

# AGRICULTURAL VALUE CHAINS IN THE MEXICALI VALLEY OF MEXICO

## MAIN PRODUCERS AND BUYERS



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# Table of Contents

<b>INTRODUCTION.....</b>	<b>3</b>
Research Methods .....	4
<b>OVERVIEW OF MEXICALI VALLEY AGRICULTURE.....</b>	<b>5</b>
Wheat Producers and Buyers .....	9
Cotton Producers and Buyers .....	11
Green Onion Producers and Buyers .....	13
Asparagus Producers and Buyers .....	16
Alfalfa Producers and Buyers.....	17
<b>ENVIRONMENTAL COMMITMENTS OF PRODUCERS AND BUYERS .....</b>	<b>17</b>

## Tables

Table 1: Acreage, Production Volume, and Market Value for Major Agricultural Crops, 2004-2008.....	7
Table 2: Mexicali Agricultural Crop Producers, By Major Crop .....	8
Table 3: Mexicali Agricultural Crop Buyers, By Major Crop .....	9
Table 4: Major Wheat Producers in the Mexicali Valley .....	10
Table 5: Major Wheat Buyers in the Mexicali Valley .....	10
Table 6: Major Cotton Producers in the Mexicali Valley .....	12
Table 7: Major Cotton Buyers in the Mexicali Valley .....	12
Table 8: Acreage, Production Volume, and Market Value for Selected Vegetables, 2008 .....	14
Table 9: Producers of Green Onions in the Mexicali Valley .....	15
Table 10: Asparagus Producers in the Mexicali Valley .....	16

## Figures

Figure 1: The Mexicali Valley.....	6
Figure 2: Wheat Value Chain.....	11
Figure 3: Cotton Value Chain.....	13
Figure 4: Green Onion Value Chain.....	15
Figure 5: Asparagus Value Chain.....	16
Figure 6: Alfalfa Value chain.....	17

## Appendices

Appendix A: CGGC Research Reports, Publications and Presentations, 2007-2010 .....	21
Appendix B: List of People Interviewed .....	23
Appendix C: List of Major Producers and Buyers of Crops Grown in the Mexicali Valley .....	25

# Agricultural Value Chains in the Mexicali Valley of Mexico

A REPORT FOR THE WALTON FAMILY FOUNDATION

## INTRODUCTION

This report presents findings from the study conducted by the Center on Globalization, Governance & Competitiveness (CGGC) and is financially supported by the Walton Family Foundation. As the initial phase of a proposed two-phase project, the purpose of this study is to identify the major producers and buyers of the main agricultural crops grown in the Mexicali Valley, and to review the public commitments made by these economic actors to good environmental practices in their corporate sustainability reports. The questions addressed by the study are:

- Who are the major growers of the major agricultural crops grown in the Mexicali Valley?
- Who are the major buyers of the major agricultural crops grown in the Mexicali Valley?
- What are the public commitments to environmental sustainability made by major producers and buyers of agricultural products grown in the Mexicali Valley?

CGGC is uniquely positioned to assist the Walton Family Foundation in answering these questions. Since 2007, Professor Gary Gereffi, CGGC's Director, and colleagues at Duke University have conducted numerous studies on agricultural products ranging from tomatoes in California, pork production in North Carolina, and shrimp fisheries in Mexico. CGGC conducts research using the Global Value Chain (GVC) analytical framework, which studies the network of companies and supporting institutions required to produce goods and services in the global economy. The identification of economic actors provides the basis for in-depth analysis of market dynamics, including the opportunity for achieving sustainability goals through the adoption of more environmentally-efficient technologies or sustainable practices by key economic actors. A list of recent publications by Professor Gereffi and colleagues using GVC analysis to understand agricultural production is provided in Appendix A.

Understanding the economic actors in the Mexicali Valley can inform how best to address water limits in the Colorado River Basin while maintaining economic production, employment, and good labor practices in the Mexicali Valley. The April 2010 earthquake may create a window of opportunity to evaluate how water resources are used by the region's stakeholders, and to explore what changes to agricultural production practices or infrastructure could improve river flows, water quality, and riverside habitat in the Colorado River Basin while maintaining agriculture's economic productivity and social values.

The current study of the Mexicali Valley agricultural supply chain was limited to identifying the major producers and buyers of the region's key agricultural crops. The short timeframe of the study did not allow full analysis of other important portions of the value chain. A second phase of this research could identify the value chain actors and their leverage points for each major crop in the Mexicali Valley agriculture value

chain, investigate the water-use profile of the region's crops, and who the important change-agents are for increasing the availability of water for the natural environment in the Mexicali Valley.

## Research Methods

CGGC's approach to value chain studies is first to survey secondary source material for existing research on an industry, with the goal of developing background knowledge and identifying important actors in the production network of goods or services. Once the secondary source material has been reviewed, key actors identified through the initial review process are contacted to answer follow-up questions about the industry. Key actors typically contacted in this second phase are academics who have written articles or reports about the topic; federal, state, and local governments who have written reports or convened meetings of stakeholders on the topic of interest; industry organizations; and perhaps most importantly, leading companies in the industry identified by others as knowledgeable about the scope, conduct, and general dynamics of the product market. During the interviews, CGGC researchers ask respondents to name other actors within the industry, market segment, or value-chain node, and ask for data or other written reports on the market. A draft value chain based on these first two phases of research is then created. In the third phase of research, additional interviews are scheduled with companies. The objective of this phase is to identify additional company names in the value chain nodes, and to better understand their role in the production system. At this phase, company-level data on sales and employment are collected from multiple public and proprietary databases, the value chain is revised, and a draft report is written. In the fourth phase of research, CGGC contacts individuals who are well-informed about the industry and asks them to review the value chain and accompanying report, and to provide comments and corrections of either fact or interpretation. Scholars at Duke and academic colleagues knowledgeable about the industry are contacted to conduct an internal review of the report, which is then provided to the client for review. Revisions to the report as a result of the internal and external review process are made, the client is given the opportunity to give final approval of the report, and the report is published on the CGGC website ([www.cggc.duke.edu](http://www.cggc.duke.edu)). These research projects generally take between 3-6 months and hundreds of researcher hours to complete.

Conducting value chain studies in this manner is time intensive, but provides a level of detail and understanding of product markets not replicable by a review of only secondary source materials or a quantitative analysis of buyer-supplier relationships common in other industry analyses. In most developing world countries, for example, the data and classification systems necessary to conduct quantitative studies of the input-output structure of an industry simply is not available. Regardless of the availability of data, however, the more important point is that the bottom-up, ground level perspective offers insights into markets that would be difficult to achieve using other methods. For example, while conducting this study on producers and buyers of agricultural products in the Mexicali Valley, CGGC researchers discovered the important role of intermediaries in the Mexicali Valley wheat market in aggregating supply from smaller growers, which is then sold to large wholesale buyers who export to specific overseas markets. These intermediaries have market power that affect the way the entire value chain for wheat functions. For the cotton market, we discovered that some of the large cotton producers in the region owned cotton gins to supply domestic and overseas markets with processed cotton. Interviews with alfalfa producers quickly revealed that their production was largely intended for cattle fodder for localized beef producers, while for vegetables, we discovered the importance of USDA regulations and the role of the 2003 Hepatitis A outbreak traced to green onions grown in Mexico to how the market conducts itself. We also discovered that water subsidies to the agricultural sector by the Mexican government play an important role in how water is used in the region

and how these subsidies may pose a challenge to adopting more efficient water management practices and irrigation equipment by producers. Interviews also revealed the importance of the dynamics between agricultural production and urban population growth in determining how water is used in the Mexicali Valley. These and similar insights are key to fully understanding a market and for developing creative solutions to public policy problems.

Due to time limitations, this report narrowed its scope to identifying only the major producers and buyers of the major agricultural crops grown in Mexicali Valley. Over the course of three weeks, CGGC researchers conducted background research, and identified key scholars, organizations, and companies knowledgeable of the agricultural production system in the Mexicali Valley. We contacted state-level government departments in Baja California, the Agro Industrial Development Commission of Mexicali, the International Maize and Wheat Improvement Center of Mexico (CIMMYT), the Cooperative Extension Service of Imperial County - California, Public Citizen, and other institutions with previous research experience in Mexicali. In addition, detailed interviews were conducted with most of the major crop producers in Mexicali, and some of the major regional and U.S. buyers. Overall, we conducted interviews with over 45 organizations and companies. A full list of organizations contacted during our research is attached as Appendix B. Time limitations reduced our ability to confirm alfalfa consumption by specific cattle growing operations in Mexicali, develop production and purchasing volumes for small companies in the green onion and asparagus markets, receive sales and employment figures for agricultural producers not available from OneSource or Dun & Bradstreet, and conduct a full review of the data and report by internal and external reviewers.

The remainder of the report is organized as follows. The next section gives an overview of the Mexicali Valley and the major crops grown in the region. The report then turns to list the major producers and buyers of individual crops, and provides value chains for cotton, wheat, asparagus, green onions, and alfalfa. The last section of the report offers the results of our review of corporate sustainability reports of the major economic actors in the Mexicali Valley. Finally, Appendix C provides detailed spreadsheets on the producers and buyers of the major agricultural crops grown in Mexicali Valley listed in the tables and value chains, and may be of particular interest to the project sponsor.

## OVERVIEW OF MEXICALI VALLEY AGRICULTURE

Mexicali Valley, Irrigation District 014 Rio Colorado, is located in the District of Rural Development 002, which covers the municipality of Mexicali and the municipality of San Luis Rio Colorado, Sonora. Its arable irrigated area is 210,930 hectares (ha.) of which 184,283 hectares belong to Mexicali and 26,648 hectares belong to San Luis Rio Colorado. A total of 15,177 people are employed in agriculture in the Mexicali Valley producing mainly cotton, wheat, alfalfa, and vegetables.<sup>1</sup>

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<sup>1</sup> *Agricultural Statistics, District of Rural Development 002*. Retrived on 08/12/2010, from: [http://www.sefoa.gob.mx/principales\\_productos.aspx](http://www.sefoa.gob.mx/principales_productos.aspx).



FIGURE 1: THE MEXICALI VALLEY



Source: Medellín-Azuara *et al.*, 2009 [2]

The Mexicali Valley's climate is characterized as extremely arid with rainfall rarely exceeding 100mm (4 inches) per year. Water used in the region is supplied by the Colorado River and regional aquifers. As a result of the 1944 U.S.-Mexico International Water Treaty, Mexico is entitled to receive more than 1,850 million cubic meters ( $\text{Mm}^3/\text{year}$ ) of Colorado River water. According to a 2009 study, irrigated agriculture in the Mexicali Valley is the largest water user in the region by using more than  $2,000 \text{ Mm}^3/\text{year}$  compared to  $86 \text{ Mm}^3/\text{year}$  and  $200 \text{ Mm}^3/\text{year}$  supplied for urban consumption for Mexicali and overall for Baja California urban consumption, respectively.<sup>2</sup> One of the main water management challenges is supplying water to the growing urban population in the Mexicali Valley while meeting the demand for water by agriculture.

In Mexicali, agricultural production takes place throughout the year on a rotation basis. Crops are grown during a spring-summer cycle, a fall-winter cycle, and perennially. Wheat and green onions are cultivated in the fall-winter cycle. Wheat is normally cultivated on the same fields as cotton on a rotation basis. During the fall-winter cycle of 2008-2009, wheat cultivation area was estimated at 88,582 hectares (ha) and green onions at 3,587 ha. In the 2008 spring-summer cycle, cotton (19,672 ha.) was the major crop cultivated in the region. Alfalfa (29,907 ha.) and asparagus (1,467 ha.) are the major perennial crops grown in the Mexicali Valley. In 2008, crops with the highest market value were wheat (1,766 million pesos), alfalfa (862 million pesos), cotton (297 million pesos), asparagus (226 million pesos) and green onions (186 million pesos).

<sup>2</sup> Medellín-Azuara, J., et al., *A CALIBRATED AGRICULTURAL WATER DEMAND MODEL FOR THREE REGIONS IN NORTHERN BAJA CALIFORNIA*. *Agrociencia*, 2009. **43**(2): p. 83-96.

Table 1 provides statistics about acreage, market value, and market value per hectare (and percent change) for the major crops cultivated in Mexicali from 2004-2008.

**TABLE 1: ACREAGE, PRODUCTION VOLUME, AND MARKET VALUE FOR MAJOR AGRICULTURAL CROPS, 2004-2008**

Crop	----- 2004 -----			----- 2008 -----			----- % change ('04-'08) -----		
	Area Cultivated (hectares)	Market Value ('000 pesos)	Market Value (per hectare)	Area Cultivated (hectares)	Market Value ('000 pesos)	Market Value (per hectare)	Area Cultivated	Market Value	Market Value (per hectare)
<b>Wheat</b>	80,555	761,875	9.5	88,582	1,765,611	19.9	10.0	131.7	110.7
<b>Alfalfa</b>	25,517	463,448	18.2	29,907	862,709	28.8	17.2	86.2	58.8
<b>Cotton</b>	20,643	309,330	14.9	19,672	296,859	15.1	(4.7)	(4.0)	0.7
<b>Green Onions</b>	4,169	340,230	81.6	3,587	185,880	51.8	(14.0)	(45.4)	(36.5)
<b>Asparagus</b>	2,077	379,493	182.7	1,467	225,916	154.0	(29.4)	(40.5)	(15.7)

Source: Secretaria de Fomento Agropecuario, Baja California Government: [http://www.sefoa.gob.mx/principales\\_productos.aspx](http://www.sefoa.gob.mx/principales_productos.aspx)

The Mexicali Valley agricultural production system is organized through a contract system between producer companies, farmers, and buyers. Producer companies are typically owned and operated locally. They sometimes own land and grow their own crops, but primarily contract with small farmers for the majority of their production. Producer companies of agricultural products grown in the Mexicali Valley are listed in Table 2 and supplemented by Appendix C. Farmers typically cultivate 100 – 400 hectares annually, chiefly on rented land costing US\$450-550/hectare a year, with credit provided by local banks or the producer companies at average annual interest rates of around 12% -14%.<sup>3</sup> The producers, in turn, typically have contracts with the major buyers of agricultural crops (see Table 3 for summary and Appendix C for detailed listing). Some of these contracts are exclusive buyer-producer contracts, while some producers have contracts with multiple buyers.

The “Easter Earthquake” of April 2010 affected almost 60,000 hectares of arable land, concentrated mainly in the southwestern region of the Mexicali Valley (see Figure 1). 25,000 hectares suffered enough damage to be unproductive until re-grading and repair of irrigation systems occurs, which will likely take 1-2 years. Farmers were only able to partially harvest the wheat crop cultivated during the 2009-2010 fall-winter season because of damage caused by the earthquake. Farmers were compensated by the government for losses based on average yields in the area. 10 - 12% of the acreage typically used to cultivate cotton and alfalfa was affected by the earthquake. Affected land owners were allowed to sell their water rights, primarily to Tijuana and neighboring regions, to mitigate the earthquake’s economic impact on them.<sup>4</sup> Producers of green onions and asparagus were not directly affected by the earthquake because production of these crops did not occur in areas affected by the earthquake. The decreased availability of agricultural land in the Mexicali Valley, however, has indirectly affected these producers by increasing the rental cost of arable land in the Mexicali Valley. Although this price increase presumably affected all crop producers, we heard complaints about land price increases only from asparagus producers.<sup>5</sup>

<sup>3</sup> CGGC staff communication with Hans Hinterman, Regional Manager of AMSA, 8/11/2010.

<sup>4</sup> Ibid.

<sup>5</sup> CGGC staff communication with Mike Fox, General Manager of Rancho el Golfo, 8/13/2010.



TABLE 2: MEXICALI AGRICULTURAL CROP PRODUCERS, BY MAJOR CROP

Producers	Alfalfa	Asparagus	Cotton	Green onions	Wheat
Agodonera Cachanilla			*		*
Agricola la Grana				*	
Agricola Las Montanas				*	
Agricola Mexicali	*				*
Agricola Nueva Era				*	
Agricola Omega				*	
Agricultores Unidos de Mexicali	*				*
Agro Altima		*		*	
AgroIndustria del Sol				*	
Agroindustrial Union de Baja California			*		
Agroindustrias Unidas de Mexico (AMSA)	*		*		*
Agrovizion Integradora	*		*		*
Algodonera de Baja California			*		*
Baja Ajo	*				
Cohermez			*		
Cota Productores Agricolas				*	
Empresas Longoria			*		
GN Productores				*	
Hermanos Alvarez Coral	*				
Hortalizas Figueroa				*	
Horticola San Pedro		*		*	
Integradora Azteca			*		*
Legumbres San Francisco				*	
Mxl Vegetables				*	
Ocean Mist		*		*	
Productores Agricolas del Valle (PAVSA)					*
Productores Algodoneros de Mexicali (PAMSA)			*		
Productores Unidos Cuapah	*				
Promotora Agricola el Toro				*	
Rancho el Golfo		*		*	

Source: CGGC

**TABLE 3: MEXICALI AGRICULTURAL CROP BUYERS, BY MAJOR CROP**

Buyers	Alfalfa	Asparagus	Cotton	Green onions	Wheat
Agroindustrias Unidas de Mexico (AMSA)			*		
Agrovizion Integradora					*
AirBon				*	
Cal-Cel		*		*	
Cargill de Mexico SA de CV					*
CHS Inc.					*
Coastline Produce		*		*	
Corrales Missael	*				
Engorda La Casita	*				
Everkrisp				*	
Farm Day				*	
Grasas y Derivados S.A. (Gradesa)					*
Green Giant		*		*	
Growers Direct Marketing		*		*	
Grupo Promesa Ganadera Imperial	*				
Industrializadora de Carnes	*				
Lee Brands				*	
Mission Asparagus		*			
Muranaka				*	
New Star		*		*	
Nunes Co.				*	
Praderas El Colorado	*				
Toyo Cotton Co			*		
Toyo Shima USA Inc			*		
Western Express				*	

Source: CGGC

## Wheat Producers and Buyers

In Mexicali, wheat is commonly cultivated during the fall-winter cycle. During 2004 – 2007, annual wheat cultivation area has remained relatively stable, although wheat production increased by 10% during the dramatic global commodity price increase in 2007 - 2008. Wheat was the main crop affected by the 2010 earthquake. Farmers were compensated by the government for the balance of the crop that could not be harvested.

Wheat seed is mainly produced by local seed companies in Mexicali. Fertilizer and other chemicals are primarily supplied by Bayer CropScience AG but marketed in the region through local distributor companies.

Table 4 lists the major wheat producers in the Mexicali Valley as a function of average production volumes from 2004-2008. Controlling 45 -50% of the wheat market, Agrovizion Integradora is the major grower and buyer of wheat in Mexicali. Agricultores Unidos de Mexicali and Productores Agrícolas del Valle (PAVSA) are also significant players accounting for almost 20 – 25% of wheat production. The latter is the major supplier of wheat to Cargill de Mexico.

**TABLE 4: MAJOR WHEAT PRODUCERS IN THE MEXICALI VALLEY**

Rank	Company name	Product Volume (metric tons)
1	Agrovizion Integradora	200,000 - 250,000 MT
2	Productores Agrícolas del Valle (PAVSA)	75,000 - 80,000 MT
3	Agricultores Unidos de Mexicali	20,000 - 25,000 MT
4	Algodonera de Baja California	19,500 - 20,500 MT
5	Integradora Azteca	7,500 - 8,000 MT
6	Agrícola Mexicali	7,500 - 8,000 MT
7	Agodonera Cachanilla	7,000 - 7,500 MT
8	Agroindustrias Unidas de Mexico (AMSA)	5,500 - 6,000 MT
9	Cohermez	< 5,500 MT

Source: CGGC

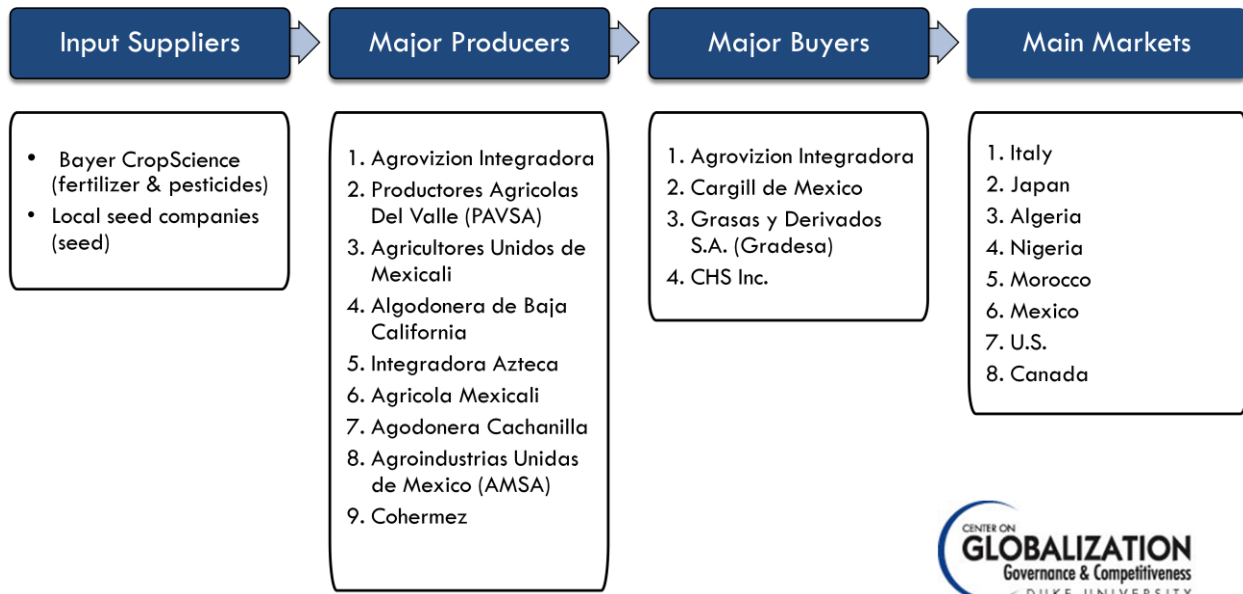
Table 5 lists the major buyers of wheat grown in the Mexicali Valley. Major buyers are Agrovizion Integradora, Cargill de Mexico, Gradesa, , and CHS Inc. As an intermediary, Gradesa is the major supplier for CHS. Growers also directly sell their wheat to domestic Mexican markets and to international markets. Main international consumer markets for Mexicali wheat are Europe, Asia and North Africa, who according to our sources use the Durum wheat grown in the Mexicali Valley to make couscous, semolina pasta, and other wheat flour products. Additional details on both wheat producers and buyers are available in Appendix C. Figure 2 illustrates a simplified value chain of wheat grown in the Mexicali Valley. Please note that rankings within the value chains provided in this report signify the relative importance of each company in the value chain node. The rankings are based on market data provided by the companies, or the statements of knowledgeable producers, sellers, and other product market actors gathered by CGGC researchers.

**TABLE 5: MAJOR WHEAT BUYERS IN THE MEXICALI VALLEY**

Rank	Company name	Product Volume (metric tons)
1	Agrovizion Integradora	200,000 - 250,000 MT
2	Cargill de Mexico SA de CV	120,000 - 150,000 MT
3	Grasas Y Derivados S.A. (Gradesa)	100,000 - 150,000 MT

Source: CGGC

**FIGURE 2: WHEAT VALUE CHAIN**



### Cotton Producers and Buyers

Cotton is cultivated in the spring-summer cycle. Its annual acreage has largely remained stable about 20,000 hectares between 2004 and 2008. The earthquake’s impact on cotton production was (unlike wheat) not as lost harvest but the destruction of cultivatable land and associated canals which affected the subsequent cultivation cycles for cotton. We estimate that 10-12% of the land used for cotton was affected by the earthquake, which will be unusable for agricultural production until the irrigation infrastructure is repaired and re-leveling of the land occurs, which like will take 1-2 years, according to interviews conducted by CGGC researchers.

Value chain actors in cotton are as follows. Monsanto was the major supplier of cotton seed in the region, although some growers – particularly those owning their own cotton gins – produced and used their own cotton seeds. Bayer CropScience is the major supplier of fertilizer and other chemicals used in regional agricultural production, such as herbicides and insecticides. The major cotton producers in Mexicali are Agroindustrias Unidas (AMSA), Algodonera de Baja California, Algodonera Cachanilla, and Integradora Azteca. Algodonera de BC, Algodonera Cachanilla, and PAMSA also own cotton gins.

**TABLE 6: MAJOR COTTON PRODUCERS IN THE MEXICALI VALLEY**

Rank	Company name	Product Volume
1	Agroindustrias Unidas de Mexico (AMSA)	20,000- 22,000 bales
2	Algodonera de Baja California	18,000 - 20,000 bales
3	Algodonera Cachanilla	17,000 - 18,000 bales
4	Integradora Azteca	16,500 - 17,000 bales
5	Agrovizion Integradora	10,000 - 11,000 bales
6	Agroindustrial Union de Baja California	5,000 - 6,000 bales
7	Cohermez	4,500 - 5,000 bales
8	Empresas Longoria	1,500 - 2,000 bales

Source: CGGC

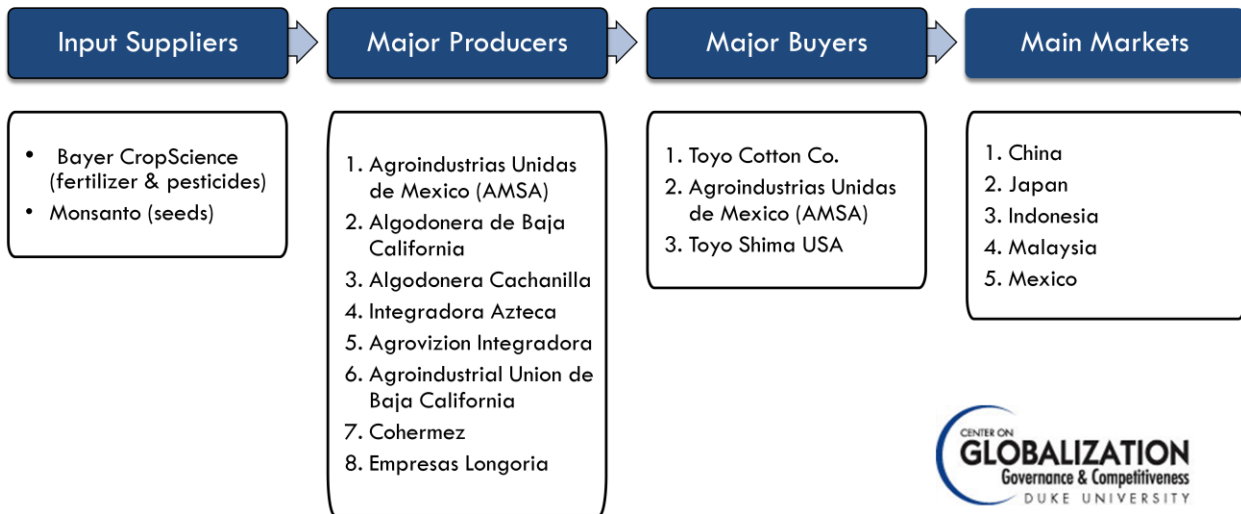
The downstream market for Mexicali cotton is fairly concentrated. Toyo Cotton Co., Toyoshima USA Inc, and Agroindustrias Unidas de Mexico are the main cotton buyers in Mexicali. Agroindustrias Unidas de Mexico, affiliated with Dallas-based Ecom Agroindustrial Corporation, is also a cotton producer in Mexicali. The main international consumer market for Mexicali cotton is East Asia. In addition to exporting cotton, Mexico annually imports about 1.3 million bales of cotton, primarily from the U.S. Please see Table 7 (additional detail is provided in Appendix C).

**TABLE 7: MAJOR COTTON BUYERS IN THE MEXICALI VALLEY**

Rank	Buyers	Product Volume (metric tons)
1	Toyo Cotton Co	56,000-60,000 MT
2	Agroindustrias Unidas de Mexico (AMSA)	12,000-16,000 MT
3	Toyo Shima USA Inc	4,000-12,000 MT

Source: CGGC

**FIGURE 3: COTTON VALUE CHAIN**



### Green Onion Producers and Buyers

Green onion production has been fairly stable in the Mexicali Valley over the past five years, with total production averaging just over 41,000 tons and never straying outside the 35,000 – 50,000 range. Initial reports indicate that the 2010 crop will be no exception, which supports statements from numerous interviewees that their operations were unaffected by the earthquake because the crop is not grown in earthquake affected areas. According to 2008 data, 38% of total hectares devoted to vegetable farming in the Mexicali Valley are used to grow green onions, making it by far the most important vegetable in terms of land usage. Dependable yield levels, numerous options in terms of sales (most of the producers we talked to had agreements with multiple buyers as opposed to exclusive contracts) and seemingly low barriers to entry (based on the fact that a great many smaller players are participating in this market) make this an attractive option despite the fact that value generation per hectare is greater with some of the more niche vegetables. (See Table 8).



**TABLE 8: ACREAGE, PRODUCTION VOLUME, AND MARKET VALUE FOR SELECTED VEGETABLES, 2008\***

Market Value (per hectare) Rank	Crop	Area Cultivated (hectare)	Production (metric ton)	Crop Value ('000 Pesos)	Market Value (per hectare)
1	Carrot	29	1,015	4,618	159.2
<b>2</b>	<b>Asparagus</b>	<b>1,467</b>	<b>4,401</b>	<b>225,916</b>	<b>154.0</b>
3	Lettuce	579	13,896	76,428	132.0
4	Cactus	13.5	310	1,746	129.3
5	Beetroot	123	2,214	14,191	115.4
6	Cauliflower	36	828	4,140	115.0
7	Napa	30	570	3,420	114.0
8	Zucchini	164	1,944	18,000	109.8
9	Broccolis	414	7452	39,123	94.5
10	Leek	360	5,400	32,675	90.8
11	Green Chile	47	765	3,825	81.4
12	Celery	303	4,545	23,956	79.1
13	Cabbage	47	1,316	3,474	73.9
14	Garlic	236	1,652	13,216	56.0
<b>15</b>	<b>Green Onion</b>	<b>3,587</b>	<b>39,761</b>	<b>185,880</b>	<b>51.8</b>
16	Green Tomato	132	1,188	6,652	50.4
17	Spinach	90	720	4,302	47.8
18	Rapini	140	840	5,796	41.4
19	Turnip	31	279	1,258	40.6
20	Grapefruit	17.5	463	688	39.3
21	Cucumber	5	50	180	36.0
22	Chard	42	252	1,505	35.8
23	Rabano/Radish	580	4,640	20,648	35.6
24	Kale	20	140	623	31.2
25	Milkweed	235	1,762	7,316	31.1
26	Parsley	180	960	4,867	27.0
27	Coriander	439	2,195	7,024	16.0
28	Kohlrabi	10	50	160	16.0

\* Data are for the Mexicali Valley. For comparison purposes, the 2008 market value/hectare for other crops discussed in this report are: 28.9 (alfalfa), 19.9 (wheat), and 15.1 (cotton) as shown in Table 1 (p.7).

Source: Secretaria de Fomento Agropecuario, Baja California Government

Mexicali's green onions are mostly destined for the USA, specifically California, with some local consumption. The direct effects of the earthquake were minimal for green onion producers, according to interviews conducted by CGGC researchers.

The production market for green onions is dominated by just two companies, Promotora Agricola el Toro and Agricola Nueva Era, who account for roughly half of the area's production, with the remainder split between

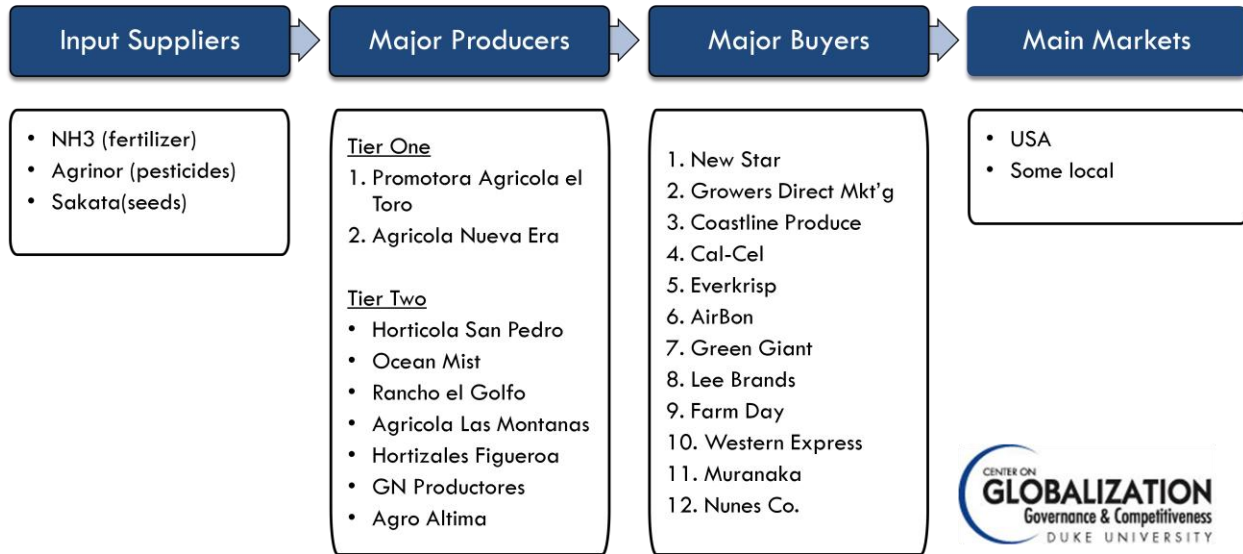
a large number of smaller players. Most green onion producers have arrangements with multiple buyers, and this market seems to have more fluid relationships between producers and buyers than the asparagus market. Table 9 lists the producers of green onions grown in the Mexicali Valley identified by phone interviews and email contacts by CGGC researchers. Time limitations and concerns expressed by interviewees about the release of proprietary data allowed researchers only to rank the approximate importance of green onion buyers based, as shown in Figure 4. Additional details about this product market are available in Appendix C listing the available company information and researcher notes about the companies.

**TABLE 9: PRODUCERS OF GREEN ONIONS IN THE MEXICALI VALLEY**

Rank	Producers	Product Volume (metric tons)
1	Promotora Agricola el Toro	11,000+ MT
2	Agricola Nueva Era	11,000 MT
3	Horticola San Pedro	2,770 MT
4	Ocean Mist	2,770 MT
5	Rancho el Golfo	1,440 MT

Source: CGGC

**FIGURE 4: GREEN ONION VALUE CHAIN**



## Asparagus Producers and Buyers

As of 2008, asparagus production accounted for almost 16% of total Mexicali vegetable growing in terms of land use. None of the asparagus producers interviewed had suffered direct damage as a result of the Easter Earthquake, but there were complaints of rising land lease prices due to those in the earthquake damage zone looking for usable land to work.

Table 10 lists the major producers of asparagus grown in the Mexicali Valley. The six largest producers (Rancho El Golfo, New Star, Muranaka, Boskovich, Horticola San Pedro, and Ocean Mist) account for well more than half of the area’s production. These major producers differ in terms of their business models: for instance, San Pedro sells to multiple buyers, El Golfo sells exclusively to Coastline Produce, and New Star and Muranaka act both as producers and as buyers. CGGC researchers were able to determine approximate rankings of the major buyers.

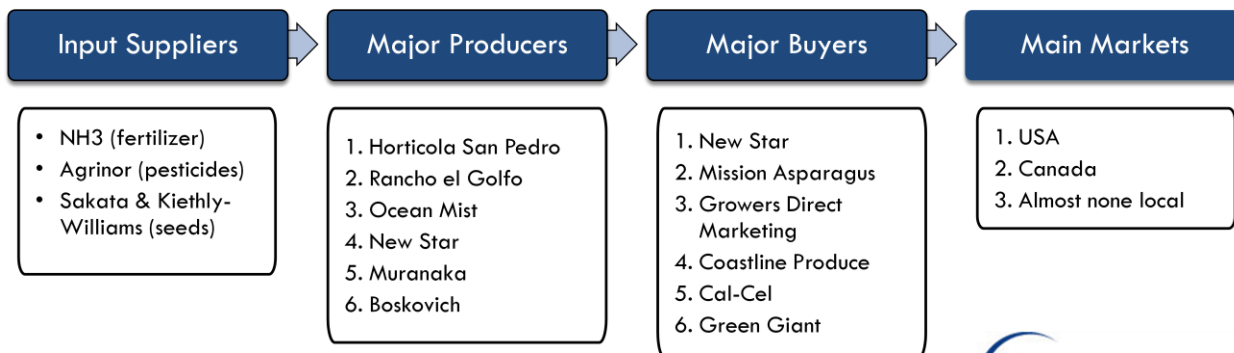
Figure 5 illustrates the Mexicali Valley asparagus value chain. Major seed providers are Sakata and Kiethly-Williams. Fertilizer and pesticides used in asparagus production are NH3 and Agrinor, respectively. Asparagus grown in the Mexicali Valley is primarily destined to the U.S., specifically California, while Canada is a much smaller destination market. Almost no local consumption of asparagus occurs.

**TABLE 10: ASPARAGUS PRODUCERS IN THE MEXICALI VALLEY**

Rank	Producers	Product Volume (metric tons)
1	Horticola San Pedro	1,050 MT
2	Rancho el Golfo	480 MT
3	Ocean Mist	270 MT

Source: CGGC

**FIGURE 5: ASPARAGUS VALUE CHAIN**

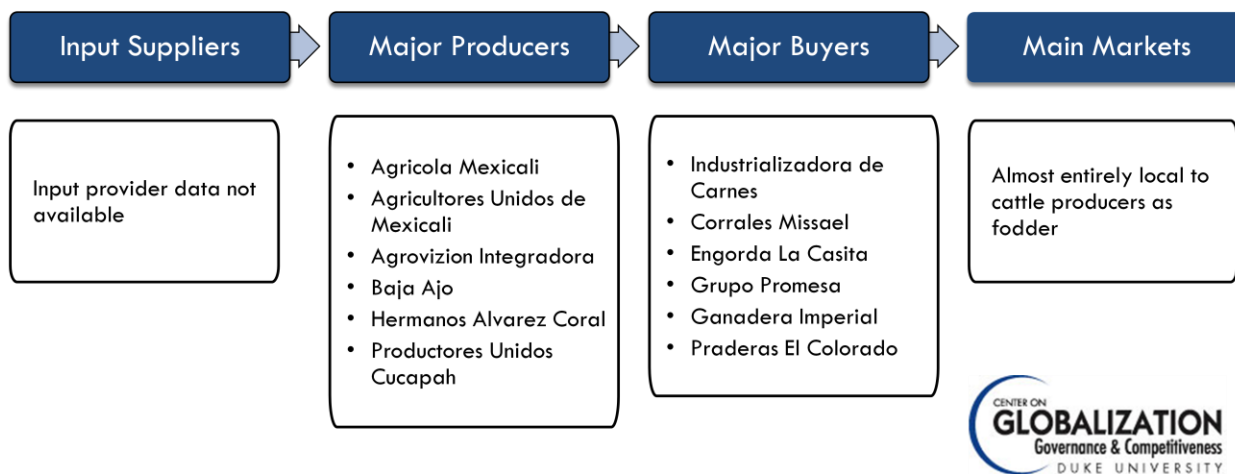


## Alfalfa Producers and Buyers

Alfalfa is an important perennial crop grown in the Mexicali Valley. The area cultivated, production volumes, and crop values have all increased during the 2004-2008 period. The earthquake’s impact on alfalfa production is similar to that of wheat and cotton. Some of the 60,000 hectares of agricultural land in the Mexicali Valley affected by the earthquake, and 25,000 hectares that was severely affected, has been used in the past to grow alfalfa.

Agricola Mexicali and Agricultores Unidos de Mexicali are the major producers of alfalfa in the Mexicali Valley. Alfalfa production is only modestly concentrated, with the largest producer of alfalfa that we were able to identify producing using only 2% (650 hectares out of 30,000) of the land used to grow alfalfa in 2008. The crop is also grown by five other companies illustrated in Figure 6, the alfalfa value chain. No data was available for alfalfa input suppliers. According to interviews conducted by CGGC, the main buyers of alfalfa grown in the Mexicali Valley are cattle breeders in Mexicali who use it for fodder. The large cattle operations in Mexicali are listed in Figure 6.

**FIGURE 6: ALFALFA VALUE CHAIN**



## ENVIRONMENTAL COMMITMENTS OF PRODUCERS AND BUYERS

The perspective provided below on environmental commitment of the producers and buyers was established based on availability of related reports and materials on their website. In addition, specific environmental related queries raised during interviews with grower companies, who mostly do not have websites or related publications, also assisted developing the perspective.

For grower companies the only binding requirement to grow for U.S. markets was their compliance with the U.S. Department of Food and Drug Administration regulations for their products. Ever since the 2003 Hepatitis A outbreak in five US states, which was traced back to imported green onions, the quality and safety assurance standards of Mexican produce have faced intense scrutiny. It is no surprise, then, that both growers

and buyers of asparagus, green onions and lettuce from Mexicali are focused more on protecting consumers than the environment.

The most notable exception to this is NewStar Fresh Foods (top buyer of both asparagus and green onions), which has reduced the use of high water cover crops, and employs both PLA (plant-based) packaging materials and drip irrigation for all products apart from leafy greens.<sup>6</sup> Fellow purchaser/wholesaler Everkrisp (#5 buyer of green onions) focuses its sustainability efforts on supply chain/transportation issues, and has partnered with CHEP (provider of “the most environmentally friendly shipping platform available”) with the result an annual solid waste reduction of 400,000 lbs. and a greenhouse gas reduction of 58%.<sup>7</sup>

Muranaka Farms (the largest shipper of green onions in the US), on the other hand, has a far less positive track record of environmental stewardship: in late 2007, the EPA ordered the Los Angeles-based company to restore sites along Calleguas Creek in southern California into which they had discharged rock, soil and other debris.<sup>8</sup>

From the seven major buyer companies of Mexicali wheat and cotton, only CHS Inc. and Cargill (who are only in wheat market) have published corporate environmental commitments or reports:

**CHS Inc.** (fourth largest buyer of Mexicali wheat): CHS Inc. operates in three business segments: Energy, Agribusiness, and Processing. It provides full range of agricultural inputs such as refined fuels, propane, farm supplies, animal nutrition and agronomy products and services. With more than 7000 employees it is operational in more than 500 locations across the United States and around the world.<sup>9</sup> CHS moves more than 1 billion bushels of corn, soybeans, wheat and other grains annually through outlets in the U.S., South America, and Europe.

CHS Inc. environmental efforts are mainly targeted to its internal business operations. Its energy and oilseed processing facilities are tracking greenhouse gas emissions and seeking ways to improve energy efficiency and reduce CO<sub>2</sub> and other gas emissions.

Its environmental conservation efforts are focused on energy use optimization at its refinery, oilseed processing facilities, and Lubricants production plants. CHS is an active participant in the Propane Education & Research Council (PERC), which develops new technologies to capitalize on the environmentally friendly aspects of this domestically produced fuel, including greenhouse gas emissions.<sup>10</sup>

**Cargill Inc.**(second largest buyer of Mexicali wheat): With 131,000 employees in 66 countries, Cargill is an international producer and marketer of food, agricultural, financial and industrial products and services.<sup>11</sup> Cargill has demonstrated commitment to reduce environmental impact of its global operations and to help

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<sup>6</sup> [http://www.newstarfresh.com/ns/newstar\\_info/sustainable\\_practices/](http://www.newstarfresh.com/ns/newstar_info/sustainable_practices/)

<sup>7</sup> [http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news\\_view&newsId=20100421006211&newsLang=en](http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20100421006211&newsLang=en)

<sup>8</sup> <http://yosemite.epa.gov/opa/admpress.nsf/eebfaebc1afd883d85257355005afd19/f01ad1c125102e8985257398006efbe8!OpenDocument>

<sup>9</sup> CHS Inc., *CHS Stewardship Report 2009*; Retrieved on 08/18/2010, from: <http://annualreport.chsinc.com/AnnualReport2009/default.asp?PageIdx=0>.

<sup>10</sup> Ibid

<sup>11</sup> *Cargill Inc. Corporate Citizenship Review Report*. 2007; Retrieved on 08/18/2010, from: <http://www.cargill.com/corporate-responsibility/reports-fact-sheets/index.jsp>

conserve environment and natural resources. It has well defined sustainability goals, developed management systems and policies to ensure compliance, and entered into partnerships with a range of stakeholders supporting protection of the environment.

More than a decade ago, Cargill launched “Water Matters,” a comprehensive effort to raise awareness among its employees and in their communities about importance of water use efficiency. This effort was followed by establishing corporate environmental goals in 2001.

Since then, the company has set corporate environmental responsibility goals each five years.

Cargill has already achieved its environmental targets for 2010. The targets were improvement in energy efficiency by 20 percent over baseline 2001, reduction in greenhouse gas intensity by 8 percent over baseline 2006 and improvement in freshwater use efficiency by 2 percent over baseline 2006.

Cargill’s environmental goals for 2015 are:<sup>12</sup>

- Improve energy efficiency 5 percent from fiscal 2010 baseline
- Improve greenhouse gas intensity by 5 percent from fiscal 2010 baseline
- Increase renewable energy use to 12.5 percent of energy portfolio (11 percent in 2010)
- Improve freshwater efficiency by 5 percent from fiscal 2010 baseline

In addition to efforts focused on its internal operations, Cargill also is partner with governments, non-governmental organizations, communities, employees and customers to provide support to their environmental and natural resource conservation efforts.

Cargill is a national partner of the Groundwater Foundation, a United States organization dedicated to educating people about groundwater and motivating them to take action. Local Groundwater Guardian teams—made up of government officials, businesses, and school leaders— provide a framework for community action and promote activities to protect local water supplies and connect with other efforts. Currently 12 Cargill businesses in the United States participate in this program.<sup>13</sup>

Cargill has also sought partnership with other organizations supporting natural resources and environmental conservation. Since 1983, Cargill has provided support to The Nature Conservancy (TNC) by funding a range of initiatives that address conservation and biodiversity issues in Brazil, China, and along the Mississippi River in the United States.<sup>14</sup>

Since 1999, Cargill has sponsored Living Lands & Waters, an organization that works to protect and restore major waterways and their watersheds in the United States through community river cleanups, educational seminars, and river bottom reforestation projects.<sup>15</sup>

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<sup>12</sup> Cargill Inc., *Commitment to Corporate Responsibility, Goals - Actions*. 2010, Retrieved on 08/18/2010, from: <http://www.cargill.com/corporate-responsibility/environmental-innovation/goals-actions/index.jsp>.

<sup>13</sup> Cargill Inc. *Partners in Environmental Stewardship*. 2010; Retrieved on 08/18/2010, from: <http://www.cargill.com/corporate-responsibility/environmental-innovation/environmental-partners/groundwater-guardian/index.jsp>.

<sup>14</sup> Ibid

<sup>15</sup> Ibid



At Cargill, responsible sourcing is a vital part of its corporate environmental and citizenship commitment. Working with a range of stakeholders, Cargill has shown commitment to leverage market-based solutions to reduce the environmental impacts of its supply chains.<sup>16</sup>

For instance, in emerging economies where it buys from small-holder producers, the company supports agricultural training and technology, assists the development of farmer cooperatives, and helps deliver better pricing systems and market access for the farmers' produce. It has such support services in Vietnam, Romania, India, and countries in East and Southern Africa.<sup>17</sup>

Cargill supports prevention of further deforestation in the Amazon rainforest. As a signatory to the Brazilian National Pact, Cargill honors the Black list published by the Brazilian Federal government. Cargill and the Nature Conservancy launched the Responsible Soy Project in 2004 to assist the Santarem region farmers, most of whom farm less than 160 hectares, in getting compliance with the Forest code. In addition, it helped organize the major soybean exporters in Brazil to support a two-year industry moratorium on purchasing soybeans from farmers who cut Amazon forest after July 2006. This partner group also established the system to monitor soy production and prevent deforestation.<sup>18</sup>

Similarly, Cargill is partner with Dutch development organization Solidaridad and others in founding the UTZ cocoa program in Brazil. The program's training component will reach 10,000 farmers in 2010 and will result in more than 10,000 tons of cocoa beans being available for use in sustainably certified chocolate and cocoa products.<sup>19</sup>

In Indonesia, Cargill is actively supporting the Roundtable on Sustainable Palm Oil (RSPO) to promote sustainable palm production. It has set a goal of buying 60% of its total crude oil products from RSPO members by end of 2010.<sup>20</sup>

Overall, the company provides support in rural areas through activities such as farmers training, their access to technology, supporting compliance environmental laws and regulations, and partnering with a range of stakeholders to support their environmental and national resource conservation efforts.

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<sup>16</sup> *Cargill Inc. Responsible Supply Chain at Cargill*. 2010; Retrieved on 08/18/2010, from: <http://www.cargill.com/corporate-responsibility/responsible-supply-chains/index.jsp>.

<sup>17</sup> *Cargill Inc. Corporate Citizenship Review Report*. 2007; Retrieved on 08/18/2010, from: <http://www.cargill.com/corporate-responsibility/reports-fact-sheets/index.jsp>

<sup>18</sup> *Ibid.*

<sup>19</sup> *Cargill Inc. Responsible Supply Chain at Cargill*. 2010; Retrieved on 08/18/2010, from: <http://www.cargill.com/corporate-responsibility/responsible-supply-chains/index.jsp>.

<sup>20</sup> *Ibid.*

## APPENDIX A

**Research Reports and Publications on Agriculture, 2007-2010**  
**Duke University Center on Globalization, Governance & Competitiveness (CGGC)**  
<http://www.cggc.duke.edu/>

### CGGC Research Reports

- 2010 "A Value Chain Analysis of the Sinaloa, Mexico Shrimp Fishery" (Kristin Dubay, Saori Tokuoka and Gary Gereffi). Report prepared for the Environmental Defense Fund (EDF), March 15. Electronic access: [http://cggc.duke.edu/environment/CGGC\\_SinaloaShrimp\\_Report.pdf](http://cggc.duke.edu/environment/CGGC_SinaloaShrimp_Report.pdf)
- 2009 "A Value Chain Analysis of the U.S. Beef and Dairy Industries" (Marcy Lowe and Gary Gereffi). Report prepared for the Environmental Defense Fund (EDF), February 16. Electronic access: <http://www.cggc.duke.edu/environment/valuechainanalysis/index.php>
- 2008 "A Value Chain Analysis of the U.S. Pork Industry" (Marcy Lowe and Gary Gereffi). Report prepared for the Environmental Defense Fund (EDF), October 3. Electronic access: <http://www.cggc.duke.edu/environment/valuechainanalysis/index.php>
- 2008 "A Value Chain Analysis of Selected California Crops" (Marcy Lowe and Gary Gereffi). Report prepared for the Environmental Defense Fund (EDF), July 4. Electronic access: <http://www.cggc.duke.edu/environment/valuechainanalysis/index.php>
- 2008 "The Governance Structures of U.S.-Based Food and Agriculture Value Chains and Their Relevance to Healthy Diets" (Gary Gereffi, Joonkoo Lee and Michelle Christian). Report prepared for the Healthy Eating Program, Robert Wood Johnson Foundation, June. Electronic access: <http://www.cggc.duke.edu/projects/globalhealth.php>
- 2009 "A Global Value Chain Approach to Food Safety and Quality Standards" (Gary Gereffi and Joonkoo Lee). Report prepared for the Global Health Diplomacy for Chronic Disease Protection Working Paper Series. February 4.
- 2007 "A Global Value Chain Approach to Food, Healthy Diets and Childhood Obesity" (Gary Gereffi and Michelle Christian). Report prepared for WHO Early-Stage Expert Meeting on Trade and Healthy Diets, McGill University, November 12-13. Electronic access: <http://www.cggc.duke.edu/projects/globalhealth.php>

## Publications

- 2010 "Trade, Transnational Corporations and Food Consumption: A Global Value Chain Approach" (Gary Gereffi and Michelle Christian). Pp. 91-110 in Corinna Hawkes, Chantal Blouin, Spencer Henson, Nick Drager, and Laurette Dubé (eds.), *Trade, Food, Diet and Health: Perspectives and Policy Options*. Oxford, UK: Wiley-Blackwell.
- 2009 "US-based Food and Agricultural Value Chains and Their Relevance to Healthy Diets" (Gary Gereffi, Joonkoo Lee and Michelle Christian). *Journal of Hunger and Environmental Nutrition* 4, 3: 357-374. Special issue on "Food Systems and Public Health: Linkages to Achieve Healthier Diets and Healthier Communities." Electronic access: <http://dx.doi.org/10.1080/19320240903321276>
- 2007 "North Carolina in the Global Economy: A Value Chain Perspective on the State's Leading Industries" (Gary Gereffi, Ryan Denniston, and Mike Hensen). *Journal of Textile and Apparel, Technology and Management* 5, 4 (Fall). Online journal: [http://www.tx.ncsu.edu/jtatm/volume5issue4/global\\_economy.html](http://www.tx.ncsu.edu/jtatm/volume5issue4/global_economy.html).

## APPENDIX B

### List of People Interviewed by CGGC researchers August 4-24, 2010

<b>Contact Name</b>	<b>Organization</b>
Ricardo Viveros	Agro Altima
Jordi Elias	Horticola San Pedro
Mike Fox	Rancho El Golfo
Judith Mendez	Promotora Agricola El Toro
Andres Baez, Eduardo Vallejo	Agricola Nueva Era
Mark Black	Agricola Omega
José Luis Alba	Agroindustria del Sol
Mario Cota, Sr., Mario Cota, Jr.	Cota Productores Agrícolas
Martin Sotedo, Javier Navarro	GN Productores
Hector Figueroa	Hortalizas Figueroa
Alejandro Barrios	Legumbres San Francisco
Abel Gaspar	Mxl Vegetables
Alex Corona	Agricola Las Montanas
Luis Alonso Gallego	Compania Agricola El Faro
Troy Boutonnet, Korey Tuggle	Ocean Mist
Cesar Arechiga	Agricola la Grana
Efren Beltran	Hortalizas Beltran
John Killeen	Muranaka Farms
R. Ruddman	Boskovich Farms
Matt Seeley	Nunes Co. ("Foxy" and "Tubby" brand names)
Mark Goss	Cal-Cel
Mike Etchart	Everkrisp
Kathy Smith	Green Giant
Linda Calvin	US Department of Agriculture - Economic Research Service
Belem Avendano	Universidad Autonoma de Baja California
Jim Wilson	US Peace Corps - Mexico
Esperanza Pelayo	Agricola Pelayo
Susan Eich	Cargill Inc.
Tom Gardner	Food Lion
Khalid Bali	Cooperative Extension Imperial County
Todd Tucker	Public Citizen
Gozalo Bolivar	Archer Daniels Midland (ADM)
Tim Wise	Tuft University
Pamela A. Matson	Stanford University
Ravi Singh & Ivan Oritz Monasterio	International Maize and Wheat Improvement Center (CIMMYT)
Juan Haro	Agro Industrial Development Commission of Mexicali

**Contact Name**

Alex Aureli  
Guillermo Navarro  
Carlos Gratianne Ortega  
Dinora Jimenez  
Hanspeter Hintermann  
Carmen Martinez  
Bertha Chavez  
Roman Hernandez  
Edna Alici Noriega  
Sergio Decarlo Guzman Ruiz

**Organization**

Agrovizion Integradora  
Gradesa  
Agricola Mexicali  
Integradora Azteca  
Agroindustrias Unidas de Mexico  
Productores Agodoneros de Mexicali  
Algodonera de Baja California  
Agroindustrial Polvora  
State Government of Baja California  
Instituto Nacional de Investigaciones Forestales, Agricolas y Pecuarias

Appendix C-1 Producers

Company name	Address	Tel #	Annual Sales	# of employees	Product Name	Product Acreage	Product Volume	Other products name	Other products acreage	Other products volume2
Agodonera Cachanilla	Km 39.5, Carretera Mexicali San Luis Rio Colorado, Mexicali, Baja California	52 (658) 514 21 96	N.A.	N.A.	Cotton	N.A.	17000 - 18000 bales	Wheat	N.A	7000 - 7500 MT
Agricola la Grana	Ejido Veracruz No. 2, Valle de Mexicali, 21720 Mexico	686 516 9088	\$7.5M	1000	Green Onions	N.A.	N.A.	N.A.	N.A	N.A
Agricola Las Montanas	Neptuno No. 101-B, CP 21 210 Col. Alamos, Mexicali BC Mexico	686 841 2030	N.A.	N.A.	Green Onions	N.A.	N.A.	Lettuce	N.A	N.A
Agricola Mexicali	Km 4 Colonia Compuertas, Mexicali, Baja California	52 (686) 567 34 16	N.A.	48	Wheat	1,100 - 1,200 ha.	7,500 - 8,000 MT	Alfalfa	600 - 650ha	9,500 - 10,500MT
Agricola Nueva Era	Mexicali	653 534 3227	N.A.	N.A.	Green Onions	~1000h	N.A.	Cilantro	N.A	N.A
Agricola Omega	Carretera a San Luis Km. 18.5, Agrícola Diez, Mexicali, 21600 Mexico	686 562 6197		1000+	Green Onions	N.A.	N.A.	Many Others	N.A	N.A
Agricultores Unidos De Mexicali	1.) Lote 44 Colonia Cerro Prieto Fracc. Norte Valle de Mexicali, Mexicali, Baja California 2) Km 40.5 Carretera Mexicali San Luis Rio Colorado, Ejido Tehuantepec, Mexicali, Baja California	52 (686) 591 14 77	N.A.	N.A.	Wheat	N.A.	20,000 - 25,000 MT	Alfalfa	N.A	N.A
Agro Altima	Mexicali	686 563 7472	N.A.	N.A.	Asparagus	N.A.	N.A.	Green Onions	N.A	N.A
Agroindustria del Sol	Lote 40 S/n, Madero, Mexicali, Mexico	686 556 9043	N.A.	13	Green Onions	N.A.	N.A.		N.A	N.A
Agroindustrial Union de Baja California	Km 59 Carretera Mexicali San Luis R.C., Ejido Hermosillo, Mexicali, Baja California	52 (658) 517 82 10	N.A.	N.A.	Cotton	N.A.	5,000 - 6,000 bales	N.A.	N.A	N.A
Agroindustrias Unidas de Mexico (AMSA)	Av. Guadalupe Victoria and Queretaro S/N, Ejido Morelos, Mexicali, Baja California	52 (686) 561 89 61	N.A.	20 permanent & 45 seasonal	Wheat	800 - 900 ha	5,500 - 6,000 MT	Cotton	3,000 - 3,200 ha	20,000- 22,000 bales



Appendix C-1 Producers

Company name	Address	Tel #	Annual Sales	# of employees	Product Name	Product Acreage	Product Volume	Other products name	Other products acreage	Other products volume2
Agrovizion Integradora	Km. 7.5, Carretera A San Luis Rio Colorado, Mexicali, Baja California	52 (686) 561 66 23	N.A.	40 permanent, 110 temporary	Wheat	N.A.	200,000 - 250,000 MT	Cotton	N.A	10,000 - 11,000 bales
Algodonera de Baja California	Blvd. Lazaro Cardenas 1590 Mexicali, Baja California Has greenhouses and organic production	52 (686) 561 85 06	N.A.	200 permanent, & 400 temporary	Cotton	3000 - 3200ha.	18,000 - 20,000 bales	wheat	3000 - 3500 ha.	19500 - 20500MT
Cohermez	N.A	52 (658) 516 73 16	N.A.	N.A.	Cotton	N.A.	4500 - 5000 bales	Wheat	N.A	N.A
Compania Agricola El Faro	Mexicali	686 580 0850	N.A.	N.A.	Lettuce	N.A.	N.A.	White Onions	N.A	N.A
Cota Productores Agrícolas	Herreros Sur No. 2001, Burocrata, Mexicali, 21020	686 554 6771	\$3.4M	388	Green Onions	N.A	N.A	N.A	N.A	N.A
Empresas Longoria	Km 45 Carretera A San Luis Ejido Tabasco, Mexicali, Baja California	52 (686) 552 23 51	N.A.	N.A.	Cotton	N.A.	1500 - 2000 bales	N.A.	N.A	N.A
GN Productores	Mexicali	686 523 0516	N.A.	N.A.	Green Onions	N.A	N.A	N.A	N.A	N.A
Hortalizas Beltran	Mexicali	"No Existe"	N.A.	N.A.	Green Onions	N.A	N.A	N.A	N.A	N.A
Hortalizas Figueroa	Mexicali	658 516 8584	N.A.	N.A.	Green Onions	N.A	N.A	N.A	N.A	N.A
Hortícola San Pedro	Mexicali	686 561 0133	N.A.	N.A.	Asparagus	350h	~1050 tons	Green Onions	250 ha	~2770 tons
Integradora Azteca	Km 40.5 Carretera, Mexicali San Luis R.C. Lote 6, Ejido Tehuantepec, Mexicali, Baja California	52 (658) 517 46 93	N.A.	N.A.	Cotton	2200 - 2300ha	16500 - 17000 bales	Wheat	1000 - 1100 Ha	7500 - 8000 MT
Legumbres San Francisco	Mexicali	653 534 0321	N.A.	N.A.	Green Onions	N.A	N.A	Brussels Sprouts	N.A	N.A
Mxl Vegetables	Mexicali	658 514 2196	N.A.	N.A.	Green Onions	N.A	N.A	N.A	N.A	N.A
Ocean Mist	10855 Ocean Mist Parkway - A, Castroville, CA 95012-3232 (HQ in USA)	831 633 2144 (US)	\$35.1M	80 (at US HQ)	Asparagus	90h	~270 tons	Green Onions	250 ha	~2770 tons

Appendix C-1 Producers

Company name	Address	Tel #	Annual Sales	# of employees	Product Name	Product Acreage	Product Volume	Other products name	Other products acreage	Other products volume2
Productores Agricolas Del Valle (PAVSA)	Calle Benito, Juarez S/N, Ejido Paredones, Mexicali, Baja California	52 (658) 514 01 40	N.A.	N.A.	Wheat	N.A.	75,000 - 80,000 MT	N.A.	N.A.	N.A.
Productores Algodoneros de Mexicali (PAMSA)	Km 27.8 Carretera A San Luis Ejido Hechicera, Mexicali, Baja California	52 (658) 514 29 15	N.A.	N.A.	Cotton	N.A.	N.A.	N.A.	N.A.	N.A.
Promotora Agricola El Toro	Mexicali	658 514 8080	N.A.	N.A.	Green Onions	1000+ h*	11,000+ tons	Lettuce	N.A.	N.A.
Quintana	Mexicali		N.A.	N.A.	Green Onions	N.A.	N.A.	N.A.	N.A.	N.A.
Rancho El Golfo	Mexicali	686 567 8602	N.A.	N.A.	Asparagus	160 ha	~480 tons	Green Onions	130 ha	~1440 tons

\*Sources of secondary information for this research included representatives from other grower companies interviewed as well as published data particularly at [http://www.oeidrus-bc.gob.mx/oeidrus\\_bca/](http://www.oeidrus-bc.gob.mx/oeidrus_bca/)

Note: Despite selling to companies downstream in the supply chain, some of the grower companies also directly export their products to consumer markets indicated.

## Appendix C-1 Producers

Company name	Product Market	Product Customer	Contact Name	Contact email	Contact #	Date Interviewed	CRS Report	Comments
Agodonera Cachanilla	Japan, Italy	N.A.	Abel Gaspar	abelcorp@hotmail.com	52 (658) 514 21 96	8/5/2010	No	One of the major producers of cotton in Mexicali. The company owns its own Cotton Gin located in Mexicali. Production volume data was received through secondary sources.*
Agricola la Grana							No	
Agricola Las Montanas	US	Green Giant, Lee Brands, Farm Day, Western Express	Alex Corona	<a href="mailto:el_corona@hotmail.com">el_corona@hotmail.com</a>			No	Identified as a big player in green onions; also growers of lettuce and asparagus, publicly listed phone number "no existe"
Agricola Mexicali	Mexico	Gradesa SA de CV	Carlos Gratianne	cgratianne@gmail.com	52 (686) 567 34 16	8/10/2010	No	Production volume and acreage data was received directly from company by email.
Agricola Nueva Era	US (all produce exported; wheat stays)	Cal-Cel (primary), Everkrisp	Andres Baez	<a href="mailto:navproduce@hotmail.com">navproduce@hotmail.com</a>		13-Aug	No	Also grow leeks; minimal quake impact; purchase inputs from NH3; named El Toro and Quintana as competitors
Agricola Omega	US, Canada		Mark Black	<a href="mailto:omegaemp@hotmail.com">omegaemp@hotmail.com</a>	622 223 0328		No	Great diversity of products grown
Agricultores Unidos De Mexicali	Italy, Algeria	Gradesa SA de CV	Francisco Zapata	zapata_francisco@hotmail.com	52 (686) 591 14 77	8/10/2010	No	Production volume and acreage data was received through secondary sources*
Agro Altima	Worldwide (primarily US, Canada)						No	Specialize in asparagus (white asparagus, etc.); Evasive/nonresponsive
Agroindustria del Sol	US		José Luis Alba	<a href="mailto:agrosol1@prodigy.net.mx">agrosol1@prodigy.net.mx</a>			No	Evasive/nonresponsive; may also be input provider
Agroindustrial Union de Baja California	Japan	Toyo Cotton	Manuel Leyva	aubc@telnor.net	52 (658) 517 82 10	8/5/2010	No	Production volume data was received through secondary sources.*
Agroindustrias Unidas de Mexico (AMSA)	Asia	EcomTrading	Hans Hintermann	hhintermann@ecomtrading.com	52 (686) 561 89 61	8/11/2010	No	Affiliated to Ecom Trading Group based in, Dallas, Texas. Cotton is mainly marketed through Ecom Trading. AMSA has three operational centers in Mexicali. Information received directly from company via email and phone. AMSA grows alfalfa as well.

## Appendix C-1 Producers

Company name	Product Market	Product Customer	Contact Name	Contact email	Contact #	Date Interviewed	CRS Report	Comments
Agrovizion Integradora	Algeria, China, Japan, Italy, Korea, Morocco, North Africa, U.S.	N.A.	Alex Aureli	aaureli@agrovizion.com.mx	52 (686) 561 66 23	8/12/2010	No	Major grower and buyer of wheat in Mexicali and has operational presence through its five centers in Mexicali. Agrovizion also has cattle-breeding business in Mexicali. It operates four slaughter houses in Mexicali. Information received directly from the company.
Algodonera de Baja California	Japan, Italy, U.S.	Gradesa SA de CV Toyo Cotton Co ToyoShima USA Inc	Bertha Chavez	bchavez@abccotton.com.mx	52 (686) 561 85 06	8/4/2010	No	Production volume and acreage data was received directly from company via email and phone. The Company owns a Cotton Gin located in Mexicali.
Cohermez	Japan, Italy	N.A.	Joel Rusell	cohermez@hotmail.com	52 (658) 516 73 16	8/5/2010	No	Production volume data was received indirectly through secondary sources*
Compania Agricola El Faro	US	Baja California Onions, El Faro	Luis Alonso Gallego	<a href="mailto:Gallegohf@hotmail.com">Gallegohf@hotmail.com</a>			No	"Customers" may be own or affiliated brands
Cota Productores Agrícolas	US, Europe	Cota, Pascuale, Mexicali Valley, Baja Beauty	Mario Cota, Sr. Mario Cota, Jr.	<a href="mailto:cotaadm@prodigy.net.mx">cotaadm@prodigy.net.mx</a>			No	"Customers" may be own or affiliated brands
Empresas Longoria	Asia	Toyo Cotton	Roberto Coronado	elsacalv@telnor.net	52 (686) 552 23 51	8/12/2010	No	Production volume data was received indirectly through other sources.*
GN Productores	US		Martin Sotedo				No	Javier Navarro, publicly listed as manager/representative, is rarely found on-site.
Hortalizas Beltran		Muranaka					No	Either the same company or another owned by the same family manufactures agricultural machinery
Hortalizas Figueroa	US	Muranaka	Hector Figueroa				No	Publicly listed email addresses are not operational.
Hortícola San Pedro	US (100%)	New Star, Mission Asparagus, Grower's Direct Marketing, Nunez Co.	Jordi Elias	<a href="mailto:Jordi_Elias@hotmail.com">Jordi_Elias@hotmail.com</a>		10-Aug	No	Not affected by earthquake; also grow parsley, coriander, brussels sprouts; Inputs from NH3, Agrinor, Keithly Williams, Sakata
Integradora Azteca	China, Indonesia, Japan, U.S.	Gradesa SA de CV Toyo Cotton Co	Mireya Guerrero	iazteca@hotmail.com	52 (658) 517 46 93	8/5/2010	No	Information received directly from company. Sells wheat to Gradesa and part of cotton harvest to Toyo Cotton. It also exports directly to Asia
Legumbres San Francisco	US		Alejandro Barrios				No	Publicly listed email address is not operational.
Mxl Vegetables	US		Abel Gaspar	<a href="mailto:abelcorp@hotmail.com">abelcorp@hotmail.com</a>			No	Operate the largest greenhouse facility in the Mexicali Valley.
Ocean Mist	US (95%)		Troy Boutonnet	<a href="mailto:Troy@OceanMist.com">Troy@OceanMist.com</a>			No	

Appendix C-1 Producers

Company name	Product Market	Product Customer	Contact Name	Contact email	Contact #	Date Interviewed	CRS Report	Comments
Productores Agrícolas Del Valle (PAVSA)	Italy, Morocco, Nigeria	Cargill	Jose Martin Ortiz Franco	productoresagricolas@prodigy.net.mx	52 (658) 514 01 40	8/9/2010	No	Major supplier of wheat to Cargill. Information received indirectly through secondary sources.*
Productores Algodoneros de Mexicali (PAMSA)	Asia	N.A.	Gabriel Machado	pamsa@tarban.net	52 (658) 514 29 15	8/11/2010	No	It is one of the three companies owning their own Cotton Gins.*
Promotora Agrícola El Toro	US (100%)	AirBon(?)	Judith Mendez	<a href="mailto:jmendez@agricolaeltoro.com">jmendez@agricolaeltoro.com</a>		13-Aug	No	*2500h is planted with green onion and romain lettuce; also grow celery, parsley; majority (80%) of product is certified organic, w/ self-produced compost
Quintana	N.A.	N.A.					No	
Rancho El Golfo	Produce to US; grains local	Coastline Produce	Mike Fox	<a href="mailto:Mike.Fox@RanchoelGolfo.com">Mike.Fox@RanchoelGolfo.com</a>		13-Aug	No	Only cauliflower growers in the area; indicated increasing land lease prices due to farmers from earthquake-impacted areas looking to work elsewhere

\*Sources of secondary info

Note: Despite selling to co

Appendix C -2: Buyers

Company name	Address	Tel #	Annual Sales	# of employees	Product Name	Quantity Purchased	Product Market	Supplier	Intermediary (yes/no)	CSR Report (Yes/No)	Comments
Agroindustrias Unidas de Mexico (AMSA)	Av. Guadalupe Victoria and Queretaro S/N, Ejido Morelos, Mexicali, Baja California	52 (686) 561 89 61	N.A.	20 permanent & 45 seasonal	Cotton	N.A.	Asia	Various	No	No	Major grower and buyer of cotton in Mexicali. It controls 15-20% of cotton market in Mexicali. From total cotton production in Mexico in 2010, AMSA (Ecom Trading Group, Dallas) has largest share, specially in
Agrovizion Integradora	Km. 7.5, Carretera A San Luis Rio Colorado, Mexicali, Baja California	52 (686) 561 66 23	US\$12.5million	40 permanent, 110 temporary	Wheat	200,000 - 250,000 MT	Algeria, China, Italy, Morocco, North Africa	N.A.	No	No	Agrovizion is also one of the major wheat grower companies in Mexicali
AirBon(?)					asparagus, Green Onions		US			No	
Boskovich Farms	711 Diaz Avenue, Oxnard, CA 93030-7247, USA (HQ)	805-487-3399	\$682M	1000+	Asparagus, Green Onions, Brussels Sprouts		US			No - info on food safety	Company has 10,000+ acres of land in total and grows 30+ crops
Cal-Cel	771 Mountain View Ave, Oxnard, CA 93030-7222 USA	805 487 5525 (US)	\$4.1M		Fresh Fruits & Vegetables	6	US	Agricola Nueva Era		No	
Cargill de Mexico SA de CV **	Prolongacion Paseo de la Reforma 1015, Punta Santa Fe Torre A, Colonia Desarrollo Santa Fe, 1000, Mexico	52 (55) 1105 7400	US\$161million	375	Wheat	120,000 - 150,000	Worldwide	Productores Agricolas Del Valle (PAVSA)	No	Yes	Cargill (Mexico) has animal feed processing operations in Merida, capital of state of Yucatan, and Irapuato, located in State of Guanajuato. The company has an oilseed crushing and refining plant in Tula, which processes soybean meal, oils and fats to serve the feed segment in central Mexico. Cargill has a grain warehouse in Poncitlan, central
CHS Inc.**	5500 Cenex Drive, Inver Grove Heights, MN 55077 United States	651-355-6000	US\$25 billion	8802	Wheat	N.A.	Worldwide	Gradesa SA de CV	No	Yes	CHS Inc. is an integrated agricultural company which operates through three segments: <b>Energy</b> - refining, wholesaling and retailing of petroleum product. <b>Ag Business</b> - origination and marketing of grain, processed sunflowers, feed and farm supplies, and records equity income from investments in its agronomy joint ventures, grain export joint ventures and other investments <b>Processing</b> - soybean meal and soybean refined oil, and records equity income from wheat milling joint ventures.
Coastline Produce	1166 Growers St, Salinas, CA 93901-4442 USA	831 755 1430 (US)	\$15.7M		Fresh Fruits & Vegetables	23	US	Rancho El Golfo		No - info on food safety	
Everkrisp	8499 W Harrison St, Tolleson, AZ 85353	623 936 1061 (US)	\$15M		Fresh Fruits & Vegetables	76	US	Agricola Nueva Era		Working with CHEP on sustainable supply chain practices	
Farm Day					asparagus, Green Onions			Agricola Las Montanas		No	

Appendix C -2: Buyers

Company name	Address	Tel #	Annual Sales	# of employees	Product Name	Quantity Purchased	Product Market	Supplier	Intermediary (yes/no)	CSR Report (Yes/No)	Comments
Grasas y Derivados S.A. (Gradesa)**	Calle 76 N° 54-11 Ofc. 1203 Edif. W.T.C. Barranquilla, Colombia	57-53601822	US\$161million	N.A.	Wheat	100,000 - 150,000MT	N.A.	Various	Yes	No	Gradesa's operates as an intermediary in Mexicali wheat market. It mainly supplies wheat to CHS Inc.
Green Giant	Blue Earth, MN				asparagus, Green Onions			Agricola Las Montanas		No	Owned by General Mills
Grower Direct Marketing	2097 Beyer Ln, Stockton, CA 95215-2009 USA	209 931 7900 (US)	\$10.9M		16 Fresh Fruits & Vegetables		US	Horticola San Pedro		No	
Grower's Vegetable Express	1219 Abbott Street, Salinas, CA 93902-4504	831 757 9700 (US)	\$50M+	50+	Fresh Fruits & Vegetables		US			No	
Lee Brands					asparagus, Green Onions			Agricola Las Montanas		No	
Mission Asparagus	2500 E Vineyard Avenue #300, Oxnard, CA 93036-1377	805 981 3650 (US)	\$20M+	100+	Asparagus		US	Horticola San Pedro		No - info on food safety	
Muranaka Farms	11018 E Los Angeles Ave, Los Angeles CA 90015	805-529-0201	\$3.2M	18 (LA & Calexico)			US	Hortalizas Figueroa, Hortalizas Beltran		No - ordered by EPA to restore Calleguas Creek (CA) in 2007	
New Star	900 Work St, Salinas, CA 93901-4386 USA	658 516 9333 (Mx), 831 758 7806 (US)	\$22.2M		100 Green Onions, Vegetables, Leafy Greens		US	Horticola San Pedro		"Sustainable Practices": <a href="http://www.newstarfresh.com/ns/newstar_info/sustainable_practices/">http://www.newstarfresh.com/ns/newstar_info/sustainable_practices/</a>	
Nunes Co. ("Foxy" and "Tubby" brand names)	930 Johnson Ave, Salinas, CA 93901 USA	831 751 7500	\$68.2M	100	Vegetables		US	Horticola San Pedro		No - info on food safety	
Toyo Cotton Co**	11611 Forest Central Dr Dallas, TX 75243-3907, United States	214-349-1376	US\$5.4 million	25	Cotton	N.A.	N.A.	Various	No	No	According to interviews with grower companies Toyo Cotton purchases 70 - 75% of cotton grown in Mexicali
Toyo Shima USA Inc**	8001 Center view Pkwy Cordova, TN 38018-4261	901-752-6640	US\$1.3 million		6 Cotton	N.A.	N.A.	Various	No	No	
Western Express					asparagus, Green Onions			Agricola Las Montanas		No	

\*Sources of secondary information for this research included representatives from other grower companies interviewed as well as published data particularly at [http://www.oedrus-bc.gov.mx/oedrus\\_bca/](http://www.oedrus-bc.gov.mx/oedrus_bca/)

Note: Despite selling to companies downstream in the supply chain, some of the grower companies also directly export their products to consumer markets indicated.