

The Firebaugh Community Case Study: Preliminary Findings

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Introduction

This report summarizes initial findings of a three-year case study of the community of Firebaugh, a large agricultural region located on the west side of the San Joaquin Valley of California. The study is a project of the Fund for Rural America, an initiative of USDA to allocate new resources in support of efforts to promote environmental responsibility, economic development and the international competitiveness of U.S. agriculture. Started April 1, 1998, this is a collaborative effort of the California Institute for Rural Studies (CIRS), Prof. Richard Howitt (Agricultural & Resource Economics, UC Davis), and Prof. Wes Wallender & colleagues of the Hydrology Group (Land, Air and Water Resources, UC Davis). CIRS is conducting community studies, including several hundred interviews with farmers, hired farm workers and townspeople to map the social and economic life of the region and their relationship to agricultural production. Our university co-investigators are examining the hydrology and economics associated with possible adjustments to environmental water policy.

Located some forty miles northwest of the city of Fresno, Firebaugh is quite a bit older than most Central Valley communities. In 1854 Andrew Firebaugh settled in the area after purchasing the ferry boat business that transported people, livestock and all manner of merchandise across the San Joaquin River. The Firebaugh Ferry, as it was soon named, later became an important stop for steam-powered river boats that traveled up the San Joaquin River from San Francisco. Livestock and other farm goods were shipped from the local area to the emerging urban markets downstream. Finally, construction of the Southern Pacific Railroad through town cemented the community's central role in agricultural commerce.

In general, it is possible to define community boundaries by postal zip codes since postal mailing addresses are uniquely associated with this identifier. For communities defined by a single zip code in California, telephone numbers are also uniquely associated with the same identifier. The Firebaugh postal zip code area is shaped like a large trapezoid. The area stretches from Panoche Road, its southeastern boundary, to the Merced County line on the northwest. On the east, the region is bounded by the north-flowing San Joaquin River, and its northwestern boundary is the Fresno-San Benito County line located high in the Coastal Range that separates the California Coast from the San Joaquin Valley. Small portions of the Firebaugh zip code are located in Merced County and in Madera County.

Altogether, the zip code boundary encloses about 443 square miles, of which 321 comprises irrigated cropland (205,440 acres). Because of its great size, Firebaugh is one of the largest irrigated farm communities in the entire United States.

A series of major policy issues affect the future of the community. First, the Latinization of Firebaugh has presented challenges to local farmers and townspeople. Now totaling some 87% of the community, the Hispanic/Latino population dominates a small city in which non-Hispanic whites were the majority just a generation ago. Not a few small businesses have had a great deal of difficulty adjusting to serve their new customer base.

Second, Firebaugh is dominated by agriculture, its largest industry. In recent years, Firebaugh farms have increasingly turned to intensive crop production. The intensification of farming – represented by a continuing shift away from field crops toward vegetable and fruit crops – raises a series of difficult issues, most significantly increased dependence on foreign-born labor. One of the ironies of this dependence is that it further promotes the transformation of the community toward Hispanic/Latino dominance.

Third, the region is troubled by serious environmental problems associated with irrigated agriculture. Lacking adequate local supplies, west side agriculture depends upon imported water from the distant Sacramento Valley watershed. Natural flows that formerly flushed through the numerous channels of the Bay Delta are partly diverted to irrigate the west side as well as to provide supplemental municipal supplies for southern California.

The entire future of irrigated farming in the region is now the subject of intense controversy as California seeks to find sustainable solutions to future state water needs. The CalFed process now underway pits environmental advocates against agricultural interests. Urban development interests have been joined by environmental groups under an informal understanding that both urban and environmental water needs can be met by taking water away from agriculture. Curiously, Spanish-speaking residents of west side communities such as Firebaugh are unaware that their future is at stake in this policy debate, and haven't even been told that the discussion is underway.

The complexity of these issues is reflected in the fact that applied irrigation water itself brings the bounty of agricultural income and, at the same time, exacerbates environmental damage. Underlying the topsoil in much of the region is a thick layer of heavy clay soils – known as the Corcoran clay layer – that acts much like a ceramic bowl holding the topsoil. A large portion of applied irrigation water remains in the topsoil and builds up over time unless it can be removed. In some parts of the region this perched water table is located just a few feet below the surface. Applied irrigation water also brings in dissolved salts (measured as Total Dissolved Salts – TDS – in parts per million), estimated at about one ton per irrigated acre per year.

Another adverse environmental impact is that applied irrigation water leaches salts from the soil, leading to the release of thousands of tons of these naturally occurring. Drainage efforts have sought to remove these salts in the brackish irrigation return water. But these initiatives were brought to an abrupt end when, in 1985, it was found that selenium salts in drainage water from the area were causing widespread deformities among wildfowl chicks. The entire drainage program was halted in the furor that accompanied this discovery.

Policy Issue-The Changing Face of Firebaugh

As recently as twenty years ago, Firebaugh was known as a “farmer town” in contrast to its neighbor Mendota seven and one-half miles to the south, which has long been known as a “farm worker town.” But over the past two decades, this simplistic distinction has become meaningless. In 1990, the Census of Population found that roughly half of all employed persons in the Firebaugh region were hired farm workers. Corresponding to the large share of hired farm laborers residing in the community, in 1997 the City of Firebaugh was estimated to be 87% Hispanic/Latino. This represents a sharp increase from the 66% Hispanic share found in the 1980 Census of Population. Further, as is reported below, the share of area farmers who either reside or headquarter their operation within the community has dropped and continues to do so. Most of the region’s present day farmers reside in neighboring towns, such as Dos Palos or Los Banos, to the north, or Chowchilla, Fresno and Madera, to the east.

Interestingly, the rural population of the Firebaugh region is roughly two-thirds as large as the population of the city itself. Despite the large number of farm shops with informal or formal labor camps attached, there was only one registered labor camp within the region as of July 1998. However, more than a dozen small enclaves, or *colonias*, and informal labor camps dot the region. Las Deltas, Oro Loma, Eastside Acres and Eastside Ranch are place names that are well-known locally but unrecognized by postal authorities. A generation ago, there were seven registered labor camps within the Firebaugh zip code boundary.

The growth of the size of the foreign-born and Hispanic/Latino population in the area is reflected in census data. Aggregate census data for the zip code area is shown in Table 1, which compares 1980 with 1990 findings. In just ten years the Hispanic/Latino population increased by 22%, the foreign-born population by 40%, and the number of persons age 5 years or older who say they do not speak English ‘very well’ by 76%.

Table 1
Firebaugh Zip Code, Summary Population Data, 1980-90

<i>Data Item</i>	<i>1980 Census</i>	<i>1990 Census</i>	<i>Change, 1980-90</i>
Population	6829	7279	+450
Rural population	n.a.	2850	n.a.
Foreign born	1934	2709	+775
Hispanic	4552	5551	+999
Do not speak English 'very well' (age 5+)	1555	2730	+1175

Housing data indicate that population growth has outstripped new construction. For example, between 1980 and 1990 the number of occupied housing units increased by just one unit, from 1,944 to 1,945, despite the reported population increase of 450 persons in the same period. Recent City of Firebaugh population data suggest continued rapid growth, to a total of 5,800 in 1997, up from 3,740 in 1980 but housing construction lags.

According to 1990 census data, some 54% of households were renters, and at least one-fourth of these reported paying more than 35% of their monthly income in rent. Another indicator of community well-being is the percent of households without telephone service. In 1990, about 12% of occupied housing units lacked telephones, more than four times the state average.

One of the interesting developments in the past few years is that a Fresno county private developer built 180 units of single family residence housing in the city. This initiative was undertaken largely in response to a pressing need for suitable dwellings to house supervisory and lower level management personnel of new food processing plants in the region. Thus, the intensification of Firebaugh agriculture ultimately led to a housing development for its supervisory personnel.

Policy Issue-Intensification of Firebaugh Agriculture

Prior to the importation of surface water supplies, dry land pasture and field crops irrigated by river diversions or groundwater pumping were predominant throughout the entire region. But with the first deliveries of surface irrigation water to the region through the newly completed Delta-Mendota Canal in August 1951 came the first annual Cantaloupe Roundup in Firebaugh. Held annually since that date, the festival celebrates the community's claim to fame as the cantaloupe production center of California. It was the reliability of surface irrigation water deliveries that made it possible to grow melons in the Firebaugh region and ship the product throughout the entire U.S.

In 1968, the newly constructed California Aqueduct, and its San Luis Unit, began delivering irrigation water to the region, as well as areas to the south. The San Joaquin Valley area under irrigation was greatly expanded. Together with the Delta-Mendota Canal, these new facilities made it possible to irrigate virtually all of the west side valley floor.

Subsequently, vegetable and fruit crops other than melons have become very important in the region, most notably tomatoes for processing, fresh market tomatoes, garlic and onions. Today, more garlic is grown in the Firebaugh region than in all of Santa Clara County, home of the Gilroy Garlic Festival. In recent years, new plantings of tree fruit and almonds have sprung up, joining vast new plantings of wine grape vineyards. Significantly, in August 1998, the Firebaugh Cantaloupe Roundup was renamed the Firebaugh Harvest Festival, largely in response to the newly important commodities.

Figure 1 presents data summarizing the increase in vegetable and melon acreage in the period 1979-94. What is especially significant is the dramatic and steady growth in this acreage: by some 54% since 1979. The increase has been fairly uniform across many vegetable and melon crops: +56% in tomatoes, +44% in melons, +143% in garlic and onions, and +78% in asparagus. Only for lettuce and potatoes was there a significant reduction, possibly owing to increased production of these commodities further to the south.

Figure 2 presents data summarizing the increase in orchard acreage in the region. Virtually absent in 1979, vineyards now command some 1,675 acres, deciduous tree fruit

plantings have 1,303 acres, and citrus has 276 acres. Almond and walnut plantings have seen large increases as well, to 4,406 acres and 683 acres, respectively, up from a combined total of 2,783.5 acres in 1979. What is significant here is that reliable water supplies have made it possible for area farmers to expand their range of commodities into tree fruit, nuts and grapes, whereas this was simply not feasible fifty years ago.

Corresponding to this growth in labor-intensive crop production is an increase in labor demand. Though current labor demand coefficients are not readily available, published figures indicate that about 5,569,000 hours of labor are needed each year to tend and harvest these crops in the Firebaugh region. Estimates for 1979 suggest that about 5,110,000 hours were needed for the same group of commodities in that year. Thus, despite improvements in productivity, overall field labor demand increased by about 459,000 hours in this period, or about 9%. This figure represents an increase in FTE employment by 230. Obviously, since these jobs are seasonal the number of persons who fill this demand will be greater. Though modest, the estimated change in field labor demand is significant in a small community of the size of Firebaugh.

Anecdotal evidence gathered in July and August 1998 from key informants in the Firebaugh region indicates that labor demand is being met without any difficulty. One melon grower stated categorically that there is no labor shortage this season. The impact of El Nino on the west side damaged many fields and delayed maturation in others, contributing to a somewhat lower labor demand this year. However, this same grower admitted that about half of his 400 employees do not have valid Social Security numbers, if they have them at all. He also stated that he had received a letter from federal authorities indicating that about 50% of the names and corresponding Social Security numbers in his required wage reports did not have matching records in the files of the agency. He indicated that he was considering an effort to seek Social Security numbers for those employees directly from the agency.

The Growth of the Firebaugh Food Processing Industry

Another feature associated with the increase in intensive crop production in the region is the recent establishment of new food processing plants in Firebaugh. In 1989, the TomaTek tomato processing plant came on line. Located just south of the main part of town, the facility is the first tomato processing plant to be built in Fresno County, an oddity since the county is, by a large margin, the leading grower of processing tomatoes in the state.

Other post-harvest handling and processing facilities established in the Firebaugh region in recent years include:

- Del Monte Fresh Produce (1998) – cooler shared with Perez (below) and office;
- Gargiulo, Inc. (1993) – fresh tomato packer/shipper (first of its kind in the county);
- Gold Rush Produce Inc. (1992) – cooler and office;
- Perez Packing Inc. (1993) – cooler, office and shipping facility;
- Spencer Fruit Company (1993) – cooler, office and shipping facility;
- Wall Street Farms Inc. (?) – office and shipping facility;
- Westside Produce Inc. (1993) – cooler.

Other firms with significant facilities in the Firebaugh region include De Francesco & Sons Inc (1969) and Turlock Fruit Company (?). Another major packer/shipper active in the region is Lindemann Produce Inc., but its facilities are located in Los Banos, north of Firebaugh.

It is believed that the De Francesco plant employs between 100 and 250 persons, the Gargiulo plant hires between 50 and 99 people, and the TomaTek plant has 50 to 99 employees. Nearly all of these jobs are seasonal, lasting from four to six months. On the other hand, they may represent a step up from field labor employment. Although an estimate of the total of new employment in the region represented by these firms is not available, those started since 1989 (including Tomatek) represent about 100 in FTE employment.

Thus, the intensification of crop production in the region has added a total of roughly 330 FTE to the employment base of the area (230 field labor and 100 post harvest processing). The total may be larger since possible increases in De Francesco hiring have not been considered. This firm is the largest food processing employer in the Firebaugh region and so this factor may be significant.

The number of new *jobs* as distinct from FTE *employment* is obviously much greater, possibly as large as 600-700. A large share of these new jobs are in food processing.

Aggregate payroll for the region is not reported, however, the 1994 business patterns census update placed the total of private non-farm payroll at \$33.057 million. EDD wage reports for 1995 indicate that farm employers (farm operators, farm management firms, farm labor contractors) with a Firebaugh business address had an aggregate payroll of \$17.794 million. On this basis we estimate the total private sector payroll for businesses with a Firebaugh Zip Code business address to be \$51 million. Of this amount farm payroll represents roughly a one-third share. However, it is important to note that farm labor contractors headquartered outside of the region but who supply labor to Firebaugh farmers are not considered in this total.

The figure of \$51 million for the private sector payroll must be treated with some caution. Only 82 employers with farm payroll reported a Firebaugh business address in 1995. As described below, this represents just 40% of all 208 farms operating within the region. Thus, it is possible that a major share of the aggregate payroll for the region's farms is paid by employers with business addresses located outside of the zip code. It is not possible to determine this latter share with accuracy since many are farms operating crop fields scattered across the west side and the share to be attributed to the Firebaugh region can not be determined even if the total payrolls were known. Also, labor contractors headquartered outside of the region may be sending in crews and the corresponding share of payroll can not be determined.

Another estimate of farm payroll for the region is possible. Using \$6.38 as the average 1995 hourly earnings for hired labor in the region, our estimates of 5.6 million hours of intensive crop labor demand plus another 2.7 million hours of labor demand for the region's field crops leads to the result that farm payroll is \$53 million. This result implies that farms are responsible for nearly two-thirds of the region's estimated total of \$86 million in private sector payroll.

Firebaugh region employment in agriculture is difficult to estimate since so many farms and labor contractors active in the region are headquartered elsewhere and may have employees scattered throughout the entire west side. For this reason, no effort has been made to analyze available employment figures. However, in 1995, the annual average of reported monthly employment by farm employers was 972 FTE. If the ratio of reported farm payroll (EDD wage reports) to our larger payroll estimate based on labor demand and hourly earnings can be taken to be a guide to the actual level of employment (\$17.8 million/\$53 million), then Firebaugh region farm employment is estimated to total 2,894 FTE.

Thus, the estimated increase in field labor and processing labor employment in the Firebaugh region of 330 FTE since 1989 can be compared with either the 972 FTE found in EDD wage reports for farm employers headquartered in the community, or with the larger figure of 2,894 FTE. In either case, the increase is quite significant, amounting to at least 11%.

A surprising finding of the Firebaugh case study is the large magnitude of the shift into intensive crop production and the accompanying growth of the post-harvest processing sectors. One key informant stated that the new 180 unit housing sub-division in Firebaugh was a direct response to the need for suitable housing for supervisory and low-level management.

Where Have All the Farmers Gone?

Two generations ago Firebaugh was an important center of livestock and field crop production. Indeed, cotton gins have operated in the region for at least three decades and still provide a needed service for the roughly 82,000 acres of cotton production. Cotton is still the largest crop in the region, based on harvested acreage.

The 1992 Census of Agriculture reported exactly 100 farms with Firebaugh mailing addresses, down slightly from the 106 reported in the 1987 census. However, analysis of public record filings with county officials demonstrates that at least 208 farms operated one or more crop fields within the Firebaugh region in 1994. Of the 208, some 94 reported Firebaugh mailing addresses as of that year. However, eleven had post office box mailing addresses in Firebaugh but their situs addresses and the corresponding business telephone numbers were located in an adjacent community. Therefore, as of 1994, as few as 83 of 207 should be considered to be headquartered within the region. Table 2 shows the number of farms by physical location of their principal office or facility.

Table 2

**Farms Operating within Firebaugh Zip Code, 1994
Headquarters Location**

Headquarters Location, Community Name	Number of Firebaugh Zip Code Farms
Firebaugh	83
Dos Palos	40
Los Banos	19
Mendota	15

Fresno	8
Madera	8
South Dos Palos	5
Twenty-four additional communities	30

Thus, about 40% of the region's farms are headquartered within the region. However, these data do not reflect a slow exodus of Firebaugh farmers to nearby towns that appears to be occurring. EDD wage reports for 1995 demonstrate that another four of those with Firebaugh addresses at the start of the year reported a change of address during the year, shifting their business address out of the region even though they continue to farm there. Examination of 1990 EDD wage reports disclosed that an additional three with Firebaugh business addresses in that year reported non-Firebaugh addresses by 1995. There were no cases found in which a farm operator headquartered outside of the Firebaugh Zip Code moved its business address into the area between 1990 and 1995.

Census findings indicate that only 69 households in the region reported farm self-employment income in 1990, and the average amount earned was \$23,856 per household. Interestingly, this figure for the average farm income per household reporting farm self-employment income is very close to the value \$23,649, which represents the average household income for all 1,884 households of the entire region. That there were only 69 such households indicates that of the 83 farms of the region that were identified with Firebaugh business addresses very likely at least a dozen have owners who actually live outside of the region.

These data indicate that there appears to be a small but possibly significant "farm operator drain" out of the community that coincides with the Latinization of the region. Interpretation of this aspect of the case study will be informed by interviews to be conducted with farm operators.

Policy Issue-Does Farming Have a Future in Firebaugh?

An issue of great concern to Firebaugh agricultural interests is the effect of new environmental water policies on irrigation supplies. The problems of west side farming are well-known: salt buildup, the perched water table, and leaching of toxic salts from the soils.

Recently, environmental advocates formally proposed permanent retirement of 400,000 to 600,000 acres of farmland in the area where these problems are known to be the most acute. Roughly speaking, the entire region from Los Banos to Huron would be fallowed, and a \$2 billion bond issue would be needed to finance state or federal purchase of 500,000 acres of this land.

The argument is not without appeal. The water made available from such a major land retirement program would satisfy both projected urban water needs as well as environmental restoration of the Bay Delta. Clearly, water no longer diverted from the Delta would be available to flush this important but damaged estuary.

However, no effort was made by advocates of land retirement to address the social and economic impacts of shutting down such a large and productive agricultural region. Unfortunately, Firebaugh sits in the middle of this policy “war zone.”

At present, the proposed large-scale land retirement proposal is in abeyance, mostly because the CalFed program administrator, Lester Snow, has responded to the proposal by stating in writing that it is not one of the current options being considered. However, knowledgeable environmental advocates report that they have not given up on the idea and actually would like to permanently retire 1,000,000 acres on the west side.

In the midst of this controversy, no one knows how large an impact such a fallowing program would have. And no one knows how much it would cost to mitigate the impacts on communities such as Firebaugh. It is hoped that the Firebaugh case study will help to fill in the missing data.

Summary and Conclusions

The Firebaugh region is experiencing significant population growth, driven in large part by a major shift in agricultural production, away from field crops and into fruit and vegetable crops. The Hispanic population of the region may be as large as 90% of the total by the time of the 2000 census.

Labor demand has significantly increased in the region. However, in July and August 1998, key informants stated that there was no shortage of field labor for the harvest then underway. The increased demand for labor in the region has been met in this and prior years.

Associated with the intensification of Firebaugh agriculture is the expansion of the region’s food processing sector. New plants, both cannery and fresh packing/shipping facilities, have been established in the region in the past eight years.

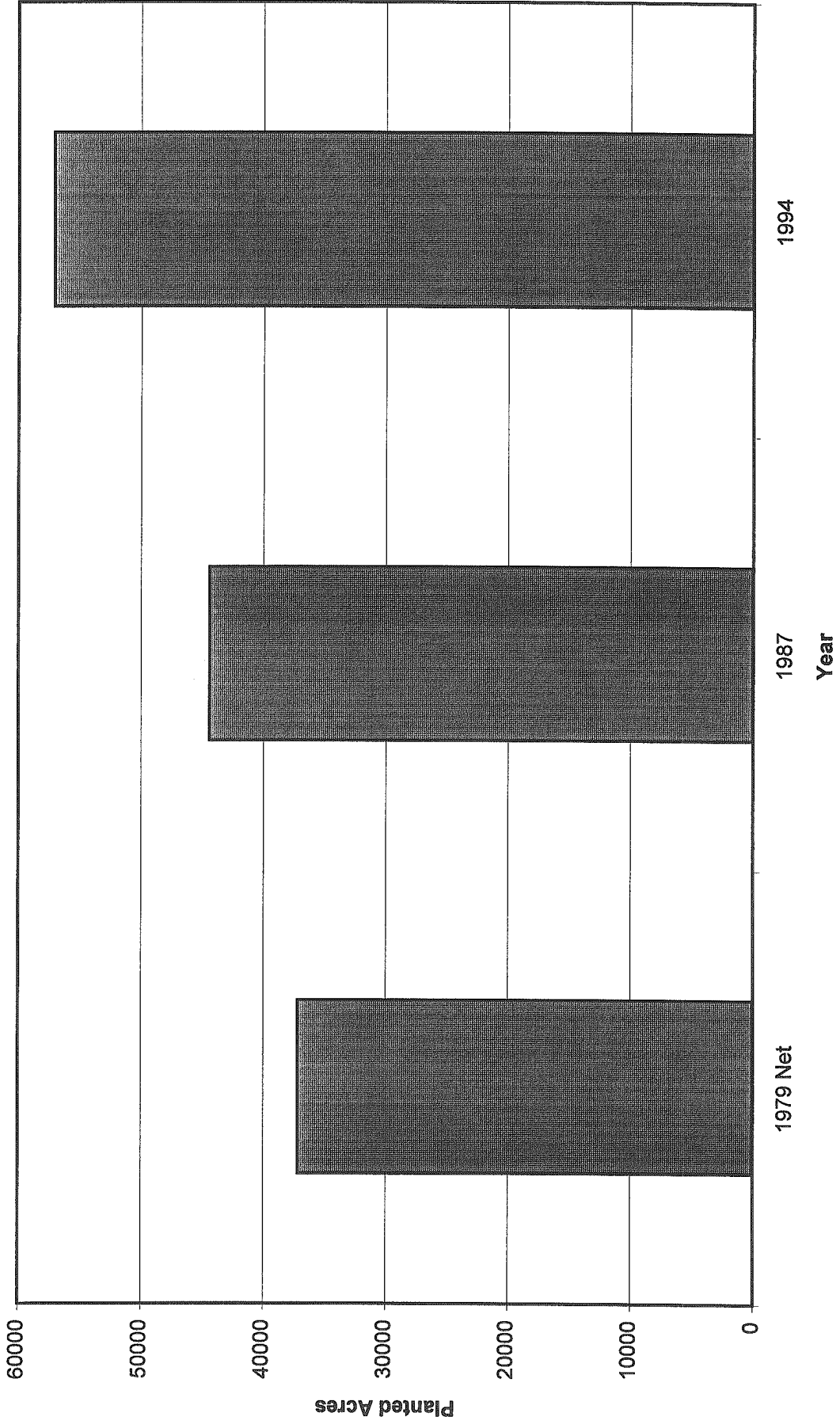
Taken together, the new plants and the greater production of fruits and vegetables has added about 330 FTE since 1989. This represents at least an 11% increase in area employment. The new job opportunities include supervisory and lower level management positions in food processing.

Despite the population growth and establishment of new plants, housing starts have been few. However, a new 180 unit development has been recently constructed, with private funds, largely in response to the need for suitable housing for the supervisory staff of the new plants. Thus, the pattern of Latinization of rural communities has a somewhat different aspect in Firebaugh: new employment opportunities in food processing and economic growth in the area.

Finally, environmental policy initiatives intended to address Bay Delta water quality problems pose a potential threat to farming in the entire region. At present, these policy initiatives are being held in abeyance but could re-emerge at any time.

No current social-economic impact studies are available to measure the effect of the implementation of the proposed environmental policies. The Firebaugh case study represents an important opportunity to provide this information.

Vegetable & Melon Plantings, Firebaugh Zip Code



Permanent Crop Acreage, Firebaugh Zip Code

