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**Masters Thesis Research Prospectus: Injury  
Perception and Reporting Behavior of Latino  
Farmworkers in North Carolina**

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**Injury Perception and Reporting Behavior of Latino Farmworkers  
in North Carolina**

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**Introduction:**

The proposed study will examine injury perceptions, and injury inducing behaviors (i.e. tasks, job roles, and seasonal activities), and how they relate to injury reporting behavior, among Latino farmworkers employed in North Carolina's production of key field crops, i.e. tobacco, sweet potatoes, and cucumbers. The purpose of this pilot study is to establish a basic understanding of the key dynamics influencing injury perceptions, characteristics, and reporting behavior. The results of this study will be utilized as the basis for further research, as well as for recommendations for an "ecological," i.e. multi-level, approach to addressing occupational health and safety issues among Latino farmworkers in North Carolina.

**Project Significance and Principle Objectives:**

The general perception of U.S. Labor and Agricultural Health and Safety experts, health care providers, and individuals involved in serving the Latino farmworker population, is that occupational injury rates are underreported (conversations with U.S. Department of Labor, NIOSH, NC Agricultural Health and Safety, NC Department of Labor, and members of the NC Farmworkers Health Alliance, 1998, 1999). At the current reporting rate, agriculture is ranked as one of the most dangerous occupations in the United States, competing with mining and construction (McDuffie, H.H., Dosman, J. A., Semchuk, K.M. et al., (Eds.), 1995). Occupational health and safety education/training and policy interventions historically have been focused primarily on pesticide exposure, which represents a small, albeit significant, percentage of reported agriculture related injuries (National Center for Farmworker Health (NCFH), 1999, NC Department of Labor, 1995, 1998, Legal Services of NC, 1999). More recently, issues of field sanitation and heat exposure have been addressed, both from a policy, and an education/training intervention perspective (NCFH, 1999, Legal Services of NC, 1999).

An analysis of the reported agriculture related injury statistics shows that the greatest percentage of reported injuries are musculoskeletal related ones (NC Department of Labor, 1995, 1998). Only in the last year have education/training materials addressing targeted musculoskeletal injuries (i.e. back pain) been developed for the Latino farmworker population (NCFH, 1999). Currently, there are no general musculoskeletal related ergonomic health and safety materials made available at all to the farmer, or the farmworker populations, which address

musculoskeletal injury and prevention (Division of Occupational Safety & Health, 1998). These types of education/training materials are available for other industries (Division of Occupational Safety & Health, 1998).

In addition to the need for education/training interventions, extensive ergonomic assessments of field crop work tasks have yet to be conducted to determine which tasks generate higher rates of injury, and/or musculoskeletal workload stress, and what kinds of specific injuries result. Some work has been done in the area of vine and tree crops, and nurseries (Meyers, J. M., Miles, J. A., Faucett, J., et al, 1998, Meyers, J., Miles, J.A., Faucett, J., et al., 1999). However, field crop production, which accounts for the bulk of crops hand picked in North Carolina, has not been fully assessed. Epidemiology studies have outlined overall types of injuries which occur (McDuffie, H.H., et al., 1995, Wilk, V.A., 1986) however, those findings have not been tied to specific tasks, job roles, or seasonal activities, especially with regard to field crop production. The bulk of agricultural health and safety primary research, which has been done, has focused on farmers and farm families. Only a handful of studies have actually surveyed the farmworkers. Given the current trends in U.S. agriculture, the role of the farmworker in safety and health issues will continue to increase, as farms become larger and fewer children chose to stay in the family agricultural business (NIOSH discussions, 1999).

In other industries, ergonomic education and training, as well as job workload assessments, have played a critical role in reducing the incidence and magnitude of musculoskeletal related injuries, as well as other types of occupational injury, such as toxicity and exposure (Cohen, A., Colligan, M. J., 1998). These types of occupational health and safety strategies have been employed to a very limited degree in the area of field crops, specifically tobacco, sweet potatoes, and cucumbers.

#### **Objectives:**

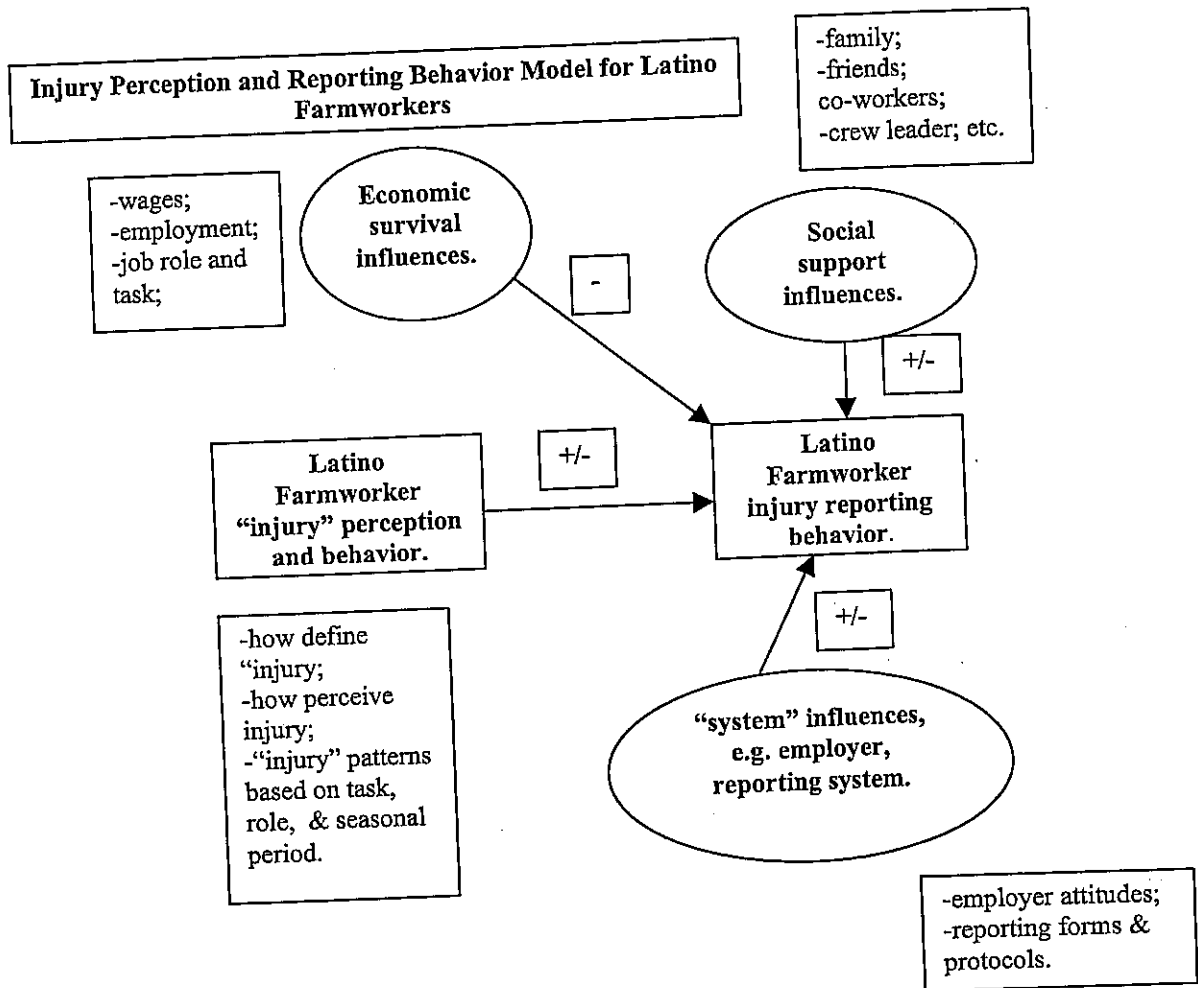
It appears that there is a significant need for an effective ecological (i.e. multi-level) health and safety intervention strategy, geared toward improving the level and quality of agriculture related injury reporting, and achieving a reduction in actual incidence rates. Before work can begin on determining the parameters of that strategy, however, we need to gain a better understanding of how Latino farmworkers, specifically males (who represent over 80% of all migrant and seasonal field crop workers in North Carolina)(Rural Manpower Services, 1999), define and perceive injury, and how that, along with other influencing elements, impacts their decision to report an agriculture related injury. The objectives of this study will be to:

1. Clarify how Latino farmworkers define and perceive agriculture related injuries;

2. Identify the key influencing factors which impact agriculture related injury reporting;
3. Identify the key injury and/or high workload stress generating job tasks, job roles, and seasonal activities, and the types of injuries generated by the respective activity.

**Research Model:**

The behavioral model presented below forms the theoretical basis for the research question, objectives, and hypotheses to be addressed with this research project:



This model has been designed, based on conceptual and theoretical frameworks outlined in health psychology decision models, risk assessment models, and occupational health and safety research studies and literature, in particular relating to agriculture.

### Research Question and Hypotheses:

Based on an understanding of the current occupational injury reporting situation, obtained from occupational health and safety literature, various pertinent health psychology decision making models, as well as input from Latino farmworkers, and individuals involved in providing services to this target population, a variety of factors may be influencing injury reporting behavior. The following key factors have been initially identified, which may play a role in injury reporting behavior:

1. Fear of job loss;
2. Individuals are not aware that injuries are supposed to be reported to the farmer/employer;
3. The current definition of "injury" among Latino farmworkers may be such that only life threatening incidences meet their "criteria" for reporting;
4. Fear of pressure from peers, family members, co-workers, etc. may cause individual Latino farmworkers not to report injuries;
5. The currently reported incidence rates may indeed be the correct levels of "injury" occurring among Latino farmworkers;
6. "Injury" may be perceived as "part of the job" and, therefore, is de-emphasized by Latino farmworkers and farmers, alike.

The research question addressed in this study is whether current injury rates among Latino farmworkers are indeed being underreported and, if so, why. The following hypotheses for this research study are designed to focus on the key areas, which the above outlined behavior model identifies as potentially influencing Latino farmworker injury reporting behavior. The specific hypotheses are:

1. Economic factors (e.g. job loss, work days lost) most strongly influence Latino farmworkers' decisions to report an injury;

2. Pressure from the social support network to continue working negatively influences Latino farmworkers' decisions to report an injury;
3. Less than 50% of Latino farmworkers are aware that they are to report injuries to the farmer/employer;
4. Key job tasks, roles and "within growing season" periods can be identified as "high risk" for injury;
5. Inconsistencies between "injury" incidence and "injury" reporting exist due to a difference between Latino farmworkers' "perception" of injury and the current "reporting" definition of "injury."

**Methodology:**

Given the cultural differences that come into play with the research instrument design, wording of questions and concepts, and structuring of the interview process, a three-part approach will be utilized for this research project. Part One will consist of a series of focus groups (2 to 3 groups consisting of 7-9 male Latino farmworkers). In Part One, the research instrument design, wording, and "injury" behavior concepts will be tested qualitatively to identify logic flaws, to more fully understand how the concept of "injury" is understood, and to refine the research hypotheses and objectives as necessary. Part Two will be a trial run of this pilot study, to fine tune the quantitative research instrument design further, and adjust the logistics of the implementation process (i.e. interviewer training, survey design and/or language for ease of implementation and understandability by both interviewers and interviewees, etc.) as necessary. Part Three will be the actual implementation of the pilot study, with a statistically powerful sample size of the targeted Latino Farmworker population (see attached calculation for proposed sample size).

**Survey Instrument:**

An initial draft of the questionnaire is attached, to provide an understanding of the general line of questioning proposed to address the research question, and to test the respective hypotheses.

**Data Analysis:**

The data collected via the questionnaire format will be structured such that, to the extent possible, it can be manipulated as ordinal data. This will allow logistical regression techniques to be used for primary data analysis,

hypothesis testing, and subsequent assessment of the proposed injury perception and reporting behavioral model and its components.

**Sampling:**

Participants for the focus groups would be recruited through health care and other service provider networks. Latino farmworkers with bilingual language skills (English and Spanish) will be selected, to help clarify key issues pertaining to injury definition and perception. In Part Two and Part Three of the study, a convenience sampling approach will be utilized, given the challenge of accessing the Latino farmworker population.

**Timetable:**

The growing season in North Carolina for field crops (i.e. tobacco, sweet potatoes, and cucumbers) runs from April to mid to late November. Ideally it would be best to coordinate the research of injury rates with the middle to end of the growing season, so injury questions can be focused on that specific growing season. This would help control for time dependent reporting biases. If time schedules permit, it would be advisable to conduct the focus groups in October or early November of this year, and possibly test the quantitative questionnaire. That would provide input for the research instrument refinement, such that it would be ready for the full pilot study implementation in mid to late Summer of next year, i.e. Summer 2000. A detailed logistical timetable is attached, which outlines key activities along with proposed target dates for completion.

**Budget:**

A budget, which outlines the projected costs to implement this research study, is attached. Initial funding received (approximately \$3,000) has been used to support proposal writing, initial investigative, and preparatory efforts of the author of this proposal. Some funds would be available to help support initial phases of the research project. Travel expenses for researcher and interviewers will be moderate, given the targeted implementation of the pilot study primarily in Johnston County.

**Summary:**

Limited to no quantitative, peer-reviewed, scientific research has been conducted in the area of occupational health and safety behavior of Latino farmworkers, in particular those employed in field crop production, one of the most important revenue generating segments in North Carolina agriculture. Agriculture accounts for over 28% of the state's economy (North Carolina Division of Agricultural Safety and Health, 1996). An effective ecologically oriented intervention approach would greatly contribute to the profitability of North Carolina agriculture, by reducing the rate of reported, and potentially unreported, occupational injuries occurring among agricultural workers, in particular, field crop workers. It is anticipated that this research study will establish the basis for further explanatory, and intervention program development research, designed to benefit North Carolina agriculture, and the Latino farmworkers, who play a critical role in the process.



## References

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### Questionnaire Draft

Note: these are very general questions and have not been laid out in their final format. They are being worked on!

Lists would be compiled of key symptoms for pesticide and heat exposure, as well as for musculoskeletal injuries. These would be used to help elicit and classify responses. A chart like the one shown in question #3 would be used to classify and quantify the responses.

#### Musculoskeletal injury related questions:

1. What kinds of things (activities, specific tasks, or movements) do you do at work, which cause you physical pain?
2. In what part(s) of your body do you experience the pain? [see if they can use a body chart to demonstrate where they have the pain]

3. How often do you experience the pains or discomforts mentioned during a given growing season?

Type of pain, symptom:	Pain rating	Type of crop	Job task	Job role (e.g. picker, driver, etc.)	Apr	May	June	July	Aug	Sept	Oct	No v

4. How long does it last? (comes and goes, is always there to some degree) [see if grid format above helps you with organizing responses.]
5. How would you describe the intensity of the pain or symptom? [see if you can effectively use a pain scale with them] (0-10 scale...0=no pain, 3/10 = discomfort but tolerable; 5/10 = bad; 7-8/10 = very bad such that need medical attention, 9-10/10 = so bad immediately go to the emergency room) potential translation for Spanish speaking individuals: see how they would describe the range in Spanish and see what would make sense to them as a way of "quantifying" their pain level.
6. How would you describe the pain? e.g. burning, numbness and tingling, aching, catching feeling...
7. What do you find:     Makes the pain worse?  
                                   Makes it better?
8. Have you missed work because of these painful incidences?
9. How many days?

10. Are you aware that activities causing pain or feelings of sickness, etc. should be reported to the farmer for whom you are working?
11. Do you tell your boss (farmer? Crew leader?) when things like this occur?
12. What happens when you tell your "boss?"
13. How do you decide when you need to go to a doctor or seek medical attention for what is bothering you?
14. Who do you go to for support and/or as a source of information or guidance when deciding how bad off you are and/or whether you should seek medical attention?

## Research Project Timetable Draft

Task	Target Completion Date (week of)
Initial draft of research prospectus to Mitchell, including initial draft of questionnaire, focus group line of questioning.	9/14/99
Revisions of research prospectus complete	10/4/99
Finalize committee member selection	10/4/99
initial committee meeting to review prospectus, and establish working protocols and tentative time schedule.	10/18/99
agreement on focus group line of questioning, i.e. questionnaire draft.	10/18/99
agreement on outline for literature review of full research proposal	1/25/99
submit focus group questionnaire draft to IRB	10/25/99
receive approval from IRB	11/15/99
determine feasibility of conducting focus groups this growing season, and testing of questionnaire	11/15/99
submit initial draft of full research proposal	11/15/99
receive comments back from Mitchell and committee members	12/6/99
complete revisions and resubmit to Mitchell and committee members	1/10/00
feedback from Mitchell and committee members	1/24/00
based on feedback and necessary revisions, decide on proposal defense schedule	1/24/00
Target full pilot study implementation	7/8/00

## Budget Draft

Item/Description	Projected Cost	Actual or targeted source of Funding
Focus group/questionnaire translation English/Spanish/English	\$600	Funds received from SSSPI and Emeritus Fund awards.
Focus group participant incentive (generally just give something like a water bottle or functional article).	\$200	Funds from SSSPI and Emeritus Fund
Focus group moderator (2-3 sessions @ 1 to 1 ½ hours)	\$300	Funds from SSSPI and Emeritus
Focus group results report review and tape transcription assistance (English/Spanish), and questionnaire revisions.	\$300	Funds from SSPI, Emeritus and personal funds as possible.
Interviewer training (approx. 5 hours @ \$20) for test of pilot study questionnaire.	\$100	Need funding.
Pilot study test (10-20 interviews @ \$30/interview)	\$300	Need funding
Full Pilot study interviewer training (10 interviewers @ 3 hours @ \$12/hr)	\$360	Need funding
Full Pilot Study interviewing (est. 100 subjects @ 1 hour @ \$12/hr.)	\$1,200	Need funding
Michigan State Ergonomics Course	\$3,000	Need funding
Travel & lodging for Michigan State Ergonomics course (1 week)	\$1,000	Need funding
Researcher time for questionnaire design, testing, interviewer training, supervision, analysis of results and report writing (60 hours/month @ 12 months @ \$15/hr)	\$10,800	Need funding
Expenses for research and report review and consultation	\$2,000	Need funding
<b>Total projected expenses</b>	<b>\$20,160</b>	
<b>Portion funded</b>	<b>\$1,400</b>	
<b>Portion needing funding</b>	<b>\$18,760</b>	

## **Sample Size Calculation for Full Pilot Study**

(need to talk with Dr. Mitchell regarding formulas and estimates)

## Supervisor's Accident Investigation Report

(from A Guide to Farm Safety and Health, p. 61,  
Division of Occupational Safety and Health, North Carolina Department of Labor)

Notes: Complete within 24 hours of injury. Explain that you are completing the report to prevent recurrence of the accident, not to blame the injured for suffering an accident.

Date of accident \_\_\_\_\_

Name of injured \_\_\_\_\_

Parts of body injured \_\_\_\_\_

Nature of injury \_\_\_\_\_

Name of agent involved.

How did the employee describe the accident?

Did witness describe accident the same way as the injured employee?

What were the differences?

What unsafe condition permitted accident to occur?

Was equipment operating properly?

What unsafe act contributed to accident?

Was standard procedure being followed at time of injury?

Was commonly accepted procedure violated?

What kind of training in the work did employee have?

Did the employee understand how to do the work properly?

If not, why not?

What factors contributed to accident (such as type of work being performed)?

Has the exact source of the accident been identified?

If not, keep asking the why, how, what, when, where, and who questions about the accident until the cause is clear.

What did the employee suggest to prevent this type of accident from happening again?

Immediate steps taken to prevent recurrence of the accident.

Permanent steps taken to prevent recurrence.

Date action taken:

Investigated by: \_\_\_\_\_

Date: \_\_\_\_\_