

Farm Narrative:

In the 1950s, the Carney family farm, spanning 300 acres, was acquired by Bruce's father, Robert. The land was divided into 200 acres of row crops and 100 acres of permanent pasture. However, in 1996, Robert passed away, leaving the farm to his wife, Karen. Karen, Bruce, Bruce's brother and three sisters, now gather annually to discuss and make decisions on the farm's management.

Bruce was initially working off the farm as a construction superintendent in Des Moines for 28 years, starting in 1985. During this time, he noticed the high expense of maintaining a row crop farm. After six years of chemical agriculture, tillage, and fossil-fuel heavy, input-reliant farming, he decided in 1997 to transition to a more sustainable approach. Bruce borrowed \$10,000 from his mother, Karen, to introduce cattle to the farm – a dream his father, Robert, had always harbored. Bruce gradually repaid this loan with the income generated from the farm.

The farm then embarked on a path towards becoming fully perennialized to support a cattle operation. By selling 75% of its products directly to consumers, serving approximately 1500 customers annually, the farm could support 100 to 125 cow/calf pairs. The remaining 25% of sales are via conventional markets and cross-bred Angus seedstock sales.

In 1999, Bruce brought a significant change to the farm's layout. He started planting trees, beginning with 5000 shrubs and trees to protect the deep ravines on the property from cattle traffic. The trees were sourced from the Iowa Department of Natural Resources State Nursery and planted by hand, with the help of the local 4H club.

By 2002, Bruce had started using the farm's earnings, which totaled around \$35,000 annually, to finance additional improvements. With the assistance of the USDA Farm Service Agency's Conservation Reserve Program, he planted native warm season grasses alongside creeks and self-funded 2000 more shrubs for wildlife. The shrub species included redosier dogwood, ninebark, wild plums, apple trees, and willows.

Between 2003 and 2010, Bruce, with funding from the USDA Natural Resources Conservation Service Environmental Quality Incentives Program, established a livestock pipeline and watering system, along with perimeter livestock fencing. He also planted and self-funded an additional six acres of trees as windbreaks and shade for the pasture.

In 2008, the last year row crops were cultivated, he seeded pastures using baled hay from the nearby Chichaqua Bottoms Greenbelt and introduced a variety of annual forages. That same year, he installed three swales to support a two-acre U-pick for chestnuts, heartnuts, and maples. The latter would be used to produce maple syrup.

As the habitat provided by the trees increased, so did the wildlife pressure. Consequently, Bruce began using tree shelters to protect his plantings and started focusing on creating predator habitat to control root feeders like moles and voles. The U-pick planting has experienced roughly 50% mortality and has yet to fully be established.

Today, the farm is entirely pasture, with 15% or ~45 acres of it planted to trees, prairies, a riparian buffer, a wetland, and an oxbow. Bruce and his wife Connie have been strategic with their finances, saving resources to support the farm's growth. As of 2013, Bruce began farming full time.

The decision to plant trees on the farm was primarily driven by a desire to provide shade and wind protection, rather than a direct source of income. However, the increased comfort for the livestock and the reduced need for constructed infrastructure have improved the farm's bottom line.

In another decade, some mature trees will present an opportunity for logs and lumber production. But more than the financial benefits, Bruce appreciates how the trees have improved the quality of life for himself, his livestock, and the local wildlife.

Bruce's son, Derek, is now preparing to move back to the family farm to continue and expand the silvopasture operation, promising a bright future for the Carney family's legacy.

Highlights:

1. Transition from row crop to a pasture-based farming system was cost-effective.
2. Introduction of cattle to the farm, leading to a sustainable and profitable operation.
3. The significant addition of trees to the farm, serving multiple purposes such as windbreaks, shade for pasture, and protection of ravines and waterbodies.
4. Strategic use of various funding programs to support the farm's evolution.
5. The return of Bruce's son, Derek, to continue and expand the family's farming legacy.

Lessons:

1. The importance of sustainability in farming: Bruce's shift from input-heavy row crop farming to perennial plantings and cattle farming proved more sustainable and economically viable.
2. Strategic financial planning: Bruce and his wife Connie demonstrated the value of financial foresight, ensuring they had sufficient resources to support their farm's development and their shift to full-time farming.
3. Adapting to challenges: As wildlife pressure increased due to habitat provided by the trees, Bruce quickly adapted by implementing tree shelters and creating habitat for predators, such as bird platforms.
4. Leveraging external support: Bruce efficiently used various USDA programs to fund improvements to his farm, highlighting the value of seeking and utilizing available resources.

Motivation:

1. Desire for Sustainability: Bruce was motivated to move away from a system that heavily relied on chemicals, tillage, and fossil fuels to a more sustainable, perennial system with reduced off-farm inputs.
2. Family Legacy: Bruce was inspired by his father's dream of bringing cattle onto the farm, and his actions are also paving the way for his son to continue the family's farming legacy.
3. Animal Welfare: Providing better living conditions for livestock was a significant driving force, leading to the planting of trees for shade and wind protection.
4. Environmental Stewardship: Bruce's consistent efforts to improve and protect the environment - from protecting ravines with trees to providing wildlife habitats - demonstrate a deep-seated motivation for environmental conservation.

Agroforestry Case Study: Carney Family Farm

1. Introduction/Overview of Farm

- *Species:* The farm supports a variety of tree species such as maples, oaks, walnuts, white pine, Norway spruce, cottonwoods, willow, wild plums, apples, chestnuts, heartnuts, and dogwoods. The primary livestock species is Angus cross-bred cattle.
- *Systems:* The farm employs silvopasture and alley cropping agroforestry systems.
- *Images/Representation of Layout:* [Include images/diagrams]
- *"State" of Operation:*
 - *Location:* The farm is located near Cambridge, Iowa.
 - *Stage of Creation/Production:* Currently, the farm is fully operational with 100% of its land serving as pasture. Tree plantings cover about 15% of the area.

2. Starting Investments/Capital

- *Initial Source/s:* Bruce borrowed \$10,000 from his mother Karen to start the cattle operation in 1997.
- *Quantify \$\$:* \$10,000
- *Land:* The farm, originally 100 acres of permanent pasture and 200 acres of row crops, was converted to entirely pasture by Bruce.
- *Equipment:* the occasional use of a tree spade rented for free from the Polk County Conservation District
- *Labor:* Bruce himself and occasionally volunteer groups like the local 4H club provided labor.
- *Stock:* The cattle stock was funded by the \$10,000 initial loan.
- *Infrastructure/Improvements:* Initial infrastructural developments were funded by the initial capital and subsequent income.

3. Land Protections & Tax Incentives utilized

- *State:* A portion of the land is under the State of Iowa Forest Reserve.
- *Federal:* The USDA NRCS provided funding for fencing and livestock water system, and some trees. The USDA FSA provided funding for warm season grasses.
- *Cost effect on operation:* These protections and incentives have significantly reduced operational costs and enabled the farm to maintain its tree plantings.

4. NRCS programs and practice investments

- *Program/s utilized:* The farm has used the Conservation Reserve Program, Environmental Quality Incentives Program, Conservation Stewardship Program, and the State of Iowa Forest Reserve.
- *Application success/failure rate:* Aside from the two acre U-pick planting which has suffered ~50% mortality, all other trees were successfully established.

- *Funding & cost-share match by year or operation stage:* The funding from these programs was key to maintaining tree plantings and other conservation practices.

5. Ongoing Expenses & Investment overhead

- *Year/stage breakout:* As the farm transitioned from row crops to perennial plantings, ongoing expenses were directed towards pasture improvement, tree planting, and building a sustainable, diverse agroforestry system.

6. Income & Profitability bottom line versus overhead

- *By species/system:* The cow-calf operation has been generating ~\$35,000 annually.
- *Outlook:* The farm's income from livestock and conservation funding supports its ongoing operations. Bruce's son Derek is set to expand the silvopasture operation, which may increase future profitability.
- *Marketing:* The farm serves ~1500 customers annually through a 75% direct-to-consumer model. The remaining 25% of sales come from conventional markets and selling of cross-bred Angus seedstock.
- *Sales information:* The farm sells directly to consumers and through conventional markets.
- *Outlook:*
 - *Profitability:* With the prospect of silvopasture expansion, the continued profitability outlook is positive.

The farm's motivations to plant trees were to provide shade and protection from wind for cattle, increasing their comfort and reducing the need for additional infrastructure. Despite the challenges, such as wildlife pressure, the farm has demonstrated the potential of agroforestry systems for sustainable and financially viable farming. Bruce's quality of life, as well as that of his livestock, has improved, and the wildlife has benefited greatly from the added habitat.