

USDA Foreign Agricultural Service

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Global Agricultural Information Network

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Guatemala

Sugar Annual

Sustainability Approach

Approved By:

Henry Schmick, Agricultural Counselor

Prepared By:

Karla Tay, Agricultural Specialist

Report Highlights:

Guatemalan sugar production for Marketing Year (MY) 2015-2016 (October 2015 to September 2016) is forecast at 2.96 million metric tons (MMT). Production for MY 2014-2015 has been revised slightly up to 2.90 MMT from the previous estimate, and is a record high for the third consecutive year. Production for MY 2013-2014 was revised slightly up at 2.86 MMT. Total exports for MY 2015-2016 are forecast at 2.35 MMT, with a major share of refined sugar for the first time in history. Guatemala, during MY 2013-2014, positioned itself as the third major producer and third biggest exporter in Latin American and the Caribbean, fifth major exporter worldwide and first most efficient at port loading in the global sugar industry.

Executive Summary:

Guatemalan sugarcane planted area has been expanding by three percent (average annual basis) for the past ten years. Production increase is highly dependent on yield increases and sugar extraction efficiency. In MY 2015-2016, planted area is forecast at 270,000 Ha. Sugar yields in MY2014-2015 are expected to reach 10.8 MT/Ha. Sugar cane area represents roughly three percent of the total country's surface and 10 percent of the total agricultural area.

Domestic Consumption for MY 2014-2015 is estimated at 779,000 MT. Exports for MY 2015-2016 are forecast at 2.35 MMT, with a major share of refined sugar, after reaching 50% share of raw and refined during MY2014-2015. Guatemala is the world's fourth largest exporter (Guatemalan exports represent three percent of total world exports) and third largest producer in Latin America. During MY2014, both the United States and South Korea were the first major export markets for Guatemalan sugar, with 13 percent each.

Productivity increases in Guatemala's sugar production obey to four main factors: 1) improved genetics, 2) integrated pest management, 3) irrigation efficiency, and 4) environmental sustainability.

Commodities:

Sugar, Centrifugal

Production:

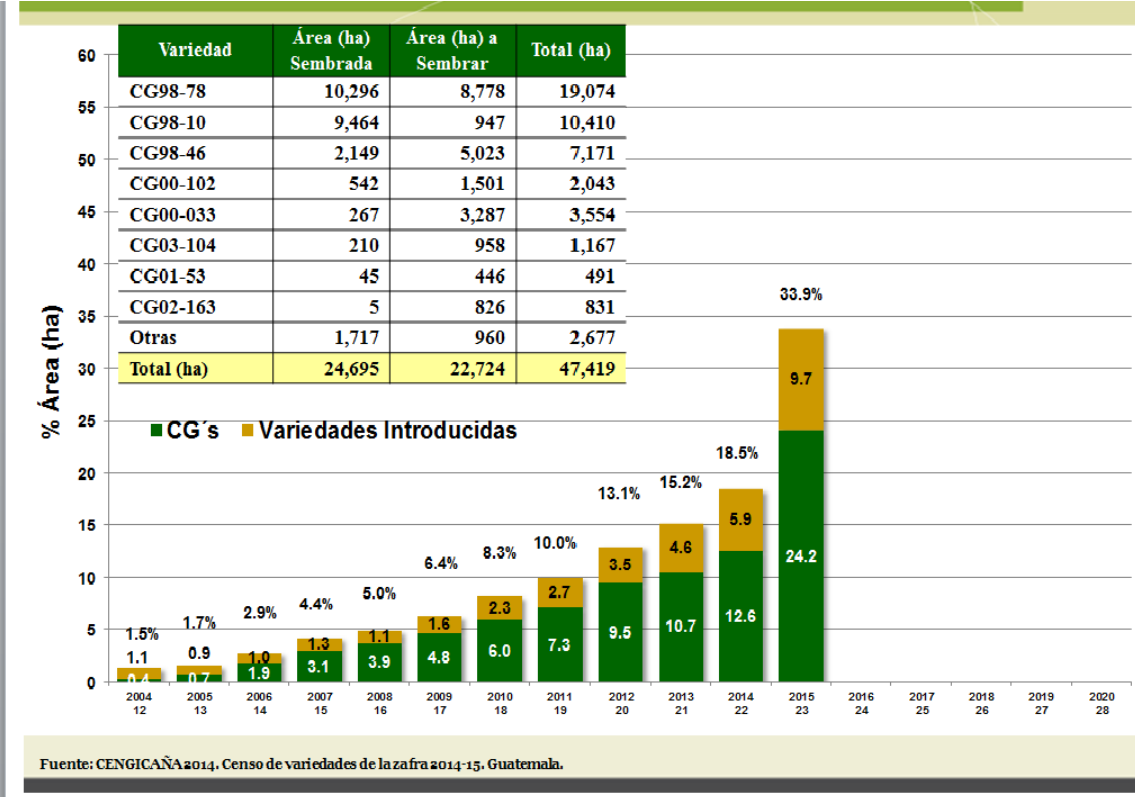
For the MY 2015-2016 crop, sugar yields are expected to average close to 11.0 MT/Ha. MY 2014-2015 reported a sugar cane yield of 108.3 TM/Ha and a sugar yield from sugarcane of 10.8 MT/Ha of sugar in a total area harvested of 265,000 Ha. Variations in sugar cane and sugar yields are directly dependent on the sugar sector's private policy, aimed at long term sustainability on both economic and environmental terms. To achieve sustainability, the sugar industry has made significant investments in Research and Development (R&D), in the following areas: 1) improved genetics, 2) integrated pest management (IPM), 3) irrigation efficiency, and 4) environmental sustainability.

1) Improved Genetics: Guatemala participates in the improved sugar genetics exchange program in between producing countries. Guatemala's sugar cane varieties have come mainly from Canal Point (Florida), but materials have also been introduced from Australia, South Africa, Maurice, India, Thailand, Argentina, Brazil, Colombia, Ecuador, Mexico, Cuba, Puerto Rico, and Barbados. Prior to the establishment of the Center for Sugar Cane Research (CENGICAÑA) in 1992, Guatemala's production relied exclusively on selection of foreign developed materials.

CENGICAÑA launched the first locally adapted varieties in 2004, after the 12-year research required to come up with new materials, which accounted for 1.5 percent of the total amount of producing plants in the field. By 2015, 33.9% of the production is sourced from locally developed materials, which has

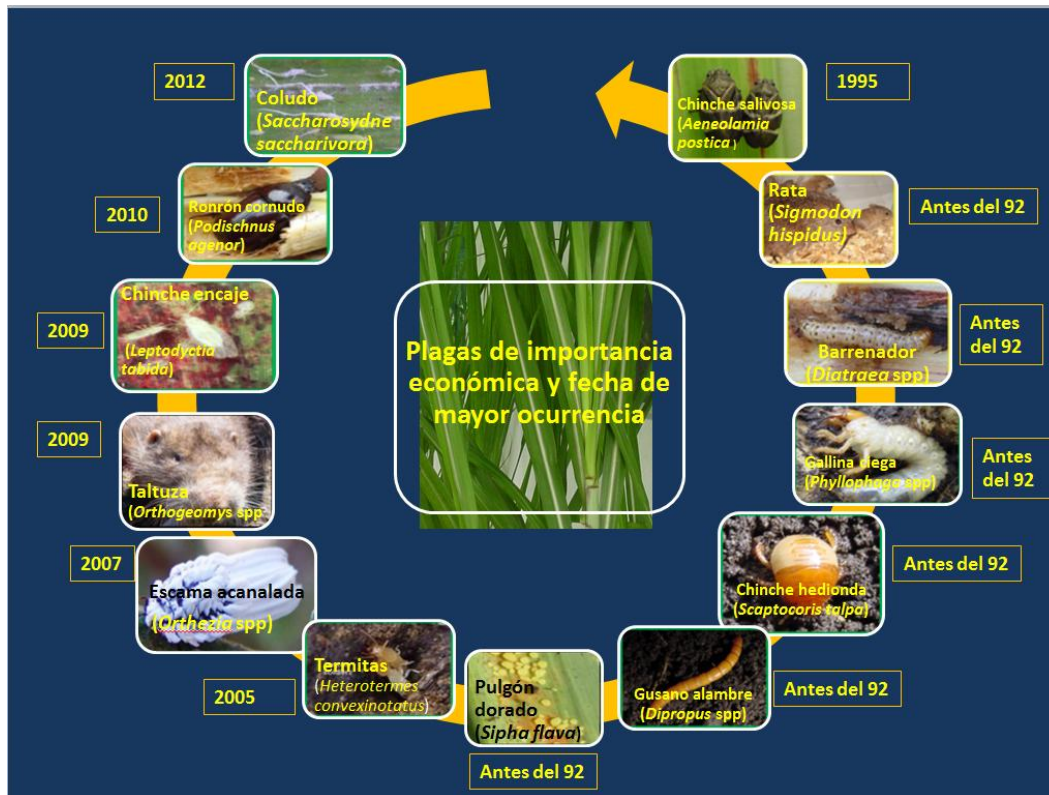
increased productivity for the sector (Graph 1), with a long term vision of increasing locally adapted varieties. Harvest is divided in 3 bimonthly periods: Nov.-Dec. (early flowering varieties), Jan.-Feb. (highly productive special varieties), and Mar.-Apr. (highly productive late flowering). CENGICAÑA starts every year with 650 crosses yielding 180,000 new plants, of which just a couple of new varieties will make it to the final commercial phase after the 12 year selection/evaluation time frame.

Graph 1
Introduction of new sugarcane varieties developed by CENGICAÑA
Source: CENGICAÑA, 2015



2. Integrated Pest Management (IPM): From the 1960's till the 1990's, six major pests impacted the sugarcane production, and chemical control was the most important control strategy (Fig. 1). In the past ten years, pests and diseases have doubled, making breeding for pest and disease resistance a must to maintain productivity at the field, in an environmentally sustainable approach. Sugarcane production at present requires low chemical control through the use of biological controls with natural predators and microbial parasites.

Figure 1
Main economic pests in sugarcane production in Guatemala
Source: CENGICAÑA, 2015

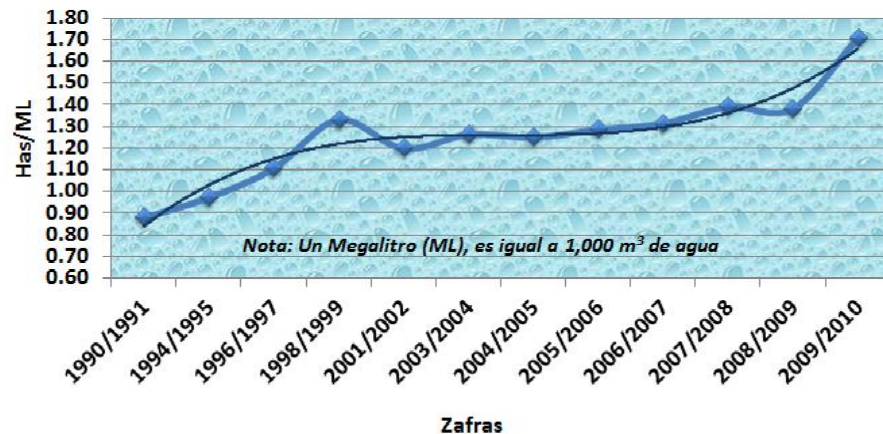


3) Irrigation Efficiency: Water use for sugar cane irrigation has improved significantly over the years. Starting with flooding systems, followed by sprinklers, mini-sprinklers, and highly mechanized and efficient irrigation at present (including precision agriculture), water use in 2015 is twice as effective as in 1990. During the 90's, the sugar sector's irrigation efficiency was 0.90 Ha/ML (mega liter). By 2015, the efficiency had increased to 1.80 Ha/ML.

Graph 2
Irrigation Efficiency in Sugar Cane Production in Guatemala
Source: CENGICAÑA, 2015

EVOLUCIÓN DE LA EFICIENCIA EN RIEGO. ZONA CAÑERA GUATEMALTECA

Has Regadas/megalitro de agua



Fuente: Presentación evento Análisis de la zafra 2010/2011, área de riegos.

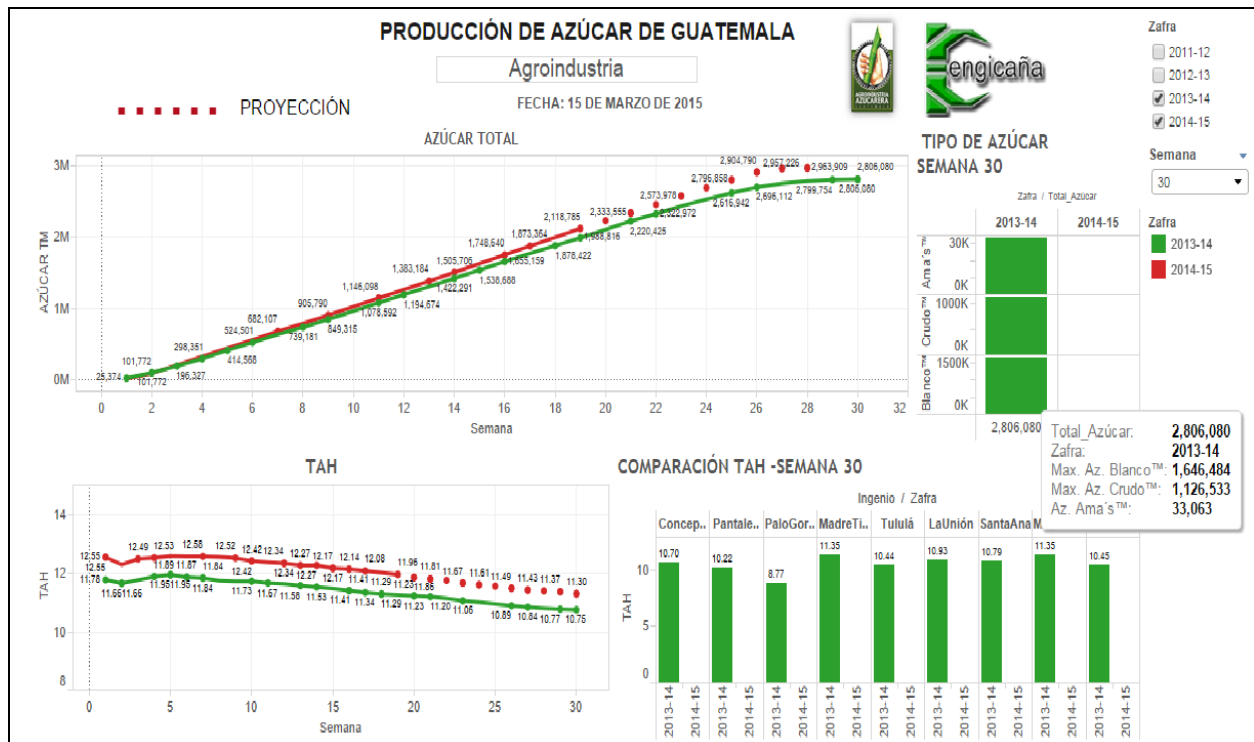
4) Environmental Sustainability: In 2012 the sugar industry founded the first private-sector research group, the Climate Change Institute (ICC). ICC is carrying out research on climate and water, ecosystems, riverbanks integrated management, disaster risk management, and climate change capacity building. Many other environmental friendly actions have been taken, such as energy forests incorporation into the sugar cane processing at the mills and ethanol by-production from the molasses (not from main juices – therefore does not compete with sugar production). Guatemala is presently co-generating 412 MW (21% of the national grid) and produced 272 million liters of alcohol during MY2013-2014 (100 percent of which is presently exported).

Guatemala produces 0.07 percent of the world's greenhouse gas emissions, of which 50% are caused by deforestation, 44% by fuel combustion, and 6% comes from the industries. Less than 3% of the total country's emissions come from the sugar industry, representing 0.32 CO₂ Kg/sugar Kg. The sugar cane burning accounts for 12% of the emissions.

Overall, R&D investments in the four areas cited above (improved genetics, IPM, irrigation, and environmental sustainability) have provided for a well-established sector, with a long-term productivity vision. Sugar yield (per hectare) has increased greatly from 6.6 MT/Ha, in 1990, to 10.8 MT/Ha during the last harvest season. The productivity goal for 2020 is that sugar yields will increase to 12.0 MT/Ha on raw sugar terms. Without R&D, Guatemala would presently require a planted area of roughly

550,000 Ha, more than twice as much the actual planted area, to obtain the same production level. Guatemala's sugar cane productivity increases on a 5-6% annually. Sugar extraction efficiency depends on each individual mill's investment, and there is still an important upgrade to be achieved. Production estimates can be followed on a weekly basis at CENGICAÑAS public site: <http://www.cengicana.org/>.

Graph 3
 Sugar production on a weekly basis
 MY2013/14 vs. MY2014/15
 Source: CENGICAÑA, 2015



Sugar outputs will vary significantly on the weather pattern, mainly influenced by El Niño/La Niña phenomenon. El Niño brings more light intensity and less water, while La Niña means cloudiness and floods. Graph 4 shows one of Guatemala's production sites, correlating sugar cane yields along time with El Niño/La Niña phenomenon; it is evident that La Niña year implies adjusting for lower production estimates.

Graph 4
 Sugar cane yields per El Niño/La Niña phenomenon
 Source: CENGICAÑA, 2015

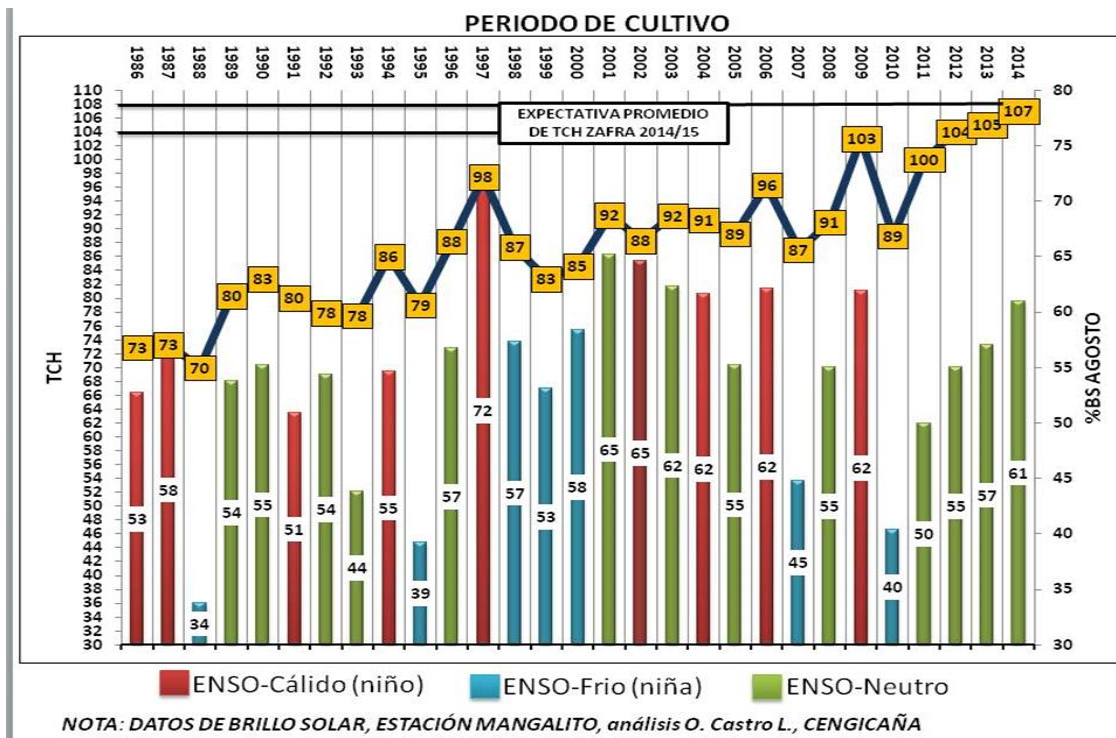


Table 1
PS&D for 2014-2016

Sugar, Centrifugal Market Begin Year Guatemala	2013/2014		2014/2015		2015/2016	
	Oct 2013		Oct 2014		Oct 2015	
	USDA Official	New post	USDA Official	New post	USDA Official	New post
Beginning Stocks	365	365	503	309	0	234
Beet Sugar Production	0	0	0	0	0	0
Cane Sugar Production	2,852	2,862	2,850	2,900	0	2,963
Total Sugar Production	2,852	2,862	2,850	2,900	0	2,963
Raw Imports	0	0	0	0	0	0
Refined Imp.(Raw Val)	0	0	0	0	0	0
Total Imports	0	0	0	0	0	0
Total Supply	3,217	3,227	3,353	3,209	0	3,197
Raw Exports	1,050	1,050	1,050	1,100	0	1,150
Refined Exp.(Raw Val)	900	1,050	900	1,100	0	1,200
Total Exports	1,950	2,100	1,950	2,200	0	2,350
Human Dom. Consumption	764	769	768	775	0	779
Other Disappearance	0	0	0	0	0	0
Total Use	764	769	768	775	0	779
Ending Stocks	503	309	635	234	0	68
Total Distribution	3,217	3,178	3,353	3,209	0	3,197

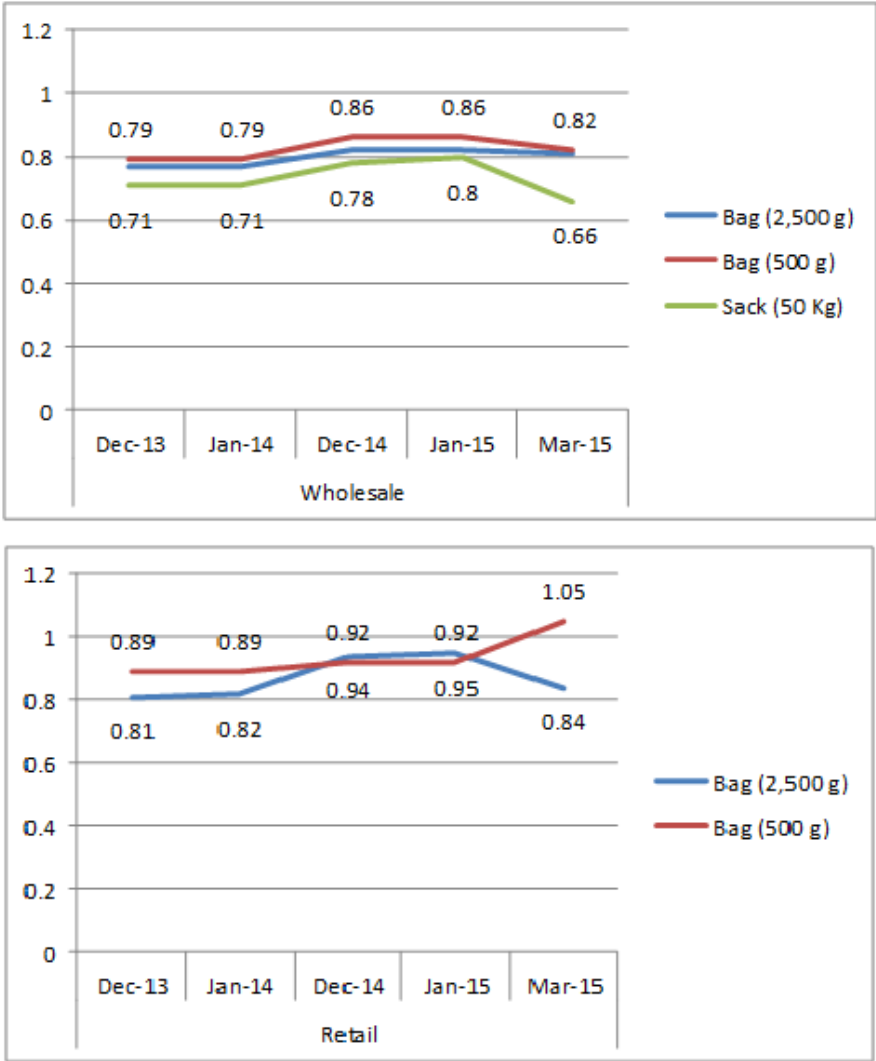
1000 MT

Consumption:

MY 2015-2016 consumption is expected to increase to 775,000 MT. Annual per capita consumption of sugar in Guatemala is close to 100 pounds. Currently, domestic consumption is split, 27 percent for industrial use and 73 percent for direct human consumption. The soft drink industry is the major

industrial consumer of sugar, followed by confectioneries, bakeries, juice makers, dairy producers, and pharmaceutical companies. Overall, domestic consumption is roughly 27 percent of total production. Drops in consumption are tightly related to price increases in the basic food basket items. Roughly 97% of the local consumption is standard white, 2% refined, and 1% brown sugar. Historical prices for standard white sugar at the wholesale and retail in Guatemala are shown in Graph 5.

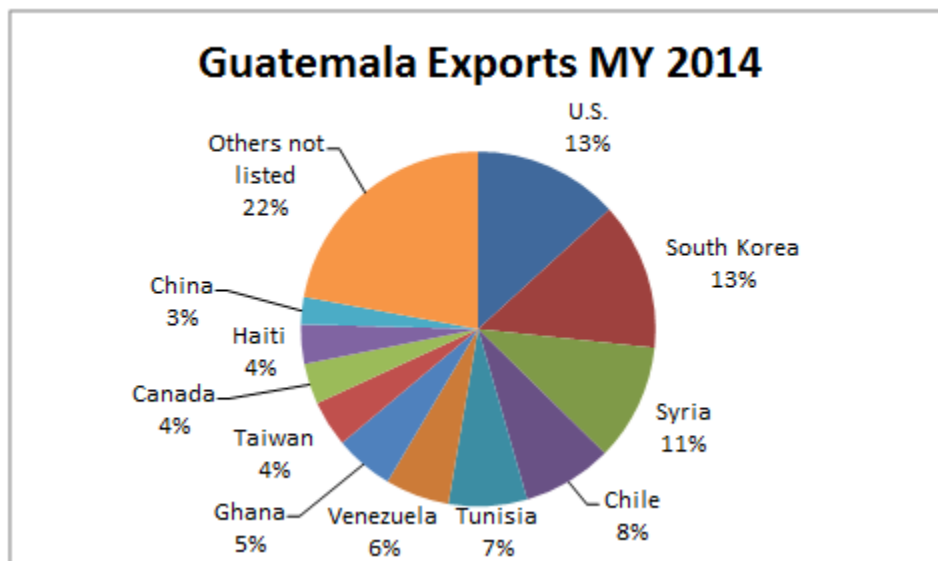
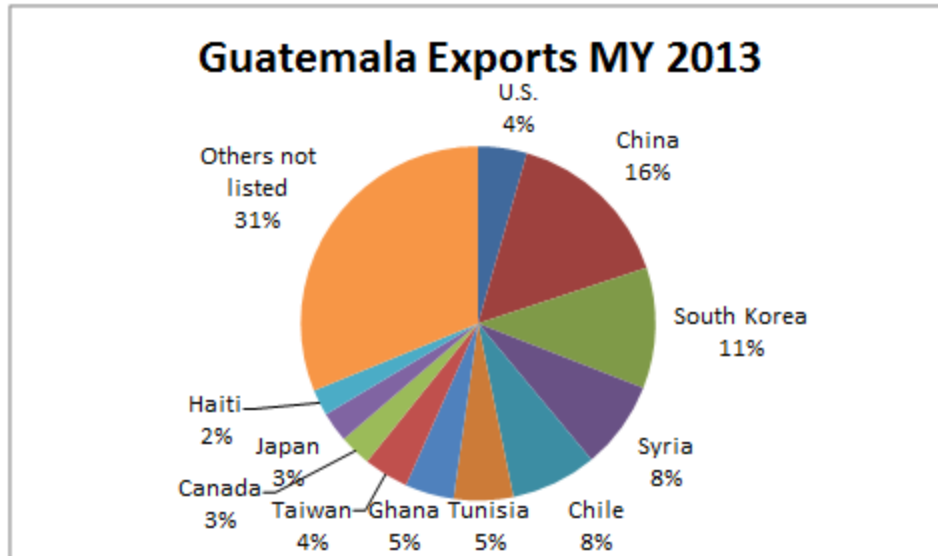
Graph 5
 Standard white sugar prices at wholesale and retail in Guatemala
 Source: MAGA, 2015



Trade:

Export Trade Matrix			
Country			Guatemala
Commodity			Centrifugal Sugar
Time period			Oct-Sep
2013		2014	
U.S. (including re-exports)	98,077	U.S. (including re-exports)	239,939
Others		Others	
China	342,070	South Korea	243,724
South Korea	243,724	Syria	192,915
Syria	177,430	Chile	148,573
Chile	173,423	Tunisia	129,610
Tunisia	119,495	Venezuela	105,792
Ghana	98,757	Ghana	97,511
Taiwan	90,586	Taiwan	76,235
Canada	64,004	Canada	67,204
Japan	60,650	Haiti	64,889
Haiti	52,598	China	45,143
Total for others	1,422,737	Total for others	1,171,596
Others not listed	429,186	Others not listed	689,523
Grand Total	1,950,000	Grand Total	2,111,769

During MY 2013-2014, Guatemala exported 2.1 MMT in raw and refined sugar, 11% above the estimate. Sugar represented the first highest source of foreign exchange for the Guatemalan agricultural sector, followed by coffee and bananas. Exports for MY 2015-2016 are forecast at 2.35 MMT, without much variation. Guatemala continues exporting around 73 percent of its total production. The export markets have changed quite significantly in the past decade. During MY 1999-2000, North America imported 42 percent of the Guatemalan sugar. During MY 2013-2014 harvest, North America's share has declined to 17 percent (still a major market) and South Korea is, together with the United States, the first major market for Guatemala's sugar. The United States share has been recovered after very atypical MY2012-2013.



For MY 2013-2014, raw sugar exports, for the first time, participated on a 50 percent share of total exports as refined sugar has finally made it to the other 50 percent. The trend to increase exports of refined sugar (rather than raw sugar) has increased the importance of South American and Caribbean countries for Guatemala's sugar exports. Top buyers for Guatemalan sugar were the United States, South Korea, Syria, Chile, and Tunisia.

Stocks:

MY 2015-2016 ending stocks are expected below estimate. Domestic stocks are held in warehouses managed by AMA's throughout the country. All exported sugar is held in warehouses managed by EXPOGRANEL, the loading terminal located at Puerto Quetzal. Its warehousing capacity is set at 365,000 MT for bulk sugar, and 66,000 MT for refined sugar (50 kg sacks).

Guatemala is known worldwide as a good partner in the sugar business, due to its high quality sugar (95-98 percent polarization) plus the fact that it has always fulfilled its commitments. Guatemala signs contracts in advance, during the first three months of each calendar year. After March, prices start rising in the international market. During FY2015 Guatemala has been assigned a U.S. TRQ of 50,546 MT, which will be fulfilled ahead of time.

To insure local demand will be supplied, all exports must be managed through the Sugar Producers Association and a representative from Ministry of Economy has to approve such exports.

Policy:

The Sugar Board of Guatemala, which includes representatives from the Ministry of Economy, sugarcane producers, and sugar mills, establishes production goals, sets sugarcane prices, and allocates the U.S. sugar quota to the different sugar mills. The allocation to each mill is based on past production performance, previous quotas, and milling capacity. According to the law, all sugar sold domestically must be enriched with vitamin A. The industry claims to invest more than \$3.5 million a year in vitamin A. At times the Government of Guatemala (GOG) opens most favored nation quotas for imported sugar to try to control market prices, but the quotas rarely get filled in part due the vitamin A fortification requirement. Fortification is approved and validated by the Institute of Nutrition of Central America and Panama, which has historically monitored and evaluated the impact of Vitamin A fortification, reporting it as a success story. Even though Guatemala has the third highest rate of chronic malnutrition in children less than 5 years old in the world, blindness is not an issue in the country. See <http://www.incap.org.gt/index.php/en/areas-and-lines-of-working/nutrition-and-micronutrient/integral-analytical-center-cai>.

Marketing:

The main export strategy is geared to continue increasing refined sugar exports. ASAZGUA is also continuing its marketing strategy designed to maintain domestic sugar consumption. The industry is actively engaged with supporting the “millennium challenge goals” in Guatemala and has been collaborating for more than 20 years in maternal-child nutrition and health components; its major program is focused on increasing local capabilities of rural primary school teachers. As a result, the sugar industry is well known and highly recognized in the country. <http://www.azucar.com.gt/index.html>.

Production, Supply and Demand Data Statistics:

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