A Case Study Series

PROFILES IN AGRICULTURAL ENTREPRENEURSHIP

KIGHT'S PECAN ORCHARD KEVIL, KY

AEC-EXT 2001-02

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August 2000
Updated 2005

> *"I knew if I delivered a quality product, people would buy it."*

Heading into retirement in 1985, Roby Kight knew exactly what kind of commodity he wanted to grow on his farm in Kevil, KY.

"I was trying to get something that the land was suitable to and that you could go directly to the consumer with the product," said the then 72-year old during an April 2000 interview.

Mr. Kight's farm is just west of Paducah near the border of McCracken and Ballard counties. He saw the trend in agriculture toward intensive, large-scale livestock and row-crop production and knew his fields were too small to suit this scale of farming. He also knew the fields were in a flood plain; during a flood the waters can rise as high as three feet but will recede just hours later.

Mr. Kight needed a commodity that would suit his climate as well as a crop that would sustain a flood that would level traditional row crops. He wanted a challenge, something that would keep him interested and occupied. Recognizing his increasing age, he wanted a commodity that minimized the requirement for annual planting labor. He also wanted a crop that could eventually generate enough income to justify hiring all the labor for.

He found that commodity in the pecan.

Twenty years after his first pecan seedlings arrived, Mr. Kight's pecan orchard now covers 80 acres. He produces a high quality product and his pecan trees have entered prime production levels. The project has demanded more attention over the years than he initially anticipated.

"It's a 13-month a year job," he comments. "You don't have to work all the time, but there is something to be done most of the time."

Mr. Kight has had to innovate in his pecan enterprise from the very beginning. Very few of the trees planted during the first two years still remain; he estimates only 200 of the first 3500 trees survived. This low survival rate was due to the predominance of southern pecan varieties used in the nursery stock he obtained.

After those failures, Mr. Kight was still determined to make pecans work. Although many pecan orchards in Texas and Georgia purchase seedlings from southern nurseries for planting, the southern seedlings obviously wouldn't survive the climate of the Paducah area. He began planting his own pecans from seed, using varieties with parentage more suited to his "northern" climate.

Mr. Kight has experimented with about 40 pecan varieties and has settled on a handful of the best producers. His determination and willingness to experiment, innovate, and invent have marked him as an outstanding manager and successful entrepreneur.

This report will highlight the development of Kight's Pecan Orchard with respect to the following characteristics of agricultural entrepreneurship: idea generation, marketing, capitalization, regulation, and growth management. We begin with the question: why pecans?

THE IDEA

"I didn't even know that there wasn't a pecan industry in Kentucky until after I started. Then somebody told me, 'you're it'!"

Kight's Pecan Orchard is not just the only large-scale pecan producer in Kentucky, it is the only large-scale commercial nut farm in the Commonwealth. According to Dr. John Strang, University of Kentucky fruits and vegetables specialist, other pecan production in Kentucky is limited to smaller nursery production and native groves. Pecans have traditionally been produced commercially in deep southern climates like those in Texas and Georgia. In recent years, however, Oklahoma and Kansas have both increased their commercial pecan production in climates not much different than that of McCracken County.

Mr. Kight raised beef cattle, hogs, hay, and some grain on his farm in Kevil, KY, during his career as a mechanical engineer. Although he farmed "part-time," he realized pork production efficiencies during the 1970s that were a decade or more ahead of his time. This background, combined with the lack of a commercial nut industry in Kentucky, might deem it unusual that he settled on pecans as his choice.

But Mr. Kight didn't settle on pecans without some prior experience with the crop. He had planted a pecan orchard as a young man on his farm in Missouri before moving to Kentucky to pursue his mechanical engineering career. That orchard was plowed under by his father's hired man when he was assigned to "clean up" around the farm soon after Mr. Kight moved. Through no fault of his own, Mr. Kight's original experience with pecans resulted in disappointment.

In addition to this prior pecan experience, Mr. Kight had observed an abundance of low quality pecans offered to consumers. It always seemed to him that there were bad pecans in the batches that he purchased. The pecan is an enormously popular nut, a favorite of bakers and consumers alike. And no consumer likes to find old, rancid nuts in their purchase.

"I knew if I delivered a quality product, people would buy it," he said.

Extensive Research

Mr. Kight's pecan production has been characterized by extensive research. He has traveled to the larger pecan producing states like Georgia and Texas to view production and attend pecan grower meetings. He has amassed a generous library of information on pecans. However, his exhaustive research did not truly begin until after the initial planting failures of the southern nursery seedlings during the first two years.

"That was my first mistake," says Mr. Kight.

This initial lack of research was overcome in expert fashion. Mr. Kight estimates spending more than a month per year during the early years traveling to various pecan meetings around the country, touring USDA and state university pecan research orchards, networking with pecan growers, and gathering current and past research from all of the states he visited. He taped all the talks given at the meetings and copiously reviewed the information when he arrived home. He has attended the Oklahoma pecan meetings throughout the 2004 season.

Mr. Kight's meticulous data gathering continued after he decided to begin growing his own trees from seed. In addition to outside research, he conducted his own trials to determine the best varieties for his orchard, keeping records of the parentage and production levels of each tree on his 80 acres.

Mr. Kight also established relationships with virtually all of the world's premier pecan experts, including those from Texas, Georgia, Kansas, and Oklahoma. Many of the production practices he utilizes are the result of ongoing study, visits to producer meetings, and other research. In 2000, he was a member of pecan grower associations in six different states–Texas, Georgia, Kansas, Oklahoma, Missouri, and Nebraska–and is also affiliated with general nut growing associations like the Kentucky Nut Growers.

All these connections enabled Mr. Kight to keep up with the latest in pecan research and production information. Because pecans are produced commercially outside of Kentucky, he identifies experts in Texas, Georgia, Kansas, and other states as the key individuals in the development of his pecan enterprise.

"You can never get enough information," he says.

Mr. Kight has adapted, modified, and innovated as much as possible to suit his pecan crop and production climate. He draws on his past farming and engineering experience, copious research, consultation with experts, and continual on-farm experimentation to help make his initial idea of a pecan orchard meet with success. This report will now focus on how he has dealt with four critical areas for agricultural entrepreneurs: marketing, capitalization, regulation, and growth.

MARKETING

> *"People would come and buy five pounds, take 'em home and see what they had, and they'd come back and buy 15 or 20 more–and bring their friends."*

Mr. Kight's first customers were his friends. Pecan trees only produce a few pounds per tree in the early years after establishment, so there were not tremendous amounts of nuts to market early on. But his commitment to quality would pay off, for news quickly spread of the high quality product he offered. The demand for his pecans has subsequently grown with his production.

High Quality

With only a few thousand pounds of production in the early years, Mr. Kight was able to initially hand-grade all of his crop. This resulted in perhaps one of the best inspected pecan products in the country. He even went so far as to put an extra four percent "baker's dozen" in each five-pound bag. This was to account for the four percent of bad pecans the USDA allows in #1 grade pecans.

"Still," he remembers, "there would never be more than four or five bad pecans in a bag–sometimes not even one."

By word of mouth, news of his product quickly spread. The pecans were his only advertisement to begin with, but he now puts an advertisement in the local weekly paper when the pecans are harvested in the fall. He had not even advertised in the nearby Paducah newspaper before 2000; he thought he would have to in 1999, but drought resulted in only 12,000 pounds of production. Production then steadily increased, from 20,000 pounds in 2001 to between 35,000 and 40,000 pounds in 2003.

Pecans are a cyclical crop; the trees produce about twice as many nuts in alternate years. The 2004 crop was already slated to be a light one, but resulted in a crop failure due to wildlife and other pest problems. (Mr. Kight responded to this crop failure by installing a refrigeration system to help store his 2005 crop).

Sold at the Farm

Mr. Kight receives a few requests to ship pecans, but much of his sales occur at the farm.

"You wouldn't believe this," he chuckles, "people from Florida are driving through three pecan states to buy pecans here."

He also notes that some folks from a more southern state first sell their pecans, then come up and buy from him because they say Mr. Kight's pecans are easier to crack!

This on-farm selling virtually eliminates transportation costs to market. Mr. Kight had purchased nut cracking equipment from a Georgia company and initially charged $0.25/lb to crack pecans for people, but discontinued this practice due to the "hassle just not being worth it."

Mr. Kight has avoided any further processing because of the regulations and increased labor that would come with handling the pecan meats. Furthermore, additional processing would result in a higher price. This increase would move the price uncomfortably close toward the level where the consumer might prefer to just purchase more expensive shelled pecans rather than shell their purchase from Kight's Pecan Orchard.

Mr. Kight sells a minimum of five pounds of pecans. He says he has lost very few sales from this policy. His price was steady at $1.50 per pound until 2004, when he raised the price to $2.00 due to a very short crop year.

Pecan prices have remained relatively static over the past decade, and Mr. Kight's price still falls somewhere in between wholesale and retail price. He does adjust

prices somewhat for smaller and larger pecans, but prefers to charge one price for most of his sales.

"I'd rather justify the price than apologize for the quality," he says, "and I don't want a bunch left over."

CAPITALIZATION

"I jokingly told him (my banker) if you're talking about alternative crops, I've got one."

Mr. Kight's financial position as a retired engineer allowed him to establish his orchard without any outside financing. When production expenses began to increase in the tenth year of production, he decided to use some bank financing. He was well established in the community, good friends with his banker, and there was nothing owed against his farm. However, his product may again have been the best advertisement.

"By the time I got around to needing money, (the banker) already knew that I had a quality product," he states. "He was already buying them from me every year."

Neither did it hurt Mr. Kight's loan application that pecans are an alternative crop for Kentucky. Overall interest in alternative crops was increasing, and ag lenders were being encouraged to consider financing new ventures. Most importantly, the trust essential to a sound financial relationship was firmly established between Mr. Kight and his banker. Access or availability of financing has not and should not be an inhibiting factor in the growth of this business.

Numerous studies estimate a pecan payback period ranging from 12 to 20 years. Moving toward the twentieth year of his pecan enterprise, Mr. Kight has captured payback for the project during the longer payback period. This was due in part to the cost of the first two planting failures 14 years ago. His ability to capture a higher price than wholesale, a natural increase in nut production as the pecan trees age, and harvest efficiencies of scale should contribute to the predictably better cash flow which meets all pecan farms in their second decade of production. Further capital needs, such as new equipment purchases, should be offset by naturally increasing net incomes.

"As long as you are handling pecans in the hull, there are no specific regulations that apply."

REGULATIONS

Mr. Kight has avoided regulations associated with marketing his pecans due to strictly handling an in-hull or cracked nut crop. There are no regulations that apply as long as nut meats are not handled. Avoiding these regulations and the additional labor which would be involved in further processing his pecans has been a way for Mr. Kight to avoid potential management problems.

Regulations applicable to Mr. Kight's business are not solely confined to the marketing sector. One of his largest production concerns is that the list of labeled pesticides for use on pecan trees is diminishing. There are a variety of pests he addresses, but Mr. Kight's integrated pest management program has greatly aided his efforts in this area.

Focus: IPM

One of the innovations Mr. Kight employs extensively is integrated pest management (IPM). It serves as a good example of the way he has combined southern commercial pecan research with what works practically for his farm situation.

Walking through the pecan orchard, one will notice electrical outlets emerging from the ground beside many of the trees. Mr. Kight uses this electrical access to hang black lights around each tree. These enable him to collect insects at night. The insects are attracted to the lights, and unlike traditional "zapper" electrical traps, the insect body is hardly mangled after contact with the black light. This lack of damage allows Mr. Kight to evaluate the night's collection to determine exactly what pests he needs to spray for. Because of the high product costs associated with pecan insecticides, he is able to realize significant savings annually from the practice.

Mr. Kight came upon this technique after seeing a reference to it in a research project during a visit to one of the USDA pecan research stations. It had been discontinued because black lights were deemed too

expensive and impractical by the researchers, but the technique seemed like a good idea to Mr. Kight. He personally designed and built more than of 80 black lights with individual insect collection reservoirs. Each one cost about a quarter of what he estimates it would cost purchased retail.

His IPM innovation didn't stop at the black lights, because Kentucky didn't have an IPM plan for pecans– or any nut crops, for that matter. Doug Wilson, the county agricultural Extension agent, assisted as Mr. Kight modified the Kentucky apple IPM program to suit his pecan orchard. Mr. Kight continues to realize significant spray savings with his black light scouting method and an effective IPM program.

The IPM program was not instituted solely to address the diminishing number of products that may be used on pecans. However, the IPM program has benefitted Mr. Kight in this regard as the pesticides which may be applied to pecans decline in number. With the black light IPM program, he now knows more precisely what pests he needs to control, as well as exactly what products from a diminishing product list to use.

"Mother Nature has regulated the trees, and they have in turn regulated me."

GROWTH

Mr. Kight has built a successful pecan production system over the past 20 years. As the 77-year old agricultural entrepreneur looks toward the future of his entrepreneurial effort, two crucial factors emerge: market growth and nature. The first area is more definitely under his control than the second.

Markets and the Future

As previously stated, Mr. Kight's production increased substantially from 12,000 to 20,000 pounds in 2000. Production grew each subsequent year, peaking at 40,000 pounds in 2003, before a crop failure in 2004. Mr. Kight conservatively estimates his peak production to be between 55,000 and 65,000 pounds at full maturity and production levels. He has begun thinning out trees to make room for the better producers in the future.

Mr. Kight acknowledges the challenge of having substantially more product to market than when he started. He was initially prepared to wholesale some of his pecans to a sheller (resulting in a price closer to $1.10 according to Texas A&M University data). However, he has several factors in his favor for increasing his direct market base.

First, he has local market channels that are virtually unexplored. Paducah (population 30,000) is minutes away. While many of his customers come from Paducah, he has never advertised in the Paducah paper to expand knowledge of his product. Second, he currently sells several thousand pounds to individuals who retail his product door-to-door in gift packs. This is a market that he says could easily expand. He might also explore developing his own gift pack. Finally, his proximity to major metropolitan areas like St. Louis, Memphis, and Nashville offers potential for marketing into retail outlets in these higher population areas.

As his marketing needs increase, Mr. Kight will also face additional production demands. He is currently getting ready to install a second drip irrigation line to his trees, which demand more water with age in order to maintain peak production levels. A higher volume of production will demand more labor and equipment for harvest; pecans need to be taken off the ground quickly after the trees are shaken so they do not darken in color.

The variety research Mr. Kight has conducted is sure to pay off as his trees increase in production. The handful of varieties which comprise the bulk of his production have been selected based on nut production and quality. Combined with his sound management and timely harvest, the trees should continue producing a quality product.

Mr. Kight is unsure of just when his direct market will be saturated. People like his product, and there has always been demand for more.

"These people can buy a five-pound bag of pecans and send them north to their friends...they might send them a $50 gift certificate or whatever and never hear about it, but they'll hear about those pecans," he observes.

Since pecans can be held in cold storage for over a year, he installed a cooler in 2004 to store crop after harvest.

This should allow him to market crop year round, as well as explore additional markets.

Nature

Mr. Kight notes that Mother Nature has regulated the growth of his trees, which have regulated him. Like any other agricultural endeavor, his enterprise will continue to be dependent upon weather and other biological processes. The aging of the trees, pests, rainfall–these will all continue to be essential areas as the orchard production grows.

Mr. Kight is quick to note that his age also a key factor in his business approach.

"I was doing fine until I went to the doctor the other day," he wryly comments and then ticks off a string of health concerns.

The demand for supplemental labor has increased drastically since 2000. Finding good production help is generally always a concern for agricultural producers, and harvest labor is especially difficult to juggle for Mr. Kight as production has increased.

Outlook for the Future

Not unlike many older farmers, the major dilemma Mr. Kight now faces is how to pass on his farm business. He has two sons, both of whom have successful careers in the Paducah area and help with the pecans when the labor demand increases during harvest. One of the sons had initially committed to taking over the pecan enterprise when Mr. Kight retired, but that has not yet materialized.

Mr. Kight recognizes this potential lack of a successor as a problem he did not foresee. He realizes that his health will requires him to make a business transition decision soon. It's his latest obstacle to surmount. He meets it with the same kind of self-determination with which he has met dying seedlings, crows, and drought.

"You can't solve a problem until you know you've got one," he says, "and I'll solve it."

Acknowledgements

Special thanks to Mr. Roby Kight for participating in this project.

Thanks also to Mr. Doug Wilson, UK Agriculture Extension Agent--McCracken County and the case reviewers.

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This case was originally prepared as part of a casebook to be edited by Dr. Timothy A. Woods, UK Department of Agricultural Economics, twoods@ca.uky.edu.

Funding for this project was originally provided by a grant from the Delta Enterprise Network. www.deltanetwork.org

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