


# NATIONAL SURVEY ON DIRECT EMPLOYMENT IN THE COLOMBIAN OIL PALM SECTOR





## National Survey on Direct Employment in the Colombian Oil Palm Sector

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# Content

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06 | **Acronyms**

07 | **Foreword**

09 | **Introduction**

13 | **Methodology for the National Survey on Direct Employment in the Colombian Oil Palm Sector**

14 | General methodology

15 | Statistical design

16 | Sampling design

16 | Sample size

17 | Expansion factors

17 | Data collection

17 | Estimators

17 | Adjustments by stratum correction

18 | Coverage adjustments

18 | Sampling errors

18 | Final sample



## 21 | Direct Employment in the Colombian Oil Palm Agribusiness in 2016

23 | Direct employment by activity and on the national total

26 | Employment relationship

32 | Age profile of the labor force

42 | Income

24 | Direct employment in the four oil palm zones

28 | Type of employment per zone

34 | Seniority

43 | Place of origin of employed population

25 | Direct employment by area of work

30 | Direct employment for men and women

37 | Educational attainment

## 47 | Analysis of Employment in the Oil Palm Agribusiness by Size of Production Units

48 | Plantation workers by area of work

51 | Employment by sex, seniority and age groups according to the size of production units

49 | Average number of hectares per worker

54 | Educational attainment of the labor force by size of the production unit

50 | Employment relationship and average salary

## 59 | Direct Employment in Corporate Social Responsibility Activities

60 | Employee wellness programs

66 | Community-oriented CSR programs by size of the production units

62 | Community-oriented wellness programs

64 | Employee wellness programs by plantation size

## 69 | Green Employment

71 | Types of green jobs and related activities

81 | Green jobs in sustainability teams

76 | General results of green jobs in the Colombian oil palm sector

82 | Green jobs in specific activities of the production process

79 | Green jobs in environmental areas or teams

## 89 | Main Results and Conclusions

## 95 | References



Productivity increase is observed in oil palm plantations that follow technical recommendations by Cenipalma. Photo by Francisco Toro, 2019.



# ACRONYMS

<b>LRMA</b>	Labor Risks Management Agency	<b>IOE</b>	International Organisation of Employers
<b>RHEC</b>	Regional Higher Education Centers	<b>ILO</b>	International Labour Organization
<b>NAC</b>	National Agricultural Census	<b>UN</b>	United Nations
<b>ITUC</b>	International Trade Union Confederation	<b>BR</b>	Bud rot
<b>CSPS</b>	Census and survey processing system	<b>EAP</b>	Economically active population
<b>DANE</b>	Colombian Bureau of Statistics ( <i>Departamento Nacional de Estadística</i> )	<b>UNEP</b>	United Nations Environment Programme
<b>DNP</b>	National Planning Department ( <i>Departamento Nacional de Planeación</i> )	<b>ARVM</b>	Administrative Record of Venezuelan Migrants in Colombia
<b>HPC</b>	Health Promotion Company	<b>CSR</b>	Corporate Social Responsibility
<b>FAO</b>	Food and Agriculture Organization of the United Nations	<b>SENA</b>	National Learning Service ( <i>Servicio Nacional de Aprendizaje</i> )
<b>IHS</b>	Integrated Household Survey	<b>Sispa</b>	Statistical Information System of the Colombian Oil Palm Sector
<b>HDI</b>	Human Development Index	<b>WTS</b>	Wastewater treatment system
<b>ISCC</b>	International Sustainability and Carbon Certification	<b>FTA</b>	Free trade agreement
<b>MSPA0</b>	Sectoral Committee on Oil Palm and Oilseeds ( <i>Mesa Sectorial de Palma de Aceite y Oleaginosas</i> )	<b>UAATAS</b>	Technical, Environmental and Social Auditing and Assistance Units ( <i>Unidades de Asistencia y Auditoría Técnica, Ambiental y Social</i> )
		<b>UEPA</b>	Oil Palm Economic Unit ( <i>Unidad Económica de Palma de Aceite</i> )



# FOREWORD

Colombian oil palm agribusiness has thrived around territorial features that have made of this industry a source of progress for communities. This business has allowed the promotion of good practices regarding social sustainability across the country, as seen when studying its social benefits in oil palm municipalities, characterized by positive results in indicators such as education coverage, health indices, strong institutions, and generation of formal employment, among others.

The reality of Colombian rural areas is adverse from different perspectives. According to World Bank estimates, rural population represents 19% of the total for the country (2018) and records levels of labor informality over 80%. In view of this context, Fedepalma has been consolidating a corporate social responsibility strategy that upholds the promotion of good labor practices as one of its working areas. Therefore, we sought to delve into the identification of the contribution of the palm oil industry to employment creation taking as a point of reference the book “Characterization of Employment in the Colombian Oil Palm Sector” [*Caracterización del Empleo en el Sector Palmicultor Colombiano*] (Olivera, 2011). Accordingly, with the support of the Colombian Bureau of Statistics (DANE), the first National Survey on Direct Employment in the Colombian Oil Palm Sector was carried out.

It is worth mentioning that several people participated in this project, contributing to its conception and execution from their areas of expertise. This publication would not have been possible without the hard work of the different teams of Fedepalma, DANE, and the firm Sistemas Especializados de Información S.A., SEI. On behalf of Fedepalma, I acknowledge the work of Andrés Felipe García Azuero, Sectoral Planning and Sustainable Development Director, who actively supported the construction of this book. I would also like to recognize the Social Affairs Area of Fedepalma, formed at the beginning of the survey by Myriam Martínez, Social Affairs Leader, and Willy Arroyo, Social Affairs Analyst. Then María Rueda Mallarino and Felipe Daza Alfonso occupied these positions, respectively, leading the project

to its consolidation. Equally important was the effort of the Statistical Information System of the Colombian Oil Palm Sector (Sispa), led by Edwin Girón Amaya and supported by Stephanie Vázquez Lizcano, Analyst, whose work in the compilation, analysis, and systematization of information was essential; and the Environmental Affairs Area, integrated by Juan Carlos Espinosa Camacho, Julián Cifuentes Sánchez, and Gustavo Gómez Zuluaga, who added to the chapter on green jobs. From Cenipalma, we had the input of Juan Carlos Vélez, Training and Education Leader, who contributed, along with staff from DANE, to the design of the methodology for the survey.

We sincerely thank DANE, and especially Amanda Lucía Soto Agudelo, William Alexander Villamil, Yimer Patarroyo Quicazan, and Anyela Másmela Roza, for actively collaborating in this project.

We also acknowledge the work by the firm SEI, which provided services for the technical design of the survey and its application in the different oil palm zones of the country. Likewise, we want to highlight the willingness and openness of the production units (nurseries, plantations, and palm oil mills) that participated in the survey. Finally, to Mario Villamil Polo, who supported the systematization of results.

This book is a compendium of the efforts of various actors and aims to reach a broader scope, inspiring other sectors and making that the results here shown become input for decision-making processes in rural areas of our country.

JENS MESA DISHINGTON  
Executive President of Fedepalma



"We build our dreams there." First place, social category. National Contest of Environmental and Social Photography in Colombian Oil Palm Zones. Photo by Ignacio Ramirez, 2018.





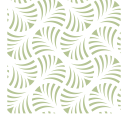
## INTRODUCTION

Labor relations changed rapidly after the second half of the 20th century, although the most evident changes have occurred during the last three decades due to globalization and technology. In response to this situation, worldwide organizations such as the International Labour Organization (ILO) and the United Nations (UN) have placed special emphasis on the subject. In 2015, the UN incorporated decent work<sup>1</sup> and its four pillars (employment creation, social protection, rights at work, and social dialogue) in the 2030 Sustainable Development Agenda in order to promote inclusive and sustainable economic growth with a particular focus on decent and productive employment.

The inclusion of labor as a relevant subject in the global agenda is explained by the persisting deterioration of living conditions and some limitations in people's quality of life in some places of the world; circumstances that become obstacles to human development and economic growth.

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1 According to the ILO (n.d.), decent work involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns under equal conditions. Available at: <https://www.ilo.org/global/topics/decent-work/lang--en/index.htm>



This scenario can be largely attributed to the gaps between rural and urban areas,<sup>2</sup> disparities in terms of economic opportunities, and the lack of policies that favor targeted income increases for the most vulnerable population, especially those who live in rural areas, among others (FAO, 2018). These asymmetries are related to factors such as thriving informal conditions of employment, non-compliance with the payment of minimum wages, and difficulties in the coverage and quality of social protection services. All this demands for special attention if such gaps are to be overcome, making it necessary to address the dynamics of the labor market.

In the case of Colombia, social gaps have been particularly marked between rural and urban areas; the former characterized by high poverty rates, lower employment levels, and a higher degree of labor informality (Fedesarrollo, 2017). In this context, the country has a historical debt regarding the reduction of urban-rural disparities and, at the same time, integrating remote and vulnerable territories. One way to achieve this is through the creation of more and better job opportunities for the rural population and the incorporation of territories into these dynamics.

According to data by the National Bureau of Statistics (DANE), in 2016 almost 18 million people from municipal seats were employed,<sup>3</sup> compared to 5 million people from minor population centers and remote rural areas. This accounts for an unequal labor supply: of the total employed population<sup>4</sup> in 2016, 78% belong to urban settlements and 22% to rural areas.

In 2015, the project “*Misión para la Transformación del Campo*,” also known as “*Misión Rural*,” identified three key aspects to understand this reality: i) A high participation of the agricultural sector in rural areas, where nearly two thirds of workers are engaged in agricultural activities —although most of them are self-employed and have low education levels; ii) The income of the labor force in the agricultural sector is (on average) less than the current legal minimum wage, which causes higher poverty rates; iii) Female participation and earned income are lower in the rural labor market, leading to their exclusion from the social security system and, consequently, to a high level of informal employment. These facts, however, should not be attributed to all rural productive activities.

Oil palm crops in Colombia have become an important source of employment for rural areas, contributing meaningfully to the development of communities in these territories. Based on this, getting to know the state of the oil palm agribusiness regarding labor issues is highly valuable, as it allows studying the dynamics of labor relations within the sector.

The Colombian oil palm sector has performed studies on this matter, such as the research “Characterization of Employment in the Colombian Oil Palm Sector”, carried out by Fedepalma and Fedesarrollo in 2011, which addressed labor relations within the oil palm agroindustry and their impact on household well-being.

Thus, identifying and understanding such forces allows targeting actions towards strengthening labor rights, the well-being of households, and labor productivity.

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2 According to FAO estimates (2018), these gaps decreased from 23.8 to 22.4% between 2014-2016.

3 The DANE (2016) defines “people employed” as the average number of people performing paid work. This is calculated from the number of individuals hired in a year multiplied by the number of days worked during that year, divided by 360 days.

4 Based on DANE estimates for 2016, total employed population in Colombia was 22.8 million.



As part of the above, Fedepalma and the DANE performed in 2016 the First Survey on Direct Employment in the Colombian Oil Palm Sector. This endeavor sought a broader understanding of employment within the national oil palm industry, having its labor force as the main focus. Likewise, this project was aimed at developing a reliable tool that allows approaching the oil palm agribusiness and the current status of this sector in terms of employment creation.

This enterprise focused on the oil palm sector as a whole—considering the four regions of Colombia (Northern, Central, Eastern, and Southwestern) in which it has established—and included the three production units that comprise this industry:<sup>5</sup> nurseries, plantations, and palm oil mills.<sup>6</sup> On the other hand, the methodology incorporated a special chapter that explores Corporate Social Responsibility (CSR) initiatives, in addition to those aimed at environmental issues.

This book gathers the results of the Survey and consists of six chapters. The first explains the methodology built with the DANE in order to perform the survey, taking into account variables such as directly employed personnel, geographic coverage, data collection forms, statistical and sampling design, expansion factors, estimators, adjustments and sampling errors, and size of the final sample. The second chapter presents the direct employment generated by the palm sector in 2016, presenting disaggregate data by area of work, age, income, education level, type of working relationship, sex, and place of origin of workers. These first two sections introduce the most relevant aspects of the study, presenting findings by the national aggregate, followed by production units, and oil palm zone. The third chapter studies the specific results for direct jobs in plantations and nurseries, disaggregated by the size of each production unit (small, medium,

and large).<sup>7</sup> The next chapter describes CSR-related activities and projects. The fifth chapter addresses the jobs and actions related to Environmental protection and conservation,<sup>8</sup> deepening into the activities of each production units and the particularities of the actions they perform on this subject. The book ends with the main conclusions and findings of the Survey.

This material is an effort by the Colombian oil palm sector to openly communicate its contribution to job creation in Colombia. It seeks to be a key input for the agricultural sector—especially in strategic decision-making processes by public or state actors—and the academic community whose research studies are driven by labor market issues.

We invite readers to reflect on the results hereby presented with the aim of promoting actions for bridging the existing gaps that currently deepen unequal conditions between urban and rural life, ensuring labor formalization for the agricultural sector, the inclusion and recognition of rural female workers, acknowledging the importance of green jobs, and continuing working on the consolidation of a sustainable Colombian palm oil industry that serves as a model for other agricultural sectors interested in the development of Colombian rural areas.

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5 Plantations were selected based on two criteria: their size and the oil palm zone they belong to. Palm oil mills were selected under a mandatory inclusion criterium.

6 As a relevant fact, this study involved the participation of 54 palm oil mills and 312 plantations, which stands for 366 Oil Palm Economic Units (UEPA, in Spanish), selected by stratified sampling.

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7 Small plantations have from 1 to 49.9 planted hectares, medium 50 to 499.9 hectares, and large plantations have over 500 planted hectares.

8 For Fedepalma, “green employment” refers to jobs related to environmental activities.



Mechanized transport of fresh fruit bunches. Photo by Francisco Toro, 2019.



# 1

## METHODOLOGY FOR THE NATIONAL SURVEY ON DIRECT EMPLOYMENT IN THE COLOMBIAN OIL PALM SECTOR

The information in this chapter derived from the technical report “Methodology for the Direct Employment Survey in the Colombian Oil Palm Sector,” prepared by the DANE, which provides insights of the methodological approach used for this study. It is important to mention that the methodology was designed by Fedepalma in coordination with the DANE, whose participation was enacted through Agreement 015 of 2016. This cooperative work was aimed at providing information that contributed to the transparency and credibility of the results, besides combining administrative and economic inputs for the development of programs, projects, activities, and the exchange of important information for the Colombian oil palm sector.





One of the drivers of this study was the enactment of the Free Trade Agreement (FTA) with the United States, since this incorporated the palm oil industry as a follow-up sector in terms of labor rights within the Colombian Action Plan.<sup>9</sup> This situation raised the need to obtain accurate information on the quantity, quality, and type of employment generated by this industry.

The survey used the Oil Palm Economic Units (UEPA, in Spanish) as object of study and involved the participation of 54 palm oil mills and 312 plantations, for a total of 366 companies (UEPAs refer to oil palm nurseries and plantations and palm oil mills). These units comprise the agricultural and industrial components of oil palm cultivation and palm oil processing managed by the same producer (DANE, 2018).

The scope of the survey sought to obtain information on the number of jobs created by the Colombian palm oil sector and their characteristics, incorporating the following categories: total labor force by area of work, type of employment relationship, sex, age, education level, type of contract, seniority and place of origin, average payments made by type of contract, and number of individuals coming from a department or country different to the location of production units.

In addition, the types of CSR programs aimed at employees and the community were addressed. Furthermore, information on the staff whose activities help improve environmental performance in oil palm crops, nurseries and/or mills was added. With the aim of promoting the conservation of natural areas in oil palm zones, the contribution of the positions created for the conservation of biodiversity and ecosystem services was also included.



Operator at a palm oil mill. Photo by Francisco Toro, 2014.

## General methodology

### Geographic coverage

The survey had national geographic coverage and studied the four oil palm zones designated by Fedepalma:

<sup>9</sup> See: <https://ustr.gov/sites/default/files/uploads/agreements/morocco/pdfs/Colombian%20Action%20Plan%20Related%20to%20Labor%20Rights.pdf>



- **Eastern Zone:** Cundinamarca (Paratebuena); Meta (Villavicencio, Acacías, Barranca de Upía, Cabuyaro, Castilla La Nueva, Cubarral, Cumaral, Fuente de Oro, Granada, Guamal, Mapiripán, Puerto Gaitán, Puerto López, Puerto Lleras, Puerto Rico, Restrepo, San Carlos de Guaroa, San Juan de Arama, San Martín, and Vista Hermosa); Arauca (Tame); Casanare (Yopal, Aguazul, Maní, Monterrey, Nunchía, Orocué, San Luis de Palenque, Tauramena, and Villanueva); Vichada (La Primavera and Santa Rosalía).
- **Northern Zone:** Antioquia (Carepa, Chigorodó, Mutatá, and Repelón); Bolívar (Arjona, Mahates, and María La Baja); Cesar (Valledupar, Agustín Codazzi, Becerril, Bosconia, Chimichagua, Chiriguaná, Curumaní, El Copey, El Paso, La Jagua de Ibirico, La Paz, and San Diego); Córdoba (Montería and Loricá); La Guajira (Riohacha and Dibulla); Magdalena (Algarrobo, Aracataca, Ariguani, Ciénaga, El Piñón, El Retén, Fundación, Pivijay, Pueblo Viejo, Sabanas de San Ángel, Salamina, Zona Bananera, and San Onofre).
- **Central Zone:** Antioquia (Sonsón and Yondó); Bolívar (Cantagallo, El Peñón, Regidor, Rioviejo, San Pablo, and Simití); Caldas (La Dorada); Cesar (Aguachica, La Gloria, Pailitas, Pelaya, Río de Oro, San Alberto, San Martín, and Tamalameque); Cundinamarca (Puerto Salgar); Norte de Santander (Cúcuta, El Zulia, La Esperanza, Sardinata, and Tibú); Santander (Barrancabermeja, Betulia, Puerto Parra, Puerto Wilches, Rionegro, Sabana de Torres, San Vicente de Chucurí, and Simacota).
- **Southwestern Zone:** Caquetá (Belén de los Andaquíes); Nariño (Tumaco).

## Data collection form

Data was collected through a form made up of 94 questions distributed in a single cover and four chapters. Said cover is an adaptation of the Unique Business Cover established for all statistical purposes aimed at collecting business information in Colombia. Its objective was to simplify the response process to government information requirements and to achieve a unique identification of Colombian companies [Resolution 243 of 2002] (DANE, 2017).

The four chapters included in the form are: 1) Structure of Oil Palm Economic Units (UEPAs); 2) number of people employed; 3) wellness and CSR; and 4) green employment.

## Statistical design

The study used stratified probability sampling based on the collection of information through direct interviews with producers. The design has a set of basic components explained as follows:

**Universe:** Operational nurseries, plantations, and mills located in the four oil palm zones.

**Study population:** Nurseries and plantations with one or more hectares planted, and operational palm oil mills in the four oil palm zones.

The statistical framework was built from information gathered by Fedepalma in recent years and data from the National Census on Oil Palm, 2011, adding relevant information from DANE databases.<sup>10</sup>

For the purposes of this study, the main estimating parameters are the total number of employed individuals, the total number of UEPAs, and the average income of the labor force. The data source corresponds to agricultural producers with UEPAs or the representatives of nurseries and palm oil mills.

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10 National Agricultural Census and Agricultural Master Framework (*Marco Maestro Rural Agropecuario*).



## Sampling design

The survey followed a stratified probabilistic sampling design. Probabilistic implies that all units have a known non-zero probability of selection. Stratified refers to the formation of homogeneous groups within the sample and heterogeneous groups among them; in this case, the sample is stratified by oil palm zone and plantation size. Sampling design has special strata in each zone due to the importance of these records (DANE, 2017). The definition of the final strata involved a combination of the criteria above, resulting in a total of 23 strata.

The sampling framework was stratified based on the combination of the following criteria:

- Oil palm zone and location of UEPAs
  - » Central Zone
  - » Northern Zone
  - » Eastern Zone
  - » Southwestern Zone
- Size of UEPAs, in case of having associated plantations
  - » Small: Plantations with a planted area greater than or equal to one hectare and less than 50 hectares (ha).
  - » Medium: Plantations with a planted area greater than or equal to 50 ha and less than 500 ha.
  - » Large: Plantations with a planted area greater than or equal to 500 ha.
- Special strata for palm oil mills with associated oil palm plantations: Located at the same zone and large in size.

- Special strata for UEPAs with plantations located in two different zones: Units whose plots concentrate most of the hectares of the studied UEPAs are included.
- Special strata for palm oil mills with no plantations: Located in their corresponding zone and different in size to other mills.

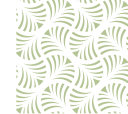
## Sample size

Using the variable “area planted with oil palm crops” and its strong relationship with the variable “total number of employees”, a generalization of the Lavallée-Hidiroglou stratification algorithm was performed, obtaining an estimated coefficient value of 10% for each stratum. This allows each variable to be included into two strata, considering that the initial sample size was 468 UEPAs.



Worker at an oil palm seeds lab. Photo by Fedepalma.





## Expansion factors

According to the sampling design, the expansion factor is:

$$F_h = \frac{N_h}{n_h}$$

Where:

$N_h$  Total UEPAs in  $h$  stratum

$n_h$  Total selected UEPAs in the sample of  $h$  stratum

## Data collection

Data collection involved the use of the aforementioned form, which was programmed in the CSPRO software designed by the U.S. Census Bureau. Besides the questionnaire, manuals for data collection and control processes were designed (interviewer and survey completion, operational, systems, and user manuals).

## Estimators

The estimator of the total sample is:

$$\hat{t} = \sum_{h=1}^H \sum_{i=1}^{n_h} F_h X_{hi} = \sum_{h=1}^H \sum_{i=1}^{n_h} \frac{N_h}{n_h} X_{hi}$$

With the variance estimator:

$$\hat{V}(\hat{t}) = \sum_{h=1}^H \left[ \frac{N_h^2 (1 - \frac{n_h}{N_h})}{n_h} * S_{y_{s_h}}^2 \right] \text{ donde } S_{y_{s_h}}^2 = \frac{1}{n_h - 1} \sum_{k \in s_h} (y_k - \bar{y}_{s_h})^2$$

## Adjustments by stratum correction

Mis-stratified UEPAs were placed in the correct stratum. Corresponding adjustments to expansion factors were included:

$$F_{h \text{ corregido}} = \frac{N_h - n_i}{n_h - n_i} \quad F_{h' \text{ corregido}} = \frac{N_{h'} + n_i}{n_{h'} + n_i}$$

Where:

$N_h$  Total UEPAs in  $h$  stratum

$n_h$  Total selected UEPAs in the sample of  $h$  stratum

$N_{h'}$  Total UEPAs in  $h'$  stratum

$n_{h'}$  Total selected UEPAs in the sample of  $h'$  stratum

$n_i$  Total mis-stratified selected UEPAs excluded from  $h$  stratum

$n_i'$  Total mis-stratified selected UEPAs included in  $h'$  stratum

$F_{h \text{ corregido}}$  Expansion factor of  $h$  stratum where mis-stratified UEPAs are excluded

$F_{h' \text{ corregido}}$  Expansion factor of  $h'$  stratum where mis-stratified UEPAs are included



## Coverage adjustments

Coverage adjustments for selected UEPA are made in the expansion factor by subtracting the amount of UEPA excluded from the sample:

$$F_{h \text{ ajustado}} = \frac{N_h}{n_{h \text{ ajustado}}} = \frac{N_h}{n_h - n_{hj}}$$

Where:

$N_h$  Total UEPA in  $h$  stratum

$n_h$  Total selected UEPA in the sample of  $h$  stratum

$n_{hj}$  Total selected UEPA excluded from the sample of  $h$  stratum

## Sampling errors

Sampling errors are understood as the approximate degree in which the characteristics of the universe are estimated through a probabilistic random sample. The estimation of relative errors is the result of dividing the absolute standard error of an estimated parameter by its estimated value. It is expressed as a percentage, as shown below:

$$CVE(\hat{t}) = \frac{\sqrt{\hat{V}(\hat{t})}}{\hat{t}} * 100 \quad y \quad CVE(\hat{R}) = \frac{\sqrt{\hat{V}(\hat{R})}}{\hat{R}} * 100$$

From this error, confidence intervals of the studied universe are estimated as follows:

$$\hat{t}(1 - 1.96 * CVE(\hat{t}); 1 + 1.96 * CVE(\hat{t})) \quad y \quad \hat{R}(1 - 1.96 * CVE(\hat{R}); 1 + 1.96 * CVE(\hat{R}))$$

## Final sample

After incorporating the adjustments described before, the final sample (366 UEPA) has the following characteristics (Table 1):

Table 1. Sample size

Stratum 1	Oil palm zone	Size	NH Stratum	NH Adjusted stratum
1011	2	1	1,271	52
1021	2	2	188	17
1022	2	2	11	8
1031	2	3	19	12
2011	3	1	2,265	38
2021	3	2	289	23
2022	3	2	18	9
2031	3	3	30	23
3011	1	1	35	15
3012	1	1	10	5
3021	1	2	118	13
3022	1	2	7	4
3031	1	3	56	31
4011	4	1	462	34
4012	4	1	20	7
4021	4	2	7	2
4031	4	3	3	1
5001	1	3	16	13
5002	2	3	9	8
5003	3	3	7	6
5004	4	3	6	6
5011	1	3	1	1
5012	2	2	12	6
5013	3	1	10	7
9001	1	9	12	10
9002	2	9	7	6
9003	3	9	10	8
9004	4	9	1	1
Total			4,900	366

Source: DANE (2018).



Fresh fruit bunches at a gathering station. Photo by René Ospitia, 2017.



Fresh fruit bunches collected at an oil palm plot. Photo by Francisco Toro, 2019.



# 2

## DIRECT EMPLOYMENT IN THE COLOMBIAN OIL PALM AGRIBUSINESS IN 2016

The labor dimension is essential when it comes to generating better living conditions for people, especially in the rural sector. The common trend in Colombian rural areas has been a high degree of informality in terms of employment, which reached 88%<sup>11</sup> in 2016.

According to DANE (2016) estimates, the population employed in Colombian rural areas in 2016 was approximately five million people. When studying the behavior of this data, it is observed that in the period 2010-2016 agricultural activities were the main source of employment, with an average of 4.6 million jobs (Fedesarrollo, 2017). The foregoing highlights the importance of rural productive

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11 According to data from the Labor Observatory at Universidad del Rosario (2016), Colombia shows a high level of informality, represented by 70% in the urban areas and 88% in rural zones. Data also indicates that 70% of the employed population does not have pension coverage, and from the 30% of those who are saving to obtain a pension, only 10% will retire due to their age.



activities in Colombia, considering that their sustainable development should boost employment under optimal conditions and result in a better quality of life for workers.

On the other hand, labor informality in Colombia has been a continuous problem that despite some progress in recent years<sup>12</sup> remains as one of the greatest challenges for rurality.

To better understand the elements implied in labor informality we will provide some definitions. On the one hand, this phenomenon can be measured from the type of contract and its relationship with the mandatory inclusion of workers to social security schemes, specifically retirement funds (Guataquí *et al.*, 2010). According to the Labor Observatory at Universidad del Rosario (2018), an informal worker is an individual who does not meet the following criteria: belong to the health care regime as a payer and not as a dependent, be contributing to a pension fund or be a pensioner, have a written employment contract and/or earn more than 95% of the hourly minimum wage.

The ILO defines informal employment as “all remunerative work (*i.e.* both self-employment and wage employment) that is not registered, regulated or protected by existing legal or regulatory frameworks, as well as non-remunerative work undertaken in an income-producing enterprise. Informal workers do not have secure employment contracts, workers’ benefits, social protection or workers’ representation (ILO, 2019).”

Another dimension of informality is its relationship with productivity. McKinsey & Company estimated that labor productivity is almost seven times higher in formal sectors compared to informal

economies (Ministerio de Comercio, Industria y Turismo, cited by Fasecolda, 2018), suggesting that economic growth is directly associated with that of labor formalization. Therefore, countries will be subject to low-performance levels as long as high informality rates endure.

McKinsey & Company also estimated that average labor productivity in Colombia decreases by 50% as a result of informal working structures (Fasecolda, 2018). In this way, the downward trend of our country in terms of poverty will continue if labor formalization does not increase, especially in the rural sector, where social gaps remain a common issue. Based on the above, part of the contribution of the agricultural sector to formal employment has concentrated on the development and implementation of good labor practices, as well as on overcoming barriers and various restrictions on the deployment of labor rights.

Labor relations in the rural sector are regulated by the Colombian Labor Code, which basically responds to the reality of urban conditions and not to the particularities of rural work, let alone those from agricultural activities (e.g. harvesting seasonality and the schedules of productive activities). In this sense, the participation and contribution to formal economies by different sectors, among them the palm oil industry, play a decisive role in generating formal employment and the development of territories.

The Colombian oil palm agribusiness has always sought to contribute to the reduction of these gaps. Consequently, this survey is a tool to provide accurate information that allows better decision-making processes and ensures the compliance of labor rights, as well as a positive transformation of oil palm territories.

The following sections introduce the results of this study discriminating employment in terms of area of work, oil palm zone, and main types of employment relationships, among other aspects.

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12 According to Fasecolda (2018), reductions in terms of inequality, especially informal employment, can be attributed to factors such as the 2012 Tax Reform (Law 1607 of 2012), which made new businesses exempt from making some parafiscal contributions during 2012 and 2015. This encouraged the establishment of new companies and the creation of jobs.



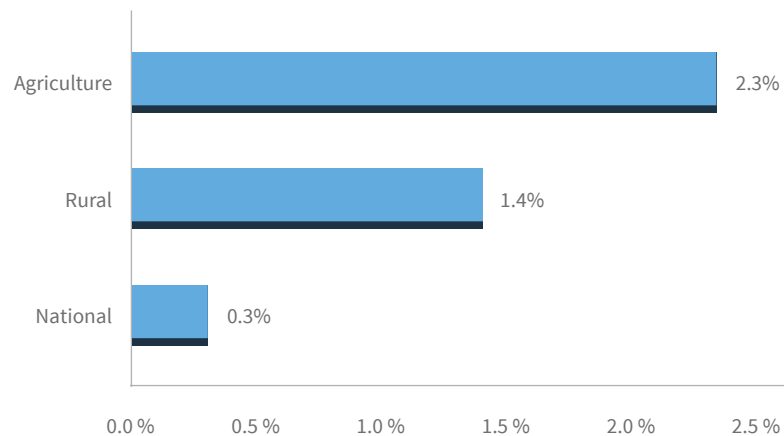
## Direct employment by activity and on the national total

■ **Table 2.** Overall employment in the palm oil industry by type of activity

Activity	Number of jobs	Share
Crop and nursery	62,511	92.4%
Palm oil mill	5,161	7.6%
Total	67,672	

Source: Fedepalma and DANE.

● **Figure 1.** Share of the palm oil industry in national employment (2016)



Source: Fedepalma with data from the Integrated Household Survey (DANE, 2016).

In establishing the contribution of the oil palm agribusiness to direct employment generation, a total of 67,672 jobs were identified through the survey. By production unit, plantations and nurseries comprise most of these jobs (92.4%), with a total of 62,511, while palm oil mills generated 5,161 jobs (7.6%). It is important to mention that plantation and nursery production units are presented as one single item in Table 2, since only those units that were part of a plantation were considered in the time window of the survey.

With that in mind, when associating data in Table 2 with the results of the Integrated Household Survey (IHS) by the DANE (2016), the share of the palm oil industry in national employment is 0.3%. In rural areas this figure reaches 1.4% and, compared to the total of agricultural jobs, the share is 2.3%.<sup>13</sup> This information leads us to assert that the oil palm agribusiness in Colombia is a key productive player that contributes to the generation of rural employment<sup>14</sup> (Figure 1).

13 The Integrated Household Survey (IHS), statistical operation that provides official employment data in Colombia, identified that in 2016 the total population employed in rural areas was 5.5 million, of which 3 million worked in agricultural activities (DANE, 2018).

14 It should be noted that each survey applies a different methodology and that each universe of analysis is not the same. However, this comparison makes it possible to acknowledge the importance of the oil palm sector for employment creation in Colombia.



## Direct employment in the four oil palm zones

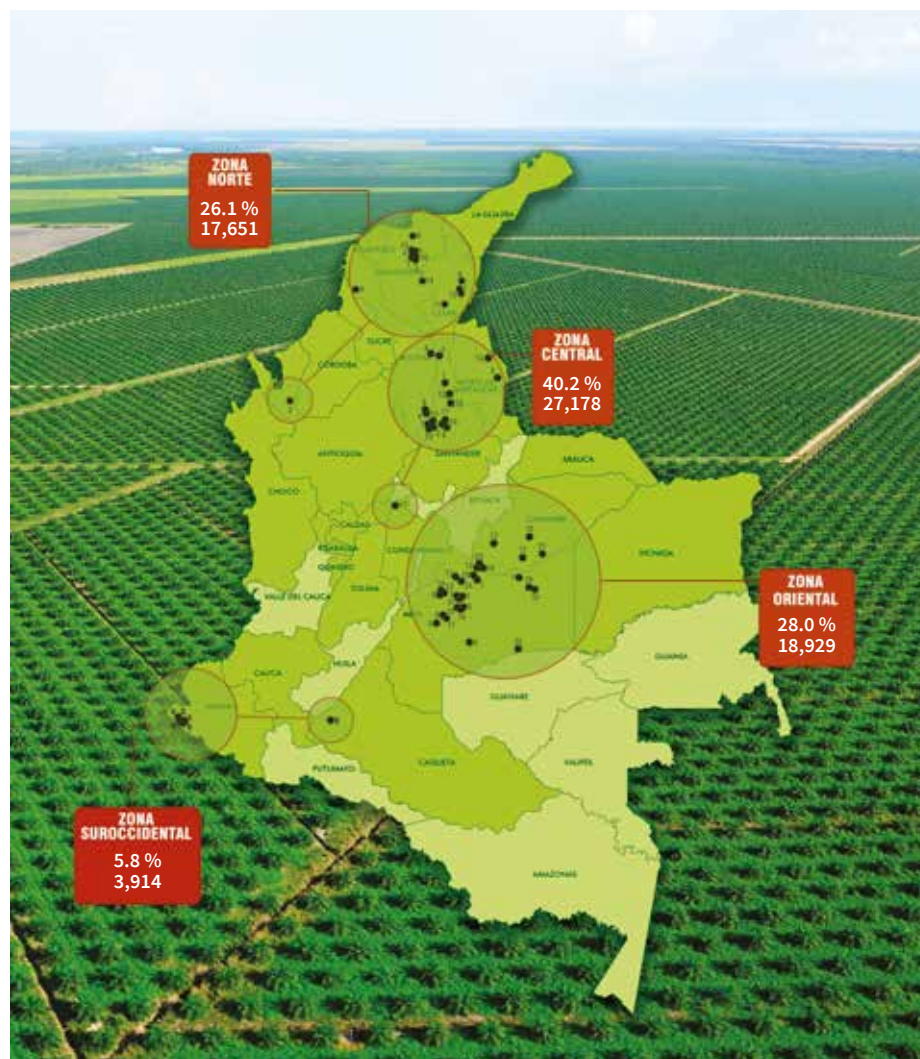
The oil palm agribusiness in Colombia has established in regions with high productive potential, despite national security issues, a weak institutional framework, and flaws in terms of infrastructure.

The survey confirmed the contribution of this industry to national employment by identifying its distribution in each oil palm zone: the Central Zone recorded a total of 27,178 workers (40.2%), followed by the Eastern Zone, with 18,929 (28.0%), the Northern Zone, 17,651 (26.1%), and the Southwestern Zone, 3,914 jobs (5.8%), as shown in Figure 2.

As stated, the Central Zone generated most of the direct jobs of this industry. One of the reasons to explain this result is the large number of smallholders in this region, who, according to the National Census on Oil Palm in Colombia (2011), represent 2,331 small UEPAs<sup>15</sup> (86.5% of total).

On the other hand, the results for the Southwestern Zone may be explained by multiple causes. One of the reasons is the alarming increase of bud rot disease in this zone at the end of 2004 that affected more than 30,000 hectares planted with oil palm (Sanz, 2016). In addition, public order disturbances have been present in this region for several years, which may have prevented counting on the security guarantees necessary to establish new businesses and carry out production activities.

● **Figure 2.** Employment in the oil palm sector by zone (2016)



15 An Oil Palm Economic Unit (UEPA, in Spanish), is made up of the agricultural and industrial components of oil palm cultivation and/or oil extraction under the direction or management of the same producer at the national level. A UEPA comprises one or several Production Units (PU), plantations, nurseries, and/or palm oil mills that may be operating at different locations (DANE, 2018).



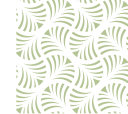
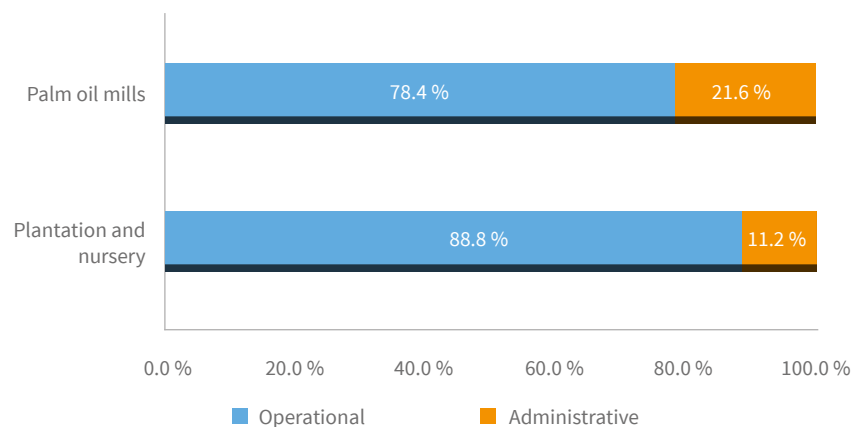


Figure 2 includes information for the three production units (plantation, nursery, and mill) developed in the four oil palm zones. Plantation and nursery production units (over 90% of employment) are tightly related to the generation of direct jobs, thus it is essential to identify the activities directly associated with oil palm cropping that require workforce. Other activities also included in the study are those associated with administrative tasks, particularly office work. Such distinction is addressed in the next section.

**Figure 3.** Share of the labor force by area (2016)



## Direct employment by area of work

Direct jobs and their related working activities are classified into two categories: administrative and operational staff. From this, it is possible to identify the area of work in which the labor force in this industry perform their activities. Administrative tasks are associated with the operation, performance, and structure of an organization (management positions were included in the survey), while operational activities are production-related labors.

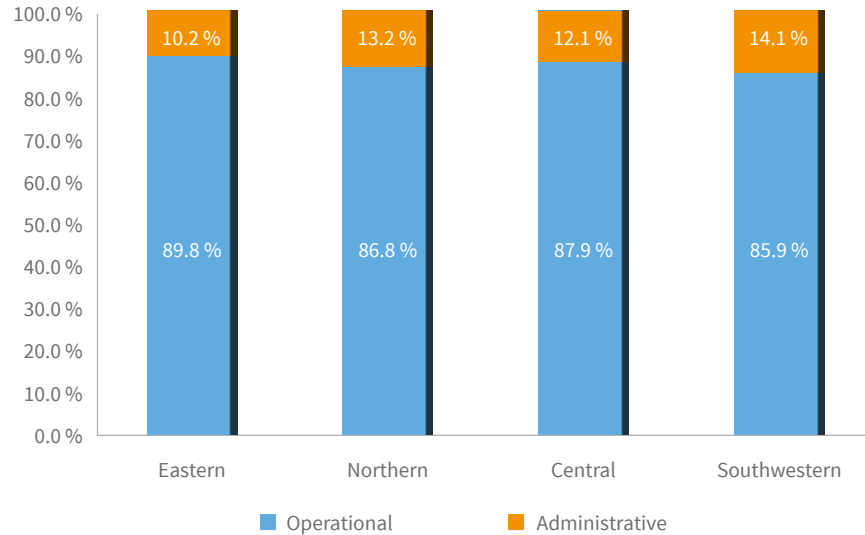
Based on the above, the survey obtained the number of direct jobs in each category. At the national level, 88% of workers (59,566) performed operational activities, while 12% (8,104 jobs) were in charge of administrative tasks. By studying these findings per production unit, palm oil mills have the largest number of administrative-related jobs (21.6%). In contrast, plantation and nursery are characterized by operational tasks (88.8%),<sup>16</sup> as shown in Figure 3.

Figure 4 shows the distribution of operational and administrative activities per zone. The share of both categories depict similar values (85-90% for administrative and 10-15% for operational staff), displaying a common trend in the four oil palm zones.

16 The low number of administrative staff in oil palm nurseries may be explained by the fact that none of the studied UEPAs was exclusively conformed by this type of productive unit. Nurseries, for the purposes of the survey, were always associated with a plantation or mill, thus their management staff was classified in other groups.



● **Figure 4.** Share of the labor force in each oil palm zone by area of work (2016)



These results lead to acknowledge that the oil palm agribusiness has a great demand of operational work, which seems logical given the characteristics of this production activity and the intensive requirements of workforce for crop-related activities such as harvesting, pruning, phytosanitary management, weed control, planting, pollination, and fertilization, among others.

## Employment relationship

Informal rural employment is a common issue in Colombia due to weak government capabilities and execution in rural areas. This condition has generated consequences such as low investment rates in these regions, limited access to public goods and

services, and some difficulties for guaranteeing security for the population, among others. According to Fedesarrollo (2017), the main types of employment relationships in Colombian rural areas are self-employed individuals (51%), which represents more than half of the employment, followed by private workers (18%), and day laborers (12%).

In contrast, the survey results show a different scenario for the oil palm sector in Colombia in terms of employment, where the main labor relationships correspond to indefinite-term contracts, fixed-term contracts, service agreements, subcontracting, temporary agency work, contributing family workers, day laborers, apprentices and interns, and other employment schemes such as associated work cooperatives, union contracts, and SAS.

Service agreements and subcontracting represent 23.9% of direct employment, *i.e.* 16,149 jobs, followed by indefinite-term contracts, with 20.7% (14,019 jobs); fixed-term contracts, 19.3% (13,043 jobs), and day laborers, which stand for 12,45% of jobs (8,426).





● **Figure 5.** Employment relationships in the Colombian palm oil industry (2016)

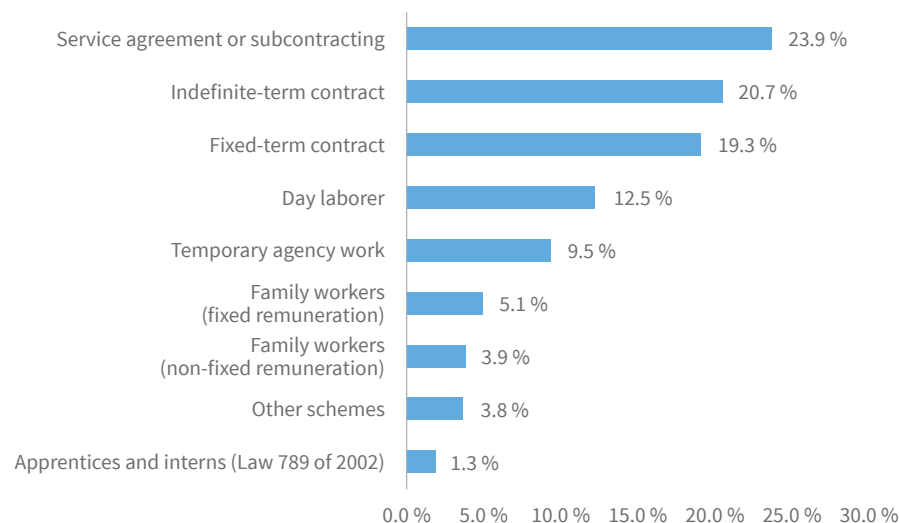


Figure 5 presents the type of employment relationships in the Colombian palm oil industry .

A series of considerations on labor informality were presented at the beginning of Chapter 2. For a better understanding of Figure 5, articles 22 and 23 of the Colombian Labor Code (2011) define, on the one hand, an employment contract as that “in which a natural person provides a personal service to another person, natural or legal, under a continued dependence or subordination to the second party and by means of remuneration.” In addition, this code specifies the essential elements for the establishment of an employment contract:

[...] “the personal activity of the employee, *i.e.* performed by himself; the continued subordination or dependency of the employee to the employer, which entails the latter to demand the fulfillment of orders at any time, regarding the mode, time or quantity of work, and to impose regulations that must be fully maintained throughout the duration of the contract. All this without affecting the honor, dignity, and minimum rights of the employee, in accordance with international treaties or regulations on human rights. Finally, there must be a salary as payment for the services provided by the employee.”

Based on this, the survey results show a set of employment relationships that stand for 82.4% of total direct jobs. In this sense, 55,778 jobs are distributed among the following types of working relationships: indefinite-term contracts, fixed-term contracts, service agreements, subcontracting, apprentices and interns, contributing family workers with a fixed remuneration, temporary agency contracts, and other schemes. Figure 6 shows the distribution of formal and informal jobs, with the first being the standard of the Colombian palm oil industry.

Garage at an oil palm plantation. Photo by Francisco Toro, 2019.





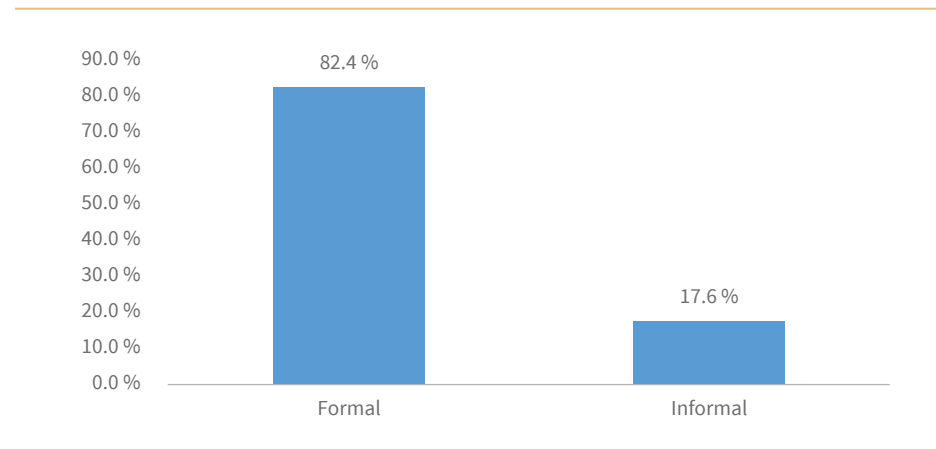
Another important achievement of the survey was identifying labor formality levels within each production unit. In this regard, it is clear that mills, plantations and nurseries contribute positively to formal employment. In the case of palm oil mills, formal employment reaches almost 100%. As for plantations and nurseries, figures are also remarkable, although with a lower share [81%] (Figure 7). Nonetheless, it should be noted that some crop activities are seasonal and do not require permanent labor, a distinctive feature of agricultural production.

Recognizing the social complexities of oil palm regions contributes to envision future scenarios in which, despite the difficulties of territories, the role of this agribusiness to the provision of formal employment is significant. That makes increasingly important the need to articulate remote territories with the economic, political, and social processes occurring at the regional centers of development of our country.

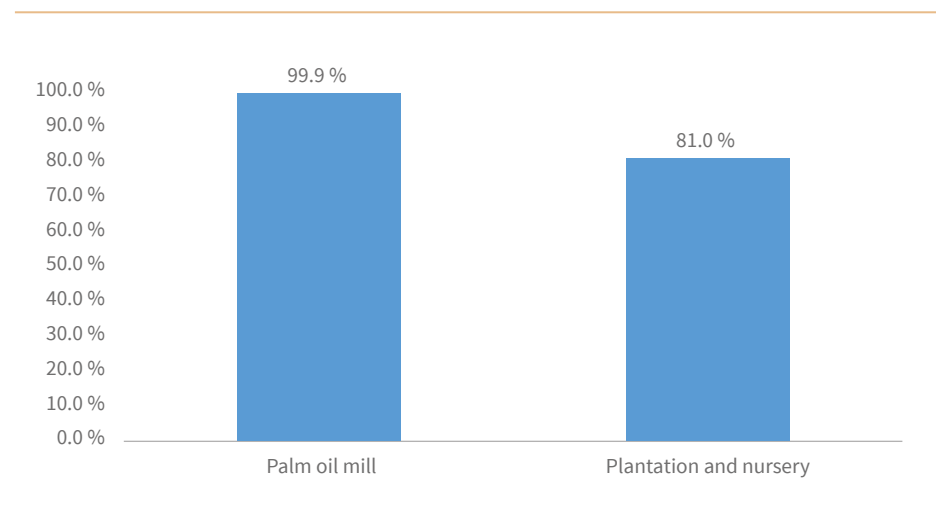
## Type of employment per zone

One of the main challenges for social security access by rural population is the seasonality of agricultural production and the low annual average income they receive.

● **Figure 6.** Formal vs. informal employment in the Colombian palm oil industry (2016)

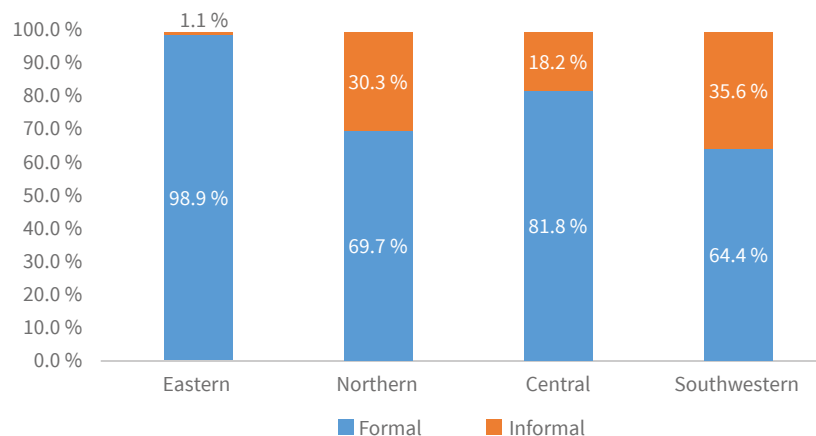


● **Figure 7.** Share of formal jobs in 2016 by production unit





● **Figure 8.** Formal vs. informal employment in each oil palm zone (2016)



Access to the social security system by rural population faces strong barriers. On the one hand, the transition of workers from a subsidized to a contributive regime during short periods of time is complex and expensive. The Colombian rural sector counts on socioeconomic characteristics that prevent harmony with the current model of social security, which is primarily based on the capability of individuals of making their payments and on the actions of the insurance market (Merchán, 2015). Therefore, low affiliation rates to the social security system in the contributive regime, both for health care and pension, may be explained by factors such as: a unique and rigid labor regime that does not make distinctions between types of activities, let alone between urban and rural settings; poorly adaptable insurance methods; a weak institutional presence in rural areas; low income levels; the seasonality of some production activities; and low standards of education and high poverty rates. It should be noted that the weak presence at the municipal level of those institutions providing social protection services, such as EPS and ARL, makes it difficult to count on a formal social security scheme and a simplified affiliation method.

Most of these characteristics typically affect geographical areas that match the presence of oil palm crops. However, survey findings show the positive level of formalization within the palm oil industry (98.9%), supported by a high share of formal jobs in the four oil palm zones. The most significant figures are observed in the Eastern Zone, which reached 98.9% formal employment. The Central Zone also presents remarkable numbers, with the biggest share of direct jobs and smallholders and 81.8% of formal jobs. The Northern and Southwestern zones follow this trend, with 69.7 and 64.4%, respectively.



Preventive and medical assistance for plantation workers. Photo by Francisco Toro, 2019.



These results indicate that the oil palm agribusiness in Colombia records formality rates above the average for the agricultural sector. In addition, the main types of employment relationships are formal contract modalities that grant better conditions for employees and a substantial contribution to the development of territories and communities. Next, you will find the analysis of the results by sex.

## Direct employment for men and women

Work in rural areas, specifically in the agricultural sector, has been typically led by male workforce. In 2016, 47.7% of rural men were part of the economically active population (EAP). In contrast, women had a much lower share (24.9%). On the other hand, a high rate of rural men (70.6%) performed paid agricultural activities in the same year, while only 36.6% of rural women were employed (MADR, 2017).

According to estimates by Fedesarrollo (2017), 70% of rural jobs are performed by men and the remaining 30% by women. The low share and income rates of female workers pose greater challenges for them to access social security benefits and reach formal employment schemes. Besides, the time women must allocate for non-paid activities, such as household care, is superior for rural women compared to their urban counterparts.



Female workers at an oil palm nursery. Photo by Francisco Toro, 2012.



However, gender relations in rural areas have been shifting and the role of women in agricultural activities has become increasingly visible. In this regard, the project known as *Misión Rural* (2015) states that female participation in rural activities is larger in the trading (32.5%) and social services sectors (24.6%), which explains male-female gaps in the distribution of agricultural jobs.

According to the survey results, 14.1% of the positions in the palm oil industry are held by women, while 85.9% were performed by men. We should consider that the operational involved in this industry, which represents the biggest share of total jobs, requires a great deal of physical effort. However, some crop activities such as assisted pollination, which requires acute precision and special care, are among the areas where the female labor force has proved to be highly skilled.

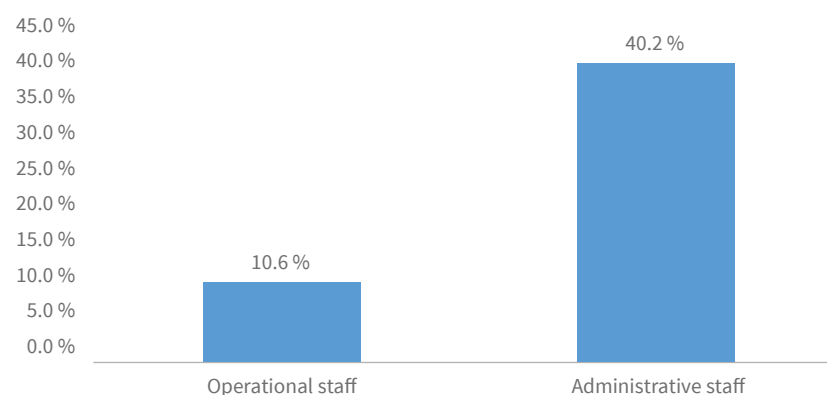
The survey also identified women's participation by production unit. As mentioned before, plantation and nursery require most of the workforce; therefore, these units employ 14.2% of the women currently working in this sector, representing a total of 8,876 jobs. In the case of palm oil mills, this figure is 12.9% (665 jobs).

When studying the participation of women in operational and administrative tasks there is a big difference between these two categories. In the case of operational work female participation is low (10.6%) due to the physical effort involved in crop activities, as already stated. This figure increases considerably by looking at administrative tasks (40.2%), since these correspond mostly to office-related activities<sup>17</sup> (Figure 9).



"Oil palm lady." Special recognition, social category. National Contest of Environmental and Social Photography in Colombian Oil Palm Zones. Photo by Daniela Navarro, 2018.

**Figure 9.** Share of women by area of work (2016)



17 Managerial positions were included in this category.



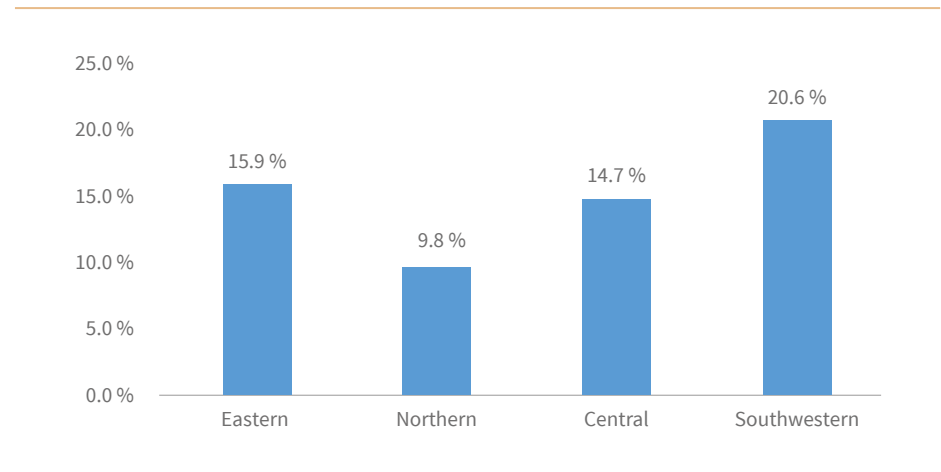
The participation of women in this industry can also be expressed by zone. The Southwestern Zone has a bigger share, with slightly more than a fifth (20.6%) of total jobs, followed by the Eastern (15.9%), Central (14.7%), and Northern (9.8%) zones. These figures were calculated based on the total number of jobs in each zone (Figure 10).

## Age profile of the labor force

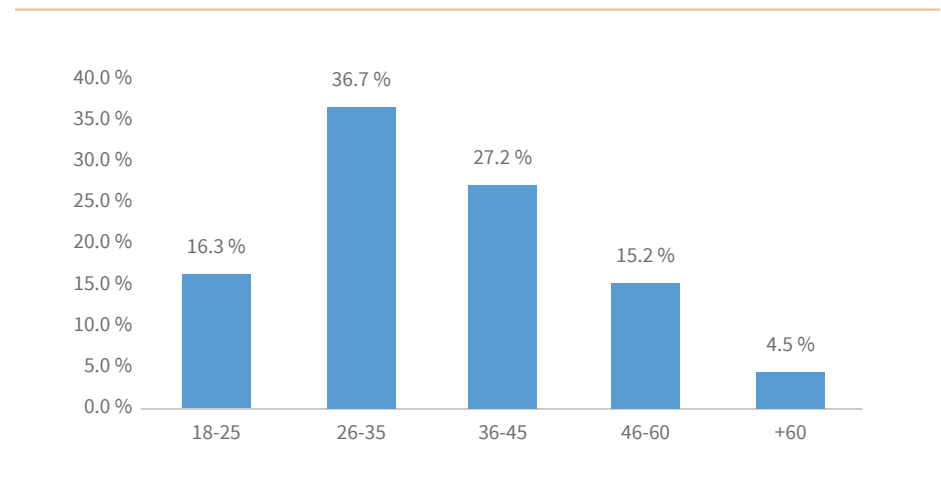
According to information presented by the *Misión para la Transformación del Campo* (2015), demographic transition processes in Colombia, aging, and migration dynamics of the population, among others, have led the elderly population to experience higher growth rates than other age groups. Consequently, some regions of the country have a lack of young labor force for agricultural production.

However, data from the survey reveal this is not a common trend. Within the oil palm agribusiness, 80.3% of workers are 18 to 45 years of age, 15.2% between 46 and 60, and only 4.5% are over 60 years (Figure 11). An important fact on this matter is that, according to the results, no individual under the age of 18 was employed in this sector, depicting the strong commitment of the Colombian palm oil business with the rights of children.

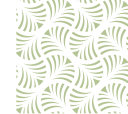
● **Figure 10.** Share of women in the palm oil industry per zone (2016)



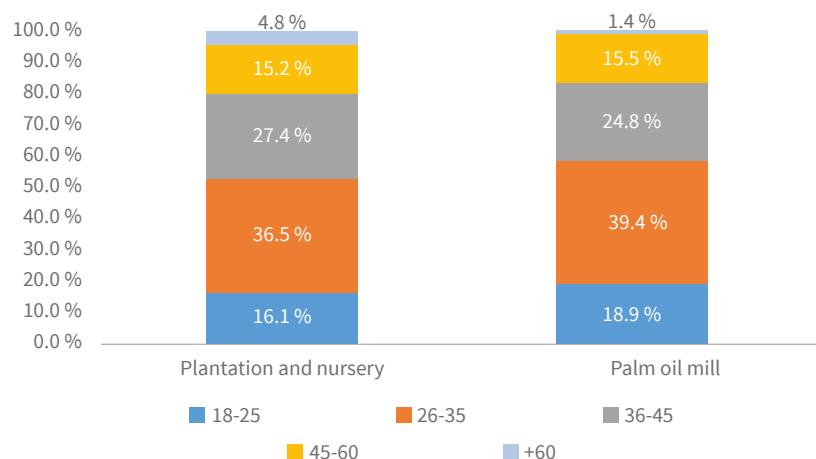
● **Figure 11.** Age groups of the labor force in the Colombian palm oil industry (2016)







● **Figure 12.** Age groups of the labor force by production unit (2016)

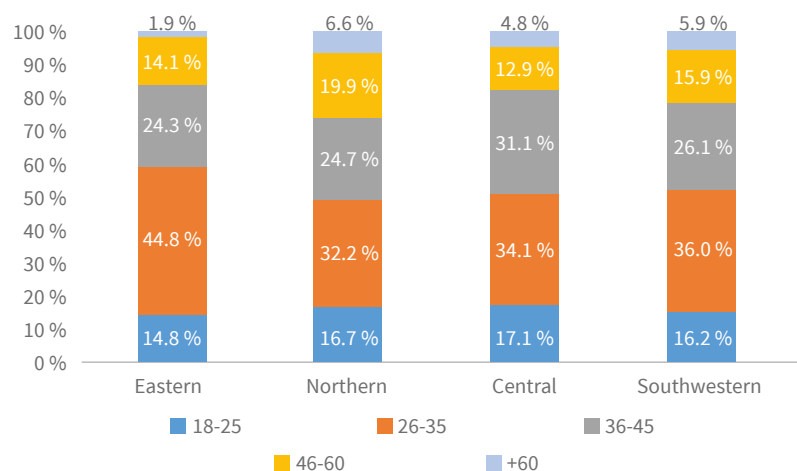


The distribution of age groups is similar both for plantation and nursery and mills when approaching results by production unit. Figure 12 shows similar results by age range. Here, the aforementioned trend remains stable, since the biggest share of jobs corresponds to workers aged 18 to 45. These figures contradict evidence on the scarce availability of young workers in Colombian rural areas.

Furthermore, it was found that women working in this sector are between the age of 26 and 35, which stands for 6.2% of jobs. Most of the male workforce is in the same group, with a percent value of 30.5%. This suggests the palm oil industry is a viable working alternative for young rural people, as well as the existence of a generational replacement for this sector. Moreover, being oil palm a perennial crop, it is common to find producers supported by their immediate family, with younger family members carrying out simultaneously their own life projects.

The average age of the rural population in Colombia is 35 years.<sup>18</sup> In the case of the oil palm agribusiness, jobs are typically held by individuals aged 18 to 45, being the age group 26 to 35 years that with the largest share.

● **Figure 13.** Age groups of the labor force by oil palm zone (2016)



The survey also revealed age distribution in each of the oil palm zones (Figure 13), where the Eastern Zone holds the biggest share of workers between 18 and 35 years old, almost 60% of the total: however, similarities can be identified in terms of age distribution. The Southwestern Zone is next with 52.2%, then the Central, with 51.2%, and the Northern, with 48.9%. From this data, the general trend of a palm oil industry that employs the young population is also observed in each zone.

18 Own calculations based on DANE estimates.



The Northern Zone has the biggest share of jobs held by individuals aged 46 and over, although most workers in this zone are aged 18 to 45. The other zones show a similar behavior regarding working population over the age of 46.

The Colombian palm oil industry has welcomed a large part of the young population, offering good conditions in terms of formality and access to the labor market. However, this agribusiness and other rural production sectors must work collaboratively with key actors in order to create suitable conditions that foster the benefits offered by the agricultural sector to local development and the achievement of personal and professional goals by the rural population. In this sense, there is a historical debt as for the recognition of the importance of these activities that requires an articulated work by different government institutions for its fulfillment.

## Seniority

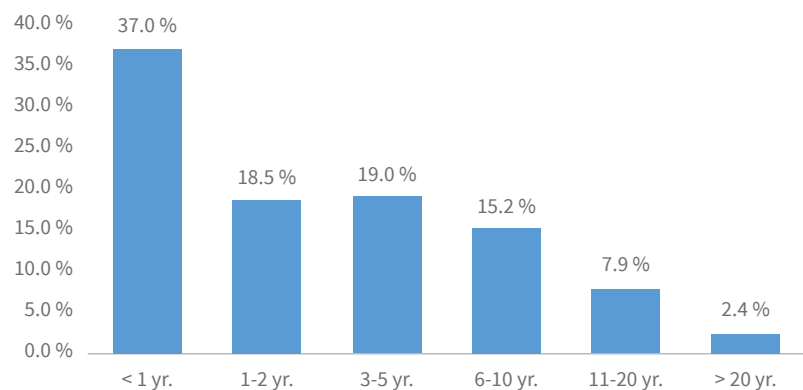
The various challenges faced by organizations must allocate a special place for human resources management, since the relationships between an organization and its employees have become essential for business performance (Chiavenato, 2009). Based on this, one of the greatest challenges for employee retention in all sectors is the type of relationships businesses build with their internal collaborators.



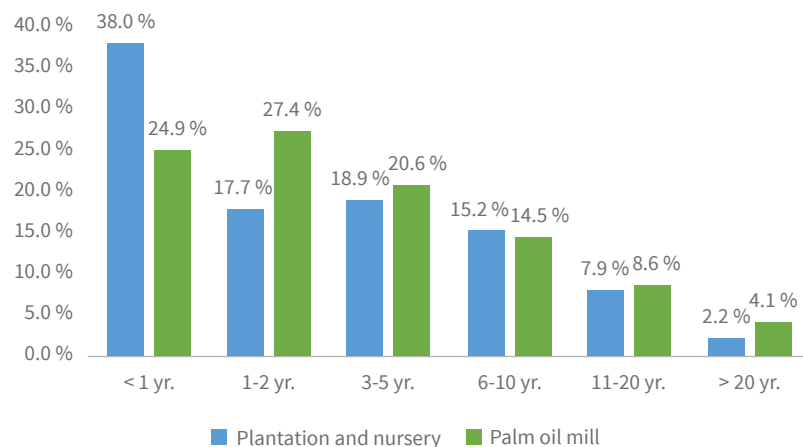
Workers on the surface of a palm oil storage tank. Photo by Francisco Toro, 2019.



● **Figure 14.** Seniority of the labor force in the Colombian palm oil industry (2016)



● **Figure 15.** Seniority of the labor force by oil palm zone (2016)



The Colombian rural sector is influenced by issues that affect the permanence of workers in a single sector, such as the seasonality of activities, and therefore jobs, labor regulations that ignore the particularities of rural and agricultural employment, shortcomings regarding social protection for workers, and income levels below the national average. These commonalities open doors for unstable employee retention, since workers are always looking for better economic conditions.

The oil palm agribusiness in Colombia is not exempt from such circumstances. In spite of this, the peculiarities of this perennial crop imply greater job stability considering that some tasks in the production cycle require permanent involvement. In this section, the results only show the permanence of workers in the same company or plantation, but not in the oil palm sector in general.

The survey identified that 55.5% of the workers in this sector have been in their jobs for less than two years, 19% between three and five years, and 25.5% have been employed in the same company or plantation for more than six years (Figure 14).

Studying results at the production unit level, a higher share of employees at palm oil mills have had the same job for over 5 years. Regarding plantations and nurseries, less than one year of seniority is the trend in 38% of workers. The above is due to the transitory nature of nursery production, whose average crop cycle is one year. In addition, other crop activities are seasonal due to the characteristics of oil palm growing and do not require a permanent workforce.

Similarly, the share of jobs with more than 11 years of seniority is comparable for the two production units: 12.7% in palm oil mills and 10.1% in plantations and nurseries (Figure 15).

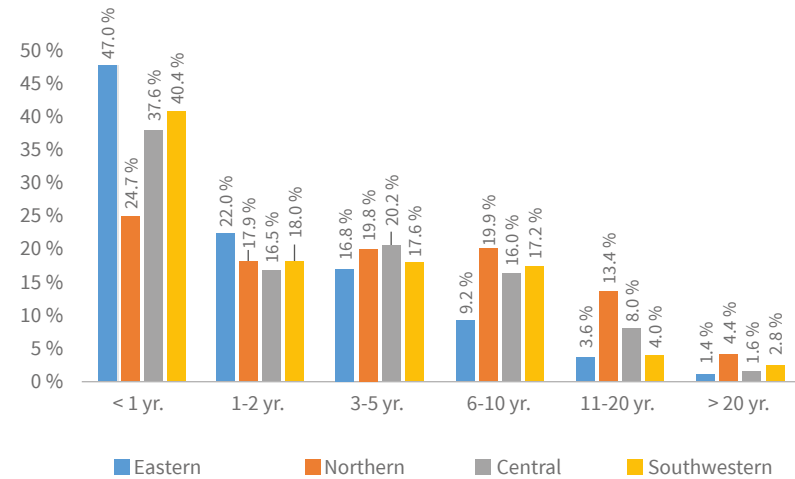


Employment stability is one of the main drivers of labor practices within the Colombian palm oil industry —also part of Fedepalma’s CSR strategy<sup>19</sup>—, where the promotion of labor formalization is a key aspect. This vision has been particularly focused on small and medium producers, given the social gaps among these groups, seeking to promote labor rights and decent working conditions.

By studying seniority at the workplace by oil palm zone the lowest rate is observed in the Eastern Zone, where 31% of employees have been working for more than 3 years at the same company. The Southwestern Zone is next (41.6%), followed by the Central (45.9%) and Northern zones (57.5%).

On the other hand, considering the index of workers with less than one year of seniority (both for plantation and nursery and mills), the Eastern Zone records the highest share (47%), followed by the Southwestern (40.4%), Central (37.6%), and Northern (24.7%) zones. The latter also shows the highest rate of seniority in relation to the other zones. Besides, the Central and Southwestern zones show a similar trend in the seniority range of three to ten years (Figure 16).

**Figure 16.** Seniority of employees in the Colombian palm oil industry by zone (2016)



19 See the Basic Guide for CSR Management by Oil Palm Growers, available at: <http://web.fedepalma.org/sites/all/themes/rspo/publicaciones/sociales/Guia-basica-para-la-gestion-de-la-RS.pdf>



Training session at an oil palm plantation. Photo by Fedepalma.

## Educational attainment

The education levels of the Colombian rural population are generally represented by low figures. Despite this phenomenon, the 2014 National Agricultural Census (NAC) showed some progress, especially in the reduction of illiteracy rates. Out of 719,522 producers aged 15 (or more) living in remote rural areas, 82.5% (593,649) can read and write. This rate is 83.5 and 80.8% for men and women, respectively (MADR, 2016).

Departments such as La Guajira and Magdalena recorded the lowest literacy levels (47.1 and 68.4%, respectively), which poses several challenges for institutions and the Colombian palm oil industry.<sup>20</sup>

Part of the contribution of Fedepalma to education is supported by the Colombian Oil Palm Research Center, Cenipalma, which has collaboratively worked with the SENA in teaching and learning processes across different regions. Cenipalma's Education and Training unit seeks to promote human capabilities and contribute to bridging gaps among the human capital of the oil palm agribusiness by generating educational strategies that allow the development of standard labor competencies.

20 Colombian palm oil industry promotes different education-related projects, both for producers and communities, through the work of various foundations and the CSR areas of palm oil businesses in different regions of the country.



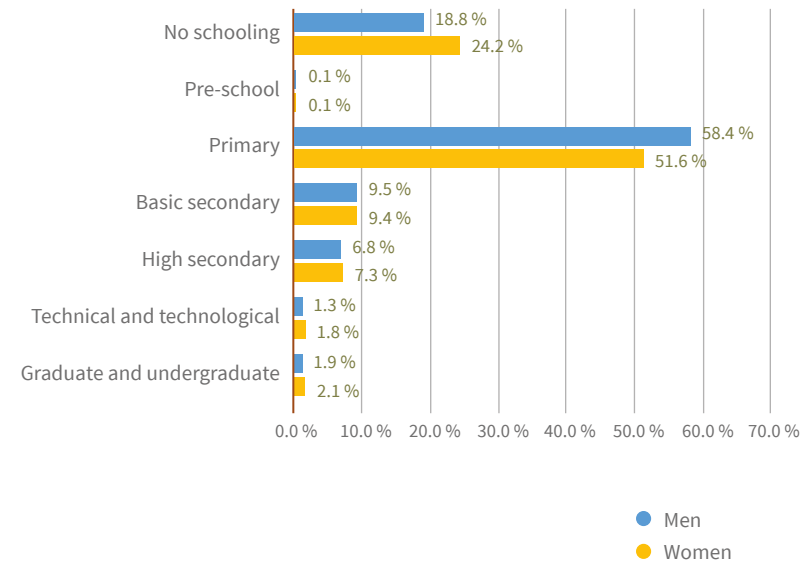
Currently, three lines of work are covered in association with the SENA: education,<sup>21</sup> training,<sup>22</sup> and labor competencies evaluation and certification.<sup>23</sup> Some of the main results involve the participation of Fedepalma in the Sectoral Committee on Oil Palm and Oilseeds (MSPA0, in Spanish), which is an open space to strengthen the dialogue between the SENA and oil palm producers. This committee is currently chaired by the Technical Secretariat of the Industrial and Technological Development Center of Barrancabermeja (Santander). Fedepalma has also been actively involved in the evaluation and certification of labor competencies based on SENA's National System for Labor Training (*Sistema Nacional de Formación para el Trabajo*).

Part of this cooperative work seeks to contribute to the achievement of higher educational levels in the rural areas of our country. According to the Ministry of Agriculture and Rural Development (2016), in 2015 the share of rural producers without formal schooling was 18.8% for men and 24.2% for women. Besides, women show higher educational attainment, participating more in secondary and graduate education than men (Figure 17).



Education, training, and labor competencies evaluation and certification activities by the SENA. Photo by Francisco Toro, 2009.

● **Figure 17.** Share of producers from remote rural areas by level of educational attainment (2016)



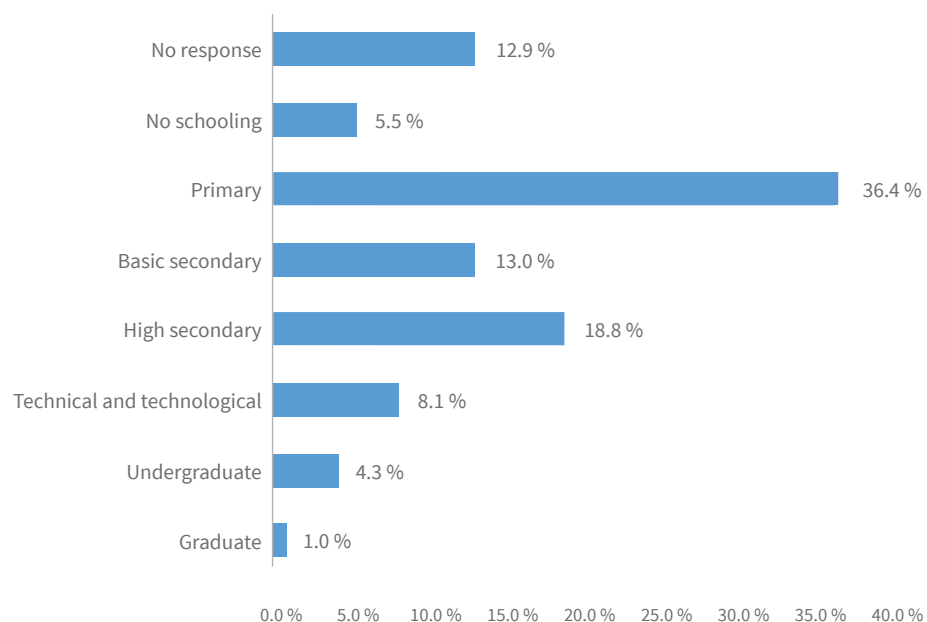
Source: Ministry of Agriculture and Rural Development of Colombia (2016).

- 21 Process in which general, specific, and personal competences are developed in a particular area of knowledge, leading to an academic certification. Since Cenipalma is not entitled to provide academic training, this line of work is carried out along with the SENA and higher education institutions. Besides, other strategies are implemented in coordination with oil palm hubs.
- 22 Short period of time for the development of one or a few specific competences.
- 23 Process in which a certifying company gathers evidence of a person's job performance and determines his/her competency to perform the evaluated tasks. This is addressed by the SENA (certifying company). The National Evaluation and Certification Project is currently in force, that is, companies can request evaluation and certification processes.



Assessment of crop activities for bridging gaps and increase productivity. Photo by Francisco Toro, 2019.

● **Figure 18.** Level of educational attainment of the labor force in the Colombian palm oil industry (2016)



The survey results showed that only 5.5% of workers in the palm oil industry have not achieved any educational level, a figure far from the national average. On the other hand, some similarities are found between this industry and the rural sector regarding basic secondary education, where women reach educational attainment levels of 10.9% and 9.4%, respectively. In the case of men working in the palm oil sector this figure is 13.3%, while rural men reach a 9.5% share.

The largest differences are found in higher education levels, specifically technical and technological and university education. For example, 1.8% of rural women have attained technical and technological education, compared to 16.8% of women working for the palm oil industry. In the case of rural men this share is 1.3%, while the palm oil industry male workforce reaches 6.7%.

Major differences are found in terms of university education. Results show that 2.1% of rural women and 11.4% of women employed by the palm oil industry have a university degree. As for men, the share is 1.9 and 3.2% for rural and palm oil employed individuals, respectively. Figure 18 shows the distribution of palm oil industry employed population by educational attainment.

Educational attainment in this sector by production unit was also identified, showing that 38.1% of the workforce in plantations and nurseries has attained primary education, 17.6% high secondary education (10th and 11th school grades), and 13% basic secondary education (6th to 9th school grades).

Secondary education level is the trend for palm oil mills, with 32.1% of employees, more than half the figure for plantations and nurseries. Technical or technological education is next, with 21.2%. As for university education, a 6% variation is observed between plantations and nurseries and mills production units. This is due to the higher number of jobs in administrative areas at palm oil mills that require a tertiary level of educational attainment. On the other



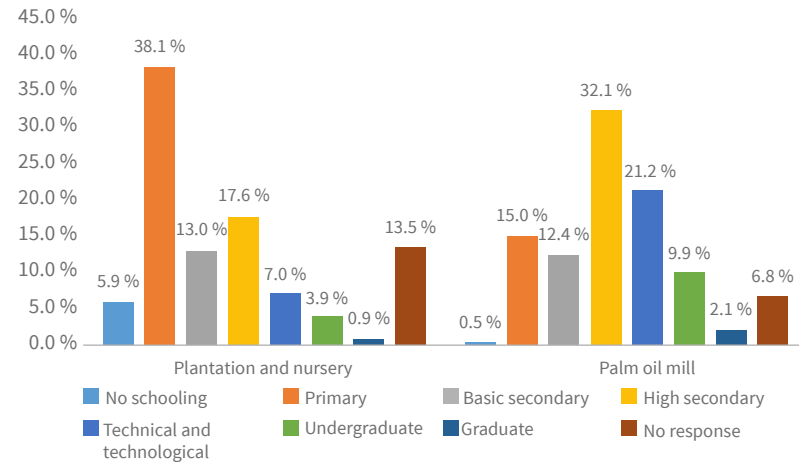
hand, different variations are observed between production units for other education levels (Figure 19).

A similar distribution is observed in three of the four oil palm zones regarding the educational level of the labor force. In the Eastern, Central, and Northern zones, primary education attainment is between 34 and 39%. The result for basic secondary education in the Southwestern zone is prominent, with 17.3% of its employees placed on this level. For the other areas, this educational level is between 11 and 15% of the population. Besides, the Central Zone shows the highest share as for high secondary education, with 23.5%.

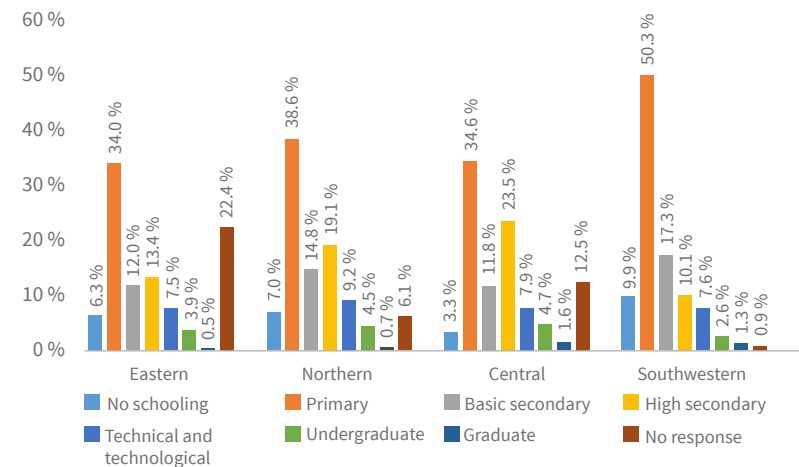
On the other hand, the educational attainment in regard to university education is low in the four oil palm zones, since most of the jobs are allocated to the plantation and nursery production units and thus related to crop activities. Despite this, and having a broad understanding of the complexities of Colombian rural areas, 15.7% of the people employed by this agribusiness have a tertiary level of educational attainment (university), showing better figures to those previously presented for rural areas; that is, 2.1% for women and 1.9% for men (MADR, 2016).

As for the technical and technological education level, there is a correspondence of data between the four zones. Here it is worth mentioning the articulated work by Cenipalma and the SENA. Almost one-third of total employed people (32.2%) are placed at this level, which represents a group of people whose quality of life has been positively influenced and have greater labor market success. The other levels of educational attainment show some differences by zone (Figure 20).

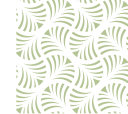
**Figure 19.** Educational attainment of employees by production unit (2016)



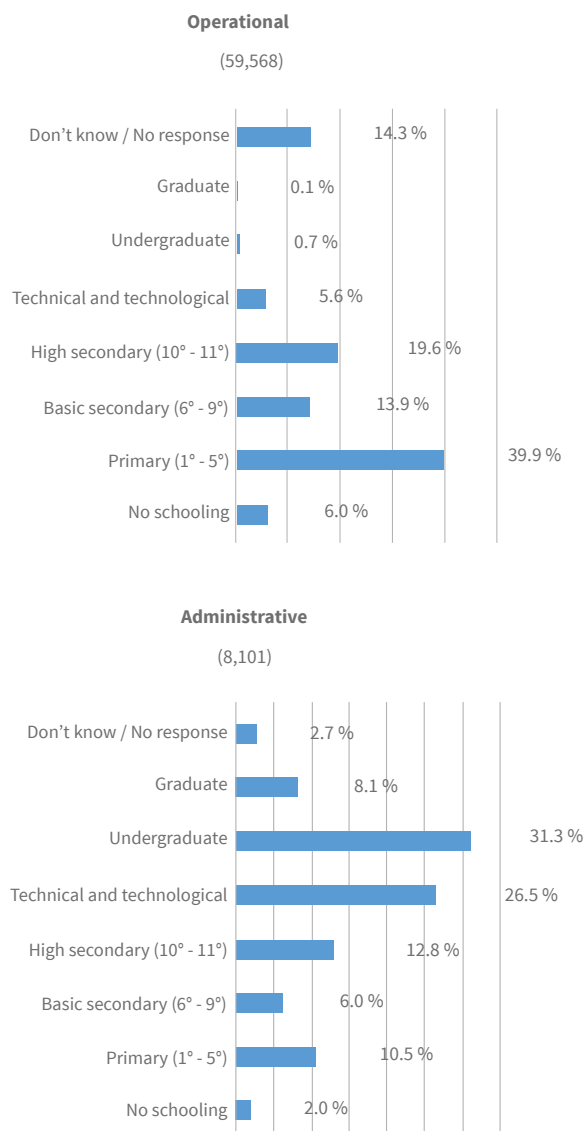
**Figure 20.** Educational attainment of employees by zone (2016)







● **Figure 21.** Educational attainment by area of work (2016)



Disaggregated by sex, results show that women have higher educational attainment: 31.3% of them have tertiary education, compared to 10.5% of men. This difference is explained by a larger share of women employed in administrative areas, where higher educational levels are required. Figure 21 shows this distribution by area of work.

Technical and technological education show a statistically significant variation of 20.9% between administrative and operational staff. For undergraduate and graduate university education this difference is even larger: 30.6 and 8%, respectively. This unevenness is a result of the dynamics of the agricultural sector. In addition, findings prove that higher education coverage in rural areas is lower than in urban locations, despite the deployment of strategies aimed at reducing these gaps, such as the Regional Centers for Higher Education (CERES, in Spanish), promoted by the Colombian Ministry of Education, located to a greater extent (87%) in rural areas (Colombian Ministry of Education, 2016). Notwithstanding the improvements made in primary and secondary education coverage, the challenge continues to loom large in terms of higher education.

According to the conclusions presented by the Misión Rural (2015), the issue around education is not only about coverage but quality as well. Therefore, better education will become a real input for higher income, productivity, and competitiveness for the Colombian people. It is important that clear guidelines are provided by the corresponding entities in order to follow up on rural education policies, which should foster productive inclusion through tertiary education, thus boosting competitiveness in rural territories and breaking down the social barriers that prevent access to higher education for its population.



## Income

Several studies assert that agricultural activities are the main source of income in rural areas. According to Fedesarrollo (2017), the participation of agriculture in rural employment in 2016 was 60%, although with a high level of informality and, therefore, low relative income. The foregoing suggests that most of the challenges related to ensuring a better quality of life for the rural population are intrinsically associated with their income level.

Consequently, the survey tried to gather data on the earnings of the palm oil industry workforce. This includes only the monthly salary received by workers without considering social security payments, which would make the real income higher. The income reported in the study is disaggregated by type of contract.

For this section, we suggest studying the information under the heading “Type of employment relationship,” on page 26. Table 3 below shows a comparison between the standard salary, the average household income in urban and rural areas, and the average salary for workers in the palm oil industry. From these data, it is observed that the average salary in this industry<sup>24</sup> is 1.5 times the standard Colombian salary for 2016, 1.24 times the average household income in urban areas, and almost three times the average income in rural areas. A representative advantage is observed compared to other production activities, including those taking place in urban settings. This reality makes the Colombian palm oil business a remarkable sector with high potential to positively transform the living conditions of people.

The survey also identified the average income level by type of employment relationship. From this, the indefinite-term contract represents the highest income, nearly one million three hundred thousand Colombian pesos (COP 1,287,006). Fixed-term contracts and service agreements and subcontracting have similar numbers: COP 1,006,244 and 1,001,940, respectively.

By production unit, palm oil mills represent a higher average income for workers (COP 1.560.740), followed by plantations and nurseries (COP 1,269,333). This variation is a sample of the existing disparities in the payment allocated for crop versus administrative activities, a common feature for agricultural-related work. However, the palm oil industry has bridged some of these gaps in rural territories by offering stable working conditions and higher average salaries.

Keeping in mind that 20.7% of the jobs in this sector are signed under an indefinite-term contract and 23.9% under service agreements or subcontracting, almost half of the jobs identified by the survey show an acceptable level of income that is above the average minimum salary in Colombia (Table 4).

It is also worth mentioning that the average salary under all contracting categories and in the different production units is higher than the legal minimum salary in Colombia for 2016 (COP 689,454). Another relevant fact is that the income level in this sector in most cases is higher than the average income for both urban (COP 829,301) and rural areas (COP 357,370), according to DANE estimates (2016).

The information presented in the last pages shows that this agribusiness offers better earnings for working people compared to the rural and urban averages. On the other hand, under the different types of employment relationships, the salary in the palm oil industry, without including social security, was higher than the legal minimum salary, which shows great potential for this sector to narrow the socioeconomic gaps of rural environments. It is essential to work hand-in-hand with the corresponding entities in order to generate better conditions for the access of small producers to public programs that allow them to overcome social barriers, especially those related to labor market opportunities.

24 This average salary (COP 1,027,633) is linked to direct formal employment in the palm oil industry in 2016.



■ **Table 3.** Average salary in the palm oil industry (Colombian pesos)

Minimum legal salary (2016)	Average income of urban households	Average income of rural households	Average salary palm oil industry
\$ 689,454	\$ 829,301	\$ 357,370	\$ 1,027,633

Source: own elaboration with data by the DANE (2016).

■ **Table 4.** Average salary in the palm oil industry in 2016 by type of employment relationship (Colombian pesos)

Production unit	Indefinite-term contract	Fixed-term contract	Temporary agency work	Subcontracting
Nursery	\$ 1,269,333	\$ 1,012,334	\$ 729,395	\$ 844,545
Plantation	\$ 1,030,945	\$ 981,101	\$ 897,417	\$ 896,354
Palm oil mill	\$ 1,560,740	\$ 1,025,297	\$ 819,211	\$ 1,264,921
Overall	\$ 1,287,006	\$ 1,006,244	\$ 815,341	\$ 1,001,940

## Place of origin of employed population

This sector, like some others, has not been seriously influenced by migration dynamics, at least until data was collected. Some national events have caused some people to move from one region to another, either in search of better socio-economic conditions or due to forced displacement. Thus, according to the survey results, most of the labor force of this industry are native to the same region.

Based on the collected data, 15,268 (22%) of the people employed in this sector come from another department or country.<sup>25</sup> When disaggregating information, 97% of these are workers coming from other departments, while the remaining 3% are foreign nationals. Figure 22 shows that 78% of total jobs are performed by locals, which may indicate a significant bond of this productive activity to territories.

25 Some regions have experienced variations regarding non-national migrant workers who are part of the labor force of this sector.



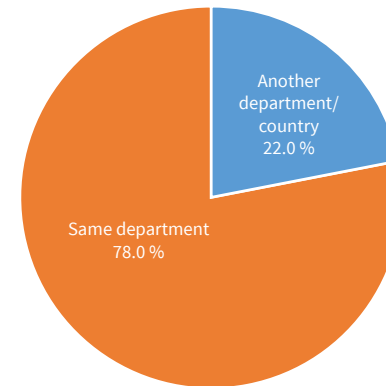
When addressing the place of origin of workers by production unit it is possible to observe that 23.7% of palm oil mills employed population is native to other locations: 99.3% comes from another department and the remaining 0.7% from another country. On the other hand, 96.9% of plantation and nursery workers come from another department and 3.1% from another country.

Approaching results by oil palm zone allow concluding that 88.9% of the 452 foreign nationals working in the palm oil industry are located in the Central Zone. This phenomenon can be explained, to a large extent, by the geographical proximity of this zone to the border between Colombia and Venezuela, whose political, social, and economic situation during the last years has led to new migration dynamics by its population. According to estimates in the Administrative Record of Venezuelan Migrants in Colombia [ARVM] (2018), the main receiving departments of this population in Colombia are Norte de Santander, Santander, Bolívar, and Cesar, which comprise the region known as Magdalena Medio, part of the Central oil palm zone.

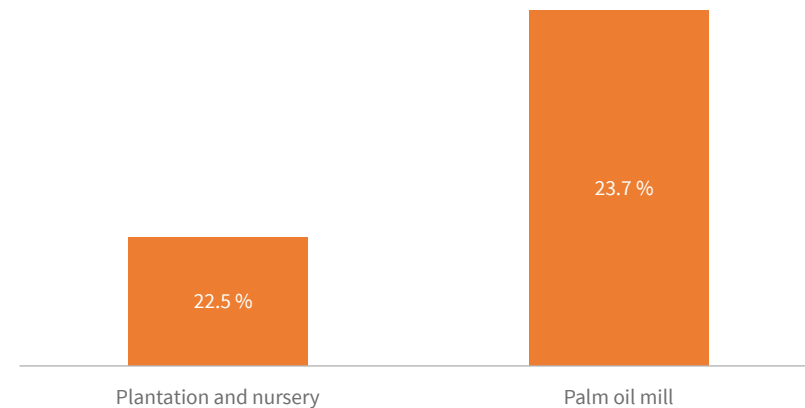
The Eastern Zone has also been influenced by the migration of Venezuelan nationals who enter the country through Arauca department, particularly. Besides, this region welcomes an important share of national migrants, as observed in the number of workers coming from other departments (9,496) currently employed by this industry, which accounts for 50.2% total jobs.

It can be stated that one in four individuals is not native to their working location, a trend for the different production units. This suggests the existence of shared responsibility of this sector with the labor market at the different oil palm zones, where a high share of the local population is engaged with this agribusiness.

● **Figure 22.** Origin of the labor force in the palm oil industry (2016)



● **Figure 23.** Non-local labor force by production unit (2016)





Machinery and animal-drawn device for the transport of fresh fruit bunches. Photo by Francisco Toro, 2014.



"You reap what you sow." Special recognition, social category. National Contest of Environmental and Social Photography in Colombian Oil Palm Zones. Photo by Yohanna Paola Barbosa Muñoz, 2017.



# 3

## ANALYSIS OF EMPLOYMENT IN THE OIL PALM AGRIBUSINESS BY SIZE OF PRODUCTION UNITS

This chapter presents a comprehensive analysis of jobs in the oil palm agribusiness from the perspective of the size of each production unit (plantation and nursery and palm oil mill). Therefore, the total number of employees in these units is studied according to the variables: area of work, type of employment relationship, average salary, male-female participation, seniority ranges, age, level of educational attainment, and share of employees with some kind of disability.



Disaggregated data by size of plantation and nursery production unit are explained based on the total number of hectares.<sup>26</sup> All plantations or nurseries with 1-49.9 ha area considered small units, those with 50-499.9 ha are considered medium, and any plantation with more than 500 planted ha is rendered as large.

## Plantation workers by area of work

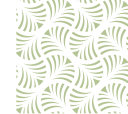
Without considering the size of production units, 89.5% of the workers in this industry are involved in operational work and only 10.5% perform administrative activities. Most of the workforce (40.7% or 25,421 jobs) is employed in small-sized plantations and nurseries, with a share of 87.7% and 12.3% for the operational and administrative areas, respectively. Large production units are next, with a share of 40.3% (25,203 jobs), of which 90.4% carry out operational activities and 9.6% administrative tasks. Finally, 19.0% of workers are hired by medium-sized plantations or nurseries (11,888 people), 87.8% and 12.2% in operational and administrative positions, respectively (Figure 24).

<sup>26</sup> Plantation workers are disaggregated by the size of this unit. Since all nurseries make part of a plantation, those employed at these units are placed under the same category of the plantation a given nursery belongs to.

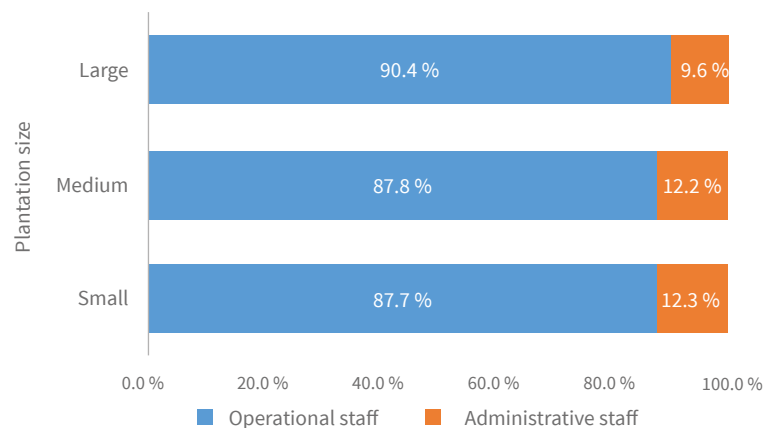


Pollination in oil palm hybrid trees. Photo by Francisco Toro, 2019.

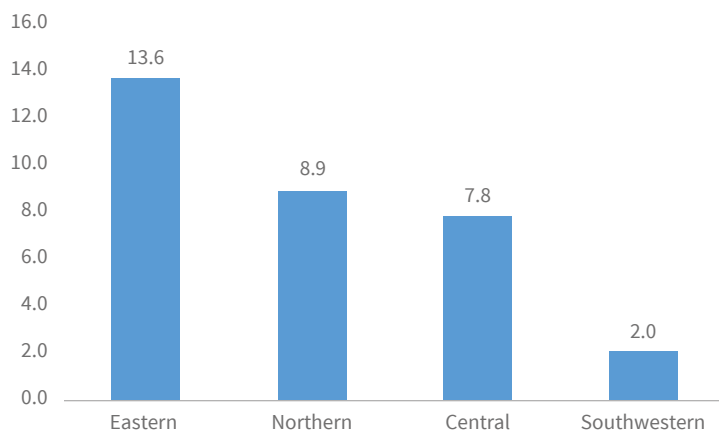




● **Figure 24.** Labor force by unit size and area of work (2016)



● **Figure 25.** Average number of hectares per operational worker in each zone (2016)



## Average number of hectares per worker

Using data on the distribution of jobs by area of work and the total area planted with oil palm in the four zones (Sispa, 2016) it is possible to approximate the average number of hectares each operational worker must handle. Figure 25 shows that the Eastern Zone has the highest number of hectares per worker (13.6 ha), followed by the Northern (8.9 ha), Central (6.8 ha), and Southwestern (2 ha) zones.

Compared to the other oil palm zones, the Eastern has the biggest number of planted hectares (215,763) and the lowest share of small producers, which could explain the observed number of hectares per worker. This assumption makes sense when observing that the Northern Zone is the second in planted hectares (133,362), according to the results in Figure 25. In addition, the Central Zone, which ranks first in the generation of direct employment, has an average of 7.8 ha per worker. The Southwestern Zone has the lowest number of hectares per worker partly due to the loss of crops after the bud rot epidemic. Companies in this zone have kept a good part of the jobs despite the recovered area reaches just 50% former planted hectare.



## Employment relationship and average salary

Employment relationships in this industry show a rate of 82.4% formal employment, while non-standard employment represents just 17.6% of total jobs. In this chapter, we will study results by size of production units, that is, small, medium, or large.

Accordingly, as observed in Figure 26, service agreements and subcontracting are the trend in small plantations and nurseries, with 40.4% of total jobs. Day laborers have a significant share within the category (30.9%), followed by contributing family without fixed remuneration (12.1%), and contributing family with fixed remuneration (8.1%). Additionally, workers with an indefinite-term employment relationship represent 4.8% of total jobs. The other types of links represent 3.3%.

In the case of medium-sized plantations and nurseries, fixed-term contracts rank first, with 28.6% of total jobs, followed by indefinite-term contracts (25%), and service agreements or subcontracting (23.8%). The other types of employment relationships in this category are below 8% each, and their aggregate is 22.5%

On the other hand, large plantations and nurseries employment is characterized by indefinite-term contracts (29.1%), fixed-term contracts (28.2%), temporary agency work (21.4%), and service agreements or subcontracting (11.5%). The other types of labor relationships account for 10% of total jobs.

The average salary for each type of employment relationship must be examined in order to approach the variables that influence working conditions. This information, along with the data in Figure 26, allows a better understanding of the general situation of workers in

this industry, since the most common types of employment and their corresponding average salary are studied.

Based on the above, in the following pages the main types of labor relationships from Chapter 2 (indefinite-term, definite-term, temporary agency work, and service agreements or subcontracting) are approached with the aim of studying the distribution by the size of production units.

Results show that in small plantations and nurseries the highest average salary is allocated by fixed-term contracts (COP 1,130,327), followed by indefinite-term contracts (COP 970,771), temporary agency work (COP 880,115), and service agreements or subcontracting (COP 891,004).

In medium-size plantations and nurseries these figures show a different behavior, since the highest average salary is observed in fixed-term contracts (COP 1,055,160), with the other labor links showing similar numbers: COP 897,416 for service agreements or subcontracting; COP 880,581 by temporary agency work; and COP 862,942 for fixed-term employment.

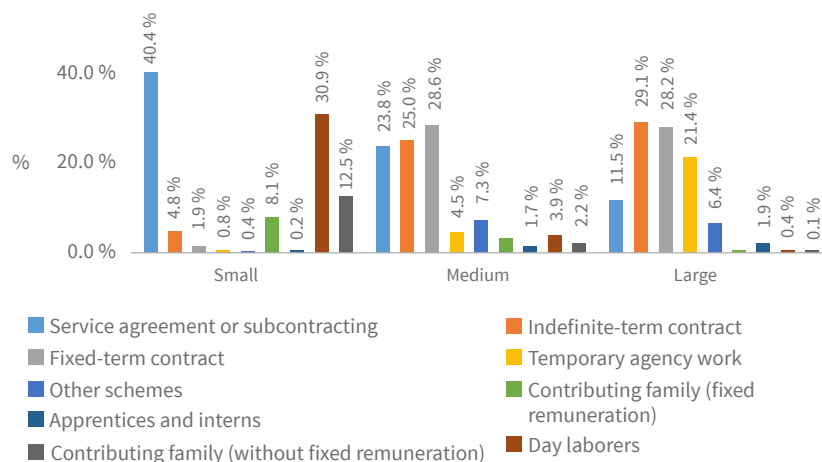
Large production units show the same trend of medium-sized plantations and nurseries, although with higher labor income: COP 1,237,544 under indefinite-term contracts; COP 1,134,575 in service agreements or subcontracting; COP 930,116 for temporary agency work; and COP 907,207 for fixed-term contracts (Figure 27).

Overall, the Colombian palm oil industry demonstrates high rates of employment under indefinite and fixed-term contracts, especially in medium and large size plantations and nurseries, which account for more than half the total employed population (59,3 %).

Furthermore, the prevailing type of employment relationship varies according to the size of the production unit, with service agreements and subcontracting being the most common among small units, and fixed-term contracts typical of medium-sized units. In the case of large units, both fixed and indefinite term contracts are the trend.



● **Figure 26.** Employment relationship by plantation size (2016)

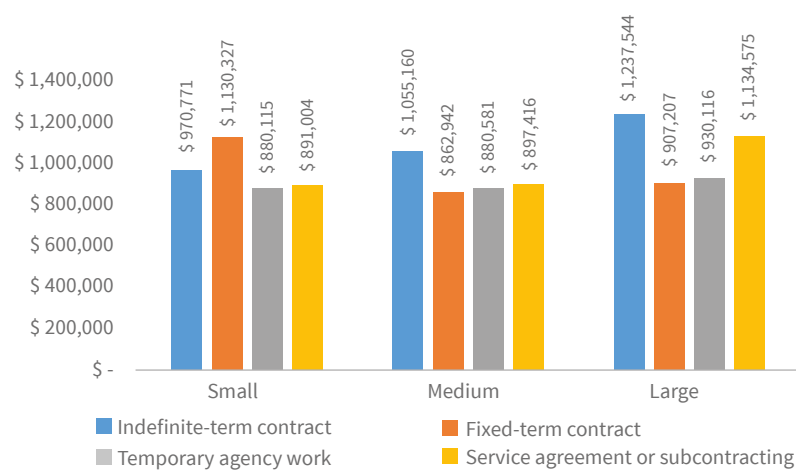


Labor relationships with higher average salaries are indefinite-term contracts and service agreements. However, for all sizes and means of hiring, workers' compensation was higher than the minimum wage; recalling that these values correspond to the monthly payment for salaries, without including social security benefits.

## Employment by sex, seniority and age groups according to the size of production units

To deepen the analysis of employability in this industry, some aspects related to gender participation and roles are addressed from the perspective of the size of production units. First, the share of women and men working in plantations and nurseries is observed, expanding this analysis to variables such as seniority and age of employees.

● **Figure 27.** Average salary in 2016 by type of contract and plantation size (Colombian pesos)



As expressed in the section “Direct employment by activity and on the national total,” page 23, small plantations and nurseries comprise the largest proportion of the workforce, of which 15.5% are women and 84.5% men. Of the total number of women working at small plantations and nurseries, 72.4% make part of operational divisions and 27.6% work in administrative areas. In the case of men, 90.5% work in operational activities and 9.5% perform administrative tasks.

For medium-sized plantations and nurseries this distribution is 12.1% women and 87.9% men. Large units record 13.9% female participation and 86.1% male workers (Table 5).



Regarding gender distribution by area of work and size of the production unit, 69.7% of the female workforce in large plantations and nurseries makes part of the operational staff and 30.3% of administrative areas. For men, this distribution is 93.7 and 6.3%, respectively. In turn, 56.8% of women and 92.1% of men perform operational activities in medium-sized plantations and nurseries, where also 43.2 and 7.9% of women and men, respectively, make part of the administrative staff. For small plantations and nurseries the distribution is as follows: 72.4% of women perform operational tasks and 27.6% administrative-related activities; while 90.5% of men make part of the operation of these units and 9.5% of the administrative sections. These figures are shown in Figure 28.

The foregoing demonstrates that employees' distribution by area of work does not vary because of the size of production units. In other words, the number of employees involved in the operation is always higher than the staff in the administration.

In addition, women-men participation in plantations and nurseries by size of the production unit shows that, on average, 86.2% of workers are men and 13.8% women.

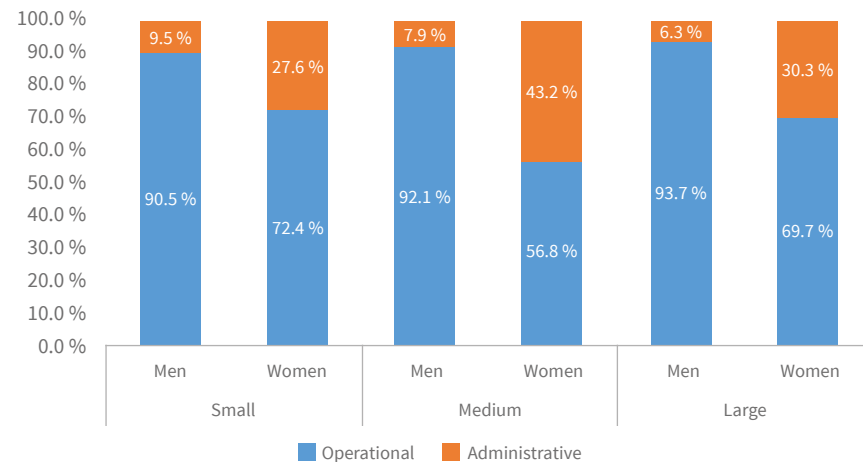
The seniority of workers by size of the production unit was classified into six categories, as shown in Figure 29. Results on this dimension show that workers with less than one year of seniority represent 35.7% of total jobs in small plantations and nurseries, followed by those who have been employed for 3-5 years (20.3%), 6-10 years (19.9%), and 11-20 years (11.6%).

The same trend is observed in medium size plantations and nurseries, since an important share of their labor force (30.9%) has been linked to the sector for less than one year. Besides, the share of employed population with 1-3 years of seniority in these production units is 22.2%, followed by the ranges of 3-5 years (19.4%), 6-10 years (16.7%), and 11-20 years (8.7%).

**Table 5.** Share of the labor force by sex and size of the production unit (2016)

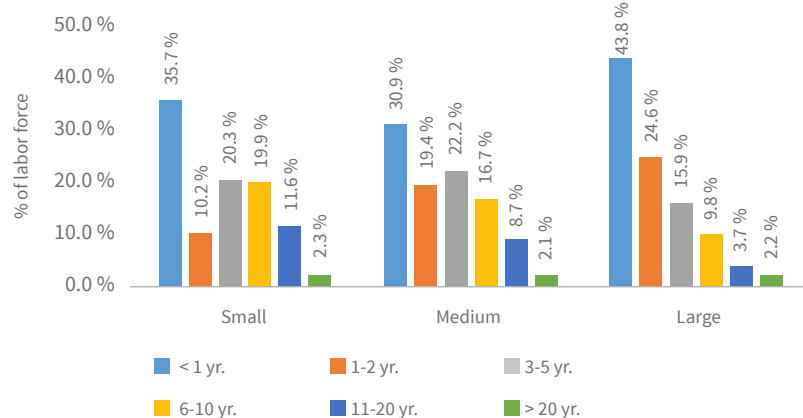
Size of the production unit		Women (%)	Men (%)
Plantation size	Small	15.5 %	84.5 %
	Medium	12.1 %	87.9 %
	Large	13.9 %	86.1 %

**Figure 28.** Share of the labor force by area of work and size of the production unit (2016)





● **Figure 29.** Seniority by plantation size (2016)



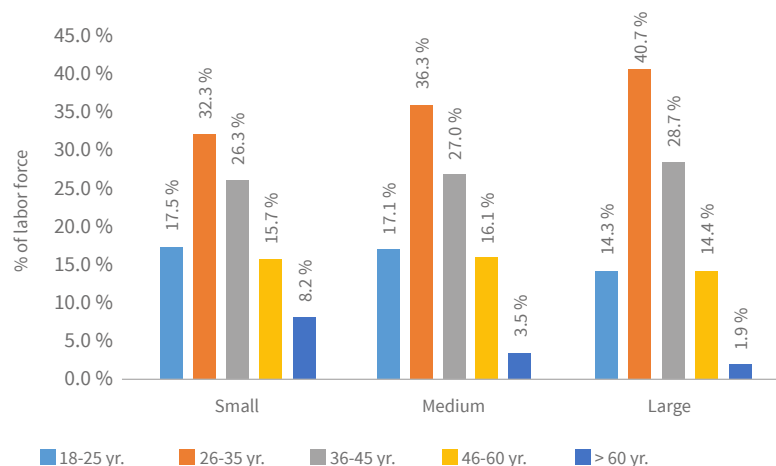
Finally, in large plantations and nurseries the percentage of employees with less than a year of seniority is significantly higher, representing 43.8% of total jobs. The picture is completed by the seniority ranges of 1-2 years (24.6%), 3-5 years (15.9%), and 6-10 years (9.8%), as observed in Figure 29.

From results, it is clear that regardless of the size of the production unit the biggest share of employees in this industry has been working for the same company or oil palm crop for less than a year.

Moving forward, workers' age groups by size of the production unit are studied. On this subject, it is necessary to mention once more that all participants were legal adults by the time data was collected.

Results show that age groups follow the same trend by size of the production unit. The highest share in small plantations and nurseries is observed for employees aged 26 to 35, with 32.5% of total jobs. The same age group is represented by 36.3% of the employed population in medium-size production units, and 40.7% in large ones.

● **Figure 30.** Age groups of the labor force by plantation size (2016)



Employed population aged 36-45 represent 26.3% of jobs in small plantations and nurseries, 27.0% in medium-sized, and 28.7% in large production units. This group is followed by those aged 18-25, with a distribution of 17.5, 17.1 and 14.3% in small, medium and large production units, respectively. The age group of individuals between 45 and 60 years is represented by 15.7% in small units, 16.1% in medium-sized units, and 14.3% in large units. The last groups corresponds to workers aged 60 or over, whose distribution in small, medium and large plantations and nurseries is 8.2, 3.5 and 1.9%, respectively (Figure 30).

As with seniority, age group distribution shows a similar trend by size of the production unit, where the employed population aged 26-35 and 36-45 are the most common groups in the palm oil industry.



## Educational attainment of the labor force by size of the production unit

This section presents the results regarding labor force distribution by level of educational attainment disaggregating data by area of work and size of production units.

Seven levels of educational attainment are identified, besides a “Don’t know/No response” option. Such levels are the following: no schooling, primary, basic secondary (6°-9° school grades), high secondary (10°-11° school grades), technical and technological, undergraduate, and graduate.

In small plantations and nurseries primary education is the most common level (40.5%), followed by high secondary (18.8%), and basic secondary (14.1%). Those who did not know or respond represent 11.2% of surveyed individuals. In addition, the remaining levels of educational attainment have a share of less than 10%, headed by technical and technological education (6.1%), followed by undergraduate (3.2%) and graduate education (1.2%) levels.

As for medium-sized production units, employed population results in descending order are as follows: primary (44.8%), Don’t know/No response (12.8%), basic secondary (12%), high secondary (12%), undergraduate (5.9%), technical and technological (5.5%), and graduate education (1.2%).

Finally, in large plantations and nurseries, educational attainment shows the following figures: primary (32.6%), high secondary (19.1%), Don’t know/No response (16%), basic secondary (12.3%), technical and technological (8.7%), undergraduate (3.5%), and graduate (0.6%), as seen in Figure 31.

From these results, it is observed that, regardless of the size of plantation and nursery production units, primary education is the most common among palm oil industry workers.

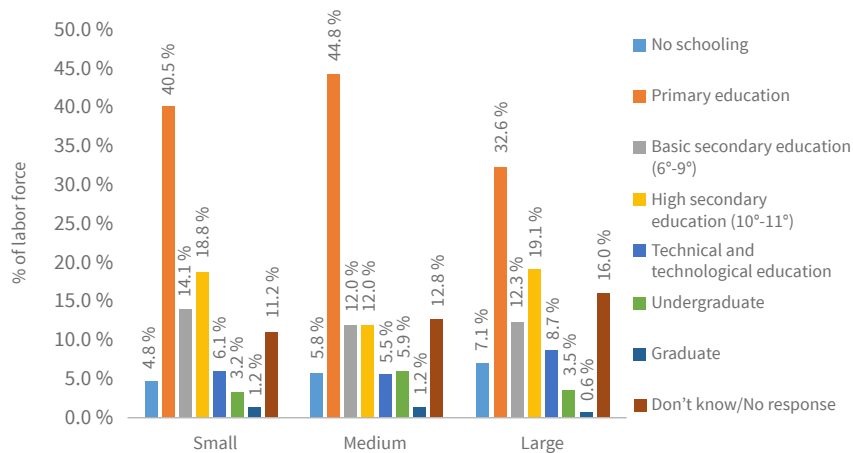
The next analysis carried out considered educational attainment by area of work and size of the production unit. Bearing the same education levels for this analysis, the highest share of those employed at operational divisions in the three categories of size has attained primary education. However, the other levels depict a different behavior. In small plantations and nurseries, 43.5% of operational workers have attained primary education, 19.6% basic secondary, 14.7% high secondary, and 4.6% technical and technological education. Individuals who asserted not knowing or did not provide an answer to this question represent 12.8% of total workers at this type of production unit.

In addition, operational workers at medium-sized plantations and nurseries show the following educational attainment levels: primary (49.8%), basic secondary (13.2%), high secondary (12.1%), technical and technological (3.4%), undergraduate (1.1%), and graduate (0.1%). The rate for “Don’t know/No response” reached 13.9%.

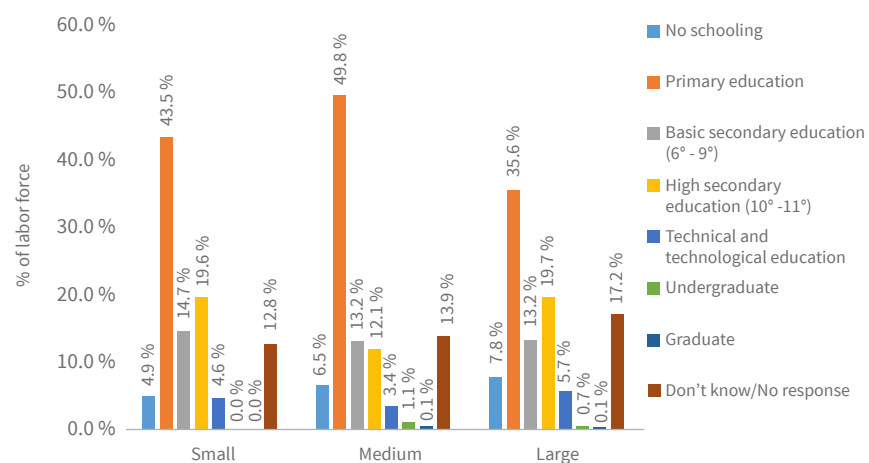
Now, in large plantations and nurseries, 35.6% of the labor force has completed primary education, 19.7% high secondary, 13.2% basic secondary, 5.7% technical and technological education, and 0.7 and 0.1% have attained undergraduate and graduate education, respectively. Individuals without formal schooling represent 7.8% of total respondents and those who did not know or answer to this question account for 17.2% (Figure 32).

As for the employed population in administrative areas at small plantations and nurseries, most of them have attained the undergraduate education level (26.3%). This group is followed in descending order by the labor force with primary education (19.3%), technical and technological education (16.9%), high secondary (13.5%), basic secondary (10.1%), graduate education (9.7%), and those without schooling (4.3%).

● **Figure 31.** Educational attainment of the labor force by size of the plantation and nursery production unit



● **Figure 32.** Educational attainment in operational areas by plantation size



Pruned leaves used as biomass around oil palm trees. Photo by Francisco Toro, 2019.

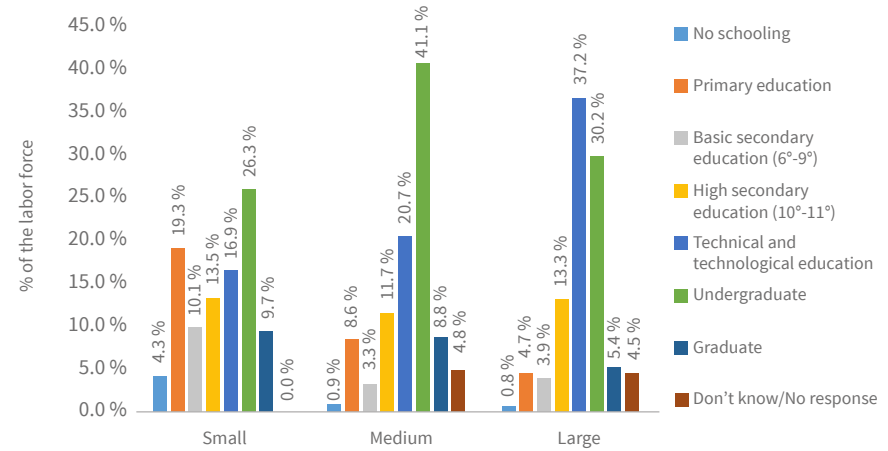


In medium-sized plantations and nurseries a prevalence of undergraduate educational attainment is observed among the administrative labor force (41.1%), followed by technical and technological education (20.7%), high secondary (11.7%), graduate tertiary education (8.8%), primary (8.6%), and basic secondary education (3.3%). Respondents under the category Don't know/No response stand for 3.3%. Besides, 0.9% of surveyed people declared having no educational attainment level.

The figures observed in large plantations and nurseries administrative staff are as follows: technical and technological (37.2%), undergraduate (30.2%), high secondary (13.3%), graduate (5.4%), primary (4.7%), basic secondary (3.9%), Don't know/No response (4.5%), and no schooling (0.8%), as represented in Figure 33.

Considering the information in the previous pages, a low coverage of secondary and tertiary education (55 and 25%, respectively) is observed in Colombian rural areas. According to Asocajas (2016), the share of students with primary education is 80%, while those who complete basic secondary education represent 50%. This situation hinders educational processes in rural populations, contributing to the persistence of high rates of unemployment and labor informality in our country. In contrast, despite the challenges in terms of educational attainment by the labor force in the palm oil industry—especially operational workers, whose average educational achievement reaches primary and basic secondary education—the share of administrative employees with tertiary education shows outstanding results.

**Figure 33.** Educational attainment in administrative areas by plantation size (2016)



Likewise, regardless of the size of plantations or nurseries, the share of the operational labor force with primary level educational attainment is worth recognition. On the other hand, the administrative staff in these production units show a trend towards undergraduate and technical and technological tertiary education.





Mechanical lifting of fresh fruit bunches. Photo by Francisco Toro, 2019.



Cenipalma staff member next to an oil palm hybrid tree. Photo Francisco Toro, 2019.



# 4

## DIRECT EMPLOYMENT IN CORPORATE SOCIAL RESPONSIBILITY ACTIVITIES

In order to understand the scope of this chapter, it is important to know what is Corporate Social Responsibility (CSR), on what principles its practices are based on, and what implementation models are there for this concept. CSR is framed as part of the international agenda after the creation of the United Nations Global Compact in 1999 —although its development dates back to the 1920s— and its related practices were extended and globalized in the early 21st century (Romero, 2016). In this study, we will use the definition of the Forum of Experts of the Ministry of Labor and Social Affairs of Spain, given its comprehensive nature. From this, CSR becomes real when:

[...] in addition to strict compliance with existing legal regulations, organizations voluntarily integrate social, labor, environmental, and human rights concerns that arise from the relationship and the transparent dialogue with their stakeholders into their corporate governance, management approaches, strategy, policies, and procedures, assuming full responsibility for the consequences and impacts derived from their actions.<sup>27</sup>

27 Retrieved from: <https://ecodes.org/responsabilidad-social/que-es#.XNrK-15KjIU>



In this way, CSR becomes critical for business performance, in addition to identifying that any organizational action that incorporates economic, social, and environmental dimensions leads to a model of sustainability. In view of the above, it is important to highlight that CSR generates relationships with communities, better conditions for the preservation of the environment, and strengthens customers and employees' trust. With that in mind, this chapter reviews the existing CSR programs in the Colombian palm oil industry. Part of this analysis stems from the need to identify the work of companies in this sector regarding CSR practices, both internally and externally. Thus, information on programs aimed at employees and those targeted at the community and other stakeholders is presented.

## Employee wellness programs

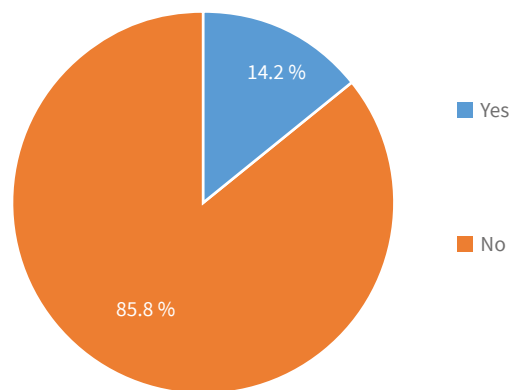
An organization is “a multi-level structure led by people in which, with the help of others, recruited and trained for an specific purpose, individuals work towards a common goal and where, with the implementation of processes, techniques, tools and instruments, goals are achieved with the final aim of obtaining an economic benefit that affects both the organization itself and its members and, consequently, society as a whole” (Carneiro, 2007). In this sense, the company is understood as an organ of society, whose main assets are its collaborators. Therefore, the well-being of employees must be a central issue of corporate management, which results on higher productivity levels and better business results for organizations and its stakeholders. Based on this, the survey identified the percentage of UEPAs with CSR programs aimed at their employees (Figure 34).



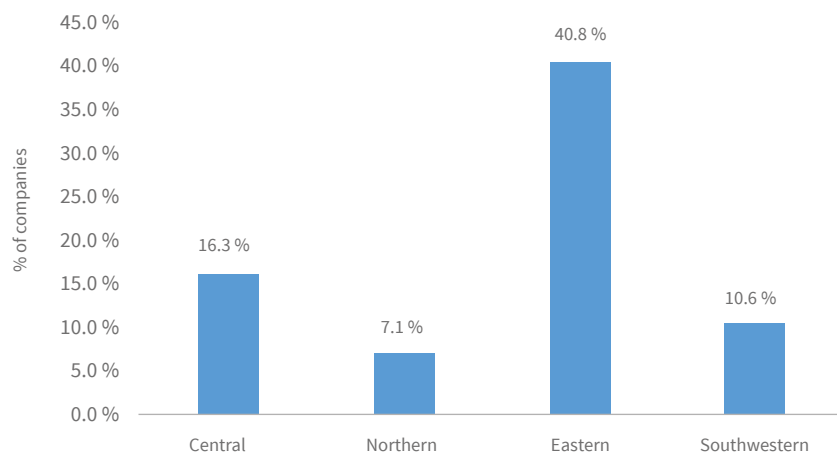
Facilities for employee wellness activities. Photo by Francisco Toro, 2019.



● **Figure 34.** Share of UEPAs with employee wellness programs (2016)



● **Figure 35.** Share of employee wellness programs by zone (2016)



The identification of these programs was generalized to each oil palm zones for analysis. Results show that the Eastern Zone takes the lead with 40.8% of the CSR programs aimed at employees in this industry, followed by the Central Zone, which has the largest number of direct jobs, with 16.3%. The other zones (Northern and Southwestern) record similar values, although it should be noted that the Southwestern Zone has a higher share of these programs, despite the difficulties identified there (Figure 35).

A classification of employee-oriented programs is also identified. These include leisure and sports, credit, housing, and the category “others”, with their own particularities in each zone. Credit and leisure and sports programs outweigh at the Central Zone, accounting for 32.9% and 22.7% respectively. The others (education, health, food, transportation, and housing show a similar behavior and account for the remaining 44.4%).

Leisure and sports programs are representative of the Northern Zone, accounting for 28.3%. Education, credit, and health programs are next with 16.3, 13.8 and 13.0%, respectively. Those with less weight are “others” (9.8%), food (9.4%), housing (6.2%), and transportation (3.3%).

In the case of the Eastern Zone, leisure and sports programs are important, representing 27.5% of wellness programs. Next are those aimed at credit (14.9%), health (12%), “others” (10.4%), and transportation (10%). The other types of programs do not exceed 10% individually, and together reach 25.2%.



Finally, in the Southwestern Zone the most common programs are those classified as “others” (35.6%), followed by transportation (20%), food (18.9%), credit (7.8%), leisure and sports (6.7%), health (4.4%), education (3.3%), and housing (3.3%), as shown in Figure 36.

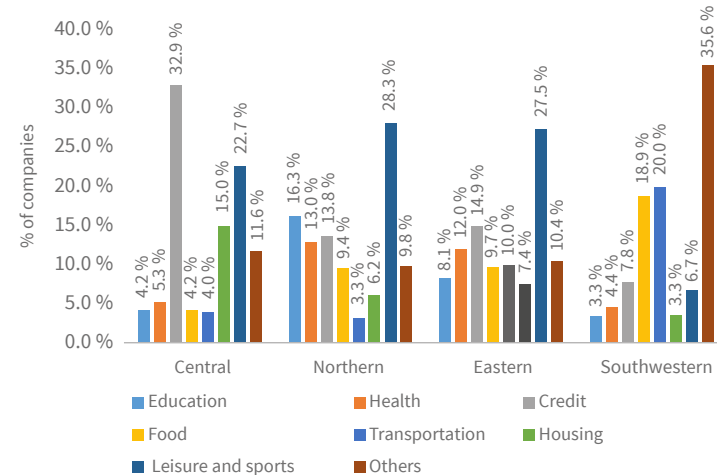
In light of what has been put forward up to this point, the preferred programs are leisure and sports (24%), which also represent the largest investment of resources and time; then there are those focused in credit (22%), housing (10%), health (9%). Education and food are the last places (each with 8%).

By oil palm zone, credit programs are actively promoted by companies in the Central Zone. In the Northern, Eastern, and Central zones, leisure and sports, are the most representative programs. In turn, the Southwestern Zone shows a trend towards different programs to those included in this study, although food and transportation programs are important in this region. The category “others”, especially in the zone just mentioned, might be explained in the different needs of territories that are met by the various initiatives within this category.

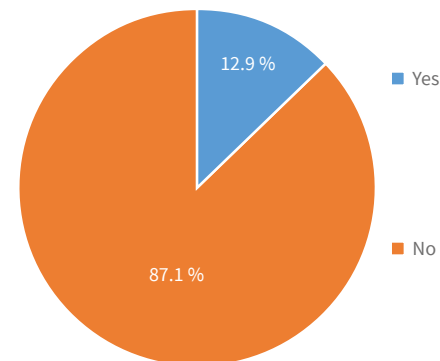
## Community-oriented wellness programs

A frequent practice of organizations to model their CSR strategies is found in what we know as social investments (Romero, 2016). These should be seen as the practice of organizations of making voluntary contributions whose direct impact positively affects local communities or, to a larger extent, other stakeholders. Thus, according to the results, 12.9% of total production units in this sector have community-oriented CSR programs, while 87.1% do not (Figure 37).

● **Figure 36.** Share of the types of employee wellness programs by zone (2016)

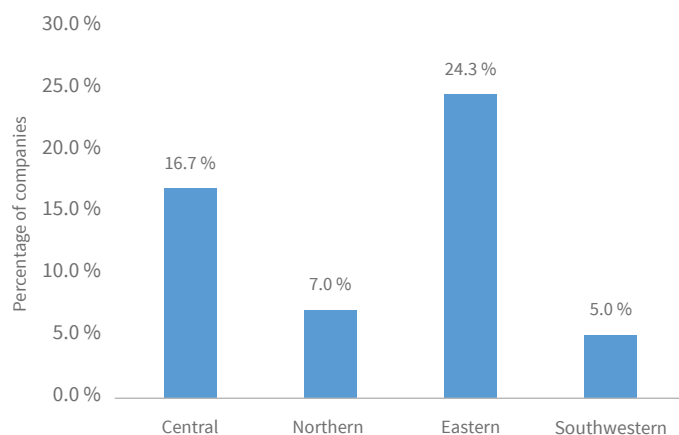


● **Figure 37.** Share of UEPAs with community-oriented CSR programs (2016)





● **Figure 38.** Share of community-oriented wellness programs by zone (2016)



Similarly, there are significant differences in each oil palm zone on this subject, either because of their context or because of the particularities of each region. In this regard, the Eastern Zone is where the largest number of production units with community-oriented CSR programs are located (24.3%), followed by the Central Zone (16.7%), the Northern Zone (7%), and the Southwestern (5%).

Noteworthy among these results is that although the Central Zone has the largest number of direct jobs it shows the lowest share of this type of programs. One possible explanation could be the large number of small producers, whose socio-economic conditions may prevent their engagement with CSR initiatives. In contrast, the Eastern zone has an important share of medium and large producers, who hold more capabilities for the implementation of CSR programs, considering the necessary resources for such endeavor (Figure 38).

● **Figure 39.** Share of community-oriented wellness programs by zone 2016

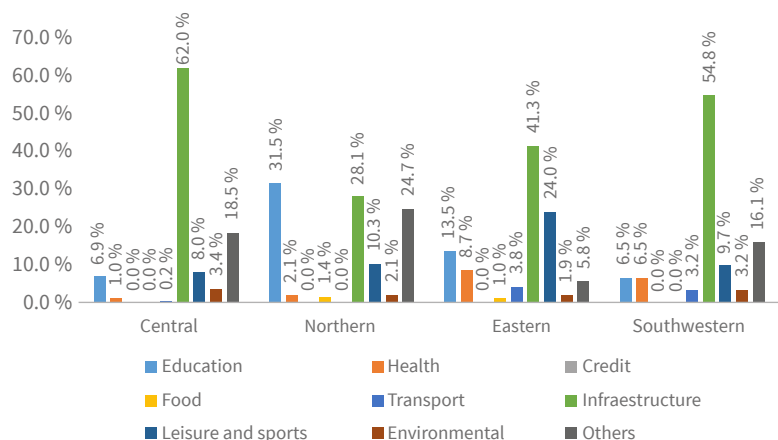
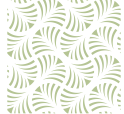


Figure 39 illustrates the types of community-oriented wellness programs. In all zones, the most common are those focused on infrastructure, with 62% in the Central Zone, 28.1% in the Northern Zone, 41.3% in the Eastern Zone, and 54.8% in the Southwestern Zone.

Other types of programs with representative ratios are those focused on education and “other” issues, which in the Northern Zone represent 31.5% and 24.7%, respectively. In the Eastern Zone, after infrastructure, programs on leisure and sports (24%) and education (13.5%) are common. In the Central Zone, leisure and sports (8%) and education (6.9%) are second and third in importance, respectively, after infrastructure projects.



In the Southwestern Zone, as in the other zones, leisure and sports (9.7%), education (6.5%), and health (6.5%) are relevant. It is observed that those programs aimed at credit options are not very popular in any of the oil palm zones. Moreover, in the Central and Southwestern zones there are no food/nutrition programs, and in the Northern Zone transportation programs are null.

In agreement with the foregoing, the Eastern and Central zones have a greater number of programs aimed at benefiting communities. It is also important to highlight these last two zones also promote most of the direct employment opportunities, which makes it possible to establish a joint responsibility of the palm oil industry in both regions in so far as employment creation is concerned.

On the other hand, results show that infrastructure-related programs are those in which the Colombian palm oil industry allocates most of its CSR resources. Furthermore, some challenges in environmental and food programs were also identified, although there is an increased interest in the creation of synergistic actions with different key players in order to achieve a wider scope of CSR efforts by companies in this sector.

## Employee wellness programs by plantation size

The first issue to consider on this matter is the percentage of companies with wellness programs aimed at their employees. According to the survey results, 91.4% of small plantations and nurseries do not have this type of programs, while 8.6% of these units promote some sort of initiatives.

In the case of medium-sized plantations and nurseries, 69.2% of these units do not count on such programs. In contrast, large plantations and nurseries and palm oil mills show better figures, since 77.9% of plantations and nurseries and 100% of palm oil mills promote wellness programs aimed at their labor force (Figure 40).

Based on survey findings, there are eight different types of programs, namely: education, health, credit, food, transportation, housing, leisure and sports, and “other.” By type of program and size of production unit, it is observed that 47.3% of education programs make part of CSR initiatives in large plantations and nurseries, 39.1% of medium-sized plantations and nurseries, and 13.6% are found in palm oil mills. Small plantations and nurseries do not have any education-oriented wellness program.

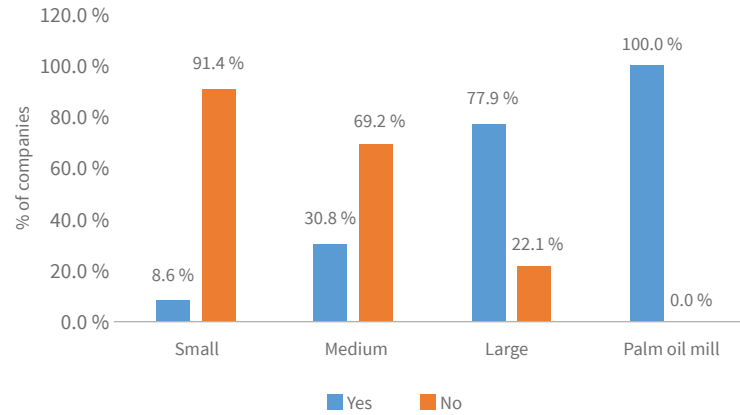
As for health programs, 44.7% are offered by large plantations and nurseries, 42.8% by medium-sized of these same units, and 12.4% by palm oil mills. Once more, small plantations and nurseries do not offer this type of programs. With reference to credit programs, small plantations and nurseries have the highest percentage (43.9%), followed by medium-sized plantations and nurseries (34.4%), large plantations and nurseries (18.3%), and palm oil mills (3.4%).

Regarding food-related programs, 14% of these are promoted by small plantations and nurseries, 33.2% by medium-sized, 41.9% by large, and 10.9% by palm oil mills. Transportation programs follow the same trend, with a share of 13.2% in palm oil mills, 16.8% in small plantations and nurseries, 26.3% in medium-sized plantations and nurseries, and 43.7% in large ones. Finally, housing and those named as “other” prevail in small plantations and nurseries, with 48.7% and 56.9%, respectively (Figure 41).

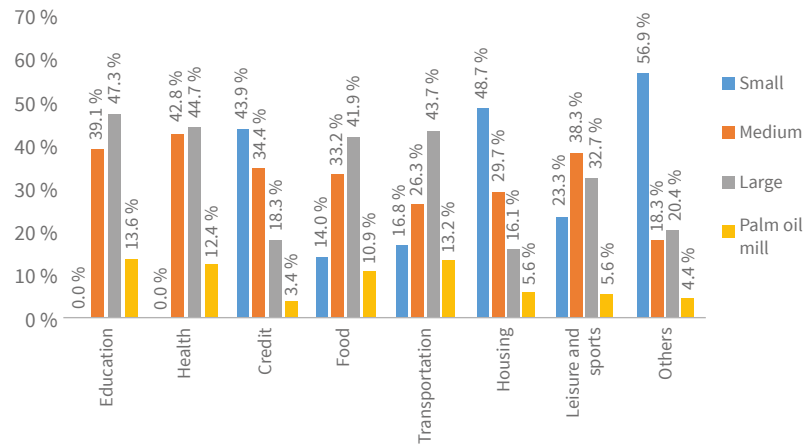
In view of the above, it can be argued that large plantations and nurseries and palm oil mills have the biggest share of employee wellness programs, followed in decreasing order by medium and small plantations and nurseries. Besides, it was observed that all types of programs are available in the latter, except for education and health. By contrast, medium and large plantations and nurseries and palm oil mills offer all of the programs described.



● **Figure 40.** Share of companies with or without wellness programs by size of the production unit (2016)



● **Figure 41.** Employee wellness programs by size of the production unit (2016)



Staff dining area at a palm oil company. Photo by Francisco Toro, 2019.



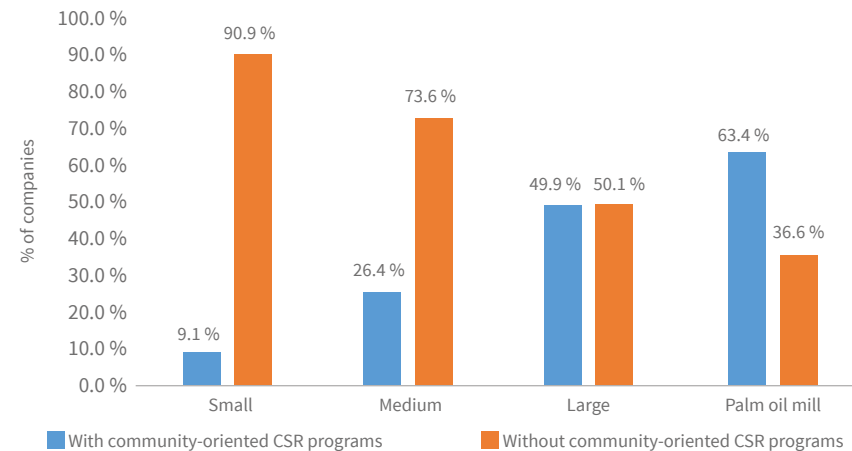
## Community-oriented CSR programs by size of the production units

To conclude this chapter, CSR community-oriented programs will be evaluated. Here it is established that 90.9 % of small plantations and nurseries do not report having community-oriented programs. In addition, 26.4% of medium-sized production units count on them and 73.6% do not. In the case of large plantations and nurseries, results show that 49.9% of these promote some type of program for local communities, while this figure in palm oil mills is 63.4%, as shown in Figure 42.

Results allow the identification of nine types of programs aimed at communities, namely: education, health, credit, food, transport, infrastructure, leisure and sports, environmental, and “other.”

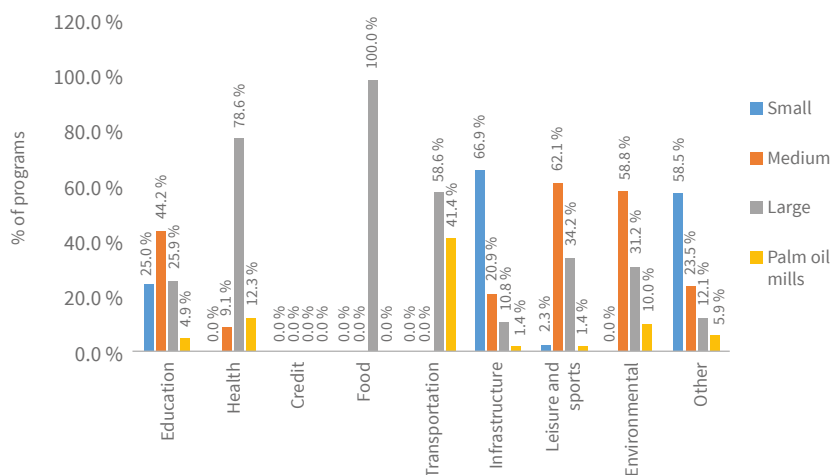
Disaggregating data by size, it is found that 25% of total education programs are offered by small plantations and nurseries, 44.2% by medium-sized, 25.9% by large-sized, and 4.9% by palm oil mills. On the other hand, health-related programs are common of large plantations and nurseries (78.6%), while 12.3 % of them are also offered by palm oil mills, and 9.1% by medium-sized plantations and nurseries. Besides, 100% of food programs are offered by large plantations and nurseries.

**Figure 42.** Companies with and without community-oriented CSR programs by size of the production unit (2016)





● **Figure 43.** Community-oriented CSR programs by size of the production unit (2016)



In regard to infrastructure, 66.9% of total programs correspond to small plantations and nurseries, 20.9% to medium-sized, 10.8% to large-sized, and 1.4% to palm oil mills. Concerning leisure and sports programs, 62.1% come from medium-sized plantations and nurseries, 34.2% from large-sized, 2.3% from small-sized, and 1.4% from palm oil mills.

As for environmental programs, small plantations and nurseries do not offer support on this issue, while 58.8% of medium-sized and 31.2% of large plantations and nurseries have some kind of environmental-related initiatives. Besides, 10% of these programs and designed and executed by palm oil mills. Finally, among those classified as “other”, 58.5% corresponds to small plantations and nurseries, 23.5% to medium-sized, 12.1% to large-sized, and 5.9% to palm oil mills (Figure 43).

In the case of community-oriented CSR programs, palm oil mills and large plantations and nurseries are also found to have the biggest share, followed by medium-sized units, and small production units. In this respect, it is noteworthy that no production unit, regardless of their size, offer credit programs for local communities, while large plantations and nurseries are the only ones that offer food-related benefits.

Administrative and operational offices at an oil palm plantation. Photo by Francisco Toro, 2019.





Biodiversity in a typical oil palm landscape. Photo by Francisco Toro, 2019.



# 5

## GREEN EMPLOYMENT

In this chapter, we will share the main findings of the survey on green employment, carried out simultaneously to the National Survey on Direct Employment in the Colombian Oil Palm Sector.

Measuring the contribution of this industry to green jobs generation was an idea first promoted by the DANE. Fedepalma welcomed this proposal and participated in the implementation of this pilot exercise, which is aligned with Fedepalma's objective of promoting and consolidating a sustainable palm oil agribusiness in Colombia.

In 2008, the International Labour Organization (ILO), the United Nations Environment Programme (UNEP), the International Organization of Employers (IOE), and the International Trade Union Confederation (ITUC) launched the Green Jobs Initiative, a project that encourages cooperative work between governments, employers, and workers in order to develop policies and programs that ease the transition to a green economy, including green jobs and decent work opportunities for all.<sup>28</sup>

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28 [https://www.ilo.org/beijing/what-we-do/projects/WCMS\\_182418/lang--en/index.htm](https://www.ilo.org/beijing/what-we-do/projects/WCMS_182418/lang--en/index.htm)





Within this context, green jobs are defined as those that reduce the environmental impact of businesses and economic sectors to sustainable levels (UNEP, 2008).<sup>29</sup>

Furthermore, the DANE considers green jobs as “any decent job that contributes to preserving or restoring the environment, whether in agriculture, industry, services or administration sectors” (ILO, 2008).

Based on the above, and considering that the scope of measuring the amount of green jobs in the palm oil industry was not intended to address all the characteristics of decent employment<sup>30</sup> (as included in the definition adopted by the DANE), a specific definition for green employment in this industry was proposed for the Survey:

*“Green employment in the palm oil industry represents any type of job that improves the environmental performance of oil palm nurseries, oil palm crops or palm oil mills, as well as those labors aimed at the preservation or restoration of the environment and natural areas in oil palm regions.”*

29 <http://istas.net/descargas/Empleos%20Verdes-PNUMA-OIT-CSI-OIE.pdf>

30 According to the ILO, “decent work sums up the aspirations of people in their working lives. It involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.” Retrieved from: <http://www.oit.org/global/topics/decent-work/lang--es/index.htm>



Harvesting of fresh fruit bunches. Photo by Francisco Toro, 2019.



Work team in an oil palm plantation. Photo by Francisco Toro, 2019.

## Types of green jobs and related activities

Based on the specific definition of green jobs proposed for this pilot study,<sup>31</sup> it was essential to specify in more detail the type of green jobs found in the Colombian palm oil industry.

First, we considered companies with areas or work teams whose main purpose is related to environmental issues. Two of these are found in oil palm crops and palm oil mills:

- a. **Environmental areas:** In charge of environmental management activities, including environmental assessments, design of management plans and guidance for its implementation, follow-up, and monitoring. Usually, its members are full-time employed in environmental issues.
- b. **Sustainability teams:** Responsible for the planning and execution of sustainability standards and certifications. They usually have a full-time allocation.

31 Green jobs in the palm oil industry are any type of job that improves the environmental performance of oil palm nurseries, oil palm crops or palm oil mills, as well as those labors aimed at the preservation or restoration of the environment and natural areas in oil palm regions.



Afterwards, jobs related to specific stages of the production process which entail environmental benefits were studied. The activities related to these jobs were grouped into four core areas:

1. **Efficient use of natural resources:** Activities that contribute to reduce consumption or improve the efficiency in the use of natural resources (water, soil, energy).
2. **Pollution prevention/control:** Actions for the prevention or mitigation of the pollution caused by solid waste, wastewater, atmospheric emissions or greenhouse gases.
3. **Biomass use:** Activities related to the use of oil extraction process by-products, thus reducing waste generation and replacing the use of agrochemicals.
4. **Environmental conservation:** Actions that contribute to the management and conservation of biodiversity (species and ecosystems) and ecosystem services.

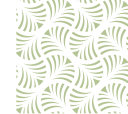
The second step in this process was defining the specific activities involved in each of these four core areas. Therefore, a definite number of activities were selected, giving priority to those actions easily recognized by participants and to activities with an established time-load (Table 6).

- Regarding the **efficient use of natural resources**, activities related to water and energy resources were prioritized.

For example, in plantations and nurseries the operation and maintenance of efficient irrigation systems was included, since this measure significantly increases the effective use of water, compared to traditional irrigation systems. In the case of palm oil mills, the implementation of a program called “Water Efficiency and Conservation” [*Programa de Ahorro y Uso Eficiente de Agua*] was added, as well as other activities that contribute to power self-sufficiency and the use of renewable energies: steam-based power cogeneration and power generation from the capture of methane in wastewater treatment systems (WTS).

- In the core area of **pollution prevention and control**, the main focus was the operation and maintenance of wastewater treatment systems and atmospheric emissions control. Activities such as the selection, storage and adequate disposal of ordinary and hazardous waste were included for all production units. Finally, biological controls research and use for pests and diseases were deemed to be related to a reduction in the use of agrochemicals in oil palm crops.
- As for **biomass use**, priority was given to activities such as the use of natural fertilizers and biomass (empty fruit bunches, fiber, shell, and compost), and the operation and maintenance of composting plants.
- In terms of **environmental conservation**, two activities were prioritized: flora and fauna management, and water rounds maintenance and recovery.
- Environmental areas and sustainability teams were incorporated into a fifth core area named **environmental management**.





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En la Tabla 2 se muestran las actividades seleccionadas para cada uno de estos cinco ejes temáticos.

■ **Table 6.** Prioritized activities by green jobs in the Colombian palm oil industry (2016)

Type of green job	Core area	Activities	Nursery	Plantation	Palm oil mill	
Specific activities of the production process that render environmental benefits	Efficient use of natural resources	Operation of efficient irrigation systems	■	■		
		Implementation of Water Efficiency and Conservation Program			■	
		Operation of steam-based power cogeneration systems			■	
		Operation of methane-based power generation systems			■	
	Pollution prevention and control	Wastewater treatment systems (WTS)				■
		Atmospheric emissions control				■
		Ordinary waste management	■	■	■	
		Hazardous waste management	■	■	■	
		Biological controls for pests and diseases management		■		
		Biological controls research				
	Biomass use	Use of natural fertilizers	■	■		
		Biomass use		■		
		Composting plants operation and maintenance			■	
	Environmental conservation	Flora and fauna management		■		
		Water rounds maintenance and recovery		■		
Environmental areas or sustainability teams	Environmental management	Environmental management areas or teams		■	■	
		Sustainability teams		■	■	



## Methodology for estimating the number of green jobs

Detailed forms with specific questions for each production unit (plantation, nursery, and palm oil mill) were designed in order to estimate the total number of green jobs in the palm oil industry. The objective of these forms was to identify:

1. If a given activity is carried out within the production unit
2. The number of people assigned to this role (including full-time and part-time employees)
3. The time allocated to this activity per individual

In the validation process of the methodology and the questionnaire, it was found that asking for the average hours per week a person performs the specified activities was the best option for estimating the total time allocated for such tasks.

To calculate the percentage of green jobs, we compared the average number of hours per week assigned to green-related activities with the maximum hours of a regular working week,<sup>32</sup> as follows:

$$\% \text{ time} = \frac{\# \text{ average hours allocated to the targeted activity}}{48 \text{ hours}}$$

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32 Article 161, Colombian Labor Code. Available at: [http://www.secretariassenado.gov.co/senado/base-doc/codigo\\_sustantivo\\_trabajo\\_pr005.html](http://www.secretariassenado.gov.co/senado/base-doc/codigo_sustantivo_trabajo_pr005.html)

The palm oil industry promotes the conservation of water bodies. Photo by Francisco Toro, 2019.





The number of green jobs in a specific activity was calculated by adding the resulting percentages of time of all individuals working part-or-full-time in such tasks, as described below:

$$\begin{aligned} & \# \text{ green jobs in targeted activity} \\ &= \sum (\text{individuals dedicated to the targeted activity}) \\ & \quad * (\% \text{ time allocated for the targeted activity}) \end{aligned}$$

Thus, the number of green jobs in plantations, nurseries, or palm oil mills, as well as in core areas or specific activities, is results of the total number of full-time employees required to carry out the targeted tasks.<sup>33</sup>

The total number of green jobs quantified for the palm oil industry correspond to the sum of the green jobs in charge of the 17 prioritized activities (Table 6).

This methodology offers guiding principles for subsequent studies in this sector aimed at quantifying the average number of individuals full-time or part-time employed in environmental activities.<sup>33</sup>

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33 The number of green jobs was calculated from adding part-time allocations, therefore, the results obtained do not correspond to whole numbers but decimals. The tables in this chapter show approximate values to the nearest whole number. Thus, some differences may be found in totals.





## General results of green jobs in the Colombian oil palm sector

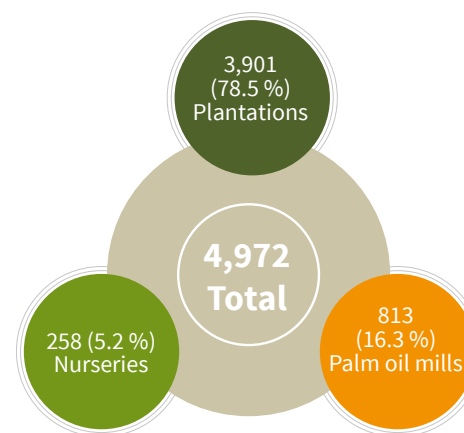
The results of this pilot study show that 4,972 jobs in the palm oil industry are associated with activities that contribute to improve the environmental performance of oil palm crops, nurseries or palm oil mills, as well as to protect or restore the quality of the surroundings areas and natural environments in oil palm regions. This number corresponds to the 4,900 UEPA's addressed by the survey.

The total number of green jobs represents 7.35% of the total direct jobs of this industry, which clearly demonstrates the substantial investment of human resources and time in environmental management.

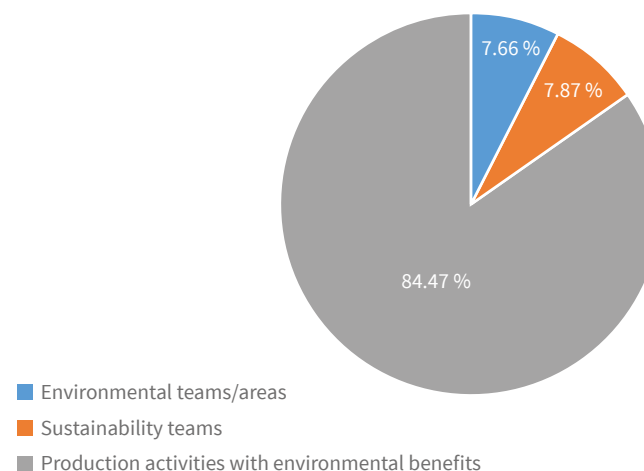
Most of these green jobs were created in oil palm plantations (3,901 or 78.5% of total green jobs), while a lower proportion belongs to palm oil mills<sup>34</sup> (813/16.3 %), or nurseries (258/5.2 %), as illustrated in Figure 44.

Approximately, 85% of green jobs were associated with activities directly related to the production process generating environmental benefits, and only 15.5% of these make part of environmental areas or sustainability teams, as shown in Figure 45 and Table 7.

● **Figure 44.** Green jobs in the palm oil industry by production unit (2016)



● **Figure 45.** Share of green jobs by area of work (2016)



34 Includes palm oil mills with and without associated crops.



Plantation worker at a fresh fruit bunches gathering station. Photo by Francisco Toro, 2016.



This is a relevant finding, considering the belief that only individuals working in environmental teams or other related areas are responsible for creating positive environmental impacts. As observed, production areas also play a key role in making the palm oil industry an environmentally sustainable sector.

According to the results, environmental areas and sustainability teams are common in palm oil mills production units. Figure 46 illustrates that an important share of green jobs in palm oil mills is related to these work teams, whereas most of the green jobs in plantations and nurseries are engaged in production processes that create some kind of environmental benefit.

These results suggest that a significant part of environmental management planning and monitoring activities and the adoption of sustainability protocols in oil palm hubs is coordinated by environmental areas and sustainability teams of those plantations with palm oil mills.

The above goes in line with the rural extension model promoted by Cenipalma, which pursues the establishment of Technical, Environmental and Social Auditing and Assistance Units (UAATAS) in oil palm hubs anchor companies (companies with palm oil mills), making them responsible for the development and deployment of comprehensive technical assistance among producers regarding economic, environmental, and social issues, as part of a sustainable approach of this industry.

A large number of green jobs were found in palm oil mills compared to oil palm crops. Palm oil mills have an average of 12.7 of these jobs, while plantations only reach 0.9, as shown in Table 8. This result can be related to the fact that palm oil mills and some plantations have assembled environmental teams to meet the monitoring and control requirements of authorities.

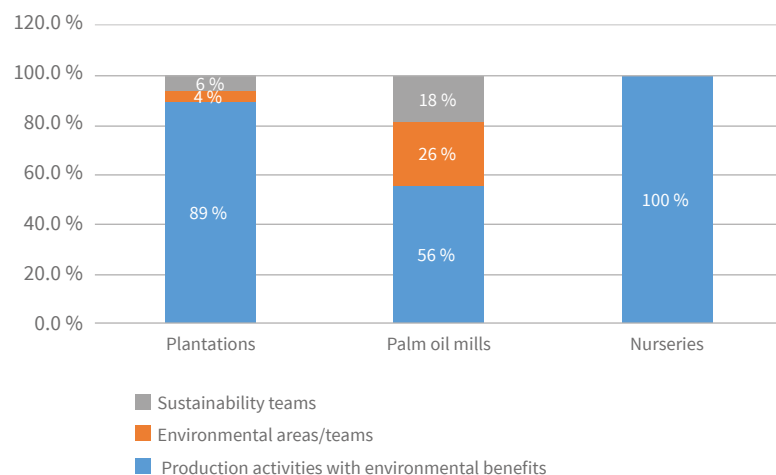
On the other hand, a significant number of companies with palm oil mills have their own crops, and thus require more labor force in environmental-related activities. In such cases, environmental and sustainability teams are usually led by the administration of palm oil mills. Therefore, the green jobs generated in palm oil mills and oil palm plantations managed by the same company were added under the category palm oil mills.

**Table 7.** Distribution of green jobs in the palm oil industry (2016)

Production unit	Specific activities of the production process		Environmental areas/teams				Total	
			Environmental areas		Sustainability teams			
	Jobs	%	Jobs	%	Jobs	%	Jobs	%
Plantation	3,488	70.16	170	3.43	243	4.88	3,901	78.5%
Palm oil mill	454	9.13	210	4.23	149	2.99	813	16.3%
Nursery	258	5.19	0	0.00	0	0.00	258	5.2%
<b>Total</b>	<b>4,200</b>	<b>84.47</b>	<b>381</b>	<b>7.66</b>	<b>391</b>	<b>7.87</b>	<b>4,972</b>	<b>100%</b>



**Figure 46.** Distribution of green jobs by production unit (2016)



**Table 8.** Average number of green jobs by production unit (2016)

Production unit	Plantations (4,837 in total)		Palm oil mills (64 in total)	
	Jobs	Average per plantation	Jobs	Average per palm oil mill
Environmental areas	170	0.0	210	3.3
Sustainability teams	243	0.1	149	2.3
Production activities with environmental benefits	3,746	0.8	454	7.1
<b>Total</b>	<b>4,159</b>	<b>0.9</b>	<b>813</b>	<b>12.7</b>

Furthermore, companies with palm oil mills have not only been strengthening environmental and sustainability areas/teams to meet the demands of their production units but also to create a positive impact on their fruit suppliers.

Of the four oil palm zones, the Central Zone had the highest share of green jobs (43%), followed by the Eastern (28%), Northern (26%), and Southwestern (3%) zones. This result is consistent with the overall employment figures of the palm oil industry presented in Chapter 2 (Figure 47) and allows concluding that green jobs distribution between the four zones is a result of the general distribution of jobs in this sector, rather than specific conditions regarding environmental matters in each zone.

## Green jobs in environmental areas or teams

As mentioned in the previous section, the first type of green jobs studied were those related to environmental areas or teams. The results about this typology are discussed below.

First, it was established that 8.1% of the production units studied have environmental areas/teams in their structures. While this figure appears to be relatively low, further details are provided in order to have a better understanding of its importance.

On the one hand, 87% of the palm oil mills<sup>35</sup> have environmental areas/teams, which indicates great progress in the consolidation of labor force with specialized competencies in environmental issues

<sup>35</sup> Includes palm oil mills with and without associated crops.



by companies within this sector. As stated, these teams usually lead environmental management efforts for their employers and, sometimes, for the fruit suppliers of these.

Similarly, 7.8% of oil palm plantations have formed environmental areas/teams,<sup>36</sup> with 54.5% of these found in large production units, showing an important advance in the creation of specific work teams for environmental issues in the largest production units.

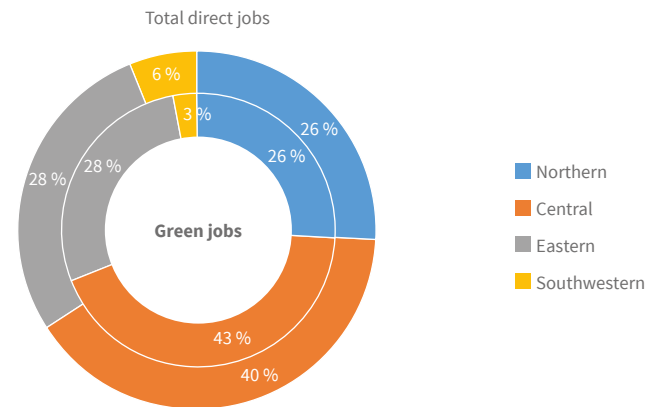
It was also found that 18.6% of medium-sized and 4.3% of small plantations have their own environmental areas/teams, as illustrated in Figure 48. Considering that the rural extension and technical assistance model adopted by this industry is based on the provision of technical assistance services to small and medium-sized producers by anchor companies in their corresponding oil palm hub, this result could be seen as a positive contribution.

Results show that environmental areas in palm oil companies have an average of one employee (0.96), considering the 381 full-time jobs found in a sample of 397 production units reporting fully-established environmental staff.

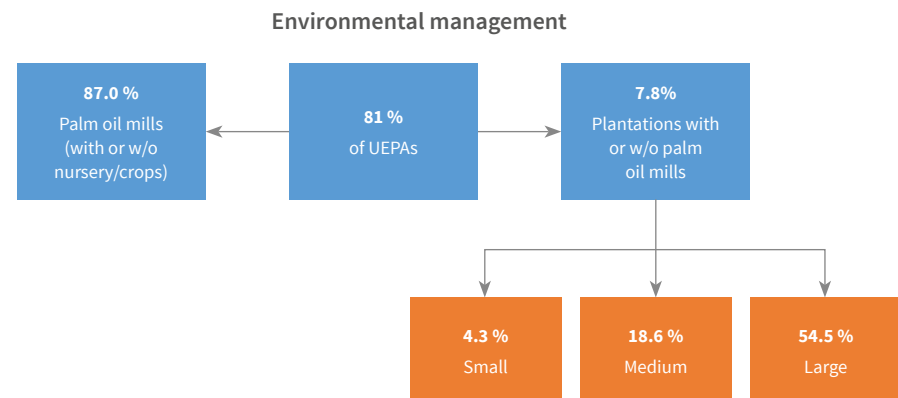
Additionally, environmental areas are larger in palm oil mills than in oil palm plantations, and even larger in palm oil mills with associated crops. Data shows an average of 2.89 full-time employees in palm oil mills, 0.50 employees oil palm plantations, and 4.24 employees in palm oil mills with associated crops, as observed in Table 9.

36 The percentages in the first and second paragraphs of this page include companies with an environmental area or sustainability team allocated for both their plantations and mills.

**Figure 47.** Distribution of green jobs by oil palm zone compared to the general distribution of jobs in the palm oil industry (2016)



**Figure 48.** Environmental areas in oil palm plantations and palm oil mills (2016)







■ **Table 9.** Average size of environmental areas by production unit (2016)

	Palm oil mill (w/o associated crops)	Palm oil mill with an associated plantation (with or w/o associated nursery)	Plantation (with or w/o associated nursery)	Total
Production units with environmental areas/teams	18	37	342	397
Green jobs in environmental areas/teams	52	159	170	381
Average green jobs per environmental area/team	2.89	4.24	0.50	0.96

Palm oil mill operational worker. Photo by Francisco Toro, 2019.



## Green jobs in sustainability teams

The second type of green jobs examined were related to sustainability teams in palm oil companies, whose results are presented in the next lines.

Based on survey data, 12.3% (605) of the production units studied (4,900) have a sustainability team. As mentioned in the previous section, this figure seems relatively low, therefore more details will be presented below in order to explain the relevance of such figures.

Results indicate that 57.4% of palm oil mills<sup>37</sup> reported having a sustainability team; a percentage that shows the commitment of the palm oil sector with sustainability beyond common environmental management practices. This result is mainly explained by the increasing demand for sustainable certified palm oil, being the Roundtable on Sustainable Palm Oil (RSPO), the International Sustainability & Carbon Certification (ISCC), and the Rainforest Alliance the most common standards in the palm oil world market.

In addition, the survey identified that 12.1% of oil palm plantations have their own sustainability team.<sup>38</sup> Disaggregating data by size, 42.4% of large, 27.7% of medium-sized, and 8.5% of small plantations already have sustainability teams, as illustrated in Figure 49.

37 Including mills with ownership over oil palm crops or plantations.

38 This figure (and the others in this paragraph) includes companies with an environmental area or sustainability team allocated for both their plantations and mills.



On average, sustainability teams in palm oil companies are made up of less than one employee (0.65). From a total of 605 production units that reported this type of work teams, 391 full-time employees were identified.

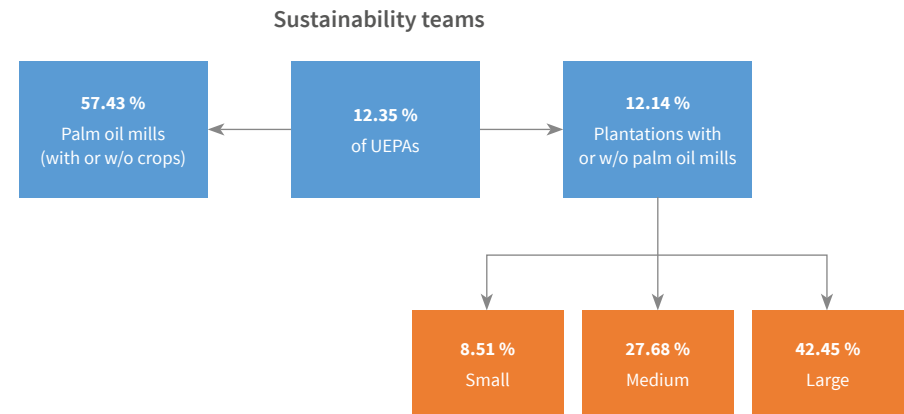
As in the case of environmental areas, the size of sustainability teams is found to be larger in palm oil mills compared to oil palm plantations, and even larger in palm oil mills with associated crops: 2.89 full-time employees in mills, 0.50 in plantations, and 5.19 in mills with associated plantations (Table 10).

## Green jobs in specific activities of the production process

The third category of green jobs is related to specific activities within palm oil production process rendering some type of environmental benefit.

According to the survey results, the core areas with more green job opportunities in the palm oil agribusiness were pollution prevention and control (37.6%) and biomass use (29.8%), followed by environmental management (15.5%), whether in environmental teams or areas, efficient use of natural resources (10.6%), and environmental conservation (6.5%), as depicted in Figures 50 and 51.

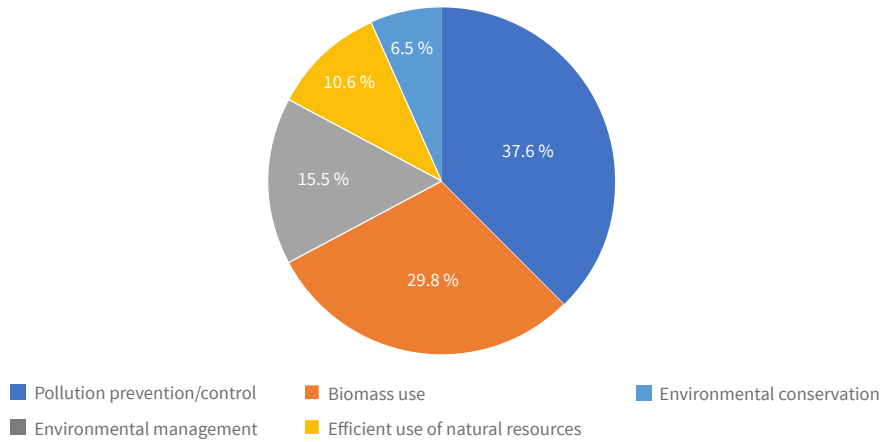
**Figure 49.** Sustainability teams in oil palm plantations and palm oil mills (2016)



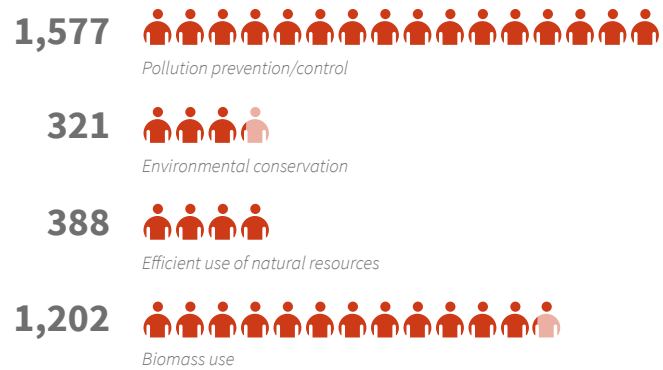
**Table 10.** Average size of sustainability teams by production unit (2016)

	Palm oil mill (w/o associated crops)	Palm oil mill with an associated plantation (with or w/o associated nursery)	Plantation (with or w/o associated nursery)	Total
Production units with sustainability teams	13	23	342	397
Green jobs in sustainability teams	28	121	170	381
Average green jobs per sustainability team	2,12	5,19	0,43	0,65

● **Figure 50.** Share of green jobs by core area (2016)



● **Figure 51.** Number of full-time employees in each core area (2016)



Monitoring of control equipment at a palm oil mill. Photo by Francisco Toro, 2019.



Compliance with major environmental requirements (wastewater management, atmospheric emissions control, management of ordinary and hazardous waste) is related to pollution prevention and control activities; partly explaining the number of green jobs in

this category. However, biological control activities have the largest share of jobs (14.5%) in this core area, as shown in Table 11. This result proves an integrated pest and disease management strategy that promotes the use of insects, fungi, or other organisms instead of environmentally harmful methods.

Scarlet ibis, also known as Corocora, over oil palm compost. Photo by Francisco Toro, 2019.





**Table 11.** Summary of core areas and activities related to green jobs

Core area		Activity	Palm oil mills	Plantations	Nurseries	Total
<b>Pollution prevention and control</b>	<b>37.6 %</b>	Biological control	-	14.5 %	-	<b>14.5 %</b>
		Adequate ordinary waste management	1.6 %	10.0 %	0.3 %	<b>11.9 %</b>
		Adequate hazardous waste management	0.9 %	5.1 %	0.2 %	6.2 %
		Biological control research	-	2.1 %	-	2.1 %
		Emissions control system operation	1.1 %	-	-	1.1 %
		Water treatment system operation	1.8 %	-	-	1.8 %
<b>Biomass use</b>	<b>29.8 %</b>	Biomass use in crops	-	15.7 %	-	<b>15.7 %</b>
		Natural fertilizers usage	-	8.5 %	4.3 %	<b>12.7 %</b>
		Compost plant operation	1.3 %	-	-	1.3 %
<b>Environmental management<sup>39</sup></b>	<b>15.5 %</b>	Sustainability teams	3.0 %	4.9 %	-	7.9 %
		Environmental teams/areas	4.2 %	3.4 %	-	7.6 %
<b>Efficient use of natural resources</b>	<b>10.6 %</b>	Irrigation system operation	-	7.8 %	0.5 %	8.2 %
		Steam-based cogeneration system operation	1.2 %	-	-	1.2 %
		Efficient use of water program deployment	1.1 %	-	-	1.1 %
		Methane-based power generation system operation	0.1 %	-	-	0.1 %
<b>Environmental conservation</b>	<b>6.5 %</b>	Management and conservation of bodies of water and surrounding areas	-	3.4 %	-	3.4 %
		Flora and fauna management and conservation	-	3.0 %	-	3.0 %
<b>Total</b>	<b>100 %</b>	<b>Total</b>	<b>16.3 %</b>	<b>78.4 %</b>	<b>5.3 %</b>	<b>100 %</b>

39 Data for palm oil mills regarding environmental management included those with or without associated crops. In the case of plantations, only those with ownership over nurseries were included.



Biomass use includes palm oil extraction process by-products, such as empty fruit bunches, fiber, and shell, which provide nutritional content to oil palm crops, reduce the need for chemical fertilizers, and prevent the generation of extra waste from the oil extraction process. This practice is widely spread in oil palm crops, to the point of generating most of the green jobs in 2016 (15.7% of total jobs). Additionally, oil palm nurseries are also implementing the use of natural fertilizers instead of agrochemicals. This practice accounts for 12.8% of green jobs within the sector.

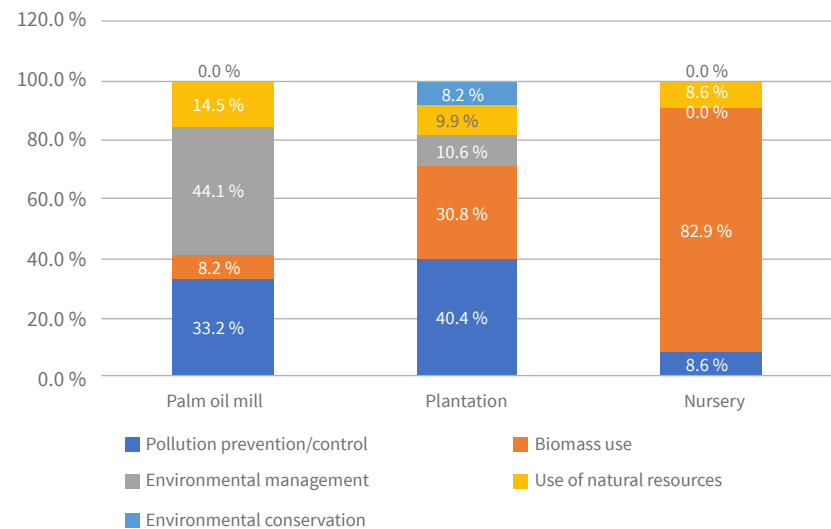
Activities related to the efficient use of natural resources and environmental conservation created fewer green jobs. However, it is worth noting that more than 17% of these are related to a comprehensive environmental management approach that strives for assessing and improving the environmental performance of this agroindustry. The evolution of green jobs reported for these two categories could be an interesting variable for further studies.

The core areas that reported the highest share of green jobs in palm oil mills were environmental management (44.1%) and pollution prevention and control (33.2%), as shown in Figure 52.

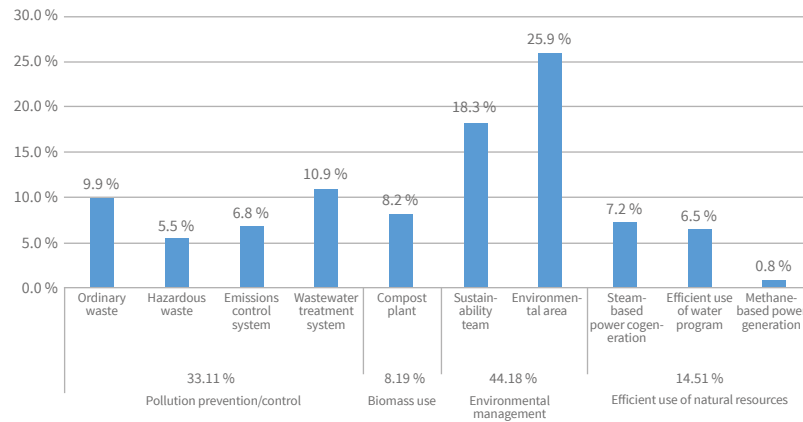
As explained, palm oil mills gather most of the environmental and sustainability teams in oil palm hubs, which are responsible for providing environmental assistance to fruit suppliers. Additionally, mills must comply with strict legal requirements regarding wastewater treatment, atmospheric emissions control, and waste management. The data in Figure 53 presents the share of green jobs by core area and specific activities in palm oil mills.

As for plantations, the core areas with the largest share of green jobs were pollution prevention and control (40.4%) and biomass use (30.8%), as depicted in Figure 52. This is mainly due to the use of by-products, biological controllers for pests and disease management, and the use of natural fertilizers, as already mentioned. Figure 54 shows the share of green jobs related to each core area and specific activity.

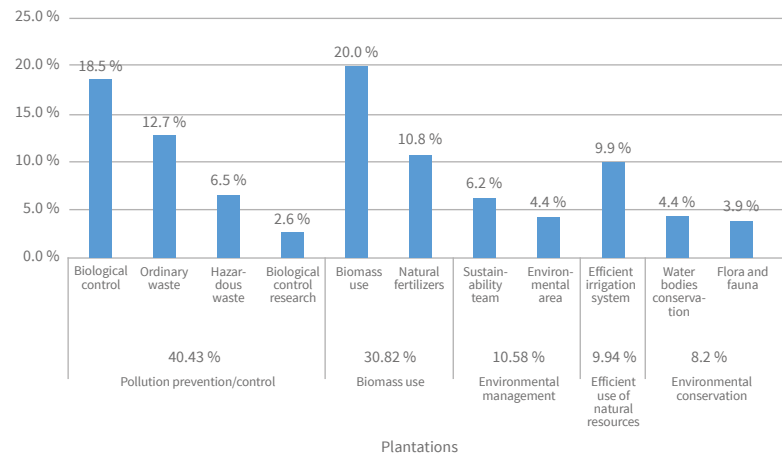
● **Figure 52.** Share of green jobs by core area and production unit (2016)



● **Figure 53.** Share of green jobs by core area and production unit in palm oil mills (2016)



● **Figure 54.** Share of green jobs by core area and production unit in oil palm plantations (2016)



Process monitoring at a palm oil mill. Photo by Francisco Toro, 2019.



Fresh fruit bunches reception and processing at a palm oil mill. Photo by Francisco Toro, 2019





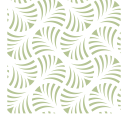
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## MAIN RESULTS AND CONCLUSIONS

The insights presented on the diversity and the characteristics of employment in the Colombian palm oil industry are an essential input for decision-making and evaluation processes related to labor issues within this agribusiness. This survey is also intended to become a tool for the analysis of other agricultural activities, motivating the various related agents to promote similar studies in order to identify existing gaps and communicate the contribution of agriculture to decent employment generation and the social and economic development of territories.

The first National Survey on Direct Employment in the Colombian Oil Palm Sector shows the importance of this agroindustry for job creation and its co-responsibility with the Colombian rural sector. The real value of the employment generated in 2016 by this industry—67,672 jobs, of which 82.4% are formal—is not only perceived through the improved living conditions of its labor force, but on the better socioeconomic level of the communities in oil palm regions as well; especially those affected by institutional weaknesses and social constraints.



On the one hand, the contribution of this industry to the generation of more and better jobs in rural areas is remarkable, representing 2.3% of total jobs in the agricultural sector. Likewise, the role of the Central Zone on this matter is one to mention, since 40% of the direct jobs in this agribusiness belong to the production units located in this region, despite being one of the most affected geographical areas by armed conflict.

When studying the type of employment relationship and its connection with labor formality —understood as jobs with standard social security schemes, particularly in regard to pensions— it was found that the palm oil industry offers better conditions for its labor force compared to the overall agricultural sector. In terms of production units, palm oil mills show formal employment rates of 99.9%, while plantations and nurseries reach 81.0%. In regard to oil palm zones, the Eastern Zone records striking rates, since nearly 100% of its labor force is hired under formal employment agreements.

On the other hand, a series of relevant findings are observed when examining the conditions and characteristics of workers in oil palm plantations and nurseries based on the size of these production units. For example, the percentage of operational staff is larger than administrative staff regardless of the size of plantations and nurseries. In contrast, the type of employment relationship does seem to be related to the size of production units, considering that service agreements and subcontracting are the trend in small units, while fixed-term and indefinite-term contracts are typical in medium and large units, respectively.

Another important finding is related to the age of the labor force, since, opposite to sources indicating a steady aging process of the rural population, the Colombian oil palm agribusiness has a significant share of young workers (aged 26-45), with individuals between 26 and 35 years being the most common age group among production units.





Transportation of fresh fruit bunches to a palm oil mill. Photo by Francisco Toro, 2019.

Employee turnover in the palm oil industry shows high rates, although it should be noted that respondents were asked the time they have been working for their current employer, not their years of experience in this industry. However, results show the reality Colombian rural areas, where cooperation between public and private sectors is essential for promoting labor formalization and making improvements in the endowment of public goods that allow better conditions for its population, making unnecessary their migration to urban areas in search of opportunities.

Educational attainment levels of the palm oil industry labor force are far from those of the overall rural population, with a significant share of employees with tertiary education; although primary level educational attainment is the trend in operational staff. From the three production units studied, palm oil mills have the biggest share of the labor force with tertiary level educational attainment.

Survey results also show low female labor force participation due to some particularities of work activities. However, the sector has been deploying actions to acknowledge the work of women as key stakeholders in developing this agribusiness and fostering environmental and social changes. By production units, the share of women is 12.9% in palm oil mills and 14.2% in plantations and nurseries 14.2%; most of them make part of administrative areas.

Regarding labor income, the employed population has a higher salary than the average household income for rural and urban areas. Besides, salaries in this industry, before social security benefits, are higher than the minimum legal wage in Colombia.

It is also noteworthy that most of the labor force is from the same region production units are located. Only one in four individuals comes from other regions or another country.

All of the above allows recognizing that, in spite of some variations regarding the size of production units, the general characteristics of the sector are very much alike across the country, which helps to



understand the progress made by this industry and its contribution to agriculture and rural development in Colombia.

The diagnosis of CSR and well-being programs by geographical area and size of the production units prove the strong commitment of this industry with its labor force and their communities. According to the results, the Eastern Zone has the biggest share of CSR programs targeted at employees and local communities. Additionally, a particular focus on recreation, sports, and credit is observed in employee-oriented initiatives, while infrastructure-related projects are common in community-oriented CSR programs.

By size, in small production units, programs aimed at employees typically allocate resources for credit and housing. Programs classified as “others” are also common in small plantations and nurseries. In the case of medium-sized units, health, education, recreation and sports, transport and food are the trend. In large plantations and nurseries, CSR programs on education are common, while the focus in palm oil mills is transportation.

Regarding CSR programs aimed at communities, small plantations and nurseries mainly support infrastructure and “other” activities. In medium-sized plantations and nurseries, recreation and sports, environmental issues, and education are common fields. In the case of palm oil mills, most programs work on transportation and health issues. Finally, large plantations and nurseries show great interest in food, health, and transportation.

All this information is essential to identify the efforts by companies in the palm oil industry regarding CSR strategies deployment. Therefore, is important to recognize the work of the different foundations and CSR areas in these organizations and their contribution to better living standards and environmental conditions across oil palm regions.

In reference to the first exercise for the identification and quantification of jobs that contribute to the environmental performance

of this industry, here named “green employment,” for Fedepalma was extremely important to assume the endeavor of developing such task along with the DANE, with the aim of recording new information about this agribusiness and, especially, on the actions of oil palm growers in sustainability matters. On the other hand, it is important to mention that a definition of “green jobs” was specially designed for this sector, along with the basic activities that oil palm crops and palm oil mills must carry out in order to generate environmental benefits. Such definitions and activities will serve as input for updating the survey in the future, and could also be adopted by other production sectors, especially agriculture.

The main result on this subject was the identification of nearly 5,000 green jobs (4,972), which represent 7.35% of total direct jobs. Such a number indicates that the oil palm agribusiness has an important share of its labor force devoted to the environmental sustainability of this business. Approximately 80% of these green jobs were generated in oil palm crops, 15% in palm oil mills, and 5% in oil palm nurseries.

This review also determined that green jobs distribution by oil palm zone matches the pattern of total jobs distribution. On the other hand, within the classification for this type of jobs around 15% are generated in environmental areas or sustainability teams, and 85% in operational processes with an environmental approach.

Within the classification above mentioned, the survey revealed that environmental areas and sustainability teams are concentrated in companies that possess palm oil mills. Being these are the anchor companies in oil palm hubs, it is expected they count on a strengthened labor force dedicated to environmental assessment and protection. Almost 90% of these companies reported having an environmental area, and almost 60% a sustainability team. Although some gaps can be observed, there is already great progress on this matter.

Core areas that generated most of the green jobs were also exposed. Pollution prevention and control and biomass use concentrated more than two-thirds of these jobs. Results show this industry has the required human capital to comply with pollution prevention and control regulations but also has made quite a good progress on deploying additional good environmental practices, such as biological controls and biomass use in crops.

The main gaps are observed in the efficient use of natural resources and environmental conservation, which have the lowest participation in green jobs. These issues are expected to gain importance as the adoption of international sustainability certifications, circular economy insights, and integrated landscape management consolidate within this agribusiness.

In general, the first National Survey on Direct Employment in the Colombian Oil Palm Sector provides a positive view of this industry for its stakeholders, especially its labor force, becoming a point of reference in terms of social gaps reduction and the promotion of good labor practices. As an example, the educational levels of workers in this sector is high compared to the rural population. In turn, income levels in the palm oil value chain are higher than the minimum wage and high above the average household income, both in rural and urban areas. Besides, an important share of the labor force is comprised of young people, which may suggest better opportunities for those linked to this industry. In contrast, the inclusion of a larger number of women in the different areas of work is presented as one of the main challenges for this business.

Studying the survey results and assess other dimensions is essential for strengthening the analysis of labor and environmental issues in order to design and execute actions and policies that foster the well-being of the labor force, communities, and the environment.

Undoubtedly, these results provide key information on the main characteristics of this agribusiness, exposing strong capabilities to positively transform oil palm rural areas, as well as social and environmental settings.



Worker at an oil palm nursery. Photo by Fedepalma.



Oil palm seedlings being selected for planting. Photo by Francisco Toro, 2019.



# 7

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"Female workers." Third position, social category. National Contest of Environmental and Social Photography in Colombian Oil Palm Zones. Photo by Carlos Varona, 2018.

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