

*Full Length Research Paper*

# Vegetable field workers provide insight for improving farm labor retention at the US-Mexican border

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**A 60-question assessment was administered to 305 field workers during 2007 - 2009 to identify factors that could aid US southwest vegetable producers with retaining current field labor. The population surveyed included 38% females and 62% males with over 50% crossing the US/Mexican border daily. Age distribution of the survey participants was 0.9% (< 18 years old), 14.9% (18 - 24 years old), 10.3% (25 - 34 years old), 20.6% (35 - 44 years old), 29.0% (45 - 54 years old), 21.5% (55 - 64 years old) and 2.8% (> 65 years old). Contrary to the conventional belief that salary is the only true mechanism to retain field labor, the study revealed several factors that may also be important. Among workers who do not recommend field labor, over 30% indicated the need for additional work breaks, and up to 23% sought better health care benefits. There was also a marked increase in field work dissatisfaction with increasing age among both male and female workers, a reflection of the physical nature of field work. Overall, this study provides a direction for agricultural labor leaders to initiate efforts aimed at retaining field labor in the southwest, USA.**

**Keywords:** Mexico, immigration reform, Arizona, benefits, job shortage, field labor, USA agriculture, vegetable production.

## INTRODUCTION

Due to its warm winter climatic conditions, Yuma, located in the southwest portion of Arizona, USA, is essentially the only agricultural region in the nation where the field production of vegetables is possible during the period between November and April. The region represents the bulk of the United States' winter leafy greens, providing food, income, and revenue for a state that ranks second nationally in the production of fresh produce (US Department of Agriculture, 2006). To meet the demands during the peak periods of production, a daily labor pool of over 50,000 workers is required to either work directly in field production or within other agricultural related activities (US Department of Labor, 2005). During the 1990's, vegetable production revenue in the region increased by over 120%, partially due to utilization of more modern technologies, greater per capita consumption and increased

population growth (US Department of Agriculture, 2006). During the last few years, however, industry growth peaked, due in part to a lack of a stable supply of field labor. In fact, the present labor status in the desert southwest has sparked a federal and national debate concerning the implementation and feasibility of a national guest worker program (Rodriguez, 2007; Ruiz, 2006; Schiff, 2004). Although the level of potential economic impact from a reduced field labor supply is uncertain, the possibility of a significant reduction in the future is estimated to be high (Gonzalez, 2006).

As a result, there is a clear identified need for an in-depth understanding of the immigrant worker's culture, their satisfaction at work and the ensuing impact on worker continuity/retention. The US farm workforce has increasingly become an immigrant workforce (Gabbard et al., 2002) which warrants a different human resource management approach to assure maximum efficiency. In the case of Arizona, a border state in the southwest region of the USA, the situation may even be more complex as thousands of people are legally allowed to work within

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the USA commute daily to reach their jobs, especially in agriculture (Gonzalez, 2006). In this light, the present effort will focus on the potential mechanisms to retain current and recruit future workers in crop field jobs in Arizona were investigated. The approach examines the opinion and attitude of the current workers and determines the feasible options growers and labor contractors have to create an environment that encourages labor continuity. The objective of this study aims to identify factors that could be useful for future decisions regarding guest worker legislation, and immigration reform. Specifically, four key objectives of the assessment effort were aimed at clarifying: 1) The background of the workers (origin, gender, age, immigration status, etc); 2) The level of job satisfaction (e.g. whether they recommend the job); 3) General factors which could improve their work environments (health benefits, salary, commuting time, etc); 4) Broad-based suggestions and recommendations to improve job satisfaction.

## METHODOLOGY

### The study site

Labor assessments were conducted within the agricultural areas of Yuma County (Latitude, 32° 44' – 32° 41'N; Longitude, 114° 58' – 113° 44'W), situated in southwest Arizona (USA). The region encompasses approximately 14,200 square kilometers of desert with 93,000 hectares of arable land clustered within valley regions. The location is known for having warm winters, a dry climate and ample surface water, resulting in a thriving agricultural business that emphasizes the production of winter vegetables. The study site is immediately adjacent to the Colorado River and the international boundary with Mexico on its West and Southern boundaries, respectively, and includes the small cities of Somerton, Gadsden and the City of San Luis, the Arizona border city with Mexico.

### Study logistics and preliminary overview

An assessment tool specifically targeted for field workers and their daily lifestyles within the desert southwest was developed. To do so, typical agricultural practices encountered in vegetable crop operations, and particularly those focused on activities that involved field labor were examined. And, the US/Mexican border town of San Luis was frequently visited to observe the highly energetic activity that takes place before sunrise, and highlighted by hundreds of people processed by US Customs and Border Protection prior to US entry. Also appraised were fields in production within the survey area to determine the ideal location for assessment. As a result of the pre-assessment period, it was determined to personally interview workers directly in fields, located by contacting area labor contractors. Conducting personal, one-on-one interviews in the field gave two main advantages: (1) it allowed sufficient time to complete the survey, and (2) it provided for a relatively more private survey environment. Generally, crew supervisors allowed 15 min of time per worker, which was sufficient to respond to all survey questions. During the process of conducting the field labor interviews, approximately 50% of the workers were removing weeds at the moment of the survey, 30% were harvesting 5% in multiple activities (such as packing or driving field equipment) and 15% were having lunch (but working that day in any of those activities indicated above).

### Design of the survey tool

In developing a strategy for assessment, the aim was to develop a specific tool that would allow for a thorough understanding of field labor attitude towards their job with the intent of gaining insight for labor recruitment and retention. A questionnaire was initially developed with input from different scientists, growers and contractors and piloted with workers sub-contracted to work at the Yuma Agricultural Center in Yuma, Arizona (USA). According to preliminary results (12 interviews) and further discussion with several industry representatives, the survey tool was modified which resulted in a 60-question survey which was administered face-to-face in Spanish to fieldworkers ( $n = 305$ ) during the leafy vegetable season, from December 2007 to March 2009. The sample size was estimated to account for over 0.7% of the entire field labor population located in the region. The survey consisted of questions concerning different aspects of field work ranging from worker demographics, age, income, job duties, housing, job satisfaction, working conditions and work schedule. The survey was administered by a technician who also noted additional comments, as needed, from respondents during the interviews.

Statistical analysis (frequency distribution, regression) with SAS software (SAS Institute, Cary, NC, USA) was used when considered appropriate. However, the outcomes of this work are reported as descriptive results and meaningful metrics since statistically significant differences among responses may not be useful for decision makers. For example, a significant difference between the importance of work schedule and health insurance would have little value when both are nevertheless mentioned by a large percent of the respondents, suggesting that both factors are important and need to be addressed.

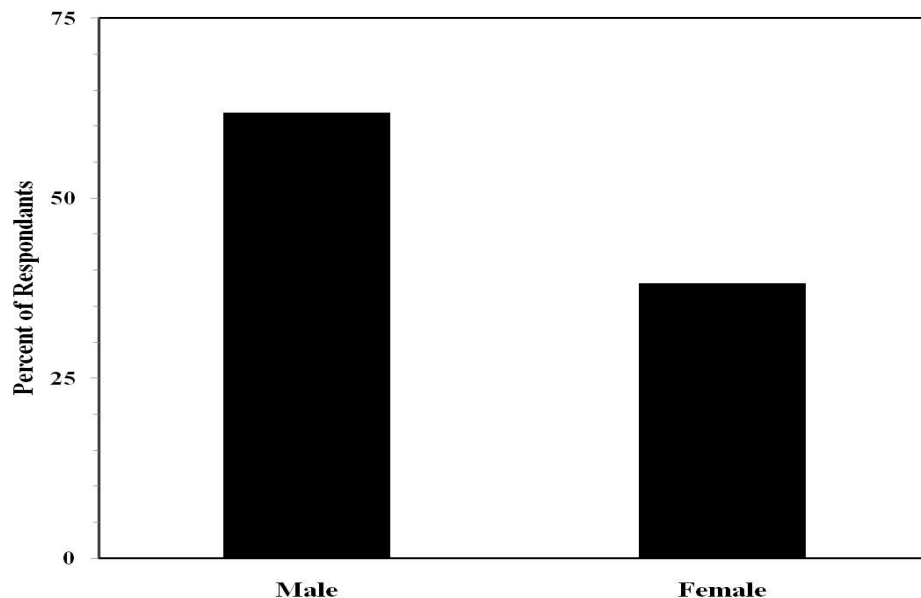
## RESULTS AND DISCUSSION

### Validity and reliability of measurements

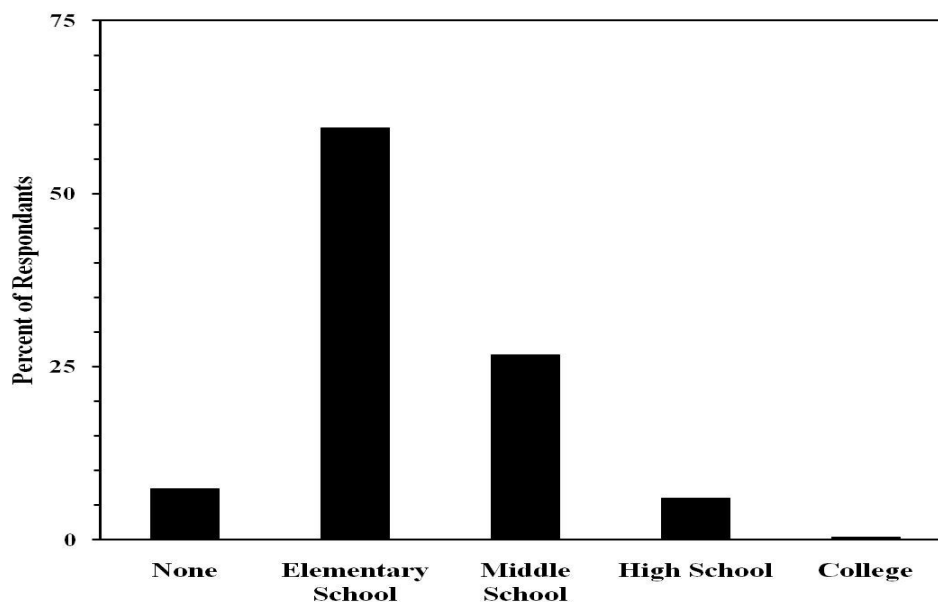
Embedded within the assessment tool was a set of questions which collectively, measured different facets of each of the 4 main objectives of this study. Alternate form analysis was used to statistically evaluate the correlation of the related survey data and was reflected in Cronbach's alpha correlations. For all objectives evaluated, the Cronbach's alpha (Cronbach, 1951) ranged from 0.82 to 0.87, suggesting that the survey conducted was done with high reliability. A concurrent validity assessment was used that compared the results from this study to similar studies conducted in the neighboring states of California (Martin, 2001), New Mexico (Wood and Skaggs, 2005) and in the US (Levine, 2009).

### Worker demographics and job satisfaction

One of the advantages that this effort provided was drawing from the attitudes and views obtained from those directly involved with field work. Given the large amount of workers surveyed randomly across the area and the fact that a great majority of the local labor contractors were included (a total of 13 companies), it is thought that the data reveals the reality of the entire field labor population within the southwest Arizona, an area representing



**Figure 1.** Overall relative age percentages of male and female field workers in southwest Arizona, USA.



**Figure 2.** Highest degree completed by interviewed workers in southwest, USA

over 80% of Arizona's overall leafy green production. The survey population consisted of 38% females and 62% males (Figure 1), and nearly 70% had 4 -7 years of education (Figure 2). In addition, it was found that 90% of the farm worker population either live in the US/Mexican border town of San Luis, Arizona or maintain permanent residence in Mexico and commute across the US/Mexican border daily. This later group accounts for nearly half of the field crews working in vegetable fields within the region assessed (Figure 3).

More than half of the respondents, irrespective of gender, were over the age of 45 (Figure 4). This appears unique for this region, as it has been documented that the US field labor workforce is composed more of young, single males (Mines et al., 2001). It is expected that many questions in any survey to workers are a function of the age of the population. In this regard, the assessment showed that over 50% of current female field workers over the age of 25 years and males over the age of 45 years, would not recommend field work to others (Figure 5).

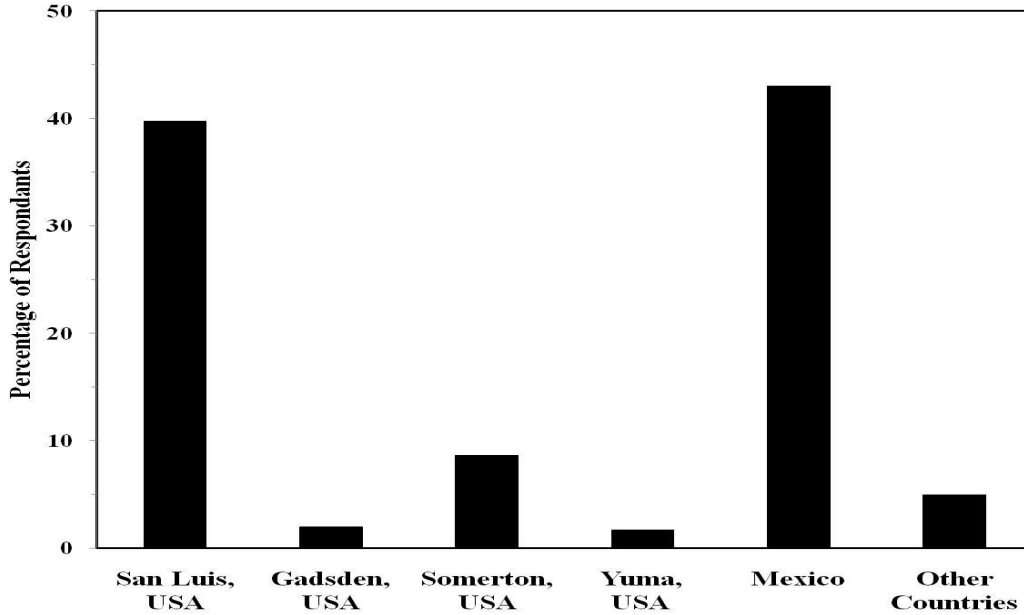


Figure 3. Relative residency status of vegetable field workers in Arizona, USA.

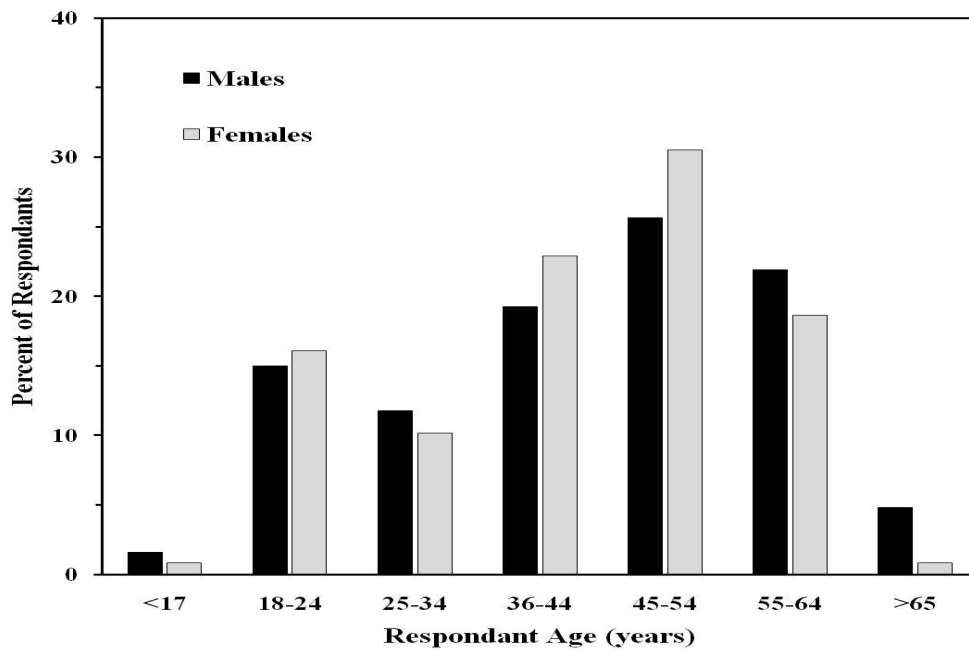


Figure 4. Age breakdown of southwest USA fieldworkers

To this end, there is a marked increase in field work dissatisfaction with increasing age (Figure 5) among both male and female workers, which could be considered concerning, since job recruitment for field labor can increase through employee referrals (Shinnar et al., 2005). Elucidating the factors that affect either recommending or not recommending field work seems paramount (Bitsch and Hogberg, 2005, Herzberg et al., 1957) to better

understand and support the ongoing labor shortage in the southwestern USA. The results showed that older workers are more likely to discourage others from choosing field work as a source of income (Figure 5). This attitude was attributed to a combination of factors including workers age, the physical nature of the job, a need for more frequent work breaks and, more importantly, a lack of adequate health care benefits for a group that could value

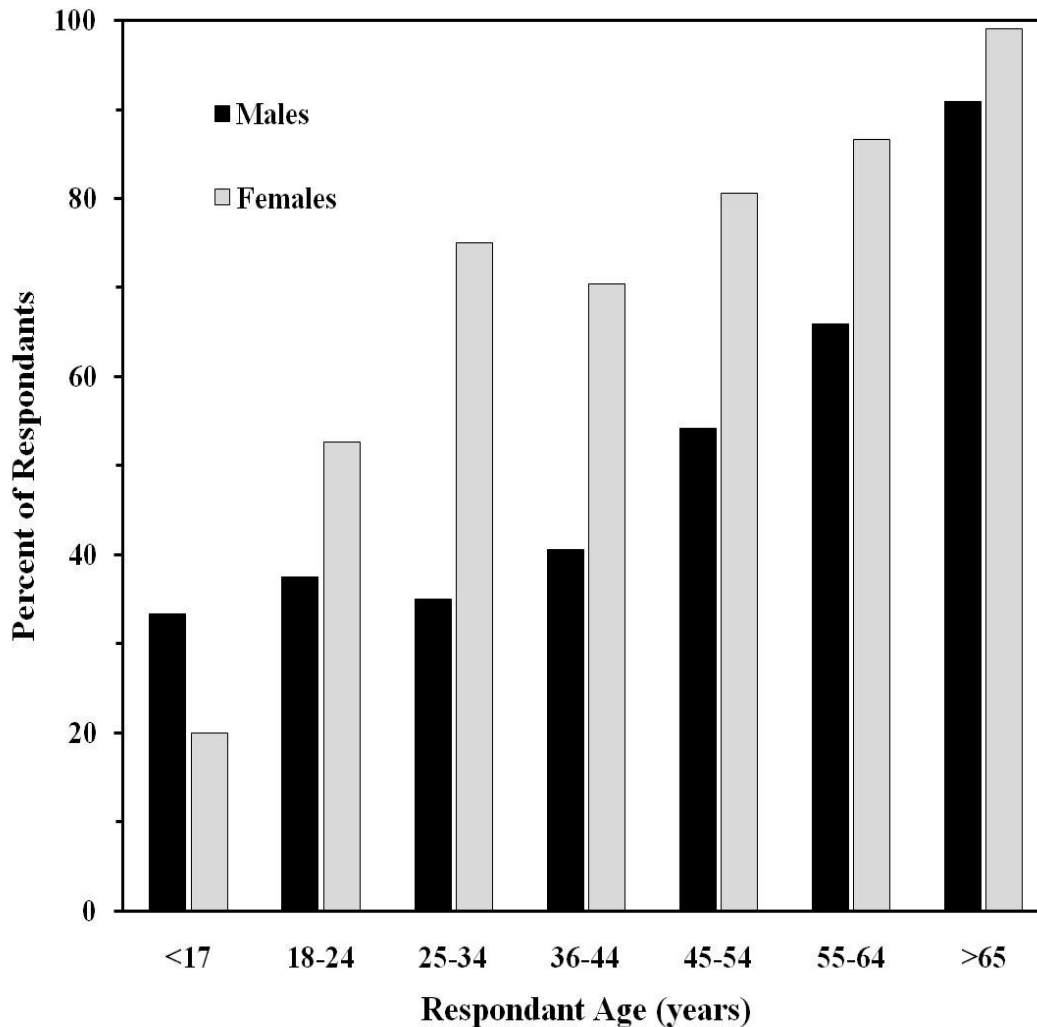
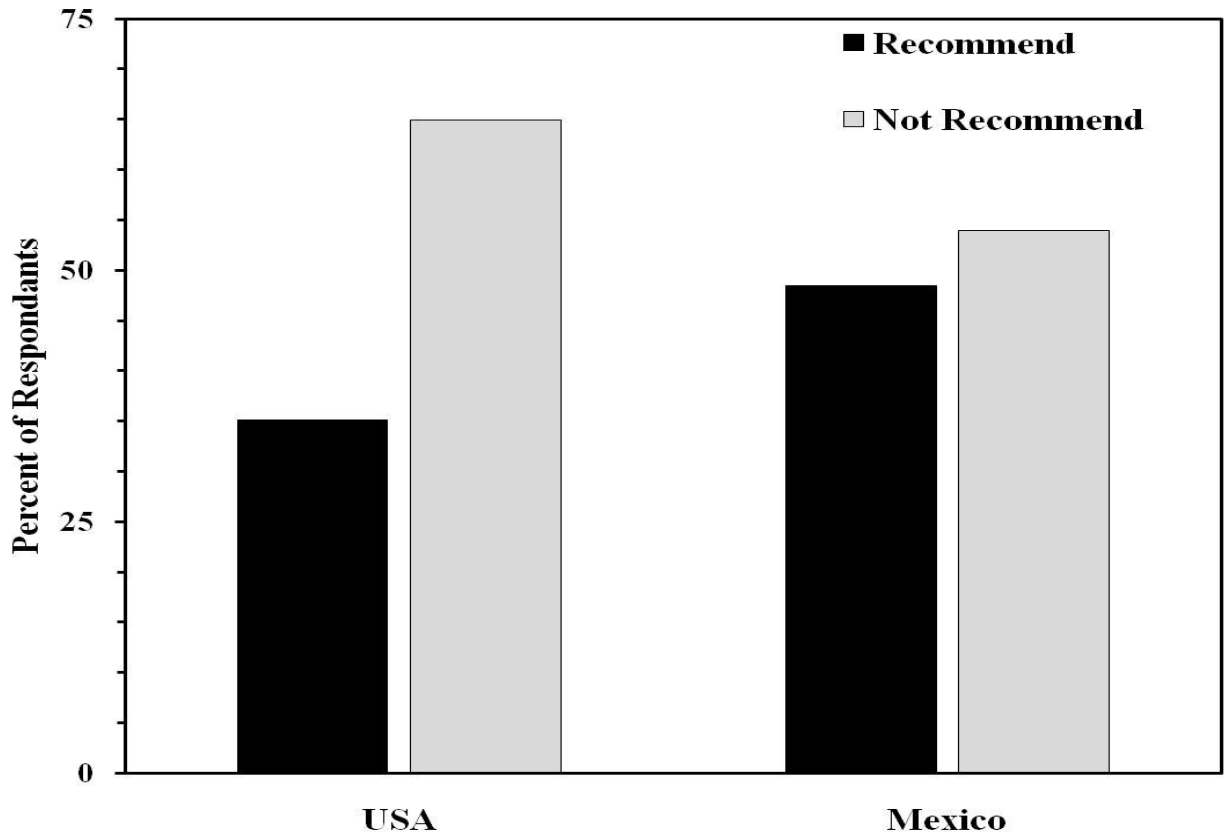


Figure 5. Male and female workers who do not recommend field work, relative to age.

it the most (Findeis et al., 2005). It seems clear that in the study, as found in other professions (Bachmann, 2000; DeLong, 2004; Fullerton et al., 2001; Rix, 2004), crop field labor is represented by an aging workforce which could be invigorated and possibly maintained with greater contributions from a younger labor base. Aside from the growing risk for short term field labor shortages due to insufficient young workers to replace those that are aging, there is also an emerging risk that older labor may discontinue working in fields sooner due to the physical nature of the work and/or associated health-related issues. Although young workers (<25 years old) tend to have a higher injury rate than older workers worldwide (Salminen, 2004), older people suffer more from chronic disease and are more susceptible to fatigue (Crandall et al., 1997). Thus, continuing to build an industry which relies on the dependence of an aging workforce could result in additional labor challenges in the future despite progress industry wide in productivity, plant genetics and technology.

Current economic research on the well-being of US farm workers has largely focused on wages, income, monetary bonuses, paid leave, and other immediate worker effects (Taylor, 1992). However, Findeis et al. (2005) suggested that the long-term effects of field labor on worker well being, such as greater access to adult education, job advancement and comprehensive health care, warrants further investigation. Yet, enhancing the long-term well being of workers may prove difficult as evidence from industry suggests that firms are reluctant to invest in training workers (Chiswick, 1986), especially if they are unauthorized or if there is a high employee turnover (Taylor, 1992). In the next five years, the fact that the highest numbers of workers who anticipate working in the southwestern region of the USA are those who travel into Mexico (Figure 6) provides a warning that an even greater proportion of field work will increasingly rely on people who cross the border on a daily basis. Thus, consequences of slower border crossings, inefficient processing of immigrant documentation, debate over guest



**Figure 6.** Recommending or not recommending field work as function of where a field worker lives (that is, USA or Mexico).

worker legislation and more stringent regulation of daily commuters into the USA may have a direct effect in the commercialization of winter vegetable crops.

### RECOMMENDATIONS FOR IMPROVEMENT

In countries like Sweden, it is known that agricultural wages are defined by not only job performance, but also the duration that workers have been at the job and that these factors have dramatic effects on long-term earning potential, job satisfaction and length of service (Aslund and Rooth, 2007). In this study, however, it was learned that of the major elements which affect worker satisfaction, a field workers wages was not necessarily the most important factor. It is clear, however, that workers who commute daily from Mexico are more likely to recommend field level jobs than US workers (Figure 6), as wages can be 5 - 7 times higher than what employees receive in the Northern region of Mexico. Thus, worker satisfaction in southwest USA may differ greatly from other agricultural regions, and specifically from those areas where production is done in greenhouses (Aslund and Rooth, 2007). In the southwestern region of USA, and particularly within the winter vegetable industry, it is

common for workers to have seasonal employment and in most cases it could be the only job found in the area. Thus, due to the nature of the workers themselves, their skill level (Bellenger et al., 2008), the close proximity to Mexico, and the relative scarcity of yearly employment, field workers do not appear to prioritize wage adjustments despite lengthy work histories, experience and legal immigration documentation (Ise and Perloff, 1995).

While wages did not seem to be the highest priority for improving job satisfaction among those surveyed, more than half of those assessed, regardless of gender, suggested that longer and more frequent work break periods (Figure 7) would improve job fulfillment. Other suggested improvements included greater work schedule flexibility, fewer hours and better benefits. In fact, it was found that workers who do not recommend their job to others seem to have relatively fewer breaks (data not shown). It has been suggested that food consumption during work, a very important part of physical working environments, is often neglected (Grunert et al., 2007). A partial explanation why field workers request more frequent work breaks intervals could be related to the need for more quality time, and consistent energy sources during the course of a workday, in addition to accomplishing personal needs, like access to drinking

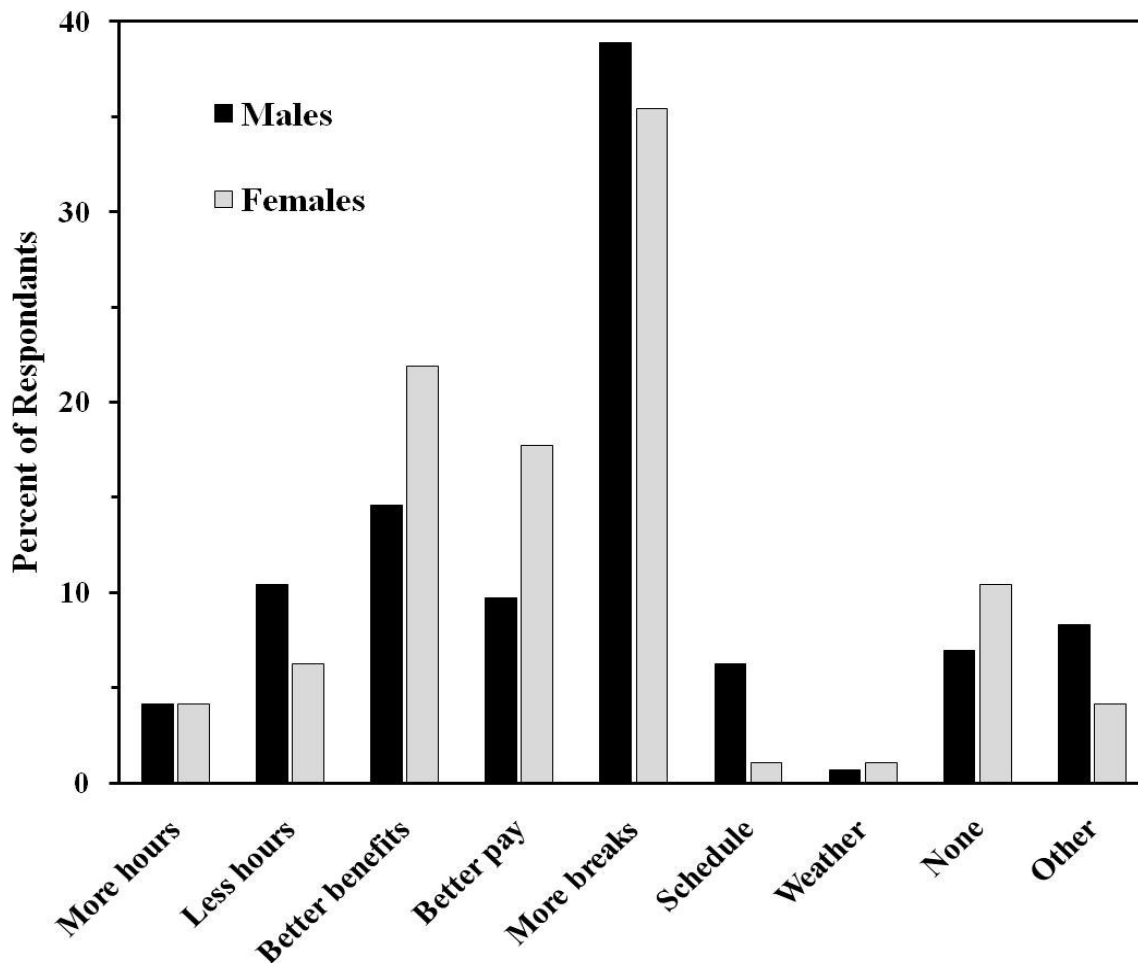
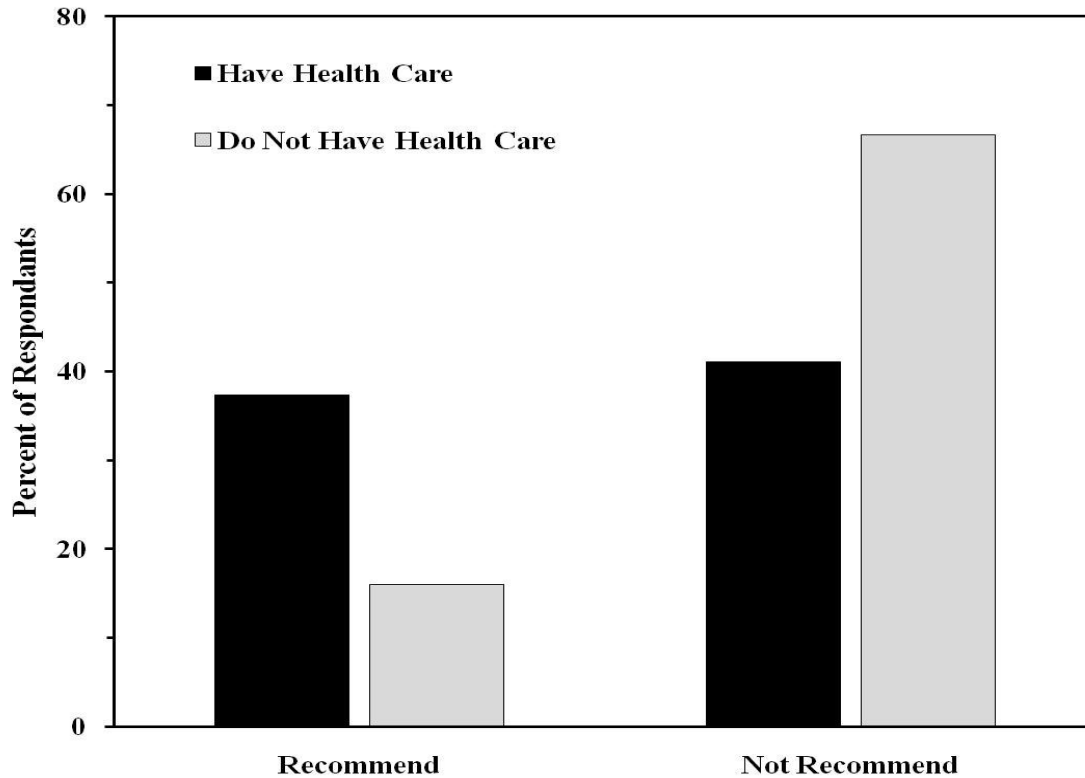


Figure 7. Suggestions by surveyed field workers to make work more appealing as a function of gender.

water, restroom facilities and a short rest. The similar pattern of responses among males and females is somewhat unique to the southwest USA as opinions, attitudes and job duties often differ between men and women in agriculture (Kritzinger and Jan Vorster, 1996). In desert vegetable production, however, some job responsibilities are not gender specific (hand thinning, cultivation and some aspects of harvest) which could promote similar levels of enthusiasm and interest towards job satisfaction. With the relatively large number of female field workers in the area surveyed, the similar wage distribution among tasks and gender, and that, in many cases, men working side-by-side with women, it is not surprising to find similar opinions towards job improvement. Health care appears to be an essential benefit that most field workers request from employers since, in Arizona, USA, field crews do not typically receive this form of assistance from employers.

The issue is not new within agriculture and it has been a concern in the USA for decades. Assessments conducted in 1978 and 1989 showed that field workers remain in serious need of health care or access to

financial assistance programs (Slesinger and Ofstead, 1993). Although many field workers would feel more satisfied at work with additional or longer break periods, more noticeable was the observations associated with health insurance, as almost twice as many respondents who do not have health insurance did not recommend their jobs (Figure 8). It has been reported that employers could use work-related health insurance or health care provisions to ensure worker productivity or attract immigrant workers. However, permanent farm workers, and non-international commuters, are more likely to receive employer-provided benefits and public health assistance (Findeis et al., 2005). Clearly, this could be a consideration as it has been shown that, although a great majority of farmers have health insurance coverage (Jensen, 1983), insurance to field workers is something not well established in Arizona, and perhaps agriculture in general. In the US during the late 1990s, a period of great success, the likelihood of receiving employer-provided benefits by farm workers declined across all forms of assistance (Findeis et al., 2005). Interestingly, by the end of this study, it was determined that two labor



**Figure 8.** Field worker views on either recommending or not recommending field work as a function of having or not having health insurance.

contractors, in addition to one that had already identified early in the study, decided to provide health care benefits to their workers as a competitive means for field worker recruitment efforts. In taking this action, it seems clear that current market competitiveness could include measures which were never considered as vital to the industry. Thus, in addition to improving working relationships with workers, greater outreach needs to be done with labor contractors and supervisors to improve work environment, for both social and economic reasons.

## Conclusion

This study revealed promising options and insight for improved field worker retention in the desert southwest. Some aspects that survey participants suggested as critical would implicate additional costs for production operations, however, some options (e.g. more rest periods) may not be as costly as an across the board increase in wages or greater worker related benefits. Moreover, this work needs to be placed in the proper context, since several suggestions may only be applicable in production areas that are in immediate proximity of an international border. Further, it was observed that several significant points in human resource management seem to be ignored by employers in this region. Significant job

orientation and training, for example, known for its importance in providing long-term work efficiency (Breugh and Starker, 2000) is an aspect that employers do not seem to embrace in southwestern Arizona, and is a probable reflection of history or because a top priority is to find enough people to do the work needed. Overall, this work emphasizes the potential for agricultural labor leaders to initiate efforts aimed at retaining an aging field labor workforce in the desert southwest. As workers appear to have little long term commitment under current working conditions, they consider including health-care benefits, greater frequency of work breaks, and a more convenient work schedule as paramount if they are to continue to provide a stable workforce in the region.

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