

### Rwanda coffee stakeholder priorities and opportunities to improve farmer investment

Andrew Gerard and Jared Pauli

#### Introduction

This policy brief describes findings on how Rwanda coffee sector stakeholders—from farmer cooperatives, government, exporters, non-profit organizations, and academia—prioritized challenges in the industry between 2015 and 2018, and what they believed could help improve farmer investment. Its purpose is to provide qualitative data that, in combination with other findings from the Africa Great Lakes Coffee Support Program (AGLC), can inform policy and program development in Rwanda's coffee sector. While having quantitative data on trends in productivity, price, and other variables related to coffee is crucial to planning, it is also helpful to know what individuals deeply involved in coffee think and how they view what is needed in the sector.

AGLC was a research project implemented by Michigan State University, University of Rwanda, Institute for Policy Analysis and Research, and the Global Knowledge Initiative in Rwanda which focused on farmer investment and productivity and the antestia bug and potato taste defect (PTD). The program included components on (1) applied policy, household, and agronomic research, (2) capacity building, and (3) policy engagement. This mix of research (surveys, field assays, etc.), capacity building (radio messages, trainings, etc.), and policy engagement (workshops, policy roundtables and dialogues, etc.) entailed substantial engagement with stakeholders to share findings and learn about their concerns and priorities. We collected data on stakeholder priorities at the 2015 AGLC Kickoff, the 2016 Year 1 Closing Workshop, and the 2018 Project Closing Workshop. We conducted surveys to (1) gauge the extent to which AGLC work was responsive to stakeholder interests and (2) see if priorities changed as progress was made.

Through analyzing stakeholder feedback, we find that the potato taste defect (PTD)—and coffee quality more broadly—remained important stakeholder priorities. PTD affects some coffee in Africa's Great Lakes Region, and causes affected coffee to taste like potatoes (Bigirimana, Gerard, Mota-Sanchez, & Gut, 2018). It is associated with perforations to coffee cherries made by coffee pest the

#### Key Findings

- Rwanda coffee stakeholders prioritized top challenges in sector between 2015 and 2018
- They identified changes that took place 2015-2018 and suggested steps needed to boost farmer investment
- Stakeholders ranked improving knowledge of potato taste defect and increasing farmer incomes as some of the most important challenges
- Challenges related to pesticide and fertilizer became less important as progress occurred in distribution and research
- The top change stakeholders observed between 2015-2018 was improvement in farmer extension and service provision
- To increase farmer investment, stakeholders suggested (1) increasing coffee cherry prices; (2) building capacity for farmers/ value chain actors; (3) improving access to inputs/ equipment

antestia bug. Stakeholders also saw improving farmer incomes as a critical priority, a theme of findings from the overall AGLC project (Africa Great Lakes Region Coffee Support Program, 2018).

Priorities related to pesticide and fertilizer became less important to stakeholders between 2015 and 2018, possibly because they had seen improvements in farmer input use. Respondents were mixed in terms of their prioritization of indicators related to Rwanda's zoning policy. Zoning is designed to improve coffee traceability and relationships between coffee washing stations (CWSs) and farmers by requiring CWSs to buy cherry from a "zone" that includes specific farmers (Gerard, Clay, & Lopez, 2017). Of priorities related to zoning, stakeholder thought that coffee traceability was most important.

In terms of steps needed to improve farmer investment—an important focus in a country that has seen stagnating production—stakeholders suggest (1) higher prices for coffee cherry, (2) capacity building for farmers and other coffee value chain actors, and (3) greater access to inputs and



equipment. In the following sections find an overview of data used in this report and a discussion of priorities identified by stakeholders and the actions that stakeholders believe could increase farmer investment.

## Data

Data used in this report was collected at three workshops, in October 2015, August 2016, and June 2018. Most priorities that stakeholders rated in these surveys were developed at the 2015 AGLC Kickoff. During this event, participants brainstormed the most important challenges related to the key AGLC themes of low coffee productivity and antestia/potato taste defect and then voted on these challenges as priorities to take forward. Participants started each challenge with the phrase “how might we” (HMW) as a way to turn problems into opportunities, an approach often used in challenge exploration and solution design (Berger, 2012). They identified a total of 11 challenges.

At the close of the year 1 project calendar, in August 2016, the AGLC team held a workshop to share actions taken by the project and next steps. Workshop participants received a survey based on the challenges identified in 2015, but with four additions. These additions were based on two considerations. First, we included an AGLC priority, “HMW improve farmer incomes,” that had not been identified by participants in 2015. We included this to gauge how this key project goal aligned with stakeholder priorities. Second, we included three priorities that were relevant to the newly developed “zoning” policy, which connected farmers to specific CWSs to improve traceability, limit the activities of middlemen, and improve relationships between farmers and CWSs (Gerard et al., 2017).

Over 30 participants voted on challenges at the Kickoff, 17 individuals filled out the survey in 2016, and 25 filled out the survey in 2018.

## Findings: Rankings of priorities over time

See Table 1 for an overview of top priorities identified in 2015, 2016, and 2018 and how these priorities changed in ranking over time. Priorities that were added in 2016 are italicized. Because four questions were added in 2016, changes in rankings between 2015 and 2016 should be interpreted with caution. This is particularly the case

because there was a three-way tie for top priority in the Kickoff Workshop.

Findings from these priority rankings can be broken up into (1) those priorities that stayed particularly important or less important and (2) those that changed in meaningful ways. In terms of issues that remained priorities, PTD was important across all years of the project. Because of logistical problems, the AGLC project was unable to complete some of its work on this topic. Thus, it would be reasonable for participants to see this as an area that requires additional effort, particularly since PTD still affects some Rwandan coffee. Extension and information dissemination remained low as priorities across years. This is interesting because, as Clay and Bizoza note, many efforts on improving the productivity of the coffee sector have focused on training farmers rather than improving prices (2018).

Stakeholders suggest that improved farmer incomes are key to the health of the sector. Once added in 2016, “HMW improve farmer incomes” was the top priority in 2016 and 2018. Finally, two purposes of zoning (better relationships between farmers and CWSs, reduce involvement of middlemen) were not ranked highly as priorities in either 2016 or 2018.

In terms of issues that changed substantially in prioritization, “HMW understand the most effective pesticide” became less important. More pronounced was the drop for fertilizer, from #5 in 2016 to #14 in 2018. Relevant changes related to inputs include research on the most effective pesticides for controlling pesticide. Bigirimana et al. found that Fastac (10% alpha-cypermethrin) worked better than the previously used Confidor (17.8% imidacloprid) in controlling antestia (2018).

In addition, AGLC research suggests improvements in input distribution by the Coffee Exporters and Processors Association of Rwanda between 2015 and 2017 (Gerard, Clay, Lopez, Bowman, & Rukazambuga, 2018). In a departure from other priorities related to zoning, traceability improved in ranking between 2016 and 2018. This may be because it is a priority of zoning and has also been prioritized by companies like Starbucks Coffee in Rwanda (Starbucks Coffee, 2018).

<b>Table 1: Rankings of challenges over time</b>		
<b>Kickoff (2015)</b>	<b>Year 1 Close (2016)</b>	<b>Project Close (2018)</b>
(1) HMW improve knowledge on how to eliminate PTD?	(1) HMW improve farmer incomes? (not included 2015)	(1) HMW improve farmer incomes? (#1 in 2016)
(1) HMW understand the most effective pesticide?	(2) HMW improve knowledge on how to eliminate PTD? (#1 in 2015)	(2) HMW improve knowledge on how to eliminate PTD? (#2 in 2016)
(1) HMW understand the necessary incentives to decrease PTD?	(3) HMW connect coffee quality to coffee prices? (#10 in 2015)	(3) HMW improve market access for farmers? (#4 in 2016)
(4) HMW make agronomic guidelines available to farmers?	(4) HMW improve market access for farmers? (#5 in 2015)	(4) HMW improve traceability along the coffee value chain? (#8 in 2016)
(5) HMW address risks associated with coffee production?	(5) HMW make enough fertilizer available to all farmers? (#7 in 2015)	(5) HMW make agronomic guidelines available to farmers? (#6 in 2016)
(5) HMW improve market access for farmers?	(6) HMW make agronomic guidelines available to farmers? (#4 in 2015)	(6) HMW understand the most effective pesticide? (#7 in 2016)
(7) HMW encourage full implementation of IPM?	(7) HMW understand the most effective pesticide? (#1 in 2015)	(7) HMW understand the necessary incentives to decrease PTD? (#10 in 2016)
(7) HMW make enough fertilizer available to all farmers?	(8) HMW improve traceability along the coffee value chain? (not included 2015)	(8) HMW connect coffee quality to coffee prices? (#3 in 2016)
(9) HMW improve extension services to coffee farmers?	(8) HMW encourage full implementation of IPM? (#7 in 2015)	(9) HMW reduce the involvement of middlemen in the coffee market? (#12 in 2016)
(10) HMW connect coffee quality to coffee prices?	(10) HMW improve relationships between producers and CWSs? (not included 2015)	(10) HMW encourage full implementation of IPM? (#8 in 2016)
(10) HMW improve the information dissemination system?	(10) HMW understand the necessary incentives to decrease PTD? (#1 in 2015)	(11) HMW address risks associated with coffee production? (#15 in 2016)
	(12) HMW reduce the involvement of middlemen in the coffee market? (not included 2015)	(12) HMW improve the information dissemination system? (#13 in 2016)
	(13) HMW improve the information dissemination system? (#10 in 2015)	(13) HMW improve extension services to coffee farmers? (#13 in 2016)
	(13) HMW improve extension services to coffee farmers? (#9 in 2015)	(14) HMW make enough fertilizer available to all farmers? (#5 in 2016)
	(15) HMW address risks associated with coffee production? (#5 in 2015)	(15) HMW improve relationships between producers and CWSs? (#10 in 2016)

### Findings: Top changes observed in coffee sector

At the AGLC Project Closing Workshop in 2018, we asked participants what changes they had observed (related to rated priorities) over the past three years. We did not ask them to attribute changes to AGLC, however some items they noted are in line with project activities. In Table 2 find changes observed by three or more respondents.

As can be seen in Table 2, the only change observed by four people was that farmer extension and service provision had improved. This is interesting because extension, agronomic guidelines, and sharing information with farmers were ranked as relatively low priorities between 2015 and 2018. Their low rankings may be because there is a perception that these have been conducted effectively. Or it may both be true that farmer

extension/service provision activities are viewed as less important than other priorities *and* that these activities have been undertaken successfully in recent years.

Findings that fertilizer and pesticide distribution has improved support intuition from workshop survey rankings and findings from other studies that show that fertilizer and pesticide distribution improved (Gerard et al., 2018).

<b># respondents noting</b>	<b>Changes observed</b>
Four respondents	Farmer extension/service provision improved
Three respondents	Increased use of fertilizer and pesticide by farmers
	Improved traceability of coffee
	Relationship between farmers and CWSs has improved
	Sharing/ transmitting information along the value chain improved
	Improved knowledge on PTD

In considering the effects of zoning, it is positive that three respondents observed improvements in traceability and relationships between farmers and CWSs. This speaks to the potential success of zoning in meeting some of its goals. Finally, despite its continued importance in the ranking of priorities, it is positive to see that three respondents believed that knowledge on PTD improved.

### **Findings: Top solutions needed to improve farmer investment**

At the Project Closing Workshop in 2018 we asked participants for 1-3 ideas on “how can we better incentivize farmers to invest more in their coffee plantations?” Themes that emerged were cherry price, capacity building, and inputs and equipment.

**Cherry price:** Cherry price was the most noted area for solutions. Ten participants wrote that farmers needed better prices. Five added a similar recommendation, which was a fairer or better regulated price. Some respondents suggested bonuses for high quality coffee or second payments and/or quality segmentation.

**Capacity building:** Seven people suggested improving training on good agricultural practices or otherwise improving extension/ training. Other respondents suggested investing in youth and building cooperative capacity.

**Inputs and equipment:** Five people suggested providing inputs or greater volumes of inputs. Other respondents suggested that providing farmers new, productive breeds of coffee is important and that farmers should learn how to more efficiently use inputs.

Other solutions that do not neatly fall into these three categories include supporting cooperatives, geographic coffee segmentation, improving farmer-buyer relationships, improving contracting approaches, increasing coffee certification, improving access to financing, and reducing the cost of coffee production.

### **Implications of findings**

Data from rankings, changes observed by workshop participants, and top suggestions for solutions paint a relatively coherent picture which agrees with AGLC publications, including findings discussed in the final project report. Cross-cutting themes are summarized below.

**(1) Farmer prices are paramount.** As other publications have suggested, farmer prices are the biggest challenge in Rwanda’s coffee sector and the primary barrier to farmer investment (Clay, Bro, Church, Ortega, & Bizoza, 2018). Farmers need both incentive (cherry price) and capacity to invest (e.g., training, connection to markets, access to inputs, etc.).

**(2) Improvements in input use:** The decreases in ranking of input-related priorities agree with both the idea that research identified an effective pesticide for antestia and with quantitative AGLC findings suggesting that more farmers were accessing distributed fertilizer and pesticide by 2017 (Gerard et al., 2018). This is a positive finding that suggests that the National Agricultural Export Development Board and Coffee Exporters and Processors Association of Rwanda have been effective in expanding input access.

**(3) Potato taste defect, quality improvements, and traceability are areas for action:** PTD remains a problem in the Great Lakes Region and requires continued investment, both in terms of research and pest control. Coffee quality more broadly is also crucial. In the rankings of priorities, connecting quality to price has fluctuated, however, as a solution for farmer investment, some stakeholders suggested bonuses for quality or quality segmentation.

Improving coffee quality relates to priorities around traceability because of (1) the potential for geographic coffee segmentation associated with better traceability and (2) traceability allows for ensuring that bonuses reach individual farmers. This latter issue is important because farmers will produce higher quality coffee when motivated to through financial incentives that are directly tied to their efforts.

## References

- Africa Great Lakes Region Coffee Support Program. (2018). *AGLC Project Final Report*. East Lansing, MI.
- Berger, W. (2012). The Secret Phrase Top Innovators Use. *Harvard Business Review*. Retrieved September 1, 2020, from <https://hbr.org/2012/09/the-secret-phrase-top-innovato>
- Bigirimana, J., Gerard, A., Mota-Sanchez, D., & Gut, L. J. (2018). Options for Managing Antestiopsis thunbergii (Hemiptera: Pentatomidae) and the Relationship of Bug Density to the Occurrence of Potato Taste Defect in Coffee. *Florida Entomologist*, 101(4), 580–586.
- Clay, D. C., & Bizoza, A. R. (2018). *The Challenge to Sustainable Growth in Rwanda's Coffee Sector* (Feed the Future Innovation Lab for Food Security Policy No. 100). East Lansing, MI.
- Clay, D. C., Bro, A. S., Church, R. A., Ortega, D. L., & Bizoza, A. R. (2018). Farmer incentives and value chain governance: Critical elements to sustainable growth in Rwanda's coffee sector. *Journal of Rural Studies*, (June), 0–1. <https://doi.org/10.1016/j.jrurstud.2018.06.007>
- Gerard, A., Clay, D. C., & Lopez, M. C. (2017). *Stakeholder Perceptions on Geographic Zoning in Rwanda's Coffee Sector and Opportunities for Policy Adjustment* (Feed the Future Innovation Lab for Food Security Policy Research Brief No. 42). East Lansing, MI.
- Gerard, A., Clay, D. C., Lopez, M. C., Bowman, K., & Rukazambuga, D. (2018). *Analysis of Distributed Coffee Inputs in Rwanda: Pesticide Access and Fertilizer Volume* (Feed the Future Innovation Lab for Food Security Policy Research Paper No. 112). East Lansing, MI.
- Starbucks Coffee. (2018). Starbucks to pilot 'bean to cup' traceability with new technology. Retrieved from <https://stories.starbucks.com/stories/2018/starbucks-to-pilot-bean-to-cup-traceability/>

*This research was undertaken by the Feed the Future Africa Great Lakes Region Coffee Support Program as an associate award under the Innovation Lab for Food Security Policy, implemented by Michigan State University and partners. The authors gratefully acknowledge support for this research from the United States Agency for International Development (USAID) Bureau of Food Security.*

*The authors wish to acknowledge the contributions of AGLC public and private sector partners. For their assistance in facilitating the Kickoff Workshop and designing surveys, we wish to thank the Global Knowledge Initiative team. For their assistance in reviewing this brief, we wish to thank Dr. Alfred Bizoza at the University of Rwanda; Dr. Dan Clay and Dr. David Ortega at Michigan State University; and Ruth Ann Church at Artisan Coffee Importers.*

*This research is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the Feed the Future initiative. The contents are the responsibility of study authors and do not necessarily reflect the views of USAID or the United States Government*

**Copyright © 2020, Michigan State University. All rights reserved. This material may be reproduced for personal and not-for-profit use without permission from but with acknowledgement to MSU.**

**Published by the Department of Agricultural, Food, and Resource Economics, Michigan State University, Justin S. Morrill Hall of Agriculture, 446 West Circle Dr., Room 202, East Lansing, Michigan 48824**