Data collection Survey on Coffee Growing and Marketing in the Republic of Rwanda

July 2014

Japan International Cooperation Agency (JICA)

Africa Department

6R
JR
14-011

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Map

Map Sources: ESRI, Gov't. of USA, NISR, UNCS.
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Map created in Dec 2011.

Source: UNOCHA

List of Abbreviations

EDPRS2	Economic Development and Poverty Reduction Strategy 2013–2018
FWC	Fully-Washed Coffee
FOB	Free on Board
FOT	Free on Truck
NAEB	National Agricultural Export Development Board
RWF	RWF
SCAA	Specialty Coffee Association of America
SWC	Semi-Washed Coffee
WS	Washing Station

Chapter 1 Introduction

1-1. Background

Agriculture in the Republic of Rwanda (hereafter, “Rwanda”) is a backbone industry that accounts for over 30% of the national GDP and generates about 90% of employment. Coffee in particular is designated as one of the priority industries in securing foreign capital in Rwanda’s long-term development plan, “Rwanda Vision 2020.” Recently, the international price of coffee has risen as global coffee consumption has increased, and the Rwandan government’s infrastructure development and marketing strategy aimed at the high-end market coffee have paid off. As a result, coffee has become Rwanda’s biggest agricultural export, accounting for 24% of total exports in 2010.

Rwanda’s “Strategic Plan for the Transformation of Agriculture in Rwanda Phase II” aims to improve coffee production and quality by refining production and processing techniques to transform it into an agri-business. At the same time, the majority of the coffee produced in Rwanda is grown by small-scale farmers, for whom large-scale investment is difficult. Observers have noted that the insufficient production volume and delays in improving quality attributable to a lack of technology for everything from cultivation to pruning, such as fertilizer application, pest prevention and equipment maintenance, has prevented exports from increasing further.

Even in Japan, coffee produced in Rwanda is recognized as high-quality beans commonly known as “specialty coffee,” and is imported via Europe and Kenya. Recently, coffee importers have diversified to include general trading houses, roasters and retailers, and interest in Rwandan coffee has heightened, but this has not led to a substantial increase in exports, partly due to the aforementioned problems.

Accordingly, the Japan International Cooperation Agency (JICA) conducted a Survey to compile and verify information (hereafter, “the Survey”) in order to gain a comprehensive understanding of the process from cultivation to distribution in Rwanda’s coffee industry.

1-2. Description of Survey

The Survey was conducted with the following objectives:

(1) to ascertain the position of the coffee industry in Rwanda’s agricultural policy;
(2) to confirm the current condition of and problems with Rwanda coffee cultivation;
(3) to confirm the current condition of and problems with coffee distribution within and outside of Rwanda;
(4) to confirm the current condition of and problems with setting quality standards in Rwanda;

In addition to that, survey team provided technical guidance to the Japan Overseas Cooperation Volunteers and held local workshops.

1-3. Team members

Assigned area	Name	Position
Team leader	Mitsunori Saito	Director, Africa Division 1, Africa Department, JICA
Coordination and planning	Akihiko Kodama	Deputy Assistant Director, Africa Division 1, Africa Department, JICA (joined first Survey)
Coordination and planning	Hayakazu Yoshida	Staff, Africa Division 1, Africa Department, JICA (joined second Survey)
Coffee production	Yoshiaki Kawashima	Mi Cafeto Co., Ltd.
Coffee quality standards	Tomohiro Ishiwaki	S. Ishimitsu & Co., Ltd. (joined second Survey)
Coffee distribution	Yoshihiko Matsuda	IC Net Limited.

1-4. Survey schedule

First survey in Rwanda: March 19-27, 2013

Second survey in Rwanda: June 16-26, 2013

Chapter 2 Coffee Policy, Plans and Administration

2-1. Policy and plans

(1) Rwanda Vision 2020

Rwanda Vision 2020 is the highest policy document for economic development in Rwanda. The paper sets targets of raising the per capita income to US$900 by 2020 and becoming a middle-income country by 2020, and also designates the following as the six pillars of its development. Revitalizing the coffee industry is consistent with 5) below.

1) good governance and a capable state
2) human resource development and a knowledge-based economy
3) a private sector-led economy
4) infrastructure development
5) productive and market-oriented agriculture
6) regional and international economic integration

(2) Economic Development and Poverty Reduction Strategy 2013 – 2018 (EDPRS 2)

In 2002-2006, “Poverty Reduction Strategy” and in 2008-2012 the “Economic Development and Poverty Reduction Strategy” were implemented as medium-term strategic plans to realize the comprehensive Rwanda Vision 2020. This was followed by the Economic Development and Poverty Reduction Strategy (EDPRS 2) in 2013 – 2018. EDPRS 2 designates 1) economic transformation, 2) rural development, 3) productivity and youth employment and 4) accountable governance as the four thematic areas, and stipulates priorities in each area (EDPRS 2,).

The coffee industry is designated as one of the biggest export-oriented sectors, and one of the priority areas (“Increasing the external connectivity of Rwanda’s economy and boosting exports”) in the aforementioned 1) economic transformation states that extension services and capacity building in the coffee sector will be expanded systematically and on a large scale in order to further promote coffee exports (paragraph 2.37 of EDPRS 2). Moreover, capacity building and research will be intensified to improve the coffee industry’s productivity (paragraph 2.41 of EDPRES 2).

(3) National Agricultural Policy

The Ministry of Agriculture and Animal Resources established the National Agricultural Policy in April 2004 based on Rwanda Vision 2020 and its poverty reduction strategy. The vision for the National Agricultural Policy is based on the following six key areas.

1) Food safety and security by creating an environment suited to income generation
2) Modern, professional, innovative and specialized agriculture
3) Market-oriented agriculture
4) Equitable distribution of profits generated during processing
5) Mixed and diversified agriculture

6) Environment-friendly agriculture

The overall objectives of the National Agricultural Policy are to ensure national food security, integrate agriculture and livestock in a market-oriented economy, generate increasing incomes for producers and create conditions favorable to sustainable development and promotion of agricultural and livestock products. In order to achieve these overall objectives, the plan stipulates, objectives, strategies and priority products for each of the three sub-sectors of agriculture, livestock and soil and water management. Strategies in the agriculture sub-sector, which includes the coffee industry, are to strengthen research and extension, intensification, agricultural marketing, and diversification and regional specialization.

The National Agricultural Policy identifies coffee as a priority product in the agricultural sub-sector, and recognizes that coffee quality would improve by setting up washing stations, which would in turn boost the income of producers and Rwanda overall; that replacing old coffee trees would improve productivity and also has high potential; and it is important to improve current technology and shift to high-yielding varieties.

(4) Strategic Plan for the Transformation of Agriculture in Rwanda Phase II

The Strategic Plan for the Transformation of Agriculture in Rwanda Phase II was established to cover 2009-2012 as the follow-up plan to the Strategic Plan for the Transformation of Agriculture in Rwanda Phase I, established in 2005-2008 to implement national agricultural policy. The Strategic Plan for the Transformation of Agriculture in Rwanda Phase II consists of the following four programs and 20 sub-programs.

Program 1: Intensification and development of sustainable production systems
- Sub-program 1.1: Sustainable management of natural resources and water and soil conservation
- Sub-program 1.2: Integrated development and intensification of crops and livestock
- Sub-program 1.3: Marshland development
- Sub-program 1.4: Irrigation development
- Sub-program 1.5: Supply and use of agricultural inputs
- Sub-program 1.6: Food security and vulnerability management

Program 2: Support for the professionalization of producers
- Sub-program 2.1: Promotion of farmer organizations and capacity building for producers
- Sub-program 2.2: Restructuring proximity services for producers
- Sub-program 2.3: Research for agricultural transformation

Program 3: Promotion of commodity chains and agribusiness development
- Sub-program 3.1: Creating a conducive environment for business and entrepreneurship development and market access
- Sub-program 3.2: Promotion and development of traditional exports
- Sub-program 3.3: Development of non-traditional high-value export products
- Sub-program 3.4: Production and value addition for domestic staple products
- Sub-program 3.5: Market-oriented rural infrastructure
- Sub-program 3.6: Strengthening rural financial systems

Program 4: Institutional development

Sub-program 4.1: Institutional strengthening and capacity building

Sub-program 4.2: Policy and regulatory framework for the sector

Sub-program 4.3: Agricultural statistics and ICT

Sub-program 4.4: Monitoring and evaluation systems and coordination of the agricultural sector

Sub-program 4.5: Decentralization program in agriculture

As regards coffee, "Sub-program 3.2: Promotion and development of traditional exports" includes "Sub-program 3.2.1 Coffee." This program consists of 1) put in place a system to improve input distribution and management and monitoring of that distribution for coffee, including seedlings, plantings, application of inputs and studies to evaluate fertilization strategies (sub-program 3.2.1a); 2) identify causes of the "potato taste" (sub-program 3.2.1b); 3) implement turnaround programme for washing stations to improve their productivity and profitability (sub-program 3.2.1c); 4) implement a programme of control of coffee leaf rust and other diseases that affect this crop (sub-program 3.2.1d); 5) carry out a programme for improved international marketing of coffee to gain higher prices for a wider number of producers (sub-program 3.2.1e); and 6) continue the programme of rehabilitating and replacing old coffee plantations with plantings of new varieties that are of better quality and are more disease-resistant, and develop multiplication centres for new seedlings (sub-program 3.2.1f). Moreover, "sub-program 2.1 Promotion of farmer organizations and capacity building for producers" stipulates that coffee growers will be trained in cultivation methods and quality (sub-program 2.1d).

2-2. Administrative systems related to coffee industry

The National Agricultural Export Development Board (NAEB), under the Ministry of Agriculture and Animal Resources, has jurisdiction over coffee cultivation, processing and sales. NAEB's mission, vision, objectives, priority crops and core functions are outlined in Table 2-1.

Table 2-1: NAEB's mission, vision, objectives, priority crops and core functions

Item	Description
Mission	To support the development of agricultural and animal exports at every stage of the value chain
Vision	To develop agricultural and animal products in Rwanda that are recognized worldwide for their high quality
Objectives	**Overall objective:** To increase output of high value-added agricultural and animal products for export **Specific objectives:** To increase coffee exports to US$157 million annually by 2017 To increase tea exports to US$147 million annually by 2017 To increase the export of horticultural products to US$335 million annually by 2017 To increase the export of honey and animal products to US$100,270,000 annually by 2017
Priority crops	Black tea, green tea, orthodox tea, green coffee beans, roasted coffee beans, fresh organic fruit and vegetables, dried organic fruit and vegetables, flowers (particularly roses and summer flowers), dried organic red peppers, premium juice, milk and dairy products, meat, leather, essential oils

Core functions	• To participate in the formulation of policy and strategy to promote the export of agricultural and animal products • To implement policy and strategy to promote the spread and develop agricultural and animal products for export • To designate and support research related to the guidance in the dissemination of agricultural and animal products for export • To cooperate with other organizations to designate sites on which to build processing plants for agricultural and animal products for export and to give processing plants operation authorization • To set quality regulations for agricultural and animal products for export and ensure that those quality regulations are observed • To issue certificates of origin for agricultural and animal products for export • To supervise, support and guide private operators and cooperative associations involved with agricultural and animal products for export • To work and coordinate with NGOs, private operators and other organizations related to agricultural and animal products for export • To increase industries and infrastructure investments contributing to the added value of agricultural and animal products for export • To collect information on local markets, regional markets and international markets and familiarize relevant parties with that information • To coordinate activities of those involved with agricultural and animal products for export • To participate in domestic and overseas international negotiations and trade fairs to promote the sale of agricultural and animal products • To build good relationships with international institutions involved with agricultural and animal products

Source: NAEB (2012)

Chapter 3 Distribution

3-1. Distribution trends for coffee grown in Rwanda

This chapter provides a broad overview of distribution conditions for coffee grown in Rwanda.

A comparison of exports in Rwanda and neighboring countries (Table 3-1) shows that Rwanda's exports totaled 16,597 tons in 2012, which is only 6% of Ethiopia's 274,499 tons and 12% of Uganda's 131,414 tons, and falls short of Burundi's 22,046 tons as well. At the same time, the unit price is US$4.24/kg in Rwanda, the second highest price among neighboring countries, after Kenya.

Table 3-1: Export of green coffee bean exports by Rwanda and neighboring countries (2012)

Country	Export amount (Tons)	Export value (US$1,000)	Unit price (US$/kg)
Ethiopia	274,499	667,657	2.43
Uganda	131,414	370,333	2.82
Kenya	48,689	287,325	5.90
Tanzania	41,778	171,862	4.11
Burundi	22,046	65,200	2.96
Rwanda	16,597	70,449	4.24
Republic of the Congo	4,885	15,951	3.27
Democratic Republic of the Congo	4,241	15,629	3.69
Djibouti	974	4,952	5.08

Note: Data is from the export counterpart. In general, the import price is calculated using the CIF price, so the above unit price can be considered to be the CIF price.
Source: International Trade Centre (access on July 4, 2013)

Table 3-2 and Figure 3-1 shows fluctuations in the production volume and export volume of coffee grown in Rwanda. The crop yield for coffee generally tends to fluctuate in alternate years, so the production volume swings up and down in alternate years, but taking this factor into account, production volume was flat from 2005 to 2012 or declined slightly. Exports deviate somewhat depending on the year, but about 95% of green coffee beans grown in Rwanda are exported. Looking at export volume by fully-washed coffee (FWC) and semi-washed coffee (SWC)[1], we find that SWC repeatedly fluctuates in line with changes in overall production volumes, while exports of FWC are increasing. FWC accounted for 4% of overall exports in 2005, but this had increased to 33% in 2012. This increase in FWC can be attributed to a rise in the number of washing stations, a primary processing plant, as a result of encouragement from the Rwandan government, which is aiming for higher production of FWC as it trades at a higher price.

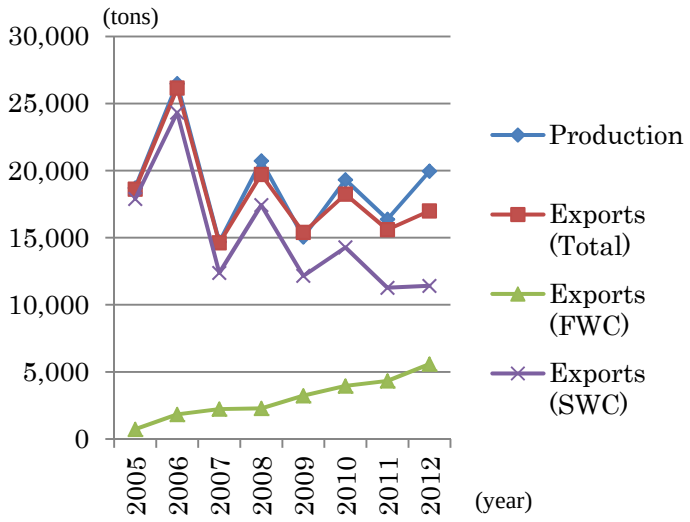
[1] The methods by which the coffee fruit is broken down to the green coffee beans can be roughly categorized as the wet method and the dry method, but the wet method is generally used in Rwanda. The wet method is divided into two steps: (1) the primary processing in which the coffee cherries are transformed into parchment and (2) the secondary process in which the green coffee beans are processed from the parchment. In Rwanda, FWC refers to green coffee beans that have undergone primary processing at a washing station, while SWC refers to green coffee beans that have undergone primary processing by a farmer.

Table 3-2: Production and export volumes for green coffee beans grown in Rwanda

(Unit: tons)

Year	Amount produced	Export volume		
		FWC	SWC	Total
2005	18,700	726	17,883	18,609
2006	26,487	1,831	24,321	26,151
2007	14,684	2,232	12,378	14,610
2008	20,724	2,283	17,427	19,711
2009	15,055	3,228	12,158	15,387
2010	19,319	3,957	14,279	18,236
2011	16,371	4,333	11,264	15,597
2012	19,955	5,583	11,407	16,990

Source: NAEB



Source: Prepared by Survey team using NAEB materials.

Figure 3-1: Production and export volumes for green coffee beans grown in Rwanda

The top-three importers of Rwandan coffee are Belgium, the US and Germany, which accounted for over 70% of export volume in 2012. This trend has not changed since 2007, except that exports to Germany have decreased while exports to the US are on the rise (Table 3-3). Exports to Japan only totaled 329 tons in 2012, a mere 2% of overall exports, but this represents a steady increase from 5 tons in 2007. In typical years, Japan, which imports about 400,000 tons of green coffee beans, is an attractive market for Rwanda, and exports to Japan should be increased going forward. The highest unit price for green coffee beans is for beans for the Japanese market, which is likely because some Japanese companies buy at high prices from a fair trade perspective and half of the beans winning the “cup of excellence award” are bought by Japanese companies.

Table 3-3: Export counterparts for green coffee beans grown in Rwanda

Export counterpart	Export volume (tons)						Weight (%)	Unit price (US$/kg)
	2007	2008	2009	2010	2011	2012	2012	2012
Belgium	1,185	4,152	6,198	4,076	3,936	4,316	26.0%	4.56
US	1,756	2,669	3,741	4,750	4,586	4,291	25.9%	5.43
Germany	6,980	6,982	5,980	4,771	3,822	3,722	22.4%	3.70
France	1,012	1,221	1,184	977	1,041	1,071	6.5%	4.13
Russia	38	234	131	317	461	579	3.5%	4.74
Poland	0	340	241	336	363	398	2.4%	4.61
Japan	5	46	57	109	149	329	2.0%	6.86
UK	97	158	176	146	219	312	1.9%	5.48
Canada	26	78	29	39	158	309	1.9%	5.19
Rumania	728	787	612	461	103	307	1.8%	4.28
Total	14,982	18,624	19,317	17,346	16,413	16,597	100.0%	4.66

Note: Based on import data for the export counterpart. In general, the CIF price is used in the import data, so the unit price was calculated based on the CIF price.

Source: International Trade Centre (http://www.trademap.org/; accessed on July 5, 2013)

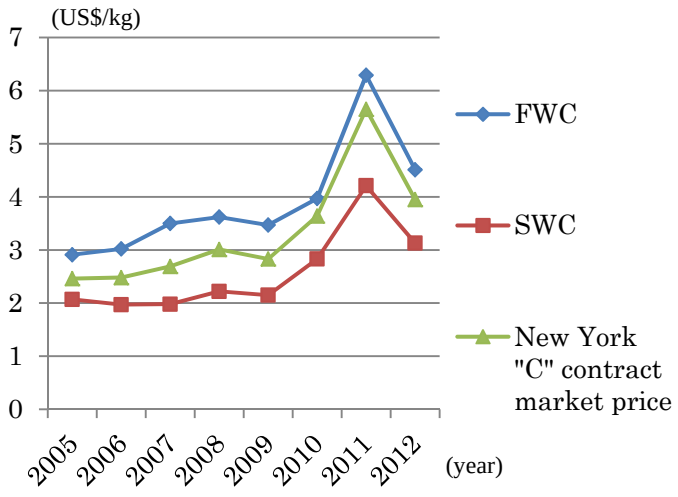
The price of FWC and SWC stood at US$4.51 and US$3.13 per kilogram, respectively, in 2012 (Table 3-4), and is closely correlated on the New York "C" contract market price (Figure 3-2). The FWC promoted by the Rwandan government is always priced lower than the "C" market price, and the difference between FWC and SWC prices is US$1-2 per kilogram.

Table 3-4: Fluctuations in price of green coffee beans

(Unit: US$/kg)

Year	Rwanda*		New York "C" contract market price **
	FWC	SWC	
2005	2.91	2.07	2.46
2006	3.02	1.97	2.48
2007	3.50	1.98	2.69
2008	3.62	2.22	3.01
2009	3.47	2.15	2.83
2010	3.97	2.83	3.64
2011	6.29	4.21	5.65
2012	4.51	3.13	3.95

Note: Green coffee bean prices noted in NAEB data is based on the actual contract amount, so it is essentially the FOT or FOB price.
Source: * indicates data provided by NAEB, and ** indicates data provided by International Coffee Organization (http://www.ico.org/new_historical.asp; access on July 5, 2013)



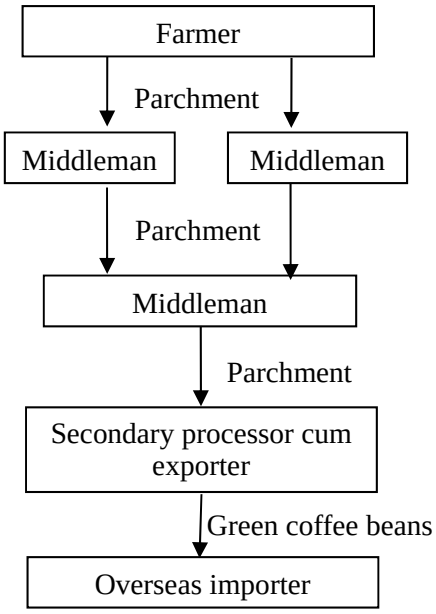
Source: Prepared by Survey team using NAEB data and International Coffee Organization (http://www.ico.org/new_historical.asp; access on July 5, 2013).

Figure 3-2: Production and export volumes for Rwandan coffee

3-2. Distribution from harvesting through export

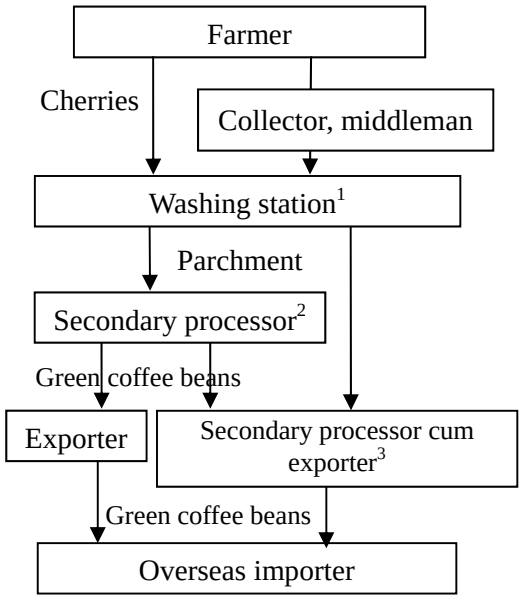
This section describes distribution from the time the farmers harvest the cherries through the processing of the green coffee beans and parchment, and their emergence onto foreign markets.

Figures 3-4 and 3-3 show the distribution channels for FWC and SWC. In the case of FWC, the cherries harvested by farmers are carried to washing stations run by cooperative associations and private-sector companies and processed as parchment coffee. The parchment coffee is processed by a secondary processor, resulting in green coffee beans, and finally it is sold to overseas importers through an exporter. In the case of SWC, parchment coffee processed by the farmer is sold to a middleman or secondary processor and processed to produce green coffee beans.



Source: Prepared by Survey team.

Figure 3-3: Distribution channel for SWC



Note 1: Washing stations include those owned by cooperative associations, those owned by secondary processors and those owned by other private companies.
Note 2: Some cooperative associations also carry out secondary processing.
Source: Prepared by Survey team.

Figure 3-4: Distribution channel for FWC

About 70% of the green coffee beans exported from Rwanda is SWC (Table 3-2), and SWC accounts for most distribution. At the same time, the government is constructing washing stations to raise the quality of the coffee. While there were only two washing stations in 2000, this had increased to 215 by 2012, and the government plans to increase them further to 349 by 2017. This means that the distribution of FWC has picked up rapidly over the past 10 years, and is expected to increase even further going forward. In regions where washing stations have been set up, in order to secure cherries for FWC, the government has banned farmers from processing the cherries into parchment coffee. This has been enforced by, for example, collecting hand-operated pulping machines. Accordingly, in regions in which washing stations have been set up, FWC usually accounts for most of the coffee distributed.

Table 3-5: Fluctuations in number of washing stations (2000-2017)

Year	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	(Actual data)												(Target)				
No. of WS	2	4	14	31	54	80	103	118	145	187	199	215	249	274	299	324	349
Share of FWC	-	-	-	-	-	-	-	-	-	-	-	-	37%	43%	50%	59%	71%

Note: Data on share of FWC (actual) could not be obtained.
Source: NAEB materials

3-2-1. Distribution of cherries for FWC: from farmers to washing station

Harvested cherries must be sent to the washing station promptly since they will deteriorate if they are not pulped within 12 to 24 hours of harvest. This means that the washing station must be located in the same area

as the area in which the cherries are bought. According to local interviews, washing stations are located within 8-20km of the area in which they will be bought.

The buying practice differs depending on the washing station, but the most common methods are: 1) farmers bring their cherries to a collection site on the designated date, and the washing station provides a truck for the purchase and collection of cherries; 2) a middleman buys the cherries that the washing station has bought and collected from the farmers; and 3) farmers near the washing station bring cherries directly to the washing station (Box 3-1). The cherries delivered to the washing station all go through the primary processing together, without being divided by farm or area. However, cherries of particularly high quality are separated for processing in some cases.

When the cherries are bought, they are looked over to confirm that they meet standards. The typical standards are that 1) the cherries are not green or black but a vibrant red and 2) the cherries sink when put into a vessel filled with water. All washing stations check these aspects. Washing stations take different steps in the event that cherries do not meet conditions. The local Survey confirmed the following three types of responses.

1) Non-standard cherries are bought at a discounted price.
2) Non-standard cherries are not bought, and only cherries meeting standards are bought.
3) If the percentage of non-standard cherries included in the cherries brought to the washing station is below a certain level, the entire lot, include the non-standard cherries, are bought at the same price; if the percentage exceeds a certain level, none of them will be bought, including the standard cherries.

Farmers take back the non-standard cherries that are refused for purchase and use hand-powered pulping machines to make parchment coffee. This parchment coffee is bought by middlemen for use in SWC.[2]

Cherries that do not meet standards are rejected or bought at a discounted price, so farmers seem to have a good understanding of the purchase standards for cherries.[3] Moreover, posters such as that shown in Figure 3-5 are used to familiarize farmers with the purchase standards, and some working stations provide instruction at harvest time. Some farmers have in the past sold their cherries too cheaply at the middleman's offered price since they didn't know the purchase standards. However, the washing stations opened a few years ago clarify the purchase standards and make sure that familiars are familiar with them, so farmers are careful about the harvest timing and quality and are able to sell their cherries with confidence, according to some we spoke with.

Box 3-1: Cherry purchase methods and purchase conditions by company and association

Example 1: RWACOF

Purchase method: There are three patterns: 1) a collection site is set up and staff are sent to the collection site to collect the cherries; 2) cherries collected by a middleman are bought; and 3) farmers bring them in directly. The purchase region is within 8km of the washing station.

[2] In regions with washing stations, farmers are not allowed to carry out primary processing, so in a region in which we conducted the local study, farmers secretly carry out primary processing.

[3] Nevertheless, as discussed in "Chapter 4 Production," even if they understand the standards, the standards themselves may be too lenient compared to other countries.

Purchase condition and prices: RWACOF does not buy non-standard cherries. The purchase price is the same, regardless of the quality of the cherries. Since the extent of the competition over cherry purchases differs depending on the washing station, purchase prices are adjusted in line with the degree of competition in each region.

Example 2: Rwanda Trading Company

Purchase method: A collection site is set up, and a truck is sent on collection days three to four times a week to buy the cherries.

Purchase conditions and prices: Only cherries that meet the standards are bought. Cherries that do not meet the standards, such as unripe cherries, are not purchased. The price for cherries is updated every week, and applied at all washing stations. However, washing stations that select parchment that will become high-quality green coffee beans every year raise their purchase price.

Example 3: Huye Mountain Coffee

Purchase method: Neighboring farmers bring cherries themselves, but the washing stations buy from the other farmers via18 site collectors. Site collectors collect cherries from the farmers in their assigned area, at which time they check the cherries' color and whether it will sink in water, and only collect cherries that satisfy the standards. The collected cherries are packed into trucks sent by the washing station, and after arriving at the washing station, a manager at the washing station reconfirms weight and quality. Subsequently, the washing station pays the site collector for the cherries, and the site collector pays the farmers. The site collectors are elected every year from amongst the coffee farmers in discussion. Site collectors earn a per diem of 1,000 RWF per day. Their purchase area is within 10km.

Purchase conditions and prices: Only cherries that meet the standards are bought. Cherries that do not meet the standards are not purchased. The price for cherries is updated every week. In principle, there is a single price, but higher prices are paid in regions that grow cherries that have won the "cup of excellence" award.

Example 4: Maraba Cooperative

Purchase method: Trucks are sent to 40 collection sites. Two staff are assigned to each collection site.

Purchase conditions and prices: Cherries that do not meet standards (cherries that float in the water, green cherries that are not ripe) are not bought. There is a single price.

Example 5: KZ Noir

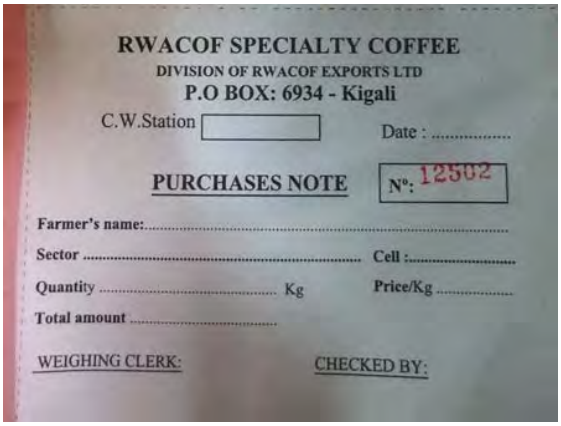
Purchase methods: There are three patterns: 1) KZ Noir uses its trucks to collect cherries on its own; 2) KZ Noir buys from middlemen; or 3) neighboring farmers bring them in directly. The purchase area is within 20km of the washing station.

Purchase conditions and prices: There is a single price. Middlemen are given a margin of 10-15 RWF /kg. If more than 10% of the cherries are non-standard cherries, such as unripe cherries, none of them will be bought, including cherries meeting standards. If less than 10% are non-standard, all cherries are bought at a single price, including the non-standard cherries.

Source: Survey team; based on interviews conducted locally.

Note: Prepared by Rwanda Trading Company; displayed at Huye Mountain Coffee's washing station.
Source: Photograph by Survey team

Photograph 3-1: Poster showing the color of cherries eligible for purchase



Source: Photograph by Survey team

Photograph 3-2: Cherry purchase record sheet

The cherry purchase prices take into account market trends, the washing station's operating expenses, farmers' cultivation costs, and the purchase price at competing nearby washing stations. The price is updated every week or every day. In regions where competition over purchases is particularly intense among washing stations, the purchase price is set at a competitive level. In general, there is a single price, and there are no price differentials based on factors such as taste and altitude.[4] Nevertheless, some operators add on a premium to the single price in the case of regions in which cherries that win the cup of excellence award are grown and washing stations that process high-quality parchment.[5] Trading at prices below the minimum price set at the start of the harvest season in discussion by exporters, washing stations, the National Federation of Coffee Farmers and other related parties is banned.[6]

[4] However, as noted above, some operators buy non-standard cherries at a discounted price.
[5] For example, COOPAC adds premiums of 5-20% depending on quality. Quality here refers to whether the cherries are red, or whether they were grown in a region in which cherries that have won COE are grown (based on an interview with COOPAC on June 18, 2013). In addition, Huye Mountain Coffee pays a higher price than the single price in areas that grow cherries that have won COE (based on interviews with Huye Mountain Coffee on June 19, 2013). Rwanda Trading Company pays a higher purchase price for cherries to washing stations that produce high-quality parchment (based on interviews with Rwanda Trading Company on June 18, 2013).
[6] The National Federation of Coffee Farmers is made up of units and the cooperative associations under them.

Table 3-6: Minimum purchase price and average purchase price for cherries and parchment for SWC

Year		2005	2006	2007	2008	2009	2010	2011	2012
Cherry									
Minimum purchase price	RWF	100	100	120	120	120	145	165	170
	US$[1]	0.17	0.17	0.21	0.22	0.21	0.25	0.27	0.28
Average purchase price	RWF	110	110	135	150	160	198	258	187
	US$[1]	0.19	0.19	0.24	0.27	0.28	0.34	0.42	0.31
Parchment picked by farmers									
Minimum purchase price	RWF	500	500	500	500	500	500	1200	600
	US$[1]	0.87	0.87	0.88	0.90	0.86	0.86	1.97	0.98
Average purchase price	RWF	550	550	625	610	625	750	1350	700
	US$[1]	0.95	0.95	1.10	1.10	1.08	1.28	2.22	1.14

Note 1: The US$-denominated price was converted from RWF at the exchange rate on April 1 of that year (http://www.oanda.com/lang/ja/currency/converter/). However, the exchange rate for 2005 could not be obtained, so the figures were converted using the rate on April 1, 2006.
Source: NAEB materials

Some washing stations give farmers interest-free advance payments and loans, secondary payments, instruction on cultivation, and offer nurseries, whether the washing station is owned by a cooperative or a private operator.[7] This kind of farmer services help to strengthen relationships with farmers. Washing station utilization rates average 61% nationwide, and are only 23% in the Northern Province (Table 3-7), so these farmer services are likely a means whereby washing stations can strengthen relationships with farmers and thus ensure a stable source of cherries.

Table 3-7: Number of washing stations and utilization rate (by region; 2012)

Region	No. of WS			Selecting and processing capacity of WS in operation (converted to cherries, tons)	Amount of cherries selected and processed (tons)	WS utilization rate (%)
	In operation	Idle	Total			
Kigali (capital)	1	3	4	2,500	33	1%
Eastern Province	39	2	41	15,750	11,613	53%
Southern Province	52	6	58	20,450	10,763	74%
Northern Province	20	3	23	12,150	2,663	22%
Western Province	85	4	89	41,950	31,667	70%
Total	197	18	215	92,800	56,739	61%

Source: NAEB (2012)

[7] For example, private washing stations offering services to farmers include Huye Mountain Coffee, RWACOF and KZ Noir.

Box 3-2: Current conditions for coffee farmers (cast Survey)

In order to ascertain the environment in which coffee farmers work, we interviewed coffee farmers in Huye Sector and Maraba Sector[8] in the Huye district in the Southern Province. Only four farmers were interviewed so we cannot make generalizations based on these results, but we provide this information as a case study of coffee farmers. Please refer to Annex 1 for further details.

Livelihood: Farmers choose the optimum cropping pattern based on the characteristics of their crop, merits and demerits. Farmers seem to see coffee as a highly profitable cash crop.

Labor required for coffee cultivation: Coffee cultivation requires concentrated labor during the harvest season, and every farmer surveyed was very busy and hired seasonal workers. Savings and advance pay from washing stations were used to pay these seasonal workers. Since there is a worker shortage, they are not trying to increase the number of coffee trees, but to raise productivity.

Technical guidance for coffee cultivation: In addition to instruction from NAEB, guidance from washing stations endeavoring to procure a stable source of high-quality cherries also plays a major role in improving farmers' cultivation techniques.

Government programs for technical guidance: NAEB assigns two extension workers specializing in coffee in each district. In the case of Huye district, targeted in this case study, in addition to NAEB extension workers at the district level, there is one Coffee Promotion Staff, at the sector level there is one agriculture extension officer, and at the cell level there is one socio-economics officer. The agriculture extension officer and socio-economics officer are in charge of all crops, not just coffee, but the agriculture extension officer and socio-economics officer in Huye District, where coffee is an import product, put special emphasis on coffee.

Support for coffee farmers: Washing stations and cooperative associations provide interest-free loans as well as technical guidance. As such, in terms of support for farmers, washing stations and cooperative associations make substantial contributions, on par with the government's contribution.

Changes resulting from the establishment of washing stations: Interviewees noted many positive changes resulting from the establishment of washing stations, such as "Income and living standards have improved," "knowledge and technique related to coffee have improved," and "coffee farmers are recognized as having a positive social impact." Washing stations have led to an increase in the purchase price for cherries, and farmers have been able to take advantage of the support provided by washing stations, such as technical guidance and loans. As a result, living standards and technical levels related to coffee cultivation have improved. Moreover, a wide range of positive changes have occurred among coffee farmers and in the community.

Cooperative associations: Support for cooperative members, as noted in Box 3-3, is not available, in principle, for those who do not belong to the cooperative. The Maraba Cooperative is not an exception—other cooperative associations may buy cherries from non-members, but they do not make secondary payments and provide other farmer support to non-members. This means that there is a big disparity in the benefits that can accrue to cooperative members and non-members. Even though the potential benefits would be much greater if everyone were a member, some farmers remain non-members because the initial subscription when joining is high.

Source: Prepared by Survey team.

[8] Rwanda's administrative districts are country, province, district, sector and cell.

Box 3-3: Maraba Cooperative Association

Overview: The group began activities in 1999 and became a cooperative association in 2002. There are currently 1,416 members. The cooperative has 27 full-time employees and hires 300 seasonal workers. It is active in five sectors in Huye District, including the Maraba sector. It received USAID from 2001 to 2006.

Operations: Cherry purchases, primary processing, secondary processing, return of profits to cooperative members

Scale: There are four washing stations and one secondary processing facility. It does not have a coffee farm, but the cooperative members taken together own coffee farms covering a total of 250 ha. Every year, five containers (about 100 tons) are produced. They sell two containers to the UK and two to the US, and occasionally trade with Japan as well.

Organization: Maraba Cooperative has three divisions. 1) General Assembly: Meets twice a year; 140 cooperative members, or 10%, are Assembly members. They are selected in elections. 2) Board of Directors: Made up of five officers, with a business team (accounting, operations, cashier, etc.) consisting of managers and others underneath the Board of Directors. 3) Internal auditor

Support for cooperative members and advantages: 1) Support for various work in coffee cultivation. 2) Distribution of fertilizer at no charge; however, when the cherries are bought, a contribution of 10 RWF/kg is deducted from the payment when cherries are purchased. However, farmers who accept fertilizer cannot be forced to sell their cherries to the Maraba Cooperative, so there are cases in which they sell their cherries to other operators. The amount of fertilizer distributed is determined based on the amount of cherries sold the previous year. Farmers can apply fertilizer to 10 trees with 1kg of fertilizer and 100kg of cherries can be harvested from 10 coffee trees, so farmers who sell 100kg of cherries are given 10kg of fertilizer. 3) Interest-free loans and advance payment. 4) Secondary payments. 5) Support with health insurance premiums at no cost. 6) Training (saving money, health care, HIV, nutrition, hygiene). 7) Training and guidance regarding agriculture.

Method for distribution of net profits: Decided by General Assembly. For example, secondary payments, repair of washing station, purchase of new equipment, purchase of pumps, etc.

Method for access to farmers: Farmers are grouped at the cell level. Communication is taken with farmers through ties between the General Assembly, sectors and cells. Political governing structures and bureaucrats are not involved.

Other: Fair trade certification obtained from 2004

Source: Prepared by Survey team based on interviews with Maraba Cooperative Association (June 20, 2013).

3-2-2. Distribution of parchment processed as FWC: from washing station to secondary processors and exporters

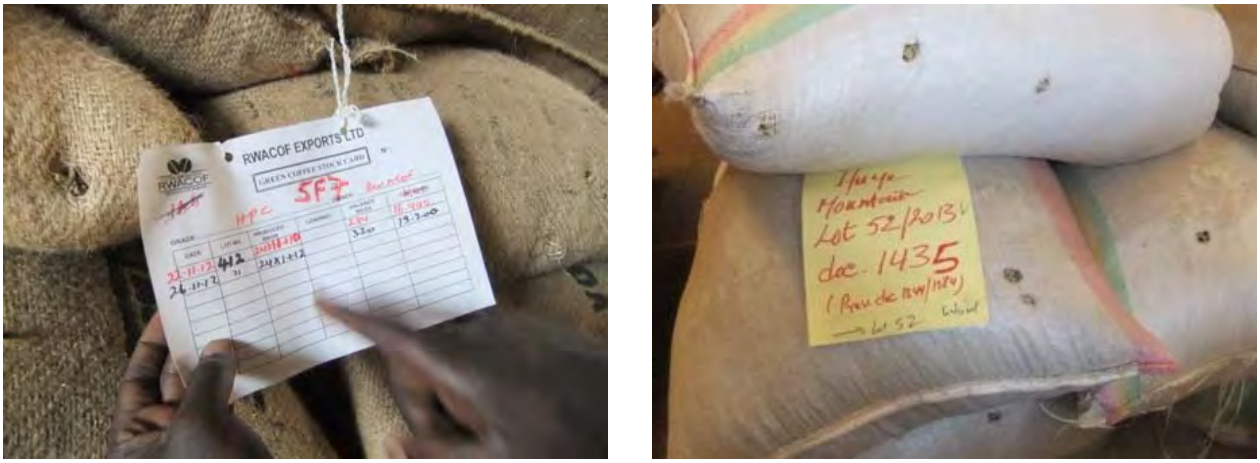
Parchment selected by the washing station is transported to secondary processing facilities to process into green coffee beans. Even if the amount of the transported parchment is minimal, the quality is inspected before it is purchased.[9,10] In the screening, the parchment is inspected for moisture content, weight composition ratio, the cup score based on Specialty Coffee Association of America (SCAA) standards, the physical appearance of the bean and the presence of a fermentation odor. The results are managed by lot unit.

[9] However, quality inspections are not carried out in cases such as Maraba Cooperative, which owns both a washing station and a secondary processing facility.

[10] Samples are taken from every bag delivered to RWACOF for inspection.

Poor-quality parchment is not bought, and the parchment purchase price is adjusted based on the extraction rate as calculated from the moisture content and the weight composition ratio by size.[11]

The parchment that is bought is managed and stored by lot in the case of both operators that process the parchment to produce green coffee and then store it, and the operators who store the parchment until an order is received.[12] Since the respective lots are transported by different washing stations, it could be identified and managed in terms of washing station units, but they cannot identify the parchment by a smaller unit than the washing station, such as by farm. In some cases, the parchment and green coffee managed by lot is ultimately mixed with different lots when the importer places an order.

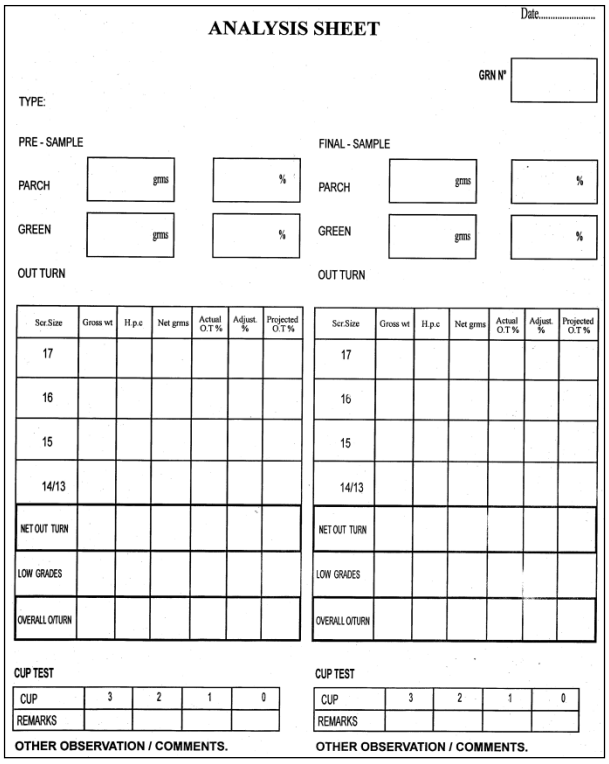


Photograph 3-3: Tags for identifying and managing stored green coffee and parchment

[11] Based on interviews with RWACOF (March 22, 2013) and the Rwanda Trading Company (June 18, 2013).
[12] The Rwanda Trading Company saves it in parchment form.

Box 3-4: RWACOF's parchment quality inspection

RWACOF's quality inspection of parchment examines the following aspects in this order: 1) husking, 2) moisture content measurement, 3) calculation of weight composition ratio by size, 4) roasting and 5) cupping. The quality inspection sheet shown in Figure 3-5 is used for this process.



ANALYSIS SHEET

Date.....

GRN N°

TYPE:

PRE - SAMPLE			FINAL - SAMPLE		
PARCH	grms	%	PARCH	grms	%
GREEN	grms	%	GREEN	grms	%
OUT TURN			OUT TURN		

Scr.Size	Gross wt	H.p.c	Net grms	Actual O.T %	Adjust. %	Projected O.T %
17						
16						
15						
14/13						
NET OUT TURN						
LOW GRADES						
OVERALL O/TURN						

Scr.Size	Gross wt	H.p.c	Net grms	Actual O.T %	Adjust. %	Projected O.T %
17						
16						
15						
14/13						
NET OUT TURN						
LOW GRADES						
OVERALL O/TURN						

CUP TEST

CUP	3	2	1	0
REMARKS				

OTHER OBSERVATION / COMMENTS.

CUP TEST

CUP	3	2	1	0
REMARKS				

OTHER OBSERVATION / COMMENTS.

Figure 3-5: Quality inspection sheet for parchment

Photograph 3-4: Small husking machine

Photograph 3-5: Sieve divided by screen

Photograph 3-6: Small roaster

Photograph 3-7: Cup test

Source: Survey team

3-2-3. Distribution of parchment processed as SWC: from washing station to secondary processors and exporters

The parchment that is the raw material for SWC is processed by farmers using a hand-operated pulping machine, but this parchment is bought up and collected by the secondary processor via a middleman from all

over the country. The middleman may have small-scale middlemen working under him in a network that stretches across the country.[13] The secondary processor gives advance payments to the middleman so that the middleman can buy the parchment.

When the parchment is bought by the secondary processor, the moisture content, weight composition ratio by size, physical appearance and the presence of a fermentation odor are examined, but unlike parchment to be processed as FWC, a cup score is not given.[14] The purchase price is determined based on market trends and other factors, but the purchase of parchment for SWC is more competitive than the purchase of cherries by washing stations, and as a result it seems that the purchase price is the same as that of other companies.[15] Nevertheless, the price is adjusted based on the extraction rate.

Parchment for SWC is brought to secondary processors via multiple middlemen from all over the country, which makes it difficult to specify the growing region, and unlike FWC, SWC can be sold in the broad category of “commodity class” and thus is generally not managed by lot.

3-2-4. Distribution of FWC and SWC: Export overseas

Green coffee processed by secondary processors is exported by exporters with export licenses.
Many secondary processors hold export licenses and also run export businesses, but secondary processors who do not have an export license entrust the export process to exporters. Table 3-8 shows exporters and their export volume.

[13] Based on an interview with RWACOF (June 17, 2013).
[14] Based on an interview with RWACOF (June 17, 2013).
[15] Based on an interview with Rwanda Trading Company (June 18, 2013)

Table 3-8: List of exporters and export volume by operator (fiscal year ending in December 2011)

Order	Exporter	Export volume (tons)	Export share	Order	Exporter	Export volume (tons)	Export share
1	RWACOF	5,360	32.75%	23	KMG GENERAL TRADING	69	0.42%
2	Coffee Business Center (CBC)	3,372	20.60%	24	RWABISINDU	59	0.36%
3	Rwanda Trading Company	1,248	7.63%	25	IMENA	58	0.35%
4	K.A.C.C	915	5.59%	26	COPROFICAG	58	0.35%
5	COOPAC	770	4.70%	27	BUSOZO COFFEE	58	0.35%
6	ENAS	644	3.93%	28	COFFEE VISION COOPERATIVE	38	0.23%
7	RWASHOSCO	593	3.62%	29	MIG	36	0.22%
8	SOPECAF	444	2.71%	30	SAKE COFFEE PLANTATION	33	0.20%
9	MISOZI COFFEE	419	2.56%	31	LAND OF THOUSAND HILLS	30	0.18%
10	CAFERWA	308	1.88%	32	TQ INTER-CROPS	28	0.17%
11	KAYCO	288	1.76%	33	GLOBAL BUSINESS SERVICE	22	0.13%
12	GREENLAND COFFEE CO	285	1.74%	34	IMPEXCOR	22	0.13%
13	SOCOR	189	1.15%	35	SHENGA	20	0.12%
14	GATARE COFFEE	127	0.78%	36	SHINNING COFFEE	19	0.12%
15	A.P.I	121	0.74%	37	COCAM	19	0.12%
16	AGRO-LINK COFFEE	115	0.70%	38	WEST HILLS COFFEE	19	0.12%
17	N.C.M.C	104	0.64%	39	GORILLA MOUNTAIN COFFEE	18	0.11%
18	CMTC	104	0.64%	40	LIFEMATE	12	0.07%
19	RUSIZI SPECIALITY COFFEE	96	0.59%	41	GOLDLEAF RWANDA	10	0.06%
20	DALLAS INVESTMENT	86	0.53%	42	KARENGERA	3	0.02%
21	RWANDA MOUNTAIN COFFEE	77	0.47%	43	BOURBON COFFEE	1	0.01%
22	SACOF	71	0.44%		Total	16,369	100.00%

Source: NAEB (2012)

Some exporters and secondary processors provide market and export agent services. This is not a service whereby another secondary processor buys the green coffee and sells them to an overseas importer for a profit, but rather is a type of consignment sale whereby the operator takes a fee, markets the coffee in place of the secondary processor, finds an exporter for the green coffee and serves as the agent for their export. IN addition to this agent service, some operators process the parchment on consignment.[16] There are consignment fees and agent fees, but in the case of one operator, the parchment consignment processing fee was 35 RWF/kg and the marketing and export agent service fee was 5% of the contract amount with the buyer. In the event that the green coffee is transported from Kigali to the port at the seller's expense, another 14 cents/kg is incurred. The

[16] Judging from what could be confirmed in the local study, RWACOF and Rwanda Trading Company, which are the biggest secondary processors cum exporters, provide consignment processing of parchment and green coffee marketing and export agent services.

Rwanda Trading Company carries out marketing and export services, and exports 400 tons of green coffee annually through these services. Moreover, exporter RWASHOSCCO offers marketing and export agent services to six cooperative associations (Box 3-5). The agent service can be said to be high-risk and high-return since secondary processors and washing stations using this agent service could earn more revenue to the extent that they are able to sell the coffee they produced at a higher price, but if they can't sell it, their income goes down. However, they don't have export licenses and secondary processing facilities, so being able to use this service is very meaningful for small-scale secondary processors and washing stations that are motivated to grow high-quality beans and sell them at high prices. In addition, using these agent services exposes secondary processors and washing stations to market trends, but their understanding of the market deepens through this experience, and could lead to improved quality.

Box 3-5: RWASHOSCCO

Rwanda Small Holder Specialty Coffee (RWASHOSCCO) was established in 2005 as a joint venture by six cooperatives (Maraba Cooperative, Karaba Cooperative and Buffcoffee Cooperative in the Southern Province, Cocagi Cooperative in the Western Province, Dukundekawa in the Northern Province and Cocahu Province in the Eastern Province). RWASHOSCCO's board is made up of representatives from these cooperatives.

RWASHOSCCO is not a middleman. In other words, the company does not buy coffee beans produced by the cooperatives, export them and take a profit from the spread between the purchase price and export price. The company offers services on quality improvement, marketing and export procedures as well as agency services to the six cooperatives, and charges 5% of the export price as its service fee and agency service fee. Although they charge a 5% fee, the distribution of RWASHOSCCO's profits is decided by its board, made up of cooperative representatives, so the profits ultimately return to the cooperative. The services and agency services are as follows.

1) Technical guidance on cultivation and selection to cooperatives: The company has 10 agricultural experts and six selection and processing experts to provide guidance. A selection and process expert is posted full-time to each cooperative.
2) Cupping: The company has two cuppers.
3) Marketing: The company participates in overseas trade fairs, contacts coffee traders found on the Internet and sends green coffee samples to buyers
4) Export management: Export procedures, distribution arrangements, insurance arrangements, etc.

Source: Interview with RWASHOSCCO (March 22, 2013)

NAEB confirms the quality of the green coffee when it is exported. NAEB takes a sample from the lots prepared for export, and gives it a cup score using SCAA criteria in the NAEB laboratories to confirm that the lots are in line with the contract between the exporter and importer. In addition, a quality certificate is issued (Photograph 3-8) and export is authorized. The export is not authorized if the lot is not in line with the contract. Lots that receive a cup score less than 80 is not authorized for export as a specialty coffee.[17] NAEB saves the samples it takes for three years.

[17] Specialty coffee as defined by SCAA is coffee with a cup score (SCAA standard) of 80 points or more.

Exporters who carry out marketing activities participate in overseas trade fairs and sends samples to previous buyers, but do not carry out proactive activities. Its activities amount to simply selling to buyers who contact them after learning of the coffee's reputation. Some exporters have parent companies that are international coffee traders or major overseas roasters. In this case, the parent company secures buyers for the exporter, so they may feel they do not need to actively engage in marketing activities. In particular, the parent company tends to have selling channels for SWC, and usually does not interact directly with customers.[18]


OFFICE RWANDAIS DE PROMOTION DU CAFE

OCIR CAFE

CERTIFICATE DE QUALITE
CERTIFICATE OF QUALITY

Pruduce of Rwanda

OCIR

LICENCE D' EXPORTATION
EXPORT LICENCE

EN TERREFTE
IN ROASTED STATE

EN LIQUEUR
IN LIQUOR STATE

APUREMENT - Checking

Date de sortie / Date of export	N° declaration de sortie / Export declaration N°	Poids Net / Net weight	Poids BRUT / Gross weight	SCTAU et signature / seal and signature

1. ORIGINAL

Photograph 3-8: Quality certification issued by NAEB

As regards product standards and types, it is most typical for exporters to sell coffee at the standard required by the individual buyer rather than to market and form contracts for coffee with standards set by the exporter and NAEB and agree on contracts. For example, one major exporter had many requests for green coffee beans with a size exceeding 13 screens through 2010, so the exporter sold coffee with a 13 or higher screen size, but from 2011 requests were for screen sizes of 15 or more, so the exporter sold beans at screen sizes of 15 or higher. However, some exporters sell their own company brand (Box 3-6), while some cooperatives acquire certification and sell their coffee as fair trade coffee.

[18] Based on interviews with RWACOF (March 22, 2013).

Box 3-6: Rwanda Trading Company's brand

Rwanda Trading Company markets coffee unders its own brand name and standards, as shown in Table 3-9. The brand name "Inzovu" means "elephant" and "trustworthy" in the local language. Specialty coffee is bought in bulk so Inzovu includes a mix of green coffee meeting the same standards, with annual exports of almost 1,000 tons. Inzovu Supreme is particularly high-quality, and is managed and sold by lot.

Table 3-9: Rwanda Trading Company's green coffee standards

Product name	Standard					Packaging at export
	FWC/SWC	Screen size	Defective beans	Cup score	Other	
Inzovu Supreme	FWC	15 or more	Zero	85 points or higher		GrainPro
Inzovu	FWC	13 or more	10 or less	80 points or higher		Packaging similar to GrainPro
Screen 13/14	F C	13, 14	-	80 points or higher	Clean cup	Packaging similar to GrainPro
Ordinary	SWC	13 or more	30 or less	70 points or higher		Packaging similar to GrainPro
FW(B)	FWC	-	-	-	Triage	Jute bag
SW(B)	SWC	-	-	-	Triage	Jute bag

Source: Prepared by Survey team based on interviews.

Box 3-7: Uses of fair trade-certification premiums

Example 1: Maraba Cooperative

Cost of fair trade certification application and inspection, new washing station, expansion of existing washing station (such as setting up drainage treatment facility), secondary payments to cooperative members

Example 2: COOPAC

Use of premiums is decided at cooperative meetings. Up until this point, the cooperative has bought 350 cows and 700 goats and built three schools

Source: Survey team, based on local interviews

The business terms for Rwanda-grown coffee is generally Free on Truck (FOT) or Free on Board (FOB). FOT means that the seller bears the cost until the cargo is loaded onto the truck at the export site, and subsequent costs and risk is borne by the buyer.[19] Once the green coffee is loaded onto the truck in Kigali, all

[19] FOT is not a trading condition set in Incoterms as stipulated by the International Chamber of Commerce.

the responsibility shifts to the importer, so in general FOT is not advantageous for the importer. FOT is typical in Rwanda-grown coffee transactions because exporters want to include FOT in the terms of their contracts, but another factor is that the exporter's capacity regarding export procedures and export arrangements has not yet been built up enough. According to local interviews, FOT is often used with SWC, and FOB is used with FWC. This is likely because SWC buyers include a relatively large number of traders with networks in East Africa who are familiar with the locale in handling large volumes of green coffee.

3-3. Distribution

One of the biggest concerns when importing Rwandan coffee is its distribution.[20] In this section, we summarize the current conditions for distribution.

(1) Transport path

When exported from inland Rwanda to Japan, Europe or North America, the coffee is shipped by land in 20-foot containers to Mombasa Port in Kenya or Dar es Salaam Port in Tanzania.[21] One exporter uses Mombasa Porter 70% of the time and Dar es Salaam Port 30% of the time.[22]

(2) Transport fees

Transport fees when the largest transport company in Rwanda is used are provided below.[23]

Table 3-10: Container fees from Kigali to Mombasa Port and Dar es Salaam Port

Item	Fee
Transport costs from Kigali to Mombasa Port	US$127/ton
Transport costs from Kigali to Dar es Salaam Port	US$118/ton
Export Documentation	US$150/form
Bill Fee	US$60/form
Origin Terminal Handling Charge	US$99/one 20-foot container
Postal fee	US$70/time

Note: A minimum transport cost for 19 tons is charged.
Source : Prepared by Survey team based on interviews with Bollore Africa Logistics (March 25, 2013).

(3) Days until shipment, detention in port

Transportation from Kigali to Mombasa Port takes seven to eight days, and it takes four days from Kigali to Dar es Salaam Port.[24] However, this count is not the number of days until it is shipped, but the number of days it takes to ship by land from Kigali to the port, and does not include the number of days the cargo is detained in the port. According to a large local exporter, on average it takes four weeks from the time the

[20] Indeed, in interviews with Japanese trading companies, we heard many concerns about distribution conditions.
[21] According to Rwanda Trading Company, recently it has been difficult to make reservations for surface mail via Mombasa Port due to the increase in cargo destined for South Sudan.
[22] Based on interviews with RWACOF (March 22, 2013).
[23] Based on interviews with Bollore Africa Logistics (March 25, 2013).
[24] Based on interviews with Bollore Africa Logistics (March 25, 2013).

cargo arrives in Kigaili until it is shipped.[25] There were even reports that the cargo was detained several months in the port, which lowered the quality of the green coffee. Export arrangements by local carriers do not try to reserve the shipment service so that it is well-timed with the departure from Kigali in order to shorten the detention period, but rather they reserve the shipment service when the cargo has been loaded into containers in Kigali, and at the same time leave Kigali so that they are not late for the reserved ship and wait for the boat to arrive in the port.[26] Accordingly, the cargo is detained in the port to the extent that it departs Kigali with time to spare.

(4) Transshipment of cargo from land transport containers to marine containers

Since imports are more common in Rwanda than exports, return runs of containers used in importation often exceed the amount that can be used, and these return runs are thus used to export green coffee beans. It is rare for these return runs to be international maritime transport containers owned by shipping companies using them from the port. Even if this is the case, they have not been arranged for the transport of green coffee, which makes it difficult to use the return run containers for international transort. In other words, after the green coffee is transported by land in return-run containers to Mombasa Port or Dar es Salaam Port, the cargo is all removed from the return-run container, and transferred to the international maritime transport containers used by the shipping company.[27] Accordingly, when they are loaded in Kigali, the seal affixed to the container is cut in the port, and a new seal is affixed to the international maritime transport container to which the cargo is transferred. Opening the container again in the port and moving it to a separate container after it has been sealed in Kigali carries the risk of loss and theft of the cargo, damage to the cargo, and mixing with other cargo, among other risks. In particular, in the case of Rwanda, there are many cases in which the green coffee is traded on an FOT basis, as described above, and the buyer is responsible after the container is loaded in Kigali, which means that reloading in the port is a major concern for the buyer.

According to a major carrier in Kigali, there is no precedent for containers used by the shipping companies to be brought empty from the port to Kigali, then fumigated, loaded and sealed, and then the cargo transported in the same container to the destination port. The carrier was not sure if this could be arranged.[28,29] Even if it could be arranged, the round-trip transport costs would have to be covered, which would make the transport costs much higher. Table 3-10 shows the transport fees if the return-run containers are used, but the round-trip transport costs would be more than twice as high. Since there are many extra return-run containers used for imports in Rwanda, where there are more imports than exports, the land transport fees to the port using the return-run containers would be much less than the land transport fees from the port to Kigali.[30] The round-trip transport costs, including the land transport costs from the port to Kigali, would be about four times higher than the transport fees shown in Table 3-10, which assume the use of return-run containers, as is the current practice.[31]

[25] Based on interview with Rwanda Trading Company (March 21, 2013).
[26] Based on interviews with Bollore Africa Logistics (March 25, 2013).
[27] Return-run containers are used to transport the green coffee by land without fumigating them first.
[28] Based on interviews with Bollore Africa Logistics (March 25, 2013).
[29] There is a fumigator in Kigali.
[30] Based on interviews with Bollore Africa Logistics (March 25, 2013) and Rwanda Trading Company (March 21, 2013).
[31] Based on interviews with Bollore Africa Logistics (March 25, 2013).

(5) Refrigerated containers

In Rwanda, refrigerated containers are not used, including for the transport of products other than coffee. Refrigerated trucks are used for refrigerated and frozen products. According to a major carrier in Rwanda, this carrier had not arranged for refrigerated containers before, but it would likely be possible if the costs were covered.[32] However, transport by refrigerated container requires appropriate temperature and power source management and loading techniques that would not prevent the circulation of cool air, and if there are mistakes with this, the green coffee could be significantly damaged. Given the sophisticated management technology required of the carrier, at present it would be difficult to transport green coffee from Rwanda using refrigerated containers.

(6) Transport capacity of exporters and carriers

Although our information is limited by what we could confirm with relevant people in this Survey, it seems that there is room for improvement in the transport capacity of local exporters and carriers. Trading companies that import green coffee from Rwanda have pointed out that local exporters and carriers are not accustomed to the export procedures and transport arrangements, and thus the process is time-consuming. Moreover, they are not accustomed to handling green coffee. It was also pointed out that some local exporters do not communicate and coordinate enough with importers and shippers to ensure that transport procedures move ahead without delay.

(7) Materials and equipment for transport

GrainpPro[33] imported from overseas can be obtained in Rwanda, and is used by Rwandan exporters. NAEB purchased a vacuum packing machine in 2008, which can be used by all operators. We were not able to confirm whether nitrogen substitution materials were available, at least judging from interviews with NAEB and exporters in the local Survey.

3-4. Domestic market

Domestic sales of roasted coffee beans grown in Rwanda totaled 116.8 tons in the 2011/2012 fiscal year (Table 3-11), which is only 1% of the 19,955 tons of green coffee production in that year (Table 3-2), but this is four times as high as the 32.2 tons consumed domestically in the 2004/2005 fiscal year and indicates that domestic sales of Rwandan-grown coffee is growing.

[32] Based on interviews with Bollore Africa Logistics (March 25, 2013).
[33] This is a special vinyl bag for storage developed by GrainPro Inc. that can preserve freshness.

Table 3-11: Fluctuations in domestic sales volume of Rwandan-grown coffee (roasted beans)

(Unit: tons)

Fiscal year	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Domestic volume sold of roasted beans	32.2	32.2	65.8	99.4	102.7	328.9	n.a.	116.8

n.a. = not available
Source: NAEB (2012)

Table 3-12 shows the main roasters in Rwanda. Many roasters primarily operate washing stations or export green coffee, with the manufacture and sale of roasted beans given an ancillary role. For example, RWACOF's main operations are to market and export the green coffee produced by the cooperative, and Huye Mountain Coffee and SAKE Coffee's main operations are the administration of washing stations.

Not all roasting businesses own their own roasting machines and roast the beans themselves; some outsource the roasting. Rwanda Trading Company, NAEB and Coffee Connection have roasting machines with a capacity of about 50 kg, the largest capacity in Rwanda, while Bourbon Coffee has a 15 kg-capacity roasting machine and RWASHOSCCO has a 12 kg-capacity machine, but Huye Mountain Coffee outsources its roasting. The outsourcing fee for roasting is 20 cents/kg in the case of the Rwanda Trading Company.

Packaging is imported from abroad. Imported products from China are 200 RWF/bag (about 30 cents a bag). They are packed by hand.

Table 3-12: Rwanda's roasters (2011/12)

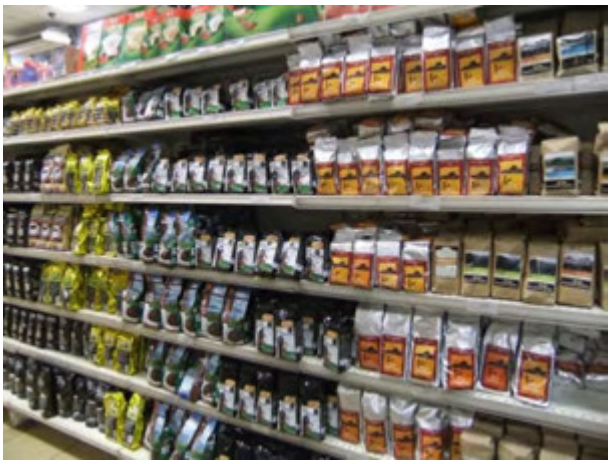
Order	Roaster	Volume sold (tons)	Share (%)	Order	Roaster	Volume sold (tons)	Share (%)
1	RWASHOSCCO	50.8	43.5%	6	TORA	5.4	4.6%
2	KINUNU	28.7	24.6%	7	HUYE Mountain Coffee	1.9	1.6%
3	Bourbon Coffee	11.1	9.5%	8	SAKE Coffee	1.0	0.9%
4	LIFEMATE	8.9	7.6%	9	NAEB	0.9	0.8%
5	SACOF	7.4	6.4%	10	MIG	0.7	0.6%

Source: NAEB (2012)

The roasted beans are distributed to supermarkets, family-run stores, hotels, restaurants and gift shops. In a large foreign-capital supermarket in Kigali, Rwanda-grown coffee sells better than tea and imported foreign-grown coffee, and coffee has a shelf space that is two to three times more than tea, with efforts put into its sale (Box 3-8). Nevertheless, almost all of the buyers are foreigners, and buying by Rwandans has not increased much over the past few years. Coffee is sold at family-run stores and local supermarkets, where few foreigners go, but only a few products are available, with a better lineup for tea. In general, Rwandans drink tea rather than coffee, and coffee availability is limited in stores other than supermarkets for foreigners.

The price of coffee is high. The price of roasted coffee sold in a Kigali supermarket (Table 3-13) was 3,700-4,700 RWF (about US$6.50) for a 500g bag and 2,100-2,600 RWF (about US$4.00) for a 250g bag, and

expensive Bourbon Coffee costs as much as 6,000 RWF (about US$9.80) for a 340g bag.[34] The price for a cup of coffee is 74-94 RWF[35] in the case of a 500g bag, which is two to three times higher than the 32 RWF/cup cost of Rwanda Mountain Tee, a domestically grown high-class brand. Rwandans like to drink tea and tend not to drink coffee, but one reason for this likely lies in the high cost of coffee, and is not an issue of custom or preference.



(Upper) Coffee display case at Nakumatt, a large foreign-capital supermarket
(Lower left) Small supermarket in Kigali; the middle shelf displays coffee, and the lower shelf displays tea.
(Lower right) Family-run store located side-by-side with Kigali's traditional market; only a few brands of coffee are displayed.
Source: Photographs taken by Survey team.

Photograph 3-9: Rwandan coffee sold at supermarkets and family-run stores

[34] Sales prices at local supermarkets were about the same and generally do not differ.
[35] 10 grams of roasted beans are used for one cup of coffee.

Table 3-13: Sales price of roasted coffee in Kigali supermarkets

Product name, brand	Price	Product name, brand	Price
Maraba	4,700 RWF/500g	Bourbon Coffee	6,000 RWF/340g
TORA	4,000 RWF/500g	AROMEC	2,600 RWF/250g
Rwanda Coffee (NAEB/OCIR)	3,700 RWF/500g	KIVU Bourbon	2,400 RWF/250g
		KINUNU	2,100 RWF/250g
[Reference: Price of teabags]			
Rwanda Mountain Tee	1,600 RWF/bag of 50 teabags (32 RWF per teabag)		

Source: Prepared by Survey team; based on visit to supermarket Nakumatt (March 20, 2013).

Box 3-8: Sales of coffee in supermarkets

According to a purchase manager at Nakumatt, a supermarket owned by a South African company, coffee sales conditions are as follows.

Sales trends: Rwanda-grown coffee sells well. The manager's sense was that sales had doubled compared to four years ago. The product lineup has also increased, so that a few years ago they only sold four types, and currently sell eight types of coffee. They also sell imported foreign-grown coffee, but Rwanda-grown coffee sells better. Coffee sells much better than tea.

Most popular products: Maraba has the best sales, followed by Rwanda Coffee, KINUNU and KIVU Bourbon. Ground coffee sells about twice as well as coffee beans.

Patron base: Foreigners make up most of the buyers. Buying by Rwandans has not increased much compared to several years ago.

Procurement: There are no particular problems with procurement; products arrive quickly after they are ordered.

Expectations for coffee: A great deal of energy is put into coffee. A large sales floor is set aside for coffee, and the display is also carefully arranged. Prices are high, so the purchase manager felt that it would be good if prices were cheaper.

Source: Prepared by Survey team based on interview on June 24, 2013.

The Bourbon Coffee Café is a famous Rwandan coffee shop (Photograph 3-10). Bourbon Coffee opened its first store in 2007 and currently has five stores in Kigali and two in the US. In addition to drip coffee, cappuccino and coffee drinks, they offer fruit-based drinks such as juice and smoothies, but according to the café, it is these fruit-based drinks that are most popular among Rwandans, and they rarely drink the coffee drinks. When we visited Bourbon Coffee Café, few Rwandans ordered coffee drinks. Although cafes are beginning to become more common in Rwanda, customers do not seem to gather in cafes for coffee.


Photograph 3-10: Bourbon Coffee Café

The Africa Barista's Network, a group made up of baristas, carries out programs aimed at enhancing baristas' technical skills and stimulating domestic demand for coffee. The group includes 98 Rwandan baristas.[36] The Network works with NAEB to offer training for baristas and barista championships, and is considering a joint publication with NAEB of a barista magazine to excite domestic demand.[37]

3-5. Government initiatives related to distribution

NAEB carries out initiatives to strengthen the value chain at all stages, from coffee cultivation to its selection and export, and is also involved in the following distribution and marketing activities.

(1) Sales and marketing activities

NAEB participates in overseas trade fears and sends green coffee samples to buyers. As a result, buyers visit Rwanda and this leads to trade. Since all buyers of Rwandan coffee are registered with NAEB, NAEB has information on existing buyers.[38]

(2) Branding

NAEB establishes branding strategy, and as of June 2013, consultants to devise branding strategy had been hired.

(3) NAEB is considering establishing a Specialty Coffee Association of Rwanda in the future.[39]

(4) Capacity building for exporters

NAEB provides five-day training on price volatility risks and contract management for exporters once a year. There are 25-35 participants each year, and the lecturers are sent from the World Bank.[40]

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[36] Many baristas in Rwanda work in cafes and earn a living that way (based on interviews with Bourbon Coffee on March 22, 2013).
[37] Based on interviews with Bourbon Coffee (March 22, 2013).
[38] Based on interviews with NAEB's Marketing Department (March 22, 2013).
[39] However, the establishment of the Specialty Coffee Association of Rwanda would be premature at this point. Based on interviews with NAEB's Product Development Research Planning Department (June 21, 2013).
[40] Based on interviews with NAEB's Marketing Department (March 22, 2013).

(5) Financial support

NAEB hosts a meeting to mediate between six to seven banks and all exporters. At this meeting, they discuss conditions for coffee producers, and decisions are made on whether the banks would make loans to the exporters and what the loan terms and conditions will be. NAEB's role at this information is to provide accurate information and ensure that the meeting is transparent.[41]

(6) Program to improve management of washing stations (turnaround program)

As of the end of 2007, 70% of washing stations were in the red,[42] which hindered the government's ambition to increase production of FWC. Accordingly, NAEB began implementing a program to improve washing station management in 2011. This program involves the dispatch of a management adviser to the washing stations targeted for support for five months. This program targets washing stations run by cooperatives, and helped 20 stations in 2011, 30 in 2012 and 25 in 2013. According to NAEB, the program yielded results at some washing stations, with improvements in their management conditions.[43]

(7) Training to develop Q graders

NAEB brings instructors over from the US to provide training for existing Q graders and training for those who aspire to become Q graders.

(8) Promotion of domestic consumption.

NAEB sponsors events in all provinces called Coffee Days, in which people drink coffee while enjoying pleasant talks with each other. There are 1,000-2,000 participants in these events in each province. Coffee is provided free of charge at domestic events and coffee is exhibited at private-sector trade fairs to stimulate the domestic consumption of coffee.[44]

[41] Based on interviews with NAEB's Marketing Department (March 22, 2013).
[42] Promar Consulting (2012)
[43] Based on interviews with NAEB's Product Development Research Planning Department (March 23, 2013).
[44] Based on interviews with NAEB's Marketing Department (June 24, 2013).

Chapter 4 Production

4-1. Cultivation

According to a coffee census carried out in 2009, there are 394,207 coffee farms in Rwanda, and 72 million coffee trees are growing. There are 183 trees per farm, which means that the scale of coffee cultivation is very small.

Table 4-1: Number of coffee farms and trees

Region	No. of coffee farms	No. of coffee trees	No. of trees per farm
Eastern Province	51,141	16,390,327	320
Northern Province	58,858	8,846,393	150
Western Province	143,150	23,073,520	161
Southern Province	133,781	22,425,292	168
Kigali	7,277	1,328,380	183
Total	394,207	72,063,912	183

Source: OCIR Cafe (2009)

(1) Varieties

According to the Rwanda Agricultural Board, the varieties most commonly planted in Rwanda are the following six.

1) Bourbon Mayaguez 139 (BM 139)
2) Bourbon Mayaguez 71 (BM 71)
3) Bourbon Mibirizi
4) Jackson 2 / 1257 (J2 1257)
5) Harrar
6) Population 3303 (Pop 3303)

Numbers 1) through 4) are Bourbon varieties. NAEB distributes seedlings for varieties 1), 2) and 4), depending on the region, and does not recommend the other varieties.

(2) Nursery beds

Raising good seedlings is key to cultivating coffee. However, this Survey could not confirm that any farmers or cooperatives were growing seedlings properly. NAEB distributes varieties for the nursery beds, and every region has a nursery bed. NAEB posts two coffee managers to each district, who manage the nursery beds and guide farmers, but these managers need to teach the farmers how to grow seedlings, in cooperation with washing stations and cooperatives.

(3) Layout of coffee farms

The farm layout is a very important aspect of coffee growing as it has a direct effect on the efficiency of

farm work and the crop yield. The layout must be determined by taking into account natural conditions such as the soil, elevation, rainfall and geography, ease of access for carrying farm implements and the harvest, and the usable workforce, as well as the varieties being grown. However, none of the coffee farms that we visited had appropriate layout, and there was room for significant improvement in the following areas:

1) The trees are not planted at intervals that are appropriate for their variety, and overall the spacing between trees is too wide. The average Rwandan planting rate is 2,000-2,500 trees/ha, but it could be increased to 4,000 trees/ha.
2) Coffee is generally planted along the contour in the case of farms along an incline. This enables the ridges to track the contour and prevent soil erosion, and work efficiency does not decline even on inclined ground. However, it is not easy to understand cultivation methods for inclined ground, and ridges were created one above the other.
3) Few farmers and other stakeholders recognize the importance of layout

Designing an appropriate layout raises yield and working efficiency, and ensures that trees are not missed when pruning and applying fertilizer and pesticide. However, it is risky to unsystematically change the layout by adding trees without careful thought on farms where trees have already been planted.

Note: Coffee farm on which trees were planted in 2010. The gap between trees is wide and uneven. Trees are not planted along the contour.
Source: Photograph by Survey team

Photograph 4-1: Coffee farm on inclined ground (Rwanda)

(4) Pruning

Pruning is essential to restore trees that have lost productivity and maintain yield. However, since the basics about tree growth and harvests are not understood in Rwanda, the trees are let to grow without intervention, and trees are not restored with pruning. As a result, almost all trees lack fruit anywhere except at the tip of the branch and there are no branches until about 1.5 meters along the trunk from the ground's

surface. Since some farmers believe that cutting the branches would kill the tree or take away their income, the pruning methods called the “agobio” and “parras” methods, which results in little reduction in yields between the pruning and the tree’s rejuvenation, would likely be generally accepted in Rwanda. Accordingly, Accordingly, in the local Survey, we instructed farmers by demonstrating the agobio and parras methods on actual trees. However, proper management is essential after the pruning, so the farmers must continue to be instructed on this point.

Note: There are no branches along the lower part of the trunk, so productivity in this area is zero.
Source: Photography taken by Survey team

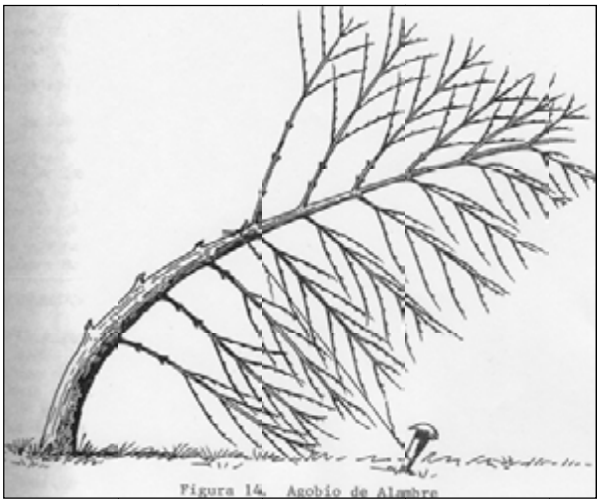
Photograph 4-3: Trees that have not been pruned (1, Rwanda)

Note: There are no branches along the lower part of the trunk, so productivity is poor, and the tree bends as it cannot handle the heaviness of the upper part. Side branches do grow from the bent part, but if left unattended, the tree will become unmanageable with too many main branches.
Source: Photography taken by Survey team

Photograph 4-2: Trees that have not been pruned (2, Rwanda)

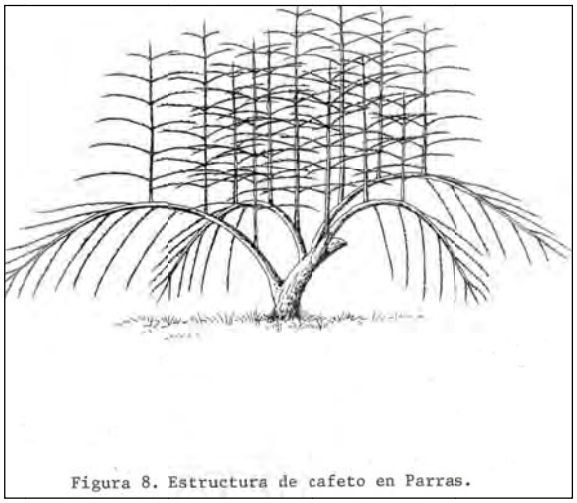
Note: Branches flourish from the lower half to the upper half, and the entire tree is productive.
Source: Mi Cafeto

Photograph 4-4: Well-managed tree (Hawaii)



Note: The tree is forcibly bent at 45 degrees and held in place with a wire. The following year, a harvest can be taken from the bent part. After the harvest, the point of the tree is cut off.
Source: tecnicas modernas para el cultivo del café Instituto Salvadoreno de Investigaciones del Café

Figure 4-1: Agobio (pruning method)



Note: The trunk is bent in four direction to begin new growth. The method of bending is the same as for the agobio method.
Source: tecnicas modernas para el cultivo del café Instituto Salvadoreno de Investigaciones del Café

Figure 4-2: Parras (pruning method)

(5) Shade-grown

Many coffee farms in Rwanda are on inclined ground and soil erosion is very common. Moreover, the dry period is prolonged, which makes shade-grown cultivation appropriate. On shade-grown coffee trees, leafy growth is abundant as shade is provided to limit sun exposure, thus stimulating photosynthesis. Most coffee farmers in Rwanda are small-scale farmers, so shade trees that could provide cash crops, such as bananas and plantains, would be well-suited. However, banana and plantain trees absorb vast quantities of moisture and nutrients from the soil and could have a negative effect on coffee growth, while citrus fruit trees can invite damage from disease and harmful insects. Accordingly, in regions where high-quality coffee can be grown, tall trees in the legume family, which have little risk of insect damage and also are a source of nitrogen fixation, are preferable. In addition, whether the region is capable of producing high-quality coffee or not, planting soybeans and azuki beans between trees is recommended to enrich the soil due to nitrogen fixation and provide farmers with secondary food and income.

(6) Fertilizer application

NAEB distributes fertilizer to farmers via washing stations, and some washing stations distribute compost made from the coffee pulp, but fertilizer application is inadequate and malnutrition is marked. Moreover, the soil is hard, so compost must be worked in to soften the ground. In particular, with current fertilizer applications, it would be difficult to carefully plan out a layout that would create a field with high cultivation density and obtain high yields through pruning. Regular fertilizer applications should be made in line with the weather and the trees' growth status, soil and leaves should be analyzed once a year if the budget allows, and a fertilizer program devised based on the results of this analysis.

(7) Harvest

Harvesting only mature beans and sorting out the unripe beans and green beans that were picked by mistake is very important in terms of enhancing coffee quality. Coffee is a fruit, and a low degree of ripeness could affect the coffee's flavor. In Rwanda, washing stations and middlemen either buy immature beans, green beans and beans that float in the water (floaters) from farmers at a low price or refuse to buy them, so the farmers are beginning to understand the importance of harvesting only the mature beans. However, a mature bean as understood in Rwanda is considered to be an immature bean with a low degree of ripeness by other countries' standards (Photograph 4-5, Photograph 4-6).

Note 1: High-grade coffee beans (not beans for specialty coffee). To the left are ripe beans and to the right are immature beans that have been sorted out.
Note 2: Farmers try to harvest only ripe beans, but immature beans that are harvested by mistake are measured after dividing up according to the workers' responsibility. Workers receive higher payments for ripe beans, which gives them an incentive to harvest ripe beans.
Source: Mi Cafeto

Photograph 4-5: Ripe beans and immature beans (El Salvador)

Note: Many immature beans are mixed in. A comparison of the immature beans in the sieve and the immature beans in Central America (Photograph 4-5) shows a clear difference in the degree of ripeness (color). This demonstrates the limited understanding in Rwanda of degrees of ripeness.
Source: Photograph by Survey team

Photograph 4-6: Hand-sorting of immature beans (Rwanda)

Understanding of degrees of ripeness for mature beans is too lenient in Rwanda, and at the current standards for ripeness, Rwandan coffee cannot compete against competitors in other countries. Accordingly, we propose the following: workers should be helped to understand the 1) the true degree of ripeness for mature beans and 2) that the taste of immature beans and green beans is inferior and thus the purchase price will either be lower or they will not be purchased at all, and 3) a partial yield system should be introduced so that workers sort the mature beans, immature beans and green beans after harvest and are paid wages depending on their weight so that they have an incentive to harvest mature beans.

4-2. Selection

In Rwanda, washing stations are increasingly being established, with 215 washing stations as of 2012. The washing stations we visited all used similar wet coffee processing methods, which had the following problems.

(1) Sorting the collected cherries

The immature beans and defective beans from among the cherries brought to the washing station are all hand washed (Photograph 4-6), which is inefficient. By putting the cherries into water and dividing out the cherries that float (floaters) from those that sink (sinkers), most immature beans and defective beans can be removed.

(2) Maintenance of pulping machines[45]

[45] Pulping machines remove the soft flesh from cherries to produce parchment.

Most of the washing stations we observed did not appropriately maintain their pulping machines. The residue on the pulping machines should be cleaned every day, in principle, but even after the harvest period, beans remain in the machine and it is not cared for. The corrugated metal discs used to remove the pulp need to be replaced every few years, but many are worn. Failure to care for the pulping machine and make adjustments means that the pulp is not completely removed and the parchment can be damaged or torn.

(3) Use of water channels for sorting by gravity

The process of sending the parchment down water channels after fermentation is not done simply to rinse the parchment, but to sort the parchment by gravity (Photograph 4-7), but gravity sorting does not function in Rwanda. Not only is the mechanism governing gravity selection not understood, but the fact that it is part of the rinsing process is not even understood. For example, at some washing stations, the water channels are too wide and too much parchment is sent through each time, so that it can't be sorted by gravity since a large volume of water is used (Photograph 4-8). Moreover, there were cases in which sticks are used to send the beans down the water channels. The washing stations need to be given direction in the gravity sorting function of water channels and the mechanism by which it operates.

Note: The water channel's width is adequate. If multiple partitions are put up in the water channels, as the parchment runs through the water, the lightweight beans float above the partitions. Lightweight beans float faster, while heavy beans remain in the partition in the forefront.
Source: Mi Cafeto

Photograph 4-7: Water channel to rinse coffee beans after fermentation and sort by gravity (Guatemala)

Source: Photograph taken by Survey team

Photograph 4-8: Excessively wide water channel (Rwanda)

(4) Soaking

All of the washing stations we visited soaked[46] parchment after it was fermented, but there are doubts about the need for soaking. Some believe that, far from improving quality, soaking makes the taste flat. Accordingly, the quality of soaked beans should be compared to unsoaked beans, and if there is no difference, washing stations should no longer soak the parchment. This would save the water used for soaking.

(5) Parchment selection

Parchment before drying is sorted with a great deal of labor, but we had not seen this selection method before and it is not used in any other producing country. One washing station put some staff on the fermentation process to remove the beans from which the pulp had not been completely removed and the defective beans. The pulping machine must be adjusted so that pulp can be completely removed, but efficiency would also improve if light-weight defective beans are put in water and the floating beans removed. In addition, many washing stations sort out the defective beans, such as worm-eaten beans, by hand after fermentation and rinsing and before the parchment is dried, but staff should not be used for this purpose. Instead, they should focus on utilizing the sorting function, which should have been incorporated into the selection process in the first place, for example by soaking cherries and sorting the beans using the water channels.

(6) Drying

Even there were many dry decks, these are not used, and instead one lot of parchment is spread out on a table in a thick layer, so that the drying period is unnecessarily long (Photograph 4-9). Drying generally takes around 10 days in other producing countries, but in one washing station we observed it took 20 days. During

[46] Soaked in water

this period there is a good chance that quality would deteriorate due to mold on the beans or that they would be rained on. Moreover, there are not enough supporting columns for the dry decks, so that when the parchment is spread out, the surface mesh bends with the weight of the parchment and resembles a hammock. As a result, the beans do not dry uniformly (Photograph 4-10).

Note: Despite this large number of dry decks, not a single one is being used.
Source: Photograph taken by Survey team

Photograph 4-9: Drying area (1, Rwanda)

Source: Photograph taken by Survey team
Note: There are not enough supporting columns, so all of the dry decks are bowed. In such conditions, the beans can't be uniformly dried.

Photograph 4-10: Drying area (2, Rwanda)

Moreover, the dried parchment must be cured to rest it and allow it to mellow, but none of the washing stations we visited cured the parchment, and did not understand the need for it.

Chapter 5 Quality standards

5-1. Quality standards for coffee in major producing countries

5-1-1. Mainstream coffee

Quality standards for coffee were first set in Brazil in the 19th century when the New York futures market was established. Currently, the major producing countries set and apply their own quality standards. These quality standards are observed in common both by domestic parties, but also by those involved in the importing country, and are seen as a common yardstick that facilitates trade between countries as well as a shared language. Quality standards are set based on market value. Quality standards in the individual countries can be classified roughly into four patterns.

1) Standards based on elevation
2) Standards based on size
3) Standards based on number of defects
4) Standards based on size and number of defects

Taste is assessed through cupping, naturally, but many criteria look at whether the coffee meets the standard.

Table 5-1 provides an overview of quality standards for coffee in the major producing countries.

The taste is richer in coffee that is harvested in places with a high elevation, and thus it tends to be traded at higher prices. For this reason, in Mexico and Central American countries, which have dramatic differences in elevation, coffee is classified according to elevation.

In Colombia, Kenya and Tanzania, coffee is classified by size. Beans that appear large are traded at higher prices.

Ethiopia and Peru are classified according to the number of defects since the greater the number of defects, the more likely it is that the appearance of freshly roasted beans will be damaged and it will have a negative impact on taste.

Many other countries, excluding these, have standards that combine size and the number of defects.

Table 5-1: Overview of ratings in major coffee-producing countries

1) By elevation

Name of producing country	Approximate elevation[47]	Standard
Mexico	900m ~ 1200m	HG (altura)
	600m ~ 900m	PW (prima lavado)
Guatemala	1300m ~	SHB[48]
	1200m ~ 1300m	HB
	900m ~ 1050m	EPW[49]
El Salvador	1200m ~	SHG[50]
	900m ~ 1200m	HG
Honduras	1200m ~	SHG
	900m ~ 1200m	HG
Costa Rica (central plateau)	1200m ~ 1700m	SHB
	800m ~ 1200m	HB

2) By screen size

Name of producing country	Screen size[51]	Standard
Colombia	S-17~[52]	Supremo
	S-14~	Excelso
Tanzania (Arabica)	S-18	AA
	S-15~17	AB
Kenya	S-18	AA
	S-15~17	AB

3) According to number of defects

Name of producing country	No. of defects[53]	Standard
Ethiopia	~ 3	Grade 1
	4 ~ 12	Grade 2
	13 ~ 27	Grade 3
	28 ~ 45	Grade 4
	46 ~ 90	Grade 5
Peru[54]	~ 15	Grade 1
	~ 23	Grade 2
	~ 30	Grade 3
	~ 35	Grade 4
	~ 40	Grade 5

[47] Precise numbers would not be meaningful so the figures have been rounded.
[48] Strictly Hard Bean
[49] Extra Prime Washed
[50] Strictly High Grown
[51] The Brazilian 1/64-inch screen is the global standard, with few differences among the producing countries.
[52] Excelso beans that are particularly large are graded as Supremo.
[53] Per 300g
[54] They are also traded under the previous standards of MCM (41-70 defects) and MC (71-100). MCM stands for “Machine Cleaned Mejorado.”

4) By screen and number of defects

Name of producing country	Screen	No. of defects[55]	Standard
Brazil	S-17/18	~11	Type 2 (No.2)
	S-14/15/16	~36~	Type 4/5 (No.4/5)
Indonesia	Dry method[56]		
	Large 7.5×7.5mm~	~11	Grade 1
	Small 3×3mm~	~25	Grade 2
	Wet method		
	Large 7.5×7.5mm~	~44	Grade 3
	Medium 6.5×6.5mm~	~80	Grade 4
	Small 5.5×5.5mm~	~150	Grade 5
Vietnam (Canephora)	S-12.5/16	~60	Grade 1
	S-12/12.5	~90	Grade 2
Cuba	S-18	~12	ETL[57]
	S-17	~19	TL
	S-16	~22	AL[58]
Kona, Hawaii	S-19	8	Extra Fancy
	S-18	12	Fancy
	S-16	18	No.1
Jamaica Blue Mountain	S-17/18	~2%	No.1
	S-16/17	~2%	No.2
	S-15/16	~2%	No.3
	S-16/17	~4%	Triage

5-1-2. Specialty coffee

The specialty coffee area, which is actively praised for its unique taste arising from special geographical conditions, climate conditions and processing conditions, among other factors, has seen tremendous growth and now forms its own market. Producing companies and consuming companies have their own specialty coffee associations and are achieving results. Rather than a cup test that puts more weight on defects, which originates in Brazil, a cup test that emphasizes a positive assessment of coffee is carried out. The Cup of Excellence (COE) method and Specialty Coffee Association of America (SCAA) are used for this. The former is primarily used in auctions held by the Alliance for Cup of Excellence (ACE), while the latter is primarily used in evaluations such as coffee awarded a Q certificate by the Coffee Quality Institute (CQI).

5-2. Current conditions of quality standards for Rwandan coffee

The quality standards obtained by NAEB can be summarized as followed.[59]

[55] Per 300g
[56] Classification by screen size is applied to Canephora varieties.
[57] Extra Turquino Lavado
[58] Altura
[59] Robusta is divided into “fully washed” and “washed,” and this refers only to Arabica.

5-2-1. Fully-washed coffee (coffee processed at washing stations)

Super specialty	Cup score of 90 points or higher; less than 5 defects per 300g and no primary defects; by screen; no dead beans among roasted beans; moisture content of 9-12.5%
Specialty	Cup score of 80 points or higher; less than 8 defects per 300g; by screen; no more than 3 dead beans among roasted beans; moisture content of 9-12.5%
G1	Cup score of 70 points or higher; less than 23 defects per 300g; by screen; no more than 5 dead beans among roasted beans; moisture content of 9-12.5%.
G2	Cup score of 60 points or higher; less than 86 defects per 300g
G3	Cup score of 50 points or higher; less than 86 defects per 300g

5-2-2. Semi-washed coffee (coffee processed by individual small-scale farmers)

G1	Cup score of 71-80 points; less than 23 defects per 300g; by screen; no more than 3 dead beans among roasted beans; moisture content of 9-12.5%
G2	Cup score of 55 points or less; less than 30 defects per 300g; by screen; no more than 3 dead beans among roasted beans; moisture content of 9-12.5%.
G3	Cup score of 40 points or higher or abnormal odor in two cups or less; less than 50 defects per 300g
G4	Cup score less than 40 points or abnormal odor in more than 3 cups; less than 80 defects per 300g

5-2-3. Indicators for ratings

(1) Screen size (allowable deviation of 5%)

18.5-	AA
17-	A
15-	B
12-	C
10-	D

(2) Defects

1. Primary

Black beans	1
Fermented beans	1
Dry cherry	1
Large stones	1/2
Medium stones	1/5
Large twigs	1/2
Medium twigs	1/5

2. Secondary

Parchment	1/3-1/2
Dried pulp	1/3-1/2
Broken beans	1/5
Insect-damaged beans	1/5-1/2
Partially black beans	1/3-1/2
Partially fermented beans	1/3-1/2
Beans that float in water	1/5
Shell beans	1/5
Small stones	1
Small twigs	1
Beans with water damage	1/5-1/2

5-2-4. Problems with current quality standards

The current quality standards are extremely clear compared to those in other producing countries. NAEB samples all lots before they are exported and performs an evaluation based on these standards. At the same time, exporters and importers in the consuming country do not know that these standards exist, and have set their own product standards by mutual arrangement. There are many cursory and vague standards, such as “over S15.” The fact that the same yardstick is not shared by all of those involved with Rwandan coffee stands in the way of smooth commercial transactions, and cursory classifications results in losses for both the seller and the buyer.

The current problems are likely because the quality standards that have been set are not very effective.

The problems can be summarized as follows.

- Quality standards are not sufficiently recognized.
- There are not enough Q graders and exporters cannot give ratings.
- These criteria are applied to coffee other than specialty coffee.
- The quality standards actually used in commercial trade are cursory.

5-3. Developing quality standards for coffee in the future in Rwanda

The key points when setting quality standards are that they are easy to administer and that they maximize revenue.

As regards the former, a simplified cupping method must be used for coffee that receives a score of less than 80 under the Specialty Coffee of America Association (SCAA) protocol.

As regards the former, after ascertaining the needs of consuming countries, we must start by determining how much coffee of what sizes can be harvested, what differences in quality result from differences in elevation, the extent of the harvest in each of the different elevation zones, what kind of impact the different defects have on quality, and to what extent does it occur. Once the standards begin to be applied, the differences in price for each grade become clear, which provides a clear picture of which grades should be

increased by what extent to improve revenue. We expect that the quality of Rwandan coffee would be improved if NAEB, exporters, processors, sorters and formers consider what can be done to realize it and take action together.

5-4. Other

(1) The analytical equipment support that farmers receive, such as agricultural pesticides, which we discussed when we visited the Ministry of Agriculture, is essentially meaningless, with the exception of cases in which Rwanda can differentiate based on analytical capacity. Soil analysis should come first. A regular soil analysis would enable farmers to apply fertilizer appropriately. This is cheaper than analysis of pesticides and is also effective.

(2) As regards management of the potato smell, given that it has a strong odor at very low concentrations and contamination could occur at the level of the individual bean, it is not realistic to risk assessment in cupping. Eradicating the insects causing the potato smell is the essential issue here.

Supplementary materials

I. Survey of coffee farmers' current conditions

II. Reference works

I. Survey of coffee farmers' current conditions

In order to ascertain coffee farmers' current conditions and their surrounding environment, we interviewed coffee farmers. Only four farmers were interviewed, so we cannot make generalizations from the results, but we have provided the interview results in detail as a case study of coffee farmers.

1. Overview of farmers and livelihood conditions

The target regions were the Huye Sector and the Maraba Sector in Huye District in the Southern Province. Table A1-1 provides an overview of the targeted farmers.

Table A1-1: Overview of interviewed farmers and livelihood conditions (interview results)

Item	Farmer A (woman)	Farmer B (man)	Farmer C (woman)	Farmer D (man)
Region	Huye Sector	Huye Sector	Maraba Sector	Maraba Sector
Household makeup	Subject of interview, husband, five children	Subject of interview, wife, five children	Subject of interview and two children; no husband	Subject of interview, wife, four children
Ways of making a living	• Husband is engaged only in farming. The interviewee farms and works as a seasonal worker at Huye Mountain Coffee's washing station. The daily wage at the washing station is 1,700 RWF/day, and during the three-month harvest season, she works almost every day. • 1,220 coffee trees • Potatoes, beans, vegetables (carrots, onions) • 80% of their cash income comes from coffee, with the remainder coming from other crops (excluding wage labor at the washing station)	• Full-time farmer • 570 coffee trees • Sorghum, beans, cassava; all for personal consumption • Only the coffee provides cash income • Since crops other than coffee are not very profitable, the farmer is gradually decreasing them. He plans to buy food using cash made from coffee.	• Farming and seasonal labor at Maraba Cooperative's washing station • 400 coffee trees • Sweet potatoes, maize • Cash income is not only from coffee, but also from other crops • Other crops can be eaten, which is a plus	• Farming and seasonal labor at Maraba Cooperative's washing station • 680 coffee trees • Soybeans, cassava, beans • Cash income is not only from coffee, but also from other crops • Large sums of cash can be generated once for coffee, but only once a year, However, other crops can generate income throughout the year, albeit in small amounts, and for this he is grateful.
Cherry buyers	• She sells cherries to Huye Mountain Coffee • Since the washing station is not far, she	• He sells cherries to Huye Mountain Coffee • Previously, he sold to Maraba Cooperative,	• She sells cherries to Maraba Cooperative. • Since it is close, she brings them herself.	• He sells cherries to Maraba Cooperative. • Since it is close, he brings them herself.

	brings the coffee herself using a bike.	and before that he processed the beans into parchment himself and sold it to a local trader.		
Other		Producer of cherries that won the Cup of Excellence award	Member of Maraba Cooperative	Member of Maraba Cooperative

Source: Prepared by Survey team.

Farmers A and B sell their cherries to Huye Mountain Coffee and have strong ties to this company. Farmers C and D are members of the Maraba Cooperative, which owns a washing station and secondary processing facility, and sell their cherries to the cooperative's washing station.

All of the farmers grow other crops in addition to coffee for personal consumption, and Farmers A, C and D work as seasonal laborers at the washing station to which they sell their cherries. The makeup of Farmers C and D's cash income is not clear, but coffee makes up a high proportion of Farmers A and B's cash income, which suggests that cash income from coffee provides a good part of their livelihood. Coffee is highly profitable, as suggested by Farmer B, but as pointed out by Farmers C and D, other crops such as potatoes, beans and corn are used for personal consumption and have the advantage of being convertible into cash throughout the year. Naturally, the farmers choose the optimal planting pattern based on the features, merits and demerits of each crop, and coffee is seen by farmers as a highly profitable cash crop.

2. Overview of coffee cultivation: Background, labor amounts and fertilizer

All four farmers have gradually increased the number of coffee trees they grow. However, Farmers C and D have not yet increased their trees from the current 400 and 680 trees, respectively, due to a labor shortage, and Farmer A is trying to boost productivity going forward rather than increase the number of trees.

Coffee cultivation requires a concentrated period of labor during the harvest season, and all of the farmers are very busy and employ seasonal workers. The daily wage is 600-700 RWF (about US$1). Farmers A and B pay a total of US$50-100 in wages to seasonal laborers throughout the harvest season, using their savings and advance payments from the washing stations to pay these wages. In the case of Farmer C, who is a widow, she has employed a manager to oversee the seasonal workers throughout the harvest season for 20,000 RWF (about US$30).

All of the farmers apply fertilizer, and obtain the fertilizer distributed for free by the government from their washing stations.

Table A1-2: Coffee cultivation (interview results)

Item	Farmer A (woman)	Farmer B (man)	Farmer C (woman)	Farmer D (man)
Experiences in growing coffee thus far	• When the washing station was established, she began growing coffee on the assumption that coffee demand would increase. • She had 600 coffee trees when Huye Mountain Coffee was established, but has increased this to 1,220 trees. • Going forward, she wants to raise productivity rather than just increasing the number of trees.	• He has gradually increased the number of coffee trees he has from 100 to 570. He wants to buy more land in the future and increase this to 1,000 trees.	• At first she had 80 coffee trees, but has gradually increased this to 400. • Due to labor shortages, it would be difficult to increase the number of trees any more than this.	• He has increased the number of coffee trees at a pace of about 50 per year to his current 680 trees. • He has not increased the number of trees in the past two years due to a labor shortage, but he plans to increase the number of trees further in the future in order to boost his income from coffee.
Labor	• Coffee does not require much attention compared to other crops other than at harvest time. • However, she is very busy at harvest time, and hires seasonal workers. She pays 600 RWF/day for 96-120 days (4 workers x 3 days/week x 8-10 weeks) • She uses savings and interest-free advance payments from Huye Mountain Coffee to pay the workers.	• Coffee requires more labor than other crops. It is difficult because coffee trees require weeding, pest control, fertilizer and other care. • He hires seasonal labor at 600 RWF/day for about 50 days (2 workers x 1-6 days/week x 8 weeks).	• She is very busy during the harvest period and hires seasonal workers, at most six workers. The daily wage is 600-700 RWF/day. She also hires a manager to oversee the seasonal workers throughout the harvest season at 20,000 RWF.	• Concentrated labor is required during the harvest period, which is difficult. • He hires eight seasonal workers at most and pays a daily wage of 600-700 RWF/day.
Fertilizer	She uses both organic fertilizer and chemical fertilizers. Huye Mountain Coffee distributes them for free.	Uses fertilizer	She uses fertilizer distributed by NAEB and obtained through the Maraba Cooperative.	He uses fertilizer distributed by NAEB and obtained through the Maraba Cooperative.

Source: Prepared by Survey team.

3. Technical guidance on coffee growing

When we asked about how they learned about coffee growing (Table A1-3), we learned that guidance from washing stations plays a major role in improving farmers' cultivation techniques. Farmers A, B and D answered that they learned coffee growing techniques through technical guidance provided by washing stations, and Farmers A and D felt that instruction from washing stations was more helpful than guidance from the government extension workers. Of course, the government's technical guidance has also boosted results, and Farmer B had high price for training received from the National Agricultural Export Development Board (NAEB) in Kigali, while Farmer C learned cultivation techniques from the sector's agricultural instructor.

Although not part of the interview results, coffee farmers interviewed in the Southern Province learned about coffee cultivation through technical guidance from washing stations and NAEB. In addition to government guidance in the form of the NAEB, there is no doubt that guidance from the washing stations, which want a stable source of good-quality cherries, plays an important role in enhancing farmers' cultivation techniques.

As part of the government's technical guidance system, NAEB appoints two extension workers specializing in coffee to each district. In the case of Huye District, a target region in the case study, in addition to the NAEB extension workers, there was one coffee promotion staff at the district level, one agricultural extension worker at the sector level and one socio-economic official at the cell level. Agricultural extension workers and socio-economic officials are in charge of all crops, not just coffee, but the agricultural extension workers and socio-economic officials in Huye District, where coffee is an important agricultural product, coffee is given priority.

Table A1-3: Methods for learning coffee growing techniques (interview results)

Farmer A	• Huye Mountain Coffee taught me. I learned about conditions for good-quality cherries and all topics from planting to harvest. I received educational materials and training. • I received technical guidance from government extension workers, but this was minimal in extent compared to the instruction from Huye Mountain Coffee.
Farmer B	• My father grew coffee, so I learned the basics from him. • When coffee prices increased, I recognized the importance of quality, and learned from Maraba Cooperative's washing station. • Training from NAEB two years ago in Kigali has been helpful. This training included quality, fertilizer applications, mulching and how to raise added value.
Farmer C	• The sector agricultural instructor taught me about coffee growing.
Farmer D	• Before the washing station was established, I relied on my own knowledge and experience. Once the cooperative set up the washing station, the washing station provided guidance. NAEB (at that time OCIR Café) extension workers also provided instruction, but the washing station gives more practical instruction that I can actually use.

Source: Prepared by Survey team.

4. Support for coffee farmers

While the government's support amounts solely to training on coffee cultivation,[60] washing stations and cooperatives provide interest-free loans in addition to technical training. The farmers are very grateful for these loans. Not only the government, but also washing stations and cooperatives make a large contribution in supporting farmers.

Table A1-4: Support for coffee farmers (interview results)

Farmer A	• I received interest-free loans from Huye Mountain Coffee for daily expenditures (children's school tuition, health insurance premiums [3,000 RWF/per person per year], house repairs). Repayments can be made in instalments.
Farmer B	• Huye Mountain Coffee provides financial support and technical support.
Farmer C	• Maraba Cooperative gave me an interest-free loan so that I could pay my children's tuition. • The government provides support in the form of training.
Farmer D	• Maraba Cooperative makes secondary payments and gives loans for illness and home construction. • The government provides support in the form of training.

Source: Prepared by Survey team.

5. Changes as a result of establishment of washing stations

When asked about changes resulting from the establishment of washing stations, the interviewees spoke of many positive changes (Table A1-5).

Table A1-5: Changes as a result of establishment of washing stations (interview results)

Farmer A	• The changes resulting from Huye Mountain Coffee's establishment of a washing station are as follows. 1) Previously, I processed the cherries into parchment myself, which was very difficult work. 2) Previously I did not understand quality, so I sold at whatever cheap price the buyer would name. Now I understand good and bad quality. 3) My income has increased 10-fold. This is mainly because previously, I did not know about coffee prices and sold it cheaply. 4) I don't have to depend on my husband. Now I have income from coffee, so when I want to buy something, I don't have to ask my husband. • The following are changes at the community level. 5) Interest in coffee has been heightened. 6) Employment in the village has increased. 7) Women's position and strength have improved. 8) If coffee farmers are worthwhile people and have seen an upgrade in their status, they are now recognized by society and respected. For example, now we open bank accounts.
Farmer B	• My life improved when I was able to sell cherries to Maraba Cooperative Association. • Things improved when I was able to sell to Huye Mountain Coffee because the buying price was high and I am able to get loans and advance payments for everyday expenses. • The changes once I began to sell to Huye Mountain Coffee are as follows. 1) I was able to have a cow and TV. 2) I was able to access loans. I wanted to work more so that I could pay back the loans. 3) My knowledge and techniques related to coffee improved because Huye Mountain Coffee provides ongoing

[60] The interviews only mentioned training as an example of the government's support for farmers, but in reality they also distribute seedlings free of charge.

	support for capacity building.
Farmer C	• The changes brought about by Maraba Cooperative are as follows. 1) Thanks to Maraba Cooperative, my living conditions improved because the cherry sales price increased. 2) Social relationships improved. We all have cash now, and share in the success, so there is no longer any jealousy of others. However, I don't think this change is only due to the cooperative.
Farmer D	• The changes brought about by Maraba Cooperative are as follows. 1) It was a real struggle for me to process cherries to parchment by myself, and now I don't have to do that anymore. 2) My fears that the harvested cherries and process parchment will be stolen have decreased. Previously, I would have to wake up in the middle of the night so that my stored cherries and parchment wouldn't be stolen. 3) Now I have a bank account and deposit money in the bank, so I don't have to worry about theft. 4) The big coffee farmers hire the small coffee farmers, which reduces social friction and increases ties. However, this is not entirely due to Maraba Cooperative. 5) Maraba Cooperative operates four washing stations, so the amount of cherries that can be selected has increased, which gives the coffee farmers more opportunities to earn income.

Source: Prepared by Survey team.

For example, the interviews stated that their income and living conditions had improved (all farmers that were interviewed) and that their income and living conditions had improved because the selling price of coffee had increased (Farmers A, B and C). Farmers A and C stated that "It was a real struggle for me to process cherries to parchment by myself, and now I don't have to do that anymore," and Farmers A and B explained that "My knowledge and techniques related to coffee improved." Farmer D explained that "I hand over the cherries right after I harvest them, so I am freed of the fear that my cherries and parchment will be stolen. I also have a bank account and don't have to keep large amounts of money on hand, so I don't face the risk of theft." There were also changes at the community level. Farmer A stated that "coffee farmers are seen in a socially positive light" and that "social interest in coffee has increased," while Farmers C and D explained that social relationships and ties had improved. These responses indicate that the establishment of washing stations by private companies and cooperatives led to an increase in the selling price for cherries and gave them access to support from the washing stations such as technical instruction and loans. As a result, living conditions and technical levels related to coffee cultivation improved, and various other positive changes occurred among coffee farmers and in the community.

6. Cooperatives

Farmers C and D belong to cooperative associations, but in Rwanda, only 20% of the 400,000 households growing coffee belong to cooperatives (Table A1-6).

Table A1-6: Number of households growing coffee and number of households that are cooperative members (2009)

Region	Number of households growing coffee	Coffee farmers that have joined cooperatives	
		Number of households	Percentage (%)
Kigali	7,277	890	12%
Eastern province	51,140	12,709	25%
Northern province	58,858	21,557	37%
Western province	143,150	28,370	20%
Southern province	133,781	17,058	13%
Nationally	394,206	80,584	20%

Source: OCIR Café (2009)

Maraba Cooperative, which Farmers C and D belong to, have received aid from USAID, and is an advanced cooperative for Rwanda. In principle, non-members are not eligible for the support provided to members noted in Box 3-3. This is not true of Maraba Cooperative alone—even if a cooperative will buy cherries from a non-member, some will not give them secondary payments or provide other support for farmers. There is a large discrepancy in the benefits available to members and non-members. Many farmers are not members despite the substantial benefits that accrue to members because of the high contribution that must be paid when joining the cooperative. In the case of Maraba Cooeprataive, the contribution was initially 1,000 RWF, but the fee began to increase after the cooperative built the washing station, and an expert estimates that the initial fee of 1,000 RWF now has a value of 50,000 frans and is expected to increase further in the future. This 50,000 RWF is very high for farmers, and stands in the way of the decision to become a member.

II. Reference works

National Agricultural Export Development Board (NAEB). (2012). Annual Report 2011 / 12 of National Agricultural Export Development Board. Kigali: Author.

OCIR Café. (2009). National Coffee Census -Final Report-. Kigali: Author.

Promar Consulting. (2012). Agriculture, Forestry and Fisheries of Rwanda: Fact-finding Survey for the Support of Aid to Developing Countries (Fiscal Year 2011 Research Project). Ministry of Agriculture, Forestry and Fisheries.