**Morland – 2 – Mike Frakes, PACLeader**

This is Kansas Profile. I'm Ron Wilson, director of the Huck Boyd National Institute for Rural Development at Kansas State University.

Let's go get a prescription. That would generally mean standing in line at the local pharmacy, but this is a different type of prescription. This is a prescription for the type of agricultural treatment needed for growing a crop in a field. It comes from a unique specialist who is taking agricultural technology to a whole new level. This is today's Kansas Profile.

Mike Frakes is owner and founder of a company named PACLeader in Morland, Kansas. Mike grew up in southwest Nebraska and his wife Billie is from Morland. Mike was a mechanic at Hoxie Implement, a large farm equipment dealership, and then moved up to become service manager there.

The early 2000s saw an influx of GPS technology into agriculture. Farmers and agribusinesses were beginning to use Global Positioning Satellites in agricultural operations.

As service manager, Mike Frakes worked with lots of farmers who were exploring this technology. "Some people wanted to do more with technology, but there was no place to send them," Mike said. After seventeen years with Hoxie Implement, Mike decided to create such a business of his own.

He bought a former auto shop building in his wife's hometown of Morland and converted it for his use. He named his new business PACLeader, with PAC standing for Precision Ag Consultants.

Mike is now assisting his clients with this remarkable technology. By taking soil samples, placing the results onto a field map, and using GPS technology, Mike is able to identify the precise type of soil treatment – called a prescription - which is needed in each area of the field. Computer-controlled equipment then automatically adjusts applications of plant nutrients to fit.

"We used to make these management decisions at the farm level," Mike said: For example, each farm would get a certain number of units of nitrogen. "Then we started to make these decisions at the field level. Now we are getting down to the inch level." Wow.

Mike helps producers with their data and also sells tractor autosteer and precision planting systems. Autosteer systems can control the tractor's path across a field.

"(While at Hoxie Implement) we installed the first autosteer system out here," Mike said. "The look in that farmer's eyes when he could take his hands off the steering wheel for the first time was really rewarding." Interest in such technology grew significantly. After the first autosteer system was installed, Mike installed five the second year, twenty the third year, and hundreds the year after that.

Automatic, computer-controlled, variable rate sprayer booms and planters mean that nutrients or seeds are applied in the exact amount and location needed. This avoids over-application of chemicals, for example, which saves money and is good for the environment.

"By saving on input costs, some farmers find these precision ag systems pay for themselves in the first year," Mike said. "Some new planters have electric drive motors on each row so that each row can be planted with a specific amount of seed independent

from the other rows," Mike said. They also have sensors and accelerometers to automatically adjust each row for the speed of the planter as it turns, for example.

"The next thing that's coming is variable rate irrigation." Mike said. "We can identify what areas of a field can hold moisture and which need more of it. Then the sprinkler nozzles can be individually controlled." This saves runoff and gets the precise amount of water directly where it is needed.

"We're doing a much better job with the land than we used to," Mike said. This type of ag technology consulting is a whole new world. When asked recently how many other people did this type of work in Kansas, he said, "I don't think there's anybody that does what we do."

That's very impressive for a business in the rural community of Morland, population 159 people. Now, that's rural.

Let's get a prescription – not for human medicine, but for a farmer's field. That's what we can get from PACLeader. We commend Mike Frakes for making a difference by applying technology to agriculture. That definitely makes for good medicine.