

ENUMERATION AND HEALTH-RELATED CHARACTERISTICS OF HIRED  
FARM WORKERS IN CHEROKEE COUNTY, TEXAS

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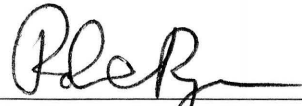
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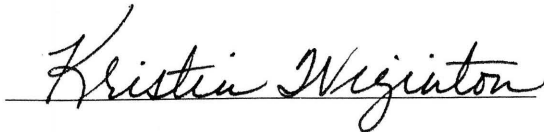
To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Cheryl Maureen Cooper entitled "Enumeration and Health-Related Characteristics of Hired Farm Workers in Cherokee County, Texas." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Health Studies.



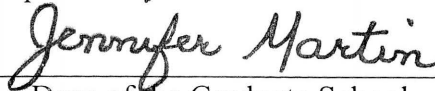
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We have read this dissertation and recommend its acceptance.



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Accepted:



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## ABSTRACT

CHERYL MAUREEN COOPER

### ENUMERATION AND HEALTH-RELATED CHARACTERISTICS OF HIRED FARM WORKERS IN CHEROKEE COUNTY, TEXAS

MAY 2005

Hired farm workers are among the most vulnerable persons living in the United States. Because they are often recent, undocumented immigrants, who do not speak English, it is difficult to obtain accurate counts of their numbers, and to understand their health risks. After the publication of a 1997-98 enumeration of migrant/seasonal farm workers, in Cherokee County, East Texas, several community professionals expressed doubt that the study reflected the “real” numbers, and expressed a need for an enumeration of all hired farm workers in the county. The apparent undercount of the migrant/seasonal group, and lack of information about total numbers of hired farm workers, and their health risks, was seen as an obstacle to health care planning and to obtaining outside funding. This broad exploratory study was conducted to address the apparent undercount and to address the knowledge gap related to farm worker health.

During 2003-04, 78 interviews were conducted with employers of farm workers and with others knowledgeable about this population, in an attempt to obtain an accurate estimate of their current numbers, and to obtain perspectives about their health. Other resources, which involved direct counting of greenhouses and workers, examining school

and county records, and data from the U.S. Department of Agriculture, were used to validate the findings. A second component of this study, drawn from a larger study – the East Farm Worker Health and Safety Survey (ETFHSS), involved the analysis of selected health characteristics of farm workers in East Texas, including Cherokee County.

The enumeration study indicated that more seasonal and fewer migrant workers were employed in the county, than indicated in the 1997-98 study, and that employers generally perceived the workers as “young healthy people,” without any particular health problems. Selected data from the ETFHS study indicated that a majority of the study participants perceived themselves to be in good health, lacked health insurance, experienced obesity at levels similar to the U.S. population, and that several had a strong family history of diabetes. Overall, this study affirms the difficulty in counting farm workers, emphasizes some of the problems related to current definitions used in farm worker research, and provides some information on the health status of this population in East Texas.

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## CHAPTER I

### INTRODUCTION

As long as there is a shared border between poorer developing countries and richer developed ones, and at the same time, a significant disparity in income potential between the two, it is inevitable that persons will attempt to cross from the poorer to the richer side, seeking employment. Such is the situation in the borderlands in many areas of the world, and specifically between Mexico and the United States. It is estimated that each day several hundred thousand people cross, or attempt to cross, this border (U.S. Center for Strategic and International Studies, 2004). Of these, the majority are persons who have valid documents that allow them to work or visit legally. Of the thousands of undocumented people who attempt to cross each day, about 7 out of 10 are successful. The unsuccessful either return to their homes (often only to attempt again later), or die during the effort. Of those who cross both legally and illegally, many eventually join immigrant compatriots or native-born American citizens to become a part of one of three streams of migrant and seasonal farm workers (MSFWs)(Migrant Clinicians Network, 2003). These workers follow crops or other employment from Texas to as far north as New York, Michigan, and several other states along the Canadian-U.S. border. Many pass through, or settle for a while (some permanently), in various towns, cities, or rural areas, primarily in southern states such as Texas, Arizona, and California. Whether migrant or more settled, they work at a variety of jobs that constitute what is sometimes

termed “3-D” work (difficult, dirty, and dangerous), many of which are related to agriculture. The focus of this research is that group of hired farm workers, including migrant and seasonal farm workers who reside permanently, or for awhile, in East Texas.

### **Statement of the Problem**

The problem of the undercount of minorities in this country has been recognized and reported in the literature and the media since the 1940’s (Anderson & Feinberg, 1999; Heer, 1996). Because of the unsettled and often undocumented status of hired farm workers in general, and migrant and seasonal farm workers (MSFWs), in particular, who are primarily Hispanics from Mexico (United States Department of Labor, 2000), it is likely that the undercount is more significant in this group. A recent enumeration profile prepared for the Migrant Health Program of the Bureau of Primary Health Care (Larson, 2000), indicated that a minimum of 10,000 migrant and seasonal farm workers and their families live and work in the counties located in East and Northeast Texas. This enumeration profile indicated that Cherokee County, in East Texas, had an estimated 534 MSFWs, a number which includes both the workers and the family members accompanying them. However, anecdotal information from community agencies and other reliable sources (J. Beck, personal communication, March 15, 2002), who have regular contact with this group, and rough estimates performed by a team of researchers from Texas Woman’s University conducting research in the county in the fall of 2002, suggest that the population of hired farm workers is unknown, and that the number of MSFWs may be grossly undercounted in the county.

Obtaining an accurate count of the numbers of hired farm workers and the sub-group of migrant and seasonal farm workers is fundamental to any attempt to improve the health status of this population. Although migrant and seasonal farm workers are considered to be more vulnerable to poor health outcomes than the more settled group, many professionals who have close contact with both groups, express frustration at the rigid definitions used to identify and separate the MSFWs from other hired farm workers. They contend that this division has little meaning because hired farm workers, whether migrant, seasonal, or permanently employed, have similar problems that affect their health and well-being in similar ways. Many federal programs distribute money based on the numbers of persons who would be potential benefactors of this funding (U.S. Census Monitoring Board, 2001). The numbers are extracted primarily from census data. If the count is inaccurate and the population is under-counted, the communities will not receive a fair distribution of funding. It is difficult for communities to plan for future needs without a more accurate count of a segment of the population that, because of their vulnerability, has a high demand for health and social services, and the potential for depleting local resources. Many community leaders in Cherokee County believe that the health problems of this poor and uninsured group could be improved by the establishment of migrant health services or a community health center. (M. Bone, M.D., personal communication, March 5, 2003). For any application for a federally supported Migrant Health Center or similar entity to be seriously considered by the funding agencies, accurate numbers of potential users of this service are necessary. A related problem in attempting to document the size and needs of the undercounted and underserved hired farm worker population is the paucity of data on their

health characteristics (Amaro & de la Torre, 2002). Information concerning current health status and possible future health problems is fundamental to budgetary planning, and to designing culturally appropriate medical services and health promotion and disease prevention programs.

In summary, the primary problems that were addressed in this study were:

1. The apparent undercount of the hired farm worker population in Cherokee County, TX.
2. The knowledge gap in the research literature regarding health-related characteristics of this primarily Hispanic population – a gap which is to some degree, related both to the undercount and to a paucity of research in this area.

### **Statement of the Purpose**

The purpose of this exploratory study was to conduct an enumeration of the hired farm worker population in Cherokee County, Texas, and examine health-related characteristics of that population. More specifically, the study aimed to:

1. Conduct a comprehensive enumeration of the hired farm worker population (including the migrant and seasonal farm workers) in Cherokee County, Texas.
2. Contribute to the understanding of the health status of Cherokee County farm workers from the perspective of employers of this population or from those who work closely with them.
3. Identify the health-related characteristics of East Texas hired farm workers by analyzing selected health-related data from the East Texas Farmworker Health and Safety Survey (ETFHSS).

## **Research Questions**

The following research questions were addressed in this study.

1. How many hired farm workers currently reside in Cherokee County, Texas?
2. How many of these hired farm workers are migrant and seasonal workers?
3. How do these numbers compare to the most recent census and other enumeration estimates for this county?
4. What are some of the health-related characteristics of the migrant and seasonal farm workers who reside in Cherokee County?
5. What are the perceptions of employers and others who work with the study population, about the health of this group?

## **Limitations and Delimitations**

For such a comprehensive study to have validity, it must be completed in a timely manner, using a variety of data sources. This entails a considerable degree of trust and cooperation between the researcher and those who control the data, and a triangulation methodology which taps into as many different data sources as possible. While it appeared that by the beginning of the data collection phase, a significant level of trust and cooperation has already been established in this community, that a critical mass of community leaders had voiced support for the project, and that the data collection method seemed feasible, limitations and delimitations remain.

### **Limitations**

The limitations of the study were as follows:

1. This was a broad and exploratory study. Much of the data was secondary, and there was a risk for duplication, in both the enumeration data and in the health-related characteristics data.
2. The data used to make inferences about the numbers of hired farm workers and of migrant and seasonal farm workers in Cherokee County may be biased and may not be reflective of the actual situation due to investigator bias in selecting data sets.

### **Delimitations**

The delimitations of the study were as follows:

1. The enumeration data were collected only from agricultural enterprises in Cherokee County; therefore, workers who may live in Cherokee County and work in another county were not included. Conversely, some of the workers employed in Cherokee County may reside in other counties.
2. Standard definitions for farm work, for farm workers, and for agriculture, commonly used in the literature were modified for this study to reflect the specific labor market of Cherokee County; therefore, comparisons with other studies, counties or regions may be difficult.
3. A convenience sample of individuals was interviewed – there were other knowledgeable persons in the county who were unwilling to participate or who could not be contacted, but who may have had information that could have affected the findings.



4. Participants in the survey from which health characteristics were selected, were limited to individuals who have worked on a farm, or in the farm-related industry, in the past 12 months.
5. Participants were limited to individuals who are age 18 years and older.
6. Participants were permanent or temporary residents of East Texas

### **Assumptions**

The following assumptions were made for this study:

1. The participants responded truthfully to the interview questions:
2. The participants understood the interview questions.
3. The researcher understood and recorded accurately the information provided in the interview.

### **Definition of Terms**

The following terms are defined for the purposes of this study:

**Agribusiness** - An industry engaged in the producing operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities.

**Agriculture** - Farming in all its branches, including the cultivation and tillage of the soil, dairying; the production, cultivation, growing, and harvesting of any agricultural or horticultural commodities the raising of livestock, bees, fur bearing animals, or poultry; and any practices (including any forestry or lumbering operations) performed by a farmer or on a farm as an incident to or in conjunction with farming operations,

including preparation for market, delivery to storage or to market or to carriers for transportation to market (United States Department of Labor, 1992).

**Alien** - A person who is not a citizen of this country (may be legal or illegal).

**Crop Work** - The definition of crop work by the U.S. Department of Agriculture (USDA) includes “field work” in the vast majority of nursery products, cash grains, and field crops, as well as in all fruits and vegetables. Crop agriculture also includes the production of silage and other animal fodder.

**Day-Haul Operation** - The assembly of workers (called “liebres” in Cherokee County) at a pick-up point waiting to be hired and employed, transportation of such workers to agricultural employment, and the return of such workers to a drop-off point on the same day.

**Entered Without Investigation (EWI)** - A person who enters the United States without passing through the required document check process.

**Farm** - Any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the reference year (National Agricultural Statistics Service, 2002).

**Farm Labor Contractor** - A person or organization (other than an agricultural employer an agricultural association, or an employee of an agricultural employer or agricultural association) who receives a fee for performing farm labor contracting activities (Runyan, 1992).

**Farm Work** - In this study, the term “farm work” will include farm-related occupations which are appropriate for the specific context in Cherokee County, including

field agriculture; orchard agriculture; dairy, cattle, poultry, and hog farm enterprises; packing and sorting of agricultural products; horticulture, including nurseries and greenhouses; forestry; landscaping, including maintenance of green areas in the public or private domain; reforestation; and the logging/lumber industry, including sawmills and palette making.

**Farm Worker** - Any person who is employed in any of the above described work activity.

**H-2A Workers** - Temporary foreign workers are nonimmigrant aliens authorized to work in agricultural employment in the United States for a specified time period, normally less than one year (Runyan, 1992).

**Health-Related Characteristics** - Characteristics that directly or indirectly impact health status, and will include demographic factors such as age, or country of birth, and other variables such as medical diagnoses, health insurance status, and behavioral factors such as diet, tobacco and alcohol use.

**Hired Farm Worker** - A person who is not an owner (or a member of the immediate family of the owner) of a farm or agricultural enterprise, but who receives financial compensation from an owner, or from a work contractor, for performing farm work.

**Hispanic (Hispanic Origin)** - Mexicans, Mexican-Americans, Puerto-Ricans, Cubans, and other individuals from Spanish-speaking countries of Central or South America, or the Dominican Republic (U.S. Census Bureau, 2000)

**Illegal Alien** - A term often used in official documents to describe a person entering or residing in this country who is not a citizen and does not have a visa or other documents required by law that allows him/her to enter or reside here legally. In this dissertation, the term “illegal alien” will be used only when quoting from official reports where the term is used. Otherwise the term “undocumented person(s)” will be substituted when describing people who do not have required documents.

**Immigrants** - Persons admitted to the United States as permanent residents, who either have immigrant visas issued overseas or adjust their status in the United States to permanent residence. Included as immigrants are persons entering the United States for the first time with immigrant visas, persons adjusting their status from temporary nonimmigrant categories to permanent resident status, and refugees and asylees who have fulfilled their residency requirements and are becoming permanent residents (Runyan, 1992).

**Liebres** - Workers who wait at pick-up sites to be transported to temporary work sites, and who are returned to a drop-off point at the end of the work day.

**Migrant Farm Worker** - A hired farm worker who is employed in agricultural work of a seasonal or other temporary nature who is required to be absent overnight from his or her permanent place of residence; or an individual who meets the same definition as a seasonal worker but “establishes for the purposes of employment a temporary abode” (Larson, 2000, p. 2).

**Seasonal Farm Worker** - “An individual whose principal employment (51% of time) is in agriculture on a seasonal basis, who has been so employed within the last 24 months” (Larson, 2000, p. 2).

**Underinsured Farm Worker** - A farm worker who may have minimal insurance coverage or possess insurance in their country of origin that provides little or no coverage in the United States.

**Undocumented Worker** - A person who has entered the United States and is working without legal documentation or who cannot legally accept employment in the United States (Runyan, 1992).

**Uninsured Farm Worker** - A farm worker who does not have or cannot access health care coverage.

## CHAPTER II

### REVIEW OF THE LITERATURE

The literature review will be presented in two parts. The first part will include a discussion of the literature and background related to farm worker enumeration and to other broad issues related to hired farm workers. The second part of the review will relate to the health of the farm worker population.

#### **Farm Worker Enumeration**

Addressing the health needs of any group requires that one look at the population in a holistic way. According to Green and Kreuter's (1991) PRECEDE/PROCEED model for health promotion planning, the sociological phase of program development requires that those involved in health assessment look for possible connections between individual health-related behavior and the larger social institutions such as the legal and the economic systems of the larger society. Other authors have also emphasized the importance of what may be described as an "anthropological approach" for health promotion research and practice (Krumeich, Weijts, Reddy, & Meijer-Weitz, 2001). Accordingly, the first part of this chapter is a review of the literature relating to two major social/economic factors that have impacted farm workers historically and are likely to impact them in the future - the U.S. Census and U.S. immigration policy and legislation. In addition, some background

information is presented related to definition issues, to research with vulnerable populations and to the research community where much of this study was conducted.

### **The United States Census**

A major component of this study is essentially concerned with counting people and with the challenges involved in that task. The United States Census and the data-collection techniques employed by census takers are fundamental to enumeration studies of all kinds. This section will include the history of the census instrument, including its origins, the nature and scope of questions asked by census takers from the earliest to present times, and some discussion of current controversies involving both the methods of collecting census data and the way the data is applied. Some emphasis will be placed on the race/ethnicity component of the census, as this is of special importance to Hispanics in general, and to farm workers in particular. Also addressed will be the differential undercount, a phenomenon that has been recognized for the past 50 years or so, but not clearly described and explained until the 1940's. The differential undercount has particular relevance for minorities, and for farm workers - the target population for this study.

The United States Census has been described as "one of the federal government's most fundamental constitutional functions" (Nicholson, 1997). Census information is particularly important to health professionals, who use it as a basis for a wide variety of health-related activities, including community assessments, epidemiological research, and investigations of particular health issues and concerns. As mandated by the constitution, a census has been taken every 10 years since 1790, for the primary purposes of measuring the growth and geographical dispersion of the population, and to promote fairness in

representation in Congress by allocating representatives in proportion to the population of each state. Until 1913, census data was also used for the purpose of taxation, but that ended with the 16<sup>th</sup> Amendment, which authorized direct taxation of individuals (Prewitt, 2000). The goal then, as it is today, was to conduct a “raw enumeration” of all residents, not just citizens.

Since 1903, the census has been administered by the U.S. Department of Commerce, but the first census was performed by federal marshals under the supervision of the Secretary of State, who at that time was Thomas Jefferson (Potok, 2000). The marshals, numbering 600, went from door to door with pen and paper, and ultimately counted 3,929,214 persons, a number which according to some estimates; is roughly equal to the number of undocumented persons living in this country today (U.S. Census Bureau, September, 2002). The census clause in the Constitution (Article 1, Section 2, paragraph 3) stated that the “respective numbers [of the population] shall be determined by adding to the whole Number of free Persons, including those bound for Service for a number of Years, and excluding Indians not taxed, three fifths of all other persons.” In accordance with this clause, the first census takers were required to ask the following six questions: the name of the head of the household, the number of free males over the age of 16 living in the household, the number of free males under the age of 16 living in the household, the number of free females in the household, the number and color of other free persons in the household, and the number of slaves (Gauthier, 2002). Over the years, the society evolved, and with it, the census itself - the questions becoming ever more complex and numerous.



It was not until 1850 that the census question set, included place of birth and occupation. Over time, questions relating to particular social characteristics were added, depending on what was perceived to be the important issues and concerns of the time. For example, it was not until 1940 that a question was asked about housing. Perhaps one of the greatest changes in the census over time has been in the category of race and ethnicity. As previously mentioned, the first census contained no explicit question about race or ethnicity, only the implicit ones, distinguishing free persons from slaves, and a vague question concerning the color of free persons in the household. From 1900 to 1970 enumerators wrote in the race or ethnicity of the respondent using the designated categories, which were then White, Black, Chinese, Indian or Japanese (Gauthier, 2000).

As was also mentioned earlier, race/ethnicity labeling is primarily a political issue. As pointed out by Fox (1996), which categories are “recognizable” by social scientists and legislators “vary with shifts in public anxieties and prejudices” (p. 26). These shifts have been particularly evident in the case of Mexicans. In the 1930 census, Mexicans were counted as “other nonwhite,” a reflection of the 1920’s political concern about preserving old Anglo-Saxon stock against a flood of “inferior breeds.” As Fox notes, the interest in Mexicans then was limited to their nonwhite status.

The 1930-1940 decade, was marked by Roosevelt’s “good neighbor policy” towards Latin America, and by the empowerment of some sectors of the Mexican-American population as evidenced by the big copper strikes by Mexican-American workers in Arizona. As a result, there was a greater interest in the cultural complexity of Mexican-Americans, and in particular, an interest in the languages spoken by this group.

Fox writes that the language issue was not a focus in census planning until the 1960's and 1970's, when there was a rising agitation on the part of some Latino radicals for cultural and political solidarity as encouraged by Che Guevara, the Brown Berets, and the "Raza Unida" party. Fox goes on to say that beginning with the 1960 census, respondents were allowed to specify their own race, but this "freedom" was limited by the census takers "freedom" to reclassify the self-descriptions if they did not match the pre-existing categories on the census form. Thus, fair-skinned Puerto Ricans and Mexicans were recorded as "white" by the enumerator, if they did not appear (to him or her ) to be Black or Indian or Asian or some other race (Fox, 1996). It was not until 1970 that specific questions about Hispanic origin were included, and in that year, only a small sample (5%), was asked to respond to that question, via the long form (Gauthier,2002). In that census, the criteria used to classify someone as "Hispanic" were Spanish surnames, Hispanic origin, Spanish heritage, or mother tongue.

It is obvious why these criteria were fraught with problems at the outset. Fox provides examples of many Latin Americans with non-Spanish surnames. Former U.S. Surgeon-General Antonio Novello from Puerto Rico, with an Italian surname, and Cuban painter Wilfredo Lam, with a Chinese surname, are just two. After new standards were established under Statistical Policy Directive Number 15 in 1977, the 1980 census included the "Hispanic Origin" question on 100% of census questionnaires (Anderson, 1988). This change resulted from demands in the early 1970's, by the growing numbers of Hispanic and Asian Americans for more accurate census coverage (Anderson, 1980). Now enumerators were required to rely on the respondent's self-identification, relative to

race/ethnicity. In the 1980 and 1990 censuses, respondents to the question “Is this person of Spanish-Hispanic origin or descent?” had the following four response options (Fox, 1996):

- No (not Spanish-Hispanic)
- Yes, Mexican, Mexican-American, Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, other Spanish-Hispanic

Fox describes the “immense frustration of the US Census Bureau editors and data users” (p. 25) when the analysis revealed that 46% of all Hispanics identified themselves as “other.” Fox also points out that the “other” response category was especially problematic relative to health data, because health surveys continued to use the traditional race groupings, making accurate comparisons impossible.

In 1997, standards for race ethnicity were once again revised, allowing respondents to select one or more races when the respondent self- identifies, and for ethnicity, to choose between “Hispanic or Latino,” and “Not Hispanic or Latino.” Hispanics or Latinos can be of any race. The race/ethnicity question on the 2000 census was even more complex, adding several more categories for Asians and Hispanics. There were four racial categories - American Indian or Alaskan Native, Asian or Pacific Islander, Black, and White and the two ethnicity categories – “Hispanic origin” and “Not of Hispanic origin” (Gauthier, 2002)

Hispanic origin data (like data for other minorities) are needed for the implementation of a number of federal statutes such as the enforcement of bilingual election rules under the Voting Rights Act, and the monitoring and enforcement of equal employment opportunities under the Civil Rights Act. At the community level, information on people of Hispanic origin is used by local governments to assure that legislative requirements regarding minorities are being met - for example, to identify whether they are receiving medical services under the Public Health Act or having credit needs met under the 1977 Community Reinvestment Act.

As in previous censuses since 1940, the 2000 census involved two different forms: the "long form" and the "short form." About five of every six households received a "short form," requiring about 10 minutes to complete, and containing seven questions, including: name, age, relationship, race, Hispanic origin and housing tenure. The "long form," initiated in 1940, was received by about one of six households. The form contained a total of 34 questions – all of those on the short form, as well as 27 additional questions addressing such issues as education, ancestry, employment, disability, and home heating fuel use. The short form is also referred to as the "100% count," as everyone is asked to answer the seven questions listed there, while the long form is referred to as "sample data" (U.S. Census Bureau, 2002).

### **The Undercount**

Controversy over census data is not new. For many years, the major disagreement involved how the census data was to be applied, especially once it became apparent that census numbers could be used to favor one political party over another. Conflict over the

enumeration method itself, however, is more recent, beginning in the 1960's with the significant expansion, of the grants-in-aid system (Anderson, 1988). This program, initiated in the 1940's, grants federal dollars to state and local governments, according to statistically (census) based funding formulas. In the 1940's, the funding provided for such programs as school lunches, hospital and airport construction, and water pollution control (Kissam & Jacobs, 1999). In the 1950's and 60's these federal dollars were used for such activities as the building of interstate highways, housing assistance, and anti-poverty, employment and training programs. By the year 2000, about 200 billion dollars was allocated based on census data, and some researchers estimate that by 2010, the sum may be as high as two trillion dollars. This explains the rancor, and what some perceive as the urgency, of the differential undercount problem. Once these programs were established and became widespread, it became increasingly apparent that accurate counts of the numbers of people eligible for such assistance were crucial. Cities and states that were seeking grants specifically for minorities, had millions of dollars at stake. Consequently, there was increasing attention paid to the methods used in census gathering and in particular to the phenomenon termed the differential undercount.

### **The Differential Undercount**

The census undercount is defined as "a measure of how many persons short of 100% are not recorded in a census" (Prewitt, 2000, p. 4). Undercounting the population is, and always has been, a problem in the censuses of all countries, and was recognized in this country as early as the first census, when George Washington complained about it in the 1790's (Anderson & Feinberg, 1999). Undercounts that are distributed equally across

geographic units and population groups do not result in inequitable outcomes. Inequity results only if some areas or groups are counted at lower rates than others - that is, if the undercount is differential. That we know to be the case for the U.S. Census (Prewitt, 2000). The significance of this differential undercount is best summarized by the report of the 1967 Conference on Social Statistics and the City, which was the first important national examination of the implications of a differential undercount. In the summary report of a 1967 conference entitled "Social Statistics and the City," statistician David Heer drew the following conclusion about the census undercount (Anderson & Feinberg, 1999):

Where a group defined by racial or ethnic terms, and concentrated in special political jurisdictions is significantly undercounted in relation to other groups, then individual members of that group are thereby deprived of the constitutional right to equal representation in the House of Representatives and, by inference, in other legislative bodies. They are also deprived of their entitlement to partake in federal and other programs designed for areas and populations with their characteristics. In other words, miscounting the population could unconstitutionally deny minorities political representation or protection under the Voting Rights Act. It could also deny local jurisdictions grant funds from federal programs. (p.10)

The first official recognition of a differential undercount occurred in the 1940's, after demographers examined the October 1940 selective service registration numbers of men of draft age (21 to 35 years) and compared them with the April census numbers of that year. This examination showed that the census had undercounted 2.8% of men in the draft age cohort, but more significantly, had undercounted 13% of Black men in the cohort (Anderson & Feinberg, 1999). According to many census historians, the growth in discontent and conflict over the differential undercount appears to coincide with the growth of the grants-in-aid system in this country, and within the broader context, with the growth of civil rights movement, within the context of increasingly sophisticated technology used

by the census bureau to identify and explain census inaccuracies (Anderson, 1988; Prewitt, 2000). The differential undercount continues to be a contentious issue among politicians, among census bureau statisticians and officials, and among statisticians working in academia.

There is considerable debate, in fact it is often described as a “very hot “ debate, between the bipartisan U.S. Census Monitoring board (established in 1997 to monitor the 2000 census) and the U.S. Census Bureau, concerning the best way to address the undercount problem. The current approach to the Post Enumeration Census (PES, as it is called) involves two methods. The first, established by a 1976 amendment to the Census Act, is to perform “sampling based adjustments,” which involves selecting a sample within certain subgroups and counting to see how many persons were missed during the actual census, then adjusting accordingly. This technique, termed “capture-recapture” (from the wildlife field), was tested regarding its constitutionality in the Supreme Court in 1998 (because the constitution stipulates “raw enumeration”). The Supreme Court decision was that sampling could not be used for allocating house members among the states, but it left the possibility of using adjusted numbers for drawing election districts and distributing federal aid (Stark, 1999). The second method involves adjusting the numbers from the previous census and adding births and immigration then subtracting deaths and emigrations.

According to a Census Bureau publication in 2000 (Marshall, August, Moohn, & Winter, 2000), groups most likely to be undercounted are renters, children and minorities. These authors state that in 1990 the net undercount was 1.6%, but was 4.4% for African

Americans, 12.2% for American Indians on reservations, 2.3% of Asian and Pacific Islanders, 5% for Hispanics (all races), and 0.7% of non-Hispanic whites (see Table 1). The overall undercount for 2000 census is estimated to be 1.18%, and for Hispanics, between 2.22% and 3.48%. Hispanics account for 31% of the total number of undercounted, representing about 1,014,000 persons. Texas is among the states with the highest overall undercount of 1.78%. This may be compared with Minnesota, for example, with the lowest undercount of 0.29%. Four states account for 40% of the undercount, and include California, Texas, New York, and Florida. These states are also those having the highest number of agricultural workers. The states that are likely to be most affected relative to federal funding are California, Texas, and Georgia, which are relatively large states with significant undercounts.

**Table 1**  
**Percent Undercount of U.S. Census by Race/Ethnicity - 1990 and 2000 ( U.S. Census, 2000)**

<b>Race/ Ethnicity</b>	<b>% Undercount 1990</b>	<b>% Undercount 2000</b>
Black	4.43	2.17
Asian & Pacific Islander	2.33	5.56 <sup>a</sup>
American Indian	4.52	8.02 <sup>b</sup>
Hispanic (any race)	4.96	2.85
White and other	1.11	0.67
Total	1.58	1.18

<sup>a</sup> Includes Native Hawaiians, other Pacific Islanders, and Asians.

<sup>b</sup> Includes persons both on and off reservations.



### **Specific Problems in Counting Agricultural Workers**

Researchers indicate that the undercount affects minorities more than the dominant groups (Kissam & Jacobs, 1999), and undocumented people more than legal residents. Counting the poor and people described as “living in the shadows,” and who are distrustful of authority, is aptly described as being “horrendously difficult” (Economist, 2002, p. 5). During a Public Broadcasting Station (PBS) news program (Hinojosa, 2004), one of the reporters, Elizabeth Brackett, indicated that in her experience with investigating the Latino undercount, “fear remains the biggest reason behind the failure to return forms – fear that the information asked for will not stay within the Census Bureau.”

The most recent National Agricultural Workers Survey (U.S. Department of Labor [USDOL], 2000) offers data that support assertions about the difficulty involved in trying to accurately count farm workers in this country. According to this survey of the 3 to 5 million agricultural workers in the United States, the majority are poor (61%) and foreign born (82%). More than half (52%) are undocumented, fewer than 5% of those born in Mexico are fluent in English, and only about 60% of those were born in the United States. These characteristics alone explain, at least to some extent, why farm workers are more likely to be undercounted than other minority groups. Even if a census taker is able to interview a person who is undocumented, that person may not be truthful about the actual number of people living in a particular household. Some communities have laws which regulate the number of unrelated people living in a single family dwelling. In areas where there are agricultural enterprises which hire recent immigrants, according to one county business man who asked to remain anonymous in this dissertation study, it is not unusual

for there to be as many as 10-15 (or more) young men living in a small two- or three-bedroom home (anonymous personal communication, October, 2003). It is not likely that this information will be provided to a census taker.

A related problem is that of confusion over the definitions of a migrant or seasonal worker, and of agriculture. These definition issues will be addressed later in this chapter. Other problems involve counting dependents of farm workers. The NAWS report (2000) indicates that 21% of farm workers had children living outside the United States. In addition, if one attempts to get a sense of the numbers of dependent family members from employer records, this is unlikely to result in accurate information, for very practical reasons (from the workers perspective). The more dependents that are claimed for income tax purposes, the less money that is withheld from the worker's paycheck. One employer who operates a lumber mill smiled and stated, "I have not yet come across any of our workers who have fewer than three children - most indicate that they have five or six - no matter if they are only in their early twenties" (anonymous personal communication, January 29, 2004).

### **The Larson Study**

One of the primary reasons for conducting the enumeration component of this study was that a Texas-wide enumeration study conducted by Larson Assistance Services (Larson, 2000), which included all but 11 of the 237 counties in the state, estimated that in Cherokee County there were 159 migrant farm workers, 120 seasonal farm workers, 94 non-farm workers living in migrant households, and 160 non-farm workers living in seasonal worker households. The study further indicated that the total number of migrant

and seasonal farm workers and dependents residing in Cherokee County was 534 (p. 13). These numbers were questioned by many professionals and others working with the farm worker population in the county. They felt that this estimate was significantly smaller than their experience with this population indicated. In particular they questioned the “seasonal” estimate, because of the knowledge that many plant farms laid off many workers in the fall for at least three months, even though they suggested that the workers were hired on a “full-time” basis. A report by Sologaitoa (2004) presented at the National Advisory Council on Migrant Health in April, 2004 indicated that some researchers and others working in the migrant communities, thought that the number of farm workers was not accurately estimated for Florida, by the indirect methods used in the Larson enumeration study. The Larson study, funded by the Migrant Health Program of the Bureau of Primary Health Care, is described as a “systematic approach” (p. i) using secondary source material including the National Farm worker database (1994-1998), the National Agricultural Workers Survey (1993-1997), and information from “knowledgeable individuals ” (p. 4 ). The Larson study research team used the Migrant Health Program definitions for migrant and seasonal workers, which are included in the Definition of Terms section of Chapter I of this dissertation. A discussion about the results of this study is resented in Chapter V.

In summary, the history of the census, and in particular, that part of its history that involves questions about race and ethnicity, reflects both the growing diversity of the population, but also, and perhaps more significantly, the changing political and social climate in this country. Since 1790, when the question served only to differentiate free people from slaves, to the present time, when the questions seek to differentiate people in

more complex ways, much has changed. The confusion and contention about racial and ethnic classifications may become more acute in the years following 2000, as this census will allow respondents, for the first time, to select more than one race. It is interesting to speculate about when, if ever, questions about race and ethnicity will be eliminated, as a reflection of increased racial/ ethnic mixing that may render such questions meaningless or irrelevant. According to the Census Bureau, interracial marriages account for about 1.5 million of U.S. marriages, up from about 650,000 in 1980, and the rate is doubling each decade (U.S. Census Bureau, 2002).

## **Immigration**

### ***Background and History***

Since immigration legislation and policy often profoundly affect the daily life of farm workers and their families, many of whom are in this country on temporary visas or without documents at all (USDOL, 2000), it seems important to provide some background on this topic. In addition, legal issues surrounding immigrants indirectly affect our ability to count them. This section will provide a historical perspective on immigration policy and legislation from the colonial period to the present, followed by a separate discussion of immigration issues relating to Mexico specifically. This history is a complicated one, and important to those who work with individuals who are affected by immigration policy and legislation decisions.

Immigration, and in particular illegal immigration, are currently among the most contentious issues facing policy makers and citizens alike, both in this country and in many other countries of the developed world. The dialogue has become increasingly strident and

polarized since the events of 9/11/01, and future policy decisions will, without doubt, continue to impact the lives of many farm workers and their families, either directly or indirectly. On October 16, 2004, the Cable News Network (CNN) (Hinojosa, 2004) presented an hour -long program devoted to a discussion of undocumented immigrants from Mexico.

Concern about immigration has always been present to some extent since the earliest days of this country, but increased dramatically after 9/11. Throughout the world, richer nations offer what may be described as an “irresistible attraction” to persons from poorer countries (Economist, 2002. p. 5). Essentially, there are three major questions involving immigration: Who and how many immigrants should be allowed to enter the country? What entitlements should be available to non-citizens? What should be done about illegal immigration?

According to the Center for Immigration Studies (2003), the foreign-born population of the United States is currently 33.1 million, or 11.5% of the U.S. population. The U.S. Census Bureau (2002) estimates that 8-9 million immigrants are undocumented and that this number is likely to increase by 500,000 annually. Others suggest that the number may be as high as 20 million (Hinojosa, 2004). Of those undocumented immigrants residing here currently, it is estimated that about 45% first entered the country legally to visit friends or family, or to work at specific jobs for which they had documents (U.S. Immigration & Naturalization Service, January 2003). Many became undocumented when they overstayed their visas, or began working at a different job (began picking asparagus, rather than strawberries, for example). During the 1990's, an average of 1.3 million

immigrants settled in the United States each year, both legally and illegally. In a little over two years, between January 2000 and March 2002, about 3.3 million additional immigrants arrived. Each year about one million receive permanent residency and there are about 750,000 births to immigrant women. This increase is attributed, in part, to the extraordinary broadening of U.S. immigration policy in 1965 (Huntington, 2004). As a percentage of the U.S. population per decade, immigrants have ranged from a low of 0.4% in the decade between 1931 and 1940, to a high of 10.5% in the decade between 1901 and 1910 (U.S. Department of Justice, 1991). In the decade between 1991 and 2000, there were 9,095,417 immigrants, or about 4% of the population. In 2001 alone, there were 1,064,318 immigrants. There are about 400 million legal border crossings between Mexico and the United States per year.

The reasons for immigration from one country to another are complex, and are related to the economic, political, social and technological context. Countries are able to attract immigrants by promoting conditions that attract them, and conversely can discourage immigration by making conditions unattractive.

### ***Immigration Law***

Heer (1996) divides the immigration legislation into five historical periods: the first, between 1789 and 1875, he describes as “Unrestricted Entry”; the second, between 1875 and 1917, “Initial Restriction”; the period of “Maximum Restriction” runs from 1917 to 1941; and the period of “Liberalization,” from 1941 to 1980. The last period, which he calls, “Concern with Illegal Immigration,” began in April 1980 and continues to the present. The Population Resource Center (PRC), in a document entitled “*U.S. Immigration,*

*a Legislative History*” (Durand, 2001), also divides the history into five major divisions, but the length of the periods and the perceived issues and concerns of the periods differ from Heer’s. The PRC document describes the following five periods: 1789-1820, the colonial period; 1820 to 1920, the “century of immigration”; 1920 to 1965, marked by quotas and decreasing numbers; and 1965 to the present, in which there has been a “return of growing numbers.” The following summary will primarily be based on information from these two documents, as well as internet sources, and other minor sources, which describe particular legislation in more detail, or which offer a different perspective.

After the ratification of the constitution in 1789 until 1875, Heer describes an overall laissez-faire attitude toward immigration, although he states that there were laws that indirectly affected potential immigrants, such as residency requirements for naturalization and the deportation of undesirable aliens. During this period, there were no legal restrictions that directly restricted the numbers or characteristics of immigrants allowed to enter the country. There was a series of naturalization laws, the first being the Naturalization Act of 1790, which decreed that white immigrants be residents for a minimum of two years before they could become citizens. The residency requirement was changed to five years in 1795.

The Alien and Sedition Acts of 1798 were a response to a flood of refugees who were antagonistic to the French Revolution (National Archives, 2004). President John Adams, fearful that these “radicals” - especially those who were journalists - would gain substantial political power, succeeded in getting these acts passed, which increased the residency requirement prior to naturalization from two to 14 years, and gave the president power to

expel resident aliens who were suspected of engaging in subversive activities. Under Jefferson, in 1802, Congress passed a law that once again reduced the residency period for naturalization to five years. Individual states, and earlier, the British colonies, had often created laws which restricted the entry of paupers into their ports but no federal laws existed. The Supreme Court decided, subsequent to 1882, that immigration was a federal concern, and that the states would not be allowed to pass laws regulating immigration

The first law directly affecting immigration was passed in 1875, and according to Heer, was essentially a response to an intense anti-Chinese sentiment of the time. Another explanation (Hirschman, 2001), involves what is termed a growing “nativism” in the country, within the context of competition for jobs. The anti-Chinese sentiment was especially pronounced in California. This was a consequence of the influx of large numbers of Chinese males during the 1850’s and 1860’s, who had been brought in to work on the transcontinental railroad, and a little later, the arrival of large numbers of Chinese women to serve as prostitutes for these workers. Amidst fear that this situation would corrupt the morals of the entire population, and perhaps amidst economic fears as well (Hirschman, 2001), the 1875 law restricted the entrance of convicts and prostitutes. In 1882 the Chinese Exclusion Act placed a 10-year ban on Chinese immigration. When this act expired in 1892, it was extended in the form of the Geary Act which regulated Chinese immigration until the 1920’s (It was this law that created what has come to be known as the category of persons called “illegal aliens”). Another 1882 law declared that anyone mentally incompetent or unable to take care of himself or herself without becoming a public charge



would be forbidden to land and would be returned at the expense of the owner of the vessel that had brought the immigrant to the United States.

From 1875 to 1917, years that Heer terms “the initial restriction period,” immigration concerns became increasingly salient to the American public. Depending on their respective agendas, various groups had interests in immigration issues during the late 1800’s and early 1900’s. Of the almost 9 million immigrants that entered between 1901 and 1910, the majority were Catholics or Jewish from southern and eastern Europe and Russia. The fact that almost none were Protestant provoked discontent among the Protestant sector of the population, which had concerns about the growth in power of the Roman Catholic Church. This opposition, says Heer, took the form of such organizations as the American Protective Association, founded in 1887, and the American Restriction League, founded in 1904 by five Harvard graduates. Groups such as these worked to pass laws requiring immigrants to pass a literacy test as a prerequisite for entering the country. In general, such a law would favor Protestants, who at that time were more likely to be English speakers. A harbinger of things to come during the second half of the 19<sup>th</sup> Century and extending to current times, the National Association of Manufacturers, whose interest was in acquiring labor, opposed the literacy requirement.

The economic depression in the 1890’s fostered significant anti-immigrant sentiment, but the prosperity beginning at the turn of the century did the opposite – as there was now a recognized need for workers. The American Federation of Labor actively supported the literacy test, as they wished to discourage an influx of immigrants who would perhaps have a negative impact on the union movement.

By about 1850, social scientists had begun to exert a significant influence on ideas about race and ethnicity, and there was increasing evidence for racist and ethnocentric dispositions among some of these scientists. Such thinking not only influenced ideas about slavery, but also attitudes about immigration. For example, in 1850, for the first time in history, the census took note of “color” and “civil condition” (free or slave). In 1860, the categories of “Chinese” and “Indian” were added (U.S. Census Bureau, 2002). According to Heer, scientists such as Francis Walker, a superintendent of the census, and Edward Ross, an anthropologist, expressed in the late 1800’s their nativist beliefs (Timmer & Williamson, 1998) that immigration might lead to the extinction of the “American People” because they believed that it decreased the fertility of the native born. This idea was termed “race suicide” (Hinojosa, 2004). There were several writers of the time, however, who rejected any notion of the superiority of one race over another, such as anthropologist Franz Boas, who fought the tendency toward “scientific racism” in the early part of the 20<sup>th</sup> century. The view that racism and xenophobia were, and still are, perhaps as important as the market (labor) demand issues has been supported by others writing about immigration policy, such as Timmer and Williamson (1998).

As the field of psychology began to address the issue of intelligence, this factor also entered into the debate. For example, a book by Carl Brigham (the father of the Scholastic Aptitude Test - SAT), written in 1923 and entitled *A Study of American Intelligence*, concluded that northern Europeans were intellectually superior to Southern and Eastern Europeans (Hinojosa, 2004).

Finally, in 1917, the Immigration Act of 1917 became law, whereby new restrictions were placed on Asian immigration, and a literacy test was established. Under President Warren Harding, a supporter of restrictive immigration, the Immigration Act of 1921 became law with overwhelming support from Congress. Under this law, quotas were set on the numbers of immigrants that could be accepted from each country, with the exception of certain Asian countries, from which all immigration was barred in compliance with the 1917 law. This law was to remain in effect for one year.

According to Heer, the growing demand for even greater restrictions resulted in the Immigration Act of 1924, which restricted immigration from Japan, and reduced quotas from other Eastern Hemisphere nations, especially those of southern and eastern Europe. Japanese restrictions were primarily a response to California sentiments, and some have suggested that this law was one of the incitements for the Japanese bombing of Pearl Harbor in 1941. The quota system stimulated much debate over the years, and specifically, questions about immigration from the Western Hemisphere, especially from Mexico and Canada. Mexico was of particular concern, especially among businessmen in the Southwestern states, because of their interest in a cheap labor supply. It was discovered that between 1900 and 1920 large numbers of people (more than 100,000) were entering illegally from Mexico. Other illegal immigration was also occurring from China through Mexico and from Europe through Canada. As a response to this discovery, in 1924, Congress passed legislation to create the U.S. Border Patrol. At the time the patrol was established, to immigrate legally, Mexicans had to pass a literacy test, pay a \$10 fee for a visa, and pay an \$8 head tax.

Following the Great Depression between 1931 and 1940, immigration dropped significantly, from 4.1 million in the decade from 1921-1930 to about half a million from 1931 to 1940 (U.S. Census Bureau, 2000). This, according to Heer, was a result of the 1921 and 1924 laws concerning quotas, the new public charge provisions, and the unemployment problems of the time. During the rise of Hitler and World War II, fears of alien subversion once again arose, and in 1940 the United States passed legislation requiring fingerprinting of all immigrants and the annual registration of their residence.

Following WWII, the “Cold War” brought fears of the spread of Communism. As a way of maximizing U.S. power, changes in immigration policy now encouraged acceptance of thousands of refugees escaping Communist rule. China became an ally of the United States after the bombing of Pearl Harbor, and subsequently, the Chinese Exclusion Act of 1875 was repealed in 1943. To increase the likelihood of Asian countries resisting Communism, immigrants were accepted from India and the Philippines after legislation was passed in 1946. Under President Harry Truman, about 40,000 persons from Germany and Austria were admitted, including about 28,000 Holocaust survivors. The Displaced Persons Act of 1948 effectively restricted the immigration of many persons, mostly Jews, who had to leave their homes during the war, but after much debate this law was liberalized in 1948 and in 1950, allowing over 400,000 persons to enter the country from Europe, many being Jews and East Europeans. The Bracero Program, established in 1942 and ending in 1964, was of particular importance to Mexican immigrants and will be discussed later in this dissertation in the section on Mexican immigration.

The Cold War intensified with the fall of China in 1949 and with the beginning of the Korean conflict in 1950. The Internal Security Act of 1950 prohibited the legal immigration of any past or present member of a Communist Party or Fascist Party. This expanded the earlier Alien and Sedition Act of 1798, which restricted immigration of individuals who might be likely to advocate overthrow of the government.

The Immigration Act of 1952, passed after much debate, was significant for women, as it allowed a female citizen to bring a husband into the country with no reference to quotas and with no requirement about length of the marriage. This bill also established a preference system for persons with strong educations or skills that were considered of benefit to the nation. As well, the Texas proviso component of the bill established that the act of hiring an illegal alien would not be considered unlawful.

Dealing with refugees was not central to the immigration debate but in response to the movement of Russia into Eastern Europe (in particular, Hungary) and to Castro's overthrow of the Cuban government, several pieces of legislation provided for the immigration of over 300,000 Hungarians and later over 500,000 Cubans during the 1950's and 60's. In 1963, President Johnson supported the reforms that had been advocated by President Kennedy before his assassination. These reforms, included in the Refugee Act passed in 1953, provided over 200,000 visas for various categories of refugees.

The 1965 Immigration and Nationality Act essentially eliminated country-specific quotas, and marked the beginning of the period when Latin America and Asia became the leading sources of immigrants, which remains the current situation (Hirschmann, 2001). All of the subsequent immigration laws, including the 1986 Immigration Reform and

Control Act (IRCA) and the 1996 Welfare Immigration Reform Law and Welfare Reform Law, affected Mexican immigrants significantly, and these will be discussed later in the dissertation.

### ***Immigration from Mexico***

As the majority of hired farm workers in the United States are from Mexico, this section will focus on the history and legislation surrounding immigration from Mexico. Complete records on immigrants arriving from Mexico and Canada by land were not kept until 1908 (U.S. Census, 2002). Therefore, the following statistics about immigration from those two countries are only approximate. During the decade of 1821-1831, about 4% of the legal immigrants came from Mexico, just over 90% from Europe, and 2% percent from Canada. In the decades 1881 to 1890 and 1892-1900, immigration from Mexico gradually declined until it reached close to zero. During the decade of 1930-1940 (the Depression years), only 27,000 persons came to the United States from Mexico (Stoddard, 1973), and in fact there was a “mass exodus” of Mexicans returning to Mexico during this time (Stoddard, 1973, p. 24). The exodus was halted by the beginning of America’s involvement in World War II, and Mexican immigration gradually increased thereafter, reaching 12% in 1951-1960. By the decade of 1991-2000, about 24% of immigrants were from Mexico. The only region that provided more immigrants than Mexico during that period was Asia, which provided 37.3% during the decades of 1981-1990 and 1991-2000 (U.S. Census Bureau, 2000).

In 1930, President Hoover established a policy reinterpretation regarding the rejection of people who were likely to become public charges. This policy particularly

affected Mexican immigrants living in the Southwestern states. The law allowed for the deportation of any legal immigrant who had become a public charge during his or her first five years of legal residence in the United States. Many of these immigrants, along with their American-born children, were deported following this new policy. Those who were not deported chose to leave voluntarily when confronted by the threat that if they were officially deported as public charges, they would not be able to reestablish legal status.

The next piece of legislation that affected Mexican immigrants and farm workers in particular was negotiated between Mexico and the United States in 1942. The Mexican Farm Labor Program (Bracero Program) was developed as a temporary solution for the war-related shortage of domestic farm workers. According to Stoddard (1973) the Bracero Program “....was devised to recruit and redistribute labor from drought and poverty areas of Mexico to American farms” (p. 24.) Under the program, “braceros” (Spanish for “arm men”) were recruited to come to the U.S. as temporary farm workers. They were to be paid 30 cents an hour, and to be treated “humanely,” meaning provision of adequate food, shelter and sanitation. Interestingly, Texas did not participate in what was perceived as this overly restrictive program. Texas farmers preferred to hire their own workers (illegally) who came to be termed “wetbacks” (“mojados” in Spanish), signifying the common method of illegally entering the country, which was swimming across the Rio Grande. By the 1950’s, Texas was fully participating due to the abundant supply of workers by this time. Many workers remained illegally in the U.S. after their work contract had expired. Indeed, of the 4.5 million braceros who entered the United States between 1942 and 1964, most did not return to their homeland. The failure of the braceros to repatriate led to the

Immigration and Naturalization Service initiating “Operation Wetback” in 1954, for the purpose of rounding up “illegals.” In that year, over a million *mojados* were repatriated to Mexico. The Korean War necessitated the expansion of the Bracero Program in 1951, and it was extended five times after 1951 until it ended in 1964.

In 1962 President Kennedy signed the Migrant Health Act (Public Law 87-692), which added section 310 to the Public Health Service Act. Through this legislation, migrant health centers were established to provide “universal accessibility to quality and appropriate health care for our Nation’s Migrant and Seasonal Farm workers (MSFW) and their families” (Bureau of Primary Health Care, 2004). Migrant Health Centers are currently authorized under the Health Centers Consolidated Care Act of 1996, section 330(g) of the Public Health Service Act.

In 1983, the Migrant and Seasonal Agricultural Worker Protection Act (MSPA) was passed. It is the major federal law that deals exclusively with agricultural employment, and was “enacted to protect migrant and seasonal farm workers on matters of pay and working and work-related conditions, to require farm labor contractors to register with the U.S. Department of Labor, and to assure necessary protections for farm workers, agricultural associations, and agricultural employers” (Runyan, 1992). The major requirements of MSPA are as follows:

1. Farm labor contractors (and each of their employees) must obtain a certificate of registration from the U.S. Department of Labor before they initiate farm labor contractor activities.



2. Contractors and agricultural employers must disclose to migrant and seasonal agricultural workers information about wages, hours, and other working conditions, and about housing when provided.
3. Workers must be provided with written statements of earnings and deduction.
4. If transportation is provided, vehicles used must be safe and properly insured.
5. If housing is provided, it must meet safety and health standards.

The next piece of legislation that had particular significance for Mexican immigrants was the 1986 Immigration Reform and Control Act (IRCA). This is considered to be the greatest attempt to control the entry of illegal workers. After it was passed, 2.7 million previously illegal aliens became legalized (Camarota, 1997). (Interestingly one of the owners of a very large farm enterprise that employs over 100 farm workers who was interviewed for the enumeration segment of this study was legalized as a result of this law.) After the law was passed, employers could be fined and jailed for employing undocumented workers, and undocumented workers could obtain a legal residency status. The prosecution of employers, however, was unlikely, as they had only to claim that they “believed” that the worker was legal, and they could not be prosecuted. This is the current situation with respect to this law. In addition, the technological sophistication used by current document forgers also makes this law difficult to apply.

As a result of the 1990 Immigration Act, unlimited numbers of immediate family members of citizens were allowed to enter. This resulted in almost 9 million immigrants (many from Mexico and Central America) during the decade of 1990-2000. While the 1986 legislation had a positive impact on many immigrants, the Immigration and Welfare Reform Acts of 1996 had a negative impact for many, including farm workers. The

Immigration Control Act barred illegal immigrants from receiving Social Security benefits, and provided for tightened security at the border by increasing border control personnel and equipment. The Welfare Reform Act barred illegal immigrants entering the U.S. after 1996 from most federal means-tested programs (food stamps, Children's Health Insurance Program (CHIP), Medicaid, etc.) for 5 years, raised the income and legal standards for U.S. residents who sponsor immigrants; and barred illegal immigrant eligibility from most federal, state, and local public assistance.

Although the North American Free Trade Agreement (NAFTA) negotiated between Mexico, Canada, and the United States on January 1, 1994 was not immigration legislation, it has had an indirect effect on immigration and immigrants on both sides of the border. Under NAFTA, all non-tariff barriers to agricultural trade between the United States and México were eliminated. Many tariffs were eliminated immediately, with others to be phased out over periods of from 5 to 15 years. From the U.S. perspective, NAFTA offered benefits to U.S. agriculture by assuring access to Mexican markets. This access had been eroding during the 1980's due to foreign competition for Mexico's markets from countries like China and Russia. During the years following the NAFTA agreement, there have been many criticisms and negative responses which have described the agreement as anything but beneficial for Mexico, and in some respects, perhaps less beneficial for Americans than expected. According to Amelia Simpson (2004), of the Environmental Health Coalition of San Diego, in Mexico, NAFTA initially stimulated job growth at the border. However, the average employee of a maquiladora (foreign-owned assembly plant in Mexico) typically earns \$1.50 an hour, so far below a living wage that many full-time workers live in

squatters' settlements without paved roads, access to clean water, or electricity or sewage service. Now, according to Simpson, corporations are shifting operations to countries like China, where wages are a third or less than maquiladora workers' wages, and she fears that the U.S. and Mexican jobs lost due to low-wage global competition may never return.

One of the major promises of NAFTA was that the emigration of Mexicans to the United States for jobs would be reduced, as factories were built in Mexico, and as Mexico was able to export more farm products tariff-free to the United States. In reality, NAFTA seems to have had little effect in reducing the economic migration of Mexicans to the United States. According to Audley (2003), the number of unauthorized Mexicans living in the United States grew from 2 million to 4.8 million between 1990 and 2000, despite the implementation of U.S. policies that resulted in a 500% increase in deaths among border crossers between 1994 and 2002. Regarding the farm industry, Audley goes on to say that the economic situation within Mexico has in reality deteriorated since NAFTA, with the farming sector moving towards large-scale commercial farming of fruits and vegetables for export to the United States, and worsening environmental pollution caused by increases in the use of pesticides and fertilizer. The usual environmental benefits from commercial farming – reduction in land use due to increases in productivity – have not occurred, he says, because falling commodity prices and lack of access to credit have forced Mexico's poor farmers to increase land used for farming.

According to DeLeon (2001), variable levels of support have been provided by middle-class Mexicans for new immigrants ("immigrantes" in Spanish). One of the most important issues for many Mexicans, whatever their status, is education of their children.

The history of this concern goes back to 1975, when a change was made in the Texas Education Code by the Texas Legislature, allowing free education only to United States citizens or those who were admitted as legal aliens. Interestingly, it was an East Texas judge, William Wayne Justice of Tyler, who made one of the most well-known rulings on this issue, when in 1979 he ruled that public schools were required to admit illegal alien children without tuition charges (De Leon, 2001).

### ***Current Immigration Issues***

By 1996, a decade after the enactment of the 1986 Immigration Reform and Control Act, there were about five million illegal immigrants living in the United States. Current estimates range from about seven million to as many as 20 million (Center for Immigration Studies, 2003). Conservative estimates are that there is a net increase of about 275,000 per year. About 54% of the EWI (entered without inspection) group is from Mexico, and over 40% reside in California. These numbers make immigration an important political topic. Immigration policy has periodically been in the forefront of political dialogue since the beginning of the 2004 political campaign. President Bush first proposed a guest worker program and a way for illegal immigrants currently residing in the United States to earn legal status – or amnesty. In response to objections to amnesty by Republicans, it seems that of late, Mr. Bush has dropped the immigration issue except to assure his Republican supporters that he does not support amnesty. The Bush administration appears to support the ideas of Harvard professor Samuel Huntington, whose views have often been cited in immigration policy speeches. In the March-April 2004 issue of *Foreign Policy*, Huntington (2004) writes:

The persistent inflow of Hispanic immigrants threatens to divide the United States into two peoples, two cultures, and two languages. Unlike past immigrant groups, Mexicans and other Latinos have not assimilated into mainstream U.S. culture, forming instead their own political and linguistic enclaves—from Los Angeles to Miami—and rejecting the Anglo-Protestant values that built the American dream. The United States ignores this challenge at its peril. (p. 6)

Interestingly, this tendency to establish “Little Mexico” regions in many areas of the United States is discussed by Huntington as a factor in what he calls the “Hispanization” of America – a situation which he perceives as undesirable.

During the 2004 U.S. presidential campaign, candidate John Kerry favored earned legalization, supported agricultural guest worker bills in the Senate, and emphasized increased border patrol activities and the prosecution of employers who hire illegal workers (Kerry, 2004).

In summary, the history of immigration law seems to reflect the history of ideas about “them” and “us” developing within the context of economics and politics. When there was a need for immigrants for economic reasons, laws were established that were minimally restrictive. When there was not such a need, or when fear of immigrants prevailed, there was a return to legislation which restricted the numbers of immigrants (often selectively), focusing on their ability to read, their intellectual capacities, or their criminal tendencies. At this time, the migrant labor economy is an enormous underground operation that has become deeply integrated into the economy, and is supported by the technology of the times, which allows for creative and believable false-document production. Although politicians talk about taking measures to reduce illegal immigration,

they know that they must be willing to face deeper issues involving wages for unskilled workers and prosecution of employers who hire undocumented workers.

### **Definition Issues**

The definitions for agriculture and agribusiness, farm work and farm workers, and migrant and seasonal work and workers present problems for an enumeration project of this type, and indeed, for most kinds of research involving farm workers (Offut, 1991; Stallones, 2001; Ruiz, 2004). In the Larson study (2000), the definitions for migrant and seasonal farm workers were those used by the U.S. Department of Agriculture as described in U.S. Code Title 29, Chapter 20, Section 1802. This code defines a migrant or seasonal agricultural worker is “an individual who is employed in agricultural employment of a seasonal or other temporary nature, and who is required to be absent overnight from his permanent place of residence.” The terms assume a prior definition of agriculture, but according to Joe Daniel, the USDA horticulture extension agent for Cherokee County, there is considerable disagreement in the field about the definition for agriculture and the related term, agribusiness (personal communication, September 3, 2003).

The *United Nations Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families* offers a broad definition of migrant worker, stating that “a migrant worker refers to a person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national” (Article 2, Paragraph 2a, ILO Convention No.143, Article 11).

In an article entitled “What is Agriculture?” written by Susan Offutt of the Economic Research Service of the U.S. Department of Agriculture (2001), she discusses the

difficulties statisticians and economists have had in attempting to develop a precise definition of the word agriculture and the related concept of farming. Her purpose in this article was to argue for a flexible view of agriculture and farming and states that emphasize her belief that “the point of a statistical information system is to provide government and citizens with information which is relevant to the decisions they must make” (p. 4). Although Offutt was writing this piece in support of the owners of small farms, her ideas about definitions are relevant to this project, when one must consider what agricultural activities to include.

The definition selected for this research is perhaps closest to one found in a web site addressing findings by a group of Lithuanian researchers at a Helsinki (HelCom) Conference in 1990: “Agriculture is the growing of plants and animals, and the primary processing of plant and animals products” (Helsinki Commission, 2002). This then brings the next problem - that of deciding what is to be included in “primary processing of plant and animal products.” Most formal definitions (the USDA one, for example) include such activities as processing food items for the retail market, such as canning, and freezing. Should one then, analogously, include the activity of fashioning containers from lumber, as in basket making and pallet making (two Cherokee County agribusinesses)?

In an e-mail submitted by J. Ruiz for the Migrant Health Research list serve members on April 9, 2004, he brought up the question about the number of farm workers in the United States, stating that “...the numbers vary for 1.5 million upwards to 4-5 million, depending on the source as well as the composition of what is a farm worker, with some including the family members of the farm worker in those numbers.” In a recent article by

Stallones (2001), the author brings up similar concerns about definitional ambiguities in the research literature.

Another related and problematic term is “agribusiness.” Many migrant and seasonal workers, while they may not be included in the narrower definition of farm workers above, would be considered to be involved in agribusiness. The Merriam-Webster (2004) definition for agribusiness is “an industry engaged in the producing operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities.”

The various definitions problems described above leave researchers in a quandary. A too-narrow definition of terms will, it seems, exclude individuals who have similar health risks. An overly broad definition, on the other hand, may include individuals who have little in common, relative to health risks. It seems reasonable to consider the overall purpose of the project in terms of its usefulness as a way of addressing health care needs in the country. If one is interested in the factors that affect overall health, then a broad definition of farm work may serve to capture individuals who engage in activities which have many commonalities in terms of health risk. For this project, a broad definition of agriculture (also called “farm work”) was used. For example, an enumeration was completed of a group of workers who construct baskets in the city of Jacksonville in Cherokee County. It was decided to include this group because in many respects their work involved many of the same problems as those of the plant farm workers. Basket factory workers labor in structures that are not unlike greenhouses in that they are not air-conditioned or heated centrally, and much of the work involves lifting. Although the work



is advertised as “full-time,” it is expected by the operators that it will not be so in actuality – and workers are paid weekly, without benefits usually enjoyed by a full-time worker. Most seasonal work of any sort presents different problems for workers than work which is more predictable.

In order to include individuals which the research team and community leaders believed shared common characteristics relative to health status, it was decided that “farm work” (agriculture) would include everything from working at the plant farms and other farms and ranches, to cutting down trees or working at the sawmill, to working in agribusinesses which would include the basket factory, pallet mills, and other wood production entities. It was further decided that the persons hired to perform this work would be called “hired farm workers.” Many of researchers are now using the more-inclusive term “hired farm workers” rather than the narrower “migrant and seasonal farm worker” in their research designs (R. Rager, personal communication, September 13, 2004).

### **Farming, Farm Work, and Farm Workers: History and Background**

#### ***Farming in America***

The United States agricultural system is often admired around the world, primarily for its efficiency and productivity. As recently as 70 years ago, most Americans were employed in agriculture, and the history of this country is, in some respects, the story of how an agrarian nation became an industrial nation (Schafer, 1936). Today, it is estimated that less than 1% (about 3-5 million) of the U.S. population is employed in agriculture (USDA, 2004). Small farms are becoming almost extinct, as the largest 5% of all farms

produce over half of the nation's farm output, while the smallest two thirds of farms produce about 5% of the output. According to Schafer (1936), the growth of what he describes as the "planter aristocracy" (analogous to the large corporate farm owners of today) depended on insuring "a cheap and steadily augmenting labor supply" (p. 185). In many respects, the success of some segments of American agriculture today still depends to a large extent on this cheap labor supply, which now comes from Mexico rather than Africa.

Most of the information on farm workers in the United States comes from the United States Department of Labor (USDOL), and specifically from the National Agricultural Workers Survey (NAWS), which began surveying farm workers in 1988, and which is the only national information source on the demographics, working, and living conditions of U.S. farm workers. Since its inception, NAWS has collected information from over 25,000 workers. The survey samples all crop farm workers in three cycles each year in order to capture the seasonality of the work. The NAWS locates and samples workers at their work sites, avoiding the well-publicized undercount of this difficult-to-find population. During the initial contact, arrangements are made to interview the respondent at home or at another convenient location (USDOL, 2000).

According to the most recent NAWS report (2000), the number of farm workers in the United States is estimated to be between three to five million, including men, women, teenagers, and children who are working in fields and packinghouses. The farm worker population is estimated to be 80% male, and male farm workers are typically single, never married, or have spouses and families living in other states or in another country who they

are working to support. The majority of farm workers, 81%, are foreign-born, with 77% being Mexican-born. Farm workers generally live in labor camps, trailer parks, rented homes, or apartments, or their own homes. In some areas, where there is no affordable or available housing, they may resort to staying in tents, vans, or cars. Labor camps or other housing may be owned and rented out by the employer or a private property owner.

Although there are farm worker communities that offer comfortable, clean housing, much of the housing available to farm workers is substandard, poorly maintained, overpriced, and/or overcrowded. A lack of conveniences such as indoor plumbing and heating are also common. Often all the farm workers living and/or working in a labor camp will be of the same ethnic group.

The migrant farm work force that enters the United States from Mexico each year is equivalent to one-eighth of the entire Mexican labor force. Migrants compose 42% of the farm labor force in the United States (USDOL, 2000), and harvest 85% of the fruits and vegetables picked by hand each year in this country (National Center for Farmworker Health, 2000). According to the Health Resource Service Administration (2000), the migrant and seasonal farm worker (MSFW) population in Texas was estimated to be 362,724 in 2000. The Larson study (2000), the most extensive study done to date, projected that there were approximately 200,000 migrant and seasonal farm workers employed in the state, and 165,000 dependents. That study reported relatively low numbers, 2,977, for the East Texas enumeration (see Table 2). The author of the study identified that “limited resources and time have prohibited primary research directly with farm workers”;

therefore, secondary or existing data were the primary sources of information for the study (Larson, 2000).

Typically, U.S. migrant farm working families follow one of three main crop corridors, often called “migrant streams.” The Eastern migrant stream originates in Florida and extends up the East Coast, and is mostly comprised of Haitian, African American, and Puerto Rican workers. The Western stream, comprised primarily of Mexican-Americans, originates in southern California or Mexico and extends up the West Coast. The Midwestern stream, also primarily Mexican-American, originates in Texas or Florida, and extends to the Great Lakes and Plains States (USDOL, 2000).

**Table 2**  
**Larson Study Enumeration of Migrant and Seasonal Farm Workers in East Texas Counties (Larson, 2000)**

County	Number of MSFWs
Anderson	110
Cherokee	279
Gregg	0
Henderson	171
Nacogdoches	148
Panola	30
Rusk	507
Shelby	574
Smith	382
Van Zandt	477
Wood	299
TOTAL	2977

### ***Farming in East Texas and Cherokee County***

The research community for this study is East Texas, Cherokee County. East Texas as a whole ranks fourth in agricultural income for the state. Cherokee County ranks 15<sup>th</sup> in Texas in income from agriculture, with 220 million dollars in total agricultural income for 2003. Agriculture is diversified, with 39% of the income from nursery crops, 29% from timber, 12% from beef, 8% from hay, 5% from dairy, and 5% from broilers (Texas A&M University, 2004). As mentioned earlier, Cherokee County has been identified with agriculture, and more specifically with horticulture, from the earliest times of human habitation in the area. Historical records indicate that at the time of European contact in 1691, the Caddo Indians were living in fixed permanent villages, and practicing a successful form of horticulture which allowed them to develop a complex settled life (Smith, 1995). The Caddos's most important crop was corn, but they also grew watermelon, squash, sunflowers, and tobacco, and hunted bear, deer, wild turkey, quail, hogs, and if necessary, buffalo, for which they had to travel west about 80 miles. During the first half of the 19<sup>th</sup> century, the Caddos were gradually displaced by the Cherokee Indians, after whom the county is named.

As the East Texas area grew and developed, so did the importance of agriculture and agribusiness. The beginnings of modern horticulture in East Texas and in Cherokee County began in the 1900's with tomato farming. The demand for barefoot tomato seedlings as transplants increased during the Great Depression years of the early 1930's and continued through the 1950's. One elderly Jacksonville resident described Jacksonville during the 1940's as a town in which the streets were lined with tomato

storage “shacks” where the seedlings were stored, ready for transport by train all over the United States (A. Dalton, personal communication, February 12, 2004). Jacksonville was then, and for many years, known as “the Tomato Capital of the World,” according to Ted Fisher of the Cherokee County Agricultural Extension Service (2002). Fisher states that Cherokee County is today “the bedding plant capital of Texas” (p. 11). This industry began, he says, in the early 1900’s near New Summerfield, first with tomatoes, then beginning in the 1950’s with bedding plants.

**Horticulture.** According to the Texas Cooperative Extension's 2002 Agricultural Income Survey, the “green” industry (as the horticulture industry is often called) has experienced tremendous growth in the United States over the past few years, primarily as a result of increasing urbanization, more single family homes, and the aging of the population - gardening being a favorite activity of retirees. In Texas, the green industry is now Texas's second-largest agricultural industry – behind livestock and ahead of cotton – adding more than \$9 billion a year to the state’s economy and sustaining 222,000 jobs. As mentioned above, 39% of agricultural income for Cherokee county comes from nursery crops (horticulture), and Cherokee County currently accounts for 20% of the state sales of horticultural products (USDA, 2002). Although some of the activities involved in producing plants for the market have been mechanized (for example, automatic seeding machines), horticulture remains a labor-intensive industry (J. Daniel, personal communication, September 3, 2003). Since the 1980’s, the plant farm industry in the region (and agriculture in general) has been increasingly supported by a steadily growing number of immigrant farm workers, primarily Hispanics from Mexico. The Hispanic

population in the East Texas region increased by more than 100% in the decade 1990 to 2000, a response, in part, to the increasing labor demands of plant farm industry (U.S. Census, 2000)

In 1997, there were about 60 greenhouse (plant farm) enterprises in Cherokee County (Fisher, 2002). This number appears to be similar to the number in 2003, based on data collected for this study. In addition to the climate of the area being conducive to growing plants, the fact that the East Texas region is heavily forested is thought by some to explain the growth of plant farms, as the lumber industry has historically provided the materials to make containers to hold the produce.

The demand for plant farm workers is greatest from early spring through November 1<sup>st</sup>, unless “holiday plants” - poinsettias, for example - are grown, which keeps some workers busy through November and into December. For most plant categories, and for much of the season, one worker is able to handle four greenhouses (J. Daniel, personal communication, September 3, 2003). At planting time, however, four workers per greenhouse are required. Plants grown from cuttings (geraniums, chrysanthemums and roses) require more workers than those grown from seed. When plants are grown from seed, machines are used for the seeding process. Bedding plants are usually planted three times a year, so that the various plant growing regions can be supplied at appropriate planting times. The first planting is in January, for distribution to the more southern zones in April. Two subsequent plantings provide products for distribution to the more northern zones, for planting in May or June. The most common bedding plants grown in Cherokee County are the flowering annuals - petunias, vinca, marigolds, impatience, and begonias.

A few farms produce vegetables, fruits, and nuts exclusively. One farm that employs Cherokee County workers is experimenting with growing grapes for wine. Roses are almost exclusively associated with the Tyler area, in Smith County, which borders Cherokee County to the north. Interestingly, 90% of the roses that are sold as “Tyler Roses” are actually grown in Arizona and brought to Tyler to be packaged and distributed (J. Daniel, personal communication, September 3, 2003) .

**Logging/Timber.** As in most East Texas counties, forestry is a major industry in Cherokee County. Timber ranks as the number two industry in the county, accounting for 29% of the agricultural income in 2003 (USDA, 2004). East Texas has about 12 million acres of forestland. Of this, about 61% is privately held land, 32% is owned by the forest industry, and 7% is publicly owned. Of the five state forests in Texas, all are in East Texas and one, the ID Fairchild Forest, is in Cherokee County. Lumber has been manufactured in East Texas since the 19<sup>th</sup> century. The major trees harvested are pine (Loblolly and Slash), oak, and sweet gum. Large paper corporations have some processing facilities in the county, but according to the Cherokee County forestry extension office, the trees harvested in the county are hauled out of state for processing, and the tree crews are not from the county (personal communication, G. Atwood, October, 2003). Currently, there are several saw mills and other wood processing enterprises which hire local workers. These will be discussed in more detail later in this dissertation.

**Beef Cattle and Dairy Farming.** Thousands of beef cattle are raised in Cherokee County. The ample rainfall and sandy soils produce lush grass, much of which is cut as



hay for winter feed. Twelve percent of Cherokee County's agricultural income comes from beef, 8% from hay, and 5% from dairy produce. According to the Cherokee County Farm Bureau (2004), there are about 60 dairy farms in the county. The larger farms, numbering about six, produce beef cattle and hay as well as dairy products, and hire workers (other than family members) on a permanent basis. These farms typically provide housing for the hired workers. The remainder of the farms are among the hundreds of small family farms which are spread over the county. According to several persons informally interviewed for this research, the small farms hire helpers irregularly, perhaps no more than a few times per year, often from the day-haul supply of workers (liebres) described earlier, or from the plant farm worker group, who would likely do this work as a second job.

**Poultry Farming.** Poultry production is less important in Cherokee County than in some other East Texas counties. Nacogdoches County, which borders Cherokee County on the east, ranks fourth in the state for income from poultry farming, accounting for more than half of the county's agricultural income. Several Cherokee County residents, including the principal at one of the schools, stated that many of the county's Hispanic residents work in the Nacogdoches County poultry enterprises owned by Pilgrim's Pride. There are only about six poultry enterprises operating within Cherokee County, and they hire a very small percentage of the county's farm workers – no more than 50-60 workers, who are primarily Hispanic.

## **Health Issues: Hispanics, Immigrants and Farm Workers**

This section of the literature review addresses the broader health issues of Hispanics and of immigrants, and in particular the farm worker population.

### **Hispanic Health**

The “Hispanic health paradox” states that despite higher poverty rates, less education, and limited access to health care, the overall health of many Hispanics living in the United States today are equal to, or better than, those of non-Hispanic whites (Hunt, Williams, Resendez, Hazuda, Haffner, & Stern, 2002). Often this paradox has been presented as an excuse to deny preventive health services to this “healthy” population. This perspective has existed for the last 20 years or so, and was given fresh emphasis after the publication of findings from the 1992 National Health Interview Survey, which indicated that Hispanics had approximately 20% lower all-cause, coronary, and cardiovascular disease mortality when compared with non-Hispanic whites in the U.S. (CDC, 1992). However, according to Hunt et al. (2002), a closer examination of these findings and some other relevant studies suggests that some of the evidence for this difference may be spurious. Their own study compared the mortality in Mexican-Americans born in the U.S. with that of non-Hispanic whites, among subjects who participated in the San Antonio Prospective Cohort Study and were diagnosed as having diabetes. In comparing mortality rates from cardiovascular disease among Mexican-Americans born in the United States, non-Hispanic whites, and Mexican-Americans born in Mexico, they found that both the all-cause mortality rates and cardiovascular mortality rates were highest among U.S. born Mexican-Americans. The all-cause mortality rate for

Mexican-Americans born in Mexico was about equal (18 per 1000) to that for non-Hispanic whites, and the cardiovascular mortality rate for Mexican-Americans born in Mexico was lower (8 per 1000) than for non-Hispanic whites (10 per 1000). The authors include discussions of two other studies: the San Luis Valley diabetes study, which appears to support the paradox, and the Corpus Christi Heart study, which appears to refute it.

Preliminary data from the 2004 National Health Interview Survey (NHIS) indicate that Hispanics appear to experience some health problems at lower rates than non-Hispanic whites, but other health problems at significantly higher rates. According to NHIS (2002) data, after adjustment for age and sex, Hispanics residing in the United States experience higher rates than non-Hispanic whites and non-Hispanic blacks for the following health or health-related problems:

- *Health Insurance:* About one-third (33.1%) of Hispanics do not have health insurance, as compared with 10.2% of non-Hispanic whites and 16.8% of Blacks.
- *Having a Usual Place to Go for Medical Care:* About one-fourth (24.8%) of Hispanics do not have a usual place, as compared to 11.1% of non-Hispanic whites and 13.9% of non-Hispanic Blacks.
- *Failure to Get Health Care Due to Cost:* A total of 7.0% of Hispanic persons, 5.2% of non-Hispanic white non-Hispanic white persons and 6.4% of non-Hispanic black persons experienced this problem during the previous year.
- *Engaging in Leisure Time Exercise:* Hispanics were the least likely to engage in regular leisure time physical activity among the three groups. Only 20.5% of Hispanics as

compared with 32.5% of non-Hispanic whites and 25.5% of non Hispanic Blacks engaged in regular leisure time exercise.

- *Obesity:* About 25% of Mexican Hispanics are obese, compared with 20 percent of non-Hispanic whites. ( Centers for Disease Control and Prevention (CDC),2003)
- *Experience of Psychological Stress in the Last 90 Days:* The prevalence of serious psychological stress was 4.8% for Hispanics, 2.7% for non-Hispanic whites, and 3.8% for non-Hispanic Blacks.
- *Diabetes:* The prevalence of diagnosed diabetes among Hispanics was 10.9%, almost double the rate for non-Hispanic whites (5.8%) and slightly lower than that for non-Hispanic Blacks at 11.5 %. In addition, according to the Centers for Disease Control and Prevention, for Hispanics 65 years of age and older, the prevalence of diabetes is 25% (CDC, 2010). In Mexico, diabetes is the leading cause of death in more than half of the 33 states, and the second leading cause of death in all but one of the remaining 16 states (Pan American Health Organization [PAHO], 2002 ). The disease is responsible for over 12% of all the deaths in the country. It is the 5<sup>th</sup> leading cause of death among Hispanics residing in the United States, and is responsible for 5% of the deaths. Since about 60 % of the U.S. Hispanic population is from Mexico (U.S. Census, 2000), these statistics may be important in health care planning.
- *Overall Health:* The percent of Hispanic persons who assessed their health as excellent was 58.9%, compared with 70.1% of non-Hispanic whites, and 58.3% of non-Hispanic blacks.

The NHIS survey indicated that Hispanics have some characteristics that are positive relative to other racial/ethnic groups. For example, fewer Hispanics smoke (13.3%) than either non-Hispanic whites (21.2%) or non-Hispanic blacks (20.7%), and more Hispanics (37%) have been tested for HIV disease, than non-Hispanic whites (32.6%). In Texas, however, Hispanics have about a 5% higher smoking rate (18%) than the 13.3% in the country as a whole.

According to the National Institutes of Health (2004), Hispanics suffer from eye disease and visual impairment at rates higher than non-Hispanic whites and at rates about equal to Blacks. This is primarily due to the higher levels of diabetes in this group, as diabetic retinopathy is a common cause of blindness in diabetics.

### **Immigrant Health**

The literature on immigrant health indicates that the health status of immigrants in the United States varies with race and country of origin. A recent article by Singh and Miller (2003) published in the *Canadian Journal of Public Health* reported findings from their analysis of the National Vital Statistics System (1986-2000) and National Health Interview Survey (1992-1995) data to examine nativity differentials in health outcomes. Their conclusions were that the life expectancy of immigrants to the United States is on average about three years longer than for native-born persons. It is slightly less for female immigrants (2.5 years), than for males (3.5 years). They found the gap to be greatest for Black immigrants, who were living on average nine years longer than their American-born counterparts. For Hispanic immigrants, the gap is also significant: foreign-born Hispanics were found to live about four years longer than American-born immigrants.

These differences hold true even when factors such as poverty and access to the health system are similar. The authors explain the differences as reflecting the immigrants' innate vitality and resilience, as well as their initial rejection of what is described as a "drive thru" mentality regarding eating behavior, and other lifestyle factors such as the evidence that immigrants are more likely to exercise regularly and less likely to smoke.

### **Farm Worker Health**

Like the larger population of Hispanics and immigrants, farm workers are at risk for illnesses and health problems that often differ in kind and degree from the larger groups, from which they are drawn. Many of the health problems of farm workers are associated with substandard living conditions, difficult and dangerous work environments, and lack of access to health care. According to the National Center Farmworker Health (2000), poverty, frequent mobility, low literacy, and language and cultural barriers may impede farm workers' access to social services and other cost-effective primary care. Economic pressures, such as lack of health insurance and sick leave, may make farm workers reluctant to miss work and face having to pay out-of-pocket doctor's fees. Consequently, many postpone seeking health care and are later forced to rely on expensive emergency room care. Only about 20% of farm workers access the federally subsidized migrant health clinics.

Relative to housing, many farm workers in Cherokee County and other areas of East Texas live in areas that could be termed *colonias* – defined as "rural communities and neighborhoods located within 150 miles of the U.S.-Mexican border that lack adequate infrastructure and frequently also lack other basic services" (U.S. Department of

Housing and Urban Development, 2000), even if they do not meet the formal definition for the term. Without the border-distance criterion, many of the farm worker settlements appear *colonia*-like: unsanitary, with no sewer systems; unpaved access roads; and located in lowland areas where, in some instances, rainwater flows down to the mobile homes from the surrounding greenhouses, resulting in muddy yards where children play (possibly contaminated with pesticides). Burns (2000) notes that there is an increasing tendency for workers' living quarters to be located right next to the fields, which increases the possibilities for exposure. He also mentions crowded living conditions, lack of laundry facilities, and work carried on in the enclosed space of greenhouses, as increasing exposure risks. Pesticide exposure is a major concern discussed in other literature related to farm worker health. Of the 28 articles relating to farm worker health published in 2003 and 2004 on Medline, half (14) are articles on pesticide exposure. Skin disease is highly prevalent among farm workers (Arcury, Quandt, & Mellen, 2003), and thought to be related to agricultural chemical exposure.

Compared to the general population, farm workers have higher rates of infectious diseases like tuberculosis and parasitic infections, and are sometimes diagnosed with so-called exotic diseases such as amoebic liver disease, brucellosis, and yellow fever, which are rarely found in this country. Related to the fact that many farm workers are young men living away from their spouses or partners for many months at a time, they are at about 10 times higher risk for sexually transmitted diseases than other groups. Between 2.5% and 13% of certain farm worker sub-groups are infected with HIV (Farm Worker Health Services, 2004; Aranda-Naranjo & Gaskins, 1998; Bernstein, 2004).

Other health problems among farm workers are high infant mortality rates, at about 25% to 125% above the national average; high prevalence of tooth decay and other dental problems; and high rates of heat exhaustion, musculoskeletal problems, and in certain locales, green tobacco sickness - all related to working conditions.

In 2002 in Cherokee County, Texas, a focus group was conducted as a part of a needs assessment study of farm workers in the area (Doyle, Rager, & Bates, in press). The focus group data indicated that the participants, who were local health care and social service providers, perceived the following to be among the most important health risk factors among the farm worker population: poor diet and nutrition, substance abuse, unprotected sex, poor prenatal care, unsafe equipment operation, too little sleep, delayed medical treatment, crowded living conditions, exposure to the elements (weather), anxiety and other problems related to undocumented status, and lack of health insurance.

In summary, while particular diseases are characteristic of various groups of Hispanics, one of the undisputed facts is that about a third of Hispanics in the U.S., about half of non-citizen immigrants, and the vast majority of farm workers do not have health insurance. This, together with higher rates of poverty, and language and cultural obstacles, make this population at greater risk for poorer health outcomes than the rest of the population. One myth is that it is immigrants who are responsible for the growth in the uninsured in this country, but an analysis of this issue by Holahan, Ku, and Pohl (2001) indicates that this is not the case, because the number of immigrants is relatively small.



## **Conducting Research With Vulnerable Populations**

The key question that all researchers must ask themselves prior to the initiation of any research activity should be “What is the chance that the people I am studying will be at risk as a result of my study?” To answer this question, researchers must be imaginative – in other words, they should be able to bring to mind all of the possible ways the research could potentially harm a participant either directly or indirectly. Research with vulnerable subjects requires even more vigilance. Researchers now generally take for granted the fundamental ethical principles which guide all types of research with human subjects. The principles of autonomy and informed consent laid down in the Nuremberg Code of 1947, and those of respect for persons, beneficence, and justice, added as a result of the 1978 Belmont Report, are a part of the minimum standards that institutional review boards attempt to insure when considering all research proposals. Those working in community based epidemiology research tend to rely on the National Institutes of Health (NIH) regulations Title 45, Code of Federal Regulations , Part 46, (Regulations for the Protection of Human research Subjects) because they are less likely to be involved in clinical trials of drugs and medical devices, which require researchers to consult Food and Drug Administration regulations.

While all research with human subjects requires consideration of each of the broad principles mentioned above, there are some special considerations relative to the context of the research activities. This context refers not only the physical setting, but also the social/cultural setting. The context relative to farm workers, and in particular to migrant and seasonal farm workers, requires special consideration.

The concept of vulnerability in regard to research with human subjects has evolved over time. A 1981 revision to 45 CFR 46-44 specified that vulnerable populations would include pregnant women, fetuses, prisoners, children, students and certain employees. The Office for the Protection from Research Risks (OPRR) at the National Institutes of Health (NIH) defines a vulnerable population as a group of "...individuals whose ability to give informed consent to participate in research, is in some way compromised" (Hartley & Hartley, 1998).

Information from NAWS (2000) indicates that the majority of farm workers in this country are "compromised" in a variety of ways relative to their ability to give informed consent. They constitute a group who are generally economically disadvantaged, are foreign-born, have a limited education, have a limited proficiency in English, are sometimes functionally illiterate in their native language, have no health insurance, and little or no access to health care. These characteristics would clearly satisfy the OPRR definition of vulnerability as a "compromised" ability to give informed consent.

In an article in the January 2004 issue of *the Journal of Immigration Health*, the authors (Cooper, Heitman, Fox, Quill, Knudson, & Zahm, 2004) discuss "specific ethical problems" facing researchers who work with migrant farm workers. They state that safeguarding autonomy and respect for persons are among the "most difficult ethical principles to apply" (p.31), when working with this group. At the heart of the difficulty regarding these principles, they contend, are sometimes "vast differences" (p. 2), between the researcher and the participants, on the meaning of individuality, the possibility of self

determination, and a participants roles and responsibilities in their community that may affect their freedom from coercion.

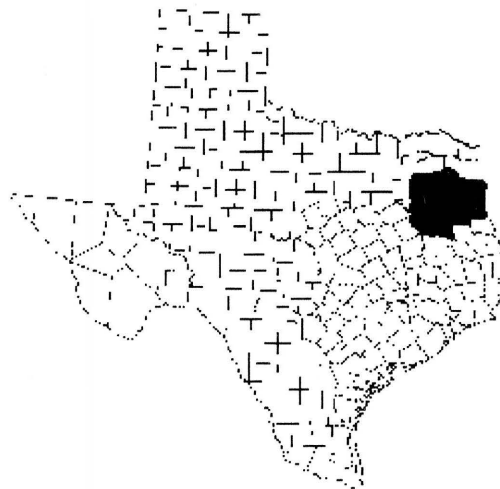
In this study, there are two populations to consider relative to ethics. The first is the farm worker population who are considered vulnerable subjects, and other “knowledgeable persons” who would not be considered vulnerable, but whose rights relative to research must also be carefully considered and protected.

### **Communities Included in the Research Study**

Attitudes towards immigrants by settled residents are often influenced by the beliefs and values that exist in the communities where they live and work. Such attitudes are often rooted in the social, economic and political realities of the lives of residents, and may affect the health and well-being of the immigrant community in profound ways. This section will present an overview of the East Texas region and of Cherokee County in particular, including a brief history, and a discussion of the current social, political and economic context.

#### **East Texas**

The geographic region referred to as East Texas, with a population of about 700,000 people, is composed of 14 largely rural counties, including Anderson, Camp, Cherokee, Gregg, Harrison, Henderson, Marion, Panola, Rains, Rusk, Smith, Upshur, Van Zandt, and Wood (see Figures 2 and 3). Geographers describe East Texas as “the humid portion of the central dissected belt of the coastal plains of the United States” (Handbook of Texas, 2002, p. 32). Bounded by a line extended from the Red River in Lamar County, southwestward to East Central Limestone County and then south to



**Figure 1. East Texas Study Counties: Location Within Texas**



**Figure 2. Cherokee and Surrounding East Texas Counties**

Galveston Bay, it is primarily hilly terrain, with an elevation range between 250 and 570 feet above sea level. The Hispanic population of East Texas increased by 128% between 1990 and 2000, which was the 4<sup>th</sup> largest regional increase in the state (University of Texas at San Antonio, 2002).

All East Texas counties engage in agriculture to some extent, with five counties, (Cherokee, Smith, Van Zandt, Rusk, and Henderson) having the greatest number of acres dedicated to farming. These five counties contributed approximately \$102 million in market value sales in 1997 (USDA, 1997). The counties are similar demographically. According to the U.S. Census Bureau (2002), approximately 80% of East Texas residents are high school graduates, and close to 20% of the population have a bachelor's degree. The proportion of individuals living below the poverty level in this area is about 18%, which is about 3% above the state average (U.S. Census Bureau, 2002). The East Texas region is considered politically conservative, being a part of the southern "Bible belt," and in fact, some would describe it as the most conservative region in the state. The current state senator (District 3) is a Republican, and represents Cherokee County, along with 14 other East Texas counties (Texas State Senate, 2004).

### **Cherokee County**

Cherokee County encompasses 1,047 square miles, stretching approximately 50 miles from north to south (Bullard to Wells) and about 30 miles from east to west (New Summerfield to Cuney). The county was first was organized in 1846, and because the earliest settlers were from the south, its economic and social traditions are southern. In 1850, the population was 6,673, the third largest in the state, and by 1860, it was 12,098,

of whom 3,250 were slaves, two were free blacks, and 14 were Spanish-surnamed. Of the white families, 29% owned slaves. At that time, the area's principle crops were corn and wheat, but cotton was also important to the economy (History of Texas Online, 2002).

Baptists, who organized the first church in 1844, remain the largest religious denomination in the county. A Catholic parish has been active in Cherokee County since 1905, but it remained quite small until the recent influx of Hispanics. Hispanics have a long history in East Texas, the first known contact occurring in 1542 when a group of Spanish explorers led by Luis de Moscoso met up with the ancestors of the Caddo Indians, who had by that time occupied the region for 3,500 years (Smith, 1995). The total Catholic Church membership in the county is approximately 1,000, the majority of whom are Hispanic (M. Arredondo, personal communication, March 4, 2004).

In 2000, Cherokee County had the smallest population of all East Texas counties, at 46,959. According to the U.S. Census Bureau (2000), the racial/ethnic make-up of the county is Hispanic (13.2%), African American (11.5%), Asian (2.7 %), and white non-Hispanic (69.3%). The foreign-born represent 7.9% of the population. Almost 13% the population speak a language other than English in the home, and 17.9% of individuals and 13.7% of families live below poverty. The Hispanic population of the county grew by more than 100% ( 2,697 to 6,279) from 1990 to 2000 (U.S. Census Bureau, 2000).

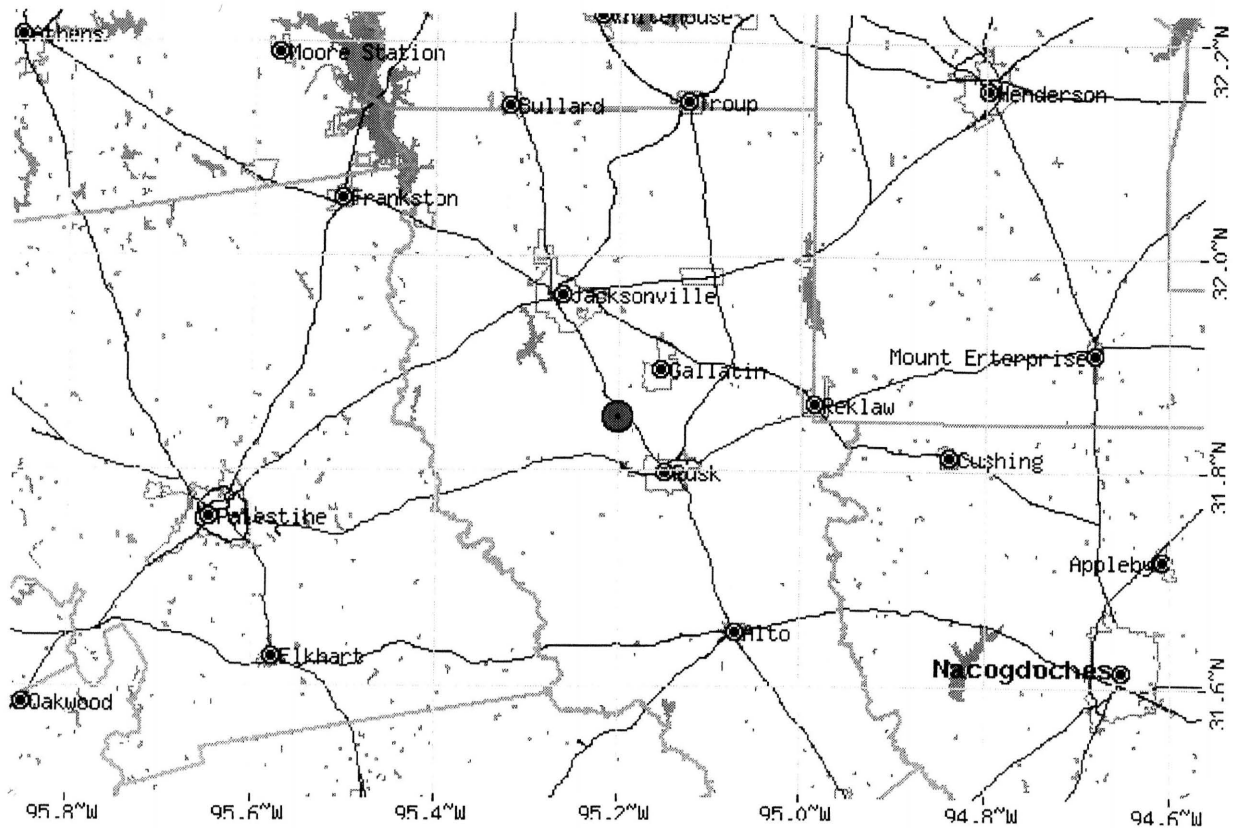
The county is essentially rural, with about half of its population residing in one of the 10 incorporated towns (see Table 3 and Figure 3), ranging in size from 157 (Cuney), to 13, 974 (Jacksonville). Rusk is the county seat, with a population of 5,212. Three towns – Troup, Reklaw, and Bullard – are only partially in the county. New Summerfield

is identified with the plant farm industry in the county. Over half of the plant farm workers are employed at farms within five miles of the New Summerfield town center. There are six independent school districts wholly in the county, while parts of three others extend into the northern part of the county. Higher education is represented by two church-related junior colleges, Lon Morris College and Jacksonville College, and by the North American Theological Seminary, all in the city of Jacksonville.

**Table 3**

**Cities/Towns and Populations of Cherokee County – 2002 (Handbook of Texas, 2002)**

City/Town	Population
Wells	784
Troup (partly in Cherokee County)	41
Rusk	5,212
Reklaw (partly in county)	215
New Summerfield	1,040
Jacksonville	13,974
Gallatin	391
Cuney	147
Bullard (partly in county)	72
Alto	1,125
Remainder of county population (outside of major towns)	24,567
Total Cherokee County population	47,568



**Figure 3. Location of Cities/Towns in Cherokee County and Surrounding Region**  
 (Reproduced from U.S. Census Bureau Mapping and Cartogenic Resources)

Aside from agriculture, the major employers in the county are Rusk State Hospital, a state psychiatric facility employing over 1,000 workers, several small hospitals and small satellite clinics which are associated with two large hospitals in Tyler (in Smith County to the north), Wal-Mart (Jacksonville), and several small factories producing plastics, air conditioning parts, church furniture, and other products.

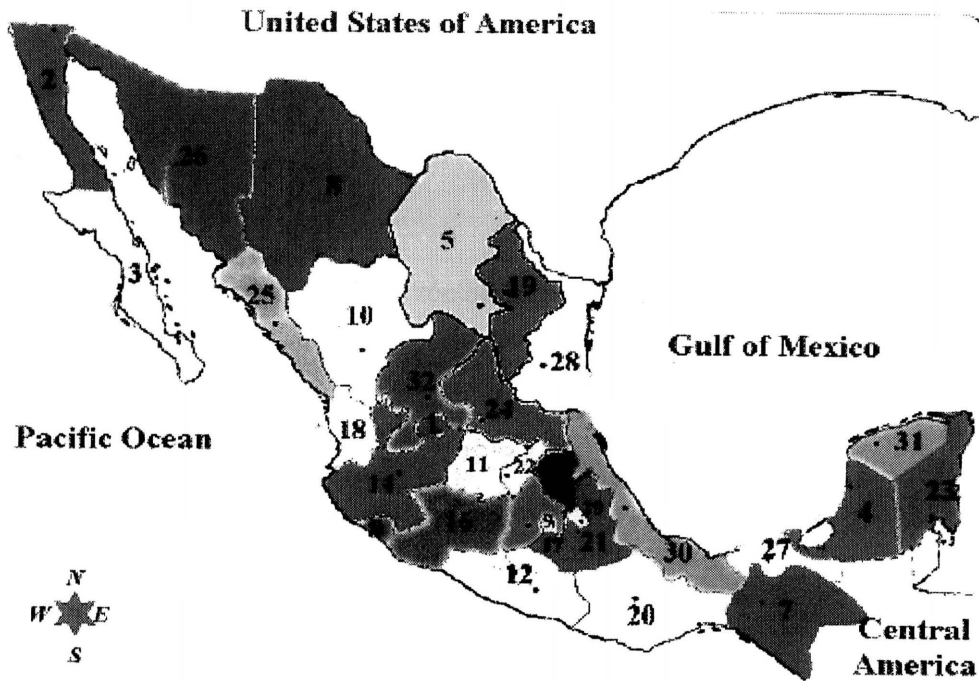
With its annual rainfall of over 44 inches, its long growing season of 258 days, and its temperate humid climate, the county has been identified with agriculture (and specifically with horticulture) from the earliest times of human habitation in the area.



Agricultural income for the county in 2003 was estimated to be \$220 million. Agriculture is diversified with 39% of the income from nursery crops, 29% from timber, 12% from beef, 8% from hay, 5% from dairy, and 5% from broilers (Texas A&M University, 2004). More details concerning farming and farm workers in the county will be presented in a later section of in this chapter.

### **The Sending Communities**

Anecdotal information suggests that many of the farm workers in Cherokee County emigrated from the state of Guanajuato, located in Central Mexico, about 150 miles north of Mexico City. According to one worker at the Cherokee County Health Department in Jacksonville, many of the patients in the family planning program at the clinic are from the state of Guanajuato, and in particular the city of San Luis de la Paz. These “mirror communities” are formed by groups of immigrants who leave a town in Mexico en masse to work in a particular area in the United States, thereby establishing a small “San Luis de la Paz” of the north, for example. Often, more settled individuals will recruit and assist in the transit of family members or friends from the sending community (Burns, 2000). This may require the services of “coyotes” who, for a fee of perhaps \$2,500 per person, agree to transport the emigrants to the United States (see Figure 4).



- |                         |                    |
|-------------------------|--------------------|
| 1 Aguascalientes        | 17 Morelos         |
| 2 Baja California Norte | 18 Nayarit         |
| 3 Baja California Sur   | 19 Nuevo León      |
| 4 Campeche              | 20 Oaxaca          |
| 5 Coahuila              | 21 Puebla          |
| 6 Colima                | 22 Querétaro       |
| 7 Chiapas               | 23 Quintana Roo    |
| 8 Chihuahua             | 24 San Luis Potosí |
| 9 Distrito Federal      | 25 Sinaloa         |
| 10 Durango              | 26 Sonora          |
| 11 Guanajuato           | 27 Tabasco         |
| 12 Guerrero             | 28 Tamaulipas      |
| 13 Hidalgo              | 29 Tlaxcala        |
| 14 Jalisco              | 30 Veracruz        |
| 15 Estado De México     | 31 Yucatán         |
| 16 Michoacán            | 32 Zacatecas       |

**Figure 4. Sending Communities in Mexico**

### CHAPTER III

#### METHODOLOGY

This chapter presents the methodology used for the two parts of this study. The first section provides a discussion of the methodology used for enumeration, and the second section provides a discussion of methodology used for the assessment of health characteristics. Before the methodology for this research project is discussed, a clarification regarding the population is necessary. Although the study population was originally intended to be migrant and seasonal farm workers in Cherokee County, as the work progressed, it became clear that it would be exceedingly difficult, if not impossible, to identify farm workers using the definitions used by the USDA, and that even if the use of the USDA definitions were feasible, many farm workers whose lives were similar to the migrant and seasonal population would be excluded. (This definition problem is explored in Chapter II of this report.) For these reasons, it was decided that the study population for the enumeration portion of this research would be “hired farm workers” in Cherokee County.

For the second portion of this study, however, which is focused on the health-related characteristics of East Texas farm workers, a slightly different scope of this farm worker population was used. In Spring of 2002, a joint research team of faculty and graduate students at Texas Woman’s University (TWU) and Baylor University (BU) was organized and began preliminary planning for identifying and addressing the key health

and safety issues faced by migrant and seasonal farm worker population residing in the East Texas area (their research study will be discussed further below in the section on health-related characteristics). As their work on the project progressed, it became clear that limiting the research strictly to migrant and seasonal workers would be problematic (Bates, 2004). Part of the problem was related to the formal definitions used for migrant and seasonal work, described earlier in Chapter II.

After discussions with community service organization representatives, it was decided that the more appropriate target population would be “medically underinsured /uninsured farm workers,” which included migrant and seasonal sub-groups, and subsequently, “hired farm worker.”

### **Enumeration Methodology**

For the enumeration part of this dissertation the research methodology was both quantitative and qualitative. The overall approach was exploratory in the sense that there was no existing model for this type of project, other than the Larson model (described in Chapter II), which did not involve field work. In some respects the approach could also be described as a “grounded theory” or a “discovery” approach. Bernard (2002) describes grounded theory as an

... iterative process by which you, the analyst, become more and more grounded in the data. During the process you come to understand more and more deeply how whatever you are studying really works. (p. 463)

Initially, the approach involved “trying out” various ways of obtaining data in the field and modifying approaches as the study progressed. The research design was observational and descriptive, the purpose being to obtain a reasonably accurate estimate

of the number of hired farm workers in the county, to try to infer the numbers of migrant and seasonal workers, to obtain demographic information about these workers, and to solicit from employers and other knowledgeable persons their perceptions about the overall health status and/ or the nature of the health problems of the workers. Overall a triangulation method was used to increase the validity of the enumeration.

### **Triangulation Method**

To improve validity, the triangulation approach was used - one that seemed especially appropriate for this project, where obtaining accurate information was difficult at best. Triangulation is a way of increasing the validity of data by cross-checking it with several different sources to increase the validity of the results (Sapsford & Jupp, 1996). In addition to the direct enumeration data received from employers, (and sometimes from workers themselves), and some direct counting by the researcher, several indirect techniques were used to attempt to verify information. These involved accessing online USDA documents which provide information about agricultural production, farm and worker numbers, and labor costs in the county. In addition, school record information indicating the number of migrant children enrolled in county schools was used. The technique of observer agreement was also employed, whereby the researcher rechecked numbers with several individuals to see if the numbers “rung true.” These methods were also the primary methods utilized in the Larson study, but they were not employed as intensively and comprehensively in this project.

### **Data Sources**

The study population, Cherokee County, is located in central East Texas, about 130 miles southeast of Dallas and 160 miles north of Houston (see Figures 1 and 2). It is bordered on the north by Smith County, on the east by Rusk and Nacogdoches counties, on the south by Angelina County, and on the west by Anderson and Houston counties. The county encompasses 1,047 square miles, is primarily rural, and is composed of hilly terrain, of which over 50% is forested, with the remainder consisting of small farms surrounded by rolling pastures. There are several small cities and towns, the largest being Jacksonville, a city of over 13,000. The county ranks 15<sup>th</sup> in Texas in income from agriculture, with \$220 million in total agricultural income for 2003 (USDA, 2002). In 2000, Cherokee County had the smallest population of all East Texas counties, at 46,959. According to the U.S. Census Bureau (2000), the racial/ethnic make-up of the county is Hispanic (13.2%), African American (11.5%), Asian (2.7%), and white non-Hispanic (69.3%). The foreign-born residents represent 7.9% of the population. Almost 13% of the population speak a language other than English in the home, and 17.9% of individuals and 13.7% of families live below the poverty level of income.

### **Preliminary Work**

Attempting to count individuals who live “in the shadows” requires a willingness on the part of those individuals to disclose information about themselves, as well as a willingness on the part of others who are in a position to have information about the numbers of those individuals to share that information. A beginning step requires building trust in the community at large, and among the people who are likely to be able

to provide the most accurate information about the target population. With this in mind, the work during the first few weeks entailed identifying possible sources of information, communicating with persons who were knowledgeable about these sources, then setting up a system for contacting identified sources for interviews. In addition, the opinions of community gatekeepers and others knowledgeable about the farm worker population were solicited. Several informal conversations with community gatekeepers and others knowledgeable about the farm worker population were initiated. These included school nurses, health care providers, pastors, and other community leaders. The preliminary questions asked by the researcher were general in nature, and were prefaced with a brief description of the research project. Specifically, the individuals were asked about the best ways of contacting employers and other knowledgeable persons, and about their thoughts regarding the types of problems that might be encountered during the work. None of these interviews or conversations, whether by telephone or face-to-face or conversations, involved specific information about individual farms or workers.

During the month of July 2003, a list was prepared of all the agricultural entities that would be likely to employ *farm workers*, according to the definition used for this study (see Chapter I), and of the community organizations, institutions, and individuals that were considered likely to have knowledge relative to numbers. The preliminary work was completed by late July 2003, and by that time, 40 plant farms, four lumber businesses, three dairy/ cattle farms, one enterprise that produced and processed fruit and vegetables, one poultry farm, six school districts, one newspaper, one service agency, the

Cherokee County Agricultural Extension Program, and ministers of several churches had been identified as possible interview sources.

During the preliminary stage of the enumeration part of this study, a total of 26 individuals were contacted, either via telephone or in person, for the purpose of recruiting possible study participants for face-to-face interviews. At the end of the preliminary phase of this study, the following data sources were selected for follow up: employers or their representatives of approximately 40 plant farms, six lumber enterprises, six beef/dairy farms, one poultry farm, one mixed farming enterprise, county extension agents for agriculture, horticulture and forestry; pastors and ministers of four churches; school nurses and administrators from all county school districts, and one county service agency. The major document source was the U.S. Department of Agriculture 2002 labor statistics. These sources and data collection methods are discussed in greater detail below.

Ultimately, face-to-face semi-structured interviews were arranged and conducted with the following persons: seven plant farm owners (or their representatives); three owners of mixed farm enterprises (or their representatives); one farm worker who was a knowledgeable individual in the dairy/beef farm sector; two county extension agents (one forestry and one horticulture); three employers (or employer representatives) from three lumber industry employers; one minister; three school nurses; two service agency representatives; and one other farm employer representative. A total of 27 face-to-face interviews for which informed consent was received were conducted.



There were several initial informal but semi-structured conversations with a wide variety of individuals who possessed some level of knowledge about the farm worker population. Several of these individuals were unwilling to participate in a face-to-face formal interview, either because of a desire to be anonymous or because of time constraints. A formal interview was not requested of some of the contacts if it did not appear that they had enough interest or information to warrant the time involved, or if an individual expressed hostility to the project (which occurred on two occasions). There were 12 lengthier and more informative contacts which were conducted either face-to-face or by telephone. These included four health care providers engaged in public health activities, two school principals and two of their representatives, one former school nurse, a sociology professor, an owner of a small saw mill, and a newspaper publisher/editor. Notes were taken during or following each of these contacts, and information relevant to worker enumeration or health status was summarized.

Although most of the data sources were secondary, some provided more direct information than others. For example, if an employer or employer representative provided the numbers of workers employed at their farm, this was considered more valid data than information about numbers provided by someone who did not work at the farm. However, it should be noted that it appeared that some of the participants, especially those who had smaller farms, were somewhat evasive and perhaps tended to under-report the number of workers they employed – often saying “not many,” “hardly ever,” or “we do a lot of the work ourselves.”

The only primary data came from direct counts by the researcher of the number of greenhouses at the various plant farms, of the number of workers present during the visits to the farms, and of “liebres” (day-haul workers) waiting to be picked up for transport to work sites. Other secondary sources included documents used to support some of the data obtained from individuals in the community, such as U.S. Department of Labor (USDOL) statistics about crop labor expenditures, and school records pertaining to the number of migrant children enrolled in a school district. A more detailed discussion of the collection of study data from these various sources is provided below.

### **Data Collection**

#### ***Recruitment of Participants and Arrangement of the Interviews***

The primary units of analysis for this study were businesses that employed farm workers. The population of interest was hired farm workers in Cherokee County. The Institutional Review Board at Texas Woman’s University approved the involvement of human participants in this research project including agribusiness owners/employers, or their representatives, school personnel, church pastors or ministers or their representatives, farm workers, owners/employers or their representatives of other entities in the community who might be knowledgeable about the farm worker population.

For participant recruitment, most of the potential participants were contacted via phone calls (if phone numbers were available) to explain the research purpose and to schedule an interview (see Appendix A for the participant recruitment script). Interviews were conducted at any location preferred by the interviewee. Prior to each interview, the

informed consent form (see Appendix B) was reviewed with each participant, and an opportunity for him/her to ask questions was provided.

After the participant signed the consent form, notes were taken by the researcher during the interview, if the context was appropriate. To maintain confidentiality, the interviewee's name was not included with the researcher's field notes or any other personal data that were collected during the interview, but was coded and retained separately. Joe Daniel, Cherokee County horticultural extension agent, did provide his permission to have his name included in this dissertation.

Four farm workers were interviewed for this study. Two had very limited English literacy, and in each case a trained bilingual Spanish/English interpreter was used throughout the interviews. A third farm worker interview was with an individual who was fluent in English and was a trained interpreter. The fourth was fluent in English, but a trained interpreter was also present during this interview. Signed informed consent was obtained prior to initiation of the interviews. The interpreters translated the consent form for the respondents.

### ***Conducting the Interviews***

The initial approach was to conduct a structured interview. Specific questions that were asked during the interviews are presented in Appendix C. Initially, the interview began with a general question about the number of workers employed, and progressed to more specific questions about gender, age, country of origin, health insurance status, and a final question about the health status of the workers. Early in the interview phase of this work, however, it became clear that an opening question about the number of workers at

their worksite generated anxiety among employers. Consequently, a more informal semi-structured approach was adopted, and not all questions were asked of each participant. The selection of questions depended on the context of the interview, the overall direction of the conversation, and the perceived willingness of the participant to provide information.

Any question about tape-recording of interviews was, without exception, marked by obvious anxiety on the part of the interviewee, and seemed counter-productive. Therefore, after three such experiences, the researcher made a decision to dispense with a verbal mention of the audiotape, but this was still included in the written informed consent document. The exclusion of the audio taping also made the process more flexible, as much of the time it was necessary to conduct conversations “piecemeal,” as interviewees went about their work. This seemed to make the process more relaxed and allowed the researcher to observe other details of the work environment during breaks in the conversation.

All interviews were conducted in Cherokee County except one, which occurred in Smith County, bordering Cherokee County to the north. This participant was interviewed because he employed over 100 workers for his Cherokee County farms. On most occasions, interviews were carried out at the worksite, sometimes in a greenhouse, often in the outdoors or in small “shelters” where farm produce was sold. Occasionally, interviews were conducted outdoors while respondents were engaged in some task. On these occasions, which involved relatively brief interviews, the researcher waited until

At the time of the visit, an attempt was made by the researcher to count the number of greenhouses that appeared to be active, and to count the number of workers present at that time. Often, however, this direct counting was done on another day, depending on the context of the visit. This work proceeded slowly throughout September, October, and early November of 2003, and was resumed in February of 2004, near the beginning of the spring planting season.

In early September, 2003, contact was made with the Cherokee County agricultural extension agent, Joe Daniel, who agreed to review his records on area plant farms, and to share this information for the purposes of this research project. During September and October, two face-to-face interviews and several follow-up telephone interviews (involving a total of about seven hours) were conducted with Mr. Daniel. These meetings, conducted at his Rusk office, involved a detailed and systematic review of the agent's records. He also provided his estimates of numbers of workers employed at each of the plant farms in the count, numbers of operating greenhouses at each of the farms, and information about the type of crops produced by each business. These numbers were later validated, if possible, by visits by the researcher to the plant farms themselves to count the greenhouses that appeared to be active and estimate the number of workers present, and/or by checking these numbers with persons knowledgeable about the farms and their operation. All information from Mr. Daniel was again validated with him by telephone and revised as necessary, during the first week in November, 2004.

## **Data Analysis**

After all data were collected for the enumeration portion of this research project, the information obtained from interviews was analyzed and manually organized into categories. The data were organized first by type of agricultural entity (plant farm, lumber, etc.), then by geographic location in the county. Each entity listed contained the following information: the product(s) produced, the estimated number of workers employed during high season, and the estimated number of greenhouses. These data were summarized in table form. The qualitative health characteristic data collected from these sources were also analyzed, thematically categorized, and then organized into a summary table. These results are presented in Chapter IV.

### **Health-Related Characteristics Assessment Methodology**

In this section of the chapter, the methodology used for the second component of this study, which addresses the assessment of health-related characteristics of the hired farm worker population in East Texas, is presented. The data used in this portion of the study were selected from a dataset that had been compiled for the East Texas Farm worker Health and Safety Survey (ETFHSS) survey project conducted by researchers at Texas Woman's University and Baylor University during 2002-2003. In this section, a brief discussion of the methods used by those researchers to develop the ETFHSS instrument, and the rationale for the selection of the specific health-related items from the ETFHSS data for this dissertation study, will be presented.

## **Data Collection**

### ***East Texas Farmworker Health and Safety Survey***

The East Texas Farmworker Health and Safety Survey (ETFHSS) questionnaire was developed by the Texas Woman's University and Baylor University joint research team during 2002. In the spring and summer of 2003, this survey instrument was administered to a convenience sample of 297 hired farm workers living in one of seven East Texas counties, including Cherokee County. A total of 272 useable survey questionnaires were obtained from this sample. Several kinds of data were selected from the results of this survey for description and discussion of health-related characteristics of the hired farm worker population for this part of the dissertation study. The data selected, along with the rationale for the selections, are discussed below.

### ***Selection of Health-Related Characteristics***

The ETFHSS instrument included 19 sections and 344 separate items. Of the 272 study participants for which useable survey questionnaires were obtained, only 25% reported that they lived in Cherokee County. It was not known how many of those survey participants actually worked in the county. Therefore, the description of the health-related characteristics of the hired farm worker population discussed in this dissertation is based on the entire survey sample of East Texas farm workers, rather than those identified as living in Cherokee County. All participants, however, resided in counties in East Texas and within 50 miles of Cherokee County.

The rationale for selection of specific health-related characteristics for this study was based on several factors. Because the enumeration component involved immigrants,

who compose the majority of farm workers in Cherokee County and in East Texas and who are undercounted, it was decided that the characteristics selected should be primarily those related to the immigrant status of the group, as well as those that relate to findings in the enumeration component. In addition, in selecting which health-related characteristics to examine, consideration was given to some of the voiced interests of community stakeholders and to research team members. Several of the stakeholders in the community have expressed an interest in the legal status of the farm workers, and in fact, many have expressed the opinion that “all” of the workers are “illegal.” Diabetes was mentioned more than any other condition as being a problem among farm workers. For these reasons, these two measures were selected in response to this expressed interest in the community. Several items, in particular those related to stress, have already been analyzed in the Bates (2004) study.

The selected survey items were categorized into three groups: basic demographic characteristics, health status characteristics, and acculturation characteristics. The assumption is that all of these items either directly or indirectly relate to health outcomes of this population. Table 4 summarizes the categories, the characteristics, and the specific related questions (numbers in brackets) from the ETFHSS instrument (see Appendix D).

The *basic demographic characteristics* category includes the variables of a) gender, b) age, c) country of birth, d) city/town of origin (if born in Mexico), e) category of agricultural work, and f) migrant/seasonal farm worker status. The age, gender, agricultural work category, and migrant/seasonal farm worker status are included for comparison with the enumeration component findings, which also includes these



variables. The information concerning the specific region in Mexico where participants were born was selected for discussion because often the issue of so-called transplanted “little Mexico” communities is brought up in conversations about immigrants, and because information about the health conditions prevalent in specific sending communities may be important in health assessment and planning.

The *health status characteristics* category includes four items: health insurance status, diagnosed diabetes, diagnosed obesity, and perceptions about personal health. These were selected because: a) having health insurance appears to be an important predictor of health status; b) it is well documented that diabetes is a major health problem among Hispanics from Mexico and that obesity is becoming a serious health concern among Hispanic children; and c) data about participants’ perceptions about their own health can be compared to non-farm-workers’ perceptions, such as those of employers (collected via the enumeration component of this dissertation study).

The *acculturation characteristics* category includes four items: a) length of time in this country, b) language spoken in the home, c) money sent to home country, and d) legal status (implied). These may be considered reasonable indicators of the degree of assimilation into the dominant culture. Language fluency and length of time in the dominant culture are commonly used as indicators of acculturation in social research. Legal status also seems to be a reasonable indicator of acculturation for this population, based on the assumption that persons who are documented have gone through a process that involves contact with authorities, and are therefore further integrated into the

**Table 4**

**Health-Related Characteristics Selected for Analysis from the East Texas  
Farmworker Safety and Health Survey**

**1. Basic Demographic Characteristics:**

gender (#209)  
age (#210)  
country of birth (#222)  
city/town of origin (if from Mexico) (#223)  
category of agricultural work (#251)  
migrant/seasonal farm worker status (#256 & #261).

**2. Health Status Characteristics:**

health insurance (#58)  
perceptions about own health (#24)  
diabetes and obesity conditions (#66-#76)

**3. Acculturation Characteristics:**

length of time living in U.S. (#224)  
language spoken at home (#238)  
money sent to home country (#255)  
legal status (implied) (#158 & #162)

dominant culture than those who live in the U.S. illegally. The legal status of participants in the ETFHSS study can only be inferred, as no direct question was asked about this.

Two questions asked about the respondent's worry about deportation or about working in this country. An affirmative response was taken to imply undocumented status.

**Data Analysis**

To address the research questions posed for the health-related characteristics portion of this study, descriptive statistics were calculated using SPSS statistical software. These results are presented and discussed in Chapter IV.

## CHAPTER IV

### RESULTS

In this chapter, the results of the two parts of this research study are presented: the enumeration results, and results of the health-related characteristics analysis of the selected ETFHSS data. Together, these results will provide an overview of the numbers of hired farm workers in Cherokee County, Texas, as well as some of the health-related issues they are facing.

#### **Enumeration Results**

For results of the enumeration part of this study, agricultural (farm work) activities are categorized by product type (or activity), including the following: horticulture (plant farms), beef and dairy farms, poultry farms, mixed farms, and logging/lumber enterprises. Data for each agricultural category are presented separately, and then summarized in the final section. The farm worker estimates include the largest number of hired farm workers who were working at peak periods in Cherokee County during the study period that began in May, 2003 and ended in October, 2004. Additional data collected during the study are presented for comparison purposes, and may also be of interest for further research. The qualitative data collected regarding the respondents' perspectives about the health of the hired farm workers are provided at the end of each agricultural category. For this study, the plant farm operations were categorized into eight regions, using the major towns and highways as reference points.

## **Horticulture (Plant Farm) Workers**

### ***Enumeration***

A total of 32 small plant farms, 10 medium-sized plant farms, and 6 large plant farms were engaged in horticulture in the county, and employed an estimated total of 880 workers. For the purposes of this study, farms were considered *small* if between 1 and 10 workers were employed, *medium* if between 10 and 49 workers were employed, and *large* if more than 50 workers were employed. About 66% of the 880 workers were employed by the 6 large plant farms, 19% were employed by the 10 medium-sized plant farms, and the remaining 15% were employed by the 32 small farms (see Table 5).

The total number of operating greenhouses in Cherokee County in 2003-2004 was estimated to be 1,500. Each greenhouse encloses about 2,000 square feet, which translates into about three million square feet of growing space. According to J. Daniel (personal communication, September 5, 2003), the horticultural extension agent for the county, one worker is able to “handle” about four greenhouses, but this varies greatly depending on the type of plants grown. The majority (75%) of the plant farms in

**Table 5**

**Estimated Numbers of Hired Plant Farm Workers by Farm Size**

<b>Plant Farm Size</b>	<b># of Plant Farms</b>	<b># of Plant Farm Workers</b>	<b>% of Total Plant Farm Workers</b>
Small (1-10 workers)	32	129	15%
Medium (11-49 workers)	10	170	19%
Large (>50 workers)	6	81	66%
Total	48	880	100%

Cherokee County produce bedding plants, most of which are were grown from seed, although some farms produce plants propagated from cuttings (geraniums, for example), which are more labor intensive. Three farms produce vegetables exclusively, one produces herbs exclusively, and one specialized in “holiday plants,” including Easter lilies and poinsettias.

### ***Migrant/Seasonal Status of the Plant Farm Workers***

It is not possible to accurately estimate the numbers of plant farm workers in Cherokee County who would be considered migrants, but reasonable inferences may be made, based on local school district data. According to those school records for the 2003 school year, 59 children in the county were identified as “migrant” by their parent or guardian. If each of these children had one sibling attending the same school (or another school in the county), then about 30 parents would be represented. This would translate into a total of 90 migrant farm workers (30 workers plus 59 children), according to the USDA definition. This number would represent about 10% of the farm workers n the county. One school principal who was interviewed stated that he thought that the school administration did not do a good job in identifying migrant families – not emphasizing the importance of this designation to the parents. In addition, there is no way of knowing whether these children and families actually live a migrant life and are in the county only briefly, or if they have come here recently to settle, and do not plan to migrate for work. Nationwide, only 60% of farm workers migrate (Saltones, 2001), but the situation in Cherokee County regarding this migration issue is not known at this time.

According to several employers and employees, as well as Mr. Daniel, only 18 (38%) of the 48 plant farms are open year round. The remaining 30 (62%) are open seasonally, many employing workers from six to nine months of the year, depending on the product. The year-round farms employed a total of 610 workers, while the seasonal farms employed about 270 workers (see Table 6). However, the farms that were open year round employed only about half of their workers for the full 12 months of the year. Most farms laid off workers for at least three months of each year, and some farms, for six months or longer. Seasonal numbers were calculated by counting total number of workers employed at seasonal farms and adding 50% of workers employed at year-round farms who only worked part of the year (seasonally). It is likely that the seasonal number would include the migrants discussed above. A conservative estimate would be that at least 65% (575) of the 880 horticultural workers would be classified as seasonal or migrant workers.

**Table 6**  
**Estimated Numbers of Plant Farm Workers Employed as Year-Round**  
**or Seasonal Workers**

Period During Which Plant Farm is Open	# of Plant Farms	Total # of Plant Farm Workers	Estimated # and % of Total Plant Farm Workers Who Work on a Seasonal Basis
Year-Round Farms	18	610	305 (50%)*
Seasonal Farms	30	270	270 (100%)
Total	48	880	575 (65%)

\*Represents the percentage of the 610 workers who are employed on year-round farms, but work only part of the year, i.e., on a seasonal basis.

### ***Demographics of the Plant Farm Workers***

**Gender.** Nationally, about 60% of the horticultural industry workers are males. The plant farms in Cherokee County appear to reflect this ratio, according to all persons interviewed for this part of the study. Therefore, it was estimated that approximately 352 females were employed at the plant farms (40% x 880).

**Age.** Specific information about age of plant farm workers was not available but most interviewees and other knowledgeable persons stated agree that most are between the age of 25 and 45. One interviewee stated that “few workers are over 50 years old.”

**Country of Birth.** The great majority of the workers were Hispanic, and were assumed to be from Mexico by all employers or their representatives who were interviewed, and by other knowledgeable persons in the community. No records of country of origin are kept at the plant farms. One minister interviewed said that several members of his congregation were from El Salvador, but he was uncertain about where they worked. In the Bates (2004) study conducted in East Texas, 76.1% of the participants indicated they were from Mexico; 14% did not respond to the question about birthplace, but only 1% indicated they were born in the United States, and 1.1% in Central America. It seems likely that most of the non-responders were also born in Mexico. According to the NAWS study (2000), 94% of farm workers in the United States are native to Mexico.

**Health Insurance.** According to the employers who were interviewed and the workers themselves, few (less than 1%) of the plant farm workers have health insurance, although, according to two interviewees, it is offered to workers by the larger farms.

According to employers or their representatives, the reason for rejecting the health insurance option is that the workers think the premiums are too expensive, even for themselves, and definitely too expensive to cover their spouses and children. Two workers stated that they thought many employees did not want to be required to fill in any more forms than necessary, as they were concerned that their names may be available to “authorities”.

***Plant Farm Employers’ Perceptions of the Health Status of Hired Farm Workers***

All plant farm employers or their representatives who were interviewed for the enumeration research were asked the following questions:

*“What are your perceptions about the health of the workers, and their families? Are there any specific health problems that you have noticed, or that concern you?”*

The majority (5 of 8) of those interviewed did not readily respond to these questions, and when pressed, simply stated that they had not noticed any particular problems. Two stated that they thought the workers were “very healthy.” One owner of a small vegetable farm voiced concern about vision problems among some of his workers, who he said “don’t seem to be able to see the peas very good.”

***Other Health-Related Information Provided***

No direct questions were asked during employer interviews about pesticide use at the plant farms, but during the course of the research, information on this workplace hazard was gathered incidentally. According to Mr. Daniel, the term “pesticide” includes insecticides, fungicides, and plant growth regulators. Insecticides are used primarily in



vegetable and nut production, and growth regulators are used in floriculture primarily.

One plant farm worker voluntarily provided the researcher with a list of 14 different chemicals which she said were used at the bedding plant farm where she worked. Among them were diazinon (insecticide), two growth regulators, and various fertilizers.

Generally, each crop is sprayed once during the growth period for that crop (most plants are planted during three different times a year, to supply different planting zones). The warning signs regarding pesticide application were clearly displayed (English and Spanish) in the greenhouses about 60% of the time.

According to Mr. Daniel, many of the farm workers are required to wear protective equipment and clothing, but enforcement is lacking more than half of the time. One employee who was interviewed stated firmly that the workers are not specifically encouraged to “be careful” about chemical exposure and are “not taught very well” about the risks of exposure. Mr. Daniel stated that in the small enterprises, the owners usually apply the pesticides, and at the larger farms, specially trained workers do the application. Only about 85 of the 880 plant farm workers were involved in producing crops that would involve a significant amount of pesticides, including vegetable, nut, or fruit production.

During a drive through one of the mobile home parks near the town of New Summerfield after a heavy rainfall, the researcher noted that water was running down a slope from several greenhouses to the muddy yards around the mobile homes. The mobile home settlements are often located close to greenhouses, and it is possible that chemicals regularly find their way to children’s play areas.

There are a total of eight other large farms (other than plant farms) in the county hiring workers other than family members during the period of this study. Six of these were exclusively beef and dairy (combined) farming operations. Two were involved in mixed farming activities. One farm produced beef, but also produced fruit, nuts, grapes, and hay. The second produced fruit and nuts, and processed these products as preserves and other foodstuffs for shipping to markets both in and out of state.

### **Beef and Dairy Farm Workers**

#### ***Enumeration***

The six farms in the county that were exclusively beef/dairy farms employed approximately 40 hired farm workers (see Table 7). The information for the beef/dairy enterprises came primarily from one of the workers who is very familiar with all of the workers, and their families on all of the other farms in the county.

**Table 7**

#### **Estimated Numbers of Beef/Dairy, Poultry, and Mixed Farm Workers by Farm Type**

<b>Farm Type</b>	<b># of Farms</b>	<b># of Workers</b>
Beef/Dairy	6	40
Poultry	6	40
Mixed Farm	2	180
Total	14	260

### ***Demographics of the Beef and Dairy Farm Workers***

**Gender.** All beef/dairy farm workers are male.

**Age.** Most of the beef/dairy farm workers are in their twenties or thirties, but the range is about 20 to 70 years of age.

**Country of Birth.** Nearly all of the beef/dairy farm workers are Hispanic, with about 80% of them having been born in Mexico.

**Health Insurance.** No health insurance is provided at any these farms.

### ***Beef and Dairy Farm Employers' Perceptions of the Health Status of Hired Farm workers***

All beef and dairy farm employers or their representatives who were interviewed for the enumeration research were asked the following questions:

*“What are your perceptions about the health of the workers, and their families? Are there any specific health problems that you have noticed, or that concern you?”*

No responses to these questions were provided to the researcher from the interviewees.

### **Poultry Farm Workers**

The estimate for poultry workers was derived from several brief telephone conversations with three different persons who were unable or unwilling participate in face-to-face interviews. The information about numbers of workers was validated by all three informants, but the other information was provided by only one person, who voiced interest in the research project but responded “casually” when asked to confirm data already collected. Therefore, the accuracy of the data is uncertain.

### ***Enumeration***

It is possible that as many as 50 persons work on poultry farms in the county. This is a very rough estimate based on two brief conversations with an owner who had only general knowledge about operations other than his own. He stated that there were at about eight farms in the county, all owned independently. Two farms were described as “breeding farms” which handle fertilized eggs only. One was a “pullet” farm, handling hens only. And five are “broiler” farms where the chickens are slaughtered for market.

### ***Demographics of Poultry Farm Workers***

**Age.** No information about age of these workers was available. When asked, one respondent said “I can’t tell the age of Mexicans.”

**Gender.** No information about gender was available other than “hearsay.” The owner interviewed would answer only that “it really doesn’t matter” when asked about numbers of females. One informant felt that there were some female workers, but was not sure.

**Country of Birth.** All respondents said that the workers were “Mexican.”

**Health Insurance.** No information is available, but it seems unlikely that health insurance would be offered by these small farm owners.

### ***Poultry Farm Employers’ Perceptions of the Health Status of Hired Farm workers***

No information was collected about health perceptions for this farm sector.

## **Mixed Farm Workers**

### ***Enumeration***

Two other farms in the county employ hired farm workers. One large mixed farm which raises cattle and is involved in a variety of other farming activities, including fruit and nut production, and wine production, has operations in Cherokee County and other surrounding counties, and employs about 150 hired farm workers. The other farm is primarily a fruit and vegetable operation, growing the products and processing (canning and bottling) them for markets in and out of state, and employs about 30 hired farm workers. The total number of hired farm workers employed in mixed farm operations is about 180.

### ***Demographics of the Mixed Farm Workers***

**Gender.** The first mixed farm above employs equal numbers of males and females (75 each). Women do many traditional male tasks at that farm, including driving vehicles and feeding cattle. For the second mixed farm, about 75% (22) of the hired farm workers are females. The females working on that farm are involved in the food processing (cooking, bottling, and canning), while the males are involved in outdoor tasks (harvesting the fruit and nuts and trimming trees and bushes).

**Age.** The workers at both of the mixed farms are described as being in their twenties, thirties, and forties.

**Country of Birth.** Employees at both of the mixed farms are described by the owners as being Hispanics, predominantly from Mexico. No records are kept about place of birth.

**Health Insurance.** Both of the mixed farm interviewees stated that health insurance is offered to the workers. At the smaller fruit vegetable operation, no workers have accepted the insurance (been willing to pay premiums). At the larger operation, about 25% accepted the insurance, but only for themselves, not for other family members.

***Mixed Farm Employers' Perceptions of the Health Status of Hired Farm Workers***

Each of the mixed farm employers who were interviewed for the enumeration research was asked the following questions:

*"What are your perceptions about the health of the workers, and their families? Are there any specific health problems that you have noticed, or that concern you?"*

When asked these questions, the initial reaction by both employers was "no response," followed by "They are pretty healthy" by one employer, and "They are young and healthy" by the other.

**Lumber/Logging Industry Workers**

***Enumeration***

About eight lumber enterprises in Cherokee County employ hired workers (see Table 8). Four of these enterprises produce wooden crates or pallets (primarily from hackberry and oak timber) which are used to enclose or support various products during transport, such as appliances and building materials. Two other lumber enterprises process lumber for fencing (using creosoting or other treatments to the lumber) and four

**Table 8****Estimated Numbers of Lumber Industry Workers by Type of Business**

<b>Type of Lumber Industry Business</b>	<b># of Lumber Industry Businesses</b>	<b># of Lumber Industry Workers</b>	<b>% of Total Lumber Industry Workers</b>
Crates/Palettes	3	350	56%
Saw Mills/Wood Products	2	110	18%
Lumber Treatment	2	20	3%
Reforestation	1	20	3%
Other Peripheral	1	100	20%
Total	9	600	100%

are primarily saw mills, where logs are sawn into lumber to be distributed to building supply companies. According to the Cherokee County forestry extension agent, G. Atwood (personal communication, August 29, 2003), most of the tree planting for logging reforestation is contracted by a group of workers from out of state who usually bring their own workers, although sometimes these groups will hire local workers for a few weeks. The extension agent estimated that perhaps 10 to 20 of these workers might be hired during the year.

The palette/crate mills hire about 350; the lumber treatment businesses, about 25; the saw mills and other wood product producers, about 110; and “peripheral” lumber businesses (e.g., basketry), about 125. The number of workers employed in the logging/forestry industry appeared to be minimal, and was not validated; therefore, it was

not included in the final estimate. Based on these figures, the lumber industry in the county employs an estimated total of 625 hired workers.

### ***Demographics of the Lumber Industry Workers***

**Gender.** According to an employer representative at one of the larger mills, all of the workers in the lumber industry are male and predominantly Hispanic, with the exception of one of the “peripheral” industry business related to lumber – a basket factory – where about 50% of the workers are female.

**Age.** No specific information was offered about age, other than statements suggesting that the workers are “younger, in general.

**Country of Birth.** According to an employer representative at one of the larger mills, all of the workers in the lumber industry are predominantly Hispanic.

**Health Insurance.** No health insurance benefits are provided at these worksites.

### ***Lumber Industry Employers’ Perceptions of the Health Status of Hired Farm Workers***

All lumber industry employers or their representatives who were interviewed for the enumeration research were asked the following questions:

“What are your perceptions about the health of the workers, and their families? Are there any specific health problems that you have noticed, or that concern you?”

Only two of those interviewed in the lumber industry made any comment about health concerns for their workers. One owner stated that he had several workers who said they were diabetic, and came into his work area at lunch to take their medicine. He added that “they get their medicine in Mexico.” Another employer representative at a pallet mill



stated that diabetes was also a problem among his workers (although he knew of only one diabetic worker currently), and that he was worried about tuberculosis, as one of his workers had to “take the medicine for TB about a year ago.” He also stated that the most common complaint that he had heard was “headaches.”

### **Day Haul Workers (“Liebres”)**

Only one pick-up site for “day haul workers” (“liebres”), located in the city of Jacksonville, was observed for this study. This site is the best known one in the county, and is where the largest number of workers congregate. Two different observers visited the site on three different occasions, and counted the number of workers waiting each time. The observation period was between 7 and 9 AM on two Wednesdays, two Fridays, one Monday and one Saturday. Based on these observation periods, the average number of day haul workers at the largest pick-up site was about 25 on each day. According to several members of the Hispanic community in Jacksonville, who were asked specifically about the liebres, there are other pick-up sites in the county, but the location changes periodically, and there is no reliable information about numbers at these locations. They indicated that there may be “many more” workers waiting at 6 AM on some days. The day-haul operation is dynamic, and numbers often change significantly from day to day, or week to week, depending on information circulating among the workers about the presence of immigration officers in the area, and on the labor demand at the time.

Most of the interviewees who were questioned about the day-haul workers, in general, felt that the liebres were very recent immigrants who had not yet had the opportunity to obtain more permanent work. It is not known how many would be likely to

work in agriculture as opposed to construction or other occupational categories.

Consequently, the number of these liebres was not included in the in the farm worker enumeration for this study. In addition, little is known about the health of this group, but they are often picked up to perform very heavy work, such as building fences, clearing pastures, helping with cattle vaccinations and such, so it is likely that they would tend to be relatively young, strong, and healthy. No women have been observed participating in day-haul operations.

### **Results from Other Data Sources**

In addition to the employers, their representatives, and agricultural extension agents who were interviewed as sources for the enumeration and health-related information presented above, representatives of churches and schools in Cherokee County were also contacted as potential sources of enumeration and health-related data.

#### ***Churches***

The churches in general were not good sources of specific information about the number of farm workers, nor for details about their health. The ministers and pastors, who were interviewed briefly and informally, did not seem particularly knowledgeable about health status of the congregation in general, nor about the places of employment of the congregants, except in a very general way.

#### ***Schools***

Schools also were not particularly good sources of information about numbers of workers, as there was no access to information which would indicate where parents were employed. School personnel were valuable, however, as validators of information about

numbers employed in various agricultural enterprises in their districts. Relative to health, school nurses provided information about the general health of Hispanic students, and how their health compared with Anglo students. None of the nurses indicated that the health of Hispanic children differed significantly from that of other children, except that one nurse did state that she was concerned about higher obesity rates among Hispanic children at her school district (Jacksonville). The nurse at the New Summerfield School did not think obesity was a particular problem among her students, who are primarily Hispanic. A brief observation by the researcher during the lunch period seemed to confirm the nurse's perceptions, as few of the children were noticeably obese.

One piece of information was valuable for the enumeration – the number of students who were identified as “migrant.” The total number of students in this category was 59. One principal stated that he believed there were actually more migrant children than the records indicated, because “they [meaning the school administrators] don’t do a very good job with this,” suggesting that many parents do not complete these forms accurately.

### ***Social Service Agencies***

The major social service agency in the county is located in the city of Jacksonville and provides food and other emergency type services primarily to indigent persons in the county. One service is providing assistance to persons in need of prescribed medication who cannot afford to purchase it themselves. According to records reviewed by an agency administrative assistant, about 75% of the requests made by Hispanic individuals for prescription assistance was for diabetes medication.

### **Comparison With Other Studies**

One secondary source used for comparison was the United States Department of Agriculture (USDA) agricultural statistics report for 2002. This report indicated that the total wages paid for hired farm labor in Cherokee County during that year was \$26,426,000. In the 2000 NAWs report, the average annual salary for hired farm workers was \$7500, based on 1997-98 data. In addition, the ETFHSS findings indicate that 61.5% of the study participants earned \$1,000 or less per month, or less than \$12,000 per year. Based on these findings, it seems reasonable to assume that the 2003 wages of Cherokee County farm workers was not more than \$10,000 per year, a number which is likely to be higher than the actual wages. This would mean that there are about 2,600 hired farm workers in the county, assuming that there are no outliers (a few persons earning a great deal more than \$2,000 per month) who would inflate the average wages. This estimate is close to the USDA 2002 report, which indicated that 2,453 hired farm workers working on 271 farms. The farms would include all farms – ranging from the smallest family-owned operation that might employ a non-family member once a year, to the largest operations employing hundreds of workers.

A rough estimate of the numbers of plant farm workers in the New Summerfield area was conducted by this researcher during the summer of 2002 using data supplied by an administrative assistant at the New Summerfield City Hall. At that time it was estimated that there were over a thousand workers employed in the plant farm operations within a 10-mile radius of the city. This number was validated by a farm owner who worked for the city.

## **Summary**

The enumeration profile indicated that the total number of hired farm workers employed in Cherokee County during the period of this study (May 2003 through September 2004) is estimated to be 1,750 (see Table 9), and that perhaps as many as 1,000 or more non-farm-workers live in farm worker households. The horticultural (plant farm) industry sector employs the most hired farm workers (50%), followed by the lumber industry (34%), the mixed farm industry (10%), and the beef/dairy and poultry industries (3% each). It is estimated that about 450 women are employed in agriculture in Cherokee county, and an additional 75 or more are employed in a lumber-related agribusiness.

Of the estimated 1,750 hired farm workers, 575 (33%) may be considered seasonal. All of the seasonal workers counted were in the horticultural sector, although it is possible that the other farm sectors employ some seasonal workers. Furthermore, it is likely that at least 800 persons could be identified as “migrant and or seasonal” hired

**Table 9**

**Total Estimated Number of Hired Farm Workers in Cherokee County by Agricultural Category**

<b>Agricultural Category</b>	<b># of Hired Farm workers</b>	<b>% of Total Hired Farm Workers</b>
Horticulture	880	50%
Beef/Dairy	40	2%
Poultry	50	3%
Mixed Farm	180	11%
Lumber	600	34%
Total	1,750	100%

farm workers, a number which includes non-farm-workers living in seasonal/migrant households. An additional 1,175 ( 1750 minus 575) actual farm workers, plus perhaps as many as 500 non-farm workers living in the farm worker households, translates into about 1,675 persons in that sub-group who are not migrants or seasonally employed. The total number of hired farm workers in the county, including household members, then, is estimated to be about 2,475. Of that total, 26% are women, the majority are relatively young, in their 30's, were born in Mexico, and 98% do not have health insurance.

Responses to the question asked about the employer's perceptions of the health of the farm workers indicated that they were generally perceived as a strong and healthy population. Diabetes was the problem mentioned most often during interviews.

In addition, general information about pesticide use and exposure, which was offered as unsolicited data during the course of the research, suggests that growth regulators are the most common chemicals used in the plant farms where bedding plants are grown, and insecticides are used in fruit and vegetable production. How many of these hired farm workers actually apply chemicals and do not wear protective clothing during the prescribed periods is difficult to ascertain, but it seems that safety policies are lax at many of the farms, especially the smaller ones. Some data regarding pesticide exposure were collected in the ETFHSS study, and will be discussed in the next section of this chapter.

### **Health-Related Characteristics Assessment Results**

The results for the assessment of health-related characteristics, which comprise the second part of this study, are based on the analysis of data selected from the East Texas Farmworker Health and Safety Survey (ETFHSS) survey project conducted by a joint team of health education researchers from Texas Woman's University and Baylor University during 2002-2003. The ETFHSS data were collected directly from the farm workers themselves through personal interviews, whereas the health-related information collected in conjunction with the enumeration part of this dissertation study was qualitative in nature, derived primarily from informal discussions with employers or knowledgeable persons.

The categories used for presentation of the health-related characteristics results are:

1) *basic demographic characteristics*, which includes gender, age, country of birth, city/town of origin, category of agricultural work, and migrant/seasonal farm worker status; 2) *acculturation characteristics*, which includes length of time living in this country, language spoken at home, income sent to home country, and legal status; and 3) *health status characteristics*, which includes health insurance status, diagnosed diabetes and obesity, and perceptions about personal health. When appropriate, and when information was available, comparisons were made with the results from this study for the Cherokee County enumeration (hereafter referred to as the "Cherokee County Enumeration Study - CCES") and with the results of the most recent (2000) National Agricultural Workers Survey (NAWS).

## **Basic Demographics**

### ***Gender and Age***

The ETFHSS responses indicate that the East Texas study participants, many of whom resided in Cherokee County, were comprised of about 60% males and 40% females. The age range varied widely, but the majority was under 35 years of age.

The CCES information also suggested that approximately 60% of the hired farm workers were male. Although no precise data about the age of the farm workers were obtained, the perceptions of most of the interviewees was that they were “mostly in their thirties.” The exception was in the beef/cattle sector, where an estimate made by an employee indicated an average age of 40 years, with a range of about 25 to 69 years of age.

The NAWS report indicated that 80% of the farm worker respondents were men, and that the average age of all respondents was 31 years.

A comparison of these three sources of gender and age data is provided in Table 10.

**Table 10**

### **Gender and Age of Hired Farm Workers in Cherokee County**

<b>Data Source</b>	<b>Age</b>	<b>Gender</b>
ETFHSS	Majority: < 35	60% males
CCES	Majority: In 30's	60% males
NAWS	Average: 31	80% males



### ***Country of Birth***

A little over three quarters (76.1%) of the participants who responded to the country-of-birth question in the ETFHSS indicated that they were born in Mexico, while 3% and 8%, respectively, indicated that they were born in Central America and the United States; 14% did not respond to this question.. This corresponds very closely to the NAWS results, which showed that 77% of the farm workers in the county were Mexican-born.

The CCES provided no actual counts of numbers of hired farm workers born in Mexico, but almost all of the interviewees expressed their belief that most of the workers were from Mexico. One church pastor stated that he had “several” persons from El Salvador in his congregation, but he did not know how many of these were farm workers.

A comparison of these three sources of country-of-birth data is provided in Table 11.

**Table 11**  
**Country of Birth of Hired Farm Workers**

<b>Data Source</b>	<b>Country of Birth</b>
ETFHSS	Mexico: 76.1%
CCES	Mexico: Most*
NAWS	Mexico: 77%

\* No actual count

### ***City/Town of Origin in Mexico***

There were 140 responses to the ETFHSS regarding city/town of origin in Mexico. Several responses were difficult to decipher. However, it appeared that over 50% of those born in Mexico came from the Central Mexico region (see Figure 3 above). Guanajuato (#11) was the state most represented.

The NAWS study did not collect this specific information from the respondents.

The CCES interviewees were not able to provide specific information about regions of origin of the workers. However, as mentioned earlier, many knowledgeable persons, including the workers themselves, have indicated anecdotally that many of the plant farm workers are from Guanajuato (M. Arredondo, personal communication, April, 5, 2004).

### ***Category of Agricultural Work***

Over half (57.3%) of the ETFHSS respondents indicated that they worked in the horticulture sector, including plant farms (49.6%), fruit farms (4.8%), and field crop farms (2.9%). Another 33.1% reported that they worked in other agricultural sectors, including livestock farms (10.7%), logging (10.5%), packing and canning (9.2%), poultry farms (2.9%), fish farms (.7%), and other agriculture-related work (1.1%). An additional 9.6% indicated they worked in some other non-agriculture-related type of work (which most likely reflected a second job that supplemented their work in agriculture).

The CCE study also indicated that the majority (over 50%) was employed in horticulture, but its definition of horticulture included floriculture (landscaping plants and flowers) farms, vegetable farms, fruit and nut farms, and processing operations. The greatest difference between the ETFHSS results and the CCES results was in the logging

(lumber) sector, in which the CCES estimate was that about one-third of the hired farm workers were employed in some aspect of the lumber industry, while only 8.5% of the ETFHSS participants identified that category of agricultural work. It may be the differences lie in the definition of “logging,” or that there are relatively more logging enterprises in Cherokee County than in East Texas as a whole. In the ETFHSS study, since 10.7% of participants indicated they were employed in “other related farm work” or “other,” it is possible some of the “other” jobs may have been in the lumber industry.

A comparison of these three sources of data on category of farm work is provided in Table 12.

**Table 12**

**Hired Farm Worker Occupation by Category of Farm Work**

<b>Category of Farm Work</b>	<b>% of workers (ETFHSS)</b>	<b>% of workers (CCES)</b>
Plant Farm	49.6%	50%
Field Crops	2.9%	*Incl.hort.
Fruit Farm	4.8%	Incl.hort.
Livestock	10.7%	2%
Poultry	2.9%	3%
Fish Farm	.7%	0%
Packing and Canning	9.2%	Incl.hort.
Logging	8.5%	34%
Other Farm-Related	1.1%	11%
Other	9.6%	NA

\* Included in horticulture

The NAWS study population consisted of crop workers only, including horticulture, which accounted for 14% of the farm workers.

### ***Migrant/Seasonal Farm Worker Status***

The CCE study indicated that about 65% of the workers are seasonally employed and that at least 10% of all farm workers are migrants. The methods used to arrive at this number were discussed above under the enumeration section in this chapter.

The ETFHSS included three items that relate to migrant and seasonal status: months worked out of the year, whether the worker spent at least one night away from home for farm work, and whether the worker crossed the border regularly to do farm-related work. The responses indicate that about 20.9% may be in the “migrant” category based on the “night away from home” criterion. The responses to the other related question regarding regular border crossings to do farm work indicated that 7.9% reported that they do so. The responses to the seasonal work question indicate that about 32.4% are in this “seasonal” category (worked less than 12 months of the year). There is a difference of about 33% between this study and the CCE study for the percentage of seasonal farm workers employed in the county. It is possible that the ETFHSS participants who indicated they worked year-round were not employed at the same place for the entire year. The differences may lie in the different methods used to obtain the data and in the different definitions for migrant labor.

The most recent NAWS study (2000) indicates that 56% of all farm workers in the United States migrate. However, the definition for migration is rather complex, and is an expanded version of the USDA definition used in the Larson study, for example. The

migration referred to in the NAWS study takes two forms: shuttle migration and follow-the-crop migration. Shuttle migrants may have a home base in this country or abroad. The NAWS study found that 42% of farm workers had a home base abroad.

Without further study and clarification of terms, it is not possible to compare these studies in any meaningful way.

Table 13 summarizes the migrant and seasonal farm worker status for the ETFHHS participants.

**Table 13**  
**Migrant and Seasonal Farm Worker Status by Months Worked, Spent Night Away to Work, and Regularly Crossing the Border to Work**

Category	n	% of Respondents
<b>Months Worked per Year</b>		
12 months	171	67.6 %
6-12 months	71	28.1 %
Less than 6 months	11	4.3 %
<b>Spent Night Away from Home for Farm Work</b>		
No	197	79.1 %
Yes	52	20.9 %
<b>Crossing Border to Do Farm-Related Work</b>		
No	219	92.4 %
Yes	18	7.6 %

## **Health-Related Characteristics**

### ***Health Insurance***

About one-fourth of the ETFHSS participants (25.7%) stated that they currently had health insurance in the U.S., and 4.4% indicated that they had health insurance in their home country.

In the Cherokee County enumeration study, two of the plant farm enterprises and one mixed farming enterprise offered health insurance to employees. However, according to two employers, very few choose the health insurance option. In fact, one owner's representative felt that when the topic of health insurance was presented to workers, many did not understand what was being offered to them. At the mixed farming enterprise, the farm representative reported that about 25% choose to pay the health insurance premiums – at least for themselves, but fewer pay for family coverage because of the expense. Overall the CCE study indicated that at most, 6% of the hired farm workers in the county had health insurance.

In the NAWS study, only 5% reported having health insurance, while 83% said they had no health insurance coverage, and 12% said did not know if they currently had health insurance.

A comparison of these three sources of health insurance data is provided in Table 14.

**Table 14**

**Health Insurance Coverage**

<b>Data Source</b>	<b>Health Insurance</b>
ETFHSS Study	25%
CCE Study	6%
NAWS	5%

***Diabetes***

According to the ETFHSS results, about 4% of the respondents indicated that they had “experienced” diabetes. In addition, 4.8% indicated that they had siblings with diabetes, and 12.5% reported that they had a parent with the disease (see Table15). In the Cherokee County enumeration study, diabetes was one of the most common health concerns mentioned by employers and other knowledgeable persons interviewed.

**Table 15**

**Reported Diagnosis of Diabetes Among Respondents, Siblings, and Parents**

<b>Person Diagnosed w/Diabetes</b>	<b>n</b>	<b>% of Respondents</b>
Respondent	11	4.0%
Siblings	13	4.8%
Parent	34	12.5%

### ***Obesity***

The ETFHSS, 8.1% of the respondents reported being diagnosed as obese. In addition, 3.3% reported that their spouse was diagnosed as obese, and 4.8% indicated that at least one of their children had been diagnosed with obesity (see Table 16).

The CCE study likewise showed that obesity among Hispanic children is a major concern, according to one of the school nurses interviewed ( J. Maddox, personal communication, November 11, 2003) who worked at the largest school district in the county. She had no available statistics at the time of the interview, but stated that she was “sure” that obesity was a problem. Adult obesity was not mentioned as a health concern among other study participants.

The NAWS study did not address specific health conditions.

**Table 16**

#### **Reported Diagnosis of Obesity Among Respondents, Spouses, and Children**

<b>Person Diagnosed w/Obesity</b>	<b>n</b>	<b>% of Respondents</b>
Respondent	22	8.1%
Spouse	9	3.3%
Children	13	4.8%

### ***Perceptions of Overall Health Status***

Regarding perceptions of overall health status, the ETFHSS results indicated that 68.3% of the respondents felt that they were in good health (41.9%), very good health (18.1%), or excellent health (10.2%) (see Table 17). Overall, more than two-thirds (70.2%) perceived themselves to be in at least good health.



**Table 17**

**Perception of Overall Health Status**

<b>Perceived Health Status</b>	<b>n</b>	<b>% of Respondents</b>
Good	111	10.2 %
Very Good	48	18.1%
Excellent	27	41.9%
Total	186	70.2%

**Acculturation Characteristics**

***Length of Time Living in U.S.***

The ETFHSS study indicated that about one in five (21.6%) of the participants reported that they had been living in the U.S. for two years or less (i.e., “newcomers”), while 35.4% said they had been here for more than 10 years (i.e., “acculturated”) (see Table 18).. These findings indicate that the East Texas farm worker population has about 11.4% fewer “newcomers” and 3.4% more “acculturated” workers than the overall U.S. farm worker population.

The NAWS report indicated that about 33% of immigrant farm workers were “newcomers,” and that 32% were “acculturated” (see Table 18).

**Table 18**

**Newcomers vs. Acculturated Farm Workers**

<b>Data Source</b>	<b>% “Newcomers” (Residing in U.S. &lt; 2 Yrs)</b>	<b>% “Acculturated” (Residing in U.S. &gt; 10 Yrs)</b>
ETFHSS	21.6%	35.4%
NAWS	33.0%	32.0%

### ***Language***

The majority (60.8%) of the ETFHSS participants indicated that they typically spoke only Spanish in their homes, while 9.8% typically spoke only English, and 29.4% typically spoke both Spanish and English (see Table 18). In addition, 81% of the participants indicated that they preferred to have the ETFHSS interview conducted in Spanish.

The NAWS study did not specifically address the language spoken in the home, but it did indicate that less than 5% of the Mexican-born and other Latin American-born farm workers reported that they could read and speak English well.

**Table 19**

#### **Language Typically Spoken at Home**

<b>Language Typically Spoken at Home</b>	<b>n</b>	<b>% of Respondents</b>
Spanish	165	60.8%
English	27	9.8%
Both	80	29.4%

### ***Money Sent To Home Country***

Responses to the ETFHSS item regarding money they sent to family in their home country indicated that over half (51.8%) of the workers send at least one-fourth of their income to their home country, which in most cases was Mexico.

Neither the NAWS study nor the CCES addressed this issue.

### ***Concerns About Legal Status***

Although no direct questions were asked about legal status, two questions in the ETFHSS addressed the issue indirectly. These questions asked respondents about their feelings of nervousness about working in this country, and about worry about being deported. Almost half of the participants (42.8%) indicated that they felt nervous sometimes about working in this country, and 11.2% felt nervous about that issue much or all of the time (see Table 20); 33.5% indicated that they worried sometimes about being deported, with 25.8% worrying much or all of the time about it (see Table 21).

The NAWS report indicated that about 52% of the farm worker respondents were undocumented. The CCES did not address this issue.

**Table 20**

#### **Nervous About Working in the U.S.**

<b>Nervous About Working in the U.S.</b>	<b>n</b>	<b>% of Respondents</b>
Never	115	46.0%
Sometimes	107	42.8%
Much of the time	10	4.0%
All of the time	18	7.2%

**Table 21**

#### **Worried About Being Deported**

<b>Worried About Being Deported</b>	<b>n</b>	<b>% of Respondents</b>
Never	95	40.8%
Sometimes	78	33.5%
Much of the time	10	6.9%
All of the time	18	18.9%

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, a summary and discussion of the study findings will be provided, followed by conclusions that were drawn from the study. Lastly, recommendations for further research will be presented.

#### **Summary of Study Findings**

##### **The Enumeration**

The enumeration profile derived from this study indicated that there were at least 1,750 hired farm workers residing in Cherokee County, and that perhaps as many as 1,000 or more non-farm workers lived in farm worker households. This brings the total number of hired farm workers, including non-farm workers living in the household, to 2,750. The horticultural sector hires the most workers (50%), followed by the lumber industry at 34%, the mixed farm industry at 10%, and the beef/dairy and poultry industries, both at 3%. Of the estimated 1,750 hired farm workers, 575 (33%) may be considered seasonal (n=515) or migrant (n=60). All of the migrant and seasonal workers counted were in the horticultural sector, although it is possible that the other farm sectors employ some migrant and seasonal individuals. For example, one enterprise that produces baskets hires workers on a full-time basis, but it is expected that many will be laid off during “down” periods.

Based on the numbers of horticultural enterprises that are open less than 12 months of the year, it is possible that at least 800 persons (of the 2,700 total) may be categorized as

migrant and seasonal workers. This leaves about 1,900 farm workers (including household members) who would be considered to be employed on a full-time basis. Of the 1,750 employed farm workers, 452 (26%) are women, the majority are from Mexico, and 98% do not have health insurance.

Responses to the qualitative question asked about the health of the farm workers, indicated that they were generally perceived as a strong and healthy population. Diabetes was the problem mentioned most often during interviews. General information about pesticide use and exposure, gathered during the course of the research, suggests that growth regulators are the most common chemicals used in the plant farms where bedding plants are grown, and that insecticides are used in fruit and vegetable production. How many hired workers actually apply chemicals and do not wear protective clothing during the prescribed periods is difficult to ascertain, but it seems that rules are lax at several farms, especially the smaller ones.

These estimates are based on a total of 27 face-to-face interviews with owners, employers, employer representatives, supervisors, and/ or other knowledgeable persons in the communities where the workers and their families live and/or work; on an additional 12 shorter interviews which were conducted either in person or by telephone; on actual observation of workers and/or farm products and equipment (such as greenhouses); and on reviews of existing documents (as described in Chapter III) that relate to and/ or validate these numbers. The process covered a period of about 15 months from July of 2003 until October of 2004.

### ***Comparison with Larson Study and the ETFHSS Study***

The Larson study, published in 2000, based on 1997 and 1998 data, estimated that there were 279 migrant and seasonal workers in Cherokee County, of which 159 were migrant workers and 120 were seasonal workers. The study further estimated that there were 94 non-farm workers in migrant households and 160 non-farm workers in seasonal households, for a total of 534 farm and non-farm migrant and seasonal workers.

The ETFHSS study, conducted in 2003, indicated that 32% of the participants were employed less than 12 months of the previous year. If this percentage was similar in Cherokee County, then there would be approximately 560 seasonal workers in the county, and if each had at least one dependent, then there would be a total of 1,120 in that category.

There is no clear explanation at this time as to why the Larson study found significantly more migrant workers than seasonal ones, while this dissertation study found the reverse, i.e., more seasonal workers than migrant workers. As mentioned earlier, in a report by Sologaistoa (2004) presented at the National Advisory Council on Migrant Health in April 2004, the speaker suggested that number of farm workers was not accurately estimated for Florida using the indirect methods of the Larson enumeration study. This issue will be explored in greater detail later in this chapter.

### ***Issues Potentially Affecting the Study Outcome***

Although these findings support the anecdotal information and impressions among professionals and others in the community, that the number of migrant and seasonal farm workers and dependents in the county exceed the numbers found in the Larson study

done in 2000, it is difficult to compare the two enumerations because this dissertation study approached the enumeration differently. In this study, a more “grass roots” approach was used to arrive at seasonal and migrant numbers, and it was conducted about five years later than the Larson study. However, assuming that only horticultural work is seasonal in the county, and estimating that about 65% (575) of the horticultural workers are seasonal, and that these include *at least* 30 migrant workers (based on school data), then one would still arrive at a larger number than the 279 workers estimated by Larson. According to the ETFHSS study, 42% of those participants lived with children, and about 45% were either married or had a live-in partner. If these numbers hold true for Cherokee County, this would translate into at least 220 children and perhaps as many as 220 spouses or partners, which would result in about 880 migrant/seasonal farm workers, including live-in family members. This contrasts with the 534 total of the Larson study.

The spouse or partner issue is difficult, in that they both may be farm workers. If one assumes that half of the spouses or live-in partners are also farm workers, and half are not employed or are employed in non-farm worker occupations, and that half have at least one child living with them, this would translate into a total of 760 migrant and seasonal farm workers – a number which includes the workers themselves plus about 330 non-farm worker persons living in the farm worker households.

The final estimate for this study did not include workers who are employed in the many landscaping and yard maintenance enterprises that operate in the county. According to knowledgeable persons, most of these enterprises are operated by Hispanics, employ workers who speak Spanish are unable to speak English, and therefore likely to be recent

immigrants. It is not possible to know how many of these workers are also employed at the plant farms and do the landscaping work as a second job in the evenings, and perhaps on weekends. However, during the peak season, plant farm workers often work on Saturdays and Sundays, and sometimes into the evening, which would preclude second jobs during this time period.

The USDA statistics on hired farm labor in Cherokee County seem to support this study's findings. According to the USDA (2002) labor report, there are 2,100 hired farm workers in Cherokee County working on 1,508 farms. That number would initially seem at odds with this study's findings, which indicate about 2,750 farm workers non-farm workers living in the farm worker households. However, as mentioned in Chapter II, there are hundreds of farms in the county, many of which are very small – perhaps only a few acres. Many of these farms would rarely hire workers, and it is probable that those hired periodically would already be included among those working seasonally at plant farms and other farm enterprises.

There are other problems, however. There is no way of knowing at this time how many of the workers in the lumber industry are migrants. It is possible that several of the young single workers may work in logging for a time, and then perhaps move to work in another sector. The turnover rate in the lumber industry is reported to be about 50% (at least at one of the largest operations in the county), and the work is very heavy and difficult physically – especially in the hottest summer months and the cold wet winter months. It is likely that at least some workers migrate to other work settings during the course of a year. This situation may be true for other area workers. For example, the



construction industry traditionally employs workers who migrate to other areas, depending on the labor market. Construction workers are, of course, not part of the agricultural sector.

Only workers who worked in Cherokee County were counted in this study. Workers who may have resided in Cherokee County but worked in another county were not counted. Conversely, workers who may have been employed in Cherokee County but actually lived in another county were included. It is not known at this time whether the numbers would be a “wash,” i.e., that there are about equal numbers *living* in Cherokee County and working in another county compared to those *working* in Cherokee County and living in another county.

Of course, all of this is uncertain. The lives of many farm workers often span two countries, are often dynamic, and may involve a variety of living arrangements and complex relationships. Conclusions about numbers are tentative at best. As other enumeration studies have indicated, the task of counting people who live and work “in the shadows” is a daunting one, and fraught with both expected and unexpected challenges.

Because the study population is often perceived as living a life that is “extra legal” or “illegal,” persons asked to provide information about this population may have felt threatened or anxious that they themselves may suffer negative consequences from participation in a study of this kind. For this reason, it is possible that not all participants responded truthfully or accurately to the interview questions. The interview method varied from informal, to unstructured, to semi-structured, depending on the initial responses of the participant. The interviewer was required to “feel out” the attitudes of

the participant in order to obtain the desired information, and to assure that the respondent would be as forthcoming as possible during the process. Although every effort was made to clarify the questions, it is possible that for reasons of anxiety or suspicion, the questions may not have been completely understood by participants.

Many of the interviews for this project took place in less than ideal settings, often at very busy worksites. Although the researcher carried a notebook and pen, they were not always used during the interview, either because there was no place available to write or because the researcher sensed that a notebook may be viewed with suspicion or anxiety by the respondent. When the researcher had to depend on memory, although notes were made soon as possible after the interview was completed, it is possible that there were inaccuracies due to this situation.

This enumeration allowed the researcher to become much more knowledgeable about the complexities of the farm worker culture, and to more deeply understand both the strengths of this population, and the specific problems they face each day, at work and at home. The enumeration process, and in particular, the interview work involved, provided an opportunity for the researcher to understand, in a practical sense, the importance of the framing of interview questions, the need for thoughtful flexibility in the interview approach, and the necessity for probing effectively, to stimulate a respondent to produce more information. Of course, all of this had to be conducted within an atmosphere of mutual trust, which depended to a great extent on the willingness of community gatekeepers, and other knowledgeable persons to assist and support and often

encourage the researcher in the process. If anything, as Bernard (2002) states, “the key to successful interviewing is learning how to probe successfully” (p. 72).

During the course of the project, which took a little more than a year, there were some occurrences that made the task more difficult, and some that were helpful to the progress of the work. Among the events that slowed the progress of the work was the October 2003 arrest of hundreds of undocumented workers at 61 Wal-Mart stores in 21 states, in an operation launched by the U.S. Department of Homeland Security on immigration charges. The investigation centered around Wal-Mart's use of janitorial contractors. The news of this event appeared to increase the anxiety of workers and employers. For example, in September of 2003, one employer's representative at a large plant farm operation had agreed to an interview during October with the author of this dissertation to discuss the numbers of employees at the farm and their health status. After three attempts late in October to schedule the interview, it became clear that the representative had lost interest in the interview. It is difficult to know how many interviews were lost because of the Wal-Mart event, and whether or not there was increased anxiety relative to interviews, but it seems likely that this was the case.

Other serendipitous events helped greatly in the data collection. Some involved simply being able to contact the “right person” at the right time. For example, the willingness to participate and the interest in the project by several county extension workers were important. One county extension agent, Mr. Daniel, was not only interested in the project and willing to spend several hours on three different occasions to provide enumeration information, but he had also been employed for several years at one of the

larger plant farm operations, and therefore had intimate knowledge about the businesses in the area and the workers. On another occasion, catching an employer who was not often in town, who happened to have a friend who had much experience with farm workers, and who he agreed to call to set up an interview, could only be seen as serendipitous. The worker estimate enumerated from the data for this study is a conservative one.

When an attempt was made to estimate the number of children and family members residing with workers, the estimate was even less certain. One problem was that it is likely that some spouses or partners worked at the same enterprise, so the number of family members may be overestimated. It was decided to use the 50% value (having children and/or living with spouse) to estimate the numbers of persons accompanying farm workers. There is no way at this time to know how accurate this number might be, because we do not know to what degree the Cherokee County population reflects national data, or even East Texas data, so it could be considered quite arbitrary. In addition, for the number in the sub-group who are not migrant or seasonal, it is problematic to use NAWS data as a basis for estimating the numbers in these households, because the NAWS data involves only crop workers. The Larson study used a fairly complex formula to estimate the numbers of non-farm workers living in farm worker households. This formula was based on the NAWS data, which indicated differences depending on whether or not the worker was migrant or seasonal; had many, some, or no children; and other details which are beyond the scope of this project

While it seems true that migrant and seasonal workers often live more difficult and tenuous lives than farm workers who are settled, it also seems that in many respects such categorizations seem arbitrary and meaningless, serving only to exclude other types of farm workers who may be equally needy. The fundamental issue for health professionals, it seems, is not whether farm workers are migrants or employed seasonally, nor whether they work on cattle or vegetable farms, or in saw mills, but whether they are poor, face cultural obstacles related to language and legal status, and as a result, experience negative health outcomes, most often related to lack of access to health services.

The qualitative data collected in this study, primarily from employers or their representatives, indicates that the employers perceive the workers as healthy, strong individuals with few obvious (to the employers) health problems. (Indeed, data from the ETFHSS indicated that over 70% of the participants also considered themselves to be in good health.) In several instances, it seemed that the interviewees had not considered the specific health issues or concerns of their workers. If the employers interviewed did acknowledge awareness of any health problem among the workers, diabetes was the most likely health issue to be mentioned.

Other knowledgeable persons in the county expressed various concerns about the health of the farm workers and their families. A school nurse was particularly concerned about obesity among Hispanic students at one school. Another school nurse who worked in the school district which served the largest number of Hispanic students in the county did not believe that obesity was a particular problem among her students. A local public health

physician was concerned about dental problems among the Hispanic women she cared for in a family planning program.

In summary, perceptions about the health of Hispanics in general and farm workers in particular were variable, and consequently the true extent of these problems is not known.

### **Health-Related Characteristics**

The second component of the study involved an analysis of selected health-related characteristics of the East Texas farm worker population, based on data from the East Texas Farmworker Safety and Health Survey (ETFHHS) conducted in 2003. The basic demographic characteristics suggest that the East Texas farm worker population is relatively young, about 60% male, and Mexican-born, with over 50% of the respondents reporting that they had come to the U.S. from the central region of Mexico. Relative to acculturation, a majority of the population speaks Spanish at home, are undocumented, and send money home regularly to Mexico. On average, they have been in this country somewhat longer than farm workers in this country as a whole. Relative to diabetes and obesity, they do not experience these conditions at higher rates than the U.S. population as a whole, but it appears that they have the potential for developing diabetes later in life, as over 12% reported that their parents had been diagnosed with diabetes. Even though most of the respondents reported that they do not have health insurance, and therefore lack regular access to health care, over 70% perceived their health status to be “good” or better.

## **Conclusions**

The purpose of this exploratory study was to conduct an enumeration of the hired farm worker population in Cherokee County, Texas, and examine health-related characteristics of that population. Based on the findings from this study, it appears that the numbers of hired farm workers, including their dependents, is at least 2,700, a very conservative estimate which seems to be supported by several information sources in the county.

Determining the numbers of migrant and seasonal workers remains problematic, and as discussed earlier, does not match the estimates provided in the Larson (2000) study, in some respects. Unfortunately, these numbers are important, in that funding for migrant health centers depends on the migrant and seasonal population, not on the numbers of farm workers as a whole. This study was not conducted in an attempt to challenge or refute the Larson study estimates, but as a way to approach the enumeration issue in a more direct manner, and to respond to community perceptions about the Larson estimates. Although the counts of the two sub-groups of hired farm workers (migrant and seasonal) differed from the estimates of the Larson study, this could be explained by the fact that the Larson enumeration was conducted over five years earlier, and it is possible that there were more migrant workers in the county then than now. It does appear that some of the larger farms have recently begun promoting a more permanent work environment by introducing benefits such as health insurance. These changes may have resulted in fewer temporary workers. In addition, according to the county horticultural extension agent, Mr. Daniel, plant farm tasks (such as planting seeds) have become

increasingly mechanized over the past five years or so, a situation which may require fewer low skilled temporary workers and more permanent workers trained to use the new technology.

It would seem that both approaches to the enumeration of farm workers have value. The Larson study approach is useful in that it utilizes data from which inferences can be made about the number of workers required for the production of particular products. In contrast, this dissertation study approaches the problem more directly, by examining the community “close-up,” so to speak. This approach has the potential for providing “thicker” or “richer” data, not only about the numbers of workers, but also about other aspects of agricultural work in particular communities. Obviously, the time involved in this more direct approach makes it impractical as an enumeration method when many regions are involved. However, it may be a reasonable and valuable method for validating more indirect studies.

Lastly, another important issue to be considered from this study, beyond the overall estimate of the number of hired farm workers in the county, is the temporary work status of many of the workers. Whether or not the temporary nature of the work is because of migration or because of the seasonal nature of their employment does not seem to be of any practical importance to the workers or to the community as a whole. Relative to overall health and well-being, temporary workers are likely to live more stressful lives than those who have a more predictable working situation. From a health standpoint, this is a major concern.



### **Recommendations for Further Study**

Many of the findings from this study suggest that further research is needed in order to significantly impact the health of this at-risk population that has been largely ignored by health professionals. There is little known about the nature and extent of pesticide exposure in the horticultural sector, and chemical exposure in the logging/lumber sector (creosote used to treat lumber, for example); about the risks of HIV and other sexually transmitted diseases; about the prevalence of obesity and diabetes; about the level of knowledge about these conditions; about attitudes and beliefs concerning health and illness; and about community attitudes towards this population – a factor which may indirectly affect their health and well-being in profound ways.

As discussed in the review of literature in Chapter II, definitions for agriculture and worker categories continue to be problematic. The comments of Offutt (2000) and Stallones (2002), about developing definitions that seem appropriate to address the problems of interest are valid ones, and should be further considered by researchers in the field. Many who work with farm workers believe that the current definitions for agriculture, and for migrant and seasonal workers, exclude many individuals who have common problems relative to current and potential health problems.

This exploratory study is but a beginning step in researching this population. In general, it produces more questions than answers, as is often the case with exploratory work. It provides a somewhat substantiated conservative estimate of the numbers of hired farm workers in only one East Texas county, and provides some general information about the health status of the farm workers in Cherokee County and in the East Texas region. There is

much potential and need for further research with this population. It is possible that, in time, health educators and researchers may be able to develop a trusting relationship with both employers and workers, which would allow for a cooperative effort to develop work site health promotion activities for this population, and provide a setting conducive to future research as well.

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## APPENDIX A

### TEXT OF ENUMERATION PARTICIPANT RECRUITMENT SCRIPTS

## **TEXT OF ENUMERATION PARTICIPANT RECRUITMENT SCRIPTS**

### **For Recruitment of Representatives of Agriculture-Related Businesses**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you employ migrant and seasonal farm workers at your business. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to your workers at [*Name of Business*] that would help me with this farm worker counting and to get some basic information on your perceptions of their health. I won't be asking for names or any personal identifying information about them – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

### **For Recruitment of Representatives of Churches**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you have migrant and seasonal farm workers as members of your congregation. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to those farm workers who are members at [*Name of Church*] that would help me with this farm worker counting and to get some basic information on your perceptions of their health. I won't be asking for names or any personal identifying information about them – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

#### **For Recruitment of Representatives of Community Services Agencies**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you have migrant and seasonal farm workers as clients of your agency. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to those farm worker clients at [*Name of Agency*] that would help me with this farm worker counting and to get some basic information on your perceptions of their health. I won't be asking for names or any personal identifying information about them – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.



If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

**For Recruitment of Representatives of Community Literacy Agencies**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you have migrant and seasonal farm workers as clients of your literacy agency. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to those farm worker clients at [*Name of Literacy Agency*] that would help me with this farm worker counting and to get some basic information on your perceptions of their health. I won't be asking for names or any personal identifying information about them – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

**For Recruitment of Representatives of the County Agricultural Extension Agency - Horticulture**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The

purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you deal with the horticulture industry in the local area where migrant and seasonal farm workers are commonly employed. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to the local horticulture industry that would help me with this farm worker counting. I won't be asking for names or any personal identifying information about these farm workers – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

**For Recruitment of Representatives of the County Agricultural Extension Agency - Forestry**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you deal with the forestry industry in the local area where migrant and seasonal farm workers are commonly employed. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to the local forestry industry that would help me with this farm worker counting. I won't be asking for names or any personal identifying information about these farm workers – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

### **For Recruitment of Representatives of Public Schools**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because you have children of migrant and seasonal farm workers enrolled in your school. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to the children of those farm workers enrolled at [*Name of School*] and their parents that would help me with this farm worker counting and to get some basic information on your perceptions of their health. I won't be asking for names or any personal identifying information about them – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

### **For Recruitment of Representatives of Local Newspapers**

Hello:

My name is Cheryl Cooper. I'm a nurse and a student at Texas Woman's University in Denton. I have worked at the Cherokee County Health Department for several years and often take care of people who work at the plant farms, logging operations, and landscaping and such.

As part of my dissertation research for a doctoral degree at Texas Woman's University, I am studying people who do farm work in Cherokee county. The purpose of

this study is to better understand the migrant and seasonal worker population who live and work in Cherokee County. Specifically, I'm trying to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health care needs.

I'm asking you to participate in this study because many of the readers of [*Name of Newspaper*] are migrant and seasonal farm workers. Your participation would involve my conducting a face-to-face interview with you to ask you some general questions related to those farm workers in the local community that would help me with this farm worker counting and to get some basic information on your perceptions of their health. I won't be asking for names or any personal identifying information about them – just some general questions. I'll also need for you to sign a form that indicates that you provide your consent for me to interview you and use your comments in the study.

If you would be willing to participate in this study, we can arrange a time and place for me to meet with you for the interview. Would like to participate?

APPENDIX B

INFORMED CONSENT FORM

## **INFORMED CONSENT FORM**

### **Texas Woman's University Consent to Participate in Research**

Title: Enumeration and Health-Related Characteristics of Migrant and Seasonal Farm Workers in Cherokee County, Texas

Investigator: Cheryl M. Cooper, RN, MSN, Doctoral Candidate, Department of Health Studies, Texas Woman's University. Telephone: 903-894-3774

Advisor: Robin Rager, Ph.D., Department of Health Studies, Texas Woman's University. Telephone: 940-898-2863

#### **Introduction**

The purpose of this study is to better understand the migrant and seasonal farm worker population who live and work in Cherokee County, Texas. Specifically, the study is designed to obtain an accurate count of the numbers of migrant and seasonal farm workers in the county, and to better understand their health-related needs. You are being asked to participate in this study because you have regular contact with the population of migrant and seasonal farm workers in Cherokee County and/or with their families.

#### **Procedures**

For this study, the investigator will conduct a face-to-face interview with you. This interview will be done at a location agreed upon by you and the investigator. If you agree to participate in this study, you will be interviewed by the researcher using a series of questions developed for this study about your perception of the number and demographic characteristics (such as age, gender, country of birth, etc.) of migrant and seasonal farm workers in Cherokee County. Depending on your particular association with this population, you may also be asked about your perceptions of the health of these workers and/or their families.

You will be audiotaped during the face-to-face interview, unless you inform the researcher that you do not wish to have your session audiotaped. The purpose of the audiotaping is to provide a transcription of the information discussed in the interview and to assure the accuracy of the reporting of that information. Your maximum total time commitment in the study is estimated to be approximately one hour.

#### **Potential Risks**

Potential risks involved with participation in this study include boredom or fatigue, and release of confidential information. To avoid fatigue, you may take or breaks during the interview as needed. Another possible risk to you as a result of your participation in this study is release of confidential information. Confidentiality will be protected to the extent that is allowed by law. A letter code name (e.g., Mr. A, Mrs. C, etc.), rather than your real name, will be used on the audiotape and transcription. Only the principal investigator and the study advisor will have access

to the tapes. The tapes, hard copies of the transcriptions, and the computer diskettes containing the transcription text files will be stored in a locked filing cabinet in the principal investigator's office. Files containing the audiotapes, notes, or transcriptions of the interview will be stored separately from the letter coding used to identify the participant.

It is anticipated that the results of this study will be published in the principal investigator's doctoral dissertation as in other research publications. However, no names or other identifying information will be included in any publication.

The researchers will try to prevent any problem that could happen because of this research. You should let the researchers know at once if there is a problem and they will help you. However, TWU does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

### **Participation and Benefits**

Your involvement in this research study is completely voluntary, and you may discontinue your participation in the study at any time without penalty. The only direct benefit of this study to you is that at the completion of the study a summary of the results will be mailed to you upon request.\* As an indirect benefit, it is hoped that the findings from this study can be used by the local community to improve the health and well being of the migrant and seasonal farm workers in Cherokee County, and ultimately improve the health environment of the community as a whole.

### **Questions Regarding the Study**

If you have any questions about the research study you may ask the researchers; their phone numbers are at the top of this form. If you have questions about your rights as a participant in this research or the way this study has been conducted, you may contact the Texas Woman's University Office of Research and Grants at 940-898-3375 or via e-mail at [IRB@twu.edu](mailto:IRB@twu.edu).

Your signature below indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the consent document, and that your questions have been satisfactorily answered. You will receive a copy of the signed and dated written informed consent document prior to your participation in the study.

Participant's Name (printed): \_\_\_\_\_

Participant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

The above consent form was read, discussed, and signed in my presence. In my opinion, the person signing said consent form did so freely and with full knowledge of its contents.

Investigator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

APPENDIX C

INTERVIEW QUESTIONS



## INTERVIEW QUESTIONS

### For Interviews of Representatives of Agriculture-Related Businesses

1. How many employees do you have?
2. What are the ages of your employees?

Number 18 – 20 yrs: \_\_\_\_\_  
Number 21 – 24 yrs: \_\_\_\_\_  
Number 25 – 29 yrs: \_\_\_\_\_  
Number 30 – 34 yrs: \_\_\_\_\_  
Number 35 – 44 yrs: \_\_\_\_\_  
Number 45 – 49 yrs: \_\_\_\_\_  
Number 50 and over: \_\_\_\_\_

3. How many (what percentage) are White, African American, Hispanic, Asian, or other racial/ethnic group?
4. What percentage of your employees were born in

The USA  
Mexico  
El Salvador  
Honduras  
Guatemala  
Other Country

5. How many are full-time employees?
6. How many are part-time?
7. Do you provide health insurance for your employees?
8. If yes, how many are currently insured?
9. What are your perceptions about the health of the farm workers you work with? Are there any specific health problems that you have noticed, or that concern you?
10. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County?

### **For Interviews of Representatives of Churches**

1. About how many in your congregation are employed in farm work?
2. How many children (of these farm workers) are in your congregation?
3. How many of the farm workers in your congregation are male? female?
4. How many (what percentage) are White, African American, Hispanic, Asian, or other racial/ethnic group?
5. What percentage of your employees were born in

USA?

Mexico?

El Salvador?

Honduras?

Guatemala?

Other Country?

6. How many of the farm workers in your congregation are here without on their own (without family members)?
7. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County?
8. What are your perceptions about the health of the farm workers you work with? Are there any specific health problems that you have noticed, or that concern you?

### **For Interviews of Representatives of Community Services Agencies**

1. How many persons who stated that they were engaged in farm work have applied for services here since the beginning of 2003?
2. How many (what percentage) are White, African American, Hispanic, Asian, or other racial/ethnic group?
3. How many requesting services are female? male?
4. What percentage of these applicants were born in

USA?

Mexico?

El Salvador?

Honduras?

Guatemala?

Other Country?

5. What is the stated area of employment of these applicants (e.g., plant farm, ranch, sawmill, etc.) of these applicants?
6. What kinds of assistance were requested for those who stated that they were farm workers?

7. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County?
8. What are your perceptions about the health of the farm workers you work with? Are there any specific health problems that you have noticed, or that concern you?

**For Interviews of Representatives of Community Literacy Agencies**

1. How many persons have been enrolled on ESL classes here since January 1, 2003?
2. What is the area (place) of employment of these persons?
3. Of those enrollees who are farm workers, how many are male? How many are female?
4. Is there anything else you could tell me that would help
5. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County?
6. What are your perceptions about the health of the farm workers you work with? Are there any specific health problems that you have noticed, or that concern you?

**For Interviews of Representatives of the County Agricultural Extension Agency - Horticulture**

1. About how many square feet of horticultural plants were grown under plastic and in fields in Cherokee County in 2002?
2. About how many acres of field crops are under cultivation in Cherokee County?
3. To ready these plants for market, from planting through readying for market, about how many hours of labor are required for each square foot (or other appropriate unit)?
4. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County?

**For Interview of Representatives of the County Agricultural Extension Agency - Forestry**

1. About how many acres of timber were planted last year (2002) in Cherokee County?
2. About how many acres of timber were harvested last year (2002) in Cherokee County?
3. Is there anything else you could tell me that would help me get an accurate count of the number of migrant and seasonal workers employed in the lumber industry in Cherokee county?

**For Interviews of Representatives of Public Schools**

1. About how many of the students enrolled in [Name of School]?
2. What percentage are White, African American, Hispanic, Asian, or other racial/ethnic group?

3. What percentage of the students were born in

USA?  
Mexico?  
El Salvador?  
Honduras?  
Guatemala?  
Other Country?

4. How many students are children of farm workers?

5. What percentage of the farm worker parents were born in

USA?  
Mexico?  
El Salvador?  
Honduras?  
Guatemala?  
Other Country?

6. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County

7. What are your perceptions about the health of these children and their families? Are there any specific health problems that you have noticed, or that concern you?

#### **For Interviews of Representatives of Local Newspapers**

1. What is the circulation of this newspaper?

2. About how many (what percent) of your readers were born in

USA?  
Mexico?  
El Salvador?  
Honduras?  
Guatemala?  
Other Country?

3. About how many of your readers do you believe to be engaged in farm work ?

4. Is there anything else you could tell me that would help us to get an accurate count of the numbers of migrant and seasonal workers in Cherokee County?

5. What are your perceptions about the health of the farm workers you come into contact with? Are there any specific health problems that you have noticed, or that concern you?

## APPENDIX D

### HEALTH-RELATED CHARACTERISTIC ITEMS SELECTED FROM THE EAST TEXAS FARMWORKER HEALTH AND SAFETY SURVEY (ETFHSS)

**HEALTH-RELATED CHARACTERISTIC ITEMS SELECTED FROM THE  
EAST TEXAS FARMWORKER HEALTH AND SAFETY SURVEY (ETFHSS)**

**#24** In general, how is your health?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Not answered

**# 58** Do you currently have health insurance in the U.S.?

- ☐ Yes
- ☐ No
- ☐ Not answered

Have you or anyone in your immediate family experienced any of the following health conditions?

**# 66** Diabetes

No   You   Your Spouse   Your Children   Your Parents   Your Brothers/sisters

**# 72** Obesity

No   You   Your Spouse   Your Children   Your Parents   Your Brothers/sisters

**# 209** Gender ☐ Male ☐ female

**# 210** How old are you? \_\_\_\_\_ years

**# 222** In what country were you born? \_\_\_\_\_  
In what city or town were you born? \_\_\_\_\_

**# 224b** Approximately how long have you lived in the U.S.?

- ☐ days
- ☐ months
- ☐ weeks
- ☐ years
- ☐ not answered

# 238 What language do you speak at home?

☐ Spanish ☐ English ☐ Both ☐ Other

# 251 Where have you worked during the past year?

☐ Field crop (like roses, bedding plants, trees)  
☐ Fruit farm or vineyard  
☐ Livestock Farm (like cattle, dairy, hogs, sheep, goat)  
☐ Poultry Farm  
☐ Fish Farm  
☐ Packing/ canning (meat, fruit, vegetables)  
☐ Logging/forestry  
☐ Other kind of farm related work

# 252 How many months of the year do you work?

☐ Year round  
☐ More than 6 months, but less than 12 months per year  
☐ Less than 6 months per year  
☐ Not answered  
☐ Other kind of farm related work

# 255 During the past year has more than 1/4<sup>th</sup> of the income you earned been sent to another country to support family members?

☐ No  
☐ Yes  
☐ Not answered  
☐ Not answered

# 256 Have you ever had to spend even one night away from home to do farm-related work in the past year?

☐ No  
☐ Yes  
☐ Not answered

# 261 In order to do farm-related work in the U.S. ,do you cross the U.S.border regularly?

☐ Yes  
☐ No  
☐ Not answered

#273

Working in the U.S. have you loaded, mixed, or applied pesticides or other chemicals?

☐ Yes  
☐ No  
☐ Not answered