

## AGLC SEMI-ANNUAL REPORT

**PERIOD: APRIL 1, 2016 TO SEPTEMBER 30, 2016**

**FEED THE FUTURE AFRICA GREAT LAKES REGION COFFEE SUPPORT PROGRAM  
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## 1. Executive Summary: Key Accomplishments and Challenges

During the 6-month reporting period April 1 to September 30, 2016 the AGLC project succeeded in achieving nearly all of its outputs and deliverables. All key informant interviews and focus group discussions with farmers and processors were completed, compiled and analyzed. The Year 1 planned analysis of Baseline data was completed and several major reports were written covering several key topics, including, farmer investments, access to inputs and the impact of cooperative membership on coffee productivity and adoption of best practices. One principal area where the project has been delayed is in the analysis of the Burundi Baseline data which is now under way and will be written up and presented during the first quarter of Project Year 2. Based on the larger special reports and a series of background briefs five stakeholder roundtables were held to present the data and advance the dialogue on key issues addressed by the project. A year-end policy workshop was held in August to present progress made against project goals and indicators during Year 1. NAEB and other stakeholders are now considering recommended changes in the formula and process for compensating producers for their cherry. The changes are intended to incentivize farmers to invest more of their resources into cherry production, resulting in growth across all stages in the value chain.

## 2. Program Description and Introduction

The long-term viability of the coffee sector in the Africa Great Lakes region, the main source of cash income for millions of smallholder farmers and families in the region, is threatened first by increasingly prevalent antestia bug infestation (and associated potato taste defect—PTD), and second by coffee yields that are among the world’s very lowest. AGLC is a three-year, USAID Feed the Future initiative led by Michigan State University that meets these combined challenges through an integrated program of applied research, farmer capacity building and policy engagement. The solution requires a public-private sector coordinated response across the entire value chain, including producers, washing stations, dry mills, exporters and the government agencies that support the sector’s growth. The goal of the program is to dramatically reduce the effects of antestia/PTD and raise farm-level productivity, two changes that will in turn improve smallholder farmer incomes and help to sustain the Africa Great Lakes region’s reputation for producing among the highest quality coffees in the world.

AGLC is designed to meet these challenges through a set of core program components, identified as the following:

1. *Applied policy, household, and agronomic (field-level) research* to serve as the basis for smallholder capacity building and policy engagement aimed at reducing potato taste defect and low coffee productivity and profitability in the Africa Great Lakes Region.
2. *Capacity building/farmer training & outreach* with project partners in the Africa Great Lakes Region to train coffee producers and processors on potato taste/antestia control and other practices that will increase productivity and farmer incomes.
3. *Policy engagement* to help create an enabling institutional environment to debate, formulate and adopt policies that will motivate producers and other actors in the coffee value chain to invest their labor, land and capital in ways that will increase smallholder farmer incomes.

The AGLC initiative will fill important gaps in our knowledge base on controlling PTD, improving coffee farm management practices and creating a policy environment that is fully supportive of farmer and other stakeholder investment in the sector.

## 3. Activity Implementation Progress

This section reports on the various activities of the project in all three of its major components: applied research, capacity building and policy engagement. It closely follows the Year 1 Work Plan, summarizing the implementation status of main activities planned for the second half of project’s first year. Special attention is given to reporting on challenges faced during the reporting period. Annex 1 provides a quick reference on the activity updates provided in this section, along with an estimate of the “percentage completed” for each activity. The section concludes with an update on the M&E plan and how AGLC has progressed against the seven core project indicators.

### 3.1. Implementation Status

Through the April to October 2016 reporting period implementation of the AGLC project showed good progress and met nearly all of its milestones and outputs. There were some delays in two of the programs component areas, particularly in Burundi where project activities have been curtailed due to

the ongoing political tensions. Summarized below are the main steps taken to date in the activities scheduled for implementation during the project's second six month reporting period.

### **3.1.1. Applied Policy, Household, and Agronomic (Field-Level) Research**

During this first six-month period the applied research component received more attention than others as its primary goal is to provide an objective, empirical basis for both the capacity building and policy engagement activities of the project. It is designed to inform coffee sector stakeholders in Rwanda, Burundi and elsewhere in the region concerning the most effective practices for controlling antestia/PTD and for establishing a policy environment that will provide the necessary incentives for coffee producers to invest their labor, land and cash resources in these practices.

Two sets of applied research activities were planned and implemented during this period; they are the baseline household survey analysis and initial data collection from the experimental fields. Progress made in these two domains are summarized below.

#### **Baseline Household Survey**

During the first reporting period the AGLC team conducted a Baseline survey of 2,048 coffee producing households in the major coffee growing districts in Rwanda and Burundi. The households were selected randomly from the areas surrounding 32 coffee washing stations, half cooperatively owned and half privately owned. The focus of the baseline was on farmer investments in their coffee plantations, cost of production, and awareness and practices to control antestia/PTD.

The second 6-month period of Year 1 was focused mainly on the analysis and presentation of data from the Baseline Survey in Rwanda and Burundi. Several research reports were written on priority topics addressed by the project and of core interest to the stakeholders. These research reports and their principal findings are summarized below.

- **Determinants of Farmer Investment in Coffee Production: Finding a Path to Sustainable Growth in Rwanda's Coffee Sector.** Since 2001, the Rwandan coffee value chain has seen a transformation in quality (fully-washed coffee) and is now well-established in specialty coffee markets around the globe. The value-added from this transformation has been beneficial to Rwanda, yet the coffee producers have shared the least in the new prosperity. This report shows how failing to bring in the producers as full partners is one of the reasons that coffee production in Rwanda has declined and stagnated in recent decades. Sub-par compensation for their cherry, an average of 24 percent below the revenues of their counterparts elsewhere in the region, has resulted in the neglect and disinvestment in coffee by many producers, particularly largeholder producers. Findings presented in this report show that the true cost of production in Rwanda, including household and wage labor, inputs and equipment, totals 177 RWF/Kg of cherry, a figure well above that currently used as a reference for establishing cherry floor prices in Rwanda. As a result, a large proportion of growers suffer net losses in coffee (over one-third in 2015). Findings also show that end-of-year premium payments provide an important incentive for farmers to improve productivity. Farms that receive premiums (an 8.3 percent boost, on average) have an estimated productivity that is 26 percent higher than those that do not receive premiums, all else equal. These findings are especially germane to our understanding of farmer incentives. It demonstrates how sensitive farmers are to even small changes in remuneration.

There are several priority steps that sector leaders can consider to help create needed incentives for producers to invest their labor, cash and eventually more land in their coffee plantations. These actions will in turn result in higher productivity, better control of pests (antestia) and higher incomes for everyone in the sector. They are summarized as follows:

- ✓ Accelerate conversations about how cherry floor prices are established with special attention to how floor prices will motivate larger coffee producers who, even at very low levels of productivity, account for nearly half of Rwanda's coffee production.
  - ✓ Incorporate into the formula for cherry prices the actual cost of production of 177 RWF/KG to Rwanda coffee growers. The current cost of production benchmark of 80 RWF/KG cherry is badly antiquated and based on hypothetical costs to a farmer with 2,500 trees rather than the actual median of 400 trees.
  - ✓ Premiums are shown to have an important positive effect on productivity as those receiving premiums enjoy yields 26 percent higher, all else equal, than those who do not. There is a need to develop and test a system for two-tier pricing of coffee cherry based on quality.
  - ✓ Consider how large volumes of fully-washed coffee will benefit all stakeholders in the coffee sector, and how more coffee will bring down the unit costs of processing and move closer to full capacity use of processing infrastructure.
  - ✓ Give coffee the level of national attention it deserves, and profoundly needs. Given Rwanda's comparative advantages in producing coffee for the specialty market coupled with its powerfully protective environmental attributes and success on steep hillsides, there is good reason to consider the steps needed to address its vulnerabilities, starting by motivating farmers to invest in improved agronomic practices that will help them to maximize their returns from the sector. Now is the time for Rwanda to bring coffee back to center stage in its discussions and strategic thinking about the country's agronomic and economic future.
- **A Study of Access to Inputs, Productivity and Antestia Control.** The University of Rwanda is taking the lead on a paper on access to inputs and related indicators, which is in the process of being written. The paper specifically looks at: (1) availability of inputs (fertilizer, pesticides, mulch, etc.) to coffee farmers and consequences for productivity; (2) antestia/PTD observed presence and management/control by farmers; (3) indicators relevant to inputs and pests (antestia levels, productivity levels, etc.); (4) considerations related to climate change.

Dr. Daniel N.T. Rukazambuga at UR is leading this effort with support from RAB and MSU. AGLC anticipates this research report being completed early in the first quarter of Year 2. Initial research findings from the analysis include:

- ✓ Coffee farmers rarely purchase fertilizers and pesticides. Rather they rely on CEPAR / NAEB as their source of inputs. However, lack of adequate distribution serves as a major barrier to productivity and to farmer investment in coffee. The distribution of fertilizer is only 1/6<sup>th</sup> the recommended dose, while the distribution of pesticide is only 1/3<sup>rd</sup> the recommended dose. Even at small doses, the application of inputs shows a modest positive impact on coffee productivity.
- ✓ CWS have little incentive to provide inputs to farmers who might then sell coffee to another CWS or trader at harvest time. Some farmers resell inputs because they perceive immediate cash as better than hoping for additional income from more or higher quality cherry at harvest.

- ✓ Due to insufficient input distribution, farmers tend to concentrate their inputs on one or two fields and leave others, often those farther from the *rugo*, with little or none. The consequences go beyond reduced productivity. For insecticides, application in lower, insufficient doses can build resistance in pests, while applying a dose that is too high is costly and bad for the environment. Thus, timing and correct dosage is critical.
- ✓ During key informant interviews, one respondent noted: “Today there are many CWS that still have debts owed to NAEB for fertilizers they were given to distribute to farmers as loans, and which farmers didn’t pay back. Farmers had to supply their coffee cherry to the CWS that gave them the fertilizers, but they didn’t do it since they knew that they were going to be given less money after taking off money for fertilizers. So farmers would sell their coffee cherry to other CWS or to the middlemen....”
- **Estimating Farmer Cost of Production for Fully-Washed Coffee in Rwanda.** The purpose of this research report is to provide a clear understanding of the methodology used by the Africa Great Lakes Region Coffee Support project (AGLC) to determine the cost of production (CoP) for coffee farmers in Rwanda. In documenting how the CoP data were collected and the estimates derived, users are better equipped to use the findings of this research confidently and appropriately as they incorporate them into planning and decision making in the coffee sector. It is intended for this report to also assist research and program implementation elsewhere in the Africa Great Lakes region and beyond.

In the report we first share the details of the methodology to estimate the costs (in absolute terms) per household of producing coffee in the 2015 season. Then we show how the more standardized metric, CoP per kilogram cherry produced, is calculated. We also discuss what this CoP estimate is and what it “is not,” to avoid confusion about how this particular metric can be used. We address issues with transport costs and the data on CoP when differentiating between ordinary (“semi-washed”) coffee and fully-washed coffee. Finally, we share some of the ways the AGLC project will analyze the CoP data in the future to generate other reports and policy briefs.

- **The Role of Cooperatives on the Adoption of Best Management Practices and Productivity in Rwanda’s Coffee Sector.** Agricultural cooperatives operate under the notion that smallholder farmers are better off working collectively. Rwanda’s coffee sector has experienced a significant transformation over the past two decades, which includes farmers coming together to establish cooperative coffee washing stations (CWSs). Our data and analysis show that these collectives provide farmers with a myriad of services that include economic, agronomic and social benefits. We find that cooperative membership affects adoption of specific practices, most notably pesticide application. This finding, however cannot be generalized to all best management practices as we find that membership is not associated with uptake of some practices (like fertilizer use) and in some instances it can contribute to a lower likelihood of adoption. Among other differences, we find that cooperative members report attaining higher levels of productivity, however our analysis cannot confirm this to be a causal relationship. We note that collective action in Rwanda’s coffee sector needs additional research attention, as these types of farmer associations don’t always thrive or provide the same level of services that their members expect. We derive implications of our findings and identify areas in need of further inquiry.

## **Survey of Coffee Washing Stations**

Rwanda's 250 coffee washing stations (CWSs) are known to play a critical role in the success of the coffee industry. They are the buyers and they are suppliers to coffee farmers. As the buyers of cherry, they are the primary customers of coffee farmers and since they are the source of information, training and sometimes inputs for farmers, they are also suppliers to the farmers. NAEB often relies on CWSs as "nodes" for collection of data on coffee farmers and the coffee crop. For all of these reasons and others, AGLC implemented a survey to assess factors affecting PTD and farm productivity at the washing station level.

The 150 question instrument, containing both qualitative and quantitative questions, was designed to be conducted in person with each of the 16 CWS managers in the AGLC applied research component. A uniquely well-qualified member of the MSU team, Vincent Karenzi, was brought on to conduct all 16 surveys in a concentrated one month period.

Under the guidance of MSU faculty, Vincent translated the instrument into Kinyarwanda, contacted the managers to set-up interview times and organized the logistics of travel to the 16 CWSs in four districts. He conducted the surveys in Kinyarwanda and made audio recordings of the parts of the interviews with qualitative answers, which enabled post-interview transcription as necessary. The quantitative and short-answer data have been compiled into a database. Highlights from the long-answer responses have been translated into English.

Initial reviews of the CWS information have been enlightening. For example the average percent of total parchment expected to be A1 quality is 71 percent and the average cherry to parchment ratio is 5.75. A complete analysis of the results will be carried out in Q1 of Year 2, and will inform the mid-line survey and other activities throughout the project.

## **Applied Experimental Fields Research**

The applied research on experimental fields is designed to empirically inform coffee sector stakeholders in Rwanda and Burundi concerning the most effective practices for controlling antestia/PTD and for reducing low and fluctuating coffee production. Our approach is to build on current knowledge to isolate the principal causes of the combined problems of antestia/PTD and low coffee productivity/cyclicality and identify the most effective measures for reversing their detrimental effects.

During the first reporting period the experimental fields research was designed and data collection instruments were finalized. All of the experimental fields were identified and marked, and initial test data were collected during February and March for most areas in Rwanda and Burundi.

Initial experimental fields data collection continued through the second reporting period (April-October). A summary of steps taken and observations made during this period includes the following:

In Rwanda:

- UR students were trained in the use of the research instruments designed for tracking antestia in the experimental fields. Data are currently being collected on coffee physical parameters, antestia knockdown, living antestia counts, and coffee productivity. The experimental fields setup took more time than anticipated so the initial data collection start-up was staggered during the early months of the reporting period.

- Monitoring of antestia (scouting). The scouting of antestia in the experimental fields started in June, immediately after the coffee harvest. This activity continued thorough July. Scouting is the basis for estimating the antestia population and is used as a guide to pesticide application for IPM approaches to pest control. Previous research has established that antestia can cause measurable yield losses when the population exceeds two bugs per tree. This is what is established as an economic threshold, the point at which the pesticide should be applied as the cost of control is the same as loss of yield.
- In the AGLC research plots, we assess eight plants per plot. Four plants in the middle and four on border. We use pyrethrum 5EW to do knock down. We add 4 Mls per liter and spray on eight trees then wait for 10 minutes and shake the trees. This is done on a monthly basis to assess how the test treatments are working. On the IPM plots we spray when the average from eight trees is two or more bugs per tree.
- In June and July we did scouting to understand level of population immediately after harvesting. We are now doing the scouting before application of treatments in mid-November. Based on the June and July scouting, some plots were determined to have high antestia populations while others have low populations. The high number was found on plots with cherries or young sprouts that had not been pruned. We are still following up and will try to characterize farms to add to the data analysis.
- The number of antestia bug is not uniform in all fields and all plots, and it varies greatly even among trees in the same plot. Antestia are observed in all four sampled districts.
- Based on initial observations, there are significant efficiencies that appear to be possible in using the economic threshold (ET) approach which only sprays when the number of antestia rises above a designated threshold (e.g., two bugs per tree).
- The ET approach shows great promise for reducing the level of pesticides needed, which is a good thing in light of the under-distribution of pesticides from NAEB/CEPAR.
- The blanket spray approach recommended by NAEB appears to increase the cost of production unnecessarily.
- Detailed analysis of individual fields will be required to identify great variability in antestia presence among fields in the same location and at different sites.

#### In Burundi:

- During the reporting period the selected experimental plots were used for both data collection and demonstration purposes.
- Plot-level data collection. Using an experimental design to test good agricultural practices (GAPs) and pesticide packages on the 64 plots in Burundi, the enumerator team continued to collect data on soil and plant nutrients, plant growth, yield, antestia population, and natural controls in the field. Data were also collected on key environmental and climate change factors such as rainfall and temperature. After harvesting, the team also collected data on coffee processing parameters and the incidence of potato taste defect (PTD). The plot level data were collected on a monthly basis through the course of the reporting period in order to track the results of the experimental treatments and how they are conditioned by their agro-ecologies.

- The harvested cherries from each plot were processed, dried and kept separately. The proportion of clean and insect damaged beans were recorded, as well as floaters and sinkers. The clean parchment from each plot was tracked separately for each lot.
- After roasting, the quality of the coffee and PTD rates for each plot were determined in the cupping lab in July 2017. Professional cupping services at CIVCA (private sector partner) were engaged to assess PTD incidence from all coffee samples.
- The full analysis of the cupping results has not yet been completed but initial findings include the following:
  - ✓ Incidence of PTD: 17.6% overall
  - ✓ Highest incidence of PTD is in Karusi at 41% of samples taken
  - ✓ PTD is especially widespread in the provinces of Kayanza and Ngozi (36%)
  - ✓ The use of pesticides to control antestia combined with good agricultural practices shows that PTD can be significantly reduce. In comparing Pyrethrum, Confidor, Confidor + Pyrethrum and IPM, the most effective approach in Burundi is found to be the application of Pyrethrum.

### **3.1.2. Policy Engagement**

The principal policy engagement activities implemented during the second half of Year 1 include: 1) holding a series of five policy roundtable meetings with stakeholders to present data and discuss solutions, 2) preparation of policy background briefs and PowerPoint presentations, 3) conducting a series of high level targeted policy meetings and presentations with major stakeholders, and 4) conducting a series of focus group discussions with farmer groups and other key stakeholders. Implementation of each of these activities is summarized below.

#### **Policy Roundtables**

In May 2016, representatives of the African Great Lakes Region Coffee Support Program (AGLC) from Michigan State University, Institute for Policy Analysis and Research-Rwanda, University of Rwanda, and the Global Knowledge Initiative held a series of five policy advocacy roundtable discussions in Kigali, Rwanda. These discussions built on the quantitative and qualitative research conducted by AGLC team members, and brought together stakeholders from across the Rwandan specialty coffee sector (including policymakers, regulators, private sector representatives, cooperative managers, etc.).

These individuals gathered to discuss five critical topics in Rwandan specialty coffee. The discussions revolved around policy issues observed through collected baseline data and key informant interviews. The topics discussed in these roundtables were: (1) ensuring that farmers are rewarded for high quality coffee; (2) motivating farmers to invest more in their plantations; (3) improving access to financing for cooperatives (coops); (4) increasing the proportion of “fully washed” coffee; and (5) ensuring that farmers have access to needed inputs.

In the first roundtable, participants discussed how to incentivize premium payments for high quality coffee. Factors keeping buyers from offering premiums/bonuses may include: (1) the difficulty of tracking which farmers sold them cherry (e.g., if a private coffee washing station is buying from middlemen); (2) a lack of consistency in quality; or (3) a lack of trust. However, the National Agricultural Export Board (NAEB) has created a ratings system for coffee washing stations (CWS), potentially



factoring in whether CWSs provide bonuses for quality. The rating may also score CWSs based on whether they provide training that helps farmers consistently produce high enough quality coffee to receive bonuses. Other issues discussed include ensuring premiums are linked to coffee quality (rather than other factors), and ensuring that they have a level of predictability.

The second roundtable on farmer investment identified 7 key challenges: (1) ensuring farmers benefit financially from coffee; (2) protecting farmers from price fluctuations on the international market; (3) adapting bank lending to support the coffee sector; (4) making coffee more profitable; (5) motivating youth to take up farming; (6) weighing the best interests of the farmer versus the broader societal good; and (7) helping farmers make money outside of the regular season (by selling fly crop coffee, which grows on off season). Thematically, participants in this roundtable targeted farmer incentives, and capacity building for farmers.

The third roundtable focused on improving access to pre-financing for cooperatives. Participants discussed the lack of consistently available training and business capacity building opportunities for cooperative-run CWS. Because such cooperatives are considered particularly risky, participants brainstormed a number of potential solutions, such as ensuring that banks accept plots as collateral and building a transparent transaction platform to reduce corruption and theft. To increase lending, the participants posited that the Rwanda Cooperative Authority could suspend licenses for cooperatives that default. Participants noted that tracking defaults to coffee buyers and CWSs, ending the mismatch between loan cycle and coffee season, and holding regular meetings between banks and coops might also increase access to pre-financing. Finally, participants ventured that NAEB ratings of coops could be used to facilitate financing for well-managed cooperatives.

In the roundtable on increasing the proportion of “fully washed” coffee, the conversation focused primarily on the Rwandan “zoning” policy, in which farmers must sell coffee to coffee washing stations within their specified geographic zone. The participants discussed a number of challenges that zoning might help to solve, such as a lack of traceability, weak trust between farmers and CWS, and middlemen taking profits that should ostensibly go to farmers. Despite the potential benefits, participants voiced a number of potential issues with zoning. First, it is unclear how the government will channel farmers away from the cooperatives they used to supply and toward the CWS in their proper zone. Additionally, it is unclear that if zoning succeeds at cutting out middlemen, the extra profit will go to farmers. If the problem is middlemen receiving profit instead of farmers, NAEB could require middlemen to be staffed at CWS and then remove the zoning policy. What’s more, if only one part of the value chain (at the farm level) is highly regulated, farmers will suffer. Participants contemplated whether it might be possible to allow farmers to carry coffee to CWS, but regulate trucks carrying coffee across zones. This would allow the government to regulate middlemen without harming individual farmers. Ultimately, since zoning is a nascent policy, participants agreed that it will be critical to closely monitor the policy and modify it as it is tested and expanded.

The final policy advocacy roundtable focused on access to inputs (i.e., fertilizer and pesticide). Nearly all coffee farmers depend on input distribution from CEPAR/NAEB, rather than buying the inputs themselves. However, some farmers sell those distributed inputs for immediate cash. For those farmers who do in fact use the distributed inputs, they often do not receive them on time due to governmental bureaucracy. Moreover, lack of monitoring and transparency often leads to fertilizer theft. Participants agreed that when farmers receive inputs from a CWS, they sometimes break their agreement to sell cherry to that same CWS. Ultimately, participants said that a lot of these challenges

stem from a larger policy issue in which the coffee sector does not receive the same government attention and investment that maize, rice, and other crops receive. While shifting that focus would take a long time, the roundtable participants developed a number of shorter-term solution ideas: (1) CEPAR said they want to take an input subsidy approach and combine distribution with farmer (cash) contributions. CWSs can help with collecting money from farmers, and zoning should prevent farmers from selling to other CWSs; (2) Zoning may decrease the transaction costs of input distribution, but we do not know yet whether that will actually happen; and (3) To deal with fertilizer theft, we should take fertilizer directly from the warehouse to the farmer.

Ultimately, while the policy advocacy roundtable discussions elicited candid discussions and disagreements, there was consensus from the public and private sector that coffee must be a larger governmental priority and that improvements in coffee quality and coffee productivity must start with greater benefits and compensation to the coffee farmers.

### **Policy Background Briefs**

Five policy background briefs were written to provide roundtable participants a set of leading policy questions and findings from the AGLC applied research. The background briefs prepared and distributed are as follows:

1. “Ensuring that farmers are rewarded for producing high quality coffee through access to premium payments”
2. “Motivating coffee farmers to invest more in their plantations”
3. “Improving access to pre-financing for cooperatives”
4. “Increasing the proportion of coffee that makes it through the fully-washed channel”
5. “Ensuring that farmers will have adequate and timely access to improved inputs (fertilizers & pesticides) ”

### **Focused Meetings with Policy-Makers in Coffee Sector**

Several meetings were held between AGLC senior staff and high level leaders in the agricultural sector to share project research findings and to discuss policy options and future strategy. Four of these meetings were particularly relevant to the policy engagement component of the project.

- Meeting in May, 2016 with the Minister of Agriculture (Dr. Gerardine Mukeshimana) and the CEO of NAEB (Amb William Kayonga). Gave presentation on farmer investments analysis and discussed the policy implications and need to take steps to incentivize coffee producers.
- Meeting in May with the Chairperson of the Coffee Exporters and Processors Association of Rwanda – CEPAR (Pierre Munyura). Gave presentation on farmer investments analysis and discussed steps that CEPAR and others must take to incentivize coffee producers to increase productivity and antestia control
- Meeting in May with the CEO of RWACOF (Mr. Anbalagan Duraiswamy). Focus on how to incentivized farmers to intensify coffee production and steps that private sector actors may be able to do to attract young farmers to coffee.

- Meeting in August, 2016 with the Coffee Division Manager of NAEB (Celestin Dr. Celestin Gatarayiha). Focus on the cost of production and the importance of revising the formula used in Rwanda for determining cherry floor prices.

### Focus Group Discussions

In August 2016, the AGLC project held ten focus groups discussions (FGDs) with farmers and Coffee Washing Station (CWS) managers. Using an interview format designed by the Global Knowledge Initiative (GKI) and IPAR, IPAR staff held focus groups in the Kirehe and Gakenke districts of Rwanda. The purpose of these focus groups was to gather qualitative data that could add insights and richness to quantitative data gathered from farmers and CWSs, and perspectives drawn from decision-makers in government and private sector through key informant interviews and policy roundtables.

The FGDs were conducted with several different stakeholder groups with the goal of acquiring a mix of perspectives on key issues facing the coffee sector. As shown in Table 1, male-only, female-only and mixed farmer groups were held, as well as a group with the CWS managers in the targeted areas. The field team also held FGDs with male and female youth groups in coffee.

**Table 1: Ten Focus Groups Conducted in Two Districts with Varied Compositions**

CWS/ District	Youth male below 30 yrs	Youth Female below 30 yrs	Male per area	Female above 35yrs	Mixed farmers above 35 yrs	CWS managers	Total
Musaza/ Kirehe (East)	0	1	1	1	1	1	5
Muhondo/ Gakenke (North)	1	0	1	1	1	1	5
Total							10

In each case, questions focused on (1) farmer motivation and investment; (2) availability and distribution of inputs (pesticides and fertilizer); (3) mechanisms for increasing the volume of fully washed coffee; (4) ensuring that producers are fairly paid for their coffee cherry and that premiums reach them; (5) integrating women and youth into coffee value chains; (6) understanding and making more transparent coffee prices; and (7) knowledge of/actions on the potato taste defect. Some of the findings from the focus group discussions with farmers and CWS managers are highlighted below.

In Kirehe and Gakenke, farmers commented that their involvement in coffee farming is motivated by cash income, as well as by the experience of other farmers who have made money in coffee. They expressed a need for capacity support (training and extension) and higher cherry prices. They noted that inputs are available, but insufficient, and at times late—many farmers believe that the government does not have accurate information on the number of trees on each farm. Farmers say that they are not paid different prices for varying levels of coffee quality, so they are not motivated to produce the highest quality of coffee. According to farmers (most of whom were 35+ years old), many young people are not interested in working in coffee, and some parents do not encourage their children to farm coffee. Farmers were mixed in terms of whether they had heard of zoning or knew what the potato taste defect was. For those farmers who had experienced zoning, they said that it reduced the prices they received.

When asked similar questions, CWS managers were mixed in their level of agreement with farmers. CWS managers blame farmers' inability to make sufficient income on coffee both on low prices and on their small land holdings and lack of professionalism. They believe that many farmers do have skills to grow coffee, especially those in cooperatives, and agree with farmers on the need for additional inputs. CWS managers knew about zoning, and some had experienced negative effects of it in terms of separating farmers from their cooperatives (others said it neither helped nor hurt them). CWS managers also knew about PTD, and in general knew how to carefully float/sort coffee to reduce the incidence of PTD.

These focus groups provide a helpful picture of farmer and CWS perspectives on important policy areas such as zoning, input distribution, and other areas. Areas of agreement and disagreement merit further exploration; this data can inform research, as well as discussions in subsequent policy roundtables and workshops.

### **End-of-Year Policy Workshop**

Stakeholders from across Rwanda's specialty coffee sector and the AGLC project team gathered in Kigali, Rwanda on Tuesday, 23 August, 2016 to discuss outcomes of the first year of the Africa Great Lakes Regional Coffee Support Program and plans for AGLC's second year. At the closing workshop, AGLC team members presented findings from the project's first year. Participants from the private sector, government, cooperatives, and academia provided thoughtful comments and questions based on these presentations.

AGLC team members who had been involved in the research delivered presentations on the first year of field work. Presentations delivered at the workshop included: (1) Determinants of farmer investments in coffee, presented by Dr. Dan Clay (Michigan State University); (2) The role of coffee cooperatives in supporting farmers, presented by Dr. Alfred Bizoza (IPAR - Rwanda); (3) Inputs access for improved productivity and pest control presented by Dr. Daniel Rukazambuga (University of Rwanda); and (4) Updates on initial data analysis from Burundi by Aniseh Bro (Michigan State University).

Following each set of presentations, a panel that included private sector, cooperatives, academia, and government agencies (Rwanda Agriculture Board and/or National Agricultural Export Development Board) responded to the presentations. Workshop facilitators then opened the floor to participants to ask questions and provide comments on presentations and the broader issues they raised. These robust discussions largely focused on the presentations, but also uncovered specific areas for inquiry related to increasing prices for coffee, providing additional access to inputs and equipment, and addressing challenges of cooperative management.

Toward the end of the workshop, participants broke into two groups to discuss input availability and zoning, two areas of interest from a research and policy perspective. In each group, participants discussed challenges and opportunities, and what AGLC should focus on in Year 2 of the project related to these issues. Themes in the discussion on inputs included the insufficient volume of inputs, the need for new types of pesticides, and challenges related to the timeliness of delivery and application. Themes in the discussion on zoning included the rationales for zoning, the potential challenges that zoning may cause (lower coffee prices, cherry supply problems for CWS, weakening cooperatives, etc.), and the need for data from the first year of zoning to understand how the program can be improved.

## **Other Presentations**

MSU's Ruth Ann Church presented results from the Baseline Survey at the "World of Coffee" conference in Dublin, Ireland in June. She focused on the cost of production estimation and analysis of the determining factors of costs. The project also submitted a proposal for Dr. Daniel N.T. Rukazambuga to present on agronomic insights from the project at the Africa Fine Coffee Association (AFCA) conference to be held in Addis Ababa in February 2017. The proposal was accepted by the AFCA board and UR has agreed to support Dr. Rukazambuga's travel costs. AGLC has also submitted two proposals to the Specialty Coffee Association of America (SCAA) conference to be held in Seattle in April 2017. Decisions are expected by late October. It is expected that travel funds for participation in this conference will be leveraged from MSU.

### **3.1.3. Capacity Building / Farmer Training & Outreach**

Focus of the AGLC capacity building component is on increasing farmer awareness and reducing the effects of antestia/PTD and low productivity at the farm level. Demonstration plots, farmer training and media messages are the primary vehicles for building capacity at the producer level. Per the Year 1 Work Plan the early focus of the project has been disproportionately on the applied research and policy engagement components. The intention is that the research results will strongly inform the capacity building approach, particularly in the control of antestia.

In Rwanda:

Set-up of the antestia scouting program on 64 study fields (randomly selected from lists at the 16 CWSs selected for the study) has been followed by the farmers who own these fields and many others on neighboring farms. They have observed the spreading of white bags and techniques for spraying and "knock-down" of antestia. Many farmers are now aware of the scouting method of antestia identification and spraying (blanket and spot). The main scale-up of training will begin in November, the period of the coffee season when pesticides are disseminated by NAEB and the first application is made.

One challenge encountered in the field is that many farmers have lost interest in the recommended practices for pest control and productivity improvement because of low cherry prices. Indeed, many farmers have abandoned their trees, having little interest in investing labor or cash resources in producing a crop that is unprofitable for them.

There was additional capacity building among UR students. AGLC has supported 16 students through May of the reporting period and they learned on-the-job about best practices for antestia control and raising coffee productivity. Using students in the data collection phase also gave them good research experience and exposure to the barriers that farmers face in producing coffee. All of the students wrote their final year research projects on different aspects of the coffee value chain. The growing cadre of professionally trained technicians and managers will fill a critical need in the future growth and sustainability of the sector.

In Burundi:

The 64 farmers across the 16 CWS selected for data collection in Burundi were organized into training groups. In each group, farmers were instructed on the research results from Year 1. Additionally, each group was trained on one of the experimental/demonstration farms receiving the various GAPs and

treatments. Enumerators/monitors organized farmers to meet and study crop development and the differences among the various treatments in the experimental plots. In Burundi, private sector partner AgriBusiness Services (ABS) has been contracted to play an important lead role in training the farmers and monitors (MoniCafe) at the selected CWSs.

Using a simplified data form farmers collected data on each treatment at the same time as the project enumerators/monitors collected monthly data on coffee growth parameters, antestia populations and natural enemies. This approach enables the participating farmers to learn through discovery and applied experimental research, using a modified farmer field school (FFS) approach. We note, however, that due to long distances from the experimental fields, some of the sampled farmers are not be able to fully participate in the on-farm capacity building programs. In the future we will also experiment with using SMS messaging to keep these farmers engaged in the training.

It is also important to note that under the contract with ABS another 32 coffee growers, 8 MoniCafes and 5 students from each zone (Gitega and Ngozi) will be trained at the start of the coming coffee season. Topics to be covered include: 1) Good agricultural practices (GAPs) in coffee, 2) farm and soil management, and 3) improved coffee processing techniques. To address the lack of manure and other organic matter for coffee plantations, training sessions will also include composting techniques.

#### *Radio messages*

The AGLC project is tasked with producing capacity building radio messages for broadcast. We experienced several challenges in distributing these messages.

Early in 2016, the Global Knowledge Initiative wrote a radio message that provided an overview of AGLC program. University of Rwanda is charged with editing, translation, and distribution of messages, and edited this message in early 2016. The first message provided an overview of the challenges AGLC seeks to take on, and the components of the program.

Although this message was completed in early 2016, it was not distributed until Q3 of 2016. It was approved by NAEB in early 2016, however UR sent the letter to the Ministry of Agriculture for review. After a significant delay, the message was approved by the Minister of Agriculture. However, UR then had to go through a formal tender process for radio stations to distribute the message. They ultimately did award the tender to distribute the message to Radio Salus, which aired the message.

We continue to face challenges in gaining approval for and distributing radio messages. GKI wrote a second message on antestia bug control, for which UR has not yet received approval. We are searching for a more efficient way of distributing messages and plan to air more messages in Year 2.

In Burundi, PUG contacted two radio stations broadcasting in their regions of intervention (FM HUMURIZA and STAR FM), about working with AGLC to broadcast key messages to farmers. Two interactive radio broadcasts were conducted. The first one focused on presenting the AGLC project to listeners, including the project's objectives and expected results, details about coffee pests, particularly antestia, and the impact of potato taste defect on Burundian coffee. The second program was broadcast under the topic of "productivity and cyclicity of coffee in Burundi." For each program after an initial presentation and questions from reporters, phone lines were opened for questions from farmers and other listeners.

### *SMS Messaging Platform*

The AGLC project continues to develop an SMS messaging system that enables free and open-response messaging and structured basic data gathering. The primary purpose of the tool is capacity building with the farmers over the three year timeframe. Content will initially focus on promoting the adoption of available technologies and techniques for antestia control and productivity improvements. Eventually broader communication goals are envisioned, such as improving relationships between farmers and CWSs, or NAEB or other significant groups, such as CEPAR.

During the present reporting period significant progress was made on this activity, however unexpected barriers were also encountered. AGLC continued learning from other SMS messaging projects in agriculture in East Africa and from Rwanda, specifically. The UR successfully engaged Carnegie Mellon University in Kigali via their summer internship program, to provide the support of a master's student in IT, Mr. Hilary Muramira. On June 1st Muramira began full-time work on preparing reports and programming the system. He first evaluated development of a custom program against an "off-the-shelf" option named TextIt (based in Rwanda). Technical limitations of the TextIt system disqualified it from consideration and the project moved forward quickly to develop custom software.

Using information from the AGLC baseline survey, we determined that approximately 514 (50%) of the farmers in our sample (n=1024) have MTN as their network carrier and 255 (25%) have TIGO. Airtel is negligible and about 250 farmers (25% of the sample) have no cell phone in the household. Unfortunately, our baseline did not inquire about how many of these phones are smart phones, i.e. phones that can access the internet. This turns out to be a detail of vital importance when setting up ICT systems and will be included in our year 2 household survey.

By the end of July, Muramira had completed the programming of the system and by end of August, when his internship officially ended, he had completed a first draft of the user manual. He also gave several demonstrations of the system, including at a meeting convened at NAEB to gather input and opinions from important industry stakeholders.

From early on, it has been a struggle for Muramira and everyone on the project to get a clear picture of what the telcom fees for initiating and operating this system will be. We now know much more about the fees and the steps required with the Rwanda Utilities Regulatory Authority (RURA) and MTN. Unhelpful communication from RURA and bureaucratic payment systems at UR have been the biggest challenges to this point. MTN executives have been cooperative so far, assuring us that once payments have been made to RURA, they will be able to assist the AGLC with a test platform and they will move forward quickly to create a contract for UR to sign. UR continues to lead this project with MSU assistance and looks forward to completing the testing phase in Q1 of year 2. In Q2 the project should be ready to start using the system in capacity building functions.

### *WhatsApp*

The WhatsApp application for smart-phones is known to be a favorite communication platform for large portions of the population in Rwanda and Burundi. Therefore, an AGLC "monitoring" group was set-up using WhatsApp to enable informal and easy sharing of updates, including photos, among AGLC team members. This quarter, some articles, cherry price data and photos of cuppings are among the items the group has shared with one another via this platform.

## 3.2. Monitoring & Evaluation Plan Update

During the first half-year of the project, a core set of seven key indicators was finalized for gauging AGLC results and these have been entered into the AidTracker+ system. The selected indicators encompass four critical impact areas: 1) the AGLC program, 2) the Feed the Future Food Security Program Innovation Lab (FSP-IL) “leader award,” 3) the Rwanda USAID mission and 4) the Burundi USAID mission.

In summary, the seven core indicators that will be tracked over the course of the AGLC program are: 1) incidence of PTD/Antestia in fields; 2) hectares under improved technologies; 3) number of farmers who have applied improved productivity and/or PTD mitigation technologies; 4) gross margin per hectare under improved technologies; 5) number of policy instruments (briefs, presentations, reports) on target issues; 6) number of new data sets informing food security policies available for public use; and 7) percent of total kg producer cherry processed through fully-washed channels.

We have finalized targets for these indicators, which are now entered in the AidTracker+ database, and reporting for the two indicators with semi-annual reporting requirements were completed on-time. Annex 2 shows a detailed table of all seven indicators, the targets and sources of data for each.

A quarterly monitoring system has been established to gather information from the project’s five implementing partners: UR, IPAR, GKI, PUG and UNg.

This reporting period was especially productive against indicator #5 for presentations, briefs and reports on policy-related issues. The roundtables in May and the workshop at the end of August were key arenas for publicizing project results and reports. As expected for indicator #6 related to datasets, the main datasets so far are the baseline surveys in Rwanda and Burundi. While insights from the database are being shared publicly, the project team anticipates holding off in making the data sets publicly available until after the team has had a chance to analyze the data and present them to stakeholders in the coffee sector. For five other indicators of the project, the household survey provided the baseline values and the first reporting of progress against them will be from the Year 2 data collection program that will be available in March 2017. This mid-line survey will also deliver more insights on gender and climate change than were possible in the first year of the project, these being important aspects of the FtF monitoring system.

During the reporting period, AGLC staff also attended a branding workshop held by USAID and a workshop on the revised FtF indicators to help us stay in sync with the needs and guidelines of USAID.

## 4. Management and Administrative Steps and Issues

During the reporting period several important administrative steps were taken and issues addressed in the implementation of the Year 1 Work Plan. These are summarized below.

**Year 2 Work Plan.** The Year 2 Work Plan was developed and submitted to USAID on time. Requested revisions were incorporated by MSU in September and USAID approved the work plan on September 15, 2016.

**Reporting.** The first AGLC Semi-annual Report (for the period Oct 1, 2015 to March 31, 2016) was submitted to USAID on time.



**AidTracker+.** Indicators were expanded and finalized with USAID M&E staff and data against the indicators were updated to reflect current AGLC progress.

**Procurement.** A significant issue for AGLC are the continuing delays in procurement by the University of Rwanda (UR). The UR procurement system is complicated and is invariably backed up. That has meant delays in hiring field assistants, needed materials for experimental fields, radio communications, contracting for the SMS messaging system, and other items. We have endeavored to find “work-arounds” to all of these delays, mainly by shifting budget line items to other partners to complete the work. To avoid the problem in Year 2, AGLC will reduce the UR scope for such procurement and will have other partners with more proficient administrative capacity take on these tasks.

**Limitations in Burundi.** Due to the continuing unstable political environment in Burundi, AGLC project activities during the reporting period were limited to those in the applied research component of the program. However there have been problems in that our Burundian Partners have not always been able to travel to Rwanda to participate in scheduled project activities. Most notably, participation in the August project workshop by colleagues at the Universities of Gitega and Ngozi was not possible due to border restrictions. As a consequence, MSU staff were called upon to present the Burundian research findings on Antestia/PTD.

## **5. Planned Activities for Next Six Months / Upcoming Events**

During the first and second quarters of Year 2 the project will stick close to the Work Plan activities and schedule. Immediate attention is focused on preparing for data collection on experimental fields for the new coffee season and on developing and fielding the Y2 Follow-on household survey. Some of the priority steps to implementing these activities are listed as follows.

1. Continued data collection on the experimental fields.
2. Set up and apply Y2 treatments (pesticides and fertilizers) to experimental fields
3. Develop and transmit radio messages to raise productivity and control antestia
4. Develop Y2 Mid-term HH Survey instrument and training materials
5. Conduct enumerator training for Mid-term HH Survey
6. Pretest Mid-term HH Survey in the field
7. Conduct fieldwork for Mid-term HH Survey
8. Clean and transform Mid-term HH Survey data
9. Analyze CWS data collected from the 16 CWSs sampled in the baseline survey.
10. Capacity-building/training of coffee farmers based on results from the baseline survey and experimental fields.
11. Capacity-building/training of coffee farmers using data from experimental demo plots.
12. Complete development and testing of an SMS system for communications between project staff and farmers initially, and later to be tested as a communication tool for CWSs, and possibly NAEB, CEPAR and other groups.
13. Continue to engage with policy makers on key issues and policy recommendations coming from Year 1 applied research and policy engagement activities. Particular focus on cherry pricing and inputs distribution recommendations.

14. Assist in arranging USAID site visits, as needed.
15. Complete Oct 2016 to March 2017 Semi-annual Report on AGLC for submission to USAID.
16. Update AidTracker+ on core AGLC indicators.
17. Conduct further FGDs that include qualitative research questions on gender and issues related to quality processing of coffee.
18. Integrate analysis of gender and climate change issues into project activities, especially the Mid-term HH survey and subsequent reports.

## Annex 1: AGLC Year 1 Activities and Percent Completed

Activity/Outcome	Quarter Due				% Completed for Oct 2016 Semi-Annual Report
	1	2	3	4	
<b>Project Start-up Activities/Outcomes</b>					
Establish partner SOWs	■				100%
Establish subcontracts with partners	■				100%
Prepare initial reports/PPTs for Kick-off Conference	■				100%
Kick-off Conference (Kigali, IPAR/GKI convene)	■				100%
Work plan development and submission	■				100%
M&E development and submission	■				100%
Procure tablets for data collection	■				100%
<b>Applied Research Component Activities/Outcomes</b>					
Research design	■				100%
Sample frame development	■				100%
Field sample frame development (incl CWS)	■				100%
Define technology packages for field implementation	■				100%
Training and setup of CSPro Mobile	■				100%
Recruit enumerators	■				100%
Letter from IPAR/NAEB and into in Districts	■				100%
Develop Baseline Survey Instrument	■				100%
Develop Field-based Instrument	■				100%
Develop CWS and owner Instrument	■				100%
Listing of producer HHs in 16 CWSs	■				100%
Sample selection of 4 x 16 farms for Agronomic data	■				100%
Convert instruments to CSPro	■				100%
Pretest and revision of instruments	■				100%
Enumerator field training	■				100%
Experimental/demo field selection process	■				100%
Train experimental farmer (N=64)	■				100%
Field-based Survey data collection (N=64)	■	■	■		100%
Soil sample analysis on sampled fields		■			100%
Compile climate data (rainfall, temperature, elevation, moisture, etc.)		■			100%
<b>Baseline Survey Implementation</b>					
Baseline Survey data collection (N=1024 in each country)	■				100%
Baseline CWS data collection (N=16 in each country)	■	■	■		50%
Compile baseline survey data in CSPro	■	■			100%
Convert baseline data to SPSS/Stata	■	■			100%

Clean baseline data (range and consistency)		■			98%
Data coding (open-ended Qs to numeric data)		■			100%
Data transformation		■			98%
Data analysis	■	■	■	■	75%
Draft baseline HH reports		■	■	■	75%
<b>Field-based Experimental Research Implementation</b>					
Field-based data collection (N=64)	■	■	■	■	100%
Compile field-based survey data in Excel		■			50%
Clean field-based data (range and consistency)		■			20%
Data transformation			■		20%
Analysis of field-based data			■		20%
Draft field-based research report			■		20%
<b>Capacity Building Component Activities/Outcomes</b>					
Develop training materials		■			0%
Organize farmers in modified FFS groups		■			100%
Hold training sessions on experimental fields	■	■	■		50%
Train broader sample of leader farmers in GAP (ABS)	■				50%
Develop and transmit radio broadcast messages	■	■	■	■	40%
Develop and pilot test system for farm-level SMS reporting of results		■			75%
Develop and transmit SMS messages	■	■	■		0%
<b>Policy/Stakeholder Engagement Component Activities/Outcomes</b>					
Identify and engage key policy actors in coffee sector	■				100%
Conduct policy analysis to identify primary constraints	■				100%
Engage policy makers in priority policy issues and research	■				100%
Hold 10-15 key informant interviews w/ gov't & private sector decision makers	■	■			100%
Hold 10-15 Focus group discussions w/ gov't & private sector decision makers	■	■			100%
Hold advocacy round tables with coffee sector decision makers (presentation of results, discussion of policy issues and recs)	■	■			100%
<b>Prepare policy briefs</b>					
Policy brief on cost of production and farmer investments			■		100%
Policy brief on field-based PTD/antestia control and improved productivity research				■	100%
<b>Progress Reports and Data Activities/Outcomes</b>					
Semi-annual Progress Report (mid-year)		■			100%
Semi-annual Progress Report (end of year)				■	100%
Stakeholder End-of-Year Workshop to present research, capacity building and policy engagement results (UR/GKI will convene)				■	100%
Monitoring & Evaluation (M&E) Reporting				■	100%

## Annex 2: AGLC - Performance Indicators with Targets

(Rw) = Rwanda only – Burundi data to be combined here when available.

AGLC Core Indicator	Indicator definition	Unit of Measure (gender disaggregated when possible)	Data Source	Method of Data Collection	Reporting Frequency	Baseline	Targets							
							Year 1 (reporting Apr. 2017)		Year 2 (reporting Apr. 2018)		Year 3 (Oct. 2018)		Variable(s)	
#1	Incidence of PTD/Antestia in fields	Avg. # of bugs/tree	Farmers & Experimental plots	Farmer surveys (N=2,048) & Field observ on exper. plots (N=128)	Annually	1.8 (Rw)	1.5 (Rw)		1.2 (Rw)		.9 (Rw)			Farmers: ANTPERTREE
						n.a.	n.a.		n.a.		n.a.		Avg. # bugs/tree in treated study fields.	
#2**	Hectares under improved technologies	# of hectares under improved practices	Farmers	Farmer surveys (N=2,048)	Annually	199 ha (Rw)	210 ha (Rw)		215 ha (Rw)		220 ha (Rw)		Productivity: COFFEESQM2_sum BestProdPract	
#3**	Number of farmers who have applied improved productivity and/or PTD mitigation technologies. <i>USAID wording: improved technologies or management practices.</i>	# of farmers in treatment areas exhibiting changed behavior	Farmers	Farmer surveys (N=2,048)	Annually	551 hh (Rw)	606 hh (Rw)		640 hh (Rw)		661 hh (Rw)		Productivity: BestProdPract	
#4***	Gross margin per hectare ***	Value in US\$	Farmers	Farmer surveys (N=2,048)	Annually	\$530 (Rw)	\$543 (Rw)		\$550		\$556 (Rw)		USAID: CofGrossMargNOLA B	
						\$374 (Rw)	\$383 (Rw)		\$390		\$392 (Rw)		AGLC: CofGrossMarg	
#5****	Number of policy instruments (briefs, presentations, reports) on target issues	Number	Program partners	Research results	Semi-annually	0	0	4	6	8	10	12		
#6****	Number of new data sets informing food security policies available for public use	Number	Program partners	Research results	Semi-annually	0	2	4	6	8	10	12		
#7	Percent of total kg producer cherry processed through fully-washed channels.	Kg cherry processed as FW/total kg cherry processed	Farmers	-Farmer surveys	Annually	95%	97%		98%		99%		Farmers: SALE15CHERKG CherToParchKG	

\*\*Indicators to be submitted to the FTFMS system.

\*\*\*AGLC will calculate this indicator two ways. The indicator reported in FTFMS will be calculated as described in the FTF Handbook. The second version will be used by the project for monitoring, which will include a value for unpaid HH labor in the input costs. The FTF gross margin (which values unpaid household labor at 0) is not being used by the project but we expect it will increase as indicated.

\*\*\*\*Indicators related to the FSP-IL leader award strategic results.