

# AGROFORESTY ON THE FARM

VOSS PECANS

CARLYLE, ILLINOIS

RALPH VOSS | 2023



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## About the Farm

Ralph Voss is a corn, soybean, wheat, and pecan grower near Carlyle, Illinois. He is the only commercial pecan grower in Illinois, at the far northern range where pecans are traditionally grown. He got his start growing pecan by harvesting the native nuts growing in the rich fertile soil of the Kaskasia and Illinois river bottomlands that he farms.

Historically, Ralph would harvest the native nuts and sell what he could, but was always disappointed by their small size and his difficulty cracking them. Beginning in the 1980's, he began grafting new varieties released by university breeding programs, like Texas A&M University. "I remember grafting those first Pawnee varieties and thinking how nice it would be to get some of these nice big nuts. Over the years, they have done fantastic," says Ralph.

Today, Ralph is growing 160 acres of his own pecans, in addition to his row crop operation, and manages another 100 acres of pecans for a local family. The majority of all trees are either the Pawnee or Kanza cultivar, two popular varieties that work well as a pollinator and a production cultivar. Growing pecans also works well with the rest of the farm because the bulk of the work to harvest pecans is after November 1<sup>st</sup> when Ralph is done harvesting his corn and soybeans.



## Farm Management Practices

Voss Pecans are planted at a 40 foot by 40 foot spacing, which is wider than traditional spacing. This wider spacing results in fewer trees per acre than more traditional 30 foot by 30 foot spacing, or double row configurations. As a result, it can take longer for growers to earn enough from their pecans to cover their planting and establishment costs, compared to growers who use tighter spacing. However, wider spacing does make it easier to maintain and perform field tasks.

Another reason for the wider spacing is to harvest forage between the rows of trees, creating an alley cropping system. Ralph has several large cattle operations and a dairies in close proximity that can use the forage for livestock feed. Sales of the livestock feed provide additional income, helping to compensate for the lower yield per acre of pecans from the widely spaced trees. The cover crop/forage mix is equal parts alfalfa, clover, Kentucky bluegrass, and redtop grass. The alfalfa and clover provide some nitrogen, which is crucial for consistent yields. Over time, the alleys between the rows of trees transition to being primarily bluegrass and redtop.

Pecans take a long time to mature, so nutrients are applied as needed. According to Ralph, the pecan crop needs 10 pounds of nitrogen for every 100 pounds of pecan production. The target yield he is going for is 1,500 pounds of pecans per acre, meaning 150 pounds of nitrogen is needed. When the grass and forage nutrient needs are factored in, he usually applies 200 pounds of nitrogen per acre to maintain fertility. Ralph splits his nitrogen applications, with the first 100 pounds applied early in the year while the trees are able to absorb it, and the grass is not yet growing. The second application is applied in May after Ralph has determined the approximate size of the crop and can narrow down a precise rate.



Voss Pecans farm entrance.

Weed control consists of applying mulch to seedlings at the time of planting, and then around each tree with a three-to-four-foot circle of spray in order to kill the grass/forage mix. This is to keep the grass/forage mix from competing with the pecan trees. Due to the harvesting of forage between rows, this is the only weed control that is needed.

Pest and disease issues primarily consist of stinkbugs (all five species), pecan weevil, and scab. Every tree gets at least one or two fungicide applications per year to treat scab, but they only receive this treatment as needed because it is expensive. The two pests that absolutely must be controlled are the stinkbugs and pecan weevil. Both of these pests can leave black stains on the nut meats. Pecans with black stains must be removed during the shelling process, so anything more than a small percentage of pecans with black stain needs to be controlled.

Typically, spraying for stinkbugs and weevils starts around the first part of August and is targeted to the adult insects. Insecticide spraying, which can occur up to three times, is typically completed in about a month. Targeting the insecticide spray to align with the life cycle of the insects is the best way to keep these two pests in check.

Nuts begin to ripen and mature at the end of September into October, and the pecans are ready to fall from their husk around November 1<sup>st</sup>. The Voss family uses a mechanical shaker to vibrate the trees, causing the nuts and sticks to fall. The sticks are then picked up with either a stick rake or by hand to make a clean orchard floor for the harvesters to collect the nuts. A single pecan harvester can cover approximately eight acres per day. The Voss family has two harvesters, which means that it takes roughly 30 to 40 days to harvest all 260 acres that Ralph manages. Each acre is typically harvested twice.



## Marketing and Economics

It was tough when Ralph first started marketing his crop of native Illinois pecans in the early to mid-1980s. “People didn’t want to fool around with cracking these smaller nuts, so I knew I had to go beyond sellings whole in-shell nuts.” He found an old cracker and set up a rudimentary cracking and shelling line; eventually he began marketing shelled pecans. The customer response was overwhelming and has led him to being the largest commercial pecan grower in the State of Illinois

Today, Ralph directly markets his pecans to customers from the farm via an on-farm store. He also sells at farmer’s markets, on his website, and directly to customers in St. Louis, Chicago, and beyond. Roughly 75% of his crop (40,000 to 80,000 pounds) per year gets shipped in large super-sacks to a custom sheller that specializes in cracking and cleaning pecans. The processor will wash, dry, analyze, crack, and separate the crop. The processor will then send Ralph 30-pound boxes of whole kernels, kernel pieces, and mixed product that he sells directly to customers. A sub zero freezer on the farm keeps the nuts stored in ideal conditions for superior freshness and quality. The other 25% of the crop is processed on the farm through an elaborate series of washer, dryers, crackers, aspirators, scanners, and scales. These processes eventually yield whole kernels, kernel pieces, and cracked, but not separated nuts for those who enjoy doing it themselves. The on-farm store is expanded in 2023 to offer more space for retail shoppers who enjoy traveling to the farm and purchasing directly from an Illinois farmer. Farmgate prices for native pecans can range from \$0.40 per pound to upwards of \$1.00 per pound. Improved varieties can bring in \$1.20 per pound to \$2.00 per pound. The Pawnee variety sells for more because of the size and quality, with a range of \$2.20 per pound to \$3.00 per pound.

Ralph has the flexibility to process more of his crop on farm when farmgate prices are low. Conversely, he has more flexibility to sell to the shellers when prices are high. Pecans that are ready to eat are sold for \$8.50 per one-pound bag, with discounts available for both bulk and whole un-cracked nuts. One-pound bags of cracked, but not separated, pecans range from \$2.25 per pound for the natives to \$3.75 per pound for the high-quality Pawnee variety.

## Lessons Learned

For new growers, planting the right plant in the right place is the best advice Ralph can give. Ralph started out growing native pecans, but growing the improved varieties has allowed him to expand his operation and achieve profitability.

The larger size, consistent production, and ease of cracking make Pawnee the dominant pecan of the industry. However, growing Pawnee or other commercial varieties further north is risky due to cold temperatures and the long maturing time. For example, Ralph tried to grow the Lakota cultivar, but over time he has learned that it is not a cold hardy pecan. Ralph has learned from his mistake and is gradually replacing Lakota with better suited cultivars.



Equally important to selecting cultivar that will grow well in a given area, is ensuring adequate pollination through the selection of pollinating cultivar. Pecans don't pollinate themselves, so they need another cultivar that sheds pollen at the same time that the selected cultivar's female flowers are receptive.

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