

Knack For Tinkering Helps To Save Soil On 62 Million Acres

*Early No-Till Equipment Innovators Grass Root Efforts Advance
Crop Residue Management*

REGINA LAROSE
MidAmerica Farmer Grower

SIMPSON, ILL.

A gift from God, Popular Mechanics magazines, and constant tinkering on the farm led to the development of no-till conservation tillage equipment at Dixon Springs Research Center. In a nutshell, this is how Donnie Morris of Simpson, Illinois explains his ability to build the first no-till planter used by researchers on the oldest continuous no-till plot in the state of Illinois.

According to the USDA, Conservation Technology Information Centers' National Crop Residue Management Survey found U.S. farmers practiced crop residue management on about 172 million acres in 2004. Most of the growth in conservation tillage since 1990 has come from expanded adoption of no-till which can leave 70 percent or more of the soil surface covered with crop residue. No-till crop area more than tripled from 17 million acres to 62 million acres between 1990 and 2004.

Renowned no-till researcher John F. Bradley remembers the early days of no-till research and Donnie Morris's planter.

"Most ingenious inventions or modifications for change are thought of and developed from ideas at the 'grass roots' or literally the 'field' level. Many come from laymen or practitioners without degrees or advanced degrees. This has often been the case in the agricultural community," he said.

At the start of no-till, "there were no commercial devices so modifications were made in the farm shop by engineers like Donnie Morris; tried under field conditions, tweaked and tried until satisfactory. I would dare say, much of the early no-till inventions and modifications were made this way," explained Bradley.

"I know at the University of Tennessee Milan Experiment Station, Don Gibson, Farm Foreman (now retired) was a master welder and helped make many of the no-till planter and fertilizer placement modifications to enable successful no-till. This was in the same time frame as Donnie Morris was working at Dixon Springs. We often said that we should have helped and enabled him to receive patents for his work. He and Donnie Morris were men behind the scenes making no-till successful and viable long before John Deere and Yetter pressed metal into coulters, openers and residue managers. Howard Martin of Elkton, Kentucky would be another example of a farmer who developed his own no-till planter modifications and fertilizer placement equipment in his own farm shop," stated Bradley.

Donnie Morris took his gift from God and developed it starting at an early age. Becoming the man of the house at age seven when his older brother was drafted into World War II in 1941, Morris, his mother, grandmother and sister lived on his grandparents rolling hill farm in Simpson Illinois. Morris had another brother who passed away as a child.

Transportation became an issue for Morris as his mother did not drive. Morris rode the school bus to and from school. Needing transportation to get around the community and to church, Morris motorized his bicycle. "My first mechanical attempt was taking a gasoline washing machine engine and motorizing my bicycle," he said. "This was before we had electricity in the area. We had a gasoline-powered washing machine at that time. We got electricity on the farm in the late 40's." Morris then helped one other kid in the community to motorize his bicycle.

Morris credits Popular Mechanics magazine for the inspiration behind the construction of his first tractor at age 14 in 1948. Popular Mechanics, founded in 1902, currently reaches 9 million readers each month. "As a boy, I read Popular Mechanics all the time. I decided I would build a tractor to use on the farm," he said.

"It had an eight horse gas engine from Sears. I used a couple of Chevrolet car transmissions; a Plymouth rear axle, a wheelbarrow wheel for the front wheel and the frame of an old field roller," he explained.

Later Morris rebuilt a second tractor which had a 1928 Chevrolet engine. The original engine has been swapped out but Morris is still using this tractor on his farm today.

After high school Morris went to work down the road from the family farm. Dixon Springs Ag Center employed Morris in the farm shop. In December of 1956 Morris was drafted into military service. The Korean conflict was winding down at this time according to Morris. "I did not

see action. I was sent to Germany and worked as a helicopter mechanic. I spent my two years of service in Germany," he said.

Morris explains, "in addition to working on H13 and H 34 helicopters and flying as a crew member, I made some gadgets to make servicing them easier."

"Among other things, I rigged a 2 ½ ton truck for as a field kitchen and customized the Company Commander's Jeep."

With 11 months left of his four years reserve obligation, Morris was called to active duty and



Early farm equipment innovator, Donnie Morris of Simpson, Illinois puts his home made tractor to good use hauling manure during the 1940s.

Photo Courtesy of Donnie Morris

was stationed at Fort Leonard Wood, Missouri for eight months in 1962.

Released from military service, Morris got married and continued to work at Dixon Springs Ag Center. In 1978 Morris was promoted to Farm Mechanic Foreman in 1980 he was reclassified to Garage Foreman. "One of the things we were all concerned with back then was the high erosion in the farms down here. At that time some were plowing up and down the hills, there was a lot of erosion. One of our concerns was to stop that," he said.

"When George McKibben, Dixon Springs Ag Center Agronomist, became interested in no-till work we tried different changes on the current planters. We just couldn't get the planter to penetrate into the ground and we couldn't get a good cover either. We decided we were going to have to design and build a heavier type of planter," stated Morris.

"We used heavy coulters in front, a narrow runner which goes into the ground and makes a slit, next I came up with a press wheel with a cutter on it. This is adjustable and controls the depth of the planting. It slices off a slice of dirt and then it pulls it over and seals the opening that the planter runner made. Then of course the wheel behind it basically drives the planter mechanism as far as the fertilizer and seed boxes."

"I built the planter through the winter months. Just as soon as the ground got dry enough in the spring, we went out and tried it out. We were happy, very happy," remembers Morris.

As Garage Foreman, Morris fabricated other equipment for the animal science, animal medicine, and horticulture and forestry departments at Dixon Springs Ag Center before he retired in 1987 such as: a 10-20 soybean plant thresher which researchers used to obtain an accurate count of soybean yields; a no-till anhydrous applicator; a grain dehydrator, confinement crates and various custom trailers.

Morris was asked if growers should stay committed to the no-till system, "I think it is a good way to go in most cases. Thank the good Lord for giving us the ability to come up with something that would help conserve soil and help our country."

Not only did Morris gain mechanical training during his military service, he also gained a love of flying. In 1969, while working at Dixon Springs Ag Center as Farm Mechanic, Morris began pilot training in Paducah, Kentucky in his spare time. "I had to pay for the first 30 hours of training on my own, after 30 hours the GI bill picked up 90 percent of the cost," he said. By 1973 Morris had a commercial license with instrument, multi-engine and instructor ratings.

Morris is currently a pilot for the Civil Air Patrol. He pilots the Cessna 172 assigned to him whenever he is called. "Last summer I spent three days searching for an elderly person," he said.

Morris is enjoying his retirement with his wife Jolene. Jolene is the adult Sunday school teacher and church organist. They look forward to visits from their daughter, son-in-law and granddaughter. Their 93-acre farm is in the CRP program but Morris keeps busy; flying for the Civil Air Patrol; working in his shop and volunteering at church. Morris is the Secretary-Treasurer of the Cemetery Board, deacon, Treasurer and Sunday School Director at County Line Baptist Church. Δ



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