

August 2017

Market behavior Study

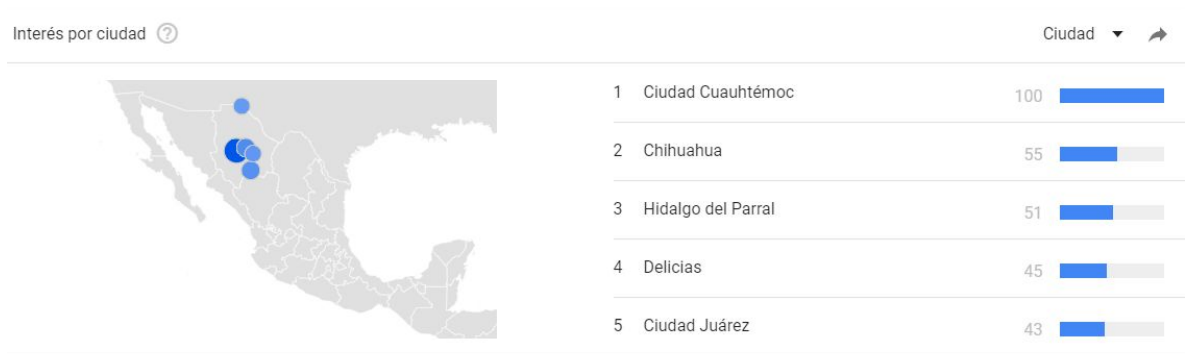
Client: IGEN ITESM Chihuahua

Project description: Biocontrol similar to an insecticide, its goal is to eliminate de bad elements of the bacteria Erwinia Amylovora. It must be diluted in water before applying.

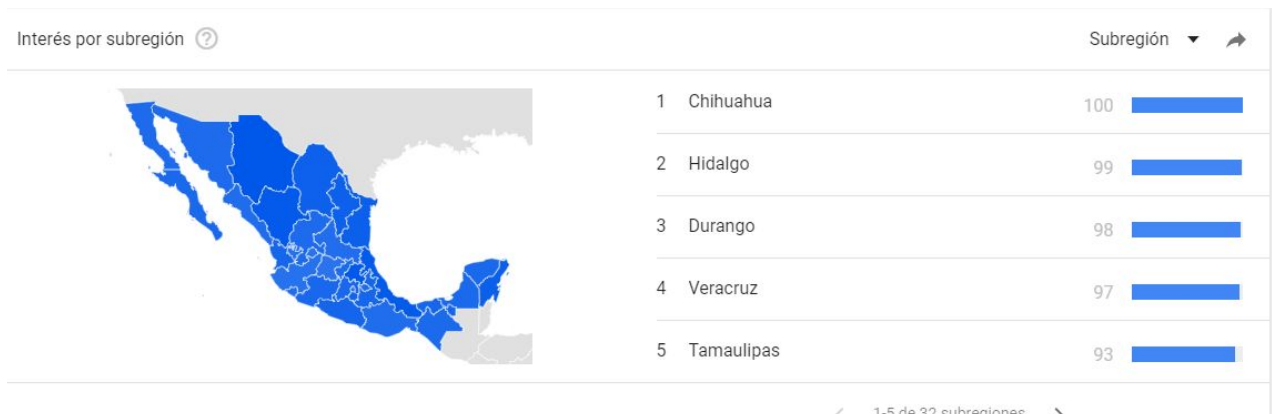
1. General Tendency of the market/industry

From general to particular

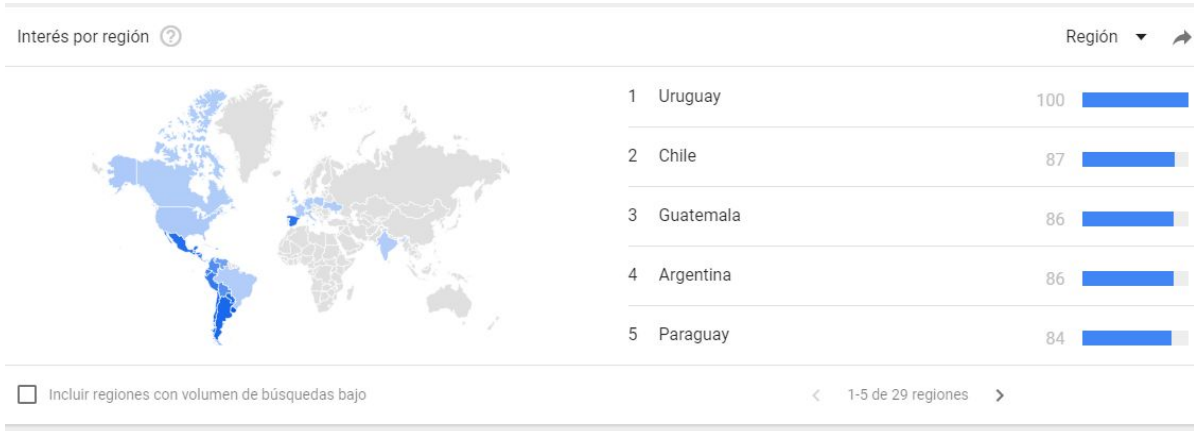
1) Search term: "manzana" (apple)



As we can appreciate in this picture, the search for apples in a local level are concentrated in the cities of Ciudad Cuauhtémoc, Chihuahua, and Hidalgo de Parral. Cuauthemoc city has advantage in the rest of the cities because it represents the 80% of production nationwide, having one of the most important apple business in Latin America, "La Norteña".

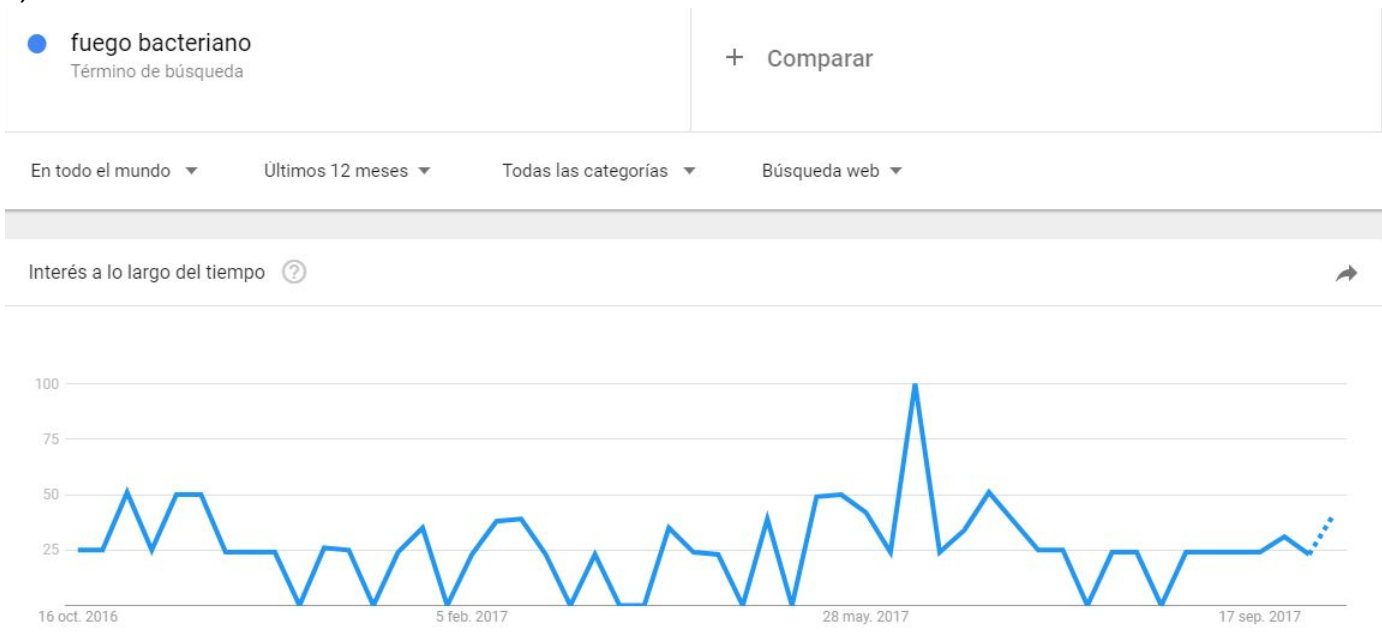


As we can appreciate in the next picture, all states search for apples on the internet; the one that tops the list is Chihuahua, next one Hidalgo, and third one Durango. This means that our state Chihuahua has high interest in anything related to apples, giving our project sustent and reason to improve the way apples are treated.



As we can see in the picture above, apples have great impact in a lation american level, and this means that they could have the same problem with the Erwinia Amylovora bacteria. The cultural relation that our country and the South American ones like Uruguay, Guatemala, Argentina and Paraguay have, first one being language, could help the approach to sell out product.

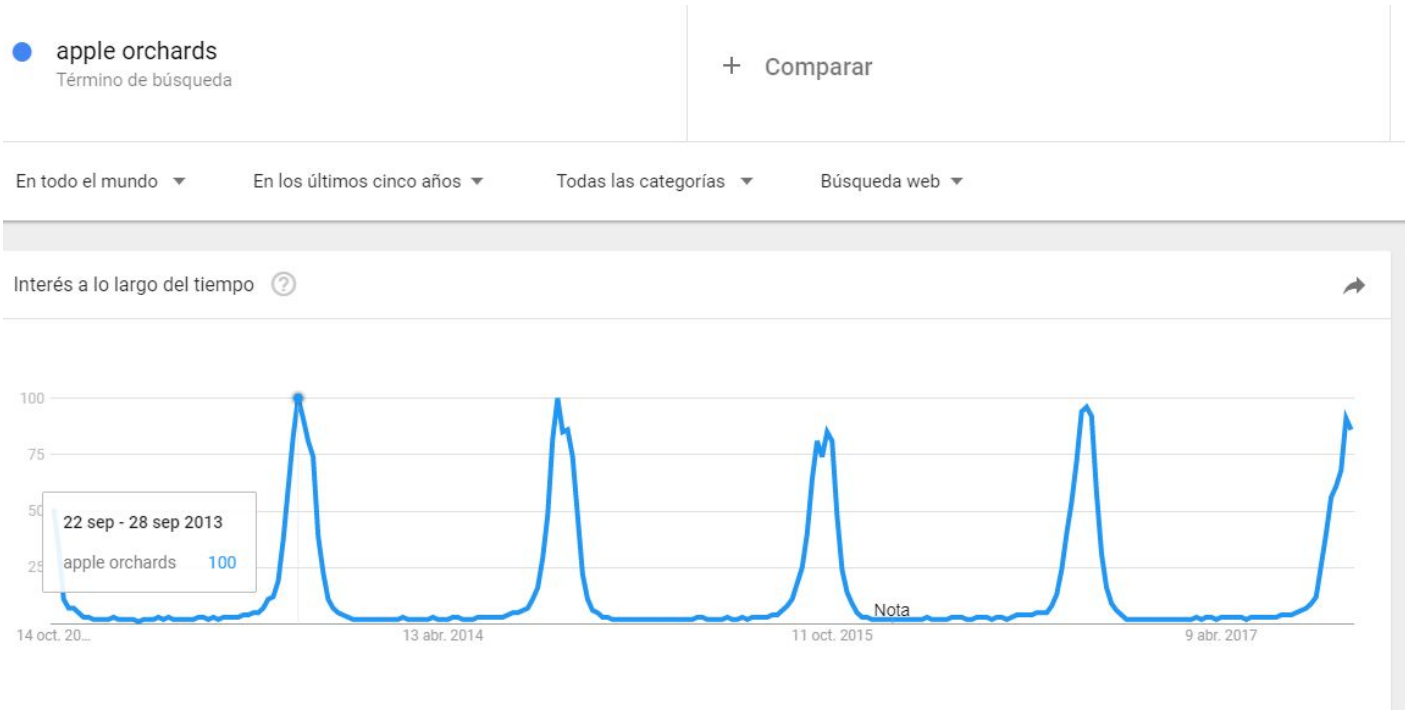
2) Search term: "



Regarding the graph shown above, the interest of this search is maintained through the year, but we saw a peak in the month of May, which still doesn't represent a major impact.

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3) Search term: "apple orchards"



As we can see in the following graph, in October we see that there are high peaks regarding the search of "apple orchards"; and it is believed to be thanks to the bloomishing season.

2. Possible segmentation based on the digital market behavior:

Search term: "fire blight", "bacteria en frutos"(bacteria in fruits), "cycle of fire blight".

As we can appreciate in the photo below, people search this problem by instinct; they know there is a problem, and because they must not know the exact name of the bacteria, they search the terms that are relationated with it. The only thing they must be certain about is that they have to solve the issue regarding this bacteria.

Términos de búsqueda	Promedio de búsquedas mensuales [?]
fire blight	10 – 100

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Palabra clave (por relevancia)	Promedio de búsquedas mensuales [?] ↓
plants	1 K – 10 K
gazania	100 – 1 K
plant disease	100 – 1 K
erwinia amylovora	100 – 1 K
canker x	100 – 1 K
robert gardner	100 – 1 K
fruits on fire	10 – 100
erwinia amylovora bacteria	10 – 100
green disease	10 – 100

Términos de búsqueda	Promedio de búsquedas mensuales [?]	Términos de búsqueda	Promedio de búsquedas mensuales [?]
cycle of fire blight	-	biofertilizante	100 – 1 K
Palabra clave (por relevancia)	Promedio de búsquedas mensuales [?] ↓	Palabra clave (por relevancia)	Promedio de búsquedas mensuales [?] ↓
susceptible	10 K – 100 K	trigo	10 K – 100 K
plant disease	100 – 1 K	agricultura	10 K – 100 K
erwinia amylovora	100 – 1 K	hidroponia	10 K – 100 K
erwinia	100 – 1 K	organico	10 K – 100 K
azgals	100 – 1 K	fertilizantes	10 K – 100 K
apple fire	10 – 100	arroz	10 K – 100 K
urban plant	10 – 100	pesticidas	1 K – 10 K
apple extensions	10 – 100	rhizobium	1 K – 10 K
erwinia amylovora bacteria	10 – 100	agricultura organica	1 K – 10 K
tree fire	10 – 100	biofertilizantes	1 K – 10 K
fruits on fire	10 – 100		

Regarding this graphs, we see that people are already looking for eco-friendly solutions; and even though there aren't many products in the market such as biofertilizers, buyers are already looking for different options, instead of choosing typical products such as insecticides, pesticides, etc.

3. Demand and competition references.

Term used: fire blight" "bacteria en frutos" "cycle of fire blight"

Términos de búsqueda	Promedio de búsquedas mensuales [?]	Competencia [?]	Puja sugerida [?]
fire blight	10 – 100	Baja	–

Mostrar filas: 30

Palabra clave (por relevancia)	Promedio de búsquedas mensuales [?] ↓	Competencia [?]	Puja sugerida [?]
plants	1 K – 10 K	Baja	8,14 MX\$
gazania	100 – 1 K	Baja	–
plant disease	100 – 1 K	Baja	0,55 MX\$
erwinia amylovora	100 – 1 K	Baja	–
canker x	100 – 1 K	Baja	1,13 MX\$
robert gardner	100 – 1 K	Baja	22,07 MX\$
fruits on fire	10 – 100	Baja	–
erwinia amylovora bacteria	10 – 100	Baja	–
green disease	10 – 100	–	–

Términos de búsqueda	Promedio de búsquedas mensuales [?]	Competencia [?]	Puja sugerida [?]
bacteria en frutos	–	–	–

Mostrar filas: 30

Palabra clave (por relevancia)	Promedio de búsquedas mensuales [?] ↓	Competencia [?]	Puja sugerida [?]
bacteria	10 K – 100 K	Baja	2,71 MX\$
bacterias	10 K – 100 K	Baja	7,67 MX\$
nombre científico del tomate	1 K – 10 K	Baja	18,41 MX\$
enfermedades causadas por bac...	1 K – 10 K	Baja	6,30 MX\$
enfermedades bacterianas	1 K – 10 K	Baja	1,41 MX\$
planta de tomate	1 K – 10 K	Baja	1,08 MX\$
hoja de tomate	100 – 1 K	Baja	–
tizon temprano en tomate	100 – 1 K	Baja	–
fusarium en tomate	100 – 1 K	Baja	0,27 MX\$

Términos de búsqueda	Promedio de búsquedas mensuales ?	Competencia ?	Puja sugerida ?
cycle of fire blight	-	-	-

Mostrar filas: 30

Palabra clave (por relevancia)	Promedio de búsquedas mensuales ? ↓	Competencia ?	Puja sugerida ?
susceptible	10 K – 100 K	Baja	-
plant disease	100 – 1 K	Baja	0,55 MX\$
erwinia amylovora	100 – 1 K	Baja	-
erwinia	100 – 1 K	Baja	-
azgals	100 – 1 K	Baja	-
apple fire	10 – 100	Baja	-
urban plant	10 – 100	Baja	-
apple extensions	10 – 100	Baja	-
erwinia amylovora bacteria	10 – 100	Baja	-

Términos de búsqueda	Promedio de búsquedas mensuales ?	Competencia ?	Puja sugerida ?
biofertilizante	100 – 1 K	Baja	1,51 MX\$

Mostrar filas: 31

Palabra clave (por relevancia)	Promedio de búsquedas mensuales ? ↓	Competencia ?	Puja sugerida ?
trigo	10 K – 100 K	Baja	2,33 MX\$
agricultura	10 K – 100 K	Baja	6,62 MX\$
hidroponia	10 K – 100 K	Media	1,78 MX\$
organico	10 K – 100 K	Baja	18,76 MX\$
fertilizantes	10 K – 100 K	Baja	3,32 MX\$
arroz	10 K – 100 K	Baja	0,46 MX\$
pesticidas	1 K – 10 K	Baja	0,89 MX\$
rhizobium	1 K – 10 K	Baja	-
agricultura organica	1 K – 10 K	Baja	13,35 MX\$
biofertilizantes	1 K – 10 K	Baja	1,31 MX\$

Regarding the search of products, there is no search tendency, but this gives us advantage because it's a market that hasn't have competition and so it can attract clients directly to our product, since it would be the only alternative based in biocontrol agricultural care.

4. General and complementary data.

International context.

- The apple production in an international level in the year 2013 was of 80.822.521 t from which China produced 39.684.118 t, this being 50% of the total.

1	China	39.684
2	EEUU	4.081
3	Turquía	3.128
4	Polonia	3.085
5	Italia	2.216
6	India	1.915
7	Francia	1.737
8	Chile	1.709
9	Federación REEUU	1.572
10	Argentina	1.245
11	Brasil	1.231
12	Uzbekistán	937
13	México	858
14	Sudáfrica	811
15	Alemania	803
	Subtotal 15 países	65.017
	Total Mundo	80.822

- Chile has become the main apple exporter in the south hemisphere and the most dynamic regarding the varietal replacement (Reds's decrease and the increase of Galas's clones), and in their production and packing systems. In the last years there has been dense plantations, of 3.000 plants per hectare, following the north of Italy scheme. Its objective is to harvest at least 140 t in the 5th year.
- An average between the years 2004 and 2013 showed us that a 27% of the pear and 43% of apple is sent to be processed in the juice industry. The products that the pear and apple are industrialized to are Jugo Concentrado Tipo Clear, Caldo de Sidra, Caldo de Pera, Conserva Natural, Deshidratado, Destilado de Pera, Aroma, Puré, etc.

National context:

- The state of Chihuahua is the principal apple producer in the country and its input is the 70% of the **total production**, counting with a surface of **25,695 hectares** and a production of **382,956 tons** with a monetary value of **1,361,428,150 MXN**.

- It is estimated that in the state of Chihuahua exist **2,515 apple producers** from which 220 belong to the Local Agricultural Guerrero's Fruit growers; there are 200 men and 20 women, and 100 producers are not associated.

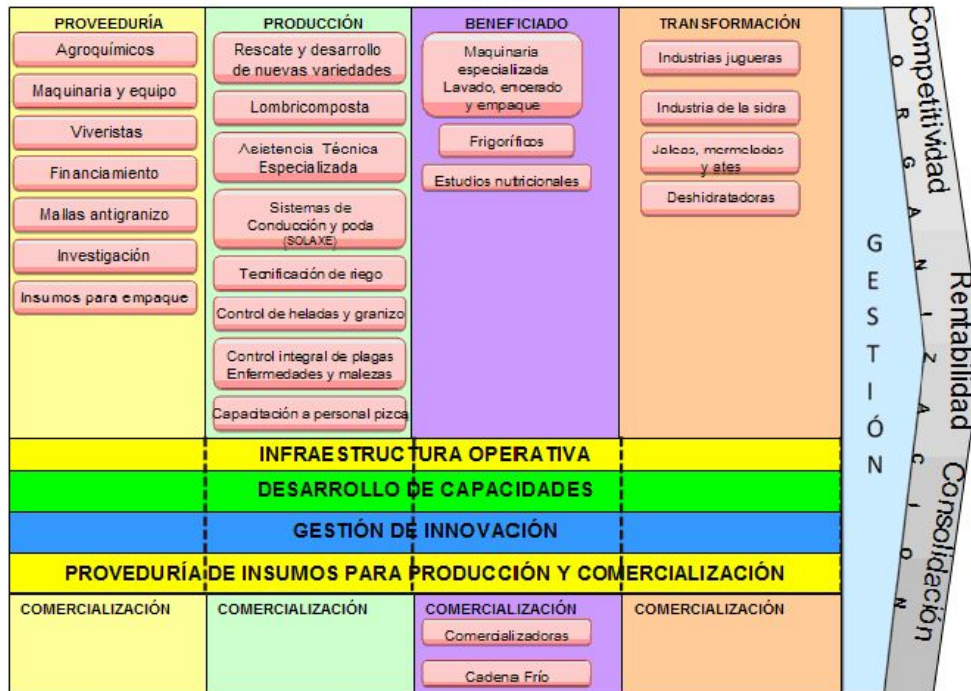
Value Chain:



Fuente: Elaboración conforme a Metodología ICA 2010, con información proporcionada por "Asociación Agrícola de Fruticultores de Guerrero."



Mapa de Innovaciones del Sistema Producto MANZANA



Our product is ubicated in the first step of the impacts chain of the apple production, this being the plantation sector; regarding the innovation part, we are located in the supply sector.

Conclusions

1. The general behavior of apple market in chihuahua is an essential key for the local industry.
2. The analysis of trends has shown customers follow a cycle seeking for apples, being the month of September its highest point; It is important to take on count for the management of the company.
3. There was not found an outstanding market among the possible market segments; therefore the market hypothesis must be validated by other techniques.
4. It is important to recognize the entire value chain previously described, in order to show the strategic allies of the product.
5. It is recommended to do a deep interview with the key actors (farmers, leaders of apple associations), of different levels of the value chain in order to comprehend the complete process for a successful introduction into the market. (Check the associations and international organizations).

6. In case of requiring a possible service expansion (at the right time), it is suggested to establish an agreement with Chile, Argentina, China, and the US.

Sources:

<http://www.apollomedicaldevices.com/welcome#tech>

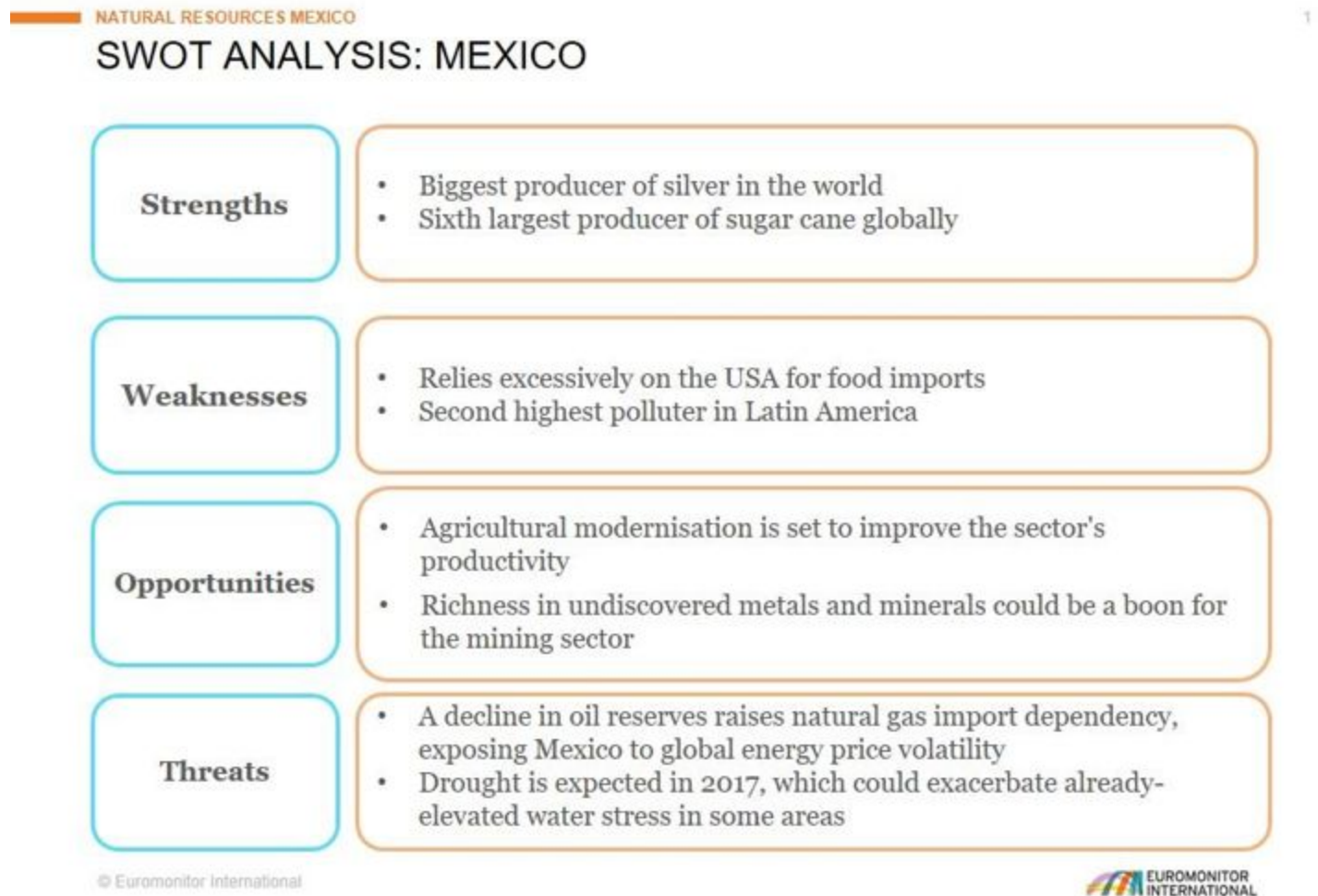
<https://www.wired.com/2014/11/device-diagnoses-hundreds-diseases-using-single-drop-blood/>

<https://www.pointofcare.abbott/us/en/offerings/istat/istat-handheld>

https://www.aiha.org/get-involved/AIHAGuidelineFoundation/Documents/AIHA_Future%20of%20Sensors_web_updated.pdf

RELATIVE DATA FROM EUROMONITOR PLATFORM:

Regarding garden care, according to a study made by the platform Euromonitor, the transition over to alternatives that favour biocontrol, biodiversity and eco-friendly alternatives is set to add value to product offers and thus contribute to better value prospects over the forecast period. (Euromonitor, 2017).



Regarding the study of Mexico's strengths, weaknesses, opportunities and threats, we can appreciate in the opportunities part that the agricultural modernisation is one of the things the country must focus on, given the popularity that has been growing regarding bioproducts. In our study it has been proven that the *Erwinia Amylovora* damages several apple parcels, so our product is expected to have popularity because of the modern and accessible option, and also the fact that bioproducts are becoming a trend in a worldwide level.

BIOCONTROL: GARDENING IN FRANCE

•According to Euromonitor International, the industry of gardening in France was mainly impacted by changes in legislation, consumption patterns and equipment upgrades. In line with the Labbé legislation, classical phytosanitary products, which contain substances deemed as harmful for humans and the environment, were removed from self-service shelves in 2016, remaining biocontrol products as now allowed. (Euromonitor, 2017).

- The information regarding gardening in France serves us as sustent because this country has seen the repercussions that several products cause, so it took the decision of only allowing biocontrol products; this can mean that biocontrol products are the next generation of gardening products, and our product is likely to have a great impact.

COMPETITIVE LANDSCAPE OF BIOCONTROLS:

According to a study made by Euromonitor International, in 2016 Scotts France SAS remained the leading player in garden care with a value share of 25%, but because of the restriction and behind-the-counter display of conventional garden care products, the company had a decline of 1% in current value terms; however, the company has undergone the transition of its brands to natural and biocontrol alternatives. (Euromonitor, 2017).

- This information is valuable in our project because we see that a multinational gardening company such as Scotts France SAS is making the transition to natural and biocontrol alternatives; this results favorable to us because even though the company would be our competitor, the power that it has in an international level can help us to promote our product and its benefits.

Pesticides and Other Agro-chemical Products in Japan: ISIC 2421

According to a study made by Euromonitor International regarding pesticides and other agro-chemical products in the country of Japan, the industry of biocontrols was expected to continue growing between the years 2016-2021, as farmers are becoming more self-conscious regarding the use of pesticides, and the discovery of new technologies optimising pesticide use and other things in the agriculture industry. (Euromonitor, 2017).

Our product is believed to have a great impact in the agricultural sector thanks to the concern for food safety as well as the pressure to reduce costs in the agriculture production; according to Euromonitor, this will continue to pressure Japanese farmers to optimise pesticide use, impeding Japanese agrochemicals' turnover growth in future, and make the market turn over to biocontrol options.

Biopesticides gain momentum, boosting pesticide industry turnover in Japan:

According to Euromonitor International, the biopesticides niche is rapidly growing, and demonstrating scope for further expansion in Japan; antibiotics dominate the biopesticides sector, however, microbial-based bioinsecticides have not made much impact in the sector amid high prices. This

results important to our project because our product is going to eliminate this barrier that according to the studies and comments showed above is the principal reason of why businesses and individuals don't consider buying biocontrols and other similar alternatives.

Sources:

Passport by Euromonitor International.