MEXICAN AGRICULTURE MARKET
July 2018

ARNI Consulting Group
www-negocios-internnacionales.net

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1. General Overview of Mexico dairy industry

Introduction

The dairy industry and its products is the third most important activity in the Food sector. The milk production is located all over Mexico and the states of Durango, Coahuila, Jalisco and Chihuahua contribute with more than 48% of the national production. In the last two decades the milk production has grown specially in the north of the country by means of specialize systems with technology and dairy cattle breeds; the Mexican government has heavily invested to increase the milk production and to reduce the milk deficit.[1]

The main dairy cattle breeds in Mexico are Holstein, Friesian, Jersey, Brown Swiss and hybrids.

The production of milk in Mexico presents different, socio-economic conditions, technology, handling technics and environmental conditions.

1.1 Production systems in Mexico

The Mexican Dairy industry is disparate, the production units are different base on technology, number of animals in production, reproductive technics, quality of the forage and balance meals as well as commercialization of the dairy products.

The country has high technology production units located in the north and center of Mexico, smaller units with low technology and family farm units. Base on the way there are structure the systems are divide in four, intensive, extensive/dual purpose, Semi-intensive and family farm.

Intensive: This type of production units has dairy cattle breeds; the primary breed is Holstein and in less amount Jersey and Brown Swiss. These systems use specific technology, the cattle are in a controlled environment housing, and balance meals and forage are used for their diet. The milking process is done by machinery and the destination of the milk is for pasteurization or food processing plants. These systems contribute with 50.6% of Mexico´s milk production. The geographic location is Comarca Lagunera, Durango, Coahuila and Queretaro. This system has an average of 230 cows it can go from 100 to 8000 cows.

Extensive/Dual Purpose: This system has Zebu Breeds and hybrids; the systems produce beef and milk and is common in the tropical areas of Mexico. The cattle are in open space and only during the night is keep in stables. The diet is based on pasture and complements. Milking is done manually. The geographic location of this system is in the states of Veracruz, Tabasco, Nayarit, Yucatán, Oaxaca, among others, usually the milk production is in the rainy season. These systems contribute with 18.3% of Mexico´s milk production. [2]

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[1] Bastida Mercado, Claudia. "*Caracterización del sistema de producción de leche en la comunidad de loma blanca, Almoloya de Juárez, Estado de México*". Instituto de ciencias agropecuarias y rurales. México, Estado de México. Enero del 2014. Recuperado de Instituto de Ciencias Rurales Estado de México

[2] Biotech Group. La Industria Ganadera en México. Global Biotech Consulting Group. 2012. Recuperado de: http://www.gbcbiotech.com/bovinos/bovinos.html

Semi-intensive: This system also has dairy cattle breeds, Holstein and Brow Swiss, but the amount and quality of the cattle is less compare to the specialize system. The cattle can be in stables and in open areas. The milking process can be manual or using individual milking machines or small parlor. Some have refrigeration system, and some do not. These types of systems contribute with 21.3% of Mexico´s milk production.

Family Farm: The farm has small areas of land, the breeds are Holstein, Brown Swiss and hybrids. The diet is based on pasture, forage or crops from the farm. Represents 9.8% of Mexico milk production. Most of the production is use for artisanal cheese. [3] [4]

1.2. Production units distribution (average holding / unit size)

The Milk production distribution in 2016 was 63.3% was concentrated in 6 entities: Jalisco (19.2%), Coahuila (12.2%), Durango (9.8%), Chihuahua (9.1%), Guanajuato (7.1%) y Veracruz (6.1%). The most productive municipalities the country is Gomez Palacio, Durango with 6.2%; Matamoros, Coahuila with 5.1%: Delicia, Chihuahua with 3.2% and Francisco I Madero, Coahuila with 3.1% [5].

The data of the Agriculture and Fishing Information Service (SIAP)[6], quantified the milk cattle population in Mexico during 2015 as been 2.46 million of animals. The 61% of the cattle geographic distribution was 13.6% in Jalisco, 11.3% in Durango, 11,2% in Chihuahua, 9.9% in Coahuila, 7.9% in Hidalgo and 7.8% in Guanajuato.

The last Agriculture census in Mexico was done in 2007, such census identified a 154,045-milk production unit (PU) in the country. The states with more production units were in the states of Veracruz (15.2%), Jalisco (11.8%), Michoacán (7.9%), Guerrero (7.1%), Chiapas (6.9%), Guanajuato (5.2%) and Chihuahua (4.6%).

The census identified 105,430 PU of dual purpose, located in the states of Veracruz (16.9%), Jalisco (8.7%), Guerrero (8.2%), Chiapas (7.1%), Zacatecas (6.7%), Sinaloa (5.5%) and Michoacán (5.2%).

The average number of animals in PU only for milk production was 19.3. [7]

INEGI Data National Agriculture Survey 2014, milk cattle in production 2,664,938 animals. The milk cattle distribution is: Durango (22.9%), Jalisco (16.7%), Coahuila (12.4%; Chihuahua (10.5), Guanajuato (6.1%), Veracruz (4.5%) and Aguascalientes (3.6%).

The most common breeds are hybrids with Milk cattle by 48.5%, 27.8% Milk breeds and 20.9% cattle low quality. [8]

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[3] Villamar Angulo Luis, Cazares Olivera Enrique, Actual milk production in Mexico and perspective. SAGARPA General Coordination , 2005. *https://www.info rural.com.mx/leche-sistemas-de-produccion/*

[4] Robledo Padilla, Ramón, Mexico Milk Production and commercialization with APEC countries. Universidad Nacional Autónoma de México y Asociación Mexicana de Ciencias para el Desarrollo Regional A.C, Coeditores, México. 2018 UNAM Economic Science Institute

[5] SAGARPA, Panorama de la Leche en México, Marzo 2017 Recuperado en https://www.inforural.com.mx/panorama-la-leche-mexico-2/

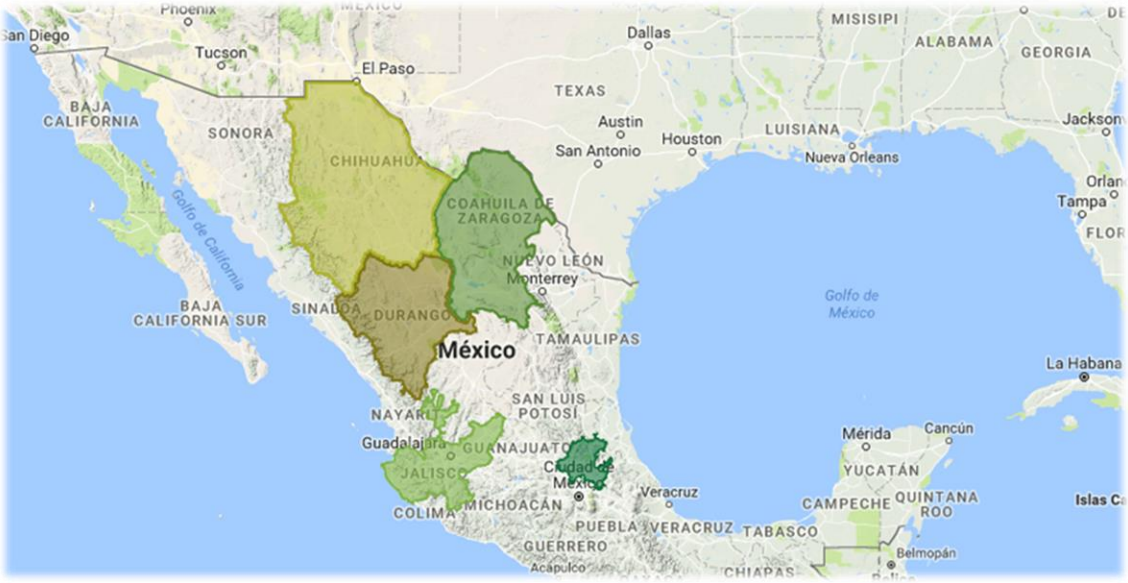
[6] SIAP Sistema de Información Agroalimentaria y Pesquera, https://www.gob.mx/siap

[7] FIRA, Panorama Agro Alimentario 2017, Mayo 2017 https://www.fira.gob.mx/

[8] INEGI. Encuesta Nacional Agropecuaria 2014. México. 2014. Recuperado de: http://www.inegi.org.mx/

The SIAP published in 2016 preliminary data of the Milk cattle in the country, this is the more update information available.

Mexican states with higher milk cattle inventory



Source: SIAP Agriculture Information System, 2016

Table states with higher milk cattle inventory

State	Number of animals	%
Jalisco	343,691	13.80
Chihuahua	275,285	11.06
Durango	282,758	11.36
Coahuila	247,271	9.93
Hidalgo	198,933	7.99

The information located at the national level do not show the exact location and size of the production units. To pin point the main production units with a large No. of cows in production, is

needed to contact the livestock union at the national level and within the states, such research will require to be done as a specific project.

Below is a list of the most relevant organizations base on the number of organizations that formed them and their location.

National Confederation of Livestock Organizations
President: Sr. Oswaldo Cházaro Montalvo
secretary: M.V.Z. Salvador Álvarez Morán
Tresuary: Ing. Antonio Manuel García Garza
Address: Mariano Escobedo 714, Colonia Nueva Anzures
Delegación Miguel Hidalgo CP 11590, DF
Phone: (52-55) 52-54-32-10
Web Site: http://www.cnog.com.mx/

The main unions of higher inventory stares are:

Jalisco

Regional Livestock Union of Jalisco

The union is formed by 138 Livestock associations located in 124 municipalities. The total number of producers is 104,718 of those only 16,000 are exclusive for milk production.

President: Ing. Adalberto Velasco Antillon
Address: Huascato #915 Col. el Alamo
Tlaquepaque, Jalisco CP 45660
Phone: (52-33) 3837- 0770
Web Site: http://www.ugrj.org.mx/

Chihuahua

The union is formed of 49 organizations located around the state.

Regional Livestock Union of Chihuahua
President: Sr. William W. Wallace Zozaya
Secretary: Ing. Jaime Escobar Auza, Sr. Luís Manuel Berumen Berumen
Address: Km.8.5 Carr. Cuauhtémoc, Colonia
Delegación Chihuahua CP 31000, Chihuahua
Phone: (52-614) 434-01-52
E_mail: presidencia@ugrch.org
Web Site: http://www.ugrch.org/

Durango

Regional Livestock Union of Durango

President: Profr. David Avitia Torres
Secretary: Sr. Luis Manuel Berumen Berumen
Address: Km.4.5 Carr. Durango-Parral, Colonia
Delegación Durango CP 34217, Durango
Phone: (52-618) 835-72-27
E_mail: unionganadera26@prodigy.net.mx
Web Page: https://www.facebook.com/UnionGanaderaRegionalDurango/

Coahuila

Regional Livestock Union of Coahuila

The Union is formed of 18 associations with more than 2,000 active members.

President: Lic. Olegario Ramón Losoya
Address: Carretera Piedras Negras - Nuevo Laredo Km. 12.5
Piedras Negras, Coahuila
Tel. (52-878) 782-66-50
email: ugrc@ugrc.com.mx
Web Site. http://www.ugrdecoahuila.com.mx/

The Laguna region in Coahuila is an important milk producer and has their own regional union.

Regional Livestock Union of la Laguna
President: CP. José Luis Meza Sepúlveda
Secretary: Ing. Carlos I. Valdés Berlanga
Address: Calz. Manuel Ávila Camacho y Calz. Moctezuma 3902, Colonia Aviación
Delegación Torreón CP 27040, Coahuila
Phone: (52-871) 721-10-15
E_mail: unionganaderaregional@prodigy.net.mx
Web site: https://www.facebook.com/pages/Union-Ganadera-Regional-de-la-Laguna/

Hidalgo

Regional Livestock Union of Hidalgo
President: Sr. Rogelio Ramírez Contla
Secretary: Sr. Miguel Ángel López Alonso
Address: Artículo 3ero, Esq. Plan de la Noria, Colonia Fracc. Constitución
Delegación Pachuca CP 42080, Hidalgo
Phone: (52-771) 718-70-74
E_mail: ugrh@prodigy.net.mx
Web site: https://www.facebook.com/UnionGanderahidalgo/

1.3. Feed Systems

In Mexico exist three feeding systems that are used for milk cattle.

1. Feed system for stable cattle.
2. Feed system that combines stable and pasture.
3. Pasture all year around.

The first two are more commonly use in the specialized milk production units and the third one is use in the tropic where there is an abundance of grazing land all year around.

In the stable system the animals are fed with forage, silage and supplements with balances meals. This system requires a good control of the food distribution.

In intensive units' system it is used to feed the cows during the milking process, it is important to have a good control due to cows in different stages of production and their food requirements varies.

The pasture system is more natural and the cattle graze on their own. This system does require to have a good rotation of the grazing lands[9].

1.4 Main Players

The main players in the industry are Grupo Lala with 21.4% of participation of the market, Alpura with 10.2%, Nestlé with 7.7%, Sigma Alimentos with 6.2% and Grupo Lactalis with 4.1%, information provided by Euromonitor[10].

GRUPO LALA

Mexican company focused on healthy, nutritious foods; production, sale and distribution of milk and dairy products. In 2017, net sales totaled MXN62.54 billion, a 17% increase over 2016.

Grupo Lala in numbers:

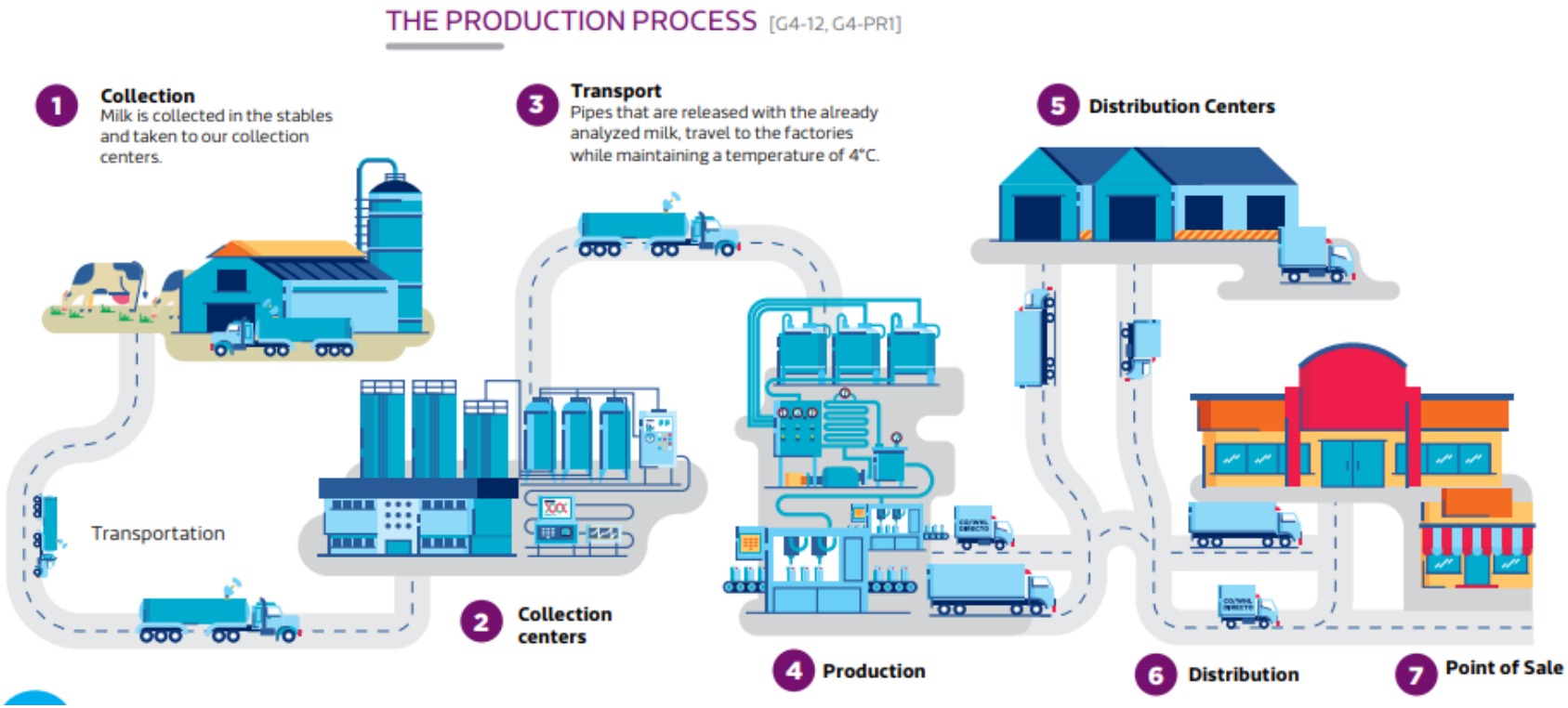
COUNTRY	***INFRASTRUCTURE***
MEXICO	16 factories 143 distribution centers +5,100 delivery routes 31,528 employees
UNITED STATES	3 factories 335 employees

[9] Gasque Gomez,Ramon, Specialize Milk Production Guide, UNAM http://www.ammveb.net/ebooks/GUIA%20MULTIMEDIA.pdf

[10] Expansión, México está en un momento récord de producción de leche, Junio 2017 Recuperado en https://expansion.mx/

CENTRAL AMERICA	4 factories 11 distribution centers +240 delivery routes 2,423 employees
BRAZIL In 2017, Lala acquired 99.9% of the shares of the Brazilian dairy firm Vigor, which had a consolidated infrastructure of more than 4,000 employees, 3 milk collection centers, 9 production facilities and 19 distribution centers, reaching 47,000 points of sale.	9 factories 19 distribution centers +1,600 delivery routes 4,044 employees

Source: Grupo Lala Corporate, 2017 Annual Report



Source: [Grupo Lala Annual Report 2016]

Supply chain 96% of Lala´s suppliers are Mexican firms. Lala receives the milk from certified stables with high standards in the feeding and care of milking cows. [11] Grupo Lala do not own the milk production units, has a program to develop suppliers that need to comply with standards quality.

ALPURA

ALPURA the legal name is Ganadores Productoses de Leche Pura, a Mexican company that was founded in 1970. Alpura owns 123 Milk production units, 112,000 animals Holstein in the states of Guanajuato, Hidalgo, Queretaro, Mexico, Puebla, Jalisco, Tlaxcala, Coahuila, Durango and Chihuahua; producing an average of 2.5 million litres per day.

The Group has 30 milk deposits, 8 in the Mexico City Metropolitan area and 22 in the rest of the country and network of 63 distributors all around Mexico.[12]

Lala and Alpura cover 21% of the market demand.

NESTLÉ MEXICO

Nestlé is very strong Infant formulas and evaporate milk. Nestlé has a program for rural development in Mexico. In September 2014, Nestlé announced an investment of 700 million pesos over the course of 6 years to promote milk production in Mexico. 300 million will be for technical support and 400 million to finance production infrastructure; these includes:
Investment and finance and technical support for best practices for milk and whey production.
Milking automation systems and improvement of cooling systems for small producers.
Seminar for small producers by Instituto Tecnológico de Monterrey.
The farmers will also need to comply with sustainability practices to reduce the carbon footprint.

Nestlé Mexico buys the milk directly to the producer, including fresh whey. Nestlé in 2013 bought 818 million litres to 3,800 producers. Nestlé is the third buyer of milk in the country. [13]

At the end of 2017 Nestlé invested 100 million pesos in their Lagos de Moreno Plant in Jalisco, to double the amount of milk recollection, the new infrastructure will receive 3.6 million litres per day from 450 producers. [14]

[11] Grupo Lala Annual Report 2016 http://informe2016.grupolala.com/
[12] Alpura Corporativo http://alpura.com/corporativo/grupo-alpura.php
[13] Prensa Nestlé, Invierte Nestlé 700 millones en compromiso lácteo, septiembre 2014 , Recuperado en https://www.nestle.com.mx/media/
[14] Prensa Nestlé. Nestlé México duplicara su capacidad de recepción de leche fresca en Lagos de Moreno, noviembre 2017, recuperado en https://www.nestle.com.mx/media/

SIGMA ALIMENTOS

Sigma is part of ALFA Holding group. Sigma main product is cooked meats 57%, follow by dry meat 20%, Dairy products 18% and others 5%. Has operations in 18 countries, 70 manufacturing facilities, 208 distribution centers and 11 brands. Net Sales 6.3 billion USD.[15]

Sigma has also a Dairy Development Program with this program, Sigma support over 190 farmer associations in Mexico. In 2016, bought an average of 11 million litres of cow's milk weekly from them. Sigma acquire 100% of the milk of the producer as long as it meets our quality standards and responsible practices.[16]

LICONSA

Liconsa, is a government owned company, that processes milk to be distribute at a subsidize price to support Mexican families in poverty, especially children under 12 years of age, to increase the population nutrition level. Liconsa purchases milk to national producers to support the commercialization of milk and to reduce the milk importation.[17]

1.4 Milk production figures over past 3 years

Mexico produces 2.4% of the world milk, having the 8th place in the world production.

Year by year Mexico has increase the milk production. See table below.

Annual Milk Production (Unit: thousands of Litres)	
Year	Volume
2017	11,807,556
2016	11,608,400
2015	11,394,556

Source: Sagarpa 2017

In 2017 the daily production had an average increase of 545 thousand litres.

The 2018 milk production is estimated to be 12,026,000 thousand of litres, that will represent an annual increase of 1.85 % compare to 2017.

[15] Sigma Corporate presentation http://www.sigma-alimentos.com/
[16] Simga Sustainability report 2016, http://www.sigma-alimentos.com/
[17] Liconsa SA de CV https://www.gob.mx/liconsa/

During 2018

The actual milk production is not enough to cover the demand and Mexico depends on import milk most that is imported mainly from the US.

1.5 Domestic and international trade numbers

Mexico is the 8th milk producer of the world, in chronological order the producers above Mexico are the European Union, India, China, Russia, Brazil and New Zealand[18].

The main milk producers of the European Union are Germany, France, United Kingdom, Netherlands, Italy and Poland [19].

Nevertheless, the domestic production is not enough to cover the demand of milk and sub products, Mexico needs to import 20% of the national milk consumption[20].

Mexico demand of powdered milk by the end of 2017 was 569,164 tons of course the domestic production was not enough to cover the demand.

There are two HS Code for Solid milk:

040210 solid milk with ≤ 1.05% off fat content.
0420221 solid milk with ≥ 1.05% off fat content.

Using the trade map information tool[21], it was possible to identify the import volume and the countries from which Mexico imports both HS Code.

[18] SAGARPA, Overview of the milk in Mexico, December, 2017 http://infosiap.siap.gob.mx/opt/boletlech/Brochure%20leche_Diciembre2017.pdf
[19]Contexto Ganadero, Milk Production in the European Union, May 2013, http://www.contextoganadero.com/internacional/la-leche-en-la-union-europea
[20] SAGARPA; Manual de producción ganado lechero, Sept. 2014 http://infolactea.com/wp-content/uploads/2017/04/anu_96-25-2014-05-2.pdf
[21] International Trade Center www.trademap.org

List of supplying markets for the product imported by Mexico in 2017

Product: 040210 Milk and cream in solid forms, of a fat content by weight of <= 1,5%

Exporters	Value imported in 2017 (USD thousand)	Share in Mexico's imports (%)	Quantity imported in 2017	Quantity unit
World	703741	100	330763	Tons
United States of America	591205	84	281929	Tons
Spain	71381	10.1	30097	Tons
Canada	16837	2.4	7810	Tons
Germany	10044	1.4	4656	Tons

As seen Mexico imported in 2017 a total of 330,373 tons to cover the demand, the main trade partner was the US with 84% share of Mexico imports.

The HS Code 040221 in comparison Mexico imports a very small volume, it is important to point out that the trading partners are more diverse including New Zealand, Argentina that together represent 66.2% of Mexico imports.

List of supplying markets for the product imported by Mexico in 2017

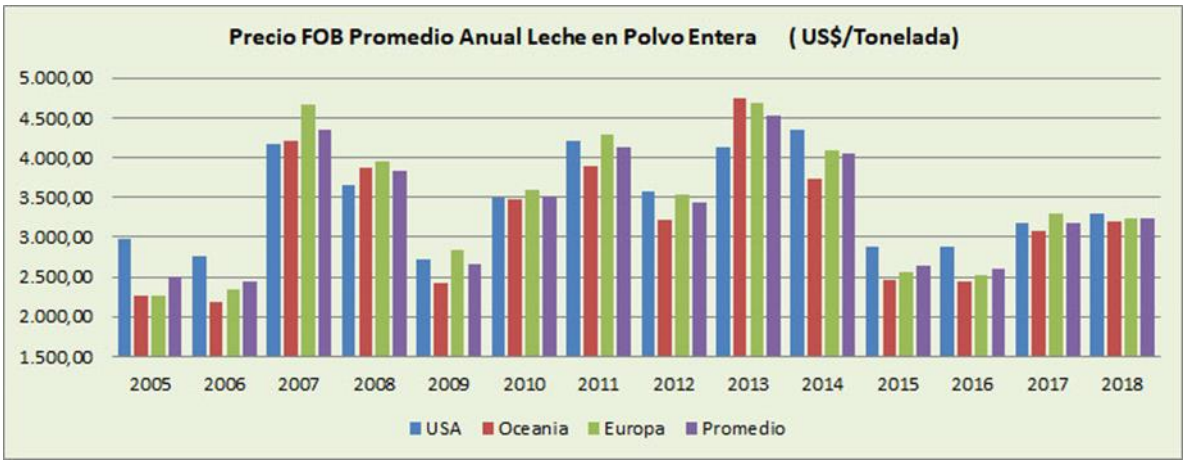
Product: 040221 Milk and cream in solid forms, of a fat content by weight of > 1,5%, unsweetened

Exporters	Value imported in 2017 (USD thousand)	Trade balance 2017 (USD thousand)	Share in Mexico's imports (%)	Quantity imported in 2017	Quantity unit	Unit value (USD/unit)
World	14102	76906	100	4180	Tons	3374
New Zealand	6709	-6709	47.6	1933	Tons	3471
United States of America	3244	16818	23	921	Tons	3522
Argentina	2628	-2628	18.6	783	Tons	3356
Canada	364	-364	2.6	200	Tons	1820
Netherlands	353	-353	2.5	100	Tons	3530
Germany	176	-176	1.2	50	Tons	3520

Mexico exports to the world is not relevant with 0.1% of the total world exports.

One of the problems that the producers face is that the prices of imported solid milk is low compare to the actual production cost in Mexico.

The table below shows the price of import solid milk over the last 14 years. The import price tendency is to be lower.



Source: Lactotada www.lactodata.info

The low national production is a window of opportunities to growth, the key points to consider are to increase investment in different areas of milk production. To include a genetic program and new technologies to increase productivity. Increase milk quality and last to reduce production cost to increase the ROI. [22]

[22] Miguel Angel Garcia, Presindent of Canilec (National Chamber of milk industrialists)

2. Market Potential for foreign supplier in dairy industry

Mexico is a country that is driven by the use of modern agriculture equipment. Tractors and combine harvesters are used widely across the region and are growing in popularity. The Mexico agricultural machinery market is set to grow at a CAGR of 6.54. The recovery of the agricultural sector since the last two years, is driven by the counter-cyclical nature of growth and recovery in the sector, along with increase in exports of agricultural products to Central and South America. However, the presence of significant structural inefficiencies, especially regarding the dominance of small farmers, along with slower adoption of technology, limits the growth prospects of the agricultural machinery market in Mexico.

The dairy production has been increasing over the years and the demand for milking and dairy products as well. The problem is that the production is disperse, having farms with more than 1,000 cows and at the same time are small milk farms of less than 30 animal that in some cases, do not have cooling systems.

The future Secretary of Agriculture Victor Villalbos, mentioned “that Mexico has a great potential and has not been use properly” The strategy of the new government is based in three principles:

1. To increase productivity by using all the crop land.
2. Responsible Agriculture, proper use of natural resources land and water by using new technologies.
3. Inclusive Agriculture to take in consideration the different type of producers and to focalize the public police to each region.

The Ministry will be located close to the production centers, the idea is to move it to the State of Jalisco.

The following HS Codes are the ones that will be discussed in the study.

1. Milking machines (HS code 843410);

2. Dairy machinery, excluding cream separators (HS code 843420)

3. Parts of milking machines & dairy machinery (HS code 843490)

4. Harvesting and grading (HS code 8433). Harvesting or threshing machinery, including straw or fodder balers; grass or hay mowers; machines for cleaning, sorting or grading eggs, fruit or other agricultural produce

5. Soil cultivation (HS code 8432).

To determine the Mexico´s imports volume and trading partners the trade map tool was use. Each HS code was reviewed to obtain Mexico´s import value and main countries that supplied the product to Mexico.

List of supplying markets for the product imported by Mexico in 2017

Product: 843410 Milking machines

Exporters	Value imported in 2017 (USD thousand)	Share in Mexico's imports (%)
World	1270	100
United States of America	1003	79
Turkey	121	9.5
China	83	6.5
Germany	49	3.9
New Zealand	6	0.5
Italy	2	0.2
Poland	2	0.2
Spain	2	0.2
Brazil	2	0.2

Source: ITC calculations based on UN COMTRADE statistics.

Mexico imported in 2017 a total value of 1,270 Million US for milking equipment (843410) and the US has 79% market share. In the case of parts of milking machinery, the US participation is 45.8 % and more countries formed part of Mexico´s imports.

List of supplying markets for the product imported by Mexico in 2017

Product: 843490 Parts of milking machines and dairy machinery, n.e.s.

Exporters	Value imported in 2017 (USD thousand)	Share in Mexico's imports (%)
World	2803	100
United States of America	1284	45.8
Germany	217	7.7
Denmark	190	6.8
New Zealand	186	6.6
Sweden	169	6
Italy	159	5.7
China	145	5.2
Israel	113	4
Australia	79	2.8
Spain	76	2.7
Brazil	36	1.3
Turkey	35	1.2
Other countries	116	0.9

Source: ITC calculations based on UN COMTRADE statistics.

List of supplying markets for the product imported by Mexico in 2017

Product: 843420 Dairy machinery (excluding refrigerating or heat treatment equipment, cream separators

Exporters	Value imported in 2017 (USD thousand)	Share in Mexico's imports (%)
World	8852	100
United States of America	3776	42.7
Sweden	1619	18.3
France	1052	11.9
Poland	927	10.5
Italy	596	6.7
Argentina	292	3.3
Denmark	204	2.3
Netherlands	197	2.2
United Kingdom	67	0.8
Slovenia	41	0.5
Turkey	37	0.4
India	23	0.3
China	15	0.2
Germany	3	0

Source: ITC calculations based on UN COMTRADE statistics.

Dairy equipment presents a different scenario, the USA is still a big player with a market share of 42.7 % but we can see a major participation of European countries, Sweden, France, Poland and Italy combine have 47.4% of Mexico´s imports for Dairy equipment.

In the case of harvesting machinery in the table below the following HS code were included,

843340, 843351, 843352, 843353, 843359 and 845990 (Harvesting or threshing machinery, including straw or fodder balers; grass or hay mowers; machines for cleaning, sorting or grading eggs, fruit or other agricultural produce).

List of supplying markets for a product group imported by Mexico

Product group: Harvesting equipment

Unit : US Dollar thousand

Exporters	Imported value in 2017
World	185570
United States of America	142203
Germany	14003
China	9234
Brazil	6579
Belgium	2907
Canada	2215
Spain	1463
Netherlands	1145
Italy	1118
India	1075
Taipei, Chinese	844
Turkey	531
Denmark	398
France	297
Argentina	255
Austria	209
Japan	203
United Kingdom	160
Finland	153
Colombia	110

Source: ITC calculations based on UN COMTRADE statistics.

As has occurred with the other HS Codes the USA counts for 76 % of the market shared, a small participation can be seen from European countries.

The HS Code 8432 that are seeders, the major player is the USA with 54.2% of market share, but it is important to point out that China in this category has an important market share of 12.3 %

List of supplying markets for the product imported by Mexico in 2017

Product: 8432 Agricultural, horticultural or forestry machinery for soil preparation or cultivation (excludin

Exporters	Value imported in 2017 (USD thousand)	Share in Mexico's imports (%)
World	45684.00	100.00
United States of America	24781.00	54.20
China	5622.00	12.30
Italy	4353.00	9.50
India	1794.00	3.90
Spain	1513.00	3.30
France	1484.00	3.20
Brazil	1479.00	3.20
Canada	1166.00	2.60
Argentina	627.00	1.40
Australia	510.00	1.10
Germany	450.00	1.00
Other countries	1905.00	4.10

Source: ITC calculations based on UN COMTRADE statistics.

In all categories reviewed Ireland do not have a participation in Mexico´s import market.

As will be discussed in the following chapter there is a domestic offer of equipment, but the high technology and innovate equipment is foreign origin. The manufacturers in the domestic market manufacture equipment of good quality and few of them incorporate high technology. In the area of innovate technology equipment is where the foreign suppliers are more competitive, the barrier encounter is to find ways for the producers to purchase the new technology. Post-sales service is a key factor to purchase decisions because of the extended life of machinery. This has contributed to the success of American brands that benefit from large well-established distribution networks.

2.2 How farming equipment is purchased (cooperatives, funding etc)

The Mexican government has several funding programs to help producers access to new technology, improve their facilities and process to increase their productivity.

The Unions help them farmers or producers getting the subsidy, and work on good jointly offers from equipment companies.

The funding programs can be at the federal or state level, a brief description of the main funding organization or programs as follows.

2.2.1 National Finance for the Development of Livestock and Agriculture, Rural, Forestry and Fishery (FND) This organization is a fund run by the ministry of Finance at the Federal level. FND provides credits or finance solutions to small producers at accessible cost.
https://www.gob.mx/fnd

2.2.2 Ministry of Agriculture, Livestock and Fisheries. (SAGARPA) The ministry has several programs to promote productive in all the areas. In the case of livestock has a program called Livestock Development Program, the program covers several areas from increasing the number of the animals in production, infrastructure, productive and more.
https://www.gob.mx/sagarpa/acciones-y-programas/programa-de-fomento-ganadero

2.2.3 FIRA (Fideicomisos Instituidos en Relación con la Agricultura) Trust Funds for Rural Development. The fund was created to help increase the growth and productivity of agriculture, livestock, agrobusiness, forestry by given credits through banks, cooperatives, financial intermediaries. FIRA also provides technical support and training to producers.
https://www.fira.gob.mx/Nd/index.jsp

2.2.4 FOCIR (Capitalisation and Investment Fund for the Rural Sector) FOCIR is a governmental institution created in 1994 to promote investment in the rural and agribusiness sector. The federal government, state governments, and the private sector are shareholders. Financial instruments offered by FOCIR vary from stop-loss programmes to long term financing programmes for small and medium enterprises. https://www.gob.mx/focir

2.2.5 . Credit Unions Credit unions facilitate loans, credits, and guarantees for their members. Companies, like Lala and Alpura have their Credit Unions, and channel resources mainly from FIRA through commercial Banks to their members. https://www.ucialsa.com.mx/
http://www.uniondecreditoalpura.com/

3 Analysis of domestic suppliers of equivalent equipment

3.1 Product Offer

In the following section it will be discussed the main Mexican manufacturers of milking and dairy equipment and management cattle software.

Milking equipment domestic manufacturers

1. Company Name: **Madero Equipos de Ordeño SA de CV**

Headquarter location:
J.F. Brittingham 110 nte. int. 1
Col. Cd. Industrial Torreón
C.P. 27019 Torreón Coahuila, México
Tel. +52 1 (871) 747-1300
Email: ventas@maderoequipos.com.mx
Web site: www. maderoequipos.com.mx

Madero is a company that has been business over the past 25 years and is located in one of the biggest milk production areas in the country known as "Cuenca Lagunera" the home of LaLa. The company has incorporated to their equipment up to date technology and offers a complete range of solutions of milking equipment, dairy equipment, smart farming applications, cleaning products, tanks and more. To provide a complete solution Madero offers technical support, design and planning, computerized management solutions.
Madero offers milking parlour system rotary, parallel and portable milking systems.

Their smart farming applications includes several software to control different elements during the milking process, weigh of each cow, feed, cell counts of the milk, milk production per cow. Madero not only sells in Mexico has subsidiary in the US by the name of Madero Dairy Systems, Inc and sales representatives in Puerto Rico, China and Russia.

Madero has international presence in dairy shows around the world such as Canadian Dairy Expo, China Dairy Exhibition and in domestic shows and congress such as ENGALEC National Convention of Agro and Livestock

2. Company name: **Ordeñadoras de México (Ordemex)**

Headquater location:
General Barragán No. 807
Aguascalientes Ags. México C.P. 20000
Tel. (52-449) 367 93 40 - (449) 367 9341
Email. jal@ordemex.com.mx
Web site: http://www.ordemex.com.mx/

The company was founded in 1993 to supply the small milk producers. Ordemex manufacture small milking equipment up to 4 cows and milking portable unit tanks and tanker truck. Ordemex also manufacture processing plants for cheeses.
The company has sales representatives and has distributors in the main milk production areas of the country. Their target is the small producers that have very few animals, as are many of the production units in Mexico is.

3. Company name: **Sistemas de Ordeño Rio Conchos (Siorco)**

Headquarter Location:
Calle Aldama No. 1015 Col. Centro
Ciudad Meoqui, Chihuahua 33130
Tel. (52-693) 473-7676
Emai: ventas@siorco.com.mx
Web site: www.siorco.com.mx

Siorco was founded in 2009 to provide equipment to the producers in the area. Ciudad Meoqui is located 80 km south east of the state capital. The company manufacture milking machinery portable and herringbone milking parlour, which can be custom made. The company has also tanks, vacuum pumps, milk tanks, dairy equipment in general, and equipment for stables.
Siorco sells directly to dealers or to the end users.

4. Company name: **Ordeñadoras Agromex**

Headquater location:
Justicia No. 604
Col. Esperanza C.P. 44300
Guadalajara, Jal. Mex.
Tel. (52-33) 36-74-17-83
Email: Contacto@Lactoagromex.com
Web site: www.lactoagromex.com

Mexican firm that manufacture milking units for up to 6 cows, the units can be fix or portable. Company sells locally and can ship to other areas of the country. Participates in small fairs and promote the products by facebook. Agromex has been in business for 29 years.

General equipment for dairy farm domestic manufacturers

1. Company name: Rotoplas SA de CV

Headquarter Location:
Torre Virreyes, Calle Pedregal #24 Piso 19.
Col. Molino del Rey
Ciudad de México, C.P. 11040, México.
Tel. (52-55) 5483 2950
Web site: https://rotoplas.com.mx/
Rotoplas was founded 35 years ago as a solution provider to storage water. Rotoplas is a large Mexican firm that is part of Mexico´s stock market, with 21 plants and presence in 14 countries. Rotaplas has an agriculture business division that offers water tanks, feeder and water trough.

The company Madero and Siorco also manufacturers general equipment for dairy farms.

Dairy/cattle management software domestic manufacturers

1. **México Ganadero, SA de CV**

Hatox Dairy software
Address: Calle 50 No. 363 C
Tizimín, Yucatan
Tel. (52-986) 863-3199
Email: ventas@mexicoganadero.com
Web site: www.mexicoganadero.com

Company has 16 years of experience in livestock software development. Mexico Ganadero develops, designs and tailors the software to the need of the customer and helps in the design and positioning of the customer´s website. The company is specialized in the development of software for registration and control of livestock. The company offers two software one for cattle and one for goats known as Hatoxbovino y Hatoxovino www.hatox.com.mx

2. **TIS Consulting Group, S.C**

Address:
Boulevard Enrique Mazón López 965
Hermosillo,Sonora
CP 83020 México
Tel. (52-662) 285 -0632
Web Site: http://tisconsulting.org/

TIS Consulting is software development company base on business logistic The company covers several industrial sector including agriculture. In such field the company develop a software knows as Livestock Analytics application for cattle feedlots. The software allows to obtain individual data and analyzing to make decisions. The project was founded by the Mexico government CONACYT. To learn more, click on the following web site.
http://livestockanalytics.com/

3. **Racsys**

Address:
Veracruz, Mexico
Web Site: www.racsys.com.mx/
Racsys a software developer that producer solutions for fleet control, and two solutions for agrobusiness one for Banana productions and system for tropical livestock (Feedlost). Management and control of the cattle known as SGT (Sitema para Ganaderia Tropical)

Domestic Manufacturers of rubber mats

1. **Unimat de México, SA de CV**

Address: Calle 4 No. 25-D

Fracc. Industrial Alce Blanco, Naucalpan.
Estado de México CP 53370, México
Tel. (52-55) 5236-5420, (55) 5359-7178
Email: ventas@unimatcorporation.com

Web site: http://www.unimatcorporation.com.mx/ www.livingreen.com.mx
http://tapetesypisos.com.mx/pisos-antiderrapantes/piso-para-ganado
https://greenmats.com.mx/

The company has over 20 years manufacturing rubber and PVC products, Unimat today has incorporate the use of recycling material in their end products. Unimat manufacture mats for different applications including agriculture. For agriculture manufacture mats for horses, farms and cleaning mats.
For commercial purposes the company handles several commercial names., livingreen, greenmats Mexico and Unimat. The company sells directly from the plant to any area of Mexico.

2. **Productos de Hule Automotrices, SA de CV (PHASA)**

Address : Av. Toltecas No. 37 Col. San Javier
Tlanepantla 57030 Estado de México
Tel. (52-55) 5390-8009
Web Site: www.prodhule.com.mx/

PHASA was founded in 1984 as a manufacturer of rubber products for the industry. The company main product lines are divided in several sectors, industrial, construction, commercial and agriculture; manufacturing mats for cattle is sold in rolls of different diameters 10 mm, 17 mm and 19 mm so the farmer can customize the mat to the installations.

Hear detection devices available in Mexico the methodology use for heat detection by the use of crayons, Kama heart detector pressure device, chin ball in the bull but could not find equivalent to Mooll call heat detector and calving sensor.

Agriculture Machinery domestic manufacturers

1. Company name: **Industria Kimball SA de CV**

Headquarter:
Av. Ocampo Ote. 3601,
Nuevo Torreón, 27085 Torreón, Coah.
Tel. (52- 871) 720 0176
Email: fabrica@kimball.com.mx
Web site: https://www.kimball.com.mx

Kimball was founded in 1966, the company manufacture agriculture implements. The plant is located in Torreón and two branch offices Irapuato and Mexico City. The company has a network of distributors around Mexico.

2. Company name: **FAMAQ**

Headquater:
Km. 82.7 Carr. Irapuato - La Piedad
Santa Ana Pacueco, Mpio. de Penjamo, Gto.
C.P. 36910
Tel. (52- 352) 526 20.08
Web site: http://www.famaq.com.mx/

Famaq was founded in 1994 and has specialized in the manufacturing of implements for agriculture. The company sells his products though dealers.

3. Company Name: **SwissMex**

Headquater:
Irapuato Mexico
Tel (52-474) 741-2228
Emial: info@swissmex.com
Web Site: www.swissmex.com

SwissMex is a Mexican company that manufacture agriculture equipment, tractors, seeders, harvesters, fertilizer tanks and more. The company has dealers all around Mexico and export to different parts of the world.

4. Company name: **Sembradoras del Bajio**

Headquater:
Carretera Estatal Libre M. Doblado - León Km. 3, No. 547 Manuel Doblado,
Guanajuato, México, C.P. 36470
Tel, (52-432)-744-0472, (432)-744-3036
Web Site: http://www.sembradorasdelbajio.com.mx/

The company was founded in 1976 and has specialize in seeders for different types of crops, fertilizer machines, cultivators and other implements. Company sells its products by a network of distributors.

5. Company name; **Maquinaria Triunfo SA de CV**

Headquater:
Francisco Villa 708
Aguascalientes, Aguascalientes
Tel. (52-449) 910-3400
Email. ventas@maquinariatrinfo.com.mx
Web site. http://maquinariatriunfo.com/

The company is a family own business that was founded in 1937, Triunfo manufacture agriculture implements such as cultivators, seeders, plough, and corn mills; under two brand names Trinfo and AMSSA Internacional Triunfo sells through a large network of distributors around Mexico.

3.2 Sales strategy

The companies sales strategy it varies, large manufactures uses both channels direct and indirect. The indirect usually has a big distribution network with dealers around the country and with presence in trade shows.
The medium or small manufactures either sell direct and ship directly to the end user and have regional dealers and presence in local trade shows or fairs.

4 Analysis of foreign suppliers of equivalent equipment

4.1 Product offer

In the following section is presented the main foreign suppliers located in Mexico. In the milking equipment exist several players from different parts of the world USA, China, Sweden and Argentina.

Milking, dairy and barn equipment foreign brands

1. Company Name: **Boumatic LLC**

Country Origin: United States of America
Headquaters: 2001 S Stoughton Rd,
Madison, WI 53716
Tel. (001-608) 222-3484
Email. info@boumatic.com
Web Site: www.boumatic.com
Boumatic is a manufacturer of milking dairy equipment such as milking parlor parallel, herringbone, rotary, cooling equipment, milking robots, cow comfort, feeders and herd management equipment. Boumatic sells worldwide has own offices in Belgium, France, Denmark. The global headquarters for robotics is located in the Netherlands with additional office in Canada and Germany. Boumatic in Mexico has dealers in Queretaro, Aguascalientes and Chihuahua.

2. Company name: **DeLaval**

Country Origin: Sweden

DeLaval Office in Mexico:
Acceso III No. 16B Int.6
Zona Industrial Benito Juárez
Querétaro, Qro. México
C.P. 76120
Tel. (52-442) 248-1761
Email: delaval.mexico@delaval.com
Web Site: http://www.delaval.com.mx/

DeLaval offers a complete solution for milking, feeding, barn systems, animal comfort and management software solutions. DaLaval has a global presencde with 18 manufacturing plants and offices in 40 countries including Mexico.
DeLaval offers in Mexico Milking equipment, milking parlor rotary, herringbone, parallel; portable unit, feeding units, barn equipment, cooling systems, a complete solution for milk farmers. The

company has 4 dealers in the country in located in the main milk areas Queretaro, Chihuahua and Coahuila.
DeLaval has a long and very strong presence in Mexico.

3. Compnay name: **J Delgado SA FLACO**

Country Origin: Spain
J Delgado SA office in Mexico:
Carr. Celaya - Salvatierra Km 5
Conjunto San Francisco Bodega No. 6
Celaya, Gto. México. C.P. 38090
Tel (52-461) 618-4067
Email: jdelgado_2008@hotmail.com
admon_jdelgado@hotmail.com

J Delgado is a manufacturer of milking equipment for cows, goats and sheep. The company has presence in 50 countries. In Mexico the company sells small units for 1 to 3 cows that do not require an installation up to complete milking parlors. Firm also manufacture cooling tanks of from 500 up to 12,000 Liters.

4. Company: **Rodeg SA**

Country origin. Argentina

Headquarter:
Entre Rios 878
El Trebol Santa Fe
Tel. (54 3401) 421075
Email: rodegadministracion@rodeg.com.ar
Web Site: www.rodeg.com.ar

Rodeg is a 25 year old manufacturer of milking equipment, feeding systems, cooling systems, barn equipment. Has an extended network of distributors in Argentina and 14 agents located in Latin America. In Mexico Rodeg has an agent located in Veracruz.

5. Company name: **GEA**

Country of origin Switzerland

Office in Mexico:
GEA México
Espacio Santa Fe Of. 1001 Nivel 10
Carr. México Toluca N0. 5420, Col. El Yaqui
CDMX 05300 Mexico
Tel (52 -55) 2625 1600
Web site: https://www.gea.com/

Global manufacturer that has application for many sectors including dairy and milking. The company manufacture milking parlour, milking wash systems and accessories, feeding systems, band equipment, cooling systems and farm management.

The office in Mexico City is in charge of working with dealers and to provide them with technical support.

Each of the above companies offer herd management software besides those the foreign companies below also have presence in Mexico.

1. Company name: **ABS Technical Services**

http://www.abstechservices.com/?pages=cowsigns

Country origin: UK Global Presence

Mexico office:
ABS Mexico
Kansas 2028
Chihuahua, Chihuahua
Tel. (52-614) 410-6565
Web site: www.absmexico.com.mx

Part of Genus PLC a genetic company to develop better porcine and bovine livestock.
ABS is the bovine genetic division providing semen and embryos with desire characteristic for milk and beef production. ABS Mexico started operations in 1994 providing semen and consulting services to farmers, the company offers a management software that allows to correlate the affects of the environment on the reproductive performance of the cow.

2. Company name: Afimilk

Country origin: Israel

Headquarters:
Kibbutz Afikim, 1514800, Israel.
Tel. +972 4 6754811
Email: market@afimilk.co.il
Web site: https://www.afimilk.com/

Afimilk was founded in 1977 ddevelops, manufacturing and marketing computerized systems for the dairy farm and herd management. The company have several products to control the farm, milking process, each individual animal, cow heat detection. Afimilk has in Master dealer in Mexico Madero Equipos de ordeña. Madero has incorporated the Afimilk technology to all the systems they sell.

Agricultural machinery Foreign Brands

1. Company Name. **John Deere**

Country Origin: United States of America
John Deere Mexico
Miguel Hidalgo y Costilla 100, La Fama,
66100 Monterrey, N.L
Tel. (52-81) 8288 1212
Web Site. https://www.deere.com.mx/

John Deere is strong in Mexico both their tractors and implements are while use all over the country. John Deere have distributors all over Mexico and a manufacturing plant in Monterrey, Nuevo León, Mexico.

2. Company name: **AGCO**

Country Origin: United States of America

Headquarters:
1004 E. Illinois St. Assumption
IL 62510
Tel. +1 217.226.2467
Web Site: http://www.agcocorp.mx/

AGCO manufacturer of agriculture equipment, in Mexico the brands Massey Fergurson, Challenger and GSI are sold by distributors all over the country.

3. Company Name: **CNH Industrial**

Country Origin: United States of America

CNH de México
Av. 5 de Febrero 2117, Benito Juárez
76130 Santiago de Querétaro, Qro.
Tel (52-442) 211 9100
Web site: http://www.cnhmexico.com.mx/

CNH Industrial is a global leader in the capital goods sector that, through its various businesses, designs, produces and sells agricultural and construction equipment, trucks, commercial vehicles, buses and specialty vehicles. CNH Industrial has 12 brands the brand New Holland agriculture equipment is distribute by a strong network of distributors. CNH has 50 years of operation in Mexico.

4. Company name: **Kverneland Group**

Country Origin: Norway

Web site: https://ien.kvernelandgroup.com/

The company manufacture agriculture equipment with plants in 7 países europeos y Chin: Tiene oficinas de ventas en 17 países incluyendo una oficina en Cd. de México y 2 distribuidores masters.

5. Company name: **Kubota**

Country origin: Japón

KUBOTA Mexico
Carrt. a San Martín de las Flores 520 Int 3C,
Tlaquepaque Jal, San Martin de Las Flores
45620 San Pedro Tlaquepaque, Jal
Tel. (52-33) 3145 3328
Web Site: http://kubotamexico.com/

Kubota manufacture agriculture equipment, Kubota Mexico was founded in 2008 to distribute tractors and equipment to Mexico and Central America and to provide technical support and training to their dealerships. Kubota has 39 distributors located all around Mexico.

6. Company name: **Class**

Country Origin: Germany

CLASS in Mexico has a master distributor that sells the equipment Tractors, forage harvesters. The distributor is located in Durango.

Agroservicios del Norte S.A. de C.V.
Perif. Torreon
Gomez Lerdo KM 3,5
35078 Gómez Palacio - Durango CP 35078
México
Tel.: (52-871) 500 6100
EmaiL ansa.info@ansamex.com
Web site: www.ansamex.com

4.2 Sales strategy

The sales strategy of the foreign companies can be divided in two. Foreign companies with own offices in Mexico, that sells the equipment to the dealers and provides them with technical support. The other scenario are foreign companies that do not have an office in Mexico but has exclusive representatives in the country that resell the equipment or solution to other dealers or directly to the end users.

5 Distribution channels for agriculture machinery

5,1 Direct Sales

The foreign manufacturers usually do not use the direct sales channel.

The domestic manufacturers some do sale directly from their manufacturing facility to the end user, the small one uses domestic courier services to deliver the equipment.

For direct sales the manufacturers use internet promotion and adds in agriculture portals or magazines. An important way of selling is having contact with the different producer's union in the country.

Some large manufacturers (Madero) distributes directly from their plant to end users providing technical support, design and planning of installations and consulting. Madero do work hand in hand with some Livestock Unions.

5.2 Distributors

The distribution channel is widely use both for foreign and domestic manufacturers. In the case of foreign brads some have their own sales office in Mexico and sell the products to dealers all over the country. Some brands force the dealer to have an exclusivity not allowing them to sell similar products from other competitors.

Some distributors aided the producer to get access to the Government finance program and provide technical support in the field.

Below are some examples of distributors in Mexico

AGROMUNDO. EQUIPOS E INSUMOS GANADEROS, S A DE CV
NEXTEL (229) 121-9890 ID 72*837852-1
Hipólito Deschamps 129
91789 Veracruz, Veracruz, México
Tel: 52 229 937-8245, 52 229 935-5781, 52 229 935-2006
BRANCH OFFICE
Plaza de Armas 115
Col. Centro,
Acayucan, Veracruz, Mexico
Tel (52 294) 245 6063
Website: www.agromundo.com.mx

Agromundo was founded in 1984. The company distributes high quality milking equipment, solar energy and electric fences. Its presence has been highlighted in the state of Veracruz, extending to the states of Tabasco, Oaxaca and Chiapas. The headquarters are located in the State of Veracruz and the company has a branch office in the city of Acayucan.

After 25 years of presence in the livestock sector of the Mexican sector, the company has developed integral services in the field of dairy farming.

Agromundo provides support in the areas of sales, consulting, installation, maintenance and spare parts of a wide range of products from the livestock sector. It distributes RODEG, milk-makers imported from Argentina (www.rodeg.com.ar) And the livestock software from the Mexican company RACSYS.

(www.racsys.com.mx)

GRUPO AGRÍCOLA ROMICE
Carretera Panamericana Km. 1
Celaya-Salamanca. Celaya, Guanajuato.
Tel (52- 461) 615-1935
Web site. http://www.agricolaromice.com/
Agricola Romice has 20 years of experience and has specialice in selling of agriculture implenents of several Mexican manufacturers. Romice handles the brand names Triunfo, Kmball, Famaq, Swiss Mex and some foreign brands. Romice delivers merchandise trough out Mexico.
The distributors that handle brands such as New Holland, Massey Ferguson, John Deere are large regional distributors that have several branches over the country example
http://www.tracsa.com.mx/

6. Regulations, standards, and legal frame work

6.1 General overview Mexican Standards (NOMS)

The Ministry of Economy is the federal entity responsible of the Mexican Standards Catalog. The catalog is constantly update and review and the changes and notifications are published in the Official Gazette of the Federation; period of validity, standards projects, cancellations, modifications, answers and comments.

Base on the Law of Normalization and Metrology are three types of standards:

Mexican official Norms (NOM): Enforce technical regulations. To rule products, process, services, that can be a risk for persons, animals and vegetables and the environment in general.

Mexican Norms (NMX): Are develop by a national normalization entity, or the Ministry of economy. Determine the minimum requires of quality of the services and products, with the purpose to protect and advice the consumers. Its application is voluntary.

Reference Norms (NRF): Are develop by public administration and are applied to the goods and services that they purchase, lease or contract, when the Mexican or international standards do not cover the specific requirements, or their specifications are out-date or unenforceable.

To comply with the Mexican standards the manufacture need to be certified by an authorize certification body such as:

NYCE certification body with experience in the development of standards and conformity assessment of different regulations at national (NOM, NMX) and international (ISO, IEC) levels. NYCE´s services include training and standardization, verification and certification. https://www.nyce.org.mx/

ANCE certification body that provides the services of certification, normalization, training, inspection and verification and laboratory testing. ANCE covers several sectors including machinery and equipment. http://www.ance.org.mx/

6.2 Registration bodies in Mexico (COFEPRIS; SAGARPA)

COFEPRIS The Federal Commission for the Protection against Sanitary Risk (COFEPRIS) is a decentralized organ of the Department of Health with technical, administrative and operational autonomy, whose mission is to protect the population against sanitary risks, through sanitary regulation, control and promotion under a single command, which provides unity and homogeneity to the policies which are determined.

COFEPRIS Duties:

Control and supervision of health establishments.
Prevention and control of environmental factors which have harmful effects on man.

Basic occupational health and hygiene.
Sanitary control of products, services and their import and export, and establishments dedicated to processing the products.
Sanitary control of the process, use, maintenance, import, export, and final disposal of medical equipment, prosthetics, orthesis, functional aids, diagnostic agents, orthodontic goods and services, surgical and health materials, and of the establishments which process these products.
Sanitary control of the publicity of the activities, products and services.
Sanitary control of the disposal of organs, tissue and their components, human cells.
International public health system.
Sanitary control of organ, tissue, and human cell donation and transplant.[23]

SAGARPA the registration body at SAGARPA is Servicio Nacional de Sanidad Inocuidad y Calidad Agroalimentaria (SENASICA) (Food Safety and Quality Assurance National Service) been in charge of the registration and authorization of chemical products and food use and consume by animals. In addition SENASICA performs technical assessments, certification validation for the registration of products of animal use and consumption, for domestic companies can register for export their products or for imports. [24]

6.3 Other things to consider

To determine what Mexican standard or regulation a product needs to comply, the information is based on the HS Code. If the product to not comply with the regulation it will not be able to enter the Mexican market. To register a product in Mexico the foreign manufacture needs to have a legal representative and provide all the product information in Spanish. The registration process time it varies depending on the product it can go from 3 months up to a year.

[23] COFEPRIS web site. http://www.cofepris.gob.mx/

[24] SENASICA web site vhttps://www.gob.mx/senasica/acciones-y-programas/

7. Recommendations and final conclusions

Conclusions

- The milk producers in Mexico can be divided in two, a small group of producers that have farms of over 500 animals in production and produce 50% of the milk. The other group is made of small producers that have an average of 19 animals and the technology found is these production units is diverse.

- The domestic producers formed unions to be able to access technical support, technology and finance opportunities.

- The new producer's generation are open to the incorporation of new technologies.

- Jalisco is the state with more milk cattle.

- The north of the country is the area that producers more milk (Coahuila, Chihuahua, Durango).

- Lala and Alpura cover 21% of the market demand.

- Domestic equipment manufactures offer a good quality product, but the level of Technology compare to foreign products is low.

- To increase the dependency on import milk, the producer need to increase productivity by the incorporation of new technology and production technics.

- The main foreign player in agriculture machinery is the US.

- Smart farming applications are started to be use in Mexico, specially herd management programs and in milk production centres the use of software to monitor each cow production.

Recommendations

- A good way to enter the market and show case new technologies is to work hand in hand with the Regional Livestock unions in the country.

- The promotion of the new technology has to be done in a focalize way, working with an specific region doing trial test to show the producers how the technology works and the benefits.

- It is key to have a technical support staff in the field that can assist the producers in the use of the technology

- Promoting the product at the state and federal government. If the technology is certified by the government, it will be easier to sell and can open the door to the finance programs.

- To be presence at Agriculture or livestock conference and trade shows.

- Most important to locate agent or distributor that producers trust. The producers tend to do what their supplier recommends or what their friend or business associates do.

8 . Other resources

8.1 Trade Associations and organizations

8.1.1 Cámara Nacional de Industriales de la leche (CANILEC) Chamber that is formed of producers of milk products, such milk, cheese, yogurt, cream, butter, children formulas and ice cream. The corporate office in locate in Mexico City and has a branch office in Jalisco. http://www.canilec.org.mx/

8.1.2 Federación Mexicana de Lechería (FEMELEC) Non profit organization for by milk producers locate around Mexico. https://www.facebook.com/pg/femeleche/

8.1.3 Confederación Nacional de Organizaciones Ganaderas (CNOG) The national Livestock confederation is an umbrella organization that is formed of all the regional livestock association having in total over 800 thousands producers. http://www.cnog.org.mx/

Below is the list of the main Regional Union locate in the states of higher production of milk:

8.1.3.1 Unión Ganadera Regional de Chihuahua (URGCH) http://www.ugrch.org/
8.1.3.2 Unión Ganadera Regional de Coahuila http://www.ugrdecoahuila.com.mx/
8.1.3.3 Unión Ganadera Regional de Jalisco http://www.ugrj.org.mx/
8.1.3.4 Unión Ganadera Regional de Nuevo León http://www.unionganaderanl.com.mx/
8.1.3.5 Unión Ganadera Regional de Sonora http://www.unionganadera.com/

8.1.4 Consejo Nacional Agropecurio (CNA) A non-profit organization founded in 1984, is formed by producers of the agriculture, livestock, financial solutions for Agriculture, and services. http://cna.org.mx/

8.2. Government entities

8.2.1 Secretaria de Agricultura, Ganadería, Desarrollo Rural y Alimentación (SAGARPA) Mexico Ministry of Agriculture and Livestock and Rural Development https://www.gob.mx/sagarpa

8.2.2 Servicio Nacional de Sanidad Inocuidad y Calidad Agroalimentaria (SENASICA) Part of the ministry of agriculture in charge of the control of plagues and diseases as well as regulator of all agriculture/food that is exporter or imported into the country.

8.2.3 Instituto Nacional de Geografía y Estadística (INEGI) Is the federal institution in charge of census including demographics, economic, sectors etc. http://www.inegi.org.mx/

8.3 Main Trade Events in Mexico

8.3.1 Mexico Alimentaria Food Show 2018, August 14-17, 2018 , City Banamex Center. Meeting point in Mexico and Latin America for producers, buyers, technology developers, investors, entrepreneurs, and universities. https://mexicoalimentaria.mx/en/

8.3.2 FIGAP EXPO October 24-26, 2018 Expo Guadalajara, Guadalajara Jalisco, México. Exhibition of machinery for animals balance meal, agricultura equipment, software for livestock, pet food and more. With the participation of more than 50 countries. https://www.figap.com/

8.3.3 Expo Agroalimentaria, November 13-16, 2018 , Irapuato, Guanajuato. The expo started in 1996 and has been an important show case for agriculture equipment, technology, and agrobusiness. https://www.expoagrogto.com/

8.3.4 Expo Agro Sinaloa, Fair Space Culiacán, Sinaloa, Mexico . The exhibition is organized by the Agriculture Confederation Association of the State of Sinaloa. The exhibition is focus in Agriculture solutions equipment, technology, irrigation systems, seeds and more. The date for 2019 edition still pending for confirmation. https://expoagro.org.mx/

8.3.5 Foro Nacioal del Lecheria, it takes place every year, all milk producers get together to discuss issues relate to technology, economic, markets. The 2019 issue should be around April. www.femeleche.org.mx

8.4 Sector Magazines

8.4.1 Mexico Ganadero, is a magazine that has become a communication tool for the Regional unions of Livestock, associations and State promotion agencies. http://www.mexicoganadero.com/

8.4.2 Ganadería Intensiva was formed in 1991 a merge between two magazines Síntesis Lechera and Ganadería Intensiva. The magazine offers to the readers info on nutrition, reproduction, health, markets with 7,000 magazines published monthly, covering Mexico, Central and South America. http://ganaderia-intensiva.com/

8.4.3 Agrosistesis Since 1987, the magazine main focus has been the horticulture, fruits, citrus, protected agriculture and more. https://www.agrosintesis.com/

8.4.4 Info Agro information on products and suppliers of the Agriculture industry. https://infoagro.com/mexico/

8.4.5 Revista Lacticinios, is the magazine of the CANILEC http://www.canilec.org.mx/revista.html

8.4.6 Revista Industrial Lactea, magazine focus on the milk industry. http://www.industria-lactea.com.mx/

8.4.7 Revista GANADERO founded in 1975 specific for livestock with article and update information. The magazine has an online www.revistaganadero.com and social media Facebook: Revista Ganadero and, Twitter: @revistaganadero.

8.5 Main cultivated crops / tonnage / pa

For the 2014-15 agricultural year in Irrigation districts, the main crops by area harvested were corn grain and wheat grain, which together represented 50% of the harvested area. It should be mentioned that these two crops combined were 23% of the production in tons and 34% of the value of production. The main crops are shown in the table below.

Main Crops by Irrigation Districts (2015-2016)

Crop	Harvest Surface (ha)	Participation (%)	Yield (ton/ha)	Production (ton)	Production value (millions of pesos)
Corn	1,013,092	33.3	10.2	10,288,313	37,434.96
Wheat	511,278	16.8	5.9	3,002,909	13,291.36
Sorghum	258,280	8.5	5.4	1,406,976	4,474.38
Alfalfa	151,658	5	71.4	10,835,816	7,359.87
Sugar cane	120,118	3.9	89.2	10,712,269	7,644.49
Others	990,063	32.5	18.1	17,871,359	79,721.23
Total	3,044,488	100	17.8	54,117,642	149,926.29

Source: CONAGUA, 2016

To review other crops such as vegetables and fruits by irrigation districts the Conagua published Agriculture statistics the most recent one is the agriculture year 2015-2016 The information is gather either by irrigation unit or by crop at national level.

Report prepared:
Arni Consulting Group
July 2018