

GreenPath



GreenPath

Agenda

GreenPath Overview

Problem and Opportunity

GreenPath's Unique Solution

Progress to Date

Future Plans

GreenPath overview

Who we are

GreenPath is an **organic food social enterprise** that takes a unique approach to addressing poverty and food security. We **partner directly with smallholder farmers in Ethiopia**, operating an **end-to-end supply chain**, from the distribution of specialized knowledge on high-yield farming, to providing **harvest and cold-storage services** to farmers, to operating a sales and marketing function that delivers **organic, sustainably-grown products** to international markets

How we do it

1. **Permaculture** – We train farmers to create closed-loop nutrient systems on their farms through simple, organic techniques that increase biodiversity, soil health and soil carbon sequestration, resulting in increased yields of pest-free, nutritious crops
2. **Farmer Service Centre Model** – We build and operate facilities that act as farming hubs in rural communities. Our teams use these hubs to train farmers, and produce and distribute inputs such as quality seedlings, while also aggregating harvests in our on-site cold stores
3. **Green Marketplaces** – We make use of predictive demand models and targeted marketing to establish relationships with retailers/consumers who seek to incentivise green farming

Why we care

- 2 billion smallholder farmers in the world **struggle for food and income security**
- Meanwhile global food demand is rising quickly, and current ‘industrial farming’ systems are **highly unsustainable, degrading soil and leading to greater global warming**
- **Small farms can be a food supply solution** if integrated into the global food value chain
- GreenPath’s model demonstrates that **small farms actually have a competitive advantage** in organic fruit & vegetable farming; **they just need a committed partner to support them**

GreenPath’s unique model takes an interdisciplinary approach to solving these problems, thereby:

Providing **smallholder farmers** with **higher prices, stable incomes, larger harvests, and lower costs, with less damage to their land and greater climate resilience**

Providing **consumers** with **nutrient dense food, grown organically and environmentally sustainably, and with the direct supporting link to smallholder farmers**

Why support GreenPath?

GENUINELY INNOVATIVE MODEL

- **Permaculture Approach** – Increases yields by implementing bio-diverse perennial systems, reducing input costs and improving soil fertility
- **Farmer Service Centre System** – Hub-spoke design involves creating facilities (nursery, cold store, pack-house) that can support ~100 local farms
- **Directly addressing issues** – Systems-design approach to simultaneously addressing food security, nutrition, climate-resilience and rural entrepreneurship, all issues that the UN and others are grappling with

EVIDENCE OF IMPACT

- **Demonstrated Social Impact** – Farmers receiving 60% improved price on avocados; potential for greater income as we expand crop portfolio
- **Validated Operating Model** – Exports to Belgium, Dubai and India and strong market links in other countries; strong farmer uptake of GreenPath techniques and willingness to grow new crops organically

SCALE POTENTIAL

- **Financially sustainable model** – Positive gross margins; Income will cover operating costs; growth to be financed through a combination of retained earnings and limited external funding for first 3 years
- **Franchise Farmer Service Centre (FSC) Model** – In addition to new GreenPath FSC facilities, a franchise FSC system will be tested in 2016

TEAM

- **International experience** – Our technical team has operated multiple permaculture farms; our business team comes from top commercial organizations such as McKinsey and Bain
- **Ethiopian experience** – Diverse Ethiopian and international team, deep experience in Ethiopian agriculture

What is the impact created?

- ↑ **Output** of high-quality fruit & vegetables, targeting “hidden hunger” nutrition issues amongst smallholder families
- ↑ **Food security and climate-resilience** through larger harvests, diversified crop portfolios, and restorative practices that improve soil and land quality
- ↑ **Farmer income** through stable access to Green Markets, allowing families to plan expenditure, and incentivizing farmers to practice environmentally sustainable agriculture
- ↑ **Carbon sequestration**, creating more robust harvests by increasing soil organic carbon, and reducing agricultural emissions and greenhouse gases
- ↑ **Biodiversity** leading to improved soil health, restoring land and regenerating its value – a major economic asset for farmers
- ↑ **Investment** in rural economies through Farmer Service Centres, building knowledge and creating jobs in farming communities
- ↓ **Pesticides** and non-renewable resource usage, breaking dependency on chemicals and improving resource sustainability
- ↓ **Costs** for farmers, by replacing unsustainable synthetics with closed-loop nutrient systems; better economics on all crops farmed

Agenda

GreenPath Overview

Problem and Opportunity

GreenPath's Unique Solution

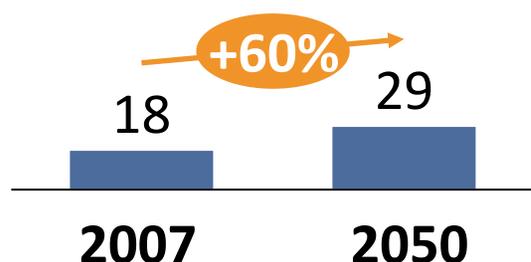
Progress to Date

Future Plans

The current **global food system** will increasingly struggle over the coming decades to meet demand that is growing rapidly

Food demand is set to rise tremendously

Trillions of Calories



Suitable areas for growing food are fixed

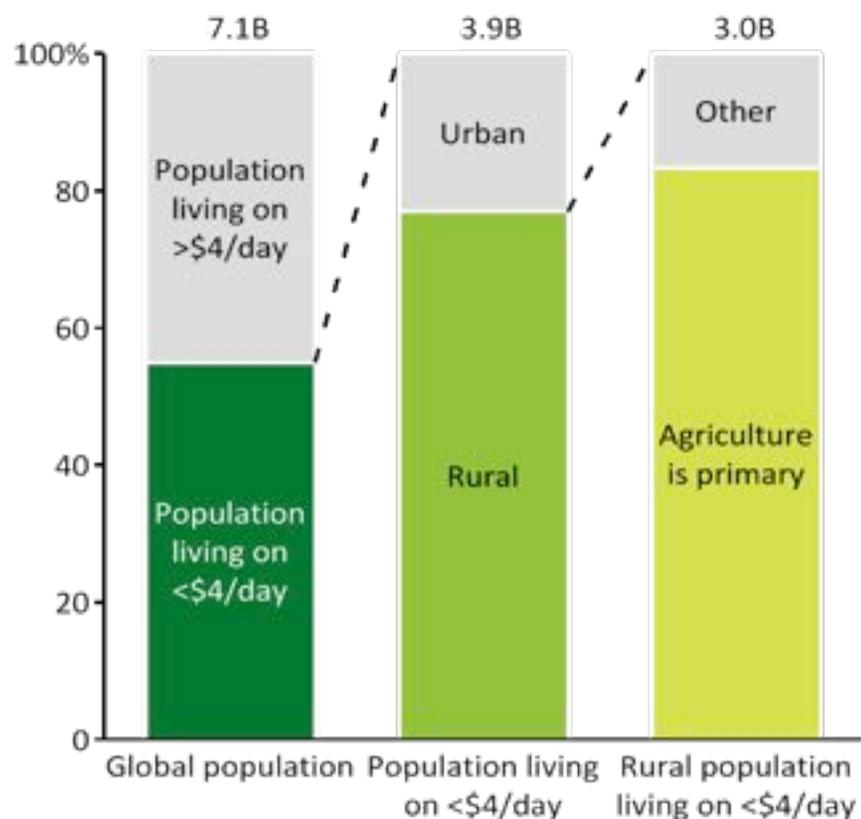


Industrial, synthetic, chemical-based farming has limitations

- **Farming method:** Monoculture-based, resource-intensive, utilizing synthetic fertilizer and pesticide
- **Yield effect:** Increasing yields for few years, but declining returns over time, reaching a yield-ceiling
- **Soil & land health effect:** Can lead to nitrogen pollution, damaging health and value of land
- **Summary:** Productive and economical at scale and with certain crops, but suffering from diminishing returns and possible land degradation

Within the global food and agriculture system, there are over **2 billion smallholder farmers** who struggle to feed themselves

Globally, **agriculture is the primary livelihood** for an estimated **2 billion people** who live on **<\$4/day**



- **500 million smallholder farms** operate globally, with **average land size of 0.5 ha**
- Focus primarily on cereals and other **low-nutrient, low-margin crops**
- Face **price fluctuations**, harming family livelihood and deterring investment
- **Unable to invest in cold storage and other supply chain facilities**, and **limited market access**, due to small scale
- Increasingly **rely on “industrial” farming methods** (the focus of many current support efforts), which are not well suited for small farms
 - Chemical fertilizers/pesticides are costly
 - Initial yield boost but declining returns over time due to declining soil fertility

Smallholder farming in Sub-Saharan Africa has seen little productivity growth in decades

Demand is growing rapidly for food that is grown the “right way”, which today retails at a significant price premium

The global organic market has been growing at 9.5% per year for a decade, as compared to 2% for conventional food

Global Organic Market



Organic consumers want:

1. Healthy products with **high nutrition density**
2. Products grown and manufactured using **sustainable**, “good for the earth” **methods**
3. A channel to support and **empower the underserved**



Consumers are willing to pay **15-60% premiums** for products with these qualities, but this requires:

- **Access** to these consumers/markets
- Credible and effective **supply chain**
- Compelling **branding**

Agenda

GreenPath Overview

Problem and Opportunity

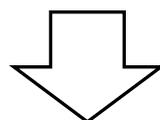
GreenPath's Unique Solution

Progress to Date

Future Plans

GreenPath has created a **unique solution** to address these problems and make the most of these opportunities

GreenPath's model consists of three core elements:



Which enables GreenPath to:

Provide smallholder farmers with **higher prices, stable incomes, larger harvests, and lower costs**, while **restoring the fertility of their land** and **improving bio-diversity**

Provide consumers with **nutrient dense food, grown organically and environmentally sustainably**, and with the **direct supporting link to smallholder farmers**

Permaculture & agroforestry approaches boosts yield, improve soil health, are environmentally sustainable, and ideal for small farms GreenPath

1

Permaculture Curricula Sustainable Farming Techniques

What is permaculture



A **design system for farming**, whereby crops are strategically inter-planted to create **sybiotic effects**

Uses **organic inputs** found on farmland to **increase soil nutrients, prevent pests, retain water**, and solve other common farming challenges; “makes nature work for you”

What are the its benefits

- Improves **soil health** through biodiversity improvements
- **Increases crop yields** – potential for up to 8X fruit and vegetable yields improvements on African smallholder farms
- Allows for **perennial harvesting**
- **Sustainable** over long-term



Why with smallholders

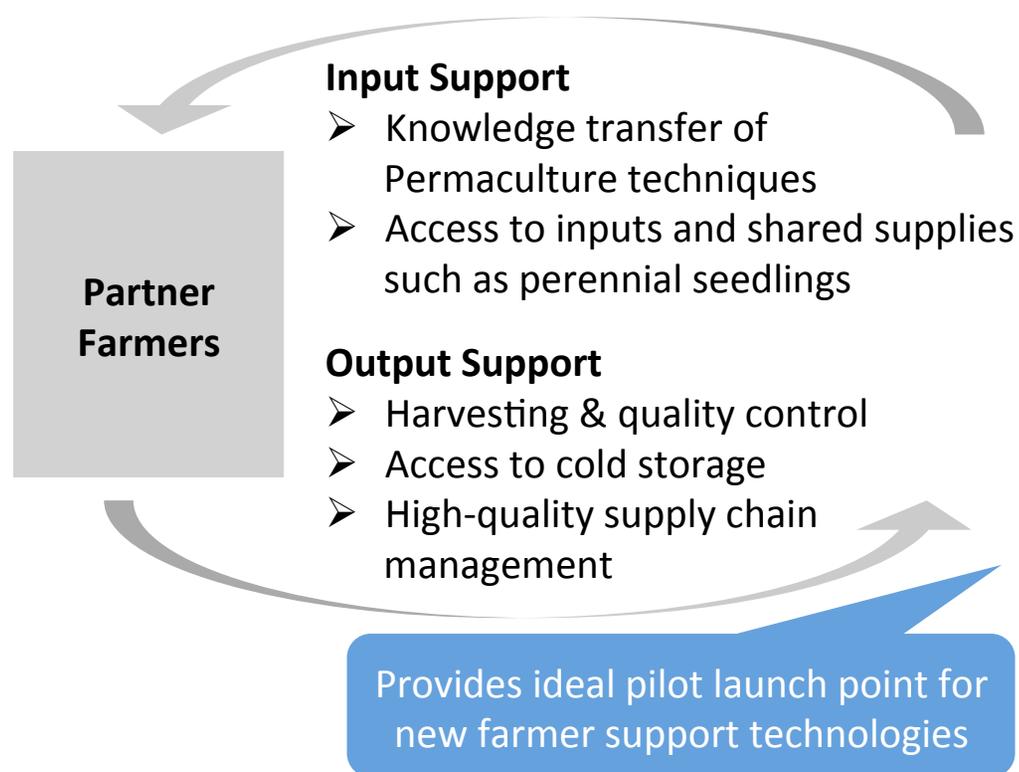
- Most suited to **small farms** due to **labour intensity**
- **Uniquely suited to East African context** as majority of farms are family operated
- Leverages **free techniques**, replacing need for costly fertilizers and pesticides
- Gives families access to **nutrient-dense foods**
- Provides steady, **climate-resilient** harvests

Permaculture is an exceptional farming approach for **high yields, environmental sustainability, and quality output**, yet has struggled to scale because it is **not cost effective for large farms**; however, it is **perfectly suited for smallholder farms** providing benefits for farmers, consumers, and the environment

The **Farmer Service Centre (FSC) Model** provides farmers with targeted knowledge, access to inputs and support, and enables economies of scale in harvesting, cold-storage and aggregation

2

Farmer Service Centres Operations and Supply Chain



The **FSC Model** is the appropriate delivery mechanism for Permaculture Farming, effectively distributing knowledge and inputs, and enabling at-scale harvesting and aggregation. Small farmers **can operate as effectively as larger farms**, diversifying their farms and attaining **greater market reach**, without the need for costly investment.

Smallholder farmers will benefit from the development of **Green Marketplaces** that incentivise climate-sustainable farming



3

Green Marketplaces Product Development, Sales, and Marketing

Product Management

- GreenPath develops **predictive demand models**, in partnership with MIT analytics experts, to determine the **optimal products to sell** and **markets to target**, as well as **prices and seasonal timing**



Sales

- GreenPath negotiates contracts with customers **that demand quality, organic, sustainably-grown products**; our target markets include the Middle East, Europe, and Asia
- Scale allows for **bulk contracting** and **greater pricing power**



Branding / Marketing

- GreenPath's umbrella brand (encompassing all products and partner farmers), and marketing will **target premium, organic customers**
- GreenPath branding is estimated to add at least a **20% price premium** to current wholesale prices



Through the economies of scale enabled by GreenPath's model, partner farmers will gain access to **professional business support operations**, allowing their products to reach **new, high-value markets**

Our team is both accomplished and diverse, allowing us to take an interdisciplinary approach that we believe is key to success 

Core Team:

Operations & Technology



Eric Couper

- Co-Founder
- ICT for Agriculture Expert at Abt Associates (USAID contractor)
- MPA Columbia SIPA; BA Tulane University
- Former advisor to Ethiopian government on ICT and soil mapping

Business Strategy



Sid Kamath

- Co-Founder
- McKinsey Consultant; Mck Global Inst. Fellow
- MBA at MIT; BSc London School of Economics
- Ex-manager at Ethiopia Agriculture Transformation Agency

Permaculture & farm mgmt.



Christina Zaverucha

- Lead Agronomist
- 7 years as working as a permaculture farmer
- Former owner and operator of 2 permaculture farms in VA and PA, USA
- Co-founder of Permaculture for Peace

Product Dev. & Sales



Kristen Dormanen

- Product & Sales Dir.
- Bain & Company Senior Consultant
- Supported multiple retail and food clients
- MBA at MIT

Operations Team:

- **Deborah Mekbib**, Product & Sales Manager
- **Yonas Berhe**, Farmer Training Officer
- **Mustafa Shemsu**, Deputy Farmer Training Officer
- **Mohammed Getachew**, Deputy Farmer Training Officer
- **Amerga Menji**, Avocado Agronomist

Advisory Team:

- **Mirafe Marcos** - Chief of Staff, Ethiopian Agricultural Transformation Agency
 - **Joseph Shields** - Managing Director, Flow Equity, investor and entrepreneur
 - **Avihai Ilan** - experienced Israeli fruit and vegetable horticulturist
 - **Eliot Coleman** - Permaculture farmer, author of *The New Organic Grower* and other publications
 - **Eden Getachew** - Governance Associate at Tony Blair Africa Governance Initiative
- Understands Ethiopian agriculture and economics
Understand building a social impact business in Ethiopia
Understand our primary product, avocados
Guru of small sustainable farming
Understands Ethiopian horticulture export

Agenda

GreenPath Overview

Problem and Opportunity

GreenPath's Unique Solution

Progress to Date

Future Plans

To test our concept, we designed a small-scale pilot to operate in one community with one group of farmers

JUN – DEC 2014

Concept development

JAN 2015 – DEC 2015

Pilot

JAN 2016 ONWARDS

Scale-Up

SPECIFIC PILOT PROOF POINTS

- 1. Permaculture applicability** – Implementing permaculture and intercropping guilds in the Ethiopian farming context, with smallholders
- 2. Farmer adoption model** – Testing whether farmers would invest labor and capital into their farms, if GreenPath provides them a support system that included top-class agronomic support, quality inputs, cold-store facilities and a market
- 3. Farmer interaction model** – Evaluating effectiveness of an apprenticeship-based training model with constant field visits and training, rather than a classroom/workshop based “chalk and talk” model (where farmers are sometimes even paid to show up!)
- 4. FSC System** – Testing operational effectiveness of Farmer Service Centre facilities including a nursery and a low-cost cold store
- 5. Supply chain feasibility** – Operating an efficient “cold” supply chain from rural Ethiopia to an Addis Ababa retailer
- 6. Product feasibility** – Producing export-quality and export-size volumes

While GreenPath’s model focuses on biodiversity-based intercropping, our analysis identified avocados as the ideal launch product from a market perspective



Why lead with Avocados?

Brand Factors	Demand-side Factors	Supply-side Factors
<ul style="list-style-type: none"> ▪ Recognized as a “super-food” - tasty, healthy, nutrient dense; is a quintessential “health food” ▪ Great platform crop 	<ul style="list-style-type: none"> ▪ Large global market, growing fast (4% CAGR) and has been for 10 years ▪ Heavy users, like Chipotle, concerned about supply, suggesting demand will continue to grow ▪ Demand growing in Middle East and Europe, and served by “far off” countries like New Zealand and Chile; East Africa better positioned to serve ▪ Demand-side economics particularly favorable for “organic, sustainably grown avocados” 	<ul style="list-style-type: none"> ▪ Grower base in Ethiopia has some experience (7000 farmers have trees), though still below potential – yields are at 10-15 kg per tree, instead of 100 kg per tree per season ▪ Not a large part of Ethiopian diet, apart from avocado juice – oversupply and price collapses are common ▪ Supply side economics favorable



Seven months into the 12-month pilot, GreenPath achieved the key milestones for establishing a successful organisation



Supply Base – Successfully established 600 avocado trees under management (across 35 farmers), with all trees tagged with QR codes and monitored regularly



Product – Created a marketable product and brand – “organic avocados grown by Ethiopian smallholder farmers”; expanded farmer production to over 15 different tree and herb/shrub crops



Customers – Successfully established a supply relationship with Fresh Corner, Addis Ababa’s leading produce retailer; in negotiations with retailers in Dubai and India



Repeat Sales – Supplied multiple harvests to buyers, with customers now asking GreenPath to supply additional products



Pricing-power – Successful quality management, aggregation and branding has allowed GreenPath to negotiate a favorable price with Fresh Corner, allowing for better prices for Partner Farmers



Trial exports – In mid-August, completed first trial export from GreenPath partner farmers, shipping 2.7 tons of Hass avocados to Liege, Belgium, working in conjunction with Ethiopian Ministry of Agriculture, Mashav and Ethio-Veg-Fruit



Team – Underpinning GreenPath’s success on the above milestones is the strong multi-dimensional team that has been put together

We have also been able to establish progress on 5 specific social impact metrics



Direct Income Impact – 60% improved prices received by all farmers compared to last season; prices are also stable, which allows farmers to plan for family income and expenditure more effectively



Long-Term Wealth & Income Security – GreenPath support has enabled farmers to restore the quality of their soil and land, growing healthier crops and trees. This reduces erosion, increases the value of land, and reduces costs for farmers. Farmers have also successfully diversified their crop base, providing security through diversity



Food Security Impact – Harvest size increases through water management (eyebrow swales), soil management (e.g. boron deficiency corrections), and effective pruning; avocado trees expected to see a 50-75% yield improvement, strong early results



Health & Nutrition Impact – GreenPath staff grade avocados at harvest with farmers, and encourage farmers to eat non-market grade avocados; previously farmers would just leave them on trees until they sold them, few would eat them



Education, Knowledge and Skills Impact – Partner Farmers are being trained to transition their farms into perennial, high-value, closed-loop ecosystems. Farmers have made significant progress on understanding techniques such as eyebrow swales, double digging, and living mulches, which is valuable knowledge transfer

Measurement & Evaluation: *M&E for the pilot is being conducted by experienced researchers from the International Food Policy Research Institute (IFPRI). A baseline survey was conducted with pilot farmers*

Agenda

GreenPath Overview

Problem and Opportunity

GreenPath's Unique Solution

Progress to Date

Future Plans

By 2025, we envision GreenPath to be the largest organic farming network in East Africa



GreenPath Food 10 year goals:

1. East Africa's **largest organic food network**
2. Farmer system with **10K families**, which equates to **50-70K individuals**
3. Farmer Service Centre network of **100 farms** across **3-5 countries**
4. **Annual sales of \$100M**
5. **Annual fruit and vegetable sales of 30K tons**



Future Phases: Over the next 3 years GreenPath aims to launch **9** new FSCs, add **1000** farmer families, introduce **12** new crops to markets, and enter **3** new markets



Future Phases: We expect any new FSCs operation to be at **full production capacity at the start of Year 4**; by 2018, we aim to have 10 NFs operating at varying degrees of scale-up

Expected FSC Capacity Ramp-up

Farmer Service Centre	FSC Start Year	2015	2016	2017	2018
Butajira Pilot FSC	2015	25%	50%	75%	100%
FSC 2	2016		25%	50%	75%
FSC 3	2017			25%	50%
FSC 4	2017			25%	50%
FSC 5	2017			25%	50%
FSC 6	2018				25%
FSC 7	2018				25%
FSC 8	2018				25%
FSC 9	2018				25%
FSC 10	2018				25%
Equivalent of full capacity FSC		0.25	0.75	2.0	4.5

With catalytic funding support, we will be able to rapidly expand GreenPath's unique model across East Africa, quickly and sustainably improving the lives of farming families.

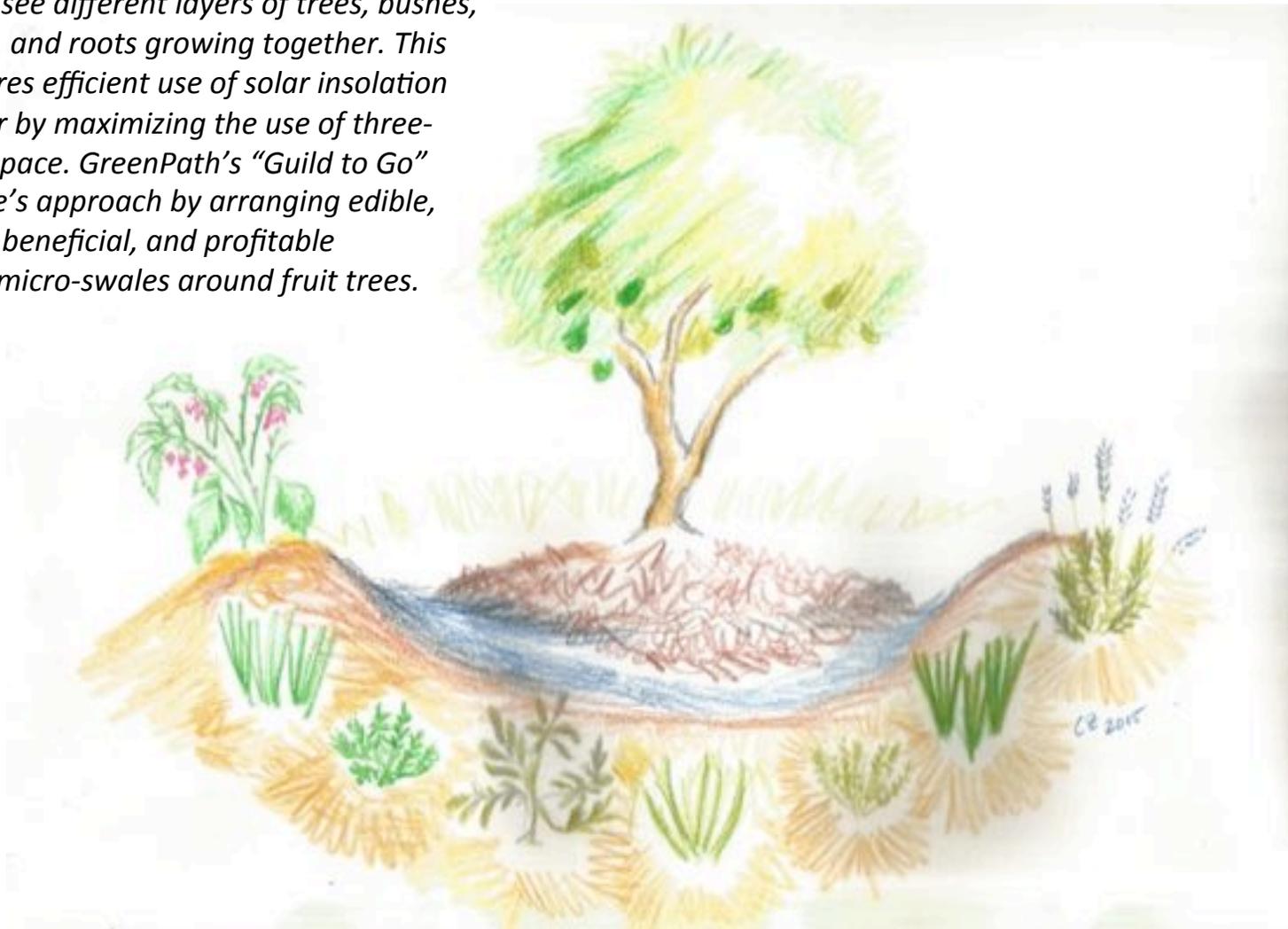
Families such as Sabir and Hanna's family below have genuine potential to take advantage of an attractive market opportunities, without damaging the environment. They just need the right support from you and us.



Appendix

GreenPath Permaculture Program Example – “Guilds to Go”

A GreenPath "Guild To Go" System – In nature, we see different layers of trees, bushes, shrubs, herbs, and roots growing together. This layering ensures efficient use of solar insolation and rainwater by maximizing the use of three-dimensional space. GreenPath's "Guild to Go" mimics nature's approach by arranging edible, agriculturally beneficial, and profitable perennials in micro-swales around fruit trees.



GreenPath Awards & Felicitations to date

- **MIT D-Lab Scale-ups Fellowship Winner, 2015**
- **MIT IDEAS Global Challenge Winner, Spring 2015**
- **LUSH** Handmade Cosmetics' Sustainable Enterprise Ecology Development (SEED) Program
- **Legatum Fellowship** from the MIT Legatum Center for Development & Entrepreneurship
- **Agricultural Innovation Prize 2014**, Selected for Final Round
- **MIT Public Service Center Fellowships**
- **MIT 100K** Emerging Markets Track 2014 Final Round
- MIT Legatum Center Seed Grantee



MIT
PUBLIC SERVICE CENTER

