FOOD HABITS OF FARMWORKER FAMILIES
TULARE COUNTY, CALIFORNIA
1989

I. OVERVIEW

In July, 1989 a study was conducted jointly by UC Berkeley and UCCE to study the current food habits of families whose main occupation involved farmwork. A total of 95 families were interviewed: 58 families were recruited from the WIC Program (The Special Supplemental Program for Women, Infants and Children) and 37 from ESL (English as a Second Language) classes conducted by Proteus, an adult training program for farmworkers. Five bilingual graduate students administered 24 hour food recalls, food frequency and food habit questionnaires and collected socio-economic data on the families. In addition, the following anthropometric data was collected on the mother and her children ages 0 to 10: height, weight, mid-arm circumference and skin-fold thickness.

II. PROFILE OF STUDY PARTICIPANTS

- Total families: 95
- Total number of children: 349 (82% born in US, 18% born in Mexico)
- Total number of "target" children (ages 18-36 mos & 7-9 years): 177
- Average age of mothers: 29.6 (11% born in US, 88% in Mexico, 1% other)
- Average age of fathers: 31.2 (9% born in US, 91% in Mexico)
- Average household size: 6.2
- Average number of children: 3.7
- Average number of years of school completed: Mothers 6.1, Fathers 4.9
- Language spoken at home: 84% speak Spanish, 12% speak English, 3% speak both, 1% speak Mexteco
- Father speaks English: 23% yes, 77% no
- Mother speaks English: 19% yes, 81% no
- Mother reads English: 32% yes, 68% no
- Mother writes English: 17% yes, 83% no
- Employment of adults: 71% employed, 39% part-time, 61% full-time
- Average number of months unemployed: 3.9 months
- Left Tulare County to go to work: 15% yes, 85% no
- Percentage of families receiving food stamps: 38.9%

- Percentage of families receiving AFDC: 24.2%

Most of the adults in the study (88% and 91%) were born in Mexico, whereas most of the children (82%) were born in the U.S.. The average length of stay in the U.S. is 11.4 years. The mothers, on average, completed one more year of education compared with the fathers. Most of the families (84%) speak Spanish at home. When asked "who in the family speaks English?" 64 of the 95 families (67%) indicated that some of the children speak English. More of the mothers could read English (32%) than speak (19%) or write English (17%).

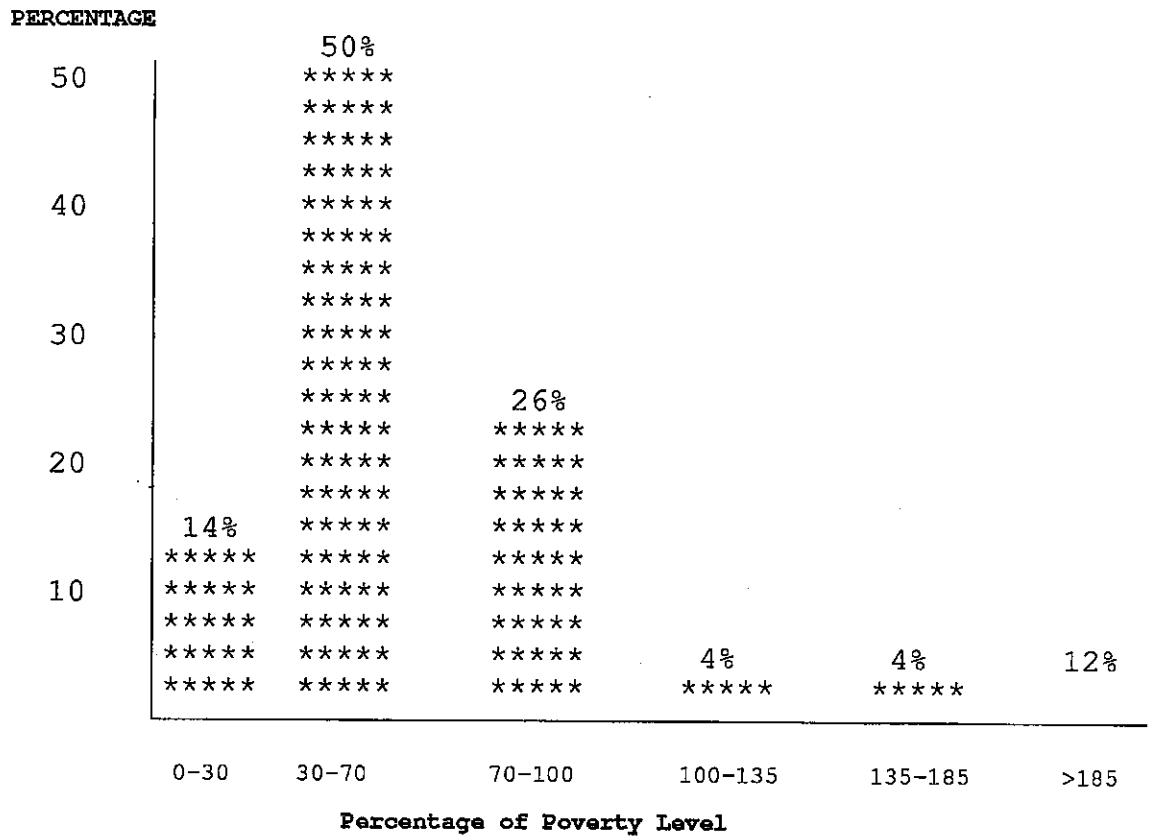
Most of the adults were employed (71%) during the time of the study (July), however the average length of unemployment for the families was 3.9 months.

INCOME

The families in this study earned an average of $8368 per year ($697 per month) and received an average of $2294 per year ($191 per month) in assistance, which includes food stamps. Total average family income was $10,662 for an average household size of 6.2 family members. Poverty level for a family of 6 is $16,980, $6318 more than the total average income of the families in this study. Another way to look at this is that the "average" family in this study lives at 63% of poverty level or 37% below poverty level. The vast majority of families, 90%, live at or below poverty level (Table I). The families spend an average of 40% of their income on rent and utilities ($4308 per year) and 37% of their income on food ($3900 per year).

Table 1

Distribution of Families by Poverty Level



III. MEAL AND SNACK PATTERNS

Most families eat two or three meals a day. Children are apt to eat more frequently than their parents. 43% of homemakers said they ate two meals, while 53% said they ate three (Table 2). When asked about their children 12.4% said they ate 2 meals a day, 76.4% three meals a day 9.6% four meals a day and 1.7% said their children ate five meals a day. Children are more likely to have snacks everyday or almost everyday (76%), than their mothers (44%). 20% of the homemakers said they never or almost never eat snacks.

Most of the children attending school (96%) receive a free school lunch each day. Seventy-one percent of children eat breakfast at home, 20% receive a free school breakfast, 8% don't eat and 1% purchase breakfast. Most adults who are working (75%) bring lunch from home. Eleven percent go home for lunch and 5% purchase lunch. No one reported going without lunch.

The families surveyed eat out at restaurants an average of once a month and purchase take out food an average of once every three months.

Table 2 Meals and Snacks

	Mothers (n = 95)	Children (n = 178)
Meals		
Average no. meals/day	2.6	3.0
one meal/day	1%	0%
Two meals/day	43%	12.4%
Three meals/day	53%	76.4%
4 meals/day	3%	9.6%
5 meals/day	0%	1.7%
Snacks		
Never/almost never	20%	3%
Sometimes	36%	20%
Everyday/almost everyday	44%	76%
Working Lunch		
Bring from home	75%	
Go home	11%	
Purchase	5%	
Don't eat	0%	
Other	9%	
School Lunch		
Bring from home		1%
Go home		1%
Purchase		1%
Free		96%

School Breakfast	
Eat at home	71%
Purchase	1%
Free	20%
Don't eat	8%

IV. FOOD PREPARATION

Most of the women (87%) report that they are responsible for preparing food for the family. In a few households (4%) the husband and wife prepare food together. Other members of the household (not children) prepare food in 8% of the homes.

All of the families had a refrigerator and a stove, 87% had a blender and 25% had a microwave oven. Five of the (5%) families did not have hot water.

Lard is used by 1/3 of the families in food preparation. No significant difference in use exists between English and Spanish speakers (Table 3).

Fried food is eaten everyday or almost everyday by most families (87%). When preparing rice significantly more English speaking homemakers (73%) reported frying the rice and not pouring off the fat than Spanish speaking homemakers (35%). More English-speakers (73%) reported using lard to make refried beans than Spanish-speakers (49%). The vast majority of Spanish-speakers (92%) reported trimming fat off meat when preparing it compared with 2/3 of English-speakers. Almost all homemakers (98%) reported adding salt to food when cooking. About half (53%) of the household also add salt at the table. Twenty-nine percent report that almost everyone adds salt, 12% say their spouse adds salt, 7% report they themselves add salt and 5% report their children add salt at the table.

Table 3 Food Preparation

		Usual Language Spoken	
	Average %	English %	Spanish %
Type of fat used for preparation			
Lard	34	36	34
Oil	66	64	66
Frequency of fried food			
Every day or almost	87	82	88
2-3 times/week	12	18	11
2-3 times/month	1	0	1
Rice preparation			
Not fried	6	9	6
Fried, fat poured off	54	18	59
Fried, fat kept	39	73	35
Refried bean preparation			
Lard not added	48	27	51
Lard added	52	73	49

Meat preparation			
Fat trimmed off	88	64	92
Fat kept	12	36	8
Salt			
Not added	2		
Added when cooking	98		

VI. SHOPPING AND FOOD ACQUISITION

The farmworkers in this study shop for groceries at large supermarkets. Only 2% use small grocery stores. The main reasons for choosing where to shop were (1) less expensive and (2) close to home. Most families shop once a week (73%), the rest shop twice a month (14%), twice a week (8%), or other (5%). The mother is the primary food buyer (59%) followed by both parents (32%), and father only or other person (7% each). Many of the families (59%) also get food from local fields. Fruit and vegetables were mentioned most often. A few families receive eggs and dairy products. One third of the families also have a fruit or vegetable garden.

Other sources of food include:

Relatives/friends	20%
Food bank/pantry	24%
WIC	72%*
Hunting/fishing	3%

When asked "if you had all the money you wanted, would you make any changes in the food you buy?"

44%	responded no	
55%	would add:	vegetables
	(in order)	meat
		fruits
		fish/poultry
		healthier foods
		dairy products

Seventy of the 95 families want information on saving money at the supermarket.

* 61% families were recruited from WIC; 10 out of 37 families (27%) recruited from ESL classes also received WIC.

VII. WOMEN'S WEIGHT AND ATTITUDES ABOUT WEIGHT

When asked "Do you think you are (1) too fat (2) too thin (3) just right, 56% of the women responded they were too fat, 14% said too thin and 30% said just right. 27.5% of the women were found to be obese, 37.5% were found to be overweight, 2.5% were found to be underweight and 32.5% were found to be normal weight. Overweight tended to occur more often in younger women (less than 33 years old). Factors associated with overweight include: English-speaking, literate in English and more time in Tulare County or U.S.

When asked about the best way for a fat person to lose weight, only 5% chose eat less and become more active (Table 4). There's a need to provide education on weight management. Fifty-seven of the 95 women interviewed (60%) said they would like to

learn how to lose/gain weight.

Table 4 Best Way to Lose Weight

1)	Eat less	26%
2)	Become more active	15%
3)	1 and 2	5%
4)	Go on a diet	16%
5)	Other:	38%
	• didn't know how	14%
	• do not eat	7%
	• more balanced diet	3%
	no supper, less fat, no fat, no sugar, more fruit, more vegies	2% each

VIII. SOCIAL AND ECONOMIC FACTORS IN RELATIONSHIP TO FOOD HABITS

The families studied earned an average of $697 per month, and received an average of $191 per month in assistance, including food stamps (37 of the 95 families received food stamps). Total average family income was $888 (average household size, 6.2 members). Food expenditure averaged 37% of the families total income. Average food expenditure (food stamps not included) was $75 per week or $1.73 per person, per day.

When examining the nutritional quality of the families' diets, there were no statistically significant differences in nutrient levels associated with total family income including per capita) percent of poverty level, family size, weekly food expenditures per person, age or weight of mothers or housing costs.

Several factors are significantly associated with decreased nutritional quality: Families who have lived in the county and the U.S. longer tend to have poorer diets, as do families who eat fewer meals, and families who receive more public assistance. Increased grade level of women was also associated with lowered nutritional quality.

Increased percentage of calories from fat in the diet was associated with some of the same factors: increased years in the county and U.S. and increased public assistance. In addition, those families participating in the WIC Program tended to have higher fat diets, as did families where the mother speaks or writes in English.

Factors associated with diets of higher nutritional quality include: households where the mother is Mexican born, households where the mother is not employed, families who eat more meals per day, families that receive food from the field or from a home garden, families where the mother usually speaks Spanish or doesn't read or write English, and families that don't receive public assistance.

As families become more acculaturated the nutritional quality of the diet tends to decrease and the percentage of calories from fat tends to increase.

Hunger

Two hunger questions were asked to determine if the families experience hunger and what they do about it when it occurs (Table 5). While only 4% of the families often have no money and no food and go hungry, a total of 64% experience hunger periodically, and

42% experience hunger sometimes or often. While 64% of the families mention experiencing hunger, a total of 77 families (81%) answered the question about what they do when they have no money or food and their family is hungry.

The families were divided into two groups: Those who experience hunger often or sometimes (42%) and those who experience hunger almost never or never (58%) and further analysis was done. The families who experience hunger often or sometimes tend to have lower incomes per capita (family income divided by number of family members), less years of schooling (both mothers and fathers), and the children of families experiencing hunger tended to be shorter and lighter than the families not experiencing hunger.

Fifty-eight out of 95 families (61%) are interested in learning about how to received food at food pantries. An equal number are interested in learning how to preserve food (canning/pickling/drying).

With 90% of the families living at or below poverty level (Table I) it's not surprising that so many of the families are experiencing food stress.

Table 5 Hunger

Frequency of Hunger (n=95)

Often	4%
Sometimes	38%
Almost never	22%
Never	36%

Action When Hungry (n=77)

Wait for check	12%
Food bank	10%
Relatives/friends	62%
Other	16%

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mb/#6/meal

NUTRITIONAL STATUS OF HISPANIC FARMWORKER WOMEN AND CHILDREN IN TULARE COUNTY

PART I: SOCIOECONOMIC CHARACTERISTICS AND BODY MEASUREMENTS

November 2, 1990

STUDY PARTICIPANTS:

Participants in the study were 95 low income Hispanic (essentially all Mexican American) women and two or more of their children between the ages of 1 and 9 years old (n = 230). The primary source of income for all families was farmwork. Women were recruited from clinics of the Special Supplemental Food Program for Women, Infants, and Children (WIC) and English as a Second Language (ESL) classes. The study was conducted during the month of July, 1989.

DATA COLLECTED:

A social and economic questionnaire was administered to the women. The following body measurements were also taken of women and children: weight, height, skinfolds, and arm and head circumferences. Dietary information was gathered from the mothers by a food frequency and 24-hour recall. The mother also provided information regarding the intake of two of her children by food frequency.

ECONOMIC STATUS COMPARED TO 20 YEARS AGO:

Compared to a similar study conducted of farmworker families in Tulare in 1969, families appeared to be better off financially primarily due to higher wages ($8722 in 1989 vs. $6138 in 1969 per year). Yearly assistance has not changed very much ($2036 in 1989 vs. $2668 in 1969). The net result was a nearly $2000 per year increase in total income and a decrease in the percent of income spent on food (34% in 1989 vs. 55% in 1969). Despite these apparent advances and the fact that only a minority (28%) of women indicated that they were financially worse off now than 10 years ago, the majority (91%) of the families interviewed lived below the poverty line.

CHILD GROWTH COMPARED TO 20 YEARS AGO:

Children appear to be taller and heavier than 20 years ago indicating an improvement in nutritional status which parallels the improvement in financial status. For example, in 1969, 15% of children were considered stunted (height below the 3rd percentile of standards) but with normal weight while in 1989 only 6% fit into this category. Likewise in 1969 8% of children were both stunted and underweight while in 1989 no children were both stunted and underweight.

CHILD HEIGHTS COMPARED TO U.S. STANDARDS AND OTHER MEXICAN AMERICANS:

Compared to U.S. height standards, Tulare children were short. For example, 64% of children were below the 50th percentile of standard height in contrast to the 50% expected. Median height differences with standards were of the order of 1 to 4 cm (approximately 0.5 - 1.5 inches). Almost twice as many children as expected (9%) were short (height below the 5th percentile of standard height).

The Tulare children were similar to a national sample of low income Mexican American children (Ten State Nutrition Survey, 1968-1970) but shorter than a group representative of all income levels in the southwestern states (Hispanic Health and Nutrition Examination Survey, 1982-1984).

Factors associated with decreased heights included poverty, fewer possessions from a list of common household items, more siblings, less time in the U.S. or Tulare County (for the mother), and a shorter mother. Therefore socioeconomic factors, exposure to U.S. culture, and genetics all appear to play a role in the short stature of the Tulare children.

CHILD WEIGHTS AND FATNESS COMPARED TO U.S. STANDARDS:

Weights for age of the Tulare children were very similar to U.S. standards. For example, the expected 50% of children had weights above and below the 50th percentile. However, weights for height (or weights relative to height which is an indirect measure of fatness in children) were larger than U.S. standards with approximately 71% of children above the 50th percentile. Underweight (weight for height below the 5th percentile of standard) was essentially nonexistent while overweight (weight for height above the 95th percentile of standard) was almost three times higher (14%) than expected.

Factors associated with increased weights relative to height included more possessions, fewer siblings, more time in the U.S. and Tulare County (for the mother), the ability to speak English, a higher frequency of restaurant patronage, obtaining food from a garden, having a single mother and having a heavier mother. As with stature, socioeconomic status and exposure to U.S. culture appear to play a role in the fatness of children although the relationships appear to be more complex.

MOTHERS' HEIGHTS COMPARED TO U.S. STANDARDS AND OTHER MEXICAN AMERICANS:

Compared to U.S. standards, Tulare women were approximately 3 inches shorter. The national mean height for women is 63.7 inches whereas the mean for the Tulare women was 60.9 inches. Tulare women were also slightly shorter (less than 1 inch) than a representative sample of Mexican American women (HHANES).

MOTHERS' FATNESS COMPARED TO U.S. STANDARDS AND OTHER MEXICAN AMERICANS:

An indirect measure of fatness in adults is body mass index (BMI), a value derived from weight and height measurements. BMI is calculated as follows:

1) Convert weight from pounds into kilograms by dividing weight in pounds by 2.2. (ex. 140 pounds ÷ 2.2 = 63.6 kilograms)

2) Convert height from inches into meters by dividing height in inches by 39.4. (ex. 65 inches ÷ 39.4 = 1.65 meters)

3) Divide weight in kilograms by height in meters squared to calculate BMI. (ex. 63.6 kilograms ÷ $(1.65 \text{ meters})^2 = 23.4 \text{ kg/m}^2$)

BMI's can be compared to U.S. standards in order to roughly classify people as underweight, normal weight, overweight and severely overweight. One widely used classification for adult women and men is:

			WOMEN	MEN
1)	Underweight:	BMI	< 18.7	< 20.2
2)	Normal weight:	BMI	= 18.7 - 27.2	20.2 - 27.7
3)	Overweight:	BMI	= 27.3 - 32.2	27.8 - 31.0
4)	Severely overweight:	BMI	> 32.2	> 31.0

Compared to standards, Tulare women were heavier with approximately 85% of women having BMI's above the 50th percentile. The mean BMI was approximately 3 kg/m^2 above the standard value and 2.5 kg/m^2 above a national sample of low income Hispanics. Approximately 49% of Tulare women were overweight compared to 39% for a representative sample of Mexican American women in the southwestern states (HHANES).

Factors associated with increased BMI's in women included the ability to speak, read and write in English, and longer residence time in the U.S. and Tulare County. Exposure to U.S. culture therefore appears to be an important variable for fatness in this population.

SOME CAUTIONS REGARDING MAKING GENERALIZATIONS FROM THE STUDY:

Because the sample was not a random selection from all possible participants, the results may not be representative of all low income Hispanic farmworker families in Tulare County. Even if we could be assured that the results were representative, not all individuals can be expected to fit the population "pattern". Furthermore, the results should not be generalized to all low income Hispanic groups as evidenced by the differences observed between rural and urban groups.

It should be emphasized that the goal of this study was not to evaluate the WIC program even though a majority of participants were enrolled in WIC. For example, the finding that the children in the study were, on average, short for their age does not indicate that WIC is not beneficial for child growth. On the contrary, if anything, this finding may verify that WIC is indeed serving the appropriate population, that is the population at nutritional risk.

Although one of the primary goals of the study was to assess nutritional status using body measurements, body measurements are affected by more than nutrition alone. Sanitation, health care, emotional well-being, acculturation and other socioeconomic variables may all play a role in growth and size attainment. Clearly more studies of minority and migrant groups in the U.S. are needed.

SUMMARY:

Rural low income Mexican American families in Tulare County appeared to be better off financially compared to 20 years ago. Correspondingly, the children now were taller than in 1969. However, these children remained slightly shorter than national samples of children and this shorter stature appeared to be related to poverty. Although a few inches in height may be of little consequence to the individual, a high prevalence of short stature in a population is a reflection of inequities in social and economic conditions that need to be addressed. Rural low income Tulare children and their mothers were also slightly heavier compared to national samples. Additional efforts are merited to reduce the prevalence of overweight in this population because of the health consequences of excess weight.

Resource ID#: 4852

Food Habit of Farmworker Families: Tulare County, California 1989