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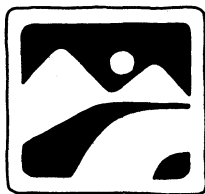
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Who Tills the Soil?

Mexican-American Farm Workers

Replace the Small Farmer in California:

An Example from Colusa County

by

Jerry A. Moles

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Corvallis, Oregon

A C K N O W L E D G E M E N T S

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These papers are preliminary draft documents containing tentative results, thoughts, concepts, etc. They are intended for circulation among administrators and working scientists in the region to keep them informed of the Center's work and to stimulate discussion and meaningful exchange, one purpose of which is to assist the authors in developing a more finished manuscript for formal publication in an appropriate journal at some future date.

Responsibility for the views and editing in this paper is that of the author only.

Who Tills the Soil?

Mexican-American Farm Workers Replace the Small Farmer in California:

An Example from Colusa County

This paper discusses the impact of recent changes in agricultural technology upon the American farmer and the family operated farm enterprise. Technological developments have increased the labor productivity of farmers and the land productivity of the land they till. As production increased, the return per unit produced has either dropped or failed to increase at a rate commensurate with the increased costs of production. In order to stay in agriculture, farmers have continually increased the size of their enterprises, and many operators of small farms, unable to compete, have left farming. The labor contributed by these small operators to U.S. agricultural production has been replaced with the labor of full-time farm laborers. An example of these changes in the agricultural labor force is presented based upon data from a rural California county. It was found that as operators of small farms sold or leased their land to larger enterprises, Mexican-American farm workers were recruited to replace the labor once provided by these farmers.

by

Jerry A. Moles

. . . Since one of the distinguishing features of traditional agriculture is that it has combined owner, manager, and laborer in one person, it has minimized the appearance of class struggle in agriculture. In view of the capacity for clashes demonstrated elsewhere, this feature of agriculture is of no mean significance.
-Breimyer (1965:190)

. . . The industrial revolution has eased the burden of the farmer and rendered his labors more productive. Yet these technological advances have, at the same time, brought a threat to the very institution to whom personnel they have brought so much aid. The threat is this: That with increased mechanization will come increased industrialization of the farm enterprise: that with industrialization will come an increasing concentration of economic power in the hands of fewer and fewer men at the head of great organizations, and an end to that broad diffusion of social and economic benefits that has long been characteristic of American rural communities.
-Goldschmidt (1946:305)

We all learned of the agricultural revolution in secondary school and in the "Introduction to Anthropology." With the domestication of barley, peas, wheat, goats, and sheep, humans were able to settle in relatively permanent villages. As a result of these changes in the technology of natural resource exploitation, a number of major social changes occurred. In some locations people were able to gain power over other people and stratified societies emerged. Feudalism arose when the "lords" gained control over land and were able to exact a "rent" from the peasants or serf who tilled the land. When the demands of these "lords" became too onerous, peasants refused to pay their rent, rebelled, or fled the land. The industrial revolution provided one avenue of escape to the European peasants in the growing factories of the cities. Other landless peasants and city dwellers were able to move into the colonies, including America, which were established by the major European powers of that time. Because of the changes in agricultural technology, life on the earth has been forever changed.

There is a second agricultural revolution going on today in the United States which is perhaps just as dramatic and which may have as many far-reaching consequences as the first agricultural revolution. Once again there has been a number of major changes in agricultural technology, and the subsequent social changes may prove to be as significant as those which occurred during the rise of feudalism. It is to this second agricultural revolution that I would like to direct our attention.

I propose to briefly review the traditional social position of the farmer in U.S. agriculture, discuss the changes of this position resulting from recent technological developments, and explore the social significance of these changes for persons participating in the agricultural community. The paper will focus upon data from Colusa County, California--a place which demonstrates some of the social changes now occurring in the rural United States. While California agricultural practices are rather different from those in most regions of the United States with the possible exceptions of Arizona, Florida, and Texas, the relationships between technology, agricultural production, and social organization frequently display a set of similar features irrespective of location. This is especially true at the simple levels of analysis which will be attempted here.

The Traditional Farmer

It is possible that most of us have our own folk notion of the "typical" North American farm family. For some of us, at least, this family is composed of a married couple with offspring who work together as a team against and with the forces of nature, produce a bountiful harvest, and live in tranquil harmony away from the rush and turmoil of urban areas. Modern farm buildings, tractors, trucks, and harvesters are perhaps a part

of this happy scene. We may envision the farmer owning part or all of the land cultivated, owning most of his equipment, and selling the goods produced on a somewhat open and competitive market, and the family providing all or most of the labor necessary for the successful operation of the farm.

The control over land, labor, and capital by those occupying the social position of farmer is a very old idea in the history of the United States. Thomas Jefferson and other political philosophers and writers of his time contributed to our notion of the "ideal" farmer. Jefferson was aware of the difficult conditions endured by the European peasantry of the time and believed the American farmer could escape a similar fate if he remained as an independent operator and owner of a farm. In fact, Jefferson went so far as to suggest that the successful operation of a democratic form of government and the presence of family farms were inseparable (Griswold, 1952). With the conquest of the New World, millions of families packed their meager possessions and set sail to the West, where land was claimed to exist for the taking. While parts of western North America were colonized by the Spanish, who developed a pattern of large estates, the English settlements were based upon the small land holdings controlled by individual families, as favored by Jefferson. The family farm became the dominant form of land tenure in what later became the United States.

Breimyer (1965:13-14) believes that the freedom to cultivate land without the obligation of rents or compulsory service was a spectacular development, but only part of the change which shaped American agriculture. He notes that while feudal agriculture was basically noncommercial, agriculture in the New World became a capitalistic enterprise for the first time in history. The "traditional" farmer, then, was a small scale entrepreneur with almost complete control over land and capital who, along with his

family, contributed the necessary labor for production.

Technological Changes in U.S. Agriculture

Equally impressive as advances in space and aeronautic technology are the developments in agriculture technology. The work of agricultural scientists in the land-grant universities, governmental agencies, and private enterprise have produced impressive results. Labor productivity has increased dramatically. In 1910, with the use of horse-drawn implements, it took 147 man-hours to produce 100 bushels of corn, a great improvement over the 344 man-hours needed in the early 1800's with the use of a hoe, but not very impressive when compared to the less than 4 man-hours now needed to produce an equal quantity (Higbee, 1963:9). If we look at the machine to manual ratios for harvest productivity based upon pounds produced per man-hour, we discover a 12:1 ratio for potatoes; 2.3:1 for peaches; 7.4:1 for tomatoes; 12.3:1 for grapes; 50:1 for cucumbers; and 55:1 for blueberries (Sosnick, 1973:4.4-12). The ratios for small grains, nuts, and poultry are even more dramatic. Roughly 85 percent of the increase in labor productivity between 1930 and 1960 is estimated to have resulted from technological advances, while the remaining 15 percent has resulted from increased availability of capital (Sosnick, 1973:4.4-2). Improved animals and feed have led to increased productivity in livestock production. Land productivity has likewise taken a dramatic increase as the result of improved plants and fertilizers. For example, the average yield of corn per acre in the United States was 38 bushels in 1949. Today the average yield is approaching 100 bushels. The yield of almonds per acre has increased from 400 pounds in shells in 1940 to 1,240 pounds in 1973. An all time high of 1,820 pounds was reached in 1969 (Reed and Horel, 1975:2).

While the above examples do not represent all agriculture production in the United States, it has been well documented that for most crops and livestock, the farmer of today can produce more on less land with less labor than ever before.

Technological Change and Changes in the Economics of Agriculture Production

Technological developments do not occur without costs to someone, and, in the case of U.S. agriculture, the expenses have been shared by farmers, governmental agencies, universities, and private industry. Of course, all of these organizations in the end pass much of the expense along to the consumer-taxpayer. The new machines and chemicals have increased production and decreased labor demand for a fixed amount of land. As production has increased, the return per unit produced has either dropped or failed to increase at a rate commensurate with the increased costs of production. Thus, the relatively stable net income per acre received by the farmer has forced an expansion in business size, first, to meet increased living costs resulting from inflation, and second, to increase net income to the firm. Some farmers were unable to raise the necessary capital required for expansion and as a consequence were unable to compete and ended their careers as owner-operators by selling out to other farmers who possessed the requisite investment capital.

The relationships between increased mechanization and chemical application and farm size, farm value, and income per acre are graphically presented for the state of California in Table 1. As technology becomes more efficient, it also becomes more expensive; investment in land and buildings increases and gross income increases. In this interaction the net return per acre increases very slowly, and the increase in net income per farm results from an expansion in farm size rather than from a greater return on investments.

As a consequence, there is an inexorable push toward larger farm size. It should be pointed out that there are additional returns to the farmer which are not seen from investigating inputs and outputs. The value of farm land has continued to spiral upward because of a number of factors, both internal and external, to agriculture. The farmer may sell land and receive a

Table 1. Changes in California Farm Size, Investment, Value, and Income

Year	Acres Per Farm	Land and Building Investment		Value Per Farm			Net Income Per Acre
		Per Farm	Per Acre	Gross Income	Expense	Net Income	
1950	260	\$ 41,192	\$158	\$16,965	\$11,088	\$ 5,877	\$23
1959	348	131,212	377	29,373	20,020	9,353	27
1969	617	335,648	544	77,822	60,367	17,455	28

(Burlingame, Parsons, and Reed, 1972:36.4)

good return on his long-term investment or use his equity to borrow capital for production costs or to expand the size of the enterprise. For Higbee (1963:22-23), the message to the farmer is clear: "If a man lacks capital or the nerve to borrow for expansion, he is finished."

Technological and Economic Change and the Social Position of the Farmer

If we return to the "traditional" concepts of the family farm and the social position of farmer, we might expect that these entities change as the social and economic structure of rural America changes. Most farmers no longer control all of the land and capital used for production, nor do they and their families provide most of the necessary labor. Furthermore, few farmers are able to make all of the management decisions relating to the operation of the family firm. As was previously mentioned, the need to expand the scale of operations forced many farmers to acquire capital from

outside of agriculture. In 1940, roughly 66 percent of all agricultural inputs were the resources held by farmers of land and farm-resident labor. Thirty-four percent were non-farm inputs--depreciation on farm buildings; non-farm hired labor; and the purchase of machinery, fuel, seeds, fertilizer, and other supplies and services. By 1961, land and resident-labor had dropped to 37 percent of all inputs, while non-farm inputs had increased to 63 percent of the total (Breimyer, 1965:61). To acquire the non-farm inputs, the demand for outside capital increased at a very rapid rate. Total farm credit in the United States increased at a rate of 9 percent per year from 1950 to 1970. Farm credit was \$10.7 billions in 1950, \$23.6 billions in 1960, and \$52.0 billions in 1970. Farm credit in California also increased at a similar rate and stood at \$5.13 billions in 1970 (Hedges, 1973:3.6-7). As farmers accept outside capital, they lose some managerial control over the family farm. The organizations and agencies which provide capital for agricultural production and expansion frequently demand control over some management decisions. Thus, the heavy demand for capital has changed the "traditional" position of the American farmer.

In addition, improved technology has forced the farmer to depend upon outside organizations for the knowledge necessary to use the new chemicals and machines. Farming is becoming so complex that no individual farmer can control the information necessary for the successful operation of the firm. Land-grant universities, extension services, manufacturers of machines and chemicals, and private management firms often assist in management decisions. Again, the degree of control over the family enterprise by the owner-operator is further modified.

Farmers faced with the need to increase the scale of their operations are finding it increasingly more difficult to raise the necessary capital

for land purchase. While the number of tenants renting land has declined over the past fifty years in the United States, much of the decrease has resulted when small operators have gone out of business. Other farmers who have remained active have frequently increased the scale of their operations through leasing additional land. Land owners usually place a number of restrictions and limitations upon the use of their land, and, as a result, the leasing farmer loses some degree of control over the land he farms.

As agricultural technology has improved, the amount of labor utilized in agricultural production has declined. Furthermore, as farm size has increased, the farmer and members of his family have been less likely to be able to provide all of the necessary labor inputs. Because of the seasonal nature of agriculture, farmers have always been dependent upon some off-farm labor. In earlier times, neighboring farmers and other nearby residents provided the necessary labor. Since that time, people who have received most of their income from agricultural work have provided the necessary human power. The relative importance of hired labor in agriculture is increasing. While the rate of decline in agricultural labor has been rapid over the past thirty years, it seems to be slowing. There was a decline in total farm employment (owner-operators, unpaid family workers, and hired laborers) of 15 percent from 1965 to 1968 but only six percent from 1968 to 1971 (Sosnick, 1973:4.4-3). The major changes that are occurring are relative shifts in the contributions of family labor, full-time hired labor, and part-time hired labor. In California in 1970, total farm employment was 268,000, a decrease of 28 percent since 1961. The number of farmers and family workers declined almost 50 percent, while hired labor (full-time and part-time) decreased only 15 percent (Sosnick, 1973:4.4-4). The decrease in hired labor resulted in a decline in seasonal employment. The

number of full-time farm laborers has continued to increase at a slow but steady rate (Sosnick, 1973:4.3-1). It is clear that the labor contributions of the farmer and the farm family are declining in importance.

The social position of farmer is becoming very different from our notion of the "traditional" farmer. The farmer's relationship to land, labor, and capital has undergone major shifts. Rodefeld (1975) notes that these changes have increased the differentiation of activities relating to farm enterprises. As non-agricultural capital enters into farming, the owner(s) of the enterprise may not actually participate in the operation of the farm but may hire both managers and laborers. Heffernan and Lasley (1975:4) suggest that if present trends continue, the occupation of family farmer will eventually be replaced by other occupations representing an increase in the division of agricultural labor. Of course, two of the replacement occupations are those of manager and laborer.

The changes in the social position of farmer and in the economic and social structure of agriculture raise a number of questions concerning the nature of rural populations within the United States, Canada, and other countries with rapidly increasing farm size and heavy dependence upon technology for food and fiber production. I would like to raise a question concerning these changes in California agriculture. Who is recruited to fill the full-time labor positions vacated by the owner-operators when they leave farming? As an illustrative example of the changes in California agriculture, I will report upon data from Colusa County.

Colusa County, California

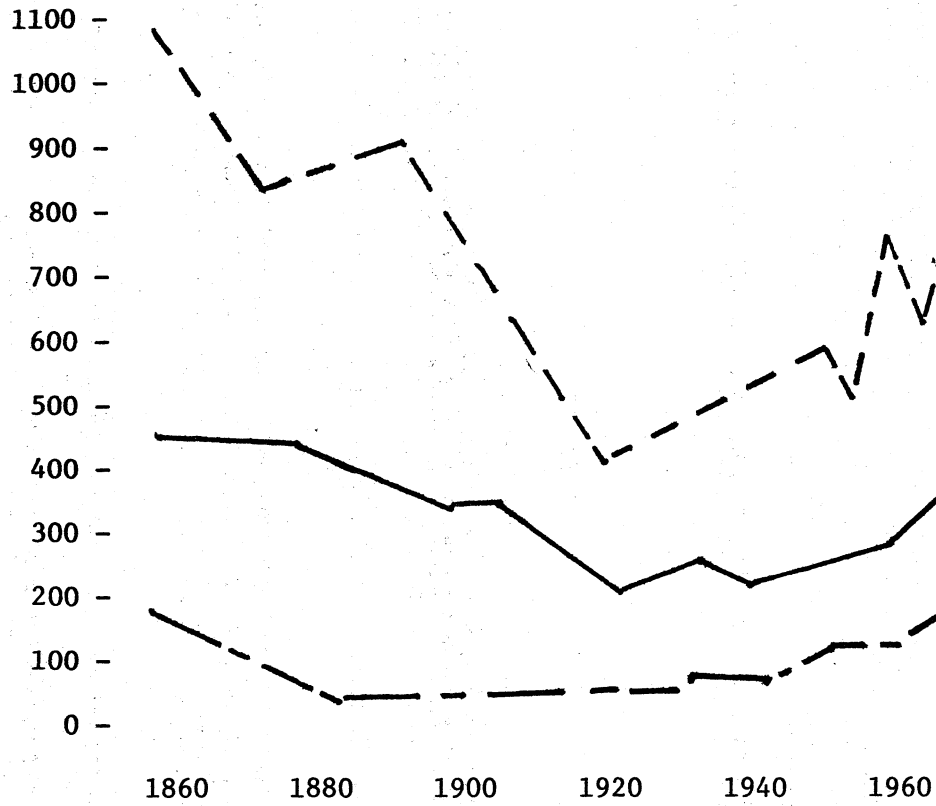
Colusa County is located in the western portion of the middle Sacramento Valley in northern California. The county is predominantly rural, and agri-

culture is the most important economic activity. In 1970, 69.1 percent of the population was classified as rural. The largest town had a population of only 3,842. Out of a labor force of 3,476, 1,813 (52 percent) were involved in farming activities. An additional 1,219 members of the work force (35 percent) were involved in wholesale and retail sales, finance, and service occupations which served the farming community (Bureau of the Census, 1970).

The average size of farms within the United States has continued to increase over the past several decades. Despite California's history of large farms beginning with the Mexican latifundias of the past century (Goldschmidt, 1947), the trend is similar to the national pattern (see Figures 1 and 2). Madden and Partenheimer (1972:102) have noted that rapid farm enlargement occurs more frequently in areas where resources are uniform and production conditions are homogenous and predictable. These circumstances are found in the Sacramento Valley and Colusa County.

Colusa County has a broad range of farm sizes. Roughly one third of the farms have less than 100 acres, one third between 100 and 499 acres, and the remaining one third more than 500 acres. As Figure 2 shows, the number of farms with less than 100 acres has declined since World War II. The number of farms between 100 and 499 has decreased slightly since 1945, and the number of farms with 500 or more acres has remained roughly the same. These figures do not demonstrate the real dominance of large farms. Of a total of 484,331 acres of farm land within the county, the farms with 500 or more acres control 417,368 acres or 86.2 percent of the total. There are 62 farms between 1,000 and 1,999 acres which control 83,028 acres or 17.1 percent of the total and 64 farms over 2,000 acres which control 281,440 acres or 58.1 percent of the total. If we only con-

Figure 1. AVERAGE FARM SIZES IN THE UNITED STATES,
CALIFORNIA, AND COLUSA COUNTY



KEY:

U.S.

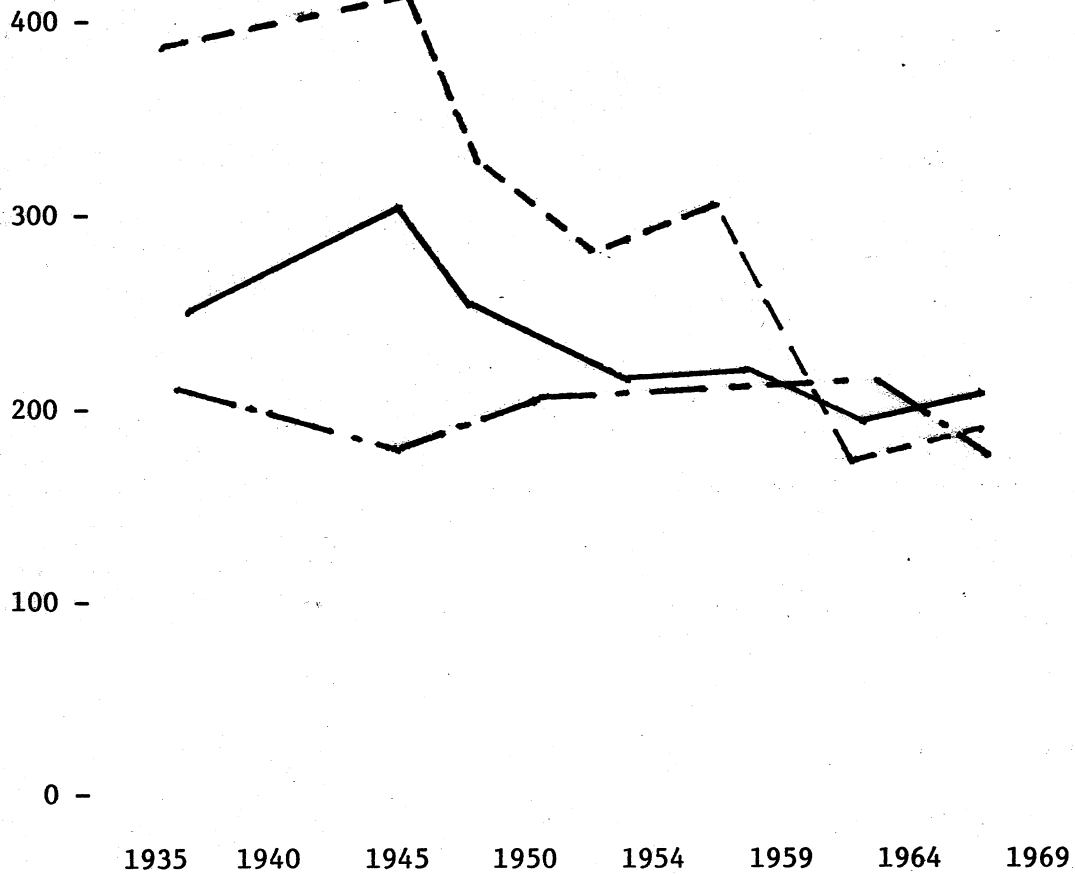
California

—————

Colusa

- . - . - . - .

Figure 2. NUMBER OF FARMS BY SIZE CLASS IN COLUSA COUNTY IN THE SACRAMENTO VALLEY



KEY:

1 - 99 acres - - - - -
100 - 499 acres _____
500+ acres - . - . - .

sider the farms over 1,000 acres, it can be shown that 19.9 percent of the farms control 75.2 percent of the land. Figure 3 shows that the number of farms in lower income brackets (measured by value of annual sales) has declined since 1950, while the number of farms in the highest income bracket has increased (Bureau of Census, 1969).

As the number of small farm operators decreases, a major labor resource of the county is either converted to other industries or leaves the county. As can be seen in Table 2, the contribution of operators of farms and unpaid family members has declined from 1950 through 1964. Part of the decrease

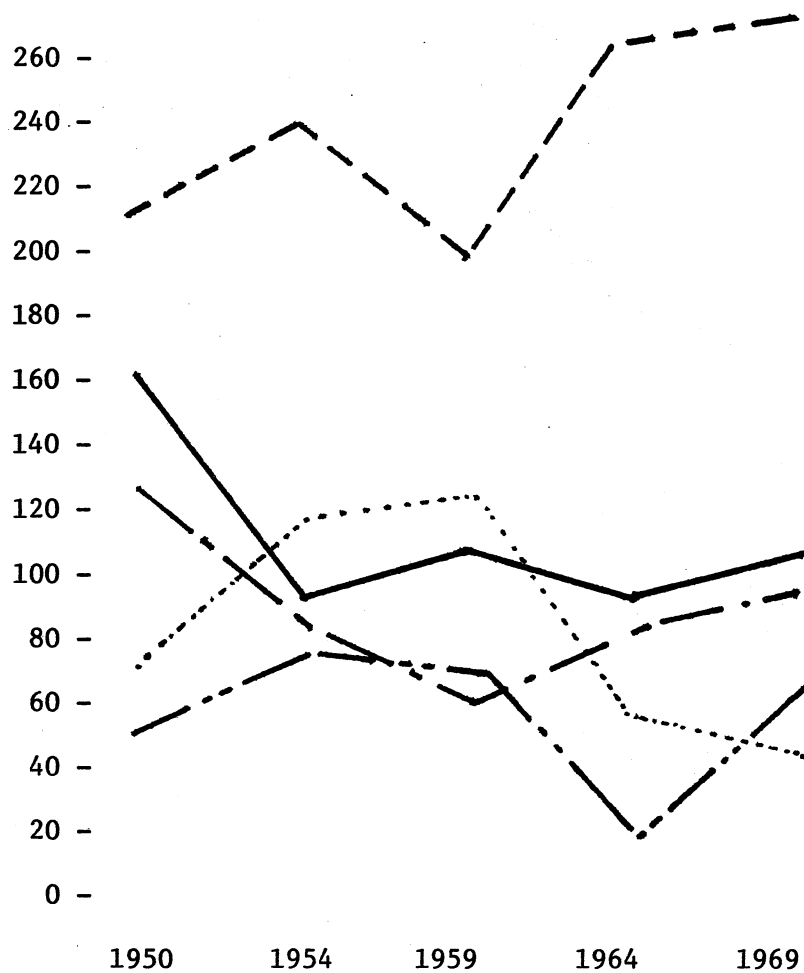
Table 2. Labor Contribution to Operators and Unpaid Family Members
in Colusa County, 1950-1964

	<u>1950</u>	<u>1954</u>	<u>1959</u>	<u>1964</u>
Operators				
(More Than 1 Hour Per Week)	665	636	561	452
Unpaid Family Members				
(More Than 15 Hours Per Week)	297	270	172	150

(Bureau of the Census, 1950, 1954, 1959, 1964)

can be attributed to increased mechanization and the resulting decline in labor demand, while the remainder occurs when the operators of smaller farms leave agriculture. When the small farm operator sells out to larger firms, a demand is created for labor to till the acreage vacated by the former owner. As may be seen in Table 3, the number of hired full-time laborers has increased in Colusa County as the number of small farms has decreased. I cannot explain the major increases in all hired laborers in 1969. To interpret this shift in labor input, additional information is needed on crop changes, changes in irrigated acreage, and changes in the use of machines and chemicals. It is also possible that there have been changes in the

Figure 3. NUMBER OF FARMS BY INCOME CLASS IN COLUSA COUNTY



KEY:

Class I - \$40,000 +	-----
Class II - \$20,000 - \$39,999	—————
Class III - \$10,000 - \$19,999	——— · ———
Class IV - \$5,000 - \$9,999	·····
Class V - \$2,500 - \$4,999	——— · ———

Table 3. Number of Hired Agricultural Laborers in Colusa County

	<u>1950</u>	<u>1959</u>	<u>1969</u>
Hired Laborers	1,410	729	7,182
Regular Hired Laborers (150 Days or More)	--	442	746

(Bureau of the Census, 1950, 1959, 1969)

reporting procedures used in data collection. The trend of increase for all hired laborers is in sharp contrast with the findings for the state of California and for the United States; however, the increase in full-time employment fits into the broader patterns for the state and nation.

Who are the people who are filling the farm labor positions vacated by the small farm operators? A first guess would be the Mexican-Americans who make up a large portion of the farm labor force in California. There has been a major migration of persons who were born in Mexico into Colusa County over the past 20 years (see Table 4). Between 1950 and 1970, there

Table 4. Number of Permanent Residents in Colusa County Born in Mexico

<u>1950</u>	<u>1960</u>	<u>1970</u>
385	627	1,127

(Bureau of the Census, 1950, 1960, 1970)

was an increase of 293 percent of persons born in Mexico who had settled in the county as permanent residents. While only 259 (30.6 percent) of the 847 persons listing their occupations as farm laborers were native Spanish speakers or had Spanish surnames, they were over represented in this occupational group (see Table 5). The measures of native Spanish speakers and Spanish surnames are acceptable measures for persons of Mexican

Table 5. Persons of Mexican Descent and Non-Mexican Descent in the Occupations of Farm Laborers and Non-Farm Laborers

	Farm Laborer and Foreman ₁	Non-Farm Laborer and Non-Foreman	
Mexican Descent	259	382	641
Non-Mexican Descent	588	3,378	3,966

847 3,760 4,607

Chi-Square = 240.8 Significance level = < 0.05
Phi Coefficient = 0.228

descent. Of the total 1,756 native Spanish speakers within the county, 1,581 (90.0 percent) were either born in Mexico or were of Mexican descent.

It is necessary to further examine Table 5 to determine whether the apparent differences between cells are significant. We will begin with the null hypothesis that there is no difference in the occupations of farm laborer and non-farm laborer between persons of Mexican descent and persons not of Mexican descent. The alternative hypothesis is that there will be a difference between the two groups. The statistical devices used in this analysis are the chi-square test for statistical significance and the phi coefficient, a measure of correlation used in tests with large sample size. When the sample size is very large, as it is in this case, the chi-square test will almost always demonstrate a statistically significant difference between subpopulations, even though its experimental or sociological significance is negligible. Accordingly, as phi approaches zero, even though the chi-square score is very large, there is a minimal experimental or sociological significance. In Table 5 there is a chi-square of 240.8

significant at less than the .05 level. The phi coefficient is 0.228, indicating a weak strength of association (Marascuilo 1971:412). While the difference between the two populations is shown to be statistically significant, the results are primarily created by the large sample size. Nonetheless, 40.4 percent of the Mexican-Americans in the labor force are farm workers, while only 14.0 percent of the remainder of the labor force has the same occupation. When there is a large difference between the sizes of subpopulations being contrasted with the use of the chi-square statistic, the phi coefficient tends to be reduced. This seems to be the case with these data. Given the rapid increase of Mexican-Americans within the county and their greater relative concentration in the occupation of farm worker, it seems safe to tentatively conclude that Mexican-Americans are replacing the small scale farmer.

While there appears to be an important difference between Mexican-Americans and non-Mexican-Americans in occupational status, the low phi coefficient cannot be ignored. A major problem in dealing with census materials is that the categories used in analysis have been preselected by scholars who often have different interests than do other researchers attempting to use the information. As a result, there is a reduced degree of control over the data, the design of research is limited in scope, and the possibility of confounded results is high. Census data gives indications of broad trends in large populations, but the necessary partitioning of the relevant variables into finer classificatory units is not possible. Therefore, the tentative results discussed in this paper should be followed up by careful research designs and field investigation. In a sense, census data offers an invitation to research and allows the field researcher to relate findings to broader populations. However, census data frequently

does not offer the possibility of highly detailed investigatory efforts. If the questions raised in this paper are to be followed up, it will be necessary to develop measures of increased mechanization, labor inputs, and changes in farm size and relate them to the persons who supply the labor for agricultural production. The units of analysis should be the farm enterprise and the people who supply the agricultural labor.

It should be mentioned that Mexican-American migrants to Colusa County have also found gainful employment in a number of occupations not related directly to agricultural production. However, most of these occupations are relatively low-skilled and, as a consequence, low-paying. The average annual income for Mexican-American workers in the county in 1969 was \$5,699, just slightly higher than the average annual income for Mexican-American farm laborers, which was \$5,034. Only 52 (8.1 percent) of the 641 persons of Mexican descent in the labor force were classified as professionals, technicians, managers, and administrators. The remainder were members of the blue-collar labor force. It appears that the older native population did not compete with the Mexican-American migrants for these jobs. For the first time in recorded history, the county declined in population between 1960 and 1970 despite the influx of Mexican-Americans. The older population and their offspring were not accepting the lower paying jobs available. Furthermore, since the county is not within easy commuting distance to any of the major metropolitan areas of the state, the acceptance of alternative employment requires relocation outside the area. Thus, as the long-term residents moved away, employment opportunities were created in low-paying jobs for the relatively unskilled migrants.

The people and agencies involved in county planning should take a close look at the changes in their community. If the remaining small scale

operations in farming are to continue, then some form of support must be given the family farm enterprise. Such support might include assistance in obtaining land through leasing and purchasing, improving management practices, assessing the demand for part-time employment outside of agriculture, and devising partnership arrangements. If support cannot be found, it is likely that the remaining small farmers will leave the county and be replaced by farm laborers. The importation of farm laborers creates a different set of demands on the services offered by the state and county agencies and organizations. Instead of serving a community of farmers, the county leaders must be prepared to serve a community of farm owners and/or managers and farm laborers. If current trends continue, Colusa County may become similar to the town of Arvin studied by Goldschmidt (1946) in southern California which was surrounded by very large farms. He found the community was characterized by two main groups with divergent economic and social interests--farm owners and/or managers and farm laborers--and the latter far outnumbered the former. Goldschmidt noted that the large farmers did not invest in the local community as did small farmers in Dinuba, a community characterized by a large number of small farms. Therefore, Arvin did not offer the services and opportunities to its population enjoyed by the residents of Dinuba. If farm size continues to increase, will all of rural California become like Arvin? There must be other alternatives.

Unlike the first agricultural revolution, social scientists have a unique opportunity to study the changes caused by the second agricultural revolution by directly observing the relevant phenomena. In addition, there is another unique advantage--the second agricultural revolution may be studied in our own backyards.

NOTES

¹The occupations of farm laborer and farm foreman are combined into a single category in the census. However, farm foreman provide labor in much the same way as do the operators of small farms. Therefore, the combination of the two occupational categories does not influence the reported findings in any significant manner.

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