



Ministry of Foreign Affairs

Horticulture sector

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International.*

Horticulture sector

CERTIFICATION OF AUTHORSHIP:

We hereby certify that we are the sole authors of this report. All assistance we have received from outside sources have been documented in the report, as well as, listed after the conclusion under “References” This report was created exclusively by us specifically for the minor BILA.

Executive summary

This report was written for the Dutch companies that are interested in entering the Colombian horticulture sector. The horticulture sector is one of the most promising sectors in Colombia. The flower export is the second largest in the world and the fruit sector is also thriving.

Colombia differs greatly from the Netherlands, for example the language in both countries are completely different. Colombia's first language is Spanish and in the Netherlands the first language is Dutch, but they share the English as their second language. English is mostly taught at school in both countries.

Colombia exports and imports a large variety of fruits and vegetables. There are various steps that have to be taken to import and export products in Colombia. There are a few requirements in order for a company to receive access to be able to import. The most prominent exports of fruits is the banana. And imports are pears, apples and onions from countries such as Chile. Colombia and the EU has a free trade agreement, which is very beneficial for both parties when it comes to importing and exporting goods. Colombia's wide variety of microclimates and fertile soils allow to produce an exceptional range of fruits and vegetables. The main producing departments of the horticulture crops are Cundinamarca, Valle del Cauca and Antioquia. Cundinamarca for example produces around 300000 tons of fruit, but also produces 400000 tons of vegetables. Valle de Cauca is the second largest fruit producer of Colombia with 600000 tons of fruit yearly. All these departments are situated in the Andean region, where there is a tropical and sub-tropical climate. Colombia has 759, 231 hectares that is currently in use for the fruit horticulture crops.

There are around 4,265,000 people working in the agriculture sector. A large amount of people depend on the horticulture sector, to feed their families.

The Dutch horticulture sector is important to the Dutch economy, there is around 30 thousand companies active in the Dutch horticulture sector. The Netherlands is the market leader in flowers, plants, bulbs and reproductive material and number 3 exporter in nutritional horticulture products.

"El Agro Exporta" is an alliance that was organized by the national government of Colombia. And which will develop 29 projects, which in turn will impact 200 municipalities of 18 departments. The amount invested in this project amounts to \$ 61,000 million Colombian Pesos.

There are two sustainable development goals; sustainable development goal number 3, which contributes to improving food security through R&D&I activities, focused on the quality and safety of agricultural and Agro industrial products. And the other sustainable development goal is number 11, which is promoting the development of environmentally sustainable production systems for the conservation and management adequate of natural resources. The Dutch companies can implement what they already done in the Netherlands in the horticulture sector, which made the sector successful, in Colombia.

In this report it was concluded that Colombia has a lot of potential in the horticulture sector that still have to be developed. The horticulture sector is adequate to enter, because the government are making plans to improve the sector in order for it to grow in the future. It is recommended for Dutch companies that are interested to invest in Colombia to consider investing in the avocado market or in the Colombian fruit market.

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Introduction

Horticulture is the act of cultivating, processing and selling of fruits, vegetables, flowers, herbs and more. Because Horticulture is such a broad industry and involves nine areas of study, the horticulture industry is grouped into two broad sections; ornamentals (flower and ornamental plants sector) and edibles (vegetable, fruits and herb sector). Horticultural crops are diverse; they comprise annual and lasting species, ornamental and even edible plants. Moreover, all these plants help to sustain and enrich people's lives by enhancing the beauty of homes, providing nutritious food and helping to reduce the carbon footprint.

Although Horticulture is generally classified as a subdivision of agriculture, it is actually different. Horticulture only involves the cultivation of plants while agriculture deals with the cultivation of crops as well as animal farming in a larger scale.

The Dutch horticulture sector is a global trendsetter and international market leader in plants, bulbs, propagation material and flowers. The country has a 44% share of the worldwide trade in floricultural products, making the country the dominant global supplier of flowers and flower products. In fact, 77% of all the flower bulbs traded globally come from the Netherlands. Furthermore, a majority of these flowers are tulips. The Dutch sector is the number one exporter when it comes to the plants, bulbs, roots, cut flowers and world for live trees, and the sector is the number three exporter in nutritional horticulture products. Significantly, the Dutch sector is also the world's largest exporter of seed, for example, in 2014 the exports of seeds totaled 3.1 billion euros. Additionally, 2014 was a year then the Netherlands was the world's second largest exporter of fresh vegetables and the market value amounted 7 billion euros (Holland, 2018).

However, horticulture in Latin America also plays a major role and Colombia is not an exception. Colombia is a tropical country with a variety of ecosystems where over 95 different types of fruits are being grown. In fact, from Latin American countries, Colombia has been ranked in third position of the hectares devoted to fruit production, which is 759, 231 hectares; meaning that is equivalent to 10,9 % of the country. The country has a thriving fresh import market and one of the dynamic retail sectors in Latin America as it has been known as one of the region's biggest importers of grapes, pears, apples. In addition, there is growing demand for new products such as blueberries and cherries (Zonderop, 2018). According to the International Trade Center, based in Geneva, Colombia has the best business opportunities for the European Union market. While the Netherlands is ranked number one in the flower exporting, Colombia is not far behind, as the second largest flower exporting country in the world. The ornamentals are a well-organized sector and exports a fair amount compared to the vegetables, where production is usually for the local market and not for exporting.

The purpose of this report is to provide clear and accurate information for Dutch companies about the Horticultural sector in Colombia. With the help of a market and industry analysis the Dutch companies can find the opportunities available in the Colombian horticulture sector and show the potential the Colombian horticulture sector can have when the Dutch companies implement their knowledge in to the sector.

CAGE Framework

Cultural

In Colombia, the official language is Spanish. In fact, in 2004, the Ministry of Education launched the “National Bilingual Program” with the aim to give all students in the country the opportunity to become bilingual in Spanish and English as part of the vision of increased productivity in a globalized world (RVO, 2014). The main ethnicities in Colombia are Mestizo, White European Colombian, Frican Colombian, Mulatto, Palenquero or Raizal and Native South American (Sawe, 2018). Moreover, Colombia is overwhelmingly a Christian nation. Thereby, 90 % of Colombians profess of the Christian faith. More specifically, Roman Catholic Christianity 70 %, Protestant Christianity 15 %, Atheism or Agnosticism 5 % and other beliefs 5 % (Sawe, 2018). As mentioned before, the official language of Colombia is Spanish, but, in addition, there are approximately half a million speakers of American Indian languages. By the law in Colombia, maximum working hours a week a person can work is 48 hours and the working hours may vary from 6 until 22 o'clock. Plus, every employee has the rights to ask for 15 days paid holidays per year (JL, 2018). Colombia is a traditional country, meaning that manners, morality and Catholic values are import. Even more, the religion is so essential in Colombian lives that it takes a role in education, concepts of family and culture, and more. Colombia with a score 13 is one of the lowest individualistic scores; meaning that is a collectivistic society where the group' s opinion is important (Hofstede, 2018). The core of Colombian society is the family. It teaches the elements of how to relate to others, ethics, values and religion (Anaya, 2018). Therefore, great loyalty is shown to families. Children are normally baptized at an early age and since the child is born, he or she receives basics of Catholicism; to pray every year and go to the church. First of all, knowing this information is important because it shows respect towards the other country. Second, it allows understanding beforehand what are the cultural differences and what should be taken into account before doing a business in Colombia. For instance, the spoken language is different in both countries, therefore when having a business meeting, it would be important to have an interpreter to make sure that there would not be any misunderstandings etc.

Administrative

Colombia is a presidential representative democratic republic. The President of Colombia is a head of state as well as the head of government in a multi-party system. The current president of Colombia is Ivan Duque Marquez, he was appointed this year in August and the cabinet is appointed by the president. In general, political stability has improved. The legislative power is vested in the House of Representatives of Colombia, the government and the two chambers of congress, the Senate. The national currency in Colombia is the Colombian Peso. In 2017, on a scale of 100 points (100 points very clean, 0 points highly corrupted), Colombia scored 37 points. Since 1969, Colombia has been a member of the Andean Community, which constitutes a free trade agreement with Bolivia, Ecuador, and Peru (export.gov, 2018). Colombia has several Free Trade agreements with individual countries or association.

Such as:

1. The European Free Trade Association (EFTA) countries including Norway, Iceland, Liechtenstein, Switzerland;
2. The European Union;
3. Free Trade Agreement with various countries such as Panama, South Korea, Costa Rica, Israel since 2013 (not in force yet);
4. The Central American Northern Triangle including El Salvador, Honduras, Guatemala, Canada, Mexico, Chile.

Colombia is also negotiation trade agreements with Japan and Turkey. Plus, in order to stimulate trade and investment, Colombia has Bilateral Investment Treaties (BITs) with Peru, Spain, and Switzerland (export.gov, 2018).

Geographic

Colombia is located in the upper north-west of South America and it has two coastlines, one along the Caribbean Sea between Panama and Venezuela, and shared waters by the Pacific Ocean between Panama and Ecuador. The capital of Colombia is Bogota. Colombia has shared borders with five countries: Panama on the northwest, Venezuela and Brazil on the east, Ecuador and Peru on the south. Physical distance from Colombia to the Netherlands is 8.898 kilometers. The distance by air is equal to 5,529 miles. The time zone of the Netherlands is CEST (Central European Summer Time) which is two hours ahead of Coordinated Universal Time (UTC), however, Colombia is 5 hours behind UTC and is seven hours behind the Hague. Colombia is a vast country, crossed by the Equator in the southern part, and has different types of climate, however, in each of them, there is small variation in temperature throughout the year (CTT, n.d.). Mostly, the differences are due to the altitude, which affects the temperature as well as an amount of rainfall (CTT, n.d.).

However, Colombia's wide variety of microclimates and fertile soils allow to produce an exceptional range of fruits such as mangoes, passionfruit, blueberries, avocados, physalis and more (Zonderop, 2018). As described before, the main producing regions are as following Bolivar, Santander, Cundinamarca, Risaralda, Quindio, Caldas, Tolima, Antioquia, Huila, Cauca, Valle del Cauca, Meta, Casanare, Boyaca, Magdalena and Nariño (ProColombia, 2018). However, it is worth to mention that 78.5 % of exports before heading to the port came from regions as Antioquia, Cundinamarca y Valle. Colombia's demographics and geography show major challenges to its trade and transportation. In general, the roads are in good condition, however, due to the abundance of mountains and hills, road transport tends to be expensive (RVO, 2014). For instance, Medellin, Cali and Bogota are about 7-8 hours away from each other and Cartagena, the port to the Atlantic, is 12 hours from Medellin and about 19-20 from Cali and Bogota (RVO, 2014). As mentioned before, expansion of railway could increase the productivity and cut the costs, because currently the road transport is expensive.

Economic

In 2017, the Gross Domestic Product per capita in Colombia was at 7600,76 US dollars. In fact, the GDP per Capita in Colombia is equivalent to 60 percent of the world's average. GDP per capita in Colombia averaged 4329.93 USD from 1960 until 2017, reaching an all-time high of 7600.76 USD in 2017 and a record low of 2213.22 USD in 1960 (TE, 2018). In 2013 the CIA fact book estimated the Colombia workforce to consist of 23,750,000 people (RVO, 2014). Majority of people 62 % work in services, 20 % in industry and 17,9 % people work in agriculture sector.

For instance, in 2016 the Colombian avocado producers were able to strengthen their ties with European markets and increased the exports from 40 tonnes of Hass avocados to a high 400 tonnes in 2016 (Oxford Business Group, 2018). In fact, the Netherlands was the number one destination for avocados in 2015 and even doubled its numbers in 2016. Also, up to now, Colombia has exported at least USD \$61 million in concentrates, pulps, dehydrated, freeze-dried, canned and frozen mango, passion fruit, blackberry, papaya, lulo and gulupa, among other fruits, to more than 46 countries worldwide (ProColombia, 2018). Moreover, Colombia is the seventh largest producer of vegetables (Invierta, 2013). Colombia's exported fruit and vegetables mostly are being exported to the United States with USD \$31.4 million (51.2 % share), the United Kingdom with USD \$4.5 million (7.4 %), Germany with USD \$3.1 million (5.1 %), the Netherlands with USD \$3 million (4.9%) and France with USD \$2.6 million (4.2%) (ProColombia, 2018).

To note, the most representative products in 2017 were banana, mango and yam. Together their contributed 44,249 new hectares. In 2017, horticultural production in Colombia increased at a rate of annual growth of 1.1 % from 10.6 million tonnes in 2016 to 10.7 million tons in 2017. However, in 2017, the horticultural imports reached USD \$274.44 million, which represented an increase of 0.22 % compared to 2016, USD \$ 273 million (asohofrucol, 2018). Next, the efficiency of the labour market is 4,16 out of 10, which is higher than Mexico and also Argentina. This indicator looks at cooperation in labour-employer relations, hiring and firing practices, redundancy costs, pay and productivity, reliance and professional management, brain drain, women in labour force and flexibility of wage determination. According to an information in 2012, the minimum wage in Colombia was 315,18 US dollars per month.

Scale of sector in Colombia

The country of Colombia is a tropical country with a wide variety of ecosystems. In Latin-American, Colombia ranks third with the largest number of hectares dedicated to fruit production accounting for 10.9% and ranking third in producing in the region with 9.5 million tons. Furthermore, in the last decade fruit exports in Colombia have reached \$918 million US dollars with 1.93 million tons of fruit exported.

Horticultural Exports:

The largest produced crop in Colombia is the banana with 97.8 million boxes in 2017. According to the Colombian Banana Growers Association 72 million boxes of banana was exported that amounted to US\$ 621 million and 25.8 million boxes remained for local consumption. The export of banana was divided with 76% going to the EU and 16 % to the US. Colombia is also one of the largest producer of vegetables in Latin-America ranking fifth with 2.1 million tons. In 2016 Colombia's fruit export earnings and vegetables export earnings was \$1095.9 million and \$19.3 million US dollars respectively. Cut flowers is also one of the largest exports of Colombia with an export value of US\$1.3 billion. The main export destination for cut flowers is the US with 78% of the total exports amounting to US\$ 1.01 billion.

Horticultural Imports:

Colombia's largest horticultural crops that it imports are apples & pears, Onions and cut flowers. Apples & pears are predominantly imported From Chile with 75% of the total import of apples & pears that amounts to US\$ 86.1 million. Onion imports to Colombia come from China and Peru. 76% of imported Onions come from China with a value of US\$ 34 million and 26% from Peru that amount to US\$10.6 million in import value. Cut flowers are mainly imported from Ecuador and Costa Rica. From those, 87% of cut flowers are imported from Ecuador with an import value of US\$ 5.39 million and 12% imported from Costa Rica with an import value of US\$ 727 thousand.

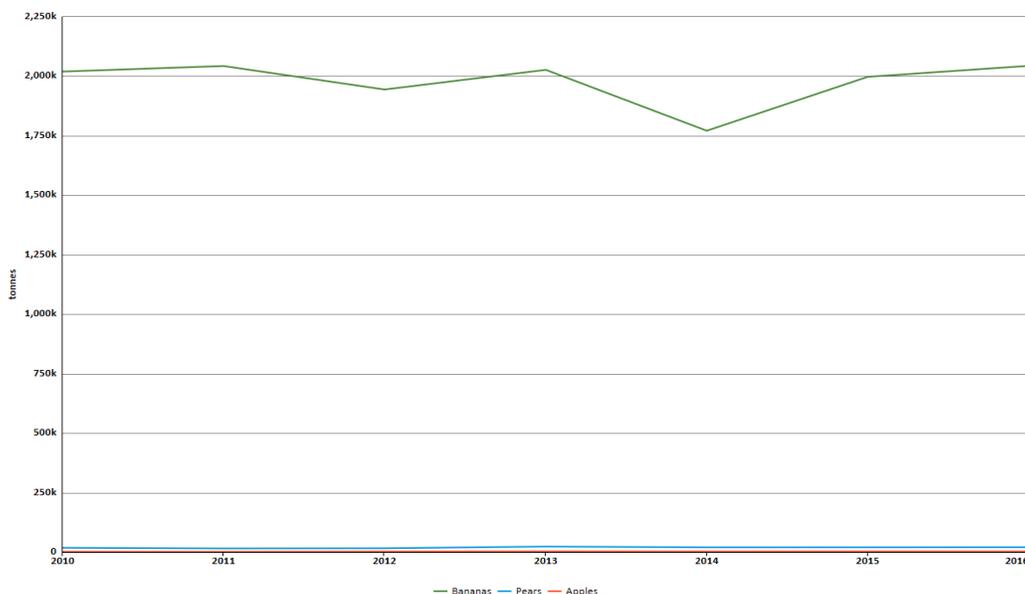


Figure 1 Production statistics: Banana, pears, apples

Main productive regions

Colombia can be divided into 5 main regions, mainly the Caribbean region, the Pacific region, the Andean region, the llanos Orientales and the Colombian amazon region. See figure 2.

The Andean region is the region where most horticulture crops are situated. The region is very mountainous and is also the most densely populated region in Colombia.



Figure 2 Colombian Regions and principal cities

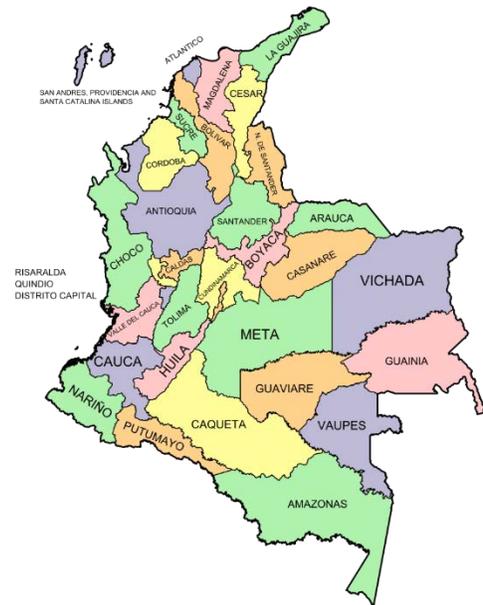


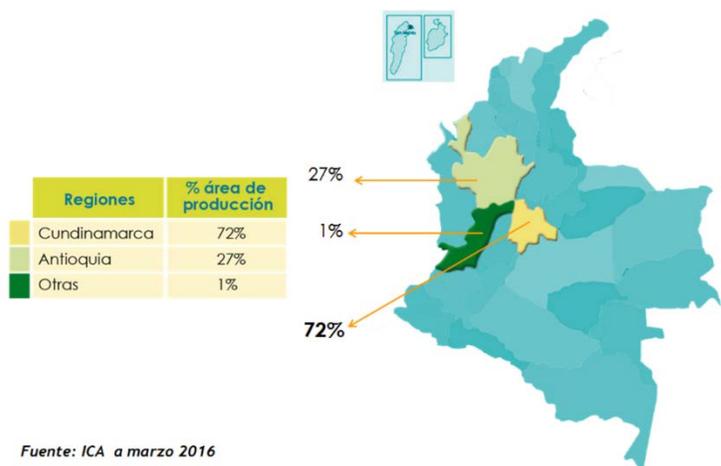
Figure 3 Colombian Departments

Fruits and Vegetables

The main production regions for vegetables and fruits in Colombia is the department of Cundinamarca, followed by Valle del Cauca and Antioquia. All these departments are situated in the Andean region, where they have a tropical and subtropical climate. The department of Cundinamarca produces more vegetables than any other department in Colombia.

Flowers

The main flower producing regions in Colombia are the department of Antioquia and Cundinamarca, according to Asocolflores, a flower exporting association in Colombia, these two departments make 99% of Colombia's flowers according to statistics. Antioquia produces 27%, Cundinamarca produces 72% of the flowers in Colombia and the last 1% is produced in the department of Valle de Cauca. See figure 4. Around Bogota (Cundinamarca department) the price for land is expensive, because it is where most flower farms are located.



Fuente: ICA a marzo 2016

Figure 4 Flower producing regions

Herbs

According to research done by the Ministry of Agriculture and Rural Development of Colombia, the main production region of aromatic, medicinal and condimentary plants in 2016 is Antioquia, which makes around 35% of Colombia's aromatic, medicinal and condimentary plants. Followed by Cundinamarca, with 23% and Valle del Cauca, with 20% of the total produced of aromatic, medicinal and condimentary plants. As was mentioned before, these top producing departments are mostly in the Andean region of Colombia. In the next table the total hectare and tons of the total Colombian aromatic, medicinal and condimentary plants production can be found.

Departments	Area (Ha)	Production (Ton)
	2016	2016
ANTIOQUIA	896	5.447
BOYACA	10	15
CAUCA	250	1.448
CHOCO	364	400
CUNDINAMARCA	517	3.690
LA GUAJIRA	390	221
NORTE DE SANTANDER	86	401
PUTUMAYO	217	209
QUINDIO	8	139
RISARALDA	31	423
TOLIMA	22	8
VALLE DEL CAUCA	397	3.258
TOTAL	3.190	15.658

Table 1 Area, production and performance of herbs in thousands

PESTEL Analysis

Political

No relevant information could be acquired that would directly influence horticulture. Field research is recommended.

Economic

Since 2005 till 2016, Colombia has experienced a GDP annual growth rate of 4.3% making it the second growing economy in Latin-America just behind Peru. This economic growth was driven by financial services. Also, Colombia is the 55th largest export economy. Horticultural products that Colombia export are Banana, Avocado, Cut Flowers along with more horticultural products. Countries that Colombia exports horticultural products include the US, Belgium, the Netherlands, the United Kingdom, Italy, Canada and more. Horticultural products that are imported to Colombia are Pears, Apples, also unions and other vegetables. Main countries that Colombia imports from are Chile, Argentina, Peru, Mexico.

Social

The total workforce of Colombia is 26,421,780 workers in the formal sector. The workforce is split 42.92% female and 57.08% male. Colombia's agricultural sector where horticulture is a part from contains 16.14% or 4,264,476 workers of the total workforce of Colombia in 2017. Out of the total employment of women, 6.97% or 790,414 women work in the agricultural sector and out of the total employment of men, 22.72% or 3,426,529 men work in the agricultural sector.

Technological

Colombia faces challenges when it comes to technology in the technological aspect. It was identified by a study from Colciencias, Observatorio Colombiano de ciencia y tecnologia and Ministerio TIC that the main challenges that this sector face are: to improve the technology appropriation capacity of agricultural producers, encouragement to use the technology to facilitate the appropriation of the technology and how to implement schemes of use and production of sectoral information that will allow the technology to add value to the processes.

Environmental

The environment in Colombia is very diverse with tropical rainforest, Amazon jungle, deserts and marshes of the Andes Mountains. Colombia has a wide range of ecosystems which makes it one of the most biodiverse country in the world. In Colombia over 95 types of fruits are grown this includes local and non-local fruits. Such as the banana that as mentioned before is the largest exported fruit which is cultivated in Uraba, Antioqueño. Valle de Cauca is the second fruit producer of Colombia with 600000 tons of fruit yearly, these fruits include citric fruits, pineapple and 76000 tons of vegetables. A important zone for horticulture in Colombia is Cundinamarca where mangos and 300000 tons of fruit are cultivated but most dominantly vegetables where 400000 tons of vegetables are produced.

Legal

Colombia has Import requirements that every Importer that wants to import goods into Colombia must comply to be able to have access and to import to the country. Furthermore, the importer must pay Import duties, VAT, surcharges and other fees.

For importing in Colombia, companies must follow the following process:

- Fill out Import Registration form with the ministry of commerce, industry and tourism. Furthermore, a complete description of the product and tariff classification.
- Customs inspections when deemed necessary.
- Filling in the Andean Custom Value Declaration when the imported goods are worth equal or more than US \$5000 FOB.
- Import Declaration must be filled in when Import value is equal or more than US \$ 1000
- Pay import duties, VAT, surcharges and other fees at an authorized financial entity
- Arrange with a Customs Agency to receive the imported goods and get it out of customs.
- Arrange with a financial entity to pay for the imported goods.
- When necessary, obtain approval for the Import Registration form or Import license from the Ministry of commerce, industry and tourism.
- Provide all documentation to customs.
- Obtain Cargo manifest from the used transportation firm.
- Import document must be kept for a period of no less than 5 years.
- Obtain the import permit from pertinent government agencies when necessary such as the Ministry of Agriculture.

SWOT Analysis

This SWOT analysis looks at horticulture, fruits and vegetables, agro logistics in Colombia. It will determine the opportunities, threats, weaknesses and strengths.

Strengths

- *Technology, resources, and knowledge:* The Dutch producers have ultra-modern greenhouses using the latest growing techniques, re-usable substrates, energy-saving heating equipment, fertilization units, biological crop protection, and post-harvest machinery (RVO, 2014). The greenhouses in the Netherlands are far more advanced than the ones in Colombia. The productivity is much greater when the greenhouses are technologically advanced and sustainable. Because of the innovation and all the knowledge that the Dutch horticulture sector has gained in the past year they are constantly coming with new tech to improve production. Also, the Dutch tends to focus on high capital investments with a long-term horizon.
- *Reputation/Brand image:* The Netherlands is well recognized in Colombia. It has a good reputation when it comes to port management, logistics, river transportations. The Netherlands has made relations with several Colombian institutions such as the Colombian National Business Association (ANDI), the Colombian Chamber of Infrastructure (CCI), Defencarga, and Colombian Federation of Logistics Agents (FITAC) (MBZ, 2017).
- *Innovation in horticulture:* in the Dutch horticultural sector great business leaders and universities come together to brainstorm and to come up with innovative ideas. Because according to Ted Duijvestijn, a farmer in The Netherlands, no one knows the answers on their own.
- *Biggest exporter of vegetables and flowers in the world:* According to statistics The Netherlands is the number 1 exporter of vegetables, for example onions, and the of flowers in the world. Colombia is a close second. Because of this The Netherlands has more than a third of all global trade in vegetable seeds, which generates billions annually.

Weaknesses

- *Logistics/Geography:* As mentioned before, the internal logistics in Colombia are not that perfect, because the roads are in a poor conditions and distances are long. In fact, Colombia was nominated as 94th out of 160 countries in the Logistics Performance Index (LPI) of the World Bank and, in addition, Colombia is after its competitors such as Panama, Mexico and Chile. The road improvement would allow to increase the productivity, for instance, in Colombia, a truck travels 65,000 kilometers in a year, while in the US during that same period the truck can cover up to 116,000 kilometers (Dinero, 2018). Plus, only 15 % of the rail network is being used, hence, the rail expansion could also allow to improve the logistics.
- *Vegetable production:* According to information from 2017, Colombia has an annual production of 9,179,250 tons of fruits of vegetables, however, the research shows that the domestic consumption is low (Leyton & Majana, 2017). In general, the most consumed vegetables are tomatoes, onions, carrots, green peas and cabbage. Institutional organization in this sector is weak from a private point of view, since most producers are small < 2 ha and cooperation between companies has proven to be difficult. In fact, the

fruit and vegetable sector however have closer ties to public institution and food production and safety is high on the agenda of the Ministry of Agriculture (RVO, 2014).

Opportunities

- *Better greenhouses*: the vegetable crops in Colombia are still produced in an open field, however, ventilations, better greenhouses and hydroponic production are the next steps. The wooden “saw tooth” type greenhouses can be found in vegetable production, however, still most of the crops are being grown in an open soil or minimally protected by plastic tunnel greenhouses (RVO, 2014). However, if Colombia want to export and increase their productivity, the greenhouses should be improved accordingly.
- *Climate offers*: For instance, the vegetable production has been so far only a local affair with hardly any export, however, more and more producers are slowly recognizing opportunities that the good climate offers regarding fruits and vegetables. To note, there are 433 identified species of edible fruits, which makes Colombia as world’ s first as for fruits biodiversity per square kilometre (ProColombia, 2014).
- *Knowledge and technology*: As mentioned before, the Dutch technology could help Colombia in several stages of the production chain as well as in several areas: post-harvest, atomization, Agro logistics, genetics, and sustainability (RVO, 2014). By doing this, it could help to expand the Colombian market. In fact, according to ProColombia, the new technologies in the processes of the Colombian companies have allowed to implement comprehensive quality policies that actually promote innovation in terms of product and packaging, traceability and food safety and Corporate Social Responsibility (ProColombia, 2018).

Threats

- *Changes in the external environment*: However, one of the possible threats could be the changes in the external environment. For example, lack of market, unpredictable weather conditions, a decline in consumer demand and more. Because vegetables and fruits are highly depended on the weather, meaning that the weather may affect production beneficially or harmfully. Especially, when natural disasters occur such as storms, floods and droughts. Climate change is having an increasing effect on production. This could have negative consequences for the vegetable/fruit sector.
- *Safety standards*: in a market that wants to improve and export, the safety standards become more important. For example, retail chains are demanding even cleaner and safer and stricter food protocols will become standard (RVO, 2014). When exporting fresh vegetables and fruits to Europe, the exporters have to comply with different requirements such as: food safety, product quality and social, environmental and business compliance (CBI, 2018). The regulations of the EU memberstates are laid down in a legislation. Plus, fruits and vegetables that are exported to the EU must comply with European legislation on plant health. The EU has laid down phytosanitary requirements to prevent the introduction and spread of organisms harmful to plants and plant products in Europe. These requirements are managed to by the competent food safety authorities in the importing and exporting countries; to note, the exporting country has to have phytosanitary agreements with the EU in order to export to Europe (CBI, 2018).

- *Chemical pesticides:* Colombia has a high rate for using the chemical pesticides. The country lacks strict phytosanitary protocols/guidelines on how to use these products properly (RVO, 2014). This can be seen as a threat because overuse of pesticides can affect human as well as environmental health. Therefore, it could lead to lack of demand which could cause significant losses for the companies. For example, the European Union, in order to avoid health and environmental risks, has set maximum residue levels (MRLs) for pesticides in and on food products. Meaning that the products that will exceed the level will be withdrawn from the EU market (CBI, 2018). However, it is important to note that buyers in several Member States such as the United Kingdom, Germany, the Netherlands and Austria use MRLs which are stricter than the MRLs laid down in European legislation. Supermarket chains are the strictest and demand 33% to 70% of the legal MRL (CBI, 2018).
- *Competition:* The Netherlands is one of the best countries in the horticultural sector. But due to this the technology can be more expensive. In Latin America they already have a reputation for being expensive compared to, for example Spain and Israel. Spanish and Israeli suppliers often provide inferior products for lower prices, therefore the competition is fierce. Furthermore, in Latin America trust and loyalty plays a big role, which means it will take some time for companies to trust the new companies in the sector. A major competitive advantage that Dutch companies has above international competitors is that the Dutch has an extremely high level of productivity and efficiency.

<p style="text-align: center;">Strenghts</p> <ul style="list-style-type: none"> • Reputation/Brand image • Technology, resources and knowledge • Innovation in horticulture • Biggest exporter of vegetables and flowers in the world 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • Logistics/Geography • Vegetable production
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • Knowledge and technology • Climate offers • Better greenhouses 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> • Changes in the external environment • Safety standards • Chemical pesticide • Competition

Table 2 SWOT Analysis

Industry Analysis

Supplier power

The suppliers in the horticultural sector in Colombia refers to the companies that play a role in the cultivation and growth of the Horticultural crops. In other words the businesses that provide inputs, such as labour, parts, raw materials, and services, for the horticultural sector.

For example seed suppliers play a significant role in the horticultural sector. According to Dinero, an online magazine that specializes in Economy and Business, the seed sector has a lot of piracy and contraband issues. Most seed suppliers of Colombia are small companies that have invested over 30 years of research to the sector, therefore the cost of the seeds can be 15% higher than the total production value. But for small-scale family farms, using these certified seeds are far too expensive and the cost of these seeds can have a significant effect the company's profitability, that is why they turn to illegal sale of seeds. However the seed companies will not lower their prices, because the market is small and they also have to make profit. In the seed sector the supplier power is somewhat high.

An example where the supplier power is high is with the fertilizer market. According to an article written by Alexnder Marn Correa, a journalist for El Espectador, only six companies out of 1150 control almost 92% of the fertilizer market in Colombia. These companies, Monmeros Venezolanos, Ecofertil, Abocol SA, Preciagro, Yara and Plant Nutrition, import mixtures to make the fertilizers and sell them for a much higher price. According to the article the prices are almost 40% higher compared to international fertilizer prices. Therefore, the companies have power over the prices (El Espectador, 2013).

Buyer power

Buyer power describes the amount of power the customer has on the supply and price of the good and how it affects the profitability and sales of the company selling the good. According to Ernesto Vlez in 2007 there was around 150 flower importer distributor companies in Miami Florida that imported Colombian flowers. Colombia benefits greatly because of the free trade agreement they have with the US, but because Colombia is very much dependent of the US it can also have a negative impact on the Colombian flower farmers. Because for example, due to the 2008 financial crisis in the US Colombian farms that mostly exported to the US had a hard time selling and, in the end, closed down. When farms closed down supply decreased, therefore the farms that weren't affected increased their prices, to take advantage of the opportunity and make more profit. The demand for flowers, mostly roses, in the US is relatively high on Valentine's day and Mother's Day, when the Colombian farms have to work harder to meet these demands. Valentine's day can account up to 20% of annual revenue for the flower farmers in Colombia. For Europe there are also seasons, in the summer the demand is low, therefore imports from other international countries, such as Colombia, is lower than usual. Fruits and vegetables are also exported to Europe, but the Colombian fruits are the most popular in the EU. For example, banana are the top exporting fruit for Colombia and approximately 80% of total banana export of Colombia is exported to the EU and the remainder is exported to the US. The demand for fruits are high, meaning buyer power is also high.

Threat of Substitution

Colombia has a wide variety of Horticultural products to offer. As was mentioned before the sector can be divided in 2 sub-sectors, edibles and ornamentals. There are products on the market that are similar or the same, that can also fulfill the demand of the customer. For example the fruit consumers will choose a fruit that best fits their quality and price needs, in order to control their daily household or company expenses. The customer has a wide range of companies to choose from. Which can be a big threat for the Dutch company and would be hard to maintain a competitive advantage.

Another example is the flower market. The Colombian flowers are produced by an estimated 300 companies on 600 farms. There are a thousand sorts of flowers in Colombia, but the most popular ones are the roses, carnations and orchids. The orchids have in total 4000 different species and about 1550 are only found in Colombia. Therefore, the threat of substitution to a more cheaper company will always be present.

Threat of New Entry

In Colombia horticulture industry there is always a threat of new entrants. Colombia is currently growing rapidly, Colombia is currently the fifth richest country in Latin America. According to Manuel Gonzalez, the general manager of SIENZ in Latin America, Colombia has a promising future because of the new organizations, like Compac Sorting Equipment, that just entered the market. And with a Dutch company entering the market, with advanced technology and knowledge, the Colombian horticulture market will further improve and the industry will show good profitability. Which can inspire other companies around the world to enter the business and challenge competitors for higher profit.

While entering the horticultural market in Colombia there might be a few difficulties along the way. But there are various incentives given in Bogota and Cundinamarca for new entrants who create jobs and set up their companies, making the entry more desirable. For example, 5 years income tax benefits; Tax exemptions (VAT and/or ICA) on exports; Subsidies up to 30% for certain agricultural projects and more.

Competitive Rivalry

The competitive rivalry is also strong in the Colombian horticulture sector. According to Fonseca, owner of carnation nursery Discovery Farms, farms often compete against each other for better prices and alternatives. In the competitive analysis there is further information on the horticulture competition in the Colombian market.

What are the challenges and needs for Dutch companies in Colombia?

One of the challenges of doing business in a different country is the cultural barriers. According to the English proficiency index 2018, Colombia ranked 51 out of 80 (TMFgroup, 2018).

Thereby, if having an important business meeting, it is advised to have an interpreter. As well as, the communication in Colombia is often indirect rather than direct as in the Netherlands, and even subtle, which could affect the business negotiations. Moreover, the view of time is different as punctuality is not that strict.

Another challenge for the Dutch companies entering to the Colombian market is the infrastructure. This can cause complications with the Dutch company's supply chains. Out of the top 12 economies in the whole region, Colombia is ranked as the 10th poorest provision of infrastructure. Supply chain is the process of starting off with raw materials all the way to the end customer. Having a good supply chain could be beneficial for any business. So when it comes to delivering products and moving materials, poor infrastructures can really complicate things.

Production vs. local consumption vs. exports

Compared with other subtropical countries, in the northern and southern hemispheres, the Colombian grown fruits and vegetables tend to be better in quality, flavour, colour, aroma and higher contents of soluble solids. The produced fruits are such as banana, apple, kiwi, pitaya, maracuya, guava, papaya, mango, pineapple, peach, watermelon, grapes and more. The produced vegetables consist of mushrooms, potatoes, chilli peppers, onion bulbs, tomatoes, peas, green onions etc. For example, Colombian tomato is cultivated under two systems:

- One being small processing-type “chonto” tomato grown in open field conditions using sub-optimal practices;
- The other, beefsteak-type tomato, is grown under greenhouse conditions in fairly high-intensive systems with adopting climate control, fertigation, pruning and training systems (Bojaca, Arias, Ahumada, Casilimas & Shrevens, 2012).

The vegetables and fruits most of the time are being picked. The greatest vegetable and fruit producing regions are Bolivar, Santander, Cundinamarca, Risaralda, Quindio, Caldas, Tolima, Antioquia, Huila, Cauca, Valle del Cauca, Meta, Casanare, Boyaca, Magdalena and Nariño (ProColombia, 2018). The highest import volumes were made from apple (33.81 %), onion (11.81 %), pear (8.85%), garlic (6.05 %), prepared tomatoes (5.73 %), fresh grapes (3.79 %) and peaches (2.87 %). In total accounting 72.91 % of the total (asohofrucol, 2018).

During the last decade, Colombia exported fruits that made an amount of \$918 US dollars and more than 1.93 million tons. In fact, Colombia is also the fifth largest producer of vegetables in Latin America consisting of 2.1 million tons and it is the third country in Latin America with the largest number of hectares allocated to the production of fruits accounting for 10.9 % while being the third largest producer in the region with 9.5 million tons (ProColombia, 2018). However, domestic consumption of vegetables is quite low, and are sold only in the local markets. As described further, it can be seen due to low quality and low volumes of vegetable production.

Competitors Analysis

The Dutch horticulture sector is important to the Dutch economy. Around 30.000 companies are active in this sector. It is the undisputed international market leader in flowers, plants, bulbs and reproductive material and number 3 exporter in nutritional horticulture products.

To do business effectively in Colombia, we must first identify who are the competitors in the horticulture business. Any company doing business in Colombia or from Colombia should be listed as competitors. Multiple large companies have chosen Colombia as a place to invest, such as Olmué from Chile, who established a food processing plant in Valle de Cauca, or Dole from the US, who started operating a plant for salads and a product distribution center in 2014 in Colombia. Furthermore there are an estimated 30 fruit and vegetables processing companies operating in Colombia.

The customers of the horticulture companies are mainly international when it comes to flowers and fruits. Vegetables however, there are more local consumers. The customers expect to get natural fruits and vegetables. When it comes to exporting flowers, exporting one that is fully bloomed may not be the best case as it will not stay alive long after that, so it is best to export the ones that are not yet fully bloomed so they can bloom when they arrive at their destination.

Five-year forecast

In Colombia there is an alliance called “El Agro Exporta” which will develop 29 projects that will impact 200 municipalities of 18 departments, 70 of which resides in the most affected areas of the conflict, one of them being Valle del Cauca which is one of the largest area for fruit and vegetable production in Colombia. With this program around 11,000 farmers of 200 municipalities will benefit, these farmers will receive support to improve quality, production and marketing of their products. the National Government, through the MinAgricultura and MinComercio, leads a strategy with guilds, associations of producers and private companies to impact in all the links of eight sectors with export potential, such as: cocoa, avocado, mango, pineapple, fish farming, beef, dairy and palm. The El Agro Exporta will support with a total of \$ 61,000 million Colombia pesos investment from MinAgricultura, that will be executed by the Productive Transformation Program, the 29 projects in the 18 departments.

Sustainable Development Goals

A strategy that can be added when doing business in Colombia is to contribute to improving food security through R&D&I activities, focused on the quality and safety of agricultural and Agro industrial products. This strategy falls under goal number 3 in the United Nations Sustainable Development Goals, which is “Good Health and Well-being”.

One of the priorities for the Netherlands development cooperation policy is food security. They focus on:

- Better access to nutritious food and working towards an increase in sustainably produced food.
- Implementing free trade agreements to make markets more efficient.
- Better business environment investments which allows the private sector to play a greater role in solving this problem.
- The Dutch research institutions contribute to research into agriculture, nutrition and management of natural resources worldwide, both by funding and active participation.

Another objective is promoting the development of environmentally sustainable production systems for the conservation and management adequate of natural resources. This strategy falls under goal number 11 in the United Nations Sustainable Development Goals, which is “Sustainable cities and Communities”. The Netherlands has been focused on this goal for some time already, setting it as a goal for 2030. Some of the sustainability development goals that the Netherlands has been focused on are:

- Renewing energy. Share of renewable energy has been growing steadily since 2000 in the Netherlands.
- Netherlands also successfully stores rainwater and other water with similar qualities, for example fossil water.
- Crop protection is also required when planting, for example disinfection of the greenhouses to have a clean start, integrated pest management, biological control on especially vegetables and fruits and plant protection products that are authorized and permitted.

These strategies that are used in the Netherlands can be implemented in Colombia to help achieve this goal.

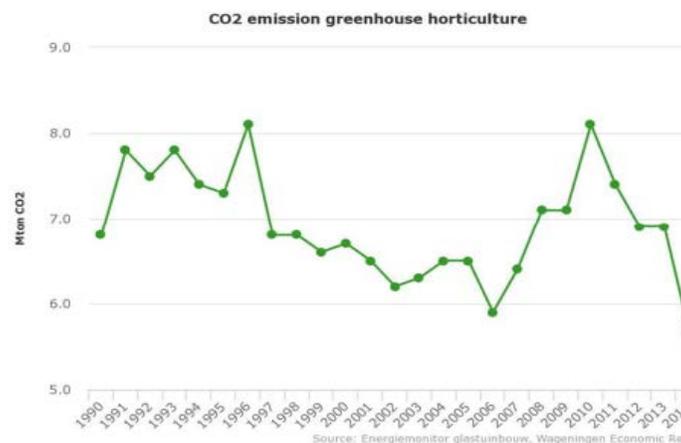


Figure 5

Conclusion

In conclusion with the research done about the horticulture sector and its sub-sectors in Colombia, it was determined that the horticulture sector in Colombia has enormous potential but has not been fully utilized to achieve its full potential. Dutch companies can enter the horticulture sector and bring their resources such as their technological knowledge that will benefit the horticulture sector in Colombia and stimulate further innovation in the sector. Furthermore, Dutch companies can help better the current systems used in greenhouse in Colombia that can improve production and quality standards. Although, compared to other horticultural product such as fruits, vegetables production and export is low which can negate the knowledge and expertise that Dutch companies have in the vegetable trade. Colombia has a wide variety of regions that are used for horticultural products cultivations. The main regions are Valle del Cauca, Antioquia and Cundinamarca. In these regions fruits and vegetables such as banana, mango, avocados, carrots, herbs and more are most concentrated. Colombia is in the process of implementing projects for future development of the horticulture sector such as the “El Agro Exporta” that will provide \$61,000 million Colombian Pesos to support the whole sector and the ones involved and the PECTIA (Plan Estrategico de Ciencia, Tecnologia e Innovacion del Sector Agropecuario Colombiano) that details the plans that Colombia has to improve its current technology, sustainability and innovation in the whole agricultural sector from 2017-2027.

Recommendations

The Colombian horticulture sector has potential according to the research that was conducted. Many areas can use the experience, knowledge, expertise and more that the Dutch companies have to offer. The horticulture sub-sector is the most promising one because of all of what Colombia is doing to improve the overall production, quality, sustainability and more. It is recommended that the Dutch companies enter this Colombian horticulture sector and focus more in the Horticulture sub-sector because the Dutch companies can add more value and insight. Also, this sub-sector has the potential for big growth as it has been growing and the export-import balance is in favour of the export. Also in this sub-sector the Avocado production has had a rapid growth since 2016 and with the “El Agro Exporta” is focusing on Avocados as one of the exports with most potential and with the investment of \$61,000 million Colombian Pesos it is recommended to invest in the Avocado market in Colombia. A secondary recommendation is to enter the fruit market in general as it is the largest export of Colombia in the horticulture sector and with the environmental advantages of having different climates able to grow almost all fruit it is a stable decision and safe approach.

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This is a publication of
Netherlands Enterprise Agency
Prinses Beatrixlaan 2
PO Box 93144 | 2509 AC The Hague
T +31 (0) 88 042 42 42
E klantcontact@rvo.nl
www.rvo.nl

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