

Ken Teske Pottawatomie County

Resource Conserving Crop Rotation & Alternative Livestock Watering System



Cooperator:

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Water Quality Concerns:

Run-off of livestock wastes from wintering area along creek, and fertilizer and herbicide run-off from cropland

Watershed:

Hize Creek into the Vermillion River

Demonstration:

- * Limit cattle access to stream by fencing and providing crossings;
- * Develop management intensive grazing system;
- * Develop a strict crop rotation.

Ken Teske operates a diversified crop and livestock farm in Pottawatomie County east of Wheaton, Kansas. Ken's farm operation consists of about 350 acres of grass, 100 acres of cropland, and about 45 head of brood cows. Typically, Ken sells feeder calves and cash grains of milo, beans and wheat. Several years ago as part of Four Seasons grazing cluster (a part of the Heartland Sustainable Ag Network), Ken began devel-

oping and practicing management intensive grazing to improve the productivity of his beef herd and the quality of his grassland.

With his Clean Water Farms demonstration, Ken plans to further improve his beef production, protect stream water quality, and increase the net income from his crops with certified organic grain production and marketing.



Ken built a couple of stream crossings (right) for his cattle, using gravel over engineering fabric. The fabric (left) will help keep the gravel from sinking into the mud during wet weather, and is cheaper than concrete.

The water quality practices Ken implemented associated with his beef production include fencing one side of the stream, installing a gravel pad around a freeze proof waterer, and installing stream/cattle crossings.

Some of Ken's cropland borders a stream, and other cropland empties into a waterway that directly feeds into a stream. By transitioning to certified organic grain production on this cropland, Ken eliminates the chemical fertilizers and pesticides that could pose pollution threats to the stream and contribute to the build up of pollutants in downstream water supplies.

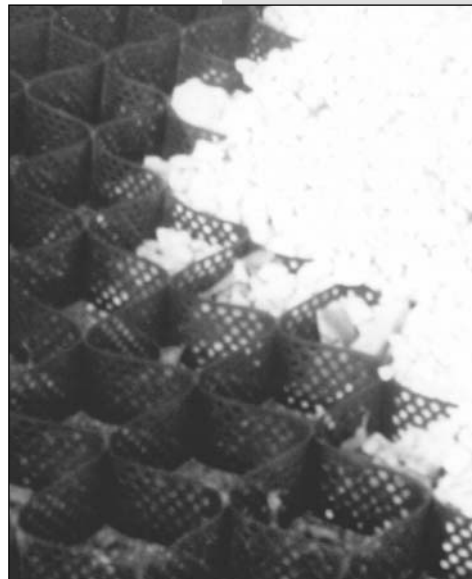
To reduce the livestock impact, Ken fenced one side of the creek to control cattle access, but he has not totally eliminated cattle from the creek area. By installing the fence, he created a long narrow paddock that includes the creek. As he moves the cattle through his grazing system, he will flash graze the creek paddock for about one day out of every 30 to 40. Ken said, "Fencing one side of the creek has worked really well. I utilize the forage by flash grazing it." He

brings cattle in on one side, and over the course of the day they move through the paddock and are then ready to move into grazing cells on the other side.

"I've noticed the forage composition and quality improving, and I'm providing better protection for the stream and the water quality." The flash grazing also slows or prevents further brush encroachment.

Adding a couple of relatively inexpensive cattle crossings to the stream, Ken obtains additional water quality protection and eases the movement of his cattle through his grazing system.

A few years ago Ken built a pond on a draw that feeds the main creek that crosses his farm. He fenced the pond to keep cattle out, and below the pond he installed a freeze-proof concrete watering tank. This watering point serves to water several paddocks during the grazing season and is used during part of the winter. Nearby is a spring fed draw that carries water to the creek.



Ken placed a freeze-proof watering tank below the fenced-off pond (above left), and installed a gravel pad around the waterer to reduce erosion and run-off in a high traffic area. He used a geosynthetic product called geo-web around the tank (above right). It is a honeycomb material filled with gravel that will hold the gravel in place and allow water to drain away.

During prolonged wet periods in the spring, high cattle traffic can create messy conditions and some threat to the stream. To address this, Ken installed a tube and cattle crossing over the spring fed draw, and he installed a gravel pad in the area around the freeze-proof waterer. Additionally, he manages the movement of his herd so they spend the least amount of time necessary in this area.

For his crossing and watering pad, Ken is experimenting with alternatives to concrete both to lower materials and installation costs and to evaluate overall suitability. After installing a 20' tube in the spring fed draw and backfilling with dirt, Ken laid down a 12.5' x 23' roll of engineering fabric and then covered it with rock and gravel. The engineering fabric keeps the gravel from sinking away into mud, and together the fabric and gravel are a fraction of the cost of concrete.

Ken installed a different geosynthetic product, called geo-web, for the pad around the watering tank. Geo-web is a honeycomb type of material that is stretched out and held down with pegs. The cells are then filled with gravel, as in this case, or other material. The geo-web holds the fill material in place and is often used for erosion control. Ken put down an 8' x 20' x 4" sheet of geo-web around the water tank and then filled the material with gravel. The geo-web will hold the gravel in place and permit some water absorption.

This should reduce or eliminate the problem of water runoff and a mudhole adjacent to the pad that frequently happens with concrete pads. And as for costs, the geo-web/ gravel combination is fractional both in labor and materials compared to concrete.

Ken used the Clean Water Farm Project's Crop Rotation Incentive program to develop an organic crop rotation and plan the transition from conventional to organic practices.

The requirements for the Crop Rotation Incentive program are that the farmer develop a written crop rotation summary and implementation plan, and that the rotation include at least 20 % resource conserving crops such as forage legumes, cereal grain/legume mixtures, grass/legume mixtures, or annual cover crops.

Ken developed a seven year crop rotation that included three years of alfalfa and four years of annual grain crops. He changed field boundaries to get seven roughly equal sized fields so that he would have generally the same quantities of

each crop each year. 1999 was Ken's second year of using his crop rotation plan. He had some weather related difficulty establishing alfalfa. In some areas he had difficulty controlling summer annual weeds in soybeans. Ken has certified organic some fields that have been over three years without chemical fertilizers and pesticides.

"Marketing organic soybeans at premium prices has been a big help", Ken said. "I have fall seeded some triticale and turnips for a cover crop and grazing, and I have planted more wheat, for which there is an organic market. Including more winter annual crops should help me gain better control over the summer annual weeds."

Ken's profit strategy is to manage his pasture forages and beef herd for

Teske Crop Rotation Summary							
94 crop acres in demonstration							
Yr. In Rotation	1	2	3	4	5	6	7
Basic Rotation	Oats/Alfalfa	Alfalfa	Alfalfa	Corn	Soybeans	Corn	Soybeans
Yield Goal	Oats - 75 bu. Alf. - 1.5 ton	4 ton	4 ton	100 bu.	35 bu.	100 bu.	35 bu.
Seeding Rate	Oats - 2 bu. Alf. 10 #	None	None	18,000 seeds/ac.	175,000 seeds/ac.	18,000 seeds/ac.	175,000 seeds/ac
Tillage	Light Disc - 1	None or light springtooth		Plow green manure, Disc- 1 Field Cult - 1- 2	Disc - 1, Field cult. 1- 2	Field cult. 1-2	Disc-1 Field cult. 1-2
Fertility	Soybean N, 5 ton manure	None added	None added	Alf. green manure	Soil Test for P Supplement as needed	Legume N carryover 5 ton manure	None added Soil test: lime if need
Weed Control	Cut hay			Crop rotation, Pre-plant tillage Hoe 1-2, Cult. 1-2			
Cover Crop	Alfalfa	Alfalfa	Alfalfa	Stubble			
Other Practices	Fall and winter graze cattle						

both high quality and yield, and for low production costs. And with his crops he plans to manage the organic production system for low production costs and price premiums.

Ken uses an interesting combination of alternative grazing and crop production technologies and practices, and he takes advantage of the opportunities to integrate his livestock and crop production enterprises. Ken has combined the fencing and watering technologies with grazing management and cell design practices to better utilize seasonal forages and crop residues.

Ken is doing a good job of identifying and implementing low-cost technologies and practices that enhance management, improve profitability and protect water quality.

Teske Farm Characteristics

Farm Size: 450 acres, including 93 crop acres and 350 acres pasture

Crops: Wheat, soybeans, oats, alfalfa. Plan to add corn as soil fertility under organic practices improves.

Livestock: 45 cow/calf pairs.

Equipment: Conventional equipment for tillage, planting and harvesting.

Labor: Self.

Crop Management: Minimum Tillage. Transitioned to certified organic since 1996

Livestock Management: Spring calving, management intensive grazing system, wean & sell calves in the fall, cell-graze crop residues in fall.

Weed management: Crop rotation and cultivation.

Insect Management Crop rotation, winter graze alfalfa residue for weevil control.

Disease Management: Crop rotation. Vaccinate calves.

Soil Fertility: Livestock manure and alfalfa green manure crops. Lime if necessary per soil testing.

Water Quality Management: Control cattle access to creek. Developed alternative watering points. Eliminate chemical fertilizer and pesticides from cropping system. Soil testing as needed.

Crop Yields: 30 - 50 bu./acre wheat; 80 -100 bu./acre milo; 20-40 bu./acre on food grade soybean varieties

Profit Strategy: Careful management of cattle for high quality, uniform calves and top prices. Certified organic price premiums on grain.

Marketing: Market calves through local sale barn at this time. Market grain through organic marketing cooperative. Some custom grazing in certified organic pasture.