

**Zanmi Kafe: 5 years of Commitment to Carbon Sequestration, Coffee and Collaboration in  
Haiti Deborah McGrath and Dixon Myers  
Sewanee Haiti Institute September 2018**

## **1. Executive Summary**

In March 2013, The University of the South and the Haitian NGO Zanmi Agrikol (ZA) began a collaborative partnership to reintroduce shade grown coffee agroforestry systems in the upland zone of Bois Jolie in Haiti's Central Plateau. The objective of this partnership has been to help address the environmental root causes of poverty and food insecurity in the region, both of which are exacerbated by long-term trends of deforestation. Farmers in this region want more productive agricultural systems but the production of annual crops on steep slopes through slash-and-burn agriculture has led to a cycle of land clearing, soil erosion and poor yields. Moreover, the high market price of charcoal provides an additional incentive to cut trees as this commodity has more value in the short term than do the long-term benefits of tree cover. This pilot project aimed to overcome the perceived opportunity costs of establishing tree-based agricultural systems (agroforests) that are more economically viable and ecologically sustainable over the long term. Partnering with a Haitian NGO Zanmi Agrikol and 50 farmers in the upland zone of Bois Jolie, we launched a project to establish coffee-based agroforestry systems called "Zanmi Kafe". Our project is founded on two incentivizing mechanisms: (i) payments to farmers for carbon sequestration in newly planted trees and (ii) sustained accompaniment of farmers by ZA staff and Sewanee students and faculty throughout the 5- year pilot phase. In addition, we built and continue to maintain a nursery that provides coffee and some multi-purpose trees to households.

Payments for carbon sequestration, ranging from \$30 to \$140 per household per year, depending upon tree planting and survival, have augmented farmer incomes for the first four years of agroforest establishment and a survey was recently undertaken to determine the impact of these payments on families. There has been a marked increase in planting and maintenance of multipurpose shade trees, especially over the last two years. As of March 2018, the 50 ZK households in Bois Jolie have planted and maintained over 5,500 canopy trees and 3,200 coffee trees representing three varieties are growing well. We view this as evidence that farmers responded enthusiastically to both the carbon payments and our sustained partnership. In addition, a year ahead of schedule, about a dozen Zanmi Kafe farmers have begun harvesting coffee. Not surprisingly, this first harvest is small, however, it provides both encouragement to farmers and the impetus work out the details for harvesting, processing and selling coffee. The Haitian NGO Kok Ki Chant and its American counterpart, Singing Rooster (SR) coffee roasters have pledged both to purchase Zanmi Kafe's coffee and provide some technical consultation to help raise coffee productivity. Closer to home, the Babson Center for Global Commerce has outlined a model for economic sustainability provided based upon production targets. In addition, Sewanee Dining Services has agreed to purchase Singing Rooster coffee for the campus dining hall and coffee house. The Outreach Office has launched a campaign to sell Singing Rooster coffee in support of the NGO and to raise funds for Zanmi Kafe. As part of Sewanee's commitment to sustainability and environmental stewardship, the institution has objectives of carbon neutrality and serving conscientiously produced food. Carbon sequestration through tree planting by Haitian farmers represents an important contribution to that goal. Sourcing

Sewanee's coffee from organic carbon-sequestering agroforests that provide income to rural Haitian households provides a clear commitment to the three principles of sustainability "people, profits and planet".

From Sewanee's perspective, the Zanmi Kafe agro-reforestation initiative provides numerous other benefits, including cross-cultural environmental problem solving educational opportunities and collaborative research experience for both Haitian and Sewanee students. Since 2015, over 70 Sewanee spring-break outreach students have teamed up with 40 Haitian agronomy students from the vocational school CFFL to conduct comprehensive monitoring of the growth, health and survival of trees planted on the 50 distantly-located ZK farms. Since 2013, three to five students per year return for 6- to 8-week internships in the summer where they work with ZK staff to conduct various agro-ecological research projects aimed at providing farmers and ZA with information that can help improve agroforestry management. Research is, in large part, student-driven, with many students returning for a second summer of research and/or as leaders of the next trip. In fact, several students have committed themselves throughout their entire four years to strengthening our efforts in Haiti. We have supported three post baccalaureate fellows who deepen their experience and knowledge during a semester doing research and program support with Malde or McGrath. One fellow subsequently earned a PhD in Ecosystems Services and is now an Assistant Professor of Earth and Environmental Systems at Sewanee, and another, who graduated with a major in Economics, is about to depart for the Peace Corps, in part, to explore further issues of food security.

None of the Sewanee students who have worked alongside farmers and CFFL students in Haiti return to the U.S. the same. They return more acutely aware of the extreme complexity of poverty, environmental degradation and the inherent contradictions in different models of "development." As the project has developed, students have been able to contribute to an endeavor bigger than themselves, a program that is steadily demonstrating benefits for our Haitian collaborators and helping students on campus connect their actions to the welfare to of the wider world. These are lessons that students carry with them, and regardless of what path they pursue after graduation, we continue to see compelling evidence that they recognize and honor our common humanity with those living in very different contexts and use their privilege to contribute respectfully, thoughtfully and effectively to the betterment of our common future.

## **2. Summary of Zanmi Kafe Programs**

### **Spring break outreach trips**

This is the Office of Community Engagement's 15th year traveling to various locations Haiti. Since 2015, 18-24 students, staff and faculty spend their ten-day academic Spring Break in the Central Plateau region, working with ZK staff and students at the Centre de Formation Fritz Lafontant (CFFL) vocational school. The trip provides leadership development for two to three Sewanee students each year. A requirement for student leaders is previous involvement in HIS programs (ZK or Zanmi Foto ZF) and those interested must apply for the position and undergo the interview process. The student leaders then assist in the selection of 16 student participants by reviewing their applications and participating in the interview process. Applications are selected based upon the following criteria:

- Community Engagement experience at Sewanee (or at high school, for first year students)

- Scientific and policy interest in agricultural development
- Concern for poverty alleviation
- Vocational and spiritual motivations
- Regional interest as related to their vocational and academic interest
- Interest in environmental sustainability practices, especially in the developing world

In preparation for the trip, the group meets weekly ten weeks prior to departure. The meetings are developed and executed by our student leaders. In broad strokes the meetings introduce geography, demographics, history and culture in addition to pinpointing the expectations of the trip, introducing community partners, professional expectations, fundraising, the complexities of short term engagement internationally, and issues surrounding ethnocentrism.

The spring break trip in Haiti includes a 4-day stay in Bois Jolie to learn about Zanmi Kafe and working in teams monitor the growth, survival and health of the agroforestry systems (Figs Figure 1a,b,c Appendix I). This work is particularly important for the project because without the human force represented by the 30 Sewanee and Haitian students, monitoring the progress of each of the 50 farms would be very challenging. Hiking several hours every day, the students visit farms in teams comprised of students and ZK staff and the overnight stays in the local school provide opportunities for interaction between Sewanee and CFFL students and Bois Jolie families. Students become intimately familiar with the context in which the families live. In addition, they get to know Haitian students their own age and collect data that is critical for both the calculation of carbon payments, as well as for assessing program success. Students also engage in other cultural experiences, visiting other locations, such as Port-au-Prince and/or Cape Haitian.

The technical component of this trip is only one part of our students' experience. Exposure to the complexity of Haitian culture and the level of material poverty places them outside of their intellectual and personal comfort zones. This creates space for individual growth that eventually surfaces verbally during reflection periods and one-on-one conversations. The groups often consist of members who had never been in an outdoor and/or camp setting or who have never been outside the U.S. There are many who have traveled extensively but have never visited a developing country. The physical demands of the trip are intense with back-to-back mountain hikes of seven hours round-trip. This helps students experience what Haitians endure on a daily basis. Despite a setting that is challenging to most participants, it is the students' physicality, perseverance, interests in field science, cultural curiosity, and most often, their desire to make a difference that motivates them. Upon their return, students continue to meet with Myers, on a voluntary basis, to further reflect upon this transformational experience and to stay connected to the close friends they made during the trip. Since 2015, nearly 70 Sewanee students have worked on the Zanmi Kafe project as part of their spring break, some of whom have continued as summer research interns and/or post bac fellows (Appendices 2 and 3).

### **School of Theology Fellows**

Since 2016, a School of Theology (SOT) seminarian fellow has participated in the outreach trips. Launched by Elizabeth Emblar (now a SOT graduate and practicing priest), senior Mark Nabors from the Diocese of Arkansas continued in the program in 2017 and 2018. As president of the student body, Mark addressed the Sewanee community at the opening of the school year

ceremony with Vice-Chancellor McCardell and the presidents of the Order of the Gown and Student Assembly, with these remarks:

This year we hope to strengthen the bonds between the seminary and the College as we prepare to move to our historical home on central campus. Our students already participate in a wide array of programs across campus, and we seek to learn together with our fellow students. During my own time here, I have been privileged to travel to Haiti twice with accomplished students under the leadership of Dr. Deborah McGrath and Dixon Myers. We work with a group of Haitian farmers, agronomy interns, and interpreters in Bois Joli, an isolated and exceptionally poor region in Central Haiti. This is a longstanding and sustainable collaborative effort between Sewanee and Haitian partners that is making a significant and measurable difference in Haiti. It has also made a significant difference in my life. My fellow students and our Haitian partners have taught me how to be a better global citizen and a more faithful steward of creation.

Mark shared these additional words with Deborah and Dixon.

The Sommer fellowship represents a unique opportunity for seminarians to engage with their own studies in a new way and with undergraduate students. First, I have been able to engage my own studies in a deeper way through my experiences with the church in Haiti and in conversations with individual parishioners in Bois Jolie. The School of Theology pushes students to consider theology from the perspective of ignored or overlooked voices. Understanding their experience of God and the world is important to understanding a God who chose to become incarnate in the person of Jesus Christ of Nazareth, himself a poor man living under Roman occupation and executed by the state as a criminal.

I also had the chance to get to know the talented undergraduate students with whom I worked. In effect, I was able to operate as a de facto chaplain. I made a point to have conversations with each student individually about our experiences in Haiti, their time at Sewanee, and their hopes for the future. I was also able to be a translator, of sorts, of our experiences of the church in Haiti. We attend Episcopal congregations, so the liturgy may seem somewhat familiar for Episcopal students. However, the context is different enough that the experience can be disorienting and even energizing. Finally, some of our experiences can be particularly difficult. For example, my first year we visited a Partners in Health hospital in Mirebalais. Some of our students reacted rather negatively to our tour. Because of various skills I have, many of which I learned while working in Clinical Pastoral Education in a healthcare setting, I was able to help us work through our strong emotions and reflect more deeply on the cause of those emotions.

Mark's presence also brought a shared confidence among the students in a liberal arts education and its value in these settings. His fluency in French and grasp of conversational Kreole were key, when asked to preach in Bois Jolie. These moments enhance the deep fabric of our reciprocal relationship in this village. His theological education, public administration degree and language skills were all very visible and inspiring among our students. While the fellowship did not evolve into a SOT program fully integrated within HIS, we believe that the participation of SOT Sommer fellows Elizabeth Embler and Mark Nabors enriched and infused the experience of students in ways that neither of us as faculty and staff can emulate.

### **Summer Research Trips**

This section represents a short summary of the summer research experiences, as they have been reported more thoroughly elsewhere. Supporting data can be found in Appendix I. 2013 – Interns: Linea Carver, Elizabeth Sega, Ford Rushton. After helping launch Zanmi Kafe in March 2013, Carver, Sega and Rushton continue to take baseline socioeconomic surveys in Bois Jolie.

**2013** – Interns Linea Carver, Ford Rushton and Elizabeth Sega conduct complete 48 baseline socio-economic surveys of Zanmi Kafe households, after participating in the program launch with the nursery construction during spring break 2013.

**2014** – Interns Geanina Fripp, Duncan Pearce and Scott Summers conducted pilot ecological studies, including one on biodiversity indicators (birds, beetles, ants). Elizabeth Sega led the group and continued outreach to ZK farmers.

**2015** - Interns Peter Davis, Ben McKenzie begin pilot studies on photosynthesis in coffee seedlings at different light levels. Scott Summers continued the ant diversity study, receiving assistance by Harvard's ant scholar (and post-doc to E.O. Wilson) Dr. David Lubertazzi.

**2016** – Interns Duncan Pearce, Peter Davis, Ben McKenzie, Chris Hornsby conducted a comprehensive ecological comparison of coffee farm environments among the zones of Bois Jolie, Morne Michel and Beledere at the coffee cooperative and state research station. The team quantified existing carbon stocks in Morne Michel, sampled and conducted nutrient analyses of soils and forest floor in all three locations, measured canopy cover and elevation. A comparison of these variables helped us better understand why coffee seems to grow better in Morne Michel, where farms are located at higher elevations and contain significantly more canopy cover due to existing older trees. Pearce conducted a household health survey in Bois Jolie and Morne Michel, the results of which were presented at an Environmental Health conference in Washington D.C. and as his Senior Honors Thesis in Biology.

**2017** – Interns Kate Perry, Evans Owsley, Virginia Klements provide crucial assistance to Zanmi Agrikol for their Family Security Program assessment and presented the results to the Kellogg Foundation. Bre Ayala and Cal Oakley conduct a household medicinal plant survey and initiate a herbarium to serve as teaching tool for CFFL students. Cal Oakley continued bird survey work started in 2014 and developed an English-Creole identification guide “Guide to Birds of Bois Jolie and Morne Michel.” Summer interns Cal Oakley and Bre Ayala present the medicinal plant herbarium samples to the ZK team (July 2017 photo by D.



Birds of Bois Jolie and Morne Michel.”  
 Summer interns Cal Oakley and Bre Ayala present the medicinal plant herbarium samples to the ZK team (July 2017 photo by D.



ZK staff receive Cal Oakley's bird poster and guides May 2018.



**CFFL agronomy students receive certificates from Sewanee for completing the 2017 Spring Break monitoring project.**

**2018** – Interns: Chris Hornsby, Connor Stack, Nhu “Crystal” Ngo, Bernice Leveque, Megan Wade. Stack and Wade conducted a comprehensive survey of trees producing coffee in both Bois Jolie and Morne Michel to estimate the coffee harvest for Singing Rooster (Fig 2 Appendix I). Ngo and Leveque interviewed 40 farmers about the impact of the carbon payments on their household and decisions to plant trees. Hornsby launched farmer-to-farmer workshops, secured manure donations for Zamni Kafe farmers and directed experimental plantings of Chokougou (Maya nut), an alternative perennial crop.



Figure 3. 2018 summer research team (clockwise from top left): Chris Hornsby, Connor Stack, Jean Francique, Jaques Louis-Jean, Megan Wade, Ephesien Noel, Thoni, Maxo Noel, Montclair, Bernice Leveque, Ngo “Crystal” Nhu, Pradip Malde, Wupuy Bosquet, Lucy Wimmer and Deborah McGrath.

### 3. Moving Forward

Our four years of farm surveys have demonstrated great success in incentivizing the planting and maintenance of canopy trees, in addition to coffee. We have also learned a great deal about what does and does not work in the Central Plateau environment and have also begun planning for greater economic independence for ZK farmers in the not-to-distant future.

Our goals for the next four years can be summarized as (i) continue efforts to farm productivity and expand ZK’s reach to other communities (ii) support farmers by developing networks for their products and (iii) working towards economic independence.

#### **Raise Farm Productivity Through New Crops and Cultural Practices**

Our research has demonstrated that land holdings in Bois Jolie and Morne Michel vary tremendously in elevation, slope, soil chemistry and depth, litter layer and tree cover, as do economic indicators, all of which suggests that different tree crops and agroforestry tools are needed to meet different conditions on each farm. We have also seen that farmers do plant and maintain canopy trees when provided with incentives. We continue to evaluate our efforts through careful and sustained monitoring, using the results iteratively to adapt our approach and share our experiences with the wider world in presentations, publications and social media.



Based upon our experiences and the results of our research, we propose the following as our goals for the next four to five years:

- **Boost coffee production** through more intensive cultural practices on farms where the crop is going well, as indicated by our summer 2018 survey. This would include annual applications of manure on Bois Jolie farms, canopy and coffee tree pruning
- **Restoration of older coffee trees in Morne Michel** through prunings of coffee and canopy trees, fertilization with manure and monitoring and control of pests.
- **Seek out and plant alternative tree crops**, such as cacao, moringa and chocogou on farms where coffee has not proven successful.
- **Expand the economically important trees** species available to farmers, as well as seek income-generating tree crops that do better in poorer soils conditions and at lower elevations.
- **Explore charcoal plantations** in which cut trees are replaced with seedlings so that farmers can sustainably participate in that market. Some species grow back after coppicing thereby negating the need to replant seedlings.
- **Continue supporting farmer-to-farmer workshops** in which data from on-farm research are presented and those producers demonstrating greater success share best practices with members of their community.
- **Encourage intensive monitoring and on-farm** research and accompaniment to other zones and in other projects, such as ZA's Family Security Program (FSP).
- **Develop and organize a course(s) at CFFL** for trainers to provide the technical skills necessary to continue high quality monitoring and on-farm research and support CFFL's efforts to create an additional year for licensure
- **Train and hire CFFL students** and ZK staff to conduct and analyze surveys and research on their own so that the projects eventually be transferred fully into Haitian hands
- **Help ZA envision and plan for a Center of Excellence in Agro-forestry** and On-Farm research in Haiti
- **Seek out and build partnerships** with other institutions and entities in Haiti and elsewhere



Figure 3. 2018 summer research team (clockwise from top left): Chris Hornsby, Connor Stack, Jean Francique, Jaques Louis-Jean, Megan Wade, Ephesien Noel, Thoni, Maxo Noel, Montclair, Bernice Leveque, Ngo “Crystal” Nhu, Pradip Malde, Wupuy Bosquet, Lucy Wimmer and Deborah McGrath.

### **Support Our Farmers by Building Networks and Supporting Markets**

In May, 2018 a group met at the Summit Education headquarters near Corporant, Haiti to discuss the process by which Zamni Kafe’ farmers can begin selling their next crop of coffee cherries to the Singing Rooster Coffee Company (SR) in Port-Au-Prince, Haiti, <https://singingrooster.org>. We discussed details concerning production, logistics, different varieties, demand and supply, as well as sharing the challenges and rewards of the work. There was a good vibe brewed amongst the newly formed friends. Sewanee’s campus will begin supplying SR coffee in its dining hall and coffee shop soon.



Stirling's is proud to support:

## Haitian Fair-Trade Coffee

### DID YOU KNOW:

- Haiti Spring Break Outreach Trip participants & summer student and faculty researchers partner with Zanmi Kafe farmers
- Singing Rooster buys coffee beans produced by Sewanee's Haitian farmer partnership: Zanmi Kafe
- A "Green Fee" is paid by students, and supports carbon sequestration on Zanmi Kafe farms



Online Purchasing  
Delivered Fresh

[www.singingrooster.org](http://www.singingrooster.org)



**SINGING Rooster**

Promotional material created for the marketing campaign for Singing Rooster coffee aimed at increasing sales, raising funds for ZK and heightening awareness about the work in Haiti and the connections between how we live our lives and the wellbeing of others.

**In addition, the Outreach office has launched a campaign to sell Singing Rooster coffee on campus.**

There are multiple marketing strategies that can be pursued. The coffee can be purchased at wholesale prices for the purpose of creating campus wide fundraising events and Sewanee can assist in informing a wide group Sewanee constituencies about the product. This provides marketing experiences for students to highlight Singing Rooster Coffee on social media and create a statement about why this brand is important, who is benefiting from the sales, what is the Sewanee connection and what is the company's business model. Possible target markets include the Episcopal dioceses and parishes, alumni of the university, small independent coffee shops within a commutable radius of the university, students and families of students at the university, staff and faculty of the university. The goal is to raise \$1000 annually to support Zanmi Kafe-related activities and to help Singing Rooster increase its market so it can continue purchasing Haitian coffee at fair trade prices. This is just one example of how Sewanee aims help ZA build networks and markets for farmers' products.

## **Work Towards Greater Economic Independence**

Over the last year, our partner institution, Zanmi Agrikol (under which Zanmi Kafe is housed) underwent a restructuring to improve economic sustainability. Historically, NGOs in Haiti have difficulty withdrawing and leaving programs in the hands of Haitians. ZA is committed to planning for the transition to Haitian leadership and management of Zanmi Agrikol and its associated programs. A master plan, supported by the Kellogg Foundation, now aims to have all projects undertaken by Zanmi Agrikol integrate an entrepreneurial component that helps provide some support for ZA's overhead costs (such as staff salaries, transport, equipment purchase and maintenance, etc). This is an essential departure from the current model of perpetual control by outside NGOs. In our case, while farmers will earn a fair-trade price for their harvested coffee, Zanmi Agrikol will receive a percentage of coffee sales to Singing Rooster to help support Zanmi Kafe activities in the future. Therefore, anything we can do to increase productivity of coffee and other tree cash crops will help Zanmi Kafe become more self-sustaining in the future. Collaboration with David Shipps at the Babson Center has yielded a model that helps predict how variables such as farmers added to the program, coffee yields, and price versus inputs produce various scenarios of economic return over different time frames. This tool will greatly assist us moving forward and can be adjusted to consider other perennial crops.

This brings us to our final point. Over the past four years, we have seen the necessity of contributing an increasingly larger share of our funds to support the costs and activities of ZK in Haiti (such as agronomist stipends, nursery maintenance, farmer trainings, etc). Our students derive the greatest lessons and benefits by participating in a program that may face challenges, but overall is successful and moving forward. As our budget summary indicates, we have allocated a larger share to Zanmi Kafe because we believe this investment over the next four years is crucial to reaching the goals outlined earlier, all aimed improving incomes and livelihoods of farmers and achieving economic independence for the Haitian NGO Zanmi Agrikol. We believe that witnessing and contributing to this success has fostered within students a drive to continue recognizing their connection to the larger world and realizing their responsibility to participate in its betterment.

We are enormously grateful for the material and moral support provided by the Sommer family, and other contributors. This support enabled us to accompany Zanmi Kafe farmers and staff thoughtfully and carefully, with enough resources to make a difference, as we hope this report demonstrates, but with a goal of not creating dependence, but rather working towards economic independence. The effectiveness of our program in nurturing Sewanee students to be kind, concerned and productive citizens that make making positive change a part of their life's journey is exemplified in the lives of those who have already stepped out into the world.

**Haiti Budget (average per year)**

**Income**

Donor gift	\$30,412.00
Fundraising	\$2,500.00
Other gifts	\$2,749.00
Green Fee	\$6,058.00

**Total** \$41,719.00

**Expenses**

Outreach Trip scholarship funds	\$14,475.00
Zanmi Agrikol & Zanmi Kafe' support	\$11,672.00
Intern support (travel & lodging)	\$7,203.00
Faculty/ Staff travel	\$3,837.00
Research materials	\$2,571.00
Post-baccalaureate fellows	\$1,455.00

**Total** \$41,213.00

## Appendix I. Summary of Data from Summer Research Program

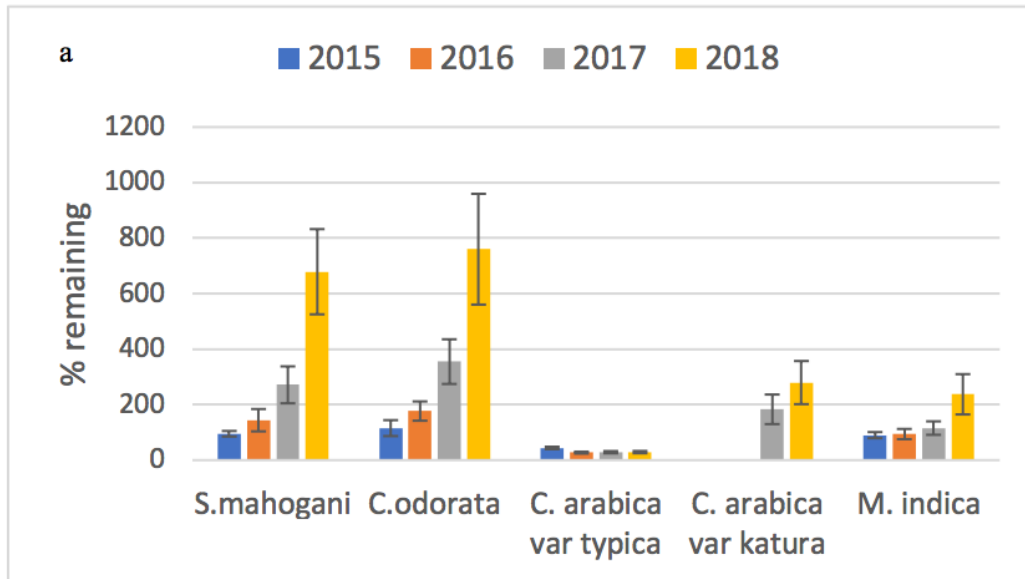


Figure 1a. Survival and additional plantings of trees over the last four years. Percentages over 100% indicate trees acquired and planted by farmers after the original distribution of Zanmi Kafe nursery seedlings from the Bois Jolie Nursery in 2013. Surveys conducted by Sewanee and Haitian students and ZK staff in mid- March 2015-2018.

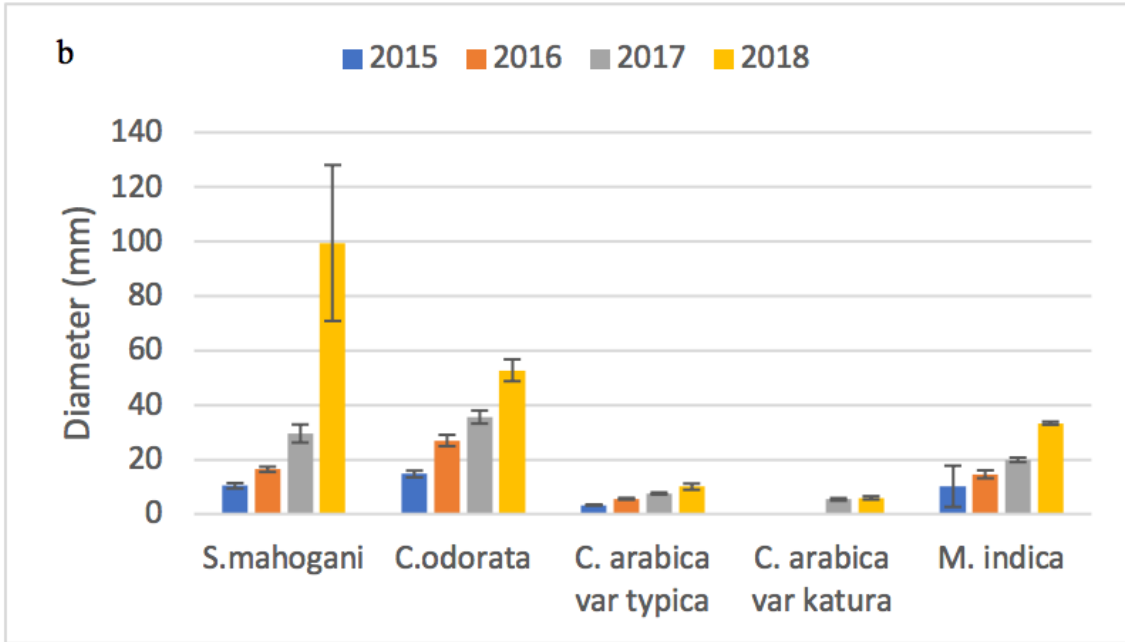


Figure 1b and c. Figure 2. Diameter and height growth of three overstory species and two coffee varieties originally planted in 2014 from nursery stock grown in Bois Jolie, Central Department, Haiti.

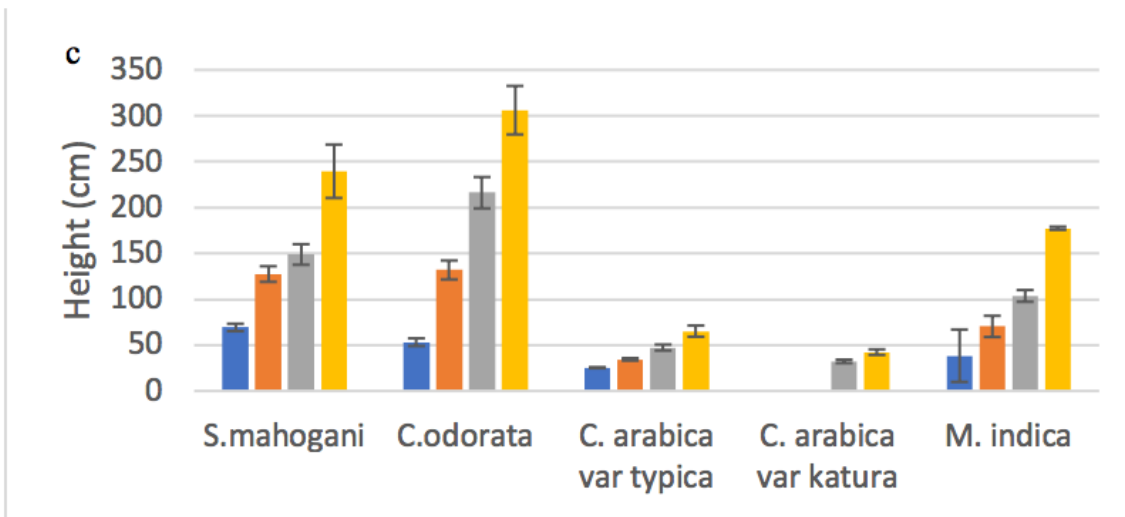


Table 1. A comparison of farm characteristics in 3 regions in Haiti's Central Plateau (n=farms sampled). Data collected in June 2016).

	<b>Bois Jolie n=15</b>	<b>Morne Michel n=15</b>	<b>Baptiste n=3</b>	<b>ANOVA P- Values</b>
Elevation	653 ± 11	757 ± 13	988 ± 117	0.0003
Canopy openness %	30 ± 4	18 ± 4	5 ± 2	0.02
Soil pH	7.2 ± 0.04	7.3 ± 0.1	6.8 ± 0.3	0.01
Ca (mg/ka)	9754 ± 598	8954 ± 1381	3724 ± 904	0.02
P (mg/kg)	20 ± 3	60 ± 18	25 ± 5	0.001
% OM	13 ± 1	16 ± 2	18 ± 1	0.03
Forest floor Mg/ha	3.8 ± 0.5	4.4 ± 0.8	6.7 ± 0.8	0.21
Forest floor N%	1.3 ± 0.05	1.7 ± 0.07	2.1 ± 0.06	0.0001
Forest floor P%	0.08 ± 0.01	0.12 ± 0.01	0.09 ± 0.01	0.005
Ant species richness	11 ± 1	9 ± 1	9 ± 1	0.18

Table 2. Total number of old and new coffee trees and harvest estimates across the number of farms surveyed in Morne Michel and Bois Jolie (Data collected March-June 2018).

Zone	Total No farms surveyed	Total number young (≤5 yrs) coffee trees	Total number older (>10 yrs) coffee trees	Total number branches with cherries (old+new)	Total number "ti boket" with cherries
Morne Michel	58	1,245	835	5,217	218 (n=40)
Bois Jolie	45	3,372	Not surveyed*	869	Not surveyed

Table 3. Coffee trees in Morne Michel and Bois Jolie. Data were March-June 2018 and represent means ± one std error. New coffee trees are ≤ 5 years since planting.

Zone	Number farms surveyed (n)	Average elevation (masl)	Average number coffee trees per farm	Average height of new coffee trees (cm)	Average survival of new coffee trees (%)
Morne Michel	58	762 ± 9	25 ± 25	43 ± 4	32 ± 3
Bois Jolie	45	653 ± 11	72 ± 13	65 ± 6	29 ± 4



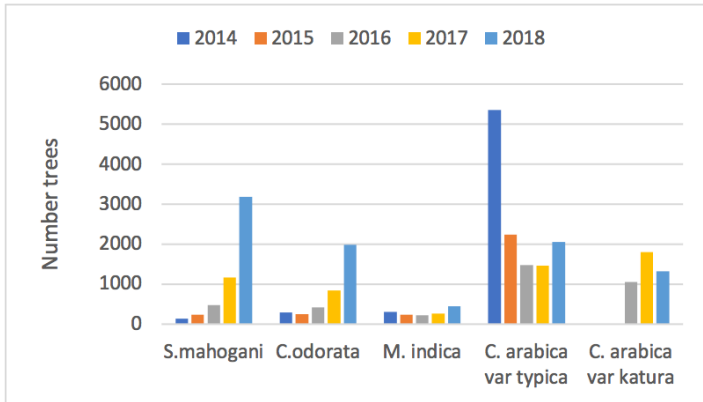


Figure 2. The total number of living trees, by species (akajou, ced, mango, kafe typica, kafe katura), counted over time on Bois Jolie farms for which Zanmi Kafe farmers received carbon payments.



Figure 3. Ti boket represents the farmers' unit of estimate for coffee cherries in Morne Michel. Photo taken by Chris Hornsby in 2018.





The first harvest of coffee cherries in Bois Jolis began in late August 2018, one year ahead of schedule. The coffee was processed using depulping machines purchased with Zanmi Kafe funds. One of our goals is to help Singing Rooster market their coffee within the constituencies of Sewanee, including alumni, church affiliates and student families. We want to create a strong relationship with SR that will in turn give us an additional partnership in Haiti to further the production of Zanmi Kafe and Zanmi Agrikol's farmer co-operatives.

### **Appendix III. Examples of Student Alumni**

Students who have participated in the Spring Break program have recorded their reflections and we have forwarded those in previous years. We thought a list of some of the alumni of the program and their updated information would be helpful:

*Emily Heid-* Vista volunteer at the University of the South working as the Specialty Crop Economic Development Coordinator at the University Farm.

*Kate Perry-* She was a valuable leader who communicated with the undergraduates about pursuing their vocational paths. She worked as a post bac fellow with McGrath to analyze data and has recently been accepted to the Peace Corps to pursue agroforestry.

*Peter Davis-* Serves as a Peace Corps Volunteer in Ethiopia, working with coffee farmers.

*Duncan Pearce-* Is in medical school at the University of Louisiana Shreveport (worked in Haiti all four years while at Sewanee).

*Brook Irvin-* Is pursuing a doctorate degree in Caribbean Studies. *Mary Ottley-* Is pursuing a masters degree in Public Health after serving for two years in the Peace Corps in Guatemala.

*Mark Nabors-* Is a senior seminarian and the president of the Student Body at the Sewanee School of Theology. He recently addressed the university opening community gathering with Vice-Chancellor John McCardell, the president of the Student Government and the president of the Order of the Gown. His remarks included how important his experience in Haiti has been in his theological education.

*Emily Badgett-* She is a senior in the college and is beginning the process in her diocese to attend seminary in the Episcopal Church.

*Ben McKenzie-* Pursuing a graduate degree in epidemiology of mosquito-borne diseases in Madagascar and Alabama

*Keri Bryan Watson* – earned a PhD in Ecosystem Services and is now an Assistant Professor of Environmental Studies in the Department of Earth and Environmental Systems at Sewanee

*Chris Hornsby-* Religious Studies and Environmental Humanities major (worked both at the University farm and in Haiti for the past 3 years). We have seen him develop in to an exceptional leader who has helped his fellow students understand the importance of what they are doing,

equating the science with the humanity of the farmers we serve, and offered empathy and enthusiasm to our students who struggle through the physicality of the experience.

*Linnea Carver* – After 2 years as a Peace Corps volunteer in Namibia, Linea is pursuing dual Masters degrees in Public Policy and Administration and Sustainability at the University of Michigan’s School for the Environment and Sustainability. During the summers, she has had internships working for the Breast Cancer Initiative in Africa (based in Rwanda) and Detroit Black Community Food Security Network.

#### **Appendix IV. Sewanee Haiti Institute Collaborators**

##### **University of the South & Sewanee partnerships**

Office of Civic Engagement

Office of Global Citizenship

Department of Biology Department of Art, Art History & Visual Studies

Office of Environmental Stewardship and Sustainability (Green Fee, University Farm)

Babson Center for Global Commerce

University of the South Seminary

University Dining Services (Stirlings Coffee House)

Monteagle- Sewanee Rotary Club

##### **Haitian partners**

Zanmi Agrikol

Zanmi Lasante

Partners in Health- Boston

Summit Education-Haiti

Episcopal Church in Haiti

Singing Rooster Coffee Co.



2017 Spring break team comprised of Zanmi Kafe staff and CFFL students as well as Sewanee students, faculty and staff.