

Federico Caffè Centre Research Report n. 6/1999

**NAFTA and Competition in the Mexican Agricultural Sector:
The Case of Rice**

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Introduction¹

While the rice harvest in the U.S. State of Arkansas was 400,000 tons less in 1996 than in 1994, rice growers nevertheless received 174 million dollars more for their grain. Dr. Cramer of the University of Arkansas readily explains this apparent contradiction, stating “Mexico is an example of a country which imports more rice from the USA since trade barriers were reduced in the GATT and NAFTA negotiations.” He adds that Mexico began to reduce non-tariff barriers in 1985. Guaranteed prices were eliminated and input subsidies were reduced in 1989. As Mexican domestic production fell, import restrictions eased (Medders, 1997). Thus, the USA has been able to increase its presence in the Mexican rice market in a spectacular and unexpected way.²

In the five years since NAFTA came into effect, the USA has proven to be the big winner in the process of agricultural trade liberalization, and not only in the case of rice. Between 1993 and 1997 U.S. exports to its NAFTA partners –Canada and Mexico– grew from 8.9 billion to 11.7 billion dollars. In 1998, U.S. exports reached a new record of 13 billion.³

An increased U.S. presence in Mexican and Canadian markets has supplanted domestic producers in those countries, as well as other competitors. Although between 1993 and 1998 Mexican farm and food exports to the U.S. also grew annually by 8.9%, to 5.5 billion dollars, this growth was insufficient to register a trade balance surplus. Mexico only reported a surplus in 1995, when it was favored by a very undervalued currency and the reduced purchasing power of the Mexican market. In 1994, 1996, 1997, and 1998 the Mexico-USA farm and food trade balance was negative (Table 1).

¹ The authors wish to thank the Rice Council of Mexico (COMEARROZ) for its help in obtaining information and Professors José Luis Calva and Francisco J. Ramírez for their comments.

² The tariff items referred to are: 1006.10. rice in the husk (paddy or rough); 1006.20. husked (brown) rice (Basmati, other); 1006.30., semi-milled or wholly milled rice, whether or not polished or glazed; 1006.40., broken rice.

³ Authors` calculations based on USDA, *Agricultural Outlook*, March 1999, p. 47 and USDA/FAS, *USDA reports positive NAFTA impact on USA agriculture*, <http://ffas.usda.gov/release/0523naft.htm>.

Table 1 - Mexico-USA farm and food trade balance, 1994-1998 (US\$ thousands)

	1993	1994	1995	1996	1997	1998
Balance	-792,725	-1,526,763	755,255	-1,121,573	-489,862	-1,023,252
Exports	3,317,776	3,508,264	4,555,279	4,577,145	5,009,638	5,539,185
Imports	4,110,491	5,035,027	3,800,024	5,698,718	5,499,500	6,562,437

Source: authors' calculations, based on USDA data. USDA, "U.S. Imports of Agricultural Products from Mexico, U.S. Exports of Agricultural Products to Mexico". <http://www.fas.usda.gov/scripts/w/bico/bico.idc?doc=986> and [idc?doc=354](http://www.fas.usda.gov/scripts/w/bico/bico.idc?doc=354).

The objective of this article is to demonstrate that Mexican rice production and its related industries have been hurt by trade liberalization and rice imports from the U.S. These are factors that fall within the framework of the new economic policy that came into effect in 1982 and referred to as macroeconomic adjustment and structural change.⁴ This study will show that Mexico's macroeconomic policy and U.S. production and export subsidies for rice have currently a greater impact on Mexican producers than does NAFTA itself. Furthermore, this analysis puts forth some proposals for a new trade and agricultural policy for Mexico's rice agribusiness sector.

Mexican and U.S. expectations prior to the passage of NAFTA

Mexico's expectations

The following sentence from a 1993 summary document by Mexico's former Department of Agriculture and Hydraulic Resources (SARH) reflects the tone set during the NAFTA rice negotiations: "Rice is a product of relatively little importance in Mexican agriculture..." (SARH, 1993:125). In light of this evaluation, rice received little attention during the negotiations. There are two documents which defend the position of Mexican rice farmers *vis-a-vis* the total liberalization proposed in NAFTA:

1. Cámara Nacional de la Industria de la Transformación (CANACINTRA). Sección 26, Industriales Arroceros. 1992. 3 p.
2. Arturo Flores Santiago, "Limitantes y perspectivas de la producción de arroz en Tabasco" in CIESTAAM, *El Tratado Trilateral de Libre Comercio y su influencia en la agricultura mexicana*, Metepec, Puebla, 1991, pp. 194-204.

⁴ For further details see J.L. Calva, *El modelo neoliberal en México*, Mexico City, Editorial Juan Pablos, 1995, p. 195.

Both documents agree that faced with foreign competition Mexican rice production would be seriously threatened. The following are among the main problems mentioned:

- a) unfair trade practices;
- b) lack of subsidies to compensate for aid received by producers in other countries;
- c) scarce and expensive financing;
- d) lack of government's support for agricultural research to diversify rice varieties, improve quality, reduce the seasonal nature of the crops, use technology more efficiently and raise yields.

As with many other areas in the food and farming sector, these problems were not raised in the NAFTA negotiations, a situation that is reflected in the reduced tariffs negotiated for Mexico's rice agribusiness chain.

Before NAFTA, Mexico imposed a 20% duty on semi-milled, milled and brown rice and a 10% duty on hulled rice and broken rice.⁵ Under NAFTA, the duties are gradually being reduced over a 10-year period and will disappear altogether by 2003. At the beginning of the Agreement in 1994, the duties on these types of rice were reduced to 18% and 9 % respectively, and in 1999 to 8% and 4%.

U.S. expectations

Although the USA only produces 2% of the world's rice, it is responsible for more than 20% of international rice exports. Half of its more than eight million tons are exported.⁶ Even with this little data, it is easy to understand rice's strategic importance in U.S. agricultural policy.

In 1993 the USDA forecast the possibility of exporting more than 200,000 tons⁷ of rice to the Mexican market, a 10-20 % increase over pre-NAFTA exports. This is in addition to a US\$10-20 million annual profit increase for the U.S. industry,⁸ which would have been impossible without NAFTA (USDA/ ERS, 1993: 9).

⁵ In 1990, a 10-20 % tariff increase on semi-milled and brown rice was imposed. This increase directly favoured the U.S., which is the only exporter of unhulled rice, and displaced Asian countries, mainly exporters of milled rice, from the Mexican market. (USDA, *Rice Outlook*, November 1997, http://mann77.mannlib.cornell.edu/reports/erssor/field/rcs-bb/1997/rice_outlook_report_11.12.97).

⁶ Robert E. Coats et al., *Rice policy*, College Station, Texas A&M University, 1995, p. 2.

⁷ In 1992, the USA exported 110,000 tons to Mexico (Table 2 of the Appendix).

⁸ This term refers to the entire agribusiness sector related to rice.

According to this scenario, reduced U.S. duties for Mexican rice were unimportant, given that no threat from the Mexican side was envisaged.

Recent developments in Mexican rice production

The recent state of Mexican rice production is characterized by:

- a) Drastic decrease in production and farmland under rice cultivation;
- b) Industry bankruptcies and direct and indirect job losses;
- c) Accelerated growth of imports and loss of food self-sufficiency;
- d) Disruption of the production chain;
- e) Improved use of resources and increased efficiency of rice farmers;

Each of these developments will now be examined briefly.

Decrease in production and farmland under rice cultivation

After corn, wheat and beans, rice ranks fourth in importance among food grain crops in Mexico. Until 1985 the area of farmland under cultivation and the amount of production were characterized by growth, although with very marked variations from year to year.⁹ Since 1985, both have been declining at an accelerated rate.

The amount of cultivated farmland fell from 216,000 hectares in 1985 to only 86,800 hectares in 1996,¹⁰ which represents a 7% average annual decrease. At the same time, production declined from 808,000 tons to 394,100 tons (-5.7% annually) (Table 2). In 1997 and 1998, Mexico registered slight recoveries in both cultivated farmland and production (preliminary data), but 1985 levels were not attained.

⁹ The fluctuations in rice production during the 1970s and 1980s were due to abrupt changes in profitability, to which growers in irrigated areas responded by introducing or withdrawing the crop. Another problem is the water shortage in Sinaloa.

¹⁰ 1985 was chosen as it represents record rice production in Mexico, and 1997 as it represents the last year for which complete data are available.

Table 2 - Mexico. Trends in rice cultivation, production, yield and trade 1985-1998

	<i>Area under cultivation (1,000 ha)</i>	<i>Production (1,000 ton)</i>	<i>Yields (ton/ha)</i>	<i>Imports¹⁾ (1,000 ton)</i>	<i>Exports (1,000 ton)</i>	<i>Coefficient of Dependency (%)²⁾</i>
1985	216	808	3.7	235.96	0	22.60
1986	158	545	3.5	1.42	0	0.26
1987	155	591	3.8	24.80	0.2	4.03
1988	126	456	3.6	1.28	0.1	0.28
1989	151	527	3.5	327.52	0	38.33
1990	105	394	3.7	262.63	0	39.99
1991	85	347	4.1	240.52	0	40.94
1992	90	394	4.4	530.64	0	57.39
1993	59	288	4.9	439.13	0	60.39
1994	88	374	4.3	466.39	0	55.50
1995	78	367	4.7	393.59	0	51.75
1996	87	394	4.5	510.11	2	56.55
1997	113	469	4.1	488.62	3	51.27
1998 ^p	102	458	4.5	481.86	7	51.72

1) Equivalent of unhulled rice; 2) Coefficient of dependency = Domestic consumption (Production + Imports - Exports)/Imports; p) preliminary.

Sources: *Informes de Gobierno*, Appendix, several years; Banco de Comercio Exterior, several years, and COMEARROZ, direct communication, 1998.

Industry bankruptcies and job losses

The increase in business bankruptcies at the primary production and processing levels is closely related to the trends described above. Between 1986 and 1997, 34 out of the 70 plants that existed in the 1980s have shut down. As a result, a large number of jobs directly and indirectly related to the rice industry were lost. Of the approximately 5,500 directly employed workers, about 2,400 retained their jobs in the period mentioned. It is important to highlight that for each direct job in this industry, four jobs are created in other sectors that are not accounted for in the above data. Another problem facing mills is underutilized operating capacity, which in most cases does not exceed 54% with a national average of 35%.¹¹ In addition, many mills have ceased operations; in Campeche alone four mills closed down between 1996 and 1997. This situation is causing serious financial problems for the industry.

¹¹ Data provided by COMEARROZ.

Table 3 - Mexico. Trends in days of labor and in area under cultivation in rice-producing states, 1985 and 1997

State	Days of labor ha ¹⁾	1985			1997		
		Days of labor ²⁾	Area under cultivation		Days of labor	Area under cultivation	
			(ha) ³⁾	(%)		(ha) ⁴⁾	(%)
Campeche	35	2,095,170	59,862	22.18	690,585	19,731	21.79
Chiapas	53	195,676	3,692	1.37	84,800	1,600	1.77
Colima	42	158,046	3,763	1.39	174,804	4,162	4.60
Guerrero	110	255,970	2,327	0.86	69,300	630	0.70
Jalisco	30	63,840	2,128	0.79	72,000	2,400	2.65
México	40	13,000	325	0.12	16,800	420	0.46
Michoacán	34	200,124	5,886	2.18	205,292	6,038	6.67
Morelos	40	136,000	3,400	1.26	147,400	3,685	4.07
Nayarit	30	241,800	8,060	2.99	167,400	5,580	6.16
Oaxaca	53	165,148	3,116	1.15	132,500	2,500	2.76
Q.Roo	30	379,800	12,660	4.69	21,000	700	0.77
Sinaloa	30	3,315,690	110,523	40.96	405,180	13,506	14.91
Tabasco	50	1,086,150	21,723	8.05	288,950	5,779	6.38
Tamaulipas	12	9,780	815	0.30	15,960	1,330	1.47
Veracruz	53	1,547,441	29,197	10.82	1,139,500	21,500	23.74
Otros		94,520	2,363	0.88	40,000		1.19
Total		9,958,155	269,840	100.00	3,671,471	90,561	100.00

Sources: 1) COMEARROZ, direct communication; 2) Calculated with data from sources 1 and 3; 3) Carlos Salinas de Gortari, *Informe de Gobierno 1993*, Appendix, 1993, pp. 712-721; 4) Instituto Nacional de Estadística Geográfica e Informática (INEGI/CONAL), *El sector alimentario en Mexico*, Aguascalientes, 1996 and 1997.

At the production level, available data shows losses estimated at 6,286,684 days of labor in rural areas in 1997 compared to 1985 (Table 3), with only 3,671,471 remaining. The data suggests that even in a conservative scenario, which only considers the maintenance of 1985 levels of area under cultivation without taking into account the increase necessitated by population growth, more than 30,000 full-time jobs were lost. The problem is worse still, if one considers that in some regions in Mexico, for example the southern part of Veracruz and the areas along the rivers of Campeche, the land is only suitable for rice cultivation. COMEARROZ believes that finding an alternative crop for a large percentage of land where rice is currently cultivated would be difficult.

Increased imports

The most striking aspect of the decline in Mexican rice cultivation is the pattern of imports. Until the end of the 1960s and beginning of the 1970s, Mexico was self-sufficient in meeting domestic demand. Imports, insignificant during the 1970s and 1980s, were only intended to cover the

shortfall in domestic production, and in 1978 Mexico even exported small quantities of rice.

Table 4 - Mexico. Coefficient of food dependency of basic grains, 1985-1998

<i>Year</i>	<i>Corn</i>	<i>Wheat</i>	<i>Bean</i>	<i>Rice</i>
1985	13.62	5.78	13.69	22.60
1986	12.69	4.49	14.16	0.26
1987	23.70	9.00	3.71	4.03
1988	23.77	25.43	4.57	0.28
1989	24.99	9.36	15.39	38.33
1990	21.90	7.94	20.42	39.99
1991	9.09	11.75	2.22	40.94
1992	7.21	22.92	0.40	57.39
1993	1.15	32.71	0.59	60.39
1994	10.81	33.51	0.05	55.50
1995	13.85	44.77	0.09	51.75
1996	24.55	37.51	8.43	56.55
1997	18.61	36.71	5.52	51.27
1998	37.32	44.55	12.22	51.72

*Coefficient of dependency = Production + Imports - Exports/Imports

Source: Calculations based on data from *Informes de Gobierno*, Appendix, several years; Banco de Comercio Exterior, several years; and Department of Commerce, STAT-USA, *U.S. Domestic Exports*, <http://www.ita.doc.gov/industry/otea/Trade-Detail/Latest-December/Exports/10/>

During these years, foreign trade was used to offset small shortfalls or surpluses in the domestic market, although in some years imports caused serious marketing problems domestically (Table 2).¹² In 1981 and 1985, Mexico's National Basic Foods Company (CONASUPO) imported excessive quantities of rice, due to inefficiency and a lack of information, and to an overestimation of demand following the 1985 earthquake in Mexico City. Furthermore, the overvalued peso against the USA dollar made imports cheaper. From 1989 to the present, however, imports have become a constant feature in the market. The domestic rice consumption dependency rate grew from 0.28% in 1988 to 54% in 1996/1997, with an average of 52% in the 1990s (Table 4).

Currently, rice stands out among dietary grains for its high level of foreign dependency (Table 4). This foreign dependence reduces the ability of domestic policies to impact and regulate the rice sector, which is subject to foreign market fluctuations, especially in the U.S.

¹² For more details, see Marina Chávez Hoyos, "La agroindustria del arroz: coyuntura y transición" in *Los retos de la soberanía alimentaria en México*, Mexico City, Editorial Juan Pablos, 1993, pp. 109-111.

Disruption of the agribusiness chain

Another characteristic of the rice agribusiness sector is the ever-increasing disruption of the production-milling/processing-packaging/distribution chain. In the absence of coherent policies to ensure its strength, the processing phase has largely become an ‘assembly plant’ for imported rice, dismantling Mexican primary production. Trade policy was barely able to maintain the processing-packaging/distribution phase by reducing milled rice imports from 227,483 tons in 1992 to 41,705 tons in 1997/98 and by redirecting external purchases toward subsidized palay rice, which still requires processing. Palay rice imports quadrupled from 109,857 tons to 400,000 tons in the same period.¹³

We hold that any imports harm the national rice chain. Milled rice imports cause the most serious damage because they interrupt the rice chain at the processing stage. However, given the current circumstances, palay rice imports are necessary because of the marked seasonal nature of Mexican production and the lack of compensatory aid for the subsidies paid out in the U.S., which deceptively lower the competitiveness of Mexican producers (see below).

Improved use of resources and increased efficiency of rice farmers

The period under analysis is characterized by strong yield performance, which increased from 3.73 *ton/ha* in 1985 to 4.3 *ton/ha* in 1997/98 (Table 2). One explanation is that some producers were not displaced by imports because they either used more advanced technology or were located in regions having a better economic rent. A comparison of average yields for Mexico and the USA shows a difference of about 1.9 *ton/ha* in favor of the latter. Nevertheless, it should be taken into account that U.S. production is exclusively on irrigated land, while Mexico uses mainly seasonal production (rainfield). A comparison of only those yields from irrigated land reveals that Mexican producers have significantly closed the technology gap. In 1997/98 Michoacan and Veracruz reported yields of 7 *ton/ha* and Morelos and Mexico State 8 *ton/ha*,¹⁴ yields which surpass USA performance. The highest yields are produced in Morelos, where small landholders averaging 1.3 ha per farmer and employing techniques similar to truck farming (gardening) achieved an average of 7.87 *ton/ha* in the 1990s (INEGI/CONAL).

¹³ [http://mexico.businessline.gob.mx:8002/simpex/owa/snest001\\$fra1.FormView?P_CVE_FRACCION=920&P_slot=0&nombre_usuario=](http://mexico.businessline.gob.mx:8002/simpex/owa/snest001$fra1.FormView?P_CVE_FRACCION=920&P_slot=0&nombre_usuario=)

¹⁴ These States grow rice on irrigated land.

In addition, it should be recognized that Mexican producers, having fallen behind in technological innovation at the end of the 1980s and beginning of the 1990s, caught up as of 1993. Consequently farmers were able to produce more rice in seasonal cultivation areas than on irrigated land just prior to the passage of NAFTA.

Replacing irrigation-based rice cultivation with seasonal production is another positive trend (Table 3). Sinaloa, which until the beginning of the 1990s ranked first nationally with regard to area under cultivation and irrigated production, has completely lost its importance; its share of the total amount of farmland under rice cultivation fell from 24% in 1990 to 2.8% in 1996. However, Sinaloa did recover slightly in 1997, reaching a 14.9% share. For its part, Veracruz has increased its presence, in both absolute and relative terms. It accounts for more than a third of area under cultivation, and because of yields above 5 ton/ha, it accounts for 38% of Mexico's production.

Agricultural policy for adjustment and structural change

To adequately review the situation described above, the causes contributing to the disruption of Mexico's rice chain must be further examined. This article focuses on the following: a) macroeconomic policy; b) trade liberalization; and c) differences between pricing policies and subsidies in the USA and Mexico.

Macroeconomic policy

The sharp decline both in land under rice cultivation and in production began in 1986 as a result of the Mexican government's policy of structural change and macroeconomic adjustment implemented at the beginning of the 1980s.

Reduced support for production because of Mexico's economic cutbacks placed intense pressure on the entire rice chain, and both producers and plants were forced out of business due to a lack of profitable income. Table 5 uses examples of funded and insured farmland under cultivation to illustrate how official support has been dwindling since the 1989/1990 growing cycle.

Table 5 - Mexico. Cultivated area funded by Mexico's National Bank of Rural Credit (BANRURAL) and insured farmland under rice cultivation, 1985-1997

Years	<i>Cultivated area funded by BANRURAL</i>		<i>Insured farmland</i>	
	Thousands of ha	Share of planted area (%)	Thousands of ha	Share of planted area (%)
1985	196	73	222	82
1986	151	77	169	86
1987	147	79	155	84
1988	135	77	144	82
1989	112	58	181	94
1990	31	26	20	17
1991	12	13	11	11
1992	15	15	10	10
1993	12	19	5	8
1994	15	16	14	14
1995	15	17	15	17
1996	16	18	10	11
1997	21	19	26	23
1998	10	10	14	14

Source: authors' compilation based on data from *Informes de Gobierno*, Appendix, several years.

Beginning in 1990, national rice production leveled off (Table 2). This suggests that the process of adjustment and structural change had reached a new social and regional balance, mainly characterized by strong foreign dependency, specifically on the U.S.

Trade Liberalization benefiting U.S. producers

The authors believe that Mexican rice producers have been among the most affected by the trade liberalization policy implemented by the Mexican government in 1986 (accession to GATT). Without having measured its effects beforehand, the government drastically and unilaterally undertook trade liberalization, substituting international production for domestic cultivation. NAFTA has made Mexico the second largest market after Japan for U.S. rice imports. Mexico has displaced Canada, Saudi Arabia, Haiti and Turkey, countries which in 1992 and 1993 still surpassed Mexico in terms of rice purchases from the U.S.¹⁵ In 1992 the U.S. already accounted for 40% of Mexican rice imports. By 1996, 1997 and 1998 the U.S. accounted for 100% of palay rice imports, in addition to 99.88% of hulled rice and 93% of milled rice.¹⁶ Currently, more than 50% of Mexican

¹⁵ USDA/FAS, USA Exports of rice 1992-1996, <http://www.fas.usda.gov/scripts/bico/>.

¹⁶ The authors' calculations based on Mexico's Banco de Comercio Exterior, SIMPEX, on the INTERNET.

rice consumption originates in the U.S., making rice Mexico's most import-dependent food staple. The U.S. benefited from Mexico's trade liberalization in the following ways:

1. Easier access to the Mexican market with the elimination of import licenses since 1989.
2. More competitive export prices due to lowered tariffs. In 1997 this reduction represented US\$16.58/t and in 1998, US\$13.00/ton¹⁷ in the case of unhulled rice. In other words, the Mexican government no longer benefits from roughly ten million dollars in rice duties.¹⁸ This money could have allowed the government's assistance program for rural communities (PROCAMPO) to double rice producers' incomes.
3. More competitive prices because of a notoriously overvalued Mexican peso. In 1998, the overvaluation reduced the import price by roughly US\$53.84 per ton.¹⁹
4. The U.S. was able to profit from the efforts of Mexican millers to lower imports of milled rice from Asia and Uruguay. In 1994, Mexico imposed a non-tariff barrier on Asian imports on phytosanitary grounds. In December 1996, Mexico changed this policy to allow rice imports, but only from disease-free zones or zones employing strict quarantine measures, thus making it almost impossible for Asian countries to export to Mexico. As the statistics clearly show this scenario has favored the U.S. (Figure 1).
5. The U.S. has long pursued policies of support, producer capitalization and export promotion. Owing to rice's strategic importance, the USA still maintains several export promotion programs, including: the Supplier Credit Guarantee Program, which in the 1997 fiscal year earmarked US\$2.1 million for rice exports to Mexico;²⁰ the Foreign Market Development Program, which in 1998 had US\$ 1,685,063 to develop, maintain and expand rice markets;²¹ the Export Enhancement Program,

¹⁷ The authors' calculations based on Table 7.

¹⁸ The authors' calculations based on Mexico's Banco de Comercio Exterior, *op cit*.

¹⁹ For more details, see CIESTAAM/COMEARROZ, *Comparecencia del Consejo Mexicano de Arroz frente a la SECOFI, para emitir su opinión respecto a la desgravación acelerada de las fracciones 1006.10.01, 1006.20.01, 1006.30.01, 1006.40.01, conforme a lo establecido en el TLCAN*, Mimeo, Mexico City, December 1997, Table 12.

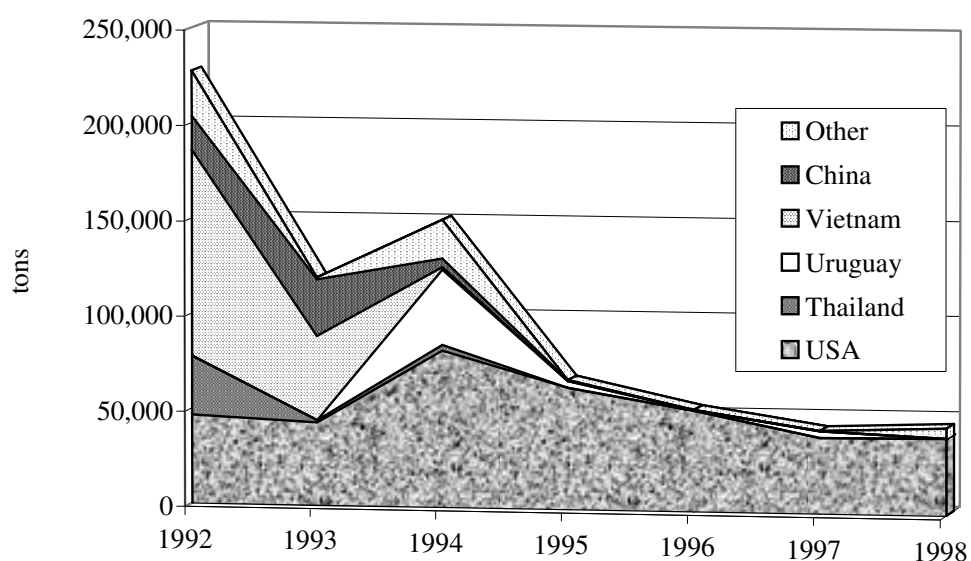
²⁰ USDA/FAS, *Monthly Summary of Export Credit Guarantee Program Activity*, ECG-8-97, August 1997, p. 9.

²¹ USDA/FAS, *Foreign Market Development Program*, <http://www.fas.usda.gov/info/factsheets/coopertr.html>.

which sells 178,000 tons of rice in 27 countries to offset supposed trade distortions.²² In addition to these programs, US\$ 2,911,598 is allocated through the Commodity Credit Corporation (CCC) to promote U.S. rice consumption in other countries.

Production subsidies, the other method employed by the U.S. to maintain and increase its presence in the Mexican market, will now be examined.

Figure - Mexico. Milled rice imports by origin, 1992- 1998 (tons)



Source:
[http://mexico.businessline.gob.mx:8002/simpex/owa/snest001\\$fra1.FormView?P_CVE_FRACCION=920&P_slot=0&nombre_usuario=](http://mexico.businessline.gob.mx:8002/simpex/owa/snest001$fra1.FormView?P_CVE_FRACCION=920&P_slot=0&nombre_usuario=)

Differences between Producer Subsidy Equivalents for rice in the U.S. and Mexico

The methodology to estimate the Producer Subsidy Equivalent (PSE) developed by the U.S. is currently the most widely accepted method for quantifying policies and comparing them among different countries.

²² This program does not include rice exports to Mexico. USDA, *Export Enhancement Program and the Dairy Export Incentive Program*, Release No. 0213.97, <http://www.usda.gov/news/releases/1997/06/0213>.

According to OECD figures, Mexico's total **PSE**²³ for rice was generally negative until 1990 (Table 6).

Table 6 - Palay rice: A Comparison of Producer Subsidy Equivalent (PSE) in the USA, Japan and Mexico, 1982-1996

	<i>USA</i> ¹⁾		<i>Japan</i> ²⁾		<i>Mexico</i> ³⁾	
	<i>Transfers (US\$/ton)</i>	<i>PSE (%)</i>	<i>Transfers (US\$/ton)</i>	<i>PSE (%)</i>	<i>Transfers (US\$/ton)</i>	<i>PSE (%)</i>
1982	53.0	24.0	249.5	75.8	-55.8	-32.1
1983	158.0	48.0	262.5	79.0	-95.5	-76.5
1984	79.0	32.0	267.6	80.4	-20.8	-11.8
1985	141.0	52.0	287.5	86.4	-47.1	-28.7
1986	170.0	72.0	308.7	92.9	-51.0	-33.3
1987	146.0	51.0	295.2	94.2	-73.0	-61.6
1988	102.0	43.0	269.6	89.4	-50.3	-37.2
1989	98.0	41.0	261.3	86.3	-32.1	-19.5
1990	123.0	49.0	257.7	86.7	-9.4	-54.4
1991	101.0	42.0	256.7	86.5	6.9	3.2
1992	129.0	54.0	267.7	91.4	34.6	14.6
1993	134.0	46.0	288.6	99.0	38.2	16.8
1994	91.0	41.0	260.0	91.5	62.8	25.3
1995	82.0	31.0	278.6	96.6	24.5	12.8
1996	25.0	11.0	277.0	89.0	38.1	16.2
1997 ^e	29.0	12.0	255.0	88.0	5.9	2.7

e) Estimated.

Source: OECD, *Statwise*, Database, Version 1.2, Statistics Netherlands, 1997.

This indicator became positive as of 1991 owing to the introduction of direct payments by the Ministry of Agriculture's promotion department (ASERCA). It did not, however, reach the levels of other OECD member countries such as the U.S. and Japan, two major rice producers. During all those years, Mexican producers received prices lower than international ones, thus discouraging imports. Therefore, the fiscal resources that were theoretically being transferred (the negative transfer is interpreted as a tax payment) might otherwise have had to be spent on imports. Since Mexican rice producers did not receive prices comparable to their international counterparts, they lacked sufficient resources for capital formation or to

²³ "PSE is an indicator measuring the value of monetary transfers to agriculture resulting from agricultural policy in a given year. It also includes payment transfers both from consumers of agricultural products and taxpayers (through budgetary or tax expenditures)." OECD, *Review of Agricultural Policies in Mexico*, Paris, 1997, p. 110. (Pages 110-116 fully describe the methodology).

modernize production in preparation for the trade liberalization that was about to begin.

Budgetary support to Mexican rice growers was mainly granted in the form of subsidies for irrigation systems, infrastructure improvements, interest relief and, since 1991, direct payments for ASERCA's marketing activities. In this case, **PSE** as a percentage increased from an average of – 40% between 1982 and 1990, to 13% between 1991 and 1997. Despite this increase, the **PSE** in Mexican rice production has always been lower than that of other OECD members, supporting the conclusion that Mexican agricultural policy, within the current context of structural adjustment and trade liberalization, places Mexican rice producers at a disadvantage.

The impact of policy and subsidies on palay rice prices in the USA and Mexico

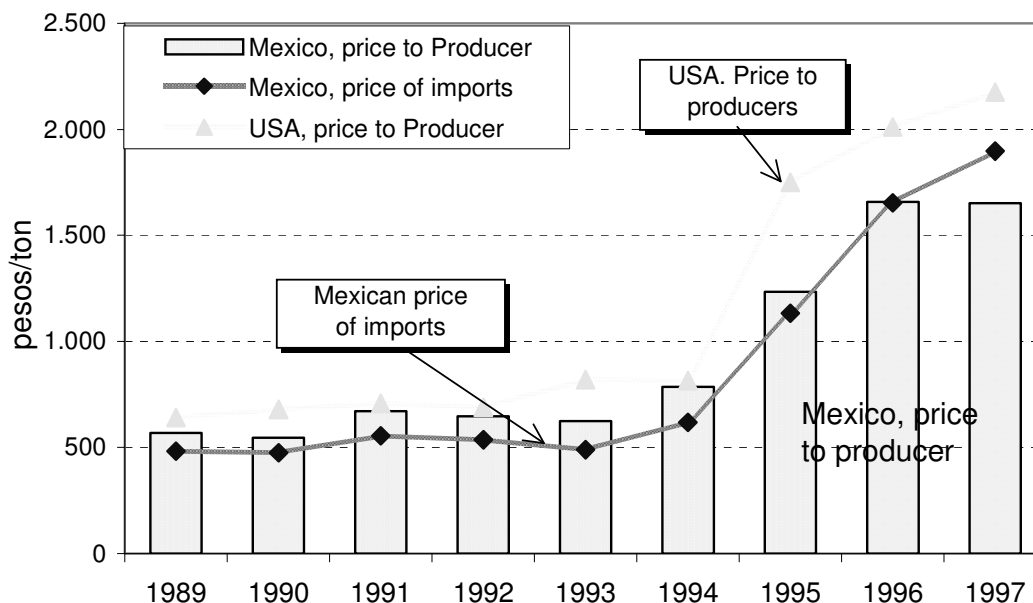
The following subsection examines *market price* policy and support, one of the categories taken into account when calculating **PSE**. The different priorities of U.S. and Mexican policy are reflected in the pricing dynamics and varying price levels (Table 7 and Figure 2). Producer subsidies play a fundamental role in these policies. An analysis of these subsidies shows why rice import prices are lower than the prices received by Mexican producers and explains how incentives are used to encourage importers to buy U.S. rice to the detriment of Mexican growers. The following five points help to better understand the harm caused by U.S. imports and Mexico's unfavorable domestic pricing policy.

- 1) In each year examined, U.S. producers received much higher prices than their Mexican counterparts, placing U.S. producers in a more competitive, better-capitalized position (Table 7, Columns C and F).
- 2) The money received by Mexican producers dramatically loses purchasing power compared to the cost of the principal inputs used in production. Column B in the average rural price (ARP) — or the price paid to the producer — shows a reduction from an average of 1,520 pesos/t between 1982 and 1985 to 799 pesos/t during the years under NAFTA (1994-1997). This represents a 47% reduction in real terms. In the same period, U.S. producers faced a drop in the average price from US\$262/t to US\$246/t.²⁴ This 6% drop was much less than the one experienced by Mexican producers. The data demonstrates that Mexican

²⁴ Prices deflated by the producer price index. USDA/ERS, *Agricultural Outlook*, Washington, D.C., June 1997, p.32.

producers face greater challenges than their USA counterparts in increasing profitability.

Figure 2. Comparison of prices received by Mexican and U.S. producers, and the Mexican import prices, 1989-1997 (in current pesos per ton)



Note: The import price represents the price adjusted by the differential in the profit return, see Note 3. Sources: CNA, *Sector agropecuario. Estadísticas básicas*, several years; COMEARROZ, direct communication; USDA, *Rice Yearbook*, Washington, D.C., December 1996, Tables 15 and 19; USDA/ERS, *Rice Outlook*, RCS-1197, November 1997, Table 3; Banco de México, *Indicadores Económicos*, several years.

- 3) One of the key differences between U.S. and Mexican producers lies in the amount of support or direct payments received from their respective governments. Table 8, which compares direct payments for the two countries, shows that U.S. producers not only receive larger payments, but also know the amount they can expect in the longterm (until 2002). Mexican producers must await yearly announcements, and currently face uncertainty. In addition, promises to maintain the payments in real terms have not been fulfilled.
- 4) Although under the conditions set out in the new U.S. agricultural law (1996 Farm Act) some details of the policy have changed (the target price has disappeared, direct payments are based on land under cultivation and recent years` yields, and the cultivation patterns may be changed freely), U.S. farmers remain more strongly supported than their

Mexican counterparts. In spite of the *change* in subsidy payment *methods*, the U.S. will continue harming the Mexican agricultural sector because the *subsidies themselves will continue*.

Table 7 - Comparison of Mexican and U.S. trends in average rural prices, and pricing trends for palay rice imports, 1989-1997

	Mexico					USA
	ARP* Current prices (pesos/ton)	ARP Real prices ¹⁾ (pesos/ton)	ARP (US\$/ton)	Import price ²⁾ (US\$/ton)	Adjusted import price ³⁾ (US\$/ton)	Price to producer ⁴⁾ (US\$/ton)
	A	B	C	D	E	F
1989	568.19	1,318.17	213.02	200.70	180.63	240.52
1990	545.60	988.78	189.08	186.25	167.63	239.42
1991	670.52+	957.14	212.19	204.51	184.06	234.79
1992	647.29+	754.73	209.21	192.51	173.26	222.66
1993	624.00+	674.81	216.98	174.80	157.32	263.67
1994	786.00+	786.00	224.57	196.22	176.60	233.03
1995	1,234.00+	844.12	191.32	195.21	175.69	271.39
1996	1,658.00+	832.32	218.45	242.03	217.83	264.99
1997	1,652.00+	736.88	209.11	266.90	240.21	275.36

*ARP = Average rural price. 1) Deflated by the national commodity price index, based on 1994 data published by the Banco de México. 2) The price for palay rice imports was obtained from the value and volume of imports reported by Banco de Comercio Exterior. 3) The price is adjusted on the basis that imported rice has a higher return ex mill: the same return is obtained from 0.71 kg of milled rice as from 1 kg of the Mexican variety. Since by-products also generate earnings, an adjustment by a factor of 0.9 has been made. 4) Includes payment shortfalls/earnings. +) Includes PROCAMPO payments (the national average yield is used to calculate the payment per ton) and support to ASERCA's marketing activities. Sources: CNA, Sector agropecuario. Estadísticas básicas, several years. COMEARROZ, direct communication; USDA, Rice Yearbook, Washington, D.C., December 1996, Table 15; Banco de Comercio Exterior, SIMPEX database; Banco de México, Indicadores Económicos, several years. 5. Since support is channeled to producer incomes and not applied directly to the price, the adjusted price for imports to Mexico is always much lower than the prices paid to Price to producer⁴⁾ (US\$/ton) US producers and, with the exception of 1997, lower than the prices received by Mexican producers (Chart 1). After import permit requirements were discontinued and CONASUPO withdrew from marketing, these circumstances immediately promoted rice imports, as proven by the unprecedented increase in foreign rice purchases as of 1989.

- 5) Mexican rice farmers compete against the most heavily subsidized U.S. crop, without the benefit of support to compensate for the difference (Table 9).
- 6) Since support is channeled to producer incomes and not applied directly to the price, the adjusted price for imports to Mexico is always much lower than the prices paid to U.S. producers and, with the exception of 1997, lower than the prices received by Mexican producers (Chart 1). After import permit requirements were discontinued and CONASUPO withdrew from marketing, these circumstances immediately promoted

rice imports, as proven by the unprecedented increase in foreign rice purchases as of 1989.

Table 8 - Comparison of direct payments per ton of palay rice between Mexico and the U.S., 1990-2002

	Mexico			Mexico	USA
	Marketing	PROCAMPO	Direct payments	Direct payments	
	(pesos/ton)	(pesos/ha)	(pesos/ton)	(US\$/ton)	(US\$/ton)
1990	--	--	--	--	92.15
1991	60	--	60	19.89	67.68
1992	80	--	80	25.86	92.81
1993	120	--	120	38.58	87.74
1994	74	350 ¹⁾	156	44.57	83.55
1995	74	440	168	26.05	70.99
1996	74	484	181	23.85	61.07
1997	74	556	200	25.36	60.41
1998	2)	626	152	17.00	64.82
1999		C		?	62.83
2000				?	57.54
2001				?	46.52
2002				?	44.97

1) Spring-Summer. 2) As of November 1996, marketing support was not approved for the growing cycle, but was selected for regions with marketing problems and for certain products such as corn, sorghum and wheat.

Sources: *Informes de Gobierno*, Appendix, several years; USDA/ERS, *Rice Yearbook*, 1996, *op.cit.*, Table 15.

The introduction to this article suggested that U.S. government support for rice production and exports, and Mexico's macroeconomic policy have a greater impact on Mexican producers than NAFTA. The data used thus far shows that NAFTA protected Mexican producers in 1997: this is seen in the difference between the price to U.S. producers (including subsidies)²⁵ and the price of imports to Mexico, or 126.51 pesos/t²⁶ as opposed to 277.69 pesos/t. Added to this difference is the impact of the overvaluation of the peso in 1997, which translated into 304 pesos per ton of rice.

This data suggests that without the distortions of U.S. agricultural policy and Mexico's macroeconomic policy, Mexican rice producers would be competitive. A brief analysis²⁷ of rice production costs in Mexico and the USA will help to examine more thoroughly this hypothesis.

²⁵ The authors' calculations based on Table 7.

²⁶ Taking into consideration a 6% tariff for 1997.

²⁷ To facilitate the analysis, the effect caused by the peso's overvaluation will not be considered.

Table 9 - USA. Support payment estimates per hectare for different crops 1996-2002 (US\$/ha)

<i>Year</i>	<i>Rice</i>	<i>Cotton</i>	<i>Corn</i>	<i>Wheat</i>	<i>Sorghum</i>
1996	286.65	79.52	49.37	51.89	38.40
1997	282.74	64.96	94.77	36.37	61.95
1998	303.40	69.09	74.23	38.75	52.07
1999	294.16	66.72	72.06	37.86	49.57
2000	269.37	61.09	65.95	34.00	45.76
2001	217.80	49.50	53.50	27.40	37.09
2002	210.54	48.01	51.52	26.81	35.90

Source: Outlaw, Joe L. et al., *Landowner/Tenant in the Texas Rice Industry*, <http://afpc1.tamu.edu/pubs/issue/1996/3/ricefact.htm>, p. 4.

Analysis of rice production costs in Mexico and the U.S.

The USDA periodically publishes rice production costs for various U.S. states and growing regions, as well as an average for all regions. This data was made available from 1975 to 1996. For the purpose of this article, the cost and earning trends for rice production using the weighted average of producing farms during the period covered by NAFTA will be examined.

As Table 10 shows, production costs during the three years exceeded earnings, and rice cultivation would not have generated profits for U.S. farmers without subsidy payments.

Table 10 - USA. Rice farming returns, 1994-1996 (US\$/ton)

	<i>Market Price</i>	<i>Cost</i>	<i>Subsidized gains</i>	<i>Non-subsidized Gains</i>
1994	216.64	236.07	-19.43	64.12
1995	193.20	249.15	-55.95	15.04
1996	214.94	243.82	-28.88	32.19

Sources: USDA/ERS, *Rice Costs and Returns*. 1995-96 Costs of Production from the Farm Costs and Return Survey; USDA/ERS, *Rice Costs and Return Data*, <http://151.121.66.126/Briefing/fbe/car/rice3.htm> and Table 8.

A comparison of production costs in Mexico and the USA for 1996 (Table 11) shows that Mexican producers have lower production costs than their U.S. counterparts. Nevertheless, in both countries rice growing does not generate gains without government support. By including subsidies, U.S. producers benefit more because they receive approximately ten dollars/ton more than Mexican producers. Moreover, they receive better returns per hectare and since they employ large-scale production, their earnings are higher than those of Mexican producers.

Table 11 - Comparison between rice production returns in Mexico and the U.S., 1996 (US\$/ton)

	<i>Market Price</i>	<i>Cost</i>	<i>Subsidized Gains</i>	<i>Non-Subsidized Gains</i>
Mexico	183.80	185.66	-1.86	21.99
USA	214.94	243.82	-28.88	32.19

Source: Table 10 and COMEARROZ, direct communication, 1997.

An analysis of Tables 10 and 11 suggests two closely related conclusions for non-subsidized U.S. rice cultivation:

1. Most U.S. rice producers would have to find other profitable production alternatives, thereby drastically reducing production and the rice export supply and thus encouraging Mexican producers to increase domestic production; and
2. Without subsidies the market price would have to rise. Therefore, Mexican importers would be less inclined to buy U.S. grain and domestic production would gain more favor.

Proposal for a new trade and farm and food policy for rice

The authors maintain that rice imports represent a serious threat to Mexico's food security and, furthermore, jeopardize more than 3.5 million days of labor and jobs dependent on rice production, processing and marketing.

This article shows that imports hurt Mexico's domestic rice industry and are unfair given that U.S. producers receive more support. Considering the economic and social importance of the rice agribusiness chain for Mexican society, we suggest the following changes to economic policy:

- 1.1 Maintain tariffs at current levels, or even raise them to levels negotiated under the Uruguay Round of GATT, and apply a compensatory quota equivalent to U.S. subsidies allocated to rice production and export (renegotiate NAFTA). Or,;
- 1.2 Compensate Mexican rice producers for the support received by U.S. rice growers.

- 2 A coherent development policy for rice production should accompany these options. The policy should take the following into consideration:
 - a) Defining marketing regulations and quality standards that would regulate imports as well as the domestic market;
 - b) Including rice in ASERCA`s price coverage program, as for other basic grains;
 - c) Allocating sufficient resources to research new, better quality varieties which meet market requirements, to extend crop seasons and to improve technologies, in accordance with the present ecological diversity;
 - d) Granting sufficient credit and at the appropriate time
 - e) Improving information on market conditions to facilitate decision-making;
 - f) Supporting measures intended to strengthen the agribusiness chain based on domestic production, not on imports;
 - g) Promote rice consumption as one of the cheapest food sources available.

Given Mexico's budgetary situation, the first proposal (1.1 accompanied by 2) would be more suitable and would also generate extra income that could be used to develop the rice sector. This article contends that these measures would increase rice cultivation by at least 100,000 ha (creating jobs that are otherwise exported to the U.S.), re-establish the production-processing-packaging chain, stimulate the Mexican economy and allow Mexico to regain food self-sufficiency.

References

- ASERCA (1997) "Los retos en la producción de arroz", en: Revista, *Claridades Agropecuarias*. No. 51, noviembre 1997.
- Banco de Comercio Exterior, SIMPEX, a través de INTERNET, <http://mexico.business-line.gob.mx:8002/simpex/owa/>
- Banco de México, *Indicadores Económicos*. México, D.F., varios años.
- Bureau of the Census, Foreign Trade Division, STAT-USA, U.S. *Domestic Exports*, <http://www.ita.doc.gov/industry/otea/Trade-Detail/Latest-December/Exports/10/>
- Calvas, J.L. (1995) *El modelo neoliberal en México*, Ed. Juan Pablos, México, 195 p.
- CANACINTRA (1992) Sección 26, Industriales Arroceros, 3 p.
- CIESTAAM/COMEARROZ (1997) *Comparecencia del Consejo Mexicano de Arroz frente a la SECOFI, para emitir su opinión respecto a la desgravación acelerada de las fracciones 1006.10.01, 1006.20.01, 1006.30.01, 1006.40.01, conforme a lo establecido en el TLCAN*. Mimeo, México, D.F., diciembre de 1997.
- CNA, *Sector agropecuario*. Estadísticas básicas, varios años.
- Coats, Robert E., et al. (1995) *Rice policy*, Texas A&M University, Texas.
- Consultores Técnicos en Desarrollo Rural (1992) *Estudio de mercado y comercialización. Perspectivas y propuestas para el desarrollo de la industria arrocera veracruzana*, México, D.F.
- Chávez Hoyos, Marina (1993) "La agroindustria del arroz: coyuntura y transición", en: González Pacheco, C. y F. Torres Torres, *Los retos de la soberanía alimentaria en México*. Ed. Juan Pablos, México, D.F., pp. 109-111.
- FAO, *Perspectivas alimentarias*. Sistema mundial de información y alerta sobre la agricultura y la alimentación. Roma, Italia, varios números.
- Flores Santiago, Arturo (1993) *La producción de arroz en Tabasco. Un reflejo de la problemática arrocera en México*. Ed. Universidad autónoma Chapingo, Chapingo, México, 108 p.
- Flores Santiago, Arturo (1991) "Limitantes y perspectivas de la producción de arroz en Tabasco", en: CIESTAAM, *El Tratado Trilateral de Libre Comercio y su influencia en la agricultura mexicana*, Metepec, Pue, pp. 194-204.
- Flores Santiago A. (1994) *Situación actual y perspectivas de asociación entre empresarios y productores en el sistema producto arroz*, in CIESTAAM, *Modalidades de asociación e integración en la agroindustria mexicana*, UACH, Chapingo, México, p. 89-122.

INEGI/CONAL, *El sector alimentario en México*, Ediciones 1996 y 1997, Aguascalientes, Ags., 1996 y 1997.

Informes de Gobierno, *Anexo*, varios años.

Medders, H., *Rice Farmers Reap Free Trade Benefits*, <http://cavern.uark.edu/depts/agri-pub/Publications/Agnews/agnews11.html>.

RABOBANK (1993) *The World Rice Market*, Nederland, 44 p.

OECD (1996) *Agricultural policies, markets and trade in OECD countries, monitoring and evaluation 1996*, OECD, Paris.

-1996b *Statwise*, Base de datos, Version 1.2, Statistics Netherland.

-1997a *Agricultural policies in OECD countries. Measurement of support and background information 1997*, OECD, Paris.

-1997b *Examen de las políticas agrícolas de México*, OECD, Paris.

Outlaw, Joe L. et al., *Landowner/Tenant in the Texas Rice Industry*, <http://afpc1.tamu.edu/pubs/issue/1996/3/ricefact.htm>

Ruiz Juarez E. (1995) *La agroindustria arrocera de México: Situación y perspectivas*. Departamento de Ingeniería Agroindustrial, UACH, México.

SARH (1993) *El sector agropecuario en las negociaciones del Tratado de Libre Comercio Estados Unidos - México - Canadá*, México, D.F., noviembre.

SARH/SAGAR, Anuario Estadístico de la Producción Agrícola de los Estados Unidos Mexicanos, varios años.

SECOFI (1994) *Tratado de Libre Comercio de América del Norte, Fracciones Arancelaria y Plazos de Desgravación*, México, D.F.

SECOFI (1994) *Tratado de Libre Comercio de América del Norte, Fracciones Arancelarias y Plazos de Desgravación*, Estados Unidos. México, D.F.

USDA, *Agricultural Outlook*, varios números.

USDA, *Export Enhancement Program and the Dairy Export Incentive Program*, Release No. 0213.97, www.usda.gov/news/releases/1997/06/0213.

USDA, *Rice Outlook*, November 1997, http://mann77.mannlib.cornell.edu/reports/erssor/field/rcs-bb/1997/rice_outlook_report_11.12.97.

USDA *Rice Yearbook*, Washington, DC, December 1996.

USDA, *U.S. Imports of Agricultural Products from Mexico*, U.S. Exports of Agricultural Products to Mexico, <http://www.fas.usda.gov/scripts/w/bico/bico/>.

USDA/ERS, *Agricultural Outlook*, Washington, DC, June 1997.

USDA/ERS, *Effects of the North American Free Trade Agreement on the U.S. Agricultural Commodities*, Washington, DC, March 1993.

USDA/ERS, *Rice Costs and Return Data*, <http://151.121.66.126/Briefing/fbe/car/rice3.htm>

USDA/FAS, *NAFTA Agricultural Fact Sheet: Rice*;
<http://www.fas.usda.gov/itp/policy/nafta/rice.html>.

USDA/FAS, *Foreign Market Development Program*,
<http://www.fas.usda.gov/info/fact-sheets/coopertr.html>.

USDA/FAS, *Monthly summary of Export Credit Guarantee Program Activity*, ECG-8-97, August 1997.

USDA/FAS, *U.S. Exports of rice 1992-1996*, <http://www.fas.usda.gov/scripts/bico/>

USDA/FAS, *USDA reports positive NAFTA impact on U.S. agriculture*, <http://ffas.usda.gov/release/0523naft.htm>.

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