

Introduction to Tree Bonds



We often hear how “access to credit” is a key constraint for economic growth, particularly for smallholder farmers. For decades, attempts have been made to encourage, support, and cajole lenders into financing rural agriculture. However, after years of efforts, smallholders remain at the subsistence farming level.

So why do we keep advocating the same model?

The Challenge

Financing smallholder agriculture has been inadequate. Financing perennial fruit trees – which take 5-7 years to mature – is unprecedented.

The Solution

“Tree Bonds” is an innovative financing product designed to address the worldwide demand for the long-term financing of perennial tree crops.

The Results

After five to seven years, bondholders will have recovered a return on their investment, and the farm family will own a productive orchard with a useful life of fifteen or more years.

Most smallholder farms consist of three to five hectares of land; however, only a fraction of this land is actually being used for farming. The remainder has been idle for years because farmers lack the financial resources to expand. A farmer in Kakheti, Georgia told me: “What good is it to know what inputs to use if I don’t have the money to buy them?” Smallholders simply can’t afford the required seed, fertilizer, and other inputs to increase the number of hectares under production.

While some financial institutions do provide limited short-term loans, few smallholders actually have the collateral, financial records, and production history to qualify for a loan. And if they do qualify, interest rates are high relative to the low margin crops traditionally grown by smallholders. Should anything go wrong, the farmer is not only unable to repay the loan, but also unable to plant the next crop. It’s no wonder farmers are reluctant to take on loans when the risk is to their family’s livelihood. What’s more, longer term financing (three or more years) to invest in production equipment or to establish perennial tree crops like apples, cherries, or peaches – which take five to seven years to mature – is unheard of.

This is unfortunate, because perennial fruit and nut trees are incredibly valuable! Unlike vegetables, they produce a crop each year without having to replant, and they can provide income for 15-20 years.

We need to finance smallholders so they can take advantage of these long-term crops. For real economic change, both at the local and regional level, we need to stop following the traditional lending models. They are simply not effective at increasing real agricultural GDP and they have not transformed smallholders into commercial operations.

So what if, instead, we change the model and bring together groups of like-minded people with the capital to invest and the desire to transform some of this fallow land into long-term income-producing perennial crops?



A New Model

We propose raising capital from local countrymen, diaspora, community groups, pension funds, and others who believe that long-term solutions are needed to increase the capacity of the agricultural sector and the livelihood of dedicated rural farm families. Investors will become “bondholders” in an orchard crop such as apples, grapes, peaches, or other stone fruits; even nut, or poplar for plywood, would work as well.

How it Works:

We start by selecting dedicated smallholder families who have fallow land and are willing to join forces with investors in a long-term commitment.

- Smallholders are paid a modest amount and will assign the farming rights of their land to the investors during the orchard development period.
- An orchard management firm will train farmers on the agronomic and managerial skills needed to run a successful orchard.
- During development, the trees, fruit, and money collected from the sale of all fruit are the property of the bondholders, until the bondholders are repaid.
- Bondholders will recoup their investment plus a reasonable rate of return (10-12% annually) in between five and seven years, depending on the crop.
- The land and farming rights are returned to the farmer without cost, and the farm family now has an income-generating orchard for the next 15-20 years.

Those farmers who demonstrate the knowledge base and show leadership skills can become master farmers to support and train new farmers, earning additional compensation. Farmers who fail to adequately perform their duties or willfully cause a loss to the bondholders risk losing the orchard and the land they assigned.

Orchard Management – Extension Service

A local agricultural management and farm extension service will:

- Interview, select, and train farmers.

- Implement an approved work plan for each orchard, including site selection, orchard management, harvesting, and crop sales over the life of the bonds.
- Oversee, manage, and protect the financial interest of the bondholders.

Agricultural universities in the United States have already expressed interest in supporting the local orchard management firm with technical assistance, research material, and work study programs abroad for master farmers.

Expected Results

Depending on the kind of fruit tree, a modest production can be expected in the third year. Thereafter, production increases year-over-year until the trees reach production capacity (about six years).

Farmer Benefits

- Farmers are not required to make any financial investment and are paid (albeit modestly during the development years) for the use of their land and the orchard’s development.
- Farmers learn modern farming practices (and some may become master farmers).
- Once the orchard is fully sustainable, it is turned back over to the farmer and the farmer’s household income increases substantially (roughly ten times current levels).

Bondholder Benefits

- After five to seven years, the bondholders recover their initial investment, plus a reasonable return.
- Bondholders will have financed a productive orchard – one with a useful life of fifteen plus years.
- Investors help their countrymen while earning a return.

Community Benefits

- Seasonal employment is created for the harvesting, spraying, pruning, and processing of products.
- Fruit quality and production increases, thereby increasing export opportunities.
- Food security improves through increasing food availability and access.

There is no shortage of groups who have the desire and the resources to invest in long-term solutions. Solutions that will increase the capacity of the agricultural sector and will improve the livelihood of dedicated rural farm families.

Risk Mitigation

Like any financial endeavor, there are risks involved. It is the understanding of these risks – and the methods to mitigate them – that make the model viable. The following provides a description of some identified risks and illustrative methods to mitigate or manage them:

RISKS	DESCRIPTION	MITIGATION
Character	The honesty, integrity, and commitment of the farmer	Good farmer selection including agricultural experience, historical farming practices, openness to innovation, and a series of reputation and integrity interviews with the farmer, his family, and community. The farmer must assign farming rights of the land to the bondholders.
Corruption	The lack of integrity or honesty throughout the agricultural value chain that is susceptible to any form of corruption	This begins with the selection of appropriate value chain associates. Systems and controls will be instituted that identify and assign personal accountability along the value chain and no transactions will occur in cash.
Harvesting	Poor harvest and postharvest practices, accountability of full harvests	The orchard management firm will monitor the orchard's production, project harvest quantities, and supervise harvest and postharvest practices.
Marketing	The timing, pricing, and collectability of sold fruit	The orchard management firm is experienced in fruit harvesting, grading, packing, and marketing. They negotiate sales contracts or conduct open market sales (domestic and export).
Pest and Disease	Loss of crop, orchard, or significantly reduced yields	Farmer training; annual international expert inspections by US university extension services; assigned agents to monitor orchards and direct the quantity and timing of spraying and fertilizer applications.
Weather, Fire, Theft, Flood	Hail, drought, excess rain, early frost, etc. Disgruntled farmer burns orchard, seedlings stolen	Selection of land based on site-specific weather patterns and micro-climate. Possible insurance for destruction of orchard (fire and theft).
Bondholder Loss	Unforeseen catastrophic failure	Insurance or a guarantee fund to support or mitigate bondholder loss. Crop diversification.

These risks are real, but they are all manageable. Unlike traditional lenders, the Orchard Management Firm has an in-depth understanding of perennial tree crops, enabling them to detect early warning signs and quickly implement corrective actions. It is also important to note that perennial fruit trees are more “durable” than many traditional crops in that a bad season does not lead to total crop failure. Even in worst case scenarios, these challenges would result in an extension of the bond period rather than a complete loss.

The Financials

To demonstrate the financial model, let's look at an illustrative example of an apple tree orchard. It costs approximately \$25,000 to import rootstock, prepare, plant, and maintain a one-hectare apple orchard for the first four years. This is the bondholder's investment. The production cycle of apple trees is as follows:

- **Year Three:** The first crop harvested yields roughly 10% of the expected capacity yield of mature trees
- **Year Four:** Will yield 40%
- **Year Five:** Will yield 90%
- **Year Six:** Full maturity 100% production

At full maturity, a one-hectare orchard can produce approximately \$95,000 in revenue; with annual farm operating costs of \$40,000, leaving a net profit (before taxes) of approximately \$55,000. This is a substantial increase in income for any smallholder farmer.

Bondholders will receive an estimated rate of return of 12% annually over six years. The objective currently envisioned is to bring the bondholders a reasonable rate of return for the associated risks, and to return the orchard to the farmer as quickly as possible. There may be alternative investment structures depending on the agreement with the farm family.

Why it Works

The tree bond model is viable and sustainable because everyone benefits.

The Farmers:

- Transform idle land into highly productive orchards that earn a meaningful income for years to come.
- Learn modern farming practices and managerial skills, which they can pass on to their children and neighbors.
- Earn more income and reduce their financial volatility through crop diversification, leading to more life choices and educational opportunities.

The Investors (Bondholders)

- Receive both a financial and a social return on their investment.
- Fill an unmet need for meaningful investments in agriculture, and can invest (confidently) in their people and their country's development.
- Earn interest income at a higher rate than many other financial options.

Lastly, the community receives healthy produce and new employment opportunities in orchard maintenance, transportation, and processing.

About Roger Bird

In 2007, I was sitting with a farmer in Armenia on a stone bench in a field that had been fallow for many years. "This is prime and fertile farmland," I said, "why aren't you farming this area?" With a defeated and disappointed face he explained that they lacked the money to work the soil and buy the inputs. "We have everything invested in the half hectare we're currently farming and the greenhouse we share with several other farm families. We have the time, but no money to get started"

Roger Bird is a thought leader in international development and financing, with a specific passion for financing agriculture. He began his career as a commercial lender and developed extensive experience lending and leasing to businesses in retail, manufacturing, transportation, and the agriculture sector. He worked with the Federal Deposit Insurance Corporation during the US banking crisis of the early 90's by managing, marketing, and selling failed banks; banks with assets over \$50 million and loan portfolios in excess of \$450 million.

Since 1995, Roger has been bringing his vision, guidance, and support to emerging markets, including Asia, Central Asia, the Caucasus, Africa, the Balkans, and the Middle East. He has turned dysfunctional operations into profitable units; reorganized credit appraisal and administration processes; developed and delivered strategic business courses for SMEs; privatized banks; introduced leasing as a new financing product; facilitated the introduction (and passage) of new legislation that increases access to credit for SMEs; and, authored and presented, "Enhancing the Leasing Enabling Environment" for USAID.

Roger is a forward-thinking and creative lender who has a passion for the agricultural sector and finding ways to say "yes" to good farmers.

www.treebonds.com

Investors fill an unmet need and receive both a financial and social return on their investment.

Upcoming Travel

Tbilisi, Georgia
April 7 -12

Yerevan, Armenia
April 13 – 17

Contact Information

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