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CONTRACT FARMING AND SMALL-SCALE PRODUCERS: NON-TRADITIONAL VEGETABLE EXPORTS FROM MEXICO[*]

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I. INTRODUCTION

Mexico is an important producer of fresh vegetables and the third largest exporter worldwide. Although exports of these crops represent only a quarter of the total volume produced, they account for 70% of the value exported by the agricultural sector. Their exportation is realized by large, vertically integrated farmers, occasionally partnered with U.S. capital, as well as by agroindustrial firms, both national and transnational. Small-scale producers participate in these commodity chains, frequently under the contract farming scheme. However, the presence of those farmers is more important when the crop is destined for the internal market, due to, among other reasons, the lesser demand for quality in this sphere.

Contract farming may be defined, according to Roy (1972:3), as any oral or written agreement reached between direct producers and any of a wide range of agents (wholesalers, processors, retailers, packers, producer organizations, and public-sector enterprises), through which various aspects of the production and marketing of agricultural produce are regulated. Although, to differing degrees, those agreements involve a direct or indirect control over the productive process (Watts 1994a: 26-28; Key and Runsten 1999: 383; Raynolds 2000: 441), which differentiates them from other types of contractual relationships, such as sharecropping and purchase-sale agreements.

By means of contract farming, agroindustrial firms and other agents control, as never before, both agricultural production and the decisions of the farmers, a fact defined by Watts (1994b: 6) as "a form of industrial appropriation". The growers, who previously enjoyed independence,

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choosing, for example, which types of seeds, fertilizer and pesticide to use, and who sold their produce in the local market, are being progressively integrated into the food industry, in the process, weakening the link between farms and consumers (Perry and Banker 2000: 50). That is, the what, how, when, how much, and for whom to produce are now determined outside of the agricultural sector. However, more and more frequently, agroindustry is dominated, in turn, by agents located one link forward in the commodity chain, such as retailers (supermarkets), fast food chains and restaurants, as diverse case studies have demonstrated (Burch and Goos 1999; Dolan and Humphrey 2000; Echanove 2001a; Rickson and Burch 1996; Lyons 1996).

Contract farming has rapidly expanded throughout the world during the last decades (Lawrence 1999; Little and Watts 1994; Raynolds 1994, 1997, 2000, 2002; Vellema 1999; McKenna et al. 1999; White 1997; Morvaridi 1995; Dolan 2001; Collins 1993; Little and Dolan 2000; Teubal 1995; Glover and Kusterer 1990; Grossman 1998; Gwynne 1999, 2000; Singh 2000; Winson 1990; Ruben et al. 2001; CEPAL 1995; Ilyse 1992). In Mexico, such labor agreements prevail in the production of tobacco, sugar, poultry and hogs, grain seeds, barley, yellow corn, certain varieties of wheat, and fruits and vegetables for export. The Mexican government promotes the contracts as an alternative to the market and credit problems that face the farmers, just as, at a global level, diverse organisms, such as the World Bank and the International Monetary Fund, have done.

The objective of this article is to analyze the contract farming practiced in the case of a non-traditional product: fresh broccoli for exportation. This crop, which figures among Mexico's ten principal exports, is produced in Guanajuato, an important horticultural entity of this country. We choose for our case study, the small-scale farmers (those who farm up to 10 hectares), located in the municipality of Valle de Santiago. The majority of them are ejidatarios[1], members of the ejidos of Rincon de Parangueo, San Isidro, Presa de San Andres, San Nicolas and Mogotes. In this geographical scope, we investigate the characteristics of the contract farming practiced and its effects (positive and negative) on the producers and the region. In general, and as Ruben et al. (2001: 4) write, limited information is available regarding the implications of contract farming for farmer's welfare, which signifies a great void, given the expansion and relevance of that mechanism that links local-level producers with global markets.

We followed a case study approach, using historical and interview methods. We carry out qualitative in-depth interviews with 35 contracted growers, diverse buyers (agroindustrial firms and others), public officials

and private agents, over the period 2003 to 2005. Some of the names of the interviewees have been changed to protect their identities; unless otherwise specified, the information and analysis presented is directly based on the results of those interviews and other fieldwork.

II. A NEW CROP IN THE VALLE: FRESH BROCCOLI FOR EXPORT

The United States is both an important producer and consumer of fresh broccoli. It acquires abroad only 6% of its internal consumption, of which amount, 93% is supplied by Mexico (USDA 2006). Exports from this country have grown considerably in the last five years, although they do not have the same importance as those of frozen broccoli (Table 1), a product whose US consumption is covered, in the main, by Mexico. Independent of its final presentation, the broccoli cultivated in Mexico is mostly for export, this due to the fact that its consumption in the domestic market is not very extensive.

Guanajuato represents the entity that grows almost the entire Mexican broccoli. Cultivation of this crop is of great importance in generating employment, producing an annual demand of 5,060,000 working days, given that in each of the two productive cycles each year brings 23,000 hectares are planted, with each one requiring 110 working days. Of that surface area, in 2004, 4,282 hectares were dedicated to the cultivation of broccoli for fresh export, from which area 49,337 tons were harvested, representing 90% of total national exports (Table 1 and 2).

A third of the fresh broccoli exported by Guanajuato comes from the southern municipality of Valle de Santiago (Valle), where, in 2004, 1,234 hectares were cultivated to this end, located principally in the five ejidos comprising the object of our study. The majority of the farmers from this municipality began to produce vegetable crops in the 1980's, when the Campbell's company, which had arrived in Mexico in 1960, began to freeze those products (mainly broccoli and cauliflower), and to export cucumbers. To that end, the company drew up contracts with producers, in order to ensure a steady supply. Marbran-Simplot, another agroindustrial vegetable-freezing firm, also contributed to the crop expansion in Valle. Previously, the ejidatarios produced grains (sorghum, wheat and corn), not only because no market existed for the vegetable crops, but also because their lands were rain-fed. This changed in the 1960's and 1970's when the majority of the municipality's deep-water wells were drilled and they could get access to water, an indispensable resource for grow vegetables. Nevertheless, this has not meant the complete abandonment of grain production by the ejidatarios, as we will see in a later section.

Towards the end of the eighties, Campbell's stopped freezing vegetables in Mexico for lack of profitability (Bivings and Rusten 1992), maintaining only their demand for cucumbers from the producers. However, in 1997-98, they abandoned that activity also, in order to concentrate on making canned soups. Faced with these events, the Valle producers continued with the cultivation of vegetables, but now mainly of broccoli for fresh export, which meant introducing certain changes in their planting and harvesting systems. This answered the new demand brought by the PAASA firm that, in 1990, arrived to establish itself in the municipality of Valle.

Although, as we have already seen, the State of Guanajuato is a lot more important as a producer and exporter of frozen broccoli than of fresh, in the municipality of Valle in particular, the majority of the existing 126 broccoli producers form part of the fresh-export chain. Those who produce for freezing companies represent a minority (for Marbran-Simplot and Expor San Antonio). Generally, the ejidatarios focus on producing for only one of the two routes.

III. Broccoli Exporters: Agroindustrial Firms and Other Buyers

The cultivation of broccoli begins with the production of seedlings in greenhouses, which, after 21 days, are transplanted in the land-holdings. In Valle, this activity is carried out from July to February, and the product is harvested from September to April, each productive cycle lasting 75 days. The duration of the harvest depends on weather conditions; however, a maximum of two weeks is taken, making five cuts per hectare. The product is selected and packed in 20 lb cartons, each holding 36 florets, which are cooled before being transported to market.

The total number of exporters of fresh broccoli in Guanajuato rose between the years 2001 and 2004, increasing from 27 to 57, which, according to several of them, has meant greater competition, above all in product acquisition. The majority of the exporters are agroindustrial firms of differing sizes and, in smaller measure, private dealers who have been incorporated into that activity. The volumes exported over that period have grown more than twofold; the majority of those corresponding to 2004 having been shipped by 10 firms and one private dealer (Table 2). Two of those companies (Marbran-Simplot and Congelados Don Jose) began as vegetable freezers, now figuring among the leading exporters in the country. However, since the nineties, they decided to diversify their activities, making incursions into the fresh product market, which, despite being considered less stable, offers those greater profit margins (direct interviews).

The principal destination for exported broccoli is the United States; the shipments to Canada, Japan and Europe being far fewer. Almost 70% of the volume exported is shipped by US companies or by those having US and national capital. The two leading exporters, for example, are 100% US-owned and, the third, a product of the association of Mexican businessmen with the transnational Simplot. Of the 11 exporters, we only deal with those having influence in the municipality of Valle, such as PAASA, Nueva Generacion Agricola and Antonio Marquez, as the others are supplied from other areas in Guanajuato.

The PAASA company (Productora Agricola Amigo S.A. de CV.) is the chief exporter of fresh broccoli in Mexico; contributing, in 2004, nearly a quarter of those shipments (Table 1 and 2). Owned by U.S. citizens of Vietnamese origin, it arrived to establish itself in the municipality of Valle in 1990, and, since then, has considerably increased both its export volume and the size of its packing facilities and greenhouses. Its business is shipping fresh vegetables to the United States, with broccoli representing the main product (95% of volume sold), although it also exports a large variety of oriental vegetables (the remaining 5%). The produce is shipped to the eastern part of the country, above all to New York, with a view to supplying Chinese restaurants there.

In Guanajuato, PAASA controls 2,400 hectares of vegetable crops, of which, 60% are cultivated by contracted farmers (1,440 hectares), and the remaining 40% (960 hectares) directly by the company. To this end, lands are leased in the Bajio (central and southern area of the state) and, since 2004, also in the north, chiefly in the municipality of Dolores Hidalgo. Around 70 producers are contracted each year by PAASA, 42 of which may be considered small-holders, cultivating up to 10 hectares; 17 planting larger areas (some up to 40-50 hectares), and just 11 growing on more extensive areas. Among these figure three private producers[2] who each sow 250 hectares annually, and one *ejidatario* who farms 80 hectares. In other words, despite the fact that, in number, small farmers makes up the majority, the greatest contracted area is in the hands of medium and large-scale producers.

The municipality of Valle is where the majority of contracted farmers (58) are located; cultivating a total of 1,200 hectares (Table 3). Among these, the most prevalent are the *ejidatarios* of the *ejidos* of Rincon de Parangueo, San Nicolas, Presa de San Andres, San Isidro and Mogotes. PAASA makes both written and verbal agreements with the producers, specifying the required quality and the prices to be paid. Both types of agreement cover one productive cycle of broccoli (3 months), whereby the majority of the farmers contract with the company twice a year. The

farmers receive the broccoli seedlings, produced by the company in its greenhouses, the amount of which is gradually discounted from the first product delivery onwards. According to the company's management, the farmer receives free technical advice and, on very few occasions, cash credits, such as, for example, one interviewee who received a loan to buy a tractor.

The producers contracted by PAASA have to travel to the company's plant to deliver the product, which is transported in plastic boxes. The fact that this company is located in Valle is one of the fundamental reasons why the majority of the producers of this municipality work with it, given that they save on the costs associated with transporting their harvest further afield, such as is the case with the following company.

Nueva Generación Agrícola SA de CV (NG), created by an ex-partner of PAASA, began operations towards the end of 1999, and is presently situated in the municipality of Abasolo, contiguous to that of Valle. It exports fresh broccoli (80% of packed volume), as well as Chinese peas and other oriental vegetable crops; produce having the same destination as that of PAASA: the Chinese restaurants of the eastern U.S. Although NG has plans to establish its own greenhouses for the production of seedlings, by 2005 this was still not yet the case, requiring the company to entrust other establishments with this activity, to which they sent the broccoli seed.

NG does not have its own farmlands and, as such, the vegetables it packs come from around 200 hectares cultivated by 50 farmers, contracted annually, located in the municipalities of Valle de Santiago, Cortazar, Abasolo, Huanimaro, Penjamo, Dolores Hidalgo y Pastor Ortiz (State of Michoacan). The first named municipality supplies an important part of the broccoli collected by the company, as there, a total of 120 hectares are farmed by 25 producers. Among these (*ejidatarios* and private farmers), the small-scale farmers preponderate (planting 4-6 hectares per year) and, of the rest, the largest sow 50 hectares annually. According to the company, it does not make written contracts with the producers but verbal ones, specifying quality and price. The producers are not all offered the same price, as this depends on the type of producer and his relationship with the company. Those sowing more area, and those having a long history as a company supplier, are those who are offered the best prices.

The farmers receive only the broccoli seedlings on credit, and are given neither company supplies nor technical advice (Table 3). On a par with PAASA, the price of the seedlings is discounted from the delivered produce.

The third most important buyer in Valle is Antonio Marquez, a producer and dealer who rose from small-holder to entrepreneur. During the eighties he went from working as a tractor driver for Campbell's to being a contracted producer. He started out cultivating his 3 hectares, that he held as *ejidatario*, for that company and, by means of leasing lands, increased his areas under cultivation, which, in 1991, totaled 13 hectares. By 2005, through extending that system and buying land, he was planting 130 hectares. At the same time, he controlled the production on an additional 170 hectares, owned by several farmers with whom he established contracts and, on a smaller scale, sharecropping.

For many years, Antonio produced vegetable crops for diverse companies (Campbell´s, Marbran-Simplot, Expor San Antonio, Fresport, Green Giant and PAASA), both for the fresh and frozen markets. In 1989, and in association with an U.S. citizen in charge of marketing the product in his country, he began to export fresh broccoli and, gradually, left off supplying that product to the companies, although he continues to source them with other crops (cauliflower for freezing, zucchini, cucumber, etc.). Apart from having access to technical personnel (in both the fields and the greenhouses), he has a group of around 40 workmen that he employs year round, rotating them among his different ranches. In his owned and leased lands he produces mainly broccoli (90 hectares), obtaining 2, and sometimes 3, harvests per year. He packs the product field-side and sends it to a large company for freezing, with what does not meet export quality standards being destined for the internal market. However, he has also brought about a diversification in crops, which has comprised one of the key strategies of his expansion. He sows diverse crops (melon, coriander, onion, chile pepper, zucchini, etc.), above all in the off-season for broccoli. He also grows cucumber under contract for two exporting companies.

The 30 producers with whom he has established farming contracts cultivate around 110 hectares per annum, and, in the majority, are small-holding *ejidatarios* who sow an average of 2-3 hectares of broccoli a piece. The seedlings are produced by Antonio in the greenhouses he established in 1997 and, like the aforementioned companies, he gives them to the producers on credit. To these he also provides supplies and a little technical advice, but he rents machinery to those who do not have their own (Table 3).

IV. CONTRACT FARMING AS A MEANS OF SUBORDINATION

The mechanism used by the agroindustrial firms to ensure their supply of produce from the fields depends on diverse factors, such as: type of product, its seasonality, its demand, the type of producer the company is

dealing with, the experiences (positive or negative) arising out of that relationship, and the company's concrete policies (Echánove, 2001b: 15). It also depends, as Raynolds (1997) points out, on the land ownership and the political scenario in the country where they operate. Of the three important buyers in Valle, two combine vertical integration with contract farming, and one (NG) is supplied solely through the latter mechanism. Together, they contract 1,430 hectares (mainly broccoli), cultivated by 113 producers (Table 3).

The buyers design a sowing program for each productive season, as a function of the volume of produce they wish to export and, based on this, contract with the producers who can supply it. Later, during harvest time, they establish a program of weekly deliveries for each producer. Agreements (written or verbal) are made between the buyers and the individual producers, with, to date, no attempts at organization being made by the latter. The objectives of these agreements are to guarantee the buyers' supply and control the quality of the product that they receive, specifying the area that the producer must cultivate, the quality requirements to be met, and the price to be paid for the product. The producers are obliged to deliver their entire harvest to the buyer and, especially in the case of PAASA, to follow the technical instructions issued by company personnel. The buyers promise to acquire the produce, if it meets the specified quality requirements.

As we have seen, the three buyers provide the producers with seedlings, although only one of them grants them chemical supplies on credit. The PAASA company maintains extensive control over the productive process, having it personnel instruct the producers as to what products to use, in addition to supervising the rest of the agricultural work (irrigation, transplanting, harvest, etc.). The remaining two buyers, however, maintain an indirect control over the activity of the farmer, who may not apply just any chemical product without running the risk of his product being rejected.

To produce broccoli, farmers must have access to water from deep wells, a factor that excludes many from this activity, such as in the *ejido* of San Nicolas, where only 20 out of the existing 65 *ejidatarios* have this resource available to them. In addition, they must have access to machinery (owned or rented); transport to collect the seedlings from the company and to deliver the product and a certain amount of capital in order to assume the bulk of the production costs. Experience in growing broccoli is also an important factor, above all in the case of those not receiving any technical advice.

We have mentioned that in Valle, the majority of the contracted *ejidatarios* are small-holders: nevertheless, there exists a small group that cultivates 15-20 hectares of vegetable crops, and another smaller group that exceeds that area. The variety of the area cultivated is enormous within the *ejidos*. For example, in that of San Nicolas, there exist producers who sow 2-3 hectares, others, 6 hectares and, the largest, 18-20 hectares. The latter, similar to what happens in the other *ejidos*, have managed to reach such dimensions by way of leased lands, both within their own *ejidos* and/or in others in the municipality.

The participation of small-scale producers of fresh broccoli as suppliers to the agroindustrial firms contrasts with what happens in the sector dedicated to freezing the same product in the state, whose companies contract with medium and large-scale producers in order to reduce transaction costs (the search for producers, agreement negotiations and technical advice) (Echánove 2001b: 36). In the case of the companies dealing in fresh produce, these costs are small, as only one of them gives technical assistance to the producer, and which, given its location, only involves traveling short distances within the municipality. Another explanatory aspect is that, in Valle, fewer large-scale producers of vegetable crops exist as do in other parts of the state.

The producers interviewed pointed out several disadvantages in working under contract. One of those is the fact that although a certain percentage of the seedlings they receive turn out to be defective, they must be paid for nonetheless. The supplies (insecticides and fertilizers) that one of the buyers gives to the farmers are priced higher than those sold in the agrichemical stores. When they receive technical advice, it does not reach all the contracted growers in a timely manner, due to a shortage of personnel. NG stated, in an interview, that they did not grant this assistance to the farmers because they considered that they already knew how to produce broccoli.

Even more relevant to the producers is the fact of their having to assume all the risks involved in the productive process (weather and pests), which is made worse by the fact that the crops are not insured. In the case of losses, the producer ends up in debt to the buyer, whom he has to repay over subsequent productive cycles, by means of product deliveries. The most that the companies have done in the event of climatic adversities, and that only in the case of certain producers, is to remit half the cost of the seedlings that they had provided on credit.

The producers also must contend with what they consider to be unjust evaluations of the quality of their delivered produce and, additionally, in the case of PAASA, with its quantification system. When

they arrive at that company with their boxes of harvested broccoli, the boxes are not weighed immediately and the producer is only made aware of the totals the following day upon being given a receipt. All producers interviewed consider that the quantities reported by the company are less than those delivered, indicating that, in this aspect, this company is the worst to deal with. The other two buyers operate in a different way, providing the boxes (20 lbs) to be filled in the fields as the produce is harvested, thus permitting the producers to calculate the exact quantities delivered. The buyers send personnel to the fields to supervise this process.

There exists a variety of broccoli grades, operating as a function of size, shape and floret color, and each of these factors corresponds to a certain price. Although this is established beforehand in the contracts or agreements between the buyers and producers, the leading firm (PAASA) does not permit the producers to be present in its packing plant when the produce is graded. The producers interviewed consider that the rigor and honesty of the quality evaluations depend on the company's market situation. If demand is low, the evaluations are stricter and a greater volume of produce is rejected. The reverse is true for situations where a high demand exists. They point out that during the months that produce the largest harvest of broccoli (September and January), the agroindustrial firms throw a lot of the product into the trash, and it is then when quality controls become stricter. In the case of the other two buyers, the farmers are better protected, as the produce are packed field-side and its quality verified before delivery to the buyer.

On the other hand, the prices paid to the producers have increased very little during the last few years: in 2000, first grade broccoli fetched $3.40 Mexican pesos per kilo, in 2004, $3.55 and, at the beginning of 2006, $3.60. In contrast, the increase in production costs has remained constant, such that, if in 2001, $20,000 Mexican pesos were spent per hectare, by the beginning of 2006, the figure was $26,000. This is due to a per-unit increase of the price of inputs, services and labor, and not to a larger quantity demanded of them, as the technological package and yields per hectare have remained constant during that period of time. Labor represents 40% of total costs, given that broccoli is both planted and harvested manually, requiring 110 working days of labor per hectare (the harvest alone requires 60 working days). The cost for each of these increased from $50 per diem in 2001, to $100 per diem in 2006. Other expenses on the rise have included chemical supplies (fertilizers and insecticides), that have risen 46% between 2001 and 2006, and electricity used to extract water from the wells. With respect to this last, the tariff varied from $0.243 per

Kwh in February of 2001, to $0.623 for the same month in 2006, that is, it increased 2.5 times (CFE, 2006).

The foregoing has resulted in the producers obtaining ever-decreasing profits. With the average yields and quality obtained by the *ejidatarios*, and in the absence of bad weather and pests, towards the end of 2005, the producers earned profits of between $10,000 and $12,000 per hectare. If one considers that the majority of the *ejidatarios* cultivate an average of 5 hectares twice a year, the monthly income they realize is between $10,000 and $12,000, an amount insufficient for maintaining an average family of six members.

In light of all that, one may ask what are the advantages or reasons that persuade the producers to participate in contract farming. According to them, this work regimen offers them a surer market for their produce, in comparison with the other alternatives open to them (vegetable crops for internal markets, or grains), due to the greater certainty of sale and the elimination of the risk of price fluctuations. In the case of grains, the producers point out that it is common for the buyers not to pay them for the harvests, in addition to those crops providing them with fewer profits than vegetables. Another advantage of being under contract is the receipt of financing for a certain portion of the production costs. Additionally, the capital required by the producers in order to pay, on a weekly basis, the harvest-time day laborers, is obtained from the payments made by the company in the same intervals. With regard to this, the producers point out that broccoli "is harvested without money".

The buyers have encouraged an extensive productive diversification among the producers, to which also has contributed the existence of an off-season (1st may – 14 June), or ban on the cultivation of broccoli, which the entity's health authorities have imposed in face of the uncontrolled proliferation of pests. Although the degree of that diversification is a function of the access to certain resources (land, water, capital), it is very common that the *ejidatarios* establish three productive cycles in a given year, beginning with one of cucumber (or zucchini) that takes in the off-season, followed by two of broccoli (cucumber-broccoli-broccoli). The producers with the most land farm a greater diversity of vegetable crops, as is the case of one interviewee who cultivates seven different vegetables for PAASA (broccoli, Chinese pea, cauliflower, squash, long beans, okra and cucumber). Others grow additionally for the internal market, above all melon and watermelon (harvested in June), which they sell to vegetable merchants either field-side or on the side of the highway.

V. Final Reflections

For the agroindustrial processors, contract farming allows them control over the offer (in terms of quantity and quality), a better response to the changing demands of the market and consumers, greater expansion and diversification of their operations (USDA 1996: 4) and, as Raynolds (1997: 125) pointed out, an enhanced geographical mobility. They also make it possible to transfer the risks associated with agricultural activity to the producers (climate change and pests), to reduce their transaction costs, and to avoid the problem of dealing with potential labor disputes (Brannstrom 2000: 329, 337; White 1997: 104; Dolan 2001: 44; Cook 1994: 234).

The contract farming scheme that we analyze is much more lax than that which predominates for the production and exportation of frozen broccoli, where the companies invariably provide the producer with seedlings, supplies and technical advice, which we consider may be explained by the greater quality demands placed on this product (see Echánove and Steffen 2005). However, what is common to both schemes is that the seedlings and the harvested produce are the property of the producers, in contrast to, for example, poultry farming, where the company owns the birds.

The case study presented also reveals the decisive role that the agroindustrial firms and other buyers have played in the change in land use in Valle, where vegetable crops now predominate in place of cereals. Although analyzing the effects of that change on the environment is not one of the objectives of our study, the serious contamination of the lands and environment, occasioned by the excessive use of agrichemicals, is evident. The over-exploitation of the freatic layer represents another consequence of horticultural expansion, based in the extraction of water from the subsoil, whose magnitude becomes evident when one considers that a third of the existing deep water wells in Mexico are found in Guanajuato.

According to Perry y Banker (2000:50), contracting offers farm operators the advantages of reducing the risks of price swings for produce, problems in seeking a market, and unknown income, while, at the same time, gaining access to technological advances. Although, in general terms, this holds true, in this article we have also described the main disadvantages of that labor regimen. We find that the quantity and quality of the produce delivered to the buyers represent problematic issues for the producers, a situation that is common in other farming contract cases (see Ilyse 1992). With respect to this, Watts (1994a:65) points out that quality constitutes an area of abuse by firms, since they regulate offers through arbitrarily raising quality requirements. Faced with this, the Mexican

producers are not protected by any legislation, nor can they rely on any organizations of their own. In any event, although these are necessary provisions, they are not sufficient in themselves, since, among other concerns, the producers would also require access to sufficient capital in order to take legal action against the companies.

We consider that the solution to the producers' problems is more complex, and has to do with the public policies applied to the agricultural sector, in the framework of the so-called structural adjustment programs. These, which have involved the withdrawal or reduction of subsidies to the producers, the disappearance of government technical assistance, the scarcity and high price of credit, and the trade liberalization have brought about the deterioration of family farming. Similar results have been witnessed in diverse parts of the Third World, where the same policies have been implemented (see Llambi 2000; Rhoads 1997; Vunderink 1991; Murray 1997, 1999; Fahy 2000; Dolan 2001; Raynolds 2000).

Faced with this, the producers have found, in contract farming, a mechanism for survival. However, in the case of the small-holders of our case study, this has not been sufficient in order to maintain their families[3]. The few cases where producers have been able to capitalize and make the transition to small entrepreneurship may not be generalized, leaving the bulk of them having to look for other sources of income; emigration to the United States being the most common option, especially among the young sons of the *ejidatarios*. Other alternatives have included the cultivation of grains for auto-consumption, the fattening of livestock and the establishment of small businesses in their towns.

The contracted growers work according to the requirements of the U.S. restaurants, where their produce finally arrives. Their situation, as members of an agro-food chain, is a vulnerable one, given that their success depends upon the changing circumstances in the global markets. Similar to what happens with the majority of non-traditional products, the competition among countries, the saturation of markets, and the protectionist measures taken by the country of destination, are factors that place limits on the sustainability of the labor regimen studied.

Table 1 - Mexico: Exports of Broccoli to the US

Years	Fresh Broccoli		Frozen Broccoli	
	Vol. (metric tons)	Value (000's USD.)	Vol. (metric tons)	Value (000's USD.)
1989	11,417	2,873	0	0
1990	8,219	2,352	0	0
1991	7,788	2,745	44,799	30,618
1992	7,504	1,796	156,058	106,112
1993	12,596	3,788	133,915	89,783
1994	7,861	2,935	126,967	82,198
1995	17,533	4,459	155,724	87,270
1996	23,054	6,020	158,779	88,678
1997	28,996	9,861	149,870	91,205
1998	34,071	13,577	129,723	86,779
1999	41,240	17,003	149,999	105,066
2000	44,602	19,283	137,272	98,716
2001	47,618	23,295	143,280	106,664
2002	51,104	25,146	141,551	109,122
2003	47,673	22,246	134,292	110,393
2004	56,989	28,694	151,631	122,669
2005	77,208	37,583	164,674	136,410

Source: USDA, 2006 (http://www.fas.usda.gov/ustrade/USTImBico.asp).

Table 2 - Guanajuato: Exports of fresh broccoli (metric tons)

Exporter	2001	2002	2003	2004
Produccion Agricola Amigo SA de CV (PAASA)	6,596	16,032	12,501	12,819
Cimino Brothers Produce de Mexico SA de CV	2,488	7,086	7,538	11,286
Marbran-Simplot	2,376	4,372	3,316	4,109
Mega Frescos del Bajio SA de CV	1,436	2,727	1,614	3,345
Comercializadora GAB SA de CV	587	2,109	1,899	2,612
Nueva Generacion Agricola SA de CV	1,729	4,267	3,022	2,509
Antonio Marquez	1,147	2,066	1,572	1,946
Congelados Don Jose SPR de RL	721	1,690	1,646	1,880
Exportadora Agricola Terra SA de CV	1,081	1,984	1,855	1,670
Frescos de Exportacion SPR de RL	0	0	393	1,159
Taylor Farms de Mexico S de RL	0	1,230	984	1,020
Subtotal	18,161	43,563	34,547	44,355
Others	2,664	3,501	5,277	4,982
Total	20,825	47,064	39,824	49,337

Source: SAGARPA, (2005), Programa de Sanidad Vegetal.

Table 3 - Characteristics of the buyers of broccoli in Valle de Santiago

Exporter	Year Start	Sourcing mechanism	Type of agreement with producers	Assistance to producers	Area contracted (ha)	No. producers contracted	Type of producer contracted
Antonio Marquez	1989	• Vertical Integration • Contract Farming	Verbal Agreements	• Seedlings • Inputs • Technical Advice (limited) • Machinery Rental	110	30	Small
PAASA	1990	• Vertical Integration • Contract Farming	Written Contracts & Verbal Agreements	• Seedlings • Technical Advice	1,200	58	Small, medium & large
NG	1999	• Contract Farming	Verbal Agreements	• Seedlings	120	25	Small & medium
Total					1,430	113	

Source: field work, 2003-2005.

Notes

1 The term ejidatario refers to the members of an ejido, a land tenure system that grants usufruct rights to agrarian reform communities and includes both individual and commonly held lands.

2 Private property, ejido and community are the three land tenure regimens in Mexico. In the first, the producers have the ownership and the usufruct of the land, within certain legal limits.

3 In general, there has been a clear decrease of agricultural income in Mexico. Recent numbers published by USDA (United States Department of Agriculture) consider a 30% decrease in the real income between 1990 and 2003.

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