

Mission Statement

The Southern Plains Agricultural Resources Coalition will spark rural sustainability and profitability through greater use of no-till practices and conservation systems for producers, consumers, and communities by promotion of market based incentives, education, demonstration, participation, and research.

Area We Serve

The Southern Plains Agricultural Resources Coalition (SPARC) serves an area of Oklahoma west of Interstate 35. The goal of SPARC is to broaden its coverage to neighboring states in the southern plains region.

Who We Serve

SPARC serves producers of agriculture products as well as consumers. This includes all communities, policy makers, tribes, landowners, and water users throughout rural and urban areas.

Priority Resource Concerns

SPARC has determined that the three priority resource concerns with the greatest potential for beneficial results are:

1. Soil Quality
2. Economics
3. Water Resources

Soil Quality Concerns

The general soil quality condition indicates a declining trend in soil organic matter content. This indicator is the reason the Southern Plains Agricultural Resources Coalition chose soil quality concern on cropland as the primary resource concern. This decline is largely due to the tillage practices and lack of crop rotations employed over the last 40 or 50 years. Soil organic matter levels are characteristically below 0.5% on cropland and continue to trend downward. This is well below the 3.5 to 4.5% present before tillage was introduced to this area.

Among other things, tillage practices on cropland have been used to bury and/or chop up crop residues in order to speed up the decomposition process for seedbed preparation and planting. Tillage allows carbon to escape into the atmosphere reducing soil organic levels. The more soil disturbance by tillage, the more carbon escapes the soil.

Low soil organic matter also contributes to several other soil quality concerns in crop fields such as:

- Low natural fertility in soils
- Reducing water infiltration rates and increasing runoff from fields
- Decreasing soil water holding capacity and air movement
- Allowing poor soil aggregation and structure which increases the potential for soil compaction to occur and reduces plant root penetration in the soil
- Providing a less friable soil tilth and increasing seedbed preparation operations
- Increasing soil surface crusting
- Increasing wind and water erosion potential
- Reducing microbial activity in the soil

Soil organic matter is the key component for improving soil quality. The group felt that soil quality could be greatly improved in the area if producers were to adopt the practices of no-till and crop rotations. By increasing soil organic matter, many of the other soil quality concerns can be reduced or eliminated all together.

Soil Quality Ideal

The group was asked to discuss the ideal soil quality condition for cropland. They determined that it would be ideal if soil organic matter content was at 4%. Some of the group felt this was high and would almost be impossible to obtain but agreed that organic matter levels have to be stabilized and changed to an upward trend.

In addition, the group also determined that the following would be ideal soil quality conditions:

- Good soil structure and soil aggregates – mellow, friable soil with good tilth
- Active and diverse soil microbial populations – signs of soil organisms in the soil
- No soil erosion – soil loss is 0 ton/ac/year
- Soil moisture infiltration at maximum for the soil texture – surface water ponding is minimal and runoff is very low
- Water holding capacity is consistently high

- Soil meets agronomic fertility needs by storing more nutrients for crop development and providing proper pH levels
- Soil bulk density is optimum and compaction is minimal – excellent plant root development and penetration and no surface crusting

Soil Quality Change

The group discussed items that could bring about change in the way cropland is farmed in the area. Education of producers on the benefits of managing crop residues was at the top of the list. Other items discussed included promoting better producer incentives through government programs, promoting research and demonstration through government, institutional, non-profit organizations, promoting increased awareness to producers and the public on the benefits of no-till farming and crop rotations, utilizing funds from grants to purchase no-till drills and planters, providing a means where producers can share expertise with other producers, and promoting marketplace incentives for producers who use no-till and crop rotation practices. The long range goal of achieving 4% soil organic matter was established at 25-30 years.

The attached table outlines the actions that need to be taken to make the change happen, along with: the time frame for the change to occur; what, if any funding is needed; how success will be measured; and who is responsible for ensuring the change takes place.

Economic Concerns

For any business or economic entity to be successful or continue to operate it has to be profitable. It has to be able to generate sufficient revenues to cover all explicit and implicit costs. Essential components have to be in place to insure the profitability for a business such as:

- A highly skilled, well educated, abundant labor force needed to provide the human capital necessary to produce a product or provide a service at the most efficient level.
- Availability of sufficient levels of capital necessary to assist start up businesses, expanding businesses, and recruiting of new businesses.
- Supporting infrastructure essential to provide necessary basic services that support business development opportunities.
- Governmental policies conducive to promote, enhance, and facilitate business development and job creation.
- Entrepreneurs exploring, identifying, and developing diversity and value-added agricultural products and services.

The Center for the Study of Rural America, out of the Federal Reserve Bank of Kansas City, has identified some of the basic issues and concerns involving economic development in rural communities which are:

- Rural communities have been characterized by poor job growth, low and stagnant incomes, and continued out-migration.
- The ability of communities to attract new businesses and help existing businesses to grow and reach market is hampered by aging infrastructures, lower skilled labor, and insufficient capital.
- The economic and business development policies of many rural areas are unfocused, outdated, and ineffective. Its goals are not clear and lack diversity.

Economic Ideal

According to The Center for the Study of Rural America, the economic development framework should be founded upon the following whereby:

- Communities must have competitive advantage to prosper, and the advantage must stand a global market test. What's going to make you better and different?
- Communities that prosper constantly invest in creating new competitive advantage rather than protecting the old.
- Communities that prosper also make regular investments in building up physical and human capital.

Economic Change

To bring about some of these desirable changes agricultural producers would incorporate sustainable and conservation practices in an integrated system. Government policy would foster conservation practices and rural economic development efforts. Also, rural and urban interest would be working together as a cohesive group with common goals. As a result, agricultural enterprises would be highly diversified and profitable, rural communities would be growing, value-added industry would be expanding, and with new opportunities, youth retention would increase. Positive changes need to be evident in the next 5 – 10 years with a definite turnaround in 10 years. The overall economic goals of SPARC will take 25 years to achieve.

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Water Resources Concerns

There are numerous and diverse issues related to water resources in the Southern Plains region. Many water bodies have regulatory issues, i.e., water quality does not comply with some aspect of state standards. In this region, sediments and elevated nutrient (N, P) content are key water quality issues. Sedimentation effects storage capacity in reservoirs and can cause excessive turbidity. Elevated nutrients can result in oxygen depletion and

in extreme cases fish kills. Degraded stream channels in the region contribute to problems in reservoirs. Reservoirs with high sediment loads include Clinton Lake, Lake Altus, Optima Lake, Foss Reservoir, and Fort Cobb Reservoir. Agricultural practices that are often implicated in degraded stream channels are cattle grazing in streams and farming too close to stream banks. Groundwater contamination is associated with saltwater from oil and gas drilling, agricultural nitrates leaching, and spikes of nutrients around animal feeding operations. Salt cedar, an invasive species, depletes water quantity and degrades native habitat.

Although population levels are low, competition can develop among agriculture, public supply, recreation, and aesthetics uses, particularly during drought. Improved drought preparedness and pro-active, rather than reactive, response to drought is needed at farm and community levels. In some parts of the region, groundwater depletion poses a risk to natural springs, putting critical habitat at risk. The State of Oklahoma does not have a well defined system of water markets. Proposals for sale and inter-basin transfer of large quantities of water are highly controversial. Oklahoma City has substantial water rights from local rivers or groundwater, leaving limited options for many rural communities.

Water Resources Ideal

The "ideal" for regional water resource management would be cleaner water bodies, stable stream channels (e.g., fencing and control access to grazing, re-establishment of riparian vegetation, buffers along streams), improved infiltration in fields and pastures, better mechanisms to meet diverse demands (e.g., conservation at all levels, market systems, and improved water law), pro-active planning and response to drought, dependable and equitable water supply for households, and enforcement or new laws to prevent contamination.

Water Resources Change

Fostering a stewardship ethic through innovation, education and outreach to farmers, consumers, landowners, community leaders, businesses, children, churches, extension, NRCS and others is a priority need in this region. In particular, it is essential to bring field-level agricultural, natural resource, energy and other professionals to the table as advocates for conservation and sustainability. Progress would be enhanced if conservation were targeted to sensitive parts of landscape, which would require changes in policy at federal and state levels in agriculture, oil and gas, and other sectors. Water reuse will be critical to meet future public supply requirements. Agencies, farmers, and consumers need to be moved out of their "comfort zones" and more open to new ideas, approaches, and economics for marketing "earth friendly" food products and rural recreational and tourism experiences. Water quality will begin to have some improvements immediately and the listed ideal condition goal is to be reached in 10 years.

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