

ETHIOPIA

One Acre Fund Due Diligence Trip Report – Bahir Dar, Ethiopia (Amhara state)

Dates: 12/12 to 12/14/22

Trip Schedule / Agenda:

Day	Location	Activity	Content	Timing	
		Hotel pick up	<ul style="list-style-type: none"> 1AF to pick up FP team, bring to office 	8:30am - 9:00am	
Day 1 12.12	Bahir Dar	Background on One Acre Fund in Ethiopia, and Agroforestry Program Overview (Gabrielle Savalle, Deputy Country Director)	<ul style="list-style-type: none"> Brief overview of 1AF program history and trajectory in Ethiopia Overview of the Ethiopia Tree Program: scale, staffing, tree mix, sales vs subsidy model etc. Existing challenges (seed quality and availability, tree survival, ; discussion of Tigray conflict) 	9:00am - 10:00 am	
		Session on Government Relations (Getinet Nega, (Partnerships Associate))	<ul style="list-style-type: none"> Roles / responsibilities of 1AF and govt in extension relationship; how 1AF leverages the govt extension network Overview of Nursery Extension Program Progress towards joint goals – efficiency, scaling, diversification Economics / subsidy model currently in place Role of govt agents in advancing 1AF priorities, related compensation Challenges / constraints related to the partnership Importance of the tree program in Ethiopia for the farmer and for reforestation; overview of the government's view of the program. Nature of relationship with govt outside the trees program 	10:00am - 11:00am	
		Session Decentralized Tree Model (Gabrielle Savalle, Deputy Country Director; Awoke Assaye, Senior Agroforestry Field Coordinator)	<ul style="list-style-type: none"> History of decentralized nursery model Structure of current model How entrepreneurs are identified Economics and risks to entrepreneurs and 1AF (costs, subsidies, etc.) Future evolution 	11:00am - 12:00pm	
	Lunch Travel from Bahir Dar to Wogelsa Trial Nursery				12:00pm - 1:00pm
			Session on Innovations (Misganaw Cherie, (Innovations Specialist))	<ul style="list-style-type: none"> Visit the Wegelsa Trial Nursery Q&A with Misganaw <ul style="list-style-type: none"> Key trials for this season 	1:00pm - 3:30pm
			1AF Warehouse Site Visit	<ul style="list-style-type: none"> Visit the warehouse Q&A with Selamawit Gudeta (Procurement & Operations Specialist). Topics: <ul style="list-style-type: none"> Actions taken to improve the efficiency of our delivery model Actions taken to improve our input quality (especially seeds) Visit the cold storage room in the 1AF office <ul style="list-style-type: none"> Discuss the grevillea purification project with saron and Nathan 	3:30pm - 4:30pm

		Down time	<ul style="list-style-type: none"> Time to answer email, etc 	4:30pm – 6:00pm
		Dinner with Leadership (Matt Sabin, Global Impact Ventures & New Country Expansion Senior Director; Gabrielle Savalle, Deputy Country Director)	<ul style="list-style-type: none"> Discuss FP team’s impressions of the visit so far 	6:00pm
		Hotel Pickup	<ul style="list-style-type: none"> 1AF to pick up FP team 	8:30am
Day 2 12.13		Farmer Field Visits (Gabrielle Savalle, Deputy Country Director; Awoke Assaye, Senior Agroforestry Field Coordinator)	<ul style="list-style-type: none"> Visit farmers who planted 1AF trees Meet several types of farmers: <ul style="list-style-type: none"> Farmers who have planted trees for many years (larger trees) and new tree-planting farmers (smaller trees) Farmers that use intercropping and farmers that plant on the perimeter Farmers who planted on their own fruit trees <p><i>Visit in Motta cluster</i></p>	8:30am - 2:00pm
		Nursery Field Visits (Decentralized and Traditional) (Gabrielle Savalle, Deputy Country Director; Awoke Assaye, Senior Agroforestry Field Coordinator)	<ul style="list-style-type: none"> Visit the nurseries and understand the traditional (private nursery) vs. decentralized model <ul style="list-style-type: none"> Run by a longstanding Tree Nursery Operator Meet with Nursery manager and workers 	
		(Late) Lunch in Motta		2:00pm - 3:00pm
		Debrief / Q&A Session Following Visits (Gabrielle Savalle, Deputy Country Director; Awoke Assaye, Senior Agroforestry Field Coordinator)	<ul style="list-style-type: none"> Opportunity to ask questions / debrief on the morning’s visits 	3:00pm - 4:00pm
		Session on Tree Monitoring and Evaluation (Ajaw Abere, MEL Coordinator)	<ul style="list-style-type: none"> Presentation of 1AF tree impact strategy and methodology How we monitor tree survival - tech & systems used; discuss future strategy re: survival rates Where we would like to go, future use of tech in monitoring 	4:00pm - 5:00pm
		6:00pm		
		Hotel Pick Up	<ul style="list-style-type: none"> 1AF to pick up FP team 	9:00am
Day 3 12.14	On the Field within Burie cluster	Farmer Field Visits (Acham Kassie, Tree Program Specialist; Awoke Assaye, Senior Agroforestry Field Coordinator)	<ul style="list-style-type: none"> Visit farmers who planted 1AF trees Meet several types of farmers: <ul style="list-style-type: none"> Farmers who have planted trees for many years (larger trees) and new tree-planting farmers (smaller trees) Farmers that use intercropping and farmers that plant on 	9:00am - 1:00pm

	Coordinator)	<ul style="list-style-type: none"> ○ the perimeter ○ Farmers who planted on their own fruit trees 	
	Nursery Field Visits (Decentralized and Traditional) (Achim Kassie, Tree Program Specialist; Awoke Assaye, Senior Agroforestry Field Coordinator)	<ul style="list-style-type: none"> ● Visit the 1AF nurseries <ul style="list-style-type: none"> ○ Run by a newer Tree Nursery Operator ○ Meet with Nursery manager and workers 	
	Debrief Lunch (Matt Sabin, Senior Director of Global Impact Ventures and New Country Expansion)	<ul style="list-style-type: none"> ● Debrief and feedback over lunch with Matt Sabin <p><i>in Injebara</i></p>	1:00pm - 2:00pm
	Government Nursery Field Visit (Misganaw Cherie, Innovations Specialist)	<ul style="list-style-type: none"> ● Visit the government nursery supported by 1AF in Hawari 	2:00pm - 3:30pm

Key People Present:

- One Acre Fund
 - Senior Leadership
 - Matt Sabin – 14 years with 1AF. Started in Kenya and was there for 7 years, then moved to work on new markets. Took over operations at scouting stage in Ethiopia. Looking at new business opportunities. 15-20% of time on Ethiopia. Also working on Nigeria and DRC. Also focused on agroforestry, especially in early stages in each country. Works closely with Shubra. Based in Nairobi, was here frequently at the beginning, now couple times per year.
 - Ethiopian Leadership
 - Gabrielle (“Gaby”) – Deputy Country Director, originally from France. Was field ops leader in Burundi starting in 2016. Started in Ethiopia in mid 2022. Gaby will be going back to France for 6 months for maternity leave, starting in early 2023.
 - Note: Kelly Hauser is currently 1AF’s Country Director. Kelly was not in the country at the time of our visit. She is transitioning out of the Ethiopia program around the time Gaby comes back from maternity leave. Florence is being trained to be new country director to replace Kelly. Florence is new to 1AF, coming from McKinsey after being there for 4-5 years. Before that she worked in supply chain logistics.
 - Getinet – Government partnerships associate. Joined 1AF in 2015. Works with Ethiopia’s Bureau of Agriculture. 3 active projects – 1.) core tree program, 2.) nursery expansion program (“light touch” version of the tree program) 3.) community based seed multiplication (“seed program”)
 - **Awoke** – Senior Agroforestry Field Coordinator. Used to work for govt at the woreda (district) level. Has technical background in agro. Moved up the chain of field officer, then manager, now Senior Field Coordinator.
 - **Ajaw** – Started at 1AF in Feb of 2014. Started as office assistant and now responsible for M&E. M&E Specialist.
 - Misganaw – 1AF for 7 years. Innovation specialist.
- FP
 - Jason
 - Elliott

Operating Environment / Regulatory Framework

- Regulatory Framework
 - Corruption is far less of a problem in Ethiopia than in many other African countries. The issue here is mass bureaucracy that constantly has to be dealt with. Between 1974 and 1991 Ethiopia operated under a Marxist-Leninist socialist economic and political system. Many aspects of today's Ethiopian government retain socialist vestiges from that period, the result being that the government's presence is ubiquitous, highly bureaucratic (albeit also quite effective in serving the people in many ways) and which restricts what NGOs can do in Ethiopia. Government has still not released control over certain means of production to private enterprise, and generates revenue from certain agro related business in the country. Where this is the case, the government does not want competition and restricts activities that compete with it. These restrictions mean 1AF's operations in Ethiopia are much more limited than in other 1AF countries (i.e. limited to the trees program, because 1AF's core agricultural productivity program would involve restricted behavior).
 - Only govt can sell and distribute fertilizer
 - NGOs can't advance inputs on credit (would require a for-profit regulated lending entity to do this)
 - Generally doesn't like NGOs training farmers directly for fear 1AF will disseminate a political message. Used to want all training done by govt employees. This stance is softening over time, and 1AF is now trusted sufficiently that it allows 1AF to train Nursery Operators and also provide small amount of training directly to farmers when they come to pick up trees from the nurseries.
 - Can't import seeds for cereal crops, meaning all seeds come through government cooperatives
 - Govt is not as involved with tree planting, so they were open to 1AF operations here. Govt perceives 1AF's role with trees as complementary to governments work because it does not "compete" with governments profit making ventures
 - This effectively rules out the 1AF core program absent radical changes to the 1AF model, which is why 1AF's priority in Ethiopia is exclusive to the trees program. This is both a limitation but also an opportunity as there is very limited competition from for-profit players, leaving open holes that can be leveraged by 1AF. This partially explains the opportunity for the trees program in Ethiopia.
- Tigray War
 - Although a peace agreement is now in place (since November), the Northern part of Ethiopia has been affected by armed conflict between Tigray rebel groups and the Ethiopian government since November of 2020. Although the conflict has largely affected the Tigray region to the north of where 1AF operates, the Anhara region (where 1AF operates) has also been, which has caused 1AF staff evacuations in the past and which continue to remain a threat to 1AF's operations.
- Currency controls / inflation
 - Ethiopia's currency ("Birr") is losing value against the dollar rapidly, around 40% per year.
 - Currency exchange rate is fixed to prevent inflation, which helps to protect the perceived value of savings, and retains confidence in birr. Official rate (that foreigners pay at official currency exchanges) is around 53 Birr per USD vs. black market local rate of around 100 Birr per USD that locals are willing to pay.



Figure 1 - Explosion damage to the airport terminal is visible caused by rebels attempting to disable the airport in Bahir Dar

- Government does not want foreign currencies competing with the Birr, including gold, otherwise it threatens to collapse the Birr, so they ban the use or holding of such currencies, which drives the price of buying foreign currencies up in terms of local currency due to the scarcity.
- Prohibiting foreign currencies to be held by locals preserves the foreign currencies to be used to fund important imports the government supports, such as oil. All USD ends up in the banks where it can be used for such important imports, rather than in the hands of individuals.
- Crops are not generally exported from Ethiopia other than coffee. There was a prohibition on exporting teff to help keep the prices low domestically.
- Currency manipulation makes it impossible for farmers to obtain market prices (because foreign buyers are paying more for ag products coming out of Ethiopia due to the artificially high exchange rate), meaning farmers are forced to sell domestically. This means farmers are effectively paying to feed the rest of the country in the form of below market values for their crops.

History of 1AF in Ethiopia

- 2015 – began program in Ethiopia with focus on teff planting. 3 year trial did not prove to be impactful enough, so they switched to a tree only model.
- 2018 – commenced tree work. 3 trials of different nursery model. Roads were dirt and terrible, so centralized model used in other countries would not work here. Ended up focusing on decentralized model involving one nursery | “TNO”, “entrepreneur”). This became the model that 1AF now uses everywhere.
- 2019-2020 – focus on improving the efficiency of the decentralized nursery model and scaling up
- 2021 – first trial of NEP (Nursery Extension Program) – light touch version of the decentralized nursery model involving greater participation by the government (and less responsibilities for 1AF). Only four nurseries in 2021.



Figure 2 - 1AF office in Bahir Dar

1AF “Core” Decentralized Nursery Program

- Seasonal Calendar
 - Oct-Dec – Inputs distributed to operators
 - Dec-April – Seed planting
 - July – Distribution to farmers
- 1AF Organizational and Field Management system: [Regions > Clusters > Woredas > Kabelas]
 - 1AF operates in the Amhara region of Ethiopia, just south of the Tigray region. Ethiopian states are organized into woredas (districts). There are over 60+ woredas in Amhara, of which 1AF currently operates in 26 woredas (today, heading into 2023). Each of which is overseen by a

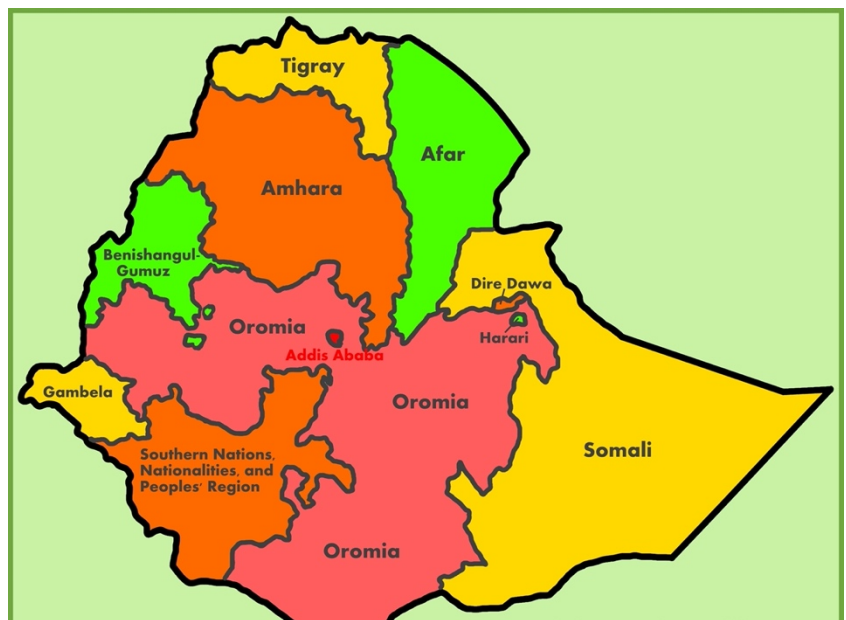


Figure 3 - 1AF operates in the Amhara region of Ethiopia in the north of the country.

1AF Field Manager ("FM"). FMs oversee one or two woredas. Each woreda has multiple kabeles (villages) (approx. 18 kabeles per woreda). Each kabela has one 1AF decentralized nursery that is overseen by a Tree Nursery Operator.

- Woredas are grouped by 1AF into three 1AF "clusters", (zones), each of which has one Field Coordinator
 - Purpose of "cluster" concept is to group woredas into units that can each be overseen by a single 1AF field coordinator
 - Each cluster has ~9 woredas, meaning 26 woredas in total overseen by 16 field manager (approx. 1.5 woredas per field manager)
- Each woreda has 5-6 kabeles, which are overseen by field officers (approx. three per field manager).
 - There are approximately 940 farmers per kabela on average
 - Each Kabela has a 1AF decentralized nursery run by a TNO that produces around 65k seedlings on average (see picture for one we visited @ 65k seedlings)

- 2022 Scale – 20 woredas served, 320 kabeles (and therefore nurseries), 64 Field Officers

- Total seedlings – reported by program team @ approx. 40 million from core sites

- 2023 Scale – 26 woredas, 460 kabeles (and therefore nurseries), 84 field officers

- Expecting to lose 1 expecting 450 expected by year end. Attrition due to sickness, etc.
- Doing a small trial where there will be 8 nurseries that each serve 2 kabeles (i.e. double the size of the nursery to see how this works, using more experienced TNOs). Will be a good test to see how farmers respond to the increased walking distance.

- Future geographic expansion –
 - Still being determined. Room for two more years of expansion within Amhara. Future trajectory may depend on to what extent 1AF relies on Extension program vs Core program. Likely will move out of Amhara in 2024. Next state will likely be Oromia to the south (and near to Addis Ababa).
 - 1AF expects Ethiopia to become the biggest contributor the trees program goal of 1 billion trees

- How entrepreneurs identified / selected

- Screening criteria
 - Geography – must own their land, have access to water and shade, have wind breaker trees
 - Labor – sufficient family members or access to labor
 - Wife approval – husband is usually primary decision maker in the family in Ethiopia, but wives have veto power. 1AF gets confirmation that wife agrees with decision to participate
 - Screening / testing – testing for experience in dealing with certain challenges
 - Reputation – done in partnership with government agents, who often have an opinion about the capability of the farmer. Need to make sure government DA is on board with 1AF's decision.
- Usually identify approx. 3 eligible farmers per kabela. Many operators are not interested in participating due to the large amount labor involved in being a TNO. MOU documents all the requirements.
- Labor – comes mostly from family of TNO, but often they hire casual works during certain periods (planting, socketing)

- Role of Government in Core Decentralized Nursery Program



Figure 4 - We visit a 1AF TNO in Amhara. He is growing around 65k seedlings, which is typical for a TNO in Ethiopia.

- DA is there to help solve issues and managing relationship with government agencies. Very active during the distribution phase when farmer mobilization / marketing is needed (because TNO can't do this). 1AF primarily responsible for farmer mobilization and hires casual workers to help with this. DAs are helpful though.
- Role of third party consultants
 - Technical expertise in Ethiopia comes primarily from the government and via engagement with other 1AF country teams.
- Species Mix / Diversification
 - Grevillea (35%) - Timber
 - Gesho (aka Rhamnus Prinoides) - (38%) – Used to make local drinks (tea and beer)
 - Decurrens (12%) – Agroforestry charcoal
 - Cordia Africana (aka Wanza) – Timber
 - Grows slowly and is not preferred by farmers. They prefer eucalyptus. 1AF does not offer eucalyptus. Water takes too much water and possibly is acidic, but farmers like it because of its high value.
 - Economic (new initiatives)
 - Avocado (requires two years in the nursery)
 - Coffee
 - Papaya

2023 Tree mix							
Species	Grevillea	Gesho	Decurrens	Wanza	Coffee	Papaya	Moringa
Advantages	Agroforestry Timber	Local drink	Agroforestry Charcoal	Timber Indigenous	Fruit tree	Fruit tree	High Nutrition value
% of trees planted	35%	38%	12%	10%	1.1%	1%	3%
\$ impact/tree	3.23	9.56	1.09	11.38	9.8	0.8	7.8
Value of in kind inputs provided by OAF (ETB)	0.58	0.34	0.32	0.24	3.7	0.87	0.88
Distribution Subsidy (ETB) <i>*amount per tree distributed</i>	0.1	N/A	0.3	0.4	N/A	N/A	0.2
Buyback subsidy (ETB) <i>*amount per tree not distributed</i>	0.1	N/A	0.3	0.4	N/A	N/A	0.2

- Moringa – used to make oil using the seeds and powder for nutrition and for animal feed. Also can be used to make Moringa spray that can boost Grevillea growth. Economics of participation for entrepreneur and 1AF
 - Overhead Costs
 - All TNOs
 - 0.05 Birr per seedling, paid in January, to cover nursery overhead costs
 - 0.2 Birr commission paid for each seedling sold
 - Inputs – TNOs provided sockets, and seeds worth appro 0.4 Birr
 - New TNOs
 - Get an additional 0.5 Birr per seedling (i.e. for total 0.1 Birr per seedling instead of 0.05 for existing TNOs) to cover increased one time overhead investments (fencing, shading, sand, compost, and labor) paid in November
 - Tools – mesh wire, watering cans, shovels, rakes, ropes for bed
 - Revenue expectations (subsidy + sales revenue)
 - Farmers sell the tree seedlings and get revenue, depending on species. TNO sets price of all seedlings except Wanza, which is free. Other prices vary based on species and market.
 - Farmers earn commission on sale depending on the tree
 - Generally 0.2 Birr per seedling as commission from 1AF
 - Risks to Tree Nursery Operator and opportunity costs

results will be similar because there were no major changes in process between the 2020 and the 2021 plantings.

- Survival Rates – M&E results show that Ethiopia's average tree survival rate is as low as 30%, well below prior and target figures (50-60%), and below the organization-wide average (of 50-60%). The shortfall in survival rates led below-target impacts overall in 2022, with the Ethiopia agroforestry program generating an average impact per farmer of \$101 (versus the \$119 target).
- Survival rate of concern is measured between the time the seedling is planted in the ground by the farmer and the measurement period, which takes place 9 months after planting
- A separate issue is the attrition that occurs in the nursery and (to a very small extent) in transit between nursery and planting location (in hands of farmer). Nursery survival rates are 70% for grevilia, which is low. 1AF attributes this low survival rate to the poor quality seeds – see challenges above. Hoping to be able to import seeds to fix this. Gesho is the other problematic one at 75% survival. The rest of the species are in a normal range 95% or above. This is not tracked by M&E team, but observed by the program team based on self reporting by TNOs and in planting survey (i.e. as part of the planting survey, they ask how many seedlings have died between the time of planting and the time of the planting survey).
- Market Price survey – Done in 3 rounds per year using a set of farmers that have mature trees to determine value to household over the course of a full year. Completes 1AF's ability to calculate SROI. Number of survey participants varies by species, but in the 400-600 farmer range.
- Theories of poor survival rates based M&E surveys done so far
 - Poor management – e.g. inadequate watering, failure to protect from animals, etc.
 - # trees planted per farmer vs. survival rates – haven't reviewed the data yet, but logic suggests a relationship could exist. Ajaw believes the thesis of a correlation here is shaky because farmers are not required to take more seedlings than they want. May do this analysis when the survival data comes in.
 - Tigray conflict – unclear how significant this was. It drew labor into the conflict that otherwise would have worked in the fields. Time will tell.
- Solutions
 - Behavior change – improved training, more training. Trying to improve agroforestry practices (shade, watering, protection) and explaining the importance of long term investments.
 - Include government in training and oversight
 - Diversify the tree mix more
 - Decrease the subsidy so they have more of an investment in the trees. This is a balancing act as the increased cost will decrease the farmer demand, so 1AF will need to iterate.
 - Less seeds per farmer - goal is to increase amount of time farmer spends per seedling. Farmers tendency is to want more always, partially so they can have a buffer and accept a higher mortality rate. This increases the costs to 1AF.
- Future expectations
 - Expectations for future survival rate assumptions 1AF global average survival rate is around 55%. 1AF is confident the survival rate can be improved, but TBD to what extent it can be improved. Key issues affecting survival rate in 2021 related to COVID and inability to train farmers, which reduced compliance. There is nothing unique to Ethiopia that explains the big difference in survival rates. Therefore optimistic that the rates will improve over time, consistent
- Farmer Tracking
 - Generally done via phone number rather than national ID system.
 - Farmer tracking is done between planting survey and survival survey using a unique ID given to the farmer (generated by 1AF)
 - No tracking from one season to the following.

- 1AF Farmer training –
 - Only done at time of seedling pickup from the TNO, and then is just a very short session (~1 hour) on best practices.
- Inputs sourcing
 - Seeds
 - Sourced from private suppliers within Ethiopia. Imports are legal but process is so bureaucratic that it is not practical to import seeds.
 - Access to quality of seeds is a concern of 1AF and the Bureau of Agriculture, so they are working on this together. Quarantine agency of the government that certifies the seeds is not adequately screening the seeds, and is certifying seeds with low germination rates. 1AF now does its own separate QC process before selecting a supplier. To do this this, 1AF uses internal staff – doing visual inspection, smell test, breaking open the seeds, etc. (process depends on the species). But obviously can't test germination rate because insufficient time to do so because of short shelf life of most seeds. Working on ways to improve QC processes. Particularly challenging for new species where 1AF doesn't yet have the expertise to perform such tests. Also working on doing own cold storage of seeds so that there is less decay prior to distribution to farmers.
 - Import process is very bureaucratic, resulting in very few number of imported seeds. 1AF would like the govt to ease the burden.
 - Sockets
 - Sourced from private suppliers within Ethiopia
- Summary of Key Challenges, Expectations Going Forward
 - Security – Tigray conflict. Puts off limits the northern part of the country. There is also conflict to the south of the region 1AF operates along the Nile between Bahir Dar and Addis. Peace agreement went into place in early November, which has mellowed the situation for now. Tourists returning to Lalibela, which is. Good sign, but only time will tell.
 - War caused government to increase military spending, meaning less money available to subsidize fertilizer, which means the price went up a lot. Expecting that subsidies will come back at some point. Prices of fertilizer and fuel much higher than it was (3x increase in a year)
 - Seed quality / availability – Regular issues each year. Quality of seeds varies. 1AF must source seeds private suppliers in Ethiopia. Government research centers do not have sufficient quantities for 1AF. All suppliers must go through government quarantine agency that certifies the seed quality, but they are not doing a great job.
 - Socket sourcing – finding good quality sockets has been a challenge due to economic environment. Socket suppliers keep going out of business or otherwise unreliable. Now has a good supplier, but trying to diversify to de-risk from single supplier.
 - Grazers – Property rights in Ethiopia are limited. One result is that farmers cannot prevent animal grazing on the properties the farm. They can build fencing, but they cannot approach herdsmen that are grazing on unfenced land.
 - Tree Survival – see detailed discussion above



Figure 6 - Herdsmen and their grazing cattle present a serious problem for farmers. Cattle will graze on seedlings and small trees, so farmers must take protective measures

Figure 7 - Herdsmen and their grazing cattle present a serious problem for farmers. Cattle will graze on seedlings and small trees, so farmers must take protective measures

Nursery Extension Program (via Government Partnership) (Getinet)

- Relationship overview (Getinet)
 - All partnerships must be reviewed and approved by three government agencies at the district level. Then regional government will make a final approval decision at the regional level (based on input from regional bureaus). No cost to 1AF, functions efficiently, no official or unofficial payments needed.
 - Bureau of agriculture – wants to make sure 1AF is in alignment with development priorities. Ensuring no harmful impacts on the land. Very similar to bureau of environment and may be joined at some point.
 - Bureau of environment – wants interventions to be good for the environment. Interested in species diversification, soil erosion, ensuring no invasive species doing damage, ensuring alignment with climate smart agriculture goals, etc.
 - Bureau of land – has land use policy that controls what is done on land.
 - Bureau of finance – wants to ensure that money raised in the name of helping farmers is used for benefit of farmers. They follow an 80/20 rule, meaning no more than 20% can be used on overhead.
 - Now that 1AF has been working with the same people for several years, trust has been established and it is easier to get things done now than it was in the beginning.
- Nursery Extension Program History / Overview
 - Started in 2021 with four sites. Now running 12 sites in 2022 that just received their inputs (so not yet fully operating).
 - Same as core tree program, except it is a lighter touch program that involves no 1AF staff to directly train the farmers. Only involves government extension agents that come to the woreda for training. Government DAs then go back and train the TNOs instead of FO. Otherwise it's the same as the core tree program.
- Relationship with Government
 - One government person (“focal person”) assigned from Bureau of Agriculture for each woreda. The focal person is responsible for overseeing the government extension agents (“Development Agents”, aka “DA”) at the woreda level (i.e. execution level).
 - Current involvement of 1AF staff vs govt workers
 - A typical DA is government employee, full time, usually college graduate in plant science, animal science, or forest science. Main job is to support farmers in the kabela by providing training and support on farming practices, crop science, water conservation, irrigation, agroforestry.
 - In each kabela there are 4-5 DAs
 - 1AF field officers train the TNOs directly and provide technical. 1AF needs to ensure that training is consistent with training provided by government. 1AF field officers also provide tips and “light touch” training to farmers at time of seedling pickup (e.g. spacing, depth of planting, watering, use of compost), but does not train farmers directly (because it would be too resource intensive). Govt FAs generally are training the farmers while 1AF focuses most of their on training the TNOs (and minimally on farmers while on the TNO property)
 - Scale in 2022 – Nursery Extension Program
 - Geographic exposure
 - 2022 - 54 kabelas in four woredas
 - 2023 – 156 kabelas in 12 woredas
 - Number of nurseries
 - One nursery per kabela
 - Scale of each nursery
 - In the range of 40k seedlings per nursery
 - Total Seedlings
 - ~40 million in 2022

Innovations

1AF Nursery – Wegelsa Nursery (Misganaw)

- Growing coffee for pre pilot program
- Testing how to grow grevillea seeds
 - Seed treatment (soaking seed in plant)
 - Spraying moringa juice on seeds to facilitate growth
- Scientific journals suggest this might work. However the research needs to be verified in the ecological zone here. Hoping to get the seedling sizes up. Trial involves 2400 seedlings per trial. Started doing the trial earlier this year. Seeds getting ready to be planted on Dec 26. Distribution time in mid June will be when 1AF learns if trial is working. Also planting control seeds for each trial. 12k seedlings total.
- Other nursery activity – testing farmer demand for participation in carbon credit program
 - Gesho, Gwanza, moringa, papaya. Seedlings will be distributed to farmers willing to allocate 1-5 hectares land to the carbon pilot program. Test is to see farmer demand to participate in the program. Same experiment is being run in five innovation sites, 1 in Bahir Dar, 4 in in other districts (woredas). Once farmer demand is determined, 1AF will scale up to core trees program sites. 102,000 seeds planted for this purpose.



1AF farmer shows us his Decurrens tree stand. He expects the 10,000 seedlings planted five years ago will net 750k to 850k Birr when sold in 2-3 years (approx. \$20k USD) for charcoal. He intends to buy a mule and a cart with some of the profits.



A former 1AF TNO has been hired by the government to operate the government nursery (pictured). He now hires a local 1AF farmer to help manage the nursery when extra help is needed (background).



A farmer in Motta that participates in the 1AF trees program shows us around his farm plot. He has invested in a wall and fencing to protect his tree stand from grazing animals.



Typical nursery size is ~65k seedlings, or approximately eight rows of seedlings like the one pictured here.