

Improving the work life of workers in the winegrape harvesting industry through PtD



*In partnership with the National Institute for
Occupational Safety and Health*

AgSafe Mission and Goal

Mission:

To minimize injuries, illness and fatalities in California's agricultural industry.

Goal:

To provide employers the tools they need to keep employees safe and healthy while running profitable, successful businesses.

AgSafe Scope of Work

Education

Training

Industry Outreach

Resource Development

Research

Project Background

Initiated with the California Vineyard Ergonomics Partnership Project

- Winegrape Growing Industry
- Napa and Sonoma Counties
- Spanned 1997-2000
- Funded by NIOSH under the Community Partners for Health Farming Program
- Conducted by the University of California, Agricultural Ergonomics Research Center

John Miles James Meyers Ed Weber Diana Tejada

Julia Faucett Linda Garcia Michael Tarter Victor Duraj

Ira Janowitz Rhonda Smith Florence Morrison Sally Suriano

Project Background

- Participating organizations
 - 3 wineries; 1 winegrape vineyard management
 - Mid-size firms
 - Non-union
- Participating workers
 - 200 permanent employees; vineyard jobs only
 - Majority Spanish speaking; Mexico national origin
 - \$8-10 per hour; piece work

Project Background

Project included:

- Health record review
- Ergonomic analysis of the workers and jobs performed
 - Including farm worker input on core issues and suggestions for solutions
- Identification of viable solution – new winegrape harvesting bin

Health Record Review

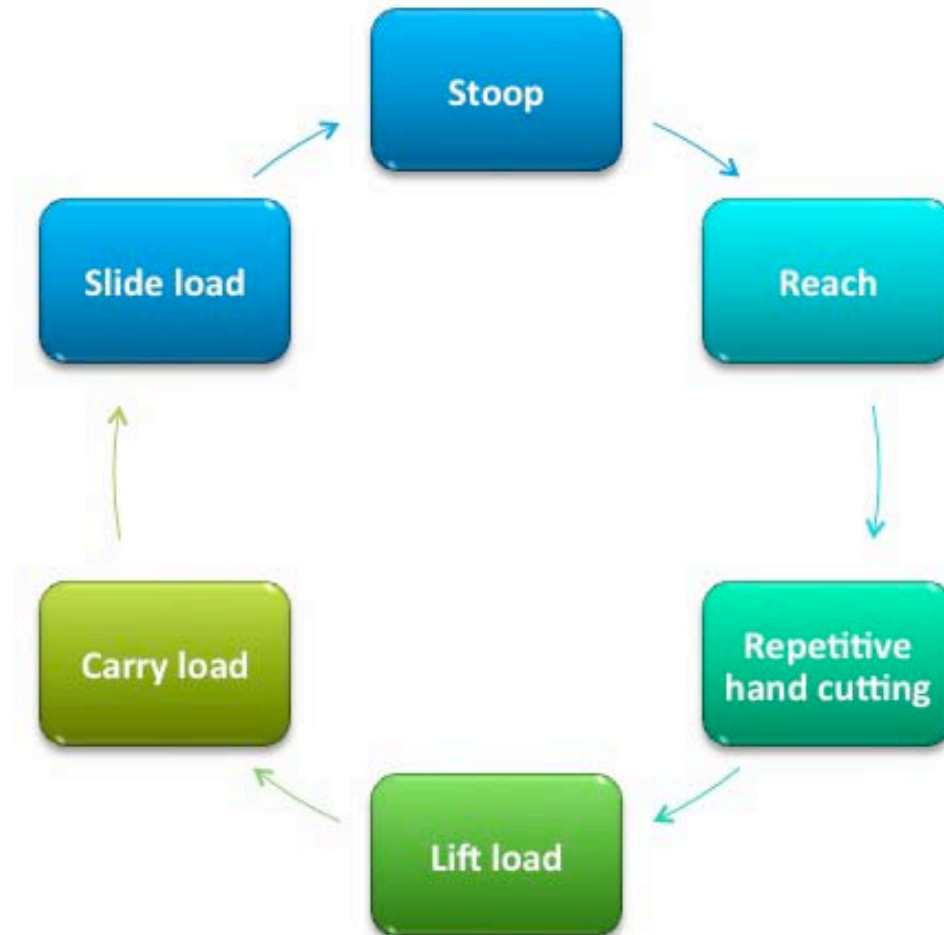
- 30 months of records review
- 194 workers at 3 vineyard companies
- 29 MSDs defined for 28 workers
- 435 lost workdays
- 69% were back injuries
- From "lifting during harvest"

Source: Meyers et al. 2001. Priority risk factors for back injury in agricultural field work: Vineyard ergonomics. *J Agromed* 8(1):39-52

Ergonomic Risk Factors

- Bending forward up to 90° for long periods
- Lifting and carrying 20 tubs per hour, at 57 pounds
- Contact stresses on hands from tub handles
- High metabolic demands:
 - Average working heart rate of 125 beats per minute
 - Average energy expenditure of 47.7% aerobic capacity

Winegrape Hand Harvesting Actions



Winegrape Hand Harvesting Actions



Stoop

Reach

Repetitive hand
cutting

Winegrape Hand Harvesting Actions



Lift load

Winegrape Hand Harvesting Actions



Carry load

Winegrape Hand Harvesting Actions



Slide load

Winegrape Hand Harvesting Actions



Source: JM Meyers, et al. Smaller loads reduce risk of back injuries during wine grape harvest.
<http://CaliforniaAgriculture.ucop.edu> January-March 2006

The Solution



The Solution



The Solution



Prevention through Design

10 Years Later

California's Wine Industry Circa 2000s

- CA accounts for over 90% of US wine production
- Agriculture total value over \$2.3 billion
- Estimated 531,000 acres in wine grapes
- 3.58 million tons of wine grapes
- Over 4,600 wine grape growers in CA
- CA wine industry employs over 330,000 workers annually and \$12.3 billion in wages

Prevention through Design

10 Years Later

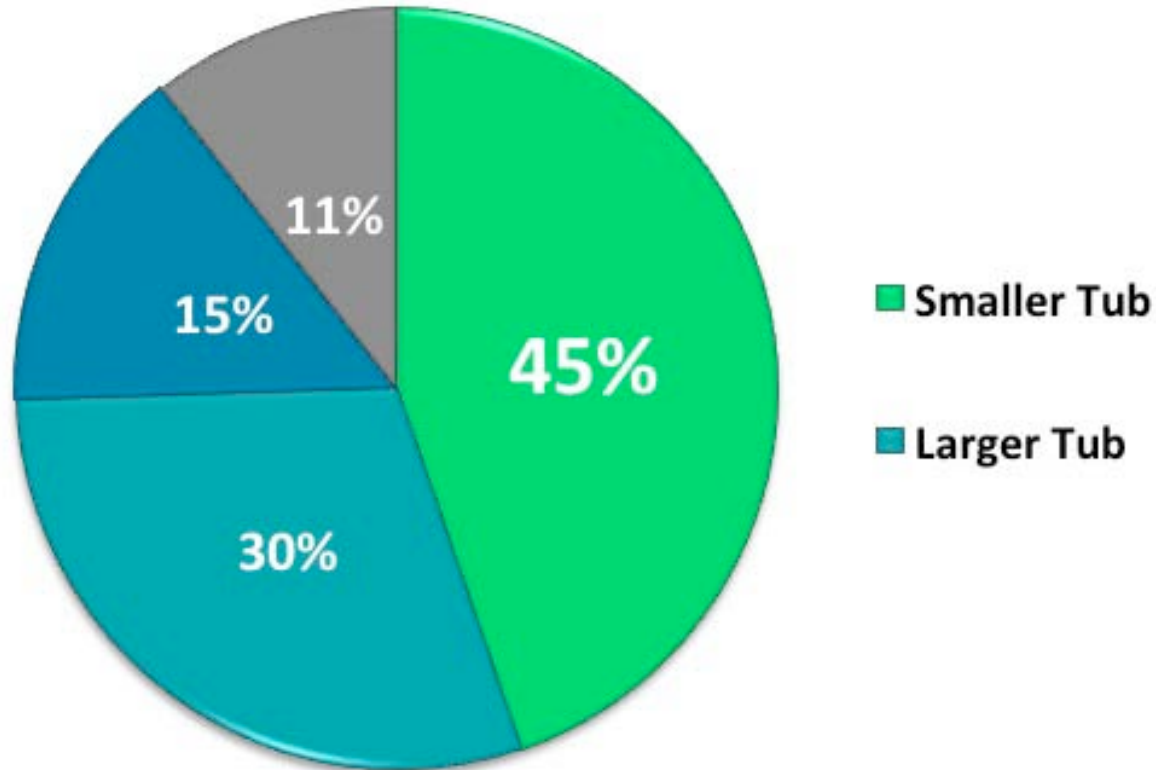
- Winegrape Growing Industry
- Napa and Sonoma Counties
- Reviewing diffusion from 2000-2010
- Funded by NIOSH Intramural Prevention through Design Program
- NIOSH Team Members:
 - Elyce Biddle
 - Mike Gressel
 - John Sheehy

Project Components

- **Partner planning meeting**
- **AgSafe survey – 10 years later**
 - AgSafe, Agricultural Safety Resource Alliance (ASRA), and Wine Industry Officers of Safety (WINOS)
 - Distributed link via email and mailed complete survey to owners/managers
- **Focus groups – owners and farm workers**
- **Interviews – owners and farm workers**

Survey Results

Tub Usage



Survey Results

When did your company begin providing the smaller tub?

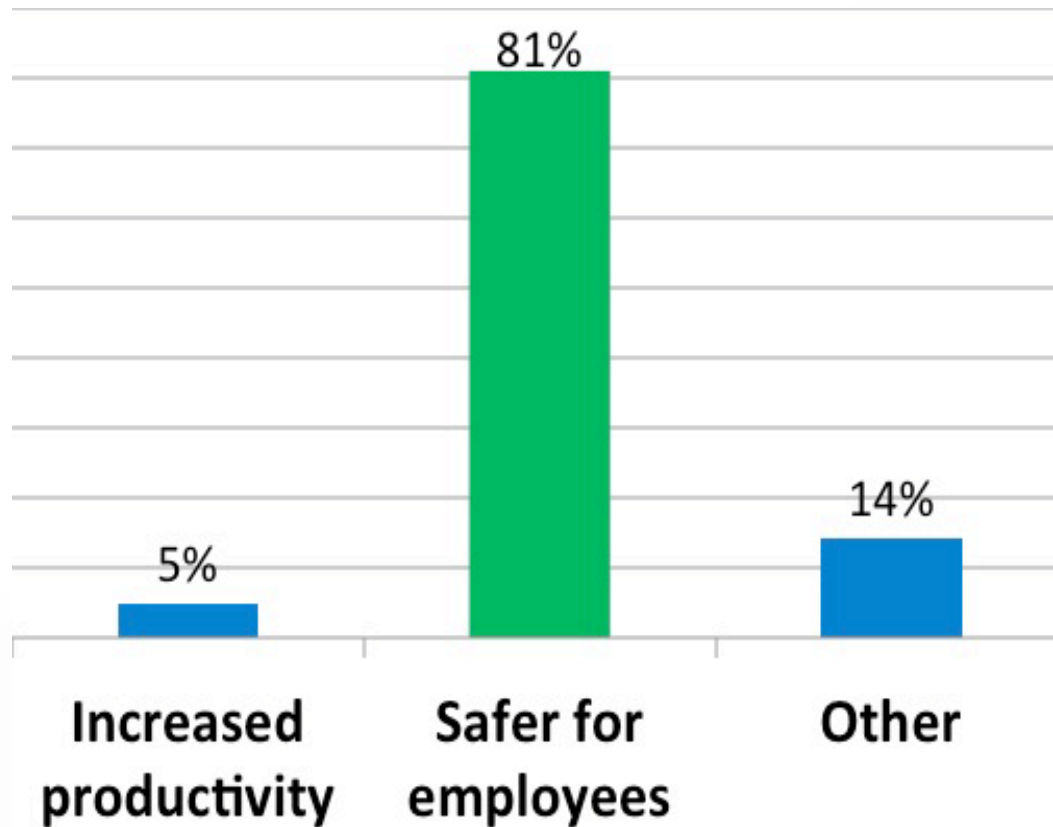
Less than 2 years	25.0%
3-5 years	30.0%
6-10 years	30.0%
More than 10 years	15.0%

How soon after you heard about the smaller tub did you begin providing them?

The next harvest season	85.0%
2-3 years	15.0%
More than 3 years	0.0%

Survey Results

Why did you begin providing the smaller tub?



Survey Results

If the smaller tub is not currently being used to harvest grapes, why not?

Too expensive	0.0%
Permanent employees do not like them	14.3%
Didn't know about smaller tub	0.0%
Don't know where to purchase smaller tub	0.0%
Don't know	0.0%
Other	85.7%

- Have smaller 30 pound tubs
- Use other tubs
- Have to buy all new tubs
- Already have larger tub

- The bigger tub fits more
- Tub is too deep and employees tend to put more grapes than our 35# max

Survey Results

Why are you going to continue providing the smaller tub?

Employees/laborers prefer	27.8%
Good productivity	5.6%
Safer than larger tubs	61.1%
Other reason	5.6%

Focus Group Feedback

Why have the tubs been used?

Motivators	
Less prep work	Lighter weight
Fewer injuries	Less tired after work
Fewer aches and pain	Makes workers happy
Easy to find	Other workers use
Easy to use	

Focus Group Feedback

Why have the tubs not been used?

Barriers	
Too expensive	Better tubs in market
Tub less sturdy	More walking required
Grips not comfortable	Wear out quicker
Need to overfill to make \$	Don't use tubs
Not full time business	

Project Observations

From Focus Groups and Interviews, determined that PtD diffusion:

- Occurred with both owners/managers and farm workers
- Continues today
- Through:
 - Word of mouth
 - Safety trainings
 - Outreach – AgSafe, ASRA, WINOS

Project Observations

- Continued use of PtD was driven by demand from labor
- Modifications for improved use of PtD developed by labor
- Employee satisfaction and morale integral in management decision-making paradigm

The Future

Tub Improvement

Focus group and
survey feedback:

PVC pipe handle
modifications

Tub manufacturer
buy-in?



The Future

Other Industry (Commodity) Use

- Olives
- Table Grapes
- Raisin Grapes

