

4. SOCIOECONOMICS CONDITIONS

4.1 CHARACTERISTICS OF THE PRODUCERS

4.1.1 METHODOLOGY AND PROCESSES

Harvesting and analysis of the economic and social information of the producing beneficiaries of each one of the 4 modules of irrigation. In order to carry out the harvesting and analysis of the information required for this point, a questionnaire was designed to be applied as a census, to all producers for the present study. This questionnaire contained all the subjects indicated in the terms of reference included in module 2 and part of module 4. Once designed, it was proven later in cabinet and in the field, by means of the application of 10 questionnaires in a pilot module of the municipality of Tlacojalpan.

After testing it and correcting the discordancies, a second test was made with 50 producers. It was corrected and the questionnaire survey was conducted applied, between the 1st of June and the 10th of July 2004. In disc 3 in methodologies, a unit of the questionnaire appears that was used for the census of the producers included in the study area.

It is advisable to mention that the questionnaire was developed mainly by personnel of CODEPAP, was complemented by personnel of CODEPAP and Biotecxa and was applied by personnel of Biotecxa. Each questionnaire is bound to the parcel of a producer.


4.1.2 RESULTS

From the information collected in the census, a statistical analysis was made of the collected data to order them and to obtain the data asked for in the terms of reference, for each one of the four irrigation units.

For this activity, an exploratory analysis was made of the collected data, in order to determine the characteristics of the collected information, in correlation with the terms of reference. The mode, the variance, the average, medium, covariance and tables of frequency were taken into account. Also an inferential analysis was made (bivaried), to determine the association between variables and the tables of contingency. To see the description of the variables, refer to disc 3, in the section corresponding to statistical analysis.

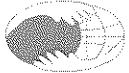
The data obtained from the socioeconomic census was provided by the producers, in a voluntary basis; they answered according to their criterion and free will. Although most of the necessary information was obtained, some producers refused to answer some questions or gave evasive answers. In the case of a negative to answer, the respective questionnaire, was classified as R1. Accordingly it does not appear as a target in the data base.

Similarly in the section of the irrigation system, in most of the cases in the data base it appears with spaces in the target. The reason is that except for Well 5 Mondongo and Laguna Encantada the other eleven irrigation submodules do not operate the irrigation system.



DEL PAPAŁOAPAN

AGENCIA DE COOPERACIÓN INTERNACIONAL DEL GOBIERNO DEL JAPÓN
[JICA]
CONSEJO DE DESARROLLO DEL PAPAŁOAPAN
BIOTEC



JAPAN
 Official
 Development
 Assistance

**ESTUDIO BÁSICO PARA EL DESARROLLO DEL PROYECTO PILOTO DE DETERMINACIÓN DEL POTENCIAL AGRÍCOLA DE 4
 MÓDULOS DE RIEGO PARA EL COMBATE A LA POBREZA EN LA CUENCA DEL PAPAŁOAPAN, VERACRUZ, MÉXICO**

1.- Identificación de la Parcela

Encuesta No.

Fecha de levantamiento _____

1.1 Módulo de Riego Clave 2 1.2 Nombre Tlacojalpan -Ambrosio 1.3 Municipio 176 Tlacojalpan

Submódulo 2.1 Tlacojalpan 1
 Submódulo 2.2 Tlacojalpan 2
 Submódulo 2.3 Tlacojalpan 3
 Submódulo 2.4 Tlacojalpan 4
 Submódulo 2.5 Tlacojalpan 5

1.4 Localidad Clave _____ Descripción _____

1.5 IDUEG de Parcela _____

1.6 Número de Parcela _____ Lote Oficial _____

1.7 Tipo de documento legal _____

1.8 Tipo de Tenencia Ejidal Privada

1.9 Superficie del predio _____ Ha _____ A. _____ CA No. de Documento _____

1.10 ¿Trabaja la parcela? La trabaja La renta En cuanto la renta \$ _____

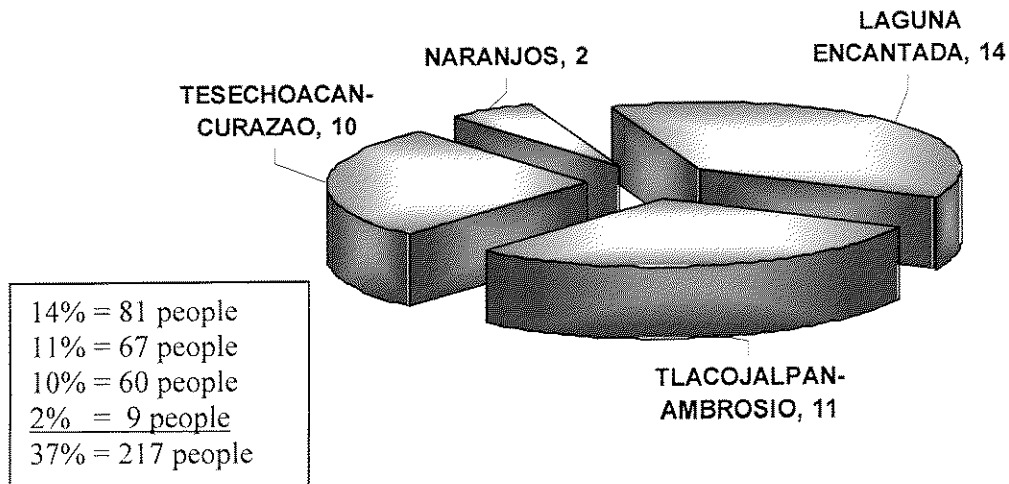
1.11 Superficie del predio dentro de la unidad de riego _____

1.12 Cuenta con Riego Agrícola Si No

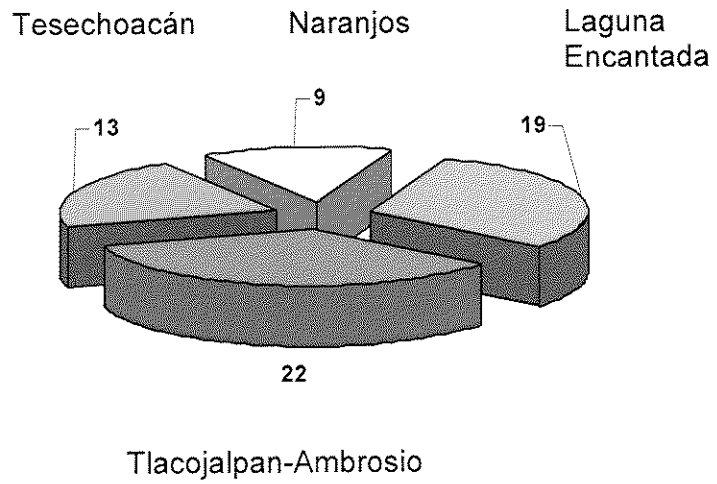
¿Por qué? _____

1.13 ¿Cuántas hectáreas riega? _____

QUESTIONNAIRE USED IN THE CENSUS
 PERCENTAGE OF THE POPULATION THAT DID NOT AGREE TO BE INTERVIEWED (R1)



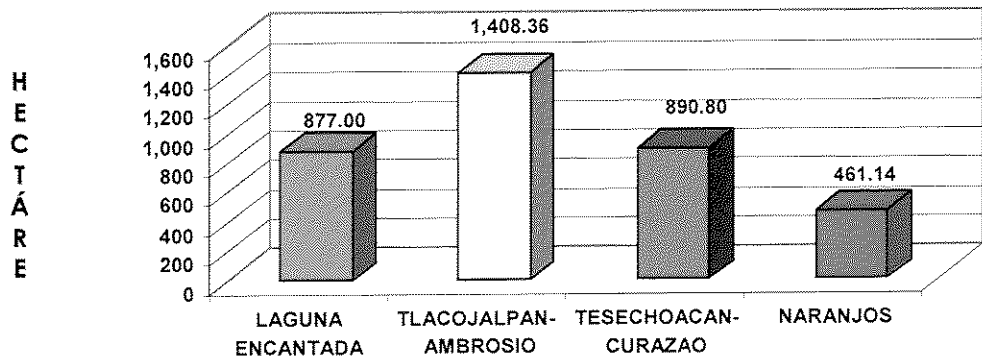
PERCENTAGE OF THE POPULATION THAT AGREED TO BE INTERVIEWED BY MODULE



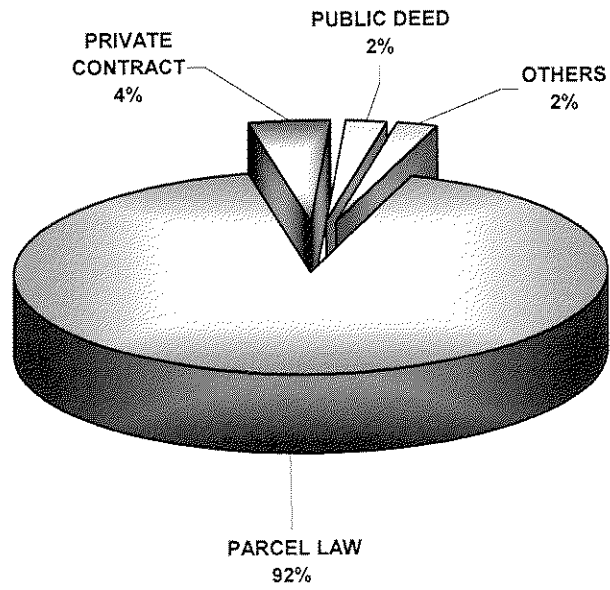
| |
|------------------|
| 22% = 131 people |
| 19% = 115 people |
| 13% = 80 people |
| 9% = 52 people |
| 63% = 378 people |

| | |
|----------------|-------------------|
| Total: | 595 people (100%) |
| No (R1) | 217 people (37%) |
| Yes | 378 people (63%) |

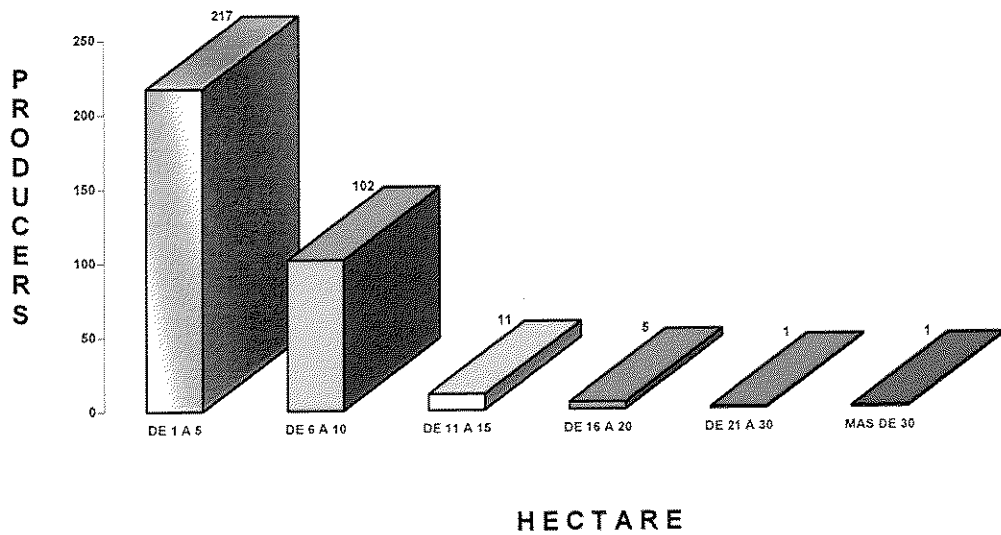
SURFACE WITH IRRIGATION



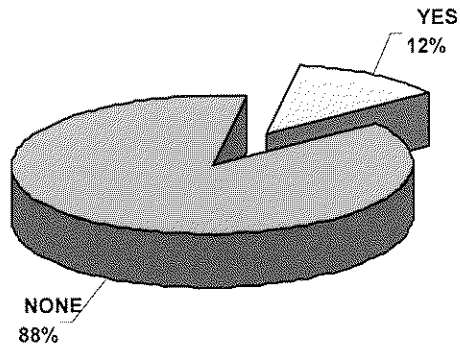
TYPE OF LEGAL DOCUMENT



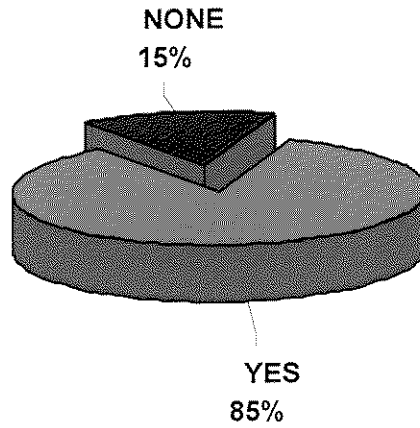
SURFACE THAT THE PRODUCERS HAVE



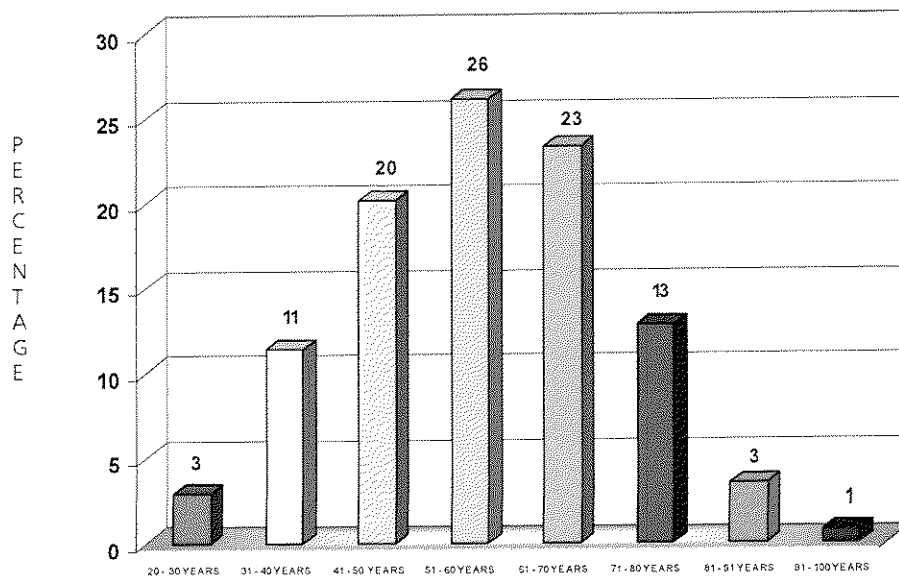
WORKS THE PARCEL



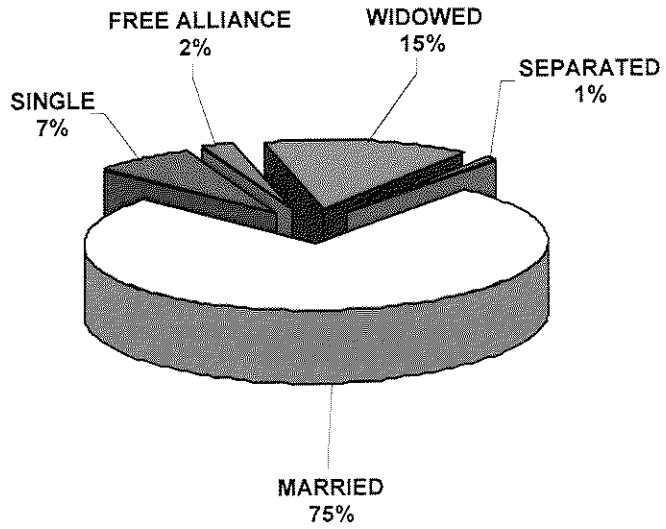
COUNTS ON AGRICULTURAL IRRIGATION



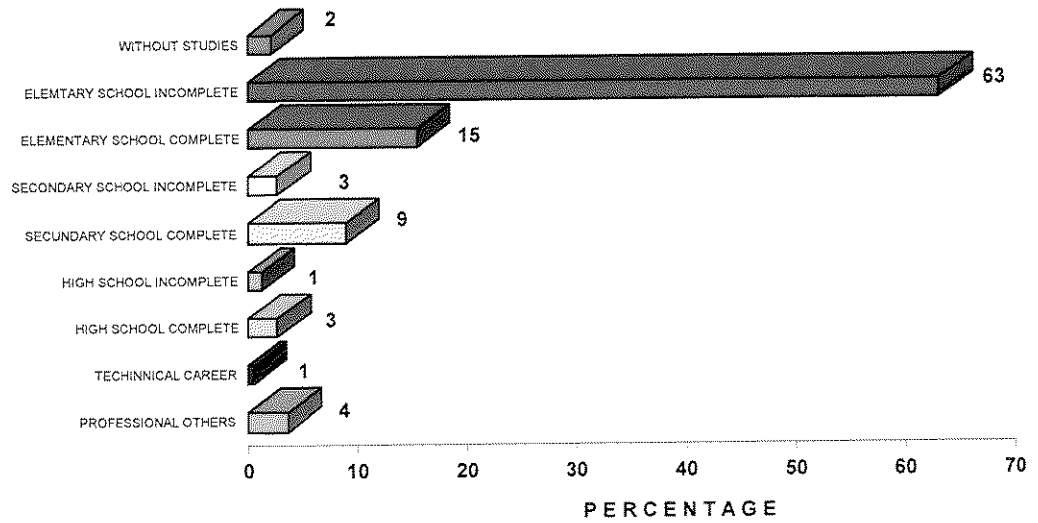
DISTRIBUTION OF THE AGE OF THE PRODUCERS



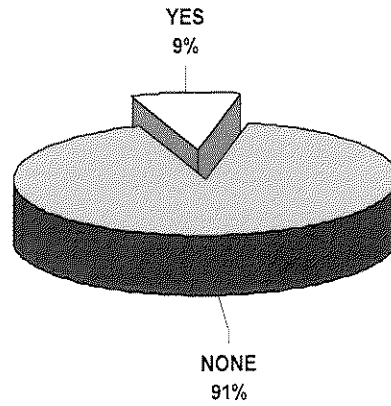
CIVIL STATE OF THE PRODUCERS



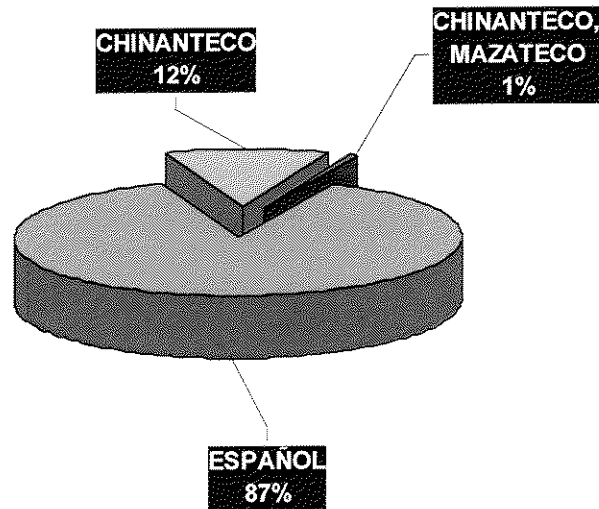
SCHOOLING LEVEL



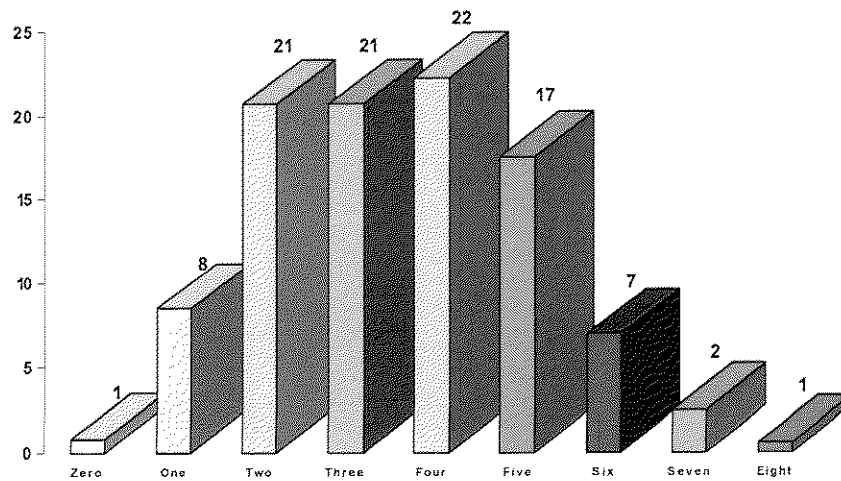
BELONGS TO SOME ETHNIC GROUP



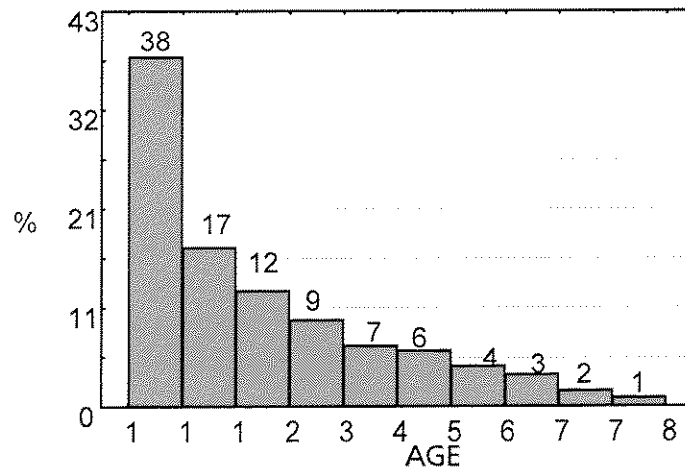
DOMINANT LANGUAGE



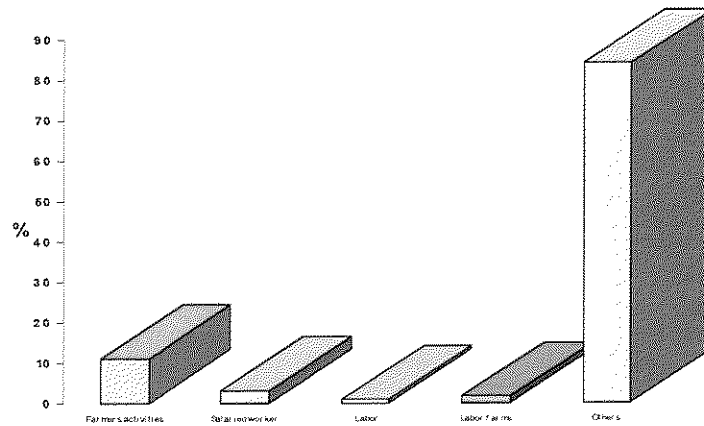
MEMBERS IN THE FAMILY



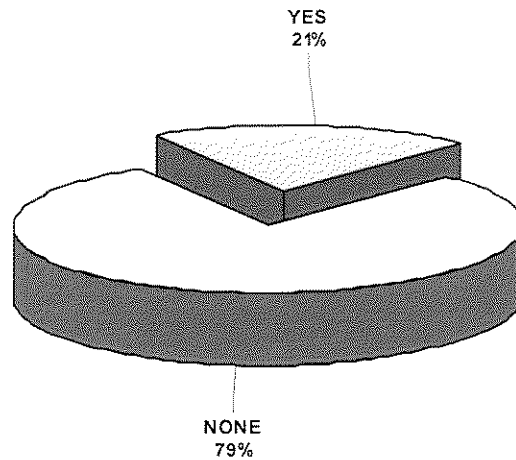
AGE OF THE MEMBERS IN THE FAMILY



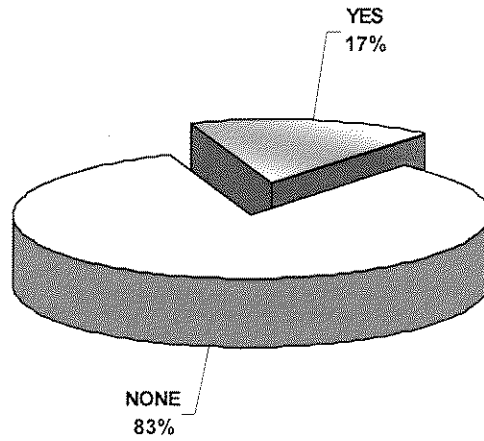
DISTRIBUTION OF THE FAMILIAR OCCUPATION



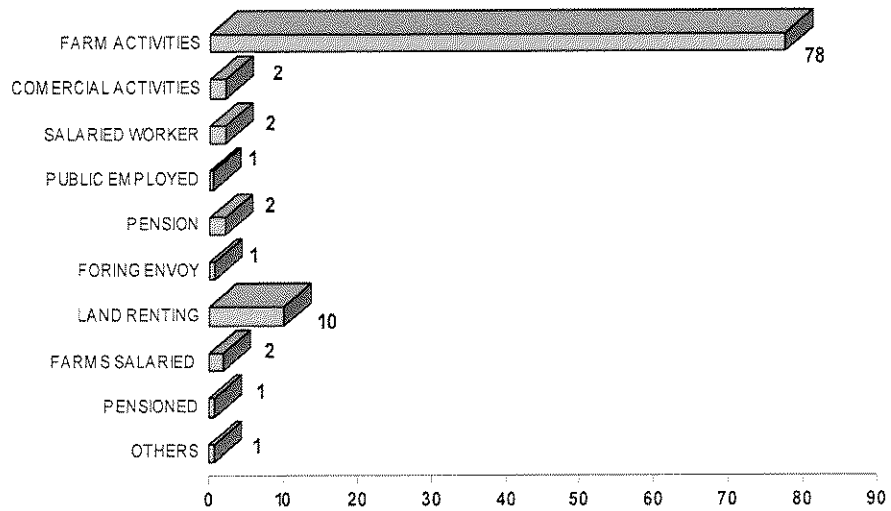
ECONOMIC CONTRIBUTION TO THE FAMILY



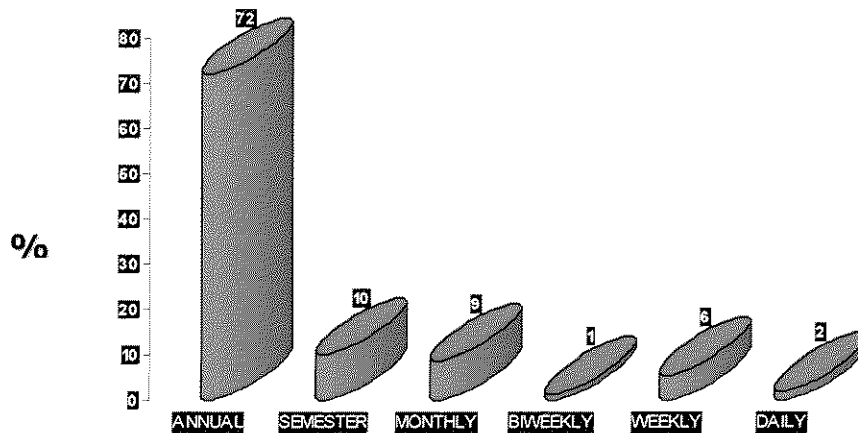
PARTICIPATION IN THE WORK OF THE PARCEL OF THE MEMBERS OF THE FAMILY



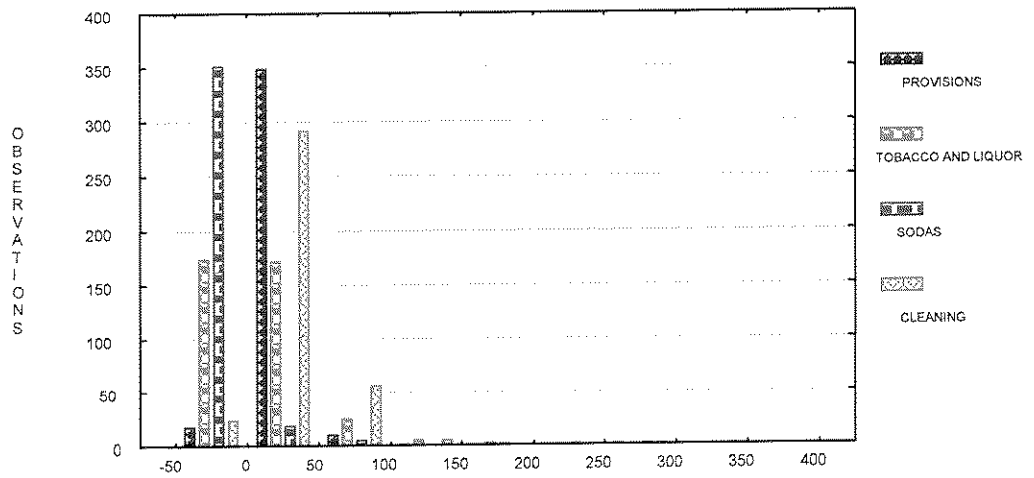
MAIN SOURCE OF INCOME



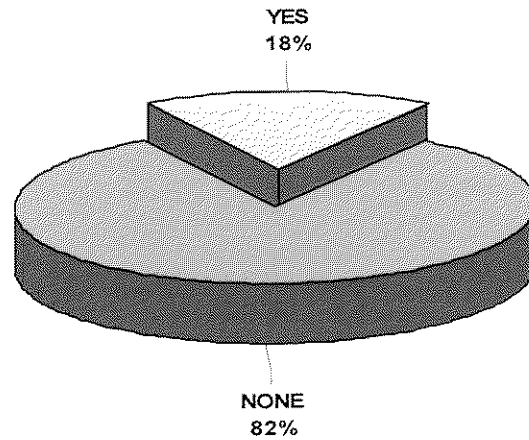
FREQUENCY OF THE PERCEPTION OF THE ECONOMIC INCOME



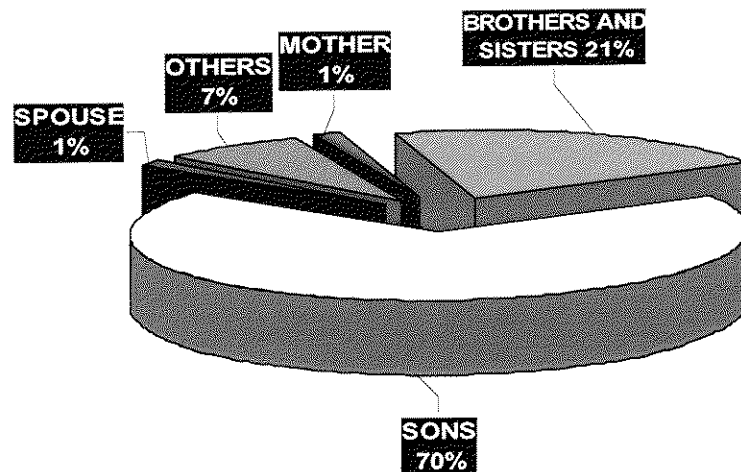
WEEKLY COST OF INPUTS



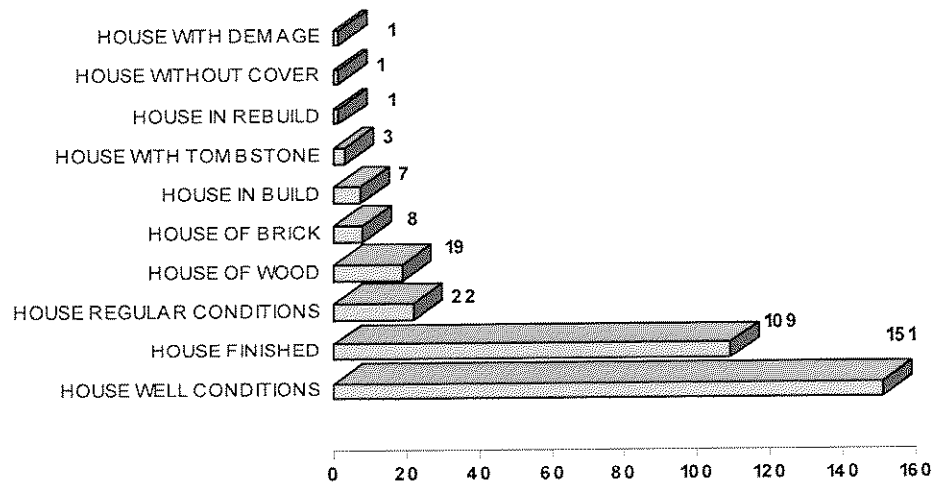
MIGRATED RELATIVE



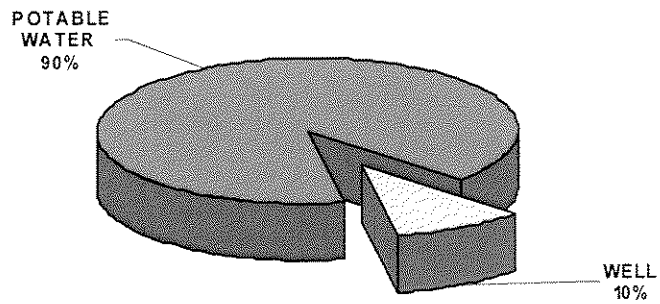
KINSHIP OF THE PRODUCER WITH THE EMIGREE



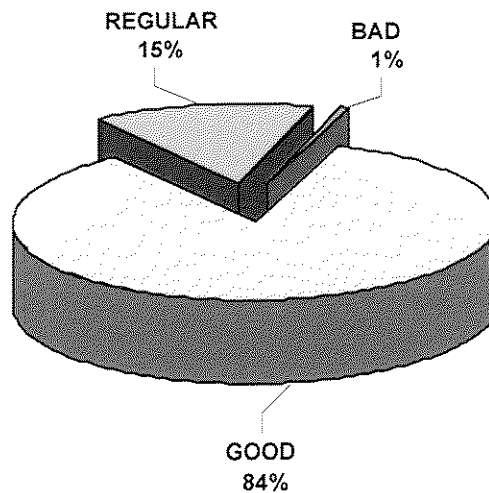
DESCRIPTION OF THE HOUSE



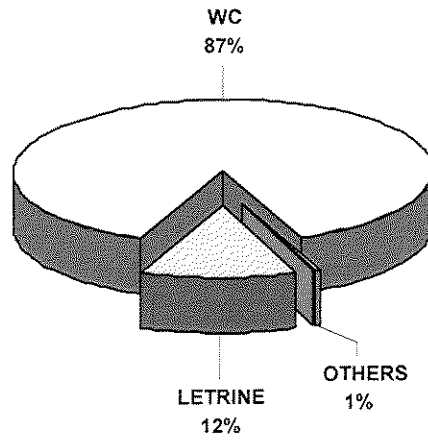
INFRASTRUCTURE OF THE HOUSE WATER PROVISION



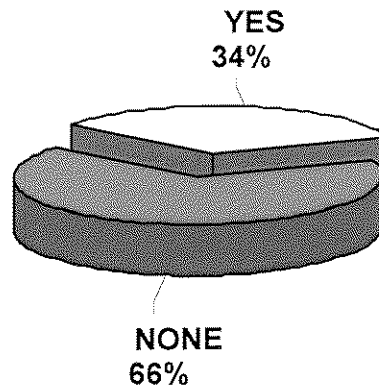
STATE OF THE ELECTRIFICATION SERVICE



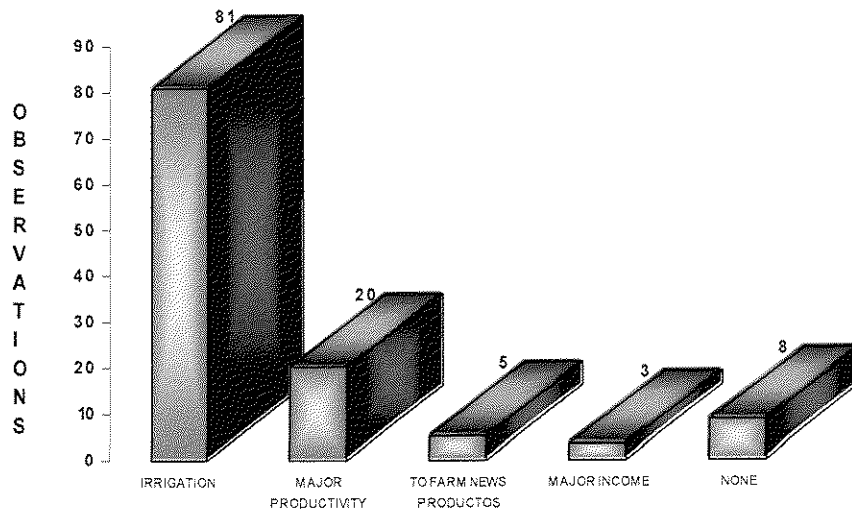
TYPE OF SANITARY SERVICE



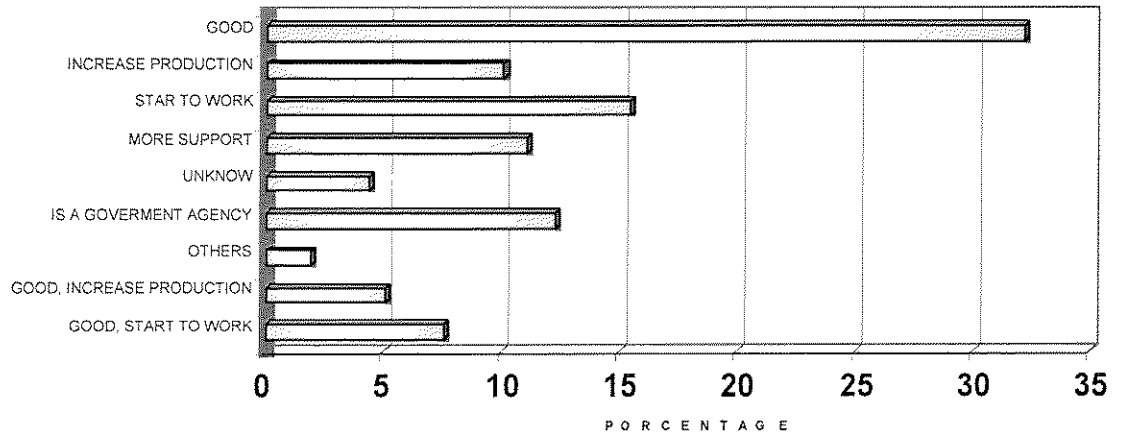
BELONGS TO THE IRRIGATION UNIT CIVIL ASSOCIATION



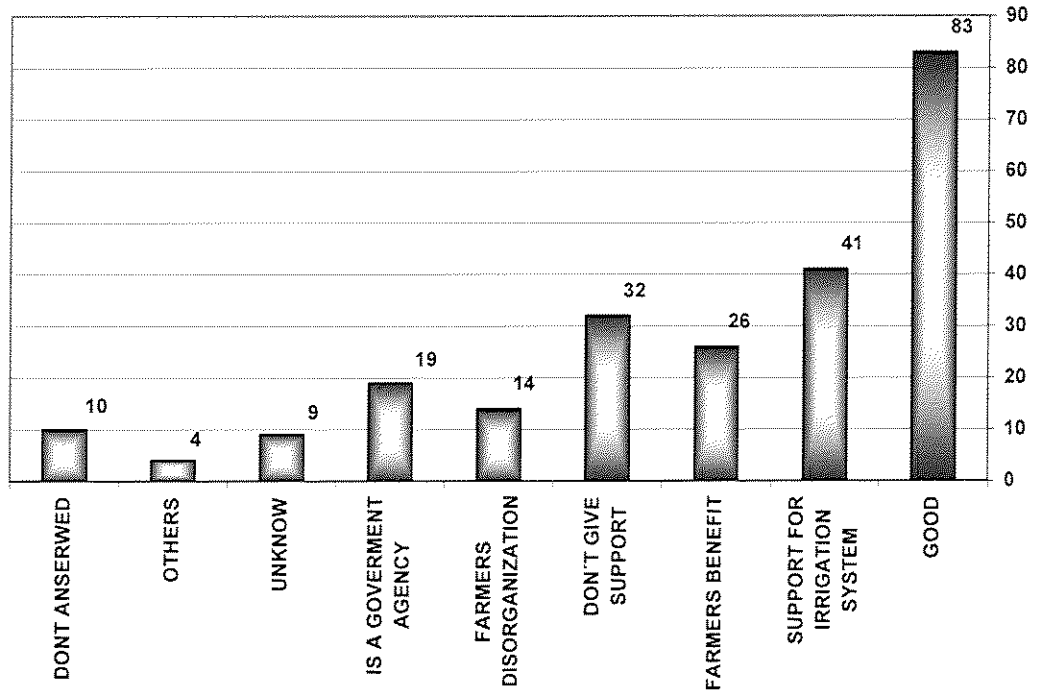
CIVIL ASSOCIATION OF IRRIGATION THE UNIT SERVICES IN COMPROMISE WITH THE ASSOCIATION



OPINION ABOUT THE IRRIGATION UNIT



OPINION OF CODEPAP



4.1.3 DISCUSSION

It is advisable to remember that from the 619 proposed producers which participated in the socioeconomic census, a part of them, made the decision of not participating, therefore in the data base of the socioeconomic information the name of this producer does not appear.

POSSESSION OF THE LAND. - Of the 3637 parcels included in the study, 92% of these are public, 8% are private property and basically they are represented by the submodule of San Marcos and a small fraction of Tlacojalpan I; both pertaining to the module of Tlajojalpan-Ambrosio. A fraction of is also private Laguna Encantada in San Andres Tuxtla. As for the public property, most of the submodules have a title certificate emitted by the Agrarian National Registry, except for a small fraction of the submodule of Tlacojalpan II, whose process is pending; however, the lands of the Tesechoacán submodule lack title certificates; they do not have the map of the Secretariat of the Agrarian Reformation.

SIZE OF PARCEL. - For the size of parcel, 64,4% of the registered producers have estates greater than 5 hectares, 30,3% have lands between 6 and 10 ha, 3,2% have lands between 11 and 15 ha and the rest, which is to say 2,1%, have lands greater than 16 has, up to a little less than 30 has. The previous data allow to deduce that most producers do not have parcel larger than 10 ha. Despite this small lang holdings irrigation, profitable crops, credit and technical attendance can allow the improvement of the quality of life of the producers. Of the registered producers, 85% work in the parcels and 15% rent it, in other words they do not work it.

IRRIGATION. - Although the study is made on irrigation modules, it should be mentioned that only the Mondongo well 5 submodule of the Naranjos module has an operating irrigation system, this is 2,7% of the studied surface. The module of Laguna Encantada recently has initiated operation tests, representing 24,1% of the area. The rest of the surface does not have irrigation systems in operation, this is 73,2% of the area; in most of the cases the system is in early stages of construction.

AGE, MARITAL STATUS, LEVEL OF SCHOOLING AND ETHNIC GROUP. - As far as the age of the producers, 86% of the registered population are over 41 years of age; it is a mature population with an important sector of elder people; 14% have age between 20 and 40 years. As for the civil status, 83% of the registered population declared to be married, widowed or divorced, 7% of the producers are unmarried. In relation to the schooling level, 63% have incomplete primary, 15% with complete elementary school and the other 22% has secondary education and complete or incomplete higher education, 4% of these are professionals.

Of the 4 studied modules, the module of the Naranjos presents a group of the Chinanteca ethnic group, a population emigrated from the State of Oaxaca, because of the construction of the Cerro de Oro dam; this group represents 9% of the registered population and speaks the chinanteca and mazateca languages.

FAMILY INTEGRATION AND ECONOMY. - Of the registered population, 81% of the producers showed that their family is formed by 2 to 5 members and in 19% the family composition is of 6 to 8 members; this indicates that the registered families are mainly small. The 83% of members the family participate in the work of the parcel, this members contribute to the familiar income by working in other activities, a few members emigrate to the big cities or the United States (18%).

As far as the family income, 78% of the surveyed producers haven farming activities as the main source of in come, 10% rely on the rent of their parcel and 12% are dedicated to activities of commerce, such as wage-earning or public employees or as day laborers. The 72% of producers showed that their income is received in an annual form, this is in form of liquidation of harvest; the rest of the population receives a monthly, biweekly or weekly income. Most of the income goes toward the cost of support.

HOUSE. - In general terms the surveyed producers declared to have a house constructed with block and cement; galvanized metal ceiling with cement in the walls and a floor of cement, which represents 77% of the surveyed population; 13% commented that their house was under construction or being remodeled.

100% of the houses have water supply, 90% with potable tubed water and 10% with artesian wells or chain dump, not to forget that in the study area the groundwater level is of little depth. 87% have a wc and 12% with a latrine, 1% without service. It should be emphasized that for the modules of Tlacojalpan-Ambrosio, Naranjos and Tesechoacán-Curazao, high groundwater level affects the systems of municipal sewage system adversely. The service of electrical energy works in 100% of the houses of the surveyed producers.

In general, it is possible to be said that the registered producers have income originating from farming activity, although complemented by the income of other productive activities; most of its income is destined to the acquisition of support and have a house with services in an acceptable level; also in general the schooling is low. In a generalized opinion, the producers showed their approval of the agricultural irrigation infrastructure development, although they these would be finished and put in operation were concerned about when.

4. 2 CHARACTERISTICS OF THE MUNICIPALITIES

4.2.1 METHODOLOGY AND PROCESSES

Monographs of each one of the 5 municipalities where are the modules study. For the accomplishment of the monographs, the information of the Instituto Nacional de Estadística, Geografía e Informática (INEGI) contained in the network, was consulted at the electronic address www.inegi.gob.mx. This updated information is available in the governmental offices. The information was complemented with field trips.

4.2.2 RESULTS

MUNICIPALITY OF SAN ANDRES TUTTLA

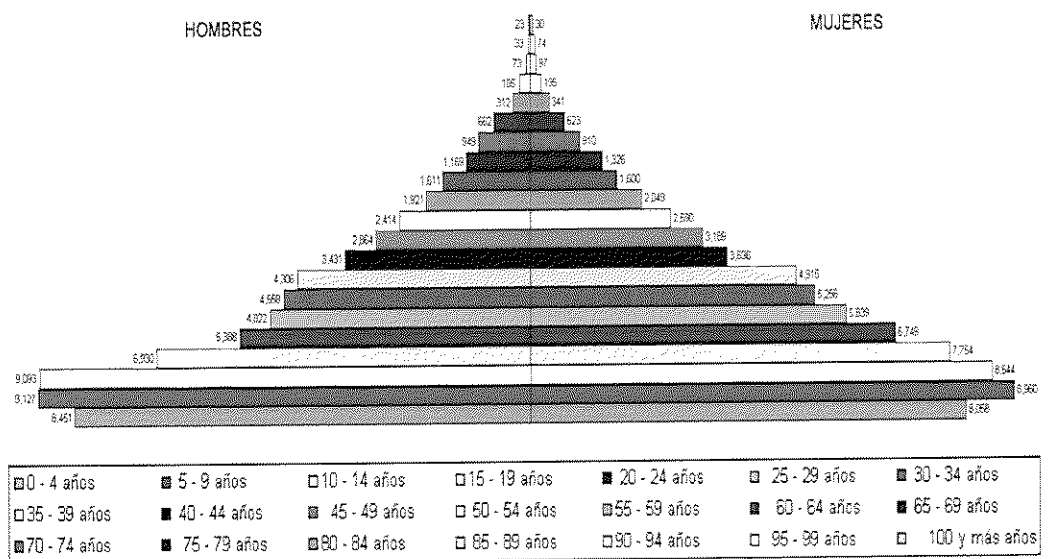
- POPULATION

| XII Censo General de Población y Vivienda, 2000 | | |
|---|--------|--------|
| Total Population | Men | Women |
| 142 343 inhabitants | 69 002 | 73 341 |

- ANNUAL GROWTH RATE

| Annual growth rate of the population | |
|--------------------------------------|------|
| Period | Rate |
| 1980-1990 | 1.16 |
| 1990-2000 | 1.34 |

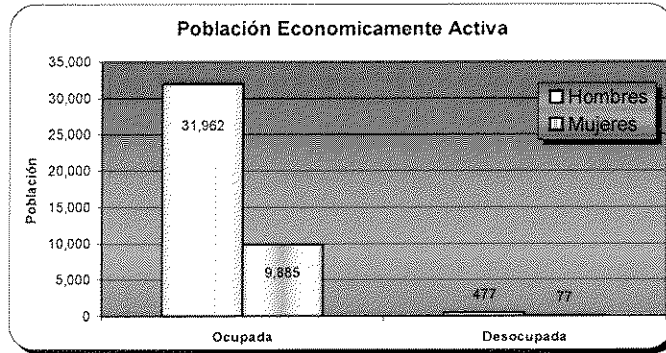
- AGE PYRAMID



- ECONOMICALLY ACTIVE POPULATION (PEA)

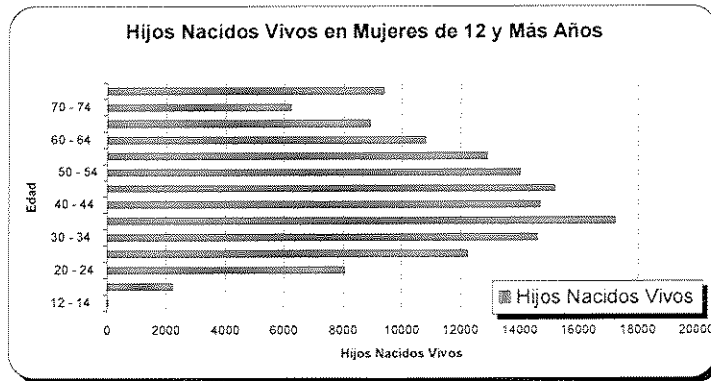
Population 12 years and older, being a total of 99 192, of which 47 015 represent a male population and 52 177 a female population; 32 439 men and 9 962 women carry out some economic activity, being catalogued by the General Population and

Housing Census of the year 2000; 31 962 men and 9 885 women are occupied economically active population and 477 men and 77 women are unoccupied economically active population.



- BIRTH RATE

The birth rate from March 1999 to February 2000 was 23.60 %.



MUNICIPALITY OF TLACOJALPAN

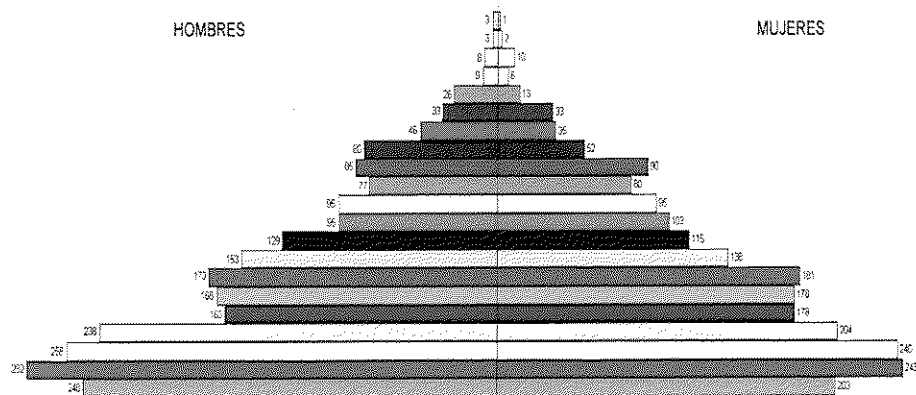
- POPULATION

| XII Censo General de Población y Vivienda, 2000 | | |
|---|-------|-------|
| Total population | Men | Women |
| 4 642 inhab. | 2 414 | 2 228 |

- ANNUAL GROWTH RATE

| Rate of annual growth of the population | |
|---|-------|
| Period | Rate |
| 1980-1990 | -1.05 |
| 1990-2000 | 6.08 |

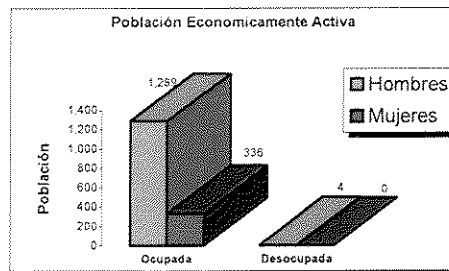
- AGE PYRAMID



| | | | | | | |
|--------------|--------------|--------------|--------------|--------------|--------------|----------------|
| 0 - 4 años | 5 - 9 años | 10 - 14 años | 15 - 19 años | 20 - 24 años | 25 - 29 años | 30 - 34 años |
| 35 - 39 años | 40 - 44 años | 45 - 49 años | 50 - 54 años | 55 - 59 años | 60 - 64 años | 65 - 69 años |
| 70 - 74 años | 75 - 79 años | 80 - 84 años | 85 - 89 años | 90 - 94 años | 95 - 99 años | 100 y más años |

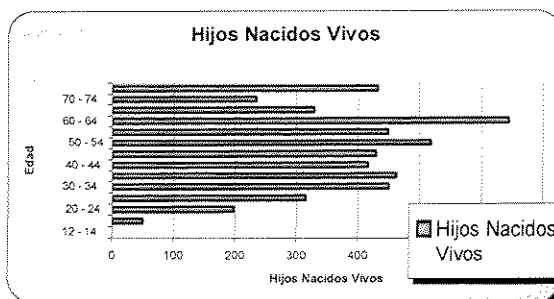
- ECONOMICALLY ACTIVE POPULATION (PEA)

Population 12 years and older, being these a total of 3 400, of which 1 738 represent a male population and 1 662 a female population; 1 293 men and 336 women carry out some economic activity, being catalogued as economically active population by the General Population and Housing Census of the year 2000; 1 289 men and 336 women are occupied economically active population and 4 men and 0 women are unoccupied economically active population.



- BIRTH RATE

The birth rate from March 1999 to February 2000 was 21.33 %.



MUNICIPALITY OF JOSE AZUETA

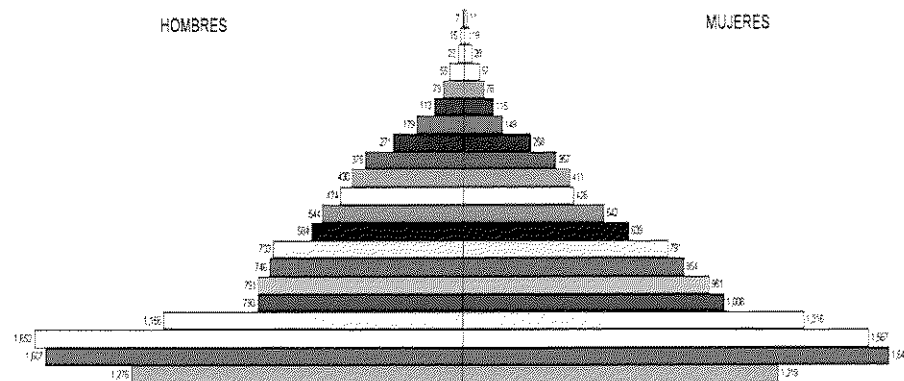
- POPULATION

| XII Censo General de Población y Vivienda, 2000 | | |
|---|--------|--------|
| Total population | Men | Women |
| 24 506 inhabitants | 11 994 | 12 512 |

- RATE OF ANNUAL GROWTH

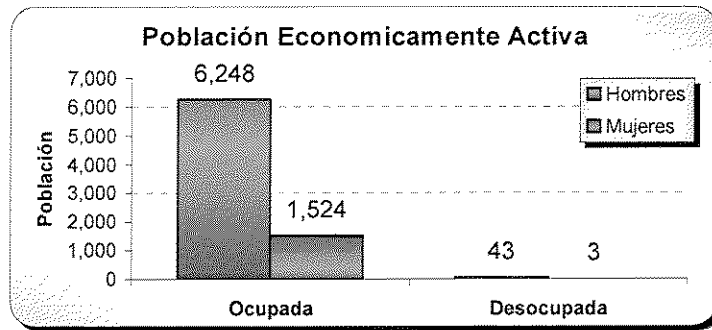
| Annual growth rate of the population | |
|--------------------------------------|-------|
| Period | Rate |
| 1980-1990 | -0.75 |
| 1990-2000 | 0.28 |

- AGE PYRAMID



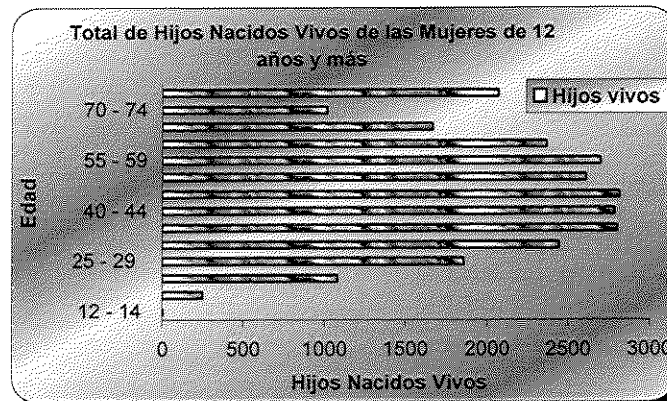
- | | | | | | | |
|------------|------------|------------|------------|------------|------------|----------------|
| 0-4 años | 5-9 años | 10-14 años | 15-19 años | 20-24 años | 25-29 años | 30-34 años |
| 35-39 años | 40-44 años | 45-49 años | 50-54 años | 55-59 años | 60-64 años | 65-69 años |
| 70-74 años | 75-79 años | 80-84 años | 85-89 años | 90-94 años | 95-99 años | 100 y más años |

Population of 17 256 inhabitants 12 years and older in the municipality; where 8 929 are women and 8 327 are men, of which 6 291 men and 1 527 women carry out some economic activity, being catalogued as economically active population by the General Population and Housing Census of the year 2000; 6 248 men and 1 524 women are occupied economically active and 43 men and 3 women are unoccupied economically active population.



- BIRTH RATE

The birth rate from March 1999 to February 2000 was 19.51 %.



MUNICIPALITY OF TIERRA BLANCA

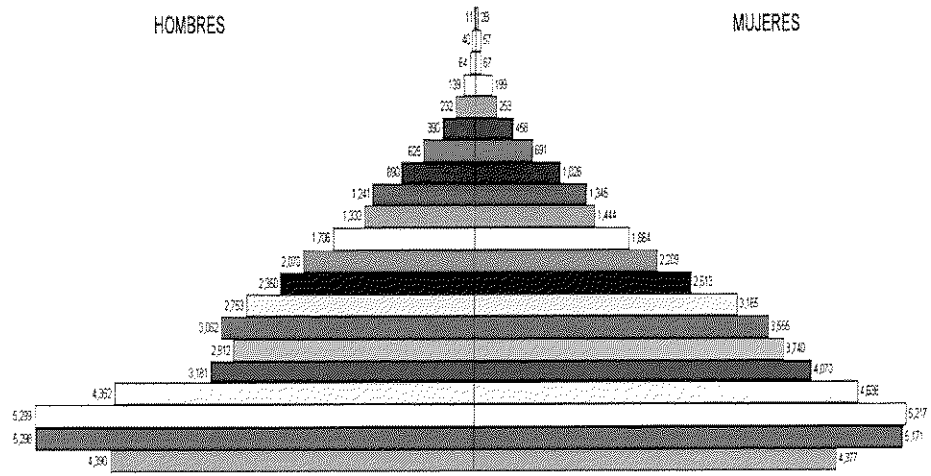
- POPULATION

| XII Censo General de Población y Vivienda, 2000 | | |
|---|--------|--------|
| Total population | Men | Women |
| 89 382 inhabitants | 42 773 | 46 609 |

- ANNUAL GROWTH RATE

| Annual growth rate of the population | |
|--------------------------------------|-------|
| Period | Rate |
| 1980-1990 | 28.33 |
| 1990-2000 | 0.46 |

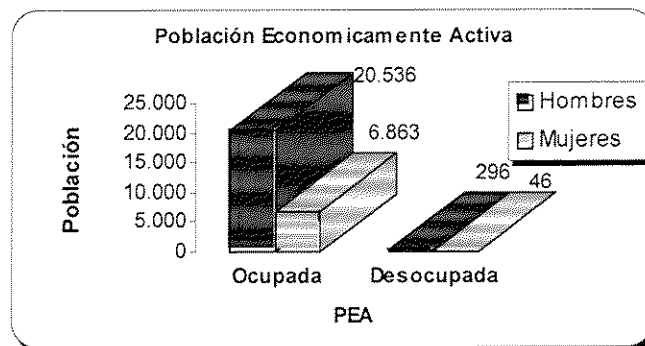
- AGE PYRAMID



| | | | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|------------------|
| □ 0 - 4 años | ■ 5 - 9 años | □ 10 - 14 años | □ 15 - 19 años | ■ 20 - 24 años | □ 25 - 29 años | ■ 30 - 34 años |
| □ 35 - 39 años | ■ 40 - 44 años | ■ 45 - 49 años | □ 50 - 54 años | ■ 55 - 59 años | ■ 60 - 64 años | ■ 65 - 69 años |
| ■ 70 - 74 años | ■ 75 - 79 años | ■ 80 - 84 años | □ 85 - 89 años | □ 90 - 94 años | □ 95 - 99 años | □ 100 y más años |

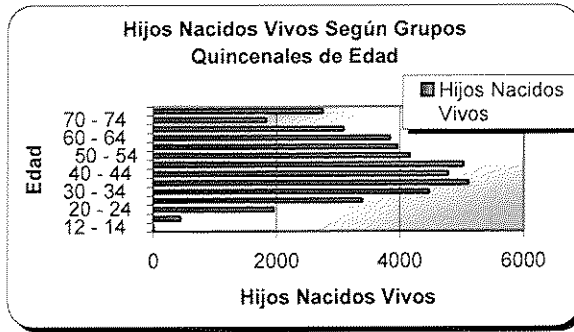
- ECONOMICALLY ACTIVE POPULATION (PEA)

According to the XII General Population and Housing Census of the year 2000; a population of 12 years and older has 65 101, where 30 482 are men and 34 619 are women; 20 832 men and 6 909 women carry out some economic activity, they are catalogued as economically active population; being these 20 536 men and 6 863 women occupied economically active population and 296 men and 46 women are unoccupied economically active population.



- BIRTH RATE

The birth rate from March 1999 to February 2000 was 18.25 %.



MUNICIPALITY OF TRES VALLES

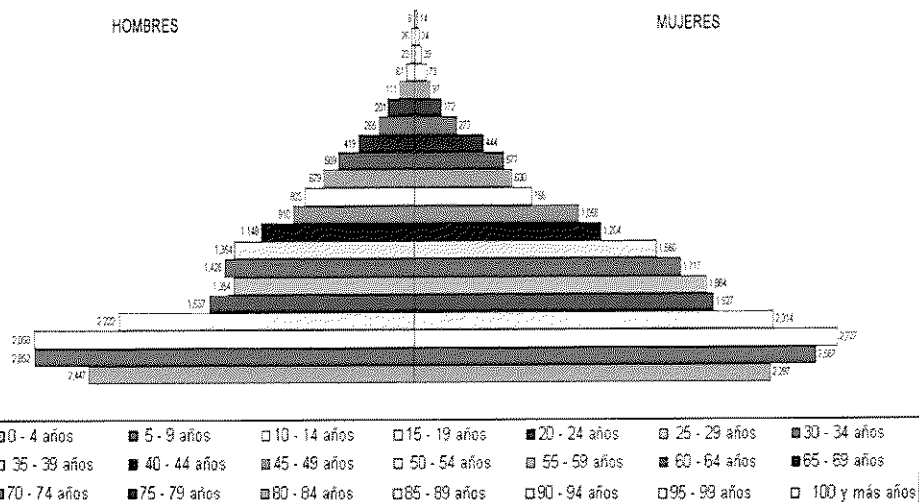
- POPULATION

| Annual growth rate of the population | |
|--------------------------------------|------|
| Period | Rate |
| 1980-1990 | 0.00 |
| 1990-2000 | 0.37 |

- ANNUAL GROWTH RATE

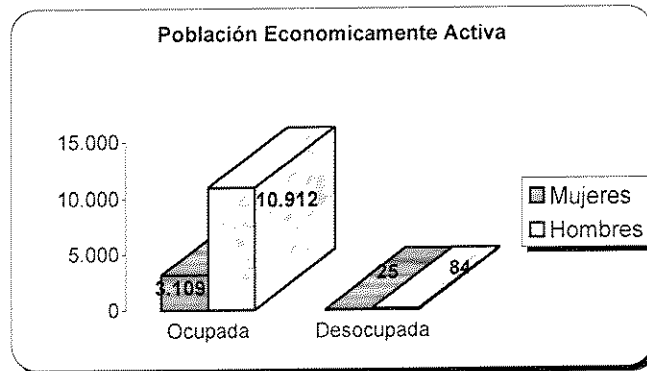
| XII Censo General de Población y Vivienda, 2000 | | |
|---|--------|--------|
| Total population | Men | Women |
| 44 215 Hab. | 21 572 | 22 643 |

- AGE PYRAMID



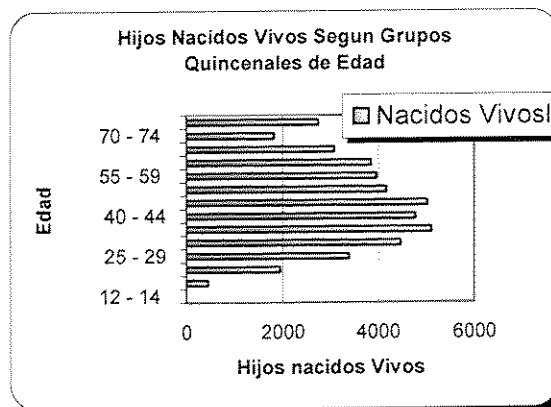
- **ECONOMICALLY ACTIVE POPULATION (PEA)**

According to the XII General Population and Housing Census of the Year 2000; a population 12 years and over is reported, being these a total of 31 230; where 14 856 are men and 16 374 are women; 10 996 men and 3 134 women carry or carried out some economic activity, being catalogued as economically active population, 10 912 men and 3 109 women are occupied economically active population.



- **BIRTH RATE**

The birth rate from March 1999 to February 2000 was 21.33. %



4.2.3 DISCUSSION

The municipality of San Andres Tuxtla where the module of Laguna Encantada is located has a population of 142.343 inhabitants with an annual rate of growth of 1.34%; of the 5 studied municipalities, this is the one that has greater number of inhabitants (46.6%). In relation to the PEA (Economically Active Population) for year 2000, this municipality reported that 29,3% of their population participate in the productive economic activity in the farming sector and of services by the tourism activity that is developed in the zone of Los Tuxtlas.

The studied municipality that follows in importance by the number of inhabitants is the one of Tierra Blanca with 89.382 people (29.3%) with an annual rate of population growth of 0.46%; the PEA reported for this municipality is of 30,6%, with emphasis in the farming and commercial activity; the tourism activity is minimum.

As for population, size the municipality that follows is the one of Tres Valles, with 44.215 inhabitants (14.5%), with a rate of population growth of 0,37% and a PEA of 31,7% with predominant activity in the sugar agro-industrial sector; the tourism activity is minimum.

The municipality of Jose Azueta has a population of 24.506 inhabitants (8%), with an annual rate of growth of 0.28%. The economic activity of this municipality is farming mainly and in the second term commercial; the tourism activity is minimum. The PEA for this municipality is 31.7%

Finally the municipality with the smallest number of inhabitants is Tlacojalpan; it has 4642 people (1.52%), but with a high annual population growth of 6%; the highest in the 5 municipalities studied. The PEA for this municipality, it is 35%, the population dedicated to the sugar cane activity, the tourism activity is minimum.

The total population of the 5 studied municipalities is 305, 088 inhabitants, this represents 4,35% of the state population. The economically active population of the 5 municipalities is around 30% or a little more for Tlacojalpan; the economic activities are based or related mainly to the farming production, especially of sugar cane and its industrial beneficiary.

Although the PEA of the 5 municipalities can be considered as a single group, it is certain that the municipality of Tlacojalpan is the one that has a lower number of inhabitants, it is perhaps the one that has a greater demand for governmental attention, this is because of the isolation from which it suffers because of bad highways and the inconsistent service of the local ferry, due to the variations of level of the Papaloapan river.

4.3. AGRICULTURAL PRODUCT MARKETS

The study of market and commercialization was made by the company Berg Marketing and Research (BM&R), a company dedicated to the investigation of markets from Mexico City. The company made the collection of field information relative to the commercialization and farming product market in the region of the River basin of the Papaloapan, that is to say, the study reported in this section; it includes 13 of the municipalities of this river basin.

The specific objectives of the study made by BM&R were carried out under the following scheme of investigation:

Commercialization

- Compilation of Information relative to commercialization channels
- Compilation of information on commercial infrastructure: supply centers, markets, warehouses, storage centers, etc. Each site of commercialization was georeferenced with GPS equipment, in order to indicate the GIS on the respective cartography
- Compilation of information on transport infrastructure for perishable products, destinations and prices of loads according to origin and destination within the river basin, the region, the state and including Mexico City
- Compilation of manufacturing or distributing companies of packing material and packing in the river basin of the Papaloapan.
- Compilation of information on companies, official and consulting agencies that provide services relative to the farming commercialization in the river basin and the zone where the irrigation modules are located.

Economic System

- To identify the three most attractive markets for each one of the following fresh product categories: fruits, vegetables and flowers
- To identify market niches
- To identify existing segments of the market that are satisfied by means of products originated outside the region, of the state and the country, susceptible to be replaced by the products that are generated in the 4 units of irrigation in the river basin of the Papaloapan, object of the study
- Data base of information of the markets located in the area of influence of the river basin of the Papaloapan, with particular emphasis in the niches and segments of markets susceptible to be operated.

4.3.1 METHODOLOGY AND PROCESSES

As methodologic tools to reach the proposed objectives, the following were used:

- Collection of direct information in field by survey and census
- Consultation of the page of APPROACHES that is published daily by the SAGARPA in its site on the Internet

- Statistical analysis of the obtained data.

The activities that were made throughout the work can be grouped in the following form:

- 141 face to face interviews were made with managers and owners of supply centers, markets, and flea markets.
- 124 takings of basic information from a directory of retailers, carriers and suppliers of services to the agricultural sector in 13 municipalities of the State of Veracruz, pertaining to the River basin of Papaloapan. The municipalities visited were selected for having the area of the 4 studied irrigation modules as a radial center, besides considering those most important in terms of their number of inhabitants, so that the interviews were made in the 13 municipalities that next appear:

| MUNICIPALITY | Surveys | Censuses |
|--------------------|---------|----------|
| Tierra Blanca | 22 | 17 |
| San Andrés Tuxtla | 16 | 12 |
| Rodríguez Clara | 14 | 9 |
| Cosamoloapan | 14 | 15 |
| Tres Valle | 13 | 14 |
| Ángel R. Cabada | 12 | 7 |
| Isla | 12 | 22 |
| Santiago Tuxtla | 8 | 3 |
| Carlos A. Carrillo | 8 | 4 |
| Catemaco | 7 | 7 |
| Lerdo de Tejada | 7 | 9 |
| Villa Azueta | 5 | 4 |
| J. D. Covarrubias | 3 | 7 |

- In all the visited populations interviews were made in the public markets
- In regard to the retailers, they were selected according to the size of their business
- In the case of the carriers and suppliers of services, the interviews were made in those populations in which carrier companies and suppliers of services for the agricultural sector were identified
- In addition 30 additional interviews were made in Xalapa and Veracruz.
- The training for the taking of information for this study was made during the 1st and 2nd of July 2004 in the offices of the client in Xalapa.
- Later, during the 3rd and 4th of July 2004, the pilot test of the study was made
- The collection of the information was carried out between the 5th and 18th of July 2004.

4.3.2 RESULTS

As it was mentioned at the beginning of the methodology, to obtain the field data the techniques of survey were applied, reporting for the studied area the following chart according to the type of retailer or service provider.

| MUNICIPALITY | Surveys | Censuses |
|----------------------------------|---------|----------|
| Wholesalers | 78 | 1 |
| Markets | 45 | 11 |
| Florists | 16 | - |
| Flea Markets | 1 | - |
| Distributors of flowers | 1 | - |
| Agricultural products/implements | - | 59 |
| Agricultural advice | - | 13 |
| Fertilizers | - | 15 |
| Sugar mills | - | 9 |
| Financiers/credit unions | - | 4 |

Products that the retailing of the River basin of the Papaloapan handle

| PRODUCTS | % |
|---------------|----|
| Onion | 57 |
| Chili peppers | 53 |
| Banana | 51 |
| Tomato | 48 |
| Apple | 32 |
| Gladiola | 23 |
| Potato | 23 |
| Nube | 19 |
| Clavel | 16 |
| Roses | 16 |
| Melon | 16 |
| Tomato | 14 |
| Polar | 13 |
| Pineapple | 9 |
| Papaya | 9 |
| Cabbage | 9 |
| Grapes | 9 |
| Daisies | 8 |
| Pompons | 6 |

Continuous

| PRODUCTS | % |
|------------------------|----|
| Orange | 6 |
| Coriander | 5 |
| Mango | 4 |
| Carrot | 4 |
| Lettuce | 4 |
| Watermelon | 4 |
| Lemon | 3 |
| Chrisantemum | 3 |
| Nora | 2 |
| Chayote | 2 |
| Others (w 1% each one) | 21 |

Continuous

Note: The percentages to represent consumers demand.

PLACES WHERE CONSUMERS OF THE PAPALOPAN RIVER BASIN BUY FRUITS, VEGETABLES AND FLOWERS

| PLACES MENTIONED | % |
|--|----|
| Supply Center, Mexico DF | 19 |
| Supply Center, Huizcalotla Puebla | 14 |
| Supply Center, Puebla? Particular producer | 14 |
| Flowers Market, Orizaba | 11 |
| Supply Centers Malibrán, Veracruz | 6 |
| Market, San Jose de Orizaba | 6 |
| Supply Centers, Orizaba | 4 |
| San Martín Texmelucan | 4 |
| Puebla | 3 |
| Warehouse San Andrés Tuxtla | 2 |
| Market San Martín, Puebla | 2 |
| Cosamaloapan Shopkeeper | 2 |
| Sinaloa | 1 |
| Supply Centers, Minatitlán | 1 |
| Rodriguez Clara | 1 |
| Others (with 1 mention ea) | 1 |
| Supply Centers, Mexico DF | 1 |
| Supply Centers, Huizcalotla Puebla | 1 |
| Supply Centers, Puebla Private producer | 14 |

PRESENTATION OF PRODUCTS - FLOWERS THAT ARE USED MOST

| Form of purchase Thickness | Gladiolo | Cloud | Clavel | Roses | Polar | Daisy | Pompón |
|-------------------------------|----------|-------|--------|-------|-------|-------|--------|
| | % | % | % | % | % | % | % |
| Package (12X12) | 97 | 4 | 87 | 14 | 5 | - | - |
| Roll | - | - | - | 68 | 5 | 18 | - |
| Dozen (12) | - | 96 | 4 | 4 | 5 | - | - |
| Mallet | - | - | 4 | 9 | 84 | 45 | 100 |
| Branco | 3 | - | - | 4 | - | 36 | - |
| Package | - | - | 4 | - | - | - | - |
| Consumers survey | (32) | (27) | (23) | (22) | (18) | (11) | (8) |

FORM / PRESENTATION HOW THE WHOLESALERS OF PAPALOAPAN RIVER BASIN BUY FRUIT AND VEGETABLES OF MORE USING.

| Form of purchase Onion | Onion (%) | Chili (%) | Banana (%) | Tomato (%) | Apple (%) | Potato (%) | Melon (%) | Tomato (%) | Papaya (%) | Cabbage (%) | Pineapple (%) | Grapes (%) | Orange (%) | Coriander (%) |
|---------------------------|-----------|-----------|------------|------------|-----------|------------|-----------|------------|------------|-------------|---------------|------------|------------|---------------|
| Bulk | 71 | 57 | - | 1 | - | 78 | - | - | - | 13 | - | - | 13 | - |
| Kilo | 25 | 36 | 7 | 3 | - | 9 | - | - | 62 | - | 25 | - | 38 | - |
| Bag | 4 | 4 | - | - | - | 13 | - | - | - | - | - | - | - | - |
| Crate | - | - | 3 | 1 | - | - | - | - | - | 8 | - | - | - | - |
| Box | - | 1 | 89 | 94 | 98 | - | 91 | 100 | 31 | - | - | 100 | - | - |
| Half bulk | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ton | - | - | 1 | - | - | - | - | - | - | - | 42 | - | 25 | - |
| Tray | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - |
| Piece | - | - | - | - | - | - | 9 | - | 8 | 56 | 17 | - | - | - |
| Stock | - | - | - | - | - | - | - | - | - | 23 | - | - | - | - |
| In bulk | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - |
| Own crop | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - |
| Percent | - | - | - | - | - | - | - | - | - | - | - | - | 25 | - |
| Mallet | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 |
| Roll | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 |
| Consumers survey | 80 | 75 | 72 | 68 | 45 | 32 | 22 | 20 | 13 | 13 | 12 | 11 | 7 | 7 |
| % | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

PLACES WHERE MORE PRODUCTS ARE COMERCIALIZED IN THE PAPALOAPAN RIVER BASIN.

| Site of origin | Gladiolo |
|-----------------------|----------|
| | % |
| Orizaba | 64 |
| Puebla | 9 |
| México | 9 |
| San Juan del Río | 6 |
| San Martín Texmelucan | 6 |
| Atlixco | 3 |
| Perla | 3 |
| Consumers survey | 32 |
| % total | (100%) |

| Site of origin | Cloud |
|-----------------------|--------|
| | % |
| Orizaba | 44 |
| Puebla | 26 |
| México | 7 |
| San Martín Texmelucan | 9 |
| Atlixco | 4 |
| Santiago | 6 |
| Toluca | 4 |
| Consumers survey | 27 |
| % total | (100%) |

| Site of origin | Clavel |
|----------------------------------|--------|
| | % |
| Orizaba | 43 |
| México | 30 |
| Puebla | 9 |
| Villagro | 4 |
| Coxflor de Villa Guerrero México | 4 |
| Morelos | 6 |
| San Juan del Río | 4 |
| Consumers survey | 23 |
| % total | (100%) |

| Site of origin | Onion |
|------------------|--------|
| | % |
| Puebla | 33 |
| Zacatecas | 19 |
| Tlaxcala | 10 |
| Hidalgo | 8 |
| Guanajuato | 6 |
| Morelos | 6 |
| México | 4 |
| Celaya | 3 |
| Chihuahua | 3 |
| Otros | 8 |
| Consumers survey | 80 |
| % total | (100%) |

| Site of origin | Daisy |
|--------------------------|--------|
| | % |
| Puebla | 45 |
| San Martín Texmelucan | 10 |
| Orizaba | 18 |
| Villagro | 9 |
| Región Tuxtla | 9 |
| México | 9 |
| Comerciantes encuestados | 11 |
| % total | (100%) |

| Site of origin | Polar |
|------------------|--------|
| | % |
| Orizaba | 42 |
| México | 29 |
| Atlixco | 11 |
| Estado de México | 6 |
| Puebla | 6 |
| Guerrero | 6 |
| Consumers survey | 18 |
| % total | (100%) |

PLACES WHERE MORE PRODUCTS ARE COMERCIALIZED IN THE PAPALOAPAN RIVER BASIN.

| Site of origin | Roses |
|--|--------|
| | % |
| México | 22 |
| Orizaba | 18 |
| Morelos | 18 |
| Villagro | 9 |
| Puebla | 9 |
| San Martín Texmelucan | 9 |
| Veracruz | 5 |
| Puebla | 5 |
| Coxflor de Villa Guerrero México | 5 |
| Consumers survey | 522 |
| % total | (100%) |

| Site of origin | Banana |
|---------------------|--------|
| | % |
| Tabasco | 48 |
| Tuxtepec | 25 |
| Papaloapan | 10 |
| Oaxaca | 4 |
| México | 4 |
| Puebla | 3 |
| Otros | 6 |
| Consumers survey | 72 |
| % total | (100%) |

PLACES WHERE MORE PRODUCTS ARE COMERCIALIZED IN THE PAPALOAPAN RIVER BASIN.

| Site of origin | Tomato |
|------------------|--------|
| | % |
| Sinaloa | 41 |
| Puebla | 26 |
| México | 6 |
| Zacatecas | 6 |
| Ensenada | 6 |
| Culiacan | 3 |
| Morelos | 3 |
| Otros | 9 |
| Consumers survey | 68 |
| % total | (100%) |

| Site of origin | Apple |
|------------------|--------|
| | % |
| Chihuahua | 60 |
| Puebla | 27 |
| Estados Unidos | 9 |
| México | 4 |
| Consumers survey | 45 |
| % total | (100%) |

| Site of origin | Potato |
|------------------|--------|
| | % |
| Puebla | 36 |
| Sinaloa | 21 |
| Norte | 9 |
| Sonora | 8 |
| Los Mochis | 6 |
| Orizaba | 6 |
| Toluca | 4 |
| Otros | 10 |
| Consumers survey | 32 |
| % total | (100%) |

| Site of origin | Melón |
|------------------|--------|
| | % |
| Torreón | 64 |
| Guadalajara | 9 |
| Chihuahua | 9 |
| México | 9 |
| Oaxaca | 5 |
| Los Mochis | 5 |
| Apatzingan | 5 |
| Consumers survey | 22 |
| % total | (100%) |

| Site of origin | Tomato |
|------------------|--------|
| | % |
| Sinaloa | 50 |
| Puebla | 20 |
| Ensenada | 15 |
| Sonora | 5 |
| La Victoria | 5 |
| Zacatecas | 5 |
| Consumers survey | 20 |
| % total | (100%) |

| Site of origin | Papaya |
|------------------|--------|
| | % |
| Papaloapan | 30 |
| Minatitlan | 15 |
| Paso de Ovejas | 15 |
| Veracruz | 8 |
| Santiago Tuxtla | 8 |
| Chacaltianguis | 8 |
| Acayucan | 8 |
| Jaltima | 8 |
| Consumers survey | 13 |
| % total | (100%) |

PLACES WHERE MORE PRODUCTS ARE COMERCIALIZED IN THE PAPALOAPAN RIVER BASIN.

| Site of origin | Grapes |
|--------------------------|--------|
| | % |
| Baja California | 30 |
| Aguascalientes | 25 |
| California U.S.A | 18 |
| México | 9 |
| Chihuahua | 9 |
| Estados Unidos | 9 |
| Comerciantes encuestados | 11 |
| % total | (100%) |

| Site of origin | Chili |
|--------------------------|--------|
| | % |
| Puebla | 43 |
| Veracruz | 20 |
| Campeche | 17 |
| México | 4 |
| Chihuahua | 4 |
| Morelos | 3 |
| Otros | 9 |
| Comerciantes encuestados | 75 |
| % total | (100%) |

| Site of origin | Pineapple |
|--------------------------|-----------|
| | % |
| Isla | 40 |
| Loma Bonita | 27 |
| Rodríguez Clara | 17 |
| Papaloapan | 8 |
| Santa Teresa | 8 |
| Comerciantes encuestados | 12 |
| % total | (100%) |

| Site of origin | Col |
|--------------------------|--------|
| | % |
| Puebla | 92 |
| México | 8 |
| Comerciantes encuestados | 13 |
| % total | (100%) |

AVERAGE OF PRICE OF THE PRODUCTS THAT ARE USED MOST FOR THE CONSUMERS OF THE PAPALOAPAN RIVER BASIN

| Form of purchase | Gladiolo | Cloud | Clavel | Roses | Polar | Onion | Chile | Banana | Tomato | Apple | Potato | Tomato | Pineapple |
|------------------|----------|-------|---------|---------|--------|---------|---------|--------|--------|---------|---------|--------|-----------|
| Thickness | \$163,8 | | \$127,3 | \$183,3 | | | | | | | | | |
| Package | | | | \$72,2 | | | | | | | | | |
| Roll | | \$60 | | | | | | | | | | | |
| Dozen | | | | \$40 | \$37,0 | | | | | | | | |
| Bulk | | | | | | \$105,0 | \$184,8 | | | | \$151,4 | | |
| Kilo | | | | | | \$3,4 | \$8,9 | | | | \$6,7 | | |
| Box | | | | | | | | \$67,3 | \$87,4 | \$274,6 | | \$88,2 | |
| Ton | | | | | | | | | | | | | \$871,4 |

HOW OFTEN WHOLESALERS BUY VEGETABLE, FRUIT AND FLOWERS IN THE PAPALOAPAN RIVER BASIN.

| Frequency of purchase | % |
|-----------------------|----|
| Periodic | 7 |
| 4 times per week | 3 |
| 3 times per week | 33 |
| 2 times per week | 23 |
| 1 times per week | 30 |
| Every 10 days | 3 |

% OF PRODUCTS THAT WHOLESALERS CONSUME MORE IN THE PAPALOAPAN RIVER BASIN

| PRODUCTS | % |
|---------------|----|
| Onion | 57 |
| Chili peppers | 53 |
| Banana | 51 |
| Tomato | 49 |
| Apple | 32 |
| Gladiolos | 23 |
| Potato | 23 |
| Cloud | 18 |
| Clavel | 16 |
| Roses | 16 |

Continuous

Continuous

| PRODUCTS | % |
|---|----------|
| Melon | 16 |
| Molestar | 14 |
| Tomato | 9 |
| Cabbage | 9 |
| Pineapple | 9 |
| Papaya | 9 |
| Grapes | 8 |
| Daisies | 6 |
| Pompons | 6 |
| Orange | 5 |
| Coriander | 4 |
| Mango | 4 |
| Carrot | 4 |
| Lettuce | 4 |
| Watermelon | 3 |
| Lemon | 3 |
| Chrisantemum | 3 |
| Chayote | 2 |
| Others (1% each one) | 18 |
| Average Cost in products more consumed every time | \$ 3,138 |

ORIGIN OF BUYERS OF THE PAPALOAPAN RIVER BASIN THAT WANT VEGETABLE, FRUIT AND FLOWERS.

| PLACES | % |
|-------------------|----|
| Santiago Tuxtla | 16 |
| Catemaco | 12 |
| San Andrés Tuxtla | 10 |
| Rodríguez Clara | 9 |
| La Victoria | 6 |
| Cosamoloapan | 6 |
| Tierra Blanca | 6 |
| Loma Alta | 6 |
| Rincón | 6 |
| El Tigre | 5 |
| Sohuapan | 5 |
| Huayacanes | 5 |
| Tula | 5 |
| Galería | 4 |

Continuous

| PLACES | % |
|-----------------------|---|
| Abasco | 4 |
| Chacaltianguis | 4 |
| Carrillo | 4 |
| Juachín | 4 |
| El Júcaro | 4 |
| Temascal | 4 |
| La Vicente | 4 |
| Gente de paso | 4 |
| Isla | 4 |
| Totoioche | 4 |
| Saltabarranca | 4 |
| La Guadalupe | 4 |
| Los Naranjos | 4 |
| Cabada | 4 |
| Tecolapan | 4 |
| La Palma | 4 |
| Novara | 3 |
| Zacatal | 3 |
| Monte Pío | 3 |
| Tres Zapotes | 3 |
| Río Grande | 3 |
| Medellín | 3 |
| Lerdo de Tejada | 3 |
| San Juan de los Reyes | 3 |
| Del Salto | 3 |
| Veracruzito | 3 |
| Poblado 3 | 3 |
| Tres Valles | 3 |
| López Portillo | 3 |
| Escobillal | 3 |
| Chonegal | 3 |
| Tetela | 3 |
| Tinaja | 3 |
| Los Leones | 3 |
| Baragunda | 3 |
| Nopalapan | 3 |
| Santa Rosa | 3 |
| Cafetal | 3 |
| Plan de los Naranjos | 2 |
| La Perla | 2 |
| Tibernal | 2 |
| Zamora | 2 |

Continuous

Continuous

| PLACES | % |
|--------------------|------|
| San Juan | 2 |
| Santa Teresa | 2 |
| José Azueta | 2 |
| San Antonio | 2 |
| Gavino | 2 |
| Nogala | 2 |
| Curacao | 2 |
| El Maguey | 2 |
| Col. Obrera | 2 |
| Los Maculies | 2 |
| Lechería | 2 |
| Col. Domínguez | 2 |
| Comunidades | 2 |
| Poblado 1 | 2 |
| Poblado 2 | 2 |
| Novillero | 2 |
| La Pochota | 2 |
| Charco | 2 |
| Julieta | 2 |
| Others (c/ 1% c/u) | 100% |

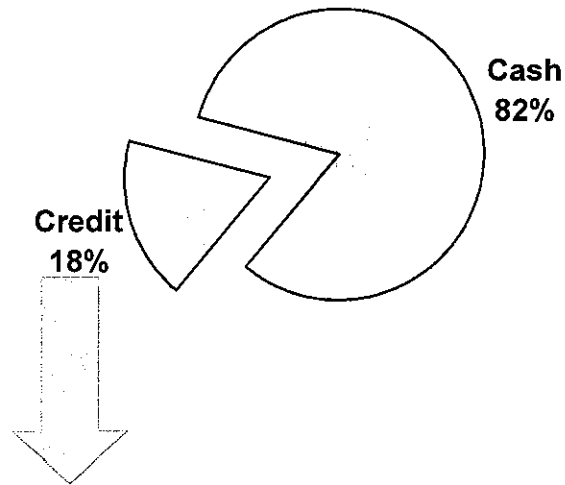
Continuous

TOTAL EXPENSES MADE BY WHOLESALERS OF THE PAPALOAPAN RIVER BASIN IN EACH PURCHASING OF VEGETABLE, FLOWERS AND FRUITS

| Cost average made in each purchase | |
|------------------------------------|----------|
| Total sample | \$ 3,138 |
| Type of commerce | |
| Wholesaler | \$ 4,215 |
| Market | \$ 1,934 |
| Floristers | \$ 1,613 |
| Tianguis | \$ 1,000 |
| Distributor of flowers | \$ 1,000 |

| Cost average made in each purchase | |
|------------------------------------|----------|
| Total sample | \$ 3,138 |
| Municipality | |
| Ángel R. Cabada | \$ 4,375 |
| Casamoloapan | \$ 4,018 |
| Santiago Tuxtla | \$ 3,950 |
| Tierra Blanca | \$ 3,791 |
| Carlos A. Carrillo | \$ 3,138 |
| Lerdo de Tejada | \$ 2,985 |
| Catemaco | \$ 2,786 |
| Tres Valles | \$ 2,785 |
| Isla | \$ 2,509 |
| San Andrés Tuxtla | \$ 2,456 |
| Villa Azueta | \$ 1,940 |
| Rodríguez Clara | \$ 1,808 |
| Covarrubias | \$ 400 |

USED MODE OF PAYMENT



AVERAGE DAYS OF CREDITS FROM SELLERS TO WHOLESALERS: 6.3

| Average of days of credit | | | | |
|---------------------------|------------------|-------------|----------|----------|
| Total sample | Type of commerce | | | |
| | Market. | Wholesaler. | Tianguis | Florería |
| 6.3 | 6.0 | 3.7 | 1.0 | 6.3 |

INFORMATION OF XALAPA AND VERACRUZ

PRODUCTS THAT WHOLESALERS OF XALAPA AND VERACRUZ HAVE.

| PRODUCTS | % |
|------------|----|
| Onion | 33 |
| Gladiolo | 27 |
| Chile | 27 |
| Roses | 23 |
| Cloud | 23 |
| Tomato | 20 |
| Tomato | 17 |
| Apple | 17 |
| Pompons | 17 |
| Clavel | 17 |
| Carrot | 17 |
| Watermelon | 17 |

Continuous

| PRODUCTS | % |
|-----------------------|----|
| Daisy | 13 |
| Polestar | 13 |
| Orange | 13 |
| Apple | 10 |
| Pineapple | 10 |
| Lettuce | 10 |
| Banana | 7 |
| Melon | 7 |
| Coriander | 7 |
| Papaya | 7 |
| Estates | 7 |
| Tuna | 7 |
| Others (3% each one) | 43 |

Continuous

PLACE OF PURCHASING BY WHOLESALERS IN XALAPA AND VERACRUZ OF VEGETABLE, FRUIT AND FLOWERS.

| MENTIONED PLACES | % |
|------------------------------------|----|
| Supply Centers, Huizcalotla Puebla | 33 |
| Private producer | 30 |
| Supply Centers, Mexico | 23 |
| Market of Flowers, Puebla | 3 |
| Supply Centers Malibrán, Veracruz | 3 |
| Toser | 3 |
| Villa Guerrero | 3 |

PRODUCTS MORE CONSUMED BY WHOLESALERS IN XALAPA AND VERACRUZ OF VEGETABLE, FRUIT AND FLOWERS.

| PRODUCTS | % |
|------------|----|
| Onion | 33 |
| Gladiolo | 27 |
| Chile | 27 |
| Roses | 23 |
| Cloud | 23 |
| Tomato | 20 |
| Tomato | 17 |
| Pompon | 17 |
| Clavel | 17 |
| Carrot | 17 |
| Watermelon | 17 |
| Polar | 13 |

Continuous

| PRODUCTS | % |
|--|-----------------|
| Potato | 13 |
| Orange | 13 |
| Daisy | 10 |
| Pineapple | 10 |
| Coriander | 10 |
| Lettuce | 7 |
| Papaya | 10 |
| Melon | 7 |
| Banana | 7 |
| Tuna | 7 |
| Others (c 3% each one) | 7 |
| Onion | 40 |
| Cost average in products most consumed each time | \$ <u>5,730</u> |

Continuous

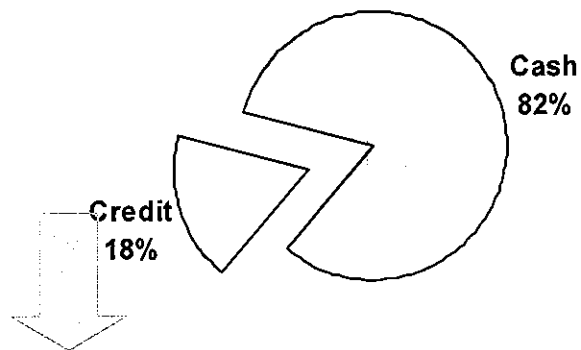
ORIGIN OF WHOLESALERS IN XALAPA AND VERACRUZ THAT WANT VEGETABLE, FRUIT AND FLOWERS.

| MENTIONED PLACES | % |
|------------------------------|----|
| Cardel | 50 |
| Alvarado | 40 |
| Xalapa | 27 |
| Piedras Negras | 20 |
| Veracruz | 20 |
| Lerdo de Tejada | 17 |
| Paso del Toro | 17 |
| Coatepec | 13 |
| Banderilla | 13 |
| San Andrés Tuxtla | 10 |
| Puente Julia | 10 |
| Boca del Río | 10 |
| Soledad | 10 |
| Paso de Ovejas | 10 |
| Coapexpan | 7 |
| Tierra Blanca | 7 |
| Santa Fe | 7 |
| Other places (c 3% each one) | 43 |

TOTAL EXPENSES ON EACH BUY BY THE WHOLESALERS OF ALAPA AND VERACRUZ OF VEGETABLE, FRUIT AND FLOWERS

| Cost average made on each purchase | |
|------------------------------------|----------|
| Total sample | \$ 5,730 |
| Type of commerce | |
| Market | \$ 5,556 |
| Floristers | \$ 6,600 |
| Cost average made on each purchase | |
| Total sample | \$ 5,730 |
| Municipality | |
| Xalapa | \$ 4,280 |
| Veracruz | \$ 6,455 |

AY OF PAYMENT USED BY THE WHOLESALERS IN XALAPA AND VERACRUZ.



AVERAGE DAYS OF CREDITS FROM SELLERS TO WHOLESALERS: 3.7

| AVERAGE DAYS OF CREDIT | | |
|------------------------|------------------|-----------|
| Total Sample | Type of commerce | |
| | Market | Florister |
| 3.7 | 2.8 | 8.0 |

**PAYMENT FOR TRANSPORTATION OF VEGETABLE, FRUIT AND FLOWERS
WHOLESALE IN XALAPA AND VERACRUZ.**

| THEY PAY TRANSPORT | 43% |
|--|-----|
| \$ 2000/ \$ 2,000 from Puebla to Xalapa | 9 |
| \$ 250 the ton | 7 |
| \$ 2,500 (without specifying) | 7 |
| \$ 500 (without specifying) | 4 |
| \$ 3,500 Mexico to Veracruz | 4 |
| \$ 3,500 Huizcalotla to Veracruz | 4 |
| \$ 4,000 Huizcalotla to Veracruz | 4 |
| \$ 4,5 the box or the bulk | 4 |
| THEY HAVE ITS OWN TRANSPORT DO NOT PAY BY LOAD | 57% |

SUGESTION OF WHOLESALERS TO SELLERS OF VEGETABLE, FRUIT AND FLOWERS

| TOTAL GIVEN SUGGESTIONS | 87 |
|--|----|
| Have good quality of products/flowers | 47 |
| The prices are accessible | 37 |
| Organize the crop so that the product market does not collapse decide on planting times so as not to saturate the market | 23 |
| Good size of products/ flowers | 7 |
| Take products to the great wholesale supply centers | 7 |
| Sowing of oranges elsewhere, not only in Martinez de la Torre in other months of the year | 7 |
| Maintain the prices of the fruit to plant at other times of the year to maintain the price | 10 |
| Other suggestions (with 1 mention c/u) | 33 |
| No suggestion | 13 |

Next the information in respect to the distances between sites of supply and sites of consumption of the following places appears: Mexico, Veracruz, Cordoba and Coatzacoalcos to Tlacojalpan, San Andrés Tuxtla, Tres Valles, Tierra Blanca and Jose Azueta. Also included are the prices of loads according to the type of vehicle, the prices do not include taxes.

For taking it to Cordoba, the reported prices were provided by Transportes Bonampac and by transportes ALTRAN, for these last ones handling charge were included; for the city of Veracruz, the prices were provided by Mudanzas Trujillo and they also include maneuvers.

DISTANCES BETWEEN ORIGIN AND DESTINATION

| Distance Covered | KM |
|-----------------------------------|-----|
| México – Tlacojalpan | 426 |
| México – San Andrés Tuxtla | 524 |
| México – Tierra Blanca | 362 |
| México – Tres Valles | 394 |
| México – José Azueta | 429 |
| Veracruz – Tlacojalpan | 160 |
| Veracruz – San Andrés Tuxtla | 158 |
| Veracruz – Tierra Blanca | 96 |
| Veracruz – Tres Valles | 128 |
| Veracruz – José Azueta | 163 |
| Coatzacoalcos – Tlacojalpan | 196 |
| Coatzacoalcos – San Andrés Tuxtla | 160 |
| Coatzacoalcos – Tierra Blanca | 251 |
| Coatzacoalcos – Tres Valles | 215 |
| Coatzacoalcos – José Azueta | 180 |
| Córdoba – Tlacojalpan | 151 |
| Córdoba – San Andrés Tuxtla | 238 |
| Córdoba – Tierra Blanca | 87 |
| Córdoba – Tres Valles | 119 |
| Córdoba – José Azueta | 154 |

| PRICE OF TRANSPORTATION FROM CORDOBA, VERACRUZ AND COATZACOALCOS TO DIFFERENT DESTINATION OF VEGETABLES, FRUITS AND FLOWERS. | | | | | | | | | | |
|--|----------------------|-------------------|----------------------|----------------------|----------------------|--------------|-------------------------|-------------------|-------------------------|---------------------|
| CITY | COMPANY | DESTINATION | Price 25 ton trailer | Price 22 ton trailer | Price 20 ton trailer | 12 ton Truck | Price 28-30 ton trailer | Price 9 ton truck | Price 25-30 ton trailer | Price 16 ton. truck |
| CÓRDOBA | Transportes Bueno | San Andrés Tuxtla | | \$ 8,200,00 | | | | | | |
| CÓRDOBA | | Tierra Blanca | | \$ 4,600,00 | | | | | | |
| CÓRDOBA | | Tres Valles | | \$ 5,300,00 | | | | | | |
| CÓRDOBA | | San José Azueta | | \$ 7,400,00 | | | | | | |
| CÓRDOBA | | Veracruz | | \$ 5,100,00 | | | | | | |
| CÓRDOBA | | México | | \$ 7,200,00 | | | | | | |
| CÓRDOBA | | Coatzacoalcos | | \$ 8,500,00 | | | | | | |
| CÓRDOBA | Transportes Azteca | San Andrés Tuxtla | | | \$ 6,400,00 | | | | | |
| CÓRDOBA | | Tierra Blanca | | | \$ 5,200,00 | | | | | |
| CÓRDOBA | | Tres Valles | | | \$ 6,800,00 | | | | | |
| CÓRDOBA | | San José Azueta | | | \$ 9,300,00 | | | | | |
| CÓRDOBA | | Veracruz | | | \$ 7,200,00 | | | | | |
| CÓRDOBA | | México | | | \$ 14,100,00 | | | | | |
| CÓRDOBA | | Coatzacoalcos | | | \$ 9,600,00 | | | | | |
| CÓRDOBA | Transportes Bonampac | San Andrés Tuxtla | | | \$ 10,300,00 | | | | | |
| CÓRDOBA | | Tierra Blanca | | | \$ 9,400,00 | | | | | |
| CÓRDOBA | | Tres Valles | | | \$ 12,100,00 | | | | | |
| CÓRDOBA | | San José Azueta | | | \$ 15,800,00 | | | | | |
| CÓRDOBA | | Veracruz | | | \$ 16,400,00 | | | | | |
| CÓRDOBA | | México | | | \$ 16,900,00 | | | | | |
| CÓRDOBA | | Coatzacoalcos | | | \$ 15,200,00 | | | | | |
| CÓRDOBA | Transportes Mercurio | San Andrés Tuxtla | \$ 5,600,00 | | | | | | | |
| CÓRDOBA | | Tierra Blanca | \$ 5,900,00 | | | | | | | |
| CÓRDOBA | | Tres Valles | \$ 5,500,00 | | | | | | | |
| CÓRDOBA | | San José Azueta | \$ 6,300,00 | | | | | | | |
| CÓRDOBA | | Veracruz | \$ 5,500,00 | | | | | | | |

| PRICE OF TRANSPORTATION FROM CORDOBA, VERACRUZ AND COATZACOALCOS TO DIFFERENT DESTINATION OF VEGETABLES, FRUITS AND FLOWERS. | | | | | | | | | | |
|--|--------------------|-------------------|----------------------|----------------------|----------------------|--------------|-------------------------|-------------------|-------------------------|---------------------|
| CITY | COMPANY | DESTINATION | Price 25 ton trailer | Price 22 ton trailer | Price 20 ton trailer | 12 ton Truck | Price 28-30 ton trailer | Price 9 ton truck | Price 25-30 ton trailer | Price 16 ton. truck |
| CÓRDOBA | | México | \$ 9,800,00 | | | | | | | |
| CÓRDOBA | | Coatzacoalcos | \$ 8,200,00 | | | | | | | |
| CÓRDOBA | ALTRAN | San Andrés Tuxtla | | | | \$ 7,500,00 | | | | |
| CÓRDOBA | | Tierra Blanca | | | | \$ 6,550,00 | | | | |
| CÓRDOBA | | Tres Valles | | | | \$ 7,500,00 | | | | |
| CÓRDOBA | | San José Azueta | | | | \$ 8,500,00 | | | | |
| CÓRDOBA | | Veracruz | | | | \$ 6,050,00 | | | | |
| CÓRDOBA | | México | | | | \$ 15,800,00 | | | | |
| CÓRDOBA | | Coatzacoalcos | | | | \$ 9,150,00 | | | | |
| VERACRUZ | Transportes Castor | San Andrés Tuxtla | | | | | \$ 5,000,00 | | | |
| VERACRUZ | | Tierra Blanca | | | | | \$ 5,000,00 | | | |
| VERACRUZ | | Tres Valles | | | | | \$ 6,000,00 | | | |
| VERACRUZ | | San José Azueta | | | | | \$ 5,500,00 | | | |
| VERACRUZ | | Córdoba | | | | | \$ 4,000,00 | | | |
| VERACRUZ | | México | | | | | \$ 8,600,00 | | | |
| VERACRUZ | | Coatzacoalcos | | | | | \$ 7,100,00 | | | |
| VERACRUZ | Mudanzas Orozco | San Andrés Tuxtla | | | | | | \$ 6,750,00 | | |
| VERACRUZ | | Tierra Blanca | | | | | | \$ 6,550,00 | | |
| VERACRUZ | | Tres Valles | | | | | | \$ 7,205,00 | | |
| VERACRUZ | | San José Azueta | | | | | | No viaja | | |
| VERACRUZ | | Córdoba | | | | | | \$ 6,050,00 | | |
| VERACRUZ | | México | | | | | | No viaja | | |
| VERACRUZ | | Coatzacoalcos | | | | | | \$ 7,950,00 | | |
| VERACRUZ | Altutrans | San Andrés Tuxtla | | | \$ 4,000,00 | | | | | |
| VERACRUZ | | Tierra Blanca | | | \$ 3,800,00 | | | | | |
| VERACRUZ | | Tres Valles | | | \$ 4,000,00 | | | | | |
| VERACRUZ | | San José Azueta | | | \$ 4,300,00 | | | | | |

| PRICE OF TRANSPORTATION FROM CORDOBA, VERACRUZ AND COATZACOALCOS TO DIFFERENT DESTINATION OF VEGETABLES, FRUITS AND FLOWERS. | | | | | | | | | | |
|--|--------------------|-------------------|----------------------|----------------------|----------------------|--------------|-------------------------|-------------------|-------------------------|---------------------|
| CITY | COMPANY | DESTINATION | Price 25 ton trailer | Price 22 ton trailer | Price 20 ton trailer | 12 ton Truck | Price 28-30 ton trailer | Price 9 ton truck | Price 25-30 ton trailer | Price 16 ton. truck |
| VERACRUZ | | Córdoba | | | \$ 3.800,00 | | | | | |
| VERACRUZ | | México | | | \$ 8.000,00 | | | | | |
| VERACRUZ | | Coatzacoalcos | | | \$ 5.000,00 | | | | | |
| VERACRUZ | Transportes Reyes | San Andrés Tuxtla | | | | | | | | \$ 5.000,00 |
| VERACRUZ | | Tierra Blanca | | | | | | | | \$ 3.500,00 |
| VERACRUZ | | Tres Valles | | | | | | | | \$ 6.000,00 |
| VERACRUZ | | San José Azueta | | | | | | | | \$ 8.000,00 |
| VERACRUZ | | Córdoba | | | | | | | | \$ 5.000,00 |
| VERACRUZ | | México | | | | | | | | \$ 10.000,00 |
| VERACRUZ | | Coatzacoalcos | | | | | | | | \$ 8.000,00 |
| VERACRUZ | Transportes Leon | San Andrés Tuxtla | \$ 7.000,00 | | | | | | | |
| VERACRUZ | | Tierra Blanca | \$ 3.500,00 | | | | | | | |
| VERACRUZ | | Tres Valles | \$ 4.000,00 | | | | | | | |
| VERACRUZ | | San José Azueta | \$ 5.000,00 | | | | | | | |
| VERACRUZ | | Córdoba | \$ 3.500,00 | | | | | | | |
| VERACRUZ | | México | \$ 6.500,00 | | | | | | | |
| VERACRUZ | | Coatzacoalcos | \$ 5.000,00 | | | | | | | |
| VERACRUZ | | San Andrés Tuxtla | | | | | | | | |
| VERACRUZ | | Tierra Blanca | | | | | | | | |
| VERACRUZ | | Tres Valles | | | | | | | | |
| VERACRUZ | | San José Azueta | | | | | | | | |
| VERACRUZ | | Córdoba | | | | | | | | |
| VERACRUZ | | México | | | | | | | | |
| VERACRUZ | | Coatzacoalcos | | | | | | | | |
| COATZACOALCOS | Transportes Otegui | San Andrés Tuxtla | \$ 6.200,00 | | | | | | | |
| COATZACOALCOS | | Tierra Blanca | \$ 9.200,00 | | | | | | | |
| COATZACOALCOS | | Tres Valles | \$ 10.900,00 | | | | | | | |

| PRICE OF TRANSPORTATION FROM CORDOBA, VERACRUZ AND COATZACOALCOS TO DIFFERENT DESTINATION OF VEGETABLES, FRUITS AND FLOWERS. | | | | | | | | | | |
|--|--------------------|-------------------|----------------------|----------------------|----------------------|--------------|-------------------------|-------------------|-------------------------|---------------------|
| CITY | COMPANY | DESTINATION | Price 25 ton trailer | Price 22 ton trailer | Price 20 ton trailer | 12 ton Truck | Price 28-30 ton trailer | Price 9 ton truck | Price 25-30 ton trailer | Price 16 ton. truck |
| COATZACOALCOS | | San José Azueta | \$ 8.100,00 | | | | | | | |
| COATZACOALCOS | | Veracruz | \$ 8.900,00 | | | | | | | |
| COATZACOALCOS | | México | \$ 15.500,00 | | | | | | | |
| COATZACOALCOS | | Coatzacoalcos | \$ 9.300,00 | | | | | | | |
| COATZACOALCOS | Transportes Heller | San Andrés Tuxtla | \$ 6.400,00 | | | | | | | |
| COATZACOALCOS | | Tierra Blanca | \$ 10.500,00 | | | | | | | |
| COATZACOALCOS | | Tres Valles | \$ 9.600,00 | | | | | | | |
| COATZACOALCOS | | San José Azueta | \$ 9.300,00 | | | | | | | |
| COATZACOALCOS | | Veracruz | \$ 9.100,00 | | | | | | | |
| COATZACOALCOS | | México | \$ 22.000,00 | | | | | | | |
| COATZACOALCOS | | Córdoba | \$ 9.900,00 | | | | | | | |
| COATZACOALCOS | Transportes Relba | San Andrés Tuxtla | | | | | | | \$ 10.300,00 | |
| COATZACOALCOS | | Tierra Blanca | | | | | | | \$ 12.800,00 | |
| COATZACOALCOS | | Tres Valles | | | | | | | \$ 12.100,00 | |
| COATZACOALCOS | | San José Azueta | | | | | | | \$ 15.800,00 | |
| COATZACOALCOS | | Veracruz | | | | | | | \$ 17.100,00 | |
| COATZACOALCOS | | México | | | | | | | \$ 25.900,00 | |
| COATZACOALCOS | | Córdoba | | | | | | | \$ 17.800,00 | |

4.3.3 DISCUSSION

According to the results obtained in the study, the agricultural products with greater demand in the River basin of the Papaloapan are: fruits, vegetables and flowers with the following summation.

In relation to fruits and vegetables, the products with greater demand in the River basin of the Papaloapan are: 57% of those surveyed indicated that the onion is the product that is required in their daily life, with a 53% frequency answered that the required product is diverse types of Chili peppers, banana with 51% of affirmative answers, followed by the husk tomato with 49% of affirmations and apple with 32% of positive answers.

On the other hand, in respect to the flowers, the gladiola has a demand of 23%, 18% of those surveyed demand cloud flower and roses with a 16% of positive answers with percentage smaller than a 10% demand the tomato, cabbage, pineapple, papaya, grape, among many others can be mentioned.

The origin of fruits, vegetables and flowers that are consumed in the River basin of the Papaloapan are acquired by the retailers in different parts, although mainly from around the Mexico city, thus they come from the Supply Centers of Mexico city 19% of products, from the Supply Centers of Huizcalotla, Puebla 14%, from the Supply Centers of Puebla also 14% and local or regional producers that directly supply their products on the retail sites with 11%. Also products coming from outside the country exist, such as grapes and apples.

Individually the onion is one of the most demanded vegetables. Its source of origin is Puebla with 43%, Zacatecas with 21% and Tlaxcala with 10%. Within this same heading 49% of Chilis come from Puebla, 17% from Madero and 20% from the regional production of Veracruz.

As for banana, this one is brought from Tabasco at 56%, 25% of the banana comes from Tuxtepec which is in Oaxaca and included in the high river basin of the Papaloapan river; 10% of the banana is of local production.

The main places of origin of the red tomato or tomato, are Sinaloa with 54% and Puebla with 26% of positive answers. For natural reasons, the apple is sent from Chihuahua in a 67% and to a lesser extent from Puebla with 27%, 9% comes from the United States. In relation to flowers, the main place of origin is Orizaba for the 3 species of greater demand: gladiola 66%, cloud 44%, and clavel with 43%. The state of Puebla also contributes with cloud in a 26% and the state of Mexico contributes clavel with a 30%.

According to the purchase habits the frequency of purchase of the products before indicated, most of the retailers acquire them from one to 3 times per week. Not to forget that these are perishable products. As for the volume of the acquisitions on the part of the retailers, it was the municipality of Angel R: Cabada which makes a cost average of \$4375, whereas those of the municipality of Juan Diaz Covarrubias acquire merchandise with a cost average inferior to \$400. 66% of the retailers make

their acquisitions in cash and 34% count on some form of credit to make their payment in a term of 6.3 days on average.

As for the market niches, a very specific one could be identified and which is originated in the autumn-winter season to produce vegetables such as husk tomato, since in the high central part of Mexico or plateau at that time of the year the frost prevents the production of the mentioned vegetables in the opened air, although it is possible to produce them in a greenhouse with heating which significantly increases in price the cost of the product, on the contrary in the River basin of the Papaloapan at that same time of the year it does not rain and puddling does not appear, in addition that obviously in this site frosts do not exist.

Abounding in the same subject, to produce the vegetables before mentioned in the cycle autumn-winter they will allow to have profitable cultivations.

The producers of Tesechoacán-Curazao have antecedent encouraging on the matter. In the economic analysis of each technological package it was taken as important reference the yield from the cultivations on the basis of the production costs and sale prices. To see proposed technological packages.

By way of recommendations it is possible to propose as a commercialization method a type of corporative union between the small agriculturists to distribute their products or a small packing company in which the small agriculturists are owners of the businesses and some of their relatives work in the same.

This development system is promoted with funds from the United Nations (FAO) in Mexico and a clear example of this operation can be seen in the Municipality of Milpa Alta in Mexico City with the production of cactus.

Also, the efforts of the agriculturists of the river basin of Papaloapan in the obtaining the production of specific types related to the region should be concentrated on, such as papaya and to form a trust with support of the State to develop sub-brands such as papaya of Papaloapan from which a premium price can be obtained from a product of consistent quality.

Specifically in the different papaya types can be investigated for mexican and american consumers. The different types of papaya that can simultaneously be exported to Europe and the United States and, as in the case of the cactus in Milpa Alta, to form a small packer with added value products being produced as can be shampoos, cosmetic, creams, jams, papaya in syrup, etc., developing in this way a market niche.