

Labor and Weed Management in Vegetables*

**Laura Tourte
Farm Management Advisor
UC Cooperative Extension
Santa Cruz County**

*** In collaboration with
Richard Smith
UC Cooperative Extension,
UC AIC Researchers,
Area Growers / Industry**



***October 31, 2017
Salinas Valley Weed School***

Lineup for Today...



How are labor costs impacting production costs?

What are current weed management practices and costs?

What is the outlook for labor and mechanization?

Recent Central Coast Cost and Return Studies

- Production and harvest practices and costs -

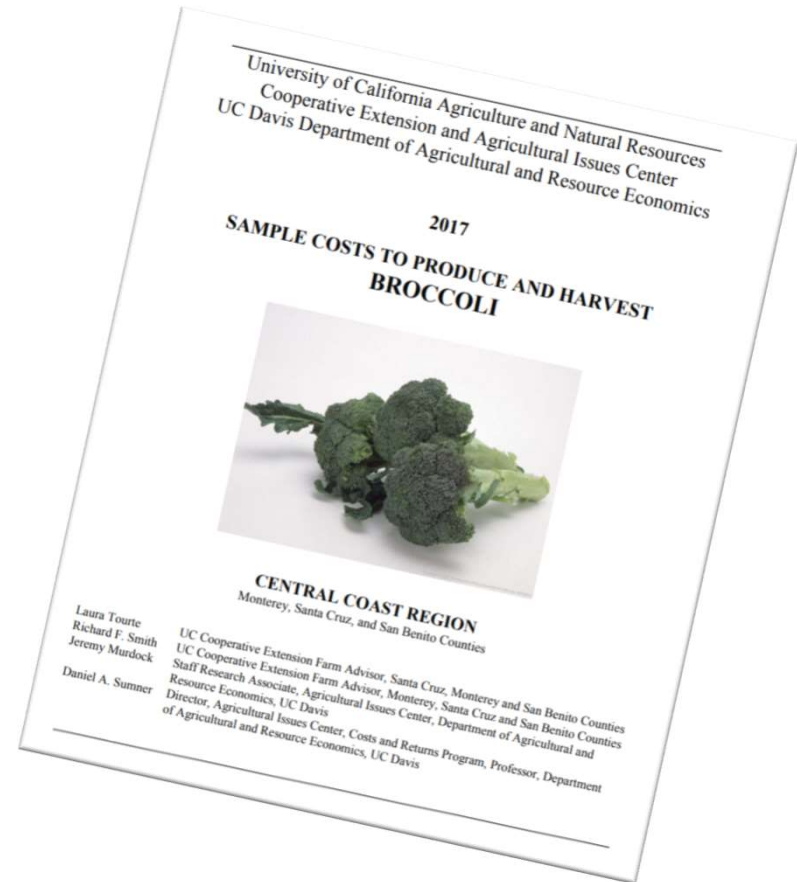
2017

- Iceberg Lettuce
- Broccoli

2015

- Romaine Hearts Lettuce
- Organic Spinach

<https://coststudies.ucdavis.edu>



Labor Rates – 2010 to 2017*

| Year | 2010 | 2015 | 2017 | Percent Increase |
|--|---------------------|-------|--------------------------|---------------------|
| | <-----\$/hour-----> | | | 2010-15/ 2015-17 |
| Field labor (base wage) | 8.50 | 11.50 | 12.00[†] | 35/4 |
| Field labor with benefits‡ (wage + percent benefits) | 11.40 | 16.10 | 16.90 | 41/5 |
| Machine labor (base wage) | 10.00 | 15.50 | 15.50 | 55/- |
| Machine labor with benefits (wage + percent benefits) | 13.40 | 21.70 | 21.85 | 62/- |

* Used in area UC Cooperative Extension Cost and Return Studies. <https://coststudies.ucdavis.edu>.

[†] Irrigator labor rate included in 2017 studies: \$12.60/hr (base); \$17.80 (with benefits)

‡ Benefits rates included in studies: 34% (2010), 40% (2015) and 41% (2017).

University of California

Agriculture and Natural Resources

Production and Harvest Costs – 2017 Studies*

Iceberg Lettuce

| Category | Cost (\$/Acre) |
|-------------------|----------------|
| Cultural | 2,906 |
| Business Overhead | 2,004 |
| Investment | 515 |
| Subtotal | 5,425 |
| Harvest | 6,975 |
| Total | 12,400 |

Broccoli

| Category | Cost (\$/Acre) |
|-------------------|----------------|
| Cultural | 2,531 |
| Business Overhead | 1,922 |
| Investment | 257 |
| Subtotal | 4,710 |
| Harvest | 5,425 |
| Total | 10,135 |

Weed management included in cultural costs

* Source: UC Cooperative Extension Cost and Return Studies. <https://coststudies.ucdavis.edu>.

Salinas Valley Agriculture Blog – July 2017 - Summary of costs and net returns.

University of California

Agriculture and Natural Resources

Weed Management Practices & Costs 2017*

| Practice | Iceberg Lettuce (\$/acre) | Broccoli (\$/acre) |
|---|------------------------------|-----------------------|
| Herbicide application | 100 | 44 |
| Mechanical cultivation | 66 | 66 |
| Hand weeding | 161 | 150 |
| <i>Total weed management costs</i> | <i>327</i> | <i>260</i> |
| Percent (of cultural costs) | 11 | 10 |
| <i>Field+machine labor costs</i> | <i>196</i> | <i>186</i> |
| Percent (of weed mgt costs) | 60 | 72 |

* Source: UC Cooperative Extension Cost and Return Studies. <https://coststudies.ucdavis.edu>.
Costs per acre include materials, equipment, and labor (\$16.90/hr. field; \$21.85/hr. machine).

Refresher: California Minimum Wage & Overtime Phase-In Schedules*

| Year | Minimum Wage | Minimum Wage Increase (%) |
|------|--------------|---------------------------|
| 2017 | 10.50 | 5.0 [‡] |
| 2018 | 11.00 | 4.8 |
| 2019 | 12.00 | 9.0 |
| 2020 | 13.00 | 8.3 |
| 2021 | 14.00 | 7.7 |
| 2022 | 15.00 | 7.1 |

* For employers with 26 or more employees.
[‡] Percent increase from 2016 to 2017.

| Year | Overtime Phase-In Hours Per Week | Overtime Hours/Week [‡] |
|------|----------------------------------|----------------------------------|
| 2017 | 60 | na |
| 2018 | 60 | na |
| 2019 | 55 | 5 |
| 2020 | 50 | 10 |
| 2021 | 45 | 15 |
| 2022 | 40 | 20 |

* For employers with 26 or more employees.
[‡] Assuming a 60-hour work week and no other adjustments.

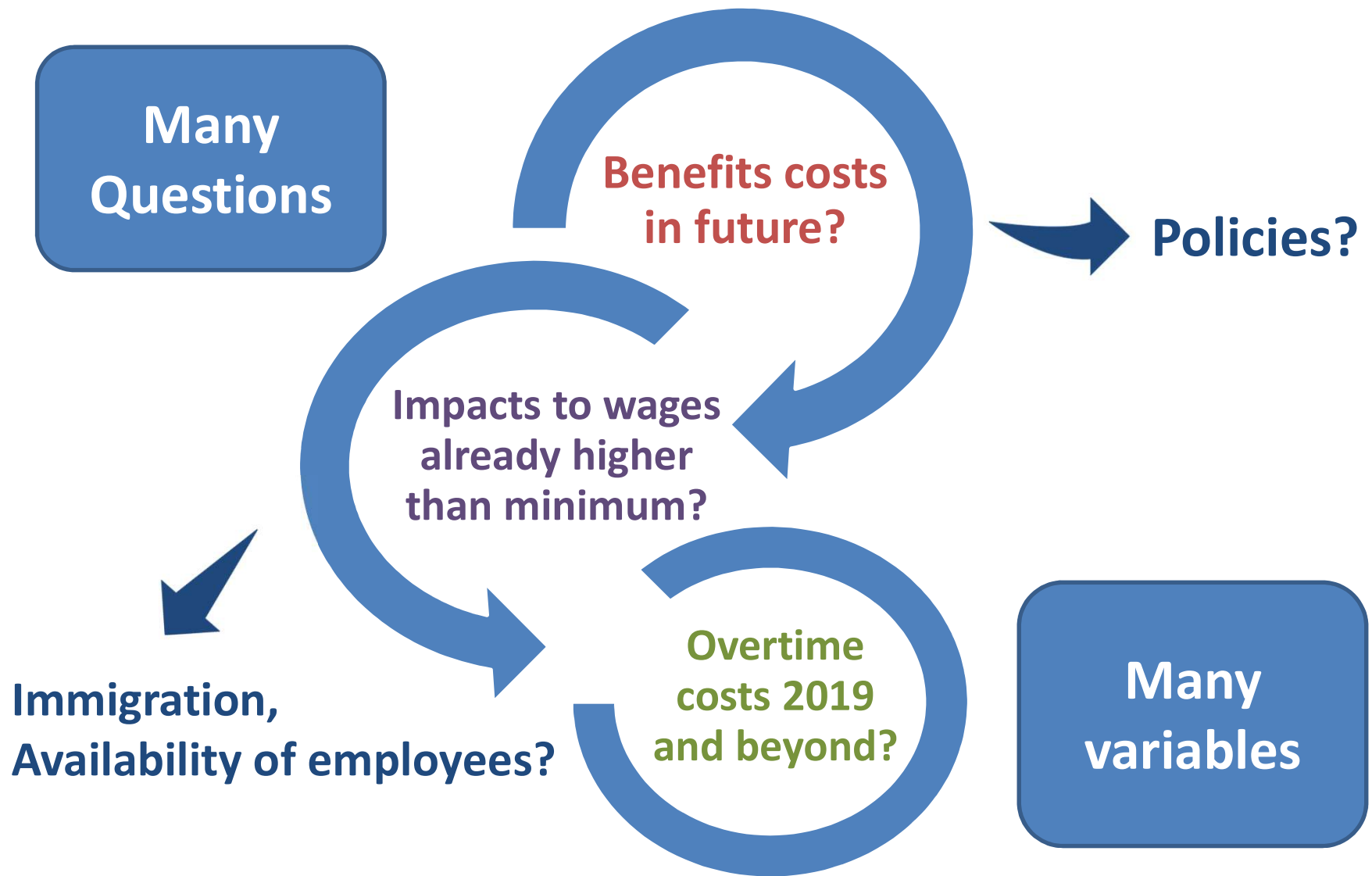
Note: wages used in cost and return studies are higher than current minimum wage.

*Projection of weed management costs with increase in minimum wage - example**

| | 2017 | 2022 | Difference |
|--|-------|-------|------------|
| \$/hour Field labor† | 12.00 | 15.00 | \$ 3.00 |
| Machine labor | 15.50 | 19.40 | \$ 3.90 |
| \$/acre Labor cost – iceberg lettuce | 196 | 245 | \$ 49 |
| Labor cost – broccoli | 186 | 233 | \$ 47 |
| \$/ranch Labor cost – iceberg lettuce 250 acres | | | \$12,250 |
| Labor cost – broccoli 500 acres | | | \$23,500 |

* Exercise projecting 25% increase for field labor and similar increase for machine labor, using 2017 UCCE/AIC Cost and Return Studies <https://coststudies.ucdavis.edu> and no other adjustments.

† Per hour costs are base wages; per acre and per ranch costs include 41% benefits.



Research Shows That...*

- Slowdown in Mexico – U.S. migration since recession; few newcomers. U.S. agricultural workforce aging and settled.
- U.S. and Mexican agricultural workforces integrated; Mexico largest source of labor.
- Trend is to fewer workers in U.S. and Mexican agriculture; between 1987 and 2010 estimated 150,000 fewer each year.
- Factors in downward trend include: education, smaller family sizes, growth in non-farm employment, border enforcement.
- Higher wages may stabilize workforce in short-run; not a long-term solution, nor is immigration policy.

* Sources: Martin, P.L. 2017. Immigration and Farm Labor: Challenges and Opportunities. UC-ANR / Giannini Foundation.

Charlton, D. and J.E. Taylor. 2016 . A declining workforce: analysis of panel data from rural Mexico. Amer. J Agr. Econ. (98(4): 1158-1180.



University of California

Agriculture and Natural Resources

So what to do?

Sample strategies and solutions...

- Improve on-farm efficiency (+)
- Less labor intensive practices and crops (-)
- Streamline H-2A labor program (?)
- Shift into technology where possible (+)

* Sources: Martin, P.L. 2017. Immigration and Farm Labor: Challenges and Opportunities.

UC ANR / Giannini Foundation.

Charlton, D. and J.E. Taylor. 2016 . A declining workforce: analysis of panel data from rural Mexico.

Amer. J Agr. Econ. (98(4): 1158-1180.

University of California

Agriculture and Natural Resources

H-2A Guestworker Visa Program*

- **Recruitment:**
 - Logistics, visa/consulate, transportation and meal costs to/from worksite and home
- **Employment:**
 - 2017 AEWR – Adverse Effect Wage Rate – aka super minimum wage = \$12.57 in CA (lower in AZ)
 - AEWR and affect on U.S. based workforce
 - Contract program, less flexibility than direct hire
- **Contract:**
 - Housing and transportation to/from worksite daily
 - Meals – 3 daily or fully working kitchen
 - Payroll taxes (no); unemployment, disability, WC (yes)

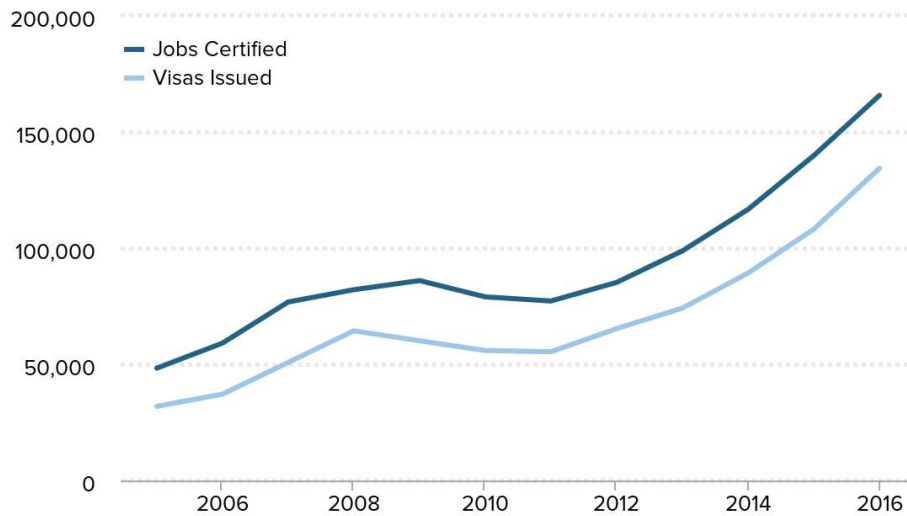
**** requires U.S. worker recruitment first***

University of California

Agriculture and Natural Resources

H-2A labor on the rise

H-2A jobs certified and visas issued, 2005–2016



CA Jobs Certified:
2006 = 2,600
2016 = 11,000

WA Jobs Certified:
2006 = 3,000
2016 = 14,000

Projection for 2017:
over 20,000 in each
state.

Notes: All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

Source: U.S. Department of Labor, Office of Foreign Labor Certification, OFLC Performance Data, <https://www.foreignlaborcert.doleta.gov/performance/data.cfm>; U.S. Department of State, Bureau of Consular Affairs, "Nonimmigrant Visa Statistics," <https://travel.state.gov/content/visas/en/law-and-policy/statistics/non-immigrant-visas.html>.

Economic Policy Institute

<http://www.epi.org/blog/h-2a-farm-guestworker-program-expanding-rapidly/>

Martin. April 2017

University of California

Agriculture and Natural Resources

New (Proposed) H-2C Program?

The Agricultural Guestworker Act of 2017*

- Introduced in early October by Goodlatte (R-VA)
- Proposed program would replace existing H2-A program
- Goal is efficient and flexible program, stable and reliable workforce
- Capped at 500,000 with escalator allocation (exemptions also apply)
- Housing and transportation optional
- Allows seasonal and year round employment
- Administered by USDA (not DOL)

Can it pass congressional muster? (first vote delayed)

Would it help competitiveness of CA ag?

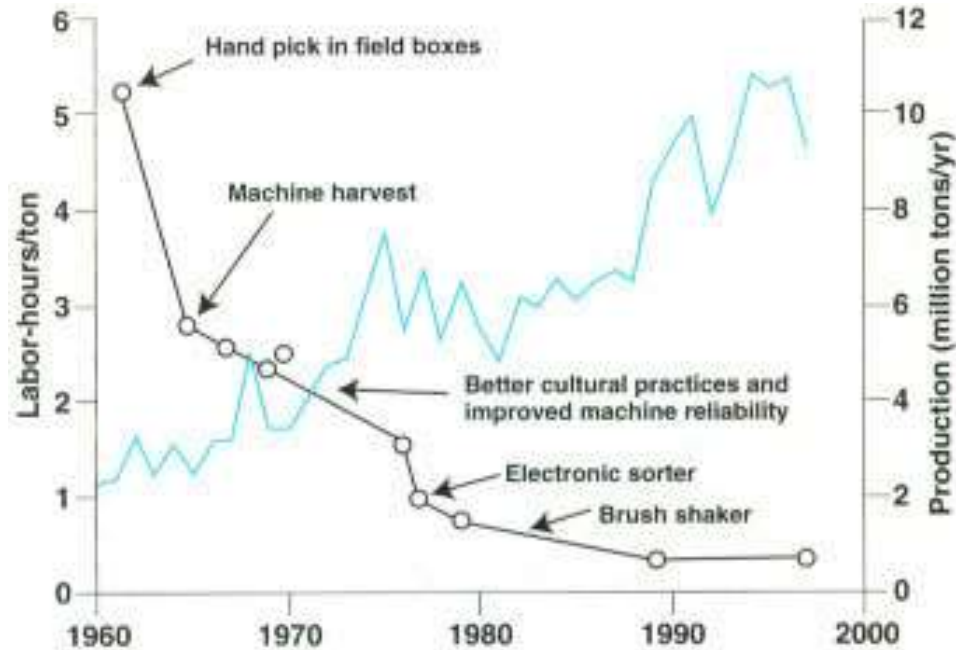
Concerns with some aspects expressed.

*<https://judiciary.house.gov/wp-content/uploads/2017/10/Ag-Act.pdf>

University of California

Agriculture and Natural Resources

Impact of mechanization on labor and costs - the *processing tomato* example*



* Source: Thompson, JF and Blank, SC. 2000. Harvest mechanization helps agriculture remain competitive. California Agriculture – May-June.

*Mechanization and Labor Costs – 2017**



in processing tomatoes =

25% of operating costs

22% of total costs



in iceberg lettuce =

64% of operating costs

51% of total costs



**How will labor and
costs be affected
with (more) mechanization?**

* Source: <https://coststudies.ucdavis.edu>

Notes: operating costs include cultural, custom and harvest costs;
total costs include business overhead and investment costs

University of California

Agriculture and Natural Resources

*In Progress: Automated/Crop Signaling
Vegetable Weed Management Project*

Economic goal is to evaluate

Investment costs

Operational costs

Impact on yield and net returns

Potential to lower costs and improve revenues?

Use and impact on labor and industry?

Project funded by: USDA Specialty Crop Research Initiative

University of California

Agriculture and Natural Resources

UC Cooperative Extension A Century of Science and Service

Statewide:

<http://ucanr.edu>

Local:

<http://cemonterey.ucanr.edu>

<http://cesantacruz.ucanr.edu>

<http://cesanbenito.ucanr.edu>



University of California

Agriculture and Natural Resources