

## Section 11.1: Crop Agriculture

### Topic / Issue Description

Energy costs made up about 23 percent of U.S. crop production expenses from 2000 to 2003, compared with just 6 percent for livestock production.<sup>1</sup> Although energy cost is a significant component of total production costs for agricultural producers, agriculture direct energy usage represents roughly 1 percent of the nation's total consumption. Thus, reducing energy use in agricultural activities will have minimal impact on overall energy consumption in Kansas.

About 95% of Kansas land is used for agricultural production and wildlife habitat. Although agriculture plays a significant role in the state's economy, in 2003 it accounted for 2.7 percent of value-added income and 5.2 percent of jobs (or 9.6 percent and 11.7 percent, respectively, if the meat packing industry is included).

Rising energy prices—including dramatically higher gasoline and diesel fuel prices through the fall of 2008 and rising prices for fertilizer and feed—have had a substantial impact on agricultural producers nationwide. In Kansas, rising energy prices have hit Kansas irrigated crop producers especially hard, prompting many to convert irrigation pumps from natural gas or diesel to electricity.<sup>2</sup>

Kansas agricultural producers already tend to use energy efficiently, because fuel and other energy-related costs significantly affect net profits. In central Kansas, no-till farms have lower total expense ratios—indicating greater cost efficiency—as well as higher profit margins and assets turnover ratios.<sup>3</sup>

Like their counterparts nationwide, Kansas farmers routinely consider ways to increase profits is by increasing crop yields or reducing per-bushel costs, including the adoption of reduced-tillage practices—in particular, no-till agriculture. These reduced-tillage practices, sometimes called conservation tillage, use herbicides as a substitute for tillage to control weeds.

Typically, farmers have adopted no-till because it enables them to farm more land with less labor and may allow for increased cropping intensity. No-till also reduces the usage

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<sup>1</sup> However, livestock operations experience higher energy costs indirectly through higher feed costs, which make up about 60% of all production costs.

<sup>2</sup> Kasten et al., 2006, Energy Use in the Kansas Agricultural Sector, Report Submitted to the Kansas Energy Council, June 15, 2006: [http://www.kec.kansas.gov/reports/FinalReport\\_EnergyInAg\\_6\\_15\\_06.pdf](http://www.kec.kansas.gov/reports/FinalReport_EnergyInAg_6_15_06.pdf). Unless noted otherwise, background information in this section comes from this report.

<sup>3</sup> Agmanager.info, 2008, Michael Langemeier, The Relative Cost Efficiency of No-Till Farms in Central Kansas, July 25, 2008:

[http://www.agmanager.info/crops/prodecon/production/CostEfficiency\\_NoTillFarms\\_CentralKS.pdf](http://www.agmanager.info/crops/prodecon/production/CostEfficiency_NoTillFarms_CentralKS.pdf) (accessed July 2008)

of heavy machinery, resulting in a savings of approximately two gallons of diesel fuel per acre,<sup>4</sup> a significant savings with the high diesel prices seen through fall of 2008.

In addition to the soil conservation benefits, no-till increases rainwater retention, thus reducing costly irrigation expenses, which is especially important in the more arid parts of the state. No-till also reduces emissions of carbon dioxide and other pollutants associated with diesel fuel combustion.

### **Existing Policies and Programs**

1. Numerous federal and state programs promote soil conservation, protection of water quality, flood management, habitat enhancement, and other objectives. State and federal cost-share dollars are available for many practices that contribute to energy reduction and carbon sequestration, in addition to addressing the natural resource concerns for which they were originally developed.
2. In 2004, Kansas initiated a watershed-based management strategy, the Kansas Watershed Restoration and Protection Strategy (WRAPS). WRAPS integrates existing conservation programs and practices based on watershed plans. With this program, local entities develop plans to address watershed conditions and concerns, which in turn guide establishment of goals and objectives to restore watersheds to a more properly functioning condition. Implementation of these goals and objectives is largely accomplished through programs and practices administered under the conservation programs just mentioned. A major focus of the WRAPS program is to develop watershed plans that will reduce the amount of sedimentation occurring in public water supply reservoirs. The majority of these watersheds are primarily rural, and land use is predominately agricultural.
3. The Chicago Climate Exchange (CCX) issues Carbon Financial Instruments (CFI) contracts to farmers who convert agricultural land to grassland or adopt conservation tillage practices. The amount of the offset offer varies based on the region. To help individual Kansas farmers looking to participate in the CCX offset program, financial institutions—such as ArgaGate which is promoted by the Kansas Farm Bureau—offer funds which buy and sell credits on behalf of multiple farmers.
4. No-Till on the Plains is a non-profit organization, based out of Wamego, Kansas, that provides farmers with information on adopting no-till agriculture and other sustainable production methods. No-Till on the Plains sponsors conferences that provide education to the public and serve as a trade show for industry representatives.

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<sup>4</sup> Kansas State University Agricultural Extension, 2006, Terry Kastens et. al., Energy Use in the Kansas Agricultural Sector: [http://kec.kansas.gov/reports/FinalReport\\_EnergyInAg\\_6\\_15\\_06.pdf](http://kec.kansas.gov/reports/FinalReport_EnergyInAg_6_15_06.pdf) (accessed July 2008)