

What's that blooming along the road?

Tung Trees Growing Along Roadsides — a Legacy of a Once-thriving Industry in the South

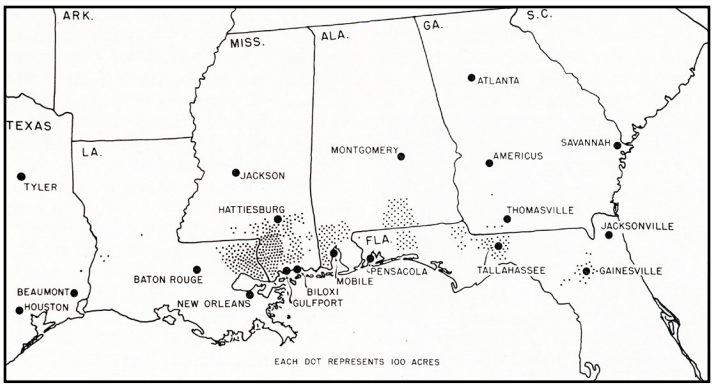
BY ROSE RODRIGUEZ

You don't notice the tung trees in the Red Hills until you see them in bloom along the side of many of our roads in the spring. The trees' flowers are a beautiful creamy apricot color with magenta throats tinged with yellow.

Where I walk in my Tallahassee neighborhood, the trees grown in a weedy strip of vegetation and reach toward the road for the sun, showing off their blossoms, which then drop and yield round green seed pods.

It's been weeks since the flowers have gone and the seed pods are now fat and shiny yellow-green. The trees are now being crowded by other vegetation nearby that has come alive as the weather has warmed and the rain is abundant. Cat briers have twined around the branches and Spanish needles, and poison ivy are everywhere at the base of the trees. It's an unhospitable place to explore. I stay a healthy distance away to take my photos.

But, that's not how these trees once existed in the Red Hills or elsewhere in north Florida and other Gulf South states – consigned to roadside ditches. No. Tung trees were once planted in groves and there was a thriving industry of tung growers in the "Tung Belt" that was served by the American Tung Oil Association, and supported by the U.S. Department of Agriculture and the Tung Research and Development League among other organizations, which celebrated this tree. What happened?



Tung Belt

What happened was World War II. In 2013, Whitney Snow, a doctoral student at Mississippi State published a thorough history of the Tung industry for her PhD titled, "Tung tried: agricultural policy and the fate of a Gulf South oilseed industry, 1902-1969." See sums up the fate of the industry here:

> The U.S. tung oil industry began as a government experiment in plant diversification but businessmen mistakenly interpreted this interest as an endorsement of domestic production and began growing

tung trees in the Gulf South states of Florida, Georgia, Alabama, Mississippi, Louisiana, and Texas. The new crop quickly caught the attention of paint, varnish, and ink companies in the northern and Midwestern states and created a buzz among chemurgists [those who advocated the development of new industrial chemical products from organic raw materials, especially from those of agricultural origin] like Henry Ford and other industrialists who eagerly expanded tung acreage. With the erection of the first crushing mill in 1928, the tung oil industry began but it did not acquire any semblance of maturity until World War II.

The war thrust the nascent tung oil industry into strategic status. Used as a varnish on military airplanes and naval vessels, a brake lining, a machinery lubricant, a liner for tin cans, and as electrical insulation, demand exceeded supply. Traditional consumers had such a difficult time purchasing tung oil during the war that they turned to other oilseeds or new synthetic oils. The war both aided and crippled tung oil by highlighting its chemurgic uses and deterring consumers given that shortages encouraged the quest for alternatives. Despite a barrage of synthetic competitors and imports, domestic tung growers continued production in the hopes that the discovery of new industrial markets would increase demand and attract government support in the form of parity, tariffs, and quotas.

Between 1949 and 1969, a series of agricultural policies granted protection but from the outset federal support proved reluctant and tenuous because production remained miniscule, quotas threatened to heighten diplomatic tensions, and wealthy, part-time growers comprised the bulk of parity recipients. Hurricane Camille has often received credit for bringing a swift end to the industry but imports, competitive oilseeds, synthetics, and freezes had delivered powerful blows to the extent that many farmers stopped growing tung long before 1969. Indeed, Camille proved nothing more than a death knell to a waning industry that had become dependent on government largesse.

In the Red Hills region, many landowners, like naturalist Herbert Stoddard (see pages 7-9), embraced the tung oil industry before and after World War II, and planted acreage in tung trees. Whitney Snow mentions Stoddard in her paper, and interviewed Leon Neel, his business partner in their forestry business about Stoddard's groves.



*An advertisment on the back cover of the September 1961 issue of the **American Tung News**.*

The Florida Memory Project has an article, "Florida's Not-So-Native Tung" that discusses the tung industry in Florida. Tallahassee is noted as an early location for the cultivation of tung trees. William H. Raynes, who owned a farm off Miccosukee Road planted five tree seedlings in 1906 that he was given. Only one survived, and it lived until 1940. But thousands of acres were planted in Leon County and elsewhere in north Florida, including Gainesville, where the first nut crushing mill was built in 1928.

In the appendix of Snow's dissertation are tables from the U.S. Census of Agriculture that show how the industry had dwindled by 1969 to 42 farms, as shown below, from a high of 800 farms in 1950.

County	Farms	Acres	Trees
Calhoun	1	1,953	172,580
Jackson	10	1,929	185,430
Jefferson	11	6,668	469,734
Leon	6	2,700	260,600
Other	4	711	60,931
TOTAL	42	13,961	1,149,275

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The Source of Tung, its Past, and Future

BY ROSE RODRIGUEZ

Tung trees originated in the Yangtze Valley of southern China where the oil produced from the nuts was used for thousand of years as a coating to waterproof ships, among other uses.

On a website, *First State Woodturners*, is an account by Eric Krum of tung oil's history. It states that during the Song Dynasty, the earliest references for Chinese use of tung oil is in the writings of Confucius around 500 to 400 BC. "The Chinese have used tung oil, also known as China wood oil, for at least 2500 years for building waterproof boats and paper parasols, wood finishing, wood waterproofing, caulking, inks and paints."

Because dried tung oil is impervious to heat, moisture, dust and chemical changes it was used by paint manufacturing companies as a drying agent for their products until cheaper synthetics replaced the natural oil.

Even as the Tung industry was becoming more commercially viable during the depression years of the 1930s, tung oil was imported to the U.S. from China. But in 1931, Japan invaded Manchuria, and the supply of oil diminished. Later, because of China's war with Japan, 1937-1945, exports were impossible. Once this supply of oil was cut-off, domestic tung oil production became important, especially after the 1949 Communist victory in China when imports ceased during the Cultural Revolution.

At one time, Leon County was the second largest producer of tung oil in Florida. In his book, *From Cotton to Quail*, (1968), Clifton Paisley notes several plantations that planted tung acreage in Leon County in the 1930s — Meridian Plantation and Leon Tung Orchards are two. Leon Tung Orchards was bought by Florida State Supreme Court Justice, Stephen C. O'Connell with three business associates and renamed Turkey Roost Plantation. It was planted in 1700 acres of tung trees. O'Connell would become the president of the University of Florida in 1967, where he presided until he retired in 1973.

In 1984, Lea Wolfe did a site inventory of Turkey Roost for the Florida Master Site File, Leon County Plantation Survey. Located in the lower northeast of the county, Wolfe stated that although the plantation was "historically significant for the tung industry..., it never operated as a quail preserve." She further notes that Turkey Roost's tung oil production employed 300 workers at its supremacy, with 8 permanent workers who lived on the plantation. The production complex included a huller building, dryer building, office/barn and four workers' houses.

Nut pickers were paid by the bag rather than by the hour, but when the minimum wage laws were extended to farm workers in 1966, labor costs for this labor-intensive industry made continued tung oil production unprofitable. Killing frosts, competition from South American imports, the use of natural subsitutes like linseed oil, and cheaper synthetics were its doom.

A substanial Jefferson County grower was Tungston Plantation at Capps, which had a large processing plant. Like the Leon County tung groves, by 1969 profits from tung had plummeted and it no longer made sense to continue oil production. The last nuts were harvested in the Red Hills in the early 1970s. Tung groves were bulldozed to make way for pasture and cattle. And the old processing plants, like the one at Capps that stood until about four years ago, were eventually torn down.

Recently, however, there has been an interest in growing tung trees for oil production again. One grower reviving the industry is Greg Frost of Gulf Coast Tung Oil located in Tallahassee, Florida, which is now partnered with the Constitution Group. Their website states, "The partnership joins experience in Tung oil production with global financial and entrepreneurial expertise. Resulting from a shared vision and common goals, our regional orchard* operations have already expanded significantly with ramped up Tung oil production coming in the near future."

Frost planted his first tung trees in 2011, on 30 acres leased from Jeff Phipps. In a phone interview, Frost stated that a niche market for the higher quality tung oil has always existed, and he and his family are leading the way by helping others establish orchards; showing farmers how tung as an alternataive crop can diversify and increase their income; and, by providing harvesting and milling services for other growers. ***Gulf Coast Tung Oil*** now has planted and additional 400 acres. Frost has also planted 3-acres as a seed orchard for trees he was provided from the Thad Cochran Southern Horticultural Laboratory in Poplarville, Mississippi. This late-blooming 'Spiers' cultivar blooms two or three weeks later; after a late hard freeze in the spring of 2019, these tree were the only ones without blossom loss.

**(Orchard and grove are used interchangebly in the tung industry.)*

The question is whether new investment in an old industry will pay off. In an article, "Reviving Tung" for *FloriAgriculture* magazine, C. B. Crawford states that the paint industry is shifting away from chemical synthetics and back to tung oil as a green product. As a result, Frost thinks the time is right for investment in the tung industry. He is quoted in the *Picayune Item,* a Mississippi newspaper, ("Resurgence of Gulf tung industry has local ties," September 21, 2019), about the timber industry that was heavily damaged by Hurricane Michael in 2018, and what might replace it. "About 30 people showed up in March (2019) for a town hall meeting to discuss tung oil at the Jackson County, Florida, Extension Office. One big issue will be if they get help removing the downed timber, so they can plant tung trees," said Mr. Frost.



ROSE RODRIGUEZ

Street sign for Old Tung Grove Rd off Hwy 90 near Jefferson County line.

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Photo Gallery from the Florida Memory Project



Farm worker gathering nuts from tung trees at Capps, Florida, 1946. Photo couresty of the Florida Memory Project.



A worker feeds tung nuts into a machine inside a tung oil plant in Tallahassee. 1949, Photo by Red (Benjamin L.) Kerce . Photo courtesy of the Florida Memory Project.



Tung trees with green nuts at a Waukeenah, Jefferson County, Florida plantation, July, 1952.



Ann Keith and Lettie Jane Pruitt under tung trees in blossoms at Tungston Plantation, Capps, in Jefferson County, Florida. Photo circa 1950s by Karl E. Holland, courtesy of the Florida Memory Project.



Aerial view of tung tree orchard in bloom – Tungston Plantation in Capps, Florida, March 1961. Photo by Karl E. Holland, courtesy of the Florida Memory Project.



Machines gathering tung nuts in Capps, Florida. Photo by Karl E. Holland. Photographed in January 1962. Photo courtesy of the Florida Memory Project.



Workers loading tung nuts on to conveyor in Capps, Florida, 1962. Photo by Karl E. Holland, courtesy of the Florida Memory Project



A field of bulldozed tung trees off U.S. Highway 27 between Capps and Tallahassee (1976). Photo courtesy of the Florida Memory Project.



Tung nuts on a tree growing in a ditch by the road. Photo by Rose Rodriguez

The tung oil tree, *Aleurites fordii,* is listed as a Category II invasive species by the UF|IFAS Center for Aquatic and Invasive Plants, but accoriding to IFAS, this non-native (imported from China) has not yet altered Florida plant communities to such an extent to be ranked a Category I invasive. All parts of the tung tree are poisonous even though it has been used to treat skin conditions and constipation. The seeds are the most dangerous part of the plant. One seed can be fatal to a human. Symptoms may include severe stomach pain, vomiting, diarrhea, weakness, slowed breathing, and poor reflexes. The leaves give some people a poison-ivy-like rash.



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Rose Rodriguez is the *eJournal* editor, information designer and a frequent contributor.