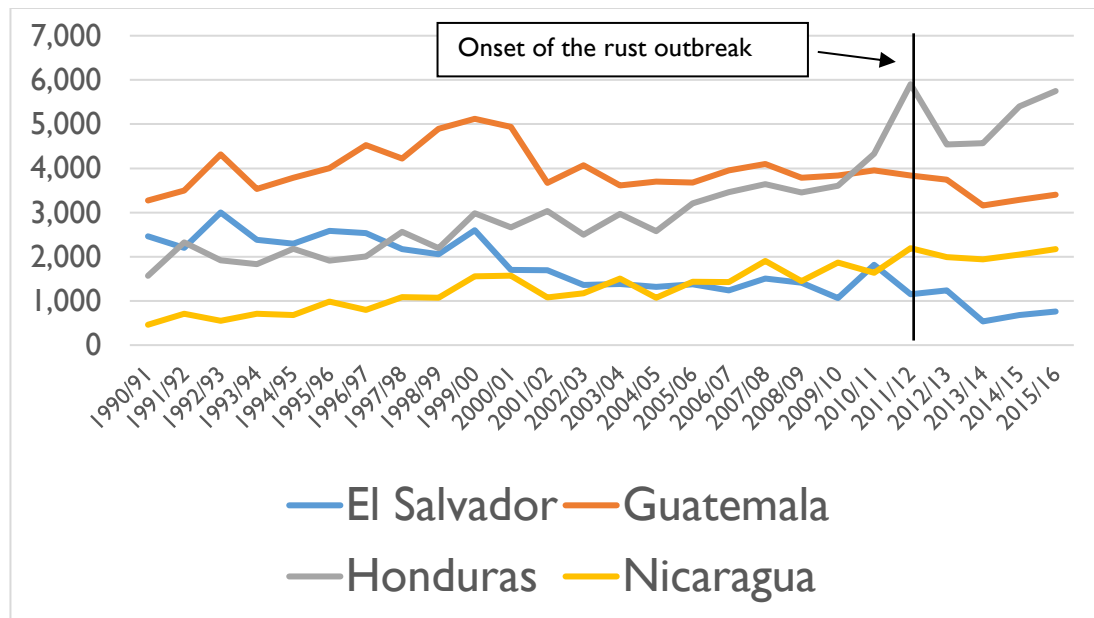


*The impact of the coffee rust outbreak on the coffee sector in Central America*

**KEY MESSAGES**

- Both the rising incidence of coffee rust during the 2012/2013 growing season and the decline in international coffee prices between 2011 and the end of 2013 contributed to a decline in coffee production in Central America. Coffee production in **El Salvador**, the most affected country, dropped by 70 percent between the 2010/2011 and 2013/2014 seasons. Coffee production in **Honduras**, which had reached a record high in volume in 2011/2012, declined by 23 percent in 2012/2013. In **Guatemala**, production dropped by 18 percent between 2011/2012 and 2013/2014, while **Nicaragua**, the country least affected in terms of its aggregate volume of production, saw an 11 percent decline in coffee production between 2011/2012 and 2013/2014.
- The volume of coffee production in each of these four countries has fluctuated over the past ten years. In spite of the continuing rust infestation, coffee production by the Central American region as a whole has been gradually rebounding beginning with the 2013/2014 harvest, compared with production figures for the 2012/2013 harvest, especially in the case of **Honduras** and **Guatemala**. However, there are areas throughout the region still affected by the rust outbreak, particularly in eastern **Guatemala**, western **El Salvador** and **Honduras**, and northwestern **Nicaragua**.
- While the coffee sector in all four countries is recovering in terms of aggregate volume of coffee production, small coffee growers and day laborers in certain areas are still severely impacted. In addition, the international price of coffee fell by 24 percent between December 2014 and December 2015. Even with the slight rise in prices in the first quarter of 2016, the low price of coffee has affected the earned incomes of coffee growers and day laborers during the 2015/2016 harvest. In some cases, production costs are greater than revenues from sales.
- The combined effects of climatic factors such as the El Niño phenomenon and of the problems in the coffee sector, including the rust outbreak and the decline in prices, has limited food availability and food access for many very poor and poor households in the Central American region. Areas of **Guatemala**, **El Salvador**, **Honduras**, and **Nicaragua** have been classified in **Crisis (IPC Phase 3)** since May and will remain so at least until staple harvests in August/September.

**Figure 1.** Coffee production by country, in thousands of 60 kg bags



Source: ICO

**BACKGROUND**

Coffee leaf rust is a disease caused by the fungus *Hemileia vastatrix*. It mainly attacks Typica and Bourbon coffee varieties such as Caturra, Catuaí, Pache and other susceptible varieties on coffee plantations throughout the region. Coffee rust disease first appeared in Central America back in 1976, with the worst reported outbreak in 2012. It generally affects mature coffee leaves, though a severe attack can result in the infection of young leaves as well, causing heavy loss of leaves and production losses. The disease has been linked to poor crop management and, in particular, to a lack of fertilization, the inadequate use of fungicides, climate variability, aging coffee plantations, and other factors weakening coffee plants and making them more susceptible to severe attacks.

**Figure 2.** Leaf infected with the coffee rust fungus



Source: FEWS NET

In spite of the continuing rust infestation since the 2011/12 season and the effects of three consecutive years of drought (2013-2015), **Guatemala, Honduras, and Nicaragua** had increased coffee production during the 2015/2016 season, up by 10.5, 30.6, and 4.6 percent, respectively, as compared to the 2014/2015 harvest. On the other hand, coffee production in **El Salvador** declined by 30 percent as compared to last season. Coffee remains one of the region’s main export crops and is even more labor-intensive than the sugar industry and other crops (see **Table 1**).

**Table I.** Main exports for 2015 by country (in millions of USD)

Guatemala (*)		El Salvador		Honduras (**)		Nicaragua	
Textiles	1,225	Textiles	2,610	Green coffee	917	Beef	456
Sugar	809	Sugar	178	Bananas	352	Green coffee	393
Bananas	722	Capacitors	159	Palm oil	213	Mining (gold)	319
Green coffee	637	Green coffee	148	Shrimp	113	Dairy products	203
Palm oil	331	Bathroom tissue	114	Tobacco products	107	Sugar	162
<b>Total exports</b>	<b>9,942</b>	<b>Total exports</b>	<b>5,485</b>	<b>Total exports</b>	<b>3,020</b>	<b>Total exports</b>	<b>2,085</b>

Source: Central banks of each country; table prepared by FEWS NET

(\*) Data through Nov. 2015

(\*\*) Data through Sept. 2015

Coffee cultivation is an important economic sector for Central American countries, not only for its effect on job creation at different levels of the value chain, but also as an important source of foreign exchange for each country.

According to data from the Bank of **Guatemala** for 2015, coffee generated close to USD 637 million in foreign exchange, accounting for 6.2 percent of total exports, making it the country's third agricultural export after sugar cane products and bananas. The main destinations for Guatemalan coffee are the United States (44 percent), Japan (13 percent), and Canada (10 percent).

Coffee is **El Salvador's** second largest export crop after sugar cane. According to official data, El Salvador exported USD 148 million worth of coffee in 2015, primarily to the United States (42 percent), Japan (13 percent), and Germany (11 percent).

**Honduras**, on the other hand, is the region's largest coffee exporter. Data from the Central Bank of Honduras shows more than USD 917 million worth of green coffee exports for 2015, making it the country's main export crop accounting for close to 22 percent of total exports. Honduras is presently the sixth largest coffee exporter in the world. The main destination for Honduran coffee is Europe, which imports nearly 70 percent of its supply, followed by the United States, with a 15 percent share.

According to data from its Central Bank, in **Nicaragua** coffee accounts for the second largest share of net exports, exceeded only by beef. Exports of this crop, valued at USD 393 million, accounted for 19 percent of all exports for 2015. The main destination for Nicaraguan coffee is the United States (48 percent), followed by Europe (30 percent) and Venezuela (12 percent).

The current coffee rust outbreak dates back to 2012. It is a continuing problem, disrupting coffee-growing activities throughout Central America, where more than 1.3 million people depend on the cultivation of this crop. The damage caused by this infestation is compounding the effects of the fluctuation in international coffee prices, particularly since 2013, and the drought conditions in 2015 affecting the quality and quantity of coffee production. One of the main effects of the low coffee yields has been a reduction in incomes and employment opportunities, particularly in the case of small coffee growers. This is the hardest hit population due to its lack of economic means, preventing them from engaging in good crop management practices such as applying fertilizers and fungicides, among others, and their lack of agricultural education for the proper management of coffee plantations.

The irregular rainfall pattern in 2014 led to poor staple harvests in many areas, while the 2015 drought caused by the El Niño phenomenon resulted in heavy losses of maize and bean crops for many subsistence farmers in Central America's Dry Corridor. All this sharply reduced the food reserves of affected households. The combined effects of all these negative factors have impacted food security outcomes, particularly in large parts of the Dry Corridor in eastern and western **Guatemala** and areas of **El Salvador**, western **Honduras**, and northern and northwestern **Nicaragua** dependent on small and medium-scale coffee production, which remain the worst-off areas in the region.

## TRENDS IN COFFEE PRODUCTION

The volume of coffee production by all four of these countries has fluctuated over the past ten years. In spite of the continuing rust infestation (see **Table 2**), aggregate coffee production in the Central American region has been gradually rebounding beginning with the 2013/2014 harvest, compared with production figures for the 2012/2013 harvest, especially in the case of **Honduras** and **Guatemala** (see **Figure 1**). However, there are areas throughout the region still affected by the rust outbreak, particularly in eastern **Guatemala**, western **El Salvador** and **Honduras**, and northwestern **Nicaragua**.

**Table 2.** Annual incidence of coffee rust disease in the Central American region in percentage terms, 2013 – 2016

Country	2013	2014	2015	2016
<b>Guatemala</b>	70 %	36 %	5 – 55 %	10 – 60%
<b>El Salvador</b>	74 %	45 %	5 – 20 %	10 – 60%
<b>Honduras</b>	25 %	21 %	Tolerant varieties: 2 % Susceptible varieties: 16%	Tolerant varieties: 2% Susceptible varieties: 15%
<b>Nicaragua</b>	37 %	22 %	10 – 24 %	5-10% Per INTA/OIRSA

**Source:** Promecafé, with sources in each national coffee association

In addition to the rust infestation, the current El Niño phenomenon, which is now weakening, drove a severe drought during the first rainy season in 2015 (April/May through August) in most parts of the Central America region. According to satellite estimates, cumulative rainfall was among the lowest in the 35-year record (see **Figure 3**). This phenomenon affected coffee plantations all across the region in 2015, as most coffee-producing areas lack irrigation systems and thereby depend entirely on rainfall. Coffee plants need rain between weeks six and 10 after fertilization of the flower for the cherry filling stage and between weeks 29 and 33 for their maturation stage. Thus, the lack of well-established rainfall will reduce coffee yields and undermine its quality. In such case, on one hand, the coffee plants will not properly flower and, on the other hand, without enough water, they will produce dried-up empty beans with very small cherries whose skin sticks to the bean, making it difficult to remove the pulp.

In addition to water availability, temperature is another factor affecting the growth of coffee plants. Low temperatures tend to slow the development process and delay the ripening of the fruit. On the other hand, high temperatures accelerate the aging of the fruit and reduce photosynthesis, hampering plant growth and limiting production and, in the opinion of a number of experts, negatively affecting the quality of coffee in the cup. They can also cause defects in the flowers, limit fruiting, and cause diseases and pest infestations, affecting the longevity, productivity, and yields of coffee plants. Another corollary of the El Niño

phenomenon in 2015 was a rise in temperatures, compounding the damage caused by the shortage of water and coffee rust infestation.

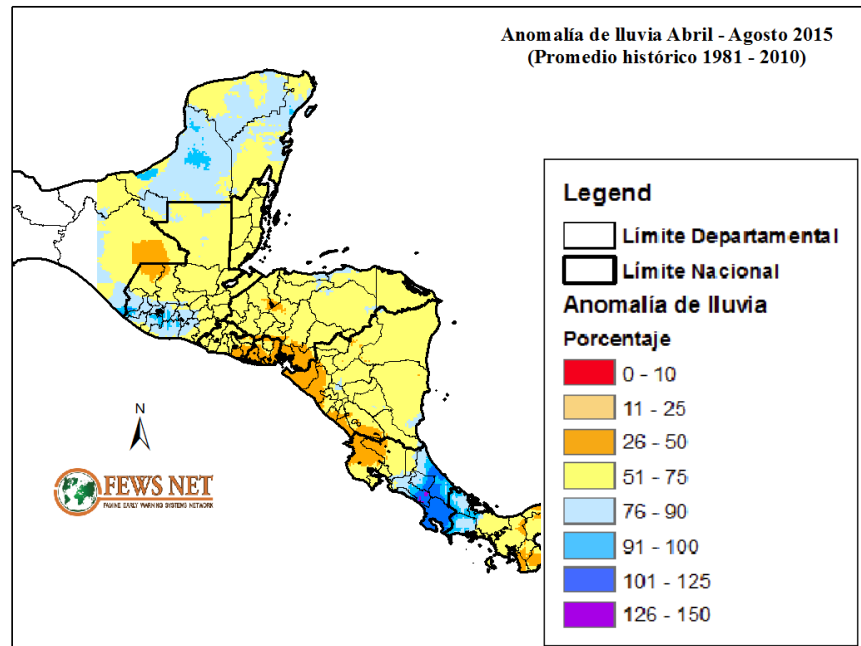
### Guatemala

Production volume remained relatively stable in Guatemala between the 2001/2002 and 2009/2010 seasons, averaging 3.822 million 60 kg bags of green coffee per year. Production from the 2010/2011 harvest rose slightly to 3.950 million bags, spurred by the high international price of coffee, which had been on the rise since 2010 and reached its peak in April 2011 with an average price of USD 2.31/lb. International coffee prices began to fall after April 2011, dropping to USD 1.01/lb. by the end of 2013. This price drop coincided with the outbreak of coffee rust disease in Central America. The combined effects of both these factors were reflected in the smaller volume of production from subsequent harvests. The harvest for the 2013/14 season produced 3.159 million bags of coffee, the lowest total in 15 years (see Figure 1).

Guatemala's National Coffee Association (ANACAFE) has confirmed that coffee rust disease is still affecting production, estimating the size of the 2015/2016 harvest at 15 percent below the figure for 2011/2012, before the rust infestation. However, national production should be up by approximately 10 percent from last season, from 2.9 million bags in 2014/2015 to 3.24 million for 2015/2016.

However, reported damage from the rust infestation for small and medium-size coffee growers in certain parts of the country for 2015/2016 was the same or worse than last season. Most of these losses occurred in or after October 2015 when the excessive rainfall created conducive conditions for the propagation of the rust fungus on plantations without proper crop management practices due to a lack of access to necessary inputs. With the resumption of rainfall between September and November 2015 after the drought between May and August of that year, there were signs of increasing rust sporulation and dispersion just as the 2015/2016 harvest was getting underway, creating conducive conditions for a new upsurge in coffee rust disease from latent lesions. The lack of rain between June and August 2015 and the excessive rainfall beginning in October of that year caused the harvest to be moved up by a month in certain areas, particularly in low-altitude areas growing mild coffee varieties. Coffee rust disease is present in all coffee-growing regions. Its incidence varies and, in the case of small coffee growers, is as high as 50 percent. The three months of heavy rain have driven defoliation rates up to 60 percent. Small growers are reporting the most severe infestations, most of whose farms lack proper crop management practices such as fertilization and the timely application of fungicides.

**Figure 3.** Rainfall anomaly as percent of normal, April – August 2015



Source: FEWS NET

## El Salvador

Annual coffee production between 2000 and 2010 averaged 1.370 million bags. El Salvador produced approximately 1.815 million bags of coffee from its 2010/11 harvest, a record volume of production in recent years. However, the rust infestation reduced coffee production from the 2013/14 harvest to approximately 537,000 bags.

El Salvador remains the country most affected by the rust outbreak in the region. Coffee production for this season (2015/2016) is down by 10 percent to a mere 613,000 bags from a production figure of 680,000 bags in 2014/2015. Production forecasts for this season are nearly 50 percent below the ten-year average. This sharp drop in production is a result of the country's slow recovery from the effects of the rust outbreak, due mainly to a lack of proper technical/crop management, and lack of new rust-resistant varieties to renovate plantations that are up to 40 years old and consist of plants that are highly susceptible to coffee rust. Another contributing factor to the drop in production is the effect of the 2015 drought, which caused coffee plants to suffer from water stress and caused under-ripe, green coffee cherries to fall. The drought was especially severe in the eastern part of the country.

According to CENTA/CAFÉ, the average national incidence of coffee rust disease between January 2014 and October 2015 was 20 percent of leaves affected by the fungus. However, with the heavy rains in the last quarter of the year, the incidence rate has been rising since October and, to date, is up to 40 percent.

## Honduras

Honduras has been the region's largest coffee producer and exporter since the 2010/2011 season. A rust control program, including the replacement of coffee plantations with resistant coffee varieties, technical training, and financial assistance for coffee producers, has enabled the country to recover and boost coffee production for the 2014/2015 season by 20 percent compared with the 2013/2014 harvest. According to projections by the Honduran Coffee Association (IHCAFE), only a small share of its total annual production, or approximately 540,000 bags of coffee, is kept in the country for domestic consumption. IHCAFE's Coffee Leaf Rust Early Warning System shows the coffee sector on green alert through December 2015, reflecting a very low incidence of rust disease. However, as of the end of November 2015, certain coffee-producing areas in Copán and Francisco Morazán Departments still had incidence rates of 21 and 17 percent, respectively.

Annual coffee production in Honduras averaged 3.2 million bags between the 2001/2002 and the 2009/2010 seasons, growing to 4.3 and 5.9 million bags, respectively, for the 2010/2011 and 2011/2012 harvests. The latter harvest remains the greatest production in the country's history. The presence of the rust fungus in Honduras drove production for the 2012/2013 season down to 4.537 million bags. The measures taken by this country to control the rust fungus helped grow the volume of production from the 2014/2015 harvest to over 6.0 million bags of green coffee. IHCAFE is projecting production from the current 2015/2016 harvest at 7.05 million bags of green coffee.

According to IHCAFE, in the last ten years, Honduras has exported 36 million bags of green coffee to various European and Asian countries and the United States. The 2011/2012 harvest produced record exports, with the country sending 5.5 million bags of coffee valued at over USD 1.4 billion. However, production slowed between 2012 and 2014 with the rust infestation affecting some 80,000 hectares of coffee plantations, of which 25,000 suffered severe damage, reducing national production by 25 percent. Through its rust control program, Honduras was able to revive affected areas, exporting 5.06 million bags of coffee from its 2014/2015 harvest. With its *carry-over*,<sup>1</sup> it expects to export 6.4 million bags of coffee for the 2015/2016 season, which would set an export record.

---

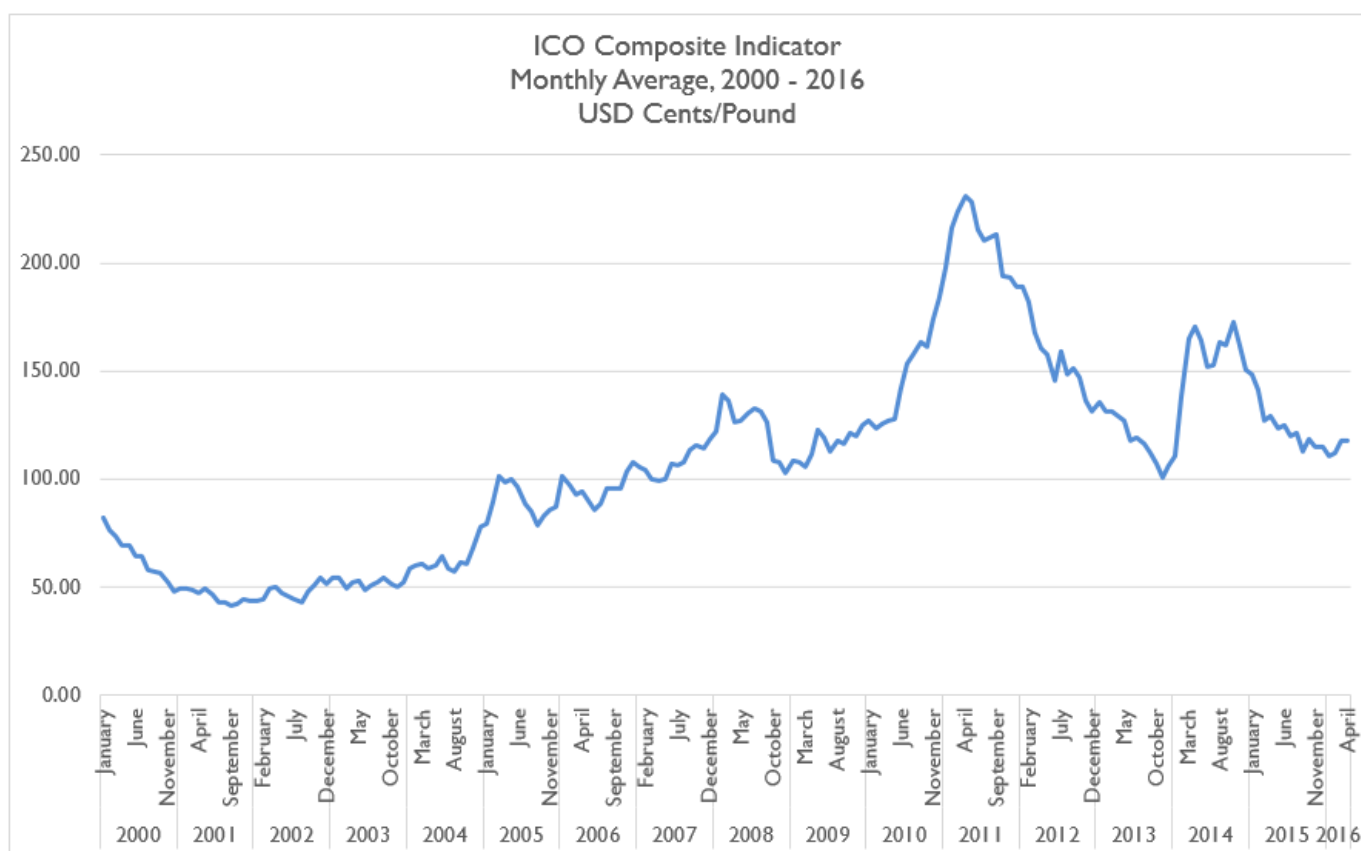
<sup>1</sup> "*Carry-over*" is the output from a harvest stored for future sale during the following harvest.

## Nicaragua

Nicaragua has maintained a stable production volume, producing an average of 1.615 million bags of green coffee between the 2005/2006 and 2009/2010 harvests. Production peaked at 2.193 million bags with the 2012/2013 harvest, spurred by high international prices. However, the effect of the rust infestation drove production from the 2013/2014 harvest down to 1.941 million bags. Nicaraguan coffee production has largely recovered from the rust infestation, with production from the 2015/2016 harvest expected to rebound to 2.150 million bags.

Projections by the Nicaraguan Institute of Agricultural Technology (INTA) estimates coffee production for the 2015/2016 season at over 2.150 million bags, up by 100,000 bags from the 2014/2015 harvest. This production gain is attributable to the investments made by medium and large-scale coffee producers in new coffee plants.

**Figure 4.** Trends in international coffee prices, 2000 - 2016



Source: ICO

## RECENT TRENDS IN COFFEE PRICES AND THEIR IMPACT ON SMALL COFFEE PRODUCERS AND LABORERS

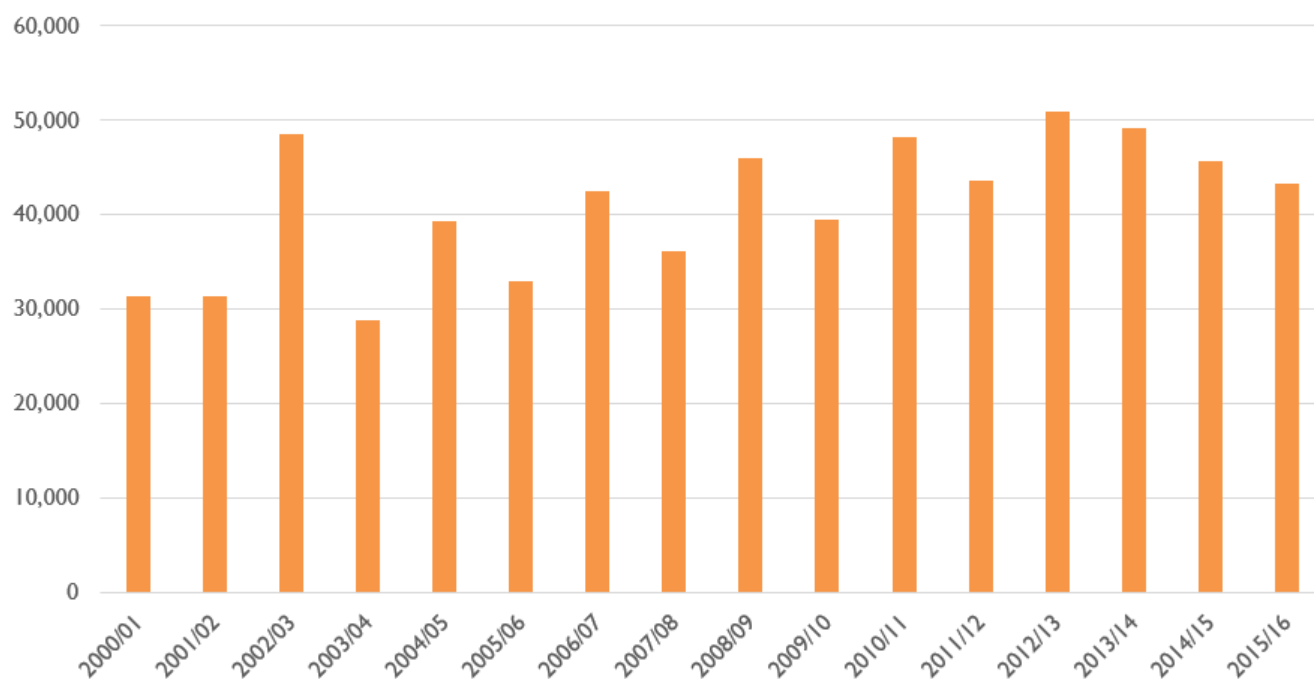
The average monthly price of coffee has been falling for the last 14 months. According to the International Coffee Organization (ICO), the price of coffee went from USD 1.73/lb. in October 2014 down to USD 1.11/lb. in January 2016, rising slightly to USD 1.16/lb. in May 2016 (**Figure 4**).

One of the reasons for the drop in coffee prices is the global decline in commodity prices driven by the slowdown in the Chinese economy, mainly in 2015. This economic slowdown in the Asian giant has affected imports of raw materials from Latin American countries such as Brazil, Colombia, and Peru. Coffee is among the commodities affected at a global scale.



In addition, the combined effects of the economic crisis and the current political crisis in Brazil necessitated a devaluation of the Brazilian *real* (BRL) in 2015, which lost 33 percent of its value against the U.S. dollar. This devaluation of the Brazilian currency vis-à-vis the dollar is spurring exports of Brazilian goods by making it possible to obtain more units of local currency for the same amount of goods. Coffee is no exception, as one of the country's main exports along with sugar, petroleum, and metals. In addition to this incentive for exporters to sell their coffee created by the devaluation of the Brazilian *real*, Brazil had historically high levels of coffee production from its 2013/2014 and 2014/2015 harvests (**Figure 5**). Coffee inventories in Brazil are being kept low as a result of the export incentive created by the devaluation of the Brazilian currency, which is producing a global surplus of coffee.

**Figure 5.** Coffee production in Brazil, 2000/2001 – 2015/2016 (thousands of 60 kg bags)



Source: ICO

Moreover, Colombia is also expecting higher levels of coffee production from its 2015/2016 harvest, or an estimated 14.2 million bags of coffee according to the ICO. This production gain is attributable to good crop management and the replacement of close to 70 percent of its coffee plants. As was the case in Brazil, the Colombian peso (COP) has been devaluated, creating the same incentive for exporters to sell their product straight away in anticipation of possible further price drops, avoiding large domestic inventories and, thus, creating an international market surplus.

East African countries such as Uganda, Ethiopia, Tanzania, and Kenya, among others, are also producing larger volumes of coffee than in past years. According to data furnished by the ICO, as a whole, coffee exports by these countries in the first half of the year from the 2015/2016 harvest were up by 13.5 percent from the 2014/2015 harvest.

The decline in international market prices is causing further harm to the coffee sector, affecting small, medium, and large-scale producers alike. However, market prices are only part of the problem for coffee growers, who are also dealing with performance factors, processing costs, transportation issues, and other marketing issues. The average international market price of coffee for the month of January 2016 was USD 1.12/lb., but the actual price paid to growers is less due to performance factors. In other words, each *quintal* of green coffee produced is checked to establish the percentage of fine green coffee, inferior coffee, and green coffee for local sale. The producer price is set based on these percentages. In addition, coffee growers must deduct



approximately 30 percent per *quintal* for processing costs, which include the price paid to the processing plant for drying, grading the beans, transporting the product, and packing it in bags. The average expense ranges from USD 0.75 to USD 0.80/lb. All enterprises involved in producing coffee incur production costs, which are at the center of all business decision-making, since any increase in production costs normally means less profit for the business. According to the Second Rust Summit, production costs are reflected in the selling price of crops from the last harvest and the free-on-board (FOB) price of the new crop. These costs are generally broken down as follows: 65 percent are direct costs, including the cost of farm inputs and labor, and 35 percent are indirect costs covering administrative, financial, operational, and logistical expenses.

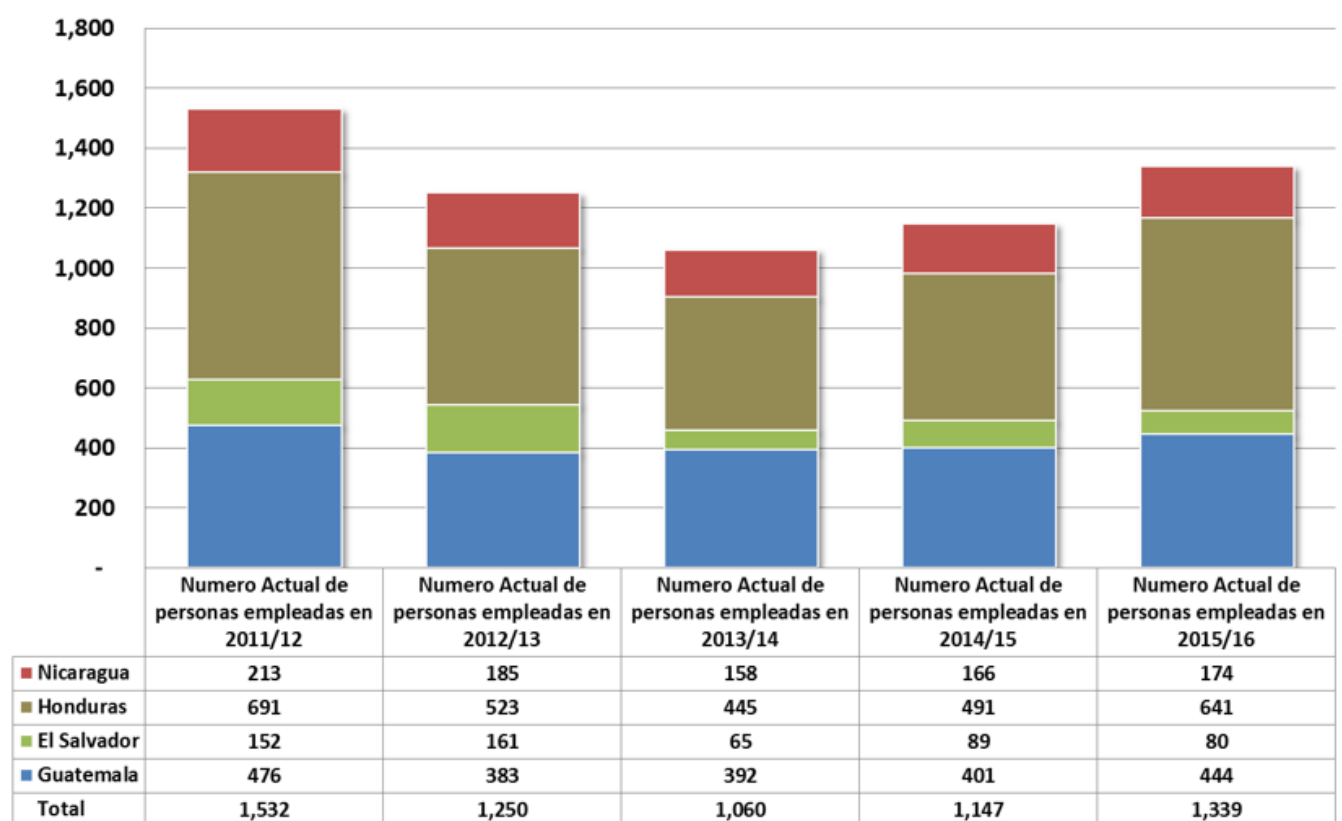
Production costs are influenced by a number of factors such as the level of production of the farm in question, climatic conditions affecting the incidence of crop pests and diseases, continual improvements in on-farm practices, and training for laborers. The low international prices are not only affecting coffee growers, but also representatives of processing plants and coffee exporters, forcing them to dramatically cut costs in general and labor costs in particular. This, in turn, is affecting day laborers from the poorest households in each country, causing them to receive less pay for picking the same amount of coffee. The end result is that they have less income to sustain food purchases.

However, with the growth in production, there are more job opportunities for day laborers in the 2015/2016 harvest (see **Figure 1**). At the regional level, employment rates in **Honduras** were reportedly up by over 20 percent. There was no improvement in employment opportunities for this season in the case of **Guatemala** and **El Salvador** due to the problems caused by the rust infestation and climatic factors, resulting in losses of production and poorer bean quality. Moreover, the social violence perpetrated by gangs known as “*maras*” in these countries is forcing many workers to refrain from traveling to coffee plantations to work in the harvest for fear of being subject to extortion. Other workers are forced to use part of their earnings for the payment of a ‘tax’ to protect their lives, particularly in **El Salvador**. Other consequences of the low price of coffee and low coffee yields include rural-urban migration or labor migration to other countries, a general rise in crime, and environmental degradation fueled by the replacement of coffee by other less environmentally-friendly crops.

Pay rates for labor in the coffee sector are very similar throughout the Central American region, where coffee plantations employ “*cuadrillas*” or full-time work crews for year-round farm work (who are paid a minimum wage as established by the laws of each country) and temporary workers, particularly for the harvest, whose pay depends on the international price of coffee and on-farm production.

Most day laborers are paid by the job or based on their productivity. The amount of their pay depends on the weight of the beans picked each day. The unit of measurement used to measure productivity in most countries is the “*lata*” (can), with an average weight of 25 pounds. In order to earn more income, over half of all day laborers bring along their entire family to enable them to reach the established weight targets for the picking of coffee. In general, at the beginning of the harvest, it takes them a day to pick a *quintal* of coffee cherries. With less production as the season progresses, job opportunities for day laborers in the coffee harvest become increasingly limited. A six-member household generally earns an average of USD 100 - 130 per month. The harvest season can last anywhere from two to three months depending on the productive capacity of the farm in question.

The 2015/2016 coffee harvest got underway a month earlier than usual, due primarily to the premature maturation of coffee crops on most plantations as a result of the effects of the El Niño phenomenon. As of January 2016, many households were already out of work, particularly in lower-altitude coffee-growing areas in the Dry Corridor of **Guatemala**, western **El Salvador**, and **Honduras**.

**Figure 6.** Job opportunities for day laborers in the coffee sector, by year (thousands of people)

Source: PROMECAFE through 2012/13, with figures for 2014 - 2016 updated using production data and projections from ANACAFE, IHCAFE, MAG, and MAGFOR

## COFFEE MARKETING IN CENTRAL AMERICA

Exporters have access to formal bank credit and most are vertically integrated, from tree nurseries, planting, and production to processing and export. The processing plants owned by coffee exporters have the capacity to process their own crops but also need to buy coffee from medium-size growers. The exporters have arrangements with medium-size coffee growers under which they provide them with financing or advances during the harvest, mainly for activities representing cash outflows such as applying fertilizers or the picking of coffee cherries. They also provide the growers with technical assistance and are under an obligation to guarantee the purchasing of their coffee crops at market price. Exporters also purchase coffee from small growers through middlemen commonly referred to as “*coyotes*.” These middlemen have access to two types of financing: formal bank credit and advances from exporters against future purchases of their coffee. The middlemen buy coffee from small growers, whom they provide with cash advances throughout the year (Figure 7).

There is also a third emerging group in recent years in the form of cooperatives. A cooperative is generally a group of small growers seeking mainly to sell their crops directly to exporters, bypassing the middleman, or, alternatively, looking to export their crops directly. Cooperatives have access to financing from different sources. Cooperatives selling their crops to exporters receive advances. However, they also have access to formal financing from institutions providing microloans, including banks and microfinance institutions, which have been springing up all across the region in the last 15 years. Moreover, vertically integrated cooperatives, from production to export, obtain financing in the form of formal microloans from banks or microfinance institutions and through advances from overseas clients. Cooperatives will strive to obtain some sort of certification for their production units and final products, including Fair Trade, Organic, Rainforest Alliance, Bird Friendly, and other such certifications, which allows them to command a “*premium*” sales price. The premium depends on the differential of

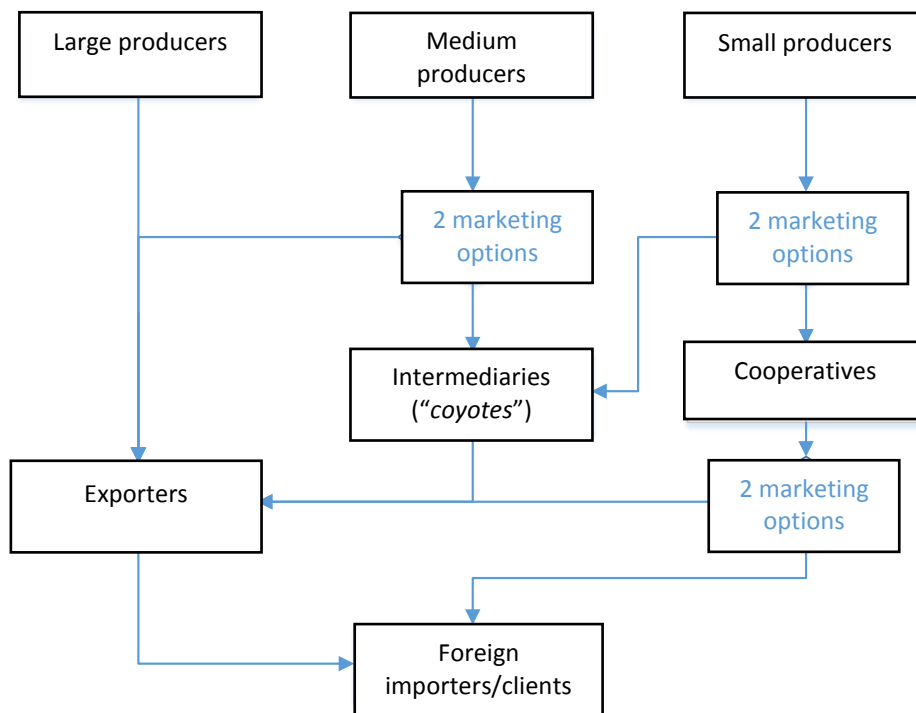
each farm based on factors such as location, etc. However, there are micro-lots commanding ten times the international market price.

Coffee production is an important business activity in Central America, not only for agriculture, but also for the economy in general. The growing of coffee crops spans different links of the value chain from the purchasing of inputs for coffee production, processing, manufacturing, and transportation, to marketing. Each of these links involves the creation of jobs in different parts of the various Central American countries.

Most small coffee growers are not organized and live in isolated or remote areas. They lack the necessary infrastructure to sell their crops directly on local markets and are unfamiliar with price-setting mechanisms for their coffee crops. This leaves them completely dependent on local middlemen. Income distribution in this line of business is inequitable. For the past two crop years, middlemen have been paying farmers across the region an average of USD 60/*quintal* for their crops, which, in many cases, is below their cost of production and often fails to meet the basic needs of small farm owners, day laborers, and their households. This leads to the abandonment of crops, migration, the sale of assets, and changes in occupation to work as unskilled labor.

These small growers have very limited if any access to credit, since they have no security to offer a bank or cooperative. As a result, they are highly dependent on loans from middlemen. This has forced a number of small growers to abandon their plantations for lack of government financial assistance to enable them to cover the cost of necessary pest control products to improve their crop yields, especially in **Guatemala** and **El Salvador**. Thus, these households are forced to look for other job opportunities as unskilled laborers in different types of farming activities such as the sugar cane harvest and the growing of African Palms or to migrate to other countries.

**Figure 7.** Coffee marketing chain in Central America



Source: Prepared by FEWS NET

## FOOD SECURITY IMPLICATIONS

### Guatemala

Climatic factors and the rust infestation have particularly affected two primary areas:

The rainfall anomalies in the **Eastern Dry Corridor** triggered a surge in coffee rust and other diseases, resulting in poor quality beans and losses of production in that region. This dramatically affected job opportunities and incomes, particularly for small farmers devoted to growing coffee. After several consecutive years of very little rainfall, which has limited their response options, the worst-off households are purchasing small amounts of maize and beans for immediate consumption with their cash earnings from the extremely limited available job opportunities. Many of these households will remain in **Crisis (IPC Phase 3)** from March until at least September 2016. However, certain municipalities in Chiquimula, Baja Verapaz, and Jutiapa Departments will be getting cash and food assistance from the World Food Program, which will help mitigate the impact of last year's shocks, mitigating food insecurity to **Stressed (IPC Phase 2!)**.

Households in mid-elevation areas of the **Western Highlands** who are highly dependent on coffee production and employment in coffee-growing activities experienced a sharp drop in income due to the coffee rust outbreak and low purchase prices of coffee. These households are resorting to atypical patterns of migration, primarily to border areas with Mexico or northern areas of the country to look for work, mainly in African palm-growing activities, livestock-raising operations, etc. The drought beginning midway through the staple growing season resulted in total losses of staple crops for 2015. This area saw more cases of deaths from acute malnutrition in 2015 than the East. The worst-off households are estimated to have already been in **Crisis (IPC Phase 3)** for nearly a year and will remain so through at least the month of September in the absence of emergency assistance, for which there are no short-term plans.

### El Salvador

El Salvador is the country in the region most affected by coffee rust, with a decline in production volume of more than 30 percent from the 2014/2015 harvest. Poor households of day laborers and small coffee growers in the eastern and western parts of the country in [livelihood zones 2 and 3](#) were **Stressed (IPC Phase 2!)** phase of food insecurity between March and April with the depletion of their food reserves, their repeated losses of staple crops, and their limited employment opportunities, particularly in coffee sector. Food assistance programs by the government and international cooperation agencies have mitigated the severity of their food insecurity to some extent. As of May, without further assistance, the worst-off households will enter **Crisis (IPC Phase 3)** until the harvest of *Primera* crops.

### Honduras

Poor subsistence farming households growing staple crops and households of farm laborers in the Dry Corridor in southern and western Honduras who are especially affected by last year's drought and other anomalies in the agricultural sector have been in **Crisis (IPC Phase 3)** since March, due to the depletion of their food reserves and with income-earning opportunities at seasonal lows. Many of these households depend on wages from day labor in the coffee harvest. While there has been a pick-up in demand for labor at the nationwide level, at the same time, the poorest households have been hard hit by losses of maize and bean crops from repeated drought-induced damage.

### Nicaragua

Very poor subsistence farming households and households of day laborers and small coffee growers in the northern and northwestern parts of the country in [livelihood zones 3 and 12](#) affected by the shortfalls in 2015 harvests, rising prices, and limited employment opportunities, particularly in the coffee sector and in livestock-raising activities, were **Stressed (IPC Phase 2!)** between March and April, mitigated by regular government programs. Without further assistance, the worst-off households will reach **Crisis (IPC Phase 3)** beginning in May, until the harvest of *Primera* crops.