Methods: Mean amplitude measurements on five muscles were taken from 10 farm worker volunteers who were working an ordinary day in the apple orchard. The subjects wore the intervention belt one day and no belt the other day. These measurements were taken for five different postures common to apple harvest work.

Results: Favorable results were seen for the belt condition in the orchard, relative to muscle recruitment, for the lower erector spinae, the muscle for which greatest benefits were seen in the laboratory.

Conclusion: Results in the orchard were similar, but less dramatic than laboratory results. This is likely due to the greater level of physical conditioning among actual harvest workers. This suggests that ergonomic apple bucket benefits will be greatest at the beginning of the season and among less seasoned workers. NIOSH grant 1 R01 0H008153-01.

## Poster #9

## Pesticide Drift: How Much Is Too Much? How Little Is OK?

**Robert Krieger** and Helen Vega, Personal Chemical Exposure Program, Department of Entomology, University of California, Riverside, 92521

Advanced drip irrigation of chloropicrin (CP; $CCl_3NO_2$) reduces pesticide drift during preplant soil fumigation of strawberries. Chemigation near Salinas on October 5, 2005, resulted in CP drift when the fields were accidentally sealed with water containing some residual CP. Fifteen 911 calls requested information or reported eye irritation, shortness of breath, and nausea. Emergency responders were unable to detect CP over treated fields or at residences where illness had been reported. No persons were hospitalized. The episode occurred in a small area over several hours. Ambient CP levels were likely at the sensory threshold (or much more commonly less than that). Intensive follow-up investigation revealed a spectrum of responses reported by persons in proximity to the field and among persons at the same residence. Medical evaluations of the health significance of the episode are lacking. Available investigations are useful to gauge the nature and extent of CP exposure and to guide future exposure mitigation measures.

Drift is an undeniable consequence of the Laws of Conservation of Matter. All pesticide applications are associated with drift if sufficient analytical power is applied. Existing regulations intended to prohibit drift are archaic. Major reform is past due (perhaps using a food residue risk assessment model). Regulations are unevenly administered. Chemicals like CP with exposure warning odors and sensory effects have become self-incriminating in the present drive for no risk pest management technologies.

## Poster #10

## Risk of Depression in a Cohort of Older Working Californian Farmers 2004.

Adeyemo, MA, Mitchell, DC Schenker, MB, Department of Public Health Sciences, University of California, Davis.

Background: Male agricultural workers have been reported to have the highest level of depression of all occupational groups.

Objective: To assess the risk of depression in older working Californian farmers.

Methods: The UC Davis Farmer Health Study cohort were asked an 8-item measure to predict depression as part of the 2004 survey. Of the 866 participants, the 623 still actively working were included in this cross-sectional study. Associations between likely depression and environmental or occupational exposures were assessed using SAS 9.1 programming. Univariate associations with depression were assessed using t-tests for continuous variables, and Chi-square tests for categorical. Multivariate associations were assessed using multiple logistic regression.

Results: 4.65% (29 of 623) working farmers, mean age 62.3 years (11.6sd), were at risk for depression. In a multivariate logistic regression model, adjusting for age and gender, depression was significantly associated with all of the following: water damage to the home [OR, 3.91(95% CI 1.40 – 10.89)], hand harvesting [OR, 2.63(1.11 – 6.22)], and BMI [OR, 1.13(1.04 – 1.22)]. Work ability [OR, 0.72(0,59 – 0.88)] and tractor driving [OR, 0.224(0.09 – 0.57)] were protective.

Conclusion: The rate of depression in older working farmers of 4.65% closely mirrors the rate of depression in all older Americans of 5.71% according to the NIMH. Risk of depression in older working farmers is associated with both farm tasks and personal characteristics. Longitudinal studies are needed to tease out what factors lead to depression and which are a result of being depressed .

NIOSH 1U50 OH07550

# HEALTH & SAFETY IN WESTERN AGRICULTURE:
# Research to Practice


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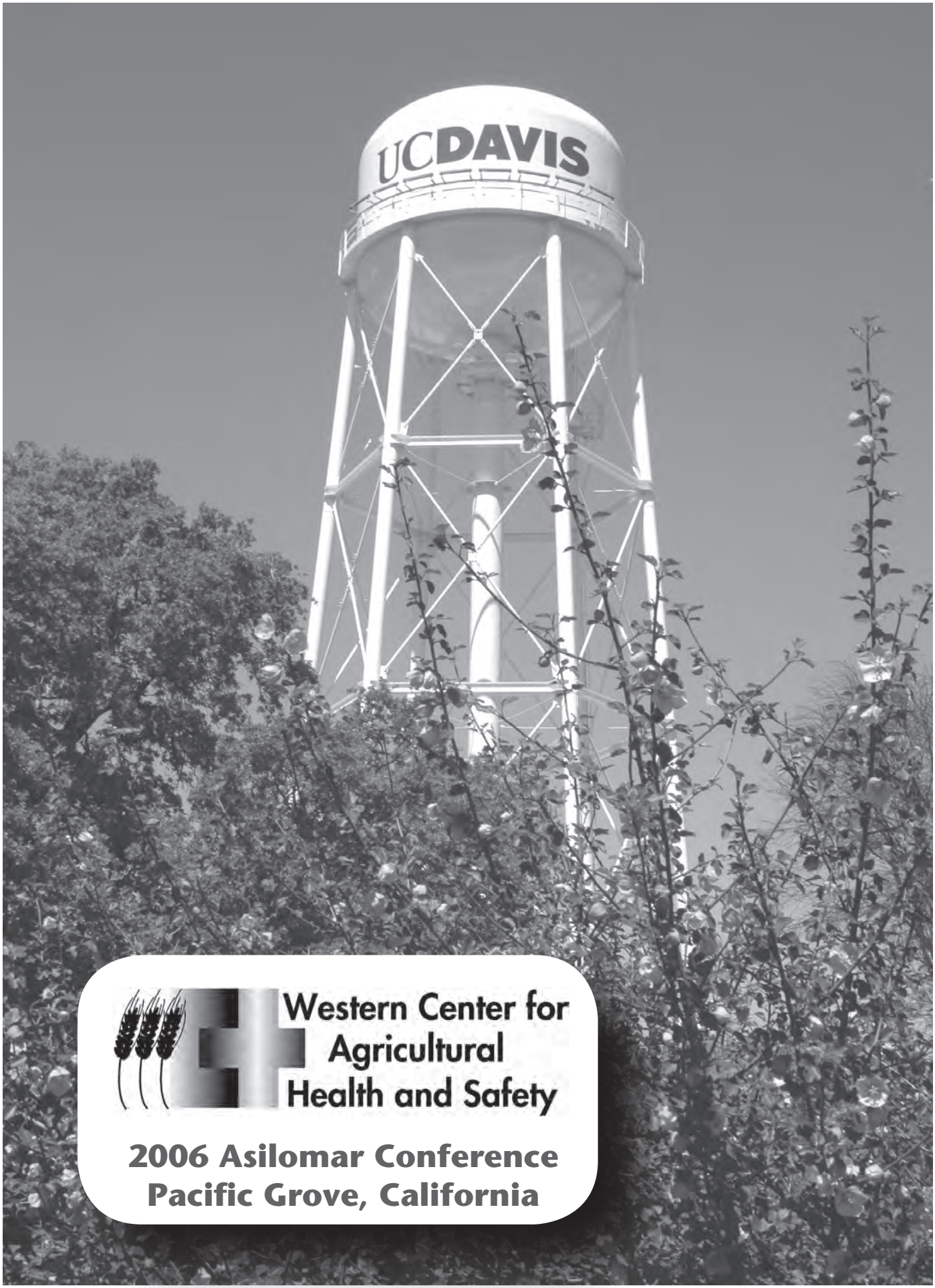


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