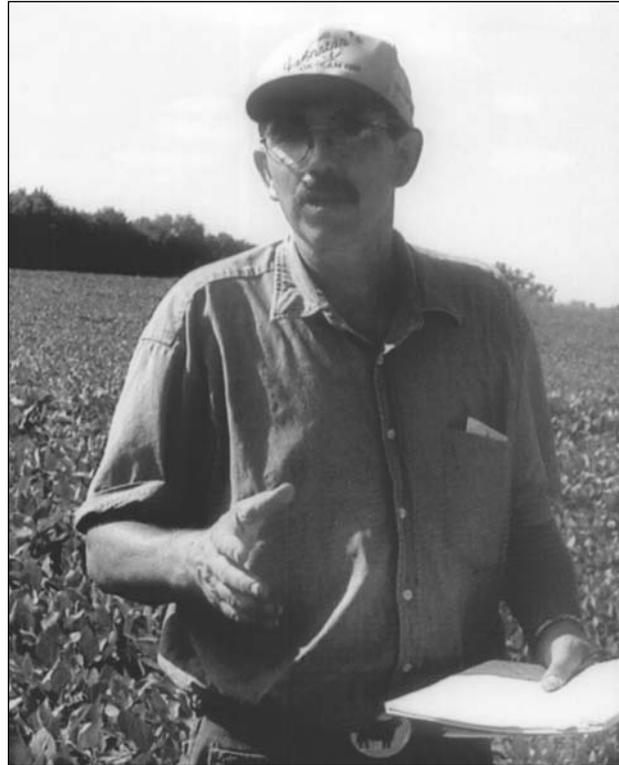


## Rod Peters Marion County

## No-Till Crop Rotation & Alternative Livestock System



### Cooperator:

Rod Peters  
R.R. 2 Box 70  
Hillsboro, Ks. 67063

### Watershed:

S. Cottonwood River

### Water Quality Concerns

Runoff from crop fields into creek caused by poorly designed waterway, erosion and animal wastes run-off along creek associated with cattle access

### Demonstration:

- \* Construct bermless grass waterway to extend existing waterways
- \* Fence cattle from creek
- \* Implement a legume based crop rotation in no-till

Rod Peters' grandfather homesteaded and raised ten children on the farm Rod and his family now operate. Like his forebears, Rod looks to contribute something to the future of the farm. For Rod, soil conservation has been the dominant force in the development of his farming operation. But this concern also extends to water quality.

Rod, his wife Linda, and their two sons operate a 1,700 acre mixed grain and beef cattle farm in southern Marion County. They raise wheat, milo, corn, soybeans, sunflowers and cotton, along with a 45 pair beef cow herd. Rod also custom feeds about 220 feeder calves through the winter.

After attending no-till conferences and visiting no-till farms for a couple of years, Rod decided in 1995 that no-till would work in his situation and he began the switch to 100% no-till in his crop production.

He sold all of his tillage equipment, keeping or acquiring the essential pieces of no-till machinery - a row crop planter, a no-till drill, sprayer, combine, tractor and grain hauling equipment, and the basic machinery for baling hay. He takes pride in the minimal amount of machinery required for his operation. Rod takes even more pride in the soil improvements he has seen in his five years of no-till crop production.

Rod is particularly pleased with the improved tith and water holding capacity of his soil following his adoption of no-till. At tours, he easily pushes a three-foot soil probe fully into the ground beneath different fields of corn and soybeans.

But disciplined and appropriate crop rotations are an essential component of no-till cropping systems to achieve optimum nutrient and water usage, weed and disease control, and effective double cropping. When he came to the Clean Water Farms Project, Rod wanted to integrate more cover crops into his system, not only to meet these objectives, but also to help lower fertilizer and pesticide costs and protect water quality.

For his Clean Water Farm Project, Rod developed and implemented a written crop rotation plan that inte-

grated more cover crops into his no-till crop rotation.

There are many agronomic, conservation, economic and other benefits with diversified crop rotations, regardless of the type of crop production system. Implementing a diversified crop rotation plan that includes the use of cover crops and double cropping is very complex and can be a challenge. The written crop rotation plan helps deal with this complexity and should improve the overall implementation of the crop rotations. Rod is using a written crop rotation planning tool to see if it helps him meet his general crop rotation goals and increase the use of cover crops.

Rod's basic rotation moves from wheat, vetch, or clover, to milo to soybeans, to corn, to beans to wheat. (See below).

<b>Peters Crop Rotation Summary</b>					
<b>100 acres in demonstration</b>					
<b>Yr. In Rotation:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Basic Rotation:</b>	Wheat/Vetch or Clover	Milo	Soybeans	Corn	Soybeans Or Cotton
<b>Yield Goal</b>	60 bu./ac.	130 bu./ac.	40 bu./ac.	120 bu./ac.	40./bu beans 1 1/2 bale cotton
<b>Seeding Rate</b>	Wheat 120# Vetch 20# Clover 10#	100,000 seeds/ac.	200,000 seeds/ac.	25,000 seeds/ac.	200,000 seeds beans 65,000 seeds cotton
<b>Tillage</b>	No Till				
<b>Fertility</b>	N P K S 120- 0- 20-20	130-0-20-20	0-0-50-20	130-0-20-20	Beans 0-0-50-20 Cotton 100-0-20-20
<b>Weed Control*</b>	Roundup -1 Harmony-1 Bronate-1	Roundup-1 Bicep- 1 Banvel -1 2,4-D - 1	Roundup-1 Sencor - 1 Harmony-1	Roundup-1 Banvel -1 2,4-D-1 Bicep- 1	Beans: same as yr. 3 Cotton: Roundup-1 Cotteran -1 Zorial - 1
<b>Cover Crop</b>	Hairy Vetch or Clover	Oats	Hairy vetch & Wheat pasture	Oats-Beans Oats/peas - Cotton	Wheat
<b>Other Practices</b>	Winter Graze	Cattle			

\* Weed Control: Actual treatments depend on weeds present. Almost always applies less than label rates.

“Argentinean farmers are ahead of us in their use of cover crops in no-till,” states Rod. He also noted that cover crops could add many dimensions to no-till farming: residue for organic matter and weed control, grazing opportunities, and nutrient fixation.

In addition to the introduction of more cover crops and a disciplined crop rotation, Rod also acknowledges that run-off of livestock waste is a major problem on farms. To address these issues on his farm, he fenced part of a creek below a cattle feeding area and seeded a buffer strip along the creek. To further protect water quality, he also extended and seeded two bermless waterways.

By fencing one side of the creek and seeding a grass buffer, Rod is able to greatly reduce livestock wastes entering the creek from the corral area. “I still use the area occasionally for calving or quick shelter, but we now avoid constant access,” he says. Also, by running his cows

on crop residues for part of the winter, Rod is able to minimize the time his cattle spend near the creek and further protect its water quality.

Rod also gave up some cropland by extending two bermless waterways to obtain additional soil conservation and water quality benefits. After heavy rains, these additional waterways will slow down any runoff leaving Rod’s no-till fields, allowing soil to settle out and prevent soil-borne fertilizer and pesticides from entering downstream water supplies.

The Kansas Biological Survey installed water sampling devices to monitor the effectiveness of the bermless waterways in reducing water contaminants leaving that part of the farm. Their findings indicated concentrations of nitrogen compounds, phosphorous compounds and herbicides were lower after the extension of the waterways than pre-extension samples. (See Appendix Page 115.)



*Above, Rod was pleased with how well his spring peas worked into the rotation. The peas, which provide nitrogen and soil cover, were followed by milo.*

Rod's farming operation includes 110 acres of waterways, a solid demonstration of his commitment to soil and water conservation.

He has a guarded optimism for the future of farming. He says, "I know agriculture will continue to change and we have to be open to new ideas. I like to try different ideas or practices to see how they might work in my operation. And farmers using different types of production systems need to talk to each other so that we can learn from one another."



*Rod also fenced the creek and seeded a grass buffer to limit cattle access and reduce the amount of livestock wastes entering the creek from the corral area.*

### Peters Farm Characteristics

**Farm Size:** 1300 crop acres, 300 pasture acres, 110 acres of grass waterways.

**Crops:** Dryland no-till wheat, milo, corn, soybeans, sunflowers, & cotton.

**Livestock:** 45 pair cow/calf. Custom feeds about 200 steers each winter.

**Equipment:** No-till. Minimum amount of equipment- tractor, White no-till planter, JD no-till drill, spray coupe & combine plus haying equipment.

**Labor & Management:** Self and family members.

**Crop Management:** No-till. Strives to produce three crops in two years through double-cropping.

**Livestock Management:** Conventional summer grazing. Pasture crop residue during fall & winter.

**Weed Management:** Avoid all tillage, early canopy of crops, increase the use of cover crops, herbicides and crop rotations.

**Insect Management:** Crop rotation. Occasional need for chemical control of grasshoppers & head moth in sunflowers. **Disease Management:** Crop Rotations.

**Soil fertility:** Fertilizer and integrate more leguminous cover crops.

**Crop Yields:** Wheat 40-65 bu./acre; Milo 60-130 bu./acre; Corn 80- 150 bu./acre; Soybeans 30-50 bu./acre; Sunflowers 1000#, Cotton 1 bale/acre.

**Water Quality Management:** Include more legumes and cover crops to reduce need for fertilizer and herbicides. Fence cattle from creek. Periodic soil testing.

**Profit Strategy:** Intensify cropping system to get 3 crops every two years from as many fields as possible.

**Marketing:** Uses conventional marketing channels. Developed grain storage and handling facilities for volume shipments and sales.