



# *Estimating Local Farmworker Populations: What can we learn from federal data?*

**Midwest Migrant Stream  
November 20, 2009**

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# Goals of JBS/NCFH Project

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- JBS/Aguirre to produce national threshold estimate of population.
- JBS/Aguirre to provide county estimates of farmworker population
- NCFH to translate data for clinics and assist them in using it. For example, patient yields



# Goal: Provide to Clinics

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- An estimate and formula
- Transparency
- Context
- Option to adjust based on local knowledge



## What local data is available?

Federal data on counties

- Quarterly Census of Employment and Wages
- USDA Fruit and Vegetable Timing
- Census of Agriculture
- H-2A Applications
- Common Core Data: Migrant Education Data
- Migrant Head Start Centers
- National Farmworker Jobs Participants



## Quarterly Census of Employment and Wages

- All the employer unemployment insurance reports sent in quarterly. 2007 latest available
- Coverage depends on state laws on unemployment insurance. -- different for farmworkers than other workers
- Only 4 states have universal reporting. A few states have enhanced reporting but most states have only basic coverage.



# Unemployment Coverage

- AGRICULTURAL LABOR— FUTA's agricultural labor provisions apply to employing units who paid wages in cash of \$20,000 or more for agricultural labor in any calendar quarter in the current or preceding calendar year, or who employed 10 or more workers on at least 1 day in each of 20 different weeks in the current or immediately preceding calendar year.



# Exceptions

**TABLE 1-3: AGRICULTURAL LABOR PROVISIONS (IF DIFFERENT FROM FUTA)**

CA	1 at anytime and wages in excess of \$100 in a CQ.	FL	5 in 20 weeks or \$10,000 in a CQ.	NY	\$500 in CQ.	RI	1 or more at anytime.	VI	1 or more at anytime.
DC	1 at anytime.	MN	4 in 20 weeks or \$20,000 in a CQ; agricultural labor performed by an individual 16 yrs. of age or younger is excluded from agricultural coverage unless the employer is covered under federal law.	PR	1 or more at anytime.	TX	3 in at least 20 different calendar weeks of the calendar or wages in cash of \$6,250 during a CQ.	WA	1 or more workers at any time; excluding workers attending or between terms in school; on corporate farms does not include services performed by spouses or unmarried children under 18.



# Quarterly Census of Employment and Wages (QCEW)

- Fields
  - Monthly employment figures
  - Quarterly and annual payroll figures
  - Number of establishments



Type and Time Period	Farms	Empl. Mon 1	Empl. Mon 2	Empl. Mon 3	Dollars	Taxable wages	UI Tax	Average Wkly Wage	Average Yearly Pay	Suppressed
Hired Farm Work Annual UI	25	.	.	.	\$5,598,364	\$3,921,638	199937	\$461	\$23,993	0
Hired Farm Work Quarter 1 UI	24	122	122	153	\$851,262	\$668,100	36598	\$495	.	0
Hired Farm Work Quarter 2 UI	25	170	211	271	\$1,189,446	\$927,606	42556	\$421	.	0
Hired Farm Work Quarter 3 UI	26	400	437	307	\$2,299,553	\$1,792,957	87950	\$464	.	0
Hired Farm Work Quarter 4 UI	26	248	215	144	\$1,258,103	\$532,975	32833	\$478	.	0
Contract Farm W Annual UI	1	.	.	.	\$0	\$0	0	\$0	\$0	1
Contract Farm W Quarter 1 UI	1	0	0	0	\$0	\$0	0	\$0	.	1
Contract Farm W Quarter 2 UI	1	0	0	0	\$0	\$0	0	\$0	.	1
Contract Farm W Quarter 3 UI	1	0	0	0	\$0	\$0	0	\$0	.	1
Contract Farm W Quarter 4 UI	1	0	0	0	\$0	\$0	0	\$0	.	1

Raw QCEW Data for Hampshire County, Massachusetts



# Census of Agriculture 2007

- Data collected from all farms in early 2008 about 2007 activities
- All information is reported in annual totals, no seasonal information.
- Areas of interest
  - Table 1 Farms, Acreage, Output for major Crops
  - Table 3: Expenditures by NAICS – Special Tabulation
  - Table 7: Hired Labor by NAICS – Special Tabulation



# Table 1: Farms, Acres, Outputs

- Provides a good overview of agricultural activity in a county
- More detailed information exists in other tables, but is not reported by county. A possible special tab?
- Table 1 has very little suppression
  - Never suppresses number of farms.
- When other data missing, Table 1 often explains why.



Category	Farms	Acres	Output
Farms	711	52756	na.
Average size of farm	na.	74	na.
Median size of farm	na.	37	na.
Total cropland	na.	23,800	na.
Harvested cropland	482	19,834	na.
Land in orchards	38	327	na.
Tobacco	33	511	881,243
Wheat for grain, all	1	.	.
Spring wheat for grain	.	.	.
Winter wheat for grain	1	x.	x.
Oats for grain	.	.	.
Soybeans for beans	2	x.	x.
Sunflower seed, all	.	.	.
Sunflower seed, all	1	x.	x.
Vegetables harvested for sale	160	5,697	na.
Corn for grain	18	1,460	240,738
Corn for silage or greenchop	31	1,699	35,298
Dry edible beans, excluding limas	.	.	.
Forage - land used for all hay and	281	11,099	24,067
Irrigated land	82	1,011	na.



## Table 3 Expenditures

- Table 3 provides a variety of expenditure data.
- including hired and contract labor expenditures
- Sometimes suppressed but suppression often different than QCEW.
- Special tabulation for NAICS 111 from DOL, does not include farms data.
- Used for making state and national estimates for other MSFW programs.



# Census of Agriculture Table 3: HAMPSHIRE, MASSACHUSETTS

category	dollars	suppressed
Total Labor Expenditures - Crop	\$7,882,597	0
Hired Labor Expenditures - Crop	\$7,476,593	0
Contract Labor Expenditures - Crop	\$406,004	0



## Table 7. Hired Labor

- As of 2007, includes all employers, previously a sample.
- USDA reports crop and livestock together.
- We have a special tabulation for crop farms. There are some eligible workers on livestock farms and vice versa
- Includes nursery
- Employment days variables may be useful for seasonality
- Suppression, but not usually of farms.
- Has a migrant indicator



<b>Category</b>	<b>Farms</b>	<b>Workers</b>	<b>Dollars</b>	<b>Suppr</b>
Hired farm labor	133	1,076	\$7,476,593	.
Workers hired 150 days or more	57	290	na.	.
Reported only hired workers 150 days or more	13	46	\$247,779	.
Reported both - workers working 150 days or more	below.	244	na.	.
Workers hired less than 150 days	120	786	na.	.
Reported only hired workers less than 150 days	76	446	\$1,088,592	.
Reported both - workers working less than 150 days	below.	340	\$6,140,222	.
Reported both types of workers	44	above.	above.	.
Farms with 10 hired workers or more	36	708	na.	.
Workers 150 or more days, farms with 10+ hired workers	8	.	.	1
Workers less than 150 days, farms with 10+ hired workers	25	.	.	1
Migrant farm labor on farms reporting only contract labor	2	na.	na.	.
Migrant farm labor on farms with hired labor	29	na.	na.	.



# H-2A Applications

- All H-2A applications are reported by US DOL in detail. No suppression
- This includes name of farm, types of workers applied, proposed date of arrival for workers, wages to be paid to workers.
- Useful for seasonality, numbers.
- 2008 data included here.



<b>JOB_TITLE</b>	<b>CERTIFICATION_BEGIN_DATE</b>	<b>Number of Workers Certified</b>
CAMP COOK	16JUN2008:00:00:00	2
DIVERSIFIED CROP WORKER	24MAY2008:00:00:00	6
DIVERSIFIED CROP WORKER	05JUN2008:00:00:00	3
DIVERSIFIED CROP WORKER	10JUN2008:00:00:00	1
DIVERSIFIED CROP WORKER	16JUN2008:00:00:00	3
DIVERSIFIED CROP WORKER	13JUL2008:00:00:00	1
FARM WORKER, VEGETABLE	05JUN2008:00:00:00	65
FARM WORKER; DIVERSIFIED CROP	15MAY2008:00:00:00	2
FARM WORKER; DIVERSIFIED CROPS	15APR2008:00:00:00	1
FARM WORKER; DIVERSIFIED CROPS	24MAY2008:00:00:00	2
FARM WORKER; FRUIT II	31MAR2008:00:00:00	2
FARM WORKER; VEGETABLE II	07MAY2008:00:00:00	1
FARMWORKER DIVERSIFIED CROP II	28JUL2008:00:00:00	4
FARMWORKER DIVERSIFIED CROP II	29JUL2008:00:00:00	5
FARMWORKER VEGETABLE I	25APR2008:00:00:00	3
FARMWORKER VEGETABLE II	28JUL2008:00:00:00	4
FARMWORKER, DIVERSIFIED CROP	14APR2008:00:00:00	2
FARMWORKER, DIVERSIFIED CROP	21APR2008:00:00:00	3
FARMWORKER, DIVERSIFIED CROP	23MAY2008:00:00:00	2
FARMWORKER, DIVERSIFIED CROP I	01AUG2008:00:00:00	1
FARMWORKER, DIVERSIFIED CROPS	07JUL2008:00:00:00	1
FARMWORKER, VEGETABLE	22JUN2008:00:00:00	1
FARMWORKER, VEGETABLE	23JUN2008:00:00:00	6
FRUIT FARM WORKER	25AUG2008:00:00:00	3
SUPERVISOR; VEGETABLE FARMING	28APR2008:00:00:00	4
VEGETABLE FARMER	19MAY2008:00:00:00	1
VEGETABLE FARMWORKER	21MAY2008:00:00:00	1
VEGETABLE FARMWORKER	07JUL2008:00:00:00	1
VEGETABLE FARMWORKER	21JUL2008:00:00:00	1
VEGETABLE WORKER	25APR2008:00:00:00	2



# Fresh Fruit and Vegetable Timing

- USDA Extension Specialists compile usual timing data for crops
- Fruits and vegetables available for approximately 650 counties.
- Includes harvest and peak harvest for all
- Includes blossom, marketing for fruits, Generally, pruning precedes blossoming
- Planting only for vegetables
- Available for field crops only by state and from 1996.



## Fruit and Vegetable Timing: **Franklin MA 25011**

crop	Planting Begins	Planting Ends	Bloom Start	Bloom End	Harvest Begins	Harvest Ends	Market Beg	ing Ends
Apples			May 15	May 30	Aug 1	Nov 8	Aug 1	Jun 30
Peaches			May 1	May 18	Jul 14	Oct 12	Jul 14	Oct 12

## Fruit and Vegetable Timing **Umatilla Oregon 41059**

crop	plantbeg	plantend	bloomstart	bloomend	harvbeg	harvend	mktgbeg	mktgends
Apples			Apr 1	Apr 20	Aug 20	Oct 10	Aug 20	Dec 30
Prunes and Plum			Apr 1	Apr 20	Aug 1	Sep 1	Aug 1	Sep 5
Green Peas	Feb 25	May 15			May 25	Sep 30		
Summer Onions,	Mar 20	May 5			Aug 15	Oct 25		
Sweet Corn	Apr 15	Jun 30			Jul 15	Oct 31		
Sweet Corn	Apr 25	Jun 30			Aug 5	Oct 15		



# CCD Migrant Student Data

- Annually reported by all Migrant Ed schools
- Some seasonality as it includes number of students in summer and in school year programs.
- 2004-2005 most complete available. Eligibility issues overstate numbers in many areas.
- In 2005-2006 Migrant Ed changed data reporting systems and much data is missing.
- Hoping 2006-2007 better.



## CCD Migrant Ed Students: HAMPSHIRE MASSACHUSSETTS 25015

<b>category</b>	<b>Farmworkers/ Students</b>
Migrant Students Summer 2005	13
Migrant Students School Year 2004-05	13



# Migrant Head Start Centers

- Over 600 counties have MSHS centers.
- Data includes location (zip code=part of county)
- And, months that the center is open (seasonality)
- Centers change and so exact centers may be out of date.
- Working on getting an update.



# Making the Data Accessible

- Decide what data is useful
- Decide on baseline estimate formula
- Put the data in a relational database
- Develop an interface to combine estimate, adjustments and context



# Why An Estimate?

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- No federal source of farmworker population count.
  - Census no longer collects occupation
  - American Community Survey cannot provide counts of seasonal populations.
- Each farmworker program has different eligibility criteria



# Criteria for a good estimate

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1. Developing a transparent formula
2. Using the best methods for approximation.
3. Obtaining the best data
4. Ensuring comparability across geographic units



# Categories of Estimates

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## Harvest of Confusion by Phil Martin

- Bottom Up:
  - Start with local units and aggregate up to larger ones.
- Top Down:
  - Start with large units and distribute to smaller ones



# Bottom Up Estimates

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Allow for local factors and local variation

- Demand for Labor
  - Takes farm production numbers and develops worker estimates using local factors
  - Larson Migrant Health Estimates for states, counties
- Population counts / Client counts
  - Counts of actual participants and/or potential recruits from program sites
  - An example is Migrant Education



# Top Down Estimates

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Derived from standardized formulas and national level data collections.

Generally Use:

- Labor Expenditures
  - Adjustments to Labor Expenditures from USDA or BLS.
- Population Counts
  - Adjustments to Census, Ag Census or BLS data



# Why use a top down approach

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- 1. Good fit for the criteria
- 2. Less expensive.
- 3. More easily updated



# Using a top-down approach

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- Step 1: Develop a local estimate of the farmworker population.
- Step 2: Apply program eligibility criteria to the population total



# Estimate

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- Based on nationally available data.
  - USDA Census of Agriculture as the basis.
  - National Agricultural Workers Survey to adjust for demographics and dependents



# Number of hired jobs

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## Census of Agriculture: SECTION 27 FARM LABOR

- 1. How many hired farm or ranch workers, including paid family members and office workers -
  - a. Worked less than 150 days on this operation in 2007? Exclude contract labor
  - b. Worked 150 days or more on this operation in 2007? Exclude contract labor
- Special tabulation of workers on 241,000 crop farms



# Estimating total number of jobs

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## Step 1 Farmer's cost per job on farms with seasonal workers

Farmers labor expenditures	\$	7,228,814
Number of hired jobs		<u>786</u>
Cost per worker on seasonal farms	\$ =	9,197

## Step 2 Calculate total jobs

Total Contract Labor Expenses	\$	406,004
Divided by farmers costs per job	\$	<u>9,197</u>
Equals total contract jobs	=	44

Add number of directly hired jobs + 1,076

**Total jobs for Hampshire Massachusetts = 1,120**



# How can cost per job be similar between contract and hired workers?

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Cost per job = Hired labor expenditures / Number of workers

- Use farms that have both short-term and long-term employees - exclude farms with only long-term workers
  - Too few short-term only farms and not typical of farms with contract workers.
- Farmers costs for contract workers include the contractors mark up and profit. So while workers paid less, the mark up increases the cost.
- Farmers often use contract workers for reasons other than cost – liability, regulations, recruitment



# How can cost per job be similar between contract and hired workers?

Cost per job = Hired labor expenditures / Number of workers

National Cost per job Farms average cost on farms with <i>(USDA 2007)</i>	Workers payments per contract job	Employer wages plus mark up
All jobs greater than 150 days	?	\$ 18,500
All jobs less than 150 days	?	\$ 2,000
Jobs both less than and greater than 150 days	?	<b>\$ 7,900</b>
Income per job for contract workers <i>(NAWS)</i>		
All contract workers	<b>\$ 6,300</b>	?
Workers less than 30 weeks	\$ 3,200	?
Workers 30 weeks or more	\$ 7,600	?

- Markup for bolded numbers = 24 %



## Step 2: Applying Eligibility Criteria

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- Defining who is Migrant Health eligible?
- Depends on the purpose
  - Farm workers
  - Dependents
  - Primarily Farm work
  - Eligible for sliding scale - 200% poverty
- Use the National Agricultural Worker Survey data for six regions.



# National Agricultural Workers Survey

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- National survey of crop workers, started FY1989
- Random sample survey of 1,500-3,000 workers annually
- Establishment survey – find workers at work
- Only source of reliable information on farm worker demographics
- Limited regional coverage and no local numbers
- Data from 2004-2008 used here includes 10,485 farmworkers



# Dependents

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- Defined as:
  - Living in the United States. Dependents living abroad not counted
  - Do not have to reside with farmworker.
  - Children under the age of 18
  - Not doing farm work –
    - Dependents doing farm work are counted as farmworkers
  - Common law spouse included as well



# Calculating Criteria

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- Dependents are calculated as percents or ratios of eligible persons per farmworker
- Using NAWS regional numbers
- These are then multiplied by the number of farmworkers.

Hampshire county is in the NAWS East region

363 spouses = 0.32 spouses per worker (32%) X 1,120 workers

563 minor children = 0.47 children per worker yields X 1,120 workers



# Potential Bias

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- COA estimate includes office workers, farm family members
- COA estimate may not include all eligible processing workers
- Does not include aged or disabled farmworkers and dependents
- COA may undercount workers including a portion of workers paid in cash.
- Estimate excludes workers leaving farm work 13-24 months ago



# Provide to clinics

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- An estimate and formula
- Transparency
- Context
- Option to adjust based on local knowledge



## Summary Profile of Farmworkers Yakima County, Washington

### 1. Estimates of farmworkers potentially utilizing health center services

[Details](#)

<u>Estimate of Population</u>	<u>Total</u>	<u>Less than/equal to 200% of Poverty</u>
Total farmworkers and dependents	155,034	133,411
Farmworkers	62,314	53,925
Seasonal farmworkers	42,782	37,138
Migrant farmworkers	19,532	16,786
Dependents	92,721	79,486
Children (Minors)	63,005	54,704
Adults	29,716	24,782

These are estimates based on local and regional data. The estimates may be conservative since they omit farmworkers not actively working in the past year. If local data differ from the regional information used in the calculations, you may want to adjust these figures. See details sheet for details on calculations, interpretations and adjustments.



# Transparency

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- Show how the formula works
- Show what data was used
- Allows health centers to understand exactly how the estimates derived
- Provide the input for customization

# Local Estimate using Labor Expenditures Per Farmworker

## YAKIMA COUNTY WASHINGTON

[Return](#)

- 1. Basic Formula:**  $\text{Total Crop Workers} = \text{Hired Crop Workers (actual)} + \text{Contract Crop Workers (estimated)}$   
 where  $\text{Contract Crop Workers} = \text{Contract Labor Expenditures} / \text{Average expenditures for workers}$

<b>2. Calculations for Basic Formula:</b>	<b>Calculations</b>	<b>Totals</b>	<b>Adjustment</b> (# farmworkers)	<b>Adjusted total</b>	<b>Explanation</b>
<b>2a Workers employed by farmers and growers (jobs) (USDA 2007)</b>		59,999	6,000	65,999	Late freeze in 2007
<b>2b. Calculating workers hired by farm labor contractors</b>					
Workers hired by farm labor contractors are calculated using average payments per worker made by farmers.					
<b><u>Payroll per worker for farmers</u></b>					
The following calculations use data from all farms with seasonal workers					
Total workers (jobs) (USDA 2007)	51,341				
Total payroll (USDA 2007)	186,537,493				
Payroll per worker = total payroll/total workers	\$3,633				
<b><u>Using farmers' payroll per worker to estimate contract workers</u></b>					
Farmers' payroll per worker (from above)	\$3,633				
Payments to farm labor contractors (USDA 2007)	\$8,409,372				
Dividing payments to contractors by payroll per worker =					
<b>Estimated number of workers hired (jobs) by farm labor contractors</b>		2,315	230	2,545	Late freeze in 2007
<b><u>TOTAL FARM WORKER JOBS IN COUNTY</u></b>		<b>62,314</b>		<b>68,544</b>	



# Option to Adjust

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- Having seen the data, formula and context, local clinics, NCFH can help clinics adjust the factors in the formula
- Tweaks based on local knowledge



<b><u>3. Adjustments to total farm jobs</u></b>	<b>Total</b>	<b>Adjustment</b>	<b>New total</b>	<b>Explanation</b>
<p>In the future NAWS data will be used to guide adjustment            This county is in the following NAWS region:</p>	NORTHWEST			
<p><b>The estimate above would double count workers who worked more than one job in this county.</b></p> <p>Estimate and subtract the number of workers double counted</p>		- 4,000		Late freeze in 2007
<p><b>The estimate above would omit workers who reside but do not do farm work in this county .</b></p> <p>Estimate and add the number of residents omitted</p>		+ 2,000		
<p><b><u>TOTAL FARM WORKERS EMPLOYED AND RESIDING IN THE COUNTY</u></b></p>	<b>62,314</b>		<b>66,544</b>	Late freeze in 2007
<p><b><u>4. Dependents</u></b></p> <p>Calculated from National Agricultural Workers Survey 2003-2006, Regional Estimates</p> <p style="text-align: center;"><b>Dependents per worke</b></p> <p>Children under 14, and youth 14 - 17 not doing farmwork      101.11%      63,005</p> <p>Spouses not employed in farmwork      47.69%      29,716</p> <p><b><u>TOTAL FARMWORKERS AND DEPENDENTS</u></b></p>				Late freeze in 2007
<p><b><u>5. Aged and disabled farmworkers</u></b></p> <p>Estimate the number of aged and disabled farmworkers</p> <p><b><u>TOTAL FARMWORKERS, DEPENDENTS, AGED AND DISABLED</u></b></p>	<b>155,034</b>	4,000	<b>172,264</b>	



# Context

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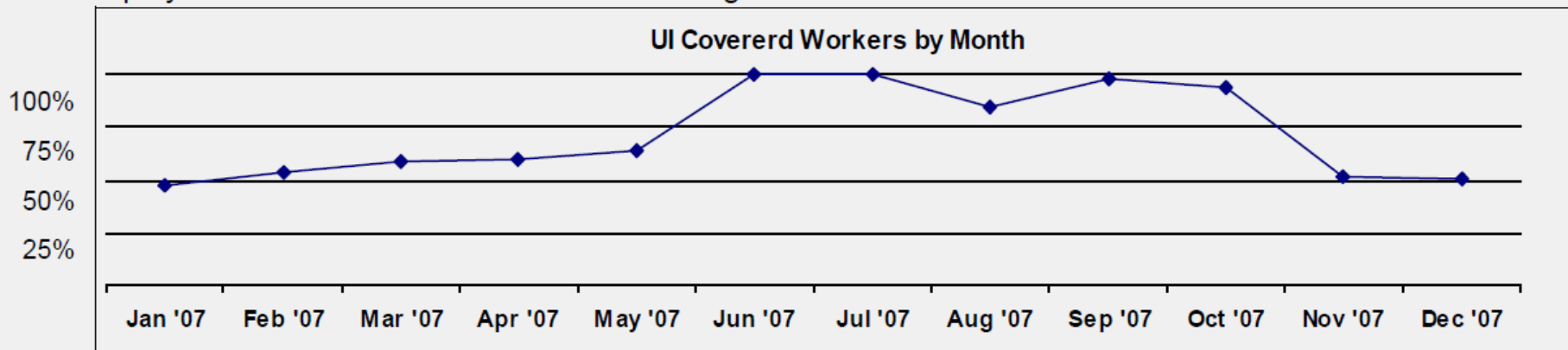
- Provide information from as many data sources as possible on the local area
  - Crop data, acreage and production
  - Annual Seasonal production and marketing data / calendars
  - Farmworker program data



## 2. Timing of agricultural work in this county

[Details](#)

Unemployment Insurance data show the following seasonal distribution of farmworkers:



**Interpretation:** In this county, Unemployment Insurance covers all workers (one worker employed or more workers at any time; excluding workers attending or between terms in school; on corporate farms does not include spouse and minor children.).

USDA reports that the usual seasons for crops in this county/nearby counties are:

<u>Crop</u>	<u>Bloom</u>	<u>Planting</u>	<u>Harvesting</u>	<u>Marketing</u>
Apricots	Mar 28 - Mar 28	-	Jul 5 - Jul 20	Jul 5 - Jul 20
Apricots	Apr 5 - Apr 5	-	Jul 20 - Aug 1	Jul 20 - Aug 1
Apples	Apr 25 - Apr 25	-	Aug 15 - Nov 10	Aug 15 - Aug 31
Apples	Apr 30 - Apr 30	-	Sep 1 - Nov 1	Sep 1 - Aug 31
Grapes	May 26 - Jun 7	-	Sep 15 - Nov 1	Sep 15 - Nov 1
Grapes	Jun 7 - Jun 17	-	Sep 10 - Nov 1	Sep 10 - Nov 1
Peaches	Apr 12 - Apr 12	-	Jul 15 - Sep 25	Jul 15 - Sep 25
Pears	Apr 20 - Apr 20	-	Aug 10 - Aug 30	Aug 10 - Dec 15



### 3. Types of agricultural activity in this count

	<u>Farms</u>	<u>Acres</u>	<u>Percent</u>	<u>Other</u>	<a href="#">Details</a>
Total harvested crops	2,353	251,114	100%		
Labor intensive crops	1,605	105,402	42.0%		
Greenhouses, mushroom barns....					
Processing establishments				1,107	

### 4. Other migrant and seasonal farmworker programs in the area

			<a href="#">Details</a>
Migrant Education Enrollment	3,656	students	
Migrant and Seasonal Head Start Centers	5	centers	
National Farmworker Jobs Program	495	people trained	



# The End

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