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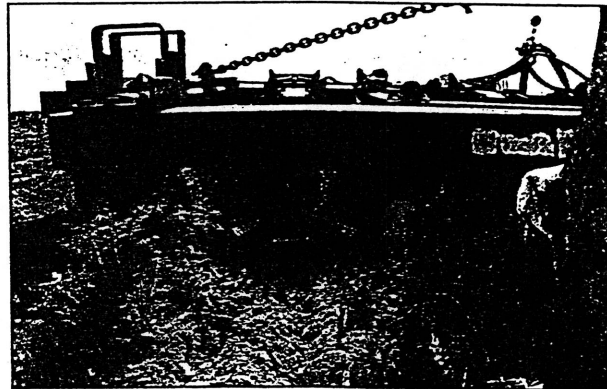
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Cooperating with the Natural Resources Conservation Service (NRCS), Chuck Myers has been comparing no-tillage to conventional tillage side-by-side for 11 years.
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One of the benefits of lupine and clover cover crops are the beneficial insects they attract. "We're talking 60 percent savings on insecticides," Wayne Parramore says.

ON THE COVER: No-till saves Chuck Myers of Lyons, Neb., 15 minutes per acre per year. "On 1,000 acres, that adds up to 250 hours in a single season!" Chuck exclaims. Photo by John M. LaRose.

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"The cover crops act just like a blanket on the ground,"
Parramore says.

"The Bottomline at Him on the

Why would a conservation tiller raise lupine and clover, instead of small grains for a cover crop?

"Lupine will produce 300 pounds of nitrogen per acre, clover will produce about 100 pounds," says Wayne Parramore of Coolidge, Ga. "Plus lupine and clover do not need any commercial nitrogen to grow for a cover crop, while small grains require approximately 60 units of nitrogen to produce enough mulch to no-till into."

Parramore should know; he is the "largest producer of lupine in the United States," according to agronomist David Wright at the North Florida Research and Education Center in Quincy, Fla. He is the "largest producer in the world," believes Wayne Reeves, agronomist with the USDA-Agricultural Research Service National Soil Dynamics Laboratory, Auburn, Ala.

"We have 1,100 acres now," says Parramore in 1995, his third season with the crop. "Lupine seed had just about become extinct. This is why we will harvest 160 acres of lupine for seed this year, some for sale for '95 fall planting, we hope."

"I got my first seed from a fellow in South Carolina I met hunting who was no-tilling corn into it. We hauled the seed back in a motor home because it was so precious."

Parramore's Carolina seed has blue blooms. The variety is unknown, but is believed to be the Frost variety, according to Reeves. Parramore's registered Georgia seed which he located after that first purchase is Tift Blue with white blooms; he acquired this seed through UAP GA-Ag CHEM representative, Rusty McLeod of Quitman, Ga.

"There are three reasons to try lupine: as a cover crop, increase your bottomline and production of cotton," says Parramore. "The legume provides nitrogen, controls soil erosion and indirectly attracts lots of beneficial insects." It is also high in protein which makes it valuable as pasture.

Parramore's father raised lupine as a land builder and for grazing, but Wayne hadn't seen any for "40 some odd years" when he learned of farmers no-tilling corn into it which stirred his curiosity.

Acreage jumped quite a bit from the 105 acres planted in 1993 and 1994 to the 1,100 acres planted in 1995 because Parramore as well as his son, Chris, 28, liked what they saw so much. The system, which Parramore refers to as in-row tilling, has therefore been refined.

After harvest, 1994, the Parramores rebudded their cotton rows and planted winter wheat for row markers. They also frailed cotton stalks and drilled lupine in

for a cover crop. In late March of '95, the lupine was 36 inches tall when the men began strip-tillage preparations.

The Brown plow "did away with" the remains of the cover crop in a 14-inch band over the stale seedbed at the front of the tractor, while at the rear of the tractor, a rotovator was used to till the 14-inch strip and apply weed-control chemicals. The middles are not touched in the Parramores strip-till system. "Strip-tillage, at this point, allows cold soils to warm up quickly in order to plant cotton around April 10-15," Parramore says.

Also, "At this time, the lupine is left in the middles to provide host plants for aphids and thrips, and as a cover crop to prevent weeds and grasses from growing up. It also reduces soil erosion.

"By not tearing up a 24-inch strip, we can open the middles and take the remainder of the lupine or clover and till it into the soil later on. This is like a second application of nitrogen," Parramore says.

"Keep in mind, we already put one application down and tilled it up the first trip, but they tell me this nitrogen will leach out some."

According to Wayne Reeves, it takes about four weeks for the lupine to start converting into something the plant can pick up. "So we make that first trip about

10 days before we plant, and already have 10 days of that decaying process started. Then we've only got 20 days left at planting time," says Parramore. "Now, in 20 days, the cotton is going to be emerged and calling for nitrogen. Surely the lupine will be partly converted by then."

But, is that going to be sufficient nitrogen, the Parramores ask themselves? "I know there is nitrogen being made in the field right now because of the nodules on the lupine roots. When it first starts blooming, it is making its peak nitrogen," Wayne says.

"The other reason I know, is because I can see it. The wheat we



Photos By John M. LaRose

In 1996, Wayne Parramore, shown with his two sons Robert and Chris, intends to plant 1,100 acres of lupine and 600 acres of clover as cover crops.

Matters—You Can Laugh Way to the Bank!"

drilled for row markers was yellow and now is pretty and green. It looks like nitrogen has been plowed in my wheat strips."

The Parramores knife their wheat in the ground when they prepare the land and plant a legume cover crop in the fall. Rolling this legume matter into the earth the next spring initiates a conversion process "kicking in just when you need your peak nitrogen on your cotton," Parramore says.

So, almost all the nitrogen applied by the Parramores for the '95 cotton crop was through a cover crop, except for 10 units in starter fertilizer at planting and 15 units added on when spraying herbicides.

"And that's what this is all about," Wayne says. "From what I hear, 28-0-0-5, which we previously used because of the sulfur, at 120 pounds per acre to try and produce two bales per acre, was costing around \$110 to \$125 in 1994. This year it started out at \$155!"

"Pop-up fertilizer was going for \$180 to \$200 last year, and started off this year at \$225!"

Taking petiole samples every week to monitor plant nitrogen, the Parramores discovered an amazing difference between commercial fertilizers and lupine. The commercial fertilizer graph changed each time, "going way up to the housetop and falling right back off! In the lupine field, it didn't do that.

"That's the first time I've ever seen one stay between the graph lines where it is supposed to be."

Parramore reported they would start off with 19.5 parts per million on the lupine's petiole samples and it would come down slowly, leveling off at 4 or 5 and



"That legume crop IS my nitrogen!" says Wayne Parramore.

remaining there the rest of the season. The lupine field made 96 pounds more cotton lint with only 25 units of commercial nitrogen than the field with 125 units of commercial nitrogen applied.

Furthermore, the lupine field only had to be sprayed for insects twice com-

cotton plant."

Parramore says they saved \$20 per acre by spraying only twice in the lupine field, just on pyrethroid alone and \$15 per acre on Hi-boy cost.

How lupine will affect armyworms the Parramores don't know, because there was-

pared to five times in the conventionally farmed field. Later, the Parramores even determined that they could have gotten by without the second spraying in the lupine field (based on a check plot).

"We're talking 60 percent savings on insecticides," Wayne says. "It had to be the beneficial insects, had to be. There was no other reason. My scout, Mark Murphy, kept commenting on the high number of beneficials throughout the growing season."

Parramore chuckles when he speaks of companies who breed beneficial insects and the farmers who buy them.

According to Murphy, the lupine supplies food for cotton-eating aphids and thrips who provide food for lady bugs, big eyed bugs and fireants. "Aphids and thrips LOVE lupine," Wayne says. "We saw it last year; they had this field full!"

"By having these cover-crop strips in my field, I have insects evenly distributed—nonbeneficials feeding beneficials. Now, when the cotton gets big enough for the legume to die, where are the beneficials gonna be? They're not going to be all around the edge of the field in a few numbers and slowly come across the field; they're all over the field already. I can show 'em to you!"

"They're in the middles where lupine is still growing, and it's just inches from the middles to the

n't a severe infestation in 1994.

"However, with this method of farming, we have already put a pencil to some things and seen more savings than we bargained for," says Parramore. "I sat down and said if we can save \$75 per acre, I'd be happy.

"Well, when we figured it up including fertilizer, chemicals, seed, defoliates and everything—the total cost of cotton production will be approximately \$103 savings over land preparation and strip tillage rather than conventional tillage. Only one insecticide spraying would add \$11.50 savings to that and 96 extra pounds of cotton lint would add another \$70," says Parramore. "We're looking at a savings and increase in production of approximately \$184.50 per acre. To me that's worth looking into!"

Before switching to strip tillage, Wayne visited many no-till and strip-till farms. He said he saw no-tillers having a hard time getting a stand, especially non-irrigated no-tillers.

"They were having difficulty preparing a seedbed good enough to plant cotton in and maintain a stand at a low seed rate. They did well with corn because you can plant thicker and deeper," Wayne says. "You can also plant peanuts thicker and deeper, and soybeans thicker.

"If you plant cotton too thick, some plants will become non-bearing and then they become a weed."

Parramore has been told that lupine will drink up a lot of moisture in the spring, and he believes it will. "This is why I looked at stale seedbed for additional moisture. The stale seedbed and shaded ground should balance that out."

There could be a bad side to lupine which Parramore has heard about—it could be a host for nematodes. Some scientific research has been done on the subject, but nothing seems to be down in writing, the strip tiller has discovered.

He would like to know more about it, such as where the critters come from, but until then, he plans to treat for the pest. "Still, if I can stop erosion and save \$100, why not spend \$25 back on nematodes?"

The Parramores do stay on top of nematode infestations and other matters; they soil test each field annually and have such records dating back 20 years. They test for fertility, minor elements, and now nematodes, essentially "all that has to do with making a crop of cotton."

However, treating for nematodes may not be necessary every year from what they've seen so far, Parramore says; maybe only every other year, or even every two years.

Parramore will survive the nematodes; he was born on the farm in 1941. He "attended two years of college, came back, and has been here ever since." He took over the operation after his dad and brother died, eventually dropping the livestock enterprises because it was too much to handle.

In 1983, he switched to cotton. "We hadn't grown cotton on this farm since I was a kid and working for my brother, just driving a tractor. But in '83, we aver-

aged 943 pounds per acre, and the next year we went up over 1,008 pounds per acre on 1,800 acres!"

The Parramores own 2,800 acres of land; in 1995, they cropped 1,600 acres in cotton and 60 acres in peanuts. It is run by Wayne, Chris and four full-time employees. They began strip tilling and experimenting with legume cover crops in 1993.

"There are three reasons to try lupine: as a cover crop, increase your bottomline and production of cotton," says Wayne Parramore.

"My daddy didn't want nothing in his field but the crop, which was thought the correct way to farm then," Parramore says. "Today, my neighbors' crops look like the front page of *Progressive Farmer*, and that's what they want people to see. While our crops could be called UGLY FARMING!

"I was the first farmer to strip till in this area. Many of my neighbors still laugh at me, but I don't care. I laugh at them on my way into the bank.

"We have always had erosion on this farm," Parramore explains. "We've got terraces and waterways established, but we're hoping we can take some of that out with this method of farming."

Parramore tries to keep up with what's going on by reading as much as possible. Earlier this year, he read that the 1985 and 1990 Farm Bills said, essentially, that not controlling erosion is equal

to a farmer's deficiency payment. And according to a study conducted by Louisiana State University agricultural economists, returns on conservation tillage systems and conventional tillage systems were almost identical.

However, then they looked at the situation with the assumption that producers would only remain eligible for farm program payments if erosion on their farm could be held to less than seven tons per acre per year. Tillage systems that did not meet the requirements had their payments subtracted.

The results came up with a typical 677-acre farm, no-tilled, returning \$55,000 more per year than the same size farm planted conventionally. However, a producer must no-till 50 to 70 percent of his land in order to reduce machinery or labor.

"Using information like that, you can see that we pay for the soil that leaves our farms," says Wayne.

In 1993 and 1994, the Parramores planted 105 acres of lupine and 75 acres of clover. In 1995, they planted 1,100 acres of lupine and 75 acres of clover. In 1996, they intend to maintain the lupine acreage and increase up to 600 acres on the clover, depending on seed availability and time of planting.

"The reason for both is to shorten planting time, and also that clover may grow better in wet, low-lying areas," Wayne says. "We have had to replant lupine every year, too; whereas clover reseeds itself. And last, lupine may get into disease problems and need to be rotated."

So, lupine is not a miracle crop, though it could be considered that in some respects according to the amount of nitrogen it produces. The legume may look even more attractive if nitrogen prices continue to rise and farmers are increasingly forced to control soil erosion in the future. ▲

ASSOCIATION NEWS

Arkansas Conservation Tillage Association

The Arkansas Conservation Tillage Association was formed, under the leadership of Wayne Wiggins, on Dec. 9, 1993 in Jonesboro, Ark.

The first officers were: Wayne Wiggins, president; Dan Pernell, vice president; Gene Heath, secretary; and Joe Whittenton, treasurer. Assisting with the formation of this association were the Agriculture Extension Service, Natural Resource Conservation Service (NRCS) and the East Arkansas Resource Conservation and Development (RC&D) Council.

Wayne Wiggins said he was well pleased with the association's accomplishments after one year (1994). Numerous fields were held across the state, including one in Craighead County on the Wiggins Farm, near Egypt. In 1995, 73 people were recruited as members.

The NRCS has assigned Larry Farris as technical advisor for the association. His address is: Larry Farris, Arkansas Conservation Tillage Association, 9 Fairway Dr., Cabot, AR 72023, office phone (501) 324-6374, home phone (501) 843-8460.

The Arkansas Conservation Tillage Association plans to hold an annual state meeting this fall.

Wiggins has made several conservation-tillage presentations, including one held in January at the Farming Smart Conference, Memphis, Tenn.; and one in February at the RC&D Southwestern Region Meeting, Tulsa, Okla. Wiggins also attended a No-Till Conference in Bolivia the last three weeks in July of this year.