



Cost of Production in the Banana Sector

Study of Production Costs in the Banana Sector in Colombia

28.06.2021

Disclaimer

The following presentation sets out the results of the study on production costs in Colombia commissioned by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).

The information contained in the presentation was primarily written by the following authors:

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The subsequently presented content is almost exclusively taken from the study conducted by the authors. Additionally, in a few selected instances, further secondary sources were consulted and added by the GIZ Sector Program *Sustainable Agricultural Supply Chains and Standards*.

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Background of the Study

Background of the Study

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ promotes sustainable agricultural supply chains worldwide through the Sector Program **Sustainable Agricultural Supply Chains and Standards**, which improves producers' livelihoods, promotes the protection of natural resources and increases demand for sustainably produced agricultural products.

In case of the banana supply chain, activities in Colombia and Ecuador were implemented by GIZ from the second half of 2019, with the aim of **increasing sustainable banana production**.

The following presentation shows the results of the study on production costs in Colombia commissioned by GIZ. The presentation offers an introduction to the banana market followed by an in-depth study of the market for export and production costs in Colombia. Thereby its aim is to contribute to the aforementioned activities and increase sustainable banana production.





Introduction to the Banana Sector

The Global Banana Market

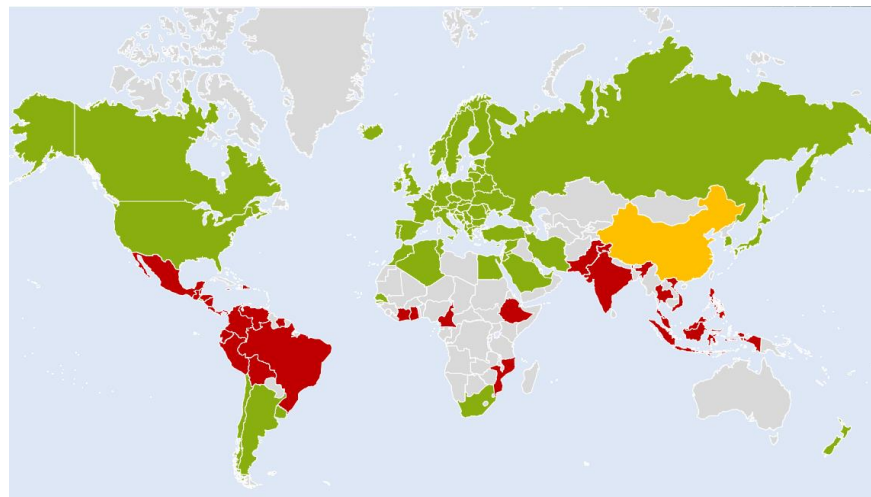
Introduction to the Banana Sector

Global Banana Market

General Facts

- More than **1.000 different varieties** of bananas are produced and consumed in the world.
- The most commercialized is the **Cavendish** type banana, which accounts for around **47%** of global production.
- Bananas are one of the main crops in world agricultural production and trade. They are the **5th most common food** in the world.
- Export mostly relies on only one banana type, the Cavendish. This variety is characterized by high yields, resistance to Panama disease, longevity during transport, and consistent quality and appearance.
- As a valuable source of energy, similar to the potato, the banana is very popular. It contains potassium, magnesium, iron and vitamins A, B, C and E and is therefore suitable both as a snack and as a sports food.

Overview of Banana Importing and Exporting Countries



■ Exporting Countries ■ Importing Countries ■ Importing & Exporting



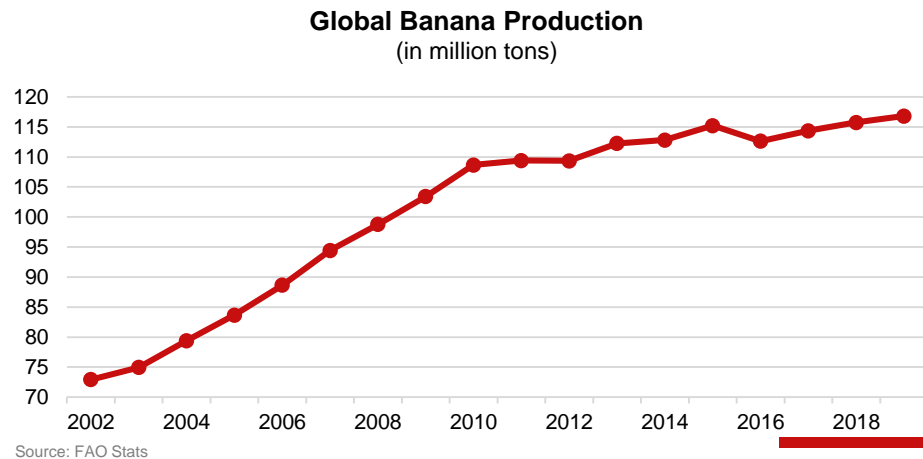
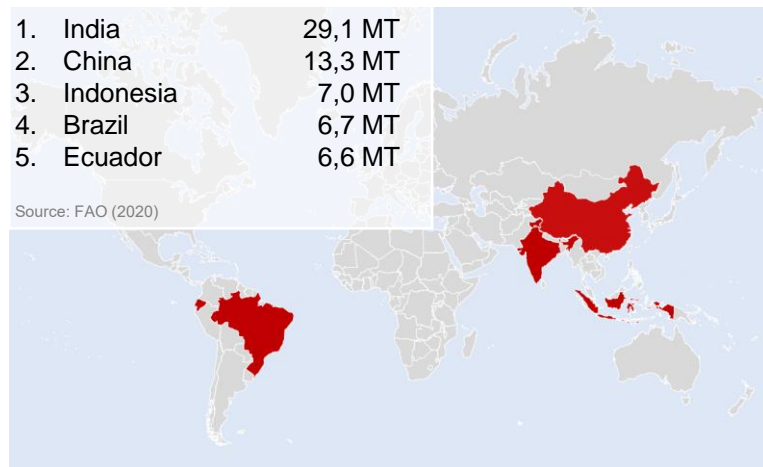
Introduction to the Banana Sector

Banana Production

Bananas are predominantly grown in Asia, Latin America and Africa. The main producers are **India** and **China**. Production in both countries mostly serves the **domestic market**.

Production has grown from **69 million tons to 120 million tons over the last 20 years**. In response to rapid population growth in producing countries, as well as growing global import demand, production and trade volumes of this crop have increased rapidly in recent decades.

For the next decade the Food and Agriculture Organization of the United Nations (FAO) expects a decrease in the market growth rate to 1,5% per year. The North American market is already saturated and consumption in Europe will grow at a lower rate (1,5%) while consumption in Asia and Africa will rise (3%) due to population growth. Nonetheless total world banana production, according to the FAO, is expected to **increase to 126 million tons by 2029**.



Introduction to the Banana Sector

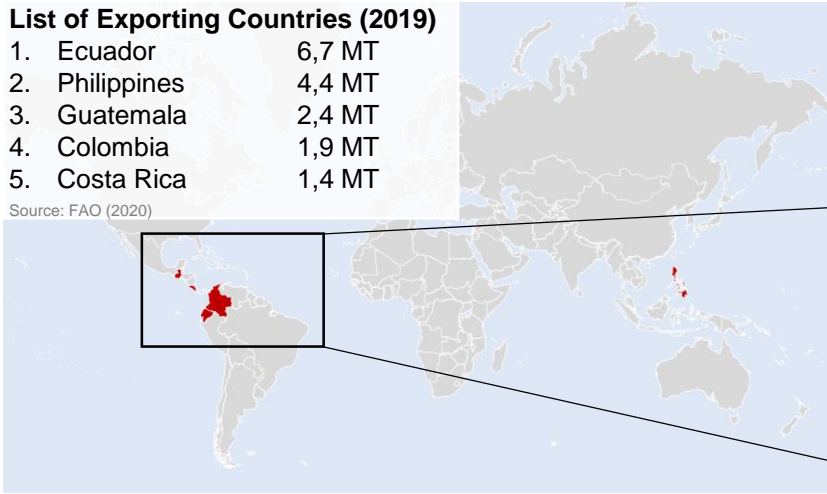
Banana Exports

On average 15 to 20% of the total volume of bananas produced is being traded on international markets. In 2020 around **20 million tons** were traded, corresponding to 17% of total bananas produced. Most exported bananas originate from Latin America. The biggest exporter of bananas worldwide is Ecuador, followed by Costa Rica and Guatemala.

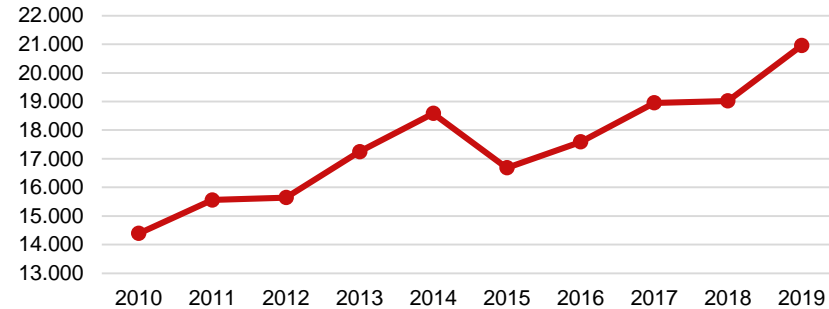
List of Exporting Countries (2019)

- | | |
|----------------|--------|
| 1. Ecuador | 6,7 MT |
| 2. Philippines | 4,4 MT |
| 3. Guatemala | 2,4 MT |
| 4. Colombia | 1,9 MT |
| 5. Costa Rica | 1,4 MT |

Source: FAO (2020)



World Gross Banana Exports (in thousand tons)



Source: FAO (2020)



Introduction to the Banana Sector

Banana Imports

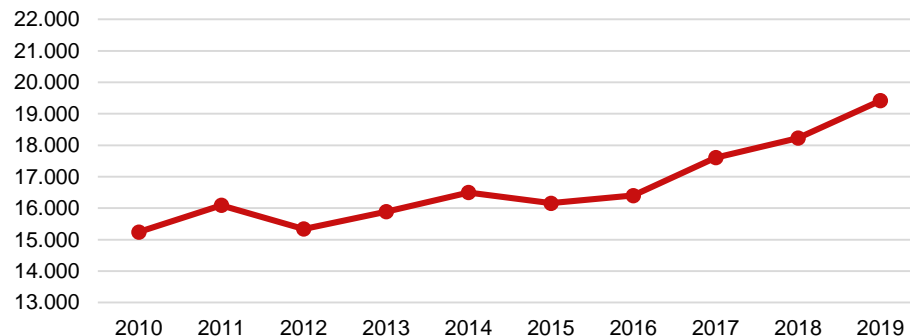
By far the biggest importer of bananas is the European Union. Between 2010 and 2016 the EU alone accounted for an annual average of 32% of total global imports, firmly placing it as the largest importer globally. Besides growing health awareness in the major importing countries, rising incomes among the new member states such as Poland, Slovakia and Estonia are additionally contributing to higher demand for bananas.

The EU is followed by the United States (25%). The Russian Federation, Japan and China are other noteworthy importers. The main importer of organic bananas is the United Kingdom.



Source: FAO (2020)

World Net Banana Import
(in thousand tons)



Source: FAO (2020)

Introduction to the Banana Sector

Sustainability Standards and Certifications in the Banana Sector

Voluntary sustainability standards (VSS) are standards developed at local, national or international level by public and private sector organizations on environmental and social improvements. They define the criteria to be met by the certified organization or product, often resulting in an identifiable label. The most important are:

GLOBALG.A.P.

Its main aims are to minimize harmful impact on the environment, to reduce the use of chemical inputs, to ensure responsible behavior for the health and safety of workers and the welfare of animals as well as to ensure hygienic conditions in harvesting, packing and transport activities. Global GAP is the benchmark in the banana market for producers.

RAINFOREST ALLIANCE

The agricultural requirements of the standard are based on sustainable agriculture. It's designed to help farmers protect the landscapes where they live and work, while providing a refined framework for improving their livelihoods and promoting the human rights of rural people. A new sustainable agriculture standard is in place for 2020.

FAIRTRADE

Its aim is to advance fair trade by improving market access and trading conditions for small-scale producers and their workers. It provides a guaranteed minimum price for the product, plus an additional premium to the organizations that they must use to improve conditions in the community. Fairtrade plays a leading role for small-scale producers and their workers in the banana industry.

ORGANIC

There exist different certification bodies for organic production, which usually have an environmental focus. Some of the most prominent in Ecuador and Colombia are the European Union Organic Farming, the USDA – Organic and GAP certification by Agrocalidad.





In-Depth: Colombia

The Banana Market and Production Costs in Colombia

In-Depth: Colombia

Key Facts and Figures



Colombia

Banana consumption in Colombia is **4 kilos** per person per **year**, while in Europe it is 14 kilos.

In 2019, exports reached **1.895.994 tons** and imports **2.579 tons**.

More Information

Capital: Bogotá
Population: 50,3 Million
Area: 1.141.800 sq km



Source for figures: World Bank, Statista

Socio-economic Indicators of the Banana Sector (2019)

Colombia's GDP (in USD billions)	323,62
Contribution of exports to GDP (percentage)	15,8%
Contribution of agricultural exports to GDP (percentage)	6,74%
Banana exports (in tons)	1.895.994
FOB value of banana export (in USD billions)	1,05
Percentage contribution of banana sector to ...	
... agricultural exports	5,3%
... GDP	0,32%
No. of banana producers (UPA)* for export	1.513
Hectares of bananas planted for export	51.227
No. of workers in the banana sector	293.648
No. of workers in the banana export sector	166.896

* Agricultural Production Units (UPA for its Spanish acronym)



In-Depth: Colombia

Production



In-Depth: Colombia

Banana Producing Regions



Colombia cultivates around 10 varieties of bananas and plantains, making them fundamental to the diet of the country's population. Bananas are planted in **22 departments** and 204 municipalities, with **35.139 banana growing families** in Agricultural Production Units (APU).

In 2019, the number of hectares of bananas planted in the national territory increased by 542 hectares compared to 2018 (50.685 hectares), for a total of **51.227 hectares** (export and import). The increase in production in 2019 compared to 2018 is associated with better plantation conditions due to climatic phenomena.

The recent growth of the area planted with export bananas is especially noticeable in the **northern region**, towards the areas of La Guajira and Cesar. The department has 5.096.635 ha suitable for the cultivation of bananas for exports and of those 703.587 ha are of very high suitability (A1). **On average, the area planted with bananas is 5 hectares per producer for export and domestic consumption.**

Department	Sowed area (ha)	Production (ton)	Productivity (ton/ha/year)
Antioquia	37.838	1.299.526	35.5
Magdalena	13.939	423.538	34.3
Guajira	3.141	122.587	42.3
Valle del Cauca	6.240	88.660	15.7
Quindio	3.016	48.129	16.4
Santander	2.703	43.465	13.9

Main banana producers in Colombia

Source MADR (2019)

In-Depth: Colombia

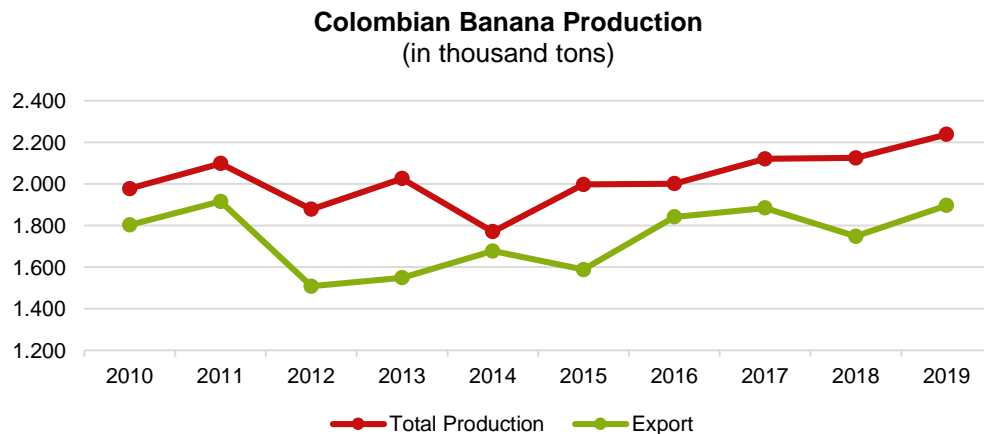
Banana Production



The main production systems in bananas are for native and export bananas. The native banana Gros Michel variety is mainly used for internal consumption and is produced in a large number of departments, such as Valle del Cauca, Quindío, Santander, Antioquia, Cundinamarca, Huila, among others. It is also produced in mountain areas and closely linked to coffee production areas and systems.


For export, the most cultivated variety in Colombia is **Cavendish** and its subgroups Gran Enano, Williams and Valery among others. Cavendish is the variety demanded by the international market. It is adapted to the agro-climatic conditions of Colombia, at altitudes between 0 and 300 meters above sea level.

For Colombia, the year 2019 closed with the production of 2.238.000 tons of bananas, of which around 1.900.000 tons were destined for export and 200.000 tons for national consumption.



Sources: Colombian Ministry of Agriculture and Rural Development (2019)





In-Depth: Colombia

Certifications and Labor



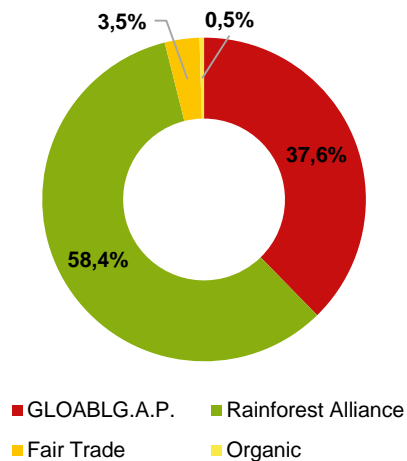
In-Depth: Colombia

Segmentation of Producers in Colombia by Certification



A review identified a significant number of certifications and seals used in the production and marketing of bananas for export in Colombia. The most relevant ones, their characteristics and coverage are presented on this slide.

Share of Certified Producers



Number of producers*
673

Area (ha)
43.147

88% of the area designated to banana export is certified under this norm.



Number of producers
1.043

Area (ha)
69.174

The most important certifiers are NaturaCert and CERES. The area reported is greater than the number of hectares dedicated to export and was not disaggregated at the department level.



Number of producers
62

Area (ha)
N.A.

Certification is granted by the Fairtrade Labelling Organizations International (FLO). All certified producers were located in the area of Antioquia and Magdalena.



Number of producers
8

Area (ha)
1.102

Organic Certifications used:

1. EU Organic Farming
2. USDA – Organic
3. Japanese Agricultural Standards

*Multiple certifications can be obtained by one producer.

In-Depth: Colombia

Labor in the Colombian Banana Sector



The social contribution of the banana export chain is evident in the around **170.000** jobs generated by the banana sector for export (35.000 direct and 135.000 indirect).

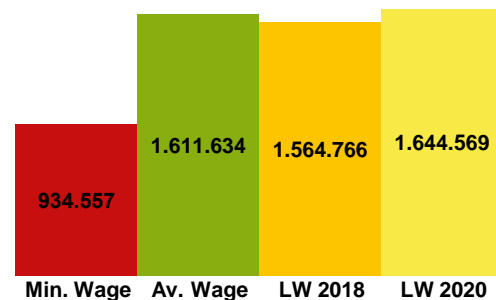
On average, banana workers in Colombia are close to earning a living wage (equivalent to what is needed for a nutritious diet, decent housing, health, care, education, clothing and other essential expenses, for two adults and two children). This is especially true for workers covered by the collective agreement (CBA) between AUGURA and SINTRAINAGRO Union.

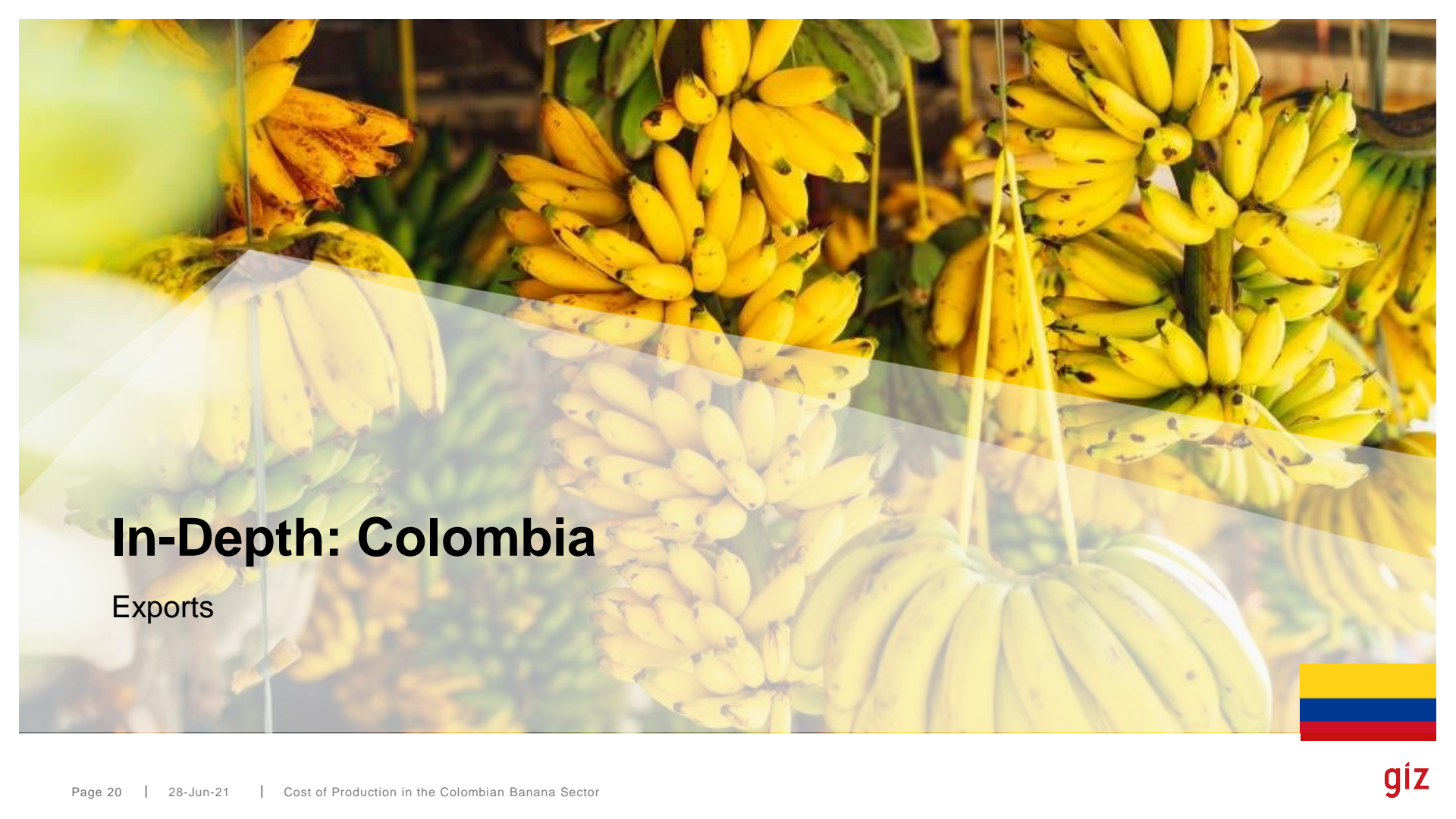
However, there is considerable variation in wages from worker to worker, and from month to month, depending on both luck and skill. Thus, even if the average monthly wage is close to the living wage, a significant share of workers will still be earning less than the living wage.

Wages

As of 2018, the gross living wage for Colombia's banana regions (Magdalena, Guajira and Antioquia) was estimated at COP **1.564.766** (USD 554) per month and the net take-home wage was COP 1.438.204 (USD 509). An update of the living wage reveals a gross living wage of COP **1.644.569** by January 2020.

The latest collective bargaining agreement, published in September 2019, includes wage increases of 5,5%, which means that the average gross wage for a unionized banana worker continues to be **higher** than the estimated living wage.





In-Depth: Colombia

Exports



In-Depth: Colombia

Production of Bananas for Export



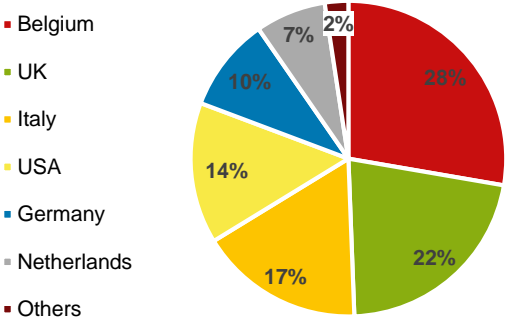
The Colombian banana industry is led by AUGURA, the Colombian Banana Growers' Association, and ASBAMA, the Magdalena and La Guajira Banana Growers' Association. The main banana producing and trading companies that export fruit to international markets are members of the associations. Affiliates of AUGURA account for **73%** of the bananas produced for export in Colombia, while ASBAMA accounts for the remaining **27%**.

The Urabá region, located in the department of Antioquia, has a total of **35.123** hectares, with a high presence of AUGURA. About **85%** of the economy of this region is based on the production of export bananas. In Magdalena 73% of the farms are affiliated to AUGURA, while the remaining 27% are affiliated to ASBAMA.

Nearly **91%** of national banana production is destined for export, and 99,9% of the land is owned by producers. The main banana export destinations are Belgium (23%), the United Kingdom (18%), Italy (14%), Germany (8%), and the Netherlands (6%) (2020)

With regards to the requirements of the main import markets for bananas produced in Colombia i.e. the European Union and the USA, all exported bananas have certified sustainable production processes, a significant proportion under Fairtrade and organic standards (in the departments of Magdalena and Guajira).

Destinations for Export



Main Destination for Export	Production (in thousand tons)
1. Belgium	455,2
2. UK	354,7
3. Italy	273
4. USA	248
5. Germany	165

Main destination for export

Source: Augura, DIAN (2019)

In-Depth: Colombia

Exports and Segmentation of Exporting Producers in Colombia by Region



Colombia has more than 50.000 hectares planted with bananas for export, distributed in the departments of Antioquia, Magdalena and La Guajira. In 2019 there was an improvement in Colombian banana exports, compared to those recorded in 2018 by 8,84%. The main causes were the increase in national banana production in that year, adverse weather conditions that affected production in Costa Rica and the Dominican Republic and the increase in exports.

According to the National Department of Statistics (DANE) in 2014, there were 1.513 production units at the national level, with a planted area of 49.941 hectares (for export). Now in 2020 Colombia has more than **50.000** hectares planted with bananas for export, distributed in the departments of **Antioquia, Magdalena and La Guajira**.

Year	2015	2016	2017	2018	2019
Exports in tons	1.588.618	1.841.919	1.884.805	1.748.484	1.895.994
(%) annual Variation	5,32%	15,94%	2,33%	-7,23%	8,84%
FOB value USD	756.597.023	857.165.631	857.285.793	809.775.586	1.050.050.786

Annual variation in Colombia

Source: MADR (2019)



Department	Number
Antioquia (Urabá Zone)	344
Magdalena	781
Guajira	388
Total	1.513

Number of Banana Production Units for Export

Source: DANE (2014)

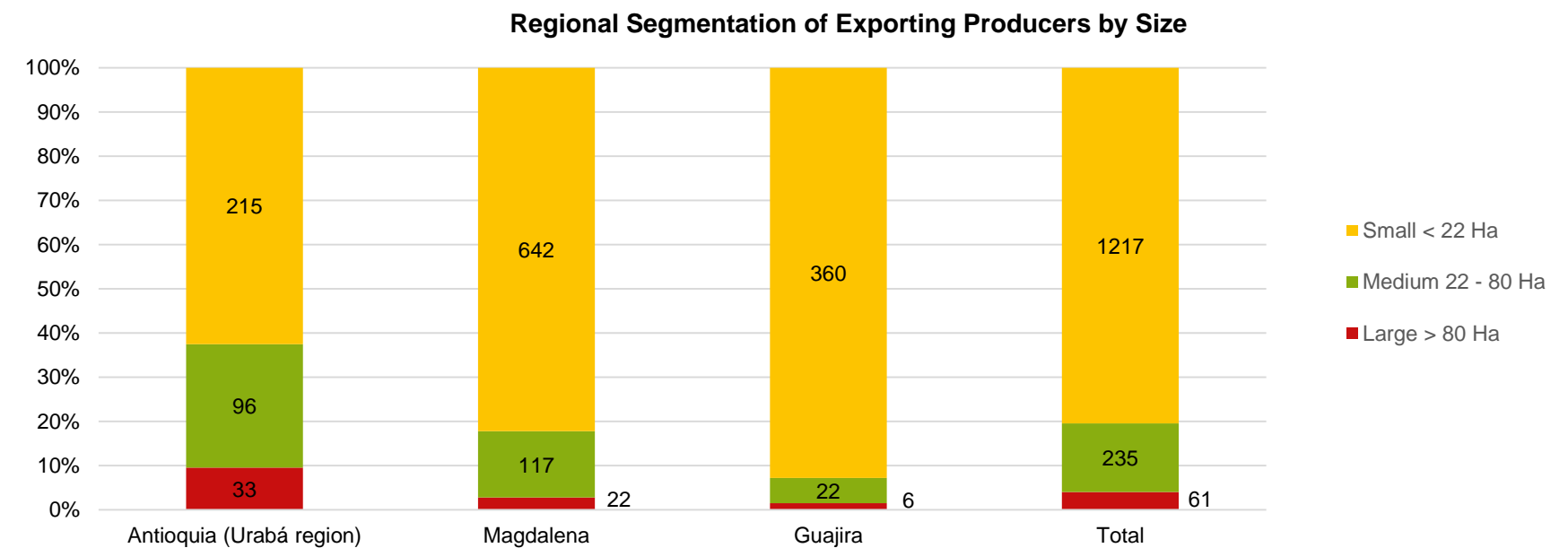


In-Depth: Colombia

Segmentation of Exporting Producers in Colombia by Size



Large producers are mostly located in the Urabá region (percentage and in total). Urabá, located in the department of Antioquia, has a total of **35.123** hectares (more than 50% of total production area), distributed in **313** farms (20% of producers).



Source: DANE (2014)

In-Depth: Colombia

Yields per Region

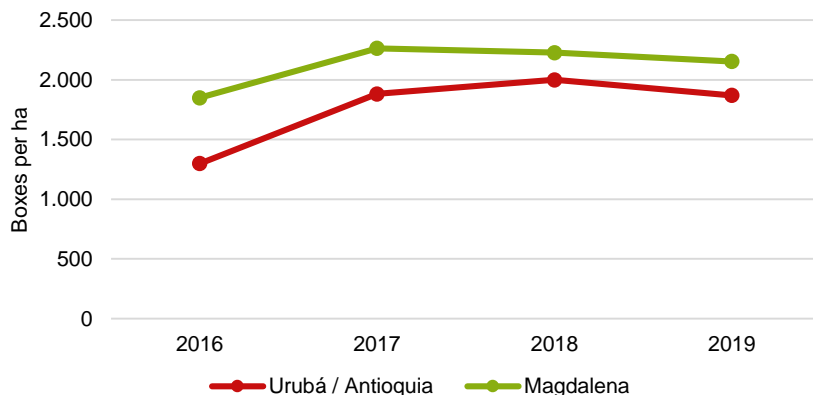


In Colombia the average productivity for **export** bananas is **1.871** boxes per ha in Urabá and **2.155** in Magdalena. There is a great potential to increase yields.

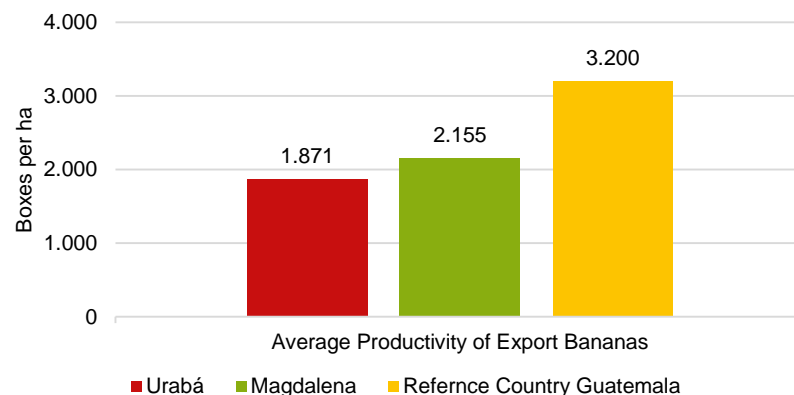
The decrease in yield in 2019 compared to 2018 was basically due to the summer period that affected the producing regions, especially Urabá in April, May, June and July. In terms of productivity by region, the average in 2019 for the Urabá region was 30 boxes less per hectare than in 2018, a decrease of 1,57%. For Magdalena and la Guajira productivity was 74 boxes less per hectare compared to 2018, a decrease of 1,034%.

Reference countries in banana productivity at this time are Guatemala with an average productivity of 3.200 boxes per ha per year, followed by Honduras with 3.000 and Costa Rica with 2.800.

Export Banana Crop Productivity by Department



Average Productivity 2019





In-Depth: Colombia

Production Costs



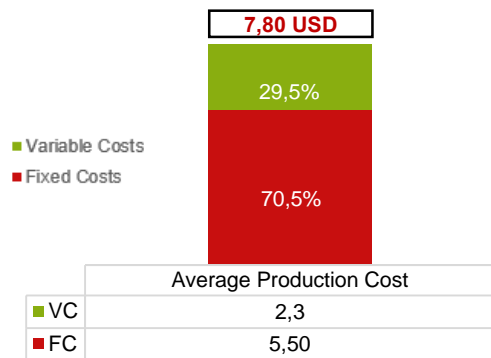
In-Depth: Colombia

Production Costs



The average estimated cost of production per box of bananas in Colombia is **7,80 USD**. Banana production is a high cost business and needs a lot of investment to be profitable and sustainable in the long run. Assuming the average cost of **7,80 USD** per box means the average production costs are about **15.000 USD per ha per year** with an average yield of 2.000 boxes of bananas per year in Colombia.

The decrease in yields in 2018, which affected **unit production costs**, show the requirements with regards to infrastructure such as irrigation, research and technological development, as well as the need to improve and incorporate good agricultural practices.



We know from similar yields and cost structures in other countries that 10 to 20% of the producers achieve yields of 3.000 boxes and more per ha with optimized cost structures.

This depends on four main factors:

1. The agro-ecological conditions of the farm;
2. The management capacity of the owner;
3. Competent staff for the different tasks within the processes;
4. Access to capital.

Estimated Cost of Production	
Fixed costs	Variable Costs
70%	30%
Labour	Harvest
Inputs	Packaging
Fumigation	Marketing
Administration	Transport
	Certifications
USD 5,50	USD 2,30
Cost per box USD 7,80*	

* The costs of planting, establishment and infrastructure were not included in this calculation. For a detailed description of the items and activities included see Annex I.

In-Depth: Colombia

External Costs



Besides production costs the banana sector also incurs **external costs**. According to a study carried out by FAIRTRADE in three countries, including Colombia, average external costs of the banana sector are **6,70 USD** per box of bananas. In general, these external costs are made up of:

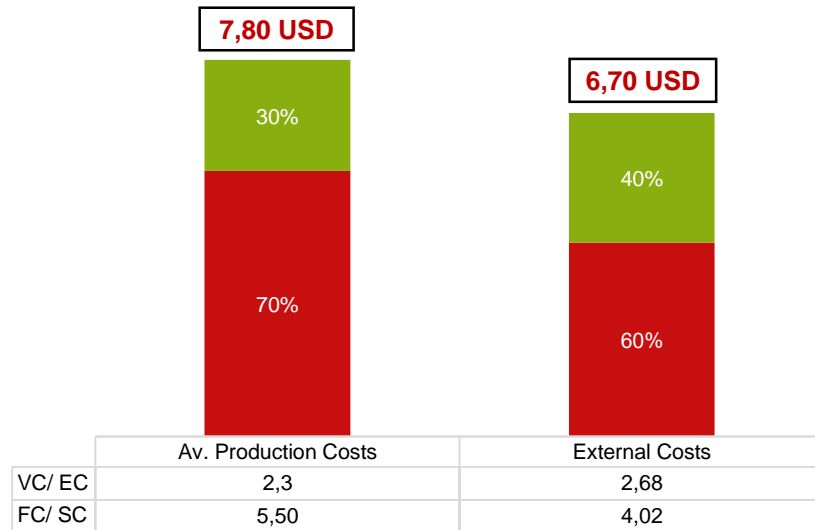
Social costs (SC), including labour and human rights such as underpayment, gender discrimination, health and safety, overtime, social security, underage work, harassment and bonded labour. The most significant costs are caused by insufficient wages and social security for workers as well as insufficient income for small producers.

Environmental costs (EC), including climate change, land occupation, water depletion, land, water and air pollution, and waste. The most important environmental costs are caused by land occupation, water depletion and climate change.

According to the study, for the participating countries, social costs (60%) are higher than environmental costs (40%). This is due to effects of banana production. External costs are not yet being captured in prices, creating the necessity for businesses to internalize these external costs.

External Costs

An external cost occurs when producing or consuming a good or service imposes a cost (negative effect) upon a third party.





In-Depth: Colombia

Current Global Developments



Current Global Developments

COVID 19 and TR4

Integrated pest management (IPM) is one of the most important success factors in banana production in terms of costs and potential damages. Pests and diseases (Sigatoka, Moko and TR4 among others) need to be monitored and reacted to in a timely fashion. As they will grow even stronger in the future due to various reasons (climate change and general effects of high input agriculture) more effort in the areas of investigation, knowledge transfer and training is needed.

Especially since the confirmation of the presence of **Fusarium (TR4)** in Latin America and its effect on banana production, there exists an urgent need to support biosecurity measures focused on controlling its expansion. These measures should be integrated within a framework for strengthening sustainable production and the implementation of good practices. In addition to this, the current emergency situation caused by **COVID 19** also requires biosecurity actions on farms and throughout the logistics chain, without compromising sustainable production in the process.

The permanence of **TR4** and **COVID 19** and their negative impacts on production costs and prices require coordination between national and international organizations as well as the production sector to find intelligent solutions to these problems in order to avoid and mitigate further negative social and economic impacts on banana production.



Current Global Developments

Costs and Effects of the COVID 19 Pandemic



With regard to COVID 19, a **rigorous biosafety protocol** has been implemented with support from the associations (AUGURA, ASBAMA), the Colombian Agricultural Institute ICA, the MADR and other organizations. In Colombia COPASST, the Joint Committee on Safety and Health at Work, is responsible for the management of occupational safety and health.

Actions to mitigate the risk and costs of COVID 19:

- Surveillance, care, disinfection carried out directly in the crop and in all facilities of the production unit e.g., **constant disinfection of common areas on the farms;**
- Modification of eating schedules to avoid clusters;
- Reduction in transport capacity;
- Regular temperature taking;
- Maintenance of recommended social distance;
- Deliverance and usage of hand cleaning kits and mouth covers.

There is no certainty about the magnitude of the expenses and their impact on production costs.

Current Global Developments

Costs and Effects of Fusarium TR 4 and Measures Against It

Regarding the risk of TR4 (Banana Fusarium disease) there is no certainty about the magnitude of the expenses to be assumed and their impact on production costs also.

However, some key points can be mentioned.

Actions to mitigate the risk and costs of TR 4:

- Undertake more efforts to **combat, contain and prevent** the spread of the Fusarium Raza 4 tropical fungus.
- **Key elements to be improved:**
 - Diagnostic methods, monitoring, permanent phytosanitary surveillance, research, creation of technical committees, training, hiring of experts, provision of biosecurity elements and dissemination.
- Adopt **integrated pest management** as one of the most important success factors in terms of costs and potential damages. This needs **experienced and competent staff** to observe pest and diseases (Sigatoka, Moko and TR4 among others) in a timely manner and act accordingly. As mentioned before, pests and diseases will appear even stronger in the future, therefore this aspect needs more efforts in the direction of increased **investigation, knowledge transfer and training**. Augura has already taken an important step in this direction with the installation of the research center CENIBANANO.





In-Depth: Colombia

Conclusions and Recommendations



In-Depth: Colombia

Recommendations and Conclusions - Good Agricultural Practices



Differences in yields and productivity emphasize the need to improve and incorporate **good agricultural practices** such as:

Soil Management: Soil analysis should be a common practice for all producers to optimize fertilization, reduce costs and avoid negative environmental impacts especially on water.

Pest Management: Practices related to Integrated Pest and Disease Management remain one of the priorities, given the costs involved, the effects on production and the impacts on the environment and natural resources.

Irrigation: Irrigation is another crucial success factor given the scarcity of water in some regions e.g. the crops in Urabá lack water during the summer months, from mid-December to March-April. This is not an individual problem of each user but a joint problem. Thus, proactive management of the public resource and the use of efficient irrigation techniques are needed.

Smart Farming: MADR together with ICA should encourage advanced cultivation processes through the incorporation of technologies typical for intelligent agriculture (**Smart Farming**), such as artificial intelligence, the Internet of things, precision agriculture, intelligent irrigation, sensors or actuators, geo-positioning systems, monitoring and control systems among others, as support for the management and optimization of production activities.



In-Depth: Colombia

Recommendations and Conclusions - Good Agricultural Practices



Further **good agricultural practices** include:

Crop Management: Use of machinery (subsoilers) that allows the soil to be oxygenated, improve its microbiology and make better use of water. Utilize critical path analysis i.e., determination of water and carbon footprint.

Harvest: Post-harvest processes are to be done by qualified staff. Improvement of harvest and post-harvest practices should be addressed because of their impacts on profitability.

Human Factor: Training and socialization need to be provided to employees to make them aware of the importance of self-care as well as care for their families and, therefore, the community. With regards to some occupations there exist difficulties in obtaining enough qualified personnel to cover the demand of the banana sector. Therefore, it is pertinent to work on capacity development of personal in tailor-made and practical trainings which address the needs at farm level. Especially public and private training providers should include core competences within these trainings like the aspect of continuous improvements.

R&D: Both AUGURA and ASBAMA own their own center for banana studies. Priority should be given to the development of good agro-industrial practices and the design of efficient technological packages that increase productivity, based on research into aspects related to soil health, agroclimatology, pest and disease control, as well as training and technological transfer.



In-Depth: Colombia

Recommendations and Conclusions - Cooperation and Communication



Permanent and fluid cooperation and dialog between all actors in the value chain as well as the support and regulation institutions is needed.

Colombia must use **proactive communication** and develop a narrative that helps the general public and market actors **appreciate the higher cost of sustainable production** as well as certain advantages to and efforts being made by Colombian producers, e.g. paying more than the minimum wage.

Colombia further needs to improve **cooperation between the relevant actors** within the value chain of banana. MADR should provide more updated information to the sector about yields and prices, best practices on soil and integrated pest management, irrigation techniques and processing of the fruit. This information allows producers to compare their performance with regard to sustainable production and facilitates informed decision making to improve framework conditions. It would also provide a reliable source for addressing research and extension to improve the value chain.

Altogether MADR in **cooperation** with the associations should strengthen its efforts to provide the banana sector with an adequate **incentive system** to improve its competitiveness and incentivize credits and climate insurances. An **integrated approach** to enhance the performance of banana producers, especially small and medium ones, is needed. Aspects like price stability, better soil management, pest and disease control and irrigation management have to be addressed.





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Annex

Annex I

Method Colombia

In order to carry out this study on production costs, approaches were made to the two most representative associations in the sector, in alphabetical order: the Colombian Banana Growers' Association (AUGURA) and the Magdalena and Guajira Banana Growers' Association (ASBAMA), in order to socialize the objectives of the study and generate their participation and involvement. All sessions had to be implemented virtually without personal interaction.

Multiple sessions were held to raise awareness, present points of analysis, discuss, present the tools for capturing information, gather information and provide feedback. The associations expressed their sensitivity and reserve of their members to grant open access to the requested information, in an environment of open competition and during negotiation processes with their international buyers, which is why the study is based mainly on the **average internal costs** provided by them, as well as on **secondary sources**.

Approaches were made to people belonging to official institutions, certifiers, organizations and companies, in order to request and validate information. Many secondary sources were also accessed, such as research centres, public institutions, companies, specialized publications, chambers of commerce, certification companies, among others.

Thus the production costs in the study are based on average internal costs (of AUGURA and ASBAMA) and secondary sources (mainly because production costs are sensitive data for the producers and associations).

Additionally, the consultancy designed a cost structure that was composed of eight items, which in turn grouped 82 activities. The items and activities are presented on the following slide. They were proposed based on the information received from the Program of Productive Alliances of the Ministry of Agriculture and Rural Development of Colombia, the Agronomic Reference Framework of FINAGRO, costs of private bank credit operation and consultation with experts in the sector and the Ministry of Agriculture and Livestock of Ecuador. This tool is available for analysis and use by the trade unions according to their requirements.

Annex I

Method Colombia: Cost Structure

Item	Activities
1. Direct Labour	Ground preparation; Amendments and fertilization; Sowing; MIPE; TR4 Monitoring; COVID19 Prevention; Cultural work; Harvest; Operation and maintenance cable tracks; Operation and maintenance of the irrigation system; Operation and maintenance of the drainage system; Post-harvest
2. Indirect Labour	Management; Administrative support; Administration; Field supervisors - Foremen; Winemaker; Accounting; Technical assistance; Human management; Environmental Management; Casino - Rancher - Food; Surveillance / general services / others; TR4 Monitoring; COVID19 Prevention; Maintenance of machinery and equipment; Track maintenance
3. Inputs	Plant material; Amendments and fertilizers; Herbicides; Fungicides; Insecticides; Rootstocks; Additives; Bags, nylon and ribbons; Props; Irrigation; Fuels and lubricants; Post-harvest products and inputs; Packaging
4. Infrastructure	Administrative headquarters; Packer; Wineries; Irrigation system; Drainage system; Cable via; Accommodation
5. Tools, machinery and equipment	Tools for cultivation; Application equipment inputs; Post-Harvest Packing Machinery; Post-Harvest Packing Equipment; Vehicles, tractors and implements; Precision agriculture equipment; Office and communications equipment
6. Materials	Occupational safety equipment; Inputs and materials for prevention COVID19; TR4 prevention inputs and materials; Stationery and supplies
7. Others	Property and other taxes; Soil, water and leaf analysis; Public services; Casino and wellness service; Certification; Granting of environmental license and dumping permit; Dumping rate of remuneration; Crop insurance; Airborne Fumigation; Personal transport service; Financial costs and expenses; Trade union contributions
8. Marketing	Transport to marketer or port; Load and unload; Cost of Customs; ICA costs

ANNEX II

SWOT – Analysis of Banana Sector in Colombia

Strengths

- Trade development and representation, with **two strong associations**.
- Producer associations with highly qualified personnel.
- **Development of research and technology transfer** activities, with an increase in resources and projections.
- **Compliance with high quality standards**: superior quality product.
- **Longstanding experience** in the banana sector.
- **Articulation of the producers** with international marketing companies, which have a high level of competence.
- **Vertical integration** of some products and services: production, supply of inputs, packaging, transportation, marketing, fumigation, among others.
- **Recognition in the international market**, given the quality of the fruit.
- **Management with social responsibility** and fair marketing criteria.
- **Availability of qualified human resources** for its operation, with restrictions for some activities in terms of quantity, opportunity and qualification.
- **Access to financial resources** provided by national entities (BANCOLDEX, FINAGRO) .
- Agricultural holdings backed by important **seals and certifications**: Rain Forest, Fair Trade, among others.
- **Global Gap Certification** for all farms.
- **Good Technical Assistance** and technology transfer service coverage.
- **Active participation** in the Banana Sector Round Table for processes of definition of characterization, and certification of labour skills.
- Development of **alliances and agreements among actors** in the national and international sector.

Source: Consultancy elaboration

ANNEX II

SWOT – Analysis of Banana Sector in Colombia

Opportunities

- **Growth in global demand for bananas**, mainly in emerging countries.
- **Consumer trend** for healthy and natural products.
- **Preference of European consumers** for products produced by socially and environmentally responsible companies.
- Opening of new potential markets, such as **China**.
- Development of **mega-projects for Urabá**: roads, port, with effects on logistics and costs in the value chain.
- Availability of soils and environmental **conditions suitable for cultivation**, in different areas of the country.
- **Agreements and support in the peace processes**, to improve the quality of life of the producers, with effects on the agricultural activities and the well-being of the producers.
- **Depreciation of the peso** against the dollar (exchange rate).
- Inclusion of **technologies derived from industry 4.0**: drones, artificial intelligence, internet of things, intelligent irrigation, among others.
- Incorporation of **good agricultural and marketing practices**, supported by state-of-the-art technologies.
- **Participation** in international events (forums, fairs, congresses, among others), for access to technologies and markets.

Source: Consultancy elaboration

ANNEX II

SWOT – Analysis of Banana Sector in Colombia

Weaknesses

- **Dependence** on one perishable product and market fluctuations.
- **Insufficient analysis** of the market and competitors.
- **Presence of permanent pests and diseases** that attack crops (such as Black Sigatoka and Moko).
- **Lack of available and qualified personnel**, with respect to some key occupations for productivity.
- **Lack of productive and logistic clusters** to generate economies of scale.
- **Lack of technology** in dredging aquifers for irrigation.
- **Deficiency in technology** in production units, in matters of irrigation, drainage and transport cables.
- **Deficits in road and port infrastructure**, leading to higher costs, in the distribution chain.
- **Presence of illicit banana production** in some production areas.
- **Present problems in soil compaction** that require additional practices and investments.
- **Burdensome legacy of conflicts and violence of some actors of the sector**, with the possibility of related pending lawsuits.
- **Lack of good governance**, pragmatism, transparency and performance of some public institutions.

Source: Consultancy elaboration

ANNEX II

SWOT – Analysis of Banana Sector in Colombia

Threats

- **Presence of TR4 and COVID19** which require investments and expenditure for prevention, control and eradication actions.
- **Decrease in selling price** for bananas at international level.
- **Increase of new competitors** with new strategies.
- **Increased consumption** of substitute products.
- **Climate change** decreases the efficiency of the sector and leads to pests and diseases.
- **Exchange rate instability** affecting the prices of inputs and transport.
- **Strong competition** from other countries, such as Ecuador, Guatemala and Costa Rica.
- **Security problems** related to theft of fruit, presence of drug cartels and illegal armed groups.

Source: Consultancy elaboration

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