

Impact of Rising Fuel Costs

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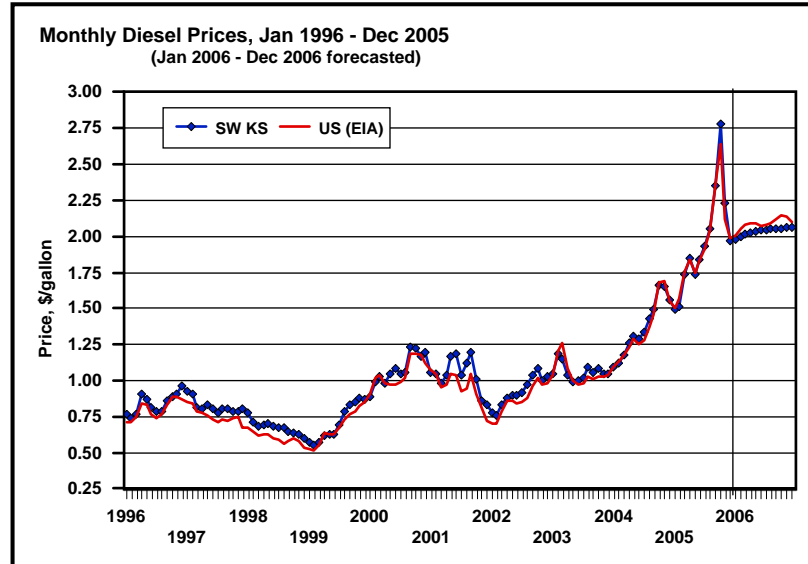
Department Agricultural Economics
Kansas State University
Winter 2006 meetings



Background thoughts . . .

- Prices for energy-related inputs are at extremely high levels (all-time highs in many cases)
- Producers likely cannot do much about the prices they face, but they need to “understand the numbers” to make good decisions
- Major crop decisions producers have pertain to input levels, crop selection, tillage method, and possibly negotiating leases on rented land

Forecasts for 2006 diesel prices are down from recent levels, but they are still at very high levels...



Futures-based forecast based on 1/13/06 closing futures prices

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Historical and forecasted diesel prices during principal farming months...

Diesel Prices

| Year | Mar-Oct Diesel Price | | | Year-to-year percent change | | |
|-----------------|----------------------|----------|---------|-----------------------------|----------|---------|
| | SW KS | US (EIA) | Average | SW KS | US (EIA) | Average |
| 2000 | \$1.09 | \$1.04 | \$1.07 | ---- | ---- | ---- |
| 2001 | \$1.09 | \$0.98 | \$1.04 | 0.6% | -6.1% | -2.7% |
| 2002 | \$0.94 | \$0.88 | \$0.91 | -14.1% | -10.0% | -12.1% |
| 2003 | \$1.05 | \$1.05 | \$1.05 | 12.1% | 18.6% | 15.3% |
| 2004 | \$1.37 | \$1.34 | \$1.36 | 30.0% | 28.4% | 29.2% |
| 2005 | \$2.04 | \$2.02 | \$2.03 | 48.5% | 49.9% | 49.2% |
| 2006 (F) | \$2.04 | \$2.10 | \$2.07 | 0.3% | 4.1% | 2.2% |
| 05 - Avg(00-04) | \$0.93 | \$0.96 | \$0.94 | 83.5% | 90.2% | 86.8% |
| 06 - Avg(00-04) | \$0.93 | \$1.04 | \$0.98 | 84.0% | 97.9% | 90.8% |

F = forecast

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Effect diesel price has on machinery costs per acre based on fuel consumption...

Fuel Consumption and Diesel Price Impact for Various Field Operations

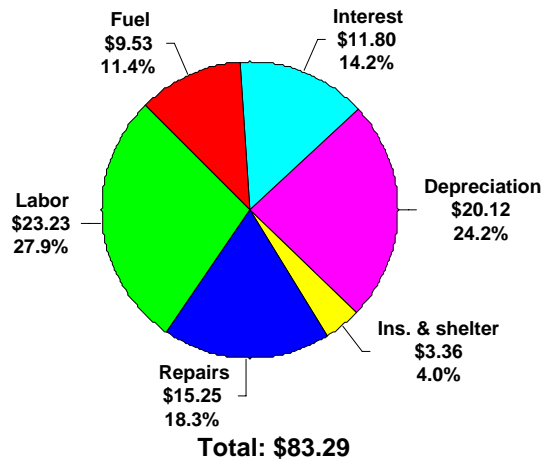
| Operation | Fuel use gallons/acre | Fuel price increase, \$/gallon | | | | |
|---------------------|--------------------------|-------------------------------------|--------|--------|--------|--------|
| | | \$0.04 | \$0.50 | \$0.71 | \$0.75 | \$1.00 |
| | | Increase in operation cost, \$/acre | | | | |
| Chisel plow | 0.64 | \$0.03 | \$0.32 | \$0.45 | \$0.48 | \$0.64 |
| Field cultivator | 0.34 | \$0.01 | \$0.17 | \$0.24 | \$0.26 | \$0.34 |
| Tandem disk | 0.49 | \$0.02 | \$0.25 | \$0.35 | \$0.37 | \$0.49 |
| Min-till planter | 0.53 | \$0.02 | \$0.27 | \$0.38 | \$0.40 | \$0.53 |
| No-till drill | 0.81 | \$0.03 | \$0.41 | \$0.58 | \$0.61 | \$0.81 |
| Sprayer | 0.11 | \$0.00 | \$0.06 | \$0.08 | \$0.08 | \$0.11 |
| Swather-conditioner | 0.42 | \$0.02 | \$0.21 | \$0.30 | \$0.32 | \$0.42 |
| Round baler | 0.77 | \$0.03 | \$0.39 | \$0.55 | \$0.58 | \$0.77 |
| Combine--wheat | 1.31 | \$0.05 | \$0.66 | \$0.93 | \$0.98 | \$1.31 |
| Combine--soybeans | 2.02 | \$0.08 | \$1.01 | \$1.43 | \$1.52 | \$2.02 |
| Combine--corn | 1.93 | \$0.08 | \$0.97 | \$1.37 | \$1.45 | \$1.93 |

Source: Lazarus and Selley (abbreviated version)

Increase from 2004 = \$0.71/gallon, increase from 2000-04 average = \$0.98/gallon.

Fuel prices are extremely high, but fuel costs represent one of the smaller cost categories...

Machinery Costs Per Acre, Kansas, 2001
Source: 182 KFMA Members (Beaton)



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Estimated effect diesel price has on machinery costs per acre based on custom rates...

Fuel Consumption and Diesel Price Impact for Various Field Operations

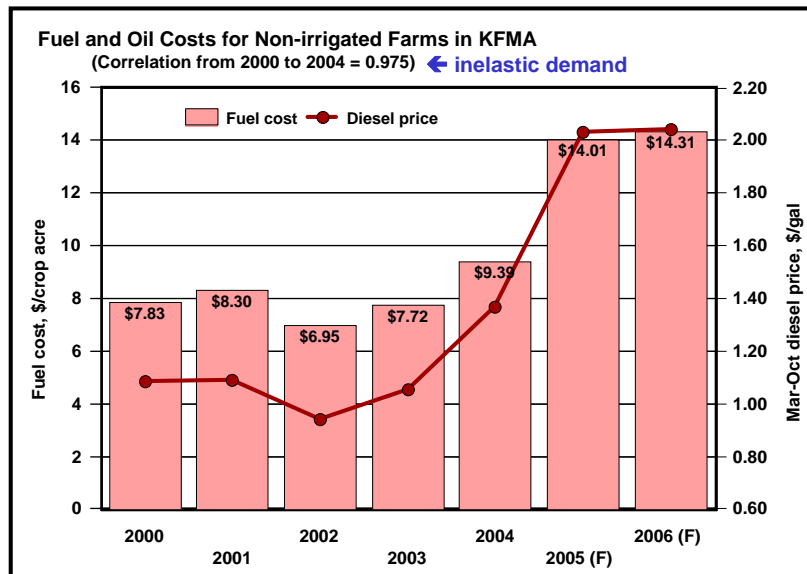
| Operation | Custom rate* | Fuel price increase, \$/gallon | | | | |
|----------------------------------|--------------|--------------------------------|--------|--------|--------|--------|
| | | \$0.04 | \$0.50 | \$0.71 | \$0.75 | \$1.00 |
| Increase in custom rate, \$/acre | | | | | | |
| Chiseling | \$7.96 | \$0.03 | \$0.42 | \$0.60 | \$0.63 | \$0.85 |
| Field cultivation | \$6.27 | \$0.03 | \$0.33 | \$0.47 | \$0.50 | \$0.67 |
| Disking | \$6.84 | \$0.03 | \$0.36 | \$0.52 | \$0.54 | \$0.73 |
| Min-till planter | \$10.29 | \$0.04 | \$0.55 | \$0.78 | \$0.82 | \$1.09 |
| No-till drill | \$10.72 | \$0.05 | \$0.57 | \$0.81 | \$0.85 | \$1.14 |
| Sprayer | \$4.03 | \$0.02 | \$0.21 | \$0.30 | \$0.32 | \$0.43 |
| Swather-conditioner | \$8.90 | \$0.04 | \$0.47 | \$0.67 | \$0.71 | \$0.94 |
| Round baler | \$8.03 | \$0.03 | \$0.43 | \$0.61 | \$0.64 | \$0.85 |
| Combine--wheat | \$14.48 | \$0.06 | \$0.77 | \$1.09 | \$1.15 | \$1.54 |
| Combine--soybeans | \$20.06 | \$0.09 | \$1.06 | \$1.51 | \$1.60 | \$2.13 |
| Combine--corn | \$20.09 | \$0.09 | \$1.07 | \$1.51 | \$1.60 | \$2.13 |

* 2004 state average reported by Kansas Agricultural Statistics

Increase from 2004 = \$0.71/gallon, increase from 2000-04 average = \$0.98/gallon.

Increase in custom rate 0.4% 5.3% 7.5% 8.0% 10.6%⁸

Fuel costs per acre versus diesel prices...



Without any change, costs in 2005 & 2006 will be up substantially on average.⁹

What can producers do in response to higher machinery costs?

Without any change, costs of machinery operations will increase about 7-10% from more “normal” times.

Things to consider...

- Reduce operations?
- Hire custom operators?
- Make sure machinery is properly maintained and used efficiently?
- Pass increased costs on to landowners?
- Nothing?

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USDA-NRCS Energy Consumption Awareness Tool: Tillage - Microsoft Internet Explorer

Impact of reducing tillage -- <http://ecat.sc.egov.usda.gov/Default.aspx>

USDA United States Department of Agriculture
Natural Resources Conservation Service

Energy Estimator

Energy Consumption Awareness Tool: Tillage

Home About Estimator Help Contact Us

You are here: Home

Welcome to Energy Estimator: Tillage

Energy Estimator for Tillage is the first of several tools from Natural Resources Conservation Service (NRCS) developed to increase energy awareness in agriculture. The tool estimates diesel fuel use and costs in the production of key crops in your area and compares potential energy savings between conventional tillage and alternative tillage systems. The crops covered are limited to the most predominant crops in 74 Crop Management Zones (CMZ's). NRCS agronomists have identified these crops and estimated the fuel use associated with common tillage systems. Without including every crop and tillage system, the Energy Estimator gives you an idea of the magnitude of diesel fuel savings under different levels of tillage.

Step 1: Zip Code

Begin using this tool by entering your zip code, then click CONTINUE.

Zip Code * : 67460

Last Modified: 12/06/2005

Done Internet

USDA-NRCS Energy Consumption Awareness Tool: Tillage - Microsoft Internet Explorer

Address: http://ecat.sc.egov.usda.gov/Cost.aspx?UnitPrice=2.07

USDA United States Department of Agriculture
Natural Resources Conservation Service

Energy Estimator

Energy Consumption Awareness Tool: Tillage

You are here: Home / Step 2: Crop Zone / Step 3: Fuel / Step 4: Cost

Step 4: Fuel Cost

If you want to checkout different fuel prices, enter a different price per gallon and click "RECALCULATE": \$ 2.07

Total Diesel Fuel Cost Estimate (in dollars per year) based on \$2.07/gallon

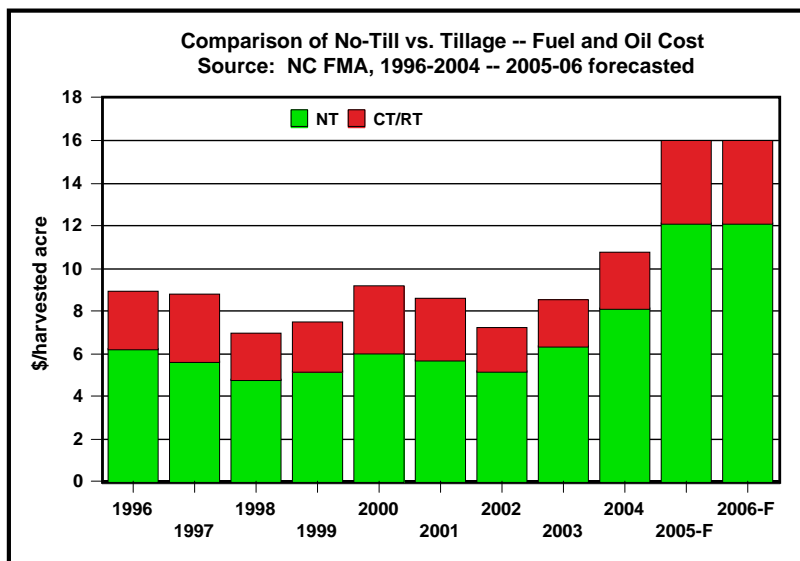
| Crop | Acres | Conventional Tillage | Mulch-Till | Ridge-Till | No-Till |
|---|-------|----------------------|--------------|--------------|--------------|
| Sorghum | 21 | \$215 | \$159 | \$151 | \$85 |
| Soybeans | 6 | \$60 | \$43 | \$43 | \$23 |
| Wheat | 73 | \$888 | \$536 | \$284 | \$284 |
| Total Fuel Cost | | \$1,163 | \$739 | \$195 | \$391 |
| Potential Cost Savings over Conventional Tillage | | | \$424 | \$81 | \$772 |

Total Farm Diesel Fuel Consumption Estimate (in gallons per year)

| Crop | Acres | Conventional Tillage | Mulch-Till | Ridge-Till | No-Till |
|---|-------|----------------------|------------|------------|------------|
| Sorghum | 21 | 104 | 77 | 73 | 41 |
| Soybeans | 6 | 29 | 21 | 21 | 11 |
| Wheat | 73 | 429 | 259 | 137 | 137 |
| Total Fuel Use | | 562 | 357 | 94 | 189 |
| Potential Fuel Savings over Conventional Tillage | | | 205 | 39 | 373 |
| Savings | | | 36% | 7% | 66% |

Savings of \$7.32/a vs CT (\$3.48 vs MT)

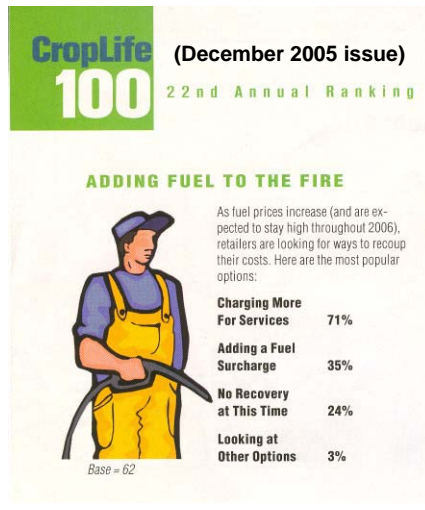
Fuel-savings benefit of no-till increases at higher prices...



NT fuel generally 67-75% of CT/RT, savings could be as high as \$4/acre at current diesel prices...

What can a producer do?

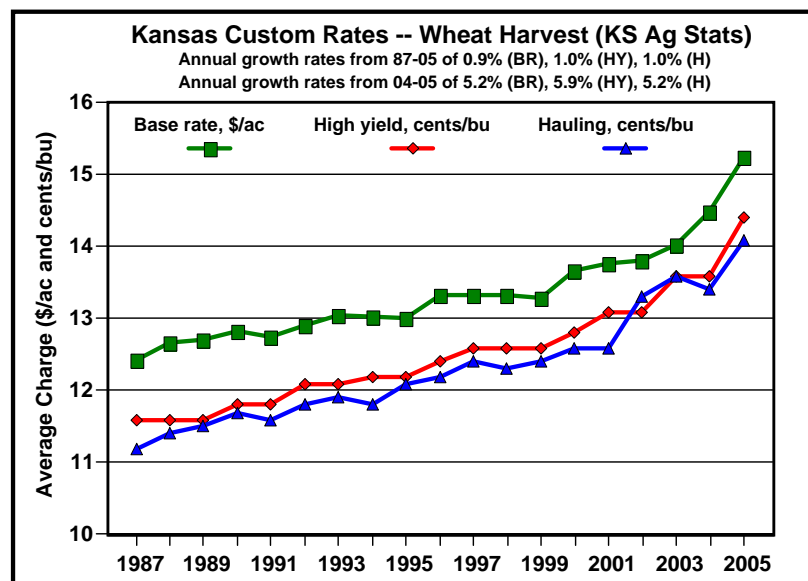
Hiring custom operators likely will not be the answer...



... while some custom operators might not increase their rates, something will have to give (quality of work?).

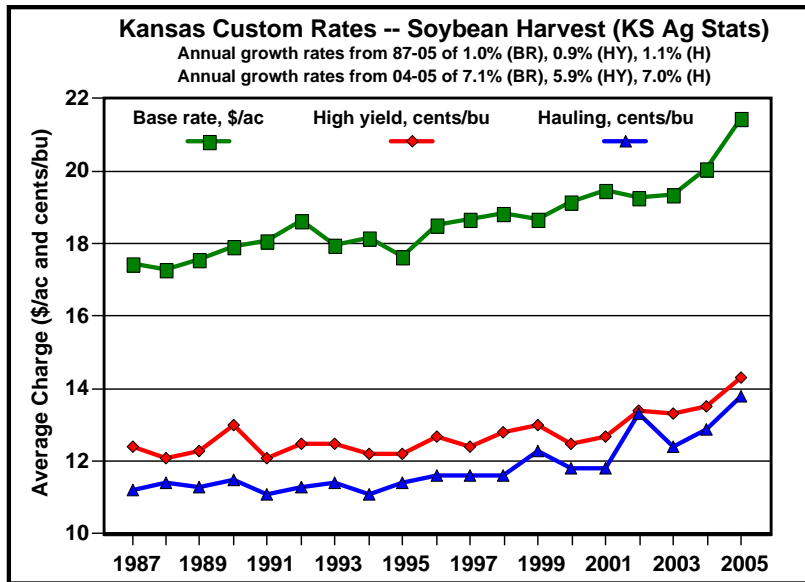
18

Custom harvesters raised their rates in 2005...



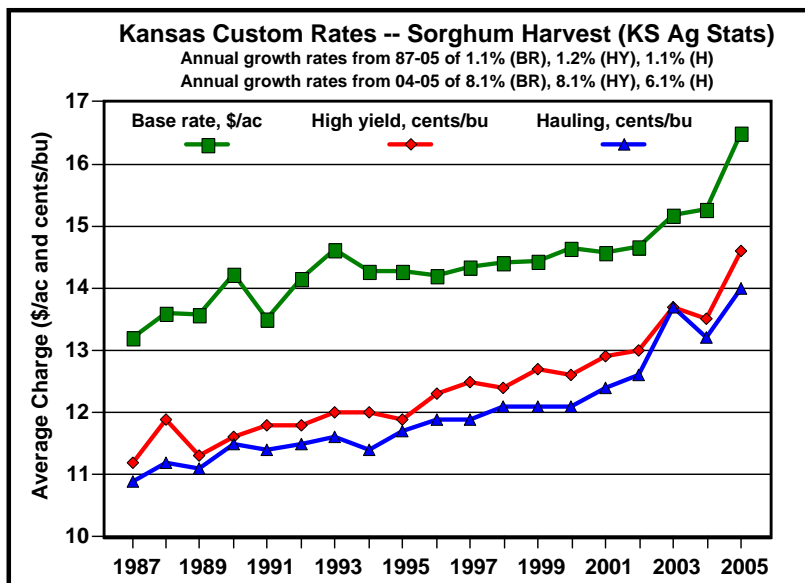
19

Custom harvesters raised their rates in 2005...



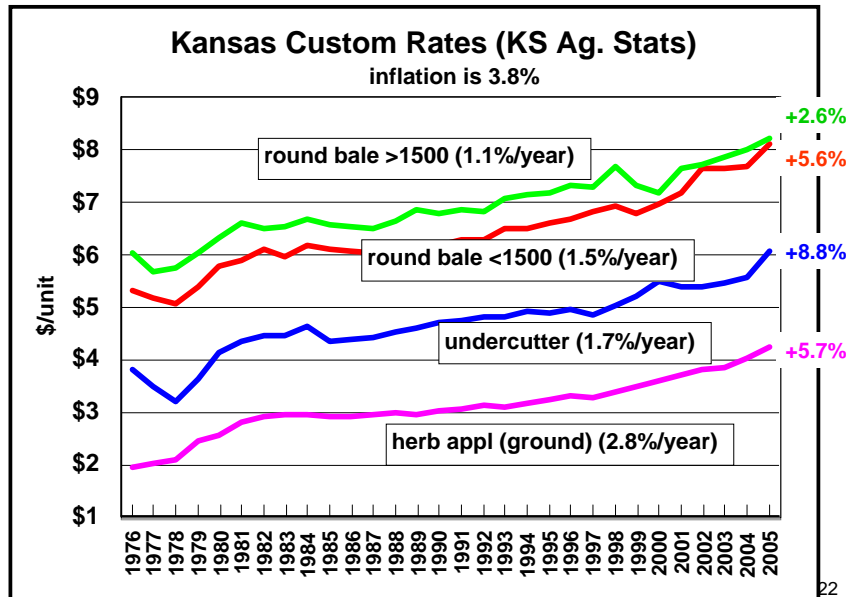
20

Custom harvesters raised their rates in 2005...



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Not all custom rates increased as much in 2005...



What can a producer do?

- Benefit of “improved machinery operation” will depend on current situation. Benefit for most producers is likely quite small, but cost of doing so is also likely small → *Just do it!*
- Passing higher machinery costs on to landowners might be quite risky (especially in the short run) and should be done cautiously
 - Impact of losing or giving up land?
 - Have “good times” been shared?
- Good landlord/tenant communications will be critical as we go through these tough economic times

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Impact of energy prices on irrigation pumping costs

KSU Irrigation Energy Costs.xls -----
A spreadsheet program to compare the costs of irrigation energy options.
 Version -- 11.08.05

DESCRIPTION OF INPUTS
 In the spreadsheet all blue numbers are inputs and all black numbers are calculated from these inputs. Several of the input cells (i.e., blue number) have a red diamond in the upper right hand corner of the cell. By moving your mouse cursor over this diamond, a brief description of the input will be displayed on the screen.

COMPANION PUBLICATIONS
 This spreadsheet is based on the publication "Developing a Spreadsheet Template for Comparing Irrigation Energy Costs" (AF-161) by David A. Pacey and Freddie R. Lamm. In addition, K-State Farm Management Guide crop budgets and other useful information is available via the K-State Agricultural Economics website (www.agmanager.info).

Developed by:

| | |
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KSU Irrigation Energy Costs.xls available at www.agmanager.info

IRRIGATION ENERGY COST COMPARISON Print tables

Compares energy costs of irrigation pumping with different fuels at various prices and levels of performance. % NPPPC is percent of Nebraska Pumping Plant Performance Criteria.

| INPUT ----- | | Electric: | 0.080 \$/kWh | 90 % NPPPC |
|----------------|-----|-----------|--------------|------------|
| Acres | | | | |
| Inches Applied | | Nat. Gas: | 6.00 \$/mcf | 90 % NPPPC |
| Feet Lift | 300 | Diesel: | 1.10 \$/gal | 90 % NPPPC |
| PSI Pressure | 20 | Propane: | 0.90 \$/gal | 90 % NPPPC |

| OUTPUT ----- | | Energy Cost (\$) | Energy Use | Cost as percent of: ----- | | | |
|---------------|--|------------------|------------|---------------------------|----------|--------|---------|
| Energy Source | | | | Elec. | Nat. Gas | Diesel | Propane |
| Electricity | | 3.98 | 50 kWh | 100% | 93% | 103% | 69% |
| Natural Gas | | 4.28 | 1 mcf | 108% | 100% | 111% | 74% |
| Diesel | | 3.87 | 4 gal | 97% | 90% | 100% | 67% |
| Propane | | 5.75 | 6 gal | 145% | 134% | 148% | 100% |

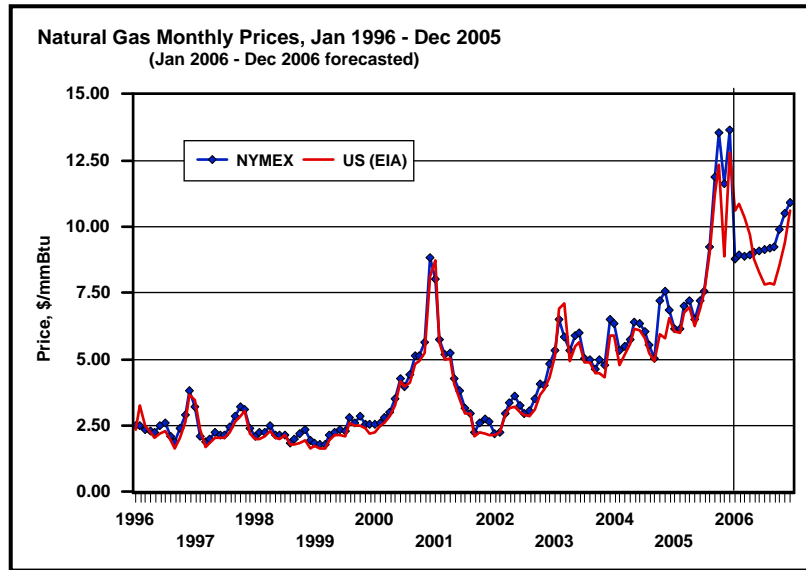
| ENERGY PUMPING COST/ACRE WITH ELECTRICITY | |
|---|------------------------------------|
| \$/kWh | Pressure (PSI) |
| | 5.0 15.0 25.0 35.0 45.0 55.0 65.0 |
| 0.050 | 2.24 2.40 2.57 2.74 2.90 3.07 3.23 |
| 0.060 | 2.68 2.88 3.08 3.28 3.48 3.68 3.88 |
| 0.070 | 3.13 3.36 3.60 3.83 4.06 4.29 4.53 |
| 0.080 | 3.58 3.85 4.11 4.38 4.64 4.91 5.17 |
| 0.090 | 4.03 4.33 4.62 4.92 5.22 5.52 5.82 |
| 0.100 | 4.47 4.81 5.14 5.47 5.80 6.13 6.47 |
| 0.110 | 4.92 5.29 5.65 6.02 6.38 6.75 7.11 |

| Nebraska Pumping Plant Performance Criteria* | |
|--|------------------------|
| 0.885 | whp-hr/kWh Electricity |
| 61.7 | whp-hr/mcf Natural Gas |
| 12.5 | whp-hr/gal Diesel |
| 6.89 | whp-hr/gal Propane |

* These factors represent what a well-designed and maintained irrigation pumping plant should be capable of doing (i.e., work done per unit of fuel) based on the Nebraska Pumping Plant Performance Criteria (NPPPC).

| | |
|--------|-------------------------|
| 11.44 | conversion factor |
| 2.31 | TDH/lb of psi |
| 43,560 | square feet per acre |
| 62.4 | pounds/cubic foot water |
| 100 | percent |
| 12 | inch/foot |
| 33,000 | foot pound/minute-hp |
| 60 | minutes/hour |

Natural gas prices are at historically high levels...



Futures-based forecast based on 1/13/06 closing futures prices

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Historical and forecasted natural gas prices during principal farming months...

Natural Gas Prices

| Year | Mar-Oct Natural Gas Price | | | Year-to-year percent change | | |
|-----------------|---------------------------|----------|---------|-----------------------------|----------|---------|
| | NYMEX | US (EIA) | Average | NYMEX | US (EIA) | Average |
| 2000 | \$4.04 | \$3.85 | \$3.95 | ---- | ---- | ---- |
| 2001 | \$3.69 | \$3.49 | \$3.59 | -8.6% | -9.3% | -9.0% |
| 2002 | \$3.35 | \$3.12 | \$3.23 | -9.2% | -10.7% | -10.0% |
| 2003 | \$5.35 | \$5.24 | \$5.30 | 59.5% | 68.2% | 63.7% |
| 2004 | \$5.99 | \$5.63 | \$5.81 | 11.9% | 7.5% | 9.7% |
| 2005 | \$8.77 | \$8.37 | \$8.57 | 46.5% | 48.6% | 47.5% |
| 2006 (F) | \$9.19 | \$8.65 | \$8.92 | 4.8% | 3.3% | 4.1% |
| 05 - Avg(00-04) | \$4.28 | \$4.11 | \$4.20 | 95.5% | 96.3% | 95.9% |
| 06 - Avg(00-04) | \$4.70 | \$4.39 | \$4.55 | 104.9% | 102.9% | 103.9% |

F = forecast

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Irrigation pumping costs versus energy prices (150')...

ENERGY PUMPING COST/ACRE WITH NATURAL GAS

| \$/mcf | Pressure (PSI) | | | | | | |
|---------|-----------------------------------|------|------|------|------|------|------|
| | 5.0 | 15.0 | 25.0 | 35.0 | 45.0 | 55.0 | 65.0 |
| | ----- Energy Cost (\$/Acre) ----- | | | | | | |
| \$4.00 | 1.33 | 1.52 | 1.71 | 1.90 | 2.09 | 2.28 | 2.47 |
| \$5.00 | 1.66 | 1.90 | 2.14 | 2.38 | 2.62 | 2.85 | 3.09 |
| \$6.00 | 2.00 | 2.28 | 2.57 | 2.85 | 3.14 | 3.42 | 3.71 |
| \$7.00 | 2.33 | 2.66 | 3.00 | 3.33 | 3.66 | 4.00 | 4.33 |
| \$8.00 | 2.66 | 3.04 | 3.42 | 3.80 | 4.19 | 4.57 | 4.95 |
| \$9.00 | 3.00 | 3.42 | 3.85 | 4.28 | 4.71 | 5.14 | 5.57 |
| \$10.00 | 3.33 | 3.80 | 4.28 | 4.76 | 5.23 | 5.71 | 6.18 |

Based on applying 1.0 inches/acre and a lift of 150 feet

ENERGY PUMPING COST/ACRE WITH DIESEL

| \$/gal | Pressure (PSI) | | | | | | |
|--------|-----------------------------------|------|------|------|------|------|------|
| | 5.0 | 15.0 | 25.0 | 35.0 | 45.0 | 55.0 | 65.0 |
| | ----- Energy Cost (\$/Acre) ----- | | | | | | |
| \$0.75 | 1.23 | 1.41 | 1.58 | 1.76 | 1.94 | 2.11 | 2.29 |
| \$1.00 | 1.64 | 1.88 | 2.11 | 2.35 | 2.58 | 2.82 | 3.05 |
| \$1.25 | 2.05 | 2.35 | 2.64 | 2.93 | 3.23 | 3.52 | 3.82 |
| \$1.50 | 2.46 | 2.82 | 3.17 | 3.52 | 3.87 | 4.23 | 4.58 |
| \$1.75 | 2.87 | 3.29 | 3.70 | 4.11 | 4.52 | 4.93 | 5.34 |
| \$2.00 | 3.29 | 3.76 | 4.23 | 4.69 | 5.16 | 5.63 | 6.10 |
| \$2.25 | 3.70 | 4.22 | 4.75 | 5.28 | 5.81 | 6.34 | 6.87 |

Based on applying 1.0 inches/acre and a lift of 150 feet

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Impact of high input prices on crop profitability

(calculated using *KSU-CropBudgets2006.xls*)

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Projected budgets...

- Non-irrigated crops: wheat, milo, soybeans
- Irrigated crops: corn, milo, soybeans
- Crop prices based on futures market 1/13/06
- Machinery costs – 2004 vs. 2006-fuel-adjusted-rate
- Natural gas – 2000-04 avg vs. projected 2006 value
- Fertilizer – 2000-04 avg vs. projected 2006 values
- Inputs based on KSU Farm Management Guides except N fertilizer and irrigation → optimal levels

Focus should be on changes and relative differences rather than absolute values

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Cost scenarios...

| | Average Prices | Current Prices |
|------------|----------------------------|--------------------------------------|
| Machinery | 2004 custom rates | 2004 custom rates x 110% |
| Fertilizer | 2000-04 avg | 2006 forecast |
| N | \$0.21/lb | \$0.35/lb (+67%) |
| P | \$0.25/lb | \$0.28/lb (+11%) |
| K | \$0.20/lb | \$0.27/lb (+35%) |
| Irrigation | 2000-04 avg \$2.35/inch | 2006 forecast \$4.78/inch (+103%) |

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Microsoft Excel - KSU Crop budgets (MP Co - Dryland crops).xls

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|----|---|---|--|----------|------|-----------|----------|-----------|---------|-----------|-----------|---|---|---|
| 1 | | | | | | | | | | | | | | |
| 2 | | | Comparison of Crop Returns with Nitrogen Fertilizer and Irrigation Water at Economic Optimum Levels | | | | | | | | | | | |
| 3 | | | Crop/System | Wheat | Corn | Sorghum | Soybean | Sunflower | Alfalfa | Rotation1 | Rotation2 | | | |
| 4 | | | Percent of rotation (total - 100%) | 73.0% | 0.0% | 21.0% | 6.0% | 0.0% | 0.0% | 100% | 0% | | | |
| 5 | | | Yield Goal (YG), bu/ac | 48.0 | | 65.0 | 28.0 | | | | | | | |
| 6 | | | Enter 0 for Dryland or 1 for Irrigated | 0 | | 0 | 0 | | | | | | | |
| 7 | | | Annual rainfall | 24.0 | | 24.0 | 24.0 | | | | | | | |
| 8 | | | Organic matter (OM), % | 2.00 | | 2.00 | 2.00 | | | | | | | |
| 9 | | | Soil test nitrogen (STN), lbs/ac | 10.0 | | 10.0 | 10.0 | | | | | | | |
| 10 | | | Nitrogen fertilizer cost, \$/lb | \$0.21 | | \$0.21 | \$0.21 | | | | | | | |
| 11 | | | Irrigation energy cost, \$/inch | \$2.35 | | \$2.35 | \$2.35 | | | | | | | |
| 12 | | | KSU recommended nitrogen, lbs/ac | 85.2 | | 54.0 | 0.0 | | --- | | | | | |
| 13 | | | Econ Optimum fertN, lbs/ac | 86.2 | | 54.5 | 0.0 | | --- | | | | | |
| 14 | | | Econ Optimum Irrigation Amount, in | 0.0 | | 0.0 | 0.0 | | --- | | | | | |
| 15 | | | Yield at optimal N and I, bu/ac | 47.7 | | 64.5 | 25.2 | | --- | | | | | |
| 16 | | | INCOME PER ACRE | | | | | | | | | | | |
| 17 | | | A. Yield per acre | 47.7 | | 64.5 | 25.2 | | --- | | | | | |
| 18 | | | B. Price per unit | \$3.66 | | \$2.20 | \$5.64 | | --- | | | | | |
| 19 | | | C. Net government payments | \$15.00 | | \$15.00 | \$15.00 | | --- | \$15.00 | n/a | | | |
| 20 | | | D. Indemnity payments | \$0.00 | | \$0.00 | \$0.00 | | --- | \$0.00 | n/a | | | |
| 21 | | | E. Miscellaneous income | \$0.00 | | \$0.00 | \$0.00 | | --- | \$0.00 | n/a | | | |
| 22 | | | F. Returns/acre ((A x B) + C + D + E) | \$184.84 | | \$156.81 | \$157.19 | | --- | \$177.29 | n/a | | | |
| 23 | | | COSTS PER ACRE | | | | | | | | | | | |
| 24 | | | 1. Seed | \$6.00 | | \$10.33 | \$31.50 | | | \$8.44 | n/a | | | |
| 25 | | | 2. Herbicide | 5.20 | | 25.00 | 12.40 | | | 9.79 | n/a | | | |
| 26 | | | 3. Insecticide / Fungicide | 1.00 | | 0.00 | 0.00 | | | 0.73 | n/a | | | |
| 27 | | | 4. Fertilizer and Lime | 30.02 | | 23.30 | 10.00 | | | 27.41 | n/a | | | |
| 28 | | | 5. Crop Consulting | 0.00 | | 0.00 | 0.00 | | | 0.00 | n/a | | | |
| 29 | | | 6. Crop Insurance | 0.00 | | 0.00 | 0.00 | | | 0.00 | n/a | | | |
| 30 | | | 7. Drying | 0.00 | | 0.00 | 0.00 | | | 0.00 | n/a | | | |
| 31 | | | 8. Miscellaneous | 6.00 | | 6.00 | 6.00 | | | 6.00 | n/a | | | |
| 32 | | | 9. Machinery Expense | 63.88 | | 56.75 | 46.04 | | | 61.31 | n/a | | | |
| 33 | | | 10. Non-machinery Labor | 8.00 | | 8.00 | 5.50 | | | 7.85 | n/a | | | |
| 34 | | | 11. Irrigation | 0.00 | | 0.00 | 0.00 | | | 0.00 | n/a | | | |
| 35 | | | 12. Land Charge / Rent | 44.00 | | 44.00 | 44.00 | | | 44.00 | n/a | | | |
| 36 | | | G. SUB TOTAL | \$164.11 | | \$173.37 | \$155.44 | | | \$165.53 | n/a | | | |
| 37 | | | 13. Interest on 1/2 Nonland Costs | 4.80 | | 5.17 | 4.46 | | | 4.86 | n/a | | | |
| 38 | | | H. TOTAL COSTS | \$168.91 | | \$178.55 | \$159.89 | | | \$170.40 | n/a | | | |
| 39 | | | I. RETURNS OVER COSTS (F - H) | \$15.92 | | (\$21.74) | (\$2.70) | | | \$6.80 | n/a | | | |
| 40 | | | J. TOTAL COSTS/UNIT (H/A) | \$3.54 | | \$2.77 | \$6.34 | | | --- | | | | |
| 41 | | | K. RETURN TO ANNUAL COST (I-13)/G | 12.83% | | -3.66% | 1.13% | | | 7.10% | n/a | | | |

start | Budgets / Sensitivity / Optimal N&I / Figures / Tank mix costs / Irr energy costs / RLmodel / Tables

7:15 AM

Dryland crops example profitability summary ...

Comparison of Crop Returns under Various Input Price Scenarios

| Crop | Wheat | Sorghum | Soybean | Wtd Avg |
|--------------------------------------|----------|-----------|----------|-----------|
| Base scenario ¹ | \$15.92 | (\$21.74) | (\$2.70) | \$6.90 |
| At forecasted 2006 prices for... | | | | |
| Fuel ² | \$9.28 | (\$27.64) | (\$7.49) | \$0.52 |
| Fertilizer ² | \$3.22 | (\$29.73) | (\$3.28) | (\$4.09) |
| Natural gas ² | n/a | n/a | n/a | n/a |
| Fuel, fert, and nat gas ² | (\$3.41) | (\$35.60) | (\$8.07) | (\$10.45) |

¹Returns based on current Farm Management Guide costs except fuel, fertilizer, and irrigation pumping (2000-04 avg) and futures-based crop prices as of 1/13/06.

²All other costs and crop prices are the same as in base scenario (yields vary with fertilizer and irrigation costs).

| | | | | |
|----------------------|-----------------|-----------------|----------------|-----------------|
| Change, \$/ac | -\$19.33 | -\$13.87 | -\$5.37 | -\$17.35 |
|----------------------|-----------------|-----------------|----------------|-----------------|

Microsoft Excel - KSU Crop budgets (MP Co - Irrigated crops).xls

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Type a question for help

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|----|---|--|--|----------|-----------|----------|-----------|---------|-----------|-----------|-----|---|---|---|
| 1 | | | | | | | | | | | | | | |
| 2 | | | Comparison of Crop Returns with Nitrogen Fertilizer and Irrigation Water at Economic Optimum Levels | | | | | | | | | | | |
| 3 | | Crop/System | Wheat | Corn | Sorghum | Soybean | Sunflower | Alfalfa | Rotation1 | Rotation2 | | | | |
| 4 | | Percent of rotation (total - 100%) | 0.0% | 50.0% | 8.0% | 42.0% | 0.0% | 0.0% | 100% | 0% | | | | |
| 7 | | Yield Goal (YG), bu/ac | | 180.0 | 155.0 | 60.0 | | | | | | | | |
| 8 | | Enter 0 for Dryland or 1 for Irrigated | | 1 | 1 | 1 | | | | | | | | |
| 9 | | Annual rainfall | | 24.0 | 24.0 | 24.0 | | | | | | | | |
| 10 | | Organic matter (OM), % | | 2.00 | 2.00 | 2.00 | | | | | | | | |
| 11 | | Soil test nitrogen (STN), lbs/ac | | 10.0 | 10.0 | 10.0 | | | | | | | | |
| 13 | | Nitrogen fertilizer cost, \$/b | | \$0.21 | \$0.21 | \$0.21 | | | | | | | | |
| 14 | | Irrigation energy cost, \$/inch | | \$2.35 | \$2.35 | \$2.35 | | | | | | | | |
| 15 | | KSU recommended nitrogen, lbs/ac | | 238.0 | 198.0 | 0.0 | | --- | | | | | | |
| 16 | | Econ Optimum fertN, lbs/ac | | 219.0 | 178.5 | 0.0 | | --- | | | | | | |
| 17 | | Econ Optimum irrigation Amount, in | | 13.5 | 10.1 | 12.5 | | --- | | | | | | |
| 18 | | Yield at optimal N and I, bu/ac | | 176.6 | 151.0 | 64.0 | | --- | | | | | | |
| 20 | | INCOME PER ACRE | | | | | | | | | | | | |
| 21 | | A. Yield per acre | | 176.6 | 151.0 | 64.0 | | | | | | | | |
| 22 | | B. Price per unit | | \$2.36 | \$2.20 | \$5.64 | | | | | | | | |
| 23 | | C. Net government payments | | \$25.00 | \$25.00 | \$25.00 | | | | \$25.00 | n/a | | | |
| 24 | | D. Indemnity payments | | \$0.00 | \$0.00 | \$0.00 | | | | \$0.00 | n/a | | | |
| 25 | | E. Miscellaneous income | | \$0.00 | \$0.00 | \$0.00 | | | | \$0.00 | n/a | | | |
| 26 | | F. Returns/acre ((A x B) + C + D + E) | | \$441.24 | \$356.79 | \$329.70 | | | | \$387.53 | n/a | | | |
| 28 | | COSTS PER ACRE | | | | | | | | | | | | |
| 29 | | 1. Seed | | \$54.00 | \$47.70 | \$44.10 | | | | \$46.94 | n/a | | | |
| 30 | | 2. Herbicide | | 30.00 | 27.50 | 11.20 | | | | 21.90 | n/a | | | |
| 31 | | 3. Insecticide / Fungicide | | 0.00 | 0.00 | 0.00 | | | | 0.00 | n/a | | | |
| 32 | | 4. Fertilizer and Lime | | 70.18 | 56.59 | 17.00 | | | | 46.76 | n/a | | | |
| 33 | | 5. Crop Consulting | | 6.50 | 6.50 | 6.50 | | | | 6.50 | n/a | | | |
| 34 | | 6. Crop Insurance | | 0.00 | 0.00 | 0.00 | | | | 0.00 | n/a | | | |
| 35 | | 7. Drying | | 0.00 | 0.00 | 0.00 | | | | 0.00 | n/a | | | |
| 36 | | 8. Miscellaneous | | 9.00 | 9.00 | 9.00 | | | | 9.00 | n/a | | | |
| 37 | | 9. Machinery Expense | | 73.50 | 79.83 | 49.75 | | | | 64.03 | n/a | | | |
| 38 | | 10. Non-machinery Labor | | 10.00 | 8.00 | 6.50 | | | | 8.37 | n/a | | | |
| 39 | | 11. Irrigation | | 99.13 | 90.02 | 96.45 | | | | 97.28 | n/a | | | |
| 40 | | 12. Land Charge / Rent | | 79.75 | 79.75 | 79.75 | | | | 79.75 | n/a | | | |
| 41 | | G. SUB TOTAL | | \$432.07 | \$374.89 | \$320.26 | | | | \$380.53 | n/a | | | |
| 42 | | 13. Interest on 1/2 Nonland Costs | | 11.77 | 9.49 | 7.30 | | | | 9.74 | n/a | | | |
| 43 | | H. TOTAL COSTS | | \$443.84 | \$384.38 | \$327.56 | | | | \$390.25 | n/a | | | |
| 44 | | I. RETURNS OVER COSTS (F - H) | | (\$2.60) | (\$27.59) | \$2.14 | | | | (\$2.61) | n/a | | | |
| 45 | | J. TOTAL COSTS/UNIT (H/A) | | \$2.51 | \$2.55 | \$6.07 | | | | --- | n/a | | | |
| 46 | | K. RETURN TO ANNUAL COST ((I+J)/G) | | 2.12% | -4.93% | 2.95% | | | | 1.87% | n/a | | | |

Irrigated crops example profitability summary ...

Comparison of Crop Returns under Various Input Price Scenarios

| Crop | Corn | Sorghum | Soybean | Wtd Avg |
|--------------------------------------|-----------|-----------|-----------|-----------|
| Base scenario ¹ | (\$2.60) | (\$27.59) | \$2.14 | (\$2.61) |
| At forecasted 2006 prices for... | | | | |
| Fuel ² | (\$10.25) | (\$35.89) | (\$3.04) | (\$9.27) |
| Fertilizer ² | (\$34.20) | (\$52.64) | \$0.74 | (\$21.00) |
| Natural gas ² | (\$33.25) | (\$48.83) | (\$21.95) | (\$29.75) |
| Fuel, fert, and nat gas ² | (\$69.08) | (\$78.40) | (\$28.53) | (\$52.79) |

¹Returns based on current Farm Management Guide costs except fuel, fertilizer, and irrigation pumping (2000-04 avg) and futures-based crop prices as of 12/2/05.

²All other costs and crop prices are the same as in base scenario (yields vary with fertilizer and irrigation costs).

| | | | | |
|---------------|----------|----------|----------|----------|
| Change, \$/ac | -\$66.48 | -\$50.81 | -\$30.66 | -\$50.18 |
|---------------|----------|----------|----------|----------|

Summary

- Current high prices for energy-related inputs are projected to remain at extremely high levels in 2006
- High input prices will have significant impact on crop returns in 2006
 - Irrigated crops impacted more than non-irrigated crops
 - Feedgrains generally impacted more than soybeans
- How producers “manage” in response to high prices will depend on their unique situations
- For most producers, no one thing will result in big savings. Thus, doing all the little things correctly will be critical (i.e., good management will pay)

41

AgManager: Providing Agricultural Economic Information on Crops, Livestock, Marketing and Outlo - Microsoft Internet Explorer

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Site Updates

- Updated Crop Basis Tool
January 4, 2006 by Kevin Dhuyvetter
- Monthly Nf3 and Diesel Price Forecasts
December 30, 2005 by Kevin Dhuyvetter
- Updated Cattle Databases
December 23, 2005 by Jim Mintert
- Livestock and Hay Charts
December 23, 2005 by Jim Mintert
- Crop Basis Maps
December 21, 2005, by Kevin Dhuyvetter
- In The Cattle Markets
December 20, 2005 by Jim Mintert/LMIC
- Grain Outlook
December 15, 2005 by Mike Woolverton
- KSU-Crop Budgets 2006.xls
December 13, 2005 by Dhuyvetter et al.
- Modifying Fertilizer Recs to Reflect Price
December 2, 2005 by Kastens et al.
- Impact of Energy Prices on KS Farm Costs
December 2, 2005 by Dhuyvetter et al.

http://www.agmanager.info/crops/budgets/proj_budget/default.asp

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