



Asking Workers About Their Work Day and Hygiene Practices to Better Determine Potential Pesticide Exposures:

Preliminary Findings from the National Agricultural Workers Survey

Annual Midwest Stream Farmworker Health Forum
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Disclaimer: Views are solely those of the presenters



Outline

- A little background on farmworker demographics
- Discussion of how we developed the worker hygiene supplement
- Findings on crop workers work day and hygiene practices.



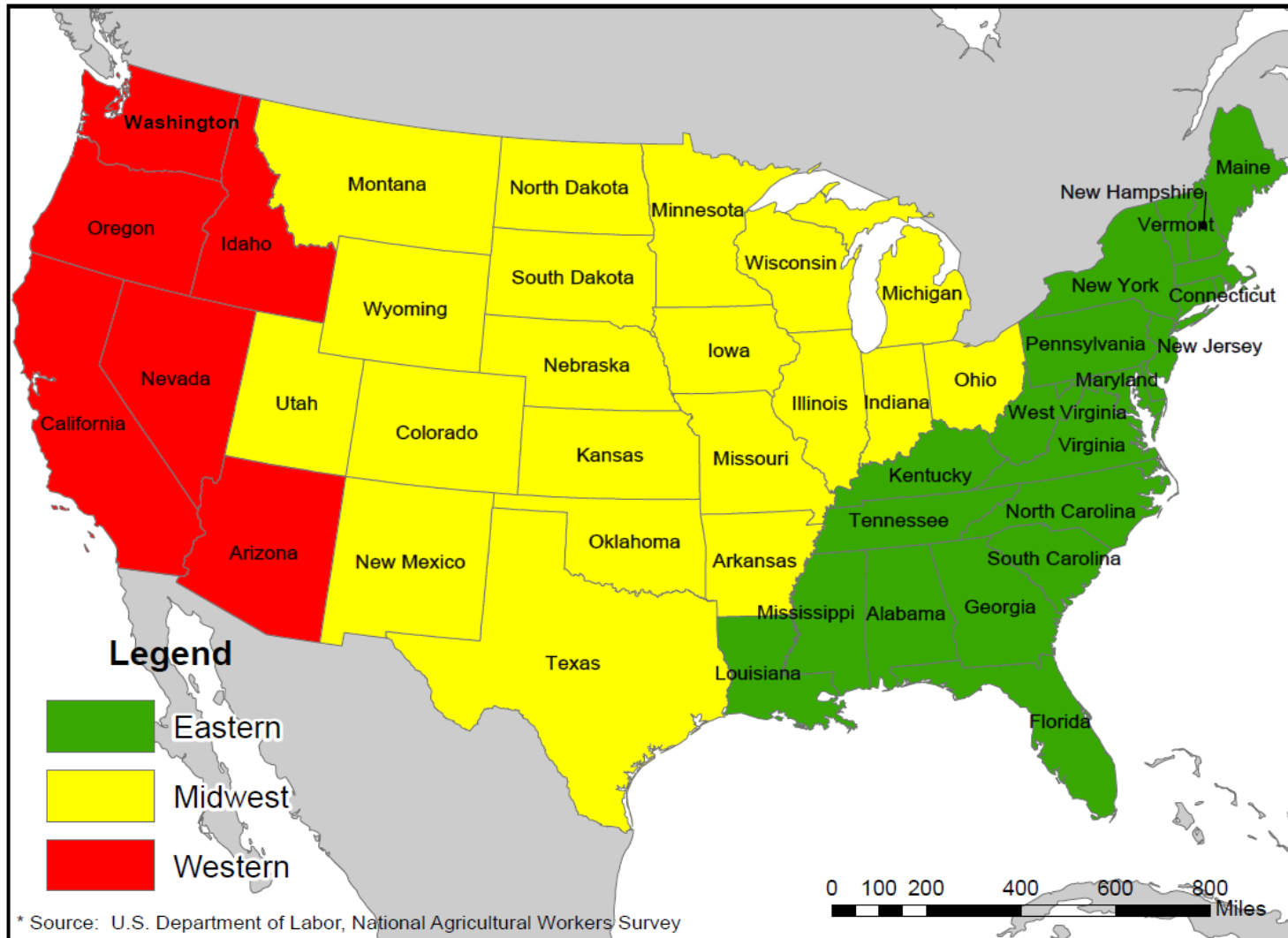
National Agricultural Workers Survey

- National survey of crop workers, started fiscal year 1989
- Annual random sample survey of 1,500-3,000 workers
- Establishment survey – find workers at work
- Only source of reliable information on crop worker demographics
- Limited regional coverage and no local numbers

NAWS Data

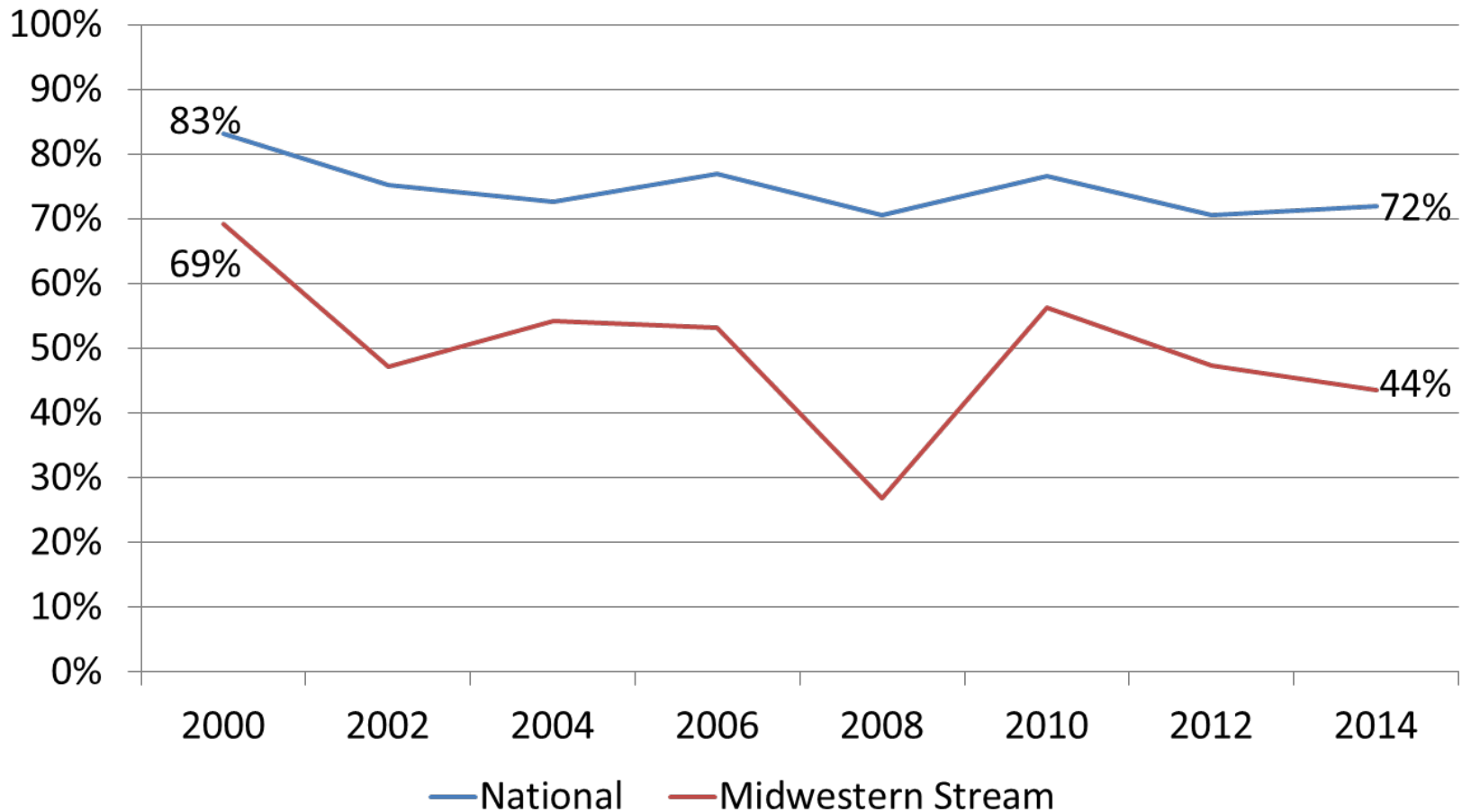
- Two time periods will be compared: 1999-2000 and 2013-2014; these time points are referred to as 2000 and 2014 throughout the talk.
- The 2013-2014 data are preliminary; this PowerPoint may not be released at this time
- Total US sample sizes were 7,198 in 1999-2000
- and 4,235 in 2013-2014.
- Midwest Stream sample sizes were 1,443 in 1999-2000 and 885 in 2013-2014.
- Suppressed values are identified with a superscript 'b' and have fewer than four observations or have relative standard errors greater than 50 percent.
- Values to be interpreted with caution are identified with a superscript 'a', and have relative standard errors between 31 and 50 percent

NAWS Migrant Streams



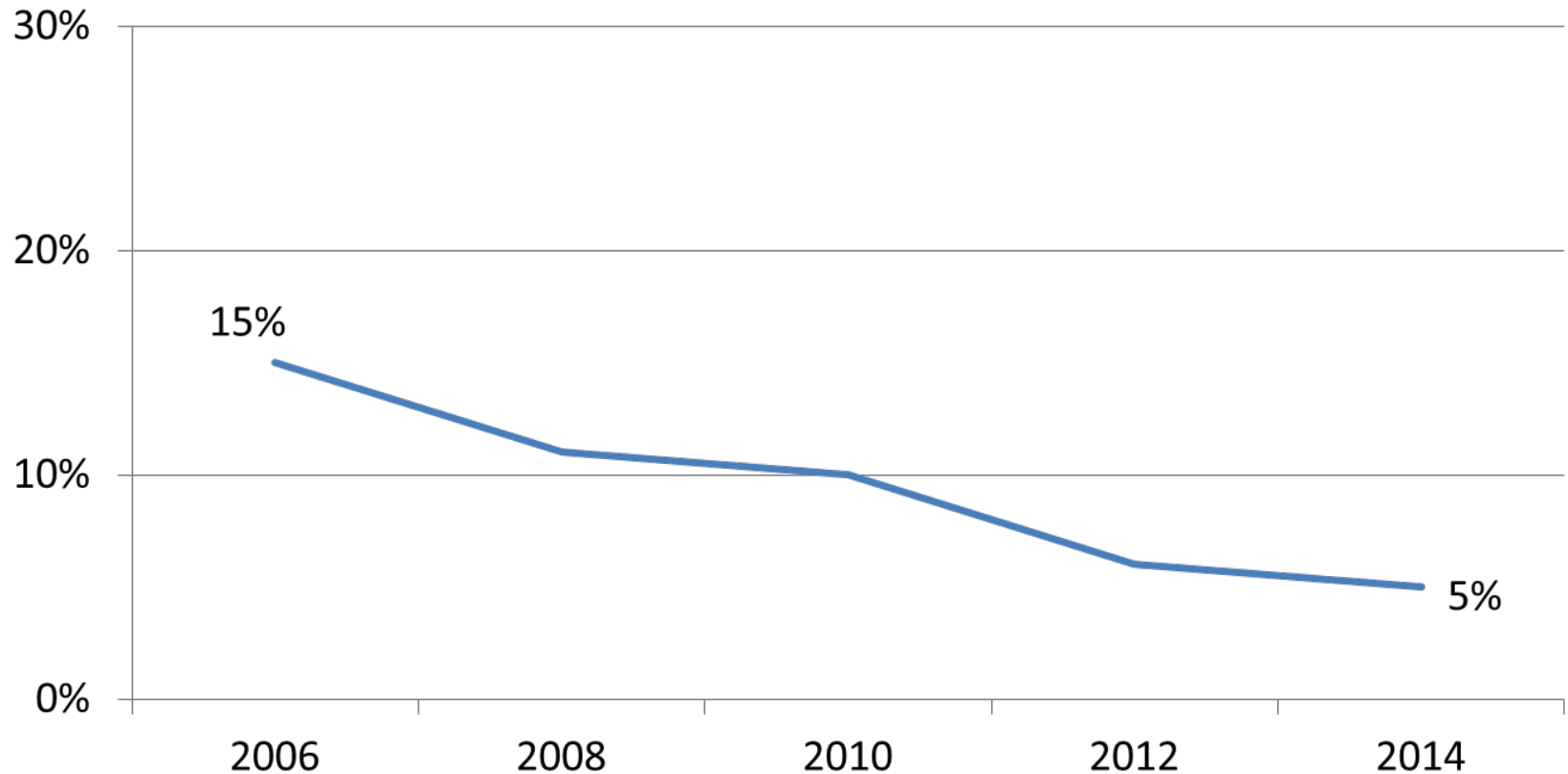
Trend in Share of Farmworkers Born Abroad

(Source: National Agricultural Workers Survey)



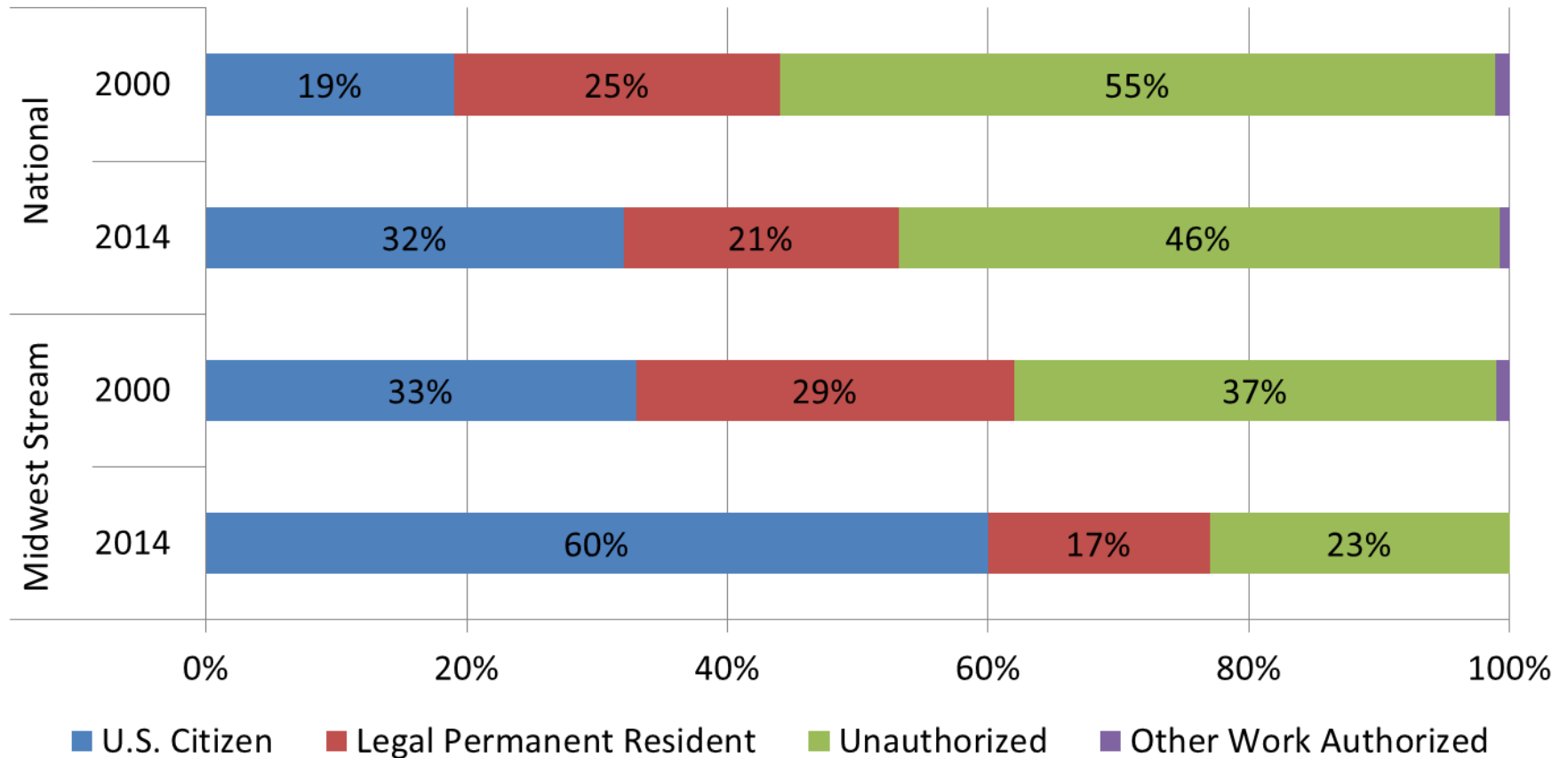
Trend In Share of Farmworkers Identified As Indigenous

(Source: National Agricultural Workers Survey)



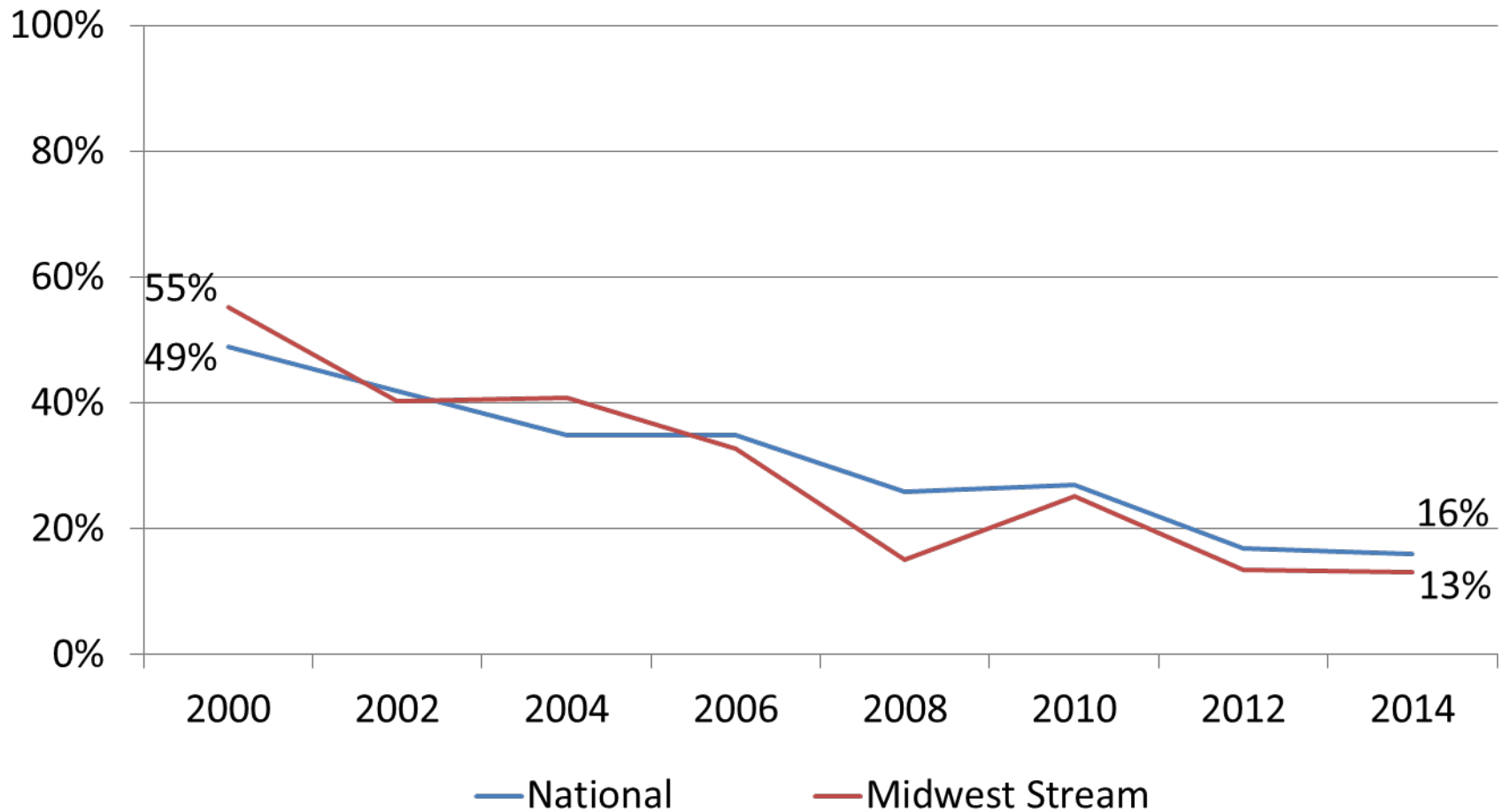
Farmworkers' Current Legal Status

(Source: National Agricultural Workers Survey)



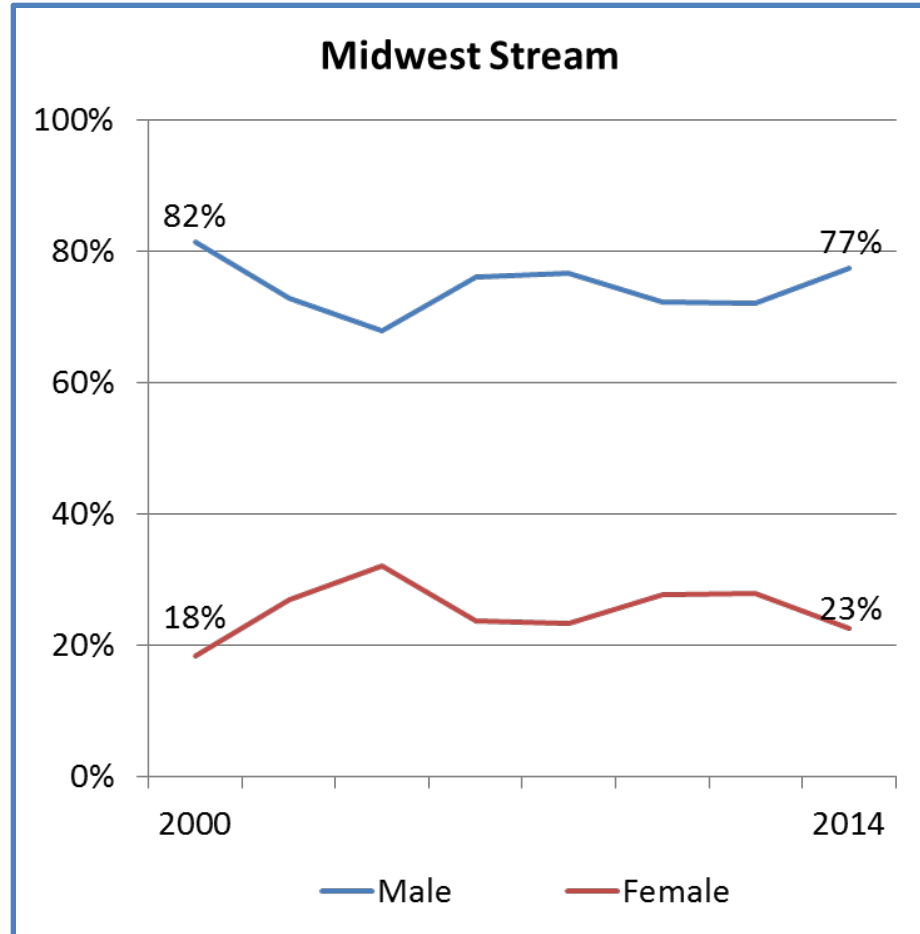
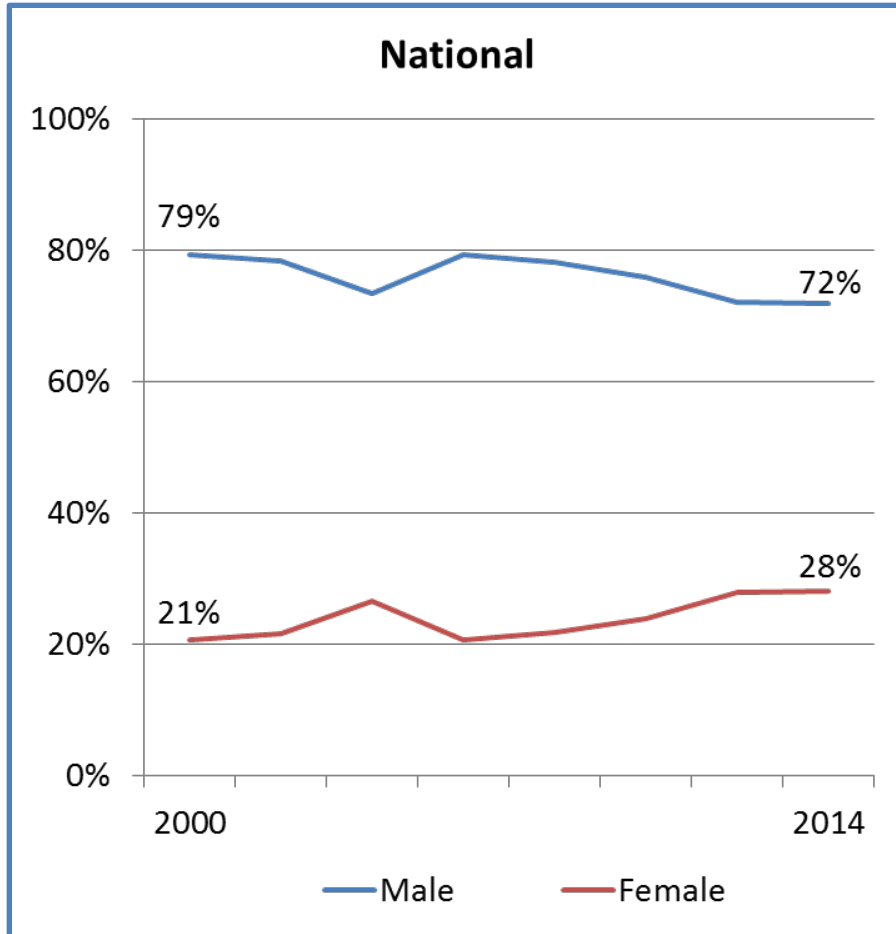
Trend In Share of Farmworkers Who Are Migrant

(Source: National Agricultural Farmworkers Survey)



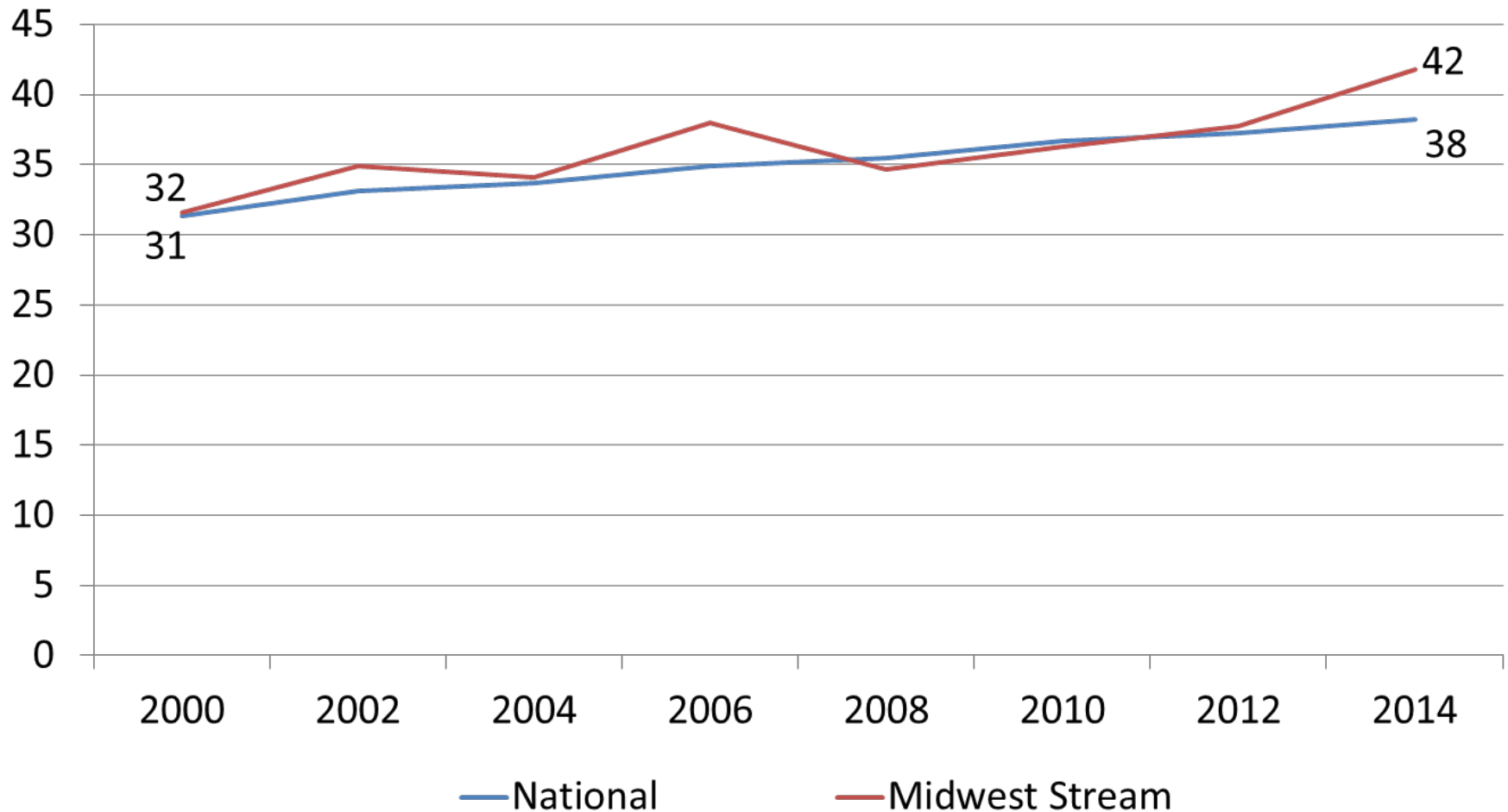
Trend in Gender Distribution of Farmworkers

(Source: National Agricultural Workers Survey)



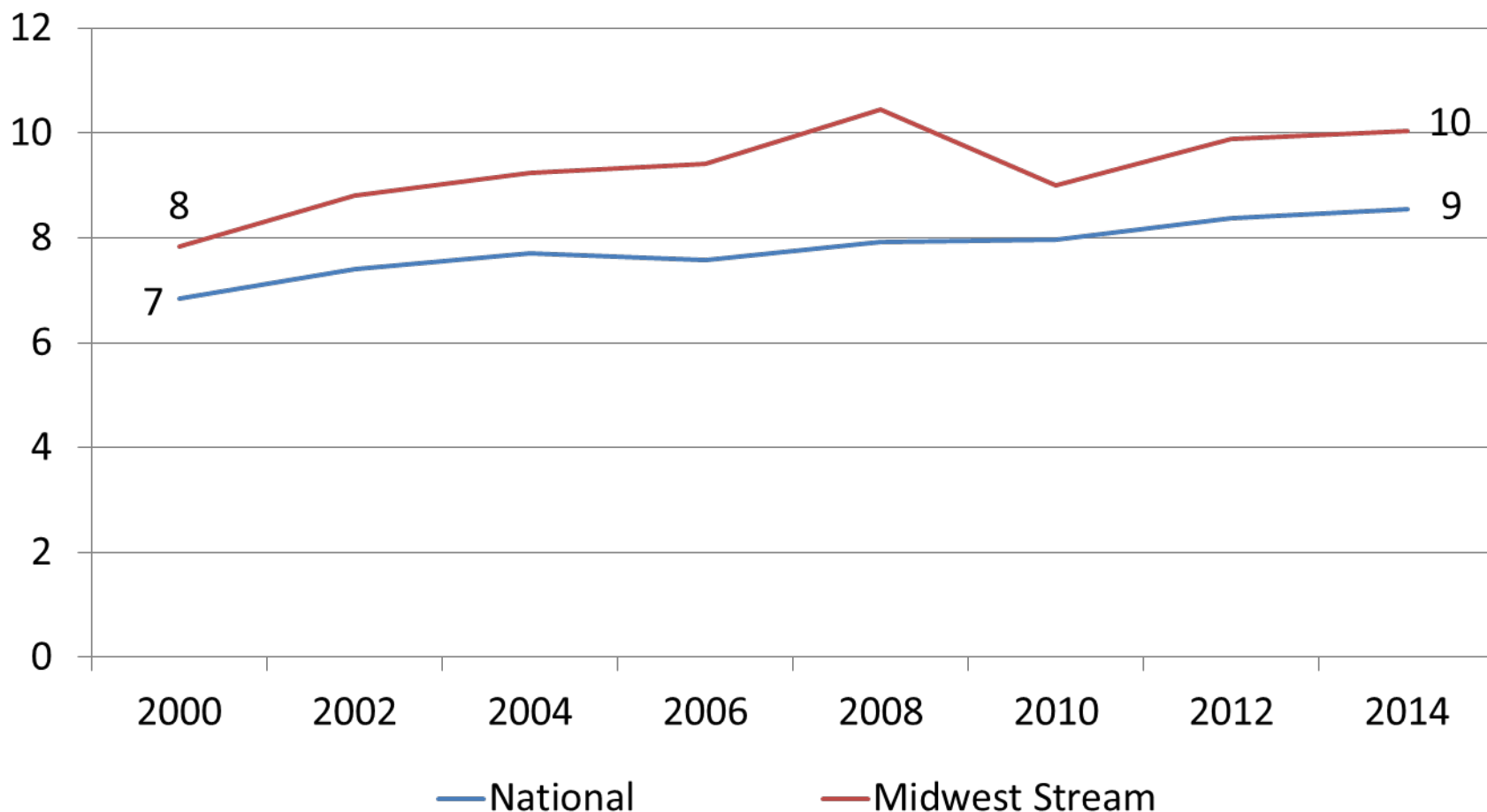
Trend In Farmworkers' Average Age

(Source: National Agricultural Workers Survey)



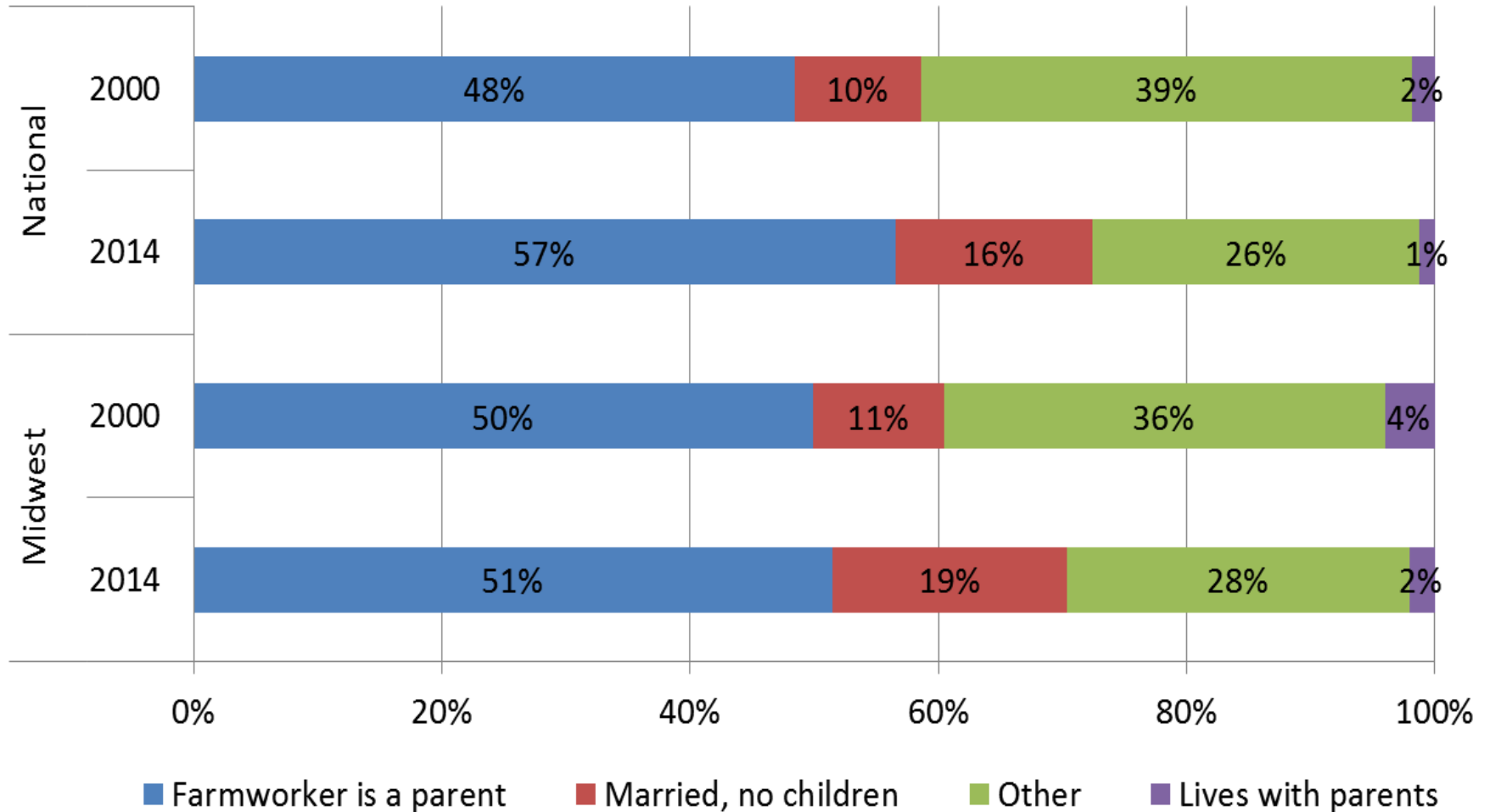
Trend In Average Years of Education Completed

(Source: National Agricultural Workers Survey)



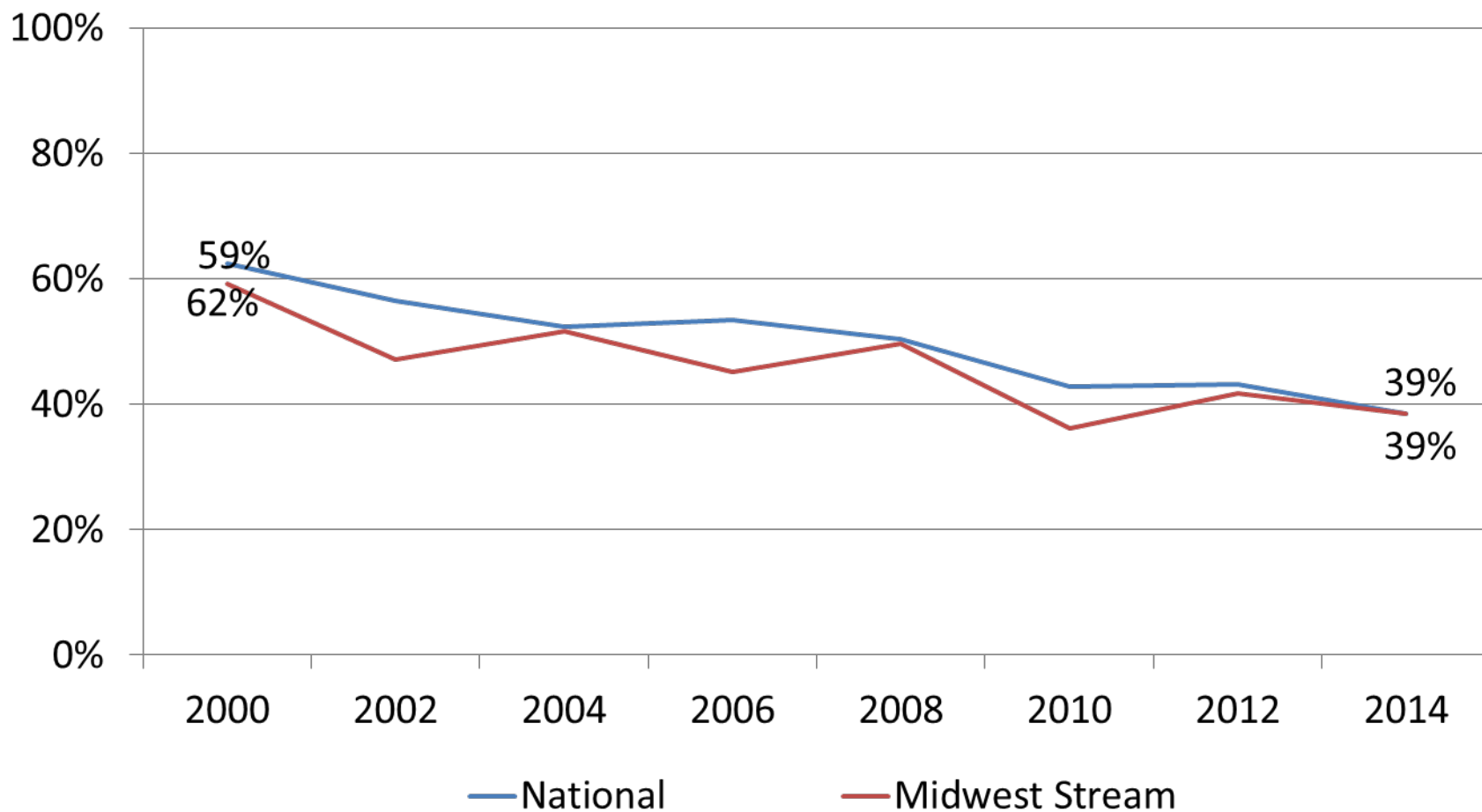
Family Composition

(Source: National Agricultural Workers Survey)



Trend In Share of Farmworkers Who Are Unaccompanied

(Source: National Agricultural Workers Survey)





Setting the Stage

What are some of the ways that workers come in contact with pesticide residues?

What are some of the things that workers can do to minimize exposure?



Purpose of the Hygiene Supplement

EPA wanted to find out information on workers' potential exposure to pesticide residues

- Time spent in contact with crops
- Workers bathing/showering behavior
- Clothing workers are wearing
- Are work clothes washed before being re worn



Constraints for Developing Hygiene Supplement

- Observational or self-reported data
- Could only ask limited number of questions with limited time
- Needed to keep answers concise and factual



Focuses for Developing Hygiene Supplement

- Length of work day
- Location and time of bath/shower
- Three specific pieces of clothing:
 - Pants
 - Long sleeve shirts
 - Short sleeve shirts

Factors in Designing Questions for the Hygiene Supplement

Issue	Solutions
What can workers remember and report accurately?	Questions focused on “today” and “yesterday”
Avoiding potentially embarrassing questions	<ul style="list-style-type: none">• Placement of supplement within the survey as a whole• Wording of questions• Introductions to questions
Avoiding socially correct answers	<ul style="list-style-type: none">• Wording of questions• Introductions to questions



EPA Pilot Testing

One-on-one interviews with workers in Florida, California and Texas in 2009 and 2010

- Obtaining feedback on how participants interpreted the questions
- Asking participants for suggestions and possible alternative wording
- Engaging respondents in:
 - Describing their activities after completing their work for the remainder of the day
 - Describing their personal hygiene practices

Time and Tasks from EPA Section of NAWS

[REV. Sep 24, 2013]		SECTION EP. NEW EPA VERSION		8-14. Questionnaire\2013\CYCLE77\ENGL\SHCY77\ENG32013CY77.wpd	
<p>EP1. When was the last time you worked two (2) consecutive days? <i>[If worked yesterday, enter yesterday's date as 1st Day]</i></p> <p>a. First day [MM/DD/Year]: ____/____/____</p> <p>b. Second day [MM/DD/Year]: ____/____/____</p> <p><i>[If "First day" is more than 15 days from today, skip to EP7, otherwise continue with EP2]:</i></p>		<p>EP2. On the first day of the consecutive days, at what time did you arrive to work?</p> <p>_____:_____ AM/PM</p> <p>EP3. And...what time did you leave work <i>[First day]</i>?</p> <p>_____:_____ AM/PM</p>			
EP4. TIME SPENT DOING CROP/TASK ON THE FIRST DAY <i>[REFER TO FIRST DAY IN "EP1a"]</i>					
	a	b	c	d	
	What crops did you work with the first day?	What tasks were you doing with <i>[crops in "a"]</i> the first day?	How long did you work doing <i>[TASK in "b"]</i> with <i>[CROP in "a"]</i> ?	How long were you idle (e.g., rest, break, lunch, etc.) during <i>[TIME in "c"]</i> ?	
1			Hour(s): Minutes:	Hour(s): Minutes:	
2			Hour(s): Minutes:	Hour(s): Minutes:	
3			Hour(s): Minutes:	Hour(s): Minutes:	
4			Hour(s): Minutes:	Hour(s): Minutes:	
5			Hour(s): Minutes:	Hour(s): Minutes:	

Where and When do Workers Shower/Bathe

EP5. SHOWER/BATH

"Due to busy schedules or limited access to washing facilities, it is not always possible for one to take a shower or bath right after work."

EP5. After your first work day [Date in EP1a] were you able to bathe/shower (soap and water)?

0 __ NO 1 __ YES: When?: [MM/DD/YEAR]: ____/____/____ TIME: ____:____:____ AM/PM

Where?: [Check one]: __ Work __ Home __ Other (specify): _____

Clothing Articles and Laundering

EP6. CLOTHING ARTICLES							
"It is also recognized that workers do not always have enough working clothes or enough time or money for washing their work clothes as often as they might like, and that some articles of clothing are not washed as often as others"							
a					b		c
What clothing articles did you wear on the first day?					...Are you wearing (or did you wear) any of the same clothing articles you wore on yesterday (or first day?) [CHECK ONE]		[REFER TO "YES" AND "NO" ITEMS IN "b"] ...Which of those clothing articles were washed (soap and water) before you wore them (today) again? [CHECK ANSWER]
		YES	NO	D/K	YES	NO	WASHED
1	PANTS						<input type="checkbox"/> YES <input type="checkbox"/> NO
2	LONG SLEEVE SHIRT						<input type="checkbox"/> YES <input type="checkbox"/> NO
3	SHORT SLEEVE SHIRT						<input type="checkbox"/> YES <input type="checkbox"/> NO
4	OTHER: -----						<input type="checkbox"/> YES <input type="checkbox"/> NO

EP7. [Ask this question only if answers to "EP6c" are "YES" to (all): "c1, c2 and c3", otherwise skip to section "NP"]

Have you ever had to wear the same shirt or pants (without washing them) when doing FW?

0__NO 1__YES: Which one?: __a. long sleeve shirts? __b. short sleeve shirt __c.pants?



New Issues When Fielding Survey

- How to categorize overnight workers?
- A related issue: What about 24 hour shifts?
- What about the hoodies?

Hours at Work

(Source: National Agricultural Workers Survey, 2013-2014)

The average work day was 9.2 hours long. Half of crop workers have workdays that are between 8.3 and 10.0 hours long. The shortest workday was 2.4 hours and the longest 18 hours.

Category	Minimum	25 th percentile	Mean	75 th percentile	Max
All Workers	2.3	8.3	9.2	10.0	18.0

Hours at Work

(Source: National Agricultural Workers Survey, 2013-2014)

Category	Minimum	Q1	Mean	Q3	Max
All Workers	2.3	8.3	9.2	10.0	18.0
Authorized	2.8	8.3	9.2	10.2	18.0
Unauthorized	2.3	8.3	9.2	10.0	15.1
Male	2.3	8.5	9.4	10.3	18.0
Female	3.0	8.2	8.8	9.7	16.0
14-24 Years Old	3.0	8.3	9.1	10.2	15.1
25-34 Years Old	2.3	8.5	9.3	10.0	16.8
35-44 Years Old	2.3	8.2	9.1	10.0	17.0
45-54 Years Old	2.8	8.3	9.4	10.4	15.0
55+ Years Old	3.0	8.4	9.3	10.2	18.0



Ability to Bathe After Work

(Source: National Agricultural Workers Survey,
2013-2014)

- Nearly all (99%) farmworkers bathed after the end of the workday.
- Nearly all (99%) farmworkers bathed at home.

Ability to Bathe After Work

(Source: National Agricultural Workers Survey, 2013-2014)

Category	% Bathed After First Work Day	% Bathed at Home
All Workers	99%	99%
Authorized	99%	99%
Unauthorized	99%	99%
Male	99%	99%
Female	99%	99%
14-24 Years Old	99%	99%
25-34 Years Old	99%	99%
35-44 Years Old	99%	98%
45-54 Years Old	100%	99%
55+ Years Old	100%	99%

Time Between Work and Bathing in Hours

(Source: National Agricultural Workers Survey, 2013-2014)

Ninety-six percent of respondents reported bathing on the same day as their first work day. The remaining four percent said they bathed one day later.

Category	Min	Q1	Mean	Q3	Max
All Workers	.1	1.0	1.7	2.0	10.7

Time Between Work and Bathing in Hours

(Source: National Agricultural Workers Survey, 2013-2014)

Category	Minimum	Q1	Mean	Q3	Max
All Workers	.1	1.0	1.7	2.0	10.7
Authorized	.1	.8	1.6	2.0	10.7
Unauthorized	.1	1.0	1.7	2.0	10.7
Male	.1	1.0	1.6	2.0	10.7
Female	.1	.8	1.8	2.0	10.0
14-24 Years Old	.1	.4	1.4	1.9	8.7
25-34 Years Old	.2	.9	1.8	2.0	10.7
35-44 Years Old	.1	1.0	1.6	2.?	8.0
45-54 Years Old	.2	1.0	1.7	2.0	10.7
55+ Years Old	.1	.9	1.8	2.0	10.0



Clothing Farmworkers Wore

(Source: National Agricultural Workers Survey, 2013-2014)

On the first day,

- 99% wore pants
- 65% wore one shirt type
 - 42% wore long sleeves
 - 23% wore short sleeves
- 35% wore both short and long sleeve shirts
- 34% wore “other” clothing

Other Clothing Articles

(Source: National Agricultural Workers Survey,
2013-2014)

Common “other clothing”

- Outerwear including coat, vest, jacket, hoodie, sweatshirt or sweater
- Coveralls or Overalls
- Gloves
- Bandana
- Cap/Hat

Less Common: Shorts, Apron



Clothing Articles: Pants

(Source: National Agricultural Workers Survey, 2013-2014)



- Nearly all workers said they wore pants on the first work day (99%).
- 15 percent of them reported that they were wearing the same pants on the second day.
- 10 percent wore pants that had not been laundered.

Clothing Articles: Long Sleeve Shirt

(Source: National Agricultural Workers Survey, 2013-2014)



- 77 percent of workers said they wore a long sleeve shirt on the previous day.
- 13 percent of them reported that they were wearing the same long sleeve shirt on the second day.
- 8 percent wore a long sleeve shirt that had not been laundered.

Clothing Articles: Short Sleeve Shirt

(Source: National Agricultural Workers Survey, 2013-2014)



- 58 percent of workers said they wore a short sleeve shirt on the previous day;
- 14 percent of them reported that they were wearing the same short sleeve shirt on the second day.
- 8 percent wore a short sleeve shirt that had not been laundered

Clothing Articles: Other

(Source: National Agricultural Workers Survey, 2013-2014)



- 34 percent of workers said they wore “other” clothing article on the first work day.
- 51 percent of them reported that they were wearing the same “other” clothing article on the second day.

Was Item Washed Before Wearing?

(Source: National Agricultural Workers Survey, 2013-2014)

Clothing Items	Item was worn previous day and washed	Item was worn before previous day and washed
Pants	46%	90%
Long Sleeve Shirt	51%	92%
Short Sleeve Shirt	74%	95%

Clothing Article: Pants

(Source: National Agricultural Workers Survey, 2013-2014)



Category	Yes, I wore pants on first day	Yes, I am wearing same pants as yesterday	Yes, pants were washed before I wore them TODAY	No, I am not wearing same pants as yesterday	Yes, pants were washed before I wore them AGAIN
All Workers	99%	15%	46%	85%	98%
Authorized	98%	15%	38%	85%	98%
Unauthorized	99%	16%	53%	84%	98%
Male	99%	17%	40%	83%	98%
Female	97%	10%	71%	90%	97%
14-24 Years Old	98%	16%	27%	84%	98%
25-34 Years Old	99%	15%	52%	85%	98%
35-44 Years Old	99%	12%	60%	88%	97%
45-54 Years Old	97%	15%	47%	85%	99%
55+ Years Old	100%	20%	38%	80%	96%

Clothing Article: Pants

(Source: National Agricultural Workers Survey, 2013-2014)



Category	Yes, I wore pants on first day	Yes, I am wearing same pants as yesterday	Yes, pants were washed before I wore them TODAY	No, I am not wearing same pants as yesterday	Yes, pants were washed before I wore them AGAIN
Farmworker is parent	99%	15%	50%	85%	98%
Married with no kids	98%	13%	56%	87%	98%
Other family composition	99%	18%	36%	82%	99%
Farmworker is migrant	98%	15%	45%	85%	98%
Farmworker is not migrant	100%	18%	48%	82%	98%

Clothing Article: Pants

(Source: National Agricultural Workers Survey, 2013-2014)



Category	Yes, I wore pants on first day	Yes, I am wearing same pants as yesterday	Yes, pants were washed before I wore them TODAY	No, I am not wearing same pants as yesterday	Yes, pants were washed before I wore them AGAIN
Field crop	99%	23%	52%	76%	100%
Fruits and nuts	99%	13%	40%	87%	98%
Horticulture	97%	11%	50%	89%	98%
Vegetables	99%	18%	51%	82%	97%
Pre-harvest	98%	18%	36%	82%	98%
Harvest	99%	17%	48%	83%	97%
Post-harvest	99%	10%	51%	90%	98%
Semi-skilled	99%	15%	51%	85%	99%

Clothing Article: Pants

(Source: National Agricultural Workers Survey, 2013-2014)



Category	Yes, I wore pants on first day	Yes, I am wearing same pants as yesterday	Yes, pants were washed before I wore them TODAY	No, I am not wearing same pants as yesterday	Yes, pants were washed before I wore them AGAIN
Off farm, non employer property	99%	14%	47%	86%	98%
On farm	99%	21%	40%	79%	100%

Clothing: Long Sleeve Shirt

(Source: National Agricultural Workers Survey, 2013-2014)



Category	Yes, I wore long sleeve shirt on first day	Yes, I am wearing same long sleeve shirt as yesterday	Yes, long sleeve shirt was washed before I wore it TODAY	No, I am not wearing same long sleeve shirt as yesterday	Yes, long sleeve shirt was washed before I wore it AGAIN
All Workers	77%	13%	51%	87%	98%
Authorized	71%	13%	42%	87%	98%
Unauthorized	83%	13%	58%	87%	98%
Male	76%	15%	45%	85%	99%
Female	77%	10%	73%	90%	97%
14-24 Years Old	63%	15%	45%	85%	98%
25-34 Years Old	76%	14%	54%	86%	98%
35-44 Years Old	81%	12%	67%	88%	98%
45-54 Years Old	80%	11%	50%	89%	99%
55+ Years Old	83%	16% ^a	31% ^a	84%	96%

Clothing: Short Sleeve Shirt

(Source: National Agricultural Workers Survey, 2013-2014)



Category	Yes, I wore short sleeve shirt on first day	Yes, I am wearing same short sleeve shirt as yesterday	Yes, short sleeve shirt was washed before I wore it TODAY	No, I am not wearing same short sleeve shirt as yesterday	Yes, short sleeve shirt was washed before I wore it AGAIN
All Workers	58%	14%	74%	86%	98%
Authorized	61%	11%	70%	89%	98%
Unauthorized	55%	17%	76%	83%	99%
Male	57%	16%	69%	84%	98%
Female	60%	9%	92%	91%	98%
14-24 Years Old	68%	12%	43%	88%	98%
25-34 Years Old	57%	15%	82%	85%	98%
35-44 Years Old	58%	14%	89%	86%	98%
45-54 Years Old	60%	13%	71%	87%	100%
55+ Years Old	45%	16%	73%	84%	100%

Farmworkers Wearing Unwashed Clothing

(Source: National Agricultural Workers Survey, 2013-2014)



On the interview day:

- 11 percent of crop workers wore one or more unwashed items
- 89 percent wore all washed clothing

Frequency of Unwashed Clothes

Status	Percent of farmworkers
Wore unwashed clothes on the interview day	11%
Wore clean clothes but has worn unwashed clothes on other days	18%
Wore unwashed clothes at some point	28%

The End

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