

AGLC YEAR 2 WORK PLAN

PERIOD: OCTOBER 1, 2016 TO SEPTEMBER 30, 2017

FEED THE FUTURE AFRICA GREAT LAKES REGION COFFEE SUPPORT PROGRAM

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1. Background: Summary of AGLC Program Goals and Accomplishments to Date

The Feed the Future Africa Great Lakes Region Coffee Support Program (AGLC) is a USAID-funded applied research, producer capacity-building, and policy engagement initiative in the Great Lakes Region of Africa that will control potato taste defect (PTD) and improve coffee productivity. AGLC meets these challenges through three main program components, identified as the following:

- *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.
- *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.
- *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.

During Year 1 the AGLC project was, overall, highly successful in achieving its major outputs and deliverables, though for some of the field-based activities a modest adjustment in the timeframe was required. The project is fully on track to achieve all major activities included in the Year 1 Work Plan by the year's end. AGLC had a successful launch with kickoff events in Rwanda and Washington, DC and a series of initial consultations with stakeholders. From there the project teams quickly shifted gears in developing and fielding the baseline survey of 2,048 coffee growers in Rwanda and Burundi surrounding a total of 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. Though the baseline survey took longer than anticipated to implement, the quality and extensiveness of the data are extraordinary and set the stage for a series of policy advocacy roundtable discussions with coffee sector stakeholders. Additional data collection activities completed during Year 1 include the setup of the 64 experimental fields in each country and in Rwanda the implementation of key informant interviews with leaders of the main coffee stakeholder groups. Farmers have been organized into 32 CWS-based groups, each with a series of experimental demo plots that serve as the basis for farmer capacity building activities.

Policy engagement activities also progressed as planned with a series of five policy roundtables with key coffee stakeholders organized around a set of pressing policy issues facing the sector. Special reports and policy briefs were also prepared and disseminated with the aim of informing and guiding ongoing policy and program discussions. The main areas of policy engagement during Year 1 were:

1. Understanding farmer motivations, and encouraging farmers to invest their labor, land and cash resources to improve both yields and quality of their coffee.
2. Ensuring producers are paid for high quality coffee, and that premiums can reach them.
3. Optimizing pre-financing for farmers and cooperatives to enable farmers to be paid for cherry at the time of harvest and to avoid delays payment delays.
4. Availability and effective use of pesticides, fertilizers and other inputs for controlling antestia/PTD and improving yields.
5. Ensuring a higher proportion of coffee moves through the fully-washed, specialty coffee channel (e.g., zoning policy, farmer incentives, etc.).

The policy engagement activities are designed to inform decision makers and other stakeholders on key policy issues and to build consensus on policy changes that will help to achieve the goals of higher productivity and antestia control. There are numerous recommendations that have come from the AGLC Year 1 roundtables, workshops and other policy engagement activities. These include the following:

1. NAEB/CEPAR must 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.
2. 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. ¹
3. Ensure that coffee producers are well-represented in policy discussions, particularly those concerning farmer compensation.
4. Research and model how higher cherry prices will improve farmer investment, raise productivity, increase the volume of coffee processed and exported.

¹ Cherry prices in Rwanda are set by a committee of coffee stakeholders (mainly processors) and led by NAEB. The process is negotiated among committee members and includes numerous data inputs including the NYBOT "C" price, currency exchange rates, and the estimated production costs to farmers, processors and exporters. AGLC research shows that most farmers are paid the floor price. In 2015 the floor price was 200 RWF/kg cherry and the mean price received by farmers was 198 RWF/Kg.

5. Model the effects of higher investment on coffee quality, particularly the density of cherry, the share of coffee going through fully-washed channels and higher grades of coffee (and a reduction of triage grade coffee).
6. Work with stakeholders to understand 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.
7. The Government of Rwanda (GOR) need to 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.
8. Develop and test a system for two-tier pricing of coffee cherry based on quality. 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.
9. Rigorously assess the impact of the zoning policy on farmer incentives, investments and productivity. There may be unintended consequences of limiting competition for cherry, resulting in lower cherry prices to producers and accelerating the downward spiral of low coffee prices => low motivation => low investment => low productivity => low profits.

2. AGLC Year 2 Activities, Outputs, Partner Responsibilities and Timelines

Year 2 activities will build on the partner alliances forged between the public, private, and university sectors in Year 1, all of which are necessary for expanding sustainable regional capacity in applied research, extension/outreach, and policy analysis and formulation. Michigan State University continues to provide overall administrative and technical leadership, taking a team approach to realizing the program's vision through its primary implementing partners, the University of Rwanda (UR), the Institute of Policy Analysis and Research (IPAR), the Polytechnic University of Gitega (PUG) and the University of Ngozi (UNg), together with the technical support of the Global Knowledge Initiative (GKI) focusing on media outreach, network management, and advancing the policy dialogue in support of improved coffee productivity and improved antestia/PTD management.

A crucial aspect of this research and policy-based initiative is the need to engage with public and private sector stakeholders such as CEPAR, NAEB, Starbucks and Agropharm in Rwanda.² Through the involvement of these partners, particularly in farmer and washing station capacity building, AGLC will help to broadly strengthen their abilities to reach smallholder farmers with the agricultural inputs and practices necessary to improve coffee productivity and combat the devastating effects of PTD.

² NAEB is the National Agricultural Export Development Board in Rwanda. CEPAR is the Coffee Exporters & Processors Association of Rwanda.

Described in this section are the main activities that the AGLC alliance partners will undertake in Year 2 of the program, along with their expected outcomes and timelines. There are three subsections designated to the implementation of AGLC's three main program areas (applied research, capacity building and policy engagement); the Work Plan finishes with steps to be taken on the monitoring and evaluation plan for Year 2.

Michigan State University and its partners acknowledge the challenges related to the current political environment in Burundi and will continue to work closely with USAID to ascertain the appropriate level of involvement in project activities by public Burundian institutions. For now the plan is to continue on the applied research and farmer capacity building components. No activities are planned for Burundi in Year 2 in the policy engagement arena.

2.1. Component 1: Applied Research on PTD/Antestia, Productivity and Incentives

The primary objective of AGLC's applied research component is to objectively and empirically 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. A set of core guiding questions addressed by AGLC in the research component, as well as in policy engagement and farmer capacity building activities, can be found in Annex 1 of this Work Plan.

During Year 1 two major sets of applied research activities were planned and implemented: the baseline household survey and the launch of the experimental field-based data collection system. During Year 2 a "Follow-on household survey" will be conducted and data collection and analysis from the experimental fields will continue. These activities are described in greater detail below.

2.1.1. Follow-on household survey

The Baseline household survey was fielded in January and February of 2016 with multiple objectives, the first being to identify and document the level of awareness of antestia/PTD among coffee-growers, their levels of knowledge about how to address the problem, as well as the specific practices they have adopted to combat it. Farmer awareness, knowledge and practices constitute a focal point for AGLC and the success of the program will hinge on improving farmer behavior against these indicators. The baseline surveys have established benchmarks against which future progress will be measured. A second objective of the baseline survey was to identify the barriers to farmer investment in coffee production and how incentives are tied to coffee sector policies related to cherry prices, pre-financing, cost of production, gender roles and other aspects of the coffee value chain. Understanding farmer behavior, as it relates to incentive mechanisms and socio-economic elements of on-farm decision-making, is of paramount importance to formulating effective coffee sector policies.

The baseline was conducted in four major coffee-growing districts: Rutsiro (Western Province), Huye (Southern Province), Kirehe (Eastern Province), and Gakanke (Northern Province). From each District, four CWSs/Sectors were selected, two of which were cooperatively owned and operated and two of

which are privately owned and operated. From the farmer listings at each of the CWSs 64 farmers were randomly selected for study, totaling 1,024 (16 CWS x 64 HH) coffee producing households in all. In Burundi the design successfully mirrored the approach taken in Rwanda, with four provinces being selected, (Kayanza and Ngozi in the northern coffee-growing region and Karusi and Gitega in the central region), with a total of 1,024 producer households randomly selected from 16 CWS listings in those communes.

The Year 2 Follow-on Survey will randomly draw a 50% subsample of households from the Baseline sample frame in each CWS. Thus, there will be 32 households selected from each of the 16 CWS listings for a total of 512 households. The same procedure will be followed in Rwanda and Burundi. A key feature of the Year 2 Follow-on is that it will enable the team to collect panel data, following the subsample over time. This also means that much of the background data on farm size, field characteristics, income levels, household demographics, cost of production and other detailed and time consuming data will already be collected and available from the Year 1 Baseline. The team will instead focus on supplementary information, much of which was identified during the course of the Year 1 policy roundtables, key informant interviews (KIIs) and focus group discussions (FGDs).

Particular areas of expanded/supplementary inquiry for the Year 2 Follow-on household survey will include:

- **Zoning policy.** The new coffee zoning policy in Rwanda went into effect in 2016 and there is much debate over its potential impacts on productivity and farmer investments. The Year 2 survey will collect information on the effects of the policy on producers and producer behavior (e.g., prices paid to farmers under zoning, changes in farmer sales to cooperatives, sales to middlemen vs. through other channels, and trust between CWS and farmers). A second area of concern involves market changes such as coffee traceability and implications for cooperatives (including their financial health). A third area is the extent to which the zoning policy is universally enforced (or not). Anecdotal evidence suggests that there are significant differences in how the zoning policy has been implemented and enforced. From the Year 2 data AGLC should be in a position to assess the differential impacts of zoning in comparing areas where enforcement is high with those where it is not. This work on the zoning policy is supported by NAEB who has become a close partner on this effort. The zoning policy research will be implemented uniquely in Rwanda as Burundi does not have a similar policy in place.
- **Farmer investments.** In both Rwanda and Burundi, the Baseline Survey helped to identify some of the major investment constraints and how low cherry prices and the absence of price premiums have become a serious deterrent to the production of more and higher quality coffee. Based on these initial findings, and on the extensive policy debate among coffee stakeholders during Year 1, the next stage of applied research on this issue will focus in Year 2 on data needed to better model how higher cherry prices will improve farmer investments in coffee, raise productivity, and increase the volume of coffee processed and exported. These estimates will help in setting realistic growth targets and in meeting those targets in both Rwanda and Burundi. Similarly, there is a need for data that will enable us to model the effects of higher investment on coffee *quality*, particularly the density of cherry, the share of coffee going through fully-washed channels and higher grades of coffee (and a reduction of “trriage grade” coffee).

The End-of-Year Workshop and follow-on meetings with NAEB were especially illuminating in the area of how to set cherry floor prices that in a way will bring producers into Rwanda coffee

renaissance as full partners and still be feasible for CWSs and exporters. NAEB seems committed to finding this balance. In the past, the producers have been absent from the cherry price discussions and assumptions about the cost of production have resulted in a price setting formula that systematically squeezes only the producers and places nearly all risk of a bad production year on the shoulders of the producers. This process has been criticized even by some of the more progressive processors and exporters and some of them (e.g., San Francisco Bay Coffee and Long Miles Coffee) are now experimenting with a process to set their own cherry prices at much higher rates that are fairer to the producers. They are following the recommendations from AGLC to pilot both higher prices and multi-tiered pricing for quality (see below for more detail). NAEB has invited AGLC to join them in a group meeting with the exporters to review the results of the AGLC research and to discuss the advantages of coffee sector pricing reform to all stakeholders in the value chain, including the exporters.

- **Opportunities for quality-based pricing.** In the year 2 household survey, AGLC will continue to expand on the issue of pricing to motivate higher coffee quality. It is not yet well understood whether farmers in either Rwanda or Burundi are receiving direct compensation for delivering higher quality cherry than their neighbors. If some farmers are receiving prices differentiated by the level of quality of the cherry, it is important to know what criteria are being used, whether the quality targets of the schemes are being achieved, and whether the farmer has changed behavior due to such a pricing program. The goal will be to provide the data necessary to guide the sector in designing and piloting a more universal approach to incentivizing higher quality coffee. We are working closely with San Francisco Bay Coffee in Rwanda and Long Miles Coffee in Burundi on multi-tier pricing and will continue these relationships in Year 2 to test and learn from their actions/experiences.
- **Gender and income.** One of the critical policy issues identified by government agencies in Rwanda lies in the fact that women provide much of the labor for coffee production (weeding, pruning, harvesting, etc.), yet they frequently lack motivation in this role because the cash benefits so often accrue to their husbands who collect the payout from the washing stations and local traders. In the Year 2 Follow-on surveys in both Rwanda and Burundi AGLC will give more complete coverage to this issue and to the question of how and by whom coffee revenues are spent. We expect that these differences may affect household decisions about whether to sell cherry through the fully-washed channel (income mostly to men) or to semi-wash cherry on the farm, which is more likely to result in revenues to women. It is hypothesized that by ensuring that revenues accrue to those who invest their labor in coffee production (i.e., by aligning investments with returns) important steps necessary to raise productivity and eliminate antestia/PTD will be taken. Moreover, increasing coffee revenue streams going to women has important implications for improving the health and nutrition of the family, particularly children of coffee producers.
- **Coffee and climate change adaptation.** Smallholder producers in Rwanda and Burundi, including the many households reliant on rain-fed Arabica coffee as their principal income source, contend with erratic and extreme rainfall patterns and unexpected dry spells. Drought weighed heavily on agricultural yields in 2006, 2013 and 2014, with violent rains occurring almost yearly over the past decade in western Rwanda and Burundi. With climatic variability and uncertainty predicted to increase due to global climate change, special attention must be given to farmer incentives and capacities to adopt sustainable coffee production practices in order for coffee to remain a vibrant mainstay of Rwanda's agriculture. In fact, coffee could even serve to bolster overall farming system adaptability and resilience, particularly if households adopt recommended field management practices including drought and pest resistant coffee varieties, water conservation practices, and shade trees. A module in the Year 2 Rwanda and

Burundi Follow-on surveys will focus on how climate trends and fluctuations have affected coffee producers, their preparedness to adapt to accelerating climate changes, the extent to which they have already begun to adopt the recommended production practices, and steps that stakeholders and decision makers will need to take to enable and incentivize households to further enhance their adaptive capacities.

- **Farmer cooperatives and decision making.** The idea behind agricultural cooperatives is that smallholder farmers are better off working collectively. As noted from the AGLC Year 1 Baseline survey, these collectives can provide a range of services that include economic, agronomic and social benefits. Collective action in Rwanda’s and Burundi’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. Moreover, the relationship between cooperative membership and adoption of best management practices or increases in productivity is not always clear as there are likely to be benefits that are not readily observable. With this in mind, a component of the Year 2 Follow-on survey is to separately examine and compare the level of social capital present among farmers that belong to a cooperative CWSs. We will draw upon the social capital and relational contracting research literature to develop a series of short questions and assess various dimensions of social capital (e.g., structural, relational and/or cognitive). In both countries we will use this information to evaluate how cooperative membership contributes to social capital formation and its effect on farmer decision-making. This information will also help AGLC to determine how the new zoning policy, which in some cases will terminate farmers’ cooperative participation, will likely affect collective action in Rwanda’s coffee sector.
- **Antestia and productivity indicators.** In Year 2, monitoring and evaluation will continue to collect data on the project’s seven key indicators. They are:

AGLC Core Indicator	Indicator definition
#1	Incidence of PTD/Antestia in fields
#2	Hectares under improved technologies
#3	Number of farmers applying improved productivity and/or PTD mitigation technologies
#4	Gross margin per hectare
#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
#7	Percent of total kg producer cherry processed through fully-washed channels.

Positive results are expected on indicator 1 (PTD/Antestia incidence), but also on sub-indicators the project staff follow to track details on the penetration of Antestia and its impact on yields, plant growth and cherry quality. Indicators 2, 3 and 4 are also expected to improve during this ‘middle year’, so questions related to adopting improved technologies, and the resulting impact on gross margins will be included in the Follow-on survey.

Finally, AGLC will continue to monitor the percent of coffee production (KGs) delivered to washing stations. NAEB tracks this number very carefully. We have slightly different goals, and therefore a slightly different methods for calculating the percent of coffee that is delivered to the fully-washed system.

Follow-on survey methodology and implementation

In Rwanda, the IPAR team will lead the development and implementation of the coffee producer Follow-on Survey. As mentioned above, it will be fielded in the same four selected districts/communes of Rwanda/Burundi as was the Baseline survey and the selected households will be a 50 percent subsample of those in the baseline. In Burundi, the University of Gitega will lead the development of the baseline instrument and will implement the Follow-on survey in the two central region communes, while the University of Ngozi will implement the Year 2 survey in the two northern communes.

The survey instruments will be developed in October 2016 and will be ready for testing and full data collection in November/December. Given the success of the Baseline data collection, both teams will again use hand-held devices (Samsung 7" tablets) for Year 2 data collection. As the Baseline survey confirmed, tablet-based data collection has many advantages, including the reduction of error rates, elimination of a separate data entry process, and immediate access and review of data by the supervisory staff. Another advantage this time around is that the interviewers and supervisors are familiar with the operation of the tablets, which we expect will help to reduce the time required for training and survey implementation.

The household-level instrument will collect detailed information related to zoning policy, farmer investments in coffee, opportunities for quality-based pricing, gender issues, climate change adaptation, cooperative membership, and the AGLC antestia and productivity indicator set. Data will also be collected at the washing station level for the 16 CWSs in each country. This component will build on the CWS data from Year 1 and will be used to enhance the household level analyses itemized above. The CWS data needs will be reviewed and specified in the second quarter of Year 2 and the CWS instrument will be fielded in May-June 2017, soon after the coffee harvest season has finished and CWS managers become more available.

A field staff of 10 interviewers and two supervisors will be engaged in each country to complete the Follow on Survey data collection. They will first be introduced to the research objectives and the overall project goals to enable them contextualize the data collection process, and then will be trained on all sections of the survey instruments, the use of tablets for data collection and on ethical concerns in conducting household interviews.

The recruitment of enumerators will again take into account their experience in data collection especially in agriculture and socio-economic subject matter. Where possible, in both Rwanda and Burundi, interviewers involved last year in the Baseline implementation will again be hired to field the Year 2 Follow-on survey. The enumerator training for the baseline survey will be led by IPAR (in Rwanda) and by PUG and UNG (in Burundi) and is scheduled for a one-week period in late November and early December. Two days will be designated for classroom based instruction, followed by two days of pretesting and field training. Following the pretest, the teams will regroup to review the results and to make final changes to the survey instruments. A report on the training of enumerators and supervisors will be drafted and shared with project partners in each country.

2.1.2. Experimental field and CWS-based research

The primary objectives of the experimental field and CWS-based research are to objectively and empirically inform coffee sector stakeholders in Rwanda, Burundi and the DRC concerning the most effective practices for controlling antestia/PTD and for reducing low and cyclical production (alternating high and low coffee cherry yields). The approach is one that is designed to isolate the principal causes of the combined problems of antestia/PTD and low coffee productivity/cyclicity and identify the most effective measures for reversing their devastating effects.

Best practices recommendations have been drawn from the early results of these applied field trials in Year 1, as well as from related research at the Rwanda Agricultural Board (RAB) with an eye to identifying optimal yield-enhancing and cyclicity/PTD-reducing regimes for dissemination and capacity building to be implemented with/through our private sector partners as described in Section 2.2 below. The AGLC team anticipates having initial test results and best practices identified and disseminated before the start of the second season (Year 2).

Farm and coffee plot selection. During Year 1, UR led the field-level data collection effort in Rwanda while in Burundi it was evenly split between the University of Ngozi and the Polytechnic University of Gitega. These two research teams coordinated closely in the development of the survey/research instruments and the implementation of the fieldwork. For logistical purposes, UNg managed the fieldwork in the two selected communes in the northern coffee-growing provinces of Burundi, while PUG managed the fieldwork in the two selected communes in the central coffee-growing provinces. The northern and central provinces are where nearly all of Burundi's coffee is produced.

In both Rwanda and Burundi the field trials were conducted in concert with the same coffee washing stations selected for the Baseline household survey. In both Rwanda and Burundi 4 farms were sampled for field-level trials, resulting in a total of 64 coffee farms/plots in each country. The four farms/plots were selected purposively to ensure representation from different slope steepness and age of trees, two important known determinants of farm productivity.

In Year 2 these same farms and plots will be used for continuing data collection and demonstration purposes as described below in the capacity building component of the project.

Plot-level data collection. Using an experimental design to test good agricultural practices (GAPs) and pesticide packages on the 64 plots (in each country), the enumerator team in Year 2 will continue to collect data on soil and plant nutrients, plant growth, yield, antestia population, and natural controls in the field. Data will also be collected on key environmental and climate change factors such as rainfall and temperature. After harvesting, the team will collect data on coffee processing parameters and the incidence of potato taste defect (PTD). Plot level data will be collected on a monthly basis through the course of the coffee-growing season to track the results of the experimental treatments and how they are conditioned by their agro-ecologies. UR will continue to lead these activities with support from Mr. Joseph Bigirimana, a researcher at RAB currently completing his PhD in entomology at Michigan State University.

During Year 2, data collection on coffee productivity in Rwanda and Burundi will be implemented by UR, PUG and UNg in all 64 on-farm research fields in 16 CWS/sectors covering the major coffee agro-ecological zones from each country. The study will focus on crop response to recommended good agricultural practices (GAPs) for Rwanda. During the second year, the teams will apply the commercially recommended fertilizer doses and will record the plant vigor, growth and yield parameters each month until harvest. The yield parameters include, in particular, the number of branches with coffee cherries, number of cherries per branch, and the number of damaged cherries. The team will also assess the time spent on each activity, inputs used and yield.

The harvested cherries from each plot will be processed, dried and kept separately. The proportion of clean and insect damaged beans will be recorded, as well as floaters and sinkers. The clean parchment from each plot will be kept separately for each lot. Likewise, the floaters will be processed and kept for each plot. Once dry milled and roasted the size and weight of green beans from each plot will also be recorded.

After roasting the quality of the coffee and PTD rates for each plot will be determined in the cupping lab in July 2017. Public and private partners will provide professional cupping services to assess PTD incidence from all coffee samples. These services have been committed by NAEB and Starbucks in Rwanda and by private sector partners in Burundi.

2.1.3. Data processing and analysis

As in Year 1, data processing and analysis will continue as a team effort, with each institution taking responsibility for its designated domains of the applied research program. IPAR will take the lead on the Rwanda Follow-on survey analysis and report writing, while UR will take charge of the agronomic analysis (from the 64 test fields). In Burundi the Follow-on survey analysis will be led by the University of Gitega and the University of Ngozi will lead the analysis and reporting from the agronomic component of the research program. MSU will play an active, mentoring and capacity building role throughout this phase of the program, providing training in data management & transformation as well as in particular analytical techniques. GKI will support the data analysis phase through the development of policy briefs and public communications based on the research results.

The use of tablets for data collection will eliminate the need for a separate data entry operation. CSPro software will again be used for the data collection in Year 2 and data will be uploaded each day from the tablets to the cloud server and then downloaded by the research teams at their respective institutions. Supervisory staff will monitor the results as they are submitted (uploaded/downloaded) from the field and will make corrections as necessary.

Once the Year 2 Follow-on data collection phase is complete the data will be exported from CSPro to SPSS/Stata for further cleaning and transformation. While CSPro range and consistency checks will provide a first-stage cleaning of data in the field (at entry), a second stage set of cleaning edits will be implemented in February 2017 by IPAR in Rwanda and PUG in Burundi. Open-ended responses will also be coded through a content analysis during that period and variables will be transformed through aggregation and other computation to facilitate analysis. A similar process of cleaning and transformation will be applied to the experimental field level data as they are collected and transmitted

through the course of the Year 2 coffee growing season. During Year 1 MSU took the lead in data transformation, with some assistance from IPAR and partners in Burundi. It is anticipated that in Year 2 MSU will play more of a close mentoring and capacity building role so that the implementing partners can be more active in completing this work, giving them the skills to carry out similar work independently in the future.

Year 2 summary of applied research activities/outcomes				
Activity/Outcome	Quarter Due			
	1	2	3	4
Applied Research Component Activities/Outcomes				
Year 2 Household Follow-on Survey				
Survey design (45 min survey, 512 HHs in each country)	■			
Instrument development	■			
CSPRO Mobile tablet programming	■			
Enumerator training	■			
Pretest and revision of Y2 survey	■			
Y2 Survey Implementation				
Y2 Survey data collection	■	■		
Compile Y2 survey data in CSPRO		■		
Convert baseline data to SPSS/Stata		■		
Clean survey data (range and consistency)		■		
Data coding (open-ended Qs to numeric data)		■		
Data transformation		■		
Data analysis		■	■	
Draft Y2 HH survey research reports		■	■	
Field-based Experimental Research Implementation				
Field-based data collection (N=64)	■	■	■	■
Compile/enter field-based survey data in Excel			■	
Convert field-based data to SPSS for analysis			■	
Clean field-based data (range and consistency)			■	
Data transformation				■
Analysis of Y2 field-based data				■
Draft field-based research report				■
Coffee Washing Station Survey				
Develop and test CWS questionnaire (N=16)			■	
CWS data collection			■	
CWS data analysis				■

Analysis of the Year 2 household-level Follow-on survey data is expected to begin in mid-March once the data cleaning and transformation steps are complete. Analyses will focus on incentives for farmer investments in coffee (including premiums), the impact of the zoning policy on coffee production, pricing for quality, gender issues, climate change adaptation, and progress made by the producers

against antestia and productivity indicators. Analysis of data from the experimental coffee plots will be carried out at the completion of the growing season in June, 2017. The data will be analyzed to isolate the principal determinants of low coffee productivity/cyclicality and combined problems of antestia and PTD, and to identify the most effective measures for addressing their effects. The expected outcomes from these steps include successful identification of the major proximate causes of low yields and PTD/antestia resulting from the applied research.

The Year 2 results from the Follow-on survey and experimental plots will be reported in a series of special reports, policy briefs, PowerPoint presentations and training materials. This will allow for effective capacity building (see Section 2.2) through raised awareness among coffee producers, cooperatives, and washing stations of the impact of antestia/PTD and low yields as well as training for coffee producers, cooperatives, and washing stations in best practices for higher coffee productivity and control of antestia/PTD, both in the field and at the washing station. With these evidence-based outputs in hand the AGLC teams will be in a position to advocate among policy makers and other stakeholders for policy initiatives in support of farmer incentives to invest in best practices and to increase sales through the fully-washed coffee market channels.

2.2. Component 2: Farmer Capacity Building

Rwanda's Economic Development and Poverty Reduction Strategy II (2013-2018) identifies development of the coffee sector as an important engine for accelerated growth, but it also underscores low coffee productivity as the sector's foremost constraint to growth, largely caused by sub-optimal agronomic practices and diseases/pests including antestia. The strategy statement calls for a systematic expansion of services in support of farmer capacity building.

The AGLC capacity building component takes direct aim at this need through a multi-pronged approach with direct actions to increase stakeholder awareness of antestia/PTD and the effects of low productivity at the farm level. Demonstration plots, farmer training and media messages will provide farmers and CWS managers with the skills to address this suite of interrelated challenges. The AGLC implementing teams will be equipped with clear, user friendly training materials, radio broadcasts and other messages (possibly by SMS) that will be widely distributed and used in Year 2, as they have been to date.

Primary capacity building and policy development partners will draw heavily on private sector partners, CEPAR, Starbucks and NAEB in Rwanda, and Greenco/Yandaro in Burundi. Cupping services for evaluation of PTD incidence in coffee samples will be provided by Starbucks and NAEB in Rwanda. Provision of insecticides (synthetic and organic) to the coffee producers will be CEPAR in Rwanda. Farmer training will occur in tandem with the distribution of inputs to help ensure that these products will be properly/safely applied and managed and to minimize the diversion of inputs to other crops (and resale to traders). One strategy to accelerate adoption of best practices against antestia is to give special attention during all capacity building activities to ensure the participation of women and to utilize female trainers when possible. Prior research indicates that female farmers are "early adopters" of new

technologies, but that they are often prevented from receiving training first-hand.³ In many cultures, female trainers can more easily convey material in ways that help female farmers quickly adopt new practices.

2.2.1. CWS-based farmer training in PTD/antestia control and productivity enhancement

Capacity building in Year 2 will be implemented by AGLC in three stages: 1) farmer training using the 64 study plots selected for long-term field data collection, 2) training of enumerators/students/monitors in data collection and farmer training roles, and 3) scaling up training messages/bulletins through public and private sector partners (PPP).

Farmer training. During the 2nd year of the project, with the experimental plots in place and data collection in progress, the field teams will have their first full season of experimental treatments and results. The training of coffee farmers in antestia control and best practices for improved productivity (and reduced cyclicity) will be a season-long program using all of the on-farm research plots in both Rwanda and Burundi. The 64 farmers across the 16 CWS selected for data collection in each country will be organized into training groups. In each group, farmers will be instructed on the research results from Year 1. Additionally, each group will be trained on one of the experimental/demonstration farms receiving the various GAPs and treatments. Enumerators/monitors will organize 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) will play an important lead role in training the farmer and monitors (MoniCafe) at the selected CWSs. Using a simplified data form farmers will collect data on each treatment at the same time as the project enumerators/monitors collect 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 may not be able to fully participate in this on-farm capacity building program. We will experiment with using SMS messaging to keep these farmers engaged in the training.

Enumerator/student training. In Rwanda, UR as the implementing partner will continue to build capacity in Year 2 by locally training the 16 enumerators/field research assistants and, where possible, selected undergraduate students, through their participation in the on-farm data collection activities from the study plots at the 16 CWSs. Each enumerator/student will collect data on four farms in each CWS/Sector and in the case of the UR students will use the data as the basis for their final year research projects. For the Year 2 Follow-on household study each student enumerator will also follow up with a subsample of 64 farm households (from two CWSs). Thus, each year, there will a new cohort of students/enumerators trained on coffee production practices, inputs use, antestia control as well as in coffee processing and cupping practices (where possible) for quality evaluation. It is anticipated that at the conclusion of their field studies, the professional skills and knowledge these enumerators/students

³ TWIN Trading, Gender Report, 2014.

will have acquired will be highly marketable and attractive to coffee washing stations and other potential employers in the coffee sector.

Similarly, in Burundi, we will continue to use students to build the capacity of coffee farmers selected in the provinces of Gitega, Karusi, Ngozi, and Kayanza. Students who participated in the various AGLC activities in Year 1 (enumerators, experimental field data collection agents, data entry agents, and assisting in the cupping sessions) were selected from all levels of seniority (from the Bachelor 1 to Bachelor 3). To maintain full teams at all training levels, those who will finish their programs sooner will be replaced by incoming Bachelor 1 students. This will enable the project to engage students at all levels and to stagger their departures and replacement over across all three years of the project. Before graduation these students must also complete a two month thesis project. Their experiences in the field on AGLC will form the basis of their thesis work; this experience will be capped with a written thesis, public presentation and radio transmission of to farmers across Burundi on the results of their work and recommendations for farmer best practices.

Additionally, the Gitega team will continue the capacity building of 8 young monitoring agents working on the 32 experimental fields (referred to as MONICAFEs) recruited locally at each CWS in the region. We anticipate at the end of the project these MONICAFEs will be highly experienced in coffee production and antestia control best practices and will serve an important role in revitalizing Burundi's coffee sector for years to come.

Scaling up capacity building through PPP. Training materials and key messages for controlling antestia and improving coffee productivity will be further scaled up to a larger producer audience in Year 2 through the AGLC project's public and private sector partners (PPP) including CEPAR, NAEB, Starbucks, Webcor, CCC and others. The teams will also experiment with the use of SMS to build farmer capacity through the dissemination of messages aimed at reducing antestia/PTD rates and improving coffee productivity. More on this activity is provided in the following subsection.

2.2.2. Outreach through SMS

In year two, the Africa Great Lakes Coffee Support Program will continue the development and testing of a new SMS system for communication with coffee farmers. The main objectives of the system are to allow capacity building messages and monitoring and evaluation questions to be passed quickly and efficiently to these remotely located farmers. The vast majority of coffee farmers in both Rwanda and Burundi AGLC sample have mobile phones, and the teams now have contact information for each of them from the baseline survey. AGLC will contact these farmers (pending their consent) with instructions and information on how to control antestia, mitigate potato taste defect, and boost coffee productivity (information such as when to spray insecticide, and how much, as well as other time-sensitive information). Instructions will initially focus on promoting the adoption of available technologies and techniques for antestia control and productivity improvements.

Through a paid internship for a Carnegie Mellon University student, Mr. Hilary Muramira, the project programmed the custom SMS system in Year 1. Using input from officials at CEPAR and NAEB the team lead by the University of Rwanda will continue to develop and test different functionalities of the system. Discussions are also under way with CEPAR and NAEB to pass on sponsorship and management

of the system in the future. Assuming the system works as planned and we expect to have a hand-off plan in place by the end of Year 2.

2.2.3. Capacity building approach in the DRC

Coffee production in the DRC suffers from PTD and very low productivity, similar to Rwanda and Burundi. Buyers of coffee from DRC are eager to have the proposed initiative also improve the situation in DRC if there is a way this project can do it. The team’s approach does not plan to conduct field research in DRC but all training bulletins and research results will be shared with coffee development projects and programs operating in eastern DRC. During Year 1, with connections supplied by USAID, AGLC invited the DRC coffee sector representatives and project administrators to attend the AGLC end-of-year workshop where they learned about project activities aimed at antestia control and productivity. In Year 2 the teams will work to expand this relationship with partners in the DRC by sharing relevant project training materials and messages. It is possible that the SMS system developed for Rwanda may also be expanded to include coffee producers in the DRC. This possibility will be explored as the system is further tested and unrolled in Rwanda.

Year 2 summary of capacity building activities/outcomes				
Activity/Outcome	Quarter Due			
	1	2	3	4
Capacity Building Component Activities/Outcomes				
Develop training materials	■			
Organize farmers in modified FFS groups	■			
Hold training sessions on experimental fields	■	■	■	
Train broader sample of leader farmers in GAP (ABS)	■			
Develop and transmit radio broadcast messages	■	■	■	■
Conduct sessions with partners (public & private) to disseminate best practices recommendations	■	■	■	■
Develop and pilot test system for farm-level SMS reporting of results		■		
Develop and transmit SMS messages	■	■	■	

2.3. Component 3: Policy Engagement

We start this section with a brief reminder to partners that all policy engagement activities in Year 2 of the AGLC project will be conducted exclusively in Rwanda, none in Burundi. This follows the same policy applied in Year 1 of the project.

The coffee sector in Rwanda has experienced considerable transformation and reform over the past 15 years. Prior to 2001 there was no fully-washed coffee at all in Rwanda. All coffee was semi-washed and

was marketed at auction through ordinary coffee market channels. Beginning in 2001 with the MSU-led PEARL project (Partnership to Enhance Agriculture in Rwanda through Partnerships) Rwanda established its first washing stations and specialty coffee market access. That movement has continued to gain momentum and today there are over 240 coffee washing stations spread throughout the country, some showing profits and success but others failing miserably.

However the policy environment, and the empirical basis on which good policy must be built, has struggled to keep pace with these recent and dramatic changes in how coffee is produced, processed and marketed. The aspirations and strategic planning in Rwanda have certainly reflected an admirable desire to grow the fully-washed sector and to produce higher quality (specialty) coffee,⁴ but creating a policy environment that encourages farmers to produce more coffee and higher quality coffee has not been a dominant theme in that strategic thinking. Virtually all participants in the coffee value chain agree on the need to “grow the pie” through greater productivity at the farm level; however, there has not been adequate evidence-based dialogue about how to do it.

2.3.1. Approach to policy engagement in the coffee sector

The AGLC approach to policy change, and the successful implementation of modified policies, follows a series of steps that both government and key stakeholders must take together. These steps occur on the level of each policy change; thus, a policy that is developed in the first year of the AGLC program will follow the same general process as a policy that is developed at the project's end. These steps are: (1) awareness of issues, in which government and stakeholders understand and agree on challenges facing them, (2) consensus on solutions, in which government and private sector stakeholders develop and agree on mechanisms that can be used to solve key challenges, (3) formulation of policies, in which the government takes the solutions developed through private sector stakeholder engagement and transforms these into actionable government policies and strategies, and (4) implementation of policies, in which government works with key stakeholders to implement policies, and monitors and evaluates their success.

Throughout AGLC project implementation the partners are committed to working through these fundamental policy steps. For some interventions where issues and potential solutions are relatively clear (e.g., ensuring that coffee price premiums reach producers, etc.) we may be able to move through steps 1-3 of this process early on in the project. In general, however, Year 1 was focused on the awareness and some consensus-building steps (1 & 2) while subsequent years are expected to move into steps 2-4 of this process. Thus, in Year 1, AGLC succeeded in improving the policy environment through greater awareness of challenges and even began to develop consensus on potential solutions to certain issues based on baseline data collected through household and field level research and through key informant and focus group discussions with coffee sector stakeholders. In Year 2 and continuing in Year 3, our focus will be placed increasingly on using field data to propose possible solutions, gaining

⁴ MINAGRI (2013). Strategic Plan for the Transformation of Agriculture in Rwanda (Phase III). Ministry of Agriculture and Animal Resources, Kigali, Rwanda.

consensus on those solutions, supporting policymakers in their efforts to integrate these solutions into policy, and—in some cases—seeing these policies through to implementation.

2.3.2. Year 1 Policy Engagement Actions and Outcomes

In Year 1 the AGLC implementing partners in Rwanda took strides to generate needed quantitative evidence and engaged with policy makers in the coffee sector around that empirical base to advance the dialogue and to align policy in support of the long-term goals of the sector’s many stakeholders. In Year 2, policy engagement activities will continue to advance the dialogue on key policy issues and will introduce several new topical areas that emerged from the policy roundtables and data collected from the baseline survey, key informant interviews and focus group discussions. Specific policy engagement actions and outcomes planned for Year 2 will fall in the following categories.

Key informant and focus group interviews. To elucidate the diversity of stakeholder positions on major policy issues affecting farmer investments in their coffee, GKI with IPAR will conduct in Year 2 a systematic series of 20-30 semi-structured key informant interviews and focus group discussions with coffee sector stakeholders, including government and private sector decision makers, producer groups, exporters, washing station managers/owners and dry mill managers/owners. It is essential for these conversations to begin early in the process to ensure that the stakeholder groups are able to “weigh in” on the issues and take ownership of the research and consensus-building process. In Year 2 the interviews will be focused on potential solutions to the issues of farmer investments, inputs distributions, two-tier pricing, and other policy areas raised and initially debated in the Year 1 roundtable discussions. Their purpose will be to move the policy dialogue forward with concrete suggestions for improving the coffee sector policy environment.

These qualitative interview data will be compiled and synthesized by GKI (with partners) and the results will serve as the basis for a report and policy brief that will help to define points of common concern, as well as the critical decision points, where there are opposing views that must be addressed in an open and transparent manner. Moving stakeholders toward consensus and a shared sustainable vision for the sector is the overall goal of this process.

Policy briefs and PowerPoint presentations. During Year 2 the AGLC team will produce at least four policy briefs and related PowerPoint presentations to assist in the external communications and policy discussions. The policy briefs will be developed based on data from the Baseline and Follow-on surveys, the field-based data collection effort, and from the qualitative research through key informant and focus group discussions. GKI and MSU will coordinate the development of the policy briefs and presentations with UR and IPAR—partner organizations that are conducting field research. The tentative plan is for one policy brief to focus on the issue of motivating farmers to invest in their coffee and will draw upon the Follow-on household survey findings as well as the synthesized results from the key informant and focus group discussions. A second policy brief will be based on the results of the field-based data on antestia control and productivity enhancement. It will present recommendations for how public and private sector support (through farmer training and high performance inputs packages) can be used to accelerate the adoption of improved technologies. A third priority brief will target the zoning policy and its implications for improving farmer productivity and antestia control. There will be a fourth policy

brief prepared but its focus will remain TBD for now and will respond to the input and feedback from stakeholders on where they believe AGLC can have the greatest potential impact.

Roundtable/workshop stakeholder discussions. Led by IPAR and GKI the AGLC team will organize and facilitate at least four policy roundtable/workshop discussions in Year 2 of the project. The roundtables will be aimed at validating the research outputs and ensuring that relevant stakeholders are sensitized to the key issues addressed by the project and are able to actively participate in the dialogue and solutions to challenges facing the sector, notably steps required to improve productivity and control antestia/PTD. The roundtables are also part of the process that will support decision-makers in translating research outputs into actionable policy instruments. Each of the four roundtables will include a background brief and presentation of research results and key policy discussion points.

The policy focus of the roundtables has not been set yet but it is anticipated that they will include next steps on farmer incentives for investing in coffee, and the implications of Rwanda's new zoning policy. Other potential roundtable themes include inputs access, gender issues, expanding public support for coffee as a pillar of a sustainable economy, and steps needed to ensure successful adaptation to climate change.

In addition to the focused policy roundtables, AGLC will convene in August, 2017 an end-of-year workshop for all major coffee stakeholder groups. The goal of the workshop will be to review progress made during the course of Year 2 on the three main components of the project and to elicit feedback and guidance from stakeholders on the priority activities and actions envisioned for the following year (Year 3). The University of Rwanda will host and provide leadership to the end-of-year workshop, with the support and facilitation from GKI. Stakeholders will include private sector, public sector, farmer organizations and other actors in the coffee value chain.

Communication and outreach tools. GKI will organize communication and outreach to government as well as private sector, farmer groups, coffee washing stations, and others. GKI will make efforts to understand patterns of social mass communication—how, when, by what means different types of social messages are heard, understood, and used to best inform action. Communication tools will include informational documents, radio presentations, and other media (as appropriate) on lessons learned and best practices for coffee productivity and reduction of antestia/PTD. It will also include assisting other team members with the production of effective farmer and coffee washing station training/sensitization materials. GKI will specifically support the Rwanda-based implementing partners in drafting radio and SMS messages based on research results to reach a broad audience of coffee growers on priority issues in support of controlling antestia and increasing farmer investment in coffee productivity.

2.3.3. Targeted policy issues for Year 2

The priority policy issues targeted to date surrounded the larger question of how to raise producer-level investment in coffee. Three fundamental aspects to the farmer investments question are: 1) understanding the real cost of coffee production to farmers and how it affects their investment decisions, 2) ensuring that the real cost of production is fully integrated into sector planning and management (including, where feasible, the process for setting coffee cherry prices), and 3) coffee

cherry payments (pre-financing) and the tradeoffs farmers face in choosing to process and market their coffee through semi-washed channels rather than the preferred fully-washed channels. In Year 1 of AGLC considerable initial progress was made on these issues both in terms of the reporting of research findings in special reports and policy briefs and through focused policy roundtable discussions with national level sector leaders.

In Year 2, AGLC will continue to move forward on targeted issues from Year 1 and will also expand into several new areas that have emerged from our applied research and policy engagement activities. The focus of our policy engagement activities in Year 2 will be on: 1) Integrating the cost of production (CoP) data into the new formula for computing cherry floor prices and achieving consensus among stakeholders on other changes necessary to make producers full partners in Rwanda's new coffee economy, 2) the implications of Rwanda's new zoning policy on farmer incentives for coffee production, 3) pricing and premiums schemes for linking coffee pricing to cherry quality, and 4) elevating coffee to the level of other priority crops in Rwanda's Crop Intensification Program (CIP). Each of these Year 2 policy issues is briefly reviewed below.

Farmer investments. Integrating the CoP data into the new formula for computing cherry floor prices and achieving consensus among stakeholders on other changes necessary to make producers full partners in Rwanda's new coffee economy. This will include working with NAEB to model how higher cherry prices will improve farmer investments in coffee, raise productivity, and increase the volume of coffee processed and exported. These estimates will help in setting realistic growth targets and in meeting those targets in the coming years. Similarly, there is a need to model the effects of higher investment on coffee quality, particularly the density of cherry, the share of coffee going through fully-washed channels and higher grades of coffee (and a reduction of triage grade coffee). It is also expected that higher farmer investment in best practices and the application of improved inputs will lower the incidence of antestia/PTD. Research results from the Rwanda agricultural Board (RAB) have demonstrated this effect (Bigirimana 2016), and later in Year 2 research results from the AGLC experimental fields are also expected to corroborate these findings on a broader scale, across all of the major coffee-growing regions in Rwanda.

In Year 2 the team will also focus the policy dialogue on how larger 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. Increased efficiencies will also come with operating at full capacity in washing stations and dry mills. Currently Rwanda's 245 coffee washing stations are operating at only 54 percent, well below their estimated capacity of 104,600 MT/year as reported by NAEB (2016b). We conclude that Rwanda is well prepared to process a significantly higher volume of cherry (46 percent to reach full capacity) without any further investment in washing station infrastructure. The challenge lies more in how to increase the volume of cherry produced, which comes back again to adopting a strategy for steps that will incentivize farmer investment in coffee, particularly among largeholder farmers who currently produce 56% of Rwanda's coffee yet are the least invested of all farmer groups.

Zoning policy. In 2016 the government of Rwanda implemented a zoning policy designed to create more collaborative relationships between farmers and the washing stations that buy their cherry. There

has been concern in recent years that a lack of trust and poor ‘relational contracts’ between cherry buyers and sellers has resulted in a vicious cycle of unwillingness to invest in training and inputs, which leads to low production and in turn low returns for all in the sector. The GOR hopes to achieve an improved relationship by requiring farmers to sell to a specific CWS within specific geographic “zones.” An official description of the zoning policy has not yet been obtained, but several key aspects of the policy seem clear. The concept of assigning each farmer to a nearby washing station was tested in Rulindo district during the 2015 season with results the GOR says were positive. The policy was introduced to the entire sector in March 2016 as an intervention to achieve improved efficiencies and increased coffee quality. This claim is based on recent research extolling the importance of strong relational contracts between farmers and the washing stations that buy their cherry.⁵ It is posited that when this relationship is strong, reciprocal investments, loyalty and higher quality coffee are the result.

To encourage these strong relationships, zones have been defined through negotiation between local government, coffee buyers, and cooperatives. Under the policy, farmers are not allowed to sell their cherry outside of their zones; in fact, the farmers are assigned a specific washing station, usually the one which is nearest to them and within the zone. This washing station is responsible for delivering fertilizer and pesticide to its assigned farmers, and the farmer, in turn, must sell his/her cherry to the washing station. Middlemen, who are described as “taking advantage of farmers,” are not allowed to travel across zones to buy or sell cherry. The restrictions are designed to reassure the washing station that if they invest in training farmers and if they deliver inputs in a timely manner and in proper amounts, there will be a return to those efforts. And the farmers, in turn, are expected to benefit from the increased training and inputs from their buyers, as well as protection from middlemen who supposedly underpay and cheat the farmers. It is also maintained that the zoning will also enable greater coffee traceability, which can improve coffee prices on the international market.

One of the concerns is the degree to which zoning limits competition for cherry. In general, limited competition reduces producer prices due to market distortions when sellers are not able to choose their preferred buyer. With reduced competition for cherry, buyers may be able to pay farmers lower prices, resulting in lower farmer incomes and reduced farmer investment in coffee. Other side-effects, such as lack of customer service, reduced drive to innovate and less attention to quality, are also known to occur in markets where competition is restricted.

Which of these potential scenarios will actually play out as a result of the zoning is unknown at this time as there is no empirical evidence yet available to help evaluate the impact of the policy. In Year 2 AGLC will address this as a priority question, assessing how zoning has initially affected actors across the coffee value chain, and whether it brings unintended side-effects to the industry as a whole. Data will be collected from producers (via the Follow-on survey), industry leaders (via key informant interviews) and from CWS managers other stakeholder groups (via focus group discussions). Based on these initial data the AGLC team will develop a special research report and policy brief focused directly on the zoning policy and will hold a policy roundtable discussion with stakeholders to present results and help to guide

⁵ Macchiavello, R. & A. Morjaria. 2015. *Competition and Relational Contracts: Evidence from Rwanda’s Coffee Mills*. Working Paper.

Rwandan government policymakers on the policy's initial effects, merits, and potential alternatives or modifications that may help it to successfully achieve its goals.

Pricing and premiums schemes for linking coffee pricing to cherry quality.

In Rwanda, stakeholders all the way from the small farmer to exporters and government officials at NAEB will talk about the importance of quality. Especially at the government and exporter level, the fact that Rwanda's competitive advantage is in quality coffee, not large quantities of commodity coffee, seems to be well understood. However, there is very little in the current pricing structure for the vast majority of farmers that reinforces the messages and beliefs in quality. Thus we often hear surprise and consternation about "why don't the farmers use the best practices?" The Baseline data show that in relatively few cases, do farmers not know what the best practices are (basically the same for increased productivity (inputs use, tree maintenance, etc.). The problem is that they simply lack the motivation to use them, especially large-holders lack "incentives for quality."

In year two, the project will seek to gain a better understanding of the current pricing practices that the farmers in the AGLC sample experience, and the impact. For example, we already know from the baseline that just over a quarter of producers are receiving a premium payment (or second payment). In year two, we will drill deeper into the criteria for receiving such premiums, whether they are quality related and what impact it has had. We will also seek to learn more about the main drivers of differences in cherry prices from one farmer to the next, and from one region to the next. This is important to understand given NAEB's strategy to position Rwanda as a producer of some of the highest quality Arabica coffees in the world. The team will also work with NAEB and other stakeholders on the possibility of a "universal system" that can be piloted and possibly implemented to extend two-tier pricing to a larger number of washing stations.

Elevating coffee to "priority crop status." An unavoidable question, in light of recent AGLC findings of exceptionally low coffee productivity and profitability, asks: Why has coffee not received similar attention and public support to crops in the Crop Intensification Program (CIP)? The CIP has provided subsidized inputs, promoted new crop varieties and made massive engineering investments to drain valley marshlands and to construct bench terraces on hillsides. Though costly, the program has succeeded in dramatically improving crop yields, reportedly by as much as six-fold for maize and wheat. Yet coffee has been summarily left out of this program. Coffee is Rwanda's most important source of cash revenues for farmers, revenues that can go a long way toward improving food security and living standards in the country. Coffee holds phenomenal potential in terms of long-term economic sustainability for Rwanda, perhaps more than any other crop. There is a growing worldwide demand for specialty coffees and the potential returns to exporting countries are notable. Rwanda's agroecology is ideally suited to meeting market demand for quality coffees, one of the few crops in the world (similar to tea) that actually improves in quality in a high elevation and mountainous environment. Rwanda's climate and terrain make the country's producers more competitive in specialty coffee world markets, not less competitive as with most other crops. Moreover, coffee is Rwanda's most successful crop at preventing soil loss, a serious environmental threat to the entire agricultural sector. Controlling soil erosion in an effective and economical way has to be a cornerstone of a sustainable future.

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 significant vulnerabilities. AGLC will in Year 2 pursue with public sector leaders, NAEB and MINAGRI, the all-important question of how and whether coffee can become a focal point in their strategic thinking about the long-term sustainability of the country’s agronomic and economic future.

Year 2 summary of policy engagement activities/outcomes				
Activity/Outcome	Quarter Due			
	1	2	3	4
Policy/Stakeholder Engagement Component Activities/Outcomes				
Engage coffee stakeholders on policy issues and data needs assessment	■			
Hold 10-15 key informant interviews w/ gov't & private sector decision makers on targeted policy issues		■		
Hold 10-15 Focus group discussions w/ gov't & private sector decision makers on key policy issues		■		
Prepare 4 policy briefs and associated PPTs				
Policy brief and PPT on farmer investments in coffee			■	
Policy brief and PPT on zoning issues			■	
Policy brief on field-based PTD/antestia control and improved productivity research			■	
Policy brief and PPT on TBD topic		■		
Hold 4 advocacy round tables with coffee sector decision makers (presentation of results, discussion of policy issues and recs)		■	■	
End-of-Year Workshop to present research, capacity building and policy engagement results (UR/GKI will convene)				■

2.4. M&E program Year 2 implementation (Oct 1, 2016 – Sep 30, 2017)

The M&E activities in Year 1 focused on putting systems in place to assess AGLC progress and impact against intermediate outputs and relative to the longer-term goals. The Year 1 baseline household survey provided an early benchmark against which to evaluate progress and impact and was fielded in the second quarter of Year 1. 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 (has two sub-indicators); 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 (has two sub-indicators); 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. Several of these M&E indicators were also added to the USAID AidTracker+ system in Year 1.

In Year 2 these seven core indicators (with two sub-indicators) will be tracked and progress against them reported in the semi-annual reports and in the AidTracker+ system. The “Year 2 Targets” table (see Annex 3) summarizes the indicators and targets for the project. The table highlights (in yellow cells) the indicators and targets that will be reported during the year 2 period. There is a known and unavoidable time delay for the six indicators that must be measured with the Year 2 Follow-on survey to be fielded in December-January. As previously discussed with USAID, the “year 1” values for these indicators will be reported by April 30, 2017; the “year 2” values for these indicators will be reported the following year. Three of the nine total indicators are not dependent on the Follow-on survey and they will be reported according to the normal performance reporting schedule.

As described earlier, AGLC is currently working with Carnegie Mellon University in Kigali, through a short-term consulting contract, to develop a system for using SMS text messaging to communicate with farmers. If this system is successful the project may be able to track progress against certain M&E indicators through SMS. These may include access to pesticides through the CEPAR and the prices received for coffee sales. Percentage of cherry sales in the fully-washed versus semi-washed channels will also be a possible indicator tracked using the pilot SMS system. We expect to have a better sense for how the system will work and its utility for tracking indicators by the end of October, 2016.

Annex 1: Core Questions Guiding Project Activities

1. What are the effects of cherry prices on farmer investments in coffee?
2. What are the effects of premium payments on farmer investments in coffee?
3. What is the true cost of production (CoP) for producers and how can this cost be incorporated into farmer compensation decision making?
4. How can farmer cooperatives be more effective in promoting the adoption of best production and antestia control practices?
5. What are the most effective treatments/practices for controlling antestia/PTD (including efficacy and cost)?
6. How successful is farmer adoption of most effective treatments and practices to reductions in antestia/PTD?
7. What steps can be taken to ensure that women and other disadvantaged groups are given equal opportunity to succeed in the coffee sector?
8. What are the effects of zoning (geographic limitations on cherry sales to CWSs) on farmer incentives, productivity, and production volumes?
9. How can we ensure farmer access to adequate levels of improved inputs (fertilizer & pesticide)
10. What changes/reforms will help to increase the share of cherry going through fully-washed (specialty) channels as opposed to the semi-washed (ordinary coffee) channels?
11. Can a multi-tiered pricing improve coffee quality and volumes?

Annex 3:

Year 2 Targets -- Targets (in yellow cells) will be reported in the Year 2 period: Oct. 1, 2016 – Sep. 30, 2017

AGLC Core Indicator	Indicator definition	Unit of Measure (gender disaggregated when possible)	Data Source	Method of Data Collection	Reporting Frequency	Baseline	Targets				Variable(s)	
							Year 1 (reporting Apr. 2017)	Year 2 (reporting Apr. 2018)	Year 3 (Oct. 2018)			
#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 -applied improved productivity and/or PTD mitigation tech. <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: CofGrossMargNOLAB	
						\$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 FSP 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. See previous reports for detailed explanations.

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