

PROGRESS REPORT FOR  
AGRICULTURAL ENVIRONMENTAL HEALTH AND EDUCATION PROJECT  
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The Santa Clara County Health Department is presently carrying out a multi-facet program in agricultural health whose broad objective is to improve the health of farm people in general, and in particular the health of migrant agricultural workers and their families. The major responsibility for the design and execution of the program is assigned to the Bureau of Occupational Health. It is, however, a program being carried out by the cooperative effort of the entire county health department.

One cannot do public health work within a segment of the vast agricultural field without it affecting in some way the health and welfare of the entire people working and living within this segment. Thus, for example, to improve the sewage disposal facilities of a prune picker's family not only lessens the dangers of enteric diseases to the picker's family but also to the grower's family and, in a sense, to the community as a whole. If one carries out a comprehensive educational health program with farm workers in the safe use of agricultural insecticides, the benefits derived from this program will extend to the grower himself and his family. This is not a one way street; benefits derived from services rendered directly to grower or management groups extend at times even to the lowliest agricultural groups. For example, a small strawberry grower who does his own spraying is fully instructed on the safe use of the organic phosphorous insecticides. He is instructed on the proper respiratory equipment, adequate protective clothing, personal hygiene, a medical supervision program, storage of insecticides, disposal of contaminated containers, adequate waiting time between application and re-entry, and instructions in first aid in case of poisoning. The knowledge that he gains in protecting himself he later applies in protecting the strawberry pickers who work for him, and who in many cases are migrant agricultural farm workers.

In approaching the problems of agricultural health and designing a program to meet its needs, it has been the feeling of this department that the program should be one of broad spectrum. The program should have as its ultimate goal the bringing to all segments of the population in the field of agriculture the same traditional services rendered by health departments to urban and suburban groups. With this philosophy of agricultural public health in mind, it has been the endeavor of all bureaus and divisions of the health department to intensify their activities among rural groups, and to add services which are needed by agricultural groups.

Since the activities of the Bureau of Occupational Health have been directed mainly at the employed farm labor force and its work environment, it might be well to describe the farm labor force in Santa Clara County. First, there are the farm owners and their families of working age. The kind and amount of work that they do are sometimes a measure of their affluence. There are farm owner families in which only the head of the household works in agricultural pursuits, and his duties are managerial rather than manual. On the other extreme, there are farm owner families in which not only the head of the family works on the farm but also the wife and small children. An example of the last can be seen in the small strawberry farms, the cut flower growers, and small orchards of deciduous fruits.

Second, there are the farm tenants and their families. These families do not own the farms they till but rather enter into contractual arrangements with land owners whereby they share in the yield or the profit of the farm operation. The pattern of the farm labor force for tenant farmers and their families varies from farm operation to farm operation. Usually the family lives on the farm and the whole family, including small children, works on agricultural pursuits. An example of this type of farm labor force can be seen in the operations of a large strawberry shipping and freezing company. The company owns many parcels of land throughout the county which it leases to tenant farmers for growing strawberries which the company markets or freezes.

Third, there are the permanent farm workers who live on the farms and work throughout the year on the farm. Here the male member of the family works for a salaried wage. In addition to his wages, he is usually provided with a house of varied states of adequacy for his family. During the peak of the harvest season, his wife and children usually also work for additional wages or may go to work in adjacent farms. An example of this type of work force can be seen in many different types of agricultural operations where a small but permanent labor force is needed at all times. This type of labor force can be found in large or medium sized orchards, in dairies, in large poultry ranches, in cattle ranches, or in row crop farms.

Fourth, there are many permanent farm workers who live in the cities and small towns of the county and drive to their work on farms. Their work and status are similar to the permanent farm worker who lives on the farm. Their families may or may not work on farm operations during the peak of the harvest season. This type of labor force can be found in large or medium sized orchards, in dairies, in cut flower nurseries, in large poultry ranches, in mushroom farms, in cattle or sheep ranches, and in vegetable and row crop farms.

Fifth, there is a growing number of seasonal farm workers who live in the cities and small towns of the county. In very many cases, these permanent residents of the county were migrant agricultural workers just a few years back. Instead of migrating to their winter homes outside the county during the slack season, they have established their home base closer to their seasonal work. Usually all members of the family who are old enough work. During the winter months when agricultural operations are at a low level, many do odd jobs. Many families from this group are recipients of county welfare funds. A few leave the agricultural field each year as they find low paying, menial jobs in industry.

Sixth, there is the large but constantly diminishing group of migrant agricultural workers and their families. It has been estimated that at the peak of the harvest

season, there may be as many as 20,000 migrant workers in the county. Most of the migrants come from the southwestern United States, particularly the state of Texas, but there are found also migrants from New Mexico, Arizona, Arkansas, Oklahoma, and other parts of California. The peak of the harvest season lasts about twelve weeks in Santa Clara County, from July to September, but migrants start coming in March and some of them do not leave until November. They usually live close to their work operation, in dwellings that can be described as adequate to intolerable. Not only does the head of the family work in the fields, but also all other members of the family able to work. The younger children usually accompany their parents in the fields. This is probably the agricultural labor group that has the greatest problems and the least care in the field of health. The education of the children is neglected, and that in itself seems to be a factor in perpetuating a class that finds adjustment to modern society increasingly difficult.

Seventh, there is a bracero labor force in Santa Clara County. This force is also diminishing in numbers in the county. It is made up of single men who come to this country from Mexico under the provisions of a treaty between the United States and Mexico. The treaty governs their wages, living and working conditions, transportation, medical care and insurance. In this county, they live in large labor camps which are adequate. They remain on the average about six months in the county and then return to Mexico. They engage in all sorts of agricultural activities in which technical knowledge of operations is not required.

Eighth, there are also some seasonal workers who reside outside the county and either drive to their field work in their own cars or come in chartered buses. Most of these workers come from the large city of Oakland in adjacent Alameda County. Men, women and elder children constitute the work force. In many cases a labor contractor brings them into the county; in other cases they are all members of religious organizations and are organized into a labor force by their pastor. They usually come for

harvesting work only.

Ninth, in Santa Clara County there is also a considerable but diminishing work force, particularly during the prune harvesting season, of workers who are not agricultural workers in the true sense of the word. Many of these workers actually have not yet entered the labor stream. This work force is composed of grammar school and high school students who work during their vacation on harvesting jobs. It is for this reason that the public schools in south Santa Clara County open about two weeks later than do the schools in the rest of the county. This provides a needed labor force to harvest prunes. This work force disappears as soon as the schools open in the autumn. Most of the youths are members of farm workers' families. Other local youths, other than members of farm workers' families, have not been employed extensively in seasonal jobs during summer vacations.

Tenth, there are other varied labor groups in Santa Clara County. At times one finds unemployed workers from industry who have exhausted their workmen's unemployment insurance and have taken a farm job until the time when industry can take them back again. In years past, there has been in Santa Clara County an agricultural work force composed of single men who have come here under contract from the American Island session of Samoa. College students are found employed in agribusiness during the summer vacation.

#### Objectives of the Project

The project objectives as stated in the project application are as follows:

"First, the Bureau of Occupational Health, B.O.H., will investigate farm occupational and farm family living environments in cooperation with overall health activities already established.

"Second, the B.O.H. is interested in the whole agricultural environmental picture: mechanical hazards; environmental sanitation, water supplies and sewage disposal, and vector control; housing; and, particularly timely today, the possibility of unrecognized

agricultural chemical hazards; the summation effect of the agricultural environment.

"Third, as specific risks of importance are identified, the B.O.H. will attempt to discover, if possible, practical means of eliminating, controlling, or lessening such hazards.

"Fourth, we will seek to develop by health education methods, the ability of the grower and his seasonal farming personnel to help themselves reduce these risks and thereby improve the general health of all people living and working on the farms and ranches.

"Fifth, the B.O.H. will keep the various cooperating agencies and health department divisions fully informed of findings and progress of our program by memoranda or brief reports.

"Sixth, colleges, universities, other health departments, and public agencies interested in preventive medicine, environmental sanitation and occupational hygiene will be informed of our program and invited to participate cooperatively where mutual interests overlap or activities reinforce one another. Student participation will be encouraged.

"Seventh, at appropriate times and without undue delay, in order to stimulate interest in farm family and occupational environmental problems, and to disseminate achievements and findings of general interest, the B.O.H. will prepare articles for publication."

#### Planning

Like all new programs in public health, during the first few months of the program considerable time was spent in planning. This was particularly needed in the program of agricultural occupational health since this is a new program not only for Santa Clara County but, as far as we know, for health departments in this country. There was no guide that could be followed or reports that could be reviewed on the activities of other health departments in the field of agricultural occupational health. The program

actually started in September after the peak of the harvest season had passed and most of the migrant farm workers had left the county.

To determine what programs should be developed and what services should be rendered, we not only drew from our total departmental experience in the field of rural health but also tapped known sources of information in the county. There are many organizations and individuals who have an interest in agricultural health, directly or indirectly. In many cases this interest in health is only secondary, the main interest in agricultural groups being educational, religious, economic or some other. The available statistics were reviewed to see if they could shed any light on the need for a particular kind of program. After deciding on the activities that would be carried, the next step was designing the program. First it had to be determined what segment of the agricultural population we wanted to be most affected by the program, next what field activities would be carried out, what personnel would carry out these activities, and what records should be kept for evaluation of the program.

Since many farmers are sometimes quite sensitive to new governmental activities, particularly where these activities are not well understood, we made it a point to inform key people and organizations about our program. Other governmental agencies, farm bureaus, and organizations having an interest in agriculture were informed.

Fortunately, the problem of securing adequate personnel to carry out the program was soon resolved. The senior occupational health engineer was appointed program field director of agricultural environmental health. As occupational health engineer, he had had some experience in working with agricultural groups. He is personally very interested in agricultural health and is bilingual in Spanish and English. Having lived on the Texas-Mexican border for many years and also having worked in Mexico for a few years, he also understands the culture of many of the people who comprise a large percentage of the agricultural population of Santa Clara County. The occupational health specialist in agriculture was also secured from personnel already working for

the health department. A vector control specialist with considerable experience in agricultural operations was appointed to the position. A mature individual with experience in agriculture while employed with the U. S. Department of Agriculture, he was born and raised on a farm. He knows the problems of farmers well and can discuss their problems in a style that invites cooperation with our department. The occupational health physician, who is also the Chief of the Bureau of Occupational Health, is responsible for the administrative and medical phase of the program. The occupational health chemist does the laboratory work necessary in the analysis of field samples collected as part of our program. The other occupational health engineer and the occupational health nursing consultant assist in carrying out the program.

Inasmuch as we were carrying a program of occupational agricultural health within the health department and as part of a generalized program in agricultural health, the facilities in personnel and equipment of the whole department were available to us. Elsewhere in this report the activities of the other bureaus and divisions of the health department in this project will be described. In the first part of this report we will endeavor to describe only the activities of the Bureau of Occupational Health. It might be well to state here that the Bureau of Occupational Health sought and received help from other governmental agencies, as well as from the many organizations with an interest in occupational health.

The main activities of the Bureau of Occupational Health during the six months' period that the project has been in the process of development and execution have been visits to different kinds of agricultural operations. These visits were made primarily to gain information and to define the problems in agricultural health if any could be identified. We were interested in discovering occupational hazards, particularly conditions in the work environment, which over a period of time would cause occupational diseases. These activities, the method of procedure and their results will be described in the following section of this report.



Visits to row crop farms have been made. This activity, however, has been deferred until a more active period. The project started after most of the harvesting in row crops had been completed. Both migrant labor and local seasonal labor are employed in the harvest of these crops. Permanent farm workers and their families are also employed. Among some of the important row crops grown in Santa Clara County are strawberries, beans, crucifers, cucumbers, lettuce, onions and garlic, sugar beets and tomatoes.

Visits to orchards of deciduous fruits were made, but again this activity was deferred until a more active period. The occupational health specialist did not actually start doing field work on the project until the harvest season for fruits was practically over. At this time, the ground work for an intensive visiting period during the harvest season has been laid. Most of the migrant workers employed in Santa Clara County are employed as fruit pickers. Men, women and children are employed. Our next progress report should reflect considerable activity in this phase of agriculture. The commercial deciduous fruits grown in Santa Clara County are cherries, pears, apricots and prunes. The harvest season for grapes and walnuts, two important crops in Santa Clara County, also coincides with the harvest season for deciduous fruits. Migrant labor and local seasonal labor are also used.

Next we started visiting the dairies in Santa Clara County. There are 63 dairies operating in Santa Clara County. Most of them can be classified as medium size (250 head of milk cows); there are a few, however, that can be classified as large (500 head) and many in the small category (50 head). The occupational health specialist, at times accompanied by the occupational health engineer, made all of the visits. In making these visits, we sought and interviewed the owner or manager. We explained the purpose of our visit, namely to find out if there were any occupational hazards or conditions that might lead to occupational diseases, and to offer our services to improve the work and home environment should we find any hazardous condition. There followed a visit to the different parts of the dairy and an inquiry into the people employed. No migrant

or seasonal workers are employed by the dairies in Santa Clara County. The dairy hands are all males, many of them single, who live in houses provided by the dairy owner. When the dairy worker has a family, a house is also provided for the family. These houses, although not sumptuous, can be described as adequate. Dairy owners prefer the worker who has a family because he is more settled. The single men often quit their jobs without advance notice and move to another dairy or another county, creating labor problems. We inquired into occupational hazards and occupational diseases and found very little evidence of their existence. Occasionally a dairy worker will get a dermatitis on his hands from the use of dairy detergents.

We have also started visiting the 98 poultry ranches in the county with essentially the same purpose in mind as in our visits to dairies. We want to know if there is a problem, to define the problem, to find out something about the employed population, and to find out what services of the health department can be extended to this segment of the employed population. Again the occupational health specialist, at times accompanied by the occupational health engineer, made all of the visits. Poultry ranch owners or managers were interviewed. Plant facilities were inspected. For this segment of agriculture, our inquiries show that there are no migrant workers employed at any time. Seasonal workers are employed by some of the larger poultry ranches but these workers reside in the county. Most of the labor force is made up of permanent male workers who sometimes live with their families at the poultry farm, but more often reside nearby either in small towns or in rural dwellings. Our inquiry into occupational hazards or diseases revealed that there have been several illnesses due to exposure to the chlorinated hydrocarbon insecticides. Insecticides are used to control flies. There have also been cases of dermatitis due to insecticides and to detergents. Allergies have been reported by the few women who work in the egg washing, candling, and packing operations. In these poultry ranches where housing was provided for the farm workers and their families, the condition of the housing can be described as adequate.

There are six hog ranches in the county. All of them have been visited by the occupational health specialist. No migrant or seasonal labor is employed. No occupational diseases have been reported by the employed personnel. The employed personnel are all permanent male employees. Some of them live at the hog ranch with their families in houses provided by the owner. Houses are adequate but the surrounding environment is not. House flies are at times a problem and odors are present most of the time. Hogs in Santa Clara County are garbage fed, and at all ranches in the county facilities exist for cooking garbage. Some of the hog ranches are partly owned and partly operated by garbage companies.

We have visited most of the nurseries that grow cut flowers in the county. The cut flower industry is an important segment of agriculture in this county. Santa Clara County now ranks first in the nation in the production of cut flowers and in the dollars invested in this segment of agriculture. Chrysanthemums, carnations, asters and roses are grown here throughout the year. The nurseries hire seasonal labor but not migrants. The greater part of the work force consists of family members, both men and women. In many instances, the nurseries are grouped together and families help each other during peak seasonal work loads. There have been several cases of dermatitis resulting from the use of insecticides and from the handling of the foliage. One serious case of systemic poisoning from the organic phosphorous insecticides was investigated.

All of the mushroom farms in Santa Clara County have been visited and the work environment surveyed. There are 27 mushroom farms in Santa Clara County. All of them can be classified as small. None of them employ migrant labor or seasonal labor. The biggest mushroom farm employs no more than six male workers and four female workers. None of the mushroom farms provide housing for the workers. No occupational diseases were reported. The new illness among mushroom workers, which first appeared in Santa Cruz County in February, 1960, has not appeared in Santa Clara County. A few cases of dermatitis, probably due to the handling of insecticides, have been reported. Generally

speaking, the work environment was satisfactory.

We departed somewhat from the purely agricultural activities and visited industrial and commercial plants that are very closely allied with agricultural activities -- the agribusiness. Most of these plants employ local seasonal labor and many employ migrants Among the plants that are open only during a few months of the year and employ migrant and local seasonal workers are the prune dehydrator plants, the cherry packing plants, the apricot drying and packing plants, the pear packing plants, the cucumber and bell pepper salting plants, and the strawberry and other berries freezing and packing plants. The insecticide formulating plants are open all the year but are most active during the spring and summer months. They do not employ seasonal workers although they may at times increase their work force during peak work demands. Specialty stores selling exclusively to agriculture such products as animal feed, insecticides and farm machinery were visited and survey forms were completed. The canneries were included in our visits These are also seasonal operations coinciding with the fruit harvesting season. Local seasonal workers are employed throughout the industry but very few migrant workers. Santa Clara County is the largest cannery center in the world. Not only are the fruits that are grown here canned, but fruits from other parts of California and other western states are brought here for canning. Even pineapple from Hawaii is found in the fruit cocktail canned in local plants. Among the fruits canned are pears, peaches, apricots, plums, cherries and grapes. The canning of tomatoes and the production of tomato sauce and catsup are important activities of the canneries that follow the fruit canning season. Freezing plants for vegetables are closely connected with cannery operations. In Santa Clara County, among the vegetables that are packaged and frozen are string beans, broccoli, cauliflower, brussels sprouts, spinach and chard. The most common occupational illness experienced by cannery workers was dermatitis.

A phase of our program which received emphasis was the survey of commercial pest control operators. Many of these are engaged in agricultural operations. A survey

Form was devised which would yield us the information desired. Most of the pest control operators in the county have been interviewed. This was an excellent opportunity to do health education work among a high risk group of employed people. No migrant or local seasonal workers are employed in this segment of the industry. Cases of dermatitis have been reported by many of these workers but only a few cases of mild systemic illness.

An important part of our agricultural occupational health program, and one which will become increasingly important, is the sampling for pesticide residue. A major goal of this project is to study pesticide residues by biological sampling and analysis in groups of farm workers and their families known to have received greater exposures to pesticides than the general public. A knowledge of the exposure history of these farm populations and a knowledge of the pesticide residual levels in their environments must be included in our investigation. If significant quantities of pesticide residues are found, we plan to evaluate the exposed population's health status and the incidence of disease processes. There are several major problems that have to be met before attaining these goals.

First, we must have the confidence of the rugged, individualistic farmers of this county. Farm owners and managers must be convinced that we are trying to help them by determining if a condition exists from their use of pesticides which may result in a chronic disease. They must feel confident that we do not intend to stop the use of pesticides but rather that we intend to help them develop safer and better methods of use if we should find that hazards are associated with their present choice and use of pesticides.

Second, we must develop analytical methods suitable to our purpose. Reliable, reproducible sampling techniques are just as important as the analytical techniques. Developing sampling techniques and testing the applicability of the reported analytical methods are time consuming processes. Our new laboratory equipment arrived in mid-January. The Wilkens Gas Chromatograph (Aerograph HY FI), which utilizes flame

ionization and electron capture detector systems, will allow accurate measurement in 0.1 milliliter of sample quantities of chlorinated hydrocarbon insecticides in the range of  $1 \times 10^{-12}$  grams and organic phosphorous insecticides in the range of  $1 \times 10^{-12}$  grams. As a further check, we plan to use the Perkin-Elmer Model 21 Double Beam Spectrophotometer. Fractionated samples will be collected from the effluent stream of the gas chromatograph and positively identified and determined quantitatively.

Thus far, based on our soil sampling and analysis experience, we feel that we will be able to detect and identify the following chlorinated hydrocarbons: Lindane, Aldrin, Dieldrin, Heptachlor epoxide, Kelthane, DDT, DDD, Endrin, Thiodan, and Methoxychlor. We are not yet satisfied with our ability to identify the other organic pesticides and their oxidized or hydrolyzed compounds. Even if the information and data that we obtain from this project should prove to be insignificant as far as human health is concerned, this knowledge will still have scientific value. On the other hand, should we find high residual values in soil, foliage and produce, it will indicate that a potential health problem is present and that further investigation is necessary. Even if the pesticide residual level in the agricultural environment is low, a significantly high residual level in farm workers applying pesticides or engaged in harvesting activities will require further investigation.

The new Agricultural Safety Orders adopted in November, 1961 by the California Industrial Safety Board require that medical supervision be provided for agricultural employees who regularly work with certain toxic phosphate ester pesticides (organophosphorous) such as Parathion, Phosdrin, Thimet, TEPP, Methyl Parathion, EPN, OMPA, and Systox. These orders were adopted as a necessary step to combat the increasingly serious problem of phosphate ester poisoning in farm workers. Working in close cooperation with the County Agricultural Commissioner and through the Agricultural Pesticide Advisory Committee, we were able to add that as a condition for the issuing of a permit to use toxic chemicals, the applicant must state the name and address of the physician who

will supervise the medical program. A copy of the permit issued by the County Agricultural Commissioner is sent to the health department. Soon after the copy of the permit is received, the physician whose name appears on the permit is sent a letter informing him that he has been named as the physician who will supervise the preventive health program and in an emergency provide medical care. At the same time, he is sent a 12 page packet of the latest literature on medical supervision and care of persons exposed to organophosphorus pesticides. A list of 166 physicians willing to act as medical supervisors has been compiled by the Bureau of Occupational Health and has been given to the County Agricultural Commissioner so that applicants may be guided by this list in their selection of physicians. It is felt that this activity has been a significant factor in cutting down the rate of insecticide poisoning cases in agriculture and in lessening the severity of the few that have occurred.

Another activity in which the Bureau of Occupational Health has fully participated has been in the work of the Agricultural Pesticide Advisory Committee of Santa Clara County. This committee, composed of representatives of Farm Bureaus, local granges, growers associations, insurance companies, Agricultural Extension Service, Division of Industrial Safety, Agricultural Commissioner, County Health Department and others was organized with the objectives clearly spelled out:

"...to keep informed of potentially hazardous pesticides, dangers in their use, residue toxicity problems, and means of control of hazards; and

"...through educational means, to pass on this information to farmers, gardeners, physicians, and all other interested persons and organizations."

The three persons from the Bureau of Occupational Health charged with the major responsibility of carrying out the program in agricultural health are active members of this committee. The work of this committee has certainly been a factor in the abrupt drop of insecticide poisoning cases in agriculture.

### Family Health Clinics

This project for bringing health services to farm workers was never conceived as being within the scope of activities of one single bureau or division. From the beginning, we have envisioned it as a project in which all bureaus and divisions would have a part. Many bureaus within the health department were already doing significant work in agricultural health. Here the project merely acted as a catalyst for increased activity and closer interdepartmental cooperation. In the following pages, we will describe the activities in agricultural health of the other bureaus of the health department.

The Bureau of Preventive Medicine held family health clinics at ranch locations so as to be better able to extend its services to agricultural laborers and their families. A total of 11 clinics were held at four ranch locations during the months of June, July and August. The health department staff per clinic consisted of 2 public health physicians, 2 to 3 public health nurses, 3 to 4 clinic nurses and a public health nutritionist. The staff was assisted by 6 to 10 volunteers. The services rendered can be listed as follows:

1. Physical examination for all preschool children and for school age children as indicated.
2. Routine immunizations for all children and polio immunizations for adults.
3. Tuberculin testing for all children and adults.
4. Health education demonstrations of various kinds in which nutrition is stressed.
5. Referrals for medical care as needed.
6. Eye examination for children.
7. Urine specimen on children.
8. Referrals to chestmobile for positive tuberculin reactors.



The clinics were held at each ranch location between the hours of 9 and 5. A description by ages of the patients seen follows:

1. TVA Farms - South County - 3 sessions

Total of 70 persons in 21 families

Sex - not available, few adult males

Ages - Under 1.....9	15-19.....7
1-4.....16	20-44.....11
5-14.....26	45-64.....1

Type of conditions found - 1 convulsive  
2 congenital heart  
1 hernia  
1 heart murmur

Final outcome - statistics not available

2. Abruzzini Ranch - South County - 3 sessions

Patients seen - 309 individuals

Sex - not available

Ages - Under 1.....19	15-19.....14
1-4.....82	20-44.....45
5-14.....145	Over 44.....4

Type of conditions found - not available

Final outcome - not available

3. Almaden Area Clinic - 3 sessions

Statistics not available as to number seen. Policies same as for South County clinics. A very active clinic similar to South County clinics.

4. Cupertino Area Clinic - 2 sessions

Only 10-12 families involved, mostly non-migrant

General appraisal of family health clinics for farm workers: Almaden and South County clinics were well attended and provided services which would otherwise not have been available to these families. Many families were "returnees" from similar clinics

held in 1962. Nursing Division opened family folders and were able to follow many families in the following months. Positive tuberculin tests were followed up by chest films at the mobile unit or at the County Hospital chest clinic. The clinics in Cupertino saw relatively few families, of whom less than half were migrant. The nurses feel that this location is unnecessary since transportation to nearby sources of medical services is less of a problem than in the South County and Almaden areas.

The Bureau of Preventive Medicine held child health service conferences at 8 different locations. A total of 28 child health conferences per month were held where it was felt that the members of the population affected were agricultural laborers' families

28 CHC's - 3 to 4 hours per session

16 CHC's - 90% or more agricultural laborers' families

5 CHC's - 50-90% agricultural laborers' families

7 CHC's - 20-50% agricultural laborers' families

The staff at these conferences consisted of a public health physician, a public health nurse, a clinic nurse, and 1 to 2 volunteers. The patients seen were infant or preschool children. Approximately 12 were seen at each session. The services rendered were physical examinations, counseling and guidance, referrals to other agencies and immunizations.

Prenatal clinics are held at the South County branch of the health department for 6 full days during each month. The staff consists of a public health physician, a public health nurse, a clinic nurse, and volunteers. The hours the clinic is available are 6 to 7 per day and the patients seen are females between the ages of 15 and 40, the majority being between 20 to 35. In a typical prenatal clinic, about 20 are seen each day. The patients are referred to the County Hospital as indicated.

Dental clinics are held in south county ten days each month. Although not all the patients seen belong to families of farm workers, the majority do. The staff consists of a public health dentist, an assistant and a clerk. The patients seen are children

up to the age of 18 and referrals from the prenatal clinic. About 10 to 12 patients are seen a day. The services rendered are preventive and restorative plus educational.

Although medical care is outside the sphere of activities of the health department, the Bureau of Preventive Medicine has had an interest and has promoted activities that would bring better medical care to the rural south county population. These activities appear to be stimulating an increased interest on the part of County Hospital authorities. It has been felt by many people that the location of the County Hospital in San Jose, 30 miles away from Gilroy, the hub of most agricultural activities, imposes a hardship on the people of south county. The Santa Clara County Board of Supervisors, through their counsel, has set up a contract to be signed by physicians in rural south county to provide medical care for migrant and seasonal workers. Thus far nine of the twelve contracts have been signed. Apparently the County Executive believes that the knowledge obtained through these contractual arrangements will make possible a determination as to whether further County Hospital services should be made available locally in the south county area, preferably through a clinic established in or adjacent to the present existing hospital in Gilroy, Wheeler General Hospital.

The present contract provides medical care for acute and subacute illnesses by the local physicians. After the first visit, the physician must notify the County Hospital social worker who will then determine eligibility. A second visit or treatment may be given while eligibility is being determined. The social service worker will determine which patients are to go to the County Hospital for further care and which ones may be followed by the south county physicians. Prescriptions will be filled by the south county pharmacies and the supplies replaced by arrangements with the County Hospital pharmacy. For cases to be transported to County Hospital, bus tickets will be made available. These will be given to the County Health Department, County Welfare Department and the south county physicians. The manner by which the patients arrive at the transportation point of get home on returning has not been adequately answered. It is

hoped that the county bus services will be used if needed, twice a day in and twice a day back. Unless the entire arrangement breaks down, it will probably take the remaining season to evaluate how successful these arrangements are.

#### Nursing Services

The Nursing Division of the Bureau of Preventive Medicine carries a generalized program in public health nursing which extends to people living in rural environments and whose occupations are mainly agricultural. Most of the district nurses have rural populations in their districts, but the eight nurses in south county work with a population that is predominantly rural. The nurses in unincorporated East San Jose also work with a population which, although it is not rural by reason of residence, can be classified as rural by reason of occupation. The head of the household is employed in agriculture and at times other members of the family do seasonal harvest work.

The staff of the Nursing Division consists of the following personnel:

- 47 Public Health Nurses
- 16 Junior Public Health Nurses
- 7 Supervisor Public Health Nurses
- 1 Educational Nurse Consultant
- 2 Staff Nurses
- 2 Senior Public Health Nurses
- 1 Assistant Chief of Public Health Nursing
- 1 Chief of Public Health Nursing

In carrying out its program of public health nursing, there are certain activities in the general nursing program which have affected rural populations. These include prenatal teaching, care of the baby, care of preschool children, prevention of home accidents, immunization clinics, tuberculosis epidemiological investigations, tuberculosis clinics, survey of homes for garbage facilities and vectors, counseling, and referrals to Welfare Department, County Hospital or social service agencies.

In prenatal teaching, the nutritional and emotional aspects are stressed. The nurses have the services of the public health nutritionist as a consultant in designing practical diets. The emotional aspects in many expectant mothers from the laboring agricultural group are very often associated with their low economic status and their large number of children. In teaching mothers how to take care of the baby, the public health nurse reviews the practices which the mother now follows and evaluates them as to their safety. Young mothers are taught how to prepare the baby's formula and how to bathe the baby.

During home visits to rural families, the public health nurse is particularly interested in the preschool child. She notices facial expressions on the children that may reveal a condition of disease. She notices how the child walks and if she should discover that a child limps, she seeks to discover the cause. She refers the child for medical care should she suspect a handicap. She makes surveys of the home for things that may contribute to home accidents and suggests corrective measures where needed. She refers all children with diarrhea to the County Hospital and makes cursory surveys of the drinking water supplies. Should she suspect that the drinking water supply is contaminated, she refers it to the district sanitarian.

The public health nurse participates in family health clinics for children and adults. The clinics are held where it is felt that they are most needed. Babies and children are immunized against polio, tetanus, diphtheria, pertussis and smallpox. Adults are immunized against polio only. Tuberculin test is given to children and referral is made for x-ray should the test be positive.

The public health nurse refers families to County Welfare where the need appears to be critical. She also refers families for counseling to social service agencies. Not many people from rural groups avail themselves of the services of the Bureau of Mental Health. In tuberculosis investigation, inter-agency work is often necessary with migrant families. Often these agencies are outside the state.

The public health nurse makes full use of the services of the Health Education staff. The work of the public health nutritionist in rural health clinics has already been described. In addition, the Health Education staff prepares educational material including posters for use at clinics. Films on preventive public health particularly suited for rural groups are reviewed by the Health Education staff before the district nurses so that they may show them to rural groups.

It is the feeling among public health nurses that their services are not reaching all of the rural people or the people engaged in agricultural pursuits. This is particularly true of the migrant agricultural worker and his family. The time he stays in the county is too short for the nurse to establish contact, much less a stable relationship. Public health nurses see rural housing as the number one problem, followed closely by inadequacy of transportation to medical facilities. There has been some improvement, however, and the trend appears to show that there will be accelerated improvement.

#### Sanitation Services

The Bureau of Environmental Sanitation carries a general sanitation program which actively deals with a number of facets of the environment as they apply to health. All of the eighteen district sanitarians have rural populations in their districts; twelve districts are primarily rural. The district sanitarian services affect farm workers and their families, as well as those people who are classified as rural by reason of their residence instead of their occupation. The staff of the Bureau of Environmental Sanitation consists of the following personnel:

18 District Sanitarians	4 Vector Control Specialists I
3 Supervising Sanitarians	2 Vector Control Specialists II
1 Refuse Disposal Agent	2 Assistant Chief Sanitarians
7 Vector Control Operators I	1 Chief Sanitarian
1 Vector Control Operator II	1 Public Health Engineer
	1 Bureau Chief

Besides serving the rural populations in their respective districts, the district sanitarians also extend their services to the approximately 260 domestic labor camps and 70 bracero camps located in their districts. These domestic and bracero camps are found throughout the country, but the greatest concentration is found in south country.

The laws and regulations under which this general sanitation program is carried are the following: Labor Code of the State Division of Housing, Federal Foreign Labor Service Regulations, State Water Regulations, Santa Clara County Sewage Disposal Ordinance, Santa Clara County Garbage Ordinance, California Restaurant Act, and the State Health and Safety Code. Among the number of facets of the agricultural environment as they apply to health, the Bureau of Environmental Sanitation has worked with water supplies, food sanitation, sewage disposal, investigation of communicable diseases, investigation of nuisance complaints, and vector control.

The water supply for all types of labor housing is sampled on a routine basis and the samples are submitted to the public health laboratory for bacteriological examination. When contamination is indicated, steps are taken by the district sanitarian to determine the cause of contamination. When this determination has been made, corrective measures are advised. Any defects in the water supply system which are noted during routine inspections of agricultural labor housing are called to the attention of the person responsible for maintenance of the camp. Samples are taken prior to and during occupancy.

In agricultural labor camps where community kitchens are available and used, an inspection of the facilities is made both prior to and during occupancy. Any potential health hazards observed by the sanitarian are brought to the attention of the person in charge. Refrigeration facilities, dishwashing techniques, food serving and preparation methods are carefully evaluated.

Proper sewage disposal methods are very important to agricultural health. Because of their location in rural areas, most labor housing is not served by sanitary sewers but by individual sewage disposal systems such as septic tanks. The district sanitarian

reviews every proposal for septic tank installations in his area, and after issuance of a septic tank permit inspects the completed system prior to it being put into service. A check of sewage disposal facilities is done when the sanitarians make their routine inspections of agricultural labor housing. In the event a communicable disease is reported, the district sanitarian investigates all aspects of the environment which may have been responsible for the occurrence of the disease. Nuisance complaints, which vary greatly in their variety, are investigated when a public health hazard is potential.

The word "vector" generally refers to animals, particularly insects, which are potential carriers or transmitters of disease. Certain "pest" species may also be considered as vectors when they become so annoying as to disturb the comfort and well-being of people. The two principal vectors in Santa Clara County are mosquitoes and flies. Rodents and a variety of miscellaneous arthropods such as gnats, fleas, bed bugs, ticks, cockroaches and others also cause concern. Solution to a specific vector problem involves source determination, consultation with responsible party as to problem and control methods, and remedial action by the department to achieve temporary control until a permanent solution is achieved. Only as a last resort is legal procedure used to eliminate vector sources.

The mosquito control program emphasizes progressive reduction and elimination of mosquito sources through education, persuasion and cooperation. Larviciding is done as needed in all natural mosquito sources as a temporary expedient while source reduction methods are being planned and carried out. The agricultural community of Santa Clara County contains such mosquito sources as creeks and ponds, irrigated pastures, dairy drains and percolation structures. These sources are inspected routinely. In addition, complaints uncover sources such as improperly sealed sewage disposal systems and water filled containers. These services to the agricultural community account for 30% of the department's mosquito control activities.

The fly control program stresses progressive reduction and elimination of fly sources



through education, persuasion and cooperation. Particular attention is given to cooperation with individuals and organizations in the agricultural community to develop better management practices in handling of organic products and waste materials which are potential fly sources. Larviciding is done only in field testing or as a demonstration of insecticides, equipment and methods of control. Adulticiding is done in cases when large numbers of adult flies are creating a serious problem for people other than those responsible for producing the flies. Known sources are kept under continuous surveillance. While 90% of the fly sources on record are located in agricultural areas of the country, 90% of the complaints are received from urban areas. Urban and rural areas, therefore, receive approximately one-half each of the department's fly control efforts.

Problems concerning rodents and miscellaneous arthropods of public health significance are investigated regularly. Instructions regarding safe handling of insecticides and other toxic materials are given whenever a toxic material is being used or its use is being planned. While agriculturists are exempt to certain requirements of the County Ordinance Code relating to refuse disposal, they are required to abide by the sanitary standards. Sanitarians and vector control specialists, during routine inspections, appraise and advise responsible persons of inadequacies in disposal practice. Total vector control services to the agricultural community account for at least 40% of the vector control staff's time.

District sanitarians inspect bracero labor housing at least twice a year. Houses for local seasonal workers and migrant workers are seldom inspected unless problems arise. This minimum service may be inadequate but the sanitarians' work load will not permit a greater degree of participation. Vector control operators and vector control specialists inspect agricultural properties on a routine monitoring basis, the interval between visits being regulated by weather conditions and land management practices.

### Mental Health Services

The Bureau of Mental Health is staffed by the following personnel:

- 6 Psychiatrists
- 3 Part-time Psychiatrists
- 7 Clinical Psychologists
- 1 Supervising Clinical Psychologist
- 12 Social Workers
- 1 Social Worker II
- 1 Psychiatric Nurse Consultant
- 1 Chief, Mental Health Services

The Bureau of Mental Health is carrying a program which affects some farm workers and their families but very few migrant workers. Residence requirements usually make all migrant workers ineligible for services. There is seldom field work in carrying out the program. Usually the people come in voluntarily to the clinic. They are usually informed about mental health services by a public health nurse, a local physician, a school nurse, a worker in welfare or social service organization. It is usually the wife of the farm worker who seeks help. This does not necessarily mean that the male worker does not need these services. It could mean that the male worker is so busily engaged in earning a living that he does not have time to come to the clinic during the day hours. The problems of this segment of the farm population are closely allied with their socio-economic problem.

In south county, 50% of the case load is composed of Spanish speaking agricultural workers, of whom 25% are children. There is a language barrier in some cases but this has been partially resolved by the participation of a psychiatrist who is fluent in Spanish. The emotional problems encountered often have their roots in conflicts of cultural complexes. This is particularly true among adolescents. The problems encountered in women are poverty, an excess of children, inability to cope with children, worry and

andlettes. The problems of the children are similar to the problems of children of any other group and are usually lack of parental discipline, under-achievement in school, and inability to get along with others. Adolescents often have problems which are the result of culture conflicts.

#### Bureau of Zoonoses Control Services

The Bureau of Zoonoses Control is staffed by a public health veterinarian, a senior rabies control operator, and five rabies control operators. It carries an active program in rabies control which extends to the rural parts of the county. Rabies vaccination clinics for dogs are held in rural areas, and ranches are visited periodically to determine if there are any unvaccinated dogs. During the fruit harvest season, labor camps are visited to determine if there are any unvaccinated dogs which might have been brought by migrant agricultural workers from other areas where rabies vaccination is not required. No cases of rabies in dogs have been found in Santa Clara County during the last twenty years although rabid skunks and rabid bats have been found. The public health veterinarian acts as a consultant to other health department personnel in the field of the other zoonoses.

#### Demographic Data

Demographic data on farm workers has been secured from a number of sources including our own health department files. The Farm Labor Office, the University of California Agricultural Extension Service, and various growers associations have furnished figures which must be regarded as intelligent estimates and no more than that. Table 3 in the appendix was furnished by Research and Statistics, State of California Department of Employment. It shows that during the month of July at the height of the apricot harvest, there were 31,000 farm workers of all types, out of which 20,460 were seasonal. Of the seasonal workers, 19,630 were local seasonal and migrant workers and 830 were foreign contract workers. The number of regularly hired workers during July was 10,640, comprised of 4,020 regularly hired workers and 6,620 farmers and unpaid family members.

Migrant seasonal workers come in during all months of the year, but March is usually the month when there is a significant increase in the numbers coming in and November is the month when there is a significant decrease in their numbers. Migrant seasonal workers come in family units. All able bodied members of the family work. It is estimated that at least 80% of the migrant seasonal workers come from Texas, mostly from southwest Texas, and that most of the other 20% come from New Mexico and Arizona. A small per cent, which decreases every year, comes from Oklahoma and Arkansas. The migrant seasonal workers who come to Santa Clara County come to work first, for picking strawberries and cherries in March, April and May, then apricots in June and July, and finally pears, prunes and tomatoes in August, September and October. During October, some harvest walnuts and grapes. In Santa Clara County it is estimated that about 50% live in accommodations furnished by the grower at the ranch and that the other 50% live elsewhere, usually in small towns near agricultural operations or in San Jose. The migrant seasonal workers live in whatever housing they can find for the average three month stay in Santa Clara County. Tent cities in Santa Clara County have practically disappeared. Housing that is usually unoccupied during the rainy winter months because of its inadequacy is usually occupied during the summer months by migrant seasonal workers. Very few local farm workers emigrate for farm work.

#### Evaluation

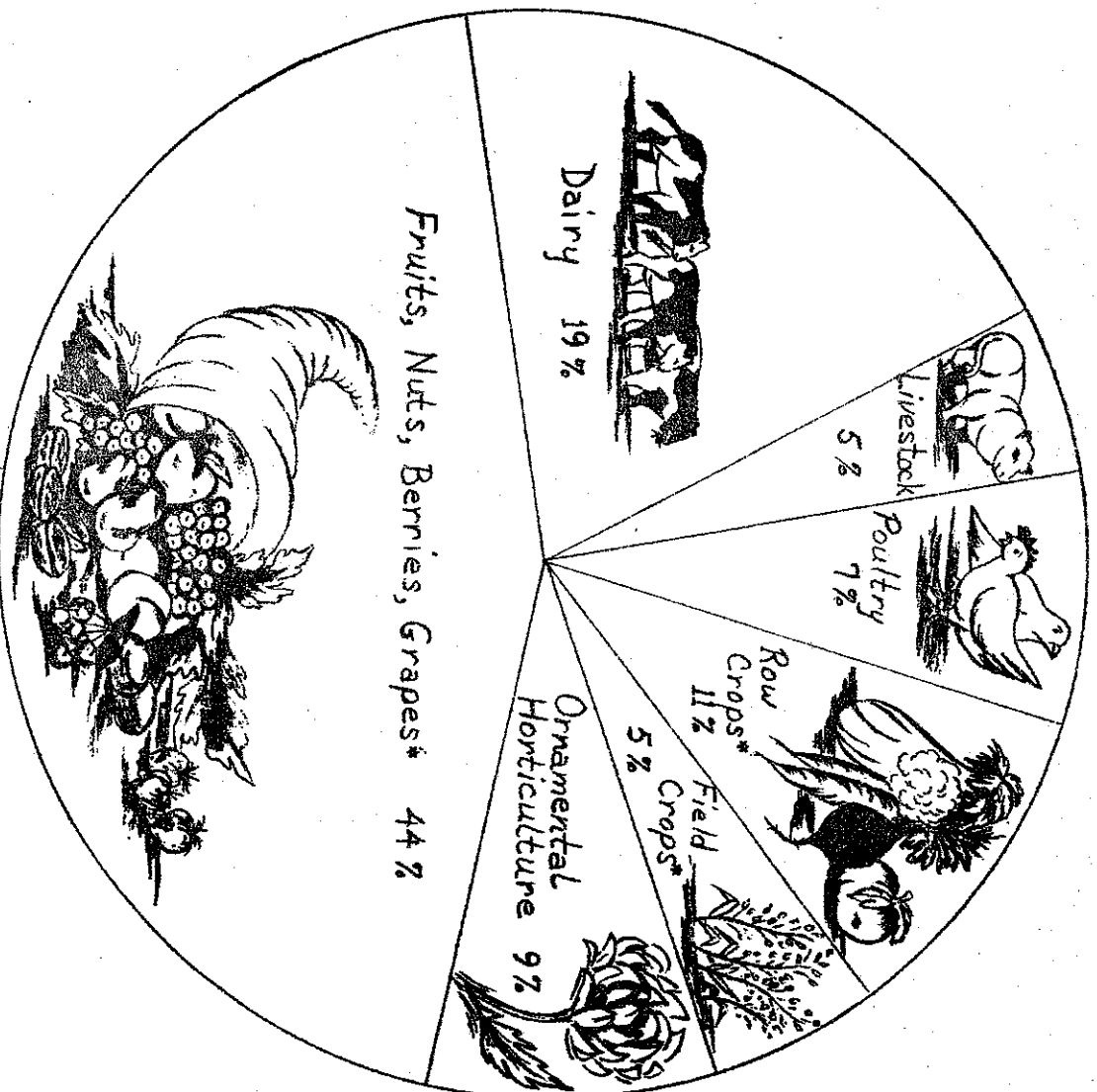
The intensive occupational health program in the field of agriculture is barely six months old. It is far too early to appraise its true worth, particularly when the largest segment of the farm population, the local seasonal domestic and migrant workers, has barely been approached. The intensive program started after the harvest agricultural operations had passed their peak, and it is yet too early in the year for most of the migrants to start coming. The ground work is being laid for intensive work during the time that the agricultural migrant is here in Santa Clara County. It is at this time that we hope to learn much more about his characteristics and health needs and be able

to plan programs and extend services which will meet these needs. The grant for agricultural environmental health and education has served as a stimulus for all bureaus and divisions of the health department to render greater services to the agricultural worker and his family, and has made possible the entry of the Bureau of Occupational Health into the field of agriculture. It has made available highly refined laboratory equipment which will allow us to study pesticide residues on soil and vegetation. With the cooperation of certain segments of the farm population, we hope to collect, analyze and study biological samples taken from farm populations who have received unusually high exposures to pesticides. The data collected will add to the scientific knowledge of pesticides. Very little data of this type is now available.

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Note: Information on Santa Clara County Health Department Administrative  
Diagrams may be found in Original Application for Grant



\*Migrant Workers Used in Harvesting Crops

Santa Clara County's agriculture has had  
 a ten year (1953-1962) average gross income of \$89,003,437.

Source: Glanville Foundation Research Report No. 247, 1961  
 Arthur Shultis, Division of Agricultural Sciences,  
 University of California

TABLE 1

## Farming in Santa Clara County as Shown by the U. S. Census of Agriculture

	1949	1954	1959
Number of farms	5,282	4,953	3,344
Land in farms (acres)	588,996	590,041	527,798
Per cent of area of 835,200 acres in farms	70.5	70.6	63.3
Average size of farm (acres)	111.5	119.1	157.8
Value of land and buildings per farm (dollars)	42,099	84,250	151,345
Average value of land with buildings per acre (dollars)	355	875	1,192
Number of farms irrigated	3,449	3,337	2,403
Total acreage irrigated (acres)	105,721	114,677	97,511
Number of farm operators residing on farm operated	4,662	4,339	2,620
Number working off farm 100 days or more in year	1,708	1,636	1,133
Number of farms operated by:			
Full owners	4,001	3,617	2,440
Part owners	590	650	473
Tenants	594	613	360
Managers	97	73	71
Number of farms by major source of income			
Fruit and nut farms	2,575	2,760	1,522
Vegetable farms	304	218	160
Field crop farms	69	18	14
General farms	125	52	35
Dairy farms	158	106	99
Poultry farms	394	335	210
Livestock farms other than dairy and poultry	172	214	146
Miscellaneous and unclassified farms	1,485	1,249	1,197
Farms by economic class			
Class I, value of products sold--over \$25,000	487	748	1,007 <sup>a</sup>
Class II, value of products sold--\$10,000-\$24,999	580	954	435 <sup>b</sup>
Class III, value of products sold--\$5,000-\$9,999	754	804	439
Class IV, value of products sold--\$2,500-\$4,999	868	670	352
Class V, value of products sold--\$1,200-\$2,499	907	558	185 <sup>c</sup>
Class VI, value of products sold--\$250-\$1,199	292	141	185
Total commercial farms	3,868	3,875	2,418
Part-time farms, products sold--\$250-\$1,199 plus off-farm work	707	550	673 <sup>d</sup>
Residential farms, products sold--less than \$250	679	520	291 <sup>e</sup>
Abnormal farms, institutions, etc.	8	7	1
Total other farms	1,394	1,077	965

a/ Farms with sales of \$20,000 or more.

b/ Farms with sales of \$10,000-\$19,999.

c/ Farms with sales of \$50-\$2,499.

d/ Part-time (operator under 65 years of age and working off farm 100 or more days or with income from other sources greater than farm products sold, and sales of farm products \$50-\$2,499).

e/ Part retirement (operator 65 years old or over and sales \$50-\$2,499).



TABLE 2

Major Crops and Livestock Enterprises in Santa Clara County

	1959		1960	
	Acres or head	Value thousand dollars	Acres or head	Value thousand dollars
Apricots	11,920	8,176	11,545	8,897
Cherries	3,026	1,775	3,073	2,977
Grapes	3,773	745	3,752	1,024
Pears, all varieties	6,436	4,543	6,158	6,148
Prunes	32,434	21,798	31,755	20,320
Walnuts	8,377	2,727	8,312	3,720
Total fruits, including others	<u>66,456</u>	<u>40,200</u>	<u>65,183</u>	<u>43,398</u>
Raspberries and other bushberries	153	434	156	440
Strawberries	1,475	7,407	1,115	5,614
Snap beans	1,495	1,211	895	921
Green Lima beans	810	202	1,505	349
Broccoli	930	354	695	273
Cauliflower	865	520	680	297
Celery	390	419	240	248
Sweet Corn	480	150	330	122
Cucumbers	665	414	580	426
Garlic	1,040	939	1,130	870
Lettuce	2,095	1,325	1,920	963
Onions, dry	375	378	420	415
Peppers, all varieties	385	384	325	324
Spinach	290	69	215	58
Potatoes	3,925	2,207	3,840	2,252
Total vegetables, including others	<u>10,457</u>	<u>10,276</u>	<u>14,220</u>	<u>8,624</u>
Alfalfa	1,525	248	1,622	232
Grain and volunteer hay	10,600	308	8,442	254
Barley	2,000	84	2,100	84
Sugar beets	2,587	788	4,100	1,230
Total field crops, pasture, range	<u>251,443</u>	<u>2,665</u>	<u>251,040</u>	<u>3,034</u>
Out flowers		7,907		9,354
Nursery stock		2,746		3,343
Vegetable and flower seed	835	182	1,060	425
Total crops	<u>336,416</u>	<u>71,819</u>	<u>332,774</u>	<u>74,233</u>
MILK				
Cattle and calves sold	53,185	7,952	40,880	7,625
Pigs sold	11,500	9,612	11,585	3,415
Lambs, sheep and wool sold	2,400	48	2,200	40
Total livestock and products		<u>18,017</u>		<u>11,360</u>
Eggs		5,325		4,639
Meat chickens sold		647		992
Total eggs, poultry, rabbits, and squabs		<u>6,034</u>		<u>5,691</u>
Total livestock, poultry, and products		<u>24,069</u>		<u>17,071</u>
TOTAL AGRICULTURAL PRODUCTS		<u>95,890</u>		<u>91,304</u>

Source: Agricultural Crop Report, Santa Clara County, 1960; David T. Rayner, Agricultural Commissioner.

TABLE 3

Estimates of Farm Employment by Type of Worker  
Santa Clara County, 1960

Month	Farmers and unpaid family	Regular hired	Total regular	Seasonal domestic	Foreign contract workers	Total seasonal	Total all workers
January	4,200	3,400	7,600	1,550	0	1,550	9,150
February	4,150	3,400	7,550	1,100	0	1,100	8,650
March	4,150	3,400	7,550	1,750	0	1,750	9,300
April	4,200	3,350	7,550	2,550	0	2,550	10,100
May	5,440	2,760	8,200	3,400	950	4,350	12,550
June	5,640	2,870	8,510	7,310	1,110	8,420	16,930
July	6,620	4,020	10,640	19,630	830	20,460	31,100
August	6,510	3,920	10,430	10,360	1,660	12,020	22,450
September	5,570	3,570	9,140	7,890	2,090	9,980	19,120
October	4,660	3,400	8,060	2,910	1,630	4,540	12,600
November	4,440	3,400	7,840	1,260	200	1,460	9,000
December	4,150	3,350	7,500	1,250	0	1,250	8,750

Source: California Weekly Farm Labor Report, DE 881, 1960. Figures shown are for week ended nearest the fifteenth of the month. Furnished by Research and Statistics, State of California, Department of Employment.

Number Working at Midmonth by Major Seasonal Activities, Santa Clara County, 1959-60<sup>2</sup>

TABLE 7

Crop	Activity	1959												1960			
		No- Dec- emb- ber	Jan- ary	Feb- ru- ary	March	April	May	June	July	Aug- ust	Sep- tem- ber	Octo- ber	Total	Man weeks			
Apricots	Thin, harvest	11,500														59,950	
Cherries	Pick, pack	3,300															16,900
Pears	Pick	6,100															10,220
Prunes	Pick, dry	34,000															60,500
Walnuts		7,850															6,250
Orchard Pruning		69,300	1,600	1,700	1,800	1,200	400										1,100
Total tree fruits		4,600	200	200	150												750
Grapes	Prune, pick	4,600															138,470
Bush berries	Pick	150															800
Strawberries	Plant, hoe, pick	2,100	400	150	200	350	100	150	250	200	2,200	2,200	1,700	600			63,750
Total fruits and berries		1,000	900	500	600	500	300	500	300	200	2,200	2,200	1,700	600			262,715
Snap beans	Pick	1,000															10,300
Broccoli	Cut	900															990
Cucumbers		500															5,300
Garlic	Plant, harvest	1,150	150	50													4,600
Onions	Harvest	550															100
Sugar beets	Thin, hoe	3,000															3,750
Tomatoes		3,500															1,700
Miscellaneous vegetables		15,300	1,600	1,300	1,300	1,250	1,550	1,900	2,300	2,500	3,000	3,000	2,500	2,000			122,810
Total vegetables and row crops		320	750	750	750	750	1,000	1,000	1,050	1,150	1,200	1,200	1,200	1,150			51,600
Flowers	Grand total-- month																21,350
Grand total-- peak need for month																	9,900

(Continued on next page.)

Table 4 continued.

a/ Major seasonal activities are those involving additional workers for a short period of a few weeks to several months. Workers needed for these seasonal jobs are largely in addition to the family and hired year-around workers, although some of these and members of their families may at times participate to a small extent in handwork, such as harvesting. Largely, however, regular hired and family workers perform service, supervision, and skilled machinery operations and so are not a part of the hand workers in the harvest crews.

This table is a digest taken from weekly reports on number working each week at major seasonal jobs. It cannot show by weeks how the number of workers needed for each job rises to a peak and declines. The number working at midmonth does, however, fairly well reflect the changing needs for seasonal workers. The grand total is the peak number for any week during that month. The total man weeks by crop is an addition of those working for all weeks of the year. Notice that over 25,000 were needed in July--a bit higher than usual because of the large apricot crop. But there was employment for only around 4,000 from December to March. This constitutes the main farm labor problem of Santa Clara County.

Source: California Department of Employment, California Weekly Farm Labor Report; Major Seasonal Activities, by County Report 881-A (Sacramento: weekly issues). Processed.

TABLE 5

Wage and Piece-Work Rates, Santa Clara County, 1959-60

	1959	1960
	dollars	
<b>San Jose area--farm work</b>		
Hourly wage--year around, orchards	1.25	1.25
With housing furnished (a few higher)	1.25	1.25
Without housing		
<b>Hourly wage--year around, vegetables</b>		
With housing furnished	1.00	1.00
Without housing	1.00	1.00
<b>Hourly wage--seasonal workers, no housing</b>		
Orchards	1.25	1.25
Vegetables	1.00-1.25	1.00-1.25
<b>Piece rates for harvesting jobs</b>		
Apricots, per 16-quart bucket	0.18-0.20	0.17
Cherries, per 20- and 22-pound bucket	0.90	1.00
Pears, per 16-quart bucket	0.10	
Prunes, per fresh ton	11.00	11.00
Walnuts, per 40-pound box	0.22-0.25	0.22-0.25
Wine grapes, per ton	7.00	8.00
Strawberries, per tray	0.50-0.85	0.50-0.85
Snap beans, per pound	0.02	0.02
Tomatoes, per box	0.15-0.20	0.15-0.20
<b>GILROY area--farm work</b>		
<b>Hourly wage--year around, orchards</b>		
With housing	1.00-1.25	1.25
Without housing	1.25	1.25
<b>Hourly wage--year around, vegetables</b>		
With housing	0.85-0.90	0.90
Without housing	0.85-0.90	0.90
<b>Hourly wage--seasonal workers, no housing</b>		
Orchards	1.00-1.15	1.00-1.15
Vegetables	0.90	0.90
<b>Piece rates for harvesting jobs</b>		
Apricots, per 16-quart pail	0.16-0.18	0.16-0.18
Prunes, per fresh ton	10.00	10.00
Walnuts, per box	0.25-0.30	0.25-0.30
Wine grapes, per ton	8.00	8.00
Strawberries, per tray	0.50-0.85	0.50-0.85
Cucumbers, per 5-gallon bucket	0.25	0.25
Garlic, per basket	0.30	0.30
Peas, per pound, first pick	0.02-0.025	0.025
Tomatoes, per box	0.11-0.19	0.13-0.19
<b>Nonfarm common labor--no housing</b>		
Gannery--labor per hour, day shift	1.75	1.94
Industrial work--unskilled	1.75	1.75
Construction laborers	2.68	2.86

Source: Glamini Foundation Research Report No. 247, 1961  
 Arthur Shultis, Division of Agricultural Sciences,  
 University of California

SANTA CLARA COUNTY HEALTH DEPARTMENT  
 IN-PLANT HEALTH AND SAFETY SERVICES  
 AGRIBUSINESS

Name of Industry	Type of Industry		Product
Street Address	Phone		Subsidiary Plants
Directions for Locating			
Name and Title of Person in Charge			
		No. of Employees	
		Max.	Min.
		M	F
		F	M
		M	F
Number and Hours of Shifts			
1. _____			
2. _____			
3. _____			
Number and Types of Personnel:			
		MD _____	
		RN _____	
		Other _____	
Name and Address of Physician			
		Phone _____	
		Plant Hours: On Call _____	
		Regular _____	
Name of Nurse			
1. _____			
2. _____			
3. _____			
Industrial Accident Insurance			
Health Insurance Plan			
Type of In-Plant Safety Organization			
Name of Person Responsible for Safety		Time:	
		Full _____	
Title of Person Responsible for Safety		Part _____	
		Name of Safety Org. Membership _____	

Completed By _____	Date _____
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Informant: \_\_\_\_\_ CHD 62-661

SANTA CLARA COUNTY HEALTH DEPARTMENT  
IN-PLANT HEALTH AND SAFETY SERVICES  
AGRICULTURE

Name	Type of Farm			
Address	Telephone			
Crops or Animals Raised	Acreage			
Number of People Employed:	Men	Women	Minors	Insurance
	Permanent			
	Seasonal			
	Migrant			
Home Environment of Workers (housing, feeding, sanitation)				

Work Environment (occupational hazards, sanitary conditions, occupational health problems)

Name of Pesticides Used

Application Method

Application By	Permit No.	Physician
Remarks		

Completed By	Date
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CHD #273-1163

(PR)

SANTA CLARA COUNTY HEALTH DEPARTMENT  
 AGRICULTURAL HEALTH SERVICES

SURVEY OF COMMERCIAL PESTICIDE OPERATORS

Name		Address	
Telephone No.	License No.	Permit No.	
Types of Pest Control Activity	Commercial & Industrial <input type="checkbox"/> Construction <input type="checkbox"/> Home <input type="checkbox"/> Agricultural <input type="checkbox"/> Garden <input type="checkbox"/> Other <input type="checkbox"/>		
Pesticides Used	Organic Phosphorous: Chlorinated Hydrocarbons: Arsenicals: Carbamates: Herbicides: Fungicides: Others:		
Methods of Application	Orchard Sprayer <input type="checkbox"/> Back Pack Applicator <input type="checkbox"/> Aerial Spraying <input type="checkbox"/> Baits <input type="checkbox"/> Pressure Hose <input type="checkbox"/> Manual Application <input type="checkbox"/> Fumigation <input type="checkbox"/> Other <input type="checkbox"/> Name of Safety Supervisor		
Safety Program	Protective Respiratory Equipment <input type="checkbox"/> Sanitation of Equipment <input type="checkbox"/> Health Education Program <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Waste Disposal Facilities <input type="checkbox"/> Washing Facilities <input type="checkbox"/> Storage <input type="checkbox"/> Name of Physician Address Telephone No.		
Medical Program	Personnel supervised: Men Women Name of medical laboratory for ChE dph Availability of records for ChE dph Poisoning cases in recent years 1962 1963 Written program from MD Posted Identity cards for pesticide operators Are pesticides used listed in ID card?		
Remarks			
Informant	Completed by	Date	



SAN JOSE OFFICE  
PHONE: 299-2171  
Office Hours—8 to 5 P.M.

COUNTY OF SANTA CLARA  
DEPARTMENT OF AGRICULTURE  
75 W. ST. JAMES STREET  
SAN JOSE, CALIFORNIA

BRANCH OFFICE  
10080 HIGHLAND AVE., SAN MARTIN, CALIF.  
PHONE: 683-2883  
Office Hours  
8 to 10 A.M., 1 to 2 & 4 to 5 P.M.

APPLICATION FOR PERMIT TO USE INJURIOUS MATERIALS

Application is hereby made for a permit to use the injurious material or materials hereinafter checked, within the County of Santa Clara during the year 19..... pounds..... gallons of:

( ) DDD (TDE) DUST ( ) DI-SYSTON ( ) OMPA (SCHRADAN) ( ) PHOSDRIN ( )  
( ) DDT DUST ( ) EFN ( ) PARATHION ( ) SODIUM ARSENITE ( )  
( ) DEMELON (SYSTON) ( ) METHYL PARATHION ( ) TEPP ( ) THINET ( )

By ( ) Single treatment on or about ..... 19.....; or ( ) Seasonal By Ground Rig ( ) or Aircraft ( ),  
operated by Grower - or P.C.O. .... (Insert P.C.O.'s Name)

For control of ..... (Pest) ..... on ..... acres of ..... (Crop)  
Owned by ..... and located at .....

Applicant declares that he has read and understands and acknowledges the conditions specified in the rules and regulations of the Director of Agriculture pertaining to the use and application of injurious materials, and further conditions specified in the permit to be issued upon this application. Applicant further declares that he understands and acknowledges that such permit does not operate to relieve him from liability for any damage to persons or property caused by the use of such material(s).

APPLICANT AGREES THAT HE WILL:

1. Provide handler or user with adequate protective equipment ( ) . In case of suspected poisoning from use of above mentioned INJURIOUS MATERIALS, IMMEDIATELY take injured person(s) to the physician listed hereunder and inform him of the material the person was applying at the time.
2. Keep unused materials in locked storage area ( ) .
3. Properly dispose of empty containers ( ) .
4. Avoid drift of material onto other properties ( ) . PHYSICIAN'S NAME .....
5. Not release injurious materials to unauthorized person(s) ( ) . (Address)

(Date) 19..... (Applicant's Signature) ..... (Mailing Address) ..... (Phone No.) .....

COMPLETE APPLICATION AND PERMIT IN TRIPLICATE  
PERMIT TO USE INJURIOUS MATERIALS

(Date) 19..... (Permit No.) .....

Permission is hereby given to use injurious materials as specified in the above application. This permit is conditioned upon compliance with the rules and regulations of the Director of Agriculture applicable to the use of injurious materials, and upon the following additional conditions deemed necessary to avoid injury.  
(1) For each job, applicant shall give notice to this department at least twenty-four (24) hours prior to application of any injurious material, IN DUST FORM, for which a permit is required; however, said notice is required for all aerial applications of injurious materials, in any form. If material is not applied within 7 days from date of notice, renotification is required. (2) Injurious materials, as well as other pesticides, shall be confined to the crop(s) and property to be treated, and shall not be applied at any time when there is a likelihood of drift onto residential properties, dairies, pastures, forage crops, highways, or other occupied buildings or grounds. (3) Application of chlorinated hydrocarbons shall not be discharged within one-quarter (1/4) mile of any dairy, dairy pasture, permit intended for use as forage, lakes or streams, unless the drift during application continuously moves in a direction away from the aforesaid. (4) This permit does not authorize the use of Parathion or Methyl-Parathion on any crop or property adjacent to school properties during the school term. (5) PHOS-DRIN shall not be applied by manually operated hand duster, sprayer, or power-driven knapsack applicator.

If permittee is hereby expressly authorized, subject to all conditions of this permit, to apply said material in dust form when wind velocity exceeds five miles per hour, issuing officer, initial here:..... This permit is valid only for the use and under the conditions herein stated, and shall void upon breach of or failure to comply with any such conditions. Single treatment permit expires ..... 19..... unless sooner revoked. Seasonal permit expires December 31, 19....., unless sooner revoked.

WARNING: Read directions on the manufacturers' label and comply explicitly with their recommendations as to usage, crops on which material is registered for use, interval between application and harvest, and precautions.

NOTICE: Permittee shall read and comply with rules and regulations on the back of this permit pertaining to the use and applications of injurious materials.

By ..... Theodore J. Moniz, Agricultural Commissioner  
Deputy or Agricultural Inspector

AT

Statistical Report of

Public Health Laboratory Services to Agricultural Workers

July, 1963 - February, 1964

Listed below are the laboratory examinations in which it has been determined that the agricultural worker is being served.

<u>Type of Examination</u>	<u>Number</u>
Blood group	63
Rh type	63
Red cell count (or hematocrit)	63
White cell count	63
Differential count	63
Hemoglobin	63
Serologic test for syphilis	150
Cervical culture for gonorrhea	85

(The above work is performed in connection with a South County prenatal clinic.)

<u>Type of Examination</u>	<u>Number</u>
Bacteriological examination of water	700
Stool cultures for enteric pathogens	200
Smear and culture for gonorrhea	Small
Serologic test for syphilis	Very Small
Throat culture for streptococci	

Statistical Report of

Nursing Services to Farm Labor Families

July, 1963 - February, 1964

The following is the only statistical information available at this time and is broken down to the migrant clinic areas:

South County Area - 8 nurses involved

Labor camps visited.....28  
Number of visits to camps during year.....243  
Farm labor families carried for nursing service.....453  
Approximate number of home visits made to  
labor families.....4767  
Number of people served in these families.....2520  
Approximate number of referrals made.....1414  
(CHC, AP Cl, CCS, Co. Hosp, PMDs, Dental Cl,  
Chest Cl, Mental Health Cl, Catholic Social  
Service, Welfare)

Almaden Migrant Clinics - 2 nurses involved

Number of migrant families attending.....55 (approx.)  
Other farm labor families attended but number not available.

Cupertino Migrant Clinics

Number of families attending.....27 (approx.)  
Migrant + farm labor families  
Approximately 13 migrant families

