

A Socio-Economic and Environmental Study of Dairy Production Systems in the Region of Los Altos, Jalisco, Mexico

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Introduction

Dairy products are a rather new item for international export but are an important means by which to compete in the global marketplace. While the U.S. and the European Union have consistently ranked highest in milk products consumed, produced, and exported, developing countries now vie for a share of growing markets. With increased standards of living and income growth among the middle classes, developing countries are considered drivers in the development of milk markets and have begun to realize the potential of dairy markets both at home and abroad. Since perishable products like meat and milk are generally consumed where they are produced, projections estimate that developing countries will account for 50% of the world's milk production in 2020 (Delgado 4). Mexico is one of those emerging nations attempting to increase milk production not only to satisfy an ever-growing consumer demand at home, but to take advantage of international trade opportunities. As the middle class develops and the majority of people enjoy a higher standard of living, a substantial lack of infrastructure and remnants of poverty pervade, catching Mexico in a world of in-betweens.

Mexico's in-between-ness as a nation is also reflected in its dairy industry. In many parts of rural Mexico, stark contrasts are visible, showing the fine line between prosperity and poverty. Often neighboring farms are worlds apart, depicted by mule-drawn carts and 200 Horse-power John Deere tractors sharing the same road. Mexico's dairy industry is highly heterogeneous with dairy farms ranging from subsistence living to capital extensive and highly technical large farms specializing only in milk production. The considerable range of dairy production in Mexico contributes to the industry's general underdevelopment, in terms of organization and structure, because overly-broad policies do not have the widespread application to assist and improve all production systems.

For Mexico to compete in dairy production, a systematic approach is needed to assess the current state of its dairy industry. Attempting to increase productivity without a change in other factors, such as educating farmers about milk quality, may increase milk production slightly but the milk produced is not of high enough quality to sell internationally. The condition of Mexico's dairy industry is impacted not just by milk prices or total milk production, but by a variety of factors often left out in industry analysis. These factors characterize the contexts in which the dairy farmers operate and the industry exists and constantly adapts to socio-economic, cultural, and political forces. Therefore an analysis of Mexico's dairy industry through a systems-type approach, accounting for all contexts, allows for a complete depiction of the current situation and offers more proficient solutions for improvement. In order to accurately portray the heterogeneity of Mexico's dairy industry, the research split national dairy production into three systems for analysis, due to the diversity and

uniqueness of each system. The research presented here intends to characterize a part of Mexico's dairy industry through a comprehensive and cross-discipline survey of one of the three production systems: the family farming system.

Mexico's Three Dairy Production Systems – An Overview

National Industry

Mexico is in a milk deficit and has been for the last 20 years. Consumption demand for milk and milk equivalents in the country has increased beyond the ability of current national

production to fill that demand. According to the International Farm Comparison Network, between 1990 and 2004, Mexico's self-sufficiency in milk only increased 8%, and has never been over 81% (Arredondo 108). Figure 1 shows the country's milk deficit over the last ten years by comparing consumer demand with actual production values. This figure also depicts the parallel

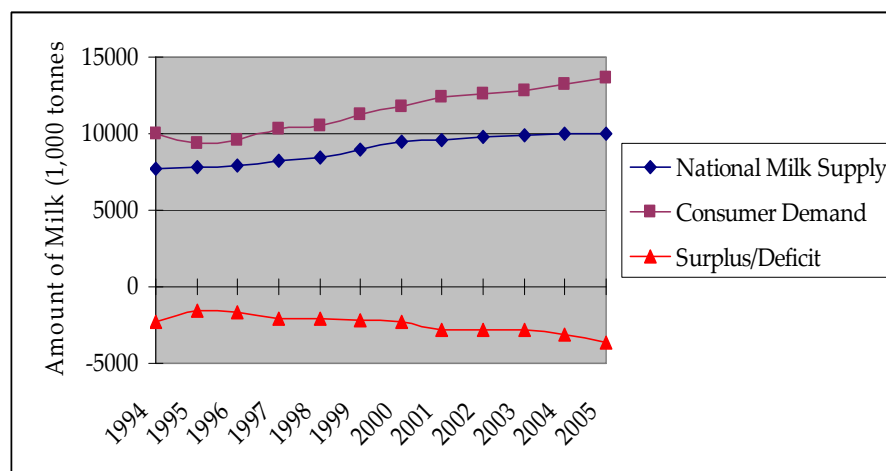


Figure 1. Mexico's Milk Production vs. Consumption. (Source: FAOSTAT)

relationship between milk production and demand. Even as production and demand are steadily increasing, up until 2004, both values maintained a difference around 2 million tons. With just under 20% of the demand for milk going unsatisfied, a difference of 2 million tons of milk is substantial, especially since national milk production appears to be leveling off. Then in

order to satisfy this considerable internal demand for dairy products, Mexico has had to access international markets and increase dairy imports to supplement national milk production (García 189).

Milk and dairy products play an important role in Mexico's international trade. Dairy is an important import

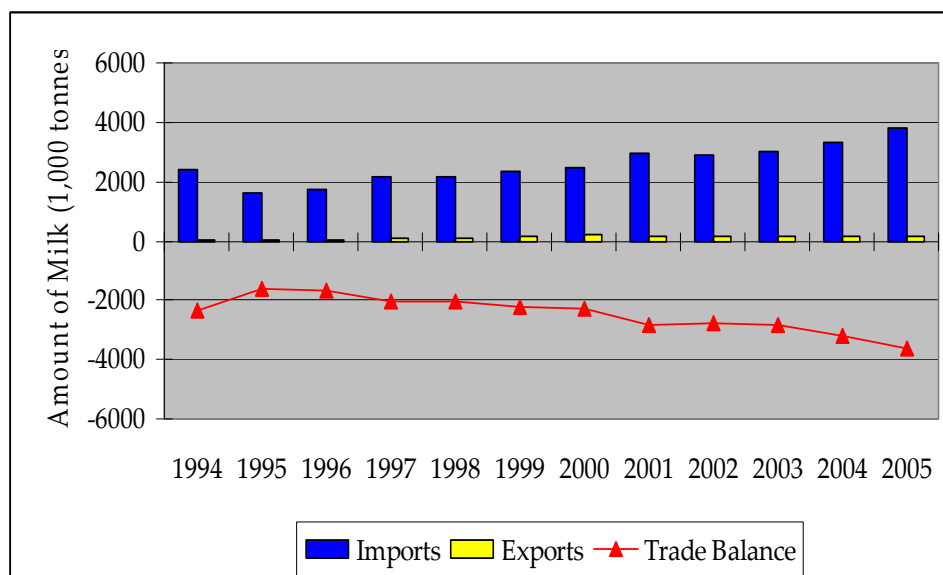


Figure 2. Mexico's Milk Trade Balance. (Source: FAOSTAT)

commodity for Mexico ranked as the country's fourth largest and represented 11% of the total agricultural imports in 2007 (Dobson 11). Of the total milk and milk equivalent imports, U.S. products make up the largest share of Mexico's imports. More than half or more of Mexico's dairy products imports were supplied by the U.S. alone (Dobson 11). Similar to Mexico's milk deficit, the country has experienced a disparity in the amount of milk imports versus exports for some time (Figure 2). This translates into a significant negative milk trade balance which has been steadily increasing over time. This trend within the dairy sector reflects the larger agricultural trade situation in Mexico. Mexico is facing a trade dichotomy as the agricultural balance decrease and yet both imports and exports are increasing. In just over ten years, Mexico's trade balance fell from a surplus of \$400 million in 1996 to a deficit of \$4.8 billion in 2007 (Dobson 11). This has important implications for Mexican farmers, dairy farmers in particular, who face a deluge of U.S. and international products coming into the country competing for their locally-produced products. The situation turns into even more of a blow for producers in Mexico as they attempt to take advantage of international markets through exports, but face competition from larger producing states.

While milk may not account for much of Mexico's total trade, it still is one of the main agricultural products for the country. In 2007, milk ranked third in both value and volume of the top ten agricultural products produced in Mexico (Dobson 9). Internationally, Mexico is closing the gap in national milk production. Mexico produced a total of 10,345,982 million tons of milk and ranked 16th in milk production in the world in 2007 (FAOSTAT). While total milk production in Mexico is generally increasing, the number of dairy cattle in production has changed little over time (Figure 3). These numbers would appear to show an increase in the

amount of milk produced per cow, but in reality, the average milk yield per cow remains steady at around 1,500 kg per year.

Mexico's dairy industry can only be accurately described as diverse. It is important to

clarify that while characterizations of Mexico's dairy industry generally limit discussion to just these three main production systems one should not disregard the real variety of dairy farms in Mexico. Besides specialized, familial, and dual-purpose farms, there also exists organic dairy

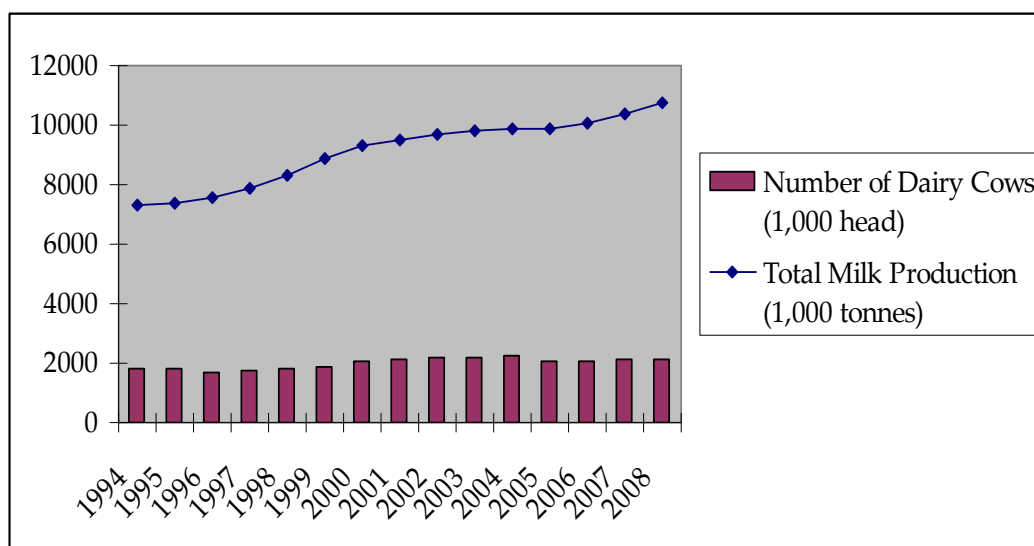


Figure 3. Mexico Dairy Cows and Milk Production. (Source: FAOSTAT)

farms, ejidos¹, indigenous farming, and subsistence farming types. While it is important to underscore the importance of this diversity, the majority of the dairy industry is divided into three separate systems: specialized, familial, and dual-purpose².

Specialized Production System

The specialized farming system of Mexico's dairy industry is the most standardized and automated of the three dairy production agroecosystems. These farms are typically found in temperate and semiarid zones in Mexico. While Mexico's central states provide a functional geography and climate for these types of farms, the majority of specialized farms are located in the Northern states, especially those residing along the U.S.-Mexico border: Chihuahua, Durango, and Coahuila. The proximity to the U.S. allows these Mexican farms easier access to U.S. products, feed sources, and technology on which they rely. Due to the heavy influence of US technologies and feeds in Mexico, it is not surprising that this system is very similar to large-scale dairy farming in the U.S. In fact, much of Mexico's specialized farms directly imitate characteristics of the U.S. dairy industry, especially modern and industrial milk production. Although the Mexican system operates under a similar model as in the U.S., Mexico's specialized farms produce only at 59% of what the US system produces (García 54). This is due in large part to more efficient operations and accessible technologies in the U.S.

Unique among the production systems, specialized farms incorporate high levels of technology and intensive management practices to improve quantity and quality of the milk being produced. Compared to the other systems, specialized farms operate at large scales with herd sizes of over 100 dairy cattle, normally reaching into the 1000s. Milking is highly automated with cows milked in a parlor, either line or rotary. This system relies heavily on confinement to house cattle throughout the year. Cows are fed alfalfa, corn silage and concentrates, 20–22 pounds of grain per day, typically in a total-mixed-ration (TMR) (Dobson 19). These herds are made up of genetically-improved cattle, specifically European breeds like the Holstein-Friesian, which makes up 95% of the dairy cattle in this system (Dobson 19). Producers utilize U.S. and Canadian stud companies for the improvement of their herds through high-producing registered bulls. With improved cattle and regimented concentrated feeding programs, specialized farms have a dramatically larger per cow milk production compared to the other two systems. Dairy cows in the specialized system have an average per lactation milk production of 3,548 liters per cow; whereas cattle in the family farm system only produce 1,500 to 2,800 liters of milk per cow per lactation (García 189-190). While specialized

¹ Ejidos are communal lands where community members share resources for a common agricultural enterprise. Ejidos were established by the Mexican government in order to redistribute land to the resource-poor.

² The terminology here follows Escoto, Castelán-Ortega, and García. Escoto and García use the following categories: specialized, family, and dual-purpose. Castelán-Ortega defines Mexican dairy production systems, with one additional, as specialized, semi-specialized, dual-purpose, and family. The researchers chose to combine semi-specialized and family systems because of their strong similarity. Category definitions differ only slightly and are presented here as a compilation of other published research and the writer's own research.

farms contribute 54% of the total national milk production, they only represent 13.5% of the number of dairy farms and 8% of the dairy animals in Mexico (García 54, 189).

Specialized farms differ from the other two production systems in that they specialize wholly in dairy production and do not participate in or rely on diversification. The farm operation focuses specifically on the quantity and quality of its product, being milk. Because of horizontal and vertical integration of these farms, and with increased operating costs, this system requires extensive capital. As such, often these producers receive monetary assistance through national and regional programs not available to producers in other systems. Due to their size and milk quality, specialized producers have more flexibility in the markets available to them and greater access to economic opportunities. Even so, farm owners are typically members of cooperatives, the largest being, in order, Lala, Alpura, and Gilsa (Escoto 60). Membership in full-service cooperatives, such as those listed, provides the producer with the security of having a purchaser, processor, and marketer of their milk.

Family Farm Production System

Of all the dairy production systems in Mexico, the familial system is by far the most heterogeneous. Farms which compose this system range from subsistence operations, where dairy products produced exclusively feed the farm family, to large-scale operations, where milk production is an economic endeavor. The family production system is situated in the west central region of the country. This region includes the states of Jalisco, the primary producer of the region's milk, Michoacán, Aguascalientes, and Mexico. This area is often called "the highlands" because the region is situated on the southern *altiplano* or plateau, where the elevation averages 2,000 meters. The climate is also varied, ranging from semi-arid to temperate conditions.

This system is often referred to as semi-specialized or semi-intensive owing to the fact that farms may show similar characteristics of the specialized system. Some of these attributes shared by both systems include the use of improved stud genetics and artificial insemination to improve the potential of cattle, as well as the automation of milk collection in the form of mechanized milking equipment. The difference between the systems in terms of these mutual traits is the degree to which they are practiced on the farms. In the case of the specialized system, each of these characteristics is standard on every farm. Implementation of these practices on farms within the familial system is not consistent and often neighboring farms appear very dissimilar even though they belong to the same system.

The family farm system is based on the use of family labor. The reliance on the household to provide the farm labor is standard throughout the system. Due these labor demands, family farms often develop into small operations on a small amount of acreage and with herd sizes ranging from only 10 cows to almost 90 cows in production (Escoto 32). Cattle are fed rations consisting of concentrates, agricultural by-products, and the direct grazing of

pastures established with native grasses (Escoto 61). Oftentimes producers overfeed concentrates because of a belief that the balanced commercial feeds will significantly improve cow productivity. While concentrates can improve milk production and reproductive productivity, overfeeding nutrients is inefficient as it does not yield any additional benefits. As a result, family farm producers face high feed costs with a low margin of return (García 30). Dairy production is the farming system's principal source of income, but often farms will have smaller secondary agricultural operations, such as beef or egg production, to supplement farm income.

Dual-Purpose Production System

The dual-purpose production system is unique to developing countries near the equator. Dual-purpose farms are located in subtropical and tropical climates, where due to a prevalence of disease and parasites, dairy production relies on the use of hardier cattle. The majority of the dairy cattle used in this system are of the Zebu or *criollo* breed, which makes for an animal able to resist extreme temperatures, pests, disease, and the variable quality of feeds. These animals, while resilient to their harsh climate and able to better convert low quality feeds into protein, have low rates of milk production. Zebu and Zebu crossed cattle produce only at 6% compared to European cattle with an average daily production of 29 liters. As a result, producers often utilize Brown Swiss and Jersey genetics to cross with their Zebu cattle to increase productivity. These crosses result in cattle with an improved milking potential, as well as enhanced carcass growth to better produce either meat or milk, depending on the needs of the producer.

Dual-purpose farms range in size from very small, with only a few cattle, to herd sizes of over 50 head of cattle. This system accounts for just around 20% of Mexico's milk production, but also utilizes 75% of the nation's cattle (Escoto 62 and Dobson 19). Dual-purpose is the largest and most prominent farm production system in Mexico, but has the lowest average milk production per cow than the other two systems. Cattle in the system produce on average 900 liters of milk per cow per lactation (García 190). The level of acquired technology of these farms is also of a wide range, from hand milking to portable milk machines to in-ground homemade parlors. Labor is primarily done by the farm family, although in a few case of the larger farms or cooperatives, some outside laborers are hired. For these reasons, the quality of milk is often much more variable than the other two systems, so most of the milk produced in this system is sold as *leche bronca* or raw milk for local artisanal cheese production.

Another characteristic of the dual-purpose farming system is that milk production is seasonal, following the availability of feedstuffs. Dual-purpose farmers typically distinguish two seasons of production, rainy and dry. The rainy season occurs in June through early September when they receive the majority of their precipitation through rain events. Milk production is highest during the rainy season because feed availability is high and farmers are able to harvest and store forages, both cultivated and those found in surrounding natural areas. The dry season is during the months of October through May. Because of the lack of

precipitation during the winter and spring, production drops off significantly as farmers have to rely on stored or purchased feeds.

Diversification is an important management and economic tool for the dual-purpose system. Diversification allows producers to weather unpredictable trends in the markets and be resilient to environmental and production changes. By diversifying the products produced on the farm that are saleable, the farmer is able to maintain profits all throughout the year or during periods of market fluctuations. This is translated into more economic stability within the farming system because farmers are diversifying their sources of income. In the case of dual-purpose farms, diversification is apparent in the Zebu cattle which, depending on the trends in the market, can produce meat or milk. For example, when milk prices are low, dual-purpose farmers benefit from diversification by changing their management practices so production is focused on selling meat instead of milk. Also, some farmers can further diversify their sources of income by selling coconuts or other readily-available natural resources.

Material and Methods

Development of Survey Tool

The diversity of Mexico's dairy production systems effectively directed the research towards a more holistic and inclusive method of research. In following with the desired outcomes of this research – to characterize Mexico's dairy production systems by studying all contexts impacting a farm – a survey tool was decided as the most comprehensive and reliable form of data collection. To encourage an accurate and complete depiction of Mexico's dairy production systems, the following question categories were selected to be included in the survey tool:

- household,
- community,
- labor,
- income and expenses,
- farm management,
- production,
- marketing,
- environmental awareness,
- U.S.-Mexico immigration.

These categories represent the differing contexts influencing the stability and potential of the farming systems to be studied. Among all of the categories, the survey tool consisted of 182 items in total.

Questions were developed in each category to be as objective and non-directive as possible to prevent biased or guided answers. The intention behind the questions was to arrive at useful responses accurately reflecting the farmer's decision-making process and his

perceptions of his situation. Many questions asked producers how they felt about important issues and farming system related contexts. Ideas for questions and type of formatting were based on the Census Bureau's Agricultural Census questionnaire. Both quantitative and qualitative items were used in the survey to afford a variety of data from which to build a precise image of the production systems. The qualitative items were rated on criteria of a four-point scale for agreement (e.g. strongly agree, agree, disagree, strongly disagree) or satisfaction (very satisfied, satisfied, dissatisfied, very dissatisfied), depending on the question.

Early on in the development of the tool it was decided that the questionnaire would be oral to facilitate different levels of literacy by the research participants. After a selection and review process of the items by the research team, the final version of the questionnaire was subsequently translated into Spanish. The survey was again reviewed after an initial trial of the survey in the state of San Luis Potosi. This trial was intended to test the effectiveness and ease of comprehension of the questionnaire on a sample group of small dairy producers in the region of Huastecas, San Luis Potosi. This trial was conducted with the assistance of the local branch of Fundación Produce, a government funded agricultural extension service. Another revision of the questionnaire was necessary to improve the language and wording used to facilitate producer understanding of the questions. See Appendix A for final version of survey tool used.

Target Farm Population

The state of Jalisco is most often referred to as the Wisconsin of Mexico. Jalisco contributes about 18% of national production and utilizes 26% of Mexico's dairy cattle (García 30). Figure 4 shows how Jalisco ranks in milk production with other states in Mexico. Jalisco's presence at the top of this list is of importance because the state's milk production is distributed among the three dairy production systems. Compared to the other states on the list, where one system produces the majority of the milk, Jalisco is unique in that respect. Within Jalisco, the

principal dairy region is Los Altos. The region of Los Altos is 50 minutes from the state's capital city of Guadalajara and produces 12% of the total amount of Mexican (national) milk (García 30). Los Altos is made up of 20 *municipios* or counties. Both the familial and specialized systems are the primary dairy farms found in Los Altos.

Jalisco's position as Mexico's top milk producing

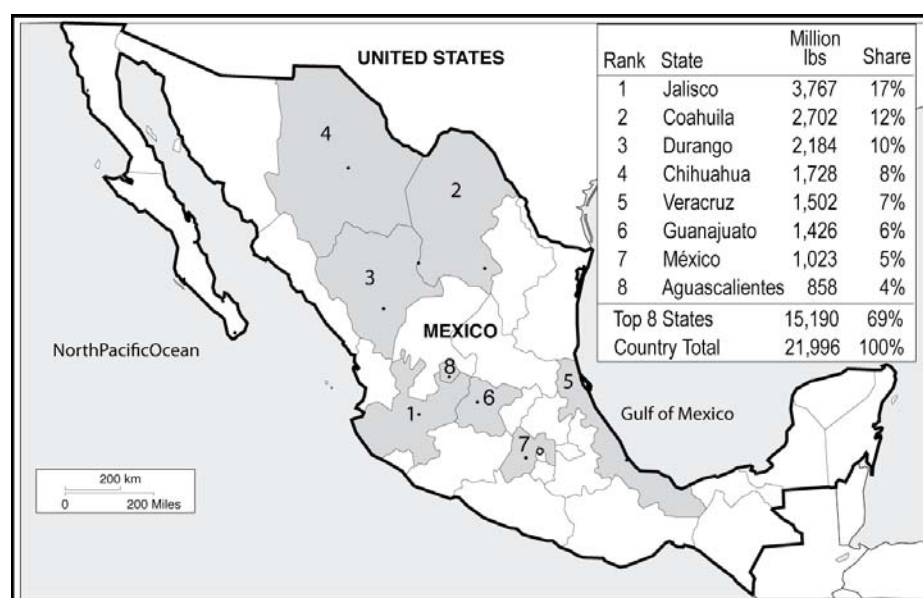


Figure 4. Top eight milk producing states of Mexico, 2006.
(Source: USDA, FAS)

state and the presence of a diversity of farm production systems made the state a natural choice for this research project. The region of Los Altos was also an obvious decision because not only this region the most productive in the state but the University of Wisconsin researchers already had established collaborative ties with the Universidad de Guadalajara's area satellite campus, Centro Universitario de Los Altos (CUALTOS). The Wisconsin researchers partnered with the following researchers from CUALTOS on the development of this research project: Dr. Jesus Olmos (Dairy Science), Dr. Humberto Ramírez (Agronomy), Dr. Jose Angel Martinez (Dairy Science), and Margarita Castellanos (Agricultural Systems undergraduate student). The Mexican researchers were instrumental in the development and realization of this project.

For the actual implementation of the survey tool in the region of Los Altos, Jalisco, a total sample size of 36 farms from six different feed cooperatives was used. Dr. Jesus Olmos of CUALTOS selected the six participating cooperatives owing to his familiarity with the cooperatives based on his own dairy extension and research projects. The cooperatives which formed the research's data pool include: Acatic, Jalostotitlan, San Juan de los Lagos, Valle de Guadalupe, San Miguel el Alto, and San Julian. Each cooperative represents one of the six main dairy production areas (*municipio*) in the region. Six farms were randomly selected from each cooperative, two farms from each of the following groups: 1-50 head, 51-100 head, over 100 head of dairy cattle.

A certain set of criteria was used to classify farms from each cooperative as either within the familial or specialized farming systems. Using already published descriptions of Mexico's dairy production systems and their own observations, the investigators developed the following criteria in which to classify participating farms.

Familial System:

- <100 head of cattle (~10-80 milking cows)
- Semi-confined operation
- Semi-intensive
- Reliance on family labor as primary labor source
- Varied levels of mechanization of milking – both hand milking and some machine milking
- Varied use/implementation of technologies
- Owner of the farm is manager and laborer
- Management practices based on need and financial and resource availability, rather than on a standard operating procedure

Specialized System:

- >100 head of cattle (~>100 milking cows)
- Confined operation
- Intensive
- Reliance on hired labor or an external labor source
- Fully automatic milking

- Complete use and reliance on technologies
- Owner of farm is primarily the manager
- Management based on a standard operating procedure

Using these farm production system criteria established by the research team, the six farms from each cooperative were separated into either the specialized system or the family farm system. Each cooperative had four farms which were classified as familial and two classified as specialized. In total, 30 farm operations classified as part of the family farming system and six farm operations of the specialized farming system were included in this research. The investigators determined the 4:2 ratio of family farms and specialized farms respectively, to be representative of the proportion of two dairy production systems in the state of Jalisco.

Applying the Survey Tool

Application of the survey tool occurred during the summer of 2007 in Los Altos, Jalisco. Data collection began June 18 and ended July 25. Each week the investigators visited a different feed cooperative to identify the six farms for the project and conduct farm visits. Data collection followed a standard routine for each of the farms surveyed. The oral survey tool was given to either the farm owner or the manager of each farm, depending on their availability to participate. Because this research project was conducted in collaboration with another research project from CUALTOS, which intended to analyze the dairy production, feeding strategies, and nutrient balance of the farms, another shorter survey tool was implemented. Researchers spent an average of two hours visiting each farm. Each farm visit included: a brief introduction to the producer about the research project, the application of the two questionnaires, collection of manure and feed samples, digital recordings of the interview and farm, and a short tour of the farm.

Jennifer Blazek (graduate student; University of Wisconsin), Margarita Castellanos (undergraduate student; CUALTOS), and Dr. Jesus Olmos (professor; CUALTOS) made up the team of investigators who collected the data on farms. While Dr. Olmos acted as the official representative of the university and the students' advisor while on the farms, the majority of the data collection and cataloguing was performed by Blazek and Castellanos. Each student had their respective surveys and projects in which they were responsible for conducting the interviews (Blazek and Castellanos) and collecting samples (Castellanos). Digitally recording the interviews and farms was a shared responsibility. Because the interviews were conducted in Spanish, Castellanos was able to help facilitate the communication with the producers and offer clarification or assistance when needed (Blazek is a bilingual, non-native speaker).

The survey tool took the form of an oral questionnaire to facilitate different levels of literacy by the research participants. Participating producers never saw the questionnaire or were able to directly mark down their responses. Due to the oral nature of the survey process,

the researchers acknowledge that the dialogue-type interaction between the interviewer and the participant may have created the possibility for interpretation of the responses. The researchers were required to record the responses of the producers and often, in case of uncertainty or unwillingness to commit to one answer on the part of the producer, interpret the participant's response to best fit the criteria of the question. While the researchers maintained objectivity in the documentation of producer's responses, some level of interpretation is inevitable.

Data Analysis

Application of the survey tool in the six cooperatives was followed by the data being entered into a database and coded for analysis. Appendix A includes the codes used for the survey tool. Data requiring no coding was entered into the database as it was reported to the researchers. Questions which required a 'yes' or 'no' response were coded as follows: 1 for 'yes', 0 for 'no', and 11 for 'I don't know'. Qualitative items asking for a level of consensus with the question or statement were coded on a four-point scale whereby 1, the lowest score, is no consensus and 4, the highest score, is strong consensus. Consensus, as applicable to the survey tool, refers to the extent to which the producers agreed with the item. While all qualitative items requiring the producer to report their level of agreement were coded on this four-point scale, for some questions, the scale represented different kinds of consensus. For example, some socio-economic questions asked for a producer's level of satisfaction or dissatisfaction, instead of their agreement or disagreement.

The data from all 36 farms were analyzed for consensus and variability. Analysis of the data was separated into two groups, specialized farms and family farms, to summarize the results by production system instead of a larger group of all producers in Los Altos. The research results on the family farming system (n=30) are the focus of this paper. The results from the specialized farms need to be treated with some caution due to the very small size of the population surveyed (n=6). Nevertheless, those items in which some observed difference in the results between family and specialized farms showed some significance, suggest interesting cross-farm production system differences. Specialized farm data showing significance are included in this analysis only as a reference point for the family farm system narrative.

Data were further analyzed per the type of question, whether qualitative or quantitative. Quantitative data were summarized using the average (AVR) and standard deviation (STDV). Qualitative data on a four point scale were summarized using the median (MDN) and inter-quartile range (IQR). "Unsure" and "No Response" answers to qualitative questions reporting consensus were removed and analyzed separately. The MDN and IQR were chosen for analysis of the qualitative items because these measures most accurately determine consensus: "when the goal is to reach consensus among a group of people, the MDN and IQR are more appropriate measures than the mean and standard deviation as they exclude extreme scores on either end" (Kreber 102). The MDN identifies the middle response where 50 percent of the data points fell and the IQR determines the range in the responses and how varied they are from one

another. In terms of consensus, the IQR measures “the extent to which respondents agreed with each other” and the median value refers to “the extent to which respondents agreed with the item” (Kreber 102). Therefore the benefit of using the MDN and IQR in the analysis of this data is that these measures offer a valuable view of consensus within a system, or how the producers of a specific production system answered a particular question as a group.

A Narrative of Los Altos, Jalisco Family Farms (Results and Discussion)

The intention of the survey tool was to capture the producers’ self-characterization of his life, family, and farming operation. Most often the producer’s voice does not resonate through studies and research projects. For this reason the manner in which the survey was conducted allowed producers the flexibility to tell their own narrative and report to the researcher how they view their world through their own eyes. Through a more systematic approach to the survey, the collective narratives of the producers interviewed better reflects the true nature of Mexico’s dairy industry, especially within the family farm production system.

Household

As the farm decision-makers, the producer and his family are important contexts to consider in the characterization of a farm production system. The primary characteristic of the family farm system is its reliance on family labor. Changes in family structure, like a death in the family or an immigrating child, which would alter labor availability, can have significant impacts on the management and makeup of the farm. Therefore the characteristics of the household are a vital piece of the system’s narrative.

General Producer Characteristics

Agricultural endeavors, especially farming, remain dominated by men. All of the producers from both the specialized and family farm systems in this research project were male. Traces of stringent gender roles for men and women remain in Mexican society and culture, especially in rural areas. These gender roles dictate acceptable occupations and labor participation for the sexes. Traditional roles for women include those orientated toward maternal instincts, such as

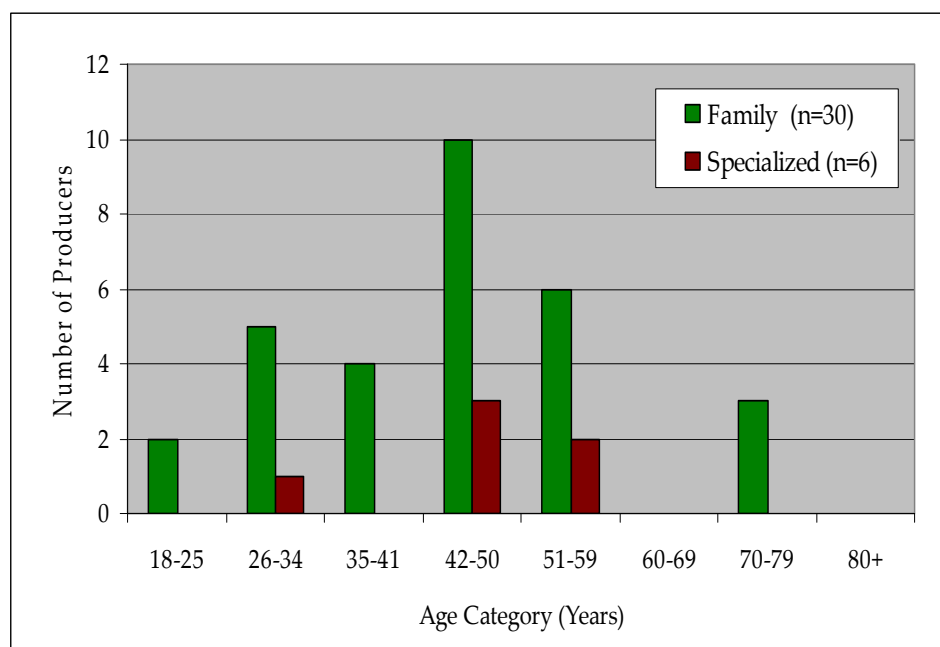


Figure 6. Producer’s Age

motherhood, wife, caretaker, and religious and spiritual guide. For men, traditional roles follow the physical strength embodied in males, such as a laborer, producer, and construction worker. While these roles are being modified and altered through the modernization of Mexico's society and economy, in rural areas, where societal and cultural changes happen more slowly, traditional roles and values still are the norm.

In general, Los Altos family farm producers are of the same age as their counterparts in the region. Figure 6 depicts the individual ages of all the producers surveyed. Responses are differentiated by the production system the producer belongs to. The average age of the family farm producers was 44.43 ± 13.71 (AVR \pm STDV) years. Compared to producers of the specialized system who had an average age of 44.6 ± 7.80 years, producers in the family farm system have more variation in their ages, with extremes of 20 and 74. The data show that regardless of the production system, dairy producers in the region of Los Altos are middle aged.

The level of education acquired by a producer is also very different depending on the

farming system they belong to. Figure 7 shows the level of education attained by producers of the family system and specialized system. On average, family farm producers attended primary school (1 ± 2.75 ; MDN \pm IQR) but did not attain any higher level of education. In contrast, specialized

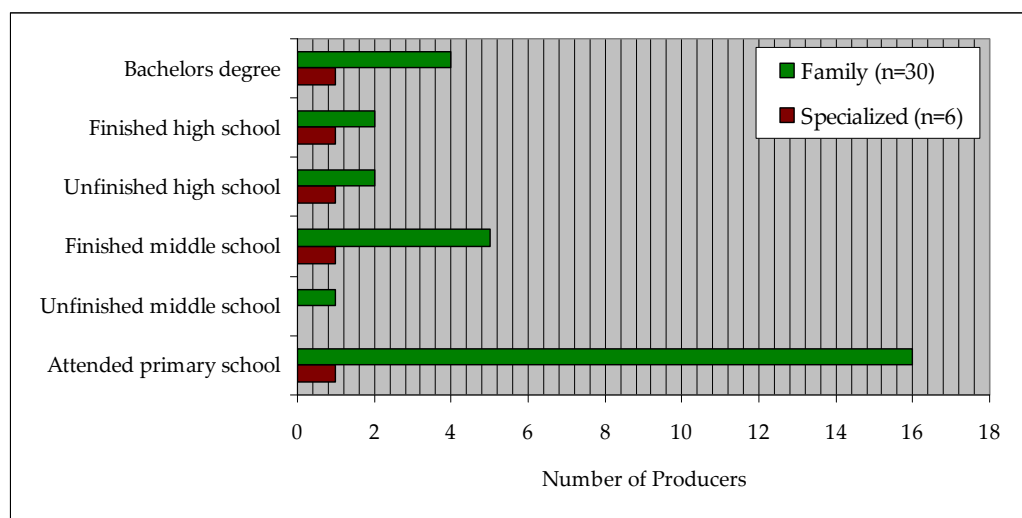


Figure 7. Level of Education Attained by Producers

producers had significantly higher levels of education. The average among specialized producers was that they had attended high school but did not graduate (4.5 ± 2.5). There are a few possible reasons for this significant difference in education acquired. Labor demands could be an explanation for the difference between the systems. Family farms rely heavily on family labor while specialized farms hire labor outside the family. Oftentimes children are required to work on family farms to help reduce the labor demands on the family, especially when the household has limited resources to hire outside workers. In these circumstances, families must often choose between a child's education and the livelihood of the household. And for some families, sending their children to school is a luxury they cannot afford. While this occurs less frequently now among the Los Altos family farms, some of the producers mentioned that it was

commonplace when they were children, which would explain their low educational attainment levels.

Quality of Life/Satisfaction

To develop a narrative of a dairy production system, how a farm household measures their quality of life is an important indicator of the success of that farming operation. Since farming is a life-style choice as well as a career choice, many farm decisions are made with the express intent of improving life for the household. How a farm household perceives itself in relation to other farms, its community, and the world determines a lot of management decisions on a farm, everything from crops to be cultivated to whether or not a family member will migrate. While family farm system producers in the region of Los Altos, Jalisco are not in poverty as are many farms in other states, how they rank their quality of life compared to other Mexicans demonstrates important socio-economic considerations of these producers.

In terms of material good and luxury items for the home, family farm households in Los Altos are very similar to other average Mexican households. All households surveyed had both a television and a refrigerator in their homes (Figure 8). The presence of a television in the home does not itself denote a higher socio-economic class since televisions can be found in the homes of even the lowest classes. While the literacy rate for the nation has been significantly increasing from 61% to 91% between 1950 and 2000, televisions still remain as the primary means to disseminate and receive information for the majority of the public (Astorga). One television may not be

a sufficient enough luxury to establish a household's class, but more than one television is certainly a marker of socio-economic status. The majority of households surveyed owned more than one television in their home (Figure 8). The figure also shows the rate of presence of other material goods

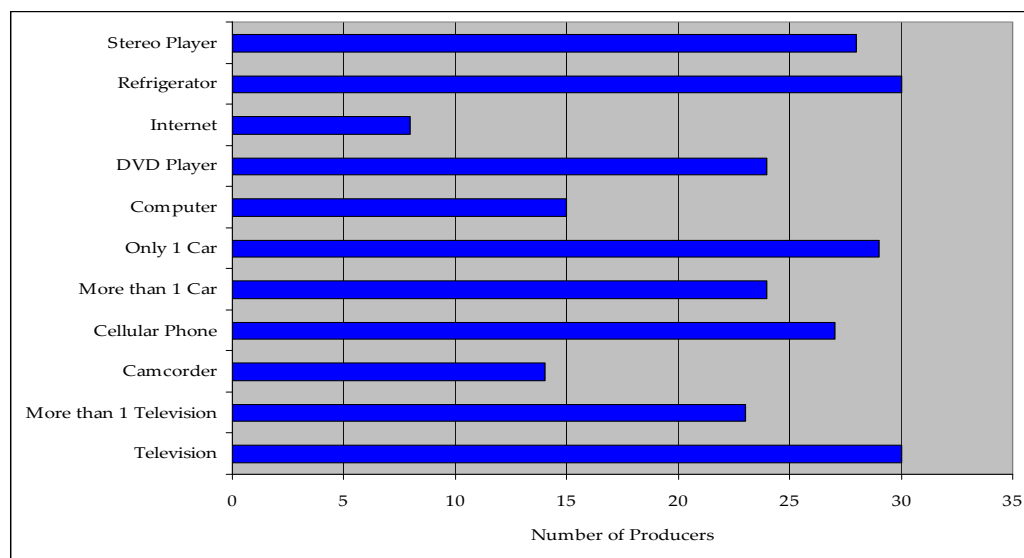


Figure 8. Material Goods in Family Farm Households (n=30)

in the family farm households. The next highest incidence of technology in the household was the presence of only one car (96.67%). Similar to a television, having a car is not an accurate signifier for economic security because cars are easy to obtain and relatively cheap to maintain. For a rural population like family farm households, the ability to travel to town or to the local

store is vital to both the farming operation and the well-being of the household itself. For example, some producers surveyed haul their milk in buckets to the processor each day because no pick-up service is available. Therefore, access to an automobile for transportation is necessary from both a social and economic perspective. The majority of households also reported owning a cellular phone (90%). In Mexico, cellular phone technology is more readily available and is often the only method of communication offered. Other luxury household technologies such as a computer and a digital camera were only moderately reported in the surveyed households. Due to the almost even split of households with and without these items, it is clear that even among farm households of a particular production system and region, there is much variability among their socio-economic status.

Table 1. Producer Perception of Change in Family's Quality of Life (n=30)

Item	Unsure ¹	Score ¹					MD	IQR
		1	2	3	4	5		
H12. During the past 5 years, how has your family's quality of life changed?	0	1	3	7	11	8	4.0	1.8
H13. In the next 5 years (2012), how will your family's quality of life change?	3	0	1	3	21	2	4.0	0.0

¹Scores are as follows: 1 – Worsen a lot, 2 – Worsen, 3 – No change, 4 – Improved a little, 5 – Improved a lot

In general, Los Altos family farm producers feel they are satisfied with the quality of life of their farm's household. When producers were asked if they agreed or disagreed with the statement on the subject of satisfaction and quality of life, the majority responded that they were satisfied (3.0±2.0). The high inter-quartile range in their responses suggests that there is very little agreement within the group and the producers' responses were varied. In regards to how their quality of life has changed, there was little consensus, with only a slight majority stating there had been some improvement in their lives (Table 1). Interestingly the surveyed producers do not foresee in the near future (i.e. next 5 years) much more improvement in their lives. The producers expressed a general feeling of uncertainty for the future in their responses to a wide range of questions, from family life to their operations to the status of national milk markets. The average response of the producers to a similar question concerning quality of life, offers some insight into why Los Altos family farmers may feel some anxiety for the future. Most producers (90%) strongly agreed with the statement, "my quality of life could be improved with more access to resources like capital, land, and work", clearly suggesting that these producers do not foresee any improvement on their own and their family's quality of life without access to more resources. It is possible that because improvements on life quality are based on factors out of their direct control, such as milk markets and job availability, producers feel an anxiety towards their future socio-economic status.

Regardless of how the future may be written, there is a strong commitment by the producers to maintain and manage the farming operation for future generations. All the

producers expressed a passion for what they do and stated they could not imagine any other way to make a living. Every one of the participants strongly agreed to the statement, “I plan on continuing to farm in the future, regardless” (100%). On the other hand, some of the interviewees acknowledged that their only experience is in agriculture: “farming is the only thing I know”. While not as adamant, many producers also believed that their children would take over the farm. The majority of the producers surveyed (76.67%) felt that they were certain their children would take over the farm. The majority also stated that they would like to see their children take over the farm (63.33%). Some responded that they were unsure if they would like to see their children continue the farm (23.33%) because they were uncertain about the future and they preferred their children made up their own minds. The researchers did not ask the participants about their children, but their responses demonstrate there is a strong culture of succession among the family farm households in Los Altos.

Pressures Producers Face

Farming is a stressful and risk -associated endeavor and can often place varying degree of pressure on producers. Depending on the degree to which producers perceive some aspect of their life or farm operation as a pressure, there could be significant impacts on the producer’s decision-making and management practices. The survey tool asked producers to identify from a list which were pressures they are facing now and to what degree. The possible pressures included:

- Food for the household,
- Money or income,
- Employment,
- Markets for their agricultural products,
- Growth or the need to develop the farm,
- Animal health,
- Crops
- Social or relationship with neighbors and other producers,
- Personal health.

Figure 9 summarizes the responses of the family farm producers’ surveyed. Producers identified only three items which they felt were strong pressures: money (4±1, MDN±IQR), markets (4±1), and growth (4±1.75). Producers replied that these items were a consistent source of worry and stress and often determined the choices they made on the farm. One producer acknowledged how the variability in income that is associated unstable milk markets made it difficult for him for purchase seeds and other inputs during the planting season.

Interestingly, items directly relating to the household were not proven to be a pressure for producers. Producers ranked food (1±0), employment (1±0.75), social (1±0), and personal health (1±0), all as “not a pressure”. As the farm operation is itself the producer’s primary source of employment, the majority of producers did not feel that they were unable to find work. Owing to the fact that producers do not receive any government-run social assistance

and commented that some of the food produced on their farm goes to feed their families (2.5 ± 2), it is logical that producers do not feel having enough food for the family is a pressure they face.

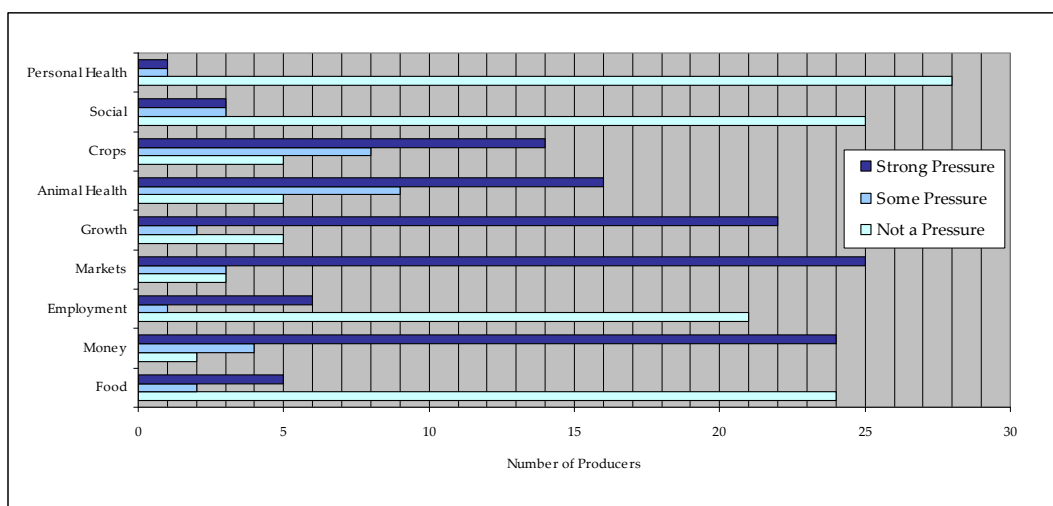


Figure 9. Types of Pressures Faced by Family Farm Producers (n=30)

Community

Community can be defined in many ways. It can mean the neighborhood in the immediate vicinity of the farm, the town or village where the farm is located, the local farm cooperative's member group, or even the group of dairy producers, processors, and business people who make up the dairy industry. The definition of community at its core is an acknowledgement of some common similarity held by all in the group. This commonality is what unites the members and keeps them together. Human beings need and search for a sense of belonging or community. Like a family, communities shape and influence a person as he or she grows and develops. Farms are also affected in similar ways by their community context. Farm management decisions made by producers are open to influence by some of the communities to which the farm owner belongs. Farms are also often influenced by non-human communities, such as the flora and fauna existing on or around the farm. Regardless the type of community – human or non-human – it is apparent that identifying and explaining the farming system's community context is vital to the characterization of that production system.

General Community Characteristics

Farming trends tend to be reflected in general community development trends. Community development can include everything from a change in farm numbers, accessibility of human and social service programs, migration in and out of the community, and economic growth. Since most often the condition of farms and the level of development of their local community are inextricably linked, assessing the growth and changes in the local community will offer a glimpse into the vitality of the farms which make up the area.

In developing the community section of the survey tool, of particular interest was assessing rural development trends in the region of Los Altos, Jalisco. Since economic development in Mexico seems to follow the industrial path of the U.S. and agriculture is only ten percent of Mexico's total exports (Dobson 11), the researchers were interested to discover if rural areas in Jalisco are facing major non-agricultural development. Specifically, questions were created to ask producers to identify non-farm rural development and farm modernization

trends happening in their local communities. To evaluate these trends, five questions were added to the questionnaire's community section. It is important to note that these questions were worded to address general agricultural development, and are not specifically pertaining to dairy agriculture. These questions and the producers' responses are discussed below. Three of these questions are included in Table 2.

Table 2. Agricultural and Community Development Trends (n=30)

Item	Unsure	Score ¹		
		n	MDN	IQR
C13-6. Our community is very developed compared to other communities.	3	27	2.0	1.5
C13-7. All of the farms that are my neighbors are farms just like mine.	0	30	1.5	2.0
C13-8. Many farmers in my community are becoming bigger operations.	1	29	4.0	2.0

¹Scores are as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree

The producers' response rate to the community development questions in Table 2 suggests that rural communities in Los Altos are experiencing an expansion and modernization of farms. Question C13-8 asked producers whether they saw farmers in their area growing their operations and getting bigger (4±2). Across all areas of the region of Los Altos, producers responded strongly they are seeing farm expansions in their communities. The producers' responses acknowledge the farm modernization trend is occurring in regions of Mexico. Certain socio-economic and political conditions in Mexico exist to reduce the occurrence of farm modernization: lack of access to agricultural credit, unavailability of outside labor, and variable and unstable market conditions. Even with the presence of these limiting factors, the overwhelming response to this question suggests that more and more farmers in Los Altos are choosing to expand their farms. In the family farm system, this trend is consistent with producers feeling pressured to expand their farming operation and their belief of a market advantage for larger farms³. Due to current markets, both national and international, favoring large-scale operations and the greater availability of resources for larger specialized farms, family farm producers sense a need to grow their operations. Whether this pressure is internal or external only makes this issue more important to how it influences decisions made on the farm.

While Los Altos is considered the primary dairy region of Jalisco, producers reported that there is little homogeneity among the type of farms. The majority of producers strongly disagreed with the statement (C13-7 in Table 2), "all of the farms that are my neighbors are farms just like mine" (1.5±2). This suggests that there is a diversity of production systems with

³ See Figure 9, page 18.

the region, not just dairy. In any community of Los Altos, one will find beef and poultry farms interspersed between dairy farms. Unique to other states of Mexico whose agriculture is specialized in the production of just one or two products, Jalisco's agriculture yields an array of crops (e.g. sugar and maize), animal proteins (e.g. eggs and milk), and processed products (e.g. tequila). This diversity of agricultural production is not surprising considering the state of Jalisco is the nation's top egg producing state⁴.

In contrast to the trend in the Los Altos communities towards farm expansion, many producers reported a lack of development within their communities. According to the producers, most disagreed that their community is very developed compared to other communities (C13-6, Table 2). For this question, we defined development in mostly economic terms. The intention was to ask producers if they saw signs of economic growth in their communities, like new businesses, more jobs, and new housing developments. Most producers interviewed did not ask for further clarification of the term and seemed to understand development as economic. For future study it might be beneficial to determine how producers define development, as it was not included in this survey.

Also, the producers identified an overall stagnation of the number of farms in their local communities. Producers reported that they did not see much non-farm development happening around their farms (58.6%). While there may be only slight housing or business development in their area, there is also very little agricultural development, in terms of an increase in the number of farms. In response to a question asking whether they saw an increase in the number of farmers in their community, the majority of producers disagreed. In fact, these producers reported an overall decrease in the number of farmers in their area (90%). Many expressed a concern that they have fewer farmers as neighbors and those who are still farmers, face difficulties and challenges to sustain a livelihood.

Socio-economic Status

In order to assess how well their farm is doing, producers often compare their operations with other similar farms in their area; the same holds true for evaluating their own personal socio-economic status in the world. Family farm producers, not so unlike others, tend to compare their own and their families' socio-economic status with their neighbors'. In the U.S., this reference to and need for acknowledgement of one's own social status – often based on acquired material goods – compared with one's neighbors is called "keeping up with the Jones'." The Jones' are a mythical next-door neighbor family who always seems to be a little better off and always able to purchase the newest technology and products which reflect a higher social stature. This concept can manifest either positive or negative connotations, but is most often characterized in a negative light, where socio-economic competition becomes such

⁴ Jalisco produces around 20 percent of the nation's total egg production.

that people get trapped on a treadmill of consumption⁵. While this concept is strictly a socio-economic marker of the U.S., it is applicable to any economy made up of distinct social classes because undoubtedly there will be competition among the classes. The questions asked in the survey tool intended to determine if Los Altos family farm producers felt as if they were “keeping up with the Joneses”.

It is clear from producers’ responses to the survey that they strongly disagree to feeling any socio-economic pressures from their neighbors. In response to the statement, “I feel pressure from my neighbors to be wealthy and own a lot of things,” producers’ consensus varied, but the majority disagreed (1±3). Two-thirds of the producers strongly disagreed, while 30% strongly agreed. The responses demonstrate that there is a lot of variation in the producers’ social experiences with their neighbors. Even though it is apparent that there is very little community pressure to be wealthy and materialistic, it is important to note that a significant number of producers are feeling socio-economic pressure from their neighbors.

On the other hand, when producers were asked to quantify their own socio-economic status compared to others in Mexico, they underestimated the value. Figure 10 shows the individual responses of the family farm producers to a question asking them to score their own

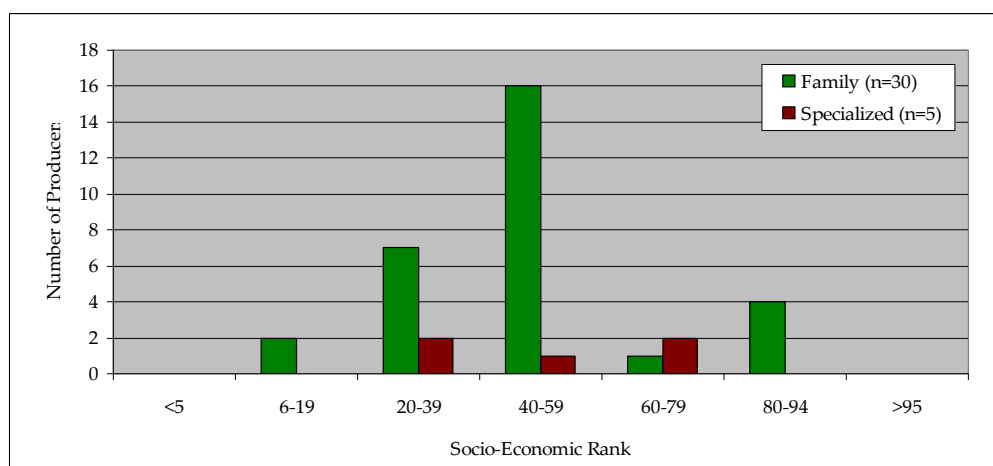


Figure 10. Producers' Self-Assessment of their Socio-Economic

status. This question⁶ was worded so as to impress upon the producer that for the purposes of the survey, the term “socio-economic” means more than just wealth, but also includes quality of life, social status, and the ability to provide for the needs of the individual and family. The

socio-economic standing. The question required the producers to put a number to their socio-economic position compared to others in the country. The value of 1 represents the poorest man in Mexico with no social status and the value of 100 represents the richest man with a high social

⁵ The consumption of material goods in search of happiness and satisfaction makes one strive to have “more” than the next person. People accelerate on the treadmill when getting “more” does not produce the original feelings intended, but instead creates competition and envy, they overcompensate. This continues on in an infinite spiral downward. (Bell)

⁶ The question (H14) was worded, “If the richest man in Mexico has a score of 100 because of his wealth and social status, and the poorest man in Mexico with no social status has a score of 1, where do you think you and your family are on the scale?”, and was included in the household section of the survey. See Appendix A for survey tool.

average response was 46.7, with a standard deviation of 20.39. While it is evident that the majority of producers scored themselves in the lower-middle to middle group of values, clearly identifying themselves as part of the lower-middle and middle classes, the range of the responses was broad. The strong variation in individual responses, especially generally lower scores, could signify producers' unwillingness and/or apprehension to scoring themselves higher. People tend to underestimate their socio-economic status, especially when generating a comparison with others, because they feel that what they have – money and material goods – is not enough to place themselves in a higher social bracket. It is possible that this natural inclination to undervalue one's own socio-economic position is at work in the producers' responses.

Production Systems' View of Each Other

Though some production systems may dominate an area, a diversity of systems dot the agricultural landscape in the region of Los Altos. In this case, farms from different production systems are neighbors and must compete directly for resources and markets. Differing scales of production, management practices, and available resources all impact the ability of a farm to compete. While much has been written on market competition between the different production systems, little has been reported about how producers in the different farming systems view each other.

Table 3. Production Systems' Views of Each Other

	Family (n=30)		Specialized (n=6)	
	Y	N	Y	N
<i>Family Farm Producers' Views on Specialized Farm System</i>				
H20. As a family farm, do you feel specialized farms compete for your market and make it hard for you to make a livelihood dairying?	24	5	-	-
H21. As a family farm, do you feel like you are directly competing with large dairies for prices and markets?	22	7	-	-
H22. As a family farm, do you feel pressure to get bigger?	23	7	-	-
<i>Specialized Farm Producers' Views on Family Farm System</i>				
H23. As a large ¹ dairy, do you feel that there is no place for small farms in the market?	-	-	3	2
H24. As a large dairy, do you see small farmers in the near future not surviving without getting bigger?	-	-	2	4

¹In order to facilitate the producers' understanding of the questions, the researchers chose not to use the term "specialized" to refer to farms within the specialized system. Since this term is more often used academically than by the producers' themselves, the researchers decided to use "large" as a descriptor for specialized farms. "Large" is more commonly used to describe this system and is readily understood.

Family farms

Producers from both the specialized and family production systems in Los Altos were asked questions about their perspectives and feelings of the other system. The questions aimed at addressing common perceptions and biases held by the two systems towards each other. Also, the nature of some of the questions was such as to determine whether the two systems directly competed for available markets and if, especially in the case of family farms, that competition was acutely felt by either of them. Table 3 outlines the questions asked of the family farm producers and their responses. While the questions themselves required only a yes or no response, many producers further supported their answers with anecdotes and personal opinions.

The producers' responses made it clear that they feel they are competing with specialized farms for markets, prices, and for vital resources. To the first question (H20, Table 3), producers responded overwhelmingly positive. The vast majority of family farm producers agreed that competing specialized farms are making it difficult for them to earn a livelihood dairying. One farmer explained this competition between the two systems as being a scale issue: "companies and businesses prefer farms that are really big [bigger than mine]." In terms of economic costs and product marketability, companies and processors often prefer to do business with a larger farm which can move more product, whether it is selling liters of milk or buying feed by the ton. In order to process the same amount of product produced by one larger farm, businesses would have to contract with many smaller farms. Due to this economic reality, many family farm producers collaborated to establish cooperatives in order to increase their collective purchasing and bargaining power. The majority of the cooperatives involved in this research project were founded to give their members a competitive advantage. Because each of the producers interviewed belong to a feed cooperative, one must assume that their responses refer to when they sell milk or purchase other goods and services not offered by the cooperative.

The producers surveyed noted that while belonging to a feed cooperative allows them some advantage when purchasing inputs or in acquiring technical consultation, they still feel direct dairy market competition with specialized producers. While there was more variation in the type of responses to the question H21 in Table 3, the majority of producers agreed that they are directly competing with specialized farms for milk prices and access to markets. And many family farms do not have the resources to be able to compete successfully with the larger specialized farms. As one of the producers stated in his answer, "it is easier for them [specialized farms]...they have more resources than those who are on the bottom," the availability of resources a farmer can access increases the chance that the farm can be competitive in the industry. Credit, education, land, and technology are all resources which can assist a producer to be successful and gains an advantage in the marketplace. While most producers agreed that the competition between the two systems was economic, some producers noted that they were directly competing with specialized farms based on the quality of their milk. Family farm producers are acutely aware that the quality of the milk they produce

determines the price they receive and its marketability to processors. In many ways, lower quality milk reduces a farm's competitive advantage. Milk processors, who must follow consumption trends, are beginning to require more standards and practices ensuring milk quality. This places smaller farms producing lower quality milk in a situation where they may be unable to find a processor to buy their milk.

Specialized farms

While family farm producers may be compelled to alter farming practices or be influenced in their decision-making because of competition, specialized farm producers, on the other hand, do not have a sense that there is direct competition between the two systems. This is not to say that specialized producers are not aware that family farms have to compete with them for markets and resources, just that producers of the specialized system do not feel it as acutely. According to the responses of specialized producers, they are very aware of the hardships faced by family farms. Table 3 shows the questions asked of producers in the specialized system regarding their views and opinions on the family farm production system, and how they responded as a group. Again, while the questions themselves required only a yes or no response, many producers further supported their answers with anecdotes and personal opinions. Contrary to what one might expect, producers of specialized farms were quite sympathetic and optimistic for family farms.

Per the general response rate to the questions put forward to them, specialized producers were for the most part divided on the place/role of family farms in the market and the national dairy industry. This division in the group is most evident in their responses to question H23 (Table 3). Half the producers felt that there is no place for family farms in the market and 33% disagreed. While some producers did not believe that small farms could not compete, they acknowledged family farm producers face many hurdles to successfully be a part of the market. Besides production efficiency, one producer felt that if family farms could establish cooperatives they would have more advantages in the marketplace: "they should join together or do more activities together." In agreeing with the question, a producer further explained his response by saying, "with these policies [NAFTA] they are going to disappear if they can't be more efficient." Without stating it directly, many other producers also remarked on the importance of efficiency of a farm operation in today's national and international markets. Producers of all sizes realize how much efficiency plays out in the competitiveness of their farms.

Question H24 (Table 3) asked of the specialized producers elicited similar divisions but with a slight majority in disagreement with the question. Interestingly, the producers did not believe family farms had to increase the size of their operations in order to survive. One would assume that specialized producers, because of the scale at which they operate, would consider larger farms to be more competitive in the market. From the producers' remarks, it is clear that they value efficiency and technification, instead of scale, as markers of competitive advantage. A different producer echoed the need for efficiency in family farms by stating, "only with

familial labor can a small family farm survive.” Other producers explained that family farms can survive in Mexico’s dairy industry as long as they are more efficient in those practices that allow them to farm at lower operating costs. One of these practices is the utilization of family labor instead of hiring outside help. According to participating specialized producers, by maintaining lower production costs but with an increased efficiency and product quality, family farms should not have to get bigger. Nevertheless it is quite evident, as shown in the family farm producers’ responses to questions in another section of the survey, they are feeling strong pressures from outside sources to grow their operations⁷.

Economics

A farming operation is primarily an economic endeavor. It may be a lifestyle and career choice for some producers, but first and foremost farming is a means of providing a livelihood for oneself and one’s family. The economics of a farm is not only limited to the farm’s finances and the relationship between income and expenses. And while this may be a good first indicator of how well a farming operation is doing, the numbers which make up the farm’s finances depend on contexts outside the control of the farm owner or manager. It is imperative to identify these contexts in order to understand and characterize the economic situation of an individual farm or a production system.

National and International Dairy Economy and Trade

Regardless of the level of production, from the smallest family farm to the most industrial, Los Altos’ dairy producers are remarkably well-informed. Of all the questions asked of them in the interview, the section on Mexico’s national dairy industry and international trade received the most poignant responses. Also, for the majority of the items, producers’ responses showed high levels of consensus. This consensus reveals very little variation within the group itself. The producers’ responses demonstrate that they are very critical of the structure and organization of the national and international dairy economies.

North American Free Trade Agreement (NAFTA)

In 1994, the U.S., Canada, and Mexico entered into an international trade agreement amid much criticism and support. Producers in the U.S. and Canada were generally happy with their countries’ participation in NAFTA, but the majority of the backlash against the trade agreement came from small producers in Mexico. While Mexico’s economy has grown significantly since the start of NAFTA and many trade opportunities flourished as a result, dairy producers of both the familial and specialized systems are skeptical of the benefits NAFTA affords.

In general, producers participating in the survey did not feel that they were directly benefiting from NAFTA. In fact, most producers reported international trade had a negative impact on their farms and households (M6-1 and M6-2, Table 4). Typically this impact on their farms took the form of low farm milk prices. Many producers responded how NAFTA

⁷ See Figure 9, page 18.

devalued their product in international markets, resulting in lower milk prices for them. Vast amounts of milk imports from the U.S. to Mexico competing with domestically-produced milk, creates what the producers perceive as depreciation in the value of their product. This suggests the producers grappling with a major drawback of free-trade commonly brought up by its' critics, that free-trade creates a treadmill of production. The treadmill of production is an infinite cycle where producers are required to produce their product at lower production costs than their competitors or risk falling off of the treadmill. As products are sold for less money in the marketplace, according to demand and competition, producers must be able to keep their cost of production low to retain more in income in order to remain on the treadmill and financially secure. Producers are more aware of this competition and see evidence of it in local stores, as Mexican products lose shelf space to products from the U.S. and China.

Table 4. Family Farm Producers' Views on NAFTA (n=30)

Item	Score ¹			
	Unsure	n	MDN	IQR
M6-1. NAFTA hurts producers like me.	2	28	4.0	1.3
M6-2. NAFTA doesn't have an impact on my daily life.	3	27	1.0	2.0
M6-10. I feel that U.S. producers have an unfair advantage.	2	28	4.0	0.0
M6-11. In stores I see many products from the U.S.	0	30	4.0	1.0

¹Scores are as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree

This price competition is especially damaging to small producers. Even though specialized farm producers reported feeling similarly disadvantaged by NAFTA, farms operating at smaller scales face even greater challenges. Through NAFTA, producers are forced to compete directly with producers in developed countries, who have access to subsidies, financing, and government assistance programs. It is just the availability of these resources for international producers which gives them a competitive advantage over Mexican family farm producers. Mexican producers are blatantly aware of this difference and said as much in the interview (M6-10, Table 4). Producers explained that U.S. producers have an unfair advantage because simply, they have more. More feed, more technology, and especially, more governmental assistance are all factors mentioned by family farms producers as to why U.S. producers have an advantage in the marketplace.

As Mexico's neighbor and primary trading partner, the U.S. has a greater presence in the everyday lives of Mexico's dairy producers compared to any other country. For this reason, the researchers asked a series of questions in the survey on the U.S. in order to identify the producers' general sentiments regarding the U.S. itself, its' citizens, and its' international trading policies. While Mexico and the U.S. often have somewhat of a love-hate relationship, family farm producers had a generally ambivalent attitude/opinion of the developed country to the north. When asked their opinion of the U.S., producers agreed that they liked the country and many reported that they had visited the U.S. at least once, for travel or to work as migrant

workers (H18-5, Table 5). Similar to other the other questions concerning the U.S. in Table 6, the results show a higher inter-quartile range which suggests very little consensus among the producers in their responses. The variability in the responses for the question regarding producer opinion of the U.S. can be attributed to different associations the producers may have had with the U.S., both positive and negative. These associations could be a result of experiences with U.S. citizens, experiences in the country, visuals and sound-bites in mass media, or even based on opinions from family members.

As a group, producers again were greatly divided regarding how well people in the U.S. understood how Mexican producers live. While a significant number of producers did agree with this statement (H18-16, Table 5), the real points of interest is in the explanations offered by the survey participants. Most producers believed people in the U.S. have an idea of how Mexican producers live. One producer even went so far as to say that people in the U.S. understand the plight of Mexican producers, but tend to “play dumb” when it comes to acting to change that situation. The majority felt people in the U.S. probably did have some awareness of how Mexicans live, but that it probably did not impact their daily lives because “they live in a different world.” This response suggests two things. First, the producers admitted to perceiving a socio-economic and lifestyle difference between them and people in the U.S. Secondly, there is an underlying opinion held by the producers that people in the U.S. are concerned only with their own situation and are indifferent to the woes of the rest of the world. This opinion is exemplified in another producer comment that people in the U.S. “protect their way of life at whatever the cost.” Interestingly, the fact that one of the researchers conducting the survey was a U.S. citizen (Blazek) did not seem to deter or prevent the producers from sharing their honest views of the U.S., which they continued to offer throughout the subsequent questions.

Table 5. Family Farm Producers’ Views on the U.S. (n=30)

Item	Score ¹			
	Unsure	n	MDN	IQR
H18-5. I like the U.S.	6	24	3.5	1.3
H18-16. I feel people in the U.S. don’t understand how I live.	6	24	3.0	2.3
F25-4. The U.S. should help producers like me.	0	28	4.0	1.3

¹Scores are as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree

Due to the negativity surrounding NAFTA, the researchers were interested to determine if family farm producers felt the U.S. was responsible for their economic situation. Producers were asked to share their level of agreement with the statement, “the U.S. should help producers like me” (F25-4, Table 5). The results show strong agreement with the statement, but low levels of consensus among the group (4.0±1.3). For the most part producers did not place any blame on the U.S. for NAFTA, but they were divided over whether the U.S. was responsible for helping them. Only one respondent felt the U.S. did not need to offer assistance to Mexican

producers because “it has no obligations to us.” Others who similarly responded in disagreement thought Mexico should be supporting its own producers, more so than the U.S. But the majority of family farm producers who agreed with the statement, stated the U.S. should offer assistance and support because they are the only ones to directly benefit from NAFTA: “NAFTA is a one-way street, [where products go] from the U.S. to Mexico only.” Because of this and the fact that the U.S. has more resources available to them, producers felt it only right the U.S. should give assistance to those who need it most. Although they ask for assistance from the U.S., producers admitted they did not feel they should receive direct assistance, as in the form of aid or cash payments. Producers, regardless of how they answered this question, wanted to see the U.S. work towards improving the price offered to Mexican farmers for their milk, so it reflects the true value of their product.

National Dairy Markets

The general sentiment of family farm producers in the region of Los Altos is a strong dissatisfaction with the economic and governmental structures in place for selling their milk. The biggest issue of concern identified by the producers interviewed is the instability of their dairy markets. Producers’ responded overwhelmingly positively to the statement, “during the year I face a very unstable market” (M6-3, Table 6). With the exception of four producers, almost all of the responses were either agree or strongly agree (86.67%). This is consistent with producers’ earlier responses regarding the level of satisfaction with the way they sell their milk (1±1), except there was less overall consensus as eight producers reported that they were unsure. While producers are dissatisfied with the only avenues available to them in which to sell their milk, the unstable dairy markets, producers’ acknowledge that they have few other options.

Table 6. Family Farm Producers’ Views on National Dairy Markets (n=30)

Item	Score ¹			
	Unsure	n	MDN	IQR
M6-3. During the year I face a very unstable market.	0	30	4	0
M6-4. Overall, the biggest change I want to see is the establishment of more markets and more security.	0	30	4	0
H18-14. I believe dairying is important to Mexico.	0	30	4	0

¹ Scores are as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree

Even though family farm producers recognized the difficulty in attempting to change the deeply embedded structure of Mexico’s dairy markets, as a group, they strongly feel change is necessary. The majority of producers positively responded that the biggest change they would like to see in Mexico’s dairy industry is the establishment of more markets and more security in those markets (M6-4, Table 6). Only one producer disagreed with the statement (3.33%), while 96.67% either agreed or strongly agreed. Their responses indicate how significant of a concern the instability within the dairy market is for the family production system. This concern is

consistent with the system's strong reliance on milk sales as the primary income source. Inconsistency and variability within the market places economic pressures on family farm producers and is a risk for them because of the uncertainty in their income.

One aspect of Mexico's dairy industry producers were particularly eager to change was the milk *topes* or caps. Many producers referred to these *topes* throughout their interviews and repeatedly commented on how damaging these milk caps are for producers like themselves and the national economy. These caps, established by milk processors to control the amount of milk that is processed, sets a maximum limit of milk farms may produce and any milk beyond the cap is purchased at a lower price (Escoto 69). Mexico's production caps are similar to quotas in other countries except processors will still take any extra milk, but pay less for it. To some of the producers this seems counter-intuitive as Mexico is in a milk deficit and cannot produce enough domestically to satisfy demand. To a certain degree this is true, but throughout the year demand remains consistent while production fluctuates. The seasonality of Mexico's national milk production produces an overflow of milk during the rainy season causing a small temporary surplus, which demand cannot absorb. Therefore, processors place limits on the amount of milk which can be received and pay less to producers, while at the same time, the price the consumer pays remains the same. On the other hand, some processors establish production caps as a way to keep farm milk prices low, to maintain the competitive advantage of Mexico's domestically-produced milk. Unfortunately this suggests that milk prices do not appear that they will be increasing, even as costs rise, because of the implementation and popularity of milk production caps by Mexico's processors.

At the same time producers feel discontented with their milk market options, producers had a positive outlook on the impact of Mexico's dairy economy on the country. All family farm producers either agreed or strongly agreed (100%) with the statement, "I believe dairying is important to Mexico" (H18-14, Table 6). Many producers referred to the fact that the dairy industry stimulates local and national economies. Not only did producers believe dairy farming was an important economic endeavor that improved the economy, but also felt that dairying filled a need in the country. One producer further explained by commenting that "many people depend on the [dairy] products we produce." While this producer did not specify how people depended on dairy products, one can assume he referred to the essential nutritional value milk and milk equivalents provide in the diet. For many people in poverty around Mexico, the subsidized non-fat dry milk supplied by Liconsa⁸ is a significant source for their daily intake of protein and vitamins.

Government Assistance and Support

⁸ Liconsa is owned by Mexico's national government and was established to "improve the nutrition and health of poor families in Mexico by producing and distributing quality milk and milk powder at subsidized prices or 42% of the retail price" (Dobson 27 and Escoto 78). Low-income and nutritionally-vulnerable populations are the main recipients of Liconsa milk.

Financial assistance for the farming sector, especially the dairy industry, has fluctuated but has recently decreased considerably. Due to increasing competition from imported products and the drop in the overall profitability of agriculture has decreased the volume of funds available for assistance and support programs. In 1998, dairy farms were receiving 24% of the total funds for assistance allocated through the *Fideicomiso Instutuido en Relacion a la Agricultura* (FIRA), a trust organization established for the development of agriculture (Escoto 75). But along with other governmental programs, FIRA's available resources have decreased significantly and are very limited. These programs have chosen to offer assistance to more farms rather than increase the total amount of money per farm.

Family farm producers are aware of this drop in number of available resources to provide them support and financial assistance, and feel the government should be doing more. Producers were asked their level of agreement with statements concerning both social and agricultural government assistance programs. The producers' responses are shown in Table 7. Regarding social programs, producers' responded that they strongly agreed with the statement "the government should help families like mine" (H18-2, Table 7). In terms of agricultural assistance, producers also strongly agreed that "there should be more governmental programs to support agriculture in Mexico" (H18-18, Table 7). While producers admitted that there are agricultural programs in place, they felt there are too few to make a difference for a number of producers. Many producers blamed the lack of programs and funds supporting agriculture on the government's general disinterest in rural areas of the country, stating, "[the government] does not want to see the situation in the countryside, because we need a lot of help." A common sentiment was the feeling by producers that the available funds were going to large farms who receive better premiums for their milk, than smaller farms who need it. One producer even offered a solution to how assistance should be distributed, based on need and the crops planted. Nevertheless, it is apparent that producers agree the government could be doing more to assist their situation, thereby helping the nation be more self-sufficient in milk.

Table 7. Family Farm Producers' Views on Governmental Assistance (n=30)

Item	Score ¹			
	Unsure	n	MDN	IQR
H18-2. The government should help families like mine.	0	30	4.0	0.0
H18-18. There should be more governmental programs to support agriculture in Mexico.	0	30	4.0	0.0

¹Scores are as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree

While producers may be in favor of more governmental programs for assistance and support, few family farm producers actually use these programs. Only 46.67% of family farm producers interviewed reported participating in any farm financial assistance programs offered through the government. One point of interest in the results is a comparison of program use between the familial and specialized systems. Even though less than half of the family farm

producers received assistance, 100% of the specialized producers in the project utilized these financial support programs. Of the producers who responded that they had or are using governmental support, the following programs were mentioned, followed by the number of producers: “Alianza para el campo” or Rural Alliance (8), “Procampo” (6), Sargarpa (2), unidentified social programs for the family (2), and other (4)⁹. Procampo, Alianza, and Sargarpa are programs dedicated to the support and development of the dairy agro-industrial sector. Producers reported using assistance funds to purchase bulk tanks, improve the milking area, and maintain farm machinery. These results show that producers who participate in assistance programs do so primarily to improve their farming operation, while only a few use social programs to support the farm household.

Income

One of the main characteristics of the familial system is the semi-specialization of production. Unlike the diversified production of the dual-purpose system where meat and milk are the principal products, milk is the primary product produced within the family farm system. As such, the majority of family farm income is derived wholly from the sale of milk. This results in producers’ heavy reliance on milk income to cover the expenses of the farming operation, as well as to sustain a livelihood for the farm household.

Producers in the family farm system reported a large percentage of their income is generated through milk production. Figure 11 shows the possible sources of income and their contribution to the total income generated on farms in the research project. The graph describes the average percentage of each source of income as reported by producers in both the familial and specialized systems. Milk sales represented the bulk of total farm income for both production systems, averaging 89.50±16.14 percent for family farms and 96.96±8.15 percent for specialized farms. Few specialized producers identified other significant sources of income except for dairy animal sales (10.05±14.07). This is due in part to this system’s

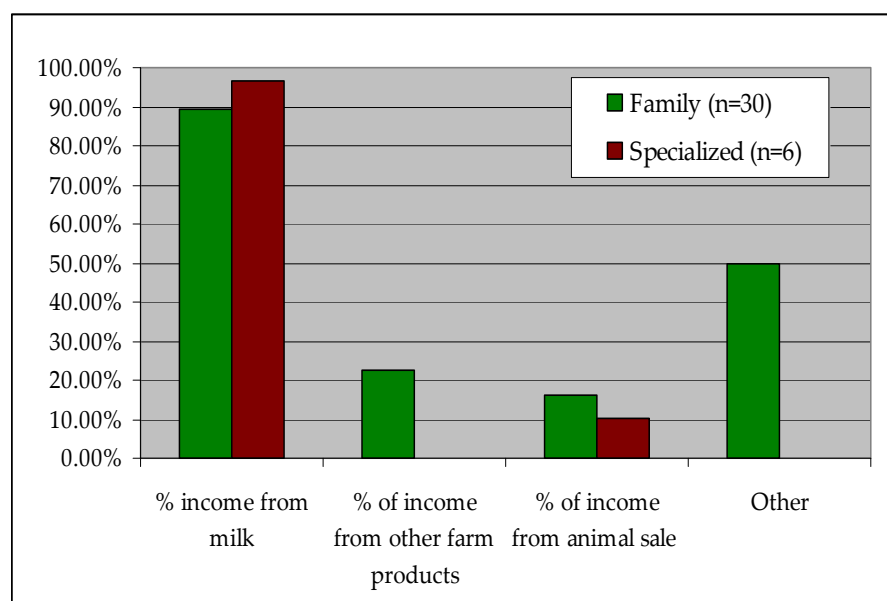


Figure 11. Major Sources of Income as Percent of the Total

⁹ The number of producers does not reflect the total sample size (n=36) because some producers reported participating in more than one program.

specialization in the production of milk. The data also show that even though the family production system relies heavily on milk production as revenue, the system has much more variety in how it can generate income.

In order to minimize risk and maximize their assets, many producers also supplement their total income through other agricultural activities. A portion of family farm producers' income is generated through the sale of other farm products (22.50 ± 9.01). Producers sold meat and crops harvested on the farm as additional incomes sources. Another share of the total income generated on farm was from animal sales (16.38 ± 10.99). The majority of these animal sales involved bull calves and cull cows. Bull calves are not considered valuable by producers and are therefore sold for additional income. Only one producer reported selling pigs for meat, acknowledging that he raised pigs entirely to supplement his income and for occasional consumption by the household.

The category of "other" in Figure 11 represents additional sources of income generated by the producer and his family off of the farm. Only two family farm producers answered that they had non-farm related sources of income which averaged 50.00 ± 28.28 percent. One producer reported his off-farm work as a custom field operator as 30% of his total income. The other producer reported that the majority (70%) of his income comes from assistance he receives from a governmental social program. The distribution of this producer's income sources is unique to the rest of the producers studied, and while it is important to acknowledge these situations do exist, it is not representative of the whole familial system. In fact the large percentage of this producer's income from government assistance skews the average of family farms for this category of other sources of income.

Even though producers receive an average of 18% of a farm's total income from non-dairy production, it is uncertain whether or not they need to diversify their income sources.

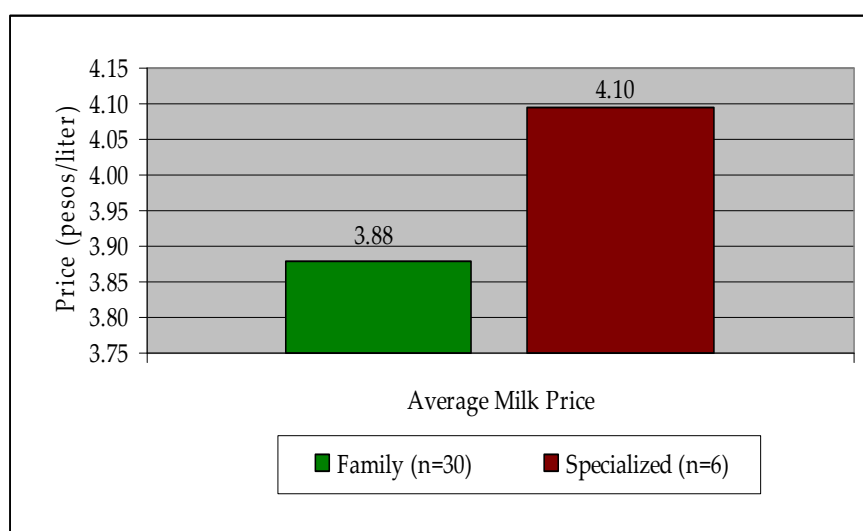


Figure 12. Average Milk Price (pesos/ liter)

Producers could not agree on whether or not they could survive solely on the income they received from milk production. The median (2.0) shows that family farm producers in general felt they could maintain a successful livelihood only on their income from milk, but the high inter-quartile range suggests that the group responded very differently from each other. In fact, the number of responses was split almost

equally between “strongly disagree” and “strongly agree”, demonstrating that there is very little consensus in opinion among the group (F25-8, Table 8). One producer, who agreed that he needed additional income in order to sustain his farm operation and family, reported that “milk money does not cover all my costs.” Unfortunately, it appears that while there is some variability, in general, the income generated from milk sales cannot satisfy producers’ needs.

In terms of the actual price paid to producers for their milk, there is a lot of variability. The average farm price per liter of milk for family farm producers was 3.88 pesos, and specialized producers received on average .30 pesos more (Figure 12). This is a significant disparity between the two systems and is due in large part to a difference in milk quality. The larger specialized farms employ techniques and practices to ensure a higher quality of their milk in order to take advantage of any premiums offered by milk processors. Some family farm producers also reported receiving premiums for their milk, pushing their milk income a little over 4 pesos per liter. While at least seven milk processors¹⁰ bought milk produced on the interviewed farms, milk price varies little between the different processors. These factors further support the conclusion that the variation of milk prices is a result of milk quality instead of other factors.

Table 8. Family Farm Producers’ Views on Income from Milk Sales (n=30)

Item	Score ¹					MD	IQR
	Unsure	1	2	3	4		
F25-2. I feel I’m not getting a justified price for my product.	0	1	3	1	25	4.0	0.0
F25-8. My family and I cannot survive only on our income from milk, but only with the additional income from other products.	0	13	3	1	12	2.0	3.0

¹Scores are as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree

Regardless of milk quality, family farm producers are discontented with the farm milk prices they receive for their milk. Almost all family farm producers interviewed considered the situation unfair and reported feeling the milk price they received was unjustified (F25-2, Table 8). One producer even stated feeling “misery when the milk check arrives” because he knows it is not enough to support his farm and family. Another producer stated he had noticed that “there is a difference in the price received by the producer and the price sold in the store” which contributed to why he felt the price he received was not justified. According to the results, it is highly likely that other producers were also cognizant of these price inconsistencies and their unhappiness with the situation is revealed in their answers to this question. Some producers thought the price they receive should be higher and noted that they often feel like they are

¹⁰ The following processors bought milk from the farms included in this survey (n=36), followed by the number of farms: Sello Rojo (18), Liconsá (6), Nestlé (4), Altea de Productores (4), Sigma Alimentos (2), Empresa La Providencia (1), Lacteo San Vicente (1).

giving their milk away. This sentiment was also shared by the producers of the specialized system with a similar level of agreement (4.0 ± 0.0). These responses indicate a structural issue rather than a flaw in the characteristics of the production systems. Farm milk prices are determined based on a number of factors, such as milk quality, demand, and the price paid by the consumer, but hardly ever reflect the actual cost of production. Some producers determined their cost of production was around 3.52 pesos per liter of milk produced. At an average of 3.88 pesos per liter of income received, this leaves a difference of .36 pesos per liter for the producer to support his family and pay for non-farm expenses. Unfortunately, even with daily milk production at 1,081 liters (the average for family farm producers in this study), a surplus income of only 389 pesos per day allows very little in which to support a farm household.

Expenses

The expenses faced by any dairy farm depends less on the production system it belongs to than its scale and specific farm management practices. Expenses for farms within the familial and specialized systems are expected to be similar because both production systems rely on similar inputs which cannot be produced entirely or partly on the farm, such as concentrates and electricity. In this case, these two expenses will differ only in the total amount, because of the scale at which each system operates. Some expenses, such as labor costs, are primarily due to farm management practices, as for specialized farms which rely more heavily on employees outside the family to work the farm.

Figure 13 shows the distribution of the largest expenses reported by producers of the family production system. Producers were asked to report their two biggest farm expenses during the year. For the majority of producers, feed inputs or concentrates was the largest expense they experienced. They must purchase the majority of their feed as very little is actually produced on farm except for forages, such as hay, corn stover, and silage. This results

in a huge farm expense when producers feed concentrates as 64.9% of a cow's daily diet. The second most reported expense for family farm producers

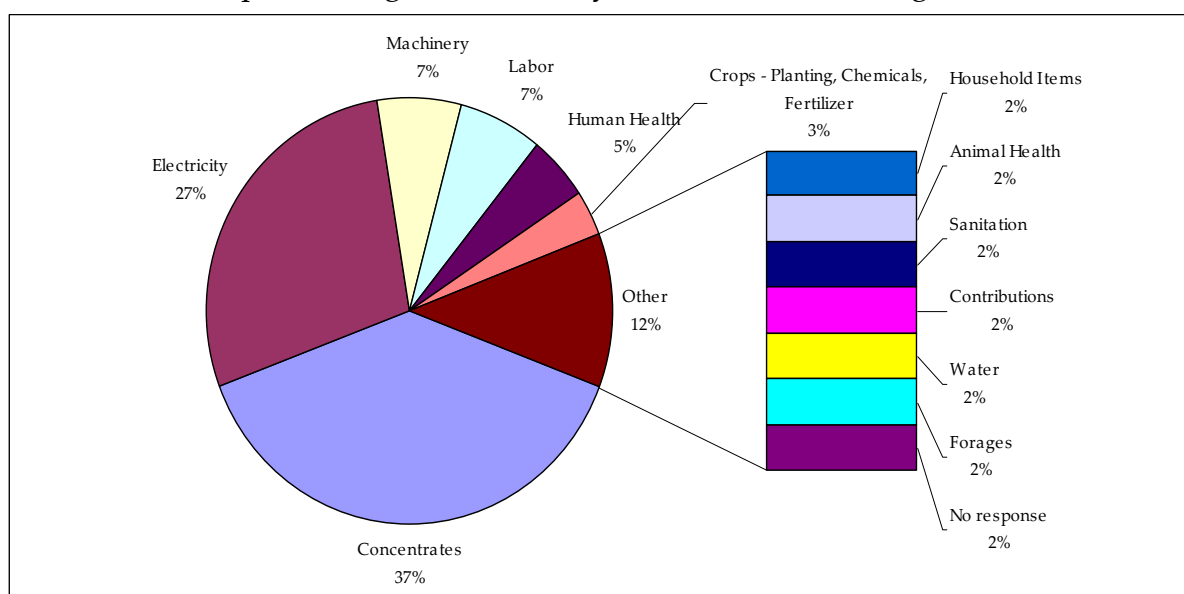


Figure 13. Biggest Expenses Reported by Family Farm Producers (n=30)

was electricity, with 56.67% of the producers responding it was one of their biggest farm expenses. Electricity is basic to the efficient functioning of a dairy farm, from powering the milking equipment to pumping water from the well. Similar to concentrates, electricity is a necessary expense and is dependent on off-farm sources.

In terms of the actual cost of farm expenses, concentrates continued to be the largest expense for both specialized and family farm producers. Figure 14 depicts the value of the top three expenses faced by each

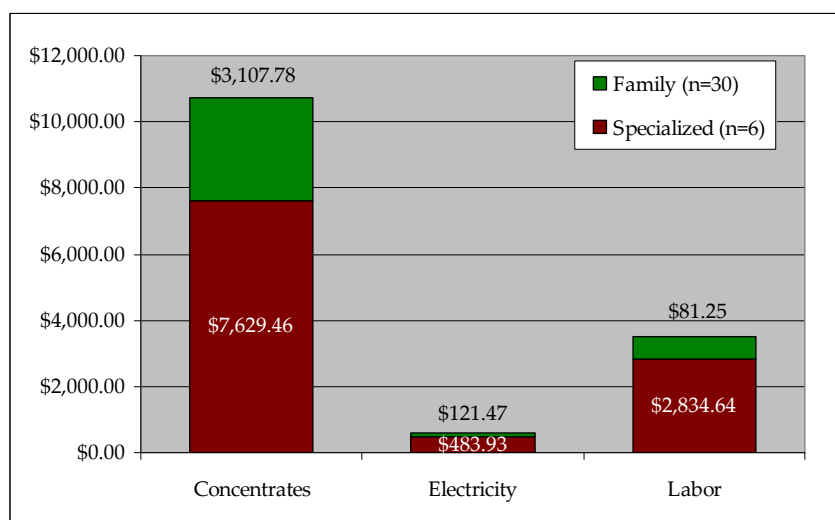


Figure 14. Top Three Expenses (cost in pesos/day)

three expenses faced by each production system. The difference in the average value of the expenses between the two systems is mainly due to scale, rather than locality. Concentrates, for example, are purchased from the local feed cooperative regardless of the production system to which a producer belongs. Electricity is also similar in this respect, as both systems purchase their electricity from the same source. The amount a farm purchases, on the other hand, is dependent on the production system. While the total value a system may spend on an expense differs, the one similarity between the systems is the range in variation within the systems. For each of the top three expenses, the standard deviation for the family farm system was 2102.27, 77.75, and 347.58, respectively. The specialized production system also had similarly high variation: 3994.45, 328.90, and 2052.12. This could be a result of producers' over or underestimating the value of their expenses, but is most likely due to differing farm management practices.

Effect of Low Milk Prices

The economic data collected from the participating farms in Los Altos, demonstrates that these producers rely almost exclusively on the income generated by milk sales. This revenue not only is invested back into the farm, but also pays for any expenses incurred and must support the farm household. Therefore, any significant reduction or loss of that income could be devastating for both the family and farming operation. Widely varying milk prices and unstable markets play havoc on a farm, requiring producers to change farm management practices and put off improvements to the operation. Uncertain farm economics can also have a dramatic social impact by forcing household members to acquire other employment or even migrate outside their communities.

According to producers' responses, low milk prices have a serious effect on their decision-making and the way they manage their households and farms. To determine how much of a socio-economic impact low milk prices have on the household and the farming operation, producers were asked a qualitative question to report their agreement with twelve items that a

producer may or may not face because of economic pressures. These items represented decision-making and management changes a producer would potentially have to implement due to low milk prices. Figure 15

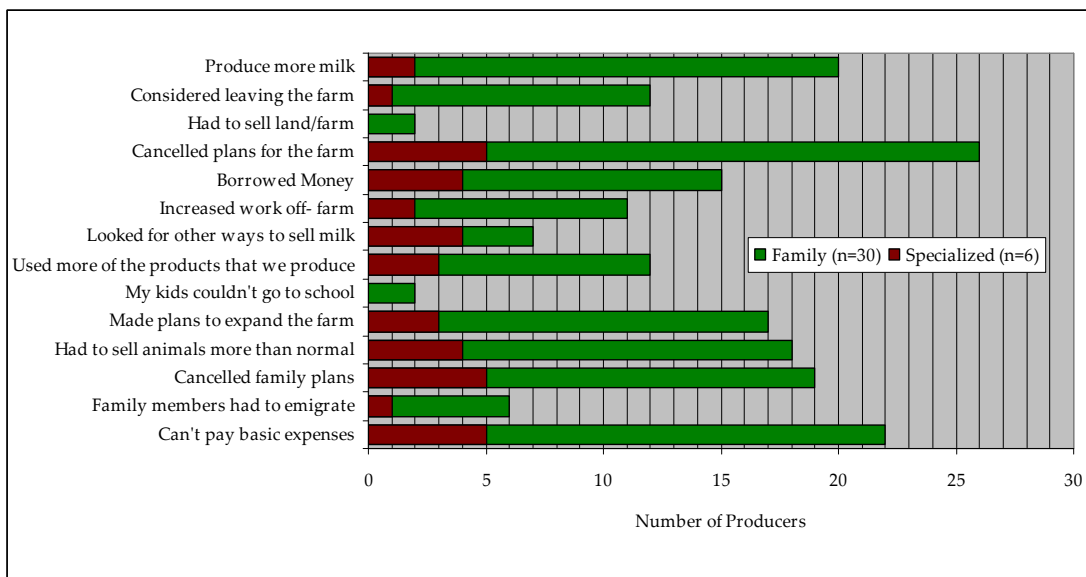


Figure 15. Effect of Low Milk Prices on Household and Farming

shows how producers in the family and specialized systems responded to these items. Only the positive responses are included in this graph. Interestingly, the top three items producers faced because of low milk prices were very similar between the systems. For family farm producers, the majority reported the following three changes on their farm: cancelled plans for the farm (86.67%), couldn't pay basic expenses (73.33%), and had to produce more milk (66.67%). The three changes identified by specialized farm producers differed by only one item: cancelled plans for the farm (83.33%), cancelled family plans (83.33%), and couldn't pay basic expenses (83.33%). As income from milk sales is the primary source of revenue, when milk prices are low and cannot support both the family and the farm, producers must choose between them.

These responses indicate that the primary impact of this economic pressure is on the management of the farm. Producers generally chose to divert more of their milk income to support the household rather than the farm. Low milk prices and the uncertainty that accompanies it forced producers to put off or reevaluate improvements and future plans for the farming operation. This reality results in a dichotomy for producers who feel pressure to grow their farms, but their economic situation forbids it.

The most discerning trend in these responses is in the sheer number of producers from both systems who reported they could not pay basic expenses. One family farm system producer had a particularly bleak outlook on his economic situation by stating, "if you look at all my expenses and what my milk income is, I'm losing." Unfortunately, this sentiment was

repeated, although to a lesser degree, by the majority of the producers in the survey. The inability to pay basic farm expenses has serious consequences for the viability and future of the farming operation. Not only is there a tendency to change or eliminate management practices which seem like an expendable cost, such as using water instead of teat sanitizer, but producers often abandon plans to improve the farm when there is not enough disposable income. The frail economic situation producers are placed in when they cannot pay their basic expenses is easily compounded during long periods of low milk prices, further making it difficult for producers to save enough in order to plan for the future and improve their farm operation.

Farming Operation

General Characteristics

Family farms in the region of Los Altos, Jalisco, were more recently established than their counterparts in the region and elsewhere in Mexico. The average year family farms began was 1992. The oldest family farm in the survey was established in 1957, with five producers reporting their farm began before they were born. The most recent farm was established in 2005. Specialized farms, on the other hand, had an average begin date at around 1986: two farms were established around 1972 and the most recent farm in 2001. Compared with previous studies of farms belonging to the family production system, farms in this survey are relatively “young”¹¹. But in terms of farm tenure, 70% family farm producers reported inheriting their farms from family members. This suggests farm succession still remains the primary means by which a producer begins farming.

In general, family farm producers are working less land than what they need to supply the needs of the farm. On average, family farms had 29.16 ± 43.41 hectares of land in production.

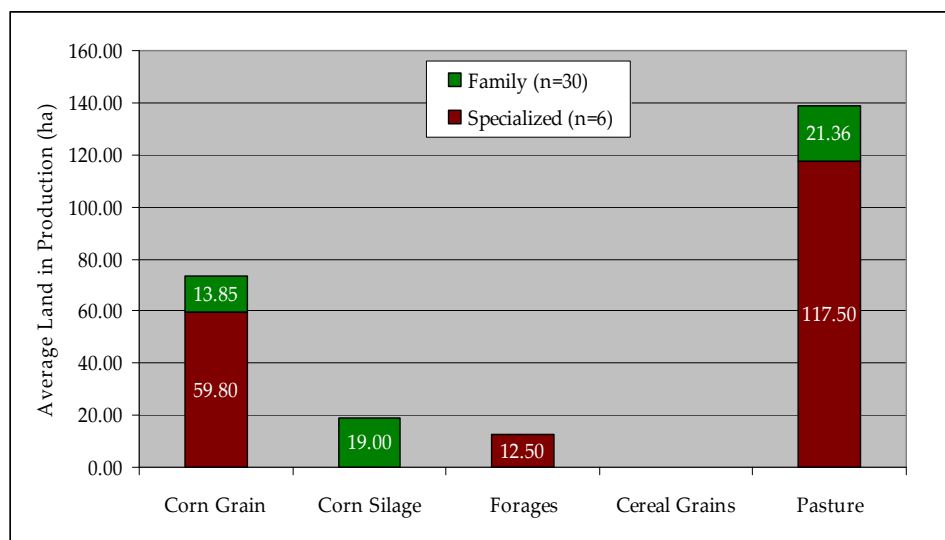


Figure 16. Total Hectares in Production

Compared to the average 134.67 ± 151.61 hectares of land specialized farms are utilizing, family farms have very little land to work with. However it is important to note the variation between these two averages. There are two extreme outliers in the specialized population (4 ha and 425 ha) which skew the results. While there is a significant

¹¹ Garcia et. al. found that farms within the family production system were based in tradition and most were founded over more than a century ago (55).

amount of variation within the family farm data, it is much more reasonable than the variation in specialized farms; most likely due to a small population size.

Producers utilize their land for a variety of purposes. Figure 16 shows how land is used between the two systems. The majority of land, for both farming systems, was in pasture. Once again, an extreme outlier in the specialized farm data accounts for the overly high amount of land in pasture for the specialized farms. Typically, because confinement of the cattle characterizes the specialized system, producers would need very little to no land in pasture, except for temporary turnout and heifer-raising areas. Family farms utilize pastureland mainly as a supplement between regular feedings and as a turnout area, because few producers have permanent housing for their animals, such as a tie-stall barn. The remainder of the land in production is used for harvesting corn-based feeds, such as silage and *rastrojo*, or corn-stover. These feeds are primarily used on farm rather than being sold locally.

While the majority of the animals on these farms were dairy cattle, many producers had other species as side-enterprises. 53.33 percent of family farm producers reported having at least one other species besides dairy cattle on their farms. These animals included, beef (5),

swine (5), chickens (4), sheep (2), and birds (1). Contrary to the assumptions of the researchers, these animals were raised for meat by producers, mainly as a second income source, rather than for consumption by the household. While some producers did acknowledge that a few animals were consumed by the household, the strategy behind having

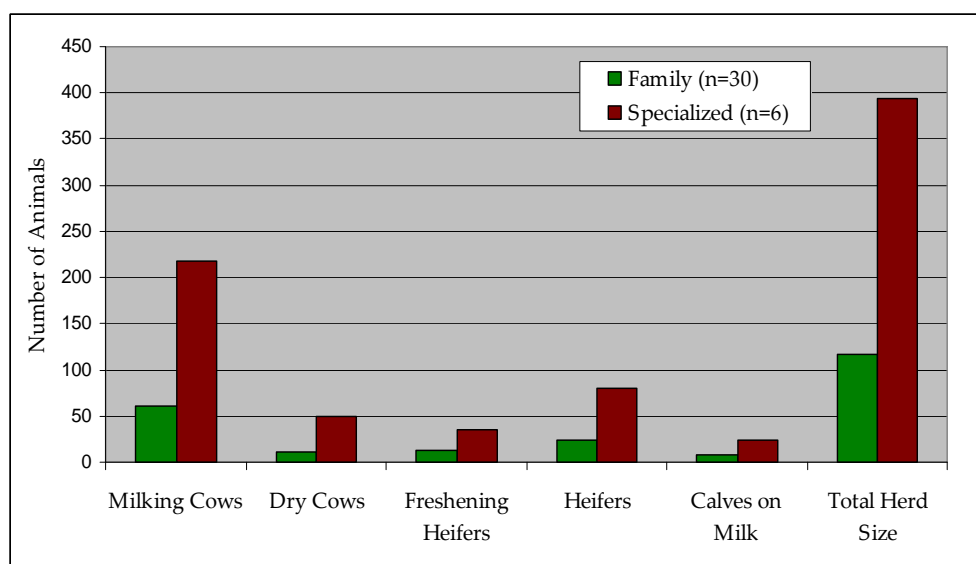


Figure 17. Dairy Herd Structure

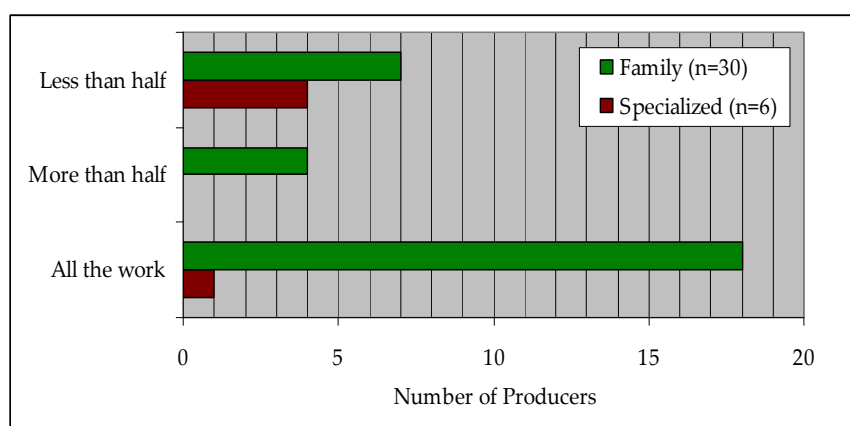
more than one animal species on the farm was to manage risk. In this way, when milk prices were low, producers had other means to support their income.

The average dairy herd size of family farms in the region is higher than family farms in other areas of Mexico. Los Altos' family farms participating in the survey had an average herd size of 117 dairy animals. Compared to other farms in the family production system, especially those located in the State of Mexico, this number is much higher as most studies report family farms having only around 10 cows in production (García 55). In the survey, the number of cows

in production on family farms averaged 61. Figure 17 demonstrates the average herd structure for both family and specialized farms. Scale is the only thing of note in the differences between the composition of both systems' dairy herds, as they follow a similar pattern.

Labor

One of the main characteristics of the family production system is its reliance on family labor. It is this characteristic which distinguishes this system from the specialized production



system. In comparison, the specialized system utilizes outside labor, or paid employees, as the majority of the labor force on the farm. Farm owners of family farms are the principal farm laborer, while owners of specialized farms typically take the role of manager and supervisor.

Figure 18. Amount of Work Done By Producer and his

In order to show this difference, producers from each system were asked to share how much farm work was done by themselves and their families each day. Figure 18 displays the results of this survey question.

The distinction between the two systems is apparent. While 73.33 percent of family farm producers and their families did all or more than half of the total farm work, only one specialized farm producer reported doing the same amount of work (16.67%). The majority of producers and their families on specialized farms did less than half of the work (66.67 percent). This difference in labor between the systems is shown to a lesser degree in Figure 19. This graph displays the weekly number of hours worked by different people on the farm. In spite of farming system, the producers themselves worked a significant proportion of the total hours between the three groups of people. This is accurate because as the farm owner, producers are more invested in

the success of their farm than anyone else, and despite their labor role as either farm supervisor or farm operator and laborer, the majority of their time will be spent running the farm.

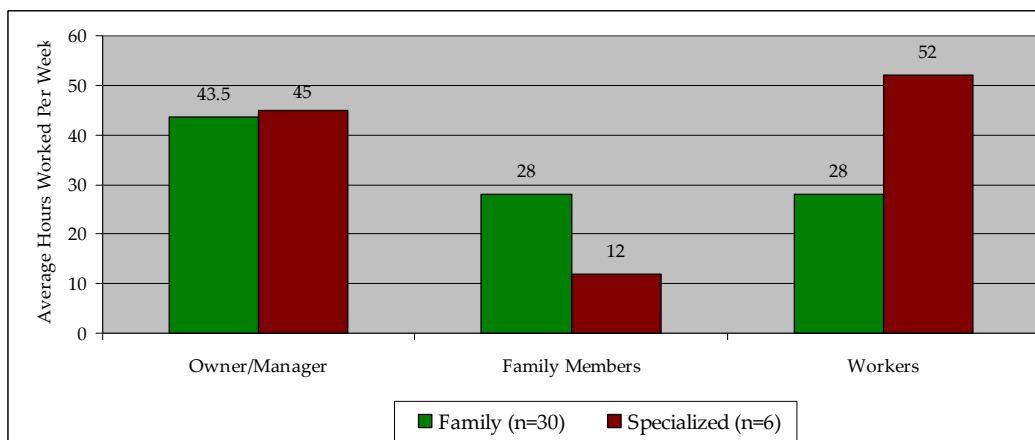
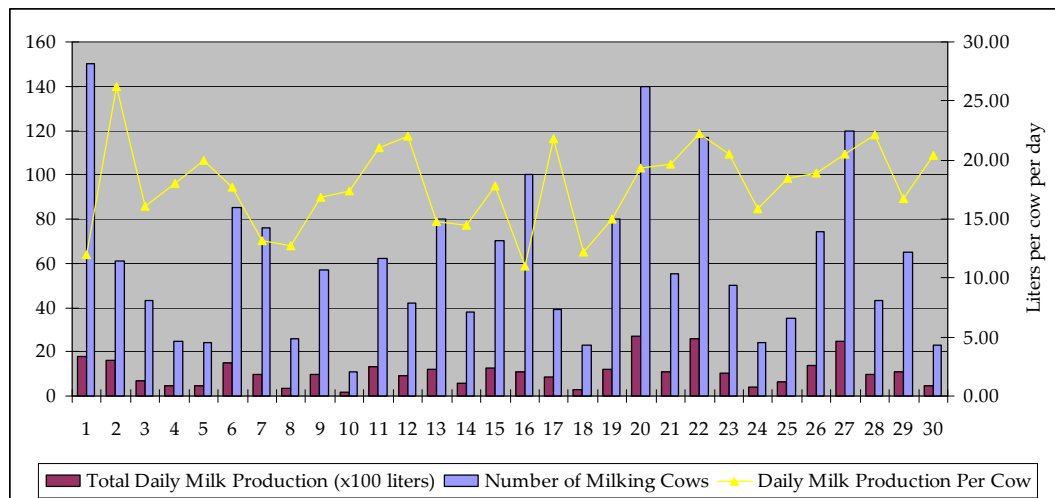


Figure 19. Average Hours Worked Per Week

The important point in this figure is the variation of hours worked by the family and hired workers in each system. Hired workers worked more hours per week on specialized farms than family members. On family farms, the hours worked per week between the family and hired workers was equal. This shows that farms within the specialized production system consider farm work to be less of a responsibility for the family than for the producer and his employees. On the other hand, the situation on family farms is such that all must participate equally in the work in order to sustain the farm operation.

Milk Production

Total daily milk production of all the farms surveyed was 5,937 liters. With an average of 61 ± 36 milking cows, family farms produced a total of 1,081 liters of milk daily. Figure 20 shows milk production values for the family farm system. Specialized farms of Los Altos, Jalisco produced 22.41 ± 2.36 liters per cow per day, around 4.5 liters more than family farms in the region (17.82 ± 3.64). The principal destination for the milk produced on family farms was to be



processed by a third party company. Some milk is used for the family as some producers reported an average of 6 liters of milk per day for consumption by the household.

Figure 20. Milk Production of the Family Production System

Compared to family farms in

other areas of Mexico, the farms participating in this research project, in general, had more technification in their milking systems. While variation within the systems is often quite high, especially for the family production system, a 100 percent of all family farms surveyed used milking machines. The important systematic difference lies in the types of milking machines used by producers. The majority of family farms had direct pipelines installed from the milking area to the bulk tank. All of the specialized farms, on the other hand, had milking parlors. 70 percent of family farm producers reported having and using a bulk tank to store their milk. This is significantly lower than the average for specialized farms which was a 100 percent. The rest of the family farms used portable milking machines connected to buckets to collect their milk. This has important implications for milk quality as milk collected in buckets during the night milking must sit overnight without means of cooling it until it is collected in the morning by the processor or taken to the collection plant by the producer.

Farm Management Practices

In general, farm management differs very little between the family and specialized farming systems. In many ways the close proximity of the farms participating in the survey and their reliance on similar services, such as those provided by their local cooperatives, creates very little variation between management styles on farms in the region of Los Altos.

Milk quality is an important area of concern for family farm producers. Many producers recognize that consumers and milk processors are demanding a higher quality of milk and are willing to pay premiums for it. The quality of the milk produces is highly dependent on how milk is handled from collection to storage. Figure 21 outlines the milking procedures practiced by producers of both systems.

While there was some consistency among family farms in the practice of stripping a cow's teats and using post-milking teat dip, other sanitation procedures were

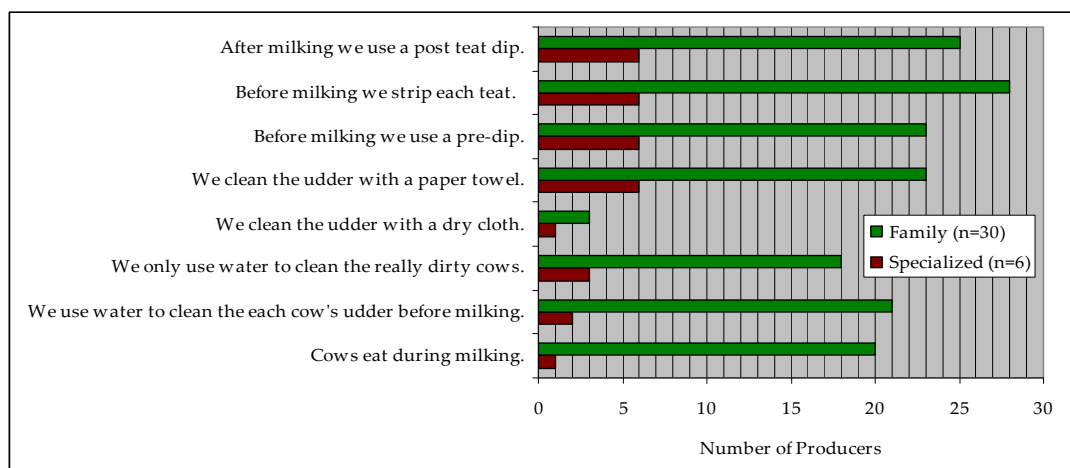


Figure 21. Milking Procedures

less commonly practiced. For example, family farm producers were relatively divided in what practices they used to sanitize a cow's udder before milking. The results show that the majority of producers only focused on cleaning a cow's teats rather than the entire udder, which has important milk quality considerations. Interestingly, there was more consistency in the adherence to milking practices among the specialized farms than the family farms. For example, all six specialized farms used a pre-dip, cleaned with a paper towel, stripped each teat, and used a post-milking teat dip. This may be a result of having a small population size, but it also reflects the standardized management style of the specialized production system.

Losses in productivity can be a significant economic blow to producers. Disease, injury, and death in the herd are all factors which contribute to a loss of productivity on the farm. Figure 22 depicts the average animal losses on both family and specialized farms in a year as reported by producers. The graph also compares this data with the average dairy herd size of both systems. While annual animal deaths and animal sales due to low productivity averaged around 6.27 percent of the total herd size for family farms, the number of sick animals averaged close to 24 percent of a farm's herd numbers. These numbers suggest that the majority of productivity losses happening on family farms are a result of animal sickness and disease. This is consistent with producers' responses earlier in the survey explaining animal health as a

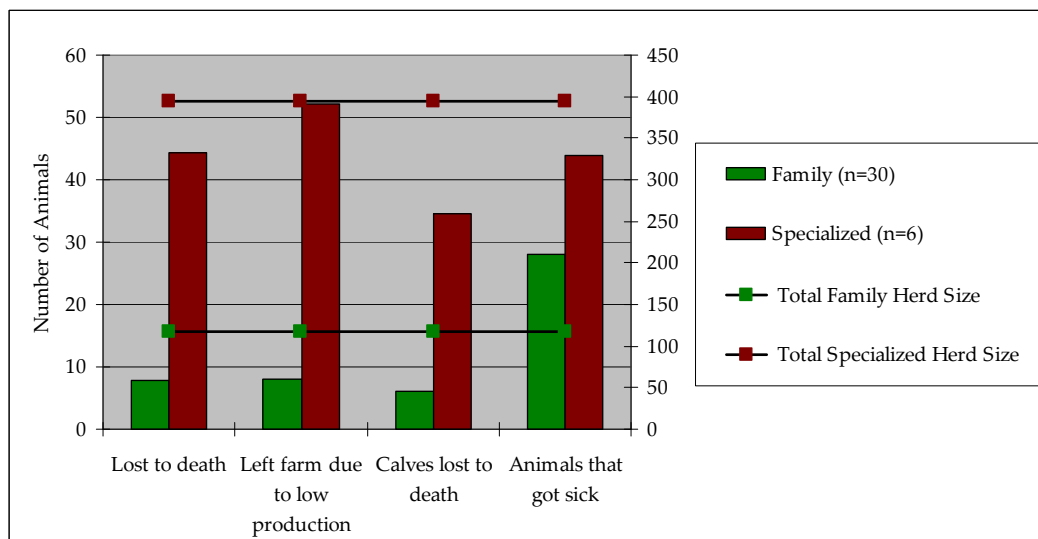


Figure 22. Average Number of Animal Production Losses

strong pressure they face in their operation. It is apparent that animal health is an important concern on family farms and a considerable piece of farm management.

Producers are aware of their animals' health as they see a direct

correlation between milk production and animal health, reflected in the milk income they receive. Even though they may realize there is an animal health issue on their farm, managing to improve the issue is dependent on the farm's economic situation. Figure 23 illustrates the number of producers of both production systems who use certain management practices in order to control the quality of health of their animals. The majority of producers stated they utilized common health management practices, such as dehorning, deworming, and vaccinations, on their farms. While these are important management tools, only half of family farm producers reported regular veterinary visits for their animals. This is compared to 100 percent of specialized farms. These low numbers suggest family farm producers are only using veterinary services during emergencies instead of as a preventative tool. Also, when asked if they had an animal health plan for their dairy herd, only 66.67 percent said yes. Again, 100 percent of specialized producers had an animal health plan in place. Producers did not provide specific reasons or an explanation in their responses for why they have not implemented these measures but it can be assumed the farm's economic situation is the main prohibiting factor.

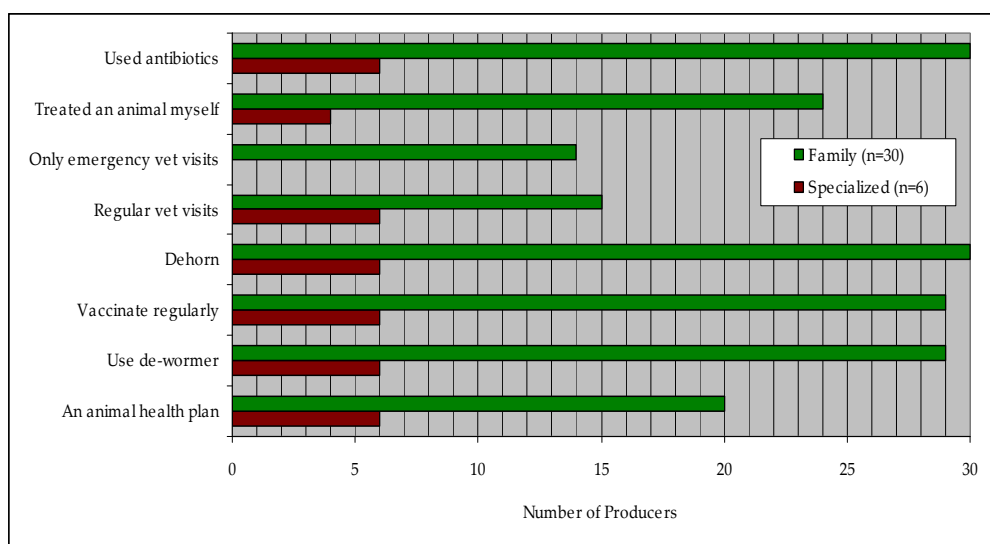


Figure 23. Observance of Health Practices

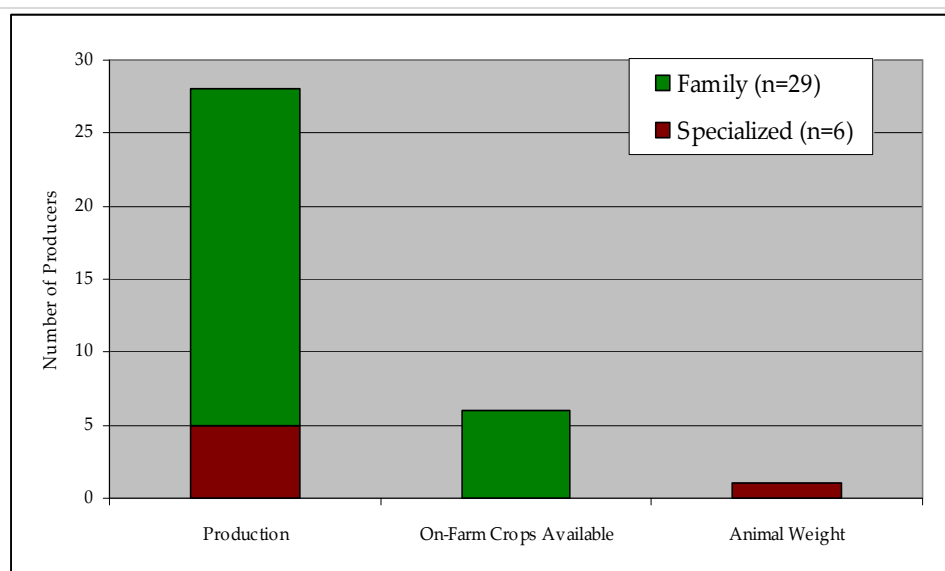


Figure 24. The Formulation of Dairy Rations

All of the producers interviewed belonged to a local feed cooperative which provided them with the majority of their feed. A 100 percent of producers from both systems purchased the entirety of their concentrates from their local cooperatives. The average price producers paid for concentrates differed little between the two systems:

2.74±0.17 pesos per kilogram for family farms and 2.77±0.12 pesos per kilogram for specialized farms. On average producers fed 10.4 kilograms of concentrates per cow (in production) per day. This is a significant amount of concentrates being fed to the cattle in this region: almost 65 percent of their daily diet just in concentrates alone. On the other hand, forages made up only 35% of a cow's diet. The majority of producers, both family and specialized, fed a corn-based forage, either corn silage (18.10±8.97 kg/day) or corn stover (5.84±3.45 kg/day). Ten producers from the 36 total fed alfalfa hay to their milking cows (5.53±7.43 kg/day). Figure 24 shows on what basis these farm dairy rations were formulated. For both family and specialized farms, rations were based on milk production. The majority of producers who reported formulating dairy rations based on nutrition, did so as a result of assistance offered by a consultant.

Since some of the feed cooperatives, to which these producers belong, offer consulting services to their members, the researchers were interested to determine whether producers utilized these support systems when they were available. 93.33 percent of family farm producers reported the availability of consulting services in their area and that

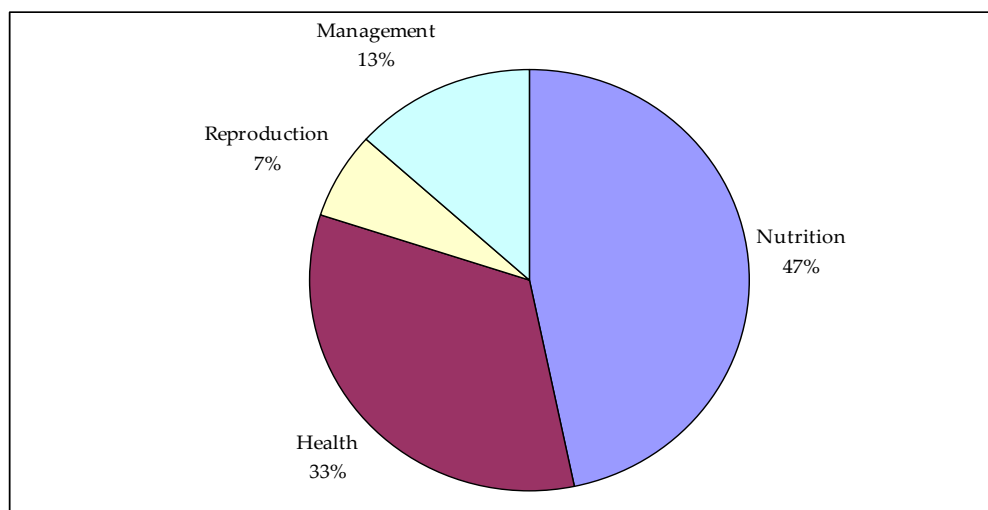


Figure 25. Reasons for Utilization of Consulting Services by Family Farm Producers (n=29)

they used those services. This is compared to 100 percent of specialized farm producers. In terms of why producers used consultants on their farm, Figure 25 shows the frequency of the top four reasons for using these services as reported by family farm producers. Assistance with animal nutrition was the main reason for producers to use consultants in their farm management. This is primarily due to the fact that an animal's nutrition is vital to their production potential. Without important nutrients balanced according to their needs, an animal will lose production value due to sickness, poor body condition, or even death. Because concentrates made up the largest portion of a cow's daily intake, nutrition consultation often took the form of ration-building. With the majority of the consultants utilized by producers affiliated to their feed cooperatives, unfortunately, this places producers at a potential risk for over-feeding and over-supplementing their animals. Consultants make money for the cooperative by suggesting feeds and supplements to producers who want a certain result, such as improved reproduction. Producers are already in the mindset that more phosphorous in a cow's diet will improve her reproduction, a common production issue for producers in the area. Combined with consultants who are encouraged to sell feed products, producers are over-supplying phosphorous to their cows, an important economic and environmental concern.

Environmental Awareness

As a society, environmental awareness and policy in Mexico is relatively new. While there are policies in place, very often they are not implemented or enforced. This leads to a trickling down effect as lax regulations at the national level allow communities and individuals to slip into old habits with no incentive to alter them. And as the producers explained in the interview, even with educational programs in place to teach people about environmentally-conscious living, without positive or negative motivations reinforcing those practices, there is no change.

Producers' responses made it clear that while they valued protecting the environment, they did not generally act upon it in their everyday lives. The majority of producers (70%) reported that they were interested in changing or modifying farm management practices to lessen their impact on the environment, but few had done so. Of the producers who had initiated change on their farm, most responded that they had planted trees or had acted in a way to protect the trees already established on their land. Only one producer told the researchers he had become more aware of runoff and where it happens on his land. Some producers changed how they managed their farm waste, making sure to separate it from household waste, compost what they can, and not burn the rest. Their answers to what they would like to change or implement on their farm in the future showed knowledge of major environmental issues, such as water quality and air quality. But through their concern for the environment, producers were understandably more concerned for their economic situation, and mentioned that it is difficult for them to make those kinds of changes on the farm if they cannot pay their expenses. The interest is there but until policies are enforced or these environmental

management practices become more cost-effective, producers will continue to be environmentally-conscious in thought only.

Immigration

Mexico is the top country of origin for migrants, both authorized and unauthorized¹², arriving in the U.S. 31 percent of all immigrants currently residing in the U.S., more than the number of immigrants from any other region of the world, are from Mexico (Camarota). Of this total, Mexico accounts for one-fifth of the authorized and 57 percent of unauthorized immigrants in the U.S. (Passel). While migration between the countries is not new and has been taking place for centuries, the amount of people migrating to the U.S. from Mexico has drastically increased over the last 20 years. Figure 26 illustrates this trend by showing the

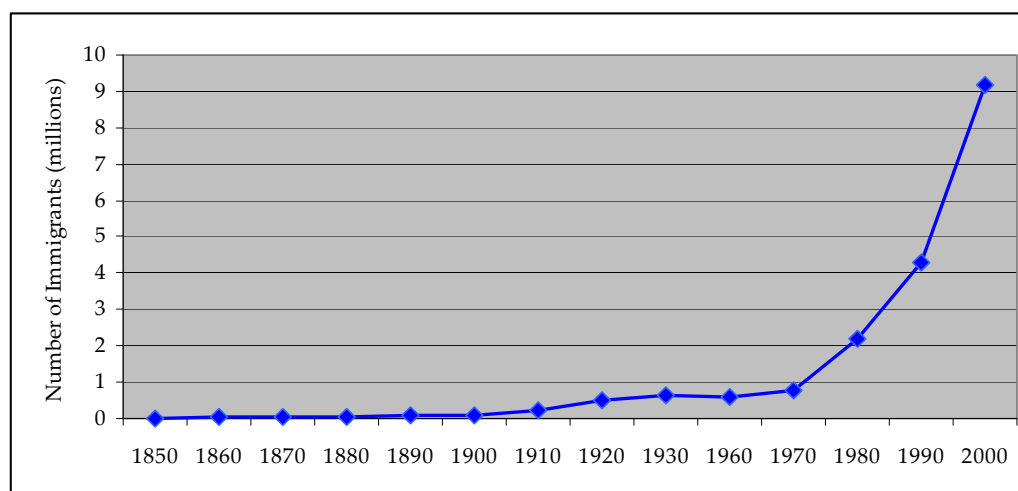


Figure 26. Number of Mexican Immigrants in the U.S. (Source: U.S. Census, 2001).

number of Mexican immigrants in the U.S. from the 1850s to the beginning of the 21st century.

The majority of these Mexican immigrants originate from four “traditional” sending states, ranked in order: Jalisco, Michoacan, Guanajuato, and Zacatecas (Marcelli 117). This large flux

of people moving between the U.S. and Mexico has important repercussions for both countries’ economies. As the U.S. receives badly needed workers to fill low-skill jobs, Mexico’s labor force is headed north, leaving behind families and communities to collect the large amount of remittances¹³ they send.

For Mexican households, migration is a very real context which they must navigate everyday. Studies and research projects often quantify migration, making it seem only an impersonal and numerical issue. Also, mass media tend to discuss migration only in terms of

¹² The researchers chose to use this terminology instead of “legal” and “illegal” due to the negative connotations attached to those terms. “Illegal” indicates a person who has no right to be in the country. This term is used often in conjunction with “alien” which often denotes a sub-human category. Also, “documented” and “undocumented” are inaccurate as many migrants do have documents, some of which were legally received, others arrived at illegally. “Authorized” and “unauthorized” are the preferred terminology because they refer only to a migrant’s status.

¹³ Remittances from Mexican immigrants living and working in the U.S. average around \$21 billion per year and is Mexico’s second largest source of revenue for the country, behind oil (US Department of State).

its impact on a national and international scale. In fact, migration penetrates all levels of society, from the individual to the global. Therefore, it is important not to forget or overlook the impact of migration on the migrants themselves, their families, and communities.

Every one of the producers interviewed in this survey, regardless of production system, directly felt the impacts of migration on his household. A 100 percent of the family farm producers reported having family members who migrated to the U.S. Typically, these family members were brothers, sisters, and children of the producers. Only 83.33 percent of specialized producers, on the other hand, had family who migrated. Family members for specialized producers were mostly extended family, such as nephews and cousins. Of particular note, producers from both systems acknowledged many of their family members as either have migrated to the U.S. or are currently living there, instead of just one or two. This suggests that as family members begin to emigrate, they establish migration networks, which make it easier for other members of the family to follow. Also, since migrants tend to be men, if they have families, once they are established in an area of the U.S. they will often send for their families to join them.

Due to the high incidence of producers' responses indicating at least one family member who has emigrated to the U.S., the researchers asked producers the probability that they or someone in their family would also emigrate. Contrary to the researchers' assumptions, family farm producers responded that it was very improbable they or a family member would emigrate to the U.S. in the next five years (1±1). Some of the reasons they gave to explain this low probability for migration were that their children were too young, they had just recently returned from the U.S., or, as one producer explained, there is no need. Interestingly, specialized producers reported a significantly higher probability that they or a family member would emigrate than their counterparts in the region (3±1). The majority of specialized producers responded that it was probable someone from their family would emigrate to the U.S. One producer even mentioned one of his sons was going to migrate that same year.

People migrate outside of their communities for a variety of reasons. Migration can be forced, such as in cases of refugees, who migrate to escape persecution, or be an individual's choice. Personal choice is the most common explanation for why people migrate. Often the distinction between these two motivations for migration is blurred. For example, in the interviews, producers noted that the one of the main reasons why people from their communities migrate is because they could not sustain a livelihood on their farms. Because there are no jobs for them in their communities, they must migrate to find employment, whether it is to an urban area or to another country. In this case, while it is the individual's choice to migrate, their own and the area's economic situation in effect forces their choice.

Contrary to popular opinion, migrants do not make the decision to migrate easily. Most would prefer to be able to remain with their families, in their homes, in a culture and society

where they are comfortable. For those migrants who are not being persecuted, the decision to migrate may take weeks, months, and even years. And the reasons for migrating can be as varied as the migrants themselves. Figure 27 shows the reasons why people migrate, as

reported by all the producers participating in the survey. The majority of people who migrate do so to find work. The results from this research project are consistent with other studies done in the U.S. and Mexico that show employment as the primary motivation for migration. Economic differences in the U.S. and

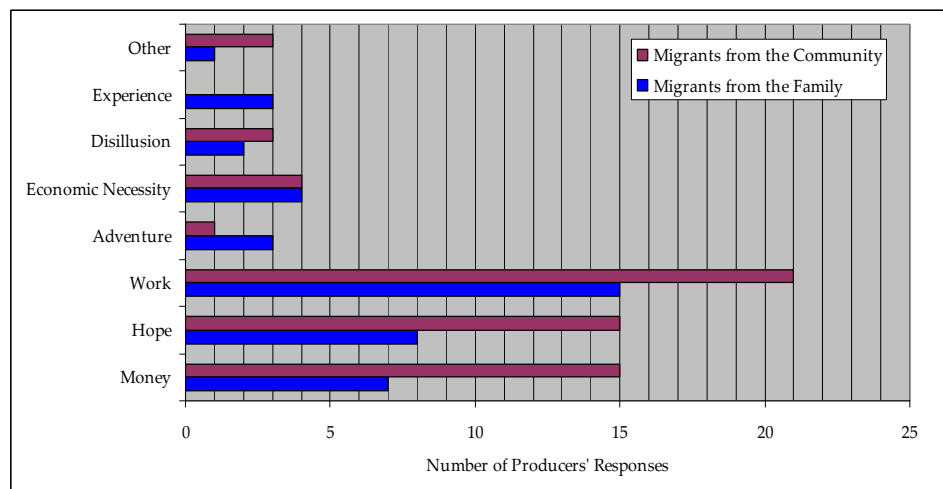


Figure 27. Reasons for Migration (n=36)

Mexico are such that Mexican migrants working in the U.S. could and do earn significantly higher incomes than they do in Mexico for the same work. This is due primarily to how the currencies are valued compared to one another, which for the U.S. and Mexico is around 10 pesos for every dollar¹⁴. This is attractive for potential migrants who find themselves with few work opportunities at home, but a chance to better their economic situation in a country known for its vast resources.

While most producers identified work related reasons as the main cause for members of the family and community to migrate, many people migrate to the U.S. in search of a better way of life. Figure 27 depicts other producer identified economic motivations for people to emigrate.

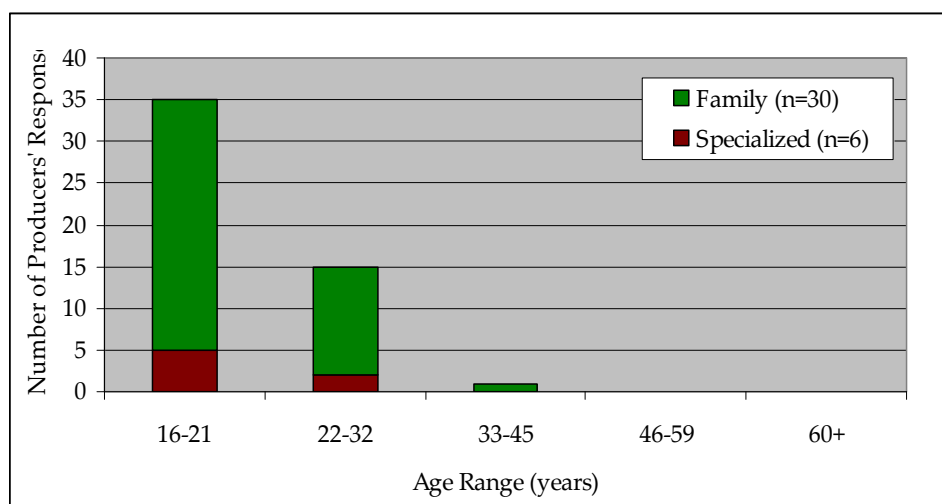


Figure 28. Age of Migrants Leaving the Community

Behind work, economic necessity, hope, and money were all reported by producers as significant reasons for migration. Many people emigrate to the U.S. in order to better their economic situation. Some producers commented on the benefits migrants can find in the U.S., which Mexico does not offer them. Besides the chance to make more

¹⁴ The currency exchange rate used here is the rate current during the data collection period of the project.

money, the U.S. offers migrants more opportunities to better themselves. Also, as evidenced in the producers' responses, there is a presumption that life is generally easier in the U.S. This commonly-held notion can be attributed to the large presence of a middle class as well as a higher standard of living enjoyed by many in the U.S.

Other reasons for migration are less of economic concerns than social motivations. One such reason, introduced in the producers' responses, was the idea that the act of immigrating to the U.S. is a rite of passage. This is especially true due to the demographics of the majority of people who migrate: single men between 16 and 25 years old (Figure 28). Immigration is a way for these young men to "prove" themselves as adults. The act of immigrating, especially as an unauthorized migrant, requires courage, confidence, adaptability, and perseverance. These are important qualities because everything from arriving at the border, crossing the border, to finding employment and navigating the new society and culture can be difficult and dangerous. The choice to migrate to the U.S., succeed there, and return, allows young men to show they are capable to take on the responsibilities of adulthood. While the data does not necessarily reflect this reason as one of the main motivations for migration, nonetheless, it is apparent from the producers' responses it has become embedded in Mexican culture. Partly a sense of adventure, partly a way to experience and learn about the world, the majority of producers explained that immigrating to the U.S. is now a custom and tradition for young people in Mexico.

Regarding the flow of people in and out of the community, the trend seems to be similar to other rural communities: more people leaving than arriving. Producer responses were consistent between the systems. When asked about the number of people who leave their local communities, family and specialized producers responded that many people have left (3 ± 1 , 3 ± 0). According to producers, this trend has also increased over time. This is due in large part to the little to no opportunities available in rural areas of Mexico. The only source of employment in rural communities tends to be in agriculture. Residents are then either forced to work for another producer or find enough financial resources to purchase land and pay for startup costs. When asked if people leaving the community is beneficial, in general, producers disagreed (1 ± 1 , 1 ± 0). Both family and specialized farm producers felt having a lot of people leaving hurts the community. From a community development standpoint, this is true. Residents are the tax base from which local communities can grow and fund development projects. When residents leave the community, funds are depleted and development cannot take place.

Conclusion

Mexico's dairy producers need to find and fill a niche in order to stay competitive in the international marketplace. Mexico and other developing countries must make their own path of development, since following in the footsteps of world powers like the U.S. is not possible in today's world economy. All the pieces are in place and the opportunities present for Mexico to

become self-sufficient in milk and also supply the world's demands, just the initiative for change is needed.

Mexico is situated to fully take advantage of international dairy markets, but deficiencies in the nation's dairy industry still pervade. Overall, Mexico's dairy producers are supportive of their industry and are attentive to burgeoning demand worldwide for their products. At the same time though, they are painfully aware that current governmental policies and their combined economic situation hinders their ability and desire to fulfill the consumer demand. While free enterprise must be allowed to flourish, it is also necessary for Mexico's government to take a more active role in the development and preservation of Mexico's dairy industry. Prices and input costs are such that Mexican producers cannot pay their basic expenses, let alone expand and grow their businesses. While most producers do not ask for direct assistance, expanding extension services and other educational agricultural outreach to producers would provide the necessary support to increase their efficiency and introduce cost-effective management practices.

While this survey was immense in the scope of the farm contexts it covered, as with any research project, there are gaps in the information collected. These gaps leave room for other projects to investigate and understand more deeply Mexico's dairy production systems, especially the family farm production system. The biggest concern developed out of this survey is whether family farm producers will be able to continue to derive a livelihood from their dairy operations, and what changes will they need to implement in order to sustain that livelihood and remain competitive. Because of this, it may be useful for future studies to investigate the sustainability of these production systems. The characterization of a farming system – this project – is just the first step in understanding the situation. The analysis of the system's sustainability and longevity as it exists today would directly benefit the producer in order to target "problem" areas and identify "positive" practices. These cooperative-type projects will ensure the continuation and viability of these family farms in the region of Los Altos in Jalisco, Mexico.

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Appendix A

The following is the survey tool used by the investigators during the interviews. Specific coding used for entering data for each of the questions is included within the tool in red font.

Entrevista agropecuaria – 2007 – Sistemas de lecherías de México

Entrevista #:	Fecha:
Estado:	Pueblo:
Tipo de sistema lechería:	
Nombre del dueño:	Nombre de quien hace la entrevista (si es diferente):
Hora de inicio:	Hora de terminación:

Información Familiar

H.1. ¿Cuántos años tiene? #

- 18-25 26-34 35-41 42-50
 51-59 60-69 70-79 80+

Hombre M Mujer F

H.2. ¿Donde naciste? _____ Place

H.3. ¿Qué nivel de educación has terminado?

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> Asistió a la escuela primaria | 1 | <input type="checkbox"/> No completo preparatoria | 4 |
| <input type="checkbox"/> No completo escuela secundaria | 2 | <input type="checkbox"/> Termino preparatoria | 5 |
| <input type="checkbox"/> Termino escuela secundaria | 3 | <input type="checkbox"/> licenciatura | 6 |

H.4. ¿En qué año empezó a trabajar con el establo lechero? _____. Year

H.5. ¿Has tenido algún tipo de educación agropecuaria (asistencia a cursos)?

- 1 Si → ¿Qué tipo de cursos? _____
- 0 No

H.6. ¿Cómo llegaste a ser el dueño de esta granja?

- H La granja fue heredada
- C La granja fue comprada
- E La tierra es parte de un ejido
- Otro: _____

H.7. ¿Tiene tu familia deudas con el banco o alguna otra institución de crédito por la actividad del establo lechero o de la actividad familiar?

- 1 Si
- 0 No

H.8. ¿Que de la siguiente tecnología tiene usted o su familia? Yes/No; 1/0

- | | | |
|---|---|--|
| <input type="checkbox"/> Televisor | <input type="checkbox"/> Computadora | <input type="checkbox"/> Más de un televisor |
| <input type="checkbox"/> Cámara digital | <input type="checkbox"/> DVD | <input type="checkbox"/> Video |
| <input type="checkbox"/> Teléfono celular | <input type="checkbox"/> Internet | <input type="checkbox"/> Estereo |
| <input type="checkbox"/> Más que un auto | <input type="checkbox"/> Refrigerador | <input type="checkbox"/> Segunda casa |
| <input type="checkbox"/> Auto | <input type="checkbox"/> Otro negocio (explicar): _____ | |

H.8.1. ¿Que probabilidad hay de que usted o su familia compren uno o más de estos artículos en el año siguiente?

- 3 Muy probable → ¿Cuales? _____
- 2 Probable → ¿Cuales? _____ 1
- No es probable
- 0 De ningún modo

H.8.2 ¿Cuál es la(s) razón(es) principal(es) por la que compraría estos productos? Yes/No; 1/0

- | | |
|--|--|
| <input type="checkbox"/> Hay dinero extra | <input type="checkbox"/> Es necesario para la educación |
| <input type="checkbox"/> Necesitamos conservar la comida | <input type="checkbox"/> Es necesario para la operación |
| <input type="checkbox"/> Deseo personal | <input type="checkbox"/> Un amigo o vecino nos recomendó |
| <input type="checkbox"/> Otro: _____ | |

H.9. ¿Que tan importante es para usted y su familia el participar en lo siguiente?

Nada	Poco	indiferente	importante

H.13.1. Actividades de la iglesia	1	2	3	4
H.13.2. Actividades sociales y comunitarias	1	2	3	4
H.13.3. Actividades dentro de la comunidad agrícola	1	2	3	4

H.10. ¿Ha participado usted o su familia en programas de apoyo financiero para el establo o la agricultura o de ayudas para alimentos (para la familia) del gobierno, cajas populares o de otra fuente?

0 No

1 Si, del gobierno → ¿Cuales? _____

1 Si, cajas populares → ¿Cuales? _____

1 Si, otro → ¿Cuales? _____

H.11. ¿Está satisfecho con la calidad de vida de su familia?

4 Muy satisfecho 3 Poco satisfecho 2 Poco insatisfecho 1 Insatisfecho

H.12. ¿Durante los 5 años pasados, como ha cambiado la calidad de vida de su familia?

5 Mejoró mucho 4 Mejoró poco 3 No hay cambio 2 Empeoro poco 1 Empeoro mucho

H.13. ¿En los próximos 5 años (2012), como va a cambiar la calidad de vida de la familia?

5 Mejorar mucho 4 Mejorar poco 3 No habrá cambio 2 Empeorara poco 1 Empeorara mucho

H.14. ¿Si el hombre más rico en México tiene una calificación de 100 en términos de bienestar y clase social, y el hombre más pobre en México tiene una calificación de 1, que piensa de la calificación de usted y su familia? #

<5 6-19 20-39 40-59 60-79 80-94 >95
Pobre Bajo Bajo medio Medio Alto medio Alto rico

H.15. ¿Tiene familiares que han emigrado a los Estados Unidos?

1 Si → ¿Que parentesco y edad? _____

0 No

H.16. ¿Es probable que usted o alguien de su familia emigre a los Estados Unidos en los próximos 5 años?

4 Muy probable 3 Probable 2 Improbable 1 Muy improbable

11 Indeciso

H.17. ¿Cuál sería la razón por la emigración? (Marca todos que aplican) Yes/No; 1/0

Dinero

Esperanza por un mejor futuro

- Trabajo Aventura
 Tengo familia ahí Desilusión con México
 Otro: _____

H.18. ¿Con cuál de los siguientes aspectos usted está de acuerdo?: (FD=Fuertemente en desacuerdo; D=Desacuerdo; I=indeciso; A=Estoy de acuerdo; y FA=Fuertemente de acuerdo)

	1	2	11	3	4
1. Necesito más equipo para tener más éxito en mi rancho.	FD	D	I-	A	FA
2. El gobierno debe proveer más ayuda a familias como la mía.	FD	D	I	A	FA
3. La calidad de mi vida puede ser mejorada con más acceso a recursos como capital, tierra, y trabajo.	FD	D	I	A	FA
4. Quiero vivir como las personas en los Estados Unidos.	FD	D	I	A	FA
5. Me gustan los Estados Unidos.	FD	D	I	A	FA
6. Para mi es mas importante que mi familia sea capaz de mantenerse por sí misma y tener suficiente comida, que contar con otros servicios.	FD	D	I	A	FA
7. Prefiero trabajar independiente en vez de depender de mis vecinos.	FD	D	I	A	FA
8. Nuestra comida viene de lo que producimos en el rancho.	FD	D	I	A	FA
9. Tengo esperanza de que en el futuro mejore la calidad de vida de mi familia y mía.	FD	D	I	A	FA
10. Estoy seguro que mis hijos continuarán con el rancho.	FD	D	I	A	FA
11. Prefiero que mis hijos no continúen con el rancho.	FD	D	I	A	FA
12. Motivo a mis hijos a tener educación y que busquen trabajos bien pagados aunque ellos tengan que moverse lejos de la comunidad.	FD	D	I	A	FA
13. Intento continuar trabajando en mi rancho.	FD	D	I	A	FA
14. Pienso que la lechería es importante para México.	FD	D	I	A	FA
15. Mi actividad en el rancho lechero es la vida ideal.	FD	D	I	A	FA
16. Siento que las personas en los Estados Unidos no entienden como vivo.	FD	D	I	A	FA
17. Hay mucha desigualdad en México.	FD	D	I	A	FA
18. Debe haber más programas gubernamentales para apoyar la agropecuaria en México.	FD	D	I	A	FA
19. Siento presión de mis vecinos por tener mayor bienestar y tener más cosas.	FD	D	I	A	FA

H.19. ¿Toma vacaciones regularmente?

- 1 Si 0 No

H.20. ¿Como establo familiar; siente que los establos comerciales compiten con su mercado y se hace más difícil para usted ganarse la vida?

- 1 Si 0 No 11 No se

H.21. ¿Como establo familiar; siente que tiene que competir directamente con los establos comerciales por los precios y los mercados?

1 Si

0 No

11 No se

H.22. ¿Como establo familiar; siente urgencia de hacer mas grande su establo?

1 Si → ¿Porque? _____

0 No

H.23. ¿Como establo comercial; siente que no hay lugar en los mercados para las granjas pequeñas?

1 Si

0 No

11 No se

H.24. ¿Como establo comercial, piensa que las granjas pequeñas no pueden sobrevivir sin incrementar la producción?

1 Si

0 No

11 No se

H.25. ¿Cuáles serian las cinco presiones más grandes que está enfrentando? (Estimarlos usando lo siguiente: NP=no es una presión; AP=alguna presión; P=presión; PG=presión grande; NA=no aplica)

1 2 3 4 0

	1	2	3	4	0
1. Comida – Temor a una escasez de comida	NP	AP	P	PG	NA
2. Dinero – Falta de dinero para comprar cosas básicas, muchas deudas que pagar	NP	AP	P	PG	NA
3. Trabajo – No hay trabajo, nadie lo ayuda, los hombres jóvenes han emigrado	NP	AP	P	PG	NA
4. Mercado – Carencia de mercado para la leche, inestabilidad de mercado, o mercado impredecible	NP	AP	P	PG	NA
5. Desarrollo – Urgencia de crecer más el establo	NP	AP	P	PG	NA
6. Salud de los animales – Enfermedades graves de mis vacas	NP	AP	P	PG	NA
7. Cosechas – El clima, falta de irrigación, muchos gastos, poco ganancia	NP	AP	P	PG	NA
8. Social – Muchos problemas con vecinos u otros productores	NP	AP	P	PG	NA
9. Salud personal – Enfermedades graves personales, falta de agua pura	NP	AP	P	PG	NA
10: Otras:	NP	AP	P	PG	NA

Comunidad

C.1. ¿Como percibe Ud. la situación de la región donde se encuentra su rancho?(Marca uno)

Yes/No; 1/0

Propiedad Privada

Mayormente establos lecheros

- Ejido Mayormente otro tipo de granjas
 Terrenos protegidos y bosques Granjas con mezcla de vacas y otros animales
 Otro: _____ Mayormente casas habitación sin granjas o establos
 Una mezcla de casas habitación y granjas y establos

C.2. ¿Hay mucho desarrollo habitacional en vez de desarrollo agropecuario en la región alrededor de su granja?

- 1 Si 0 No 11 No sé

C.3. Estime su relación con sus vecinos.

- | Muy Positivo | Positivo | Normal | Negativo | Muy Negativo | No Sé |
|--------------|----------|--------|----------|--------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | <input type="checkbox"/> |

C.4. ¿Qué tan cerrada es tu comunidad?

- 1 Muy cerrada – todos son parientes o se conocen muy bien unos a otros (pequeño pueblo)
- 2 Cerrada – todos conocen a todos
- 3 Poco cerrada – muchos conocen a otros
- 4 Abierta – muchos conocen a otros pero hay algunos desconocidos
- 5 Muy abierta – la mayoría solo conocen a unos cuantos muy bien

C.5. ¿Si pudiera Ud. cambiar de lugar su establo y casa, lo haría?

- 1 Si → ¿A donde? _____
- 0 No → ¿Por cuanto tiempo lo haría? _____
- 11 No sé

C.6. ¿Qué piensa ud. del numero de personas que han salido de la comunidad a los EUA en los últimos 5 años? (Marca todos que aplican)

- 3 Muchas personas han salido 0 Nadie ha salido o va a salir
- 2 Algunas personas han salido 10 Hay personas que están considerando salir
- 1 Pocas personas han salido
- 11 No sé

C.7. ¿Qué piensa ud. del numero de personas que han llegado a la comunidad en los últimos 5 años (solo de México)? (Marca todos que aplican)

- 0 Nadie ha llegado 2 Muchas personas han llegado
- 1 Algunos han llegado 10 Personas vienen y salen
- 11 No sé # edad _____

C.8. ¿Qué piensa ud. de las personas que salen de la comunidad?

2 Es beneficioso

1 Hace daño a la comunidad

11 Indeciso

0 No hay impacto en la comunidad

C.9. ¿Qué piensa ud. del porque las personas de la comunidad emigran a los Estados Unidos?

(Marca todo que aplican) Yes/No; 1/0

Dinero

Esperanza por un mejor futuro

Trabajo

Aventura

Familia en los EEUU

Desilusión con México

Otras: _____

No sé

C.10. ¿Cual es la edad y el sexo de las personas que salen de la comunidad y no son sus parientes? #

Solteros

Casados

16-21

16-21

con hijos 0-12

22-32

22-32

con hijos 12+

33-45

33-45

46-59

46-59

60+

60+

C.11. ¿De las personas que emigran a los Estados Unidos, normalmente regresan a la comunidad?

2 Si – todos

1 Si – algunos

0 No – quedan en los EEUU

C.12. ¿Ve ud. un aumento en la población de productores en la comunidad?

1 Si

0 No

-1 Disminución

C.13. ¿Con que esta de acuerdo de lo siguiente?: (DM=Muy desacuerdo; D=desacuerdo; I=indeciso; A=estoy de acuerdo; y AF=fuertemente de acuerdo)

	1	2	11	3	4
1. Estoy de acuerdo con personas en la comunidad sobre que es importante en la vida (mismos pensamientos sobre como vivir).	DM	D	I	A	AF
2. Muchos de mis parientes viven en la comunidad.	DM	D	I	A	AF
3. Puedo pedir ayuda de mis vecinos.	DM	D	I	A	AF
4. Encuentro lo que necesito (comida, ropa, equipo, materiales para la granja) en la comunidad.	DM	D	I	A	AF
5. Compartimos equipo y trabajamos juntos durante cosechas.	DM	D	I	A	AF
6. Nuestra comunidad es más desarrollada que otras comunidades.	DM	D	I	A	AF
7. Todos los ranchos de mis vecinos son como el mío.	DM	D	I	A	AF

8. Muchos ranchos en la comunidad están creciendo.	DM	D	I	A	AF
9. Pido ayuda de mis vecinos y otros productores cuando lo necesito.	DM	D	I	A	AF
10. Siento que mi familia y yo les agradamos a nuestros vecinos.	DM	D	I	A	AF

Trabajo, Empleo, e Ingreso

L.1. ¿Trabaja ud. fuera del rancho o establo?

1 Si → ¿Donde y haciendo que? _____

0 No

L.2. ¿Alguien en su casa trabaja fuera del rancho (tiempo completo o por horas)?

1 Si → Sexo _____ Edad _____

¿Donde y haciendo que? _____

0 No

L.3. ¿Si alguien de su casa trabaja fuera de la granja, clasifique la importancia de cada una de las siguientes razones del porque trabaja?

	Muy importante				No importa
<i>Es un complemento al ingreso de la granja</i>	1	2	3	4	5
<i>Por los bajos precios de mi producto</i>	1	2	3	4	5
<i>Para pagar los gastos de la casa</i>	1	2	3	4	5
<i>Ingreso extra</i>	1	2	3	4	5

L.4. ¿Que productos de su rancho proveen los mayores ingresos? **Yes/No; 1/0**

Animales lecheros Carne Cerdos Ovejas o cabras

Leche Pollo Maíz Heno o silo de heno

Granos cereales Vegetales Productos procesados

Otros: _____

L.5. ¿Emplea ud. a trabajadores por horas o por tiempo completo?

1 Si → ¿Cuanto le paga? _____ Edad/Sexo _____

¿Por cuanto tiempo? _____ ¿Cuantos? _____

0 No

L.6. ¿Has contratado a alguien porque un miembro de tu familia se salió del rancho?

1 Si → ¿Reemplazar a quien? _____ ¿Que trabajo? _____

0 No

L.7. ¿Que parte del trabajo en su rancho es realizado por ud. o un miembro de su familia?

Yes/No; 1/0

 Todo Más de la mitad Menos de la mitad

L.8. ¿Aproximadamente cuantas horas de trabajo agropecuario hacen las siguientes personas en una semana típica?

	<u>Horas de trabajo cada semana</u>
Yo	# _____ hrs/semana
Miembros de mi familia	# _____ hrs/semana
Empleados, no familiares	# _____ hrs/semana

L.9. Cuanto porcentaje de la ganancia total en una semana destina para... #

comida? _____	otros servicios como una tele? _____
escuela para los hijos? _____	medicina? _____
impuestos? _____	ropa? _____
gastos de la granja? _____	otros? _____

L.10. ¿Que porcentaje de su ingreso anual viene de estas mercancías? #

Leche _____
 Ventas de animales lecheros _____
 Carne _____
 Ventas de animales de carne _____
 Pollo _____
 Ventas de aves _____
 Ventas de productos procesados _____

L.11. Nombre los dos gastos más grandes que tiene en la actividad agropecuaria y cuanto tiene que pagar cada año? Yes/No; 1/0 and #

Salud de los animales → _____ Gastos alimento animales → _____
 Maquinaria (ej. camiones/autos) → _____
 Comestibles → _____
 Electricidad → _____ Mano de obra → _____
 Químicos/Fertilizantes → _____ Reparaciones → _____
 Semillas/Plantas → _____ Agua → _____
 Procesamiento → _____ Transporte → _____
 Comercialización → _____ Cosas para la casa → _____
 Otros: _____

Operación Agropecuaria

F.1. ¿Cuántas de éstas mercancías tiene ud. en su granja? Yes/No; 1/0 and #

Vacas lecheras: becerras en leche _____, vaquillas _____, vacas _____

Vaquillas al parto _____, vacas secas _____
becerros _____, toros _____

- Vacas de carne: becerras _____, vacas _____, novillo _____, toros _____
- Cerdos: _____
- Aves: _____
- Ovejas: _____
- Cabras: _____ Vegetales: _____
- Maíz ha: grano _____, silo _____
- Granos cereales: tipo? _____, ha _____
- Forrajes: tipo? _____, ha _____

F.2.1. ¿Cuántas hectáreas de cultivos usa actualmente? #

- Propio: _____ ha Rentado: _____ ha Común: _____ ha

F.2.2. ¿Cuántas hectáreas de cultivos tenía cuando empezó? #

- Propio: _____ ha Rentado: _____ ha Común: _____ ha

F.2.3. ¿Cuántas hectáreas de cultivos espera tener en el 2012)? #

- Propio: _____ ha Rentado: _____ ha Común: _____ ha

F.2.4 ¿Has comprado o vendido tierra en los últimos cinco años, cuantas hectáreas? #

- Compra → _____ ha Se venden → _____ ha

F.3. ¿Que raza de vacas tiene? Yes/No; 1/0

- Holstein – puro Holstein – mezcla Brown Swiss – puro
- Brown Swiss – mezcla Jersey – puro Jersey – mezcla
- Cebu/criollo – puro Cebu/criollo – mezcla Otros: _____

F.4.1. ¿Cuanto tiempo ordeña ud. a las vacas en periodo de producción? _____ #

F.4.2. ¿Cuánto tiempo considera ud. para el periodo de secas? _____ #

F.5. ¿Cuántas personas ordeñan? _____ #

- Solo yo

F.6. ¿Cuanto tiempo le toma normalmente ordeñar (solo la ordeña)? #

Ordeña _____

La organización antes y después _____

F.7. ¿Esta ud. Pensando en mejorar su sistema de ordeño en el futuro?

- 1 Si → ¿Cuándo? _____, ¿a que sistema? _____

0 No → ¿Esta contento con su sistema? _____

F.8. ¿Que cantidad de leche producida es destinada para: (ejemplo: que % si tiene 100 litros de leche) #

Consumo en casa? _____

Usa para hacer otros productos como queso, mantequilla? _____

Se vende en los mercados locales? _____

Se vende a negocios comerciales? _____

Se vende a un planta de proceso del gobierno? _____

F.9. Por favor responda con si hago lo siguiente, ó no hago lo siguiente. Yes/No; 1/0

Las vacas comen durante la ordeña Si No

Usamos agua para limpiar la ubre de cada vaca antes de la ordeña Si No

Solo usamos agua para limpiar las vacas muy sucias Si No

Limpiamos la ubre con una toalla seca de tela Si No

Limpiamos la ubre con una toalla de papel Si No

Antes de la ordeña ponemos pre-sellador en las ubres Si No

Quitamos un poco de leche de la ubre antes de la ordeña(despunte) Si No

Después de la ordeña, ponemos sellador en las ubres Si No

F.10.1. ¿Cuantas vacas tenía cuando empezó? _____ #

F.10.2. ¿Cuantas vacas podría tener en el 2010? _____ #

F.11. ¿Si incremento su ganado; porque decidió crecer el numero de vacas? (Marca la razón más importante) Yes/No; 1/0

Aumentar los ingresos

Reducir los gastos de cada vaca

Presión del mercado

Nos juntamos con otro miembro de la familia

Recibió un préstamo

Una recomendación por un consultor

Reproducción natural

F.12. ¿Si no; porque decidió no crecer el número de vacas? (Marca la razón más importante)

Yes/No; 1/0

Falta de dinero

Cambió la producción a otro producto animal

No queremos más trabajo

Perdió un(os) empleado(s)

No hay un mercado estable

Para diversificar la granja

Mantener los gastos bajos

Evitar gastos de la tecnología

No tenemos acceso a préstamo Evitar deudas

F.13. ¿Como decide las raciones para sus vacas? Yes/No; 1/0

Basado en la producción de leche

Uso lo que tengo

- Basado en los cultivos que tengo No tengo ración, solo se comen pasto

F.14.1. ¿Hay asesores lecheros en su región?

- 1 Si 11 No sé 0 No hay disponibles

F.14.2. ¿Usa los servicios de asesores? Yes/No; 1/0

- No Cultivos
 Nutrición Salud – ej. veterinario
 Practicas de manejo Comercialización

F.15. ¿En los próximos 5 años que el gustaría hacerle al lugar donde se encuentran los animales?

- 1 Actualmente – construyendo/ampliando → ¿Cuál? _____
1 Si – arreglando lo que tengo → ¿Cuál? _____
1 Si – construir /ampliar → ¿Cuál? _____
0 No

F.16. ¿Que material usa para hacer la cama de sus animales? Yes/No; 1/0

- Paja No uso
 Aserrín Tallos u hojas de maíz
 Arena Otro: _____

F.17.1. ¿Cuantas hectáreas de pradera tiene? _____ #

F.17.2. ¿Cuál es el tamaño de cada grupo de animales que tiene en la pradera? _____ #

F.17.3. ¿Qué tan frecuente cambia sus vacas para pastar en una nueva pradera? Yes/No; 1/0

- 5 Una vez cada día o más 2 Una vez cada semana
4 Cada 2-3 días 1 Menos de una vez cada semana
3 Cada 4-6 días 0 No se pastorea

F.18.1. ¿En que temporada las vacas están pastoreando todo el día (24 horas)?

- 0 No pastorean
1 Durante la temporada seca (8 meses) _____ #
1 Durante la temporada de lluvia (4 meses) _____ #

F.18.2. ¿En que temporada las vacas están pastoreando durante el día (cuando hay luz)?

- 0 No pastorean
1 Durante la temporada seca (8 meses) _____ #
1 Durante la temporada de lluvia (4 meses) _____ #

F.19.1. ¿Usa pesticida o herbicidas sobre su tierra y cultivos?

0 No 1 Si

¿Para que? Yes/No; 1/0

Hierbas Insectos Enfermedades

F.19.2. ¿Porque usa estos químicos en su rancho? Yes/No; 1/0

Recomendación por el consultor Usábamos en el pasado Disponibles

Aprendí de mis padres Baratos

F.20. ¿Conoce ud. mejores prácticas de manejo agropecuario?

0 No 1 Si → ¿Cuales? _____

F.21. ¿Tiene un plan de salud para sus animales?

0 No 1 Si →

1/0 Insecticidas/desparasitantes

1/0 Vacunas regularmente

1/0 Quitar los cuernos

1/0 Visitas del veterinario regularmente

1/0 Solo visitas de emergencia

F.22. ¿Como preña sus vacas?

Natural Artificial – yo

Artificial – técnico

F.23. ¿Si hace la inseminación artificial, de donde viene el semen?

US Genético de los EEUU Canada Genético de Canadá

EU Genético de Europa

Other Otro: _____

F.24. ¿En un año típico, cuantos animales lecheros... #

Se pierden a causa de la muerte? _____

Salen de la granja a causa de baja producción? _____

Se pierden como becerras (por enfermedad)? _____

Se enferman? _____

F.25. ¿Con cuales enunciados esta ud. de acuerdo? (DM=desacuerdo mucho; D=desacuerdo I=indeciso; A=estoy de acuerdo; and AF= Fuertemente de acuerdo).

	1	2	11	3	4
1. Vendería el rancho si alguien me ofrece un buen precio.	DM	D	I	A	AF
2. Siento que no estoy recibiendo un precio justo por mi producto.	DM	D	I	A	AF
3. Los precios de maíz en los EEUU tienen un efecto negativo directo sobre mi rancho y mi vida.	DM	D	I	A	AF
4. Los EEUU deben ayudar productores como yo.	DM	D	I	A	AF
5. Siento que mi situación esta similar a la de otros productores.	DM	D	I	A	AF
6. Conozco y entiendo la biotecnología.	DM	D	I	A	AF
7. Conozco y entiendo la biotecnología pero estoy en contra.	DM	D	I	A	AF
8. Mi familia y yo no podríamos sobrevivir con el ingreso solo de la leche, sino también con el ingreso de otros productos.	DM	D	I	A	AF
9. Aunque veo a otros productores que tienen éxito en sus actividades agropecuarias, pienso que yo no tengo éxito en mi rancho.	DM	D	I	A	AF

F.26. ¿Va a hacer alguno de los siguientes cambios en los próximos 5 años dentro de su rancho?

Yes/No; 1/0

- Vender tierra
 Probar técnicas o practicas nuevas
 Salir o trasladar el rancho
 Probar la mercancía directa (vender productos dentro del rancho o casa)
 Cultivar más cosechas
 Mejorar la genética del ganado vacuno

F.27. ¿Cual es el factor más grande que impide mejorar su actividad agropecuaria ideal?

-
- Mi rancho es como lo quiero

Medio Ambiente

E.1. Uso alguna de las siguientes prácticas de manejo en su granja el año pasado? Yes/No; 1/0

- Usaba drogas para aumentar la producción de leche
 Permitía que las vacas entraran en un río
 Curaba un animal de la enfermedad yo mismo
 Usaba fertilizante comercial
 Usaba antibióticos
 Mezclaba la basura de la casa con la basura del rancho

E.2.1. ¿Que hace ud. con el estiércol? Yes/No; 1/0

- Nada
 Lo dejo en el corral por algunos días
 Lo pongo sobre la tierra
 Lo junto manualmente
 Uso una máquina para juntarlo
 Composta
 Lo acumulo en una estructura → Tipo? _____
 Otro: _____

E.2.2. Si pone el estiércol sobre la tierra; sobre que tipo de tierra lo usa? Yes/No; 1/0

- De cultivos Pastura
 Alto Un poco de pendiente Plano

Color del suelo: _____

- Vegetación Suelo sin vegetación

E.3. Por favor califica la importancia de los siguientes puntos en tu actividad agropecuaria y a ti mismo.

	Grado de importancia				
	1	2	3	4	5
	Nada	Poco	Ninguna	Alguna	Muy
1. Que existan muchos animales salvajes alrededor.	1	2	3	4	5
2. Que exista agua de Buena calidad.	1	2	3	4	5
3. Proteger la tierra para impedir la pérdida del suelo.	1	2	3	4	5
4. La belleza natural.	1	2	3	4	5
5. Proteger las plantas silvestres.	1	2	3	4	5
6. El bienestar de los animales.	1	2	3	4	5
7. Política del gobierno para proteger el medio ambiente.	1	2	3	4	5
8. Más ingresos para tener buenas practicas para el medio ambiente.	1	2	3	4	5
9. Educación para aplicar practicas para ser más ambiental.	1	2	3	4	5
10. Educación para aprender maneras diferentes para reducir mis gastos.	1	2	3	4	5
11. Tener un buen lugar para mis hijos donde puedan trabajar y vivir.	1	2	3	4	5
12. Producir la mayor leche que pueda.	1	2	3	4	5
13. Productos de gran calidad.	1	2	3	4	5
14. Programas que proveen dinero y/o servicios para enseñar las mejores prácticas de manejo agropecuario.	1	2	3	4	5
15. Programas que aumentan conciencia sobre las practicas agropecuarias que son malas para el medio ambiente	1	2	3	4	5

*Ningun = no importa

E.4. Para los que marcó como *Muy importantes* o *Alguna importancia*; los cambiaría o ya cambió algunos en su rancho?

0 No

1 Cambiaría → ¿Cuales? _____

1 Ya cambió → ¿Cuales? _____

E.5. What does the environment around and on your farm look like?

- | <i>ON</i> | <i>ALREDEDOR</i> |
|---|---|
| Hilly <input type="checkbox"/> Colinosos | Hilly <input type="checkbox"/> Colinoso |
| Flat <input type="checkbox"/> Plano | Flat <input type="checkbox"/> Plano |
| Steep <input type="checkbox"/> Altas colinas/Montañas | Steep <input type="checkbox"/> Altas colinas/Montañas |
| Stream <input type="checkbox"/> Un arroyo | Stream <input type="checkbox"/> Un arroyo |
| >Stream <input type="checkbox"/> Más que un arroyo | >Stream <input type="checkbox"/> Más que un arroyo |
| Lake <input type="checkbox"/> Lago o charca | Lake <input type="checkbox"/> Lago o charca |
| Forest <input type="checkbox"/> Bosque | Forest <input type="checkbox"/> Bosque |

E.6. ¿Tiene su comunidad practicas ambientales?

0 No 1 Si → ¿Cuales? _____

Mercadotecnia

M.1. ¿Como vende su leche? #

- Líquido - crudo Líquido - procesado Los dos
- Procesado en otra forma

M.2.1. ¿Cuenta con un espacio para procesar productos en el rancho?

- 0 No 1 Si → ¿Cuales productos hace?
- Queso – Que tipos? _____
- Yogurt Mantequilla
- Crema Dulce de leche
- Requesón Jocoque
- Otro: _____

M.2.2. ¿Cuáles fueron las razones para construir un lugar para procesar los productos?

M.2.3. ¿Vende ud. los productos directamente del rancho?

1 Si → ¿Como? _____

0 No

M.2.4. ¿Que puede decir de las personas que van a comprar su... (Ej. Clase, relación, etc)

Leche líquida y procesada? _____

Queso? _____

Yogurt? _____
 Requesón _____
 Jocoque _____
 Otro? _____

M.3. ¿Quien(es) compra(n) su leche actualmente? Yes/No; 1/0

- Consumidores (directo) Intermediario Cooperativa (nombre): _____
 Negocio comercial (nombre): _____

M.4. ¿Que precio recibe... #

Leche cruda y líquida? _____
 Leche líquida y procesada? _____
 Queso? _____
 Yogurt? _____
 Requeson _____
 Jocoque _____
 Otro? _____

M.5. ¿Si no tiene un lugar para procesar productos del rancho, querría empezar una?

- 0 No 1 Si → ¿Donde? _____
 ¿Que quiere producir? _____

M.6. ¿Está ud. de acuerdo con lo siguiente? (DM=desacuerdo mucho; D=desacuerdo I=indeciso; A=estoy de acuerdo; and AF=fuertemente de acuerdo).

1 2 11 3 4

	1	2	11	3	4
1. El tratado de Libre Comercio con América del Norte hace daño a productores como yo.	DM	D	I	A	AF
2. El tratado de Libre Comercio con América del Norte no tiene un impacto en mi vida diaria.	DM	D	I	A	AF
3. Durante el año, experimente un mercado muy inestable.	DM	D	I	A	AF
4. Sobre todo, el cambio más grande que quiero ver es el establecimiento de más mercados y con mayor seguridad.	DM	D	I	A	AF
5. Siento que la competencia entre productores es buena.	DM	D	I	A	AF
6. Estoy contento en como vendo la leche.	DM	D	I	A	AF
7. Siento muchas presiones para producir más leche.	DM	D	I	A	AF
8. Probaría diferentes maneras para producir leche y reducir los gastos iniciales.	DM	D	I	A	AF
9. No tengo tiempo para buscar otras maneras de vender mis productos.	DM	D	I	A	AF
10. Siento que productores en los EEUU tienen una ventaja injusta.	DM	D	I	A	AF

11. En las tiendas veo muchos productos que vienen de los EEUU.	DM	D	I	A	AF
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M.7. ¿Ha experimentado ud. algún caso de los siguientes por efecto de los bajos precios de la leche? **Yes/No; 1/0**

- | | |
|--|---|
| <input type="checkbox"/> No podía pagar los gastos básicos. | <input type="checkbox"/> Aumentó trabajo afuera de la granja. |
| <input type="checkbox"/> Miembros de la familia tuvieron que emigrar. | <input type="checkbox"/> Conseguí dinero prestado. |
| <input type="checkbox"/> Pospuse planes familiares. | <input type="checkbox"/> Pospuse planes de la granja. |
| <input type="checkbox"/> Tuve que vender animales (más de lo normal). | <input type="checkbox"/> Tuve que vender tierra. |
| <input type="checkbox"/> Hice planes para extender la granja. | <input type="checkbox"/> Consideré salir de la empresa. |
| <input type="checkbox"/> Mis hijos no podían ir a la escuela. | <input type="checkbox"/> Producir más que solo leche. |
| <input type="checkbox"/> Usamos más los productos que producimos. | |
| <input type="checkbox"/> Busqué maneras diferentes para vender la leche. | |