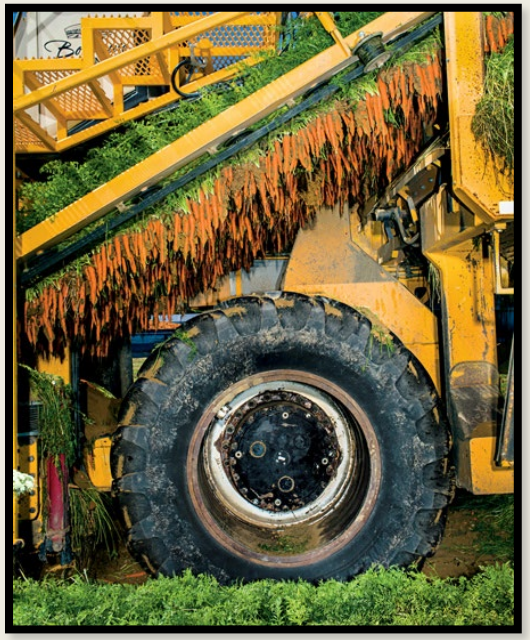




Mechanize olives, carrots, processing tomatoes, tree nuts
Harvest: usually most labor intensive & time sensitive

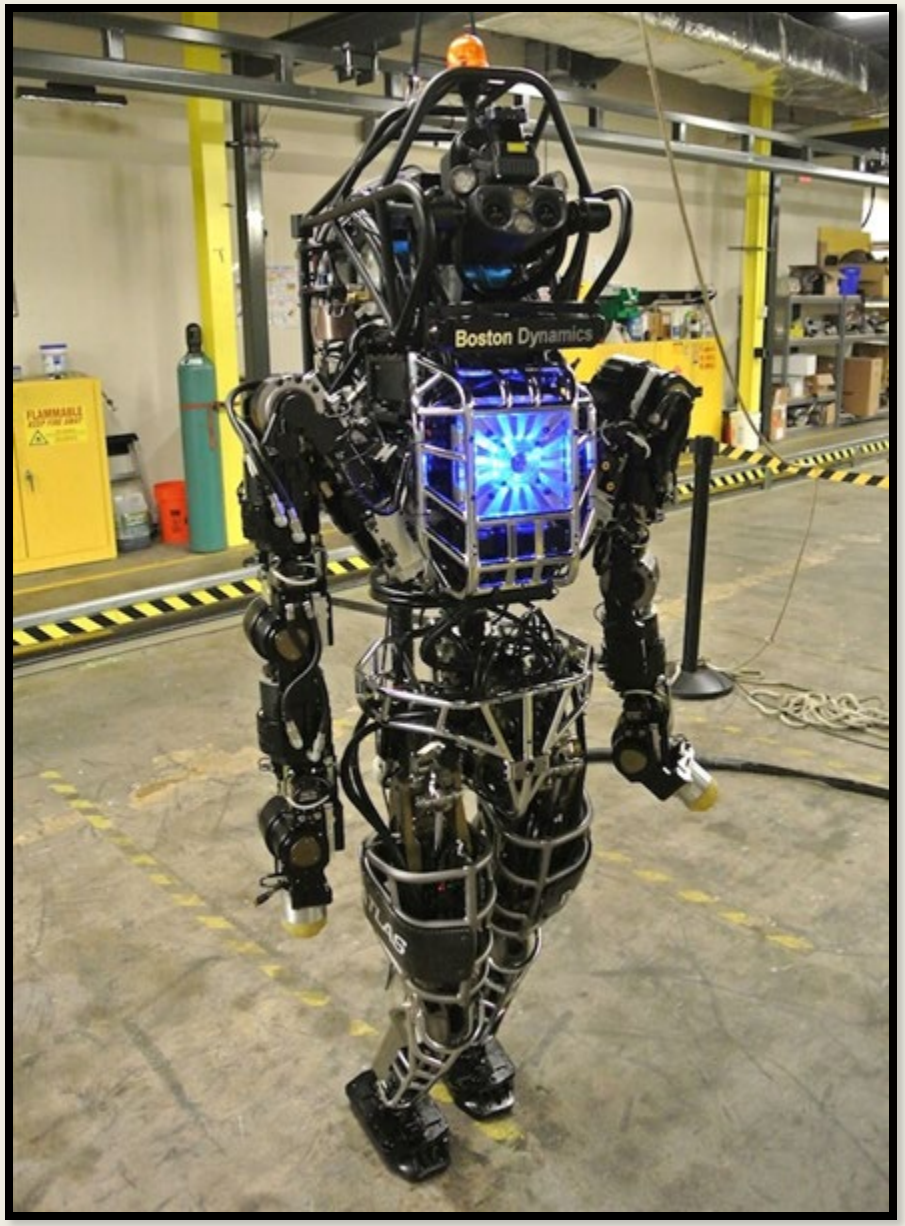








Robots in defense vs ag: performance vs costs







$100,000+/acre to produce straws; $1,000+ for corn & soy
Machines: adapt to current farming systems OR change farming system to use machines (easiest in CEA)?









Robot strawberry harvester & current farming system
Robot picks 50-70%, hand workers follow, shed pack

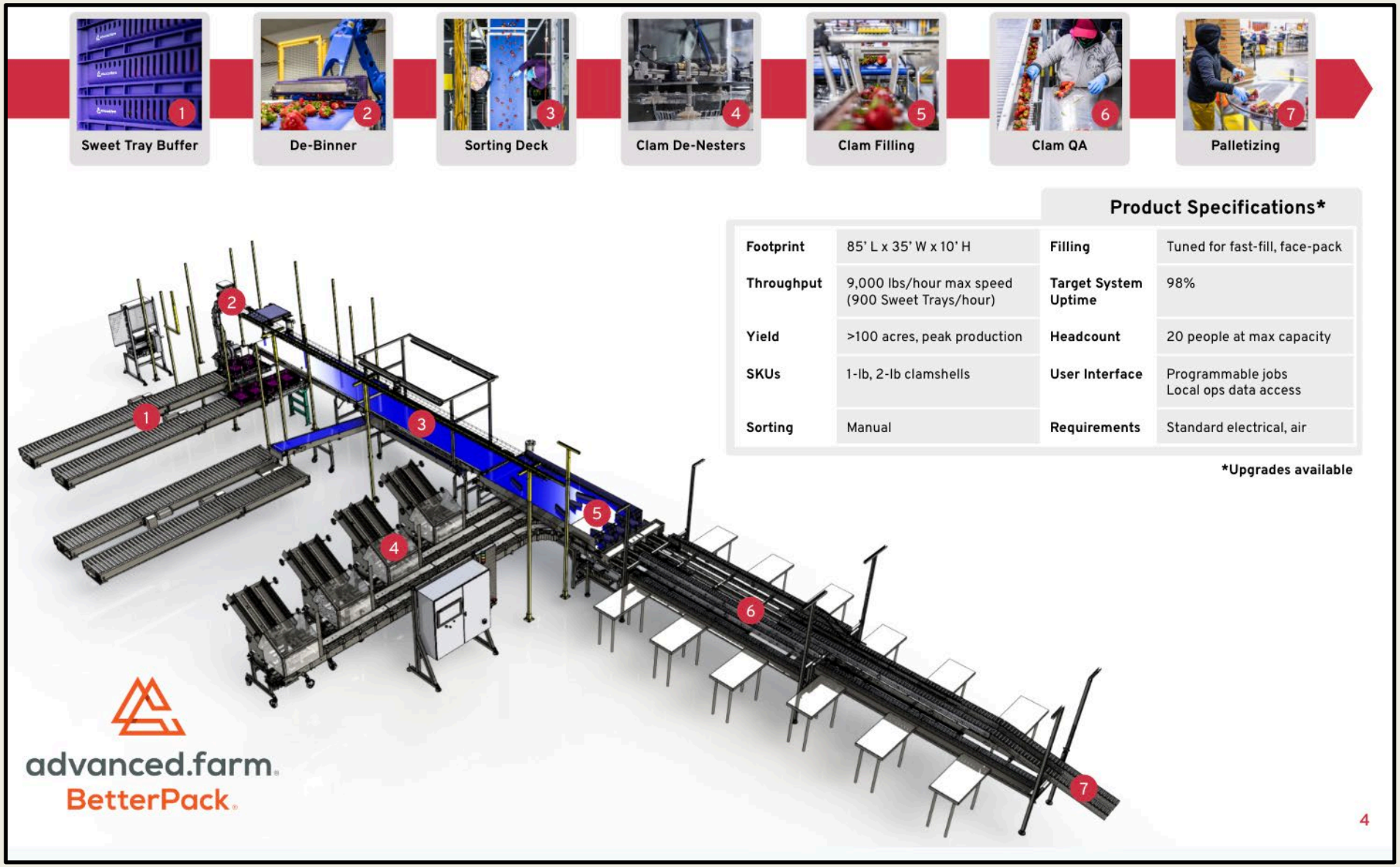








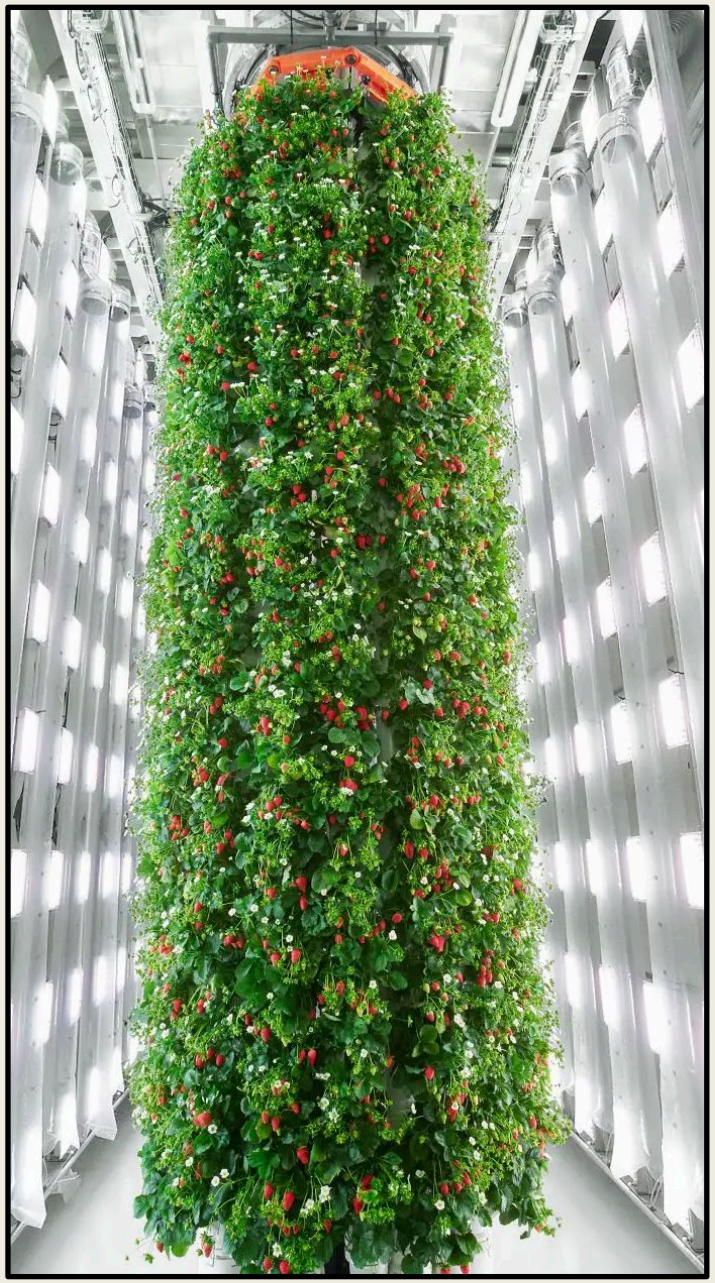
Cool berries before packing in shed to minimize damage
Hard to get berry growers to invest, no long contracts



Driscoll's: invested in CEA Plenty. Local year-round workers?





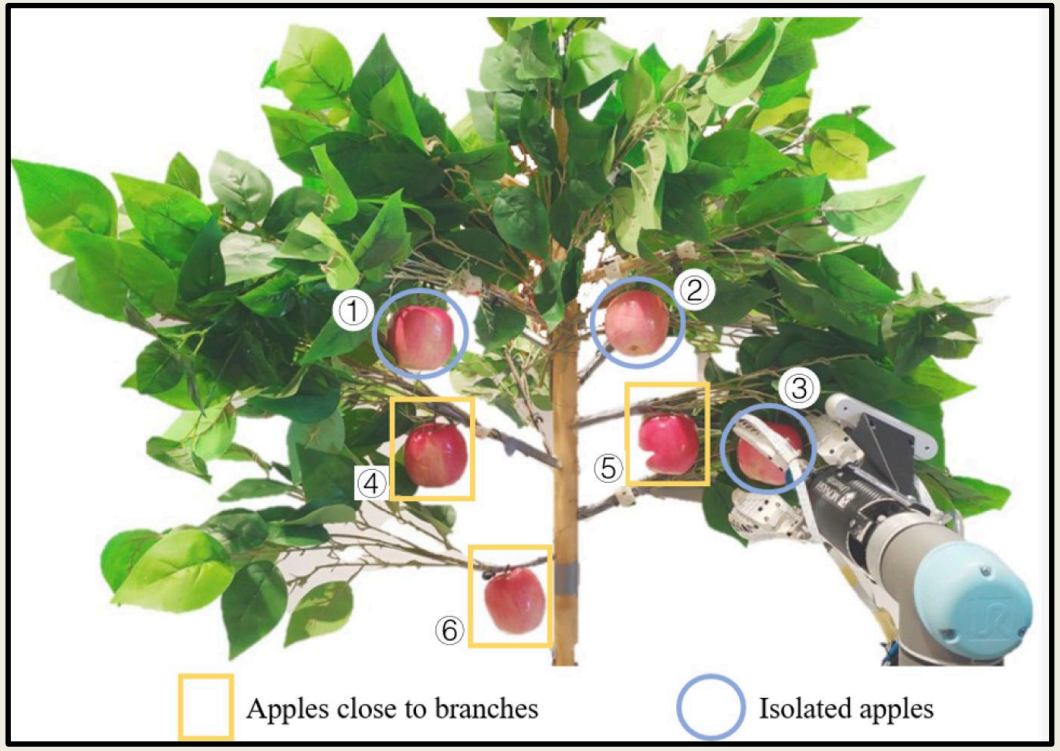


Robot apple pickers: same output as hand pickers: bins

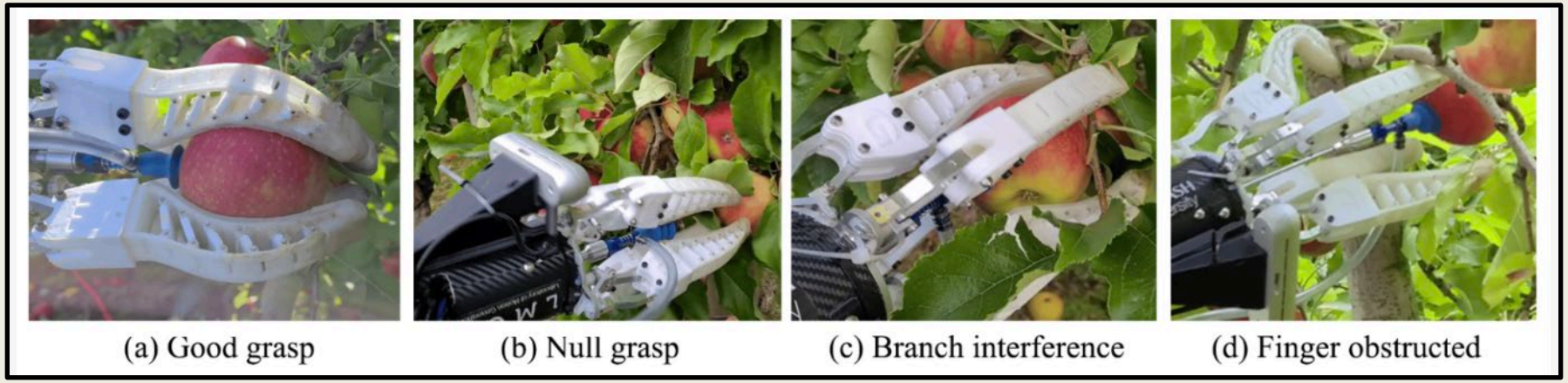




Robot challenges: find apples, grasp, & convey
Issues: branches & leaves, drops, debarking and bruising

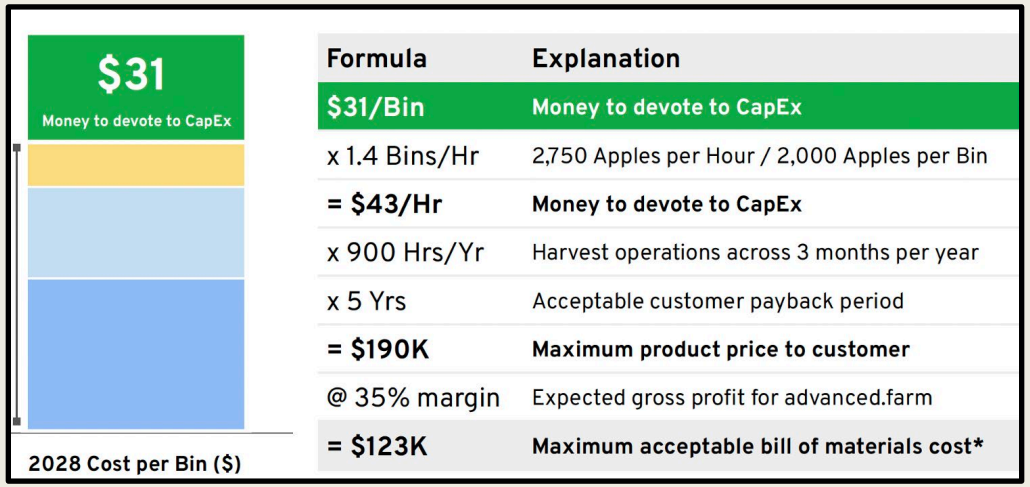




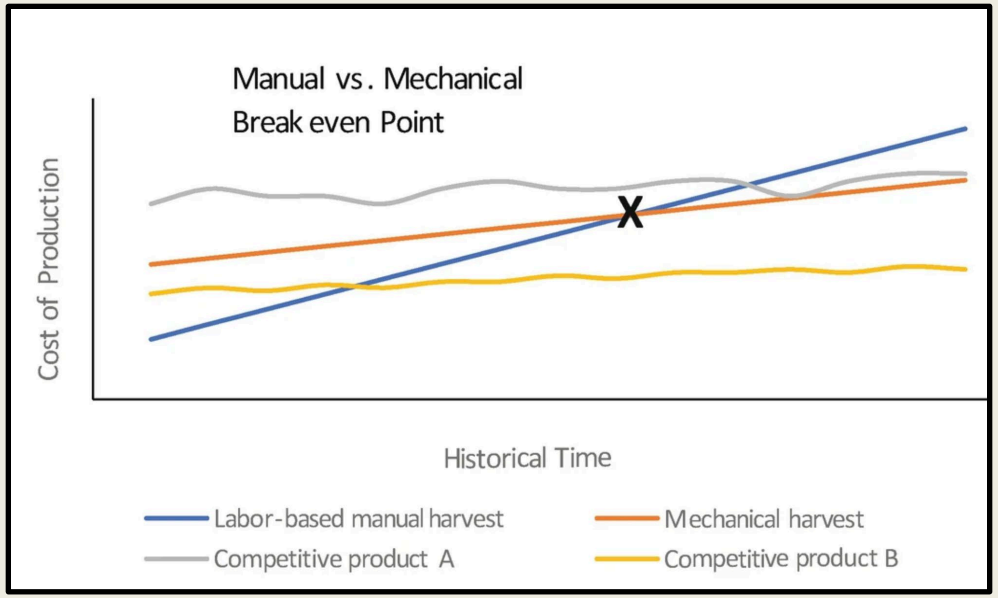


Hand pick: 6 bins in 8-hour day, 80-925 pound bins/acre
Piece rate: $30/bin + payroll taxes, & super = $40/bin
When do robots become cheaper than hand workers?





Formula	Explanation
$31/Bin	**Money to devote to CapEx**
x 1.4 Bins/Hr	2,750 Apples per Hour / 2,000 Apples per Bin
= $43/Hr	**Money to devote to CapEx**
x 900 Hrs/Yr	Harvest operations across 3 months per year
x 5 Yrs	Acceptable customer payback period
= $190K	**Maximum product price to customer**
@ 35% margin	Expected gross profit for advanced.farm
= $123K	**Maximum acceptable bill of materials cost***



Hand-picker: 1 apple or strawberry every 2 seconds, 95% efficiency
Detect (95%), position (95%), pick (95%), convey (95%) = 81% efficiency
Can growers lose 15%? Is venture capital patient for ag robots?









Mechanical aids: Reduce lifting and carrying



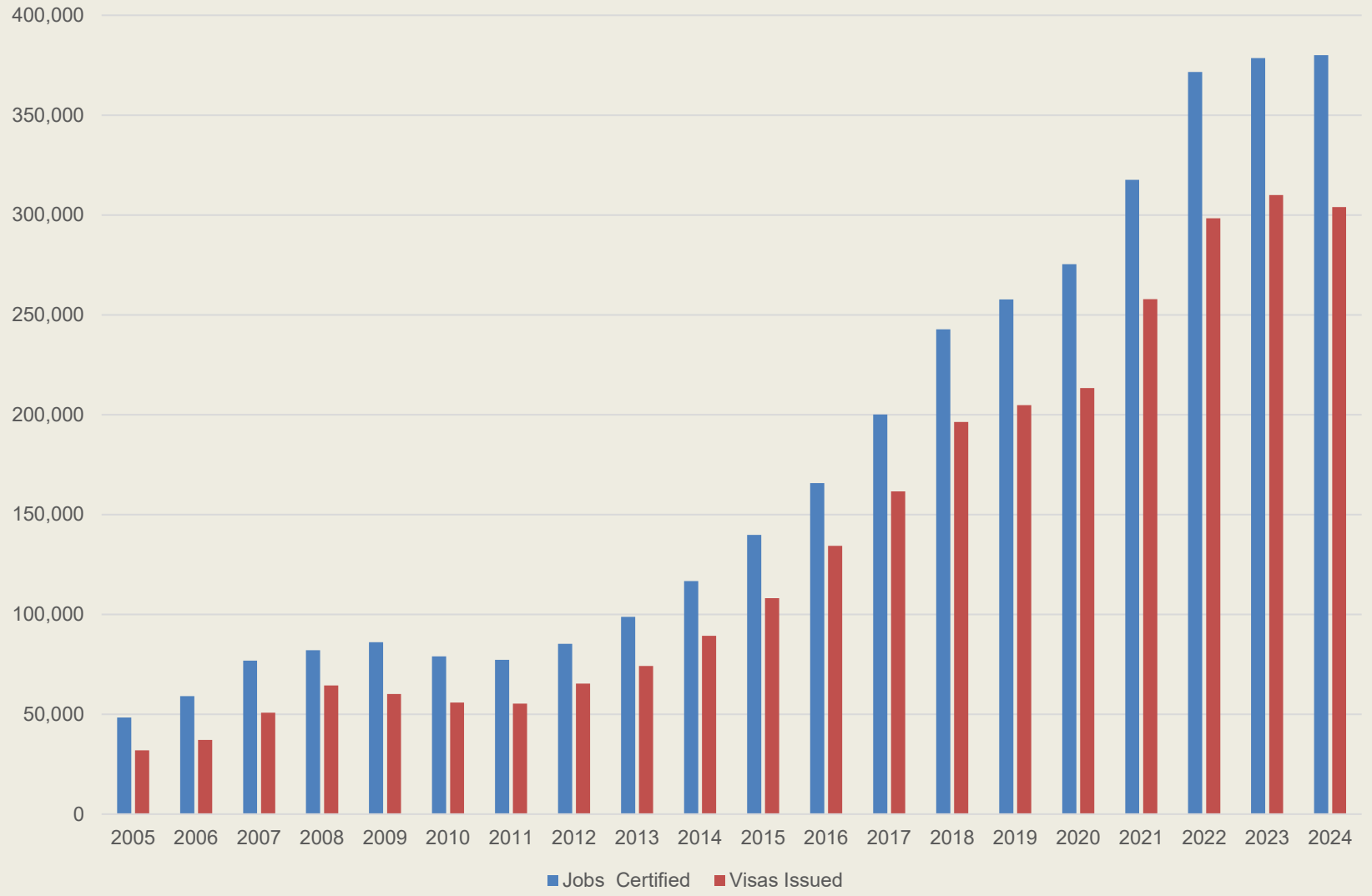
Dwarf trees & $60,000 platforms; lights at night
Conveyor belts & robot carriers

Culture change: from individual to shared/crew piece rate wages

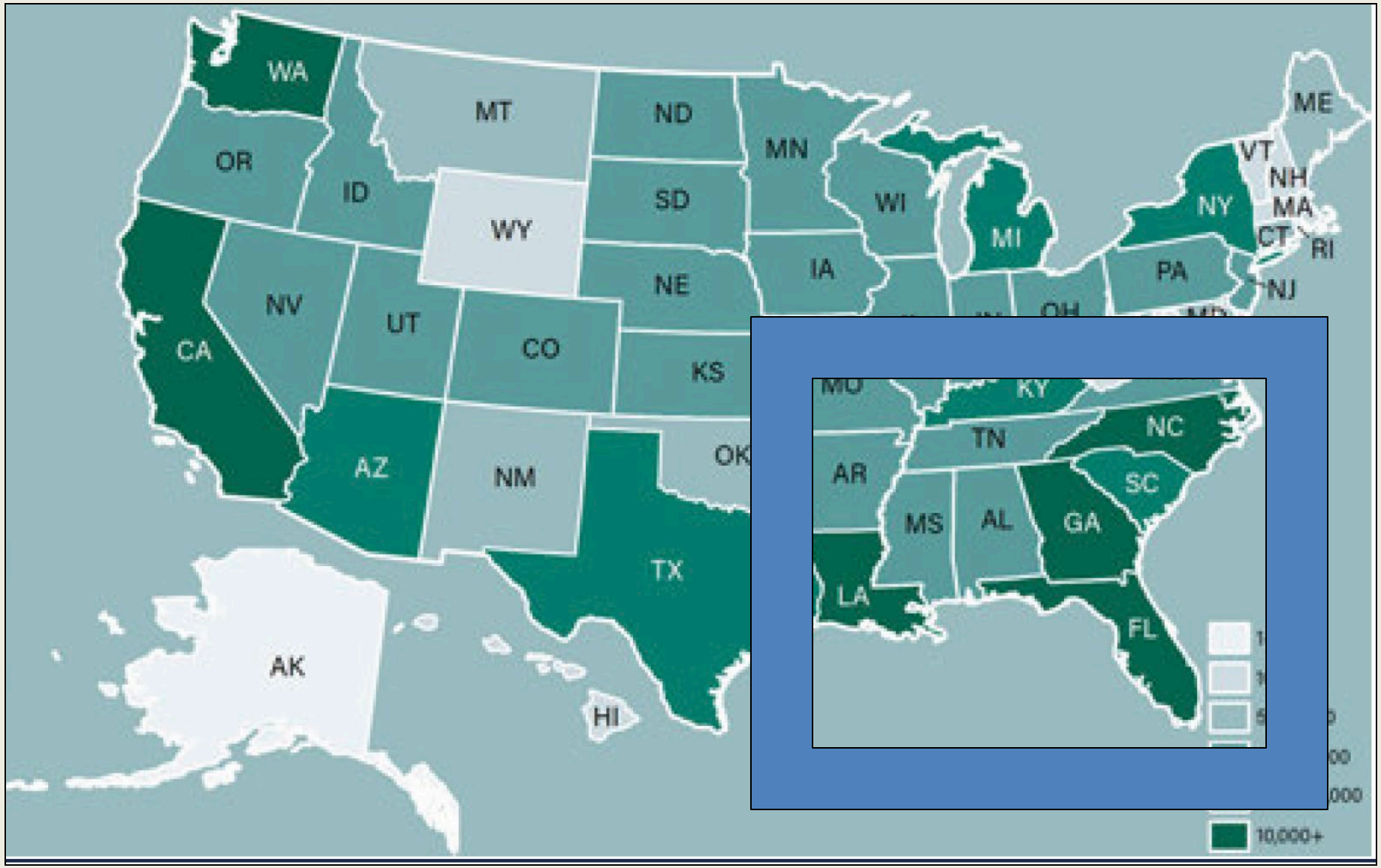




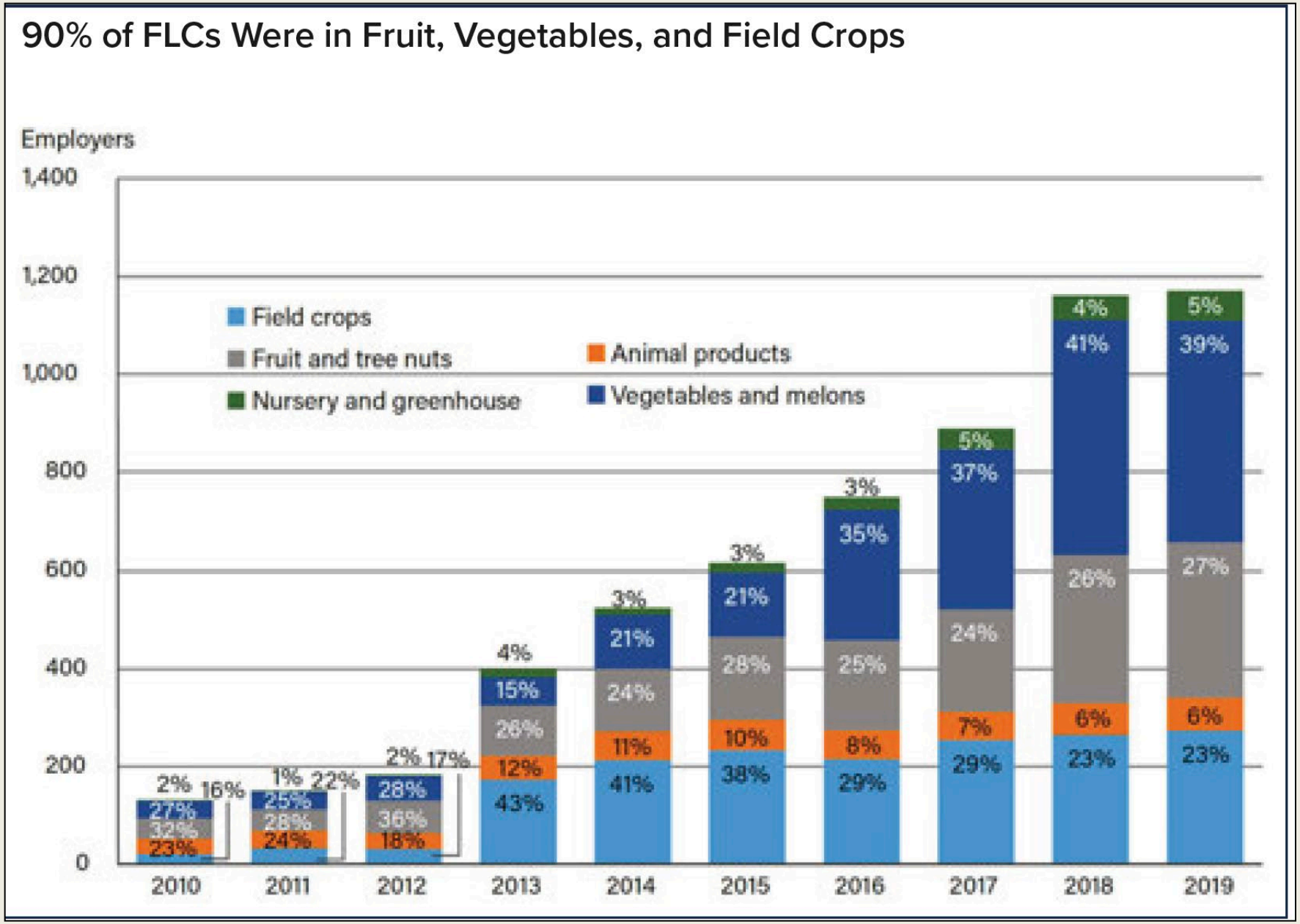
H-2A: 378,000 jobs (blue) certified in FY23; 300,000 visas or 80%
From 100,000 jobs in FY13 to 450,000? (Bracero peak = 455,000)



H-2A jobs are concentrated in SE states
But: ½ of hired FWs in western states; CA & WA = 45%



FLCs = 45% of H-2A job certs. 2/3 of FLC jobs in F&V



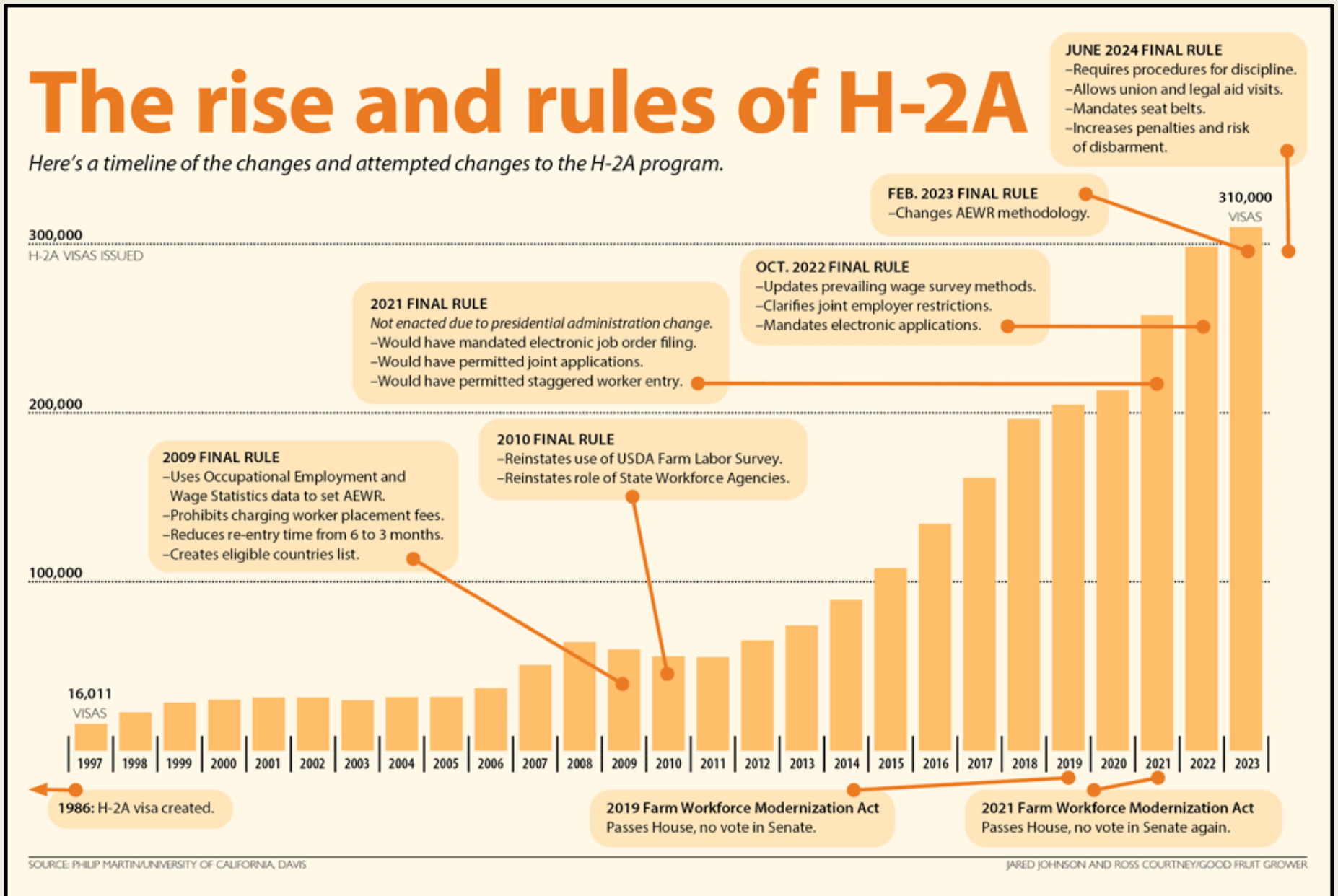
CA H-2As cost $25+/hour; US FWs = $18-20/hour

- H-2A: 15-30% higher productivity; accept job assignments = labor insurance, so Soc Sec tax
- US workers: more diverse, less loyal; change employers for higher earnings
- H-2A reform: wait for Congress or change regs?
  - Multi-year cert & visas for A-rated ers & ees?
  - FIFO: turn-key crews with supers, drivers, cooks
  - Favor fewer & larger recruiters for econ of scale & reputations to protect





DOL regs: from 1 to multiple AEWRs/state, new worker protections? DOL: slow H-2A growth by increasing costs?

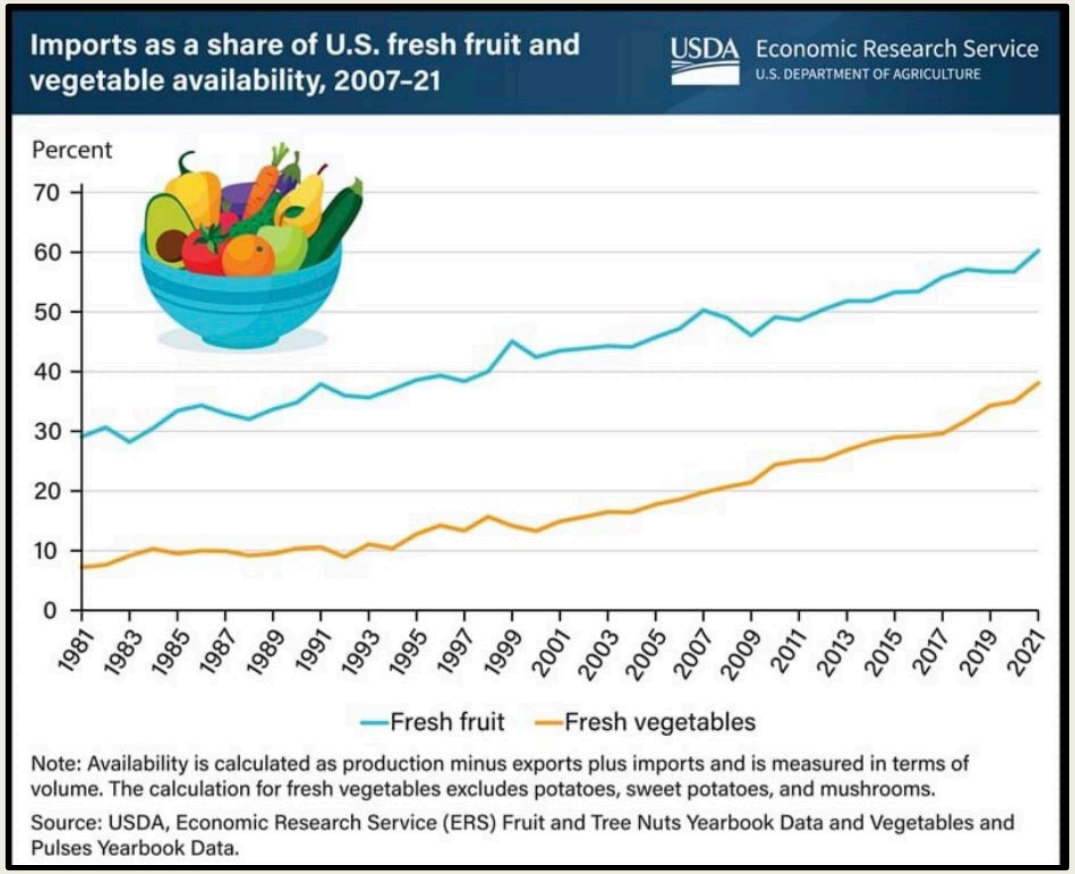


FWMA HR 1603 passed House 2019 & 2021

- **Title 1. Unauthorized who did >180 days of farm work in prev 2 years = legal CAWs; 5.5 yr TPS**
  - **CAWs *& their families* can become immigrants if CAW does >100 days of farm work/year over next 4 or 8 years**
- **Title 2: Streamline H-2A program**
  - **3-year visas for H-2A workers & multiple employers**
  - **20,000 visas a year for year-round ag jobs (dairies)**
  - **Freeze AEWR & study need for AEWR & methodology**
- **Title 3: Farm employers must use E-Verify to check new hires**

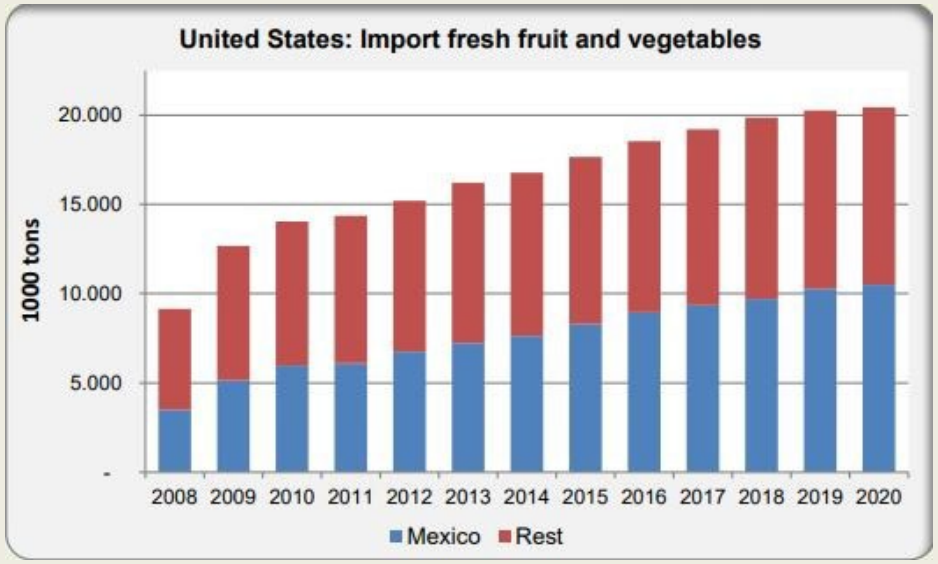


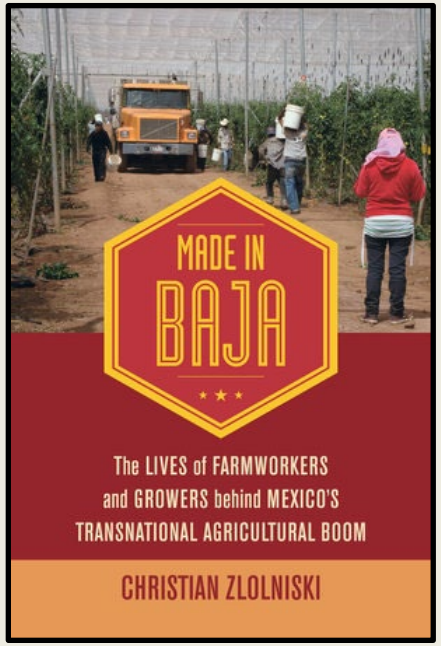
60% of US fresh fruit & 40% of US fresh vegs are imported
Mexico: ½ of US fruit imports, ¾ vegetable imports

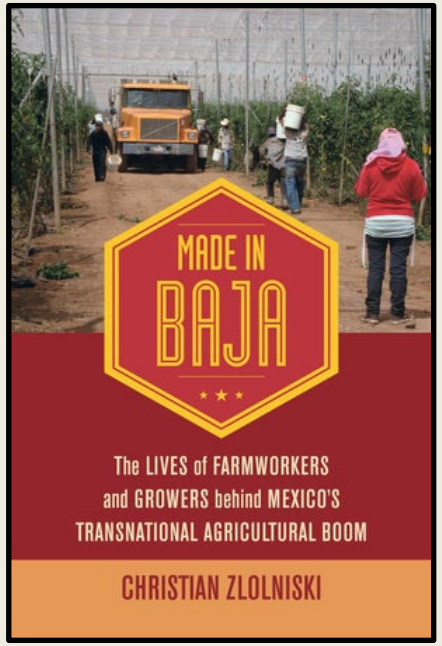




Big 3 Mex X: tomatoes, avocados, berries (blue = Mexico share)







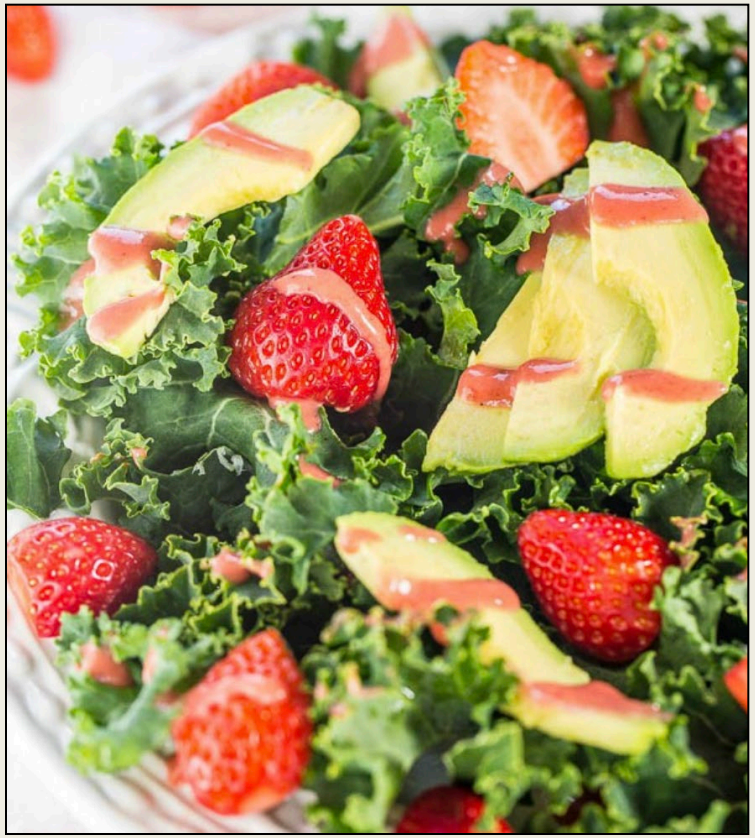






>60% of Mex-grown cukes, aspar, & broc exported to US
>40% of Mex avocados, lettuce, tomatoes & straws to US









Farm Labor 2030

- **People, F&V consump, & how/where produced**
  - US: 355 mil in 2030, world 8.5 bil
  - US adults: 2,000 lbs/year. Fresh: 25 lbs bananas, 15 lbs apples, 20 lbs tomatoes & lettuce, 10 lbs carrots
  - How/where are fresh F&V produced?
- **MMI adjustments: what variance by commodity?**
  - Machines: Blues & raisins vs table grapes & strawberries
  - H-2As: bridge to mechanization in apples, oranges?
  - Can Mexico (& Cen Amer & Peru) export more F&V?
- **Farm workers**
  - Settled & aging; access to low-skill FWs abroad?
  - Assist FWs to move up in ag or more out? FW children?
  - Govt policies: Free trade vs preserve US production? Freeze AEWR or subsidize mechanization?

Farm Labor 2040

- **Machines in the fields, robots in greenhouses?**
  - What balance between field & CEA in FVH production?
  - How many workers and who? Repetitive motion low-skilled vs skilled tech workers
  - Seasonal or year-round jobs?
- **What roles for guest workers?**
  - Fewer & more skilled (S-N wheat combines)?
  - J-1s, L-1s, & TNs?
  - What roles for NGOs & unions that rep low-skilled?
- **What determines farm labor futures?**
  - Demand for FVH commodities & supply in US & abroad
  - US vs foreign labor costs, cost of tech alternatives
  - Current low-skilled: LR presence or bridge to mechanization & imports?

Hope & Fear

- **Farm labor system: general improvements**
  - Narrow farm-nonfarm hourly earnings gaps
  - Reduce ag exceptionalism: unanticipated effects? OT, transportation
  - More buyers & NGOs focus on labor protocols & certs
- **But: FLC share is rising**
  - What would make FLCs win-win? What are FLC bus models? Are FLCs risk absorbers for violations?
  - Why no Manpower with franchises in FLC?
- **Alternatives to MMI future FVH?**
  - Mechanize field & CEA to keep production in US?
  - More Migrants to keep production in US?
  - Import more labor-intensive F&V?

No country has solved seasonal farm labor issue

http://migration.ucdavis.edu



Migration Dialogue

Rural Migration News

Blog 305

OCTOBER 2022

U.S. Farm Labor Outlook

The US farm labor market employs about 2.5 million workers sometime during a typical year to fill 1.5 million full-time equivalent jobs (average employment). About 80 percent of hired farm workers, some two million, were born in Mexico, including 1.75 million who have settled in the US and 250,000 who work seasonally as H-2A workers for an average six months a year. Most of the settled Mexican-born workers arrived in the 1990s and early 2000s in their 20s, and are now in their 40s; half are unauthorized.

Farming has two major subsectors, crop and animal agriculture. Crop agriculture accounts for three-fourths of US farm employment and an even higher share of seasonal workers. Average crop employment has been relatively stable at 1.1 million over the past two decades, but a rising share of crop workers, 40 percent in 2020, are brought to farms by nonfarm crop support employers (NAICS 1151), over half of whom are farm labor contractors. About 80 percent of crop employment is covered by unemployment insurance.

US crop employment is 60 percent direct hire and 40 percent crop support. In California the ratio is 40-60, meaning that more workers have been brought to crop farms by crop support employers than were hired directly since 2010.

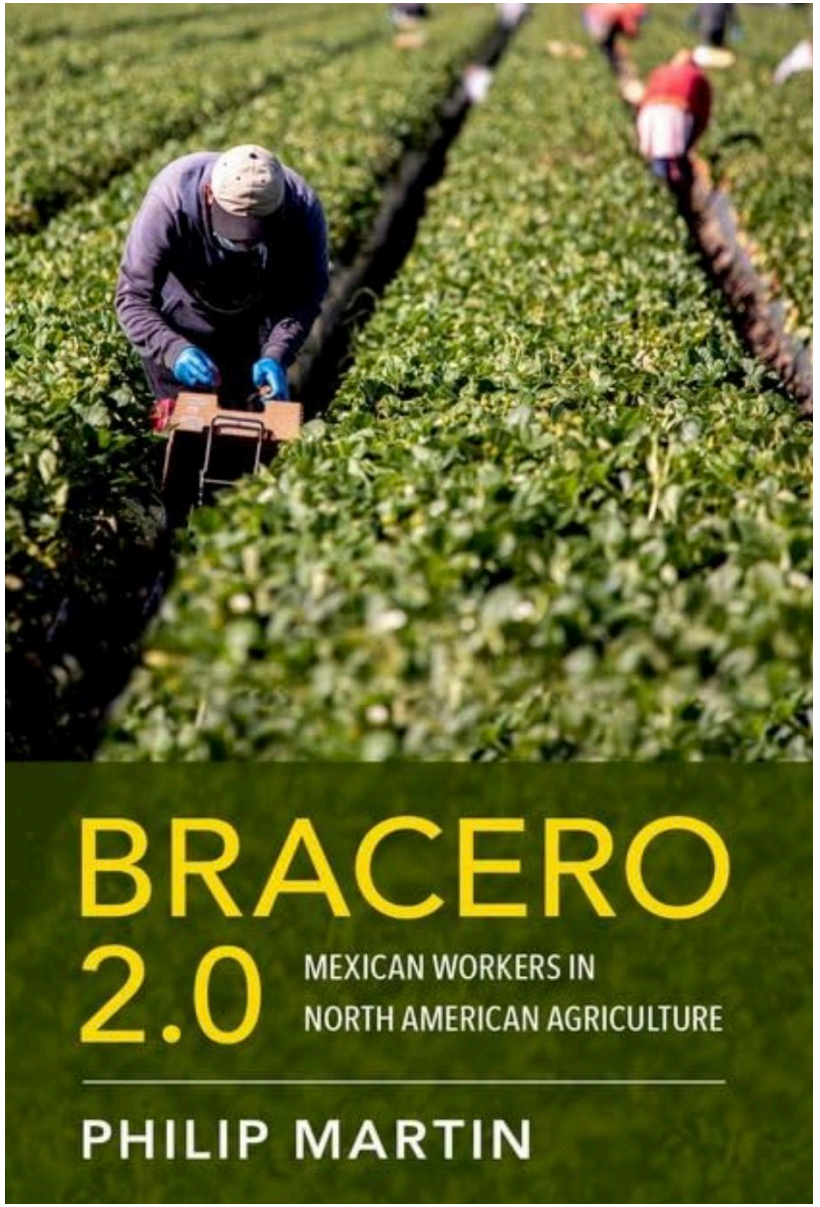
Farm production is concentrating on fewer and larger farms, and the marketing of many commodities is dominated by a few firms. Economics often assumes that many farmers produce identical corn, soybeans and wheat, and sell their crops in competitive markets where supply and demand determine prices, making farmers price takers in both input and output markets and explaining why governments often support farm incomes.

Labor-intensive fruits and nuts, vegetables and melons, and horticultural specialties that include flowers, mushrooms, and nursery (FVH) crops are different from field crops such as corn or wheat in many ways. The 10 largest lettuce or mushroom growers, or the five largest marketers of avocados and berries, often supply a commodity year-round to supermarkets and food service firms by operating or purchasing in multiple locations. The 10 largest farms or marketers may account for half or more of total production or sales of a particular commodity.

For example, the 2017 Census of Agriculture reported over 25,000 US apple farms, but the largest 800 or three percent each had 100 or more acres of apples and collectively accounted for over 70 percent of US apple acreage; the 1,000 apple farms that each had sales of $1 million or more accounted for two-thirds of US apple acreage. The COA reported over 1,100 lettuce farms, but the largest 67 or six percent that each harvested 1,000 or more acres accounted for over 80 percent of harvested lettuce acreage.

The production and marketing of many fresh fruits and vegetables is

80% of U.S. Hired Farm Workers Were Born in Mexico



Voices from the Past

- **President's Comm on Migratory Labor (1951)**

"Use our domestic labor force more effectively…eliminate dependence on foreign labor." Narrow the F-NF earnings gap: $500/yr vs $2,600

- **Lloyd Fisher (1952)**

"The brightest hope for the welfare of seasonal agricultural workers lies with the elimination of the jobs upon which they now depend, and the…transfer of workers from agricultural to industrial labor markets."

- **Cesar Chavez (1984)**

"All my life, I have been driven by one dream, one goal, one vision: To overthrow a farm labor system in this nation which treats farm workers as if they were not important human beings."



Economic Research Service

U.S. DEPARTMENT OF AGRICULTURE



SESSION ONE:
THE CHANGING FARM LABOR FORCE



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The Changing Farm Labor Force Data from the National Agricultural Workers Survey

Andrew Padovani, JBS International
Wenson Fung, JBS International
Emily Finchum-Mason, DOL/ETA
Daniel Carroll, DOL/ETA

The Changing Landscape of Farm Labor Conditions in the United States: What the Future Holds and How to Prepare for It
September 17-19, 2024

Disclaimer: The views are solely those of the presenters.

National Agricultural Workers Survey (NAWS) Background

National study of crop workers (migrant and seasonal, excluding H-2A workers)



Primary source of national and regional information about crop worker demographics, employment, and health.

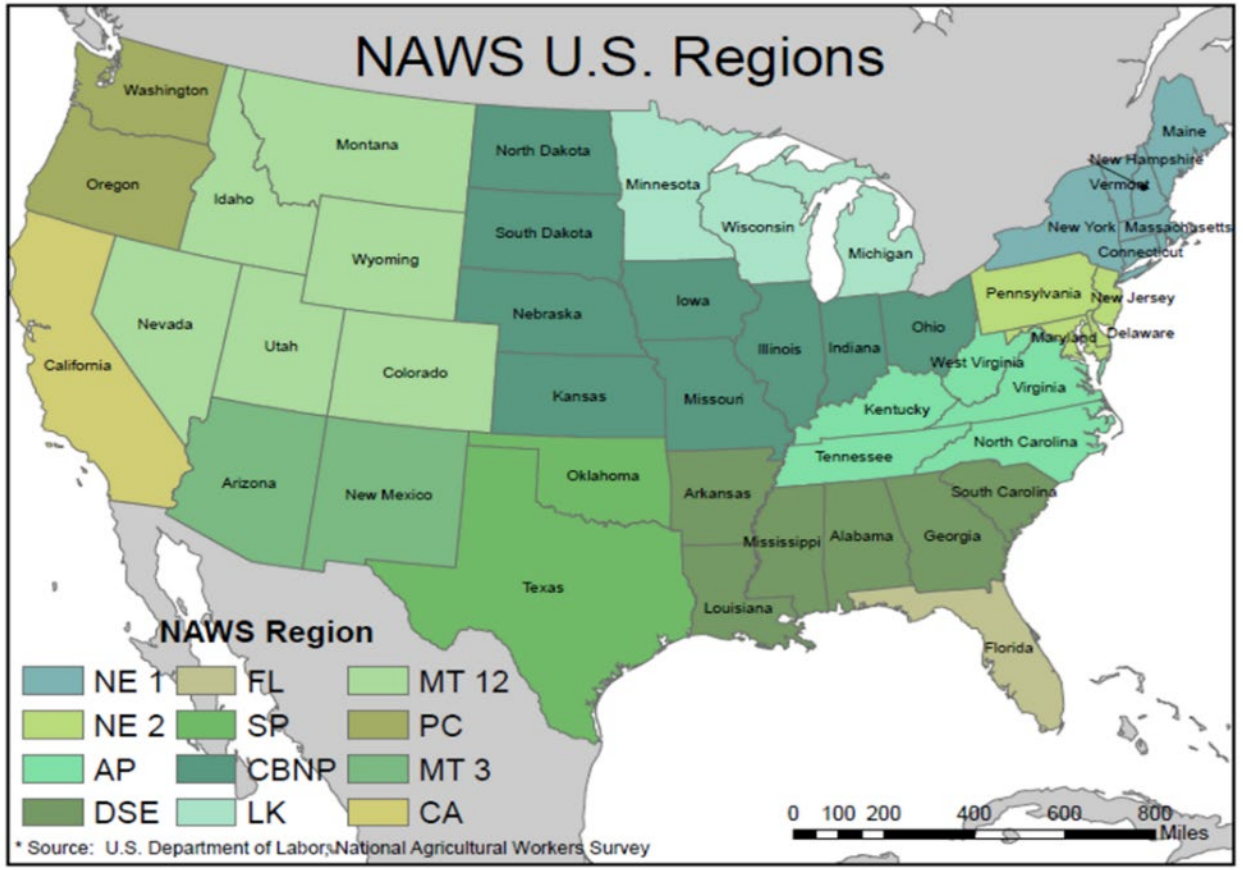


Thirty-four years of continuous data collection on crop workers in the United States.



NAWS Sampling Methodology

- Multi-stage, stratified random sample across 12 NAWS sampling regions.
- Includes between 1,100 and 3,600 crop workers per year.
- Crop workers interviewed where they work.
- Public use data can be analyzed for six NAWS regions



National Agricultural Workers Survey (NAWS) Survey Domains

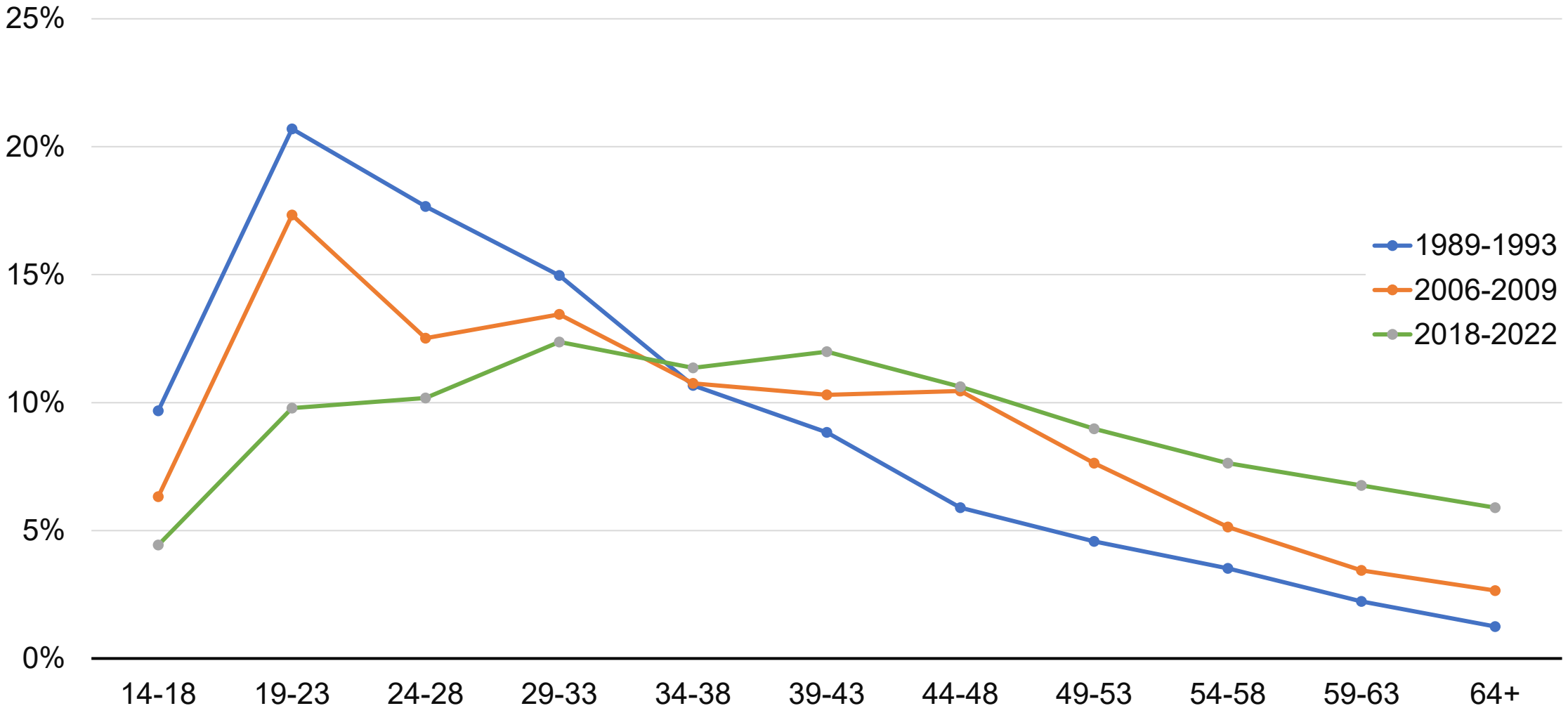
- Demographic characteristics
- Housing
- Farm job characteristics
- 12-month employment history
- Income, assets, and use of assistance programs
- Lifetime health history
- Health insurance coverage



Demographics

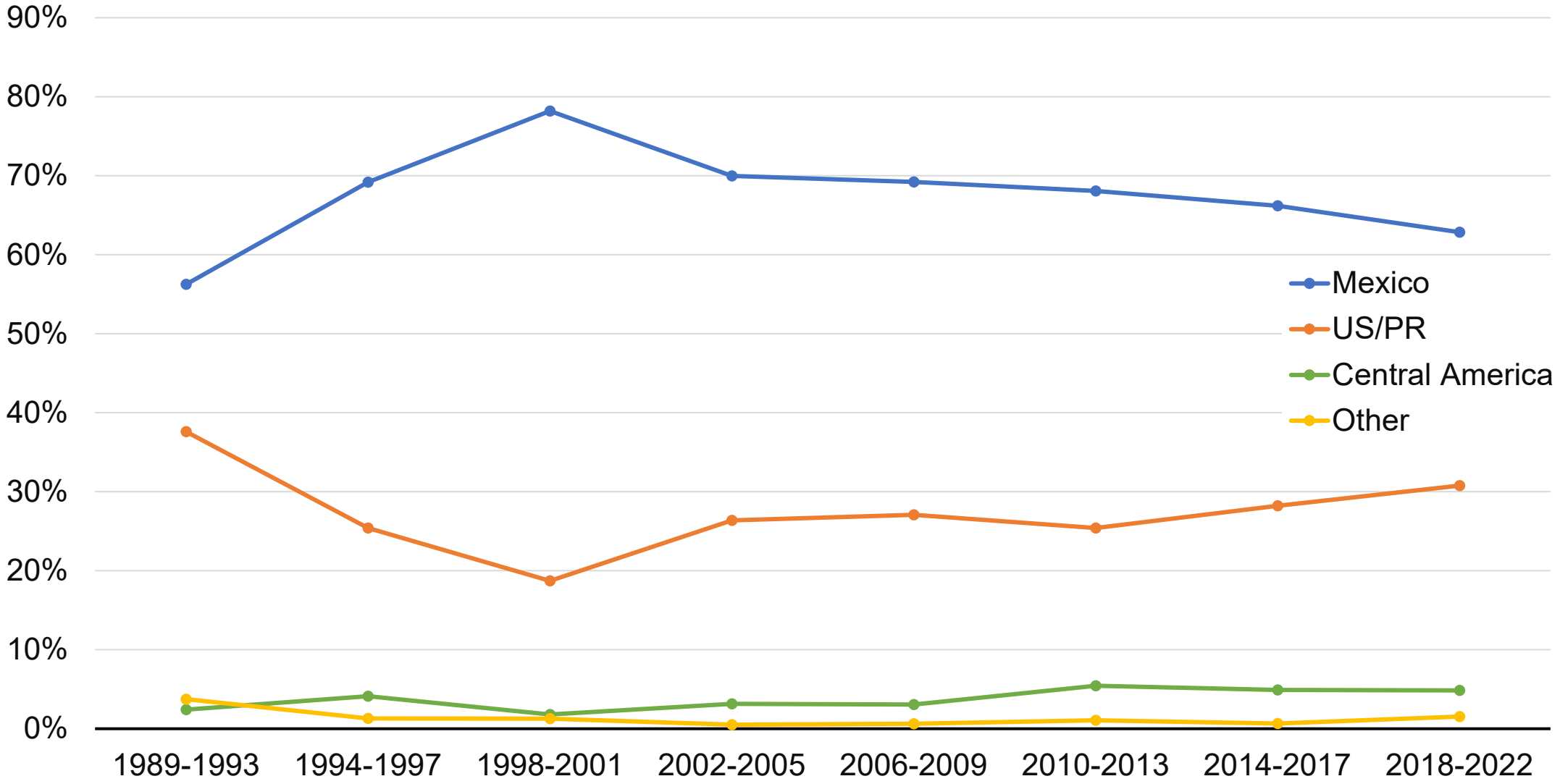
Distribution of crop worker age

Crop workers are aging, with about half of crop workers aged 39 years or older.



Crop worker place of birth

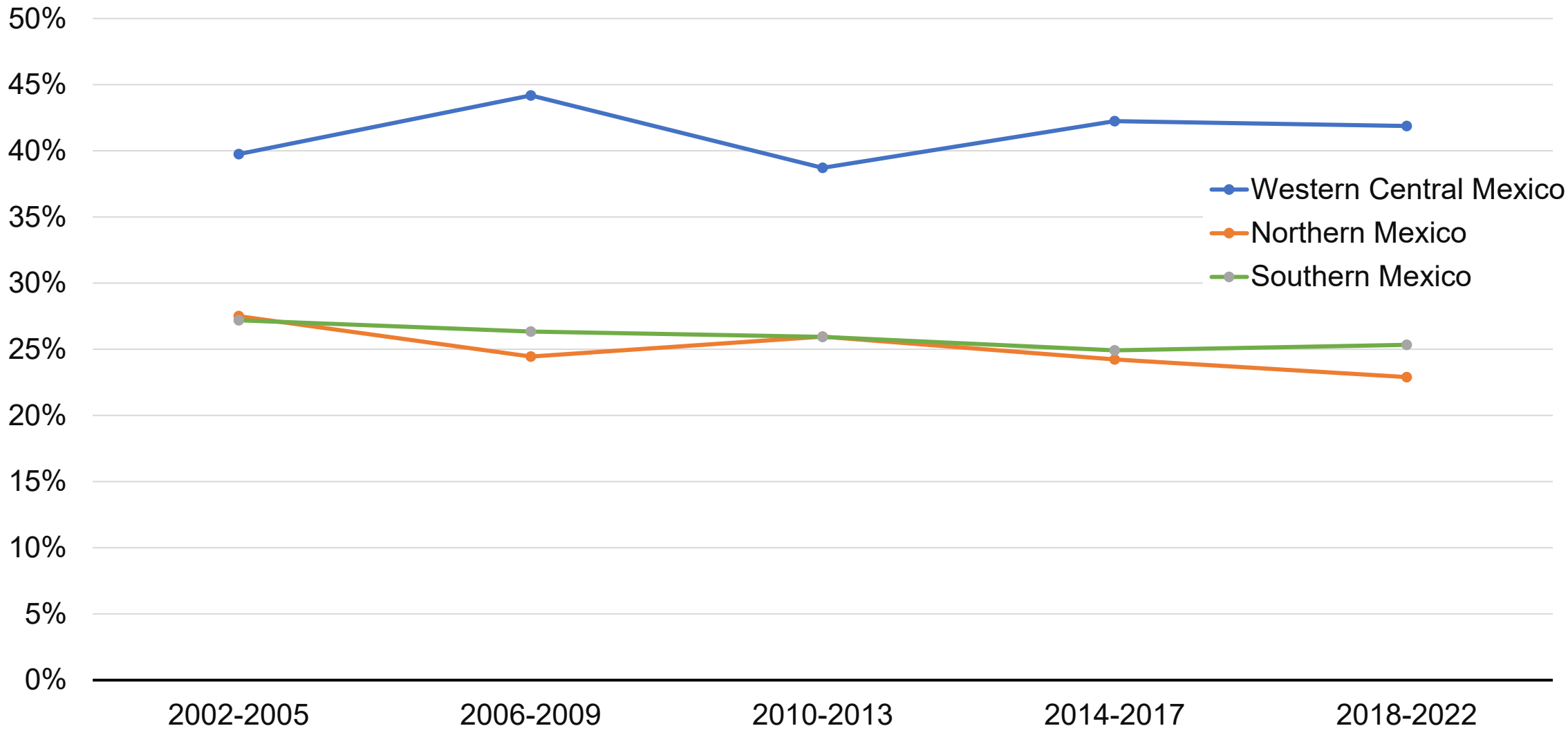
Fewer crop workers are born in Mexico in recent years.

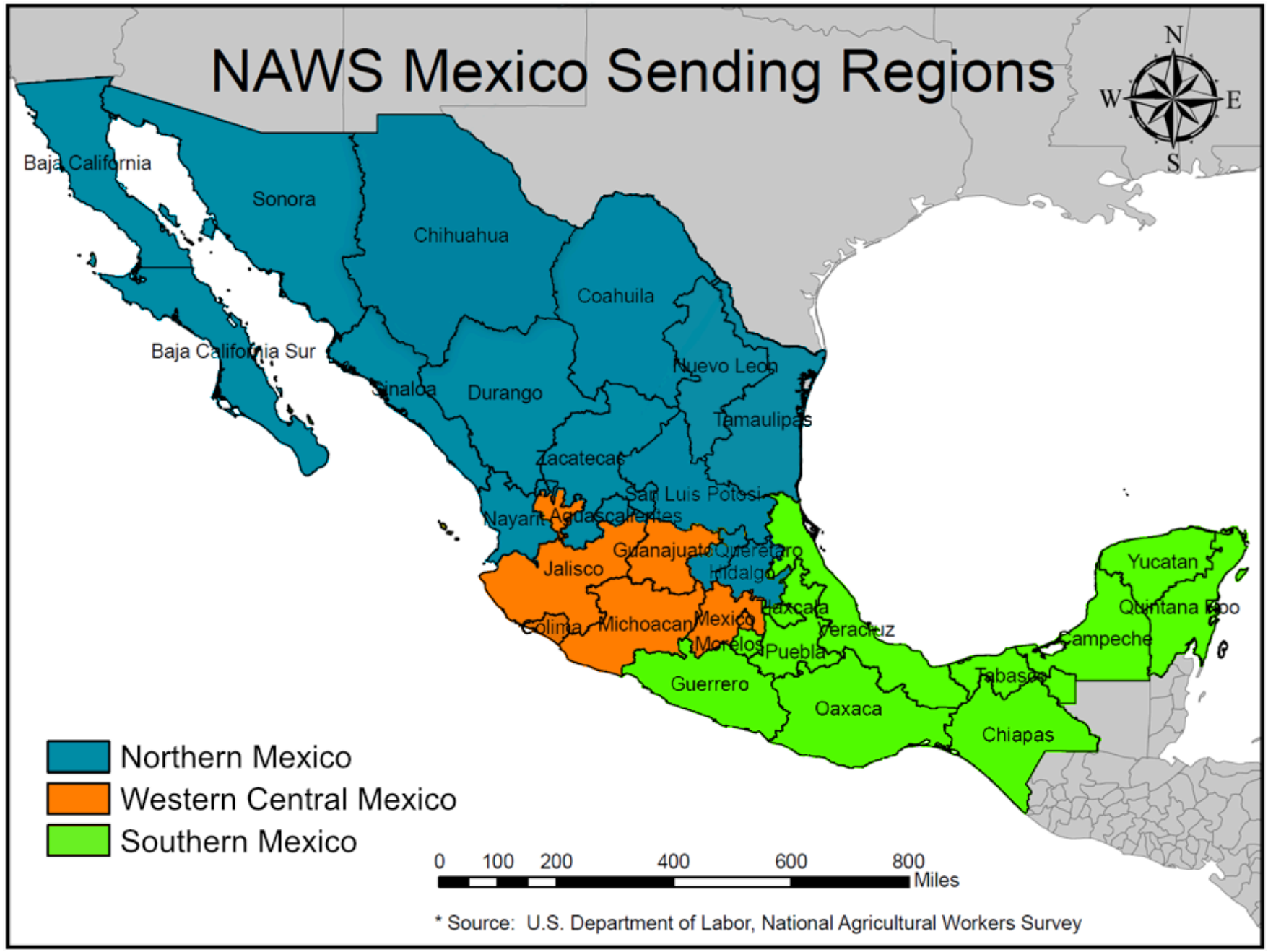


Note: “Other” in 2018-200 has relative standard error between 31% and 50% and should be interpreted with caution.

Crop worker place of birth (among foreign born)

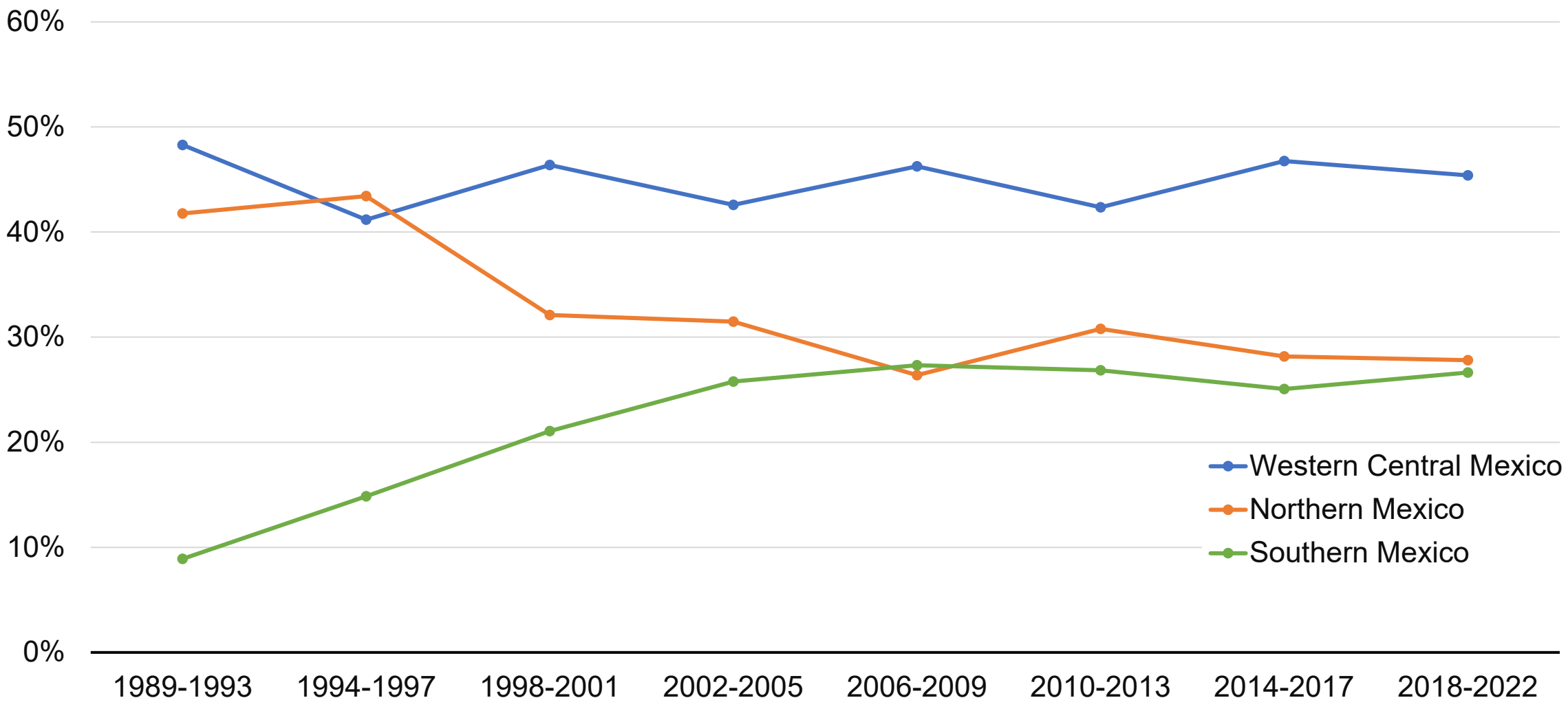
4-in-10 foreign-born crop workers were born in Western Central Mexico.




NAWS Mexico Sending Regions
N
W
E
S
Baja California
Sonora
Chihuahua
Coahuila
Baja California Sur
Sinaloa
Durango
Nuevo Leon
Tamaulipas
Zacatecas
San Luis Potosi
Nayarit
Aguascalientes
Guanajuato
Queretaro
Jalisco
Hidalgo
Yucatan
Quintana Roo
Colima
Michoacan
Mexico
Morelos
Puebla
Tlaxcala
Veracruz
Campeche
Tabasco
Guerrero
Oaxaca
Chiapas
Northern Mexico
Western Central Mexico
Southern Mexico
0 100 200 400 600 800
Miles
* Source: U.S. Department of Labor, National Agricultural Workers Survey

Mexico sending region

Crop workers are increasingly coming from Southern Mexico, fewer from Northern Mexico.



Chronic health conditions

An increasing share of crop workers report being diagnosed with high blood pressure and diabetes.

	1998-2001	2002-2005	2006-2009	2010-2013	2014-2017	2018-2022
High blood pressure	4%	8%	10%	8%	10%	16%
Diabetes	2%	3%	4%	5%	8%	10%
Asthma	2%	3%	3%	3%	4%	4%
Heart disease	1%	1%	1%	1%	1%	3%
Tuberculosis	1%	1%	0%[a]	0%	1%	2%
Urinary tract infections	1%	2%	1%	2%	2%	5%
Cancer	---	---	---	---	---	1%
High cholesterol	---	---	---	---	---	13%
HIV (AIDS)	---	---	---	---	---	2%
Covid	---	---	---	---	---	19%
Other	3%	4%	4%	5%	7%	9%

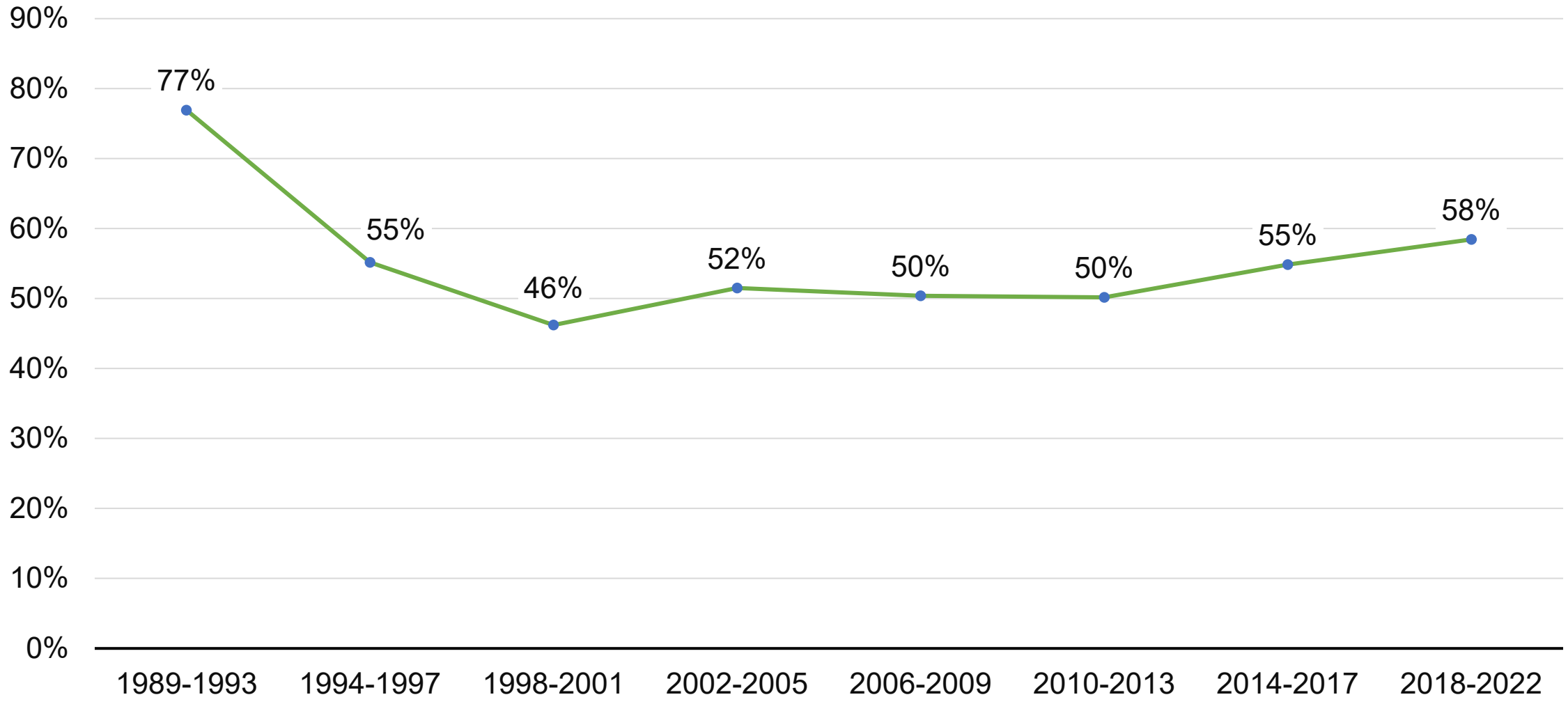
[a] Estimates have relative standard errors between 31% and 50% and should be interpreted with caution.



Employment and Income

Legal status of crop workers

More workers have work authorization in recent years.



Program (among authorized)

Most foreign workers authorized to work in recent years obtained it through Spousal or Family programs

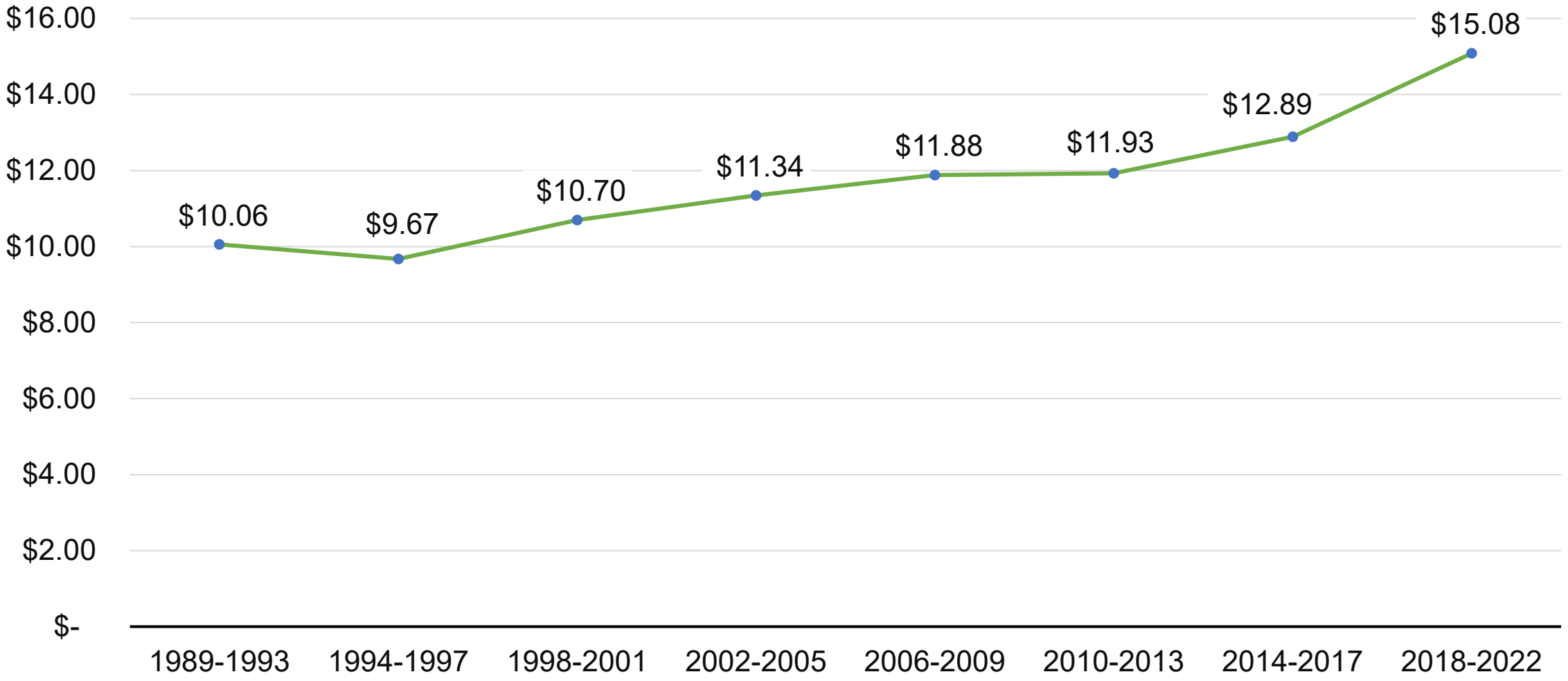
	1989-1993	1994-1997	1998-2001	2002-2005	2006-2009	2010-2013	2014-2017	2018-2022
Spousal petition/Family Unity	12%	29%	37%	43%	41%	51%	58%	66%
Amnesty (SAW 90-day program)	65%	49%	35%	38%	38%	35%	30%	25%
Amnesty (5-year program)	9%	13%	17%	15%	18%	9%	7%	5%
Labor certification	2%	2%	8%	2%	2%	1%	1%	0%[a]
DACA	0%	0%	0%	0%	0%	[b]	2%[a]	1%
Other	12%	6%	1%[a]	0%[a]	1%[a]	1%	2%	1%

[a] Estimates have relative standard errors between 31% and 50% and should be interpreted with caution.

[b] Estimates are suppressed because number of responses is less than 4 or relative standard errors for the estimates are greater than 50%.

Mean real hourly wage

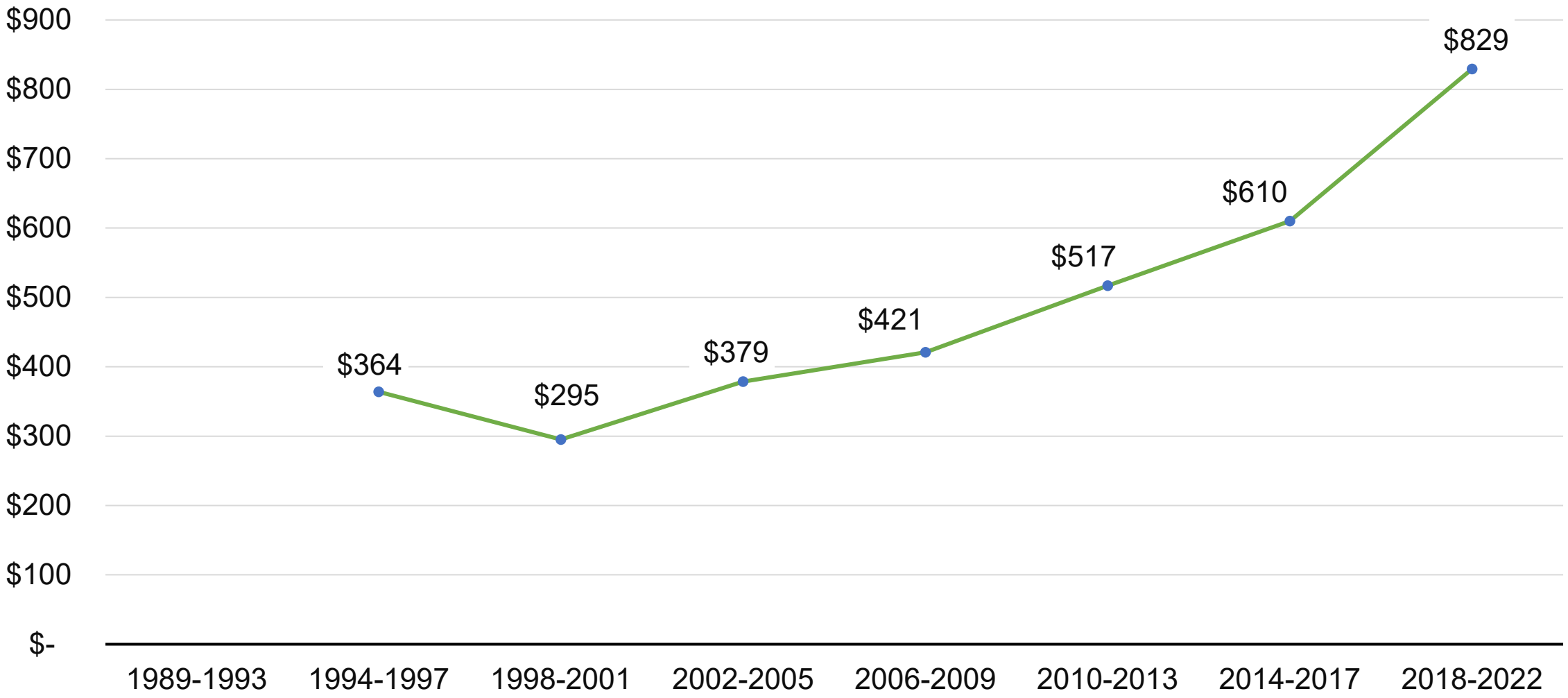
Crop workers' wages have steadily increased.



Note: Adjusted for inflation to 2022 dollars.

Mean real monthly housing cost

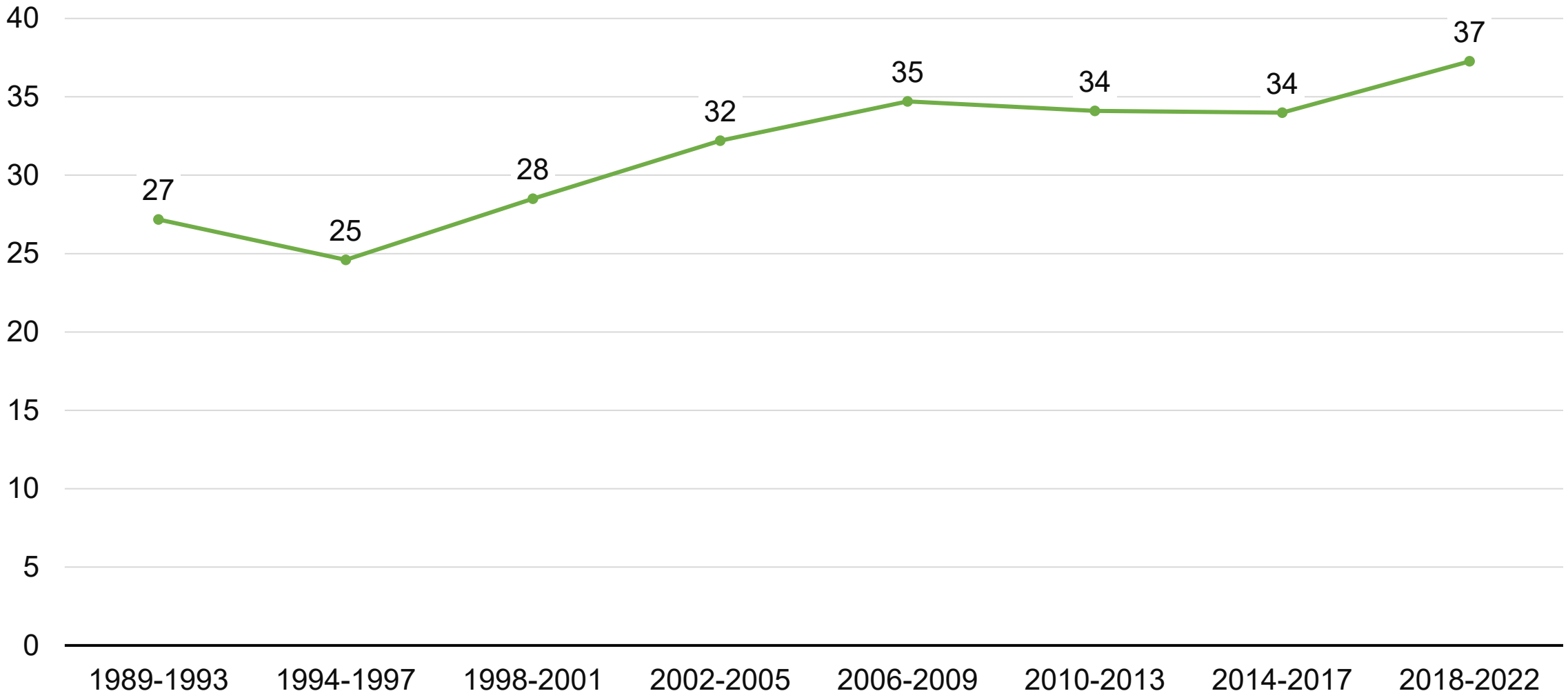
Housing costs have increased.



Note: Adjusted for inflation to 2022 dollars.

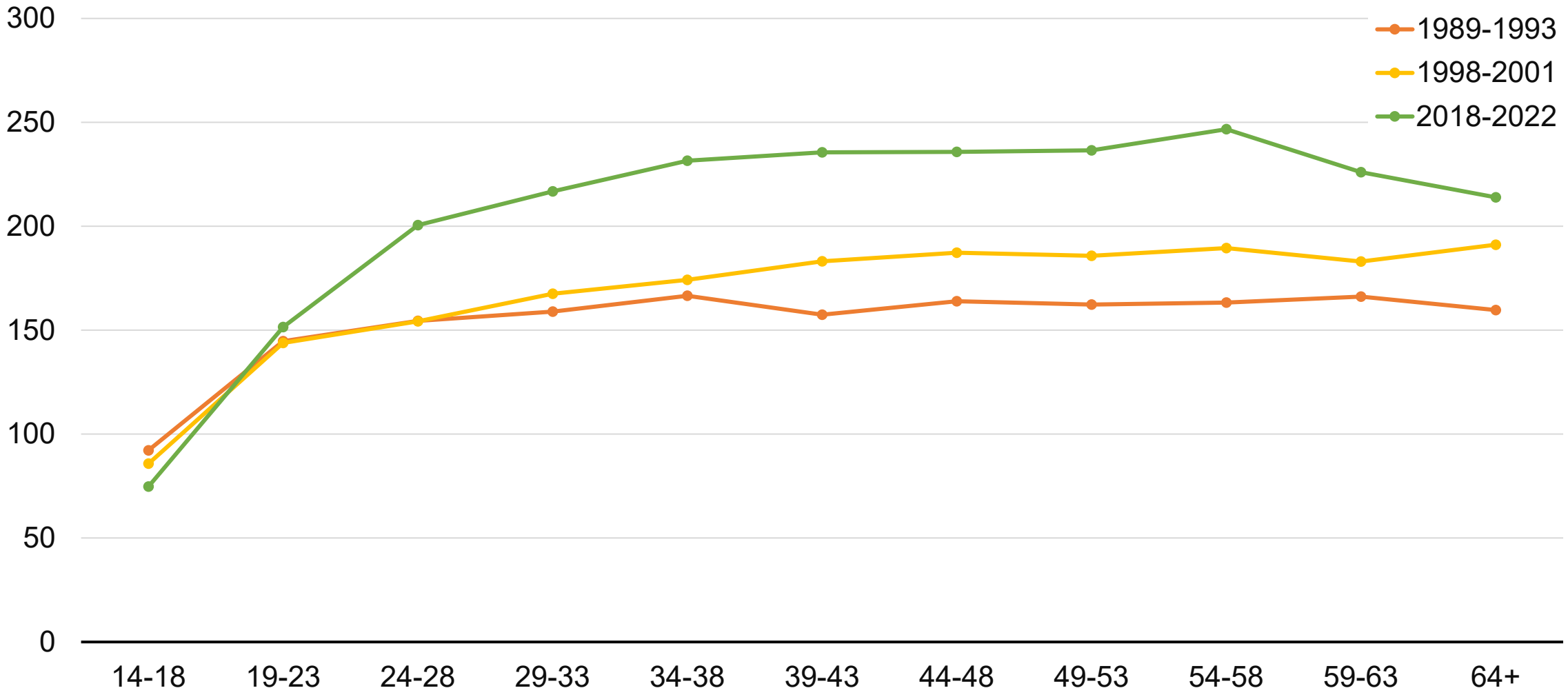
Farmwork weeks

Number of weeks doing farm work has also increased.



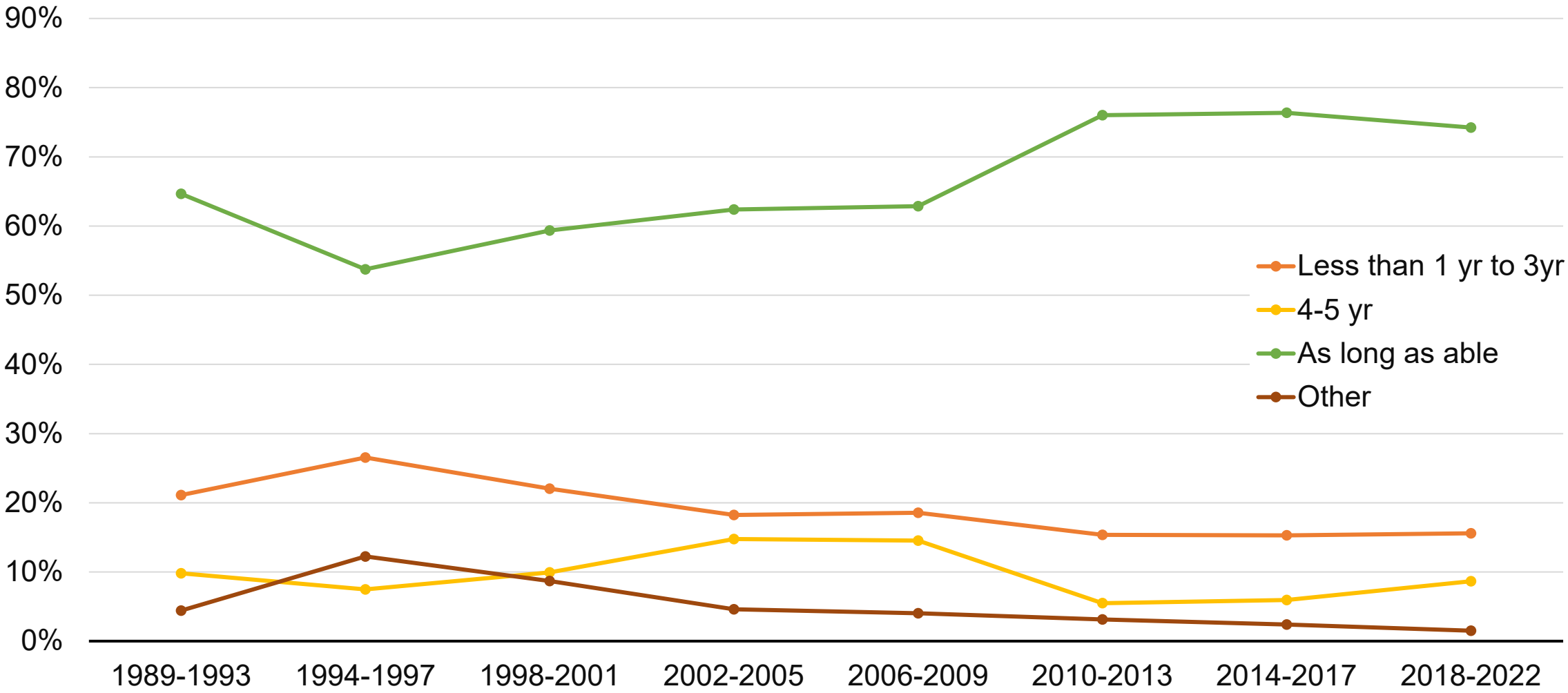
Farm workdays by age

Crop workers 34 and older are working more than young workers.



Plans to remain in farm work

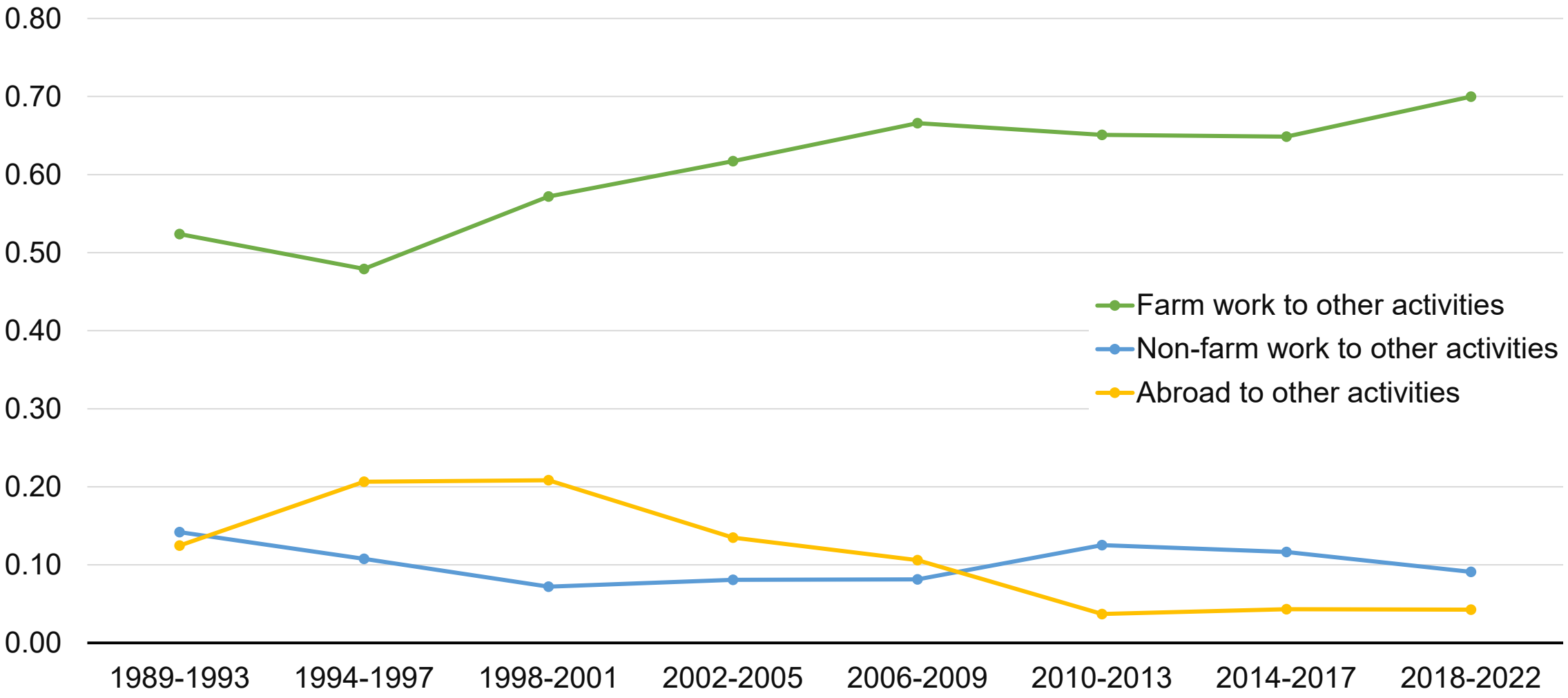
Most crop workers plan to do farm work as long as they are able.



Note: “Other” in 2018-200 has relative standard error between 31% and 50% and should be interpreted with caution.
If workers selected “Other” they have the option to write in open responses. Examples of these are: Don’t know, until something better comes up, until I finish college, until season is over, while finding another job that pays more.

Farmwork attachment (ratio of farmwork to other activities)

Crop worker spending less of their time abroad and more





Contact Information

For more information on the NAWS:
https://www.doleta.gov/naws/

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- Wenson Fung wfung@jbsinternational.com
- Emily Finchum-Mason Finchum.Emily.A@dol.gov
- Daniel Carroll carroll.daniel.j@dol.gov



Economic Research Service

U.S. DEPARTMENT OF AGRICULTURE





ALEXANDRA HILL

Assistant Professor
UC Berkeley

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Farm Foundation
Accelerating people & ideas

The US Farm Workforce:
Trends and Outlook

Alexandra E Hill

Assistant Professor, University of California, Berkeley

Department of Agricultural and Resource Economics

UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

Take Home Messages

Farm employees in the US will continue to be…

- Harder to find
- More and more expensive to employ

The H-2A program…

- Offers a temporary solution for worker shortages
- But high costs might reduce US agricultural competitiveness

US farm employers will need to…

- Find ways to reduce labor and other costs or **increase revenues**

Why are farm employees harder to find?

#1 workers are more settled

2000 → **2022**

Fewer migrant workers:

49% **15%**

More have US-born kids:

29% **44%**

More time living in the US:

8yrs **21**yrs

#2 fewer new immigrant workers

2000 → **2022**

Fewer foreign-born:

83% **68%**

Workers are **aging**:

31yrs **40**yrs

More farm experience:

9yrs **16**yrs

Data from the National Agricultural Workers Survey

Why are farm employees harder to find?

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Fewer foreign-born:

83% **68%**

Workers are **aging**:

31yrs **40**yrs

More farm experience:

9yrs **16**yrs

NOT because farmworkers want to leave ag

Similar share intend to work in ag "as long as able"

70% **74%**

Data from the National Agricultural Workers Survey

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What trends in MX have implications for US?

Why focus on Mexico?

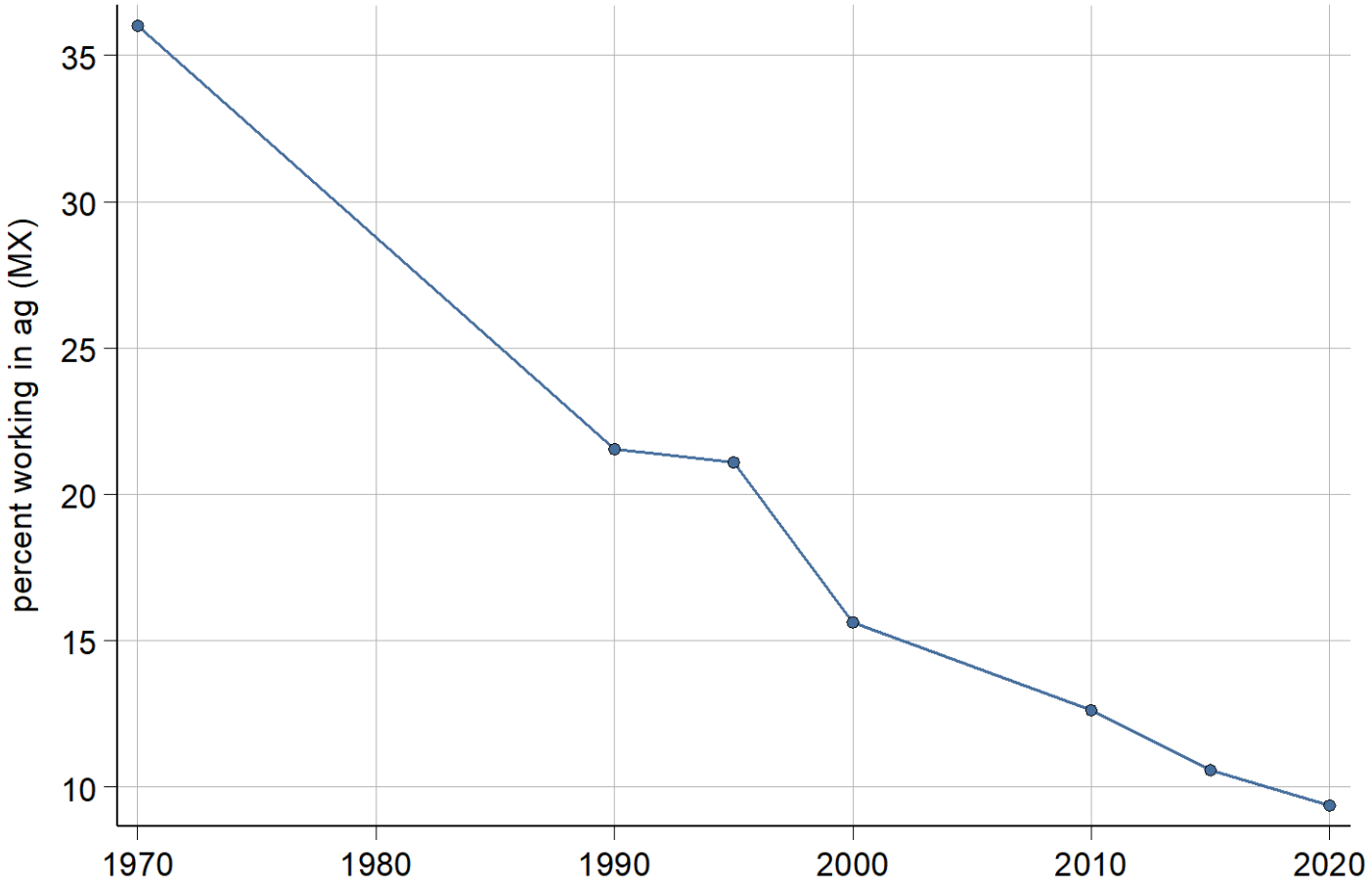
In 2022, 90% of foreign-born farmworkers were born in **Mexico** (97% in 2000)

Data from MX Population Census and Intercensus Surveys

What trends in MX have implications for US?

Two negative trends…

Fewer working in agriculture

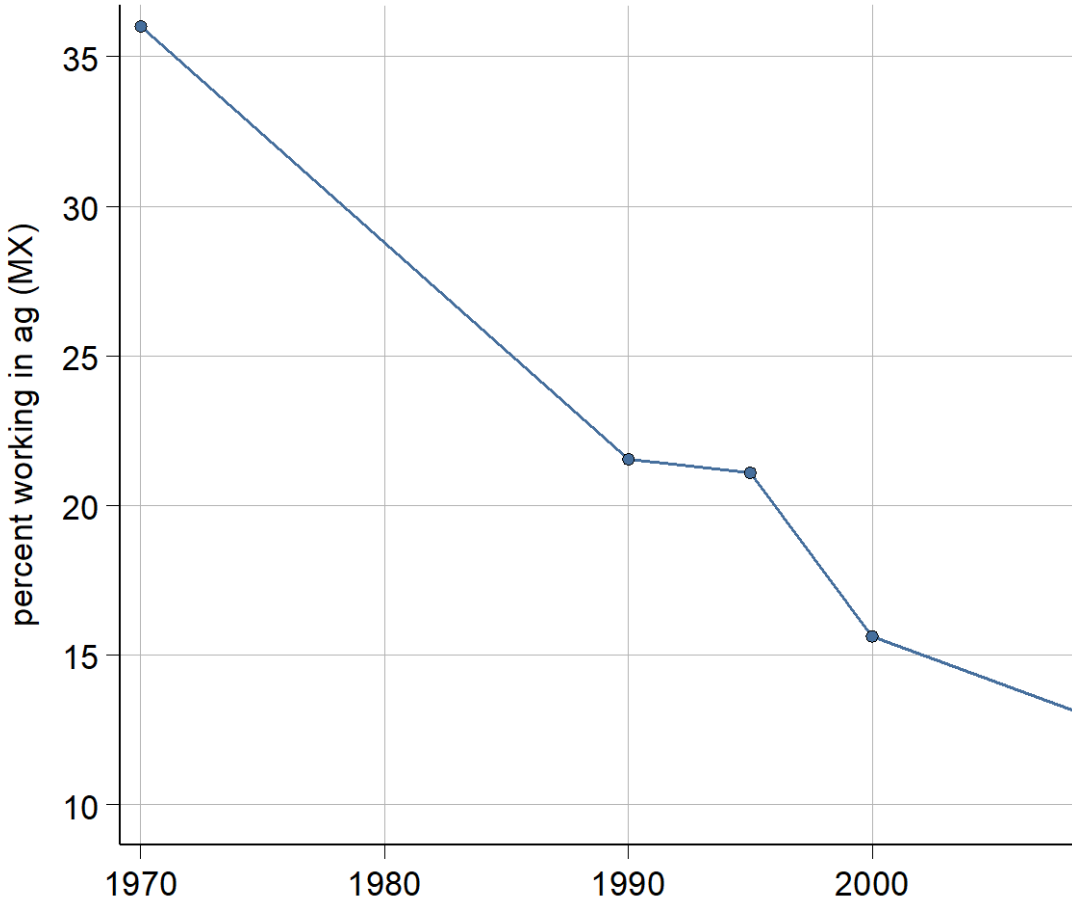


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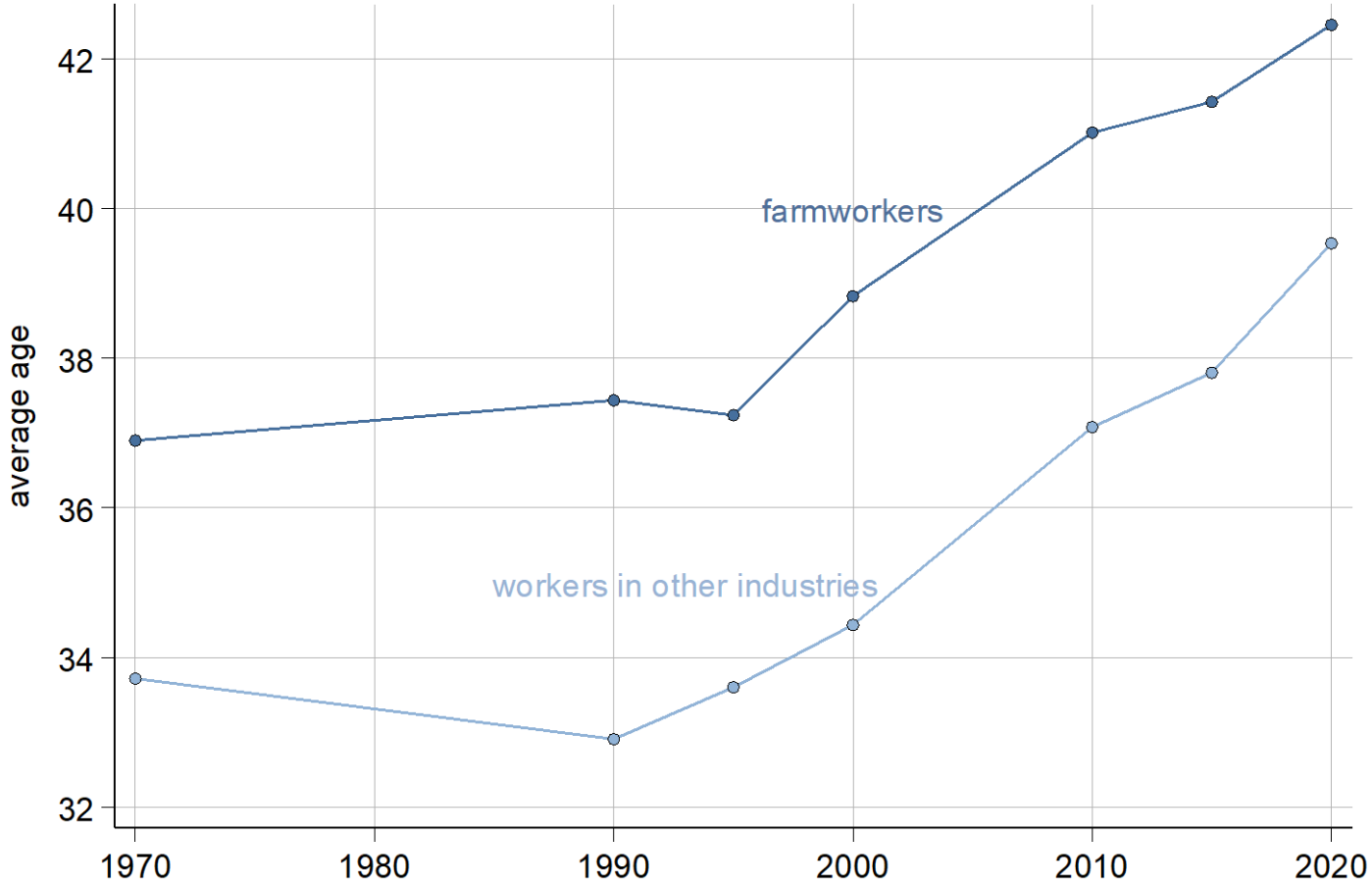
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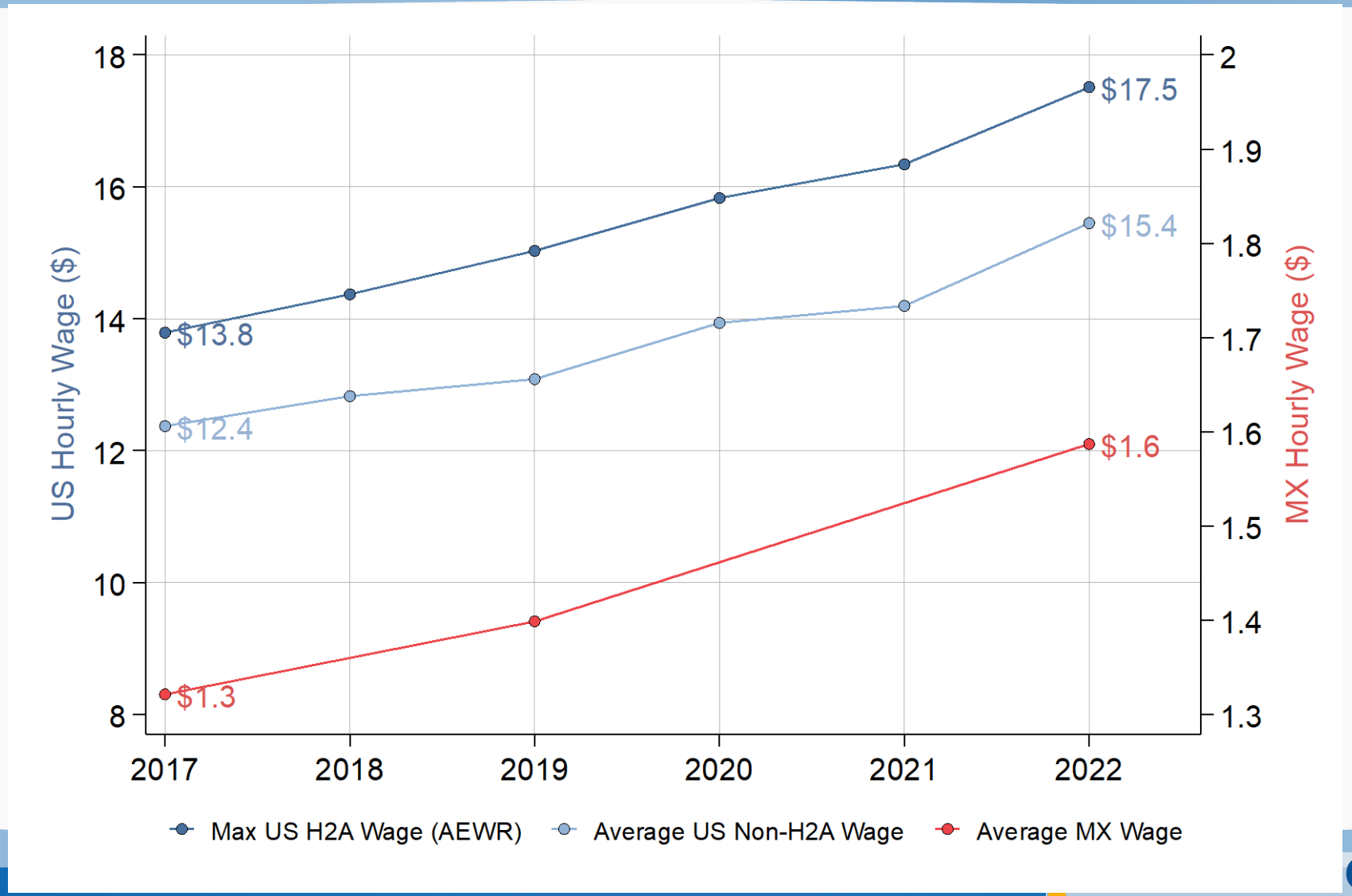
Farmworkers are aging



Data from MX Population Census and Intercensus Surveys

What trends in MX have implications for US?

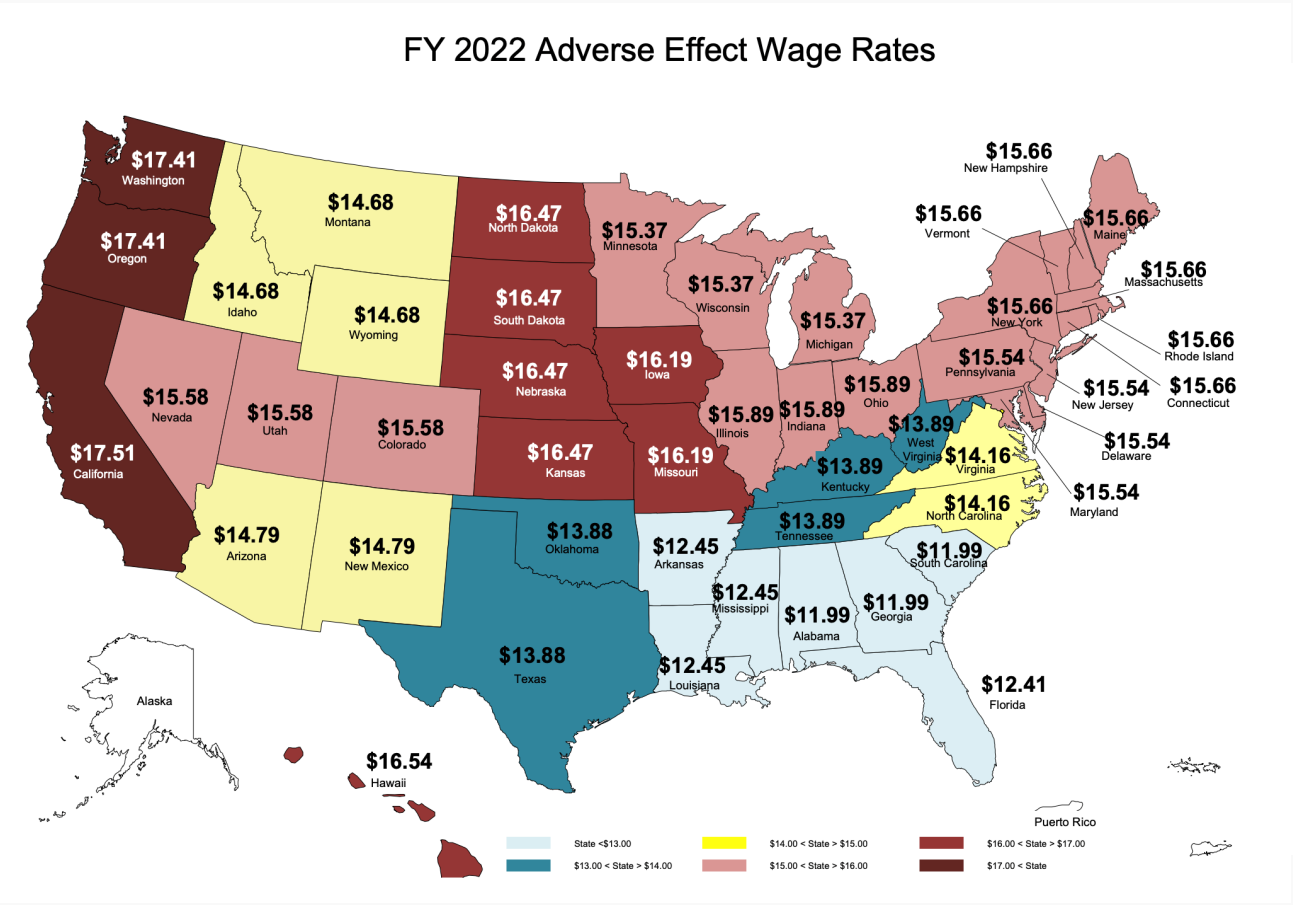
And one upside: Workers can earn more in the US

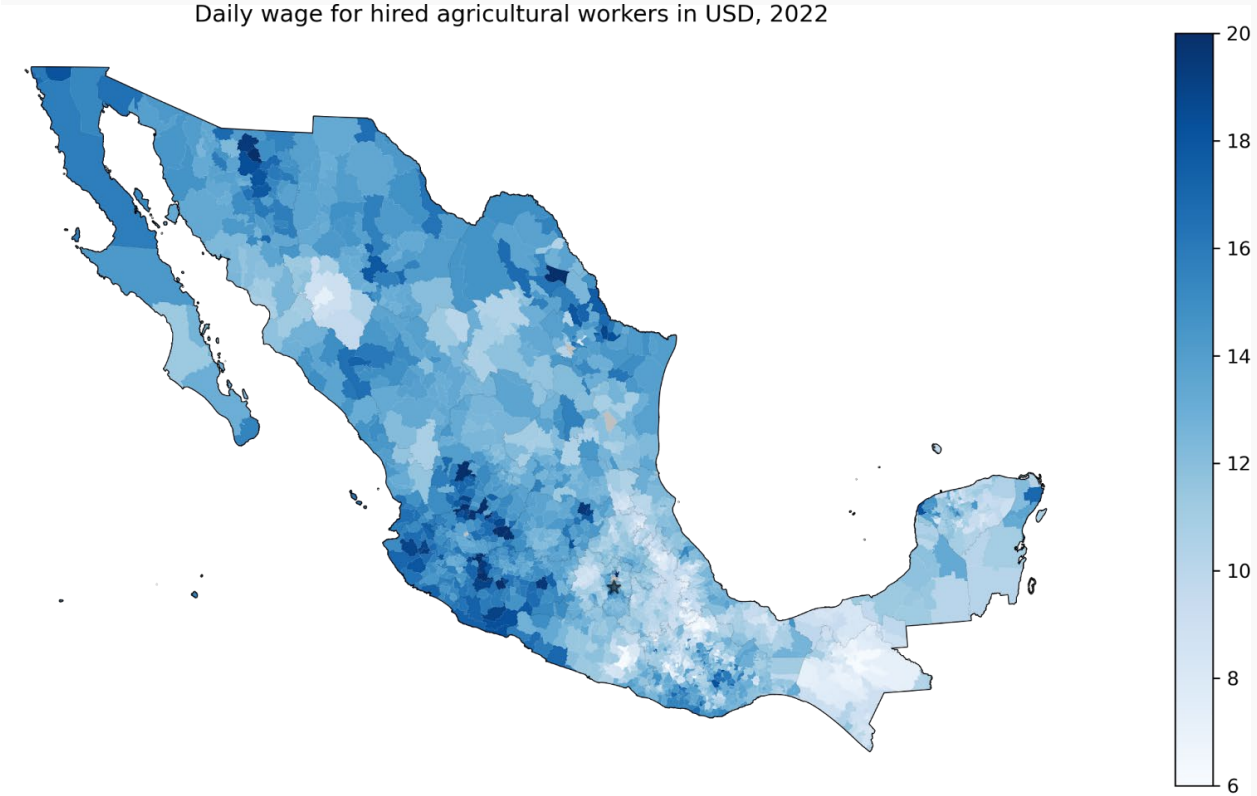


Data from the NAWS, MX Ag Census, MX Agro-fisheries Survey

What trends in MX have implications for US?

And one upside: Workers can earn more in the US





Data from the USDOL, MX Ag Census, MX Agro-fisheries Survey

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What trends in MX have implications for US?

And one upside: Workers can earn more in the US



The Washington Post
Democracy Dies in Darkness

As its workers stream to the U.S., Mexico runs short of farmhands

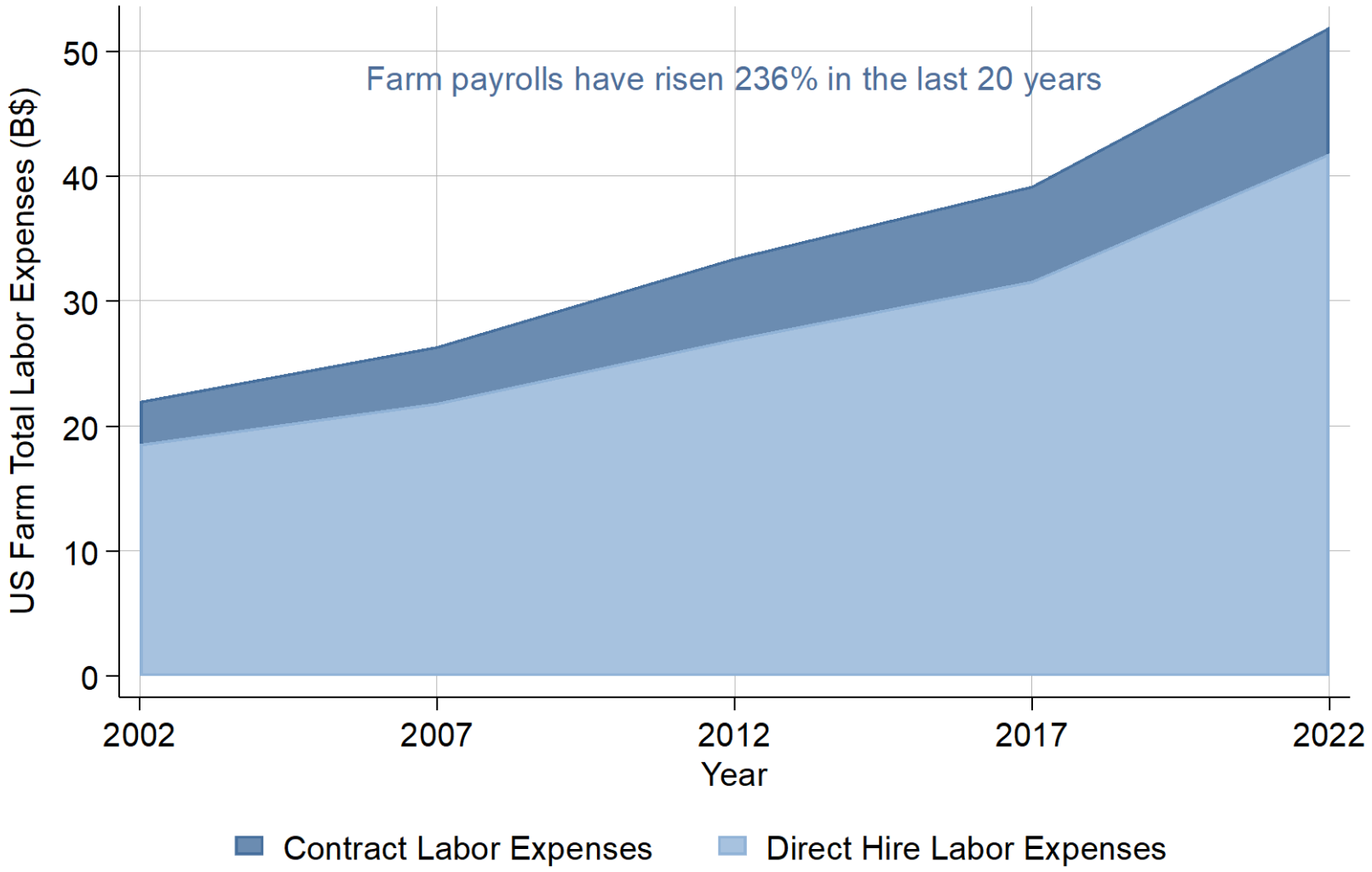


Data from the USDOL, MX Ag Census, MX Agro-fisheries Survey

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Agriculture and Natural Resources

Is this a positive for US farms?

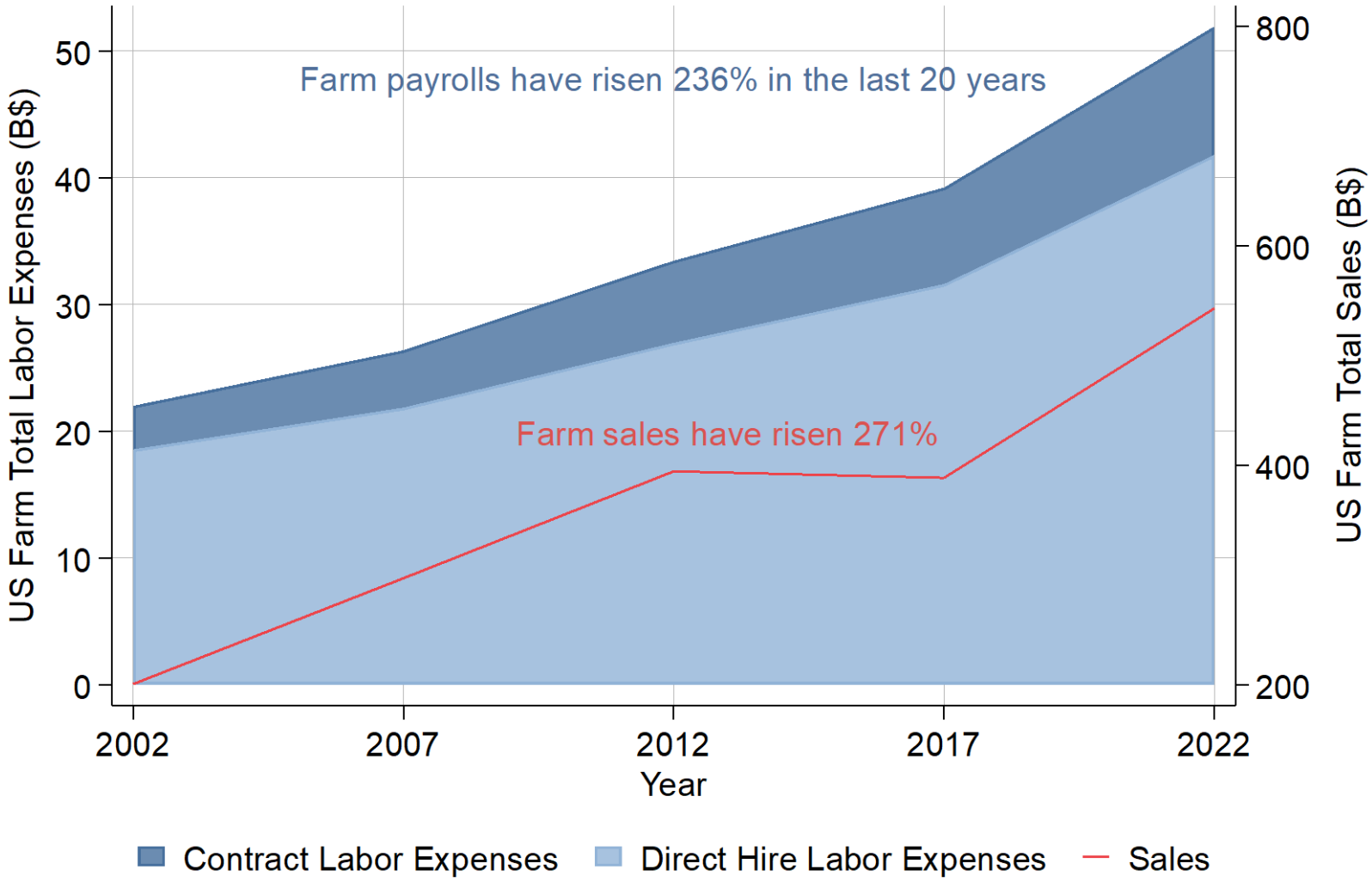
US farm payrolls have more than doubled in last 20 years



Data from the US Census of Agriculture

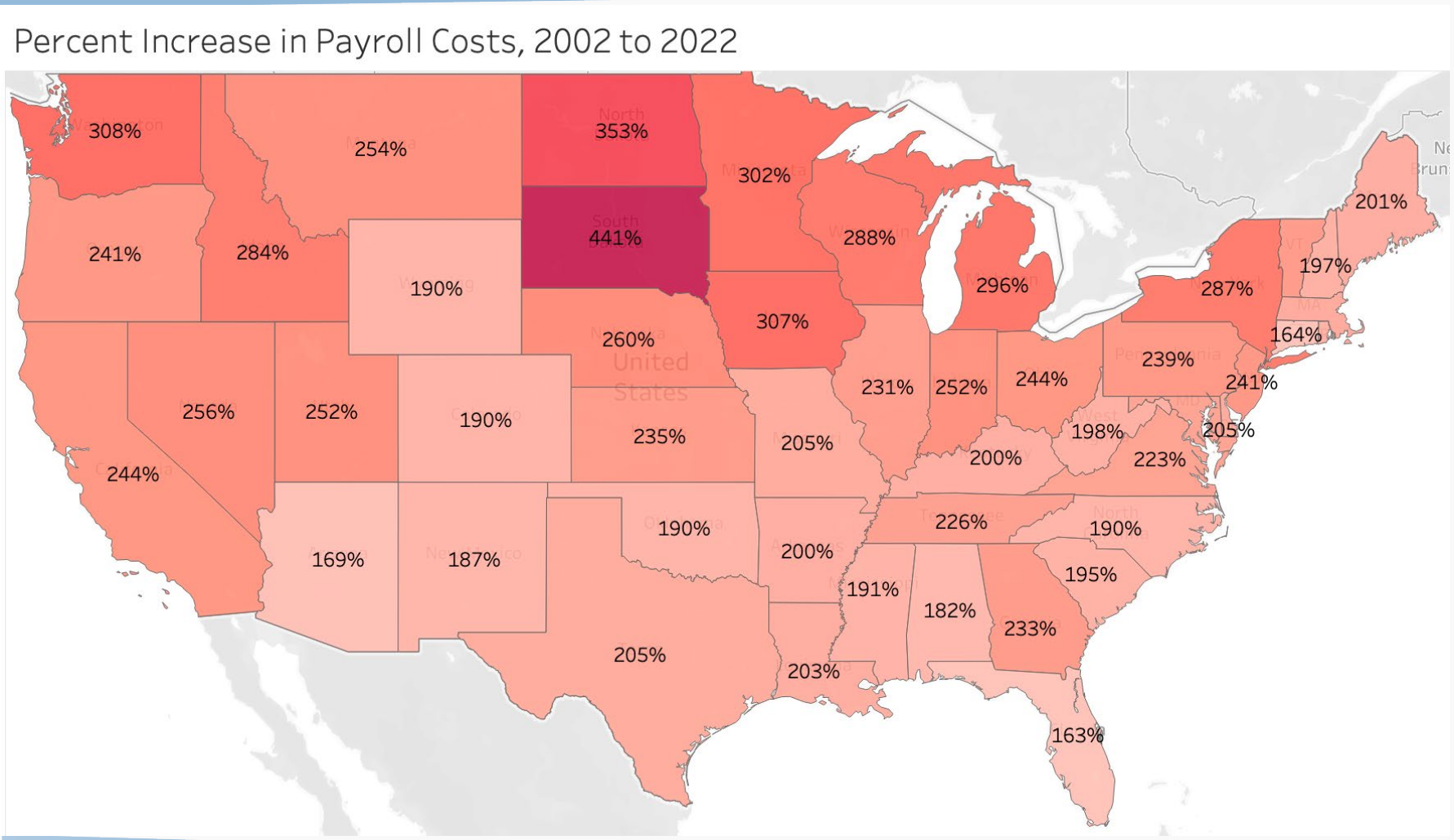
Is this a positive for US farms?

US farm sales increased by more



Data from the US Census of Agriculture

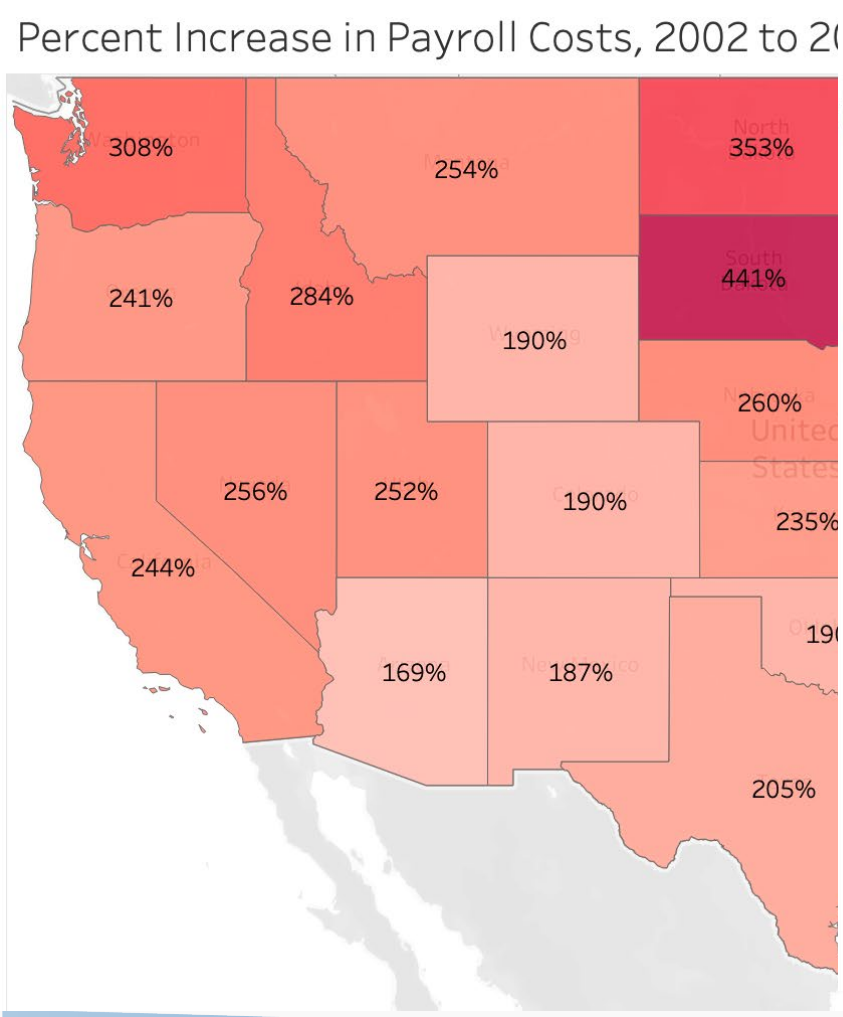
Is this a positive for US farms? It depends... on where

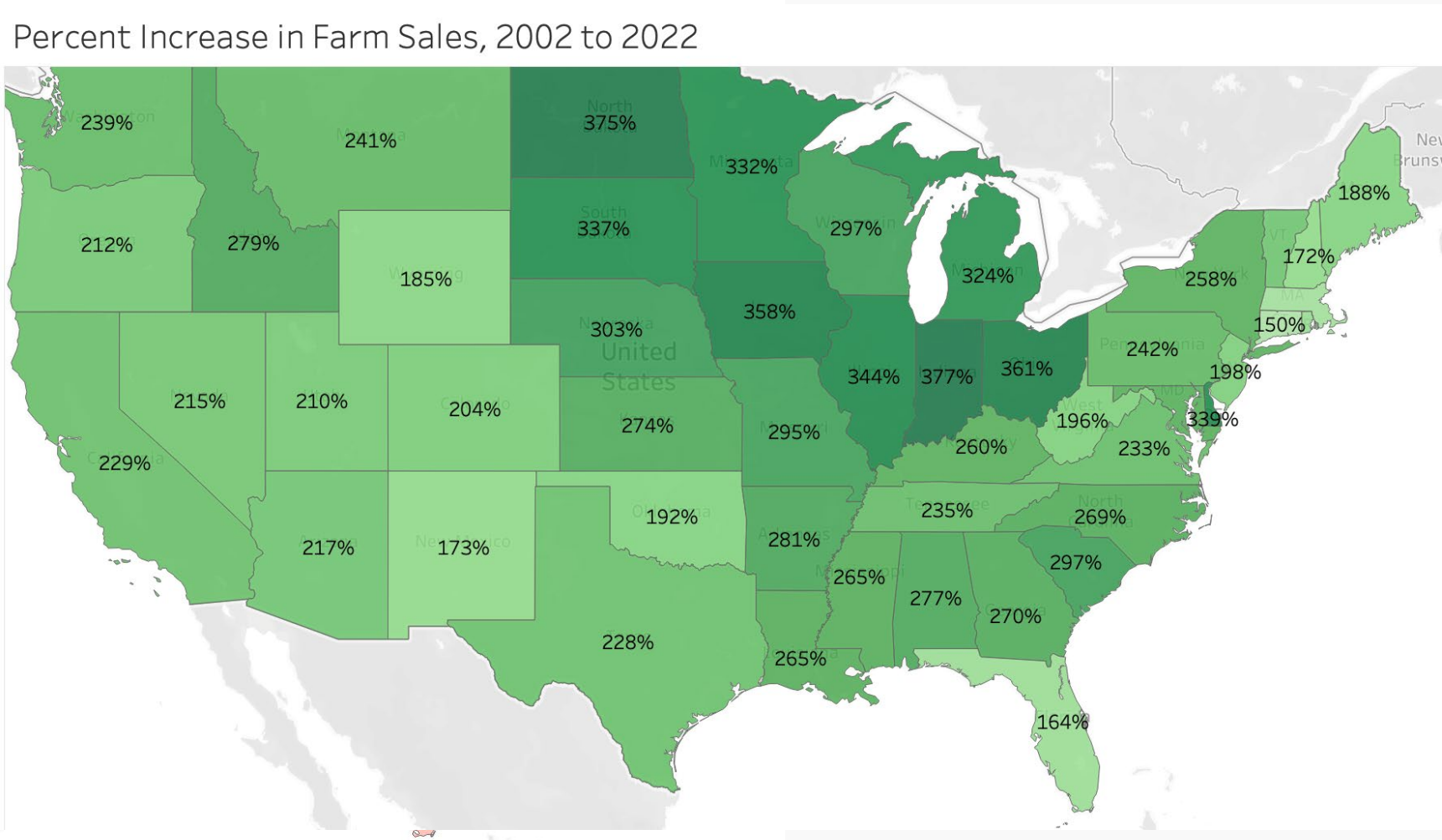


Data from the US Census of Agriculture

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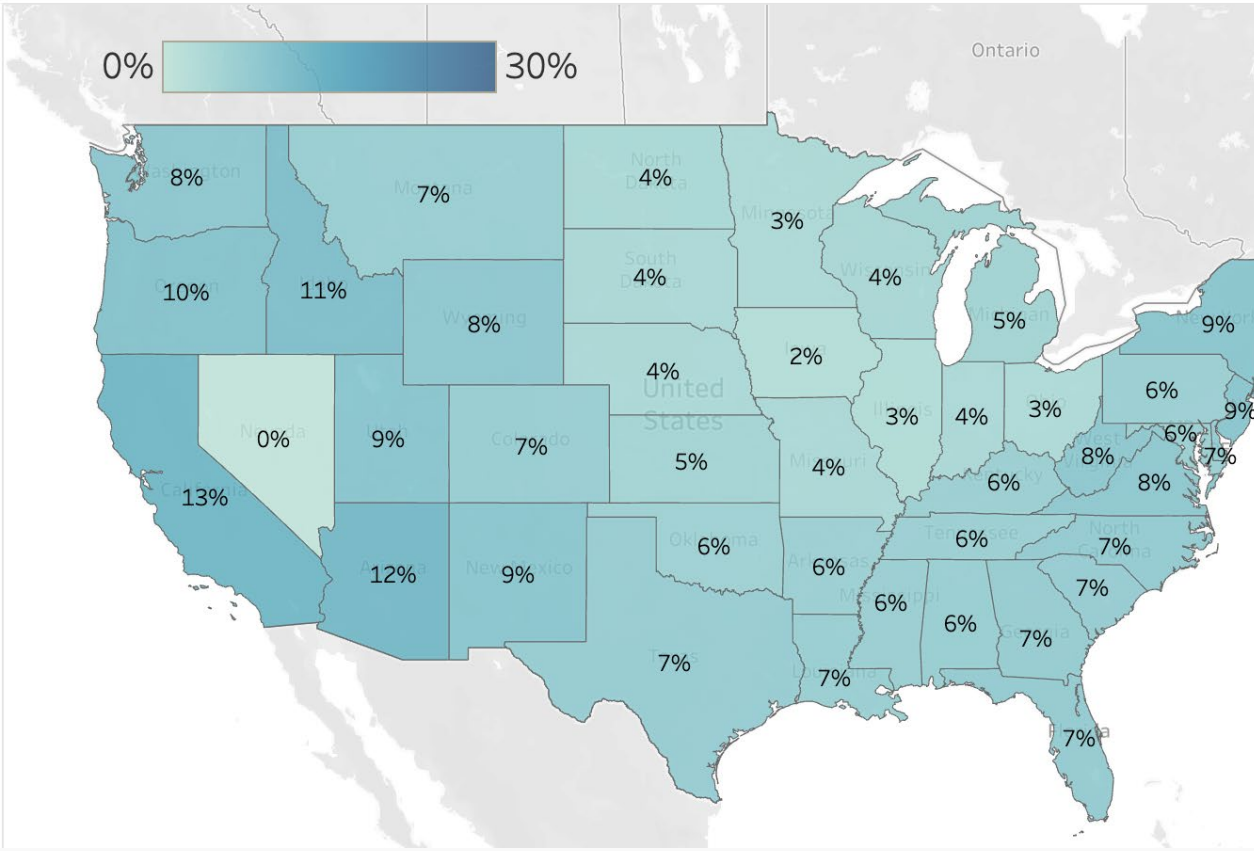


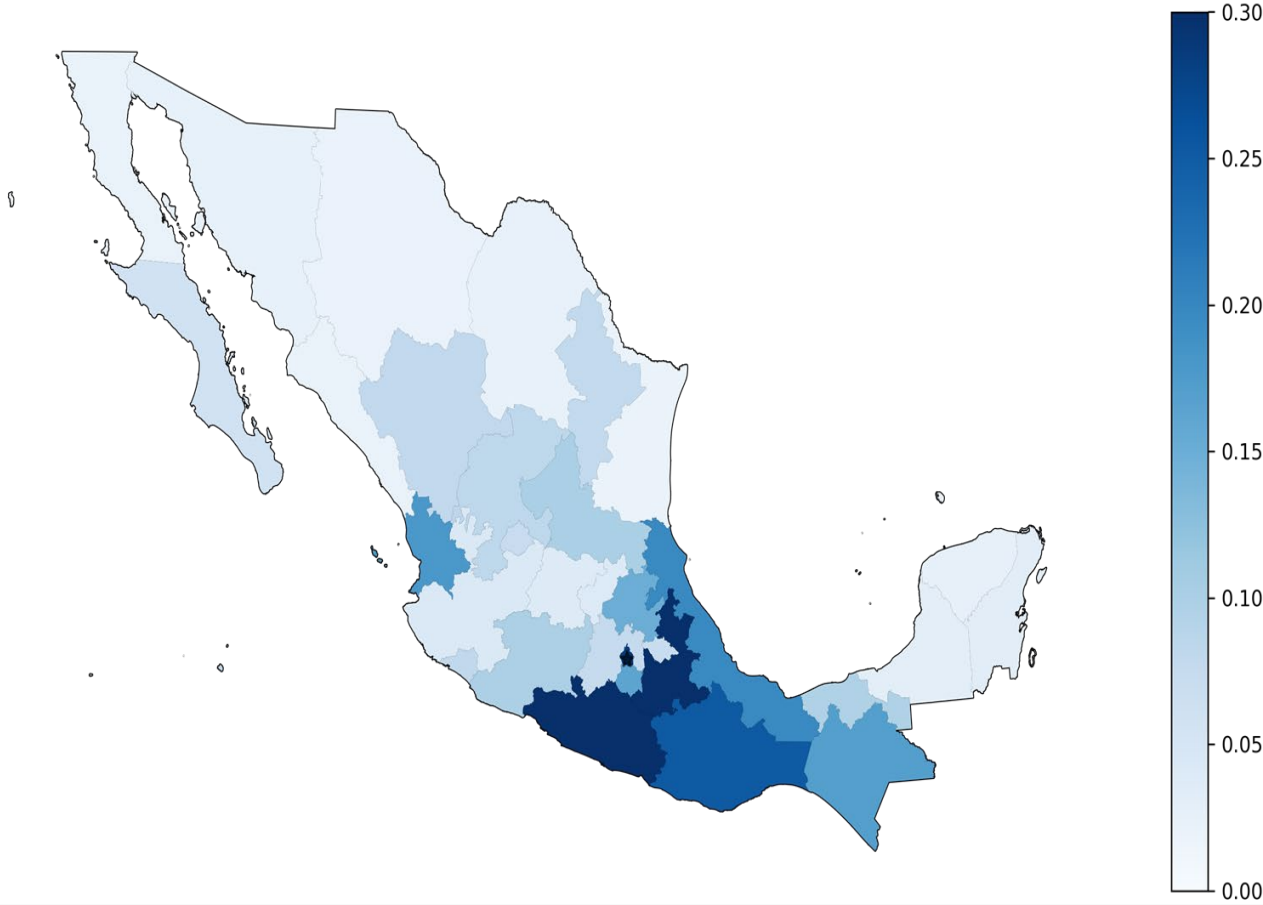
Data from the US Census of Agriculture

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Is this a positive for US farms? It depends… on crop

Payroll % of total farm sales is **lower** in the US than MX for oilseed and grains



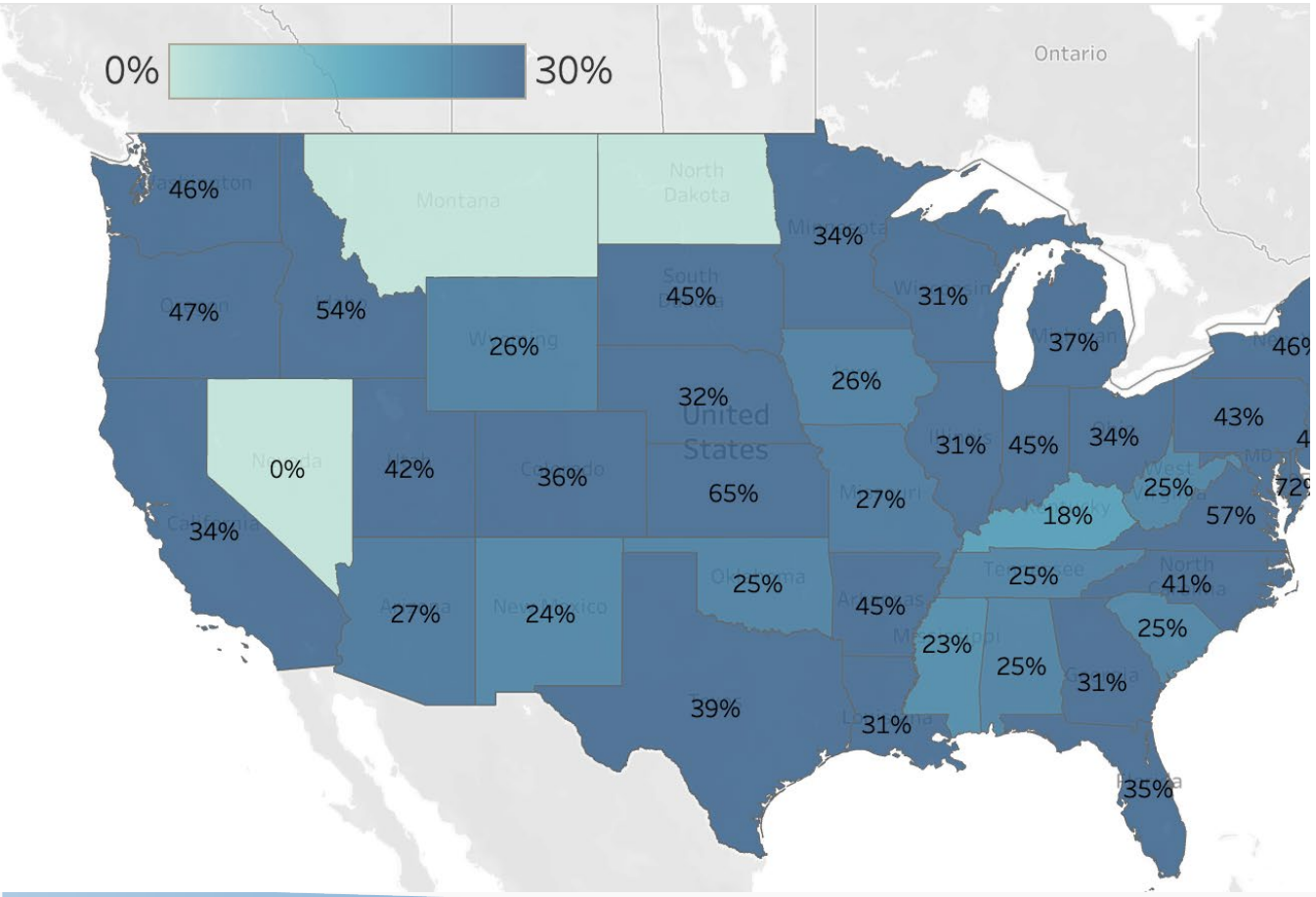


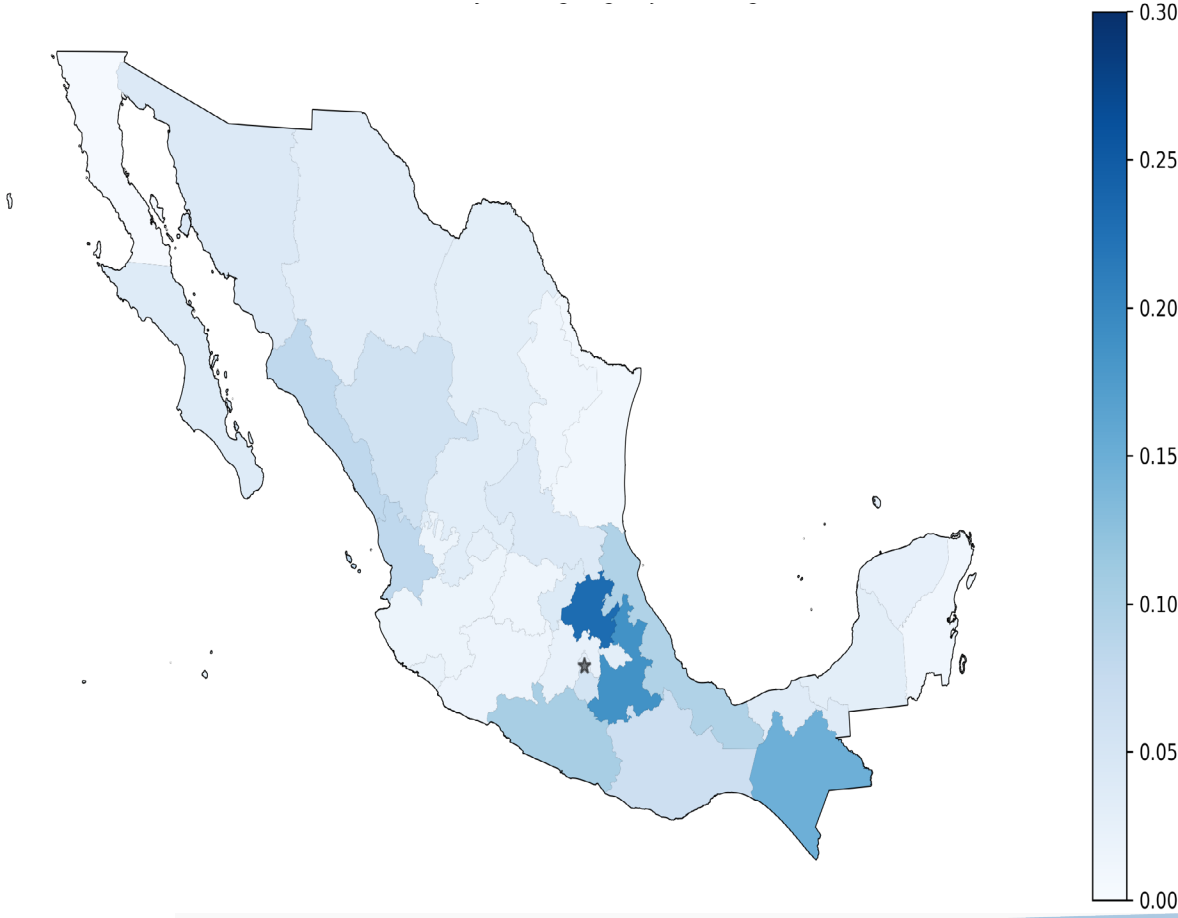
Data from the 2022 US & MX Census of Agriculture

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Is this a positive for US farms? It depends… on crop

Payroll % of total farm sales is **MUCH higher** in the US than MX for fruit/nut





Data from the 2022 US & MX Census of Agriculture

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Will rising labor costs continue?

Yes… Minimum Wages, H-2A, Other Policies, Worker Shortages

State minimum wages are rising

H-2A wages are rising and reliance on H-2A is growing

Other policies:

- Overtime (AB 1066)
- Union laws (AB 2183 & AB 113)
- Frequently changing and complex legal employment environment leading many to rely on farm labor contractors (20-40% overhead)

Domestic worker shortages will also drive up wages

- To recruit enough workers and compete with other industries, employers will continue offering wages well beyond legal minimums

What is the outlook?

Employees will continue to be harder to find and more expensive

US farm employers will have to find ways to…

- Recruit new workers (immigration reform, H-2A, change ag jobs)
- Increase productivity (machine-assist)
- Replace workers (automation)
- Cut other costs (mechanization, AI)
- **Increase revenues** (value-added products, retailers)

Thank you!

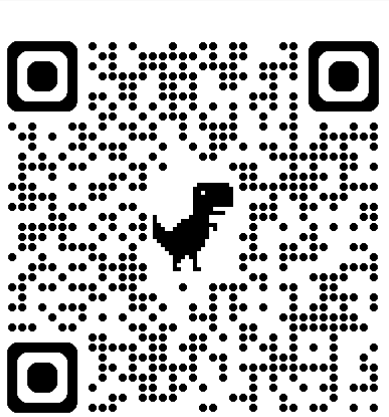
Alexandra Hill

alihill@berkeley.edu

To explore the data I presented today, visit:

www.alexandraehill.com/projects







Economic Research Service

U.S. DEPARTMENT OF AGRICULTURE





DIANE CHARLTON

Associate Professor
Montana State University

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Farm Foundation
Accelerating people & ideas

The Farm Labor Problem and Policy Responses

Diane Charlton

Montana State University, Department of Agricultural Economics & Economics

The Changing Landscape of Farm Labor Conditions in the United States

Santa Cruz, CA

September 18, 2024

MONTANA STATE UNIVERSITY

The Agricultural Transformation, The Farm Labor Problem, and Potential Responses

Competing policy goals

1. Keep food affordable
2. Raise incomes, promote upward labor mobility
    - But, as countries develop and incomes rise, the workforce moves off the farm (agricultural transformation)
    - Farm labor costs rise putting upward pressure on food costs

Potential Responses

1. Import low-wage workers from less developed countries
2. Automate food production to reduce dependence on an elastic labor supply
3. Import food from countries where farm workers are abundant and lower cost

But when migrant-sending countries develop… Farms compete for limited labor supply



Photo: Ixtapec, Oaxaca, Mexico, 2013

Mexico provides more than two-thirds of the crop workers in the United States, but Mexico is undergoing its own agricultural transformation.



Automation
Apple-Harvesting Robot
(Photo courtesy of Advanced Farms Technologies)



Are robotic apple harvesters economically feasible?

- It depends
- The technology exists
- But is it efficient enough to compete with hand harvest?

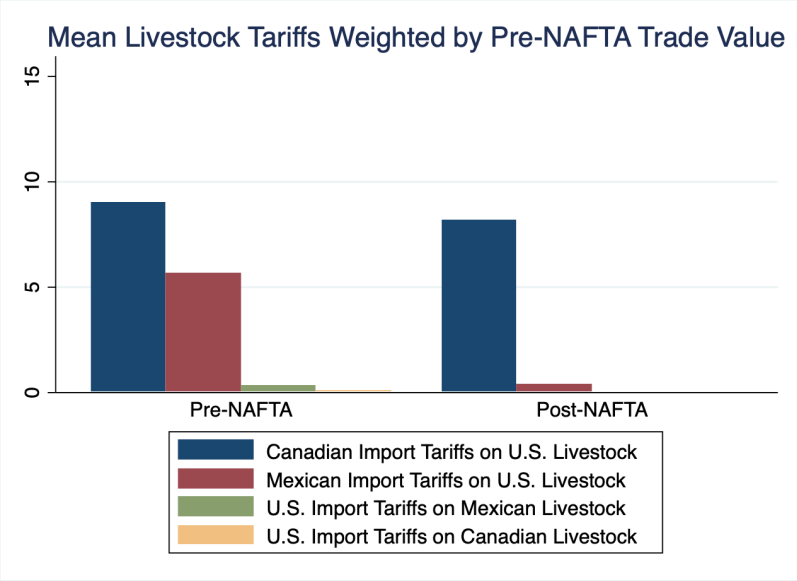
Why don’t we simply import fruits and vegetables?

- Research needs to investigate the effects of changes in agricultural tariff and non-tariff measures on rural economies, including rural employment and wages.

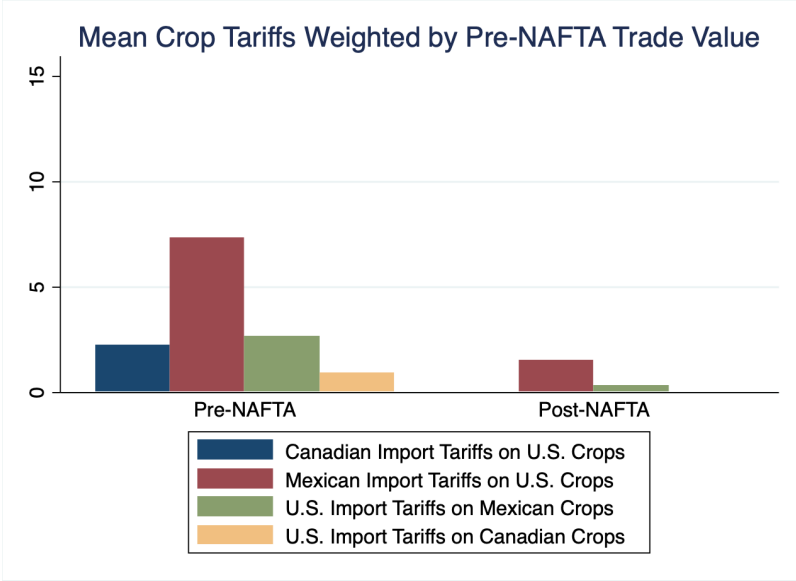
- Most literature on labor market effects of trade liberalization in the United States focuses on the manufacturing and non-farm sector (Autor et al, 2013; Autor et al, 2014; Hakobyan and McLaren, 2016)

Changes in Foreign Tariffs on Imports of U.S. goods, including Crops were Substantial during NAFTA

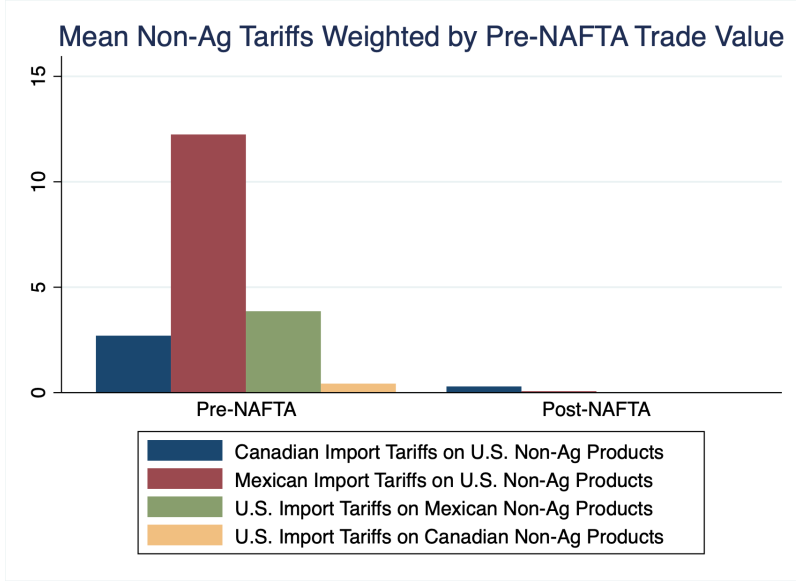
Livestock



Crops

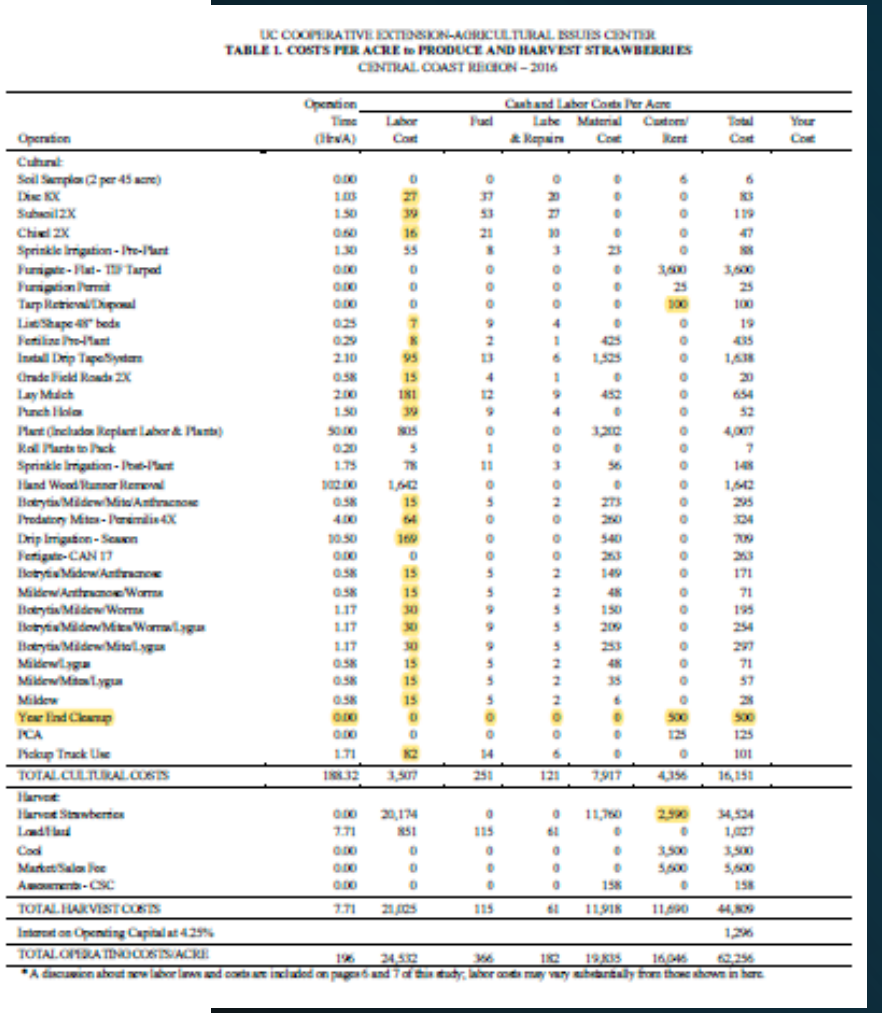


Non-Ag Products



Lack county-level data of employment by crop type

- Working project with Countryman, Manning, and Ikeme: Use cost & return studies from numerous universities to find estimates of hours per acre required for each crop
- Use these to calculate crop labor shares in each county by multiplying hours per acre by crop acres in the Ag Census.
- Labor shares can be used to measure worker exposure to changes in tariffs and other policy changes



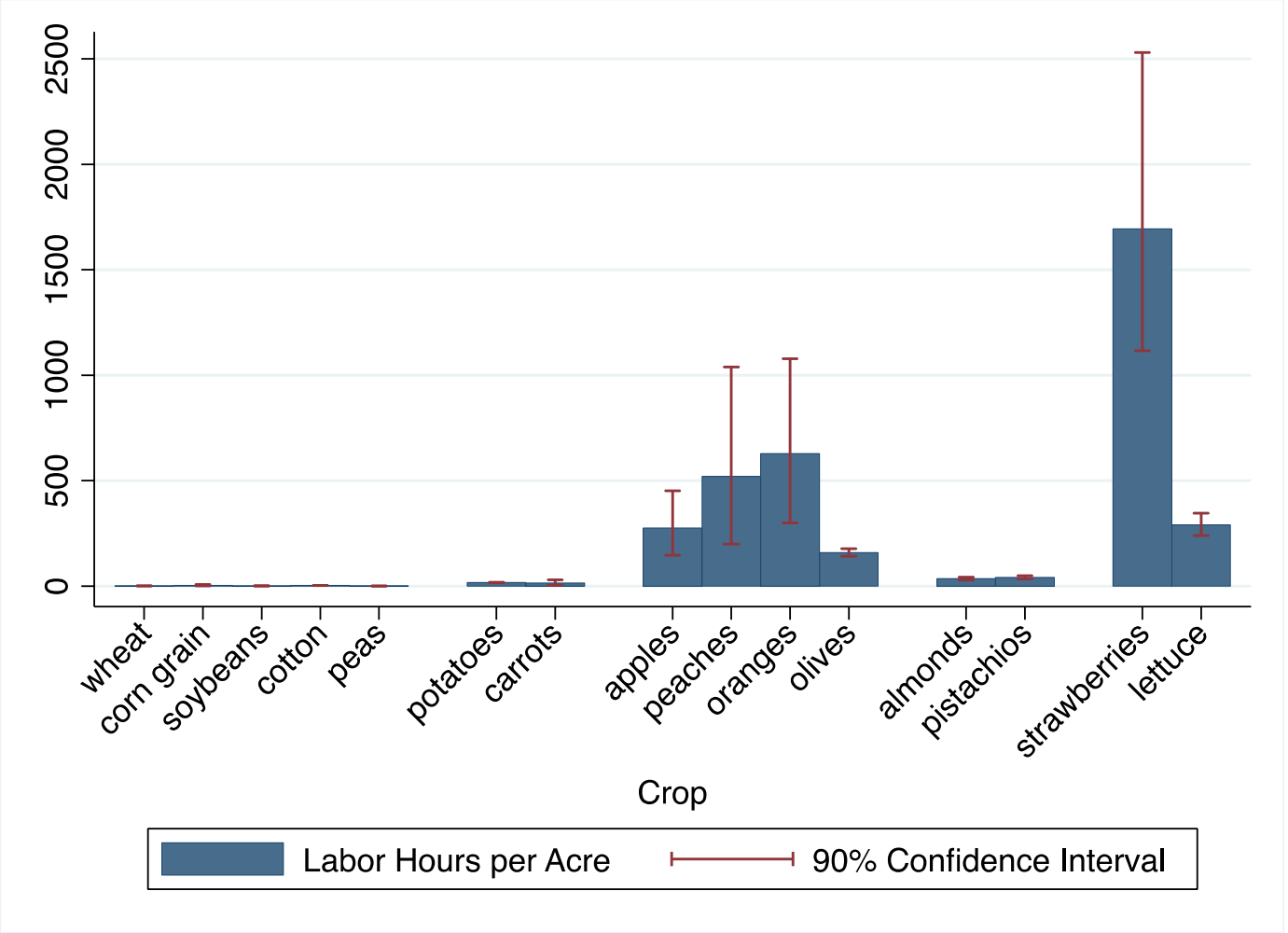
UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 1. COSTS PER ACRE to PRODUCE AND HARVEST STRAWBERRIES
CENTRAL COAST REGION – 2016

Operation	Operation Time (Hrs/A)	Cash and Labor Costs Per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:								
Soil Samples (2 per 45 acre)	0.00	0	0	0	0	6	6	
Disc 8X	1.03	27	37	20	0	0	83	
Subsoil 2X	1.50	39	53	27	0	0	119	
Chisel 2X	0.60	16	21	10	0	0	47	
Sprinkle Irrigation - Pre-Plant	1.30	55	8	3	23	0	88	
Fumigate - Flat - TIF Tarped	0.00	0	0	0	0	3,600	3,600	
Fumigation Permit	0.00	0	0	0	0	25	25	
Tarp Retrieval/Disposal	0.00	0	0	0	0	100	100	
List/Shape 48" beds	0.25	7	9	4	0	0	19	
Fertilize Pre-Plant	0.29	8	2	1	425	0	435	
Install Drip Tape/System	2.10	95	13	6	1,525	0	1,638	
Grade Field Roads 2X	0.58	15	4	1	0	0	20	
Lay Mulch	2.00	181	12	9	452	0	654	
Punch Holes	1.50	39	9	4	0	0	52	
Plant (Includes Replant Labor & Plants)	50.00	805	0	0	3,202	0	4,007	
Roll Plants to Pack	0.20	5	1	0	0	0	7	
Sprinkle Irrigation - Post-Plant	1.75	78	11	3	56	0	148	
Hand Weed/Runner Removal	102.00	1,642	0	0	0	0	1,642	
Botrytis/Mildew/Mite/Anthracnose	0.58	15	5	2	273	0	295	
Predatory Mites - Persimilis 4X	4.00	64	0	0	260	0	324	
Drip Irrigation - Season	10.50	169	0	0	540	0	709	
Fertigate- CAN 17	0.00	0	0	0	263	0	263	
Botrytis/Mildew/Anthracnose	0.58	15	5	2	149	0	171	
Mildew/Anthracnose/Worms	0.58	15	5	2	48	0	71	
Botrytis/Mildew/Worms	1.17	30	9	5	150	0	195	
Botrytis/Mildew/Mites/Worms/Lygus	1.17	30	9	5	209	0	254	
Botrytis/Mildew/Mite/Lygus	1.17	30	9	5	253	0	297	
Mildew/Lygus	0.58	15	5	2	48	0	71	
Mildew/Mites/Lygus	0.58	15	5	2	35	0	57	
Mildew	0.58	15	5	2	6	0	28	
Year End Cleanup	0.00	0	0	0	0	500	500	
PCA	0.00	0	0	0	0	125	125	
Pickup Truck Use	1.71	82	14	6	0	0	101	
TOTAL CULTURAL COSTS	188.32	3,507	251	121	7,917	4,356	16,151	
Harvest:								
Harvest Strawberries	0.00	20,174	0	0	11,760	2,590	34,524	
Load/Haul	7.71	851	115	61	0	0	1,027	
Cool	0.00	0	0	0	0	3,500	3,500	
Market/Sales Fee	0.00	0	0	0	0	5,600	5,600	
Assessments - CSC	0.00	0	0	0	158	0	158	
TOTAL HARVEST COSTS	7.71	21,025	115	61	11,918	11,690	44,809	
Interest on Operating Capital at 4.25%							1,296	
TOTAL OPERATING COSTS/ACRE	196	24,532	366	182	19,835	16,046	62,256	

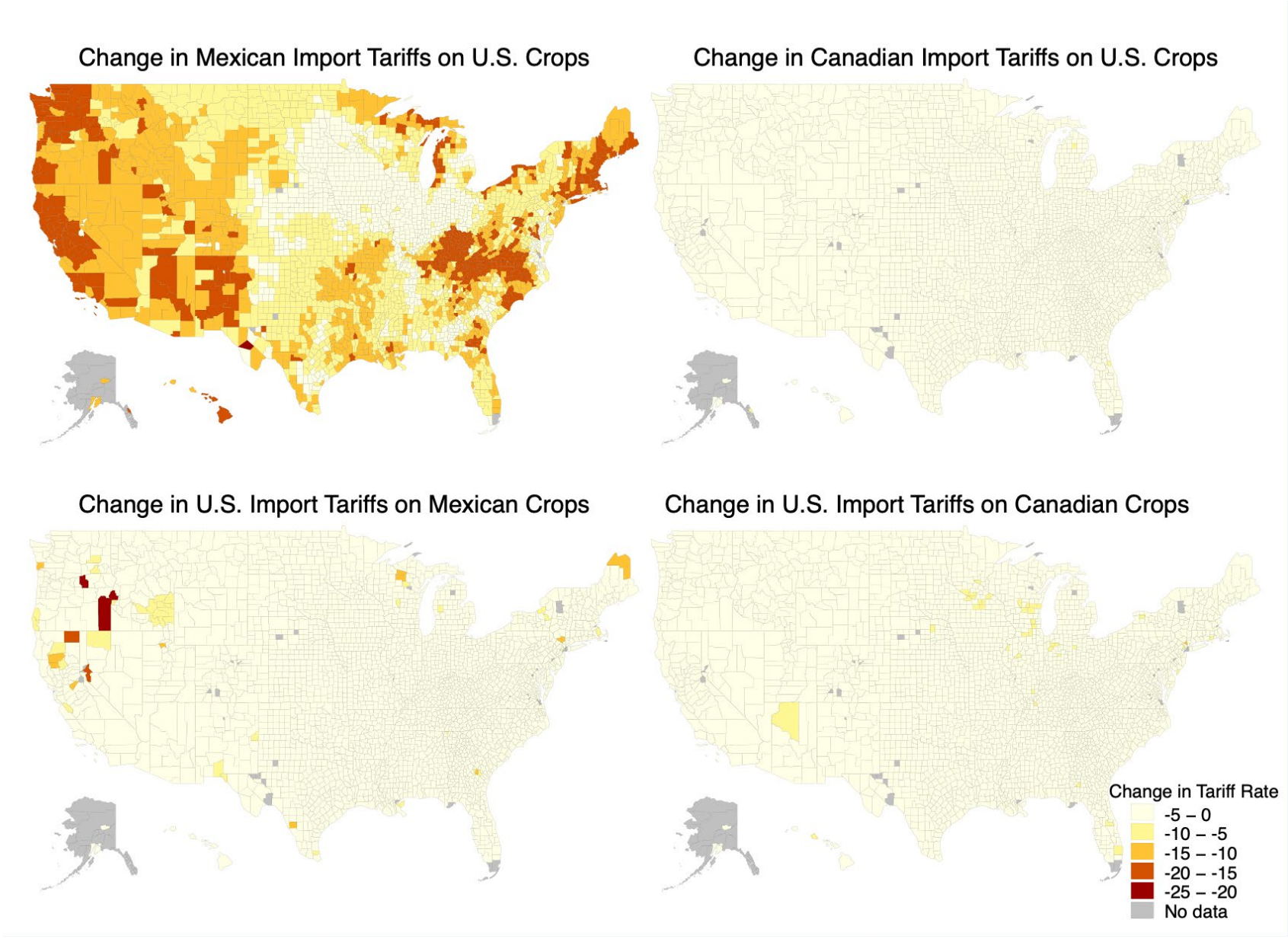
*A discussion about new labor laws and costs are included on pages 6 and 7 of this study; labor costs may vary substantially from those shown in here.

Crop Hours per Acre

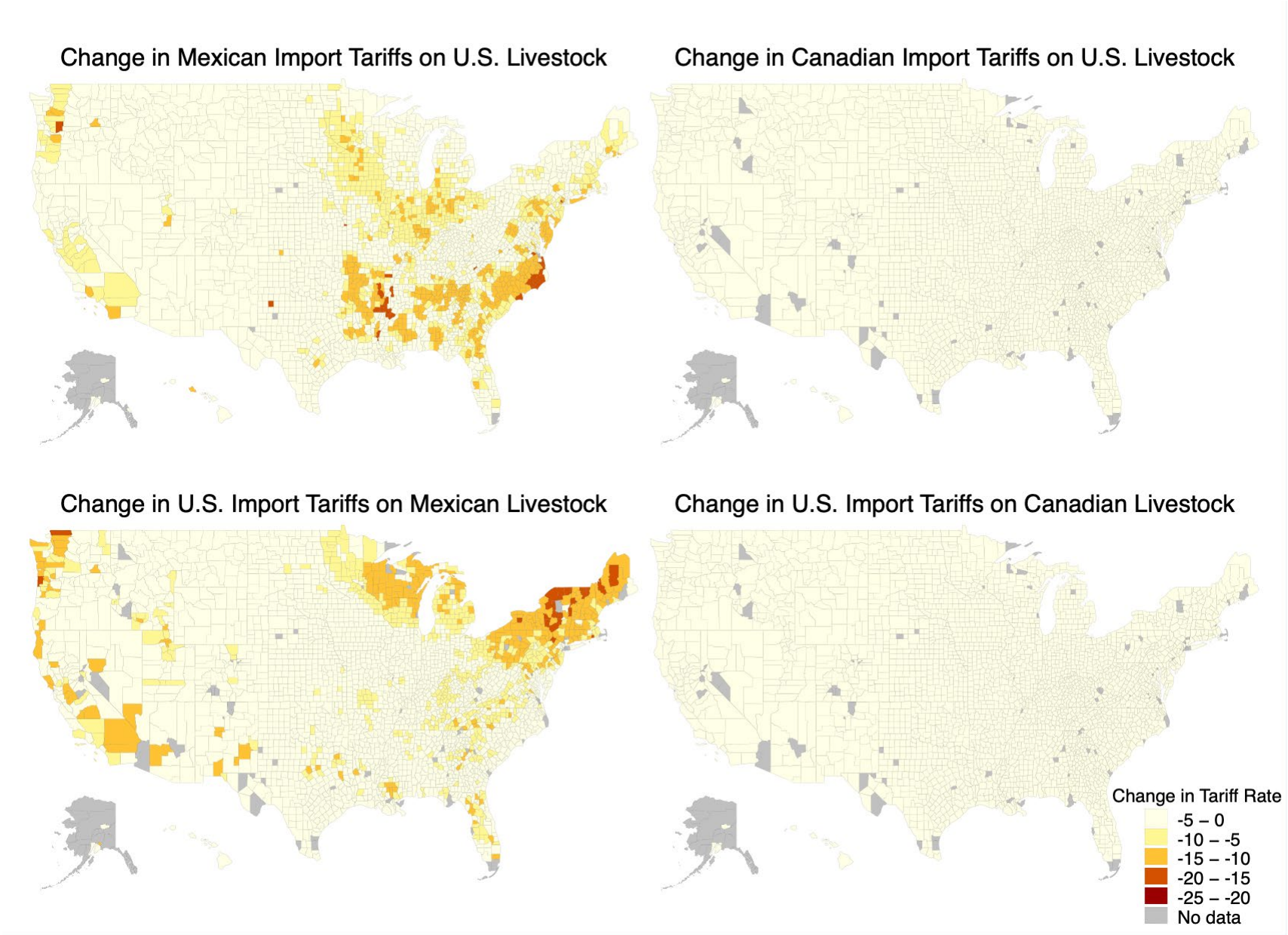
Simulated 90% confidence intervals using variance in estimates from multiple enterprise budgets



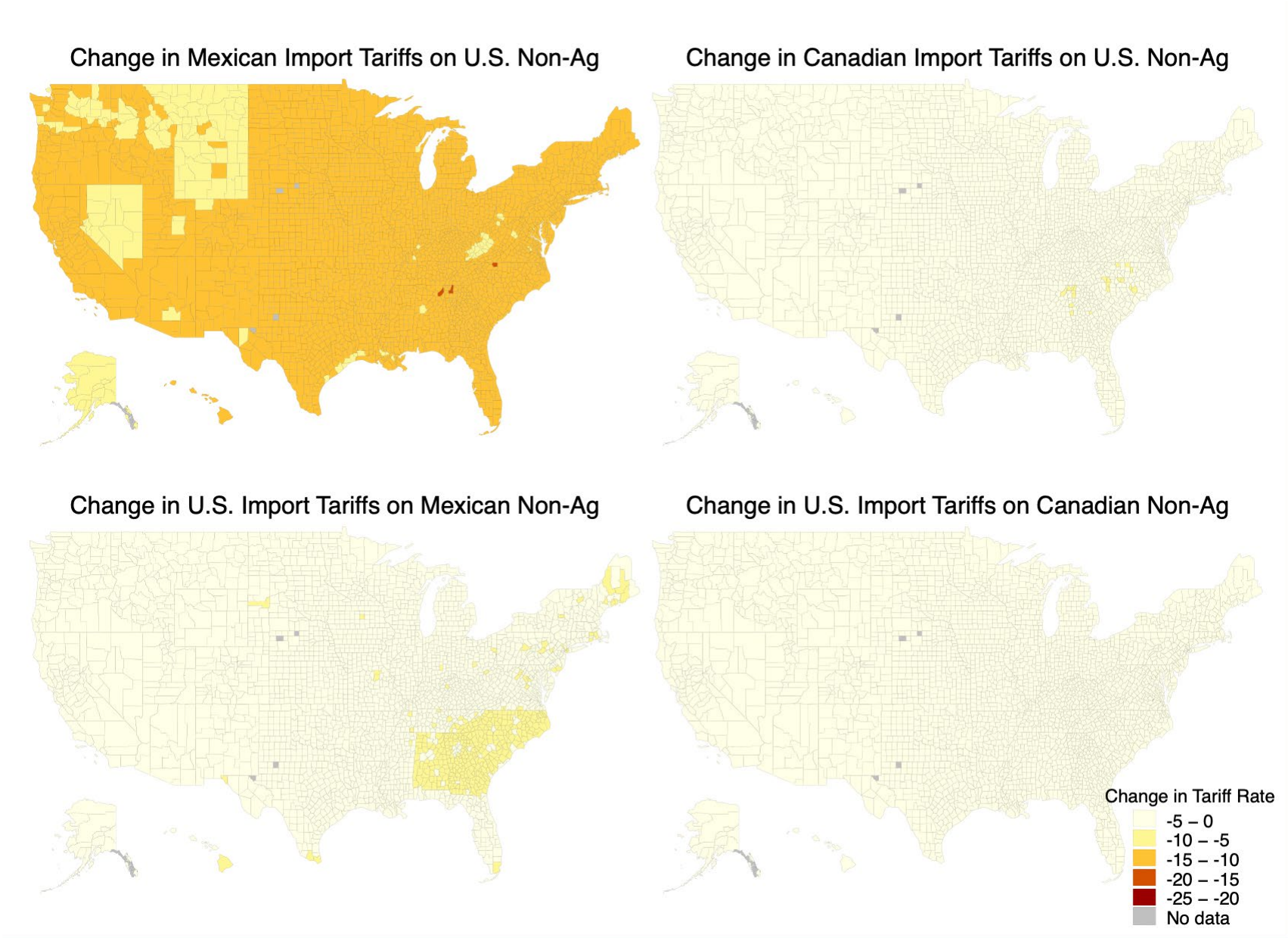
Employment & Trade Weighted Changes in Percentage Tariff Rates on Crops

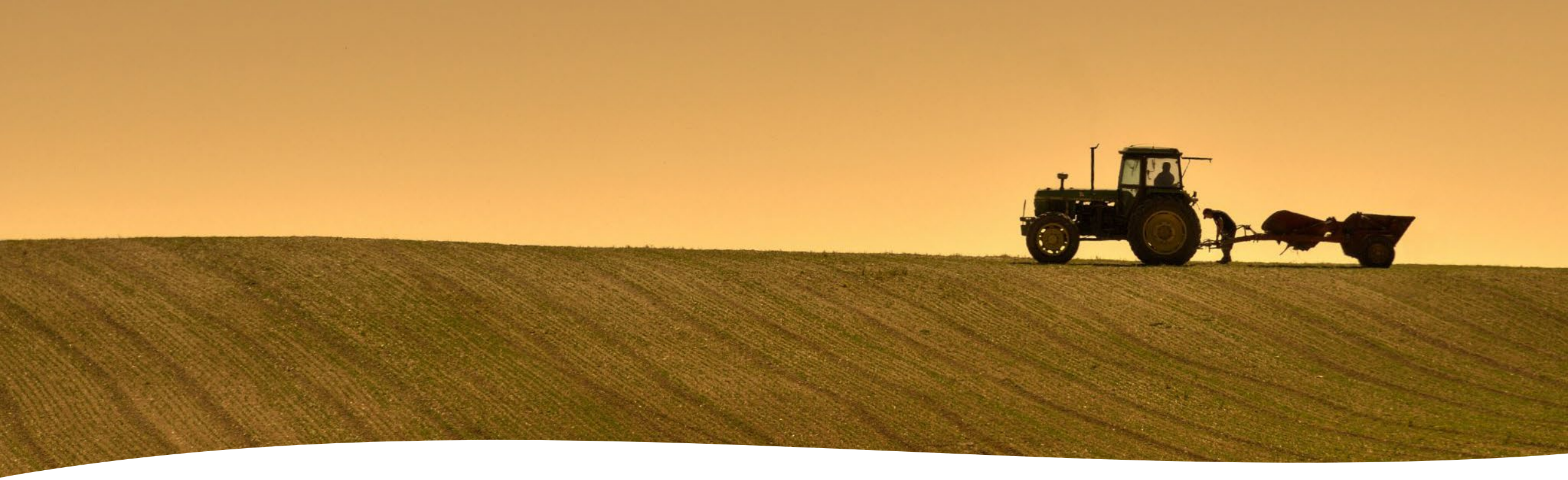


Employment & Trade Weighted Changes in Percentage Tariff Rates on Livestock



Employment & Trade Weighted Changes in Percentage Tariff Rates on Non-Ag Products





Ongoing Research Needs

- How do changes in trade and immigration policies affect rural economies, employment and wages?
- How does the availability of automated technologies (including robotics) affect labor supply and demand?
- What skills do farm workers need to develop? And how can the agricultural sector help train and prepare the farm workers of tomorrow?



Thank You

Diane.charlton@montana.edu



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GENTI KOSTANDINI

Professor
University of Georgia

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The effects of immigration laws on the farm labor force and farmers: Lessons and implications for the future

Genti Kostandini

Department of Agricultural and Applied Economics

University of Georgia

Prepared for the Farm Foundation Symposium, September 17-19, 2024 in Santa Cruz, California

Outline

- Highlight the most recent immigration laws in the U.S. and how they work
- Discuss their implications with respect to farm labor supply which relies heavily (more than 50%) on undocumented immigrants:
  - Farm labor shortages in the adopting jurisdictions
  - Wages of undocumented, documented and citizen farm workers
  - Substitution between undocumented, documented and citizen farm workers by skill and task
- Discuss their implications with respect to farm outcomes:
  - Production, crop mix, acreage, technology adoption, potential exit from farming, etc.
- Discuss copying mechanisms from farmers and future implications

Recent immigration laws in the U.S.

- Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA)
    - Congress enacted section 287(g) of the Immigration National Act (INA) as part of IIRIRA
    - E-Verify (Pilot program by IIRIRA in 1996)
- 287(g) agreements authorize local specially trained state and local law enforcement to assist in immigration enforcement (2002 – until now)
- E-Verify is a free online program that can be used by employers to verify the employment eligibility of new hires (2008 – until now)
- Secure Communities (started 2008 and fully implemented by 2013)

Do likely unauthorized immigrants leave the jurisdictions that implement immigration laws?

- Studies have found a drop in the share of likely unauthorized immigrants after E-Verify implementation (e.g. Bohn et al. 2014; Good 2013).
- Likely undocumented share of farm worker decreased (by more than 10%) after E-Verify implementation (Lim and Paik 2023; Luo and Kostandini 2022; 2024(b)) and after 287(g) agreements (Kostandini et al. 2014: Luo and Kostandini 2024(a)).
- Likely undocumented farm workers do not change sectors after implementation of immigration laws (Luo and Kostandini 2024 (b))

Wage and substitution effects

- E-Verify mandates are associated with a 10-20% drop in the employment of unauthorized immigrants (Amuedo-Dorantes and Bansak 2012: 2014).
- No wage change found among citizen, undocumented workers and documented farm workers after E-Verify implementation (Luo and Kostandini 2024(b).
- Wage increases for undocumented farm workers after 287(g) implementation (Luo and Kostandini 2024(a)).
- Native and immigrant farm workers are imperfect substitutes (Wei et al. 2019; Luo and Kostandini 2024(b)).

Wage and substitution effects cont.

- After E-Verify, undocumented farm workers decrease their work time, documented farm workers increase their work time and no significant change is found for citizen farm workers (Luo and Kostandini 2024(b))
- Looking at the analysis above by the skill level:
  - Unskilled undocumented farm workers decrease their work time
  - Skilled documented farm workers increase their work time
  - No statistically significant change for skilled or unskilled citizen farm workers and unskilled documented farm workers
- In E-Verify states, there is decrease in low skilled jobs left by undocumented workers but high skilled green card workers devote more time to the relatively higher skilled farm tasks such as farm management
- 287(g) increases wages of undocumented workers (Luo and Kostandini (a))

Effects on farmers

- Due to labor shortages from E-Verify and a reduction in the work time of unskilled undocumented workers farmers:
  - Reduced total acres of operated farm land (Luo et al. 2022)
  - Reduced farm production, net income (Luo and Kostandini 2024(b)) and labor intensive crops (Cruz et al. 2022)
  - Increased production of capital intensive crops (Luo and Kostandini 2024(b): Cruz et al. 2022)
- Similarly 287(g) implementation led to:
  - Decrease in farm earnings (Kostandini et al. 2014) workers per farm acre and land in farms (Ifft and Jodlowski 2022: Kostandini et al. 2014)

Farmer copying mechanisms

- Mechanisms used to cope with labor supply shortages from E-Verify and 287(g) agreements:
  - Increased technology adoption and machinery use (Luo and Kostandini 2024(b): Ifft and Jodlowski 2022: Cruz et al. 2022: Charlton and Kostandini 2021)
  - Shifting from labor to capital intensive crops (Ifft and Jodlowski 2022: Cruz et al. 2022: Luo and Kostandini 2024(b)
  - Decreasing planted area (Ifft and Jodlowski 2022; Kostandini et al. 2014)
- For 287(g) additional copying mechanisms are increasing wages of undocumented workers and increasing bonus money and health care benefits for undocumented farm workers (Luo and Kostandini 2024(a))

What have we learned with respect to immigration laws

- Seems like the labor shortages left by immigration laws are not being filled by H-2A workers (Lim and Paik 2023) or citizen or documented farm workers
- Technology adoption has intensified but it is not enough to offset the negative effects of labor shortages (Ifft and Jodlowski 2022: Charlton and Kostandini 2021)
- There are indications of increased internet and computer usage among farms in jurisdictions with immigration laws which could indicate increased attempts for adopting digital smart technologies (Luo and Kostandini 2024(b))

Conclusions and implications

- Labor shortages still persist due to immigration laws, especially due to E-Verify
- The technology available cannot fully substitute for the labor shortages caused by immigration laws and other reasons (e.g. reduced immigrant labor supply from foreign countries)
- Labor shortages have not been associated with significant increases in R & D for technology development (Luo and Kostandini 2022)

Conclusions and implications cont.

- Efforts to simplify current programs (e.g. H-2A) that can bring more farm workers and make them more affordable to the farmers may help reduce the negative effects of a reduced farm labor supply
- More support for the adoption of digital agricultural technologies that are already available (McFadden et al. 2023)
- Efforts that speed up the creation and adoption of technologies that can substitute for labor in labor intensive crops may also be an important way forward

Thank you!

Questions?



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Q&A

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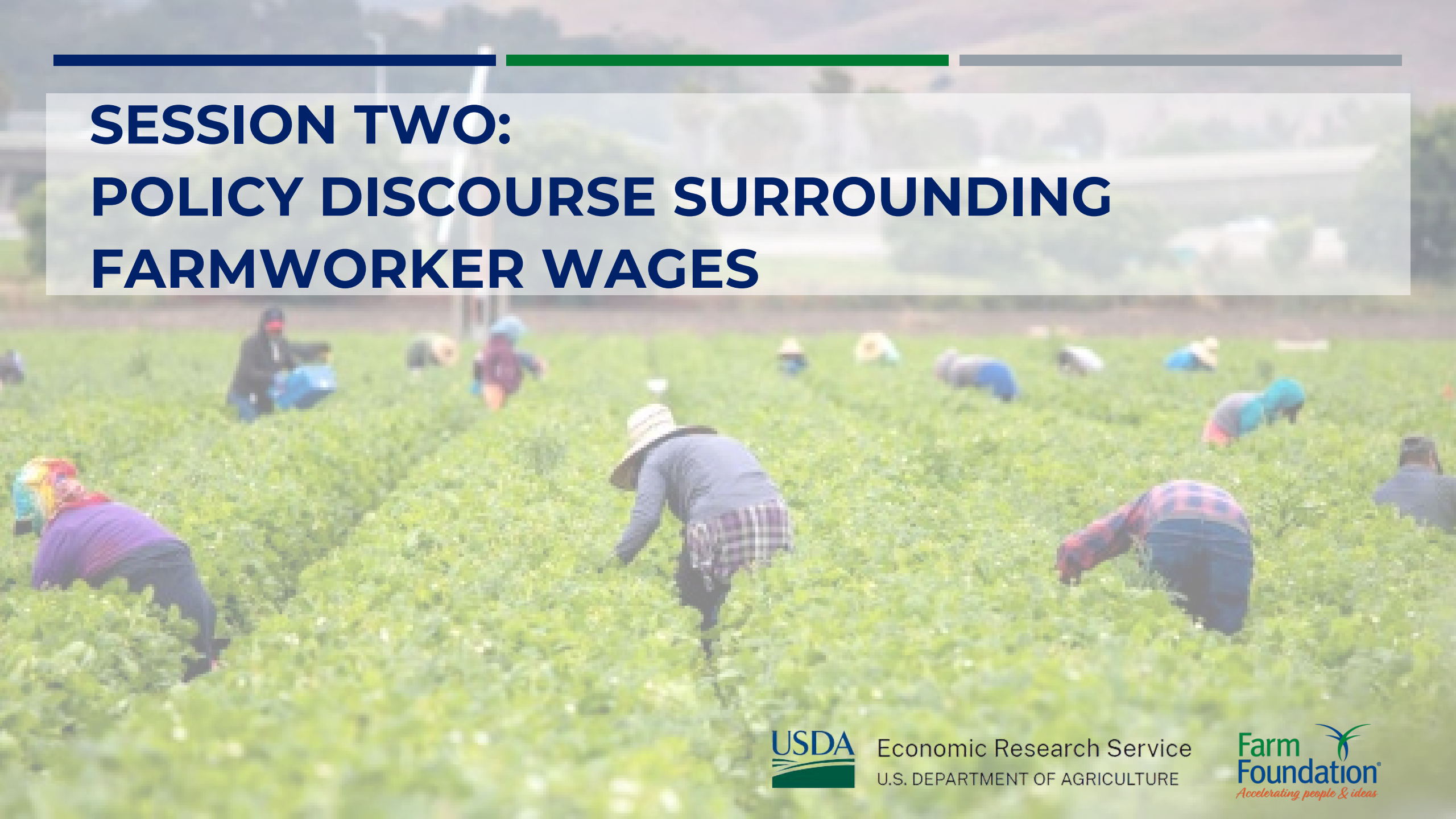


BREAK

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SESSION TWO:
POLICY DISCOURSE SURROUNDING FARMWORKER WAGES



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DISCUSSANT AND SPEAKERS



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National Council of Agricultural Employers



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President and CEO
National Council of Agricultural Employers

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ADVERSE EFFECT WAGE RATE



NATIONAL COUNCIL OF AGRICULTURAL EMPLOYERS



TIMOTHY RICHARDS

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Market Power in Ag Labor Markets?

Ujjwol Paudel
Ph.D. Student
and
Timothy J. Richards
Professor and
Morrison Chair of
Agribusiness

W. P. Carey School of Business
Arizona State University

Farm Foundation Labor Symposium – 9/18/2024

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General policy concern regarding power…

‘A lot of abuse for little pay’: how US farming profits from exploitation and brutality - The Guardian, December 2021

JULY 09, 2021

Executive Order on Promoting Competition in the American Economy

BRIEFING ROOM › PRESIDENTIAL ACTIONS

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in order to promote the interests of American workers, businesses, and consumers, it is hereby ordered as follows:

Section 1. Policy.

A fair, open, and competitive marketplace has long been a cornerstone of the American economy, while excessive market concentration threatens basic economic liberties, democratic accountability, and the welfare of workers, farmers, small businesses, startups, and consumers.

FTC, Department of Labor Partner to Protect Workers from Anticompetitive, Unfair, and Deceptive Practices

New agreement establishes formal collaboration between agencies on issues affecting workers

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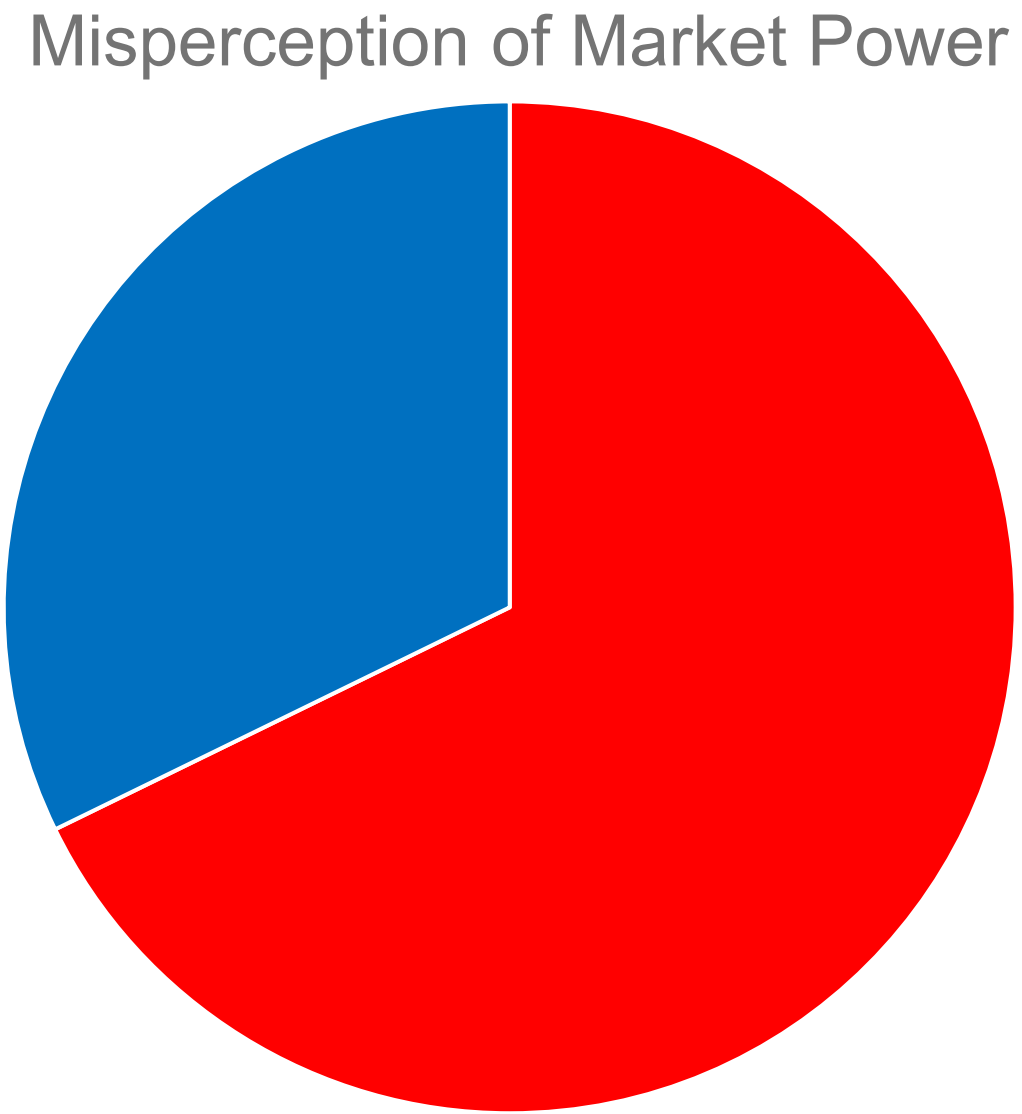
Non-scientific survey of US voters…



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Non-scientific survey of US voters…



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Alternative View: “Superstar Firms”

THE QUARTERLY JOURNAL OF ECONOMICS



Volume 135, Issue 2
May 2020

Article Contents

Abstract
I. Introduction

JOURNAL ARTICLE

The Fall of the Labor Share and the Rise of Superstar Firms* FREE

David Autor, David Dorn, Lawrence F Katz, Christina Patterson, John Van Reenen

The Quarterly Journal of Economics, Volume 135, Issue 2, May 2020, Pages 645–709, https://doi.org/10.1093/qje/qjaa004
Published: 03 February 2020

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Abstract

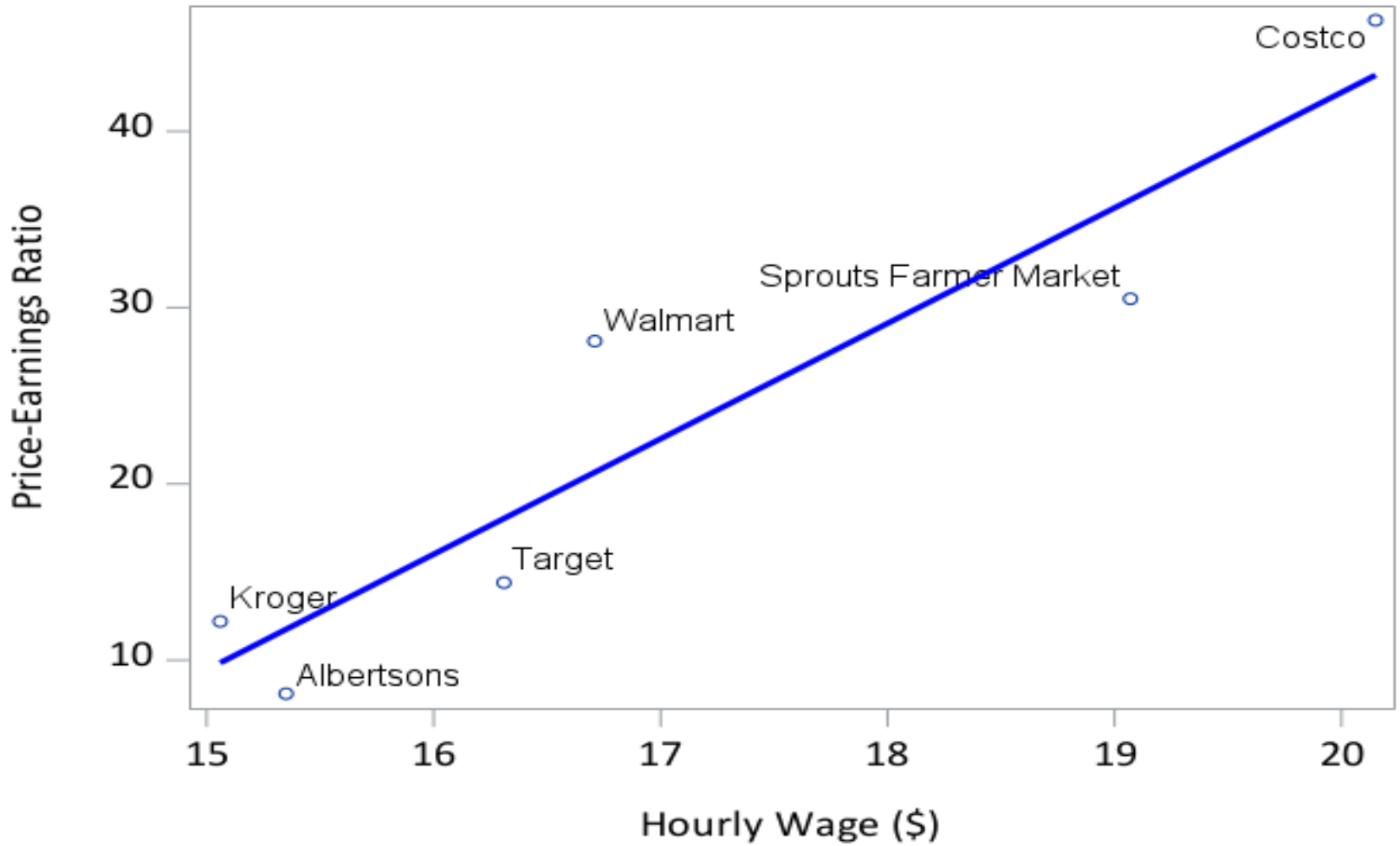
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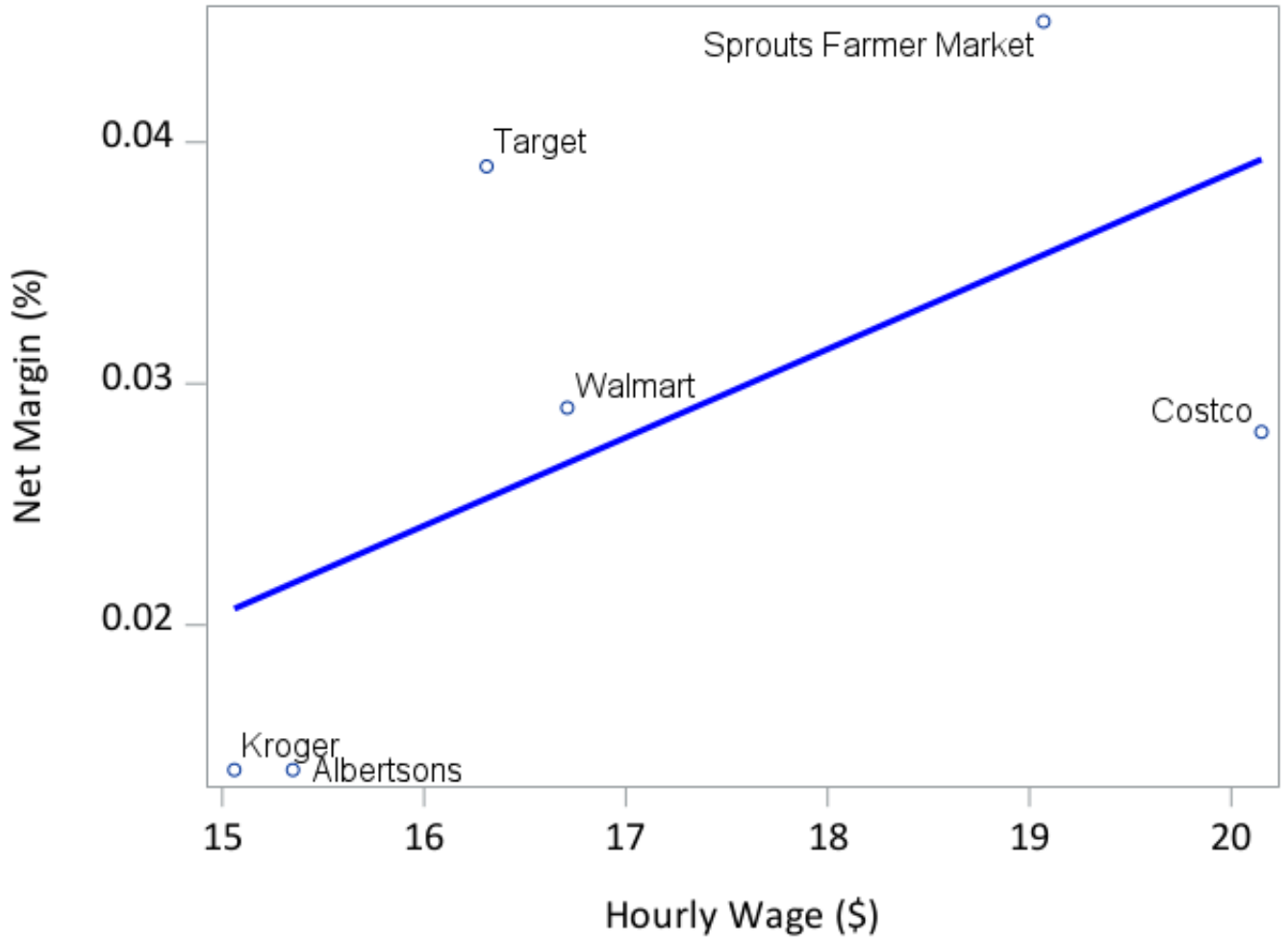
Superstars in Food and Ag?



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Superstars in Food and Ag?



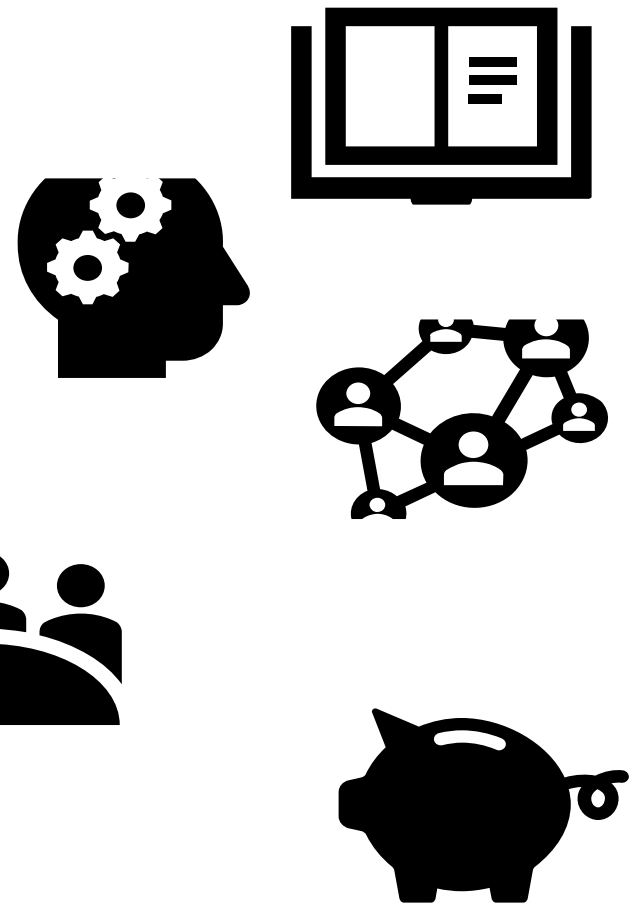
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What about in production agriculture?

Sources of Superstardom:

1. Superior management
2. Adoption of new varieties / practices
3. Quality land / locational advantages
4. Supply chain relationships
5. Labor relationships
6. Risk capital



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Is there evidence from agriculture?

Data from NAWS: 1989 – 2022

- California crop workers (all tasks, all crops)

We estimate:

1. Worker productivity
2. Worker bargaining power
3. Heterogeneity in both
4. Relationship between wages and productivity

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What is different about our approach?

Usual assumption is a “fixed pie” to negotiate

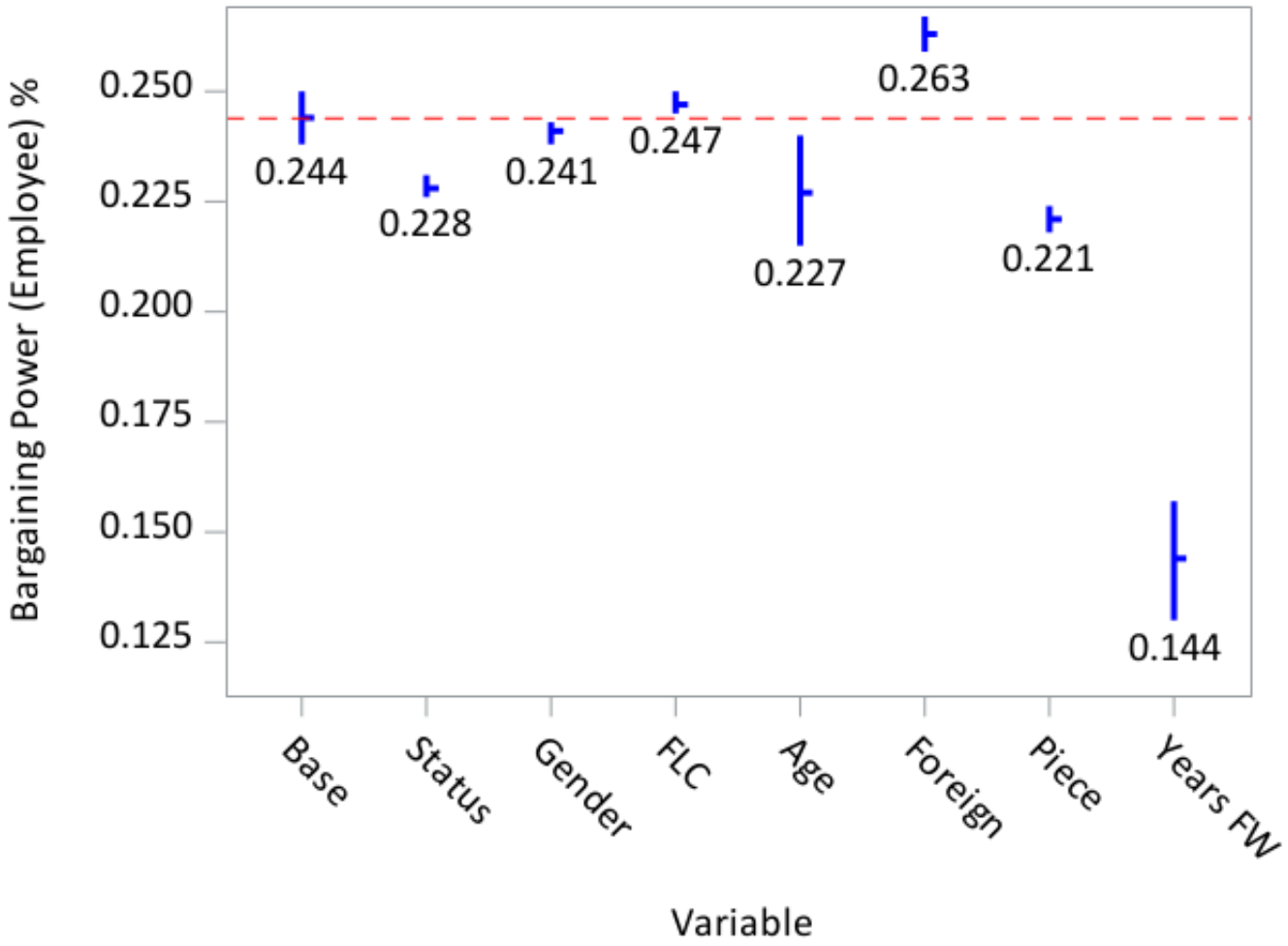
Instead, in our approach:

- Employers search for best workers
- Workers search for best employers
- Employers and workers bargain over contracts
- Matches generate “surplus” to be allocated
- Allocation depends on relative bargaining power

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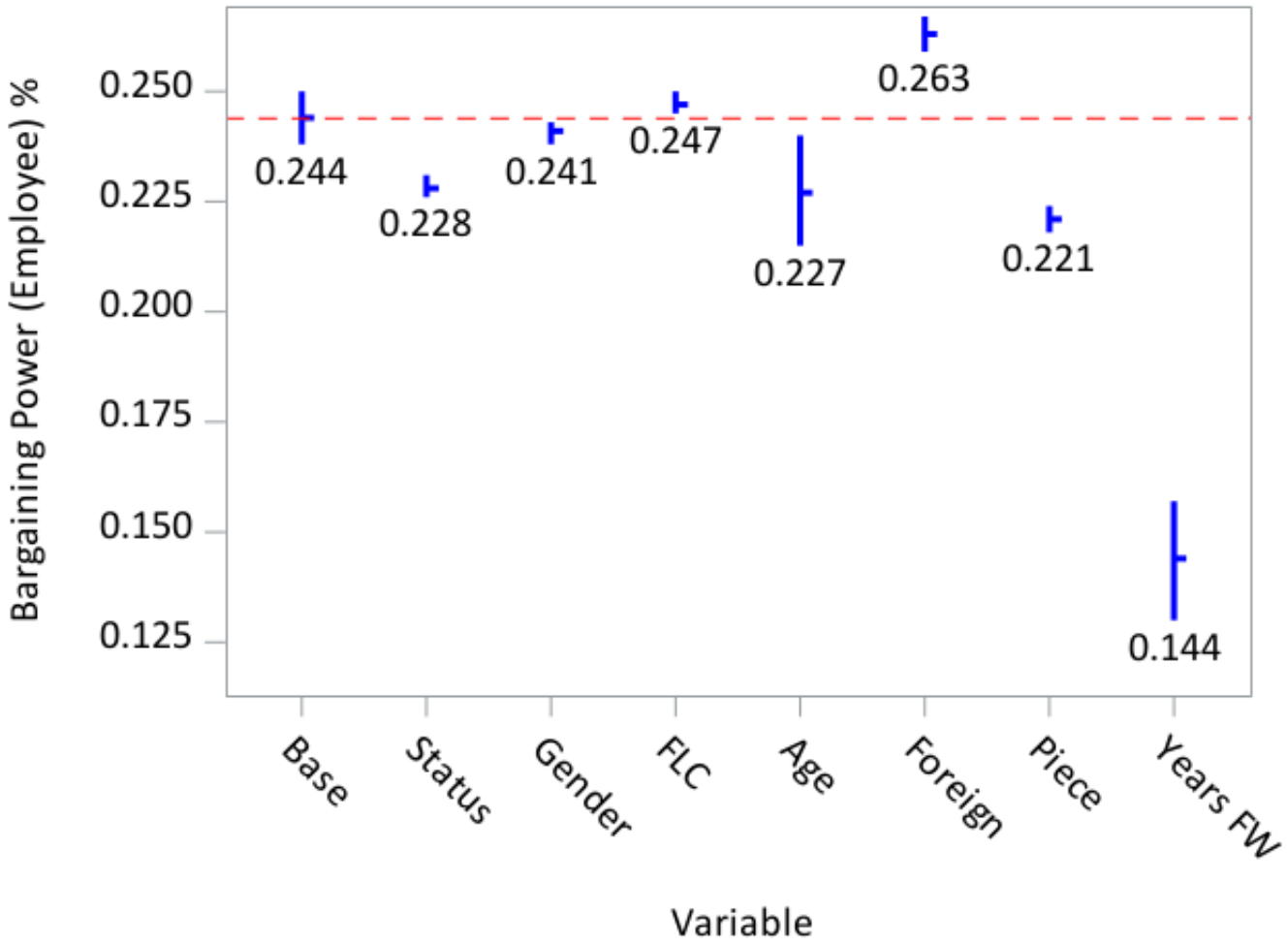
Estimates of Bargaining Heterogeneity



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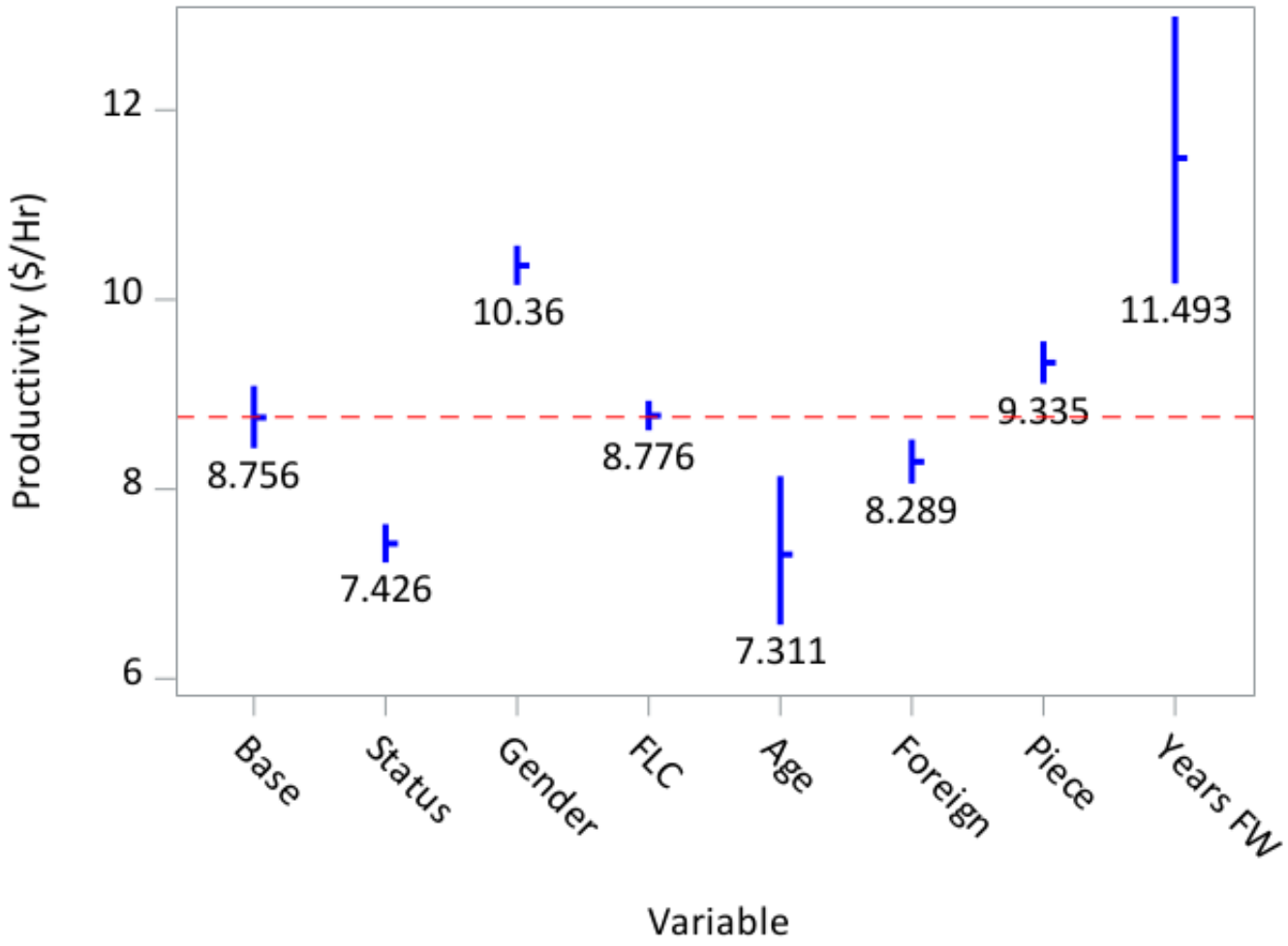
Estimates of Bargaining Heterogeneity



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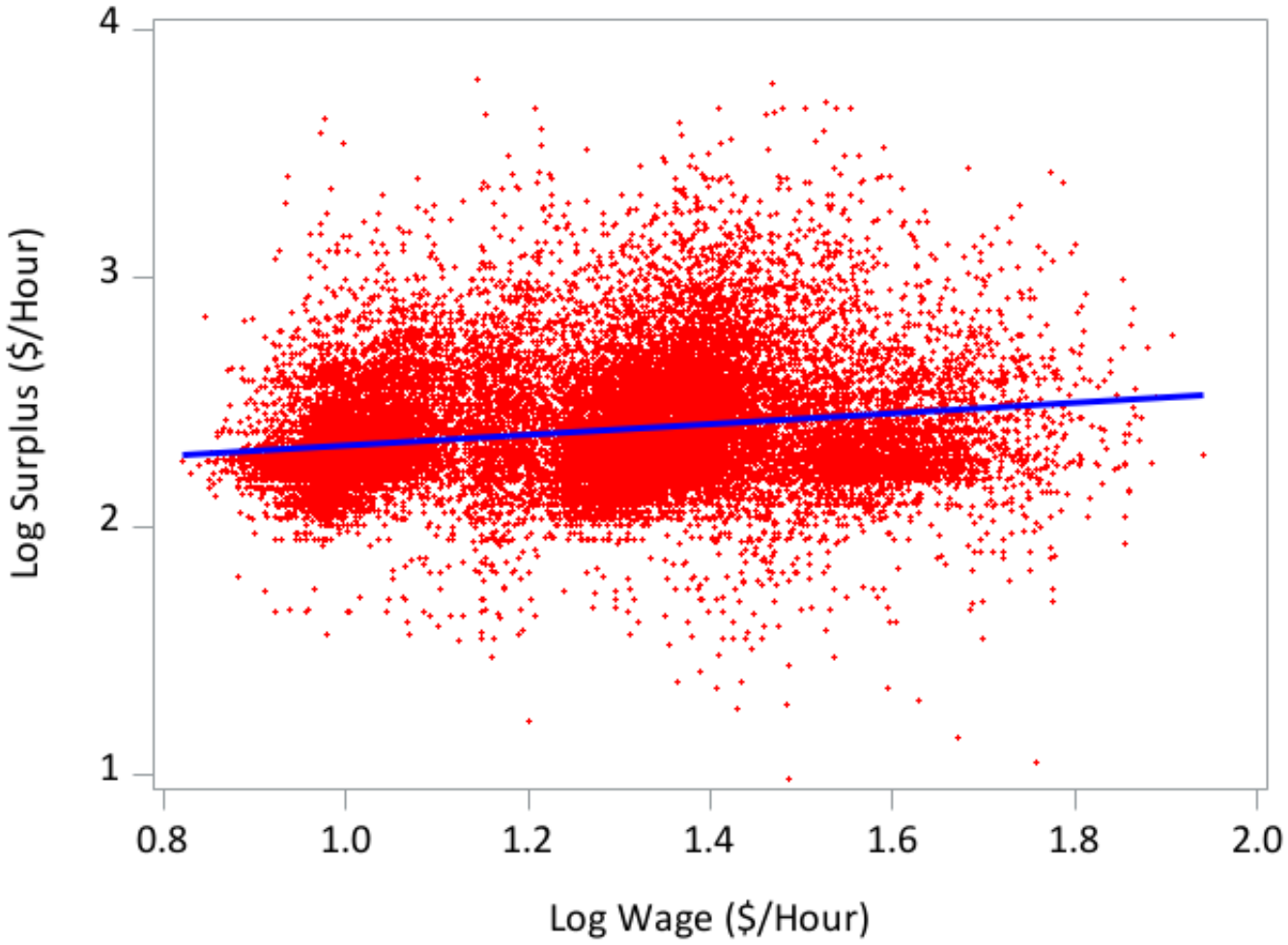
Estimates of Surplus Heterogeneity



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Productivity and Wages: Superstar Effect



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Policy implications…

Need to recognize farmers' incentives

- No incentive to immiserate workers

Firms that treat workers well

- Have more productive workers
- Likely have fewer retention problems
- Make more profit

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Questions/Comments?

Thank you!

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Adverse Effect Wage Rates and US Farm Wages

Zach Rutledge

Michigan State University

What Are Adverse Effect Wage Rates?

- AEWRs are one of several wages that H-2A employers must consider
- H-2A employers must pay the maximum of:
  - State or federal minimum wage
  - Collective bargaining wage
  - Prevailing wage determined by State Workforce Agency
  - AEWR
- AEWRs are almost always the highest of these wages
- Based on the USDA's Farm Labor Survey
  - Wages calculated at regional level
  - Gross hourly earnings of crop and animal farm workers directly hired by farmers
  - Excludes contract workers / includes H-2A workers

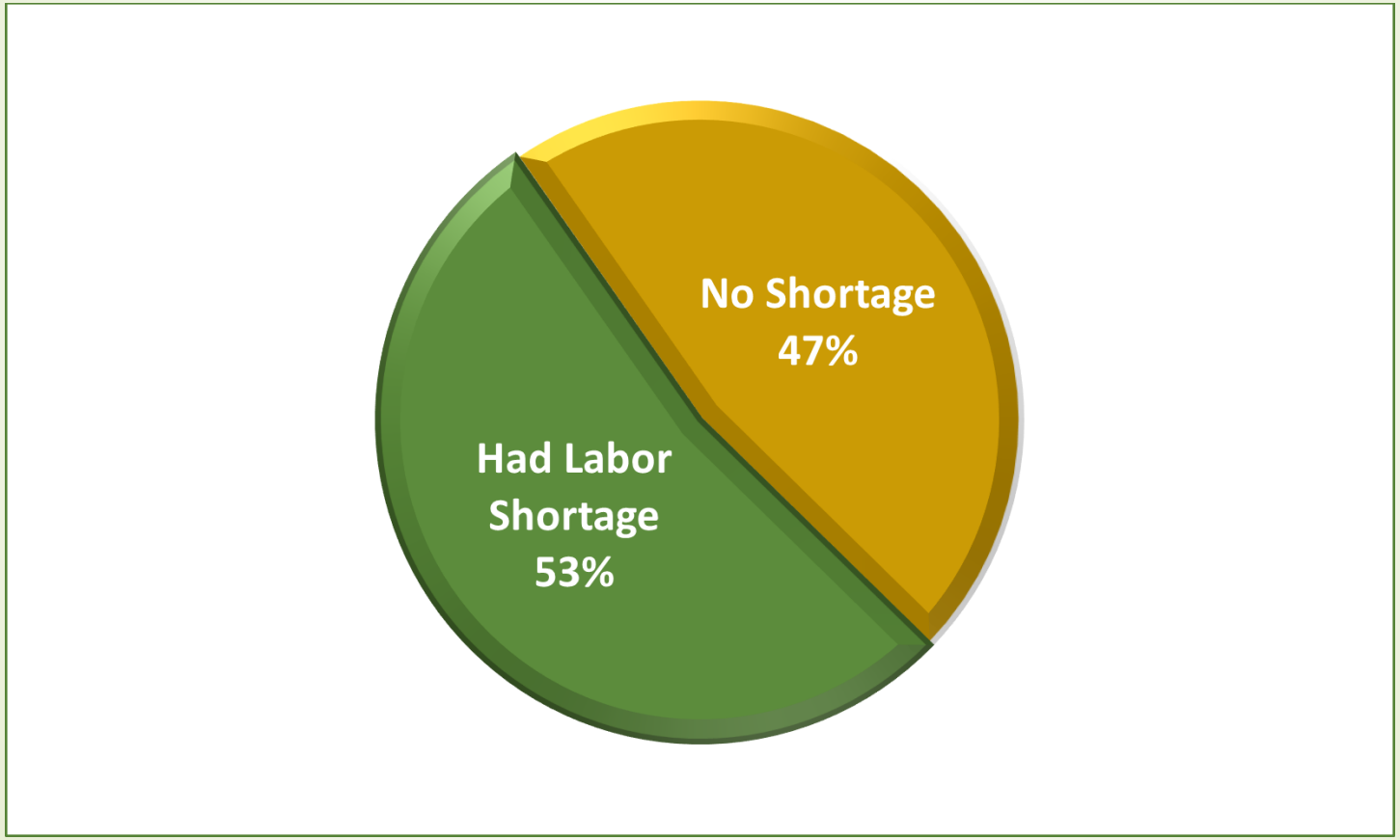
USDA Farm Labor Survey Regions



What is going on in the AEWR debate?

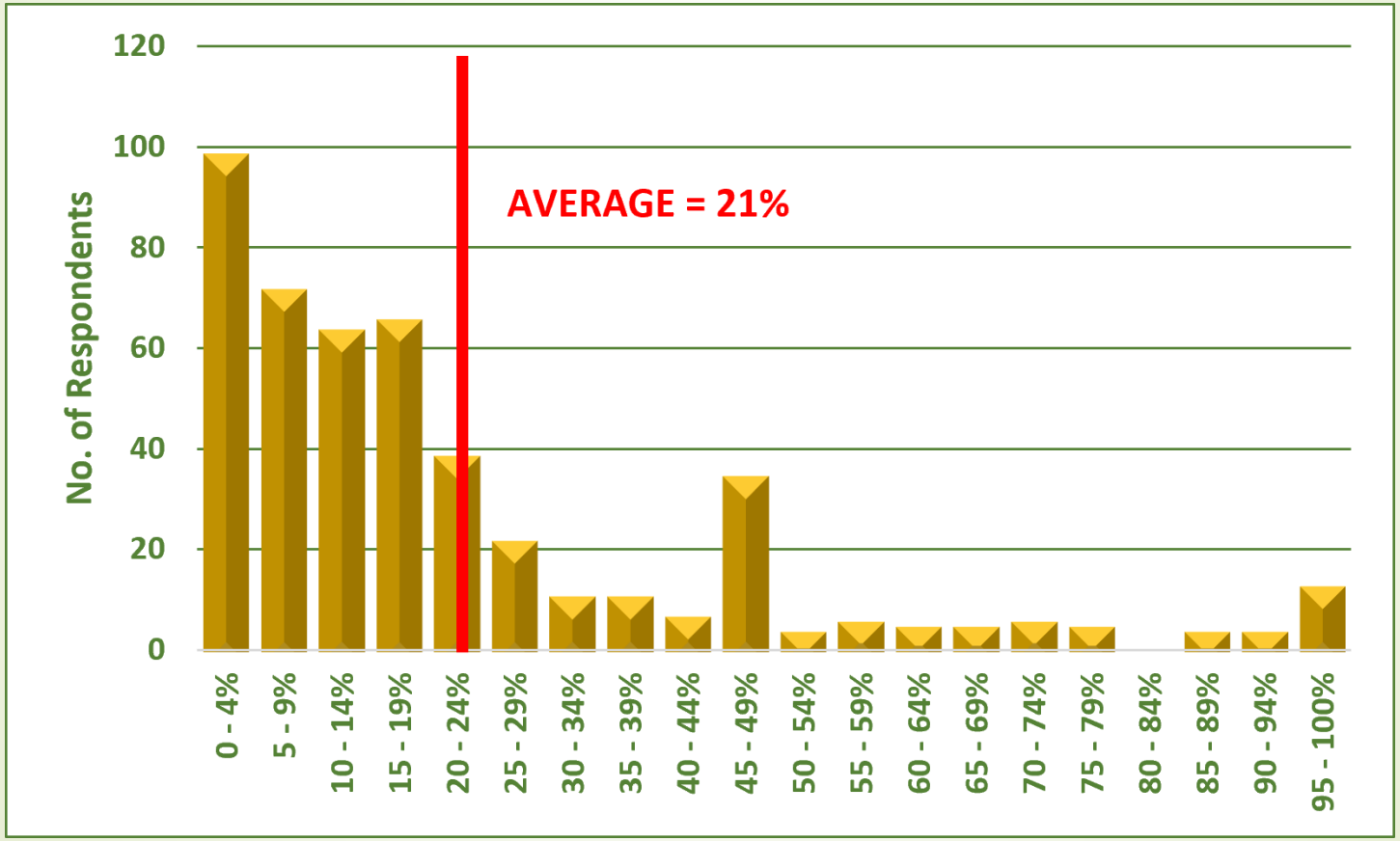
- Farm employers argue that the AEWRs are too high
  - Concern about the data source and methodology used
    - Inclusion of H-2As may overstate local wages
    - Certain types of non-wage compensation gets included in the estimates
    - Sampling methodology may fail to capture a representative sample
    - Low response rates in recent years => estimation bias
- Farm employees argue that AEWRs are too low
  - Concern that lagged wages don't reflect current labor market conditions
  - Also complain that H-2A workers displace US settled workers
    - Employers can advertise for jobs at the AEWR and turn away domestic workers
- Changes in the AEWRs would affect H-2A worker wages
  - But would they also affect domestic farmworker wages?

Farm Labor Shortages Are Common



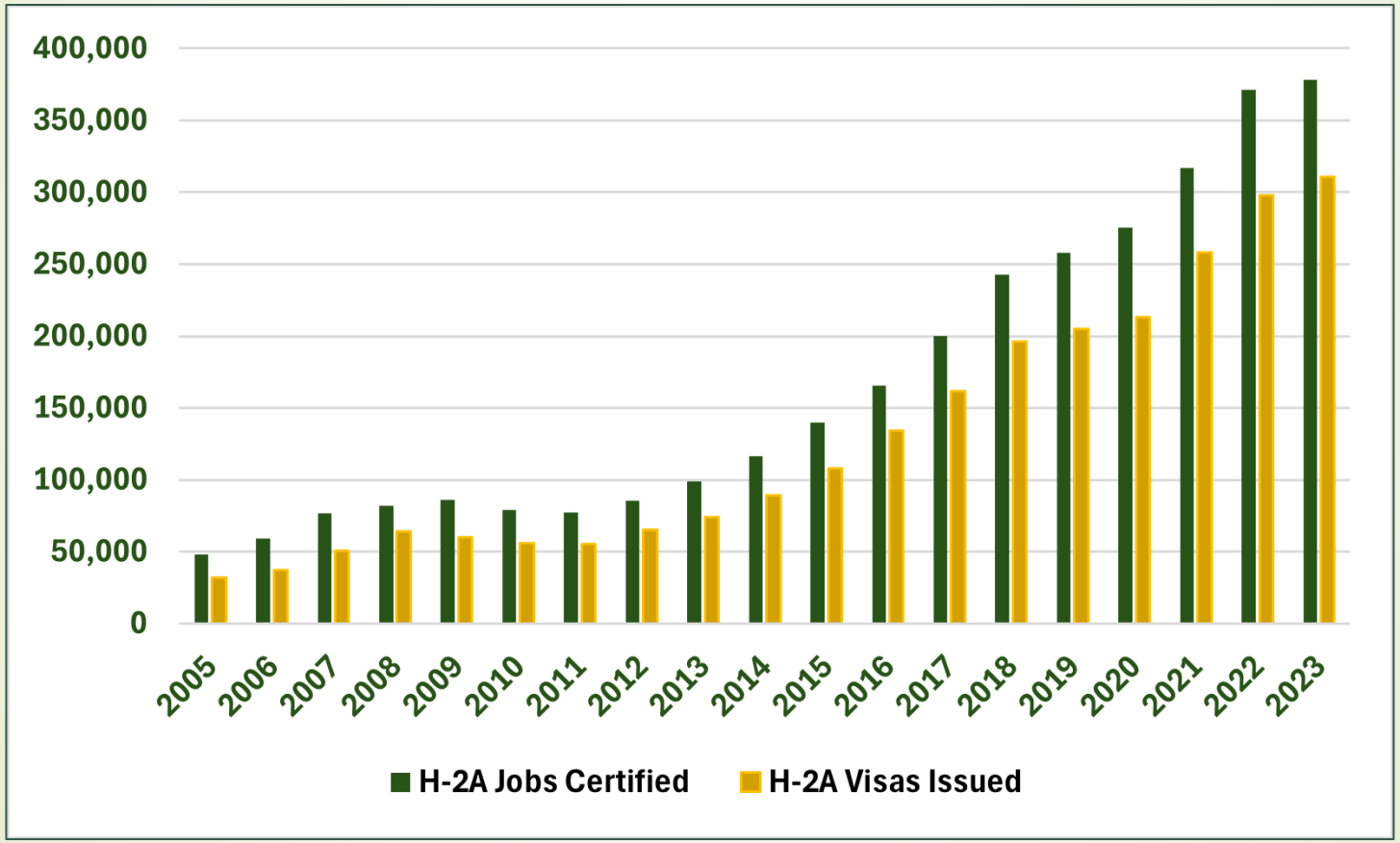
Source: Farm employer surveys conducted by author.

Farm Labor Shortages



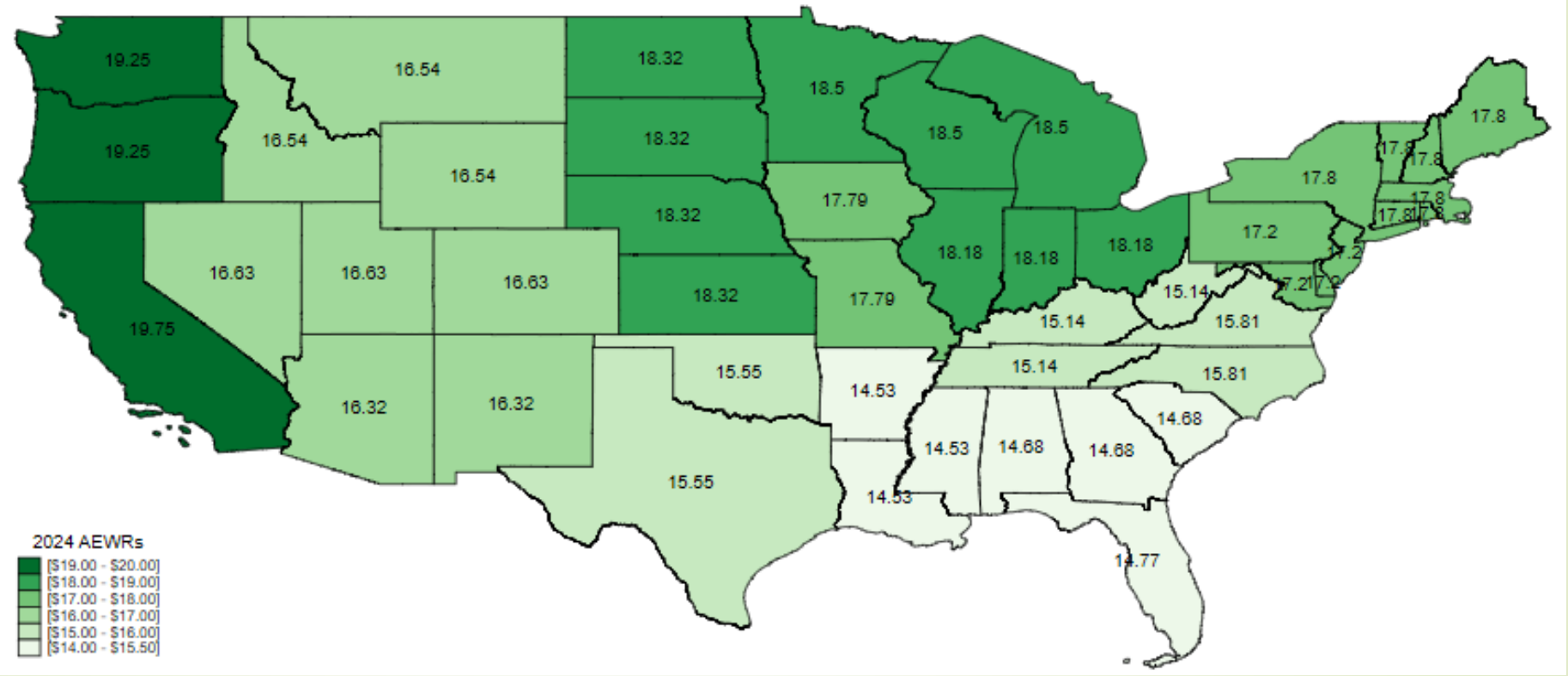
Source: Farm employer surveys conducted by author.

The H-2A Program Has Rapidly Expanded



Source: USDOL and USCIS.

2024 Adverse Effect Wage Rates $14.53 - $19.75



Source: USDA.

Overview of Proposed Legislation

- Several bills have been proposed that would
  - Freeze the AEWR
    - Farm Workforce Modernization Act (Zoe Lofgren, D-CA)
    - Supporting Farm Operations Act (John Moolenaar, R-MI)
  - Cap AEWR Growth
    - Farm Workforce Modernization Act (3.25% cap per year)
- House Ag Labor Working Group
  - Made recommendations to freeze and cap the AEWR

Overview of Our Study

- We seek to:
  - Quantify the effects of changes in AEWRs on non-H-2A farm wages
  - Quantify the policy impacts of
    - Freezing the AEWR
    - Capping the AEWR
- Provide insights into other H-2A questions in public and policy debates
  - Does existence of H-2A program domestic workers?
  - Is there a ratcheting effect?

Data and Modeling Overview

- Data sources:
  - US Crop Farm Wages – DOL National Agricultural Workers Survey
  - Adverse Effect Wage Rates – USDA Farm Labor Survey
- Run statistical models linking domestic farm wages to AEWRs
- Attempt to reduce estimation bias using:
  - Commonly used control variables
  - Instrumental variables (lagged, leave-one-region-out AEWR)

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log wage

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log wage
- Log AEWR

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log wage
- Log AEWR
- State + Year fixed effects

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log wage
- Log AEWR
- State + Year fixed effects
- Control variables

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log wage
- Log AEWR
- State + Year fixed effects
- Control variables
- Error term

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log wage
- Log AEWR
- State + Year fixed effects
- Control variables
- Error term
- Instrument for AEWR using lagged AEWR in other FLS regions

Empirical Model

- $\ln w_{ist} = \beta \ln A_{st} + \phi_s + \phi_t + X_{ist}\Theta + \epsilon_{ist}$
- Log Wage
- Log AEWR
- State + Year Fixed Effects
- Control Variables
- Error Term
- Instrument for AEWR using Lagged AEWR in Other FLS Regions
- Interpret β as upper bound for effect of AEWR on domestic wages

Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
			All H-2A States			
ln A	0.936***	0.680***	0.474***	0.399***	0.305***	0.279*
	(0.029)	(0.053)	(0.098)	(0.090)	(0.117)	(0.151)
N	61,802	61,802	61,802	61,802	61,802	61,802
First Stage F-Statistic	–	–	–	–	2,977.38	843.94
			Top Five H-2A States			
ln A	1.072***	0.910***	0.581***	0.563***	0.451**	0.477***
	(0.040)	(0.088)	(0.164)	(0.151)	(0.205)	(0.179)
N	37,443	37,443	37,443	37,443	37,443	37,443
First Stage F-Statistic	–	–	–	–	1,316.24	460.54
Controls						
Year Fixed Effects	–	X	X	X	X	X
State Fixed Effects	–	–	X	X	X	X
Demographic Controls	–	–	–	X	X	X
Specification						
OLS	X	X	X	X	–	–
Lagged AEWR IV	–	–	–	–	X	–
Lagged Leave-One-Out AEWR IV	–	–	–	–	–	X

Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
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Controls						
Year Fixed Effects	–	X	X	X	X	X
State Fixed Effects	–	–	X	X	X	X
Demographic Controls	–	–	–	X	X	X
Specification						
OLS	X	X	X	X	–	–
Lagged AEWR IV	–	–	–	–	X	–
Lagged Leave-One-Out AEWR IV	–	–	–	–	–	X

Main Conclusions

- A 10% increase in the AEWR causes
  - At most a 2.8% increase in domestic farm wages across the nation
  - At most a 4.8% increase in domestic farm wages in top 5 H-2A states
- AEWR freeze would reduce domestic wage bill by up to $475 million/yr
  - $170 million/yr for H-2A and corresponding workers
- 3.25% cap on AEWR would reduce domestic wages by up to $150 million/yr

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DISCUSSION OF FARMWORKER WAGES IN THE 118TH CONGRESS

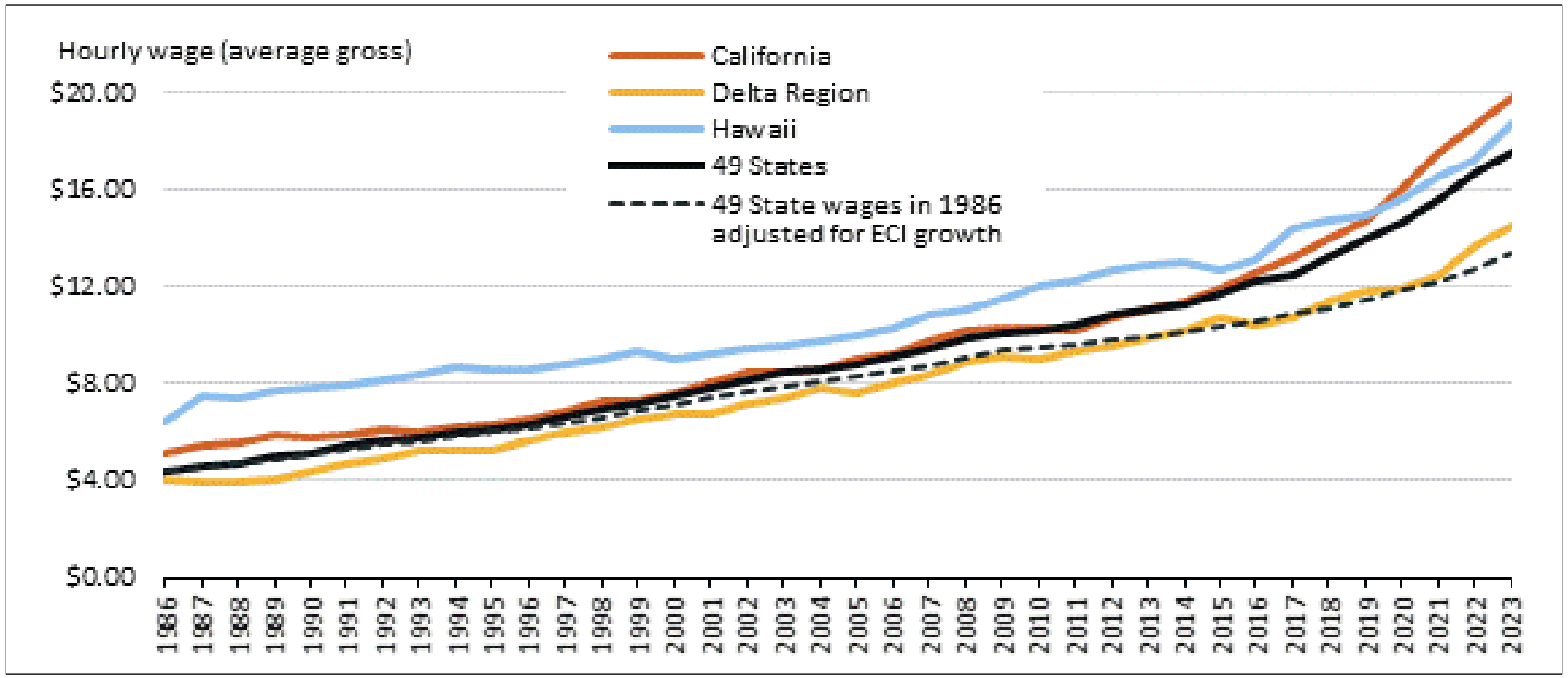
Elizabeth Weber Handwerker
Economist and Labor Policy Analyst

September 18, 2024

Background: Agricultural Wages are Increasing

Wages in the Farm Labor Survey (FLS) for Field and Livestock Workers, Combined, 1986-2023

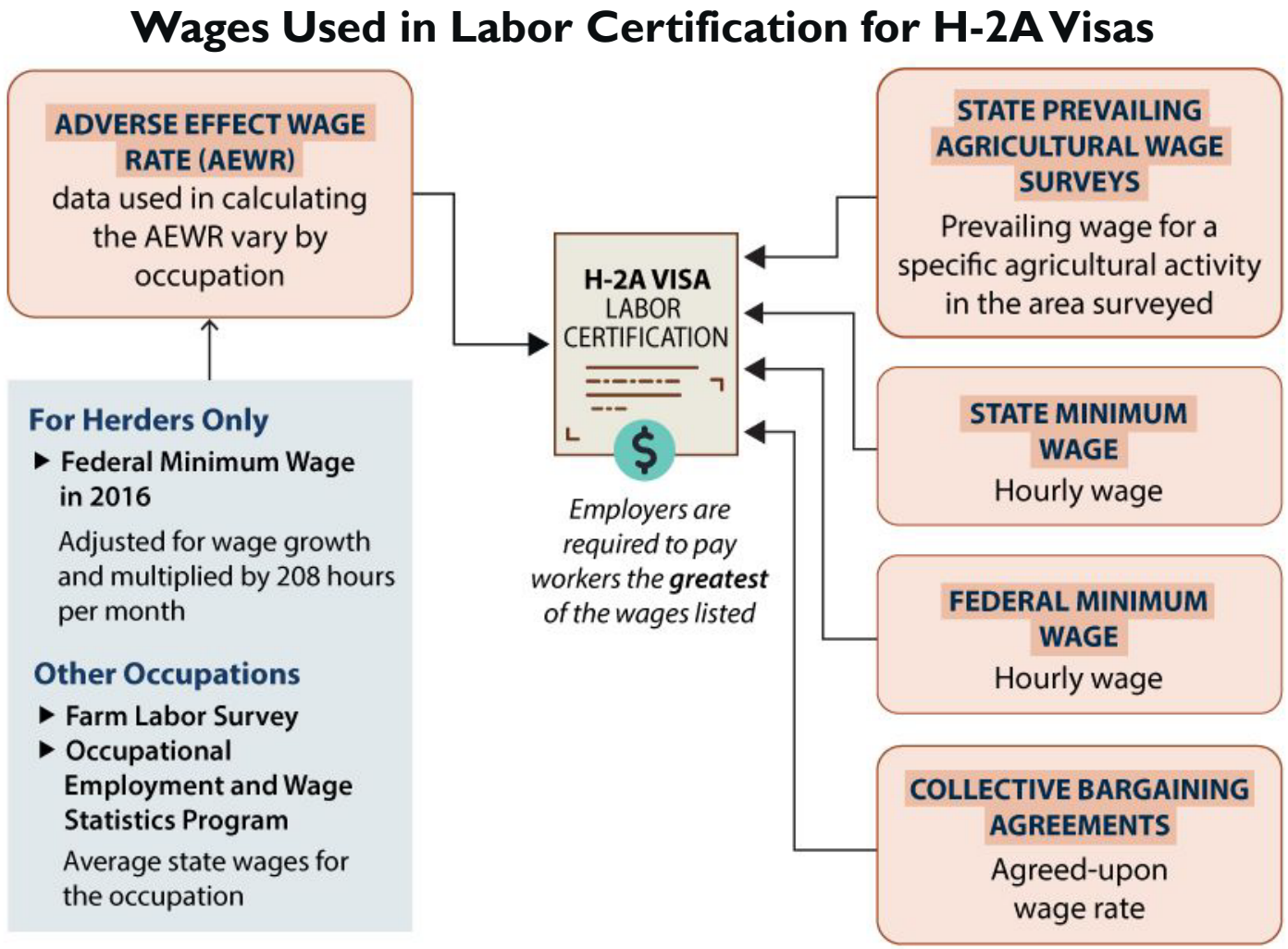
Average hourly gross wages for selected areas, compared with average gross hourly wages in 1986 as adjusted for growth in the Employer Cost Index (ECI) for all private-sector wages



Source: CRS presentation of National Agricultural Statistics Service data (FLS) and Bureau of Labor Statistics data (ECI).

Notes: The FLS is not conducted in Alaska. The Delta Region consists of Arkansas, Louisiana, and Mississippi. The dashed line is the FLS national average hourly wage in 1986, adjusted for growth in the ECI of wages and salaries for all private industry workers.

Background: The H-2A Program Has Wage Requirements but No Visa Cap



Source: CRS presentation of information from 20 C.F.R. §655.120 and 20 C.F.R. §655.211

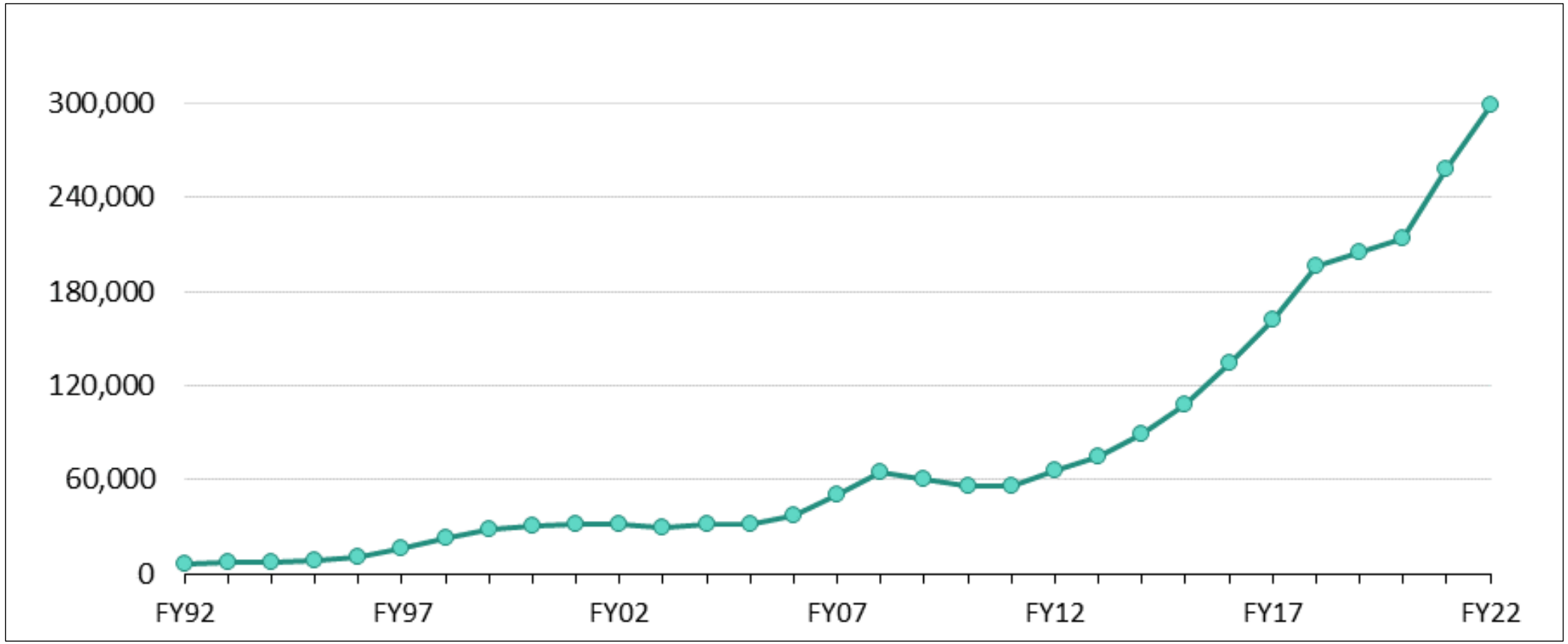
Background: 2023 Modification to AEWR Methodology

Final rule published February 2023, effective March 2023:

- AEWRs for non-range jobs outside the "Big Six" field and livestock occupations now based on average state-level wages estimated by the BLS Occupational Employment and Wage Statistics (OEWS) program.
  - AEWRs still based on the FLS for the "Big Six" occupations:
    (1) Graders & Sorters, (2) Agricultural Equipment Operators, (3) Farmworkers & Laborers, (4) Ranch & Livestock Workers, (5) Other Agricultural Workers not elsewhere classified, and (6) Packers & Packagers
  - FLS-based AEWRs are still updated every January
  - OEWS-based AEWRs are updated every June
- When jobs span multiple occupations, the AEWR is the highest of the applicable wages

Background: Use of the H-2A Program Has Been Increasing

H-2A Visas Issued, FY1992-FY2022



Source: CRS presentation of data from U.S. Department of State, Bureau of Consular Affairs, Annual Reports of the Visa Office.

Congressional discussion regarding farmworker wages has largely focused on wage requirements for the H-2A visa program



In the 118th Congress: House Agricultural Labor Working Group

Part of the House Committee on Agriculture:
https://agriculture.house.gov/policy/agricultural-labor-working-group.htm

Mission: “to focus on the workforce issues faced by the nation's agricultural producers”

Co-chairs:

Eric A. “Rick” Crawford (AR-1, R) and Donald G. Davis (NC-1, D)

- 12 additional members:
  6 Republicans and 6 Democrats

Final Report with Policy Recommendations released March 7, 2024

- Includes 15 policies adopted with unanimous support
  - 3 involve wage requirements of the H-2A program
- Includes 6 policies adopted with majority support
  - 3 involve wage requirements of the H-2A program

House Agricultural Labor Working Group H-2A Wage Policies Recommended with Unanimous Support

1. "Adopt a De Minimis Exemption from the Adverse Effect Wage Rate (AEWR)" to allow workers to be paid at a lower wage rate if they perform higher-paid work for no more than 25% of their weekly total hours
2. "Eliminate Mid-Contract Wage Adjustments" for H-2A Workers.
3. "Wage Reform of the H-2A Program." Specifics of this recommendation are:
   - 2025: One-year freeze in wage requirements at 2024 rates.
   - 2025-2029: Change in required wages capped to permit increases of no more than 3.25%, unless the resulting wage is less than 110% of the Federal or state minimum wage (in which case wages could increase by 4.25%).
   - 2030 and Beyond: Change in required wages capped to permit increases of no more than 3.25%, with a determination by the Secretaries of Agriculture and Labor if these caps need to continue.

House Agricultural Labor Working Group H-2A Wage Policies Recommended with Majority Support

1. “Secretary of Labor Waiver Exemption of AEWR for Small Farms”

   give the Secretary of Labor the authority to exempt farms with a gross cash farm income (GCFI) of less than $350,000 from AEWR requirements of the H-2A program.

2. “Adopt a Permanent Solution to Adverse Effect Wage Rate Increases”

   “enact policies that restrict or cap annual increases in AEWR to predictable and sensible levels that are manageable for H2A employers, large and small, to absorb.”

3. “Reform the Department of Labor’s Adverse Effect Wage Rate Calculation”

   “direct the U.S. Department of Labor (DOL) to use an alternative method, other than the U.S. Department of Agriculture’s (USDA) Farm Labor Survey (FLS), which better captures real domestic wages, to serve as the basis for the Adverse Effect Wage Rate (AEWR) calculation. In the FLS, USDA asks survey respondents their gross wages for four reference weeks over the course of the year. This may include overtime, hazard pay, bonuses, performance incentives, and any other payment that was calculated as wages for that reference week. This inflates the base hourly rate before adding these types of extra compensation for the following year. This inflated average rate then applies to all workers, elevating the minimum wage floor for all H–2A and corresponding U.S. workers.”

Overview of Proposed Legislation in the 118th Congress

Bills introduced in the 118th Congress include efforts to:

- Create a **pathway** for certain unauthorized foreign agricultural workers currently working in the U.S. to **earn temporary legal work status** and become **lawful permanent residents**.
- **Modify the H-2A program** to:
  - Extend visa duration (e.g., allowing workers to change U.S. employers);
  - Create a limited number of *non-seasonal* H-2A worker visas;
  - Modify the H-2A AEWR methodology (e.g., freeze or cap AEWR increases) or block the 2023 AEWR rule;
  - Make other changes in H-2A wage requirements.
- Require the **payment of prevailing wages** for certain agricultural products purchased by USDA.
- Require federal agencies to **conduct studies of agricultural wages.**

Details in the next few slides…

H.R. 4319 Farm Workforce Modernization Act of 2023 (House)

S. 4069 Affordable and Secure Food Act of 2024 (Senate)

- Establishes "Certified Agricultural Worker (CAW)" status for certain unauthorized agricultural workers to legally work in the U.S. and apply for lawful permanent resident status
- Modifies the H-2A program
  - Freezes the AEWR for calendar year 2024
  - Caps increases in the AEWR at 3.25% increases for calendar years 2025 – 2033, unless it would result in an AEWR less than 110% of the applicable minimum wage
  - Adds a limited number of non-seasonal H-2A worker visas:
    - At least 20,000 of these visas initially available per year, with possibility to change the number of these visas from year to year
    - Half of these non-seasonal visas reserved for the dairy industry
  - H-2A visas would be valid for three years, would allow H-2A workers to switch jobs without leaving the U.S.
- Requires a report every 3 years on the impact of the H-2A program on agricultural wages, working conditions, or job opportunities for U.S. farm workers
- Status: referred to committees; a similar bill passed the House in the 117th Congress with a vote of 247-174.

Other Proposed Legislation in the 118th Congress Involving Freezes in the AEWR

H.R. 3308 / S. 874 Farm Operations Support Act	• Would freeze the AEWR through 2023 at December 2022 rates • Status: referred to committees
H.R. 7046 / S. 3848 Supporting Farm Operations Act of 2024	• Would freeze the AEWR through 2025 at December 2023 rates and base AEWR on primary duties. • Status: referred to committees
H.R. 9029 - Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2025	• Section 118 would freeze the AEWR for two years at the January 2023 rate • Status: passed out of the House Appropriations Committee in July appropriations markup

Other Proposals in the 118th Congress Involving Changes in H-2A Wage Requirements

H.R. 2 / S. 2824 Secure the Border Act of 2023	• Section 816 would block the February 2023 AEWR Final Rule • Status: passed by the House in 2023; hearings held in the Senate
H.R. 1778 Better Agriculture Resources Now (BARN) Act	• Section 2 would make many changes to the H-2A program, including moving Labor Certification from DOL to USDA and limiting wage requirements to 115% of the applicable state or federal minimum wage • Status: referred to committee
H.R. 3599 DIGNIDAD (Dignity) Act of 2023	• Section 42103 would make several changes to the H-2A program, including requiring wages of the greater of 125% of the Federal minimum wage or the applicable state or local minimum wage • Status: referred to committees

Other Proposed Legislation in the 118th Congress Involving Changes in H-2A Wage Requirements, continued

H.R. 5894 Making appropriations for the Departments of Labor, Health and Human Services, and Education, and related agencies for the fiscal year ending September 30, 2024, and for other purposes.

- Section 119 says federal funds for the Departments of Labor-HHS-Education may not be used to enforce the February 2023 AEWR methodology
- Status: superseded by omnibus legislation that did not include this section

H.R. 9029 - Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2025

- Section 119 says federal funds for the Departments of Labor-HHS-Education may not be used to administer, implement, or enforce the February 2023 AEWR methodology
- Status: passed out of the House Appropriations Committee in July appropriations markup

Other Proposed Legislation in the 118th Congress Affecting Agricultural Sector Wages

H.R. 4978 / S. 2601 Agricultural Worker Justice Act

- Section 102 requires the payment of prevailing wages for meat, poultry, and processed food produced in the U.S. for it to be purchased by USDA (This requirement would not be specific to H-2A workers; USDA purchased about $5 billion of food in FY2023)
- Status: referred to committee

Other Proposed Legislation in the 118th Congress Involving Studies of Agricultural Worker Wages

H.R. 2 / S. 2824 - Secure the Border Act of 2023

- Section 814 requires an Agricultural Workforce Study including
  (5) Wage growth in each of the previous ten years, disaggregated by agricultural sector
  (6) The percentage of total agricultural industry costs represented by agricultural labor during each of the last ten years.
  (8) Recommendations, other than a path to legal status for aliens not authorized to work in the United States, for ensuring United States agricultural employers have a workforce sufficient to cover industry needs, including recommendations to—
    (A) increase investments in mechanization;
    (B) increase the domestic workforce; and
    (C) reform the H–2A program.
- Status: passed by the House in 2023; hearings held in the Senate

H.R. 8467 - Farm, Food, and National Security Act of 2024 ("The Farm Bill")

- Section 12414 requires the FLS to collect data on base wages and to include farm labor contractors. Also requires a report "examining the quality of the farm labor survey and the impacts of labor costs on agricultural employers," including
  - comparison wage trends from the FLS and non-farm wage rates over the previous 10 years
  - analysis of the extent to which the AEWR … impacts costs for all agricultural workers
  - determination of any adverse effect the wage rate … has on domestic agricultural workers.
- Status: referred to committee

Other Proposed Legislation in the 118th Congress Involving Studies of Agricultural Worker Wages, continued

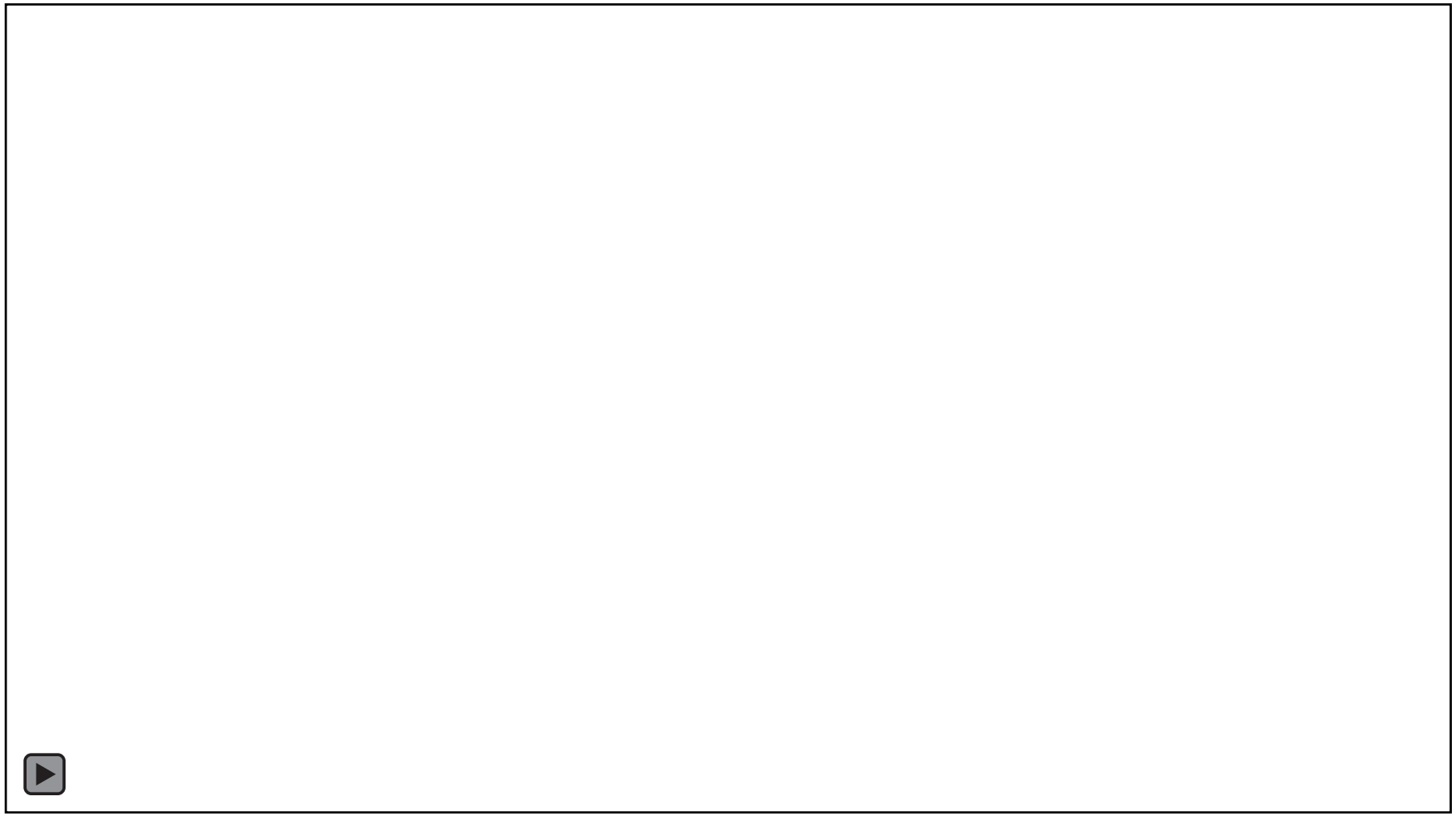
H.R. 1167 / S. 96 - Justice for Black Farmers Act of 2023	• Section 105 directs ERS to "conduct research on the demographics and status of farmworkers, including the races, ethnicities, ages, localities, wages and benefits, and working conditions of farmworkers" • Status: referred to committees
H.R. 2915 - Farm Workforce Support Act of 2023	• Requires the GAO to report on the H-2A program, including "implications of wage rate requirements under the program on an American employer's ability to recruit domestic workers in comparison to guest workers" • Status: referred to committee
H.R. 6655 - A Stronger Workforce for America Act	• Section 172 directs the Secretary of Labor to facilitate the use of state wage records to study Migrant and Seasonal Farmworker Programs and make performance reports available • Status: Passed by the house in April 2024, received in the Senate and referred to Senate committee

Congressional Hearings that Included Any Discussion of Farmworker Wages in the 118th Congress:

Committee	Hearings
House Agriculture	5
House Appropriations	3
House Education and the Workforce	2
House Financial Services Oversight and Investigations	1
House Ways and Means	1
Senate Agriculture, Nutrition, and Forestry	2
Senate Committee on the Judiciary	1

All but one of these wage discussions involved wage requirements for H-2A workers

One example from one hearing (March 28, 2023 Hearing of the House Agriculture Committee, Sec. Vilsack testifying):





QUESTIONS



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Q&A

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LUNCH

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SESSION THREE:
A CONVERSATION ABOUT WORKPLACE SAFETY



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DISCUSSANT AND SPEAKERS



MARY JO DUDLEY

Director
Cornell University



ALEXIS GUILD

Vice President, Strategy and Programs
Farmworker Justice



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MARY JO DUDLEY

Director
Cornell University

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ALEXIS GUILD

Vice President, Strategy and Programs
Farmworker Justice

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A Conversation about Workplace Safety

POLICY OVERVIEW AND CHALLENGES

ALEXIS GUILD

VICE PRESIDENT OF STRATEGY AND PROGRAMS

FARMWORKER JUSTICE

Farmworker Justice

Farmworker Justice is a nonprofit organization that seeks to empower farmworkers and their families to improve their living and working conditions, immigration status, health, occupational safety, and access to justice.

Using a multifaceted approach, FJ engages in litigation, policy advocacy, capacity-building, and education.

www.farmworkerjustice.org

FARMWORKER JUSTICE

Agricultural Worker Exceptionalism

Farmworkers are excluded from many of the workplace protections afforded to other U.S. workers:

- Overtime
- Collective Bargaining
- Child Labor
- Workers' compensation



OSHA General Duty Clause

(Section 5(a)(1)) - Requires employers to furnish a workplace which is free from recognized hazards which may cause or are likely to cause death or serious physical harms

Small Farm Exemption - farms with 10 or fewer employees are exempt from OSHA enforcement

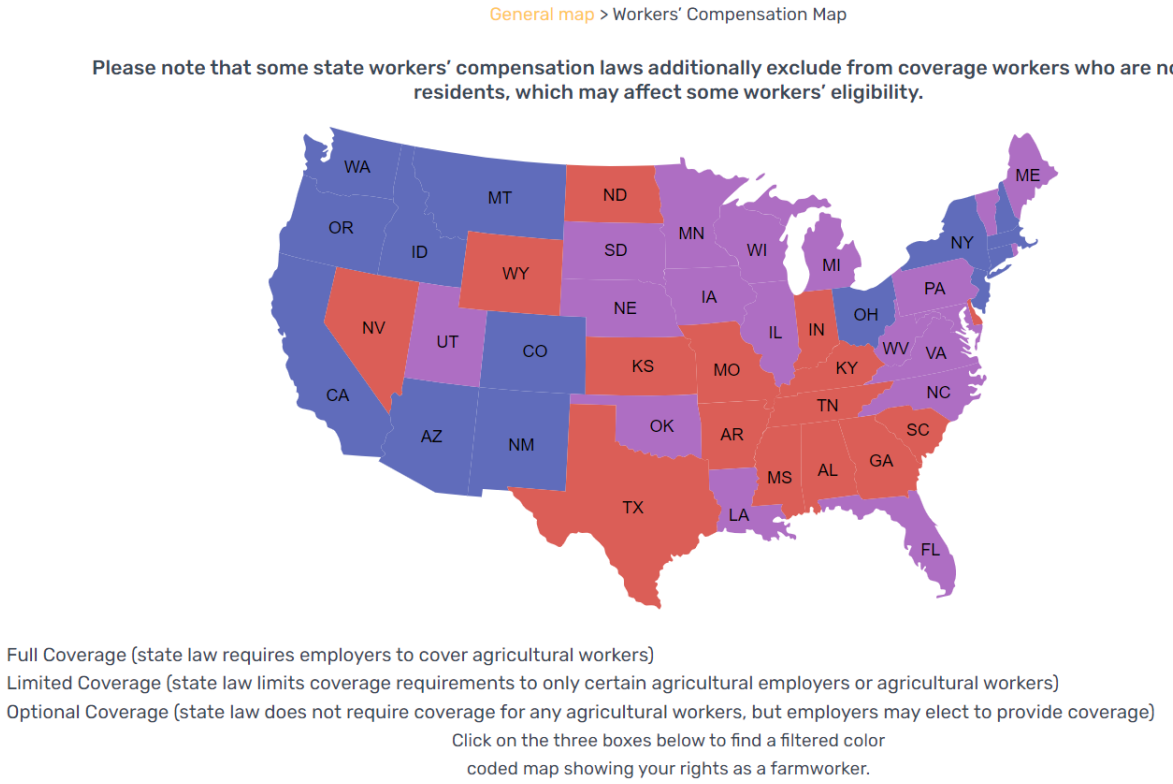


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Field Sanitation and Pesticide Safety

- OSHA Field Sanitation Standard (1987)
  - Requires portable drinking water, toilets and handwashing facilities, information on importance of hygiene
- EPA Worker Protection Standard (1992, updated in 2015) – requires employers to:
  - Provide annual pesticide safety training and posters
  - Inform workers about where and when pesticides have been sprayed
  - Keep workers out of pesticide-treated areas during application until re-entry into those areas is deemed safe
  - Provide personal protective equipment for workers in contact with pesticides or pesticide-treated areas during the Restricted Entry Interval
  - Provide facilities for decontamination (clean water, soap, and towels)
  - Facilitate emergency medical treatment

Workers' Compensation



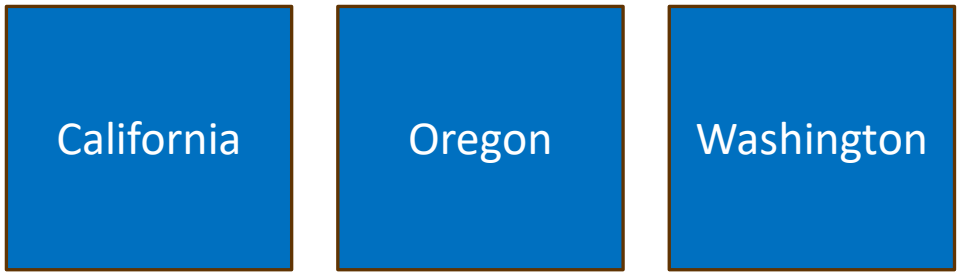
Source: https://www.farmworkerjustice.org/workers-compensation-map/

Heat

- OSHA announced a proposed heat rule for indoor and outdoor workers on July 2, 2024. Posted for public comment on Aug. 30, 2024 (ends Dec. 30)
  - Requires employers to: develop a heat injury and illness prevention plan, monitor heat conditions, implement control measures when heat is at or above the initial heat trigger, apply acclimatization protocols, communicate and notify workers of heat hazards and protocols, provide training
- 6 states implemented heat standards – CA, WA, OR, CO, MN, and MD
  - Maryland is finalizing its standard



Wildfire Smoke



- There is no federal standard
- Only a few states have regulations in place

H-2A Worker Protection Rule

* Enjoined in 17 states– Arkansas, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Carolina, Tennessee, Texas, and Virginia *(Kansas v. DOL)*

- Right to guests
- **Retaliation protections**
- Updated Adverse Effect Wage Rate effective date
- Recruitment transparency
- **Transportation safety**
- Prohibition against passport and document withholding
- **Job listing disclosure**
- Debarment and successors-in-interest



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Challenges



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Questions/Discussion





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Research Manager
National Center for Farmworker Health

USDA Economic Research Service
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NCFH: A Conversation About Workplace Safety

NCFH: Una conversación sobre la seguridad en el trabajo

National Center for Farmworker Health
September 18, 2024

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About the National Center for Farmworker Health

- Focused on public health issues impacting farmworkers & their families
- Capacity-building for workers, farmworker-serving organizations, employers, and government agencies
- National high-level work: Trainings & funds for CBOs, research & data collection, language justice work
- Local ground-level work: Farmworker outreach & training in critically underserved areas

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Acerca del Centro Nacional para la Salud del Trabajador Agrícola

- *Enfoque en asuntos de salud pública que afectan al trabajador agrícola y sus familias*
- *Desarrollo de capacidades para trabajadores, organizaciones que prestan servicios a trabajadores, empleadores y agencias de gobierno*
- *Trabajo a nivel nacional: Entrenamientos y fondos para organizaciones comunitarias, investigación y recolección de datos, trabajo para la justicia lingüística*
- *Trabajo a nivel comunitario: Alcance a trabajadores y entrenamientos en áreas críticamente marginadas*

Farmworker COVID-19 Community Assessments (FCCA)

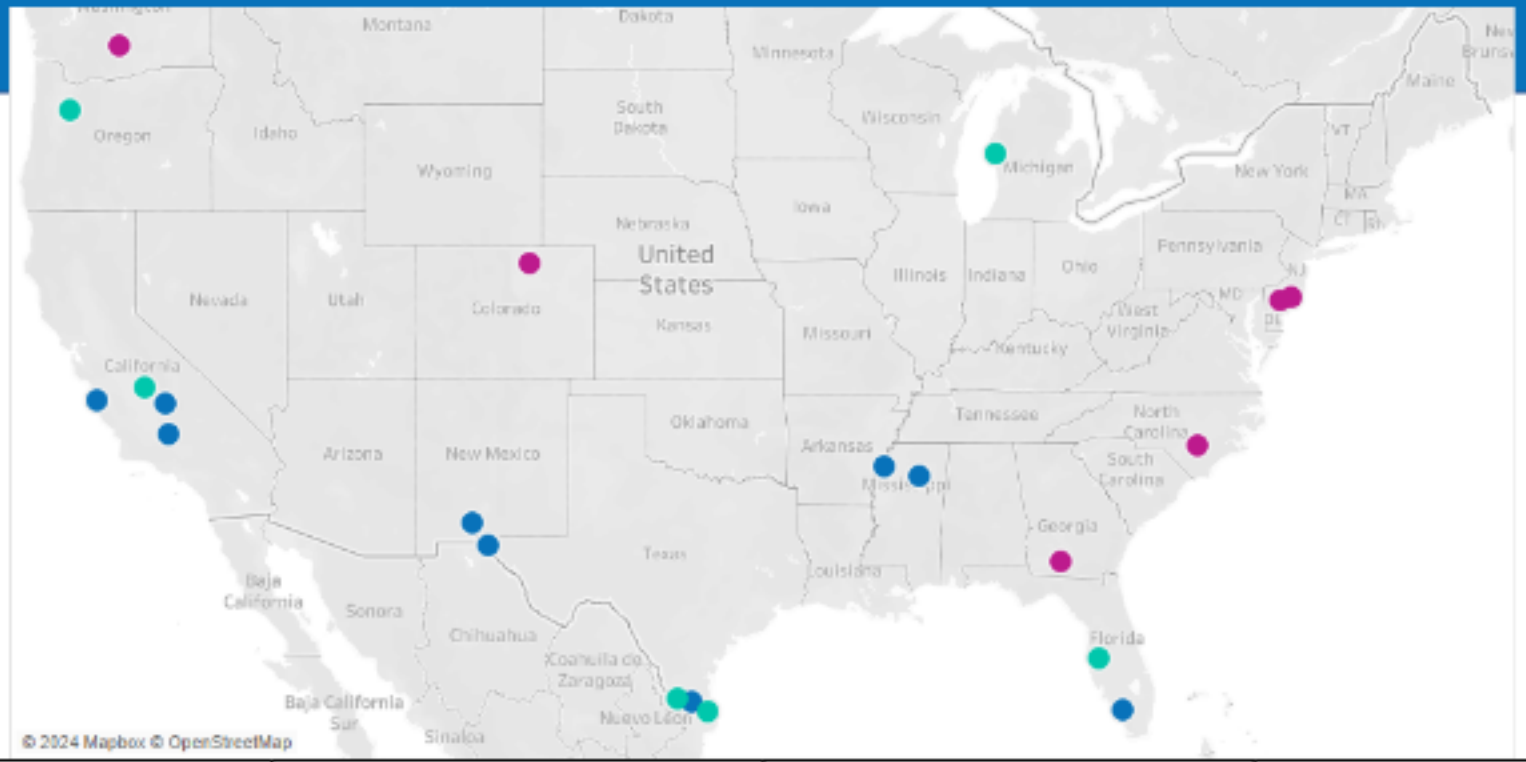
- **Purpose:**
  - Develop rapid community assessment methodologies that can be implemented during a public health emergency.
- **Objective:**
  - Assess COVID-19 impact on farmworker communities. Including but not limited to rate of COVID, barriers for testing and COVID-19 vaccination rates, attitudes and behaviors

Evaluaciones de la Comunidad de Trabajadores Agrícolas y el COVID-19

- ***Propósito:***
  - *Desarrollar metodologías de encuestas rápidas a la comunidad que se puedan usar durante una emergencia de salud pública.*
- **Objetivo:**
  - *Evaluar el impacto del COVID-19 en las comunidades de Trabajadores Agrícolas. Incluyendo, pero no limitando a la tasa de COVID, barreras para hacerse pruebas y tasas de vacunación, y actitudes y comportamientos sobre el COVID-19.*

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FFCA Communities / Comunidades FCCA



	Dates Fechas	# of Communities # de comunidades	# of Surveys # de encuestas
Phase 1/Fase 1	Aug-Dec 2021	5	1,094
Phase 2/Fase 2	Mar-Aug 2022	5	1,384
Phase 3/Fase 3	Mar-Jul 2023	5	1,638

Assessment Methods

Mixed Methods Approach:

1. Quantitative:
   - In-person surveys
2. Qualitative:
   - Informational meetings with identified stakeholders
   - Qualitative Interviews
     - Key Informants
     - Farmworkers
     - Employers

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Métodos de Evaluación

Enfoque de métodos mixtos:

1. Cuantitativo:
   - Encuestas en persona
2. Cualitativo:
   - Reuniones informáticas con socios identificados
   - Entrevistas cualitativas
     - Informantes claves
     - Trabajadores agrícolas
     - Empleadores

Quantitative Data Collection

- 1-2 weekend(s) during peak agricultural season
- In-person surveys
- Max number of surveys per site:
  - Community - 40
  - Housing - 20
  - Employment - 20

Recopilación de Datos Cuantitativos

- 1-2 fines de semanas durante la temporada alta agrícola
- Encuestas en persona
- Entrevistas máximas por sitio:
  - Comunitario – 40
  - Vivienda – 20
  - Empleo - 20

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Demographics / Estadísticas demográficas

	Phase 1: N=1,094 n *(%)*	Phase 2: N=1,384 n *(%)*	Phase 3: N=1,638* n *(%)*
Sex / *Sexo*			
Male / *Hombre*	764 *(70%)*	1,071 *(77%)*	1,061 *(65%)*
Female / *Mujer*	330 *(30%)*	302 *(22%)*	568 *(35%)*
Age Group / *Grupo de edad*			
18-25	149 *(14%)*	242 *(17%)*	285 *(17%)*
26-54	727 *(66%)*	939 *(68%)*	1,102 *(67%)*
55+	218 *(20%)*	133 *(10%)*	188 *(11%)*
Indigenous Identity / *Identidad Indígena* **	195 *(18%)*	406 *(29%)*	405 *(25%)*
H-2A	236 *(22%)*	532 *(38%)*	384 *(23%)*
Without work authorization / *Sin autorización de trabajo*	367 *(34%)*	522 *(38%)*	798 *(49%)*
Migratory / *Migrante* ***	387 *(35%)*	686 *(50%)*	838 *(51%)*

*Weighted based on industry size across communities and H-2A make-up.
Resultados ponderados en base a tamaño de la industria entre las comunidades y número de trabajadores H-2A.

** Based on NAWS definition of an individual having spoke and Indigenous language, currently speaks an Indigenous language and/or racially identifies as Indigenous.
En base a la definición de NAWS si el individuo hablo una lengua Indígena, actualmente habla una lengua Indígena y/o se identifica racialmente como Indígena.

*** Individual must have move to work in agriculture for at least a week.
El individuo debió mudarse para trabajar en la agricultura por lo menos una semana.

COVID-19 Safety Training

- Phase 1 and 2 asked farmworkers if they had received trainings at work about:
  - How to properly do social distancing
  - How to wash properly wash hands
  - How to properly use a face mask
  - When and how to isolate and quarantine

Entrenamientos de Seguridad sobre COVID-19

- *Fases 1 y 2 preguntaron a los trabajadores si habían recibido capacitaciones en el trabajo sobre:*
  - *Como hacer distanciamiento social apropiadamente*
  - *Como lavarse las manos apropiadamente*
  - *Como utilizar mascarillas apropiadamente*
  - *Cuando y como aislarse o entrar en cuarentena*

	Phase1/Fase1 n *(%)*	**Phase 2/Fase 2 n *(%)***
Received at least one training *Recibió por lo menos un entrenamiento*	967 *(88%)*	1,287 *(93%)*
Received ALL trainings *Recibió TODOS los entrenamientos*	838 *(77%)*	960 *(69%)*
Received the trainings in their preferred language *Recibió los entrenamiento en lenguaje preferido*	804 *(73%)*	892 *(64%)*

Take Aways from FCCA

- Higher percentage of farmworkers with Indigenous identity than expected
  - NAWS (2023) - 9%
- Preferred language was often another language, even if they were Spanish speaking
- More than 25% of survey participants did not receive COVID-19 safety trainings in their preferred language
- There were other training needs identified through outreach with these communities

Puntos a Resaltar de FCCA

- *Un porcentaje más alto de trabajadores con identidad Indígena de lo esperado*
  - *NAWS (2023) - 9%*
- *Otro idioma preferido aparte del español incluso si hablan español*
- *Mas del 25% de participantes no recibieron capacitaciones sobre seguridad contra el COVID-19 en su idioma preferido*
- *Se identificaron otras necesidades de capacitaciones tras dar alcance a estas comunidades*

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NCFH Work in the Rio Grande Valley

- FCCA assessments in 2021 and 2023
  - High percent of workers with an Indigenous identity
  - First time experience working in agriculture in the U.S. -> limited knowledge on rights and safety protocols

- Projects to support farmworkers in the RGV:
  - Heat-Related Illness Prevention Training
  - PERC

Trabajo de NCFH en el Valle del Rio Grande

- *Evaluaciones FCCA en el 2021 y 2023*
  - *Alta porcentaje de trabajadores con una identidad Indígena*
  - *Primera vez trabajando en agricultura en los EE.UU -> Conocimiento limitado de sus derechos y protocolos de seguridad*

- *Proyectos de apoyo a trabajadores agrícolas en el Valle de Rio Grande:*
  - *Capacitación para la prevención de enfermedades relacionas con la calor*
  - *PERC*

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PERC Project

- **Purpose:**
  - Educate farmworkers on the safe use of pesticides.
- **Needs addressed:**
  - Adapted pesticide safety training for 3 Mesoamerican Indigenous populations:
    - Mixtec
    - Tsotsil
    - Tzeltal

Proyecto de PERC

- *Propósito:*
  - *Educar a los trabajadores agrícolas sobre la seguridad del uso de pesticidas.*
- *Necesidades abordadas:*
  - *Adaptar entrenamiento sobre el uso de pesticidas para 3 comunidades Mesoamericanas:*
    - *Mixteca*
    - *Tsotsil*
    - *Tzeltal*

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Project Overview

- Farmworkers from Tsotsil, Tzeltal, and Mixtecan communities provide input into pesticide safety information needs
- Worker input informs translating & dubbing Spanish-language Worker Protection Standard video into 3 Indigenous languages and a training debrief guide
- Farmworkers provide feedback on the new videos
- 100+/- workers will be trained with the videos in their Indigenous languages
- Best practices & lessons learned documented and shared

Resumen del Proyecto

- *Los trabajadores agrícolas de las poblaciones tsotsil, tzeltal y mixteca proveen su opinión sobre las necesidades de información en materia de protección contra los pesticidas.*
- *Las opiniones de los trabajadores sirven como base para traducir y doblar el vídeo de las normas de protección de los trabajadores en español a tres idiomas indígenas, y una guía informativa para la capacitación.*
- *Los trabajadores agrícolas proporcionarán retroalimentación sobre los nuevos videos*
- *Más de 100 trabajadores recibirán capacitación con los vídeos en sus lenguas indígenas.*
- *Se documentarán y compartirán las mejores prácticas y las lecciones aprendidas*

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Heat-Related Illness Prevention Training

- Trained 800 farmworkers and labor contractors in the Rio Grande Valley in 38 sessions
- Reached workers who had never received any safety training by doing trainings on-the-spot in the field or on weekends
- Provided some of the trainings in Tsotsil and Tzeltal through remote interpretation with CIELO



Capacitación para la Prevención de Enfermedades Relacionadas con la Calor

- *Se capacito a 800 trabajadores y contratistas en el Valle del Rio Grande en 38 sesiones*
- *Se proveo alcance a trabajadores que jamás habían recibido capacitaciones de seguridad haciendo capacitaciones "en-el-lugar" en el campo o fines de semana.*
- *En algunas capacitaciones se proveo interpretación remota en Tsotsil o Tzeltal atreves de CIELO*

MIGRANT HEALTH

Thank you!

¡Gracias!

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MILY TREVIÑO-SAUCEDA

Executive Director

Alianza Nacional de Campesinas, Inc.

USDA Economic Research Service
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Farm Foundation
Accelerating people & ideas

A Conversation About Workplace Safety





Our mission is to unify the struggle to promote women farmworker's leadership in a national movement to create broader visibility and advocate for changes that ensure their human rights.

Executive Director, Mily Trevino-Sauceda

Alianza Nacional De Campesinas

Challenges Faced by Farmworkers

- Labor protections / unfair labor laws
- Gender discrimination
- Gender based violence
- Heat stress
- Pesticide exposure
- Wage theft / minimum pay
- Immigration status









Challenges Faced by Farmworkers

- Human trafficking
- Health care / health insurance
- Childcare issues
- Housing for farmworkers
- Lack of information for assistance & resources
- Live in fear of deportation or other legal actions, limiting the ability to seek justice for workplace abuses.
- Many other challenges...









Opportunities and barriers to overcoming these challenges:

- Lack of understanding of our communities and the multimillion dollars we provide with our work
- Lack of visibility and validation of our contributions
- Lack of trust by our communities with Law Enforcement, government agencies, and even
- Renewed Hostilities Toward Immigrants As a Result of Hostile Rhetoric and Anti-immigration laws in many USA states
- New immigration laws at the state level, such as Florida's immigration law SB1718, heighten the fear already felt by immigrants and worsen the barriers to access for survivors.
- In Wisconsin, proposed legislation aims to discourage the resettlement of refugees in the state
- a bill in Mississippi would criminalize the transportation of undocumented migrants into the state—a move that undermines immigrant communities' trust in local law enforcement.
- Farmworkers are blamed for economic ills of this country
- Many other barriers...





Opportunities and barriers to overcoming these challenges:

- Bring visibility to the farmworker issues
- Awareness and civic engagement with community. Commitment to change
- Build networks and collaborations with community partners and state and federal agencies to create changes in systems that do not work in our community
- Building dialogues around sustainable agriculture with ancestral knowledge
- Know Your Rights & Resources trainings
- Legislation to provide protections and safety
- Validating who are the change makers.







Email:
alianzanacionalcampesinas@gmail.com
Website: www.alianzanacionaldecampesinas.org



Alianza Nacional de Campesinas
4th Convivencia
Washington, DC - April 2023



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Q&A

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BREAK

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SESSION FOUR: CATALYZING RESEARCH FOR A HEALTHY WORKFORCE



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DISCUSSANT AND SPEAKERS



HEATHER RIDEN

Program Director
UC Davis Western Center for Ag Health & Safety



ALEJANDRO GUTIERREZ-LI

Assistant Professor
North Carolina State University



TIM BEATTY

Professor and Chair
UC Davis



BRENDA BERUMEN-FLUCKER

Assistant Professor
Texas State University

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ALEJANDRO GUTIERREZ-LI

Assistant Professor
North Carolina State University

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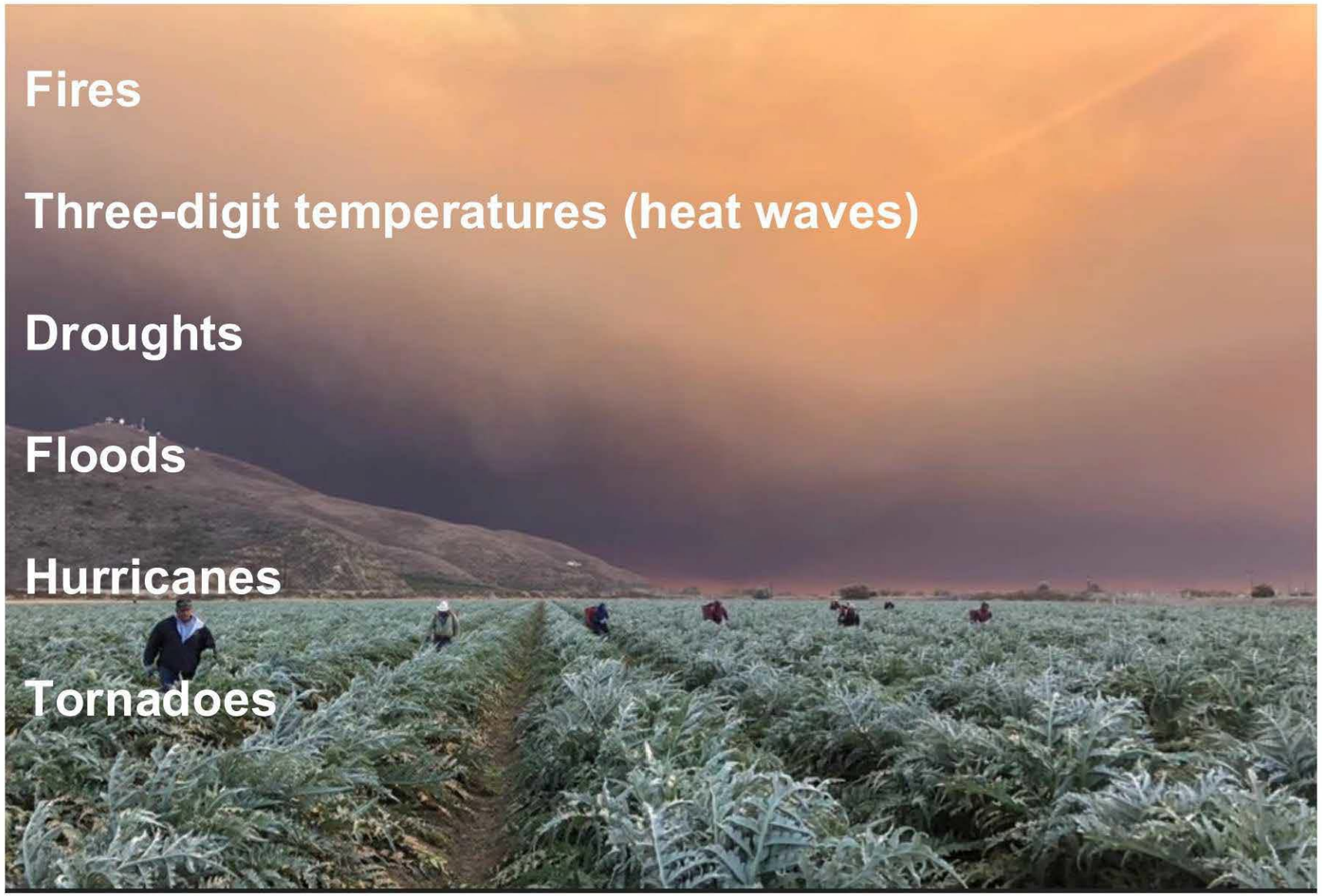
Extreme Weather and Agricultural Labor

Alejandro Gutierrez-Li, Ph.D.

North Carolina State University

Farm Labor Conference
September 18, 2024

Recent Catastrophic Events



Short-term Consequences

- Increase in the number of “unsafe” days, which reduces available working hours (events generally coincide with harvesting seasons)

- Even if workers go to the fields, their productivity declines

Examples:

-fires: bad air quality lowers workers’ harvesting speed

-heat waves: increase risks of dehydration, facilitate development of diseases and pests (which could incentivize use of toxic pesticides)
(both can lead to cardiovascular diseases)

- Farmworker casualties

- Harder to retain and attract workers to agriculture

Long-term Consequences

- Sizable production and economic losses (crops and animals) and insurance cost increases
- Permanent damage to land and infrastructure (e.g., housing facilities)
- Losses of famers' revenue and farmworkers' earnings could push both out of agriculture

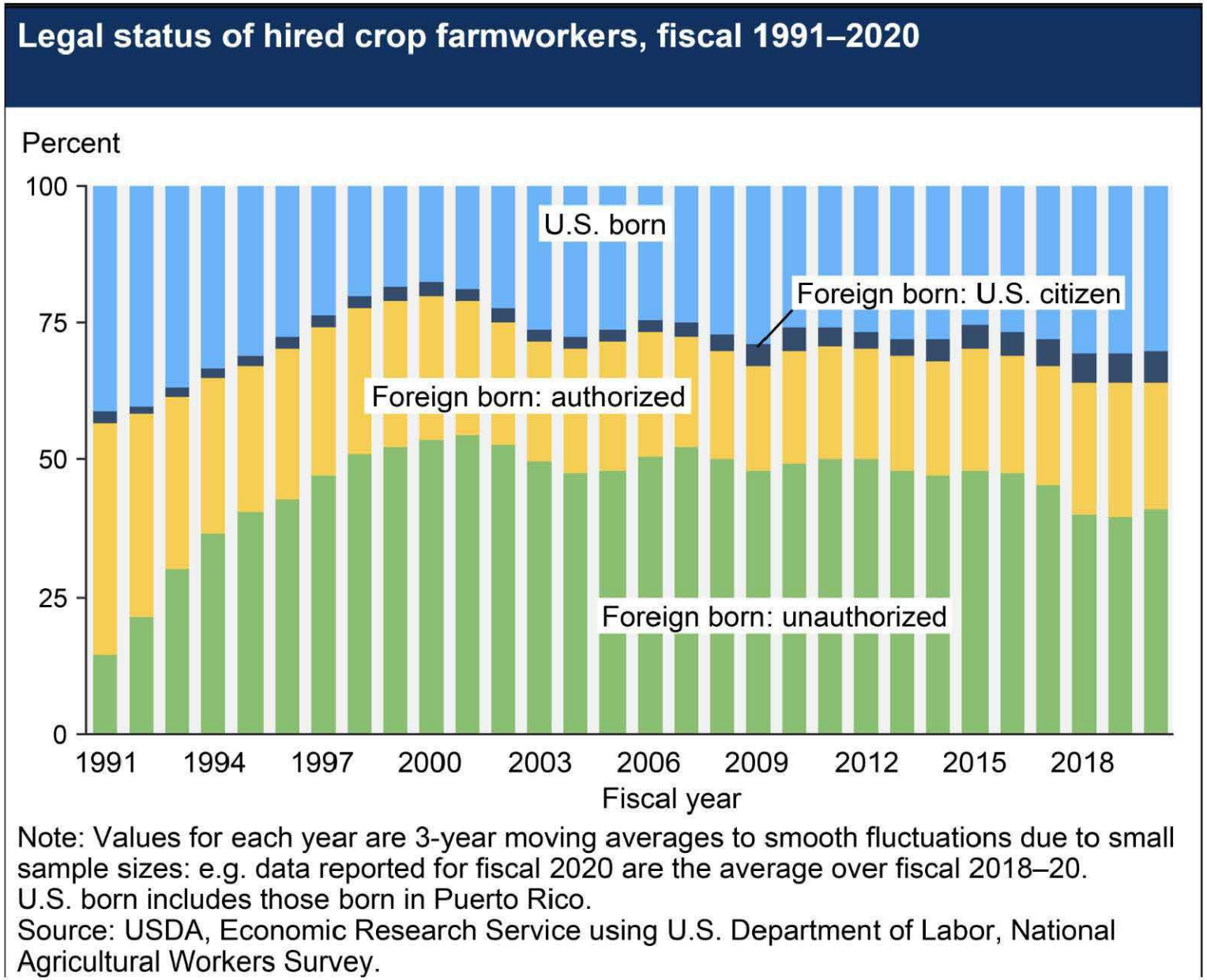


Why are agricultural workers at higher risk?

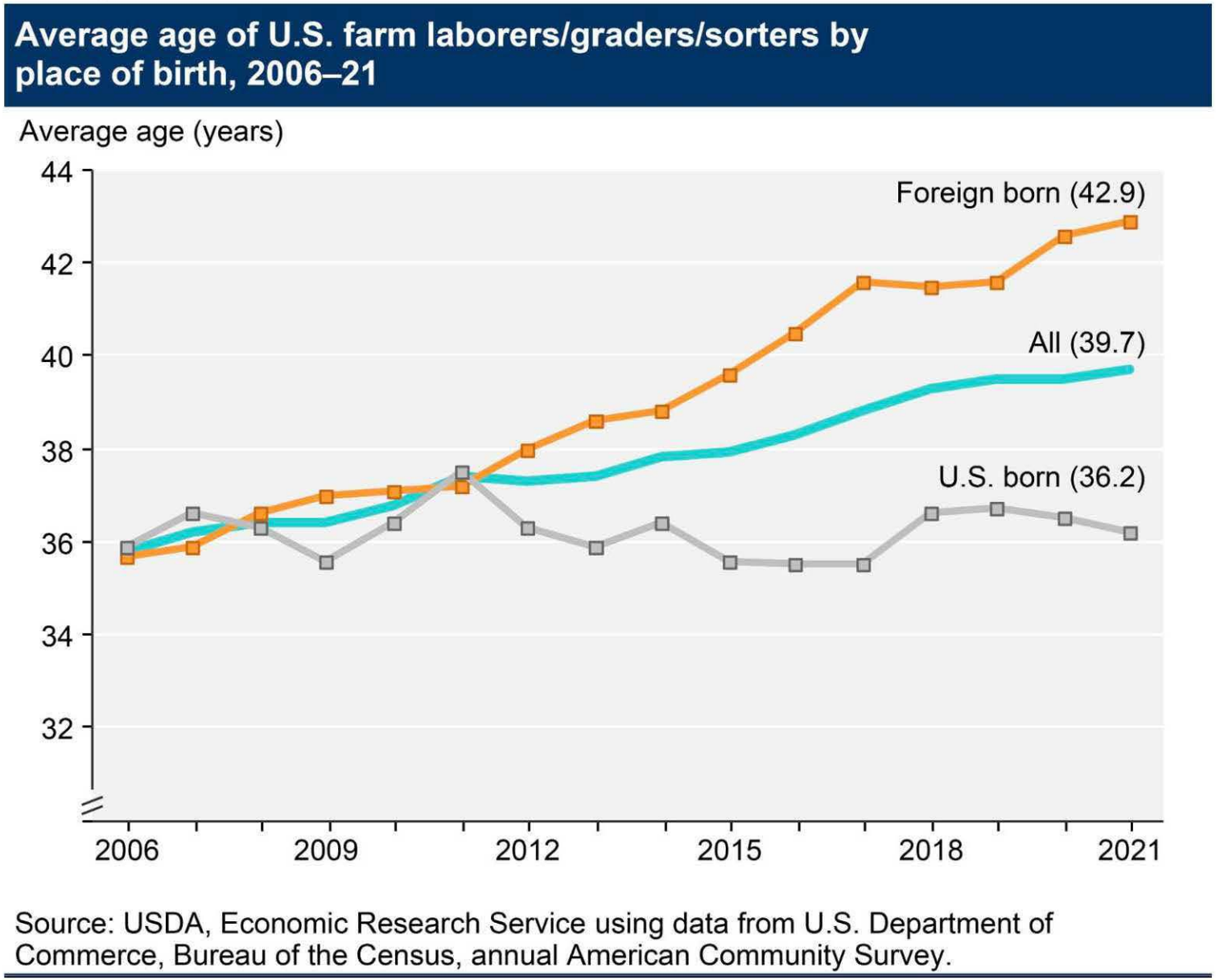
1) Nature of the job



2) Legal status



3) Demographic characteristics



4) Other

-lack of formal safety nets (workers come and go)

-language barriers (most farmworkers are Hispanic)

-technological barriers (poor phone and internet signal in rural areas)

-incentive to work as many hours as possible (e.g., piece meal pay)

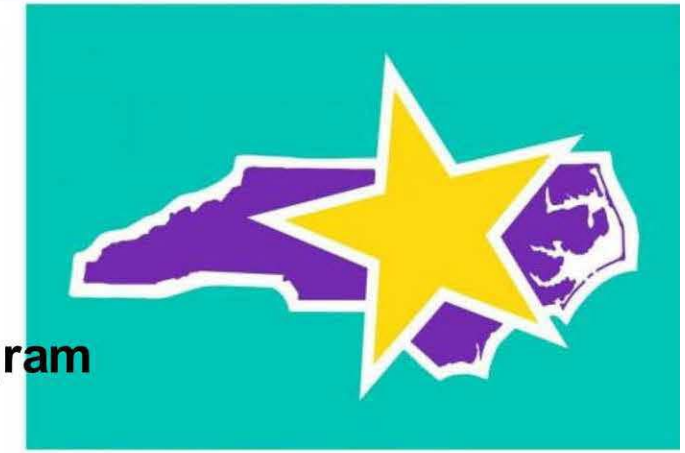
- Lack regulations

-no federal heat standards

-although some states have started introducing regulations: OR, CA, WA

-while others have programs to incentivize farmers that invest in improving workers' living conditions

4) Other Cont'd



Ex: **N.C. Department of Labor Gold Star Grower Program**

-recognizes growers who provide farmworker housing that meets and exceeds all of the requirements of the Migrant Housing Act of North Carolina.

-local health department inspects and approves facilities at least 45 days prior to occupancy.

-ways to exceed the requirements include:

additional showers; toilets; living space; refrigerators; stoves; air conditioning; washing machines and clothes dryers; dining table large enough for everyone; partitions between toilets in bathrooms; telephones; recreation areas such as soccer fields; and maintaining the housing throughout the season.

Responses

- Introduction of “abnormal shifts” (although working at night poses other risks)

- Short term “solutions”:

-increase rest times

-provide more access to water and shades

-invest in climate-controlled recovery areas

-choose a temperature threshold above which workers should not be out

-provide personal protective equipment

-training (Extension can help!)

- Long term “solutions”:

-develop adverse-weather resilient technologies

-automate most grueling tasks



Conclusions

- Weather-related challenges likely to be more common
- While exact time of disasters is unpredictable, general precautionary measures can be taken
- Farm labor shortages likely to continue to be a major problem

Questions or Comments?

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Extreme Temperatures and Farmworker Wellbeing

Goeun Lee & Tim Beatty

[1]University of California, Davis

Agricultural Labor Symposium – September 18, 2024

Farmworkers are at risk

Outdoor workers face heightened risks due to extreme temperatures, with physically active workers particularly vulnerable to lower heat exposure levels.

Many California farmworkers, who are predominantly undocumented, have limited access to social safety nets.

Farmworkers are 35 times more likely to suffer from heat-related illnesses than other workers (Gubernot et al., 2015).

Under a business-as-usual scenario, most U.S. regions will experience 20-30 additional days per year with temperatures exceeding 90°F by mid-century (USGCRP, 2018).

Does agricultural labor respond to extreme temperatures?

If so, does labor adjust at the:

- Extensive margin?
- Intensive margin?

Are changes driven by farmworker (supply) or farmer (demand) behavior?

- Changes in working hours? Earlier start times? Later end times?
- Do large farms differ from small farms?
- Does adaptive behavior differ across crop persishability?

Existing data cannot answer these questions

Conventional data cannot answer our questions. Why?

The National Agricultural Worker Survey (NAWS) is the gold standard, but:

- It is a one shot worksite-based interview survey.
- It does not release information on workplace location.

Farmworkers are a very small share of the population – so existing datasets, e.g. CPS and ACS, often do not have large enough samples.

Most farmworker are undocumented and are often reluctant to participate in government-sponsored surveys.

Bespoke surveys are expensive and often single shot.

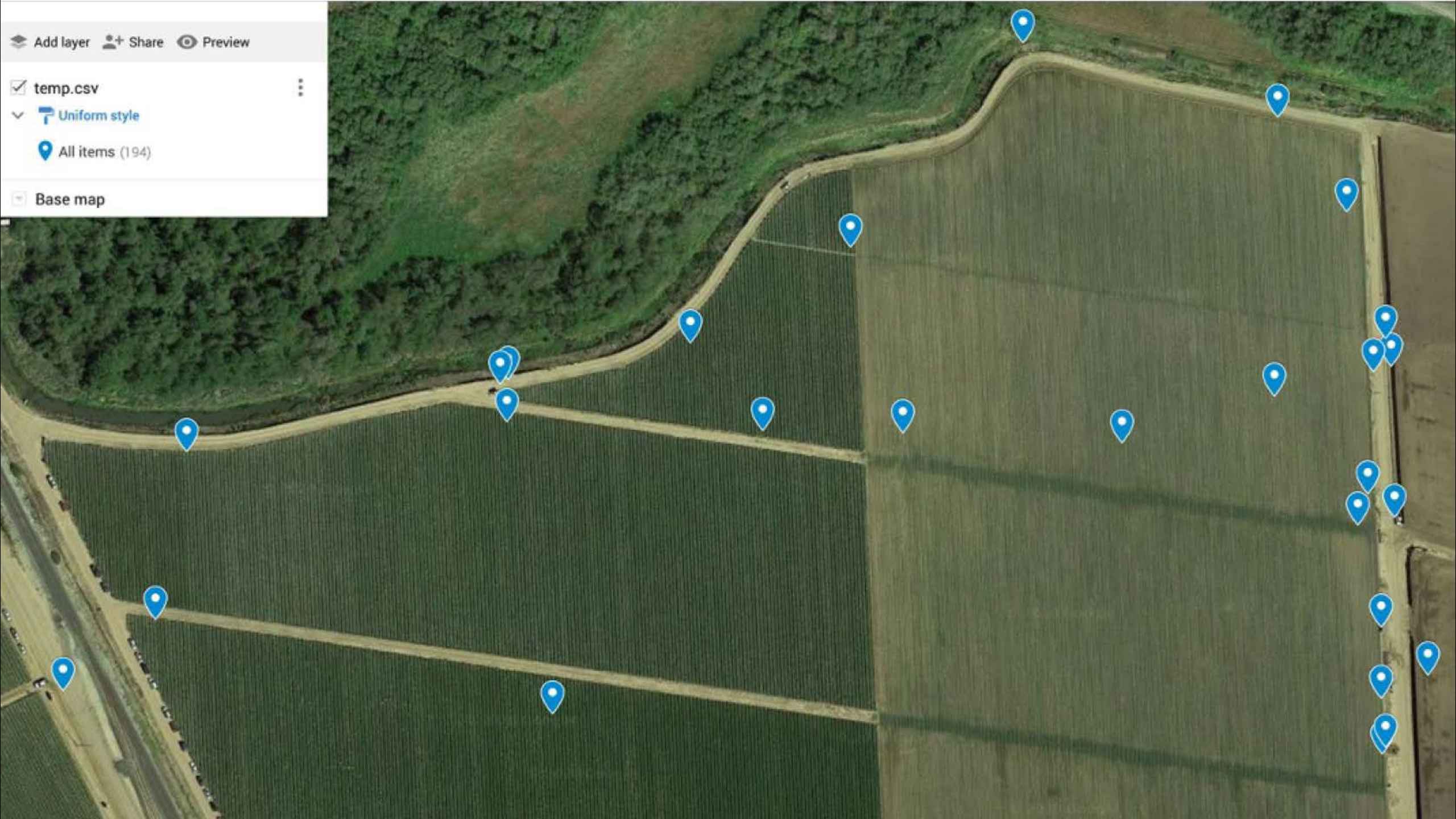
Mobility Data

Sample of cellphone location data from roughly 400 different mobile applications.

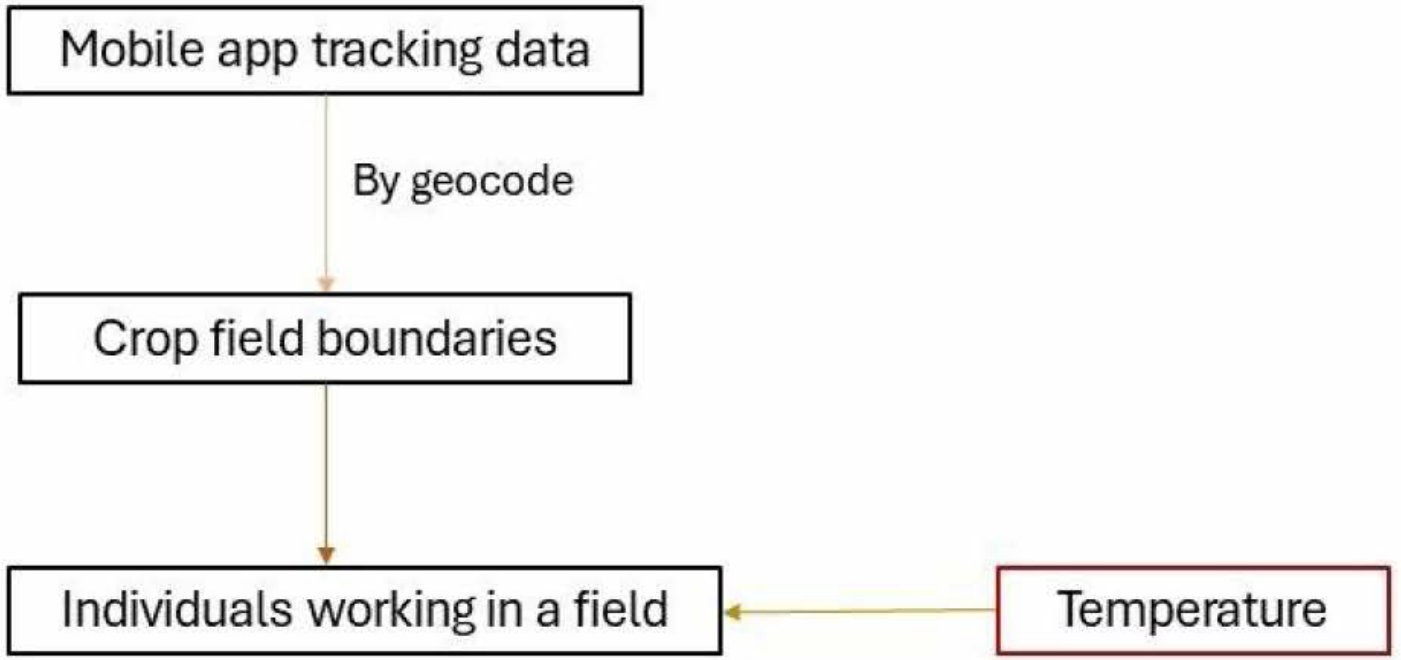
The data covers California between January 1st and October 11th, 2020.

Each observation consists of a unique device identifier, location information, time, and speed.

The data is an unbalanced panel, where individuals can be observed multiple times a day, but may not be observed every day.


Add layer
Share
Preview
temp.csv
Uniform style
All items (194)
Base map

Data construction summary



Defining a farmworker

We classify a device as belonging to a farmworker in a given month if:

- The device is located within an agricultural field, on at least 5 days during working hours (i.e. 6 am - 8 pm).
- Moving less than or equal to 5/ms.

This definition is clearly ad-hoc, but reasonable. All results are robust to a wide variety of alternative choices.

Using this definition, we count over 12,000 farmworkers out of more than 3 million distinct individuals in the cellphone location data. This mirrors agricultural workers' share of California's overall population (USCB, 2020).

Empirical approach

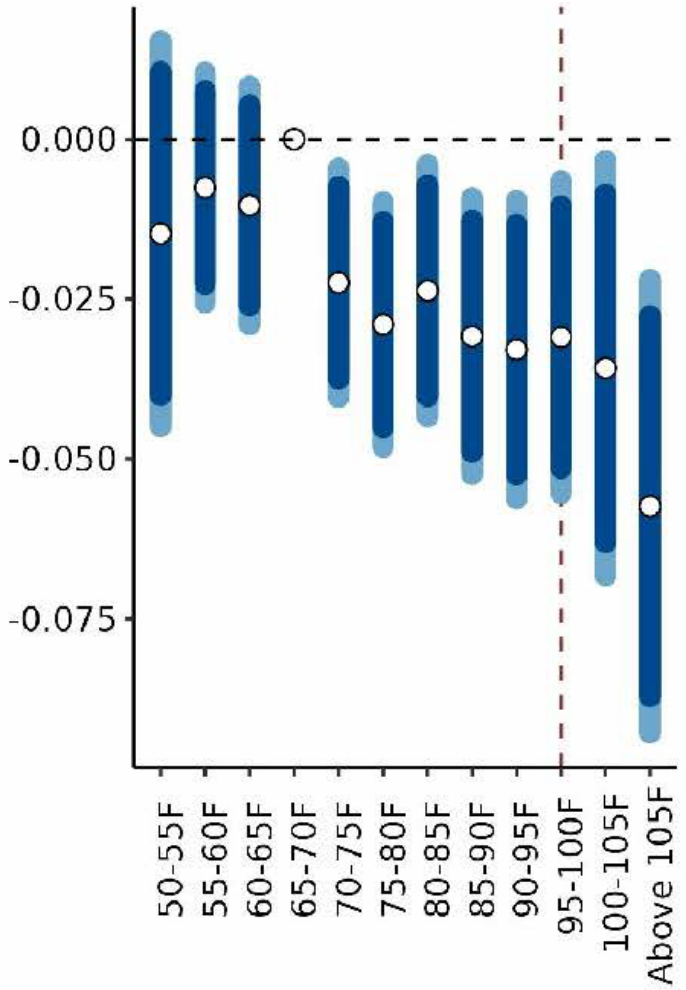
Using hourly/daily temperature variations as independent of labor-influencing factors.

Extensive Margin: We estimate the probability of an individual worker being observed at their worksite when it experiences a range of temperatures.

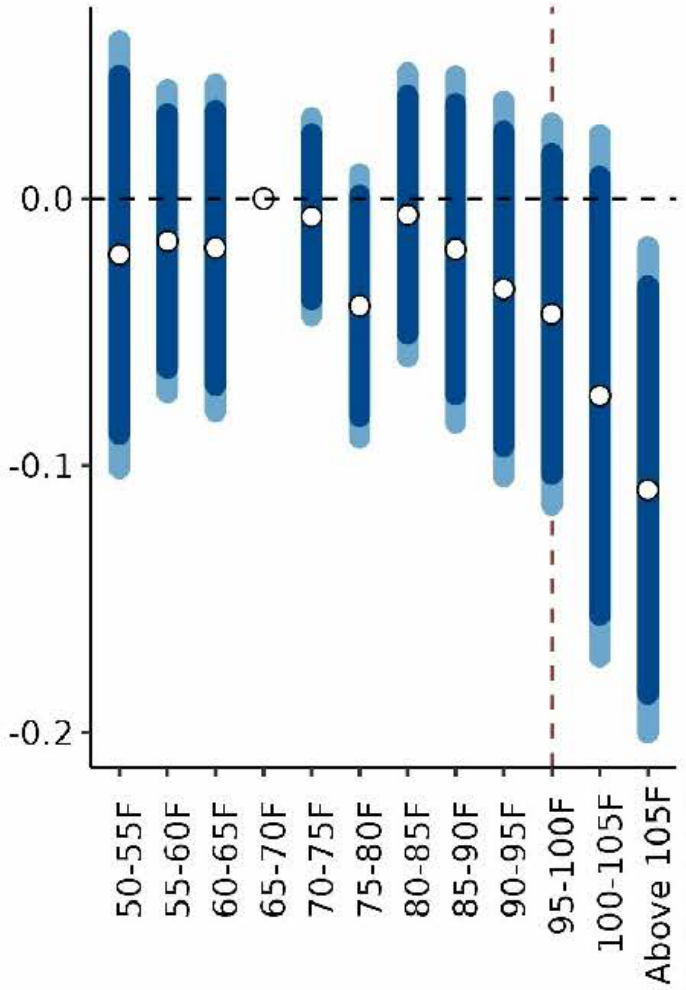
Intensive Margin: We infer the number of hours worked in a field by looking at the difference in time between the first and the last time a farmworker is located in a field on the same day. Then estimate the change in working time based on temperatures.

Mechanisms: We explore the mechanisms used to adapt to higher temperatures. Here we focus on shifting hours within a day.d

Results



(a) Do I work?



(b) How long do I work?

Start and End Times: Results

Figure 2: Sunrise

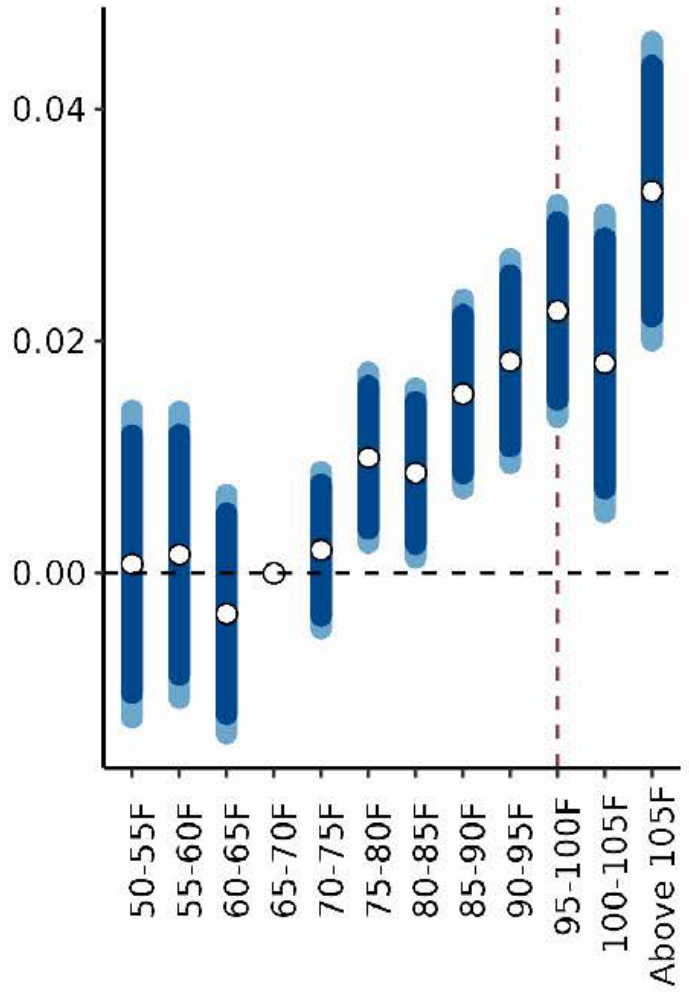
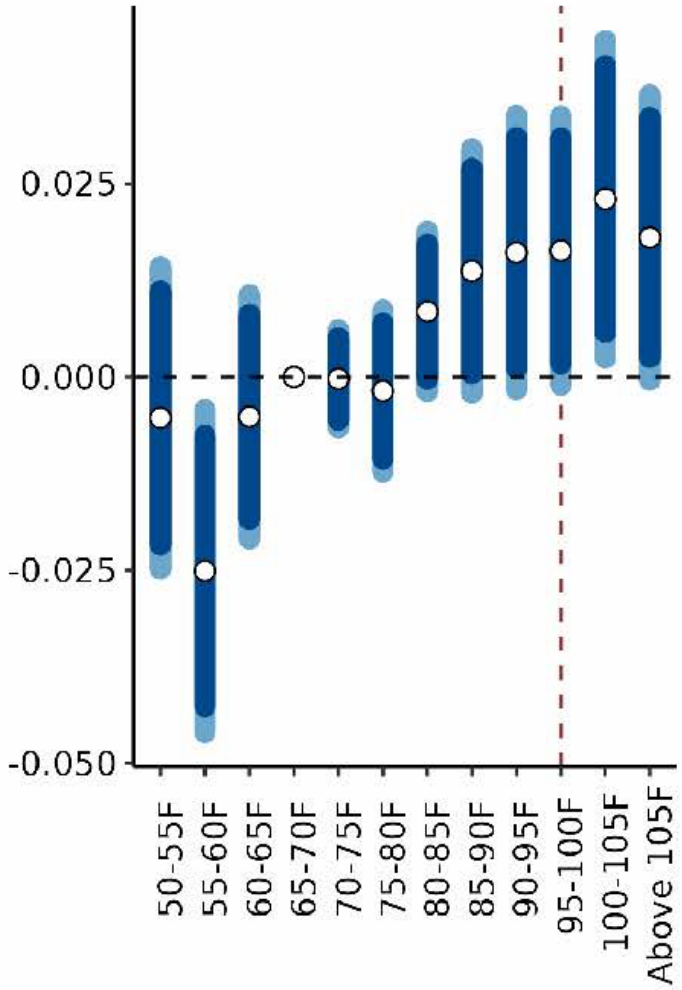


Figure 3: Sunset



Conclusion

Highlights the potential of big data approaches to answering first-order questions in agricultural economics.

Leveraging novel data and metadata to tell the story of a marginalized population that is underrepresented in most data.

More narrowly, we find extreme temperatures lead to fewer farmworkers in fields.

- Cautious evidence that this is the result of farmer choices.
- But the effect size is small relative to the known health effects of extreme temperatures.

Overall effect is small, given the health risks associated with extreme heat.

Conclusion

Highlights the potential of big data approaches to answering first-order questions in agricultural economics.

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THANK YOU - gonlee@ucdavis.edu & tbeatty@ucdavis.edu



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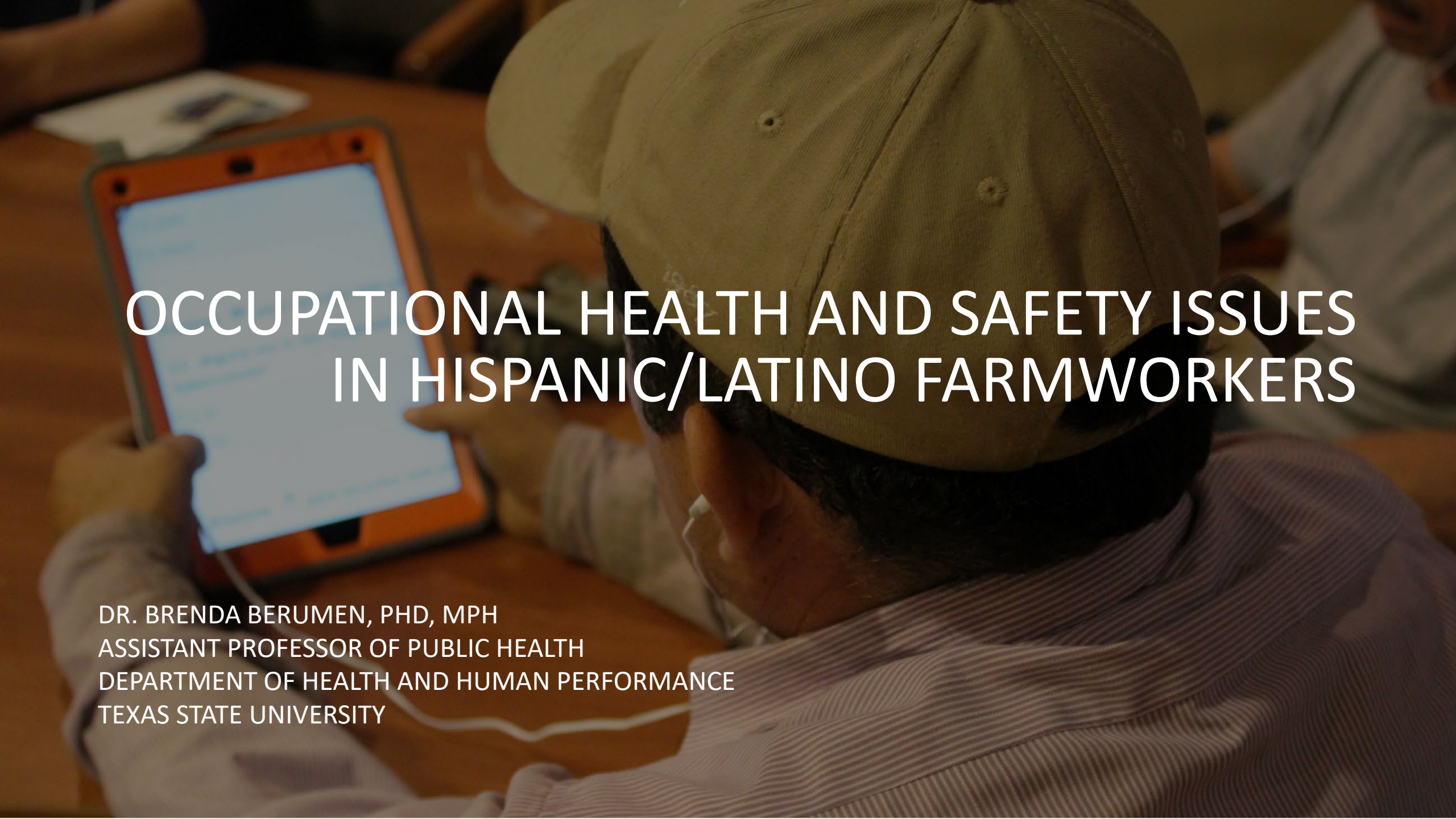


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OCCUPATIONAL HEALTH AND SAFETY ISSUES IN HISPANIC/LATINO FARMWORKERS

DR. BRENDA BERUMEN, PHD, MPH
ASSISTANT PROFESSOR OF PUBLIC HEALTH
DEPARTMENT OF HEALTH AND HUMAN PERFORMANCE
TEXAS STATE UNIVERSITY



PRESENTATION OVERVIEW

- HEALTH, SAFETY, & FARM WORK
- FARMWORKERS IN THE US
- BARRIERS TO HEALTHCARE SERVICES
- ACKNOWLEDGEMENTS

HISPANIC/LATINO FARMWORKERS ARE AT INCREASED RISK OF ADVERSE HEALTH AND SAFETY OUTCOMES.

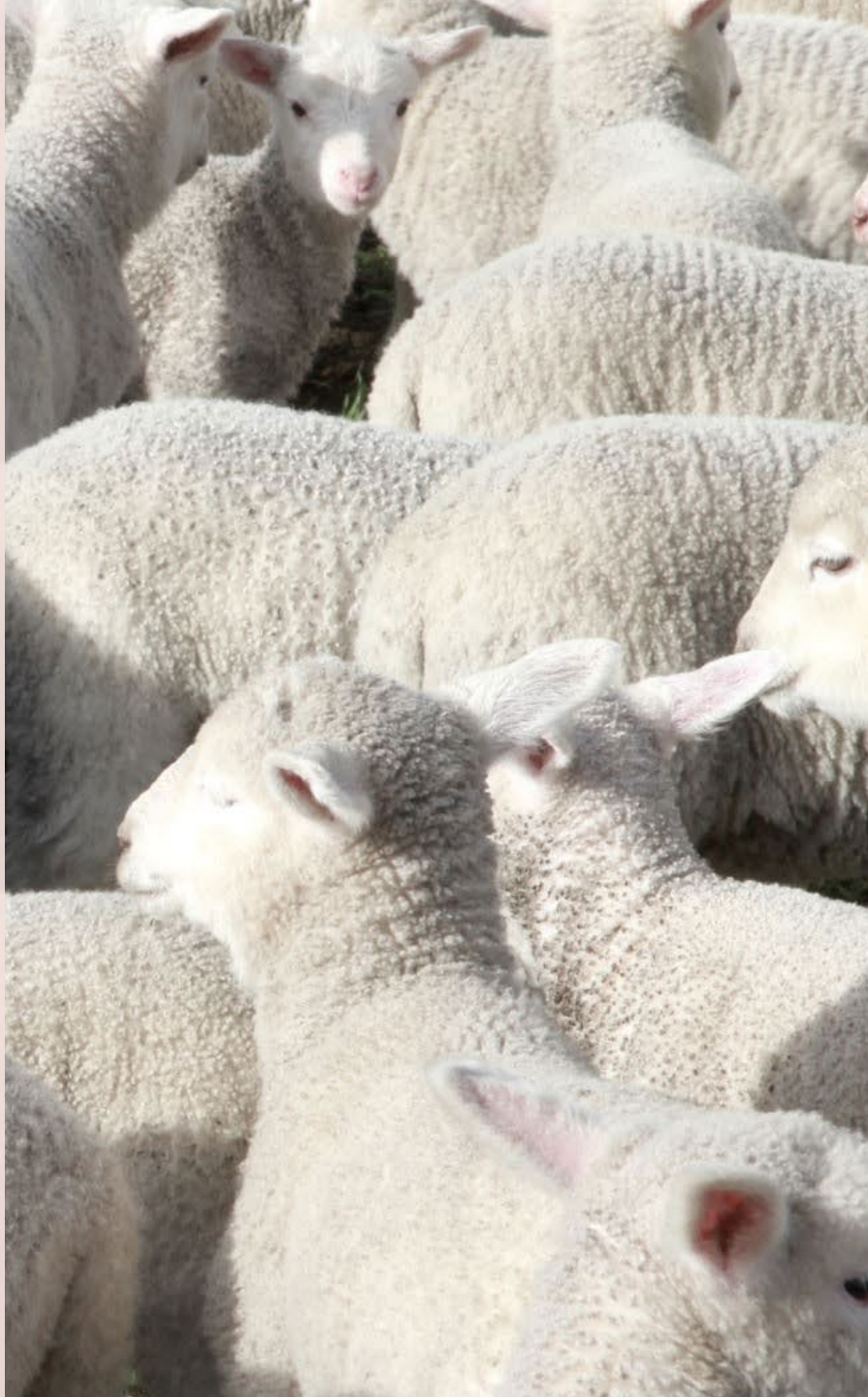
HEIGHTENED LEVELS OF ACCULTURATIVE STRESS AND THE UNIQUE CULTURAL CHARACTERISTICS AND BELIEFS REPORTED BY THIS GROUP INCREASE WORKERS' VULNERABILITY FOR ADVERSE OUTCOMES.

(S. C. MOYCE & SCHENKER, 2018; REID & SCHENKER, 2016; TRIBBLE ET AL., 2016)

HAZARDS IN THE AGRICULTURAL SECTOR

- EXTREME WEATHER CONDITIONS SUCH AS INTENSE HEAT AND RAIN
- ORGANIC AND INORGANIC DUST
- LARGE HERD ANIMAL, WILD ANIMALS, AND POTENTIALLY HAZARDOUS PLANTS
- DANGEROUS TOOLS AND EQUIPMENT
- HAZARDOUS CHEMICALS
- LOUD NOISE
- POOR, CROWDED, AND UNREGULATED LIVING CONDITIONS

INJURIES AND ILLNESSES REPORTED BY THIS GROUP INCLUDE CUTS, LACERATIONS, EYE INJURIES, SKIN CONDITIONS, HEARING LOSS, RESPIRATORY CONDITIONS, CANCERS, TUBERCULOSIS, AND MUSCULOSKELETAL PROBLEMS.



HISPANIC/LATINO FARMWORKER POPULATIONS IN THE US: NATIONAL AGRICULTURAL WORKERS SURVEY, 2019-2020

- 63% OF SURVEYED FARMWORKERS IDENTIFIED AS FOREIGN-BORN, LISTING MEXICO AS THEIR COUNTRY OF BIRTH
- 30% OF SURVEYED FARMWORKERS IDENTIFIED AS U.S.-BORN
- AMONG U.S.-BORN FARMWORKERS, 32% IDENTIFIED AS HISPANIC/LATINO
- 78% OF ALL SURVEYED FARMWORKERS IDENTIFIED AS HISPANIC/LATINO









HISPANIC/LATINO FARMWORKER POPULATIONS IN THE US: NATIONAL AGRICULTURAL WORKERS SURVEY, 2019-2020

- 62% OF SURVEYED FARMWORKERS SAID THAT SPANISH WAS THE LANGUAGE IN WHICH THEY WERE MOST COMFORTABLE CONVERSING
- 29% OF SURVEYED FARMWORKERS REPORTED THEY COULD NOT SPEAK ENGLISH “AT ALL”
- 40% OF SURVEYED FARMWORKERS REPORTED THEY COULD NOT READ ENGLISH “AT ALL”









HISPANIC/LATINO FARMWORKER POPULATIONS IN THE US: NATIONAL AGRICULTURAL WORKERS SURVEY, 2019-2020

- THE AVERAGE LEVEL OF FORMAL EDUCATION COMPLETED BY SURVEYED FARMWORKERS WAS 9th GRADE
- ONE-THIRD OF FARMWORKERS REPORTED EDUCATIONAL ATTAINMENT LEVELS AT OR BELOW 6th GRADE











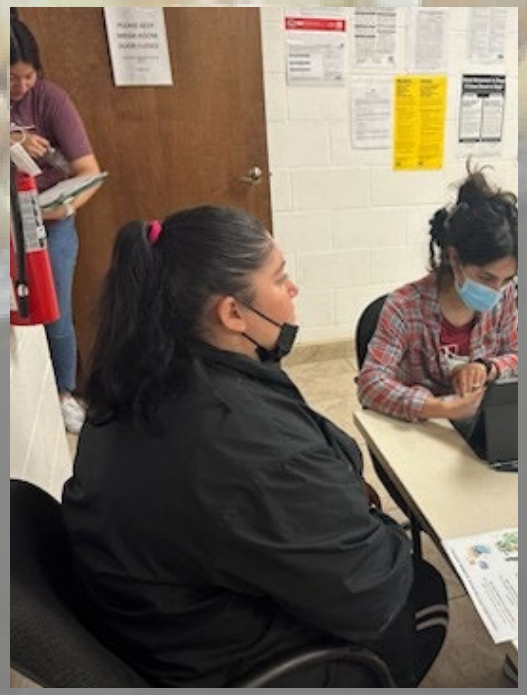
WHAT DOES THIS MEAN FOR RESEARCH AND PRACTICE?

BARRIERS TO HEALTHCARE SERVICES AMONG HISPANIC/LATINO FARMWORKERS IN THE RIO GRANDE VALLEY









BARRIERS TO HEALTHCARE SERVICES AMONG HISPANIC/LATINO FARMWORKERS IN THE RIO GRANDE VALLEY

- **TRAVEL TO EDINBURG, TX**
- **FARMWORKERS RECRUITED:**
  - PACKING
  - SORTING
  - GRADING
  - PICKING
  - MACHINERY OPERATORS
- **U.S. AND FOREIGN-BORN WORKERS**


TEXAS STATE

¿Eres trabajador agrícola?

Estamos buscando participantes para un estudio que examinara las experiencias de trabajadores agrícolas cuando intentan usar servicios medicos en el Valle del Rio Grande.

¿Quién puede ser parte de este estudio?
Trabajadores agrícolas Hispanos/Latinos mayores de 18 años de edad.

¿Qué estaré haciendo?
Estará proveyendo su número de teléfono para participar en una entrevista por teléfono.

En su entrevista telefónica responderá algunas preguntas sobre su edad, genero, y el número de años que ha trabajado como trabajador agrícola.

Tambien estará respondiendo algunas preguntas acerca de diferentes experiencias que ha tenido cuando ha intentado de visitar un medico.

¿Cuánto tiempo durará la entrevista?
Su entrevista tardará 30 minutos.

¿Recibiré algo por participar?
Cuando la entrevista termine, recibirá una tarjeta de regalo como agradecimiento por su tiempo.



PARTICIPANT DEMOGRAPHICS

AGE	42
GENDER	
MALE	44%
FEMALE	56%
MARITAL STATUS	
SINGLE	46%
MARRIED	46%
DIVORCED	8%
EDUCATIONAL ATTAINMENT	
PRIMARY SCHOOL (1 – 6 GRADE)	18%
JUNIOR HIGH SCHOOL (7 – 9 GRADE)	20%
HIGH SCHOOL (10 – 12 GRADE)	46%

PARTICIPANT CULTURAL CHARACTERISTICS

COUNTRY OF BIRTH	
UNITED STATES	30%
MEXICO	68%
VENEZUELA	2%
LANGUAGE SPOKEN AT HOME	
ENGLISH	20%
SPANISH	80%

PARTICIPANT ENGLISH LANGUAGE PROFICIENCY

SPOKEN ENGLISH COMPREHENSION	
NOT AT ALL	18%
NOT VERY WELL	18%
MODERATELY WELL	22%
VERY WELL	34%
EXTREMELY WELL	8%
WRITTEN ENGLISH COMPREHENSION	
NOT AT ALL	22%
NOT VERY WELL	20%
MODERATELY WELL	18%

PARTICIPANT WORK EXPERIENCE

AVERAGE FARMWORKER EXPERIENCE	
AVG	11.5 YRS
MED	7.5 YRS
AVERAGE WORK WEEK	
AVG	63.5
MED	60

52

100+

EMERGING THEMES

COST OF CARE

TRAVEL FOR SERVICES

TIME OFF OF WORK

PERCEIVED NEED FOR CARE

LACK OF INFORMATION & RESOURCES

COST OF CARE

“PUES COBRAN MUCHO… NO HAY DINERO PARA ESO.”

“WELL, THEY CHARGE A LOT… THERE’S JUST NOT MONEY FOR THAT.”

“A VECES NOMÁS TE DAN UNA RECETA- NO TE MANDAN CON UN ESPECIALISTA PORQUE ESTÁ MÁS CARO.”

“SOMETIMES THEY JUST GIVE YOU A PRESCRIPTION- THEY DON’T EVEN BOTHER SENDING YOU TO A SPECIALIST BECAUSE ITS TOO EXPENSIVE.”

“A VECES NO HAY DINERO PARA [LOS TRATAMIENTOS Y MEDICINAS], ENTONCES, UNO TIENE QUE BUSCAR LO MÁS ECONÓMICO”

“SOMETIMES THERE JUST ISN’T MONEY [FOR TREATMENTS AND MEDICINES], SO, YOU JUST HAVE TO DO WHATEVER IS CHEAPEST.”

TIME OFF OF WORK

“SI VOY AL DOCTOR, TENGO QUE PERDER UN DÍA PARA QUE ME HAGAN LOS ANÁLISIS. Y LUEGO TENGO QUE PERDER OTRO DÍA PARA QUE ME DEN LOS RESULTADOS Y PARA IR A RECETAR PASTILLAS Y TODO. ENTONCES SON DOS DÍAS QUE PIERDO ALLÍ.”

“IF I GO TO THE DOCTOR, I HAVE TO TAKE THE DAY OF WORK SO THEY CAN RUN TEST. THEN ANOTHER DAY FOR THEM TO GIVE ME THE RESULTS AND PRESCRIPTIONS. SO THAT’S TWO DAYS [PAY] I LOSE. ”

“COMO LA PASAMOS MAYORMENTE EN EL TRABAJO, PUES, A VECES TENEMOS UNA GRIPA O ALGO Y NO LE PONEMOS ATENCIÓN … PREFERIMOS IR A TRABAJAR, POR LAS NECESIDADES DE PAGO QUE UNO TIENE, Y DEJAMOS QUE [LAS ENFERMEDADES] SE COMPLIQUEN, Y YA VAMOS CUANDO YA LA ENFERMEDAD YA ESTÁ MÁS AVANZADA.”

“SINCE WE SPEND THE MAJORITY OF OUR TIME AT WORK, SOMETIMES WE’LL HAVE A COLD OR SOMETHING AND WE JUST IGNORE IT… WE’D RATHER GO TO WORK, BECAUSE WE HAVE BILLS TO PAY, AND WE LET THINGS GET WORSE, AND THEN WE GO [TO THE DOCTOR] WHEN THE ILLNESS IS WORSE.”

LACK OF INFORMATION & RESOURCES

“TAL VEZ, LA INFORMACIÓN. QUE RECIBAMOS MÁS INFORMACIÓN EN EL TRABAJO SOBRE LA SALUD Y MÉDICA PARA NOSOTROS PODER CUIDARNOS”

“MAYBE INFORMATION. IF WE GOT MORE INFORMATION ON HEALTH AND MEDICAL STUFF AT WORK, WE COULD TAKE CARE OF OURSELVES BETTER.”

“AL HOSPITAL CUANDO HA SIDO EMERGENCIAS, Y NO ME QUISIERON ATENDER PORQUE PUES NO TENÍA YO NI DINERO, NI SEGURO, NI NADA, Y LA VERDAD NO HICIERON MUCHO”

“AT THE HOSPITAL WHEN I’VE HAD EMERGENCIES, THEY DIDN’T WANT TO SEE ME BECAUSE, WELL, I DIDN’T HAVE MONEY, OR A SOCIAL, OR ANYTHING, AND REALLY THEY DIDN’T DO ANYTHING.”

ACKNOWLEDGEMENTS

OUR AG TEXAS AG WORKERS

KATE ESQUEDA
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SAMANTHA ROMERO
GRADUATE RESEARCH ASSISTANT

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CHAIR, DEPARTMENT OF HEALTH AND HUMAN PERFORMANCE
TEXAS STATE UNIVERSITY

TEXAS STATE UNIVERSITY RESEARCH ENHANCEMENT PROGRAM













TEXAS STATE UNIVERSITY



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Q&A

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THE CHANGING LANDSCAPE OF FARM LABOR CONDITIONS IN THE UNITED STATES:

WHAT THE FUTURE HOLDS AND HOW TO PREPARE FOR IT

Thursday, September 19, 2024

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TIM BRENNAN

Vice President, Programs and Projects
Farm Foundation

USDA Economic Research Service
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WELCOME & DAY 1 RECAP



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SESSION FIVE:
SCIENCE, TECHNOLOGY AND FARM LABOR: THE PAST, PRESENT, AND FUTURE



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DISCUSSANT AND SPEAKERS



SKYLER SIMNITT

Agricultural Economist
USDA, Economic Research Service



KARINA GALLARDO

Professor and Extension Specialist
Washington State University



GULCAN ONEL

Associate Professor
University of Florida

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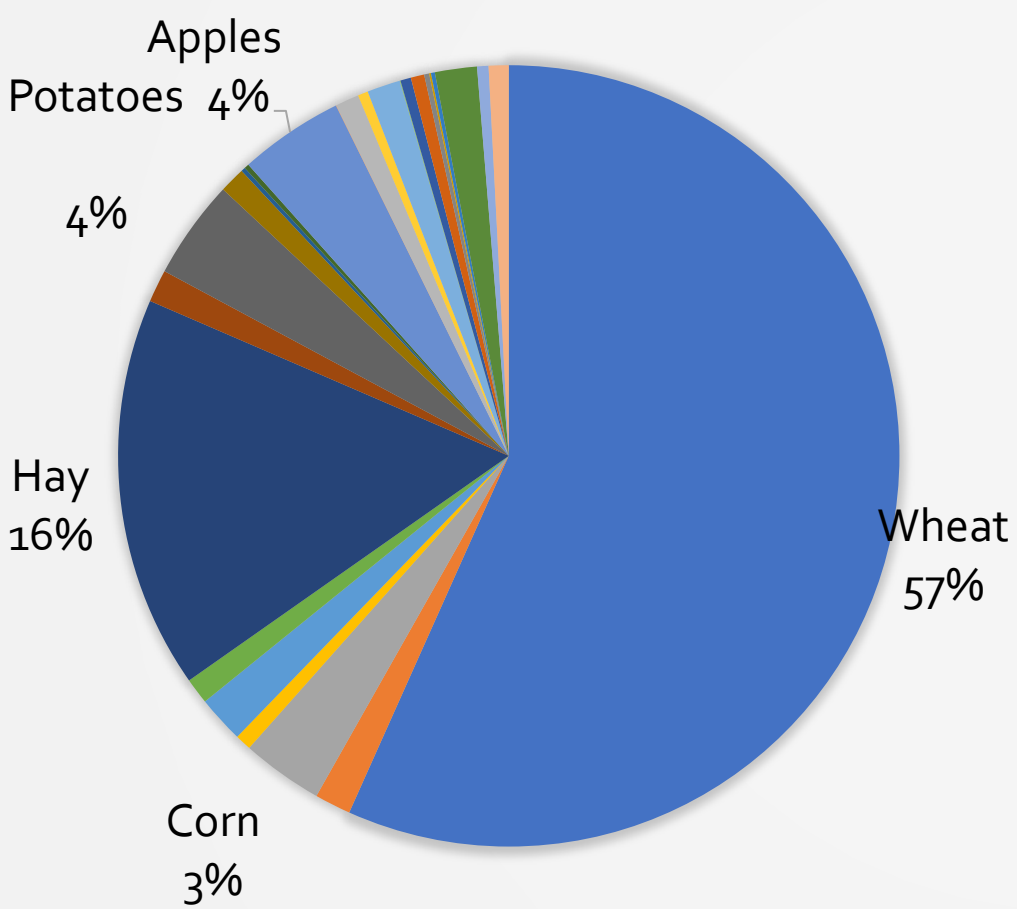
Session 5: Building Capacity for a Changing Workforce

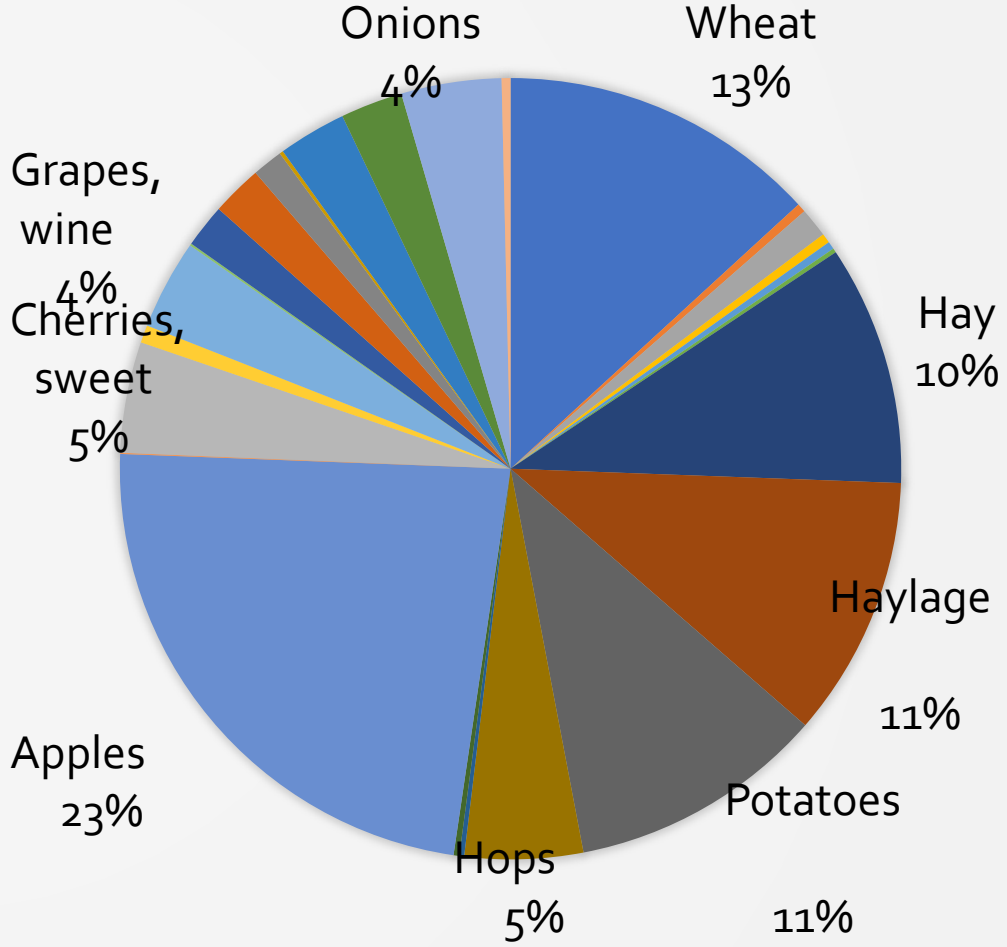
R. Karina Gallardo, Washington State University

Presentation for the Conference "The Changing Landscape of Farm Labor Conditions in the United States: What the Future Holds and How to Prepare for It"

September 19, 2024

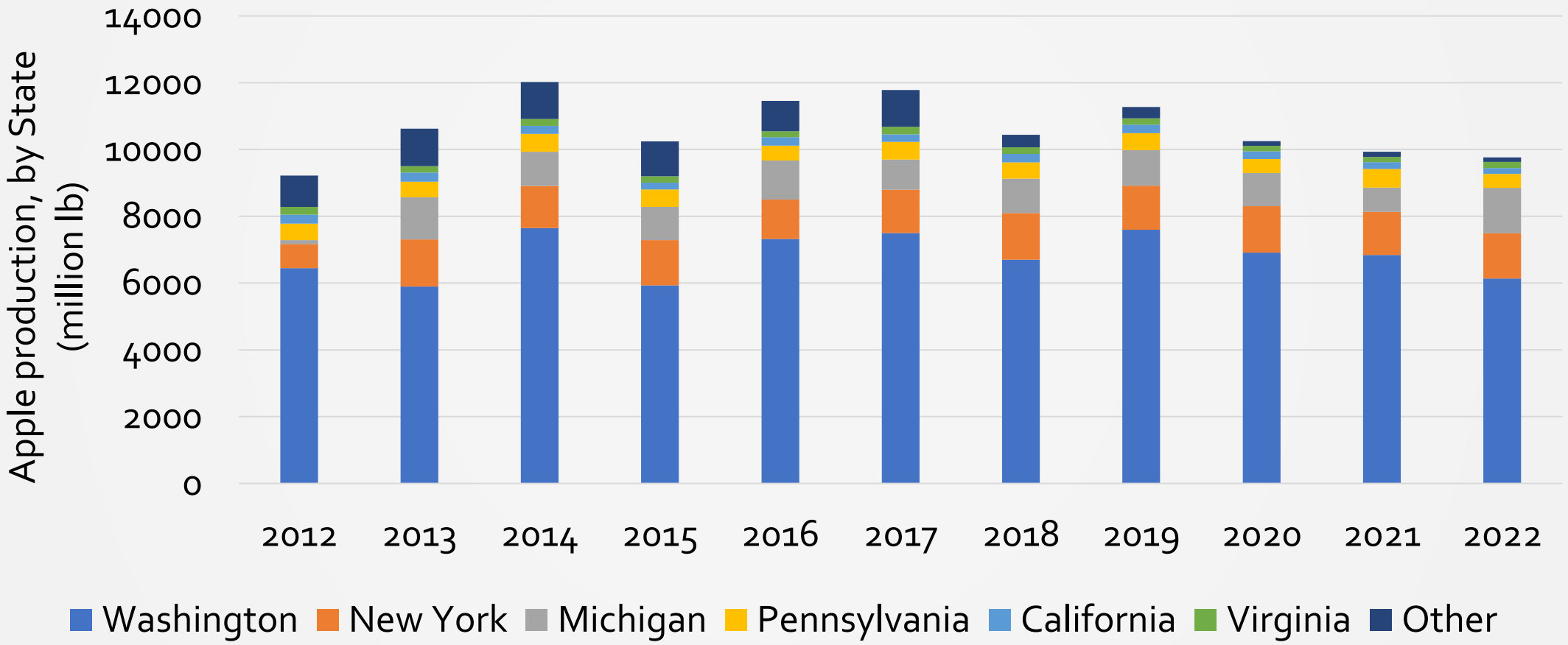
WA Agriculture 2022– land use and value of the crop:
Wheat = 57% land; Apples 23% value





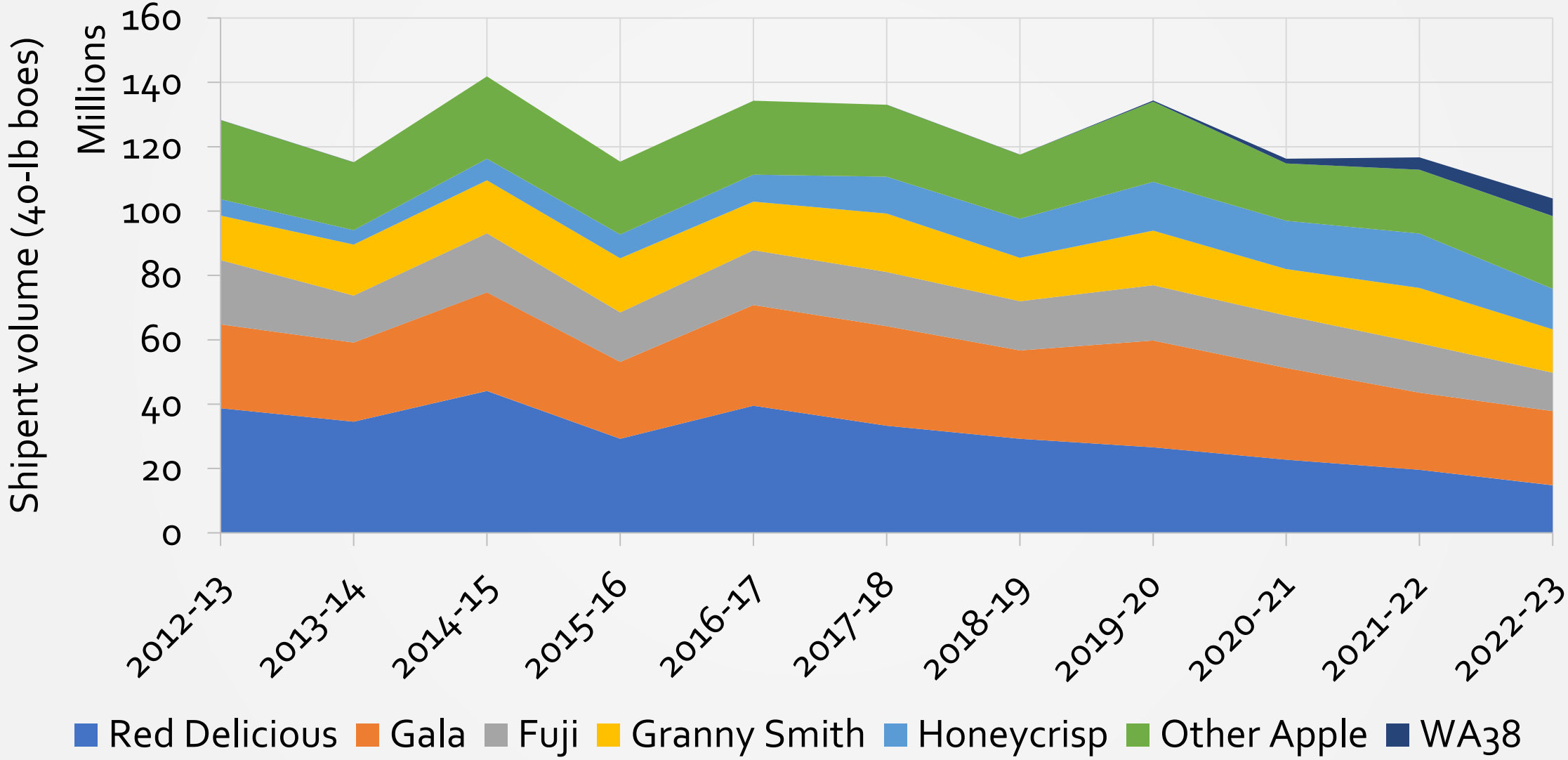
Washington Department of Agriculture, 2023

Washington: 2/3 of US apples



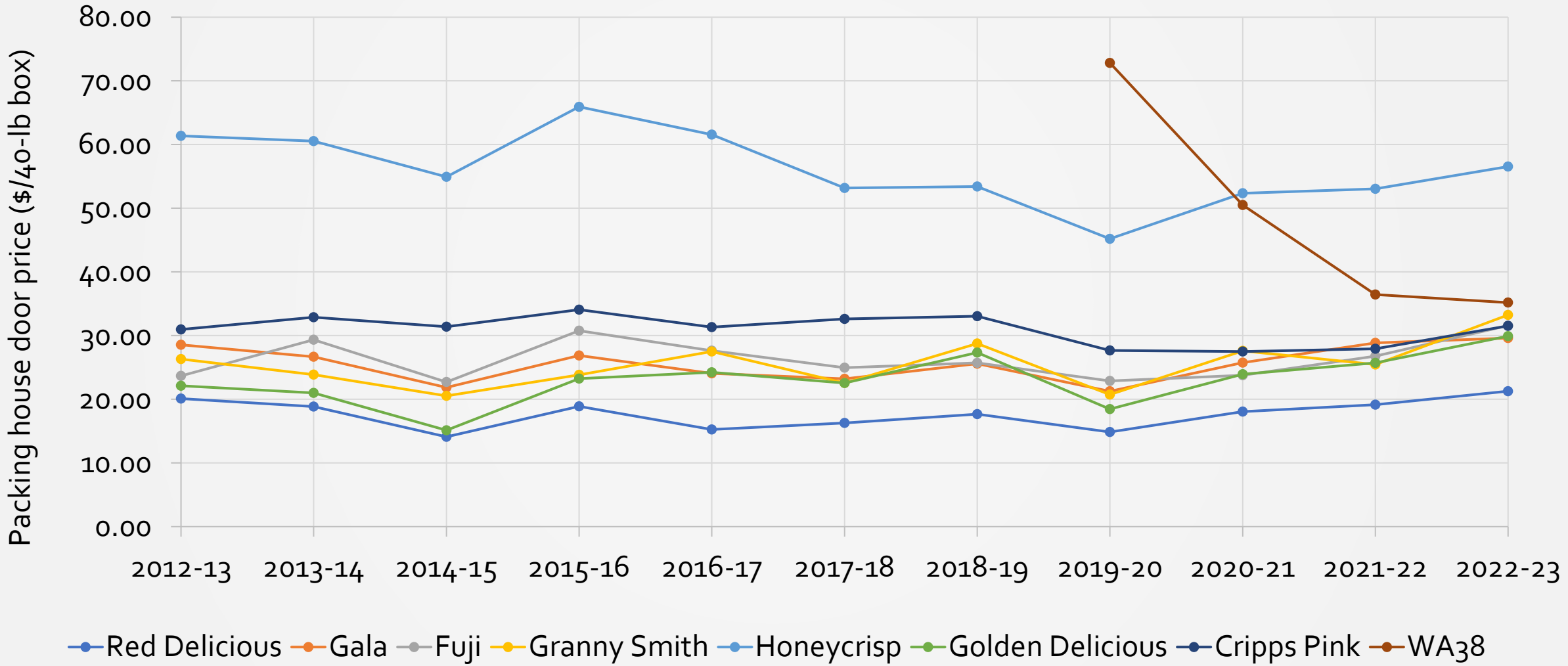
- Washington accounted for 63% of US apple production, amounting to 6,140 million pounds, followed by Michigan and New York (U.S Department of Agriculture, 2023)

Changing landscape: WA apple varietal mix: Honeycrisp up, Red Delicious down



WA State Tree Fruit Association, 2023

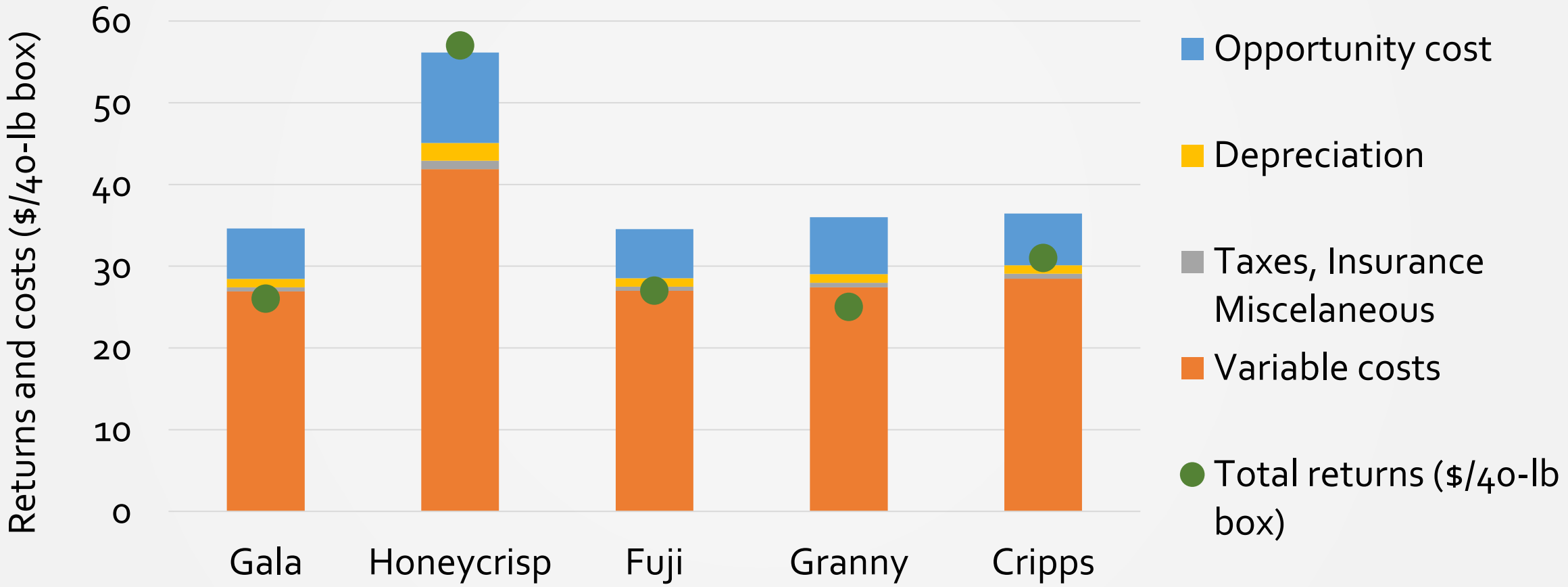
Honeycrisp most valuable: $1.40/lb



WA State Tree Fruit Association, 2023

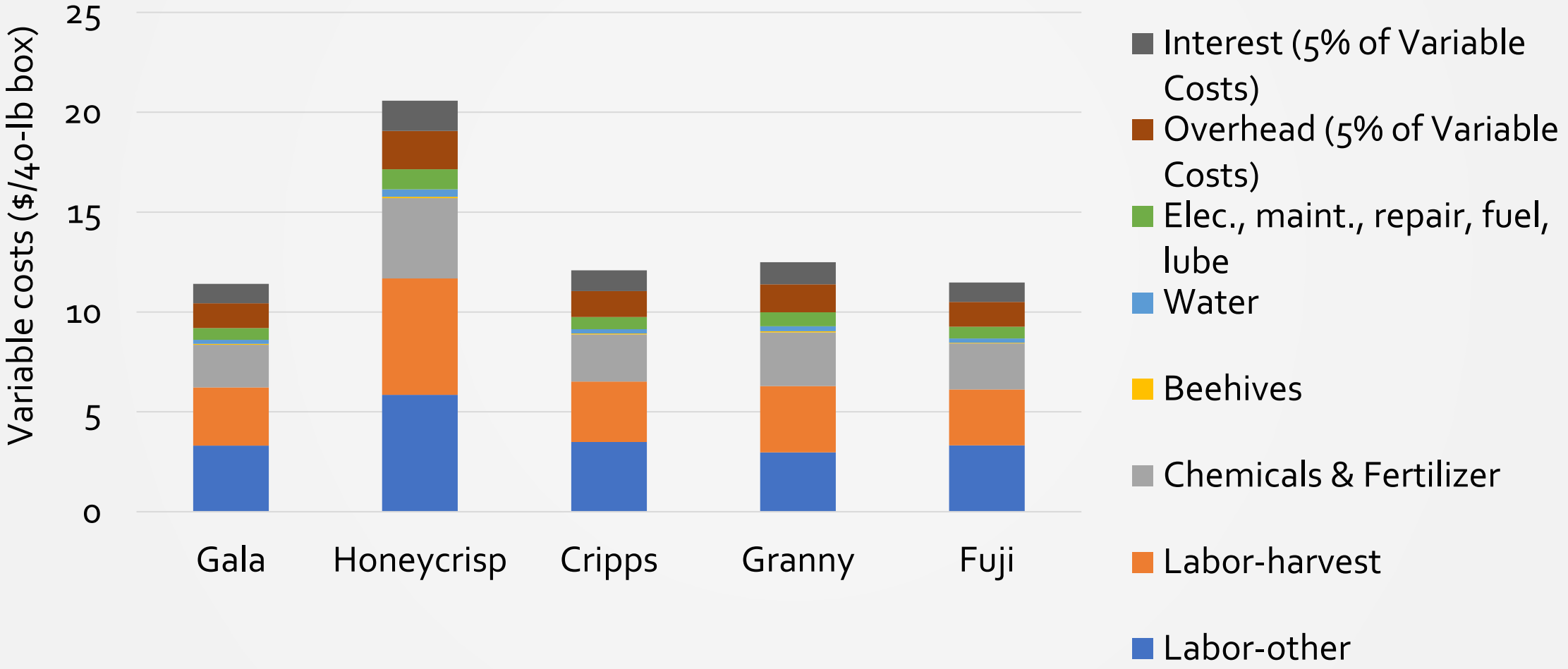
Honeycrisp only profitable

Graph considers total costs, 2019



Gallardo and Galinato, 2021

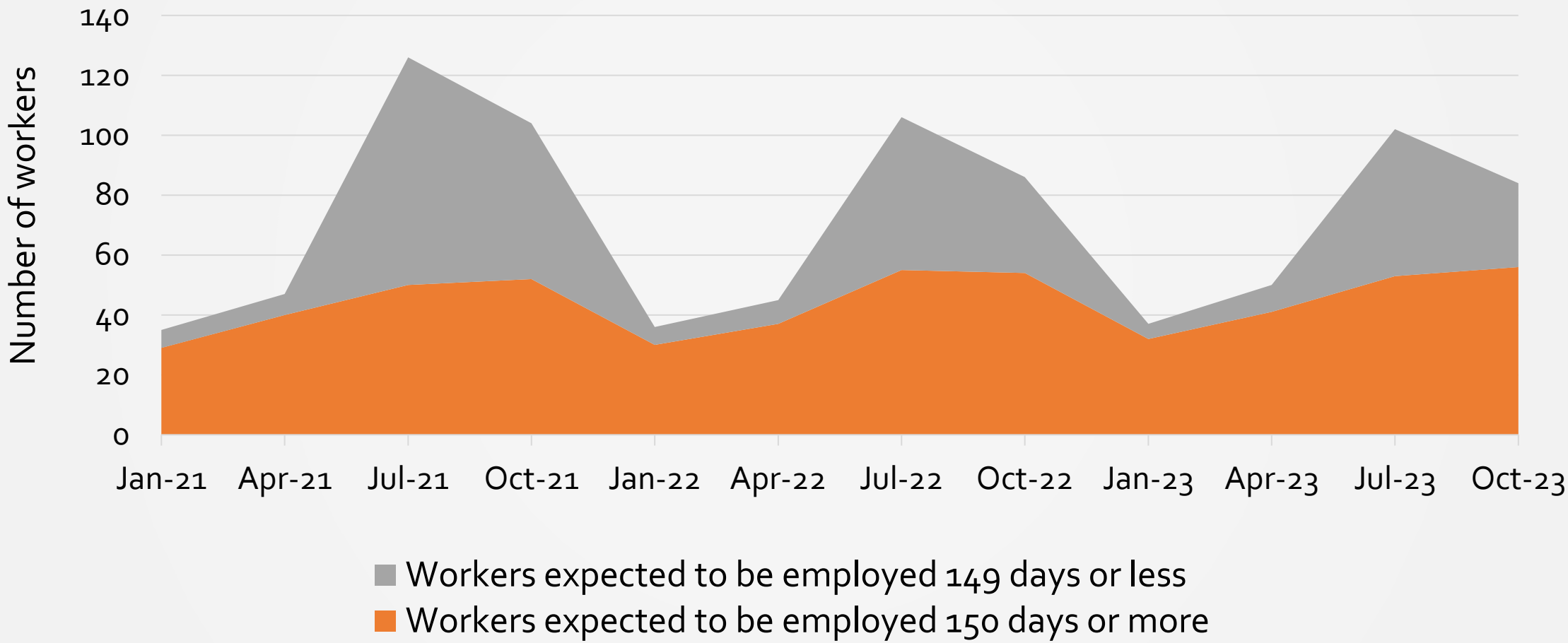
Changing landscape: Labor represents about 50% of all variable costs in the field



Gallardo and Galinato, 2021

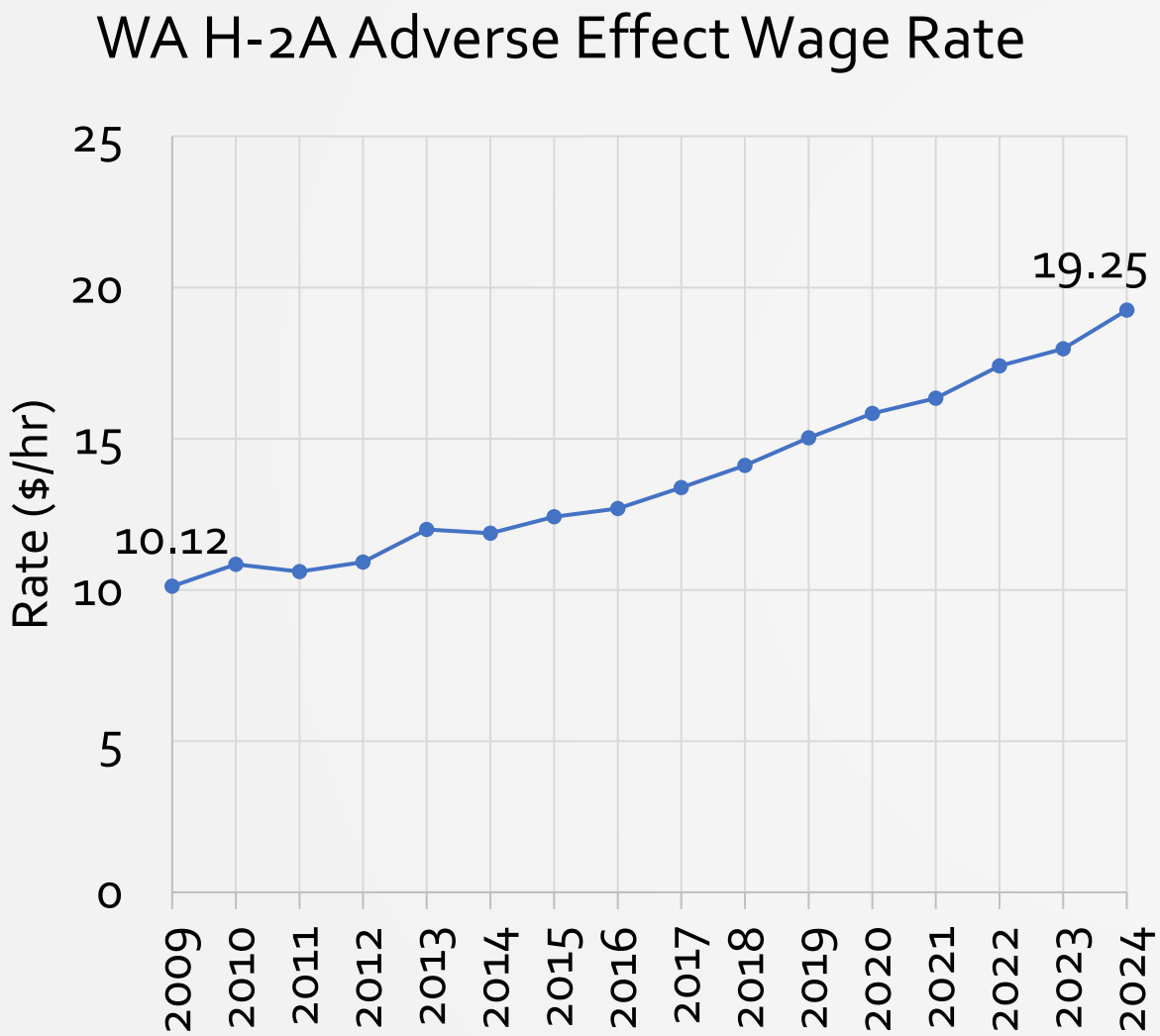
Farm labor is seasonal

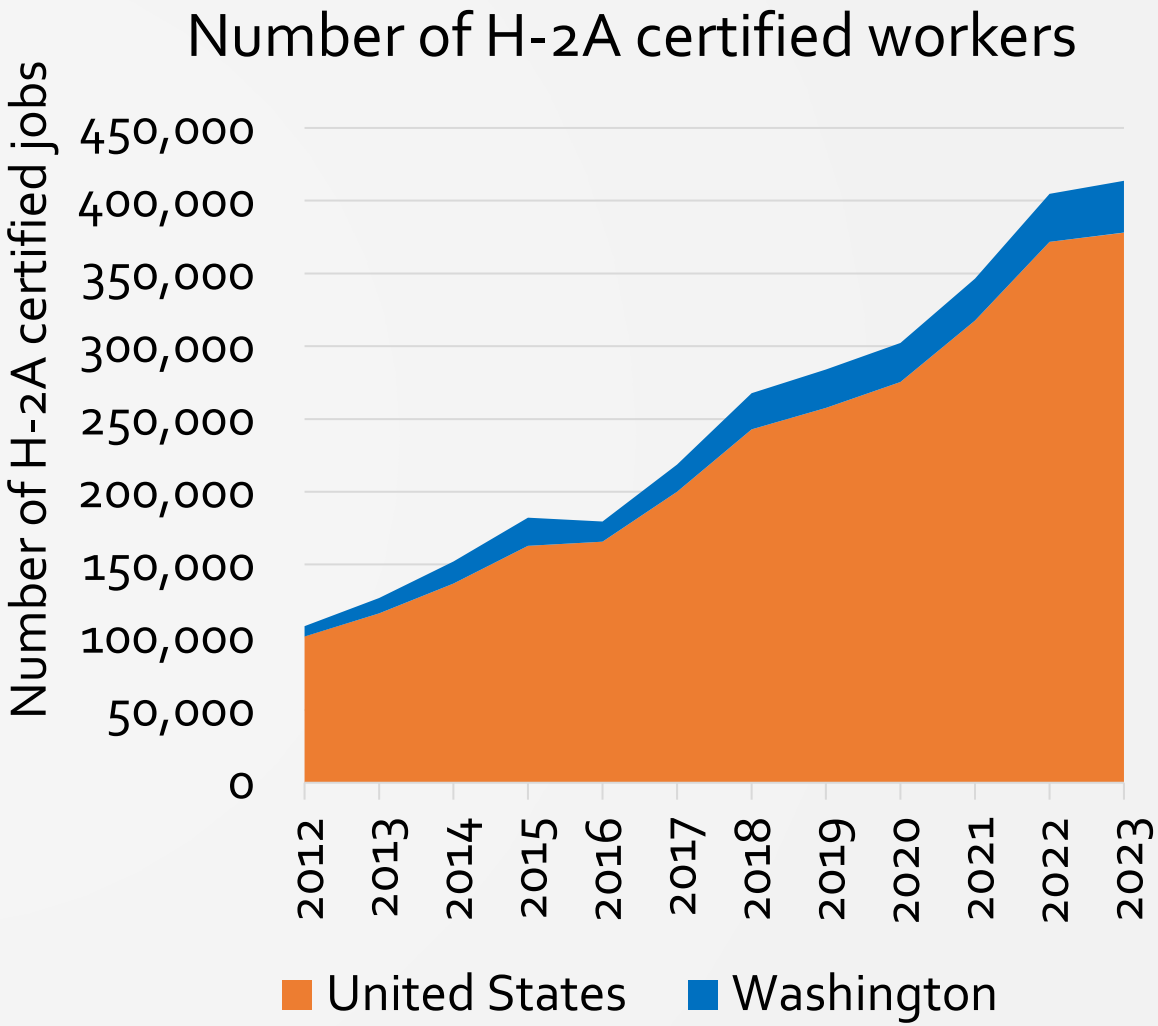
Farm labor survey – Number of workers Pacific region, 2021-2023



U.S. Department of Agriculture, National Agricultural Statistics Service, Farm Labor Survey

Changing landscape: Increasing reliance on H-2A programs





U.S. Department of Labor, 2023. Employment and Training Administration. Foreign Labor Participation. Performance Data.

Building capacity for a changing workforce: Equipment

Ladders

- Ladders: hand workers spend up to 30% of time moving & positioning ladders
- ladders associated with falls & injuries.



Photo by M. Keifer, PNASH, U of Washington

Elkins et al., 2011; Fathallah, 2010; Miles et al., 2010.

Platforms: Labor productivity enhancement

- As of 2010 -*about 14 years ago*- 11% of 316 apple operations were using a platform in their orchard to increase labor productivity.
- *Why not more?* tree structure and architecture of existing orchards.
  - The ideal structure was a planar tree with enough driving space between tree rows.
- Platforms must increase the picking rate by a factor of at least 13% for the platform to be as profitable as manual harvesting.



Photo by Rankin Equipment Company. Good Fruit Grower.

Gallardo and Brady (2015)

Platforms (cont. 1)

- More recently, personal interviews with principal operations indicate that platforms are better suited for non- harvest tasks.
  - Platforms force faster pickers to synchronize their pace with the rest of the crew on the platform.
- However, there is variance from one operation to another and within an operation due to different apple varieties and crews.



Photo: Christina Herrick, Growing Produce

Robotics: Cost savings but also revenue losses

WSU

- Lower harvest/picking efficiency compared to manual harvest: Apples missed by the robot and increased proneness to bruises.
- Mixed model: First pass by the robot followed by a crew to pick up the remaining apples in the tree.
  - Revenue losses compared to manual: $999 (Gala) - $1,559 (Honeycrisp).
  - Harvest cost savings: $1,148 (Gala) - $1,125 (Honeycrisp)



Advanced Farms, Abundant Robotics, FF Robotics

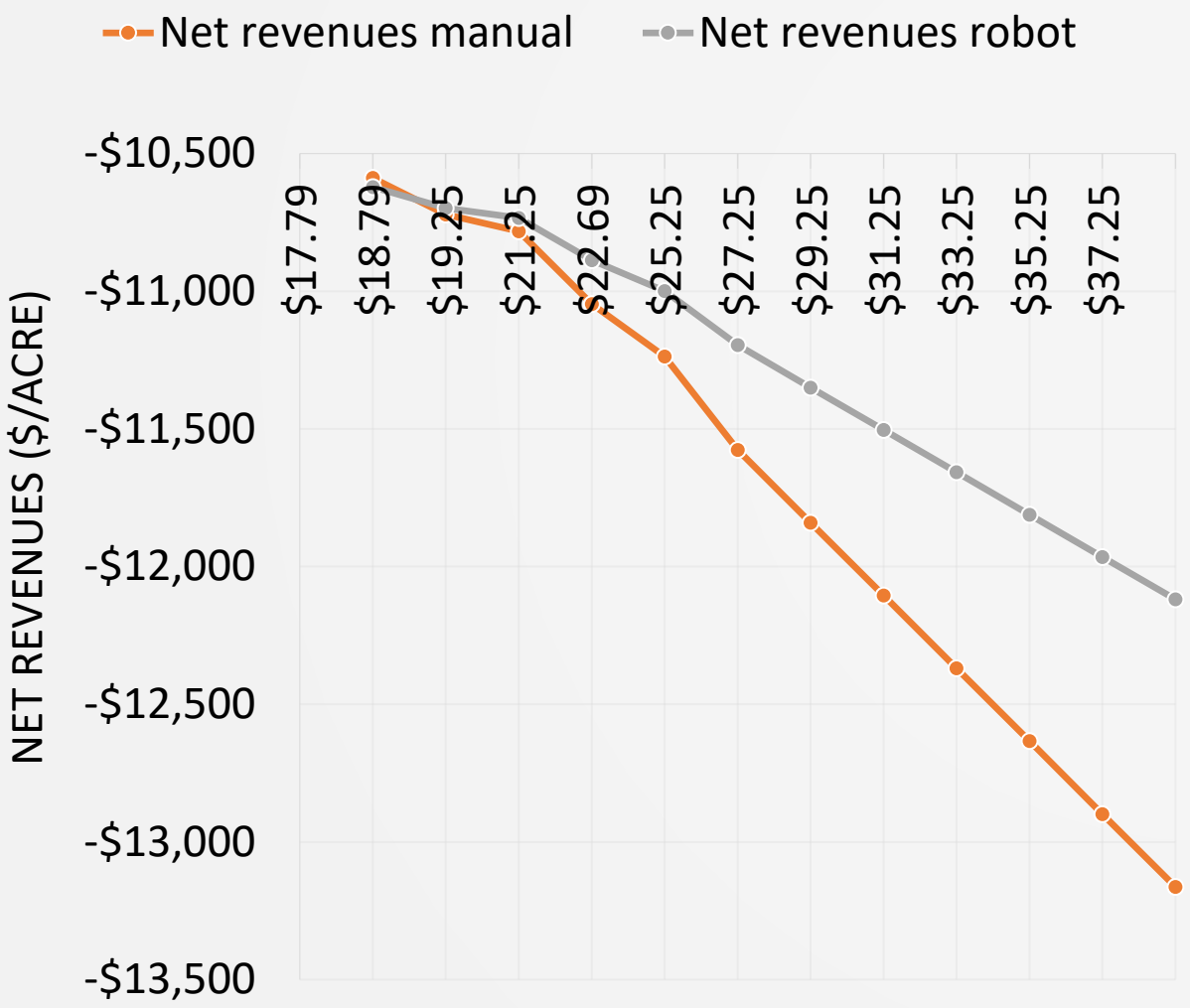
Charlton et al (forthcoming)

Break-even upfront cost of robot-Changes in parameters

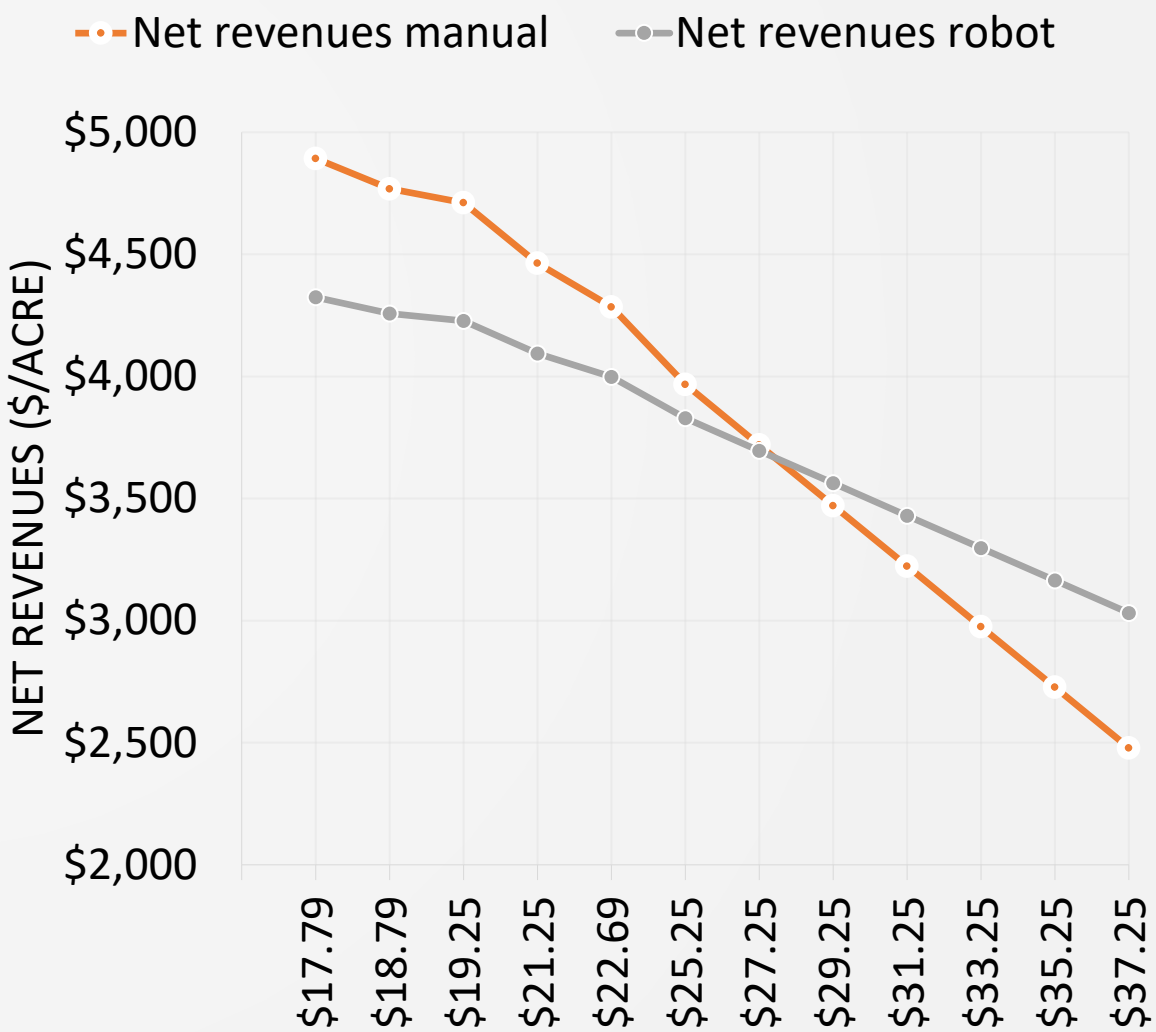
Change in net revenues from manual harvesting and robot at different wage rates

WSU

Gala



Honeycrisp



Concluding thoughts: Building Capacity for a Changing Workforce

- Agricultural production is evolving: Changing consumer demands and production environment.
- These changes have triggered increased dependence on labor in specialty crops such as tree fruit: For fresh apples, labor is the largest cost center in the field (~50%).
- Decreased domestic farm labor availability: Increased reliance on guest worker programs (H-2A).

Concluding thoughts: Building Capacity for a Changing Workforce (cont. 1)

- Use of labor-enhancing and development of automation solutions is slowly progressing.
  - Labor enhancement: Machines that adapt to the worker, not the worker to the machine.
  - Labor replacement is not likely because of the lower picking/harvest efficiencies and the high value of the crops: Mixed systems are more likely.
  - Skills needed: Digital literacy required.
  - How likely are farmworkers to be able and willing to acquire new skills: Age, education level, background.

Thank you

Questions?

R. Karina Gallardo
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UNIVERSITY of FLORIDA

AI-Driven Innovation and Employment in the US Agriculture

Gulcan Onel

(*with Fernando Brito (Ph.D. candidate), Jared Gars, and Conner Mullally*)

University of Florida

Food & Resource Economics Department

RESEARCH QUESTION

What is the impact of AI-driven Agricultural Technologies (or, 'AI-AgriTech') on US agricultural employment?

01

AI CONTENT OF INNOVATION

How do we define AI-AgriTech, and how do we measure AI content of an innovation ?

02

IDENTIFICATION

What are the assumptions and instruments needed to establish a causal link between farm employment and AI-AgriTech?

03

POLICY RELEVANCE

Will new AI-AgriTech likely complement or substitute farm labor? Will AI reduce reliance on foreign-born farmworkers for agricultural production? Is the current farm workforce ready for the future of farm work with AI-AgriTech?

BACKGROUND

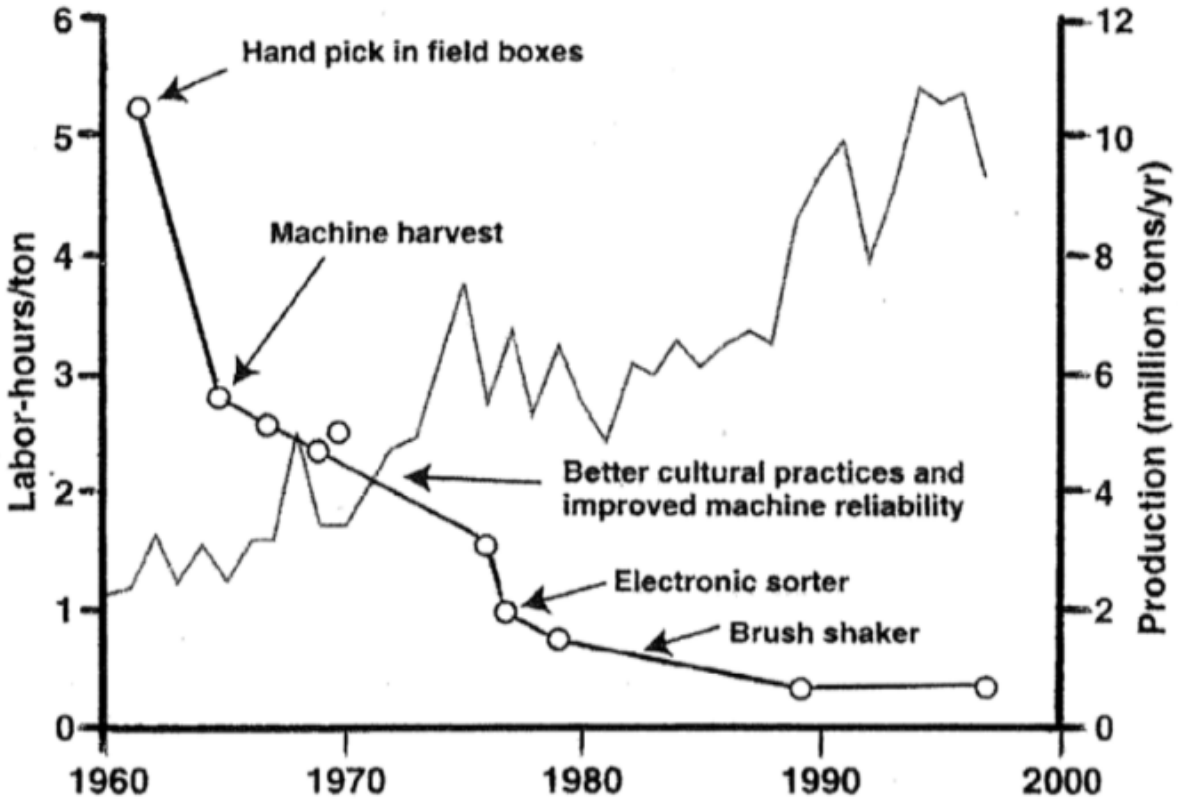


Figure: U.S. agricultural labor productivity over time. (Source: Martin, Philip. "US Farm Employment and Farm Workers." *Farm Labor & Rural Migration News Blogs*, 24 June 2020).

During the 20th century, the mechanization of farming led to significant productivity gains.

However, it also brought about substantial social challenges, such as population decline and job losses in rural areas (Larsen, 2017; Crowley and Roscigno, 2004).

It is not yet clear how AgriTech powered by AI will shape productivity and employment in the US agriculture.

BACKGROUND

HOUSE OF REPRESENTATIVES

Bipartisan lawmakers eye AI safeguards for US agriculture industry

Rep Randy Feenstra introducing Farm Tech Act

By Elizabeth Elkind · Fox News

Published December 15, 2023 5:00am EST

John Deere, Meet Elon Musk: SpaceX Satellites to Link Farm Giant's Equipment

Farm machinery maker hires SpaceX's Starlink service to provide satellite internet connections for tractors, harvesters and crop sprayers in remote areas

By Bob Tita Follow and Micah Maidenberg Follow

Updated Jan. 15, 2024 3:48 pm ET

Florida producers stress need for mechanization research, cost-share in upcoming farm bill

04/24/23 6:01 PM By Spencer Chase

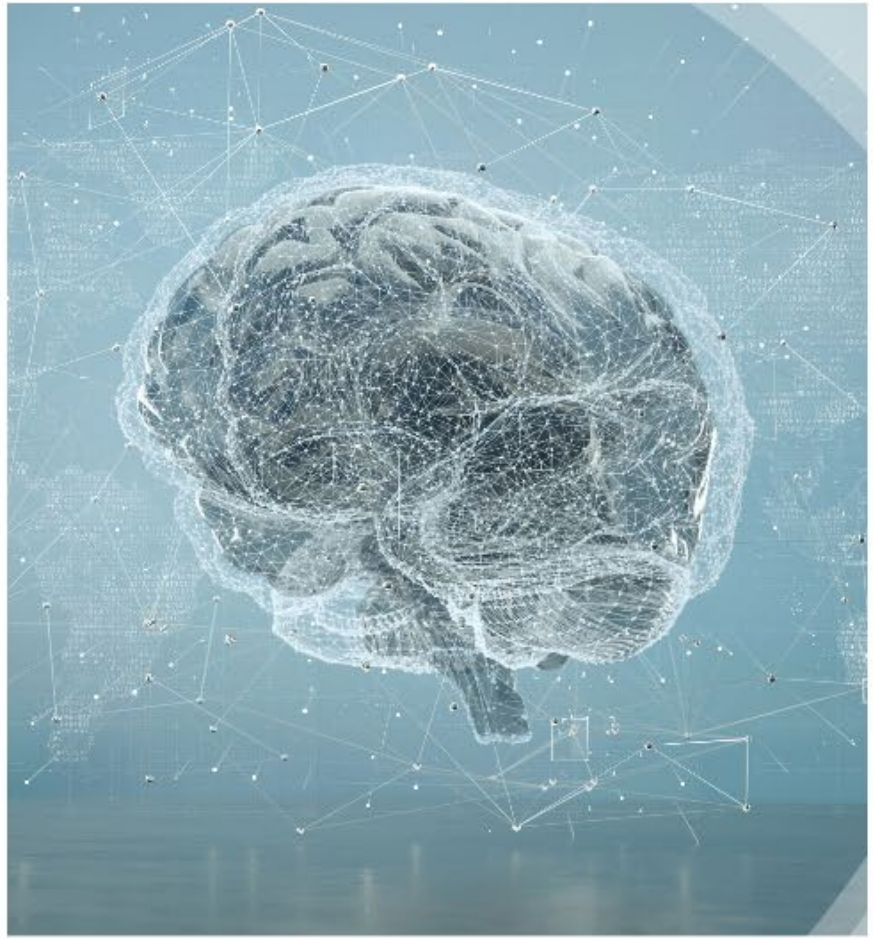
Franklin, Bishop Act to Ensure AI Research Funding for American Agricultural Producers

June 21, 2023

WASHINGTON, DC — Rep. Scott Franklin (FL-18) and Rep. Sanford D. Bishop, Jr. (GA-02) introduced ***H.R. 4162, the Land Grant Research Prioritization Act.*** This bill would provide land grant universities with dedicated access to existing U.S. Department of Agriculture (USDA) grant funding to enhance artificial intelligence (AI), mechanization and other research to

Figure: Recent headlines on rapid developments in AI-driven agricultural innovations

WHAT IS AI ?

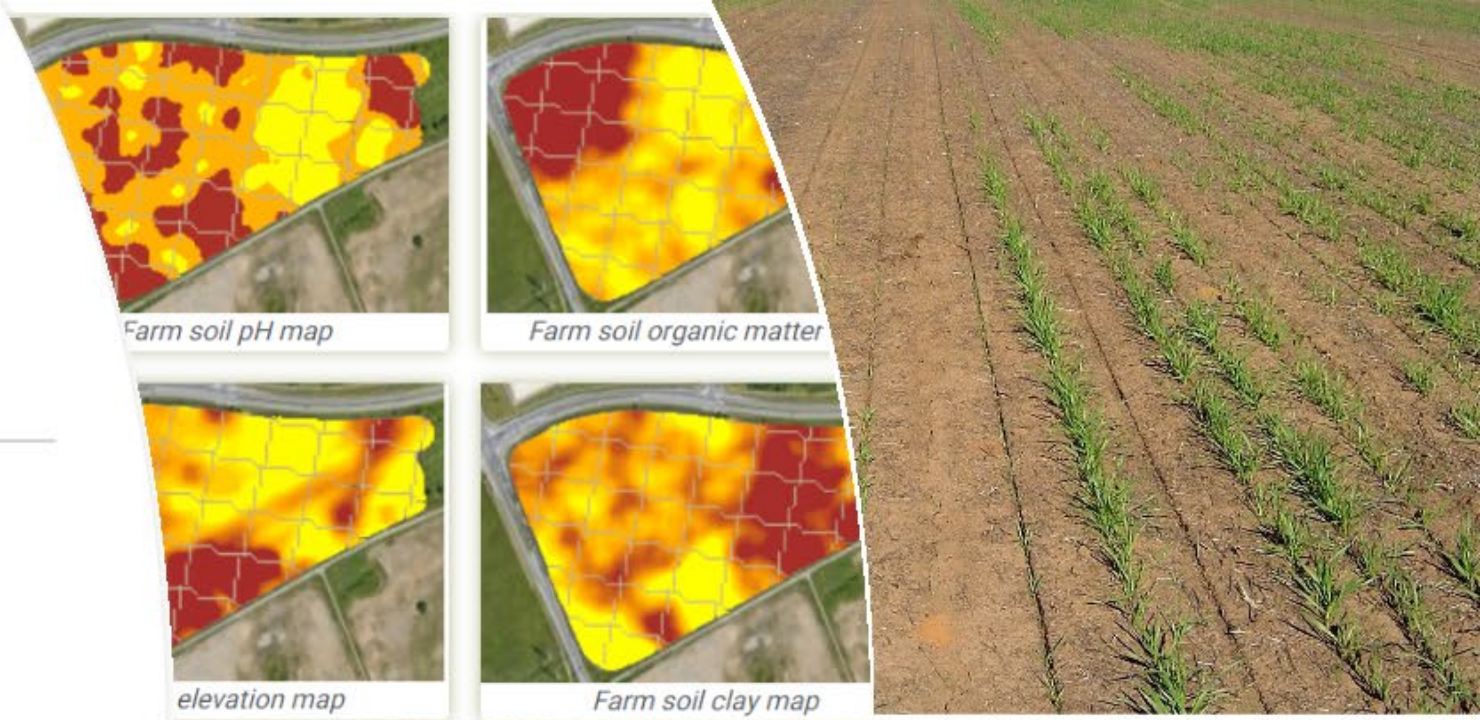


"**ARTIFICIAL INTELLIGENCE (AI)** is software and/or hardware that can learn to solve complex problems, make predictions, or perform tasks requiring human-like sensing, perception, cognition, planning, learning, communication, or physical action." (*National Institute of Standards and Technology, 2024*).

EXAMPLES OF AI-AGRITECH

Soil monitoring and planning for better yield

- A self-driven tractor monitors and samples the soil.
- Then, it collects and analyzes this large data for yield optimization, typically using Machine Learning (ML).





Disease Detection

- Machine Learning algorithms are used to detect diseases in leaves and fruits.
- Low-cost, can be done with only a smartphone.
- Provides early plant treatment for disease prevention.





Automated weed control

- A self-driven weed control unit
- Saves cost on fertilizers as it relies on AI drones with laser vision systems.
- Can identify very small weeds.
- Maps the soil for future applications.



Automated fruit picking

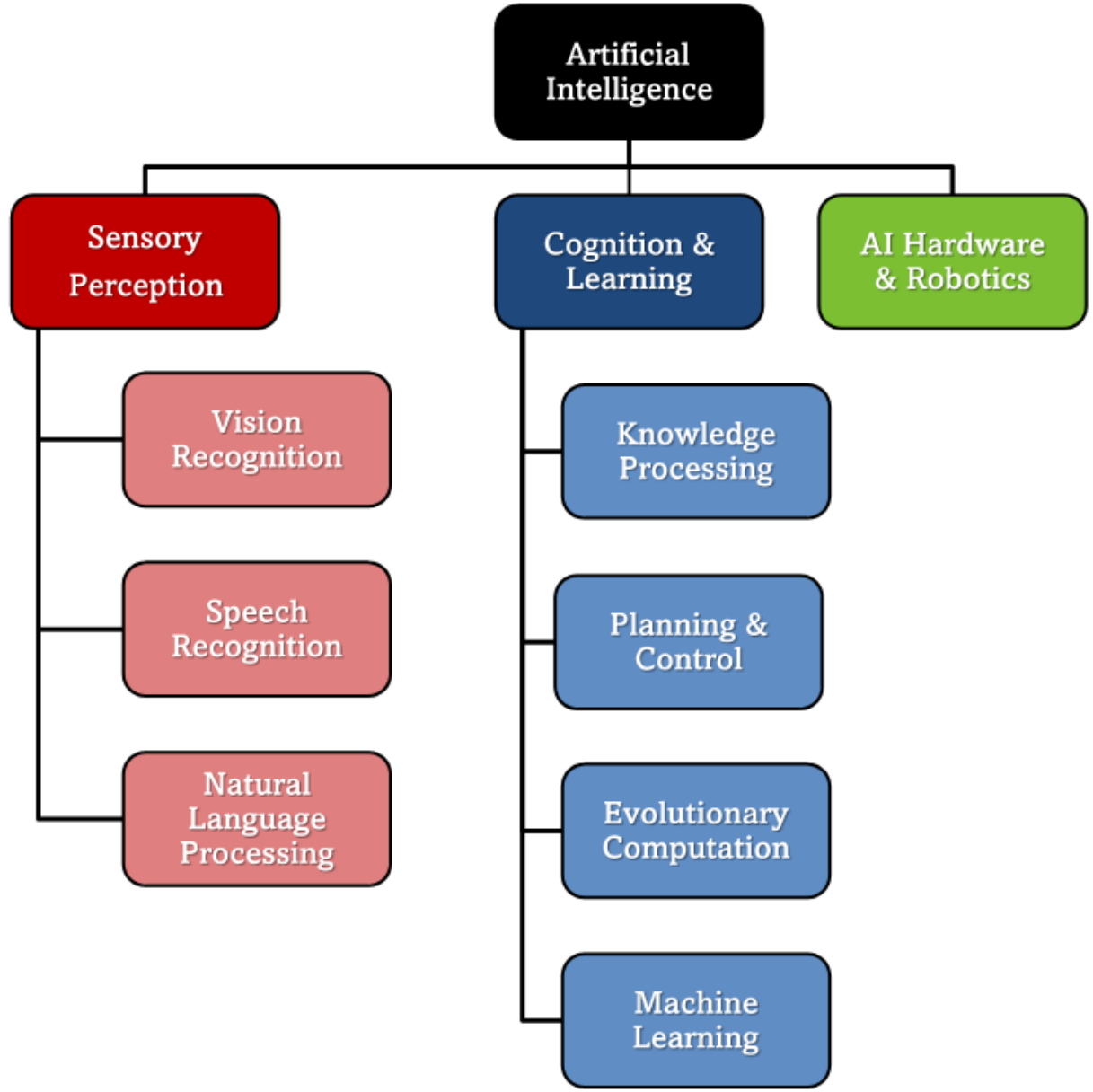
- An autonomous system that grabs small pieces of vegetables and fruits.
- It can distinguish levels of ripeness.
- It preserves the quality of the produce.





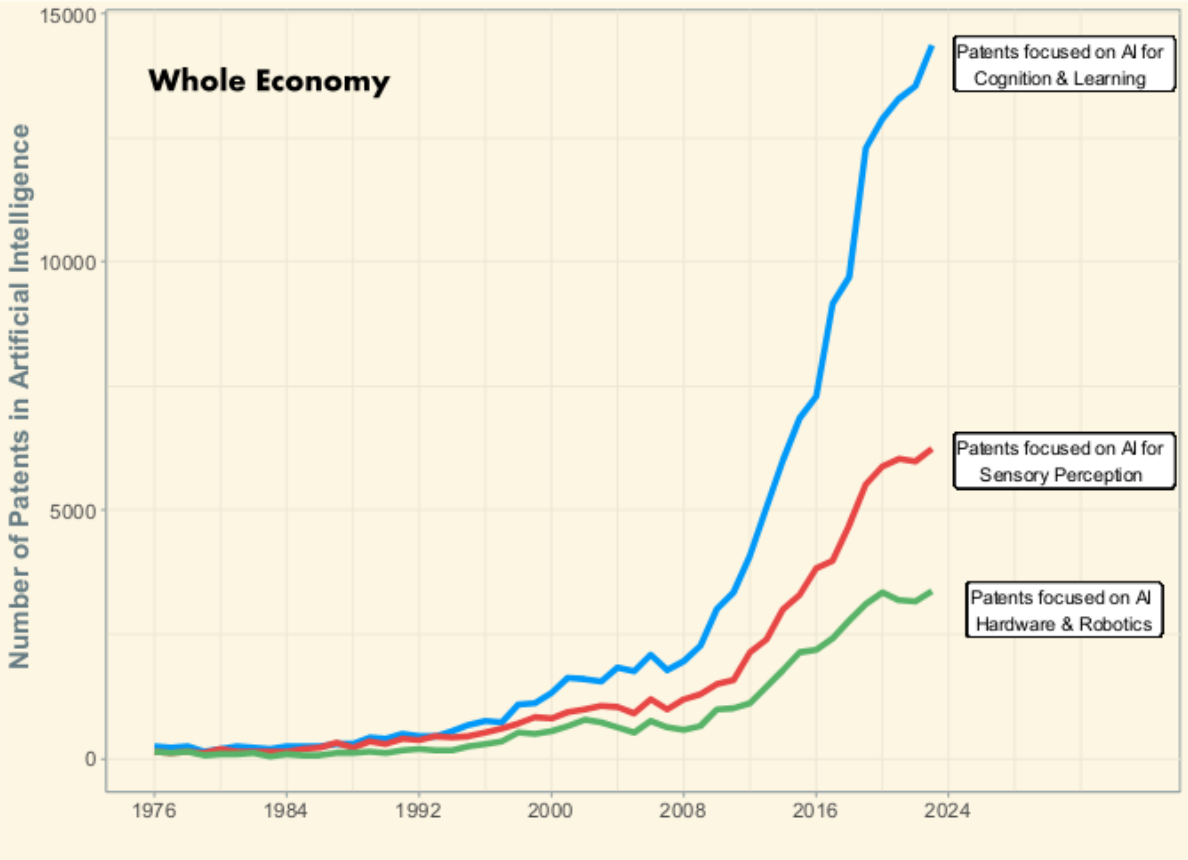


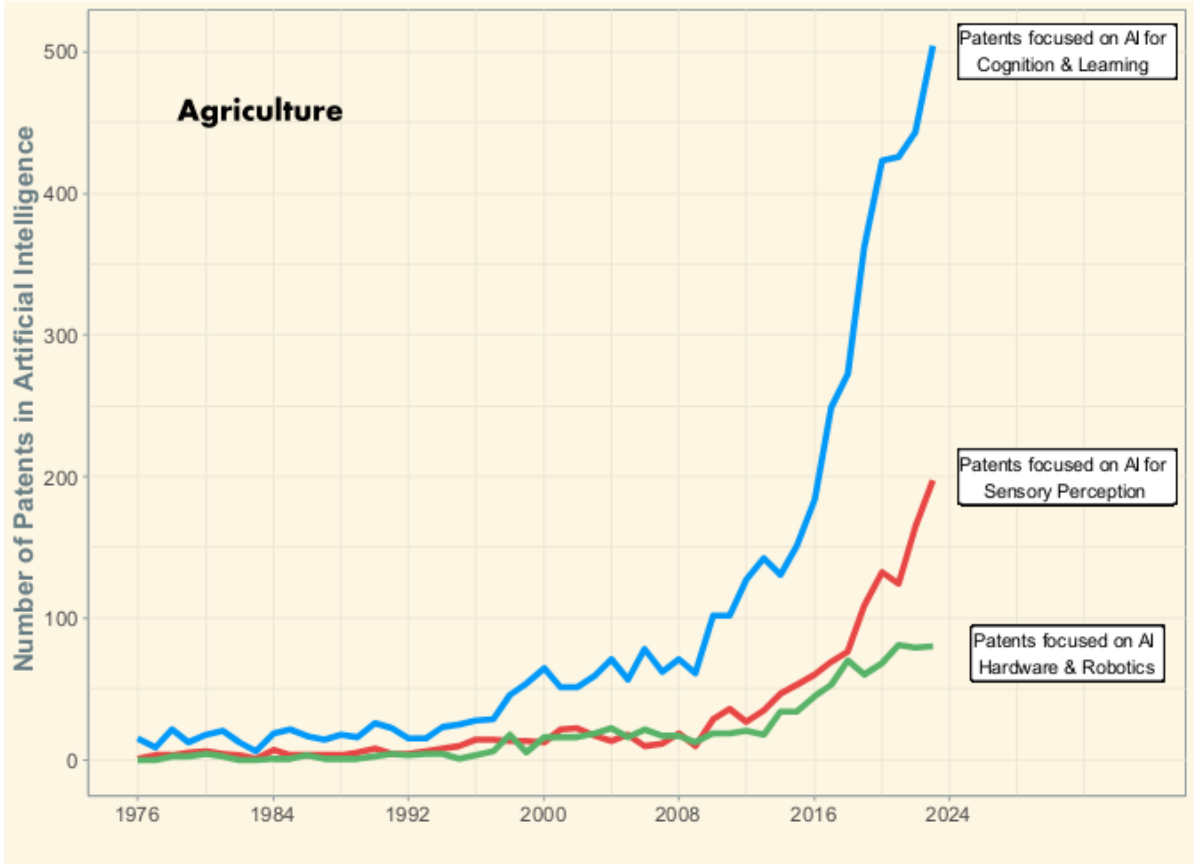
CLASSIFICATION OF AI INNOVATIONS



Source: USPTO's 8 groups of AI innovations were aggregated by Wang (2021) based on 3 uses of AI (i.e., perception, cognition, and action).

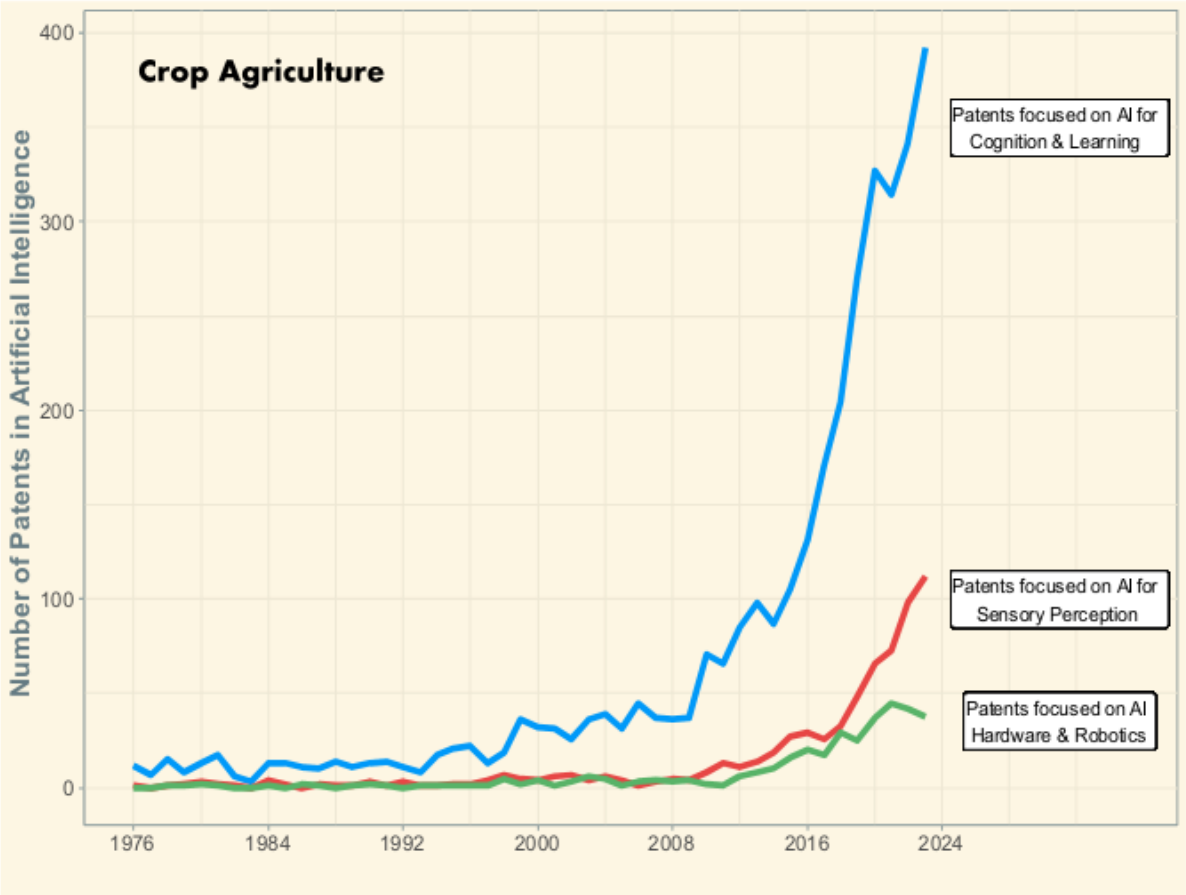
RECENT TRENDS IN AI INNOVATION

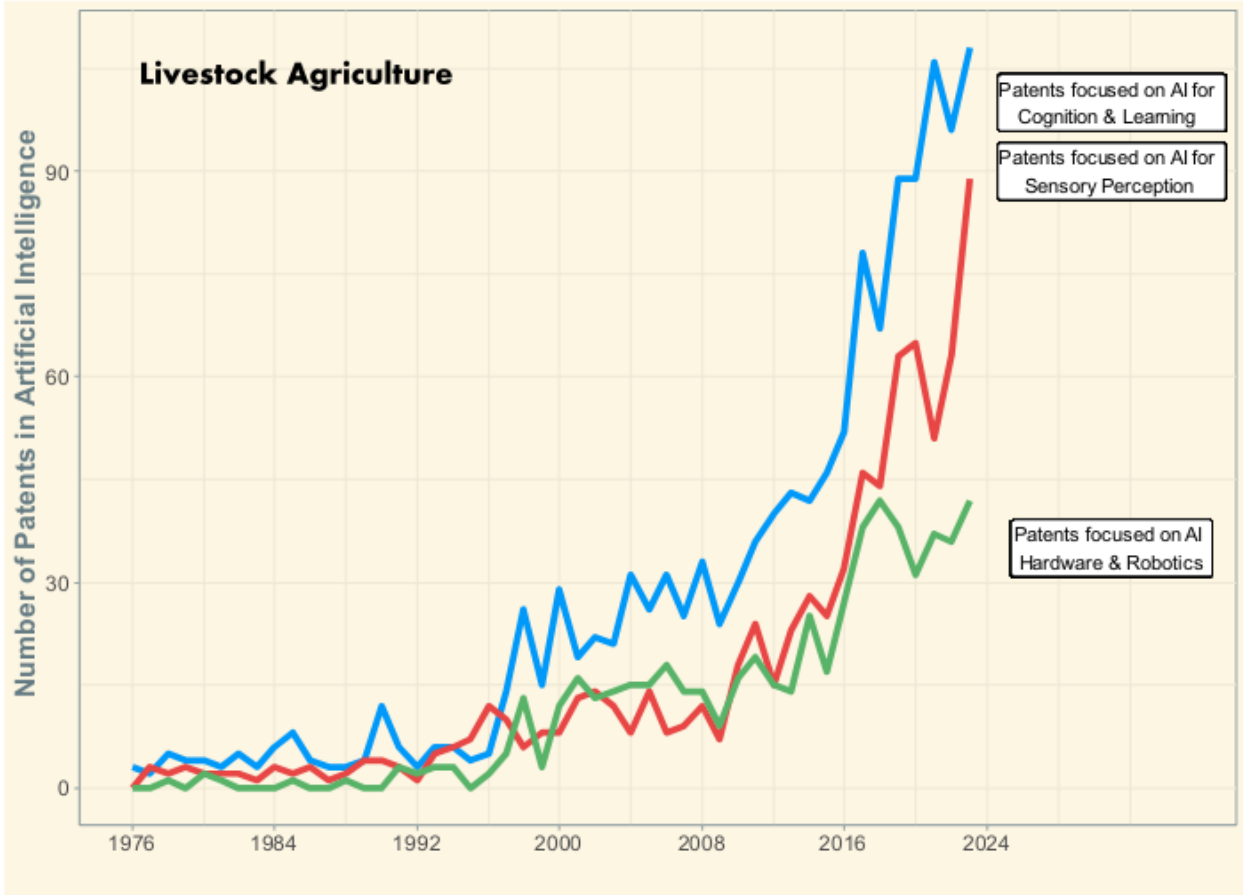




Source: Authors' calculations using the USPTO patents data.
Notice how number of patens have taken off after the *American Inventors Protection Act in early 2000s.*

RECENT TRENDS IN AI INNOVATION

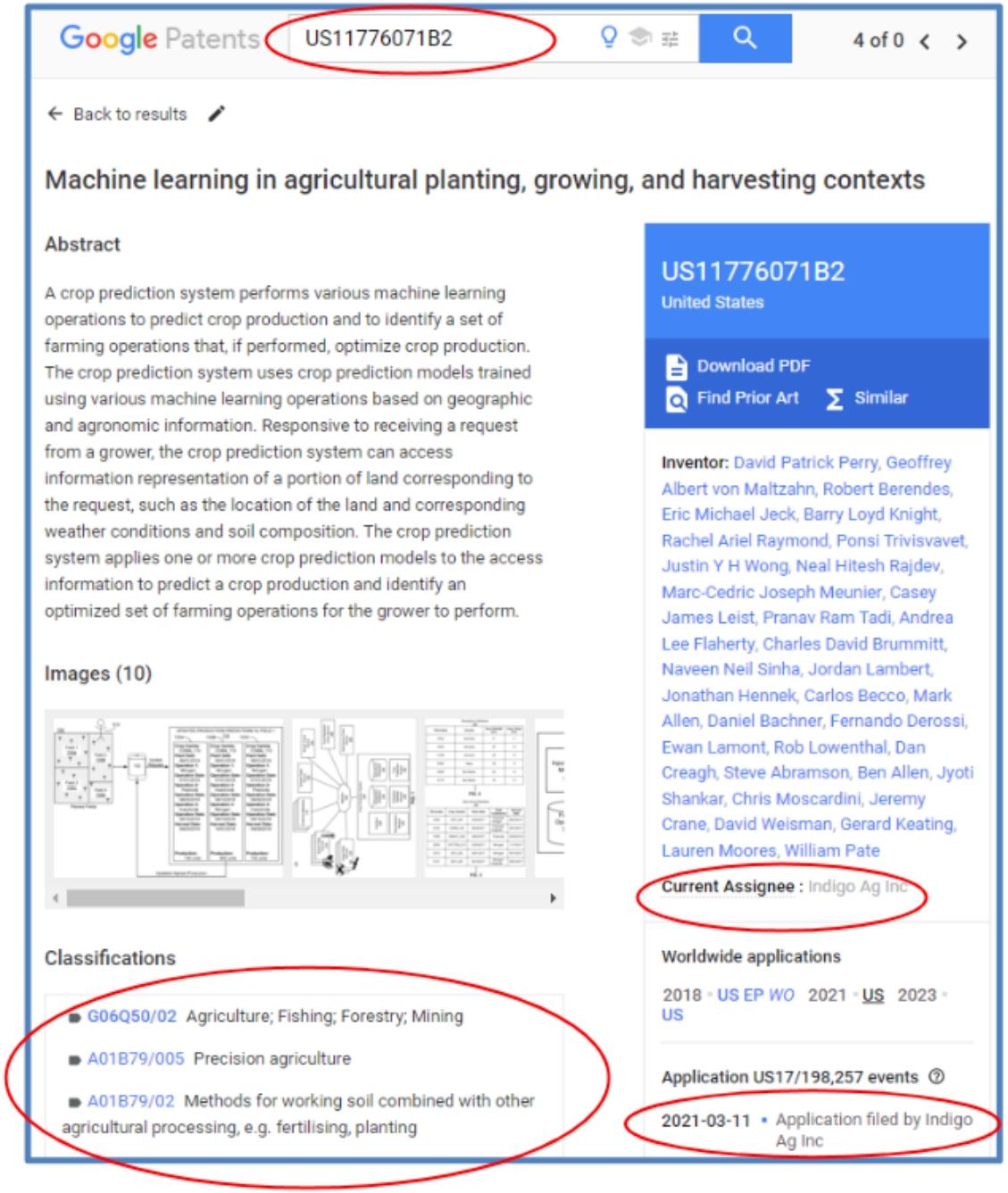




Source: Authors' calculations using the USPTO patents data.
Notice how number of patens have taken off after the *American Inventors Protection Act* in early 2000s.

MEASUREMENT OF THE AI CONTENT OF INNOVATION: PATENT RECORDS

- Patent records include a rich text description of the innovation along with *useful metadata* such as the industry the innovation relates to, country of origin of the patent applicant/assignee.
- Following Mann (2023), this data is used to compute AI score for each AgriTech innovation.



Patent records provided by the U.S. Patent and Trademark Office (USPTO) are analyzed using **Machine Learning algorithms** to identify over 8 million US patents issued between 1976 and 2023 and pre-grant publications through 2024 that contain one or more of 8 specific AI technology components.

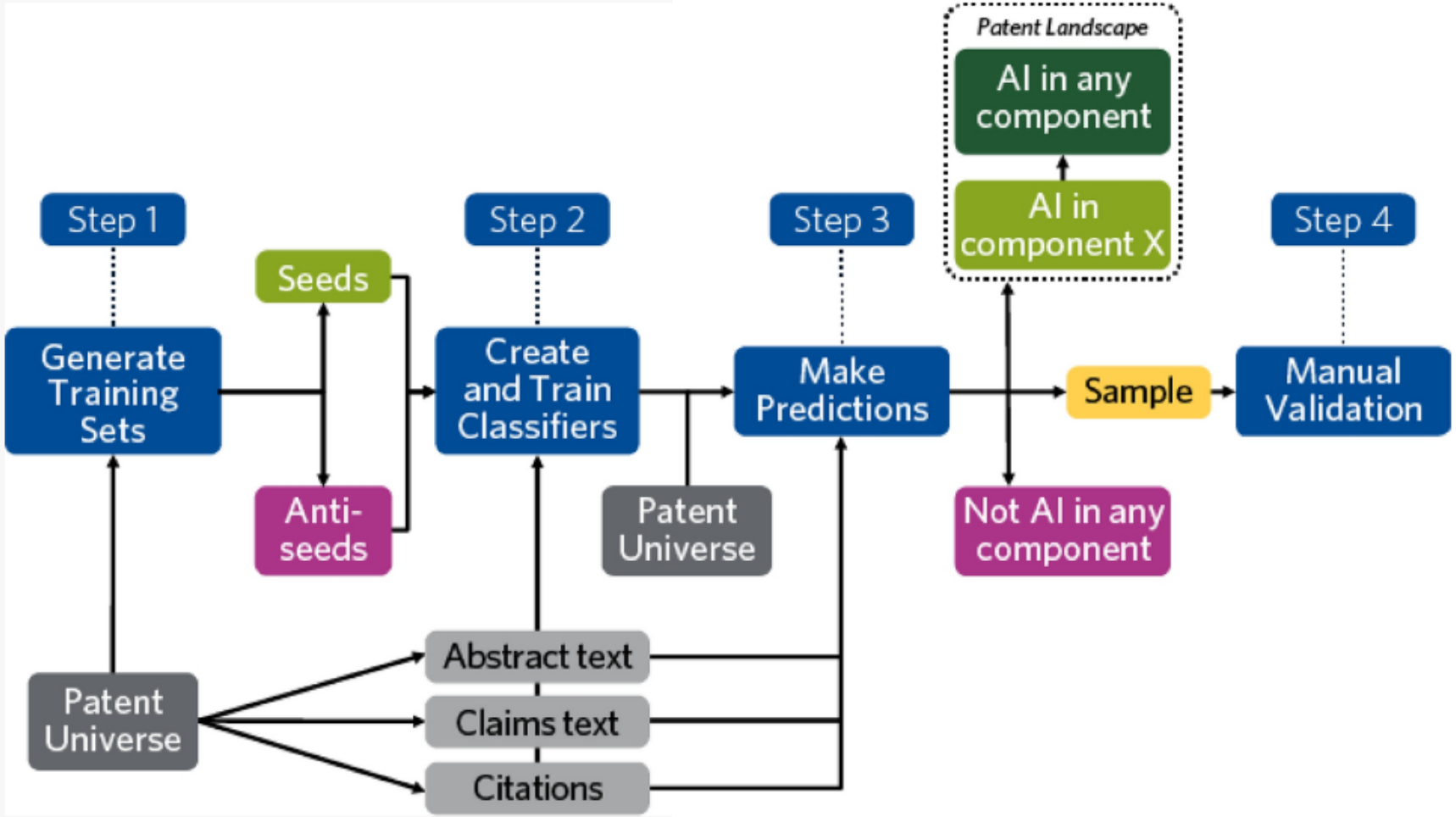
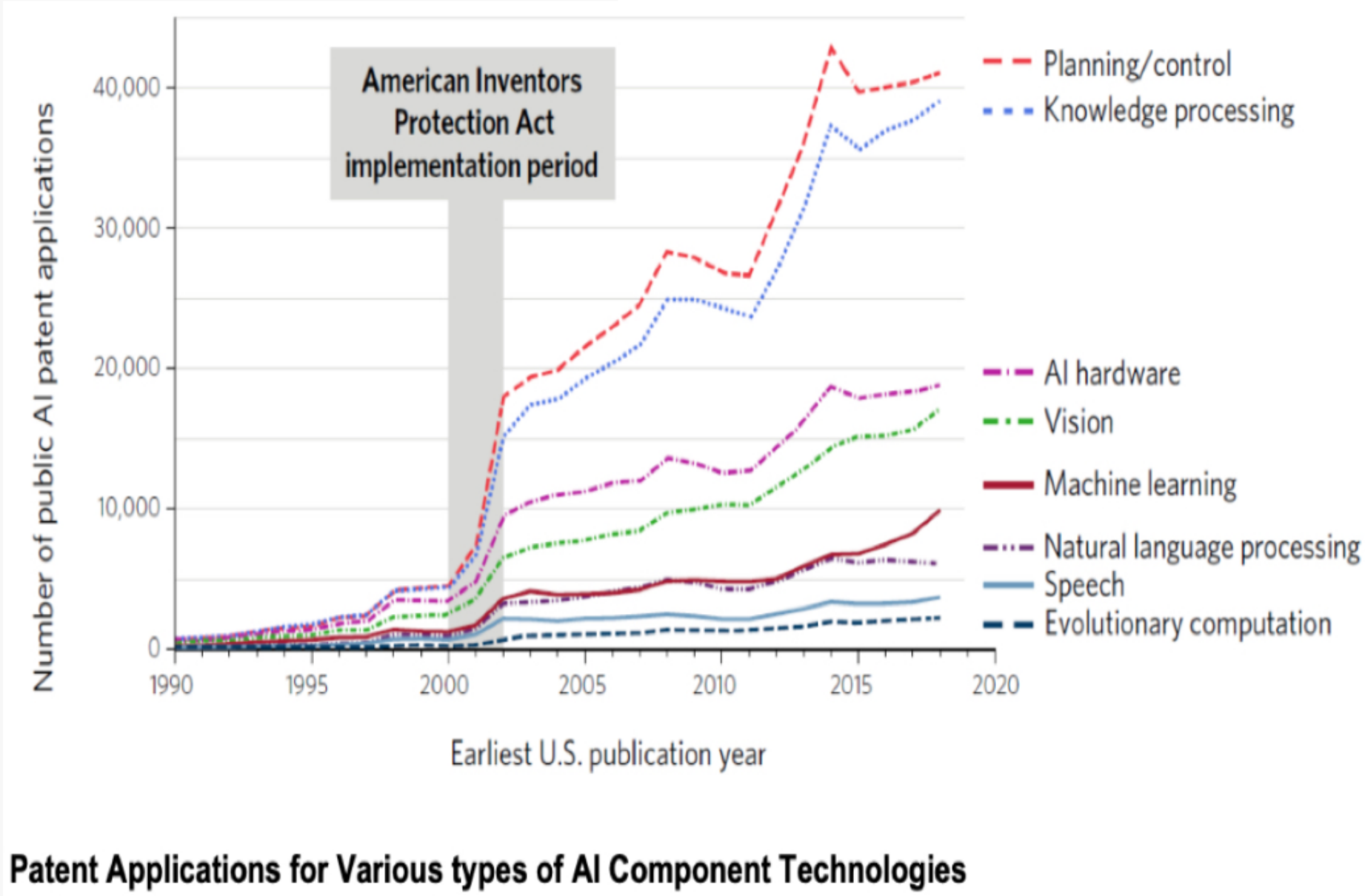


Figure: Overview of the USPTO methodology to compute the AI content of patents (Source: Giczy et al., 2022)

Patents are classified by the USPTO into the following AI technology components (Giczy et al., 2022):

- Machine learning
- Natural language processing
- Computer vision
- Speech
- Knowledge processing
- AI hardware
- Evolutionary computation
- Planning and control



Patent Applications for Various types of AI Component Technologies

Source: https://www.uspto.gov/sites/default/files/documents/OCE-DH-AI.pdf

DATA

Employment and Wages: 1990-2023 county-level employment by detailed NAICS industries from the Quarterly Census of Employment and Wages (QCEW), Bureau of Labor Statistics (BLS).

Patent Records: **Over 8 million patent records** from the **U.S. Patent and Trademark Office (USPTO)** spanning 1976 to 2024. Includes detailed metadata, industry tags, text descriptions of innovations, and the origin country of patent assignees. We also use:

- **AI Category Crosswalk:** Links patents to **eight AI categories** and **one non-AI category** (Giczy et al., 2022).
- **Industry Classification Crosswalk:** Maps patent taxonomy tags to **the four 3-digit NAICS agricultural sub-industries**. (Lybbert and Zolas, 2014).

Other data used:

- **Farm Revenue and Expenses** (1969–2022): County-level data from the Bureau of Economic Analysis (BEA).
- Population Estimates by Race and Age (1990–2023): County-level panel data from the US Census Bureau.
- **Geographical Crosswalk:** Mapping counties to commuting zones (CZ) (USDA-ERS, Fowler et al., 2024).

AN UNBALANCED PANEL DATASET

- **Unbalanced Panel** Due to QCEW Data Suppression:
  *- Values are suppressed if **two establishments account for more than 80%** of employment per industry per county.*
  ***- Additional random suppression** by the BLS to prevent reverse-engineering suppressed values from state totals.*
  - Observations with suppressed values are removed from the analysis. Significant omissions occur only in specific industries and states.

- **The cross-sectional dimension of the panel includes about 2,000 counties in continental US.**
  - Counties with no agricultural employment are excluded.
  - Small islands and US territories are excluded.

- The **time dimension** includes years from 2003 to 2023.
  *We **aggregate annual data by triennium** to smooth out market and innovation cycles and reduce missing data.*
  Triennia considered : From 2003-2005 to 2021-2023.

AN UNBALANCED PANEL DATASET

Basic assumptions for counting patents:

→ Once patented, a new technology will affect labor markets not locally but everywhere in the US.

Patent counts should be aggregated at the national level; the county of registration is irrelevant.

→ Innovations from foreign inventors are less influenced by U.S. local market cycles compared to those from U.S. inventors.

Distinguish patent counts by the nationality of the assignee (U.S. vs. foreign).

® New technologies may have varying impacts depending on the agricultural sub-industry and the incorporation of AI.

Categorize patent counts by the targeted agricultural sub-industry and AI type (default is non-AI or conventional).

Therefore, patents are counted by year, origin country, industry, and AI type. This method treats patent counts as a simultaneous treatment affecting all units in the sample.

Shift-share transformation of patent counts:

→ Innovations are cumulative and impact labor markets after a certain delay.

Use present and lagged patent counts to calculate the first difference of cumulative innovation.

® Although technologies are available nationwide, counties experience different levels of exposure based on industry composition.

Scale the shift by each county's employment share in specific agricultural sub-industries relative to total agricultural employment.

FROM COUNTIES TO ‘COMMUTING ZONES’ (CZ)

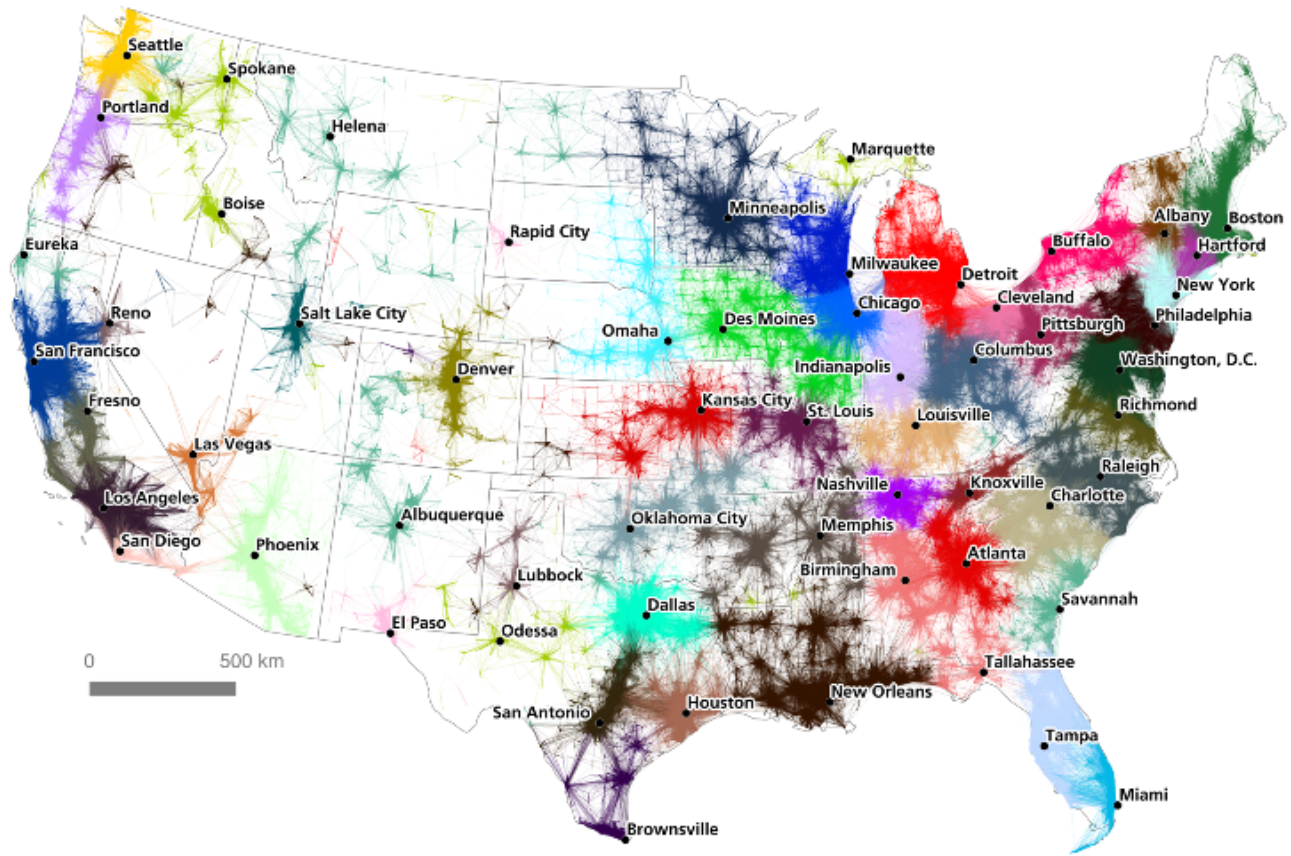
We group counties by commuting zones (CZs) created by the USDA Economic Research Service (ERS) to approximate local labor markets more accurately than traditional county and state boundaries (Chetty, 2014, 2018; Acemoglu, 2020; Carpenter, 2022).

Commuting zones are designed to reflect the actual labor market areas where workers often seek employment beyond their county of residence but within feasible commuting distances.

- **Spatial Autocorrelation:** Wages, skills, and technology adoption tend to be spatially autocorrelated, meaning they exhibit patterns that are geographically dependent.

- **Agriculture happens in rural areas:** The commuting zones created by the Economic Research Service (ERS) are particularly effective for modeling US rural labor markets, offering a more precise understanding of agricultural labor dynamics (Fowler, 2024, 2020; Tolbert, 1996).

Commuter flows in the United States



Source: Nelson and Rae (2016).

MODEL

We use an ***unbalanced panel dataset*** of about 2000 US counties from 2003-2005 to 2021-2023.

1. Outcome variable — measures the change in local employment-to-population ratio (following Mann, 2023):

$$\Delta Y_{c,t} = \Delta \frac{\sum_j^J L_{j,c,t}}{Pop_{c,t}}$$

2. Treatment variable— reflects the average of industry count of AI-AgTech patents from US assignees, weighted by the local (lagged) share of employment per industry (following Autor, 2018; Goldsmith-Pinkham et.al., 2022; Prytkova, 2024):

$$\Delta \mathbf{X}_{c,t}^{AI} = \sum_j^J \left[\mathbf{exposure}_{j,c,t-1} \times \mathbf{shift}_{j,t}^{AI} \right]$$

$$\mathbf{exposure}_{j,c,t} = \frac{L_{j,c,t}}{\sum_j^J L_{j,c,t}}$$

$$\mathbf{shift}_{j,t}^{AI} = \sum_{t-1}^{t} \ln(1 + \text{count of AI patents}_{j,t})$$

MODEL

$$\Delta X_{c,t}^{AI} = \sum_{j}^{J} [\text{exposure}_{j,c,t-1} \times \text{shift}_{j,t}^{AI}]$$

$$\text{exposure}_{j,c,t} = \frac{L_{j,c,t}}{\sum_{j}^{J} L_{j,c,t}}$$

$$\text{shift}_{j,t}^{AI} = \sum_{t-1}^{t} \ln(1 + \text{count of AI patents}_{j,t})$$

3. The Linear Model:

$$\Delta Y_{c,t} = \beta_0 + \kappa_c + \kappa_t + \beta_1 \Delta X_{c,t}^{AI} + \beta_2 \Delta X_{c,t}^{0} + \beta_3 M_{c,t-1} + \epsilon_{c,t,t-1}$$

where, *c* and *t* denote cross-section and time dimensions, respectively. κ_c, κ_t are location and year fixed effects. *J* includes four (NAICS 3-digit level) sub-industries of the agricultural industry. *M* includes (lagged) ***control variables***: farm income from crop and livestock agriculture, log of county population (*pop*), share of female, Hispanic, and 65 years or older workers. $\Delta X_{c,t}^{0}$ represents change in the ***non-AI AgriTech*** innovations and is constructed like the change in ***AI-containing AgriTech*** innovations.

MODEL

Model Assumptions:

- Agricultural workers within the same industry and locality can utilize new farm technologies to the same extent.
- The lagged levels of agricultural employment share in a commuting zone is exogenous to the change in agricultural employment in the current period.
- No single commuting zone is influential enough to affect US-level aggregate AI-AgriTech development.

Endogeneity Concerns:

- Patent counts from U.S. assignees may be correlated with unobserved industry-specific factors in the U.S. labor market.
- Use patent counts from **foreign assignees** as an **instrument** for U.S. patent counts.
    - *Justification:*
        - U.S. patent productivity is significantly influenced by foreign counterparts through backward citations, international collaborations, conferences, and reverse engineering (Mann, 2023; Autor, 2023).
        - Foreign assignees are primarily influenced by their home country's economy, not by U.S. industry-specific markets.

FINDINGS

Table 1: Effects of Non-AI AgriTech and AI AgriTech on Agricultural Employment (NAICS: 11)

	OLS (1)	OLS (2)	OLS (3)	IV (4)	IV (5)	IV (6)
Δ Non-AI AgriTech	−0.061	−0.373***	−0.490***	−1.034*	−0.738***	−0.728***
	(0.144)	(0.105)	(0.081)	(0.580)	(0.175)	(0.118)
Δ AI AgriTech	0.123	0.299***	0.365***	0.948*	0.635***	0.582***
	(0.131)	(0.091)	(0.067)	(0.503)	(0.158)	(0.100)
Num.Obs.	4696	4696	4696	4696	4696	4696
SE Cluster level:	CZ	CZ	CZ	CZ	CZ	CZ
FE by Year	X	X	X	X	X	X
FE by State			X			X
FE by Commuting Zone		X			X	
FE by County	X			X		

[1] Standard errors in parentheses.
[2] Sign.: $^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.
[3] The dependent variable is the change in hired farm workers per 1,000 working-age residents.

FINDINGS

Table 2: Effects of Non-AI AgriTech and Sub-domains of AI AgriTech on Agricultural Employment (NAICS: 11).

	OLS (1)	OLS (2)	OLS (3)	IV (4)	IV (5)	IV (6)
Δ Non-AI AgriTech	−0.256	−0.538***	−0.644***	−1.784***	−1.213***	−1.091***
	(0.176)	(0.122)	(0.096)	(0.494)	(0.209)	(0.146)
Δ AI AgriTech (action)	−0.272**	−0.118	−0.119	−0.832***	−0.534**	−0.499*
	(0.122)	(0.106)	(0.102)	(0.261)	(0.251)	(0.270)
Δ AI AgriTech (cognition)	0.333**	0.480***	0.553***	1.799***	1.114***	0.964***
	(0.144)	(0.099)	(0.077)	(0.471)	(0.199)	(0.127)
Δ AI AgriTech (perception)	0.199	0.039	0.006	0.567*	0.356	0.310
	(0.142)	(0.125)	(0.120)	(0.289)	(0.283)	(0.314)
Num.Obs.	4696	4696	4696	4696	4696	4696
SE Cluster level:	CZ	CZ	CZ	CZ	CZ	CZ
FE by Year	X	X	X	X	X	X
FE by State			X			X
FE by Commuting Zone		X			X	
FE by County	X			X		

[1] Standard errors in parentheses.
[2] Sign.: $^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.
[4] The dependent variable is the change in hired farm workers per 1,000 working-age residents.
[5] Artificial Intelligence can be grouped into three sub-domains: action (AI hardware & robotics), cognition (knowledge representation, planning & control, machine learning and evolutionary computation), and perception (vision and speech recognition and NLP), as described by Wang (2021).

DISCUSSSION

•Contrasting Effects:

- **Non-AI Technologies** tend to **reduce farm employment growth**.
- **AI-Driven Technologies** generally **boost agricultural employment**, but effects vary by AI sub-domain.

•AI Sub-Domain Variations:

- **Cognition-Enhancing AI** (knowledge representation, planning & control, machine learning, evolutionary computation):
  - Ø **Increases demand** for skilled workers specialized in cognitive tasks.
- **Action-Oriented AI** (AI hardware, robotics):
  - Ø Tends to **dampen employment growth**, reducing agriculture's share in the local labor force.

•Workforce Implications:

- **Upskilling Needs**: Growing necessity for expertise in cognitive AI domains.
- **Automation Risks**: Potential job displacement due to advancements in AI hardware and robotics.

DISCUSSION

•The Rise of AI-Driven Innovations in Agriculture:

- **Near-Future Shift:**
  - **AI innovations in hardware and robotics** are set to displace some human farm labor in the near future.
- **Balancing Effect:**
  - This labor-displacing impact is **counterbalanced by new employment opportunities** arising from other AI advancements, particularly in **cognition-enhancing domains** like knowledge representation, planning & control, machine learning, and evolutionary computation.

•Challenges and Considerations:

- **Adoption Hurdles:**
  - Implementing new AI AgriTech will require significant **rural investments** and **upskilling** of farm employees.
- **Social Implications:**
  - Labor displacement poses a risk of further stressing the **social fabric of rural America**, which is already facing issues like **out-migration** and **mental health challenges**.

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ECONOMICS
DEPARTMENT

THANK YOU

Questions?

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Demographics of US Crop Workers, 2022

	Laborers	Supervisors	All Farm Occupations	US Wage and Salary Workers
Share of all occupations [row %]	54.01	13.08		
Percent female	28.28	15.94	28.63	44.35
Age				
Average age in years	40.08	42.55	41.06	40.48
Percent over age 44	39.84	43.56	41.79	40.75
Percent married	48.1	63.65	52.47	47.86
Race/Ethnicity/Ancestry				
Percent White - not Hispanic	26.34	61.73	42.83	57.43
Percent Black - not Hispanic	2.27	1.17	2.26	11.11
Percent Hispanic: Mexican origin	60.11	26.87	43.91	11.84
Percent Hispanic: Other	7.65	4.84	6.3	8.22
Citizenship				
Percent U.S. citizen	51	80.85	67.08	90.89
Education				
Percent lacking a high school diploma	47.38	17.92	33.06	8.2
Percent with high school diploma (includes equivalency)	31.17	31.89	31.17	28.85
Percent with at least some college	21.45	50.19	35.77	62.95

Source: USDA-ERS Farm Labor Survey, 2023

1.Knowledge Processing:

1. **Definition:** Methods to represent facts about the world and derive new facts (or knowledge) from a knowledge base. For example, expert systems contain a knowledge base and an inference method to obtain new facts from that knowledge base.
2. **Examples**:
    1. **Expert Systems:** MYCIN, a system for diagnosing bacterial infections.
    2. **Ontology-Based Systems:** Protégé, a tool used to create and manage ontologies.
    3. **Rule-Based Systems:** Drools, a business rules management system that uses rules to process knowledge.

2.Speech Recognition:

1. **Definition:** Methods to understand a sequence of words given an acoustic signal. For example, the noisy channel model is a statistical approach used to identify the most likely sequence of words given verbal input using Bayes' rule.
2. **Examples**:
    1. **Virtual Assistants:** Apple's Siri and Amazon's Alexa, which understand and respond to spoken commands.
    2. **Transcription Services:** Google Voice Typing and Otter.ai, which convert spoken language into text.
    3. **Voice Search:** Google Voice Search, which allows users to search the web using their voice.

3.AI Hardware:

1. **Definition:** Physical hardware designed to implement artificial intelligence software. For example, Google designed the Tensor Processing Unit (TPU) to run neural network algorithms more efficiently. AI hardware may include logic circuitry, memory, video, processors, and solid-state technologies.
2. **Examples**:
    1. **Tensor Processing Units (TPUs):** Google's TPUs designed for neural network computations.
    2. **Graphics Processing Units (GPUs):** NVIDIA GPUs used for deep learning and AI applications.
    3. **Field Programmable Gate Arrays (FPGAs):** Xilinx FPGAs that can be customized for AI tasks.

4.Evolutionary Computation:

1. **Definition:** A set of computational methods utilizing aspects of nature and evolution. For example, genetic algorithms include methods for selecting algorithm variants through the selection of optimal random mutations by maximizing fitness.
2. **Examples**:
    1. **Genetic Algorithms:** Used in optimization problems, such as the traveling salesman problem.
    2. **Genetic Programming:** Used to evolve programs or algorithms to solve specific tasks.
    3. **Evolution Strategies:** Used for continuous optimization problems.

5. **Natural Language Processing (NLP)**:
    1. **Definition:** Methods for understanding and using data encoded in human natural language. For example, language models represent probability distributions of language expressions.
    2. **Examples**:
        1. **Chatbots:** OpenAI's GPT-3 and Microsoft's Bot Framework, which can generate human-like text.
        2. **Machine Translation:** Google Translate, which translates text from one language to another.
        3. **Sentiment Analysis:** Tools like VADER for analyzing the sentiment of text.
6. **Machine Learning**:
    1. **Definition:** A broad class of computational learning models. For example, supervised learning classification models are algorithms that learn to classify observations based on pre-labeled training data.
    2. **Examples**:
        1. **Supervised Learning:** Classification algorithms like support vector machines (SVMs) and decision trees.
        2. **Unsupervised Learning:** Clustering algorithms like K-means and hierarchical clustering.
        3. **Reinforcement Learning:** Algorithms like Q-learning and deep Q-networks (DQNs).
7. **Computer Vision**:
    1. **Definition:** Methods to extract and understand information from visual input, including images and videos. For example, edge detection identifies the boundaries and borders contained in an image.
    2. **Examples**:
        1. **Object Detection:** YOLO (You Only Look Once) and SSD (Single Shot MultiBox Detector).
        2. **Image Classification:** Convolutional Neural Networks (CNNs) used in applications like facial recognition.
        3. **Image Segmentation:** U-Net and Mask R-CNN for medical image analysis.
8. **Planning/Control**:
    1. **Definition:** Methods to identify and execute plans to achieve specified goals. Key aspects of planning include representing actions and states of the world, reasoning about the effects of actions, and efficiently searching over potential plans.
    2. **Examples**:
        1. **Autonomous Navigation:** Path planning algorithms used in self-driving cars, such as A* and RRT (Rapidly-exploring Random Tree).
        2. **Robotic Manipulation:** Control algorithms for robotic arms, like inverse kinematics and PID controllers.
        3. **Resource Management:** Systems for managing inventory and workflow in industries.

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Q&A

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SESSION SIX:
H-2A VISA PROGRAM FROM THE PERSPECITIVE OF SENDING COUNTRIES



USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Farm Foundation
Accelerating people & ideas

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Impacts of Farm Labor Visa Programs on Livelihoods and Migratory Intensions in Guatemala

ANALYSIS OF BARRIERS & OPPORTUNITIES TO SCALE-UP THE REGULAR MIGRATION STRATEGY

BEAU BRODBECK, AUBURN UNIVERSTIY
FERNANDO LANDIDNO, UNIVERSIDAD DEL LA CUNECA DEL PLATA

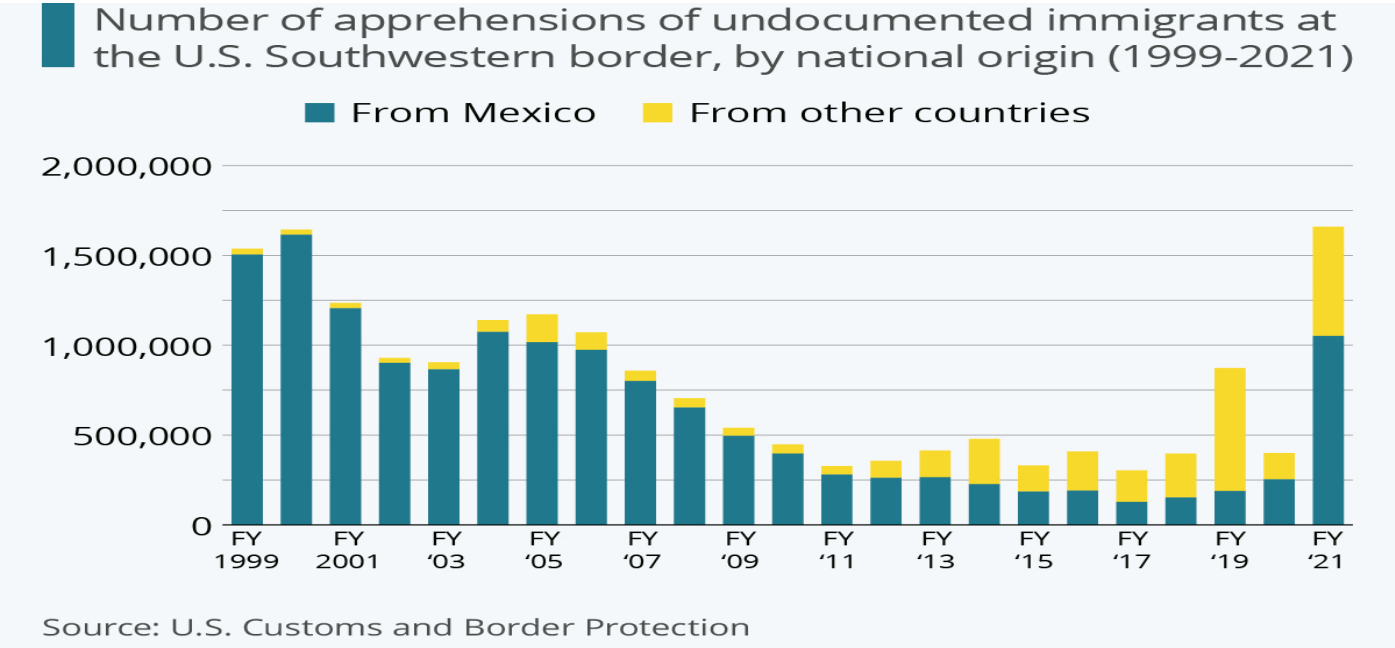
USAID FROM THE AMERICAN PEOPLE

ACTION AGAINST HUNGER

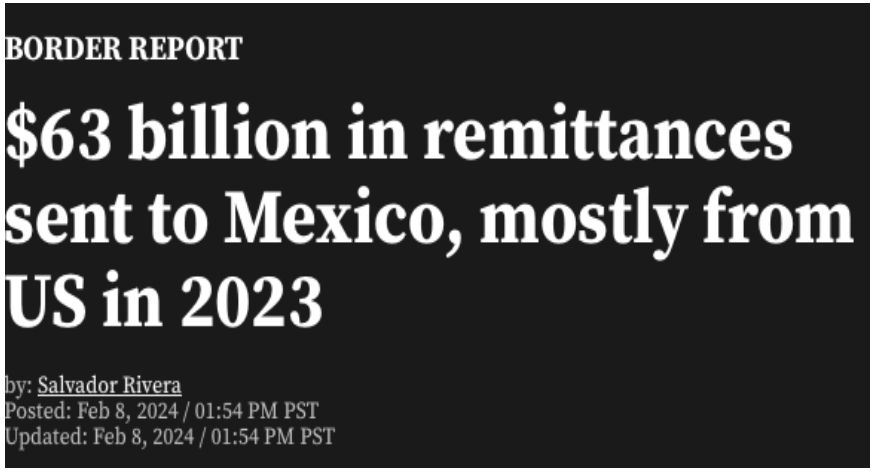
IOM UN MIGRATION

extension ALABAMA A&M & AUBURN UNIVERSITIES

CAN VISAS PROVIDE OPPORTUNITIES FOR LOCAL ECONOMIC DEVELOPMENT?



In 2021 US Border Patrol encountered 283,035 Guatemalans, 11 percent of total.


BORDER REPORT

$63 billion in remittances sent to Mexico, mostly from US in 2023

by: Salvador Rivera
Posted: Feb 8, 2024 / 01:54 PM PST
Updated: Feb 8, 2024 / 01:54 PM PST

Guatemala's economy buoyed by record $20 billion in 2023. This is 19% of GDP & 65% of exports

Guatemalans account for 3-4% of H-2B visas/yr. and less than 2% for H-2A

This study stands out for integrating the perspectives of migrants and employers, and for analyzing the challenges of irregular migration from a development stand point.

OBJECTIVES

Assess the capacity of migration programs between Guatemala and Canada/U.S. to foster rootedness in communities of origin and to promote socioeconomic opportunities in Guatemala.

Identify and understand bottlenecks hindering demand for migrant workers in Canada and the U.S.



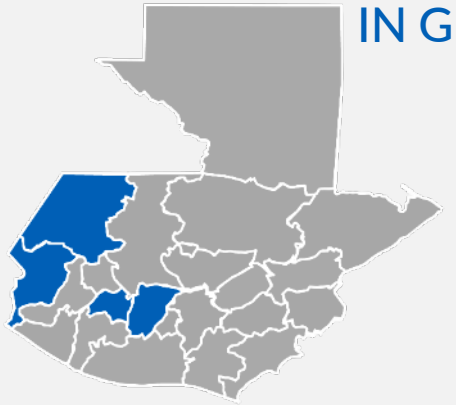
METHODOLOGY

85 INTERVIEWS with key informants
(in Guatemala, United States and Canada)

1,533 SURVEYS:
- Migrant worker employers
- Guatemalan communities

(including 448 households of regular migrants)

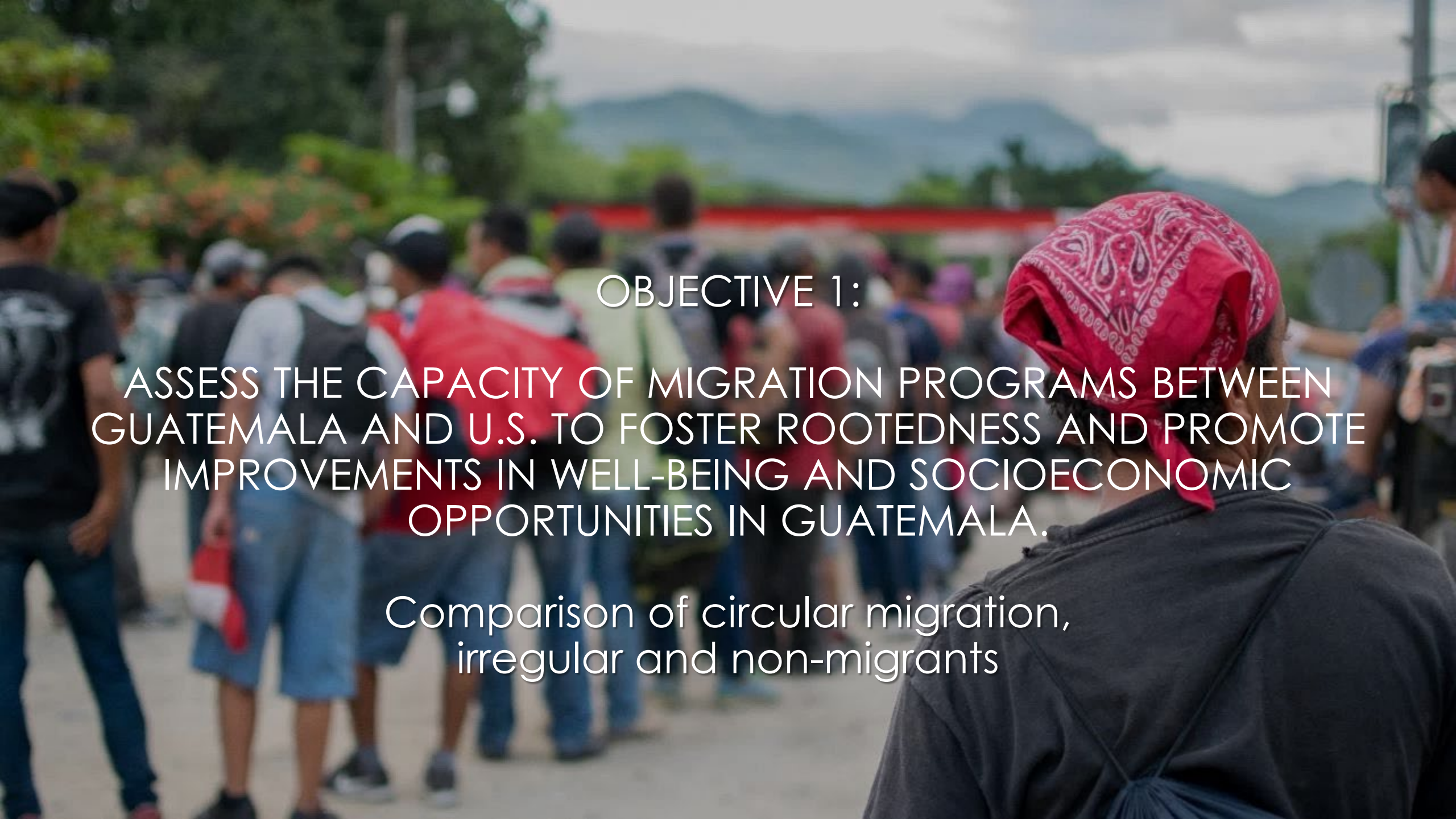
4 DEPARTMENTS IN GUATEMALA



- Chimaltenango
- Huehuetenango
- San Marcos
- Sololá

Surveys included 11 COMMUNITIES with HIGH percentage of regular migrants matched with 11 comparable communities with a LOW percentage of regular migrants.

TYPE OF VISA ANALYZED: U.S. (H-2 A y H-2B); Canada (TFWP Ag-Stream and TFWP Low-Wage)



OBJECTIVE 1:

ASSESS THE CAPACITY OF MIGRATION PROGRAMS BETWEEN GUATEMALA AND U.S. TO FOSTER ROOTEDNESS AND PROMOTE IMPROVEMENTS IN WELL-BEING AND SOCIOECONOMIC OPPORTUNITIES IN GUATEMALA.

Comparison of circular migration, irregular and non-migrants

WHY DO PEOPLE MIGRATE?



THERE IS CONSENSUS THAT UPWARD SOCIAL MOBILITY IS DIFFICULT THROUGH IN-COUNTRY WORK; AND MIGRATION IS THE ONLY OPTION FOR PROGRESS WITHIN THEIR CONTROL.

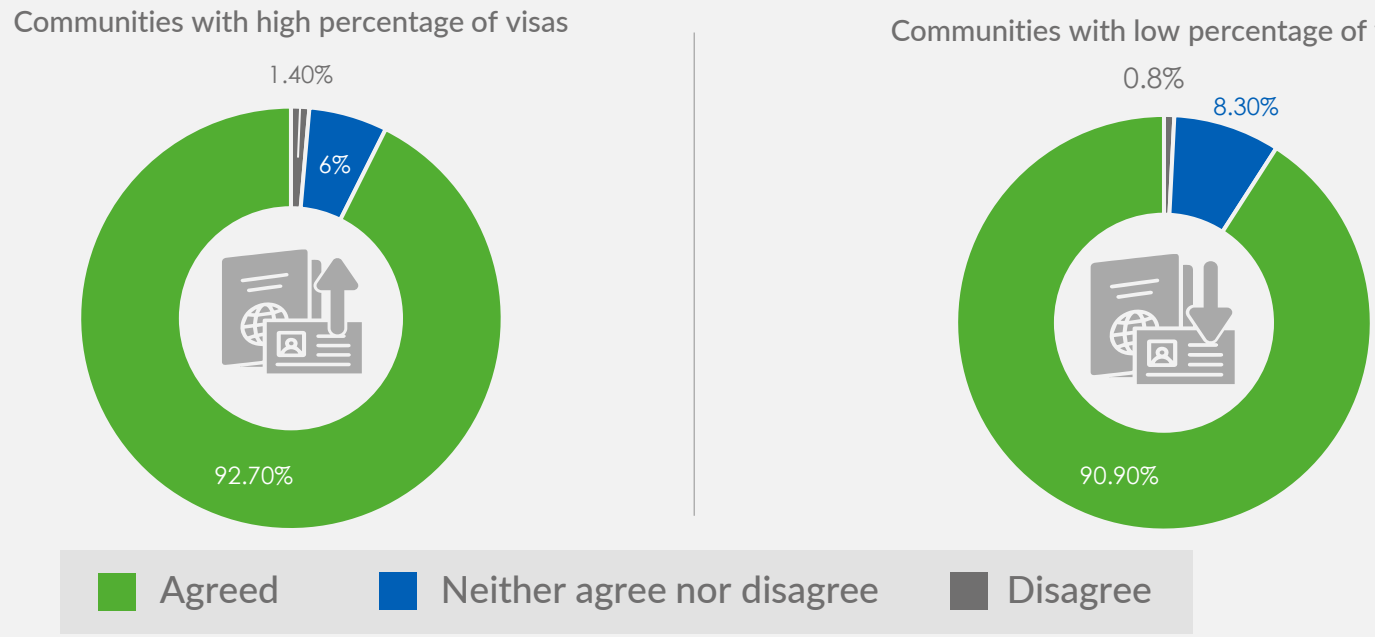
Reasons leading people to migrate



WORKER PREFERENCES FOR TEMPORARY WORK VISAS

GIVEN A CHOICE, PEOPLE WOULD MIGRATE USING TEMPORARY WORK VISAS

When people learn visas are available their desire for undocumented migration diminshes





"There was a marked drop in undocumented migration when recruiters came into the community offering travel with visas".

IMPACT OF MIGRATION ON POVERTY

Differences between families according to migratory status

	Poverty level (Simple Poverty Scorecard)	Food Consumption Score (FCS)	Food Security Scale (FIES)	Perception of the family's economic situation	Improvements or extensions to the home in the last 12 months	Percieved improvements in family financial situation in the last 12 months
Regular migrants	Lower	Higher	Better	Better	More frequent	More frequent
Irregular migrants	Intermediate	Lower	Intermediate	Worst	Less frequent	Less frequent
Non-migrants	Higher	Lower	Worst	Worst	Less frequent	Less frequent

Better situation Intermediate situation Worst situation

"Before I only earned enough to eat…worked all week for a cheap pair of shoes…now I have a house, car and my kids are in school." – H-2B worker

HOW REMITTANCES ARE INVESTED

- Families of regular migrants receive remittances more frequently than irregular (96% vs 88%)
- Average monthly remittances are higher in regular migrant families ($800 -$1,900/month)

Use of remittances to cover living expenses

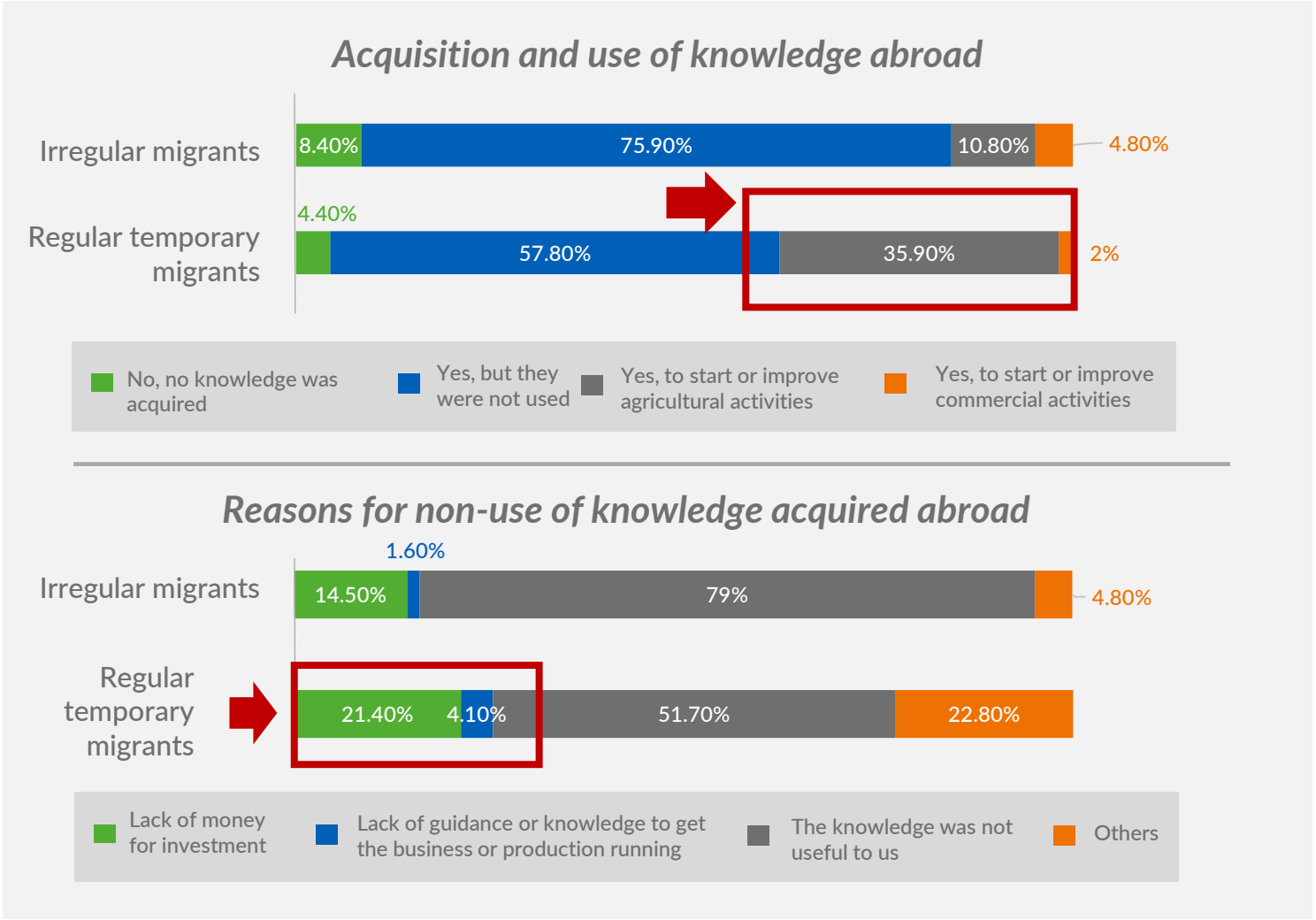
Type of expense	Families of regular migrants	Families of irregular migrants
Purchase of food	96.4%	90.5%
Health expenses	70.9%	56.8%
Education expenses	41.1%	25%
Utility expenses (wáter, electricity…)	52.3%	43.9%
Rent of installments for home purchase	7.5%	4.7%
Payment of emigrant's debt	33%	39.9%
Agricultural inputs: seeds, fertilizers, others	19.8%	8.1%

Use of remittances for investments

Type of investment	Families of regular migrants	Families of irregular migrants
Home improvements	69.8%	42.7%
Purchase of agricultural land	47.9%	33.8%
Purchase of agricultural equipment	27.6%	7.1%
Microenterprise	9.9%	3.1%
Purchase of animals or livestock	8.3%	2.3%
Acquisition of commercial or business premises	5.8%	3.2%

ONCE IMMEDIATE NEEDS ARE MET, REGULAR MIGRANTS HAVE GREATER INVESTMENT CAPACITY TO IMPROVE LIVELIHOODS IN THE MID AND LONG TERM: REGULAR MIGRATION CAN CONTRIBUTE TO LOCAL DEVELOPMENT

HOW ACQUIRED KNOWLEDGE IS USED?



HOW CAN KNOWLEDGE GAINED BE BETTER EXPLOITED TO PROMOTE LOCAL DEVELOPMENT?

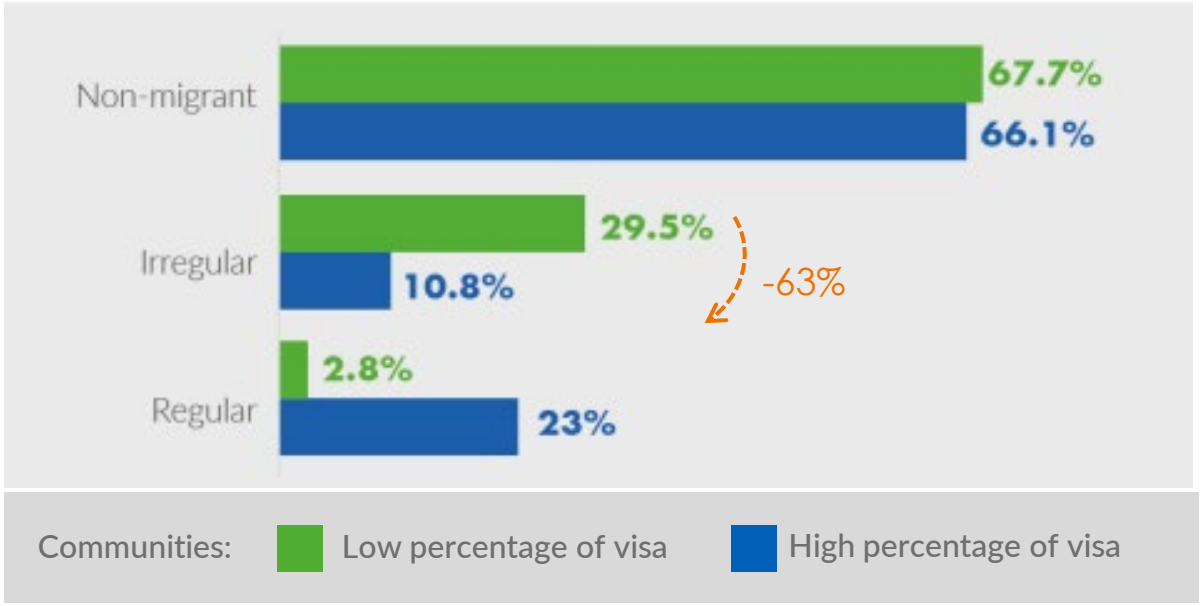
- **Develop** FINANCIAL EDUCATION **actions to facilitate more effective investment of remittances.**
- **Provide personalized** AGRICULTURAL AND BUSINESS ADVISORY **services.**
- **Develop employer-sponsored** TRAINING **or** BUSINESS INCUBATION **programs**

IMPACTS REGULAR MIGRATION ON MIGRATORY INTENTIONS

- Numbers of families with migrants is similar in both types of communities. This implies that VISA AVAILABILITY DOES NOT INCREASE MIGRATORY INTENTIONS.

- AVAILABILITY OF VISAS DETERMINES HOW MIGRATION IS CHANNELED: Communities with a high % of families with regular migrants have fewer families with irregular migrants abroad (11% vs. 29%)
- According to our study regular migration does not increase migratory intention and REDUCES THE NUMBER OF FAMILIES WITH IRREGULAR MIGRANTS BY 63%

Families with different migratory status in communities with high and low percentage of temporary work visa



54.7% WITH A LOW PERCENTAGE OF VISAS

EXPRESSED SOME DEGREE OF INTEREST IN MIGRATING

WITH A HIGH PERCENTAGE OF VISAS 50.2%



Objective 2:
IDENTIFYING BARRIERS AND POSSIBLE SOLUTIONS FOR IMPROVING TEMPORARY WORK VISA PROGRAMS:

Perspectives from different stakeholders in Guatemala, the United States and Canada

HOW RECRUITMENT WORKS

FORMALIZED PRIVATE RECRUITERS

Operate according to Guatemalan and international regulations. They charge employers for their services and support workers in the visa process.

PUBLIC RECRUITER

Were recently created within the Labor Migration Program of the Ministry of Labor and Social Security of Guatemala. The program offers services free of charge.

INFORMAL RECRUITERS OR INFORMAL LOCAL INTERMEDIARIES

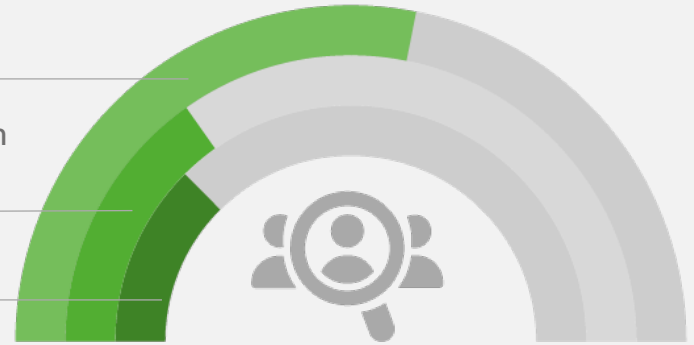
They are usually linked to a single employer or a few employers (sometimes former employees). Their scope is mainly local (community or municipal). Compliance with regulations is not always clear

How workers are identified and hired by U.S. employers

59% Ourselver, through employee contacts

26% Recruiter company in the country of workers

25% Recruiter in USA

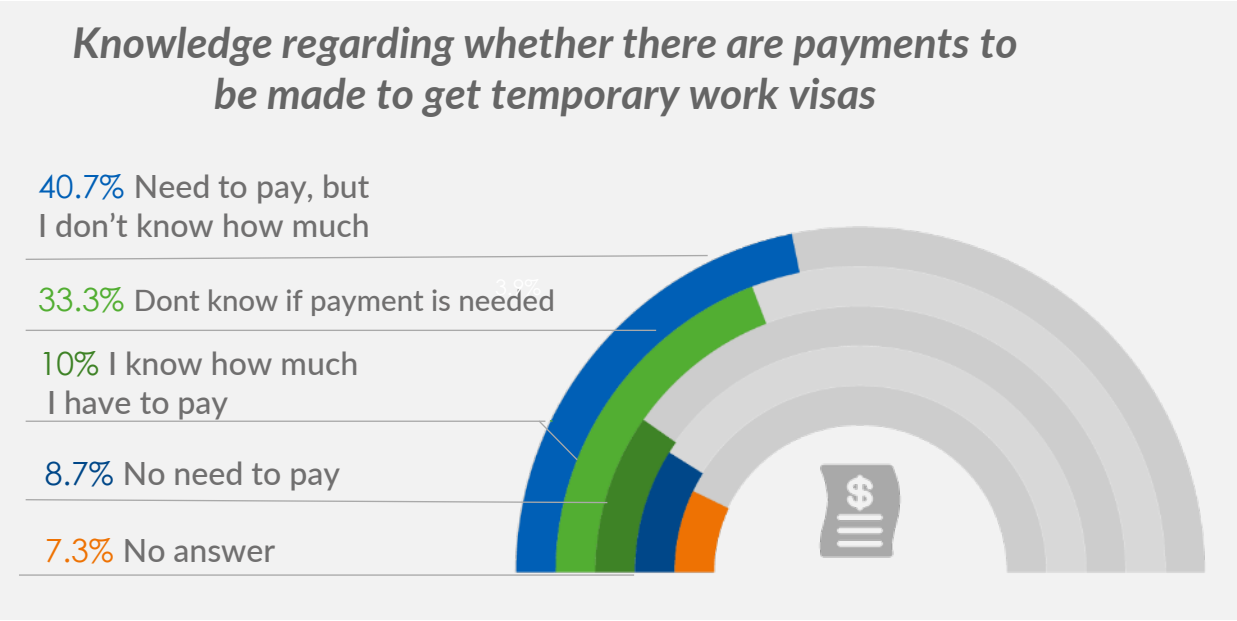


Most workers are identified by recommendations of trusted workers (WORKER-TO-WORKER SYSTEM)

The US system is MORE DECENTRALISED and LESS TRANSPARENT, with large numbers of small informal recruiters working with individual employers (usually former employees).

CHALLENGES IN WORKER RECRUITMENT

CLOSED NETWORKS: IT'S ABOUT WHO YOU KNOW
Limited knowledge of how to access or how programs function.
Irregular migration is perceived as more transparent.





- Local SCAMS are a major challenge causing confusion and uncertainty
- The system leads to ILLEGAL CHARGES (from $250 to $3,8000)
- Fear and reluctance of workers to DENOUNCE illegal charges.

CHALLENGES WITH OVERSTAYING VISAS

MAIN CAUSES:

- Payment of high ILLEGAL VISA ACCESS FEES + short visa periods
- Belief attaining a visa in subsequent years is UNLIKELY
- Lower WAGES than other industries + limited working hours
- Work is considered especially HARD or difficult
- MISTREATMENT or poor relationship with supervisors

93-98% OF WORKERS RETURN HOME

MAIN FINDINGS AND RECOMMENDATIONS TO IMPROVE TEMPORARY VISA PROGRAMMES AND ENCOURAGE WORKER RECRUITMENT IN GUATEMALA

- Work with Guatemalan local and national stakeholders to improve awareness of temporary visa programs (avoid scams and illegal charges)
- Implement financial, business and agricultural education programs to leverage investment of worker remittances
- Introduce recruiters and new employers to the Guatemalan labor market
- Create a public-private roundtable to promote dialogue on improving recruitment in Guatemala

The economic resources generated by 15,000 Guatemalans participating in visa programs to CA and the USA exceeded $115 million in 2022.



Full Research Report

THANK YOU!

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IOM UN MIGRATION

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KATHRYN BABINEAU

Post-doctoral Fellow
University of Virginia

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RECRUITING H-2A WORKERS: ASSESSING NEW TRENDS

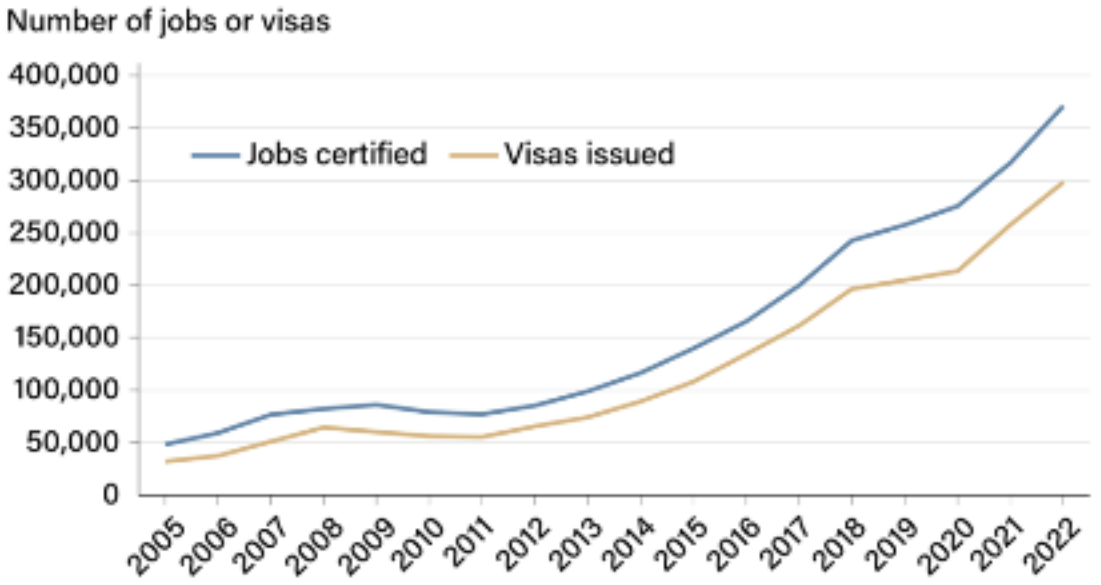
Kathryn Babineau
Department of Sociology
University of Virginia

September 18, 2024



BACKGROUND

The number of H-2A jobs certified increased more than sevenfold from fiscal years 2005 to 2022



Note: Around 80 percent of H-2A certified jobs result in visas issued to H-2A workers. Some employers do not follow through to hire the workers, and some H-2A workers fill two or more certified jobs.

Source: USDA, Economic Research Service using data from the U.S. Department of Labor and the U.S. Department of State.

QUESTIONS OF INTEREST

1. What is the temporary migrant labor supply chain, and how is it governed?
2. How are developing country governments involved in managing H-2A labor migration, and how is this involvement shifting?

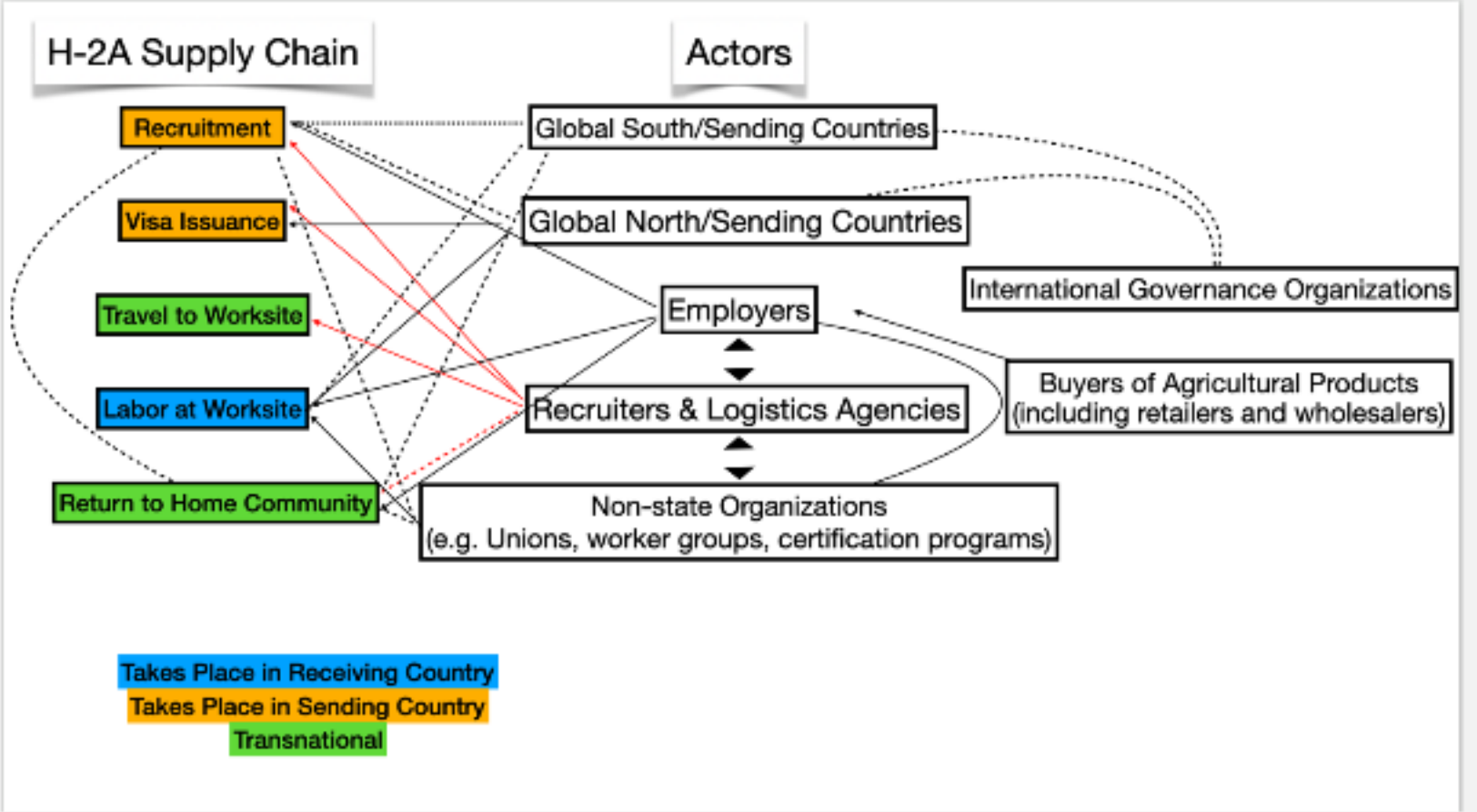
METHODS

- Primary data collection
  - Semi-structured interviews in four countries, ethnographic observation
  - non-public quantitative data provided by key informants
- Utilization of secondary data to supplement analysis of primary data

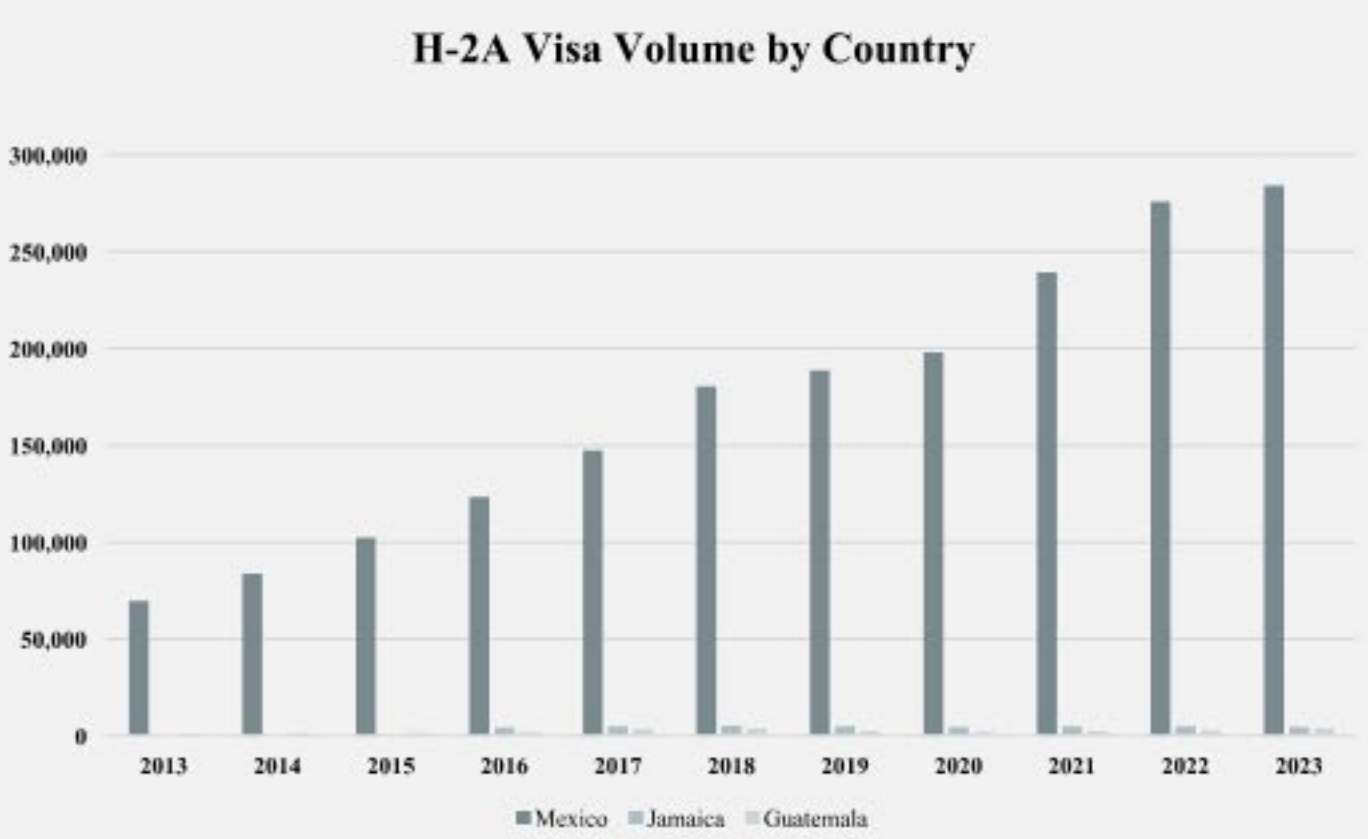
THE MIGRANT LABOR SUPPLY CHAIN



GOVERNANCE STRUCTURE



SUMMARY OF FINDINGS





POTENTIAL POLICY IMPLICATIONS

- Countries are working to ‘build demand’ while also seeking to improve protections for workers, but this strategy has limitations
- The structure of the migrant labor supply chain means that responsibility for instances of migrant exploitation is often diffused across a broad range of actors.
- Influence over recruitment by government ministries varies widely by country
  - Sending countries remain involved in H-2A worker experiences even after workers arrive in the United States
- New partnerships with private regulatory organizations may provide new opportunities



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SESSION SEVEN:
THE FUTURE OF THE H-2A PROGRAM



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DISCUSSANT AND SPEAKERS



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FARM LABOR AND H-2A VISAS:

Improved standards and enforcement needed to protect farmworkers

Daniel Costa
Director of Immigration Law and Policy Research – EPI
Visiting Scholar, Global Migration Center – UC Davis

The Changing Landscape of Farm Labor Conditions in the United States
USDA / Farm Foundation
14-17 September 2024

Economic Policy Institute
1225 Eye St. NW, Suite 600, Washington, DC 20005 • 202-775-8810 • epi.org

H-2A

- Seasonal farm jobs
- Less than one year
- No annual cap
- Dominated by crop jobs, 90% or more
- 6 months avg job duration
- Half of jobs certified for a labor contractor
- 93% of workers born in Mexico
- 3% South Africa
- 2% Jamaica

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OFFICE OF FOREIGN LABOR CERTIFICATION

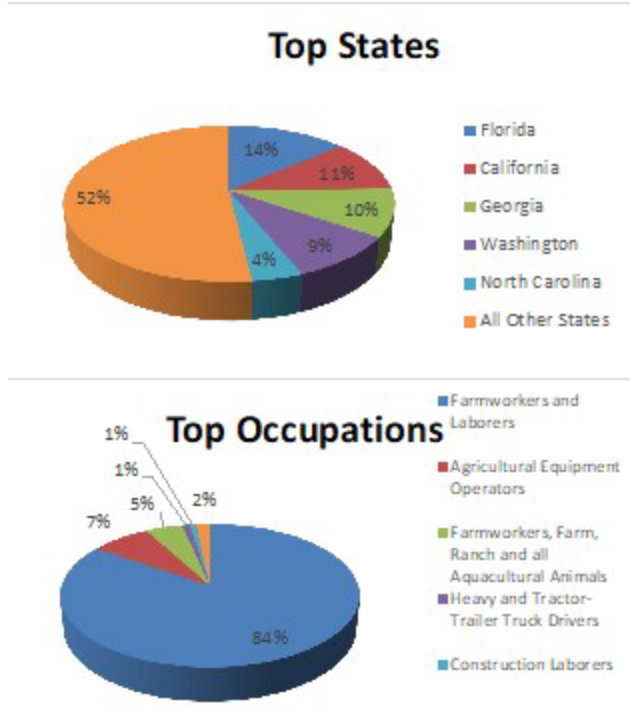
H-2A Temporary Agricultural Program –
Selected Statistics, Fiscal Year (FY) 2023

Applications Received[1]

FY23	Q1 (Oct-Dec)	Q2 (Jan – Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sept)	% Change FY 2022
21,018	5,863	8,541	3,783	2,831	10.5%

Applications Processed

Determination	FY23	Q1	Q2	Q3	Q4
Total Processed	20,881	3,255	10,501	4,016	3,109
- Certified	20,379	3,162	10,320	3,888	3,009
- Denied	197	28	59	66	44
- Withdrawn	305	65	122	62	56
Positions Requested	389,908	55,533	156,196	99,692	78,487
Positions Certified	378,513	54,738	150,805	96,408	76,562
Processed Timely[2]	98.2%	98.8%	96.9%	97.2%	97.8%



Review of Positions Certified FY 2023
(% of total certified FY 2023)

Top 10 States of Employment	Florida	51,987	13.7%
	California	40,758	10.8%
	Georgia	37,536	9.9%
	Washington	35,680	9.4%
	North Carolina	26,146	6.9%
	Michigan	15,094	4.0%
	Louisiana	13,167	3.5%
	Texas	12,076	3.2%
	Arizona	11,301	3.0%
	New York	9,919	2.6%
Top 10 Occupations (based on SOC Codes)	Farmworkers & Laborers, Crop, Nursery, & Greenhouse	319,989	84.5%
	Agri. Equip. Operators	28,027	7.4%
	Farmworkers, Farm, Ranch, & Aqua Animals	17,510	4.6%
	Heavy & Tractor-Trailer Truck Drivers	3,422	0.9%
	Construction Laborers	3,021	0.8%
	Graders and Sorters, Agricultural Products	1,561	0.4%
	First-Line Supervisors of Farming, Fishing and Forestry Workers	612	0.2%
	Agricultural Workers, All Other	583	0.2%
	Shuttle Drivers and Chauffeurs	491	0.1%
	Farm Equipment Mechanics and Service Technicians	379	0.1%
Top 10 Employers[3] (based on unique FEINs)	North Carolina Grower's Association, Inc.	11,031	2.9%
	Fresh Harvest, Inc.	5,996	1.6%
	Foothill Packing, Inc.	4,760	1.3%
	WAFLA	4,742	1.3%
	Farm-Op Kuzzens H2A, LLC	3,615	1.0%
	Temp. Labor, LLC	3,575	0.9%

Why issue a new regulation?

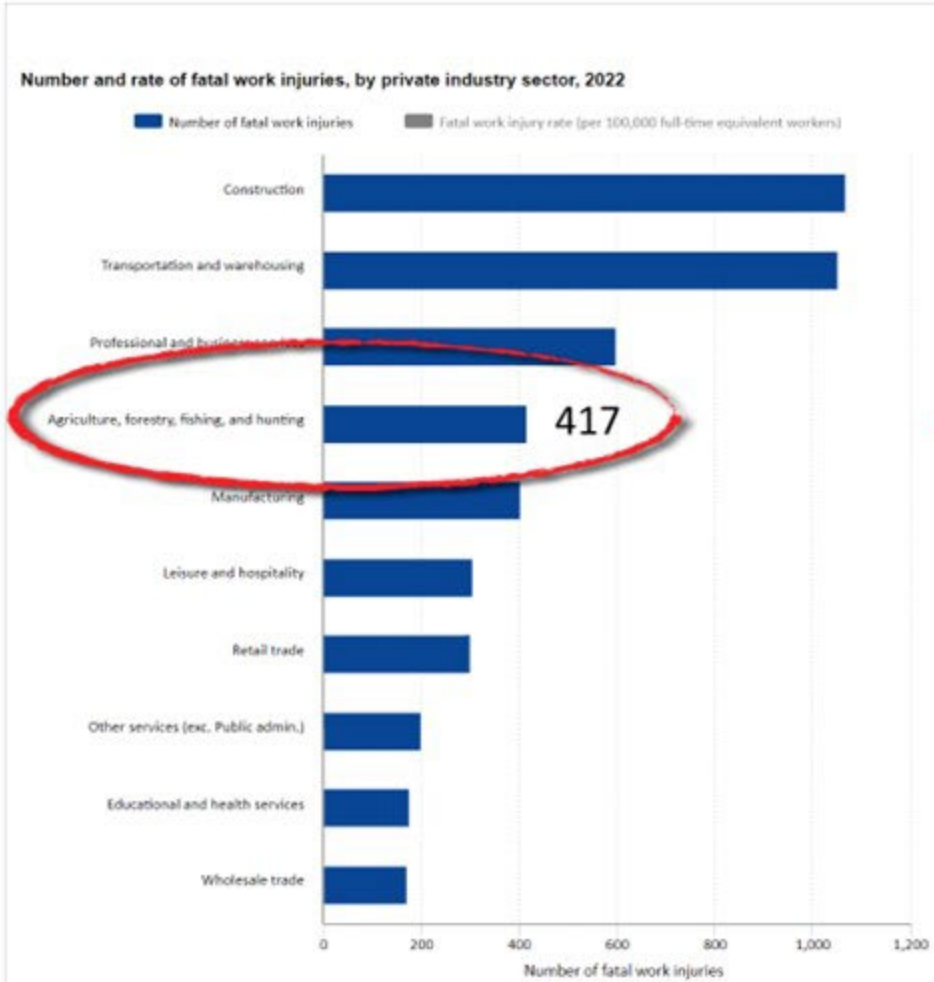
Will help lift standards in a deeply flawed H-2A program

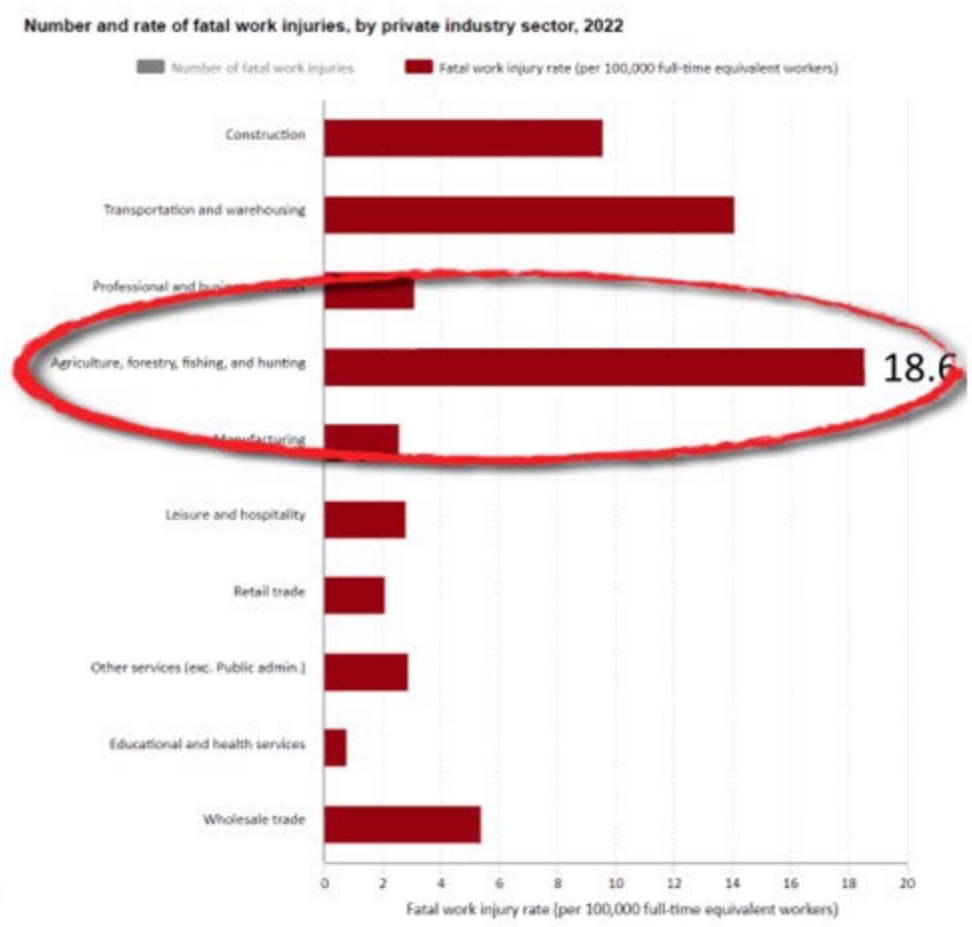
Abuses and problems:

- Recruitment of migrant workers; illegal fees; blacklisting
- Discrimination
- Hazardous work and low pay
- Lawbreaking employers can still use the programs
- Workers are tied to employers by visa status
- Oversight is lacking and inadequate access to justice
- No path to permanence
- Prolonged separation of families
- Fissured business model/FLCs

Ag remains a hazardous industry

- Industry with highest *rate* of fatal work injuries
- Industry with fourth-highest number of fatal work injuries





Wages still too low for farmworkers

The farmworker wage gap in 2023: Farmworkers earn very low wages compared with other workers

Average hourly wage rate for nonsupervisory farmworkers nationwide and H-2A farmworkers in selected states, compared with average hourly wages of other workers, 2023



Real value of the AEWR has changed little over the past decade in the top 10 H-2A states

Adverse Effect Wage Rates for H-2A farmworkers, total change and percentage change from 2013 to 2023, adjusted to constant 2023 dollars, and ranked by number of workers

State	Number of workers	Share of total H-2A workers	2014	2023	Total real change	Real % change total	Real % change annual
Florida	57,012	13.6%	$13.21	$14.33	$1.12	8.5%	0.9%
California	46,568	11.1%	$14.17	$18.65	$4.48	31.6%	3.1%
Georgia	40,352	9.6%	$12.87	$13.67	$0.80	6.2%	0.7%
Washington	38,782	9.3%	$15.28	$17.97	$2.69	17.6%	1.8%
North Carolina	27,969	6.7%	$12.70	$14.91	$2.21	17.4%	1.8%
Michigan	18,301	4.4%	$14.79	$17.34	$2.55	17.3%	1.8%
Louisiana	15,383	3.7%	$12.70	$13.67	$0.97	7.6%	0.8%
Arizona	14,343	3.4%	$12.83	$15.62	$2.79	21.7%	2.2%
Texas	12,797	3.1%	$13.98	$14.87	$0.89	6.4%	0.7%
New York	10,172	2.4%	$14.44	$16.95	$2.51	17.4%	1.8%
Total	*281,679*	*67.3%*		*Average*	*$2.10*	*15.2%*	*1.6%*
				Weighted average	*$2.16*	*15.5%*	*1.6%*

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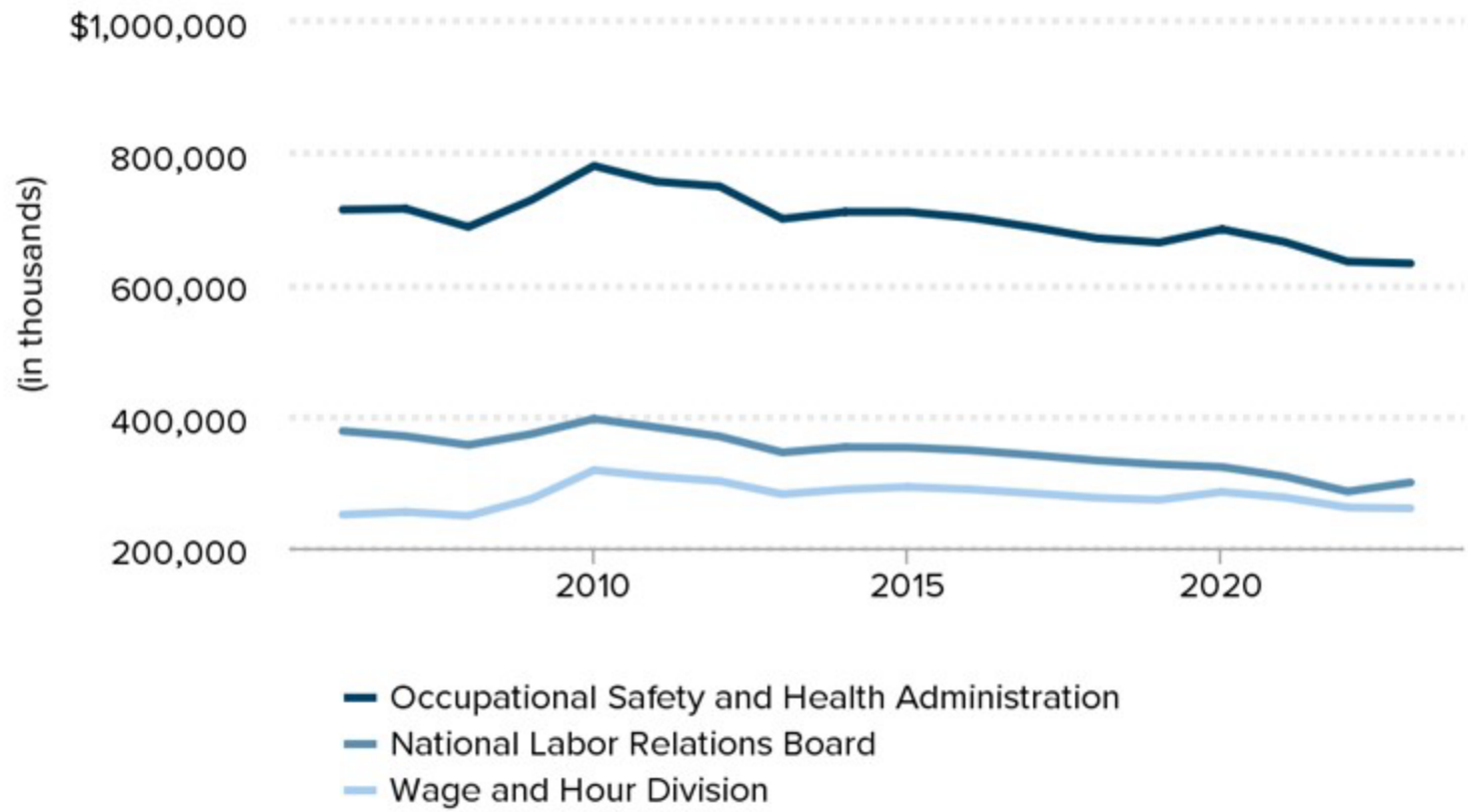
Wages still too low for farmworkers

- Myth that wages are rising sharply (nominal vs real value)
- If there's a shortage, it's normal that wages should rise—data show that's barely happening in real terms
- Farm employers want legislation to freeze the AEWR, circumventing natural wage growth in the free market
  - FLS data are already a year behind, not adjusted for inflation
- Few SWAs are determining prevailing wages, making the AEWR even more important

Labor Dept underfunded and understaffed

Funding for federal worker protection agencies has declined or been flat since 2006

Annual appropriations for the Wage and Hour Division, the Occupational Safety and Health Administration, and the National Labor Relations Board, fiscal years 2006–2023, in constant 2023 dollars (in thousands)



Labor Dept underfunded and understaffed

Number of federal wage and hour investigators is near its historic low

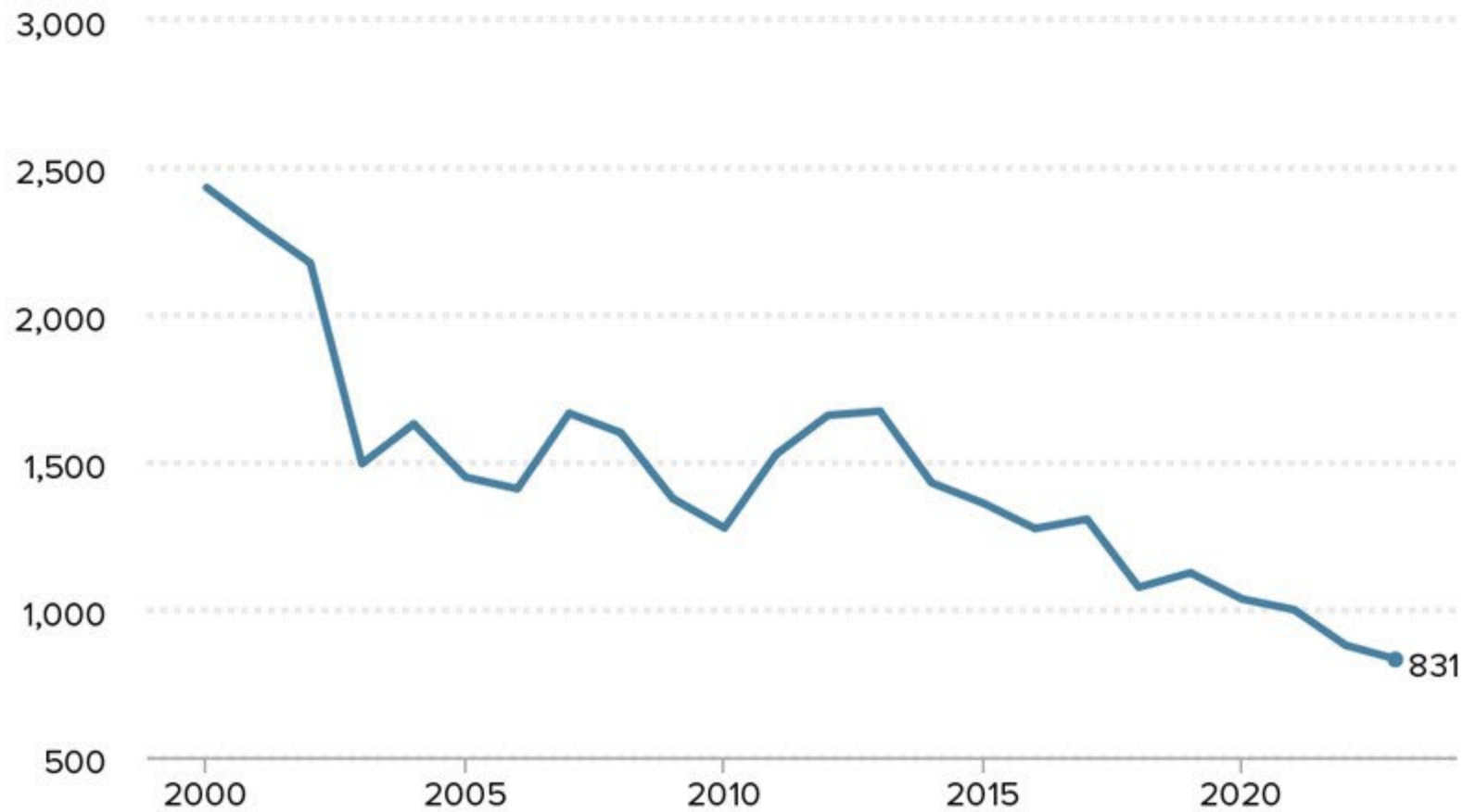
Number of Wage and Hour Division investigators, U.S. Department of Labor
1973–2023



Fewer and fewer DOL investigations on farms

The number of federal wage and hour investigations of farms hit record low in 2023

Wage and Hour Division investigations of agricultural employers, fiscal years 2000–2023



Fewer and fewer DOL investigations on farms

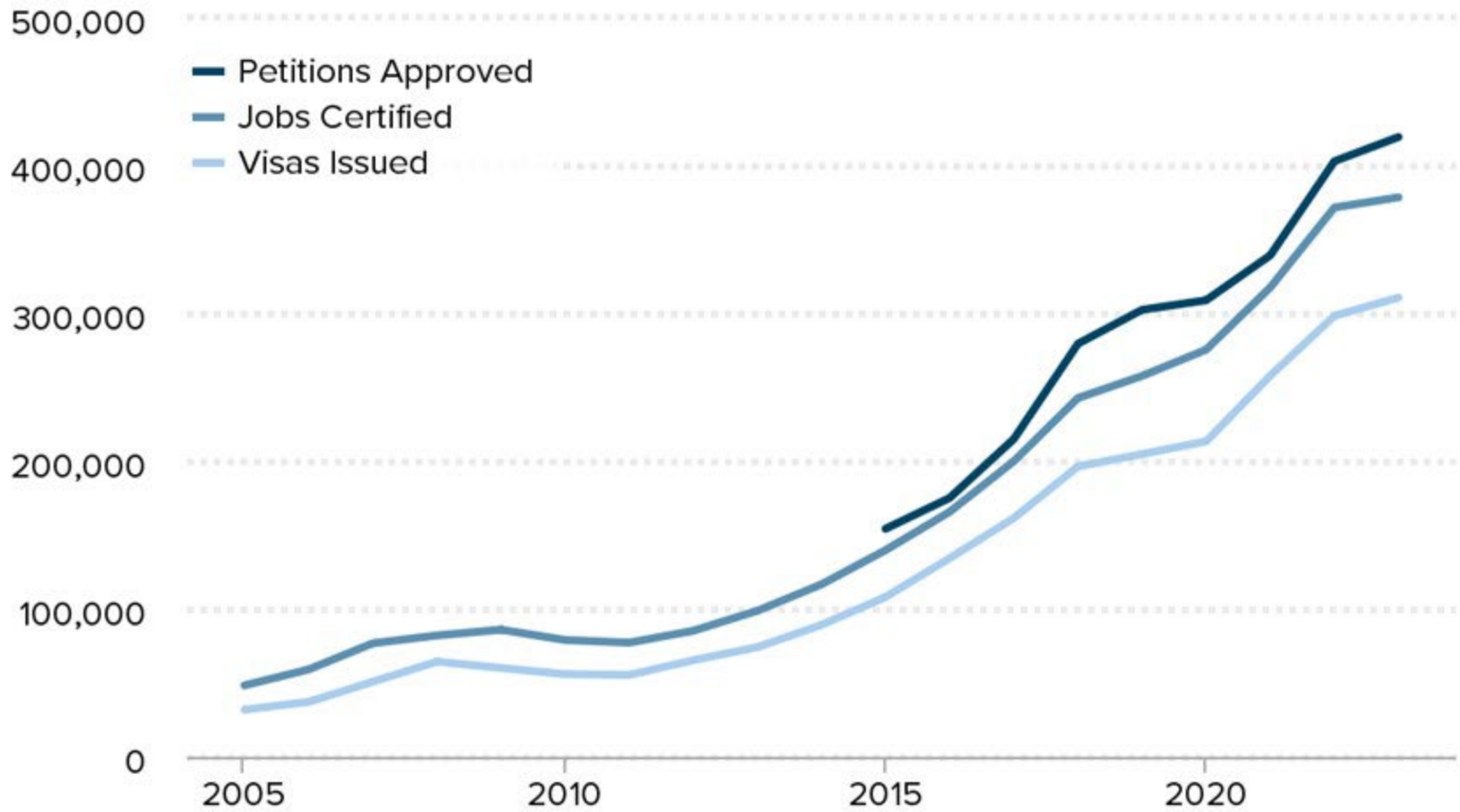
- **831**: Record low number of closed investigations in 2023
- **114,190**: Number of farm employers that pay into Unemployment Insurance in QCEW (NAICS 11, 2023)
- Using this conservative measure of farm employers, that means that **0.7% of farms are investigated** in a given year (true number is likely smaller)
- This means that almost all employers can reasonably expect that they will never be investigated
- Not all employers break that law…
  - But ones that do won't get caught

WHD WAGE AND HOUR DIVISION
U.S. DEPARTMENT OF LABOR



The H-2A visa program has more than quintupled over the past 15 years

H-2A jobs certified and visas issued, 2005–2023, and petitions approved, 2015–2023



Most violations detected on farms are H-2A rule-breaking

- H-2A violations have risen as the program grows
- Since 2000, half of back wages owed and civil money penalties assessed in ag were the result of H-2A violations
- In 2021 and 2022, this jumped to nearly three-fourths (73%)
- That means nearly all penalties in ag are now the result of H-2A violations
- Suggests violations are widespread
- ***In past 5 years, 88% of H-2A investigations detected violations***
- 70% of WHD investigations on farms detect violations

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Violations of the H-2A visa program account for most of the back wages owed and civil money penalties assessed in agriculture

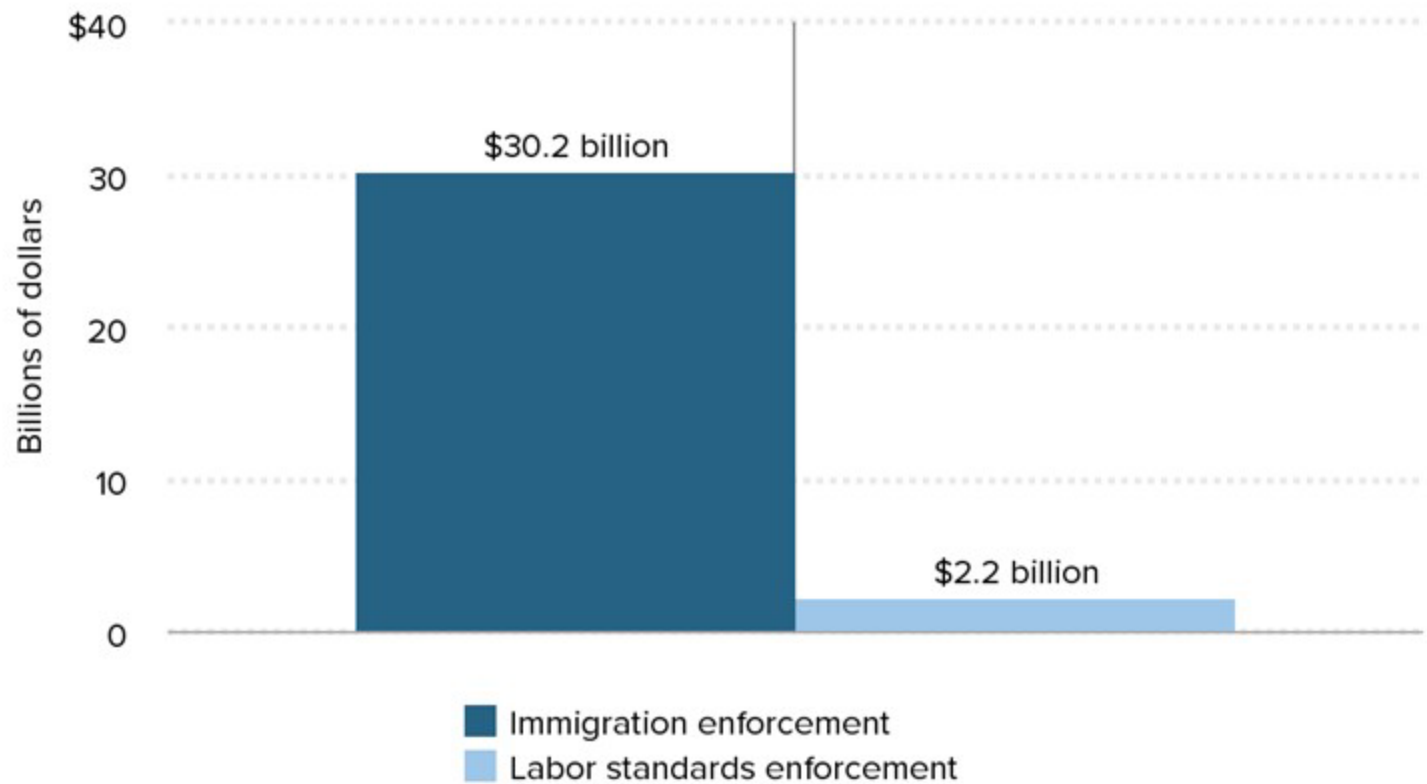
Share of total back wages owed and civil money penalties assessed by the Wage and Hour Division against agricultural employers, by type of legal violation, fiscal years 2000–2022

Fiscal Year	H-2A	MSPA	FLSA et al.
2000	8%	36%	54%
2001	24%	37%	36%
2002	12%	36%	49%
2003	19%	24%	55%
2004	11%	42%	41%
2005	27%	29%	42%
2006	11%	31%	56%
2007	11%	29%	58%
2008	31%	31%	37%
2009	27%	42%	30%
2010	17%	23%	59%
2011	33%	27%	37%
2012	52%	18%	30%
2013	70%	10%	20%
2014	41%	22%	36%
2015	59%	16%	25%
2016	44%	20%	36%
2017	49%	20%	30%
2018	47%	31%	22%
2019	42%	34%	23%
2020	52%	17%	30%
2021	73%	10%	17%
2022	73%	11%	16%
TOTALS	46%	22%	31%

Impact of immigration status in ag

Government funding for immigration enforcement was nearly 14 times as much as labor standards enforcement funding in 2023

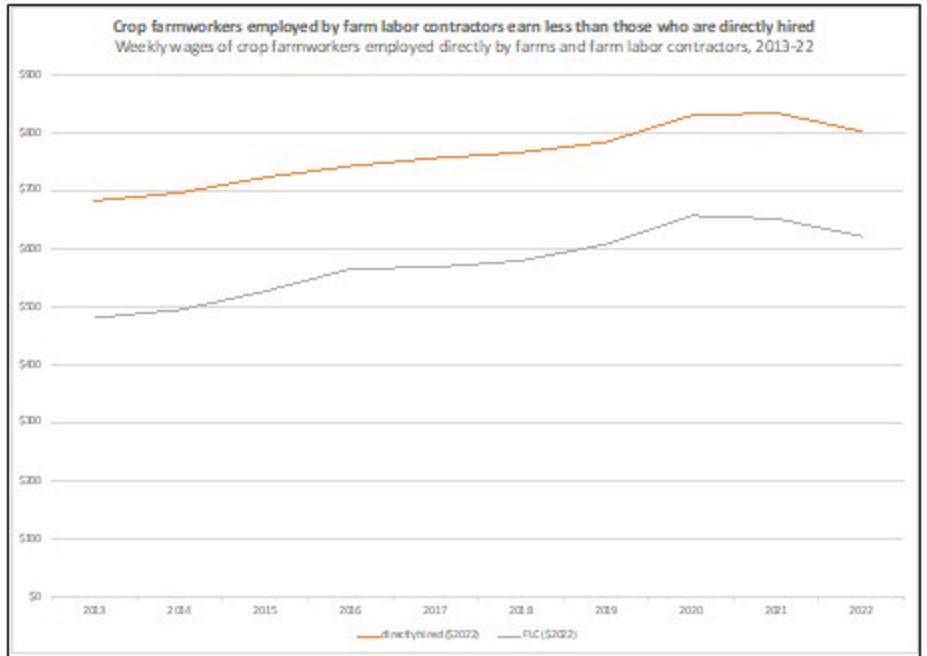
U.S. government funds appropriated for immigration and labor standards enforcement, fiscal year 2023 (in billions)



Econc

FLCs: Fissured staffing model, high rates of violations







Subsidizing agriculture

Total agriculture accounts for 1% of GDP and farms are less than 1%

Value added by industry as a percentage of Gross Domestic Product, 2013-2023

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gross domestic product	100	100	100	100	100	100	100	100	100	100	100
Agriculture, forestry, fishing, and hunting	1.3	1.1	1	0.9	0.9	0.9	0.8	0.8	1	1.1	0.9
Farms	1.1	0.9	0.8	0.7	0.7	0.7	0.6	0.5	0.8	0.9	0.7
Forestry, fishing, and related activities	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Air transportation	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.3	0.4	0.6	0.7
Water transportation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Real estate rental and leasing	13.1	12.9	12.8	12.9	12.9	13	13	13.6	13.2	13.2	13.4
Real estate	12.1	11.9	11.7	11.8	11.8	11.9	11.9	12.4	12	12	12.2
Housing	9.4	9.2	9.1	9.2	9.2	9.1	9.1	9.6	9.2	9.1	9.4
Other real estate	2.6	2.6	2.6	2.6	2.6	2.8	2.7	2.8	2.9	2.9	2.8

Agriculture accounted for 20% to 30% of all subsidies in the years leading up to the pandemic

Government subsidies by industry, dollar amount in billions and shares, 2013-2022 (2023$)



Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
All subsidies	78.1	74.8	73.5	78.3	74.5	76.8	87.0	773.4	542.8	132.6
Federal	77.4	74.1	72.9	77.7	73.7	76.1	86.3	772.6	539.3	132.0
Agricultural	14.4	12.6	13.9	16.5	14.3	16.6	26.7	54.2	29.9	15.4
Housing	43.4	43.5	44.9	47.7	44.5	47.2	47.9	51.9	50.9	50.0
Maritime	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Air carriers	0.3	0.3	0.3	0.3	0.2	0.2	0.4	23.5	24.9	0.7
Other	19.2	17.6	13.8	13.1	14.5	12.1	11.2	642.9	433.6	65.9
State and local	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.7	3.5	0.7
% as a share of total subsidies										
Federal	99.2%	99.1%	99.1%	99.2%	99.0%	99.1%	99.2%	99.9%	99.4%	99.5%
Agricultural	18.4%	16.9%	18.9%	21.1%	19.2%	21.6%	30.7%	7.0%	5.5%	11.6%
Housing	55.6%	58.2%	61.0%	60.9%	59.8%	61.5%	55.1%	6.7%	9.4%	37.7%
Maritime	0.2%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air carriers	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	3.0%	4.6%	0.5%
Other	24.6%	23.6%	18.7%	16.7%	19.5%	15.8%	12.9%	83.1%	79.9%	49.7%
State and local	0.8%	0.9%	0.9%	0.8%	1.0%	0.9%	0.8%	0.1%	0.6%	0.5%

Economic Policy Institute

Farm labor, farmworkers, and H-2A: Recap

- Hazardous, dangerous work
- Lower pay relative to other workers + AEWR issues
- Labor standards enforcement in ag
  - Lack of funding, few investigators, and few investigations
  - Impact of immigration status
- As H-2A has grown, so have violations of H-2A rules
  - Most penalties are now the result of H-2A violations
- FLCs: Fissured staffing model, high rates of violations
- Corporate welfare for ag?
  - Ag is one of the most heavily subsidized industries
- Temporary visas for year-round jobs?
- Why should ag get special treatment?
  - Exemptions from OT pay, fewer protections for H-2A workers



Economic Research Service

U.S. DEPARTMENT OF AGRICULTURE





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H2A Visa Program



H2A Program Requirements

- Step 1 → File AG Clearance Order
  - No more than 75 days before start date of need; no less than 60 days
  - Adverse Effect Wage Rate
  - Employer must offer, advertise in recruitment, and pay workers the highest of the following:
    - 1 Adverse Effect Wage Rate (AEWR)
    - 2. Prevailing Hourly Wage or Piece Rate
    - 3. Collective Bargaining Wage
    - 4. Federal or State Minimum Wage



H2A Program Requirements

- Step 2 → Temporary Labor Certification
  - Seasonal Need Statement; Housing Inspection; Workers Comp etc
- Step 3 → Recruitment Period
  - Job Opening Posted on State Workforce Agency Website
  - Submit Recruitment Report 7 calendar days from when recruitment period opens



H2A Program Requirements

- Step 4 → USCIS; File I-129 and required supporting Docs
- Step 5 → DOS; Visa Processing



Cost to Employer for Partaking in H2A Program

- AEWR → This year for standard farm worker in California $19.75.
  - CA State Minimum Wage is $16.00
- Visa Processing
- Housing
- Transportation and Food from Home country to worksite and back when work contract is over
- Daily transportation to and from worksite
- Guarantee ¾ work contract



Future of H2A Visa Program?

- Unless AEWR rises to extreme levels it is here to stay
- Farms may rely on this program even more if Trump Administration takes Office
  - Increased audits on farms and businesses
  - Removing individuals here without status





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AgSafe FOOD & FARMS

AgSafe Overview
May 28, 2024

ABOUT US

- Established in 1991
- Created by the agricultural industry
- Membership based/nonprofit
- Headquartered in Modesto, CA
- Regional office in Louisville, Kentucky
- Team of 12



MISSION

AgSafe's mission is to provide practical health and safety education to the agricultural community.



SAFE | HEALTHY | WHOLE

THE WHY

- One of the most dangerous occupations
- Migratory workforce
- Language and literacy
- Regulatory climate
- Employer's desire to keep workforce safe

THE HOW

- Boots on the ground approach
- Bicultural education team
- Address adult learner needs



By The Numbers

- Trained over 150,000 farmworkers to owners and operators since 1991

- Last year
  - Provided 183 trainings
  - Trained 3,449 individuals
  - 10,822 hours of training received

Specialized Programs

- Annual Conference
  ACTIVATE
- Farm Labor Contractor Program
- Certificate Programs
  - Safety Certificate Program
  - HR Certificate Program
- Train-the-Trainer Programs
  - Equipment/Safety Topics
  - HR Topics
  - First Aid/CPR (adult & pediatric)



Emerging Initiatives

- Leadership Development
  - Supervisor Development Academy
  - Building Empowered Supervisors Together (BEST)

- Mental Health & Wellness
  - Creating a Culture of Health Webinars – Supervisor Focused
  - Mitigating Farm Stresses: Workshops on Personal Well-Being
    - Question Persuade Refer (QPR) – Farmer Focus
  - Mind Your Melon https://mindyourmelon.org



Questions?

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CLOSING REMARKS



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KELLY MAGUIRE

Assistant Administrator
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ADJOURN

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