



IrrigationView



James (above) and Jason Yarbro have already installed five T-L pivots on their 9,500-acre Tennessee farm to increase yields. Having seen their value during a drought, they're now looking at adding even more units.

Surviving The Sands Of Time



Jack King, farm manager for Nofa Equestrian Resort, is dwarfed by one of the farm's 600-horsepower Cat® engines that pull water from the depths of the Saudi Arabia desert.

T-L pivots provide more than 30 years of service in the Saudi Arabia desert.

By Tharran Gaines

hallas per liter, or about 20 ½ U. S. cents per gallon.

SAUDI ARABIA — It's probably a good thing that the center pivot irrigation systems that Jack King manages for his employer are located in the Kingdom of Saudi Arabia (KSA) and not in North America. Since most of the pumps are powered by 12-cylinder Cat® diesel engines that consume up to 24 gallons per hour, the venture would likely be cost prohibitive in the U.S.

"There is almost no surface water available in KSA," says JK, who moved to Saudi Arabia from Ireland. "Water is only available from wells or bore holes, which range in depth from 150 meters to 2,000 meters (492 to 6,562 feet) depending on the area. Most of the wells in our area range in depth from 250 meters to 450 meters (820 to 1,476 feet) and are producing between 1,000 and 1,500 U.S. gallons per minute, with a few wells reaching 2,000 gallons per minute."

However, according to King, who serves as agriculture manager for Nofa Equestrian Resort in Tebrak, Riyadh, KSA, and is locally known as JK, diesel fuel sells for just 21

King notes that while the area was originally developed

SEE KING PAGE 6

The Saving Grace In A Year Of Drought

A move to increase crop yields turned into crop insurance in 2012.

By Tharran Gaines

DUKEDOM, TENNESSEE

—Like most North American farmers, James and Jason Yarbro are continually looking for ways they can increase crop production without adding more land to the operation. It's not that they're opposed to adding more acreage, particularly since their sons, Addison (James's son) and Caleb (Jason's son) have joined the operation full time. But, as everyone knows, the more you can produce on a given investment, the greater the profit. That's the main reason they've gone from zero acres under irrigation to 345 pivot-irrigated acres in just two years time.

Based near Dukedom, Tennessee, Yarbro Farms already encompasses approximately 9,500 acres that is generally divided between corn and soybeans, with a little bit of wheat added to the mix.

"I think we're all looking for ways we can produce more bushels per acre, no matter what the crop," says James. "So we're just trying to maximize our potential. Unfortunately, we have so many small fields, it's hard to put a pivot on very many acres. It doesn't help that a river snakes through part of the farm, cutting it into odd-shaped parcels."

However, it appears that the five T-L center pivot units Yarbro Farms have already installed were put

in just in time. Due to the severe drought across the Midwest in 2012, James says their dryland corn yielded anywhere from zero to 70 bushels per acre, while the corn under the pivots yielded around 200 bushels or better.

As James explains, the first pivot on the farm was installed prior to the 2011 growing season. The other four were just added this past spring, prior to the 2012 growing season.

"One of them currently covers about 100 acres, but can do 125, once we clear out some brush and timber," James explains. "Two more cover about 72 acres each; but one of those could cover more, too, if we can make a deal with a neighboring farmer. The last two

are both in the same field and cover about 100 acres combined," he continues. "So we currently have just one that is making a full circle, but we hope to have two more making a full circle by next year."

In the meantime, James says they continue to look at fields where they can add more T-L pivots in the coming years.

"Last year was a good year, which meant there wasn't a lot of difference between our dryland corn and the irrigated corn," Jason relates. "We had plenty of rainfall and averaged around 200 over the whole farm. However, we felt like the irrigated ground would have

SEE YARBRO FARMS PAGE 6



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Keeping It Simple

This Nebraska farmer insists that no-till farming and T-L pivots are both about simplicity and saving money.

By Tharran Gaines

MINDEN, NEBRASKA — For LaMoine Smith, pivot irrigation and no-till farming are akin to the chicken and the egg and the question about which came first. In Smith's case, it's been pivot irrigation.

"It's nearly impossible to do no-till farming with furrow irrigation," says Smith, who farms around 1,000 acres of corn and soybeans southeast of Minden, Nebraska. "You can try, but it's hard to leave much residue on the surface and still get irrigation water down the rows."

Smith says he actually started no-till farming on some of his dryland acres in 1995. Before long, he had converted the remainder of the farm's 200 acres of dryland fields to a no-till program, and had moved on to the two existing pivots.

"It finally got to the point where I could see we were saving so much money with no-till that we had to have more center pivots," he says. "Gravity irrigation was just getting too expensive, not only in terms of poor water efficiency, but in the amount of equipment and fuel needed for tillage."

Smith says even when he attempted to make fewer passes by switching to ridge till on gravity irrigated fields, he still had to make several passes with the tractor.

"The bottom line is 'they run,'" he says. "And they run with very little maintenance."

"The savings on fuel and equipment is unbelievable," he says. "When I was doing all conventional tillage, I was putting about 300 hours per year on each of two tractors, while covering 600 acres. Now, I cover 1,000 acres and put around 350 hours on just one tractor."

Key to the entire no-till program, however, has been putting the water on from above by means of center pivot units, rather than down the row via gated pipe and gravity.

"We had two pivots when I started farming with my dad in 1983," he explains. "One was a T-L unit and the other was a Valley electric system. Since that time, I've traded that first T-L for a newer unit and purchased two more T-L pivots."

The irony is that LaMoine was the one responsible for selling his dad the first T-L, while his brother was the one who sold him the electric unit.

"I was working for T-L at the time and my brother was working for Valmont, so dad figured that, in an effort to keep peace in the family, he'd buy one from each of us," Smith recalls.

Smith explains that after college, he worked for eight years as a district manager for T-L out of Great Bend, Kansas, before moving back to Nebraska, where he joined his father on the family farm.

As he worked back into farming in the early '80s, Smith continued to supplement his income as a salesman for the local T-L dealership, while driving a school bus on the side. It was only after his dad retired in 1987 that he began farming full-time.

While some might assume Smith still holds a preference for T-L pivots because of his past experience with the company,



Once a salesman for T-L Irrigation before returning to the family farm, LaMoine Smith can't understand why anyone would want the complexity of an electric pivot.

LaMoine will be the first to tell you it's really about the machines.

"The bottom line is 'they run,'" he says. "And they run with very little maintenance. The old saying, 'Keep it simple stupid' or 'KISS' really applies with T-L."

"It just amazes me when you can put the drive components for a T-L and an electric pivot side-by-side, and people don't just go, 'Well yeah, I can see the difference!'" he says. "It's like here you've got a hydraulic valve and a motor and

over here you've got electrical switches, contacts, relay switches, timers, U-joints and electric motors. Yet, they'll pick that one and I want to say, 'But why?'"

Even though Smith still has the Valley pivot, he says the unit has pretty much been rebuilt in the last five years as he's replaced motors, relays, switches and gearboxes.

"It gets to the point you can't trade it, because you have too much money invested in repairs," he adds, noting that his brother

has long since changed careers.

In the meantime, Smith traded the original T-L for a newer one and the dealer, in turn, sold it to a producer in northern Nebraska.

"The fact that a 34-year-old pivot that's required very little maintenance or repair can be resold as a working unit says a lot about the reliability and resale value of T-L pivots," he insists. "They just keep going. That system still has the original gearboxes and motors!"

As far as Smith is concerned, that's a good thing, because he still has one 80-acre field that is gravity irrigated with gated pipe.

"It's not worth buying any new equipment just to work and plant that field," he says. "So I make-do with some older equipment just so I can furrow irrigate that field. However, the plans are to add a T-L pivot on that one within a year or two. Then everything will be no-till, whether it's irrigated or dryland."

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A Fair Trade

I dropped tobacco in favor of irrigated corn four years ago and haven't looked back!

By Tharran Gaines

ROWLAND, NORTH CAROLINA — Even though it's been nearly four years since he "got rid of tobacco" on his Rowland, North Carolina, farm, Michael "Bo" Stone, says he still doesn't regret the decision. For one thing, it allowed Stone, who farms approximately 2,300 acres with his wife, Missy, and his parents, Tommy and Bonnie Stone, to buy his first T-L center pivot unit. Basically, the Stones took the money they made from selling their tobacco equipment and invested it in irrigation for their corn and soybean crops.

Equally important, Stone says dropping the labor-intensive crop allows him to spend more time with his family, which includes three children under the age of 13.

"Traditionally, we were a tobacco farm with around 80 to 100 acres in tobacco each year," Stone relates. "However, it had gotten to where the markets weren't as good as they once were. And as diversified and 'hands-on' as we were, it was getting hard to keep up with everything.

"It got to the point," he continues, "that my kids would still be in bed when I left in the morning and they'd be back in bed by the time I got home at night. Then I'd get home from church on Sunday and fall asleep in the chair. That's when I decided something wasn't right. It's hard to be both a good tobacco farmer and a good father and husband."

The winner of the 2010 North Carolina Swisher Sweets/Sunbelt Expo Southeastern Farmer of the Year award, Stone admits the operation is still pretty diversified with field corn, soybeans, wheat, strawberries and sweet corn, as well as around 70 head of cows and a hog feeding operation

that finishes about 10,000 head annually from six barns.

"Our crop mix didn't change when we dropped tobacco," he says. "We just took it out of the mix, which not only gave us more time to devote to the other crops, but opened the door to irrigation."

This year was the first year Stone has had any soybeans under irrigation, but he expects those to benefit as much from the extra water as the corn has after just four years of irrigation. After putting in that first pivot in 2008, Stone has already added four more full- and half-circle pivots, bringing the number of irrigated acres to just over 500.

"We were hit with a couple years of severe drought in this area a while back, so people have been looking for ways to lessen the effects of those times, while also increasing yields on the fields they own," Stone relates. "Obviously, the jump in the number of irrigated acres in this area has really coincided with the spike in commodity prices.

"On the other hand, I don't farm anything for crop insurance; I put in the pivots for higher yields and to make money," he confesses. "Now, is that an added level of insurance for me?" he asks. "Certainly, and barring a hail storm or wind storm, I should always have better yields under irrigation."

Stone notes that the family's five-year average on dryland corn has been in the range of 125 to 130 bushels per acre, with dryland soybeans yielding from 30 to 35 bushels/acre. With irrigation, he says, 220 bushels per acre or more in corn is not out of the norm. In fact, last year, they had the highest certified no-till irrigated corn plot in the state at 268 bushels per acre.

"We've picked the 'low-hanging fruit' first," he remarks. "That is, we've already put T-L pivots on the



North Carolina farmer Bo Stone says irrigated corn is nearly as profitable as the tobacco it replaced. Plus, corn requires a lot less labor.

largest fields where the cost per acre is the lowest."

Still, Stone says he is already looking at adding even more T-L pivots next year and hopes to eventually have all of the land that he and his family own under irrigation. If he can work out an agreement, he hopes to add irrigation to some of the land that is under a long-term lease, as well.

Stone isn't likely to sway away from T-L, though, even if there was a price difference.

"When you find something you like, you tend to stick with it," he insists. "When we first looked at

putting in pivots, we looked at T-L, as well as some of the electric models," he adds. "But I liked the fact that the T-L didn't have copper wire running the length of it. I have neighbors who have had serious problems with people stealing the wire off their pivots. So the idea of hydraulic drive in place of electrical components appealed to me.

"After doing a little more research on the T-L, I also liked the more even watering pattern that you get from a constantly moving machine — particularly since we're using the pivots to apply nitrogen. And I think the reliability of it is very

good, as well. We've not had any issues at all in that respect."

Stone says another deciding factor has been Mark Stockton, his T-L dealer in Lumberton, North Carolina. Stone explains that while they started working with Mark at another dealership, they stayed with him when he moved closer and opened his own business under the name, Circle S Irrigation.

"He not only understands irrigation and the fact that the machines need to run when we need them, but he has done a good job of putting together classes to help teach us about

irrigation and water management," Stone adds. "So he has actually helped us to be better stewards of our resources, while being better producers.

"I represent the sixth generation of my family on this farm," he concludes. "Yet, my goal isn't any different than it has been for previous generations. That is to produce high-quality food and farm products in a profitable and environmentally responsible manner. We're just doing it in a little different manner today with the help of irrigation." •

Electric Center Pivot

T-L Center Pivot

Recover your lost production.

How much production are you losing?

Notice the non-uniform water application of the center pivot circles shown. This is known as "spoking," which results from the start-stop operation of an electric drive pivot system.

An electric pivot starts and stops 2,880 times a day at the end tower alone. Michigan State University field research (Fusco, 1995) verified the significant effect of "spoking" and found application uniformity ranged from 15% to 85% on a leading manufacturer's electric drive pivot. Call up Google Earth Maps on your computer and see for yourself.

Common sense would say the consequence of "spoking" is lost crop production and that production losses can be even greater

if the system is being used for chemigation. Your investment in irrigation is significant, and is intended to maximize your economic return from your crop. However, the intermittent motion of an electrically powered pivot system can detract from your return, sometimes significantly.

History has shown that the start-stop motion is also detrimental to component life, increases mechanical problems, creates more expense, causes downtime, and generally makes irrigating miserable. Many growers have experienced these problems.

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Beef, It's What's Most Profitable



Virtually all of the corn that Curt (above) and Von Mohler produce on their Ohio farm will be fed to steers in the form of grain and silage.

Although irrigation is relatively new in the eastern Cornbelt, it's helping one Ohio family produce more beef.

By Tharran Gaines

SIDNEY, OHIO — Even though irrigation is still somewhat rare in western Ohio, Von and Curt Mohler, who operate Triple M Farms near Piqua, Ohio, discovered long ago that irrigation pays for itself — even if average annual rainfall is not the issue.

“Years ago, around the late ‘70s, Dad started irrigating with a traveling gun,” Curt relates. “So we knew there was an advantage to being able to add supplemental water when the corn we feed in our beef operation needed it the most. We just had to wait until the commodity prices justified adding the center pivot units.”

To that end, the three-generation family, which includes Von's dad, Lowell, purchased their first T-L pivot — a six-tower towable unit — in 2008. The following year, they added four more and this past summer they added a sixth T-L.

“Three of them are six-tower units that are 900 to 1,000 feet long,” Curt explains, noting that they chose center pivot irrigation over traveling guns due to the reduced amount of labor. “We also have a four-tower model, a two-tower model and one single-tower pivot on a small gravel knob. Of course, we still use the towable unit on two different fields, which contributes to a total of about 320 acres under irrigation. If we can find enough water, we plan to add two more T-L units next year.”

Although the Mohlers initially selected T-L units for the hydraulic drive, which they envisioned as more reliable, they've since come to appreciate T-L's many other benefits.

“I just never cared for the

“Although I don't have any experience with electric pivots, the lack of any spoking effect is another thing I like about the T-L pivots”

whole idea of water and electricity,” Curt relates. “Plus, T-L just looked like it'd require a lot less maintenance, since it didn't have all the switches, the electric motors on the towers, etc.

“Once we started running them, though, we've found even more things we like about T-L pivots,” Von adds. “They just operate so smooth and there's not a lot you have to do to keep them running. You just flip the switch and they go. In four years, we've never had a unit down for more than a day.”

Von says three of the pivots are supplied by spring-fed ponds, while the rest are tied into wells. On the other hand, the Mohlers don't typically put on a lot of water. In most years, just five inches during the season is enough to boost corn yields substantially above the 150 to 160 bushels per acre they get without irrigation. However, due to the dry weather this past season, Von says their 2012 application was closer to seven or eight inches.

“We pumped a little heavier early in the season,” he recalls. “But we were fortunate to get some of the rains later that seemed to miss everyone else.”

Unlike other producers in the

area, though, the Mohlers keep all the corn they produce on the farm to annually feed out nearly 1,000 head of steers housed in covered, open-air barns. Of the 1,500 acres the family farms, nearly two-thirds is planted to corn. Another 120 acres or so is in wheat, which provides a cover crop and the opportunity to apply manure on the crop stubble. The remaining acreage is planted to soybeans as a cash crop.

“While most of the corn is harvested and fed as grain, we cut about 50 acres each year as silage and another 90 acres as snaplage, or ear corn silage,” Curt relates. “We started doing snaplage about three years ago and all of it is under irrigation,” he adds, explaining that snaplage consists of the kernels, cob and parts of the husk and shank harvested at around 34 to 36 percent with a corn head and kernel processor. “So I really don't have a yield comparison on dryland acres. I do know that with irrigation, we not only get more corn, but bigger cobs, which means more ear silage.”

The pivots also provide the Mohlers with a way to apply nitrogen later in the season. Consequently, their fertility program on corn consists of applying pre-plant anhydrous ammonia, strip-tilling the fields prior to planting, sidedressing the crop when the corn is about knee high and applying a last shot of liquid nitrogen through the pivots a few weeks later.

“Although I don't have any experience with electric pivots, the lack of any spoking effect is another thing I like about the T-L pivots,” Curt concludes. “We may be unique in the area when it comes to irrigation and enclosed beef production, but both systems have proven invaluable.”

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More Milk

An investment in T-L pivots has helped this California dairy raise much of its own feed.



Jack Hoekstra, one of three partners in Hoekstra Dairy (left), and Joost Bulk, farm manager, both say they prefer T-L's hydraulic drive and the continuous movement it provides.

By Tharran Gaines

OAKDALE, CALIFORNIA — While it's renowned nationwide for its bounty of fruits and vegetables, California is also recognized as the nation's largest milk producer ... having surpassed Wisconsin as the leading dairy state in 1993. However, California is also known as a rather rain-deprived state.

In fact, near Oakdale, California, where Bill, Jack and Kurt Hoekstra operate Hoekstra Dairy, the average annual rainfall is only 13.3 inches. Yet, that hasn't deterred the Hoekstras from expanding the milking herd to around 1,350 cows. Instead of spending more money to buy feed, like most California dairymen are forced to do, they've invested in T-L center pivot irrigation systems

and started growing some of their own rations in the foothills about five miles to the east.

"We still have to buy a few commodities like canola, rolled corn and alfalfa," says Joost Bulk, farm manager for Hoekstra Dairy. "But we do grow all our own corn silage and wheat silage, even though the farming side of the business is still somewhat new to us. I think the first pivot went up in 2005, followed by a second one in 2006," he adds, noting that he joined the operation in 2009.

According to Bulk, three more pivots, which were added in 2009, brought the irrigated portion of the farm up to 410 acres — with 345 acres under center pivot units. The remaining acres are still watered with furrow irrigation.

"All total, we have five T-L pivots,

with just two of them making a full circle," Bulk relates. "All of them are on what I would call pretty rolling ground," he adds, noting that the pivots have opened a whole new door for corn production. "In fact, one of them, which covers 105 acres, is on a very steep area that had never been used for anything but pasture.

"One of the guys from T-L back in Nebraska was out here and said it was some of the most aggressive ground he'd ever seen," he adds. "You can stand in some parts of the field and not see the whole pivot because part of it's over a hill or down in the bottom."

While Bulk admits the continuous motion of T-L's hydraulic drive helps tremendously when it comes to climbing slopes, he and his co-workers provide a

little help of their own by filling the pivot tracks each spring with wood chips from neighboring orchards.

"We plant everything no-till, but we still usually have a rut where each wheel runs," he says. "By putting wood chips in the ruts, we're able to reduce erosion and provide the wheels with a mat to run on for more traction. Without the wood chips, I've actually seen the tires spin out on some of our slopes."

Bulk notes that their program of double-cropping all of the fields under pivots also keeps a cover crop or stubble on the soil year around. Since all the corn is harvested as silage, they're able to plant wheat in late October and get another crop before replanting the field to corn around June the following year.



Thanks to irrigation, Hoekstra Dairy now produces all its own corn and wheat silage.



The Hoekstras insist their rolling terrain is no place for a stop-and-start electric-drive pivot.

Jack Hoekstra, who owns the operation with his dad and brother, admits, too, that the first pivot they installed was on their worst field. Hence, their concern about erosion control.

"That's also part of the reason we went with T-L," he admits. "We looked at electric units, but we just felt like the continuous movement of the hydraulic drive would work a lot better in this situation. We also liked the simplicity of the hydraulic drive and the fact that Joost or anybody else familiar with hydraulics can work on them. Plus, I've known the T-L dealer most of my life and knew I could trust what he had to say.

"Later on, we found other things we liked about the T-L units," he adds. "We apply most of our fertilizer, as well as soluble

gypsum, through the pivot. Since we spoon-feed nitrogen five or six times during the growing season, it's important that we don't get any spoking. Consequently, I think the fertilization with our T-L pivots is a lot more even and uniform."

Hoekstra Dairy hasn't stopped with just five pivots, though. The family has already bought a sixth T-L that will cover approximately 65 acres, once it's installed. And Jack says they'll be looking at more units as opportunities arise.

Now, the only question, Joost Bulk explains, is deciding whether to put more corn silage under the newest unit or to plant it to alfalfa to eliminate that cost.



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Yarbro Farms / The Saving Grace In A Year Of Drought



CONTINUED FROM PAGE 1

done even better had we not been almost a month late in getting it planted.

"That certainly hasn't been the case this year," he adds, noting that the pivots ran almost continually from early June through July 6. "Without irrigation, our total yields would be even worse than they are now."

One thing that has helped, the Yarbro's believe, is the no-till program that they adopted on the majority of their acres to control erosion and conserve moisture. Over the past few years, the family has also increased their use of GPS-based technology ... including variable-rate fertilizer, variable-rate lime applications and, most recently, variable-rate seeding.

"That is something irrigation has pushed us to do even more of," Jason relates. "A significant portion of our corn is already variable-rate seeded based on soil type, contour, yield potential, etc. But we hope to be at 100 percent variable-rate in just a couple more years."

"We're already using the variable-rate controller to plant a lower plant population on the corners and bumping it up where we're under the pivots," he adds. "Plus, we've implemented it on the fields with the greatest amount of variation. Now, we're trying to expand it to the rest of the farm."

"One thing that's helped is we've been working with a good friend who is an agronomist with Pioneer," James adds. "He's been running some pretty extensive tests —

including some on our own farm — to learn how different varieties perform on different soil types in our area. So we've been using that as a parameter to overlay soil type maps with our yield maps to arrive at where we think we need to be."

Coincidentally, it was another friend who turned the Yarbro's onto T-L pivots.

"Our John Deere dealer happens to be a dealer for a popular brand of electric pivots," James adds. "But we just felt like the hydraulic drive was a superior system. As farmers, we're also more comfortable with hydraulics than we are with electricity. We think they'll take less maintenance and be more reliable in the long run," he adds, noting that that has already been the case, even though the oldest system is only two years old.

"With our terrain, we also felt like the continuous movement of T-L's hydraulic drive would be better suited to our application," Jason adds. "The fields where we have pivots aren't that steep, but we do have a lot of rolling terrain and we just liked the idea that the pivots aren't stopping and starting every few feet."

The challenge now will be financing one or two more T-L units following a year of drought and poor crop production. However, considering the yields on fields without irrigation this past season, the Yarbro's wonder if they can afford not to put more fields under a pivot. It seems that their plan for boosting yields has suddenly turned into crop insurance. •

King / Surviving The Sands Of Time

CONTINUED FROM PAGE 1

during the late 1970s and early '80s to produce wheat for the Saudi government, the crop mix has since changed to forage — primarily alfalfa, Rhodes grass and corn silage — for sale to local dairy farms and to the nearby camel and sheep owners.

According to King, wheat was highly subsidized at the time the first T-L pivots were installed, with the price approaching 3,000 SAR/ton (\$795 US/ton). However, that only lasted a year, with the price soon dropping to 2,500 SAR (\$663/ton). After two more price drops, it's now selling for about 1,000 SAR/ton (\$265), which is less than the margin that can be achieved from forage crops, even though alfalfa and Rhode grass sell for about the same price.

Today, most of the farm's forage sales are to local dairies or to camel and sheep farms.

"This is mostly a cash sale business whereby locals visit our projects on a daily basis and purchase anywhere from one bale in a Toyota pickup to several truck loads of bales on a cash basis," JK relates. "Most of the Rhodes hay is sold on a per bale basis, while some is contracted to local dairies

on a per ton basis."

Of course, it doesn't take a geography major to know that very little grows in Saudi Arabia without irrigation. Of the 60 center pivot machines that cover the farm, half of them are T-L units that replaced older Pringle electric-drive systems more than 30 years ago. Most of the pivots, King explains, cover between 50 and 60 hectares (124 – 148 acres), even though some are as small as 40 hectares (99 acres) and as large as 90 hectares (222 acres). The farm also has three electric-drive linear systems that range between 100 and 200 acres (247 – 494 acres).

"The T-L machines have been in operation since 1980 and have accumulated at least 130,000 hours each," JK explains, noting that they still run 4,000 to 5,000 hours per year. "While these units require ongoing maintenance, they have performed remarkably well considering the operating conditions and the fact that these machines have been in operation for 32 years."

"Most of the irrigation water in KSA tends to be corrosive, hence it was necessary to replace the main pipes back in the late eighties," he adds. "Rather than replacing with galvanized steel pipes, however,

Randy George, the vice-president of international sales for T-L, installed PVC pipes under the main pipes, while working with us here in KSA. This method was adopted broadly throughout KSA and has proved highly successful. Of course, nowadays there are other options from T-L, including poly pipe and other forms of pipe coating to counter corrosion.

"There is no doubt that T-L pivots are a quality brand and well engineered," JK continues. "In 2011, T-L representatives Randy George and one of his maintenance engineers visited KSA and spent some time at our operational base and conducted training seminars that concentrated mostly on the powered components of the pivots as these were the areas where we were experiencing the most difficulty and incurring the most cost. As a result, there has been an improvement in relation to maintenance costs and overall reliability of the machines."

King says they have had similar training seminars in the past, but due to the amount of employee turnover, there has been a greater loss of knowledge and experience than "would normally be expected in Europe or the U.S."

On the other hand, King says

he and his staff have learned to be pretty self-sufficient. They have developed their own laboratories, for example, where they can conduct all their own soil, water, forage and tissue analysis. They also developed a continuous no-till cropping program on all irrigated areas, which consists for two years of alfalfa, followed by Rhodes grass for two to three years.

"In the case of corn silage we will typically produce two corn silage crops over the summer months followed with alfalfa or Rhodes grass," JK explains. "High production is the key to success in this business, as most of our other costs don't vary much year to year."

When your farm is located in the sands of Saudi Arabia, that means having center pivot irrigation systems that are not only productive, but reliable year in and year out. •

"There is no doubt that T-L pivots are a quality brand and well engineered."



King says current crops consist of alfalfa, Rhodes grass and corn silage.

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There's No Copper Here Worth Stealing

It may have been the hydraulic drive that first attracted these Colorado farmers, but it was the other benefits that sold them.

By Tharran Gaines

KEENESBURG, COLORADO — Paul Swank admits that he and his brother Alex didn't know much about T-L center pivot system before last year when they purchased their first unit. The main thing they had heard was that T-L pivots aren't electrically driven, which means they don't have several thousand feet of copper wire that can entice copper thieves. Just a few months earlier, an electric pivot on land the brothers leased near their home base near Keenesburg, Colorado, had been stripped of all of its wiring. Plus, they knew of other farmers along Colorado's Front Range that had pivots damaged by copper thieves. So they had no desire to go through that headache again.

Ironically, out of 6,500 acres the brothers farm in a partnership, only 300 acres are irrigated. In 2012, approximately 1,800 acres were planted to dryland wheat; another 1,000 acres were in corn, and the rest was divided between summer fallow and sunflowers, millet for bird seed and alfalfa/grass mix hay that is sold directly to horse owners. Of the irrigated acres, 100 acres are still under flood irrigation, while 200 acres are under pivot systems — one T-L and one electric pivot.

"One of our friends actually caught two guys in the act of trying to strip an electric pivot on his farm," says Alex. "It's become a real problem around here, partly because we're so close to Denver and the scrap dealers where thieves find a market."

"When we heard that T-L units were hydraulically driven, that really got our attention," Paul adds. "After we got to checking into them a little more, we learned that they're also known for being really reliable and that the machine is continually moving, rather than stopping and starting."

"So they kind of hit us at just the right time," he continues. "We liked what we saw and put in our first T-L a year ago this past April."

Even more influential on their purchase was the fact that the new pivot was being installed on the edge of Keenesburg where it was clearly visible. In fact, it's right across the street from a school and alongside a busy paved road.

"We were flood irrigating that field at one time," Alex explains. "But it wasn't a good field to flood, so we actually quit irrigating it for about five years. However, after commodity prices improved, we decided to add a pivot, which has allowed us to irrigate at least twice as much of the field."

Because of a ditch that goes across one end of the field, the T-L



Alex (left) and Paul Swank insist it was the lack of copper wire that drew them to T-L, especially since their newest pivot is located on the edge of town.

"I think we use less nitrogen when we 'spoon feed' it on through the pivot..."

is currently operated as a wiper unit that covers approximately 100 acres. Paul insists, though, that they're still looking at options, including bridges or culverts that will allow them to take the unit full circle.

In the meantime, the brothers are still living with the effects of the copper theft on the leased farm.

"The landowner actually owned the pivot, so we didn't experience any loss ourselves," Paul relates. "But we did hear that his insurance company raised his rate. As a result, though, he's asked that we always stop or move the pivot so it's pointing toward his house when

it isn't moving ... which makes it a little inconvenient."

Unfortunately, the brothers got limited use of both pivots this year, due to drought conditions and water restrictions.

"At the beginning of the season, we were told we would have about half the available water that we did last year," says Alex, noting that their water supply comes from reservoirs filled by snowmelt in the mountains. "So instead of cutting water across the board, we moved the stops and cut the electric pivot down to about half its coverage and we ran the T-L on just 80 of the 100 acres."

Alex says they did average around 40 bushels per acre on dryland wheat, thanks to reserve moisture in the soil; but he says they'll be lucky to average even 40 bushels on dryland corn this year.

"Last year, we had sunflowers under the T-L pivot because we actually went into the year with less moisture than we did this year,"

Paul explains. "But then we got some good rains and came out of it. I don't think that's going to happen this year."

To compensate for the dry winter, the Swanks have already reduced their corn plant population to around 27,000 plants per acre on irrigated fields and about 11,000 seeds per acre on dryland crops. They also practice no-till farming on all dryland acres and minimum tillage on irrigated fields. Finally, they apply a portion of the nitrogen on irrigated acres through the center pivot to spoon-feed the crop in response to yield potential.

"We'd like to have even more acres under pivots," Alex concludes. "But we'll just have to see how things go the next year or two in terms of crop prices and production. When we do add another pivot, though, I'm sure it will be a T-L," he concludes. "We don't have to worry about copper thieves and we know that when we push the button, it goes."



The Swanks say their biggest challenge today is adjusting to water rations.



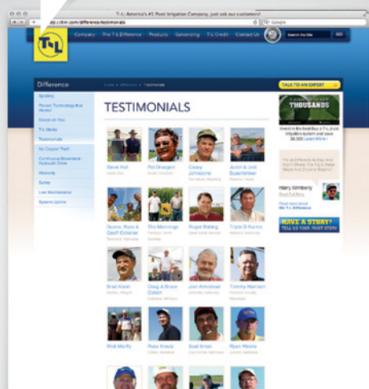
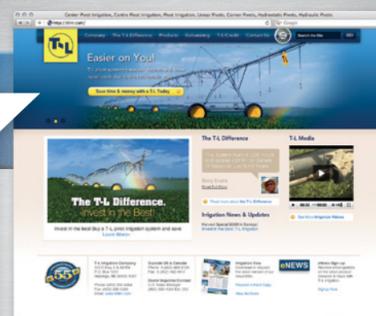
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Grass And Grain Unseat Cotton

Center pivot irrigation and the global market have totally transformed the cropping program on one Alabama farm.

By Tharran Gaines

BENTON, ALABAMA — Diversification literally takes on new meaning near Benton, Alabama, where Hoffman Rhyne manages about 4,900 acres with his brother, Dan, and nephew, Daniel. In addition to corn, soybeans and wheat, the partners also own and manage a beef operation and a turf business that grows and markets sod to golf courses, landscapers and homeowners.

"We actually operate under two separate farm names," says Hoffman Rhyne. "The turf is grown under the name of Rhyne Farms, while all the commodity crops are grown under the title Triple R Farms. We used to grow cotton, too, but we've since dropped cotton and replaced it with grain crops.

"My nephew and brother primarily take care of the field crops, while I take care of the turf business," Rhyne adds. "But we meet every day and work together to do whatever needs to be done at the time."

Ironically, Rhyne says it was the family's history with cotton that steered them to T-L Irrigation, which is now used on nearly all of their 900 acres of turf grass and approximately one-third of the row crops.

"Up until 2002, we were almost a mono-culture," Rhyne explains. "At one time, we had nearly 7,000 acres of cotton; plus, we had our own cotton gin that we used to process our own crop, as well as those for other farmers in the area. In fact, that was the only row crop we had."

During the peak of their cotton production era, Hoffman relates, the brothers leased a farm that was owned by a woman from Missouri who had bought it as an investment. Ironically, the farm already had three T-L pivots on it, since she had brought her own preference for hydraulic drive pivots with her.

"So we got our first experience with T-L pivots in 1990 by renting this farm," he explains. "And with only one exception, we've had

nothing but T-L pivots ever since," he adds, noting that they could easily double their cotton yields with irrigation.

As times changed with the global economy, though, Hoffman and his brother began looking for a crop that they could "put under a pivot that would bring more than 50-cent cotton."

As a result, the family began converting some of their clean, level cotton fields to sod production, cutting back a little more on cotton each year.

"In 2006, we grew our last cotton crop and, in the process, went from being the largest cotton producer in Alabama to the smallest," he relates.

While adding more irrigation for the turf crops, the Rhyne's found they could also justify more irrigation on their row crops, particularly as commodity prices increased. Consequently, the family now has six T-L pivots on sod and another six T-L units on grain. They would gladly add even more on the Triple R Farms side of the business if they had the access to water.

"All of the turf grass is irrigated, since it's pretty much a necessity if you want to grow thick turf," says Rhyne, noting that they grow and market nine different grass varieties. "However, we are approaching our limit on how much of our row crop fields we can irrigate. Like the cotton, we've proven that we can at least double our corn and soybean yields with irrigation."

In the meantime, Rhyne says turf grass has its own advantages and drawbacks. On the plus side, he doubts their market will ever be threatened by imports, due to the difficulty involved in transporting sod. On the other hand, growers have to develop their own market, which means Hoffman or his marketing manager are constantly calling on potential customers within a 300-mile radius. Turf also requires a lot more labor and water than row crops or cotton.

"We tried drip irrigation on the turf, but that just didn't work that well," Hoffman relates. "We

still have about 100 acres that is irrigated with drip tape, but one of the problems with drip irrigation is that you can't wet the soil surface prior to harvest. It will keep the grass watered, but you can't moisten the ground, which makes it easier to cut the sod. You don't want it wet, but about 3/10ths on top is just about right.

"We tried supplementing the tape with a traveling gun prior to harvest," he adds. "But that was just too labor intensive. So everywhere we can, we've just gone with T-L pivots." The lone exception on the

farm, Rhyne explains is a single electric pivot that was acquired as part of a lease.

"It was already on a field that we had leased," he explains, noting that it belonged to the tenant rather than the landowner. "Consequently, we bought the pivot from the previous tenant."

A short time later, though, the Rhyne's lost the lease to a government pine tree program, leading them to move the electric pivot to the turf farm.

"In all honesty, it's worked pretty well for us, even though

it is a lighter-built unit," Hoffman admits. "But I just don't want to keep any more 480-volt machines out here than I have to.

"It's not that I can't work on them myself," he confesses. "When we had the cotton gin, we had around 2,000 horsepower and about sixty electric motors; and I took care of all of those. So I know how to safely work around electric motors ... or as safe as you can be with 480 volts. But if there's a problem with an electric pivot, I either need to call a technician or work on it myself ... and I don't want to be on

call 24 hours a day, seven days a week.

"With the T-L pivots, I can send anybody out there who knows anything about hydraulics ... even though T-L pivots seldom need any repairs," he explains. "And that's even more important in corn than it was in cotton," he concludes. "Cotton can recover from a short period of drought, but corn can't. There's about a 10-day window where you can make 50 bushels or you can make 200, depending on whether there's water available."



Hoffman Rhyne says T-L pivots have been especially valuable in the family's turf business, which operates under the name Rhyne Farms.

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