Tropical and Subtropical Agroecosystems

EFECTOS DE LA MIGRACIÓN INTERNACIONAL EN LOS AGROECOSISTEMAS DE ACAZÓNICA Y HATO DE LA HIGUERA, VERACRUZ, MÉXICO

[EFFECTS OF INTERNATIONAL MIGRATION ON THE ACAZÓNICA AND HATO DE LA HIGUERA AGROECOSYSTEMS IN VERACRUZ, MEXICO]

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RESUMEN

México tiene tradición migratoria hacia Estados Unidos, sin embargo el estado de Veracruz no había presentado flujos significativos de salida poblacional. La migración internacional veracruzana se incrementó aceleradamente a partir de la década de los noventa, sobre todo en el sector rural, afectando los agroecosistemas de la región. Por ello, el objetivo de la presente investigación fue analizar los efectos de la migración internacional en los agroecosistemas de dos localidades rurales del estado de Veracruz, específicamente en las fuentes de ingreso familiar, toma de decisiones, organización para el trabajo, diversidad agrícola, manejo tecnológico y propósito de producción. La información se obtuvo mediante observación directa, entrevistas con informantes clave, una encuesta descriptiva y sincrónica, aplicada mediante entrevistas personales a 60 hogares y seis estudios de caso. Aunque existen diferencias entre localidades según la migración predominante (legal o ilegal), en general se identificó lo siguiente: 1) las remesas enviadas por migrantes son el principal subsidio económico de la actividad agropecuaria; 2) la migración del jefe de familia conduce a una reorganización de la toma de decisiones, donde la mujer ocupa una posición subordinada; 3) la migración aumenta la contratación de mano de obra e intensifica el trabajo de los que permanecen en la comunidad; 4) la salida de mano de obra por migración tiende a disminuir la diversidad agrícola; 5) las remesas impactan positivamente el manejo tecnológico de las unidades de producción familiar; 6) la migración ilegal orienta la producción al autoconsumo, mientras la migración legal hacia la producción comercial.

Palabras clave: sistema productivo, agricultura, campesinos, trópico seco, estudio de caso

SUMMARY

Mexico has a tradition of migration to the United States. Nevertheless, Veracruz had not experienced a significant exodus of its population up until the nineteen nineties, when emigration from Veracruz began to increase rapidly, especially in the rural sector, thus affecting the region's agroecosystems. Correspondingly, the main objective of this investigation was to analyze how international emigration has affected the agroecosystems of two rural communities in the state of Veracruz. Special attention was paid to factors such as family income, decision making, labor organization, agricultural diversity, technological management and the purpose of production. Information was gathered by direct observation and from interviews with key informants. A survey was conducted in 60 homes and six case studies were employed. Although there are differences between communities, regarding the type of migration (legal or illegal), generally, the following patterns were identified: 1) Agricultural activity is primarily subsidized by remittances sent by emigrants; 2) The departure of the head of the family leads to a change concerning who makes the decisions; woman normally occupy subordinate roles; 3) Migration results in an increase in the number of hired farm workers and a greater work load for those who remain in the community; 4) The departure of the work force tends to diminish agricultural diversity; 5) Remittances have a positive impact on technological management by the family production unit; 6) Illegal emigration favors subsistence farming, whereas legal emigration favors commercial production.

Key words: productive system, agriculture, farmers, dry tropics, case study

INTRODUCTION

Mexico has a long history of emigration to the United States, but until the 1990's the state of Veracruz had not witnessed a significant flow of population to international destinations. On the contrary, Veracruz was a recipient of immigrants, due to strong demand for labor in oil regions, industry, agriculture, ports and tourism (Anguiano, 2005).

Chavez *et al*. (2007) mentioned that between 1997 and 2002, Veracruz registered a dramatic increase in international emigration so that it rose from 27th to fourth place in terms of the states that contribute the greatest number of emigrants to the United States, only below states such as Jalisco, Michoacan and Guanajuato which have an ancient tradition of international emigration. Given that international emigration generally occurs without legal documents, it is difficult to estimate the exact number of international migrants from Veracruz, but in 2002 it was calculated to fall between 400 and 800 thousand people (Mestries, 2003). Another fact that indicates the increasing participation of Veracruz in international emigration is the amount of economic remittances brought in, as in 2002 it received 200 million pesos, of which 130 million were received in the state's rural areas (Pérez, 2003).

The origin of mass international emigration from Veracruz is related to the crisis in the state labor market, the fall in price of most important agricultural products in international markets, the privatization of agro-industries, amendments to Article 27 of the Constitution, the removal of technical and institutional support for the agricultural sector and the termination of state economic regulation (Anguiano, 2005). In this context of crisis, Veracruz producers were forced to find alternative income to cover basic family needs. Emigration, both to other entities in the country, but also and mainly to the United States (where they pay higher wages) offered a good alternative for solving economic problems. Thus, emigration plays an important part in the strategy for ensuring the survival of rural families (Rionda, 1986, Guzman-Leon, 2005).

Social networks that facilitate the transfer and incorporation of new emigrants in their places of destination have also played a key role in the intensification of emigration from Veracruz. These networks are based on relationships of kinship, friendship and compatriotism. Currently, there are well-organized networks that connect the United States employment needs with labor reserves from rural Mexico. Communities made up of citizens from Veracruz have also been established in United States cities, serving as reception points for migrants (Mestries, 2006).

Regarding the general characteristics of international emigration from Veracruz, Mestries (2006) states that there is a predominance of male migrants of productive age (20 34), who leave their places of origin (mostly in rural areas) for economic reasons (in search of greater income) and are incorporated into the industrial and service sector labor markets in United States urban areas. In spite of the existence of a state emigration pattern, case studies indicate that Veracruz emigration is heterogeneous, with marked differences between localities, municipalities and regions in terms of the history, scale, destinations and dynamics of the phenomenon, noting also the existence of female emigration and of entire families, from both the rural and urban population (Chavez *et al*., 2007).

Emigration of the rural population to the United States has several consequences for farming, as it represents a massive outflow of workers, affecting the availability of labor in the communities, who now demand higher wages or greater mechanization and who are often paid with money sent by emigrants. Thus these remittances operate as a subsidy for agricultural activity. However, although these remittances represent the second biggest source of foreign exchange at a national level, their most common destiny is for the payment of household bills, which contributes to the economic improvement or capitalization of migrant households, but does not always imply an improvement in production levels in the communities of origin (Canales and Montiel, 2004; Curt, 2005).

Another effect caused by labor shortages resulting from emigration: is cited as the intensification of work for people who remain in their place of origin, temporary or permanent abandonment of agricultural activity, a decline in the diversity of crop production, technological stagnation and a loss of traditional know-how concerning production techniques, passed from generation to generation (Nava-Tablada and Marroni, 2003). In this context, Curt (2005) states that emigration is not the main cause of agricultural decline, but it speeds up the process by eliminating the participation of young emigrants in agriculture, influencing changes in the economic activities undertaken by emigrants who return to the community (they do not usually resume agricultural work) but rather participate in an alternative labor pool as agriculture becomes progressively less profitable.

Other authors such as Zorrilla (2003) and Miranda (2006) indicate that currently the Mexican rural sector presents two different trends caused by emigration: the aging and the feminization of the labor force engaged in agricultural activities and a greater dependence of family productive units on remittances. For their part, Garza *et al*. (2007) state that the departure of the son

or husband, leads to the reassigning of responsibilities, to the disadvantage of women, because they must continue to take charge of domestic work, as well as generating some kind of income and also take direct or indirect care of agricultural activity. However, although women may manage remittances, they do not decide how they should be employed, as it is the husband or son (males) who maintain their control from the United States

Emigration also creates economic, social and cultural changes in rural communities: as it modifies values in terms of family and community norms, so that work in the fields, parental authority and the local traditions are devalued and new social aspirations are created which can only be fulfilled with more emigration, reproducing the phenomenon on an ever greater scale (Mestries, 2006).

The interest in investigating the recent but rapid and massive emigration from Veracruz, is reflected in various studies which have been undertaken (Chávez *et al*., 2007; Mestries, 2003; Anguiano, 2005 Córdova *et al.*2008). However, because migration from Veracruz is relatively recent and is steadily expanding throughout the state, with no signs of reverting in the short-term, it is necessary to study certain aspects to which little attention has been paid in greater depth; such as effects on the rural productive sector, as this is the context where most national and international emigrants originate (Anguiano, 2005).

In this light, our study aimed to analyze the effects of international emigration on the agroecosystems of Acazónica, in the municipality of Paso de Ovejas and of Hato de la Higuera, a municipality of Puente Nacional, Veracruz, Mexico. Specific emphasis is directed towards the following aspects: sources of family income, decision making, work organization, agricultural diversity, technological management and production objectives.

MATERIALS AND METHODS

The research was conducted using a mixed methodological approach which combines quantitative techniques (interviews) with qualitative techniques (direct observation and interview).

During the first half of 2008, exploratory visits were made to towns in the Sotavento region of Veracruz, where key informants were interviewed in order to choose two sites experiencing international emigration and where the population was willing to participate in the study. Two communities were chosen where agro-ecosystems were identified, characteristic of the study area, with the existence of significant emigratory flow to the United States and a differential emigration pattern: 1) Acazónica, a municipality of Paso de Ovejas, Veracruz, where illegal emigration to the United States predominated and 2) Hato de la Higuera a municipality of Puente Nacional, Veracruz, with a predominance of legal emigration to this country; with work contracts.

For the initial assessment and exploration of the selected communities, a technique of direct observation was applied and five interviews with key informants were undertaken, from which preliminary data was assimilated in order to design the questionnaire and identify the population to be included in the survey. Since there was no prior knowledge of the number of households with emigrants in each community, no sample size was established beforehand and the identification of the families included in the survey was conducted through a qualitative technique known as "Snowball" (Goodman, 1961).

This consists in detecting (during exploratory tours and interviews with key informants) certain families which include emigrants and by applying questionnaires to them, thus identify more families with emigrants to be incorporated into the study. The number of families who had the questionnaire applied was defined by presenting a "saturation point", i.e. the point where additional cases, no longer provided new data because response patterns were repeated. The study focused on families engaged in farming where at least one of its members had migratory experience. Preferably the questionnaire was answered by the family member who made the decisions related to productive activity (usually the father), and if he was not available, the wife or any adult child (ren) were interviewed. In total, 60 questionnaires were applied (35 in Acazónica and 25 in Hato de la Higuera), providing information, referring both to members residing in the community, as well as to those described as emigrants. Acazónica has 318 homes and Hato de la Higuera 193, so that the surveys applied correspond to 11% and 13% of total households respectively (INEGI, 2006).

The survey permitted the migratory experience of each household to be explored, followed by the selection of six families with experience of international emigration (three from each location) all presenting situations of particular interest for research and a willingness on the part of those interviewed to provide in-depth information, in response to an interview structured by a guide.

The quantitative data from the survey provided descriptive statistics, using the computer program Microsoft Office Excel 2007. Qualitative data collected by applying in-depth interviews and also

from direct observation were systematized and analyzed, using the computer program Atlas-ti version 5.0.

Description of the study area

Research was carried out in the towns of Acazónica, a municipality in Paso de Ovejas and Hato de la Higuera a municipality in Puente Nacional, located on the Coastal Plain of Sotavento, in the center of the State of Veracruz, Mexico (Figure 1).

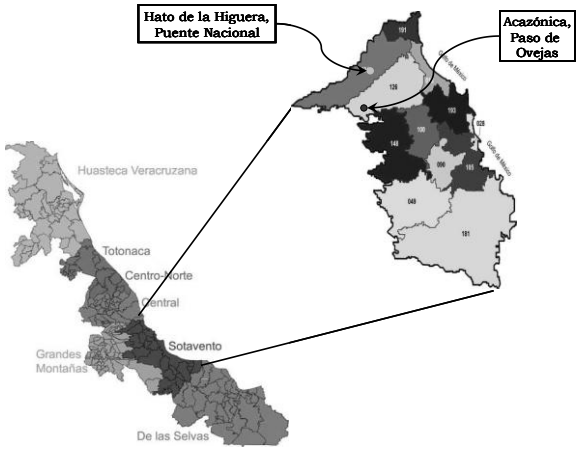

Figure 1. Location of Acazónica and Hato de la Higuera in the Sotavento region of Veracruz

The climate is warm sub-humid with summer rains and very little precipitation during the rest of the year (marked dry period), because both locations are in the semiarid zone of Central Veracruz state, where annual average temperatures fluctuate around 25 ° C. The predominant vegetation is tropical deciduous and evergreen (Government of the State of Veracruz, 2007).

Acazónica is located at Longitude West 96°35'17 and Latitude North 19°12'44" North with an average altitude of 340 masl. There are 1077 inhabitants who are mainly engaged in agriculture. The standard of living of the population is poor, as 96.4% have no access to public health services, 17.6% are illiterate and the average level of education consists of only 4.6 years of study. However, 79% of homes have piped water from the public network, 69.5% are on the drainage system and 93.2% have electricity, indicating a good degree of access to basic public services (INEGI, 2006).

Hato de la Higuera is located at Longitude West 96°40'10 and Latitude North 19°14'36" with an average altitude of 460 masl. It has 746 inhabitants, mostly engaged in agricultural activities. The standard of living of the population is low, as 99% have no access to public health services, 6.6% are illiterate and the average extent of schooling consists of 4.6 years of study. However as in Acazónica, access to basic public services is good, as out of the total number of houses, 91.2% have running water from the public network, 80.8% have drainage and 94.3% have electricity (INEGI, 2006).

RESULTS AND DISCUSSION

Characteristics of emigration

In the case of Acazónica, international emigration began in the early 1990's when it came under the influence of a nearby community which had experienced emigration to the United States. During 1997-1998, following a severe drought, the collapse of regional agricultural production and the success of the first emigrants, a massive flow of people began leaving for the United States illegally, with emigrants staying away for long periods because of the risks implied in frequent border crossings.

In Hato de la Higuera international emigration began around 1995, but it was legal as the migrants went to work in the United States through contracts with private employers. Therefore, a pattern formed where migrants went to work for periods of three to nine months, returning to their place of origin and emigrating once again the following year.

As the questionnaire was designed to capture information from all members of the family (community residents and emigrants) and not only that referring to the respondent, data were collected for a total of 283 persons (174 from Acazónica and 109 from Hato de la Higuera) with a total of 60 interviews applied (35 from Acazónica and 25 from Hato de la Higuera).

In Acazónica, 40 emigrants were registered and from Hato de la Higuera 25, representing 23% of the total population interviewed, in both communities. The families of both communities each register an average of one emigrant (Table I), which matches reports from other case studies undertaken in Veracruz (Chávez *et al*., 2007; Cordova *et al*., 2008).

The average age of migrants from Acazónica is 27.7 years (ranging from 15 to 52) and from Hato de la Higuera is 31.5 years (ranging from 18 to 47), indicating a predominance of male migrants of productive age (Figure 2). These data coincide with those reported by Nava-Tablada and Marroni (2003) for the Mixteca in Puebla.

Migrants from Acazónica and Hato de la Higuera have an average educational level of 8 and 7 years

respectively, which is higher than the average of the resident population living in either location (six years of study). This indicates that migrants have a higher level of education, as Chiquiar and Hanson (2005) state in their study.

In Acazónica, emigrants leave on average only once, whereas in Hato de la Higuera they leave three times. This is attributed to the fact that illegal emigration from Acazónica does not permit emigrants to visit their home often, whereas emigration by contract from Hato de la Higuera assures them the opportunity of returning to their community for a few months each year, before returning to the United States. Although the destinations of emigrants are varied, certain geographical points for emigration have been established where they perform unskilled jobs mainly in the service sector, which concurs with that described by Anguiano (2005). Thus Acazónica emigrants usually go to New Jersey to work in restaurants, whereas those from Hato de la Higuera go to Atlanta to work in chicken processing ("chicken factories") (Figure 3).

The reasons which force people to emigrate relate to a number of factors which ultimately translate into fulfilling the basic economic requirements of family households. There are also some emigrants who leave in search of adventure, to fulfill an objective such as improving or constructing a house and they may also be motivated by the existence of migrant networks that facilitate border crossing and job integration at the destination place, as Ramirez and Gonzalez point out (2006).

Out of all households surveyed in Acazónica, 71.4% received remittances and in Hato de la Higuera 52%; it should also be stated that in the latter town, during the period when the survey was being applied, several emigrants had returned temporarily, so that these households were not receiving remittances, however they would once again receive it when the migrant left to work under contract in the United States.

Table I. Population by sex and place of current residence

Place / Sex	Living in town	Migrant		
		National	International	Total
Acazónica (n = 174)	**134 (77%)**	**9**	**31**	**40 (23%)**
Men	61	7	28	35
Women	73	2	3	5
Hato de la Higuera (N = 109)	**84 (77%)**	**6**	**19**	**25 (23%)**
Men	41	3	17	20
Women	43	3	2	5

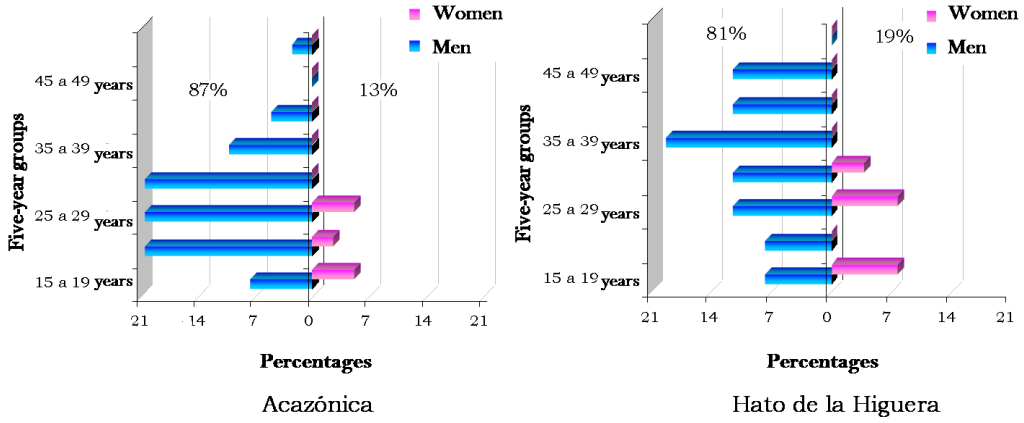

Figure 2. Distribution of migrants by age and sex

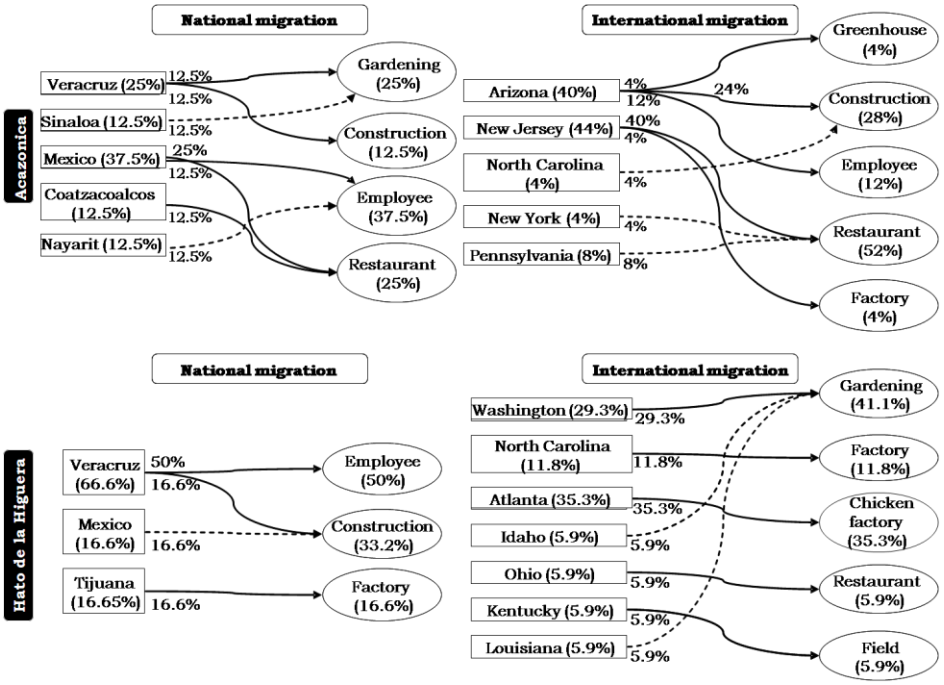

Figure 3. Destinations and work carried out by emigrants

Effects of emigration on the agroecosystems

Sources of family income: family households in both towns are engaged in different activities from which they derive the necessary revenue to survive and perpetuate. The sale of agricultural products continues to represent the economic base but because this is insufficient, people have resorted to activities other than farming in order to generate income, at the same time as receiving support in the form of remittances sent home by emigrants. In Acazónica 50% of families are involved in activities other than farming and in Hato de la Higuera 60%, work principally in small businesses or are self-employed in the informal service sector.

In Acazónica, families mainly rely on the sale of agricultural products to finance agriculture, support from PROCAMPO (institutional program which provides production subsidizes) and thirdly on remittances. Whilst in Hato de la Higuera, remittances represent the most important income source for covering the cost of primary production.

Remittances in both locations are destined to fulfill basic family consumption with the following order of importance (food, clothing, health, education), agricultural productive investment (operating as a subsidy) and the construction or improvement of housing. These results are consistent with those reported by Canales and Montiel (2004), who report that remittances not only complement the family income, but constitute a major source without which the family economy could not be sustained. However, in Hato de la Higuera, a greater percentage of families (84%) employ remittances in the productive sectors, whereas in Acazónica it is only 67%, a fact relating to the predominant type of emigration, as in Hato de la Higuera legal migration by contract gives migrants the opportunity to return to continue farming for part of the year (usually during the planting and harvesting seasons).

Decision-making processes: in the peasant households studied, the father usually makes the decisions. However, when this individual emigrates, the decision-making process tends to be restructured.

Although different patterns for amending the decision-making process were identified when the male head of household emigrates internationally so that in Hato de la Higuera, the typical case is that the father of the family emigrates, leaving his wife and small children in the community. In this situation, the woman takes care of the family plot by hiring day laborers and the emigrant is only absent for a few months (having completed the sowing of the seed) and he then returns for harvesting (with a legal migration contract). Thus during his absence, only maintenance activities were undertaken (fertilizing, fumigation and weeding) and these do not require much labor.

Contrastingly, in Acazónica when the head of household is absent, decision making is usually undertaken by someone outside the family household (most often a male relative of the emigrant) who is

responsible for implementing decisions made respecting the wishes of the absent person and likewise he will share half the harvest when the cycle is completed. This occurs because owing to their illegal status, emigrants are usually absent for long periods (minimum one year).

Moreover in both locations, when the migrant is the father of the family and he has older children of working age who remain in the community along with the mother, they are responsible for implementing the decisions taken by the emigrant and negotiated with the family. When the person who emigrates is an older child, the father is responsible for making and implementing decisions with the help of money from remittances and neither the emigrant nor the mother have an opinion or vote in the matter.

The above is broadly consistent with the findings of Garza *et al*. (2007), who report that the departure of the son or husband leads to a reassignment of responsibilities to the disadvantage of women, whose work in the household is intensified, as they have to take on the burden of agricultural work, but this does not mean that correspondingly she exercises greater control over household economic decisions.

Organization of work: In both locations, labor for agricultural work is a combination of family labor (during most of the year for maintenance purposes such as applying fertilizer and pesticides or weeding) with contract workers hired for peak work periods (planting and harvesting). In Acazónica, households exist which do not resort to recruiting manpower for planting small plots as these can be tended to using only family labor.

When a member of the family household goes to the United States, a process of reorganization of the labor force takes place, with the aim of replacing the emigrant worker. This reorganization involves an intensification of working hours for members who remain in the area (usually women, children and elderly, who take on the responsibility of maintaining the productivity of the plot), contracting labor or even temporarily ceding the land to relatives (Figure 4). These data are consistent with those reported by Miranda (2006).

In Acazónica, the most commonly observed change refers to the hiring of labor (paid for by the remittances sent by emigrants). The work for those who stay also increases and to a lesser extent land is temporarily transferred to relatives who are in charge of cultivation during the time the emigrant is absent. In Hato de la Higuera, there is a clear tendency for the work of those who remain in the community to intensify and the hiring of day laborers is less common, because migrants tend to leave temporarily and are usually present when the work in the field requires greater labor input (planting and harvest). Thus, once the migrants have sown their land, they travel to the United States and when it is harvest time they return in order to undertake this task. Only when emigrants do not return at harvest time, then the family will supplement his work using hired labor, paid for with money from remittances (Figure 4).

In both locations, family households could be identified where they had either abandoned their land or replaced crops with cattle grazing, (in the case of Acazónica) this was due to the impossibility of ensuring adequate labor (family or hired) to complete the work once undertaken by the migrant.

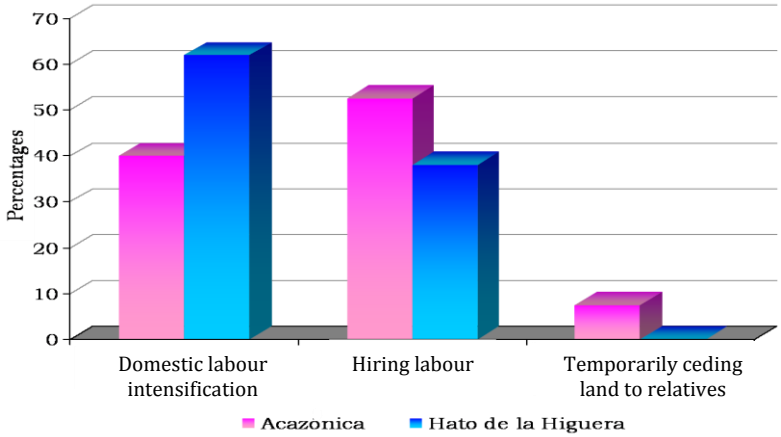

Figure 4. Reorganization of the workforce in family households as a result of emigration

Agricultural diversity: currently the agrosystems of Acazónica and Hato de la Higuera consist of eight types of agricultural production (Figure 5). In Acazónica, the two main products are maize (*Zea mays*) and small scale cattle rearing and there is no important cash crop. Previously, families in this town planted crops such as papaya (*Carica papaya*), tomato (*Lycopersicum esculentum*) and straw for making brooms (*Sorghum technicum*), but the drop in agricultural prices, high input costs, climate change and the shortage of manpower caused by emigration, led to these species being abandoned. This signifies that illegal emigration which takes place for long periods of time has contributed to the decline in agricultural diversity, as people have ceased planting crops which require greater investment and work input, a situation referred to in research conducted by Curt (2005).

Families from Hato de la Higuera, besides producing maize also grow an important cash crop: the chile (*Capsicum annum*.) In this town, crop diversity has been less affected by migration than in Acazónica, because migrants undertake work contracts in the United States (legally and for short periods) and this permits them to continue to practice farming for part of the year, as they are not obliged to cease planting crops due to lack of family labor.

In Acazónica, respondents cited the main effects of migration on the primary activity as: ceasing to produce maize, abandonment of the family plot, reduction in size of planting area and change of land use from crops to pasture for cattle ranching. In the case of Hato de la Higuera people ranked in order of importance: reduction in cultivation area, abandonment of the plot, lower yields and cessation of maize cultivation. However, migration has also had positive effects as remittances represent an opportunity for agricultural investment, which is why a number of families from both towns mentioned the acquisition of new land for farming, purchase of inputs and a resultant improvement in yields. The parallel positive and negative effects of migration on agricultural activities have been described by authors such as Ramirez and Gonzalez (2006).

Technological management: The technology employed in both locations is confined to the use of tractors, fertilizer, pesticides and improved seed. Although the technological management that families apply to their plots is limited, remittances have resulted in greater access to inputs (more purchasing power to buy fertilizer and improved seed) and mechanization (more hiring of tractors for land preparation and planting), as previously agricultural work in the production units consisted of manual labor and only used selected native seeds. These data contrast with reports by Nava-Tablada and Marroni (2003), who consider that remittances are not conducive to a real improvement in technological management, considering that increased mechanization and greater access to inputs only represent a substitute for the absent workforce.

Agriculture in Hato de la Higuera involves more sophisticated technology than that of Acazónica, thanks to the fact that remittances permit the hiring of a tractor for agricultural work, the acquisition of more inputs and greater access to technical advice provided by the suppliers of these products. In Acazónica, remittances also represent a subsidy for agricultural activities, but families use mainly hand tools for work, are less mechanized and have less access to fertilizers and pesticides than in Hato de la Higuera.

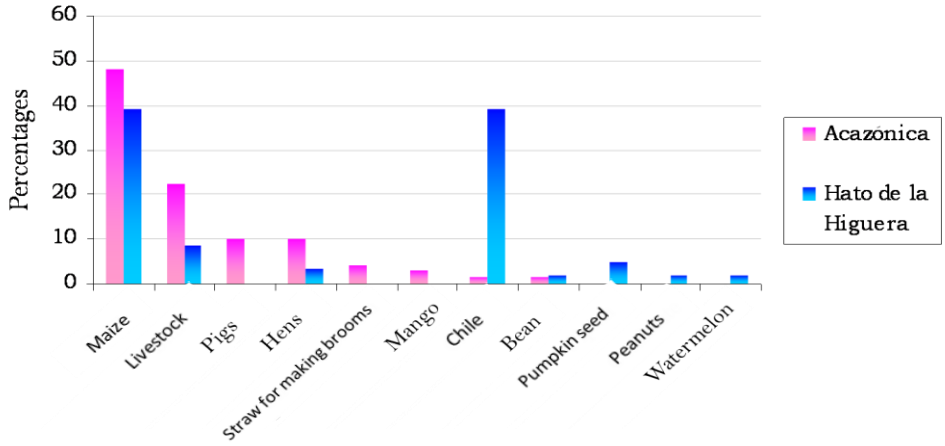

Figure 5. Agricultural production in Acazónica and Hato de la Higuera

Production objectives: in both areas maize is mainly produced for subsistence. However, families have had to dedicate a part of their land to producing a commercial crop which permits them to generate income.

In Acazónica the most important crop is maize (mainly for domestic consumption with the sale of surplus), while cash crops consist of straw for brooms (*Sorghum technicum*), chile (*Capsicum annum*) and mango (*Mangifera indica*), which because they are grown on a small scale do not generate significant revenue. Families complement agricultural production with small-scale farming of cattle and pigs (for consumption and sale) as well as poultry for domestic consumption only. It is notable that the production in domestic units in Acazónica is mainly oriented towards consumption and commercial products are economically unimportant. This is related to illegal migration (for extended periods) which is common in the town, not permitting migrants to continue engaging in agriculture or producing cash crops which require greater investment of labor and economic resources. Faced with this situation, family members who remain in the community, tend to reduce their agricultural activities and allocate their labor almost exclusively to the cultivation of corn and backyard animals for their own consumption.

In Hato de la Higuera, two main crops are produced: maize (*Zea mays*) (for consumption and sale) and chile (*Capsicum annum*) for commercial purposes. Other products grown for sale include pumpkin seed (*Cucurbita maxima*), peanuts (*Arachis hypogaea*) and watermelon (*Citrullus lanatus*), which in spite of being grown in limited areas represent significant income for the household economy, owing to the high price they fetch on the market. Agricultural production is complemented with small-scale cattle rearing for varied purposes (both consumption and sale) and poultry intended solely for domestic consumption. This means that households in Hato de la Higuera, also base their production on the cultivation of maize for subsistence, but are more oriented towards commercial production (compared to people from Acazónica). This difference is related to temporary legal migration (under contract) which is predominant in the community and which permits emigrants to continue with their agricultural commitments throughout the year and invest remittances in an important cash crop such as chile.

CONCLUSIONS

It is evident that there are parallel positive and negative effects on the agroecosystems of the communities studied, which relate to international migration and that communities manifest differences, depending on the dominant emigration pattern (legal or illegal).

The sources of family income for financing agricultural activities vary according to location, as in Acazónica the sale of agricultural products continues to be of greatest importance, whereas in Hato de la Higuera remittances sent by emigrants have become the main economic subsidy for the primary activity.

International migration on the part of the head of the family leads to a reorganization of the decision-making process, however, women continue to occupy a subordinate position, either being taken care of by a male relative (as in Acazónica) or temporarily assuming the role as head of household, but without this meaning more control over household economic decisions, as the emigrant continues to exercise the power of decision making from a distance and resumes his position when he returns to the community (in the case of Hato de la Higuera.)

Migration affects work organization differently according to the location. In Acazónica the main effect is an increase in the recruitment of labor, which is paid for with money from remittances. However, in Hato de la Higuera, the most notable consequence is the intensification of work for family members who remain in the community.

Although the type of international migration (legal or illegal) has varied effects on the agricultural diversity of the study areas (since the abandonment of crops is less in Hato de la Higuera), in both communities agricultural diversity tends to decrease.
Emigration subsidizes agricultural activity through remittances and has led to greater access to inputs and mechanization in both locations, positively affecting the technological management of the family production units.

The type of international emigration has influenced production objectives in different ways. Domestic units in Acazónica are mainly oriented towards personal consumption, because illegal migration for long periods does not permit emigrants to fulfill agricultural commitments and to take care of cash crops that require greater investment in terms of labor and economic resources. However, in Hato de la Higuera the production of domestic units is directed (to a greater extent than in Acazónica) to commercial products, as temporary legal emigration with contracts permits emigrants to pursue their commitment to agriculture during part of the year and invest remittances in cash crops.

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