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# AFPC

**Agricultural & Food Policy Center**  
at Texas A&M University

## The Impact of Rising Energy Costs on Representative Farms



AFPC Briefing Paper 05-3

October 2005

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**THE IMPACT OF RISING ENERGY  
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# Executive Summary

## Background:

- Recent increases in natural gas and fossil fuel based energy sources have had a negative impact on the financial condition of agricultural producers across the nation.
- In addition to higher fuel costs for trucks, equipment, and irrigation motors, the cost of nitrogen fertilizer is closely linked to energy prices and has also increased significantly.
- This study quantifies the impacts of these increases on the economic viability of representative farms located throughout the United States for the years 2005 and 2006.

## Data and Methods:

- This study utilizes primary representative farm data coupled with the FAPRI August 2005 Baseline and a risk based business analysis tool.
- Ninety-nine representative farms, dairies, and ranches created by AFPC through a focus group interview process were analyzed assuming alternative input inflation rates for energy, fuel, and nitrogen fertilizer (Appendix Tables 1-3). For additional information about the farms see AFPC Working Paper 05-1.
- The Average scenario was analyzed relative to the Base situation. The Average scenario assumes that energy prices increased at the 1998-2004 average rates of change for energy related expenses and nitrogen fertilizer (Tables 1-2).
- The effect of each alternative is evaluated based on the projected average annual net cash farm income (NCFI) for 2005 and 2006. Net cash farm income is defined as total cash receipts minus all cash expenses. It does not reflect profit, as family living expenses, principal payments on loans, income taxes, self-employment taxes, and machinery replacement costs must be paid from this sum. This allows for an intermediate number shielded from the cumulative effect of carryover debt and the influence that large quantities of land ownership has on equity.
- The impact of current inflation experienced by producers is described in terms of a decrease in NCFI due to the higher inflation rates in the 2005 and 2006 Base scenario relative to the Average scenario (Table 2).

## Results:

- The representative operations are grouped into six categories based on the primary commodity produced (Tables 3-5).
- Rice farms showed the largest decrease in NCFI, experiencing an 80.7 percent reduction in NCFI for the August Baseline scenario relative to the Average scenario.
- Feedgrain farms experienced a 30.5 percent reduction in NCFI as a result of increased energy costs.
- Cotton farms saw a 29.3 percent reduction in NCFI due to higher energy costs.
- Under the higher inflation rates in the August Baseline scenario, wheat farms realized a 7.0 percent reduction in NCFI.
- Beef cattle operations saw a 10.1 percent reduction due to increased cost of energy.
- Dairy operations experienced the smallest reduction in NCFI on a percentage change basis with a 3.5 percent reduction in NCFI between the August Baseline and the Average scenario.

**Table 1. Historical Annual Energy and Nitrogen Fertilizer Price Rates of Change, 1998-2004.**

|         | <u>Fuel</u> | <u>Fertilizer</u> |
|---------|-------------|-------------------|
|         | --%--       | --%--             |
| 1998    | -20.75      | -16.28            |
| 1999    | 10.71       | -13.89            |
| 2000    | 44.09       | 21.51             |
| 2001    | -11.19      | 26.55             |
| 2002    | -10.92      | -21.68            |
| 2003    | 32.08       | 25.89             |
| 2004    | 17.26       | 13.83             |
| Average | 8.75        | 5.13              |

Source: FAPRI August 2005 Baseline.

**Table 2. Base and Average Annual Energy and Nitrogen Fertilizer Price Rates of Change, 2005-2006.**

|      | <u>Base Fuel</u> | <u>Base N Fertilizer</u> | <u>Average Fuel</u> <sup>1</sup> | <u>Average N Fertilizer</u> <sup>2</sup> |
|------|------------------|--------------------------|----------------------------------|--|
|      | --%--            | --%--                    | --%--                            | --%--                                    |
| 2005 | 23.83            | 17.63                    | 8.75                             | 5.13                                     |
| 2006 | 7.89             | 11.34                    | 8.75                             | 5.13                                     |

Source: FAPRI August 2005 Baseline.

1 Average Fuel rates of change equal average historical annual changes in fuel prices, 1998-2004.

2 Average N Fertilizer rates of change equal average historical annual changes in nitrogen fertilizer prices, 1998-2004.

**Table 3. Average Annual Net Cash Farm Income for Representative Farms Under Two Assumed Inflation Rate Increases for Fuel Related Expenses, 2005-2006.**

| <u>Farm</u>      | <u>Acres</u> | <u>Base</u> <sup>1</sup><br>--\$-- | <u>Average</u> <sup>2</sup><br>--\$-- | <u>Change</u><br>--\$1,000-- | <u>Change</u><br>--\$/Acre-- | <u>Change</u><br>--%-- |
|------------------|--------------|------------------------------------|---------------------------------------|------------------------------|------------------------------|------------------------|
| <b>Feedgrain</b> |              |                                    |                                       |                              |                              | -30.5                  |
| IAG1350          | 1350         | 60.5                               | 67.5                                  | -7.0                         | -5.2                         | -10.4                  |
| IAG2750          | 2750         | 225.4                              | 231.6                                 | -6.2                         | -2.2                         | -2.7                   |
| IAG4200          | 4200         | 300.7                              | 313.9                                 | -13.2                        | -3.1                         | -4.2                   |
| NEG1960          | 1960         | 242.9                              | 261.9                                 | -19.0                        | -9.7                         | -7.2                   |
| NEG4300          | 4300         | 279.8                              | 320.4                                 | -40.6                        | -9.4                         | -12.7                  |
| MOCG1700         | 1700         | 175.8                              | 179.7                                 | -3.8                         | -2.3                         | -2.1                   |
| MOCG3630         | 3630         | 359.0                              | 365.1                                 | -6.2                         | -1.7                         | -1.7                   |
| MONG1850         | 1850         | 186.3                              | 191.3                                 | -4.9                         | -2.7                         | -2.6                   |
| TXHG2000         | 2000         | -8.8                               | -3.1                                  | -5.7                         | -2.9                         | -185.9                 |
| TNG900           | 900          | 19.9                               | 25.6                                  | -5.7                         | -6.4                         | -22.3                  |
| TNG2750          | 2750         | 248.2                              | 255.5                                 | -7.3                         | -2.7                         | -2.9                   |
| SCG1500          | 1500         | 19.6                               | 37.7                                  | -18.2                        | -12.1                        | -48.1                  |
| SCG3500          | 3500         | 216.2                              | 245.2                                 | -29.0                        | -8.3                         | -11.8                  |
| ING1000          | 1000         | 6.4                                | 12.2                                  | -5.8                         | -5.8                         | -47.8                  |
| ING2200          | 2200         | 20.5                               | 38.5                                  | -18.0                        | -8.2                         | -46.8                  |
| TXWG1400         | 1400         | 11.3                               | 14.0                                  | -2.6                         | -1.9                         | -18.7                  |
| TXUG1200         | 1200         | 3.9                                | 22.4                                  | -18.5                        | -15.4                        | -82.7                  |
| TXPG3760         | 3760         | 90.4                               | 147.5                                 | -57.1                        | -15.2                        | -38.7                  |
| <b>Wheat</b>     |              |                                    |                                       |                              |                              | -7.0                   |
| WAW1725          | 1725         | 85.6                               | 94.7                                  | -9.1                         | -5.3                         | -9.6                   |
| WAW5000          | 5000         | 229.8                              | 250.1                                 | -20.3                        | -4.1                         | -8.1                   |
| WAAW3500         | 3500         | 79.0                               | 84.6                                  | -5.6                         | -1.6                         | -6.6                   |
| NDW2180          | 2180         | 47.8                               | 52.0                                  | -4.1                         | -1.9                         | -7.9                   |
| NDW6250          | 6250         | 289.3                              | 294.5                                 | -5.2                         | -0.8                         | -1.8                   |
| KSCW1385         | 1385         | 49.0                               | 53.6                                  | -4.5                         | -3.3                         | -8.5                   |
| KSCW4000         | 4000         | 181.2                              | 195.6                                 | -14.4                        | -3.6                         | -7.3                   |
| KSNW4300         | 4300         | 91.9                               | 104.4                                 | -12.6                        | -2.9                         | -12.0                  |
| KSNW2800         | 2800         | 38.0                               | 45.1                                  | -7.1                         | -2.5                         | -15.7                  |
| COW3000          | 3000         | 135.1                              | 136.8                                 | -1.6                         | -0.5                         | -1.2                   |
| COW5640          | 5640         | 172.2                              | 172.3                                 | 0.0                          | 0.0                          | 0.0                    |
| MTW4500          | 4500         | 152.8                              | 160.8                                 | -7.9                         | -1.8                         | -4.9                   |
| ORW4000          | 4000         | 112.5                              | 122.0                                 | -9.4                         | -2.4                         | -7.7                   |

<sup>1</sup> Base: NCFI using 2005 and 2006 inflation rates reported in FAPRI August 2005 Baseline for energy, fuel, and nitrogen fertilizer.

<sup>2</sup> Average: NCFI using historical average change in fuel and nitrogen fertilizer prices as reported in FAPRI August 2005 Baseline for 2005 and 2006 energy, fuel, and nitrogen fertilizer inflation rates.

**Table 4. Average Annual Net Cash Farm Income for Representative Farms Under Two Assumed Inflation Rate Increases for Fuel Related Expenses, 2005-2006.**

| <u>Farm</u>   | <u>Acres</u> | <u>Base</u> <sup>1</sup><br>--\$-- | <u>Average</u> <sup>2</sup><br>--\$-- | <u>Change</u><br>--\$1,000-- | <u>Change</u><br>--\$/Acre-- | <u>Change</u><br>--%-- |
|---------------|--------------|------------------------------------|---------------------------------------|------------------------------|------------------------------|------------------------|
| <b>Cotton</b> |              |                                    |                                       |                              |                              |                        |
| TXNP3000      | 3000         | 37.3                               | 78.0                                  | -40.7                        | -13.6                        | -29.3                  |
| TXSP2239      | 2239         | 59.8                               | 69.2                                  | -9.4                         | -4.2                         | -13.6                  |
| TXSP3745      | 3745         | 110.9                              | 133.2                                 | -22.3                        | -6.0                         | -16.7                  |
| TXRP2500      | 2500         | 52.6                               | 56.3                                  | -3.7                         | -1.5                         | -6.5                   |
| TXCB1850      | 1850         | 63.1                               | 72.2                                  | -9.1                         | -4.9                         | -12.6                  |
| TXCB5500      | 5500         | -30.0                              | -15.3                                 | -14.6                        | -2.7                         | -95.5                  |
| TXVC4500      | 4500         | 48.5                               | 89.8                                  | -41.3                        | -9.2                         | -46.0                  |
| TXPC2500      | 2500         | -2.6                               | 28.5                                  | -31.1                        | -12.4                        | -109.2                 |
| TXMC3500      | 3500         | 95.2                               | 111.6                                 | -16.4                        | -4.7                         | -14.7                  |
| TXEC5000      | 5000         | -68.5                              | -37.5                                 | -31.0                        | -6.2                         | -82.7                  |
| GAC1700       | 1700         | 66.8                               | 88.4                                  | -21.6                        | -12.7                        | -24.4                  |
| TNC1900       | 1900         | 294.3                              | 295.6                                 | -1.3                         | -0.7                         | -0.4                   |
| TNC4050       | 4050         | 144.8                              | 152.4                                 | -7.6                         | -1.9                         | -5.0                   |
| LAC2640       | 2640         | 110.4                              | 109.3                                 | 1.1                          | 0.4                          | -1.0                   |
| ARC6000       | 6000         | 271.1                              | 324.8                                 | -53.7                        | -8.9                         | -16.5                  |
| ALC3000       | 3000         | 106.2                              | 106.9                                 | -0.6                         | -0.2                         | -0.6                   |
| NCC1100       | 1100         | 37.1                               | 36.8                                  | 0.3                          | 0.3                          | -0.8                   |
| <b>Rice</b>   |              |                                    |                                       |                              |                              |                        |
| CAR550        | 550          | -19.7                              | -3.2                                  | -16.4                        | -29.8                        | -80.7                  |
| CAR2365       | 2365         | -414.9                             | -327.7                                | -87.2                        | -36.9                        | -505.0                 |
| CABR1100      | 1100         | -196.7                             | -157.0                                | -39.7                        | -36.1                        | -26.6                  |
| CACR715       | 715          | -146.1                             | -113.5                                | -32.6                        | -45.5                        | -25.3                  |
| TXR1350       | 1350         | 11.6                               | 27.3                                  | -15.7                        | -11.6                        | -28.7                  |
| TXR2400       | 2400         | 9.8                                | 38.6                                  | -28.7                        | -12.0                        | -57.4                  |
| TXBR1800      | 1800         | 24.7                               | 46.5                                  | -21.8                        | -12.1                        | -74.5                  |
| TXER3200      | 3200         | -56.2                              | -19.4                                 | -36.8                        | -11.5                        | -46.9                  |
| LASR1200      | 1200         | -65.2                              | -49.6                                 | -15.6                        | -13.0                        | -189.8                 |
| LANR2500      | 2500         | 36.5                               | 56.1                                  | -19.5                        | -7.8                         | -31.4                  |
| ARSR3640      | 3640         | 255.1                              | 280.6                                 | -25.5                        | -7.0                         | -34.9                  |
| ARWR1200      | 1200         | -61.4                              | -42.0                                 | -19.4                        | -16.2                        | -9.1                   |
| ARHR3000      | 3000         | -7.7                               | 36.4                                  | -44.1                        | -14.7                        | -46.2                  |
| MOWR4000      | 4000         | 434.0                              | 465.1                                 | -31.1                        | -7.8                         | -121.3                 |
| MOER4500      | 4500         | 366.9                              | 395.7                                 | -28.8                        | -6.4                         | -6.7                   |
|               |              |                                    |                                       |                              |                              | -7.3                   |

1 Base: NCFI using 2005 and 2006 inflation rates reported in FAPRI August 2005 Baseline for energy, fuel, and nitrogen fertilizer.

2 Average: NCFI using historical average change in fuel and nitrogen fertilizer prices as reported in FAPRI August 2005 Baseline for 2005 and 2006 energy, fuel, and nitrogen fertilizer inflation rates.



**Table 5. Average Annual Net Cash Farm Income for Representative Farms Under Two Assumed Inflation Rate Increases for Fuel Related Expenses, 2005-2006.**

| <u>Farm</u>  | <u>Cows</u> | <u>Base</u> <sup>1</sup><br>--\$-- | <u>Average</u> <sup>2</sup><br>--\$-- | <u>Change</u><br>--\$1,000-- | <u>Change</u><br>--\$/Cow-- | <u>Change</u><br>--%-- |
|--------------|-------------|------------------------------------|---------------------------------------|------------------------------|-----------------------------|------------------------|
| <b>Dairy</b> |             |                                    |                                       |                              |                             | -3.5                   |
| CAD1710      | 1710        | 1266.1                             | 1321.7                                | -55.6                        | -32.5                       | -4.2                   |
| NMD2125      | 2125        | 1632.8                             | 1641.5                                | -8.8                         | -4.1                        | -0.5                   |
| WAD250       | 250         | 197.6                              | 199.7                                 | -2.1                         | -8.3                        | -1.0                   |
| WAD850       | 850         | 208.4                              | 219.3                                 | -10.9                        | -12.8                       | -5.0                   |
| IDD1000      | 1000        | 512.3                              | 517.7                                 | -5.4                         | -5.4                        | -1.0                   |
| IDD3000      | 3000        | 2340.0                             | 2382.6                                | -42.7                        | -14.2                       | -1.8                   |
| TXCD550      | 550         | 54.0                               | 66.6                                  | -12.6                        | -22.9                       | -18.9                  |
| TXCD1300     | 1300        | 946.3                              | 964.6                                 | -18.3                        | -14.1                       | -1.9                   |
| TXED550      | 550         | 227.1                              | 245.2                                 | -18.1                        | -32.9                       | -7.4                   |
| TXED1000     | 1000        | 764.2                              | 773.3                                 | -9.0                         | -9.0                        | -1.2                   |
| TXND2400     | 2400        | 1476.3                             | 1500.8                                | -24.5                        | -10.2                       | -1.6                   |
| WID145       | 145         | 191.4                              | 196.2                                 | -4.8                         | -32.8                       | -2.4                   |
| WID775       | 775         | 1122.8                             | 1126.9                                | -4.1                         | -5.2                        | -0.4                   |
| NYWD1200     | 1200        | 567.0                              | 597.9                                 | -30.9                        | -25.7                       | -5.2                   |
| NYWD800      | 800         | 340.0                              | 365.3                                 | -25.3                        | -31.6                       | -6.9                   |
| NYCD110      | 110         | 183.5                              | 189.1                                 | -5.6                         | -51.1                       | -3.0                   |
| NYCD500      | 500         | 423.4                              | 445.9                                 | -22.5                        | -45.0                       | -5.0                   |
| VTD134       | 134         | 146.0                              | 149.7                                 | -3.7                         | -27.4                       | -2.5                   |
| VTD350       | 350         | 163.0                              | 170.7                                 | -7.7                         | -22.0                       | -4.5                   |
| MOD85        | 85          | 78.1                               | 79.6                                  | -1.5                         | -17.9                       | -1.9                   |
| MOD400       | 400         | 333.1                              | 342.6                                 | -9.5                         | -23.8                       | -2.8                   |
| FLND550      | 550         | 687.4                              | 696.2                                 | -8.8                         | -16.0                       | -1.3                   |
| FLSD1500     | 1500        | 65.5                               | 66.1                                  | -0.7                         | -0.4                        | -1.0                   |
| <b>Beef</b>  |             |                                    |                                       |                              |                             | -10.1                  |
| MTB500       | 500         | 139.0                              | 143.3                                 | -4.3                         | -8.6                        | -3.0                   |
| WYB500       | 500         | 33.2                               | 36.9                                  | -3.6                         | -7.3                        | -9.8                   |
| COB250       | 250         | 76.9                               | 78.6                                  | -1.7                         | -6.8                        | -2.2                   |
| MOB150       | 150         | 66.2                               | 70.3                                  | -4.1                         | -27.7                       | -5.9                   |
| MOCB350      | 350         | 58.0                               | 63.4                                  | -5.4                         | -15.5                       | -8.6                   |
| NMB240       | 240         | 35.5                               | 37.0                                  | -1.5                         | -6.1                        | -4.0                   |
| FLB1155      | 1155        | 87.8                               | 112.9                                 | -25.2                        | -21.8                       | -22.3                  |
| NVB700       | 700         | 89.9                               | 94.5                                  | -4.6                         | -6.6                        | -4.9                   |
| TXBB150      | 150         | 43.8                               | 69.6                                  | -25.8                        | -171.9                      | -37.0                  |
| CAB500       | 500         | 20.2                               | 28.6                                  | -8.4                         | -16.8                       | -29.4                  |
| SDB450       | 450         | 91.2                               | 94.2                                  | -3.0                         | -6.7                        | -3.2                   |
| TXSB250      | 250         | 81.0                               | 81.6                                  | -0.6                         | -2.3                        | -0.7                   |
| TXRB500      | 500         | 125.9                              | 126.8                                 | -0.9                         | -1.7                        | -0.7                   |

<sup>1</sup> Base: NCFI using 2005 and 2006 inflation rates reported in FAPRI August 2005 Baseline for energy, fuel, and nitrogen fertilizer.

<sup>2</sup> Average: NCFI using historical average change in fuel and nitrogen fertilizer prices as reported in FAPRI August 2005 Baseline for 2005 and 2006 energy, fuel, and nitrogen fertilizer inflation rates.

**Appendix Table 1. Characteristics of Representative Feedgrain and Wheat Farms.**

| <u>Farm</u>      | <u>Cropland</u> | <u>State</u>   | <u>County</u> | <u>Sales</u> | <u>Corn</u> | <u>Soybeans</u> | <u>Sorghum</u> | <u>Wheat</u> | <u>Cotton</u> | <u>Other</u> | <u>Beef</u> |
|------------------|-----------------|----------------|---------------|--------------|-------------|-----------------|----------------|--------------|---------------|--------------|-------------|
|                  | --Acres--       |                |               | --1,000--    | --Acres--   | --Acres--       | --Acres--      | --Acres--    | --Acres--     | --Acres--    | --Cows--    |
| <b>Feedgrain</b> |                 |                |               |              |             |                 |                |              |               |              |             |
| IAG1350          | 1350            | Iowa           | Webster       | 444.7        | 675         | 675             | 0              | 0            | 0             | 0            | 0           |
| IAG2750          | 2750            | Iowa           | Webster       | 765.4        | 1375        | 1375            | 0              | 0            | 0             | 0            | 0           |
| IAG4200          | 4200            | Iowa           | Webster       | 1493.4       | 2100        | 2100            | 0              | 0            | 0             | 0            | 0           |
| NEG1960          | 1960            | Nebraska       | Dawson        | 1024.6       | 1646        | 177             | 0              | 0            | 0             | 137          | 0           |
| NEG4300          | 4300            | Nebraska       | Dawson        | 1884.3       | 2666        | 1118            | 0              | 0            | 0             | 516          | 0           |
| MOCG1700         | 1700            | Missouri       | Carroll       | 463.2        | 825         | 825             | 0              | 50           | 0             | 0            | 0           |
| MOCG3630         | 3630            | Missouri       | Carroll       | 843.5        | 1650        | 1880            | 0              | 100          | 0             | 0            | 0           |
| MONG1850         | 1850            | Missouri       | Nodaway       | 652.4        | 900         | 900             | 0              | 0            | 0             | 1000         | 200         |
| ING1000          | 1000            | Indiana        | Shelby        | 304.0        | 500         | 500             | 0              | 0            | 0             | 0            | 0           |
| ING2200          | 2200            | Indiana        | Shelby        | 714.5        | 1100        | 1100            | 0              | 0            | 0             | 0            | 0           |
| TXPG3760         | 3760            | Texas          | Castro        | 1890.1       | 1344        | 0               | 0              | 0            | 1472          | 0            | 0           |
| TXHG2000         | 2000            | Texas          | Hill          | 490.1        | 1000        | 0               | 500            | 250          | 250           | 300          | 40          |
| TXWG1400         | 1400            | Texas          | Williamson    | 363.7        | 900         | 0               | 200            | 50           | 250           | 0            | 50          |
| TXUG1200         | 1200            | Texas          | Uvalde        | 646.0        | 450         | 0               | 200            | 150          | 400           | 0            | 0           |
| TNG900           | 900             | Tennessee      | Henry         | 325.7        | 500         | 400             | 0              | 100          | 0             | 0            | 0           |
| TNG2750          | 2750            | Tennessee      | Henry         | 991.3        | 1100        | 1650            | 0              | 550          | 0             | 0            | 0           |
| SCG1500          | 1500            | South Carolina | Clarendon     | 532.2        | 846         | 654             | 0              | 454          | 0             | 0            | 0           |
| SCG3500          | 3500            | South Carolina | Clarendon     | 1386.9       | 1840        | 1260            | 0              | 900          | 400           | 0            | 0           |
| <b>Wheat</b>     |                 |                |               |              |             |                 |                |              |               |              |             |
| WAW1725          | 1725            | Washington     | Whitman       | 489.5        | 0           | 0               | 0              | 1121         | 0             | 604          | 0           |
| WAW5000          | 5000            | Washington     | Whitman       | 1281.4       | 0           | 0               | 0              | 2915         | 0             | 1851         | 0           |
| WAAW3500         | 3500            | Washington     | Adams         | 219.0        | 0           | 0               | 0              | 1500         | 0             | 500          | 0           |
| ORW4000          | 4000            | Oregon         | Morrow        | 299.4        | 0           | 0               | 0              | 1600         | 0             | 400          | 0           |
| MTW4500          | 4500            | Montana        | Chouteau      | 472.5        | 0           | 0               | 0              | 2475         | 0             | 0            | 0           |
| NDW2180          | 2180            | North Dakota   | Barnes        | 359.9        | 240         | 800             | 0              | 700          | 0             | 340          | 0           |
| NDW6250          | 6250            | North Dakota   | Barnes        | 1247.2       | 600         | 1600            | 0              | 2700         | 0             | 1100         | 0           |
| KSCW1385         | 1385            | Kansas         | Sumner        | 186.6        | 0           | 138             | 319            | 928          | 0             | 0            | 0           |
| KSCW4000         | 4000            | Kansas         | Sumner        | 541.6        | 50          | 55              | 975            | 2845         | 0             | 75           | 67          |
| KSNW2800         | 2800            | Kansas         | Thomas        | 336.0        | 470         | 0               | 280            | 935          | 0             | 185          | 60          |
| KSNW4300         | 4300            | Kansas         | Thomas        | 641.6        | 532         | 130             | 281            | 2000         | 0             | 357          | 100         |
| COW3000          | 3000            | Colorado       | Washington    | 263.7        | 600         | 0               | 0              | 970          | 0             | 905          | 0           |
| COW5640          | 5640            | Colorado       | Washington    | 507.0        | 650         | 0               | 0              | 1900         | 0             | 1790         | 0           |

**Appendix Table 2. Characteristics of Representative Cotton and Rice Farms.**

| <u>Farm</u>   | <u>Cropland</u> | <u>State</u>   | <u>County</u> | <u>Sales</u> | <u>Corn</u> | <u>Soybeans</u> | <u>Sorghum</u> | <u>Wheat</u> | <u>Cotton</u> | <u>Rice</u> | <u>Other</u> | <u>Beef</u> |
|---------------|-----------------|----------------|---------------|--------------|-------------|-----------------|----------------|--------------|---------------|-------------|--------------|-------------|
|               | --Acres--       |                |               | --1,000--    | --Acres--   | --Acres--       | --Acres--      | --Acres--    | --Acres--     | --Acres--   | --Acres--    | --Cows--    |
| <b>Cotton</b> |                 |                |               |              |             |                 |                |              |               |             |              |             |
| TXNP3000      | 3000            | Texas          | Moore         | 1171.0       | 360         | 0               | 240            | 600          | 1500          | 0           | 300          | 0           |
| TXSP2239      | 2239            | Texas          | Dawson        | 655.5        | 0           | 0               | 0              | 0            | 1800          | 0           | 243          | 0           |
| TXSP3745      | 3745            | Texas          | Dawson        | 1341.9       | 0           | 0               | 0              | 0            | 3036          | 0           | 408          | 0           |
| TXPC2500      | 2500            | Texas          | Deaf Smith    | 891.5        | 125         | 0               | 308            | 883          | 1184          | 0           | 0            | 0           |
| TXEC5000      | 5000            | Texas          | Crosby        | 1251.1       | 0           | 0               | 300            | 400          | 4300          | 0           | 0            | 0           |
| TXRP2500      | 2500            | Texas          | Jones         | 255.9        | 0           | 0               | 0              | 825          | 1122          | 0           | 0            | 12          |
| TXMC3500      | 3500            | Texas          | Jackson       | 1302.5       | 875         | 0               | 875            | 0            | 1750          | 0           | 0            | 0           |
| TXCB1850      | 1850            | Texas          | San Patricio  | 554.0        | 150         | 0               | 775            | 0            | 925           | 0           | 0            | 0           |
| TXCB5500      | 5500            | Texas          | Nueces        | 1329.9       | 0           | 0               | 2750           | 0            | 2750          | 0           | 0            | 0           |
| TXVC4500      | 4500            | Texas          | Willacy       | 1337.5       | 0           | 0               | 1888           | 0            | 2388          | 0           | 225          | 0           |
| LAC2640       | 2640            | Louisiana      | Morehouse     | 1230.2       | 1056        | 660             | 0              | 0            | 924           | 0           | 0            | 0           |
| ARC6000       | 6000            | Arkansas       | Desha         | 3927.2       | 0           | 1500            | 500            | 0            | 2000          | 2000        | 0            | 0           |
| TNC1900       | 1900            | Tennessee      | Fayette       | 1164.4       | 440         | 440             | 0              | 0            | 990           | 0           | 30           | 0           |
| TNC4050       | 4050            | Tennessee      | Haywood       | 1774.4       | 560         | 820             | 0              | 328          | 2670          | 0           | 0            | 0           |
| ALC3000       | 3000            | Alabama        | Lawrence      | 1185.5       | 750         | 150             | 0              | 0            | 2100          | 0           | 0            | 0           |
| GAC1700       | 1700            | Georgia        | Decatur       | 1325.9       | 0           | 170             | 0              | 0            | 1020          | 0           | 510          | 0           |
| NCC1100       | 1100            | North Carolina | Wayne         | 569.2        | 0           | 400             | 0              | 110          | 700           | 0           | 0            | 0           |
| <b>Rice</b>   |                 |                |               |              |             |                 |                |              |               |             |              |             |
| CAR550        | 550             | California     | Sutter        | 448.1        | 0           | 0               | 0              | 0            | 0             | 500         | 0            | 0           |
| CAR2365       | 2365            | California     | Sutter        | 1950.4       | 0           | 0               | 0              | 0            | 0             | 2240        | 0            | 0           |
| CABR1100      | 1100            | California     | Butte         | 838.0        | 0           | 0               | 0              | 0            | 0             | 1000        | 0            | 0           |
| CACR715       | 715             | California     | Colusa        | 586.8        | 0           | 0               | 0              | 0            | 0             | 650         | 0            | 0           |
| TXR1350       | 1350            | Texas          | Colorado      | 321.8        | 0           | 0               | 0              | 0            | 0             | 855         | 0            | 0           |
| TXR2400       | 2400            | Texas          | Colorado      | 709.2        | 0           | 0               | 0              | 0            | 0             | 2280        | 0            | 0           |
| TXBR1800      | 1800            | Texas          | Matagorda     | 583.8        | 0           | 0               | 0              | 0            | 0             | 1200        | 0            | 0           |
| TXER3200      | 3200            | Texas          | Wharton       | 972.9        | 0           | 160             | 160            | 0            | 0             | 2240        | 0            | 0           |
| LASR1200      | 1200            | Louisiana      | Acadia        | 367.8        | 0           | 250             | 0              | 0            | 0             | 660         | 0            | 0           |
| LANR2500      | 2500            | Louisiana      | Madison       | 1320.6       | 250         | 800             | 0              | 0            | 325           | 1000        | 0            | 0           |
| MOER4500      | 4500            | Missouri       | New Madrid    | 1708.3       | 1500        | 1500            | 0              | 0            | 0             | 1500        | 0            | 0           |
| MOWR4000      | 4000            | Missouri       | Butler        | 1874.4       | 0           | 2000            | 0              | 0            | 0             | 2000        | 0            | 0           |
| ARSR3640      | 3640            | Arkansas       | Arkansas      | 1096.9       | 0           | 1620            | 0              | 324          | 0             | 1620        | 0            | 0           |
| ARWR1200      | 1200            | Arkansas       | Cross         | 487.4        | 0           | 600             | 0              | 60           | 0             | 600         | 0            | 0           |
| ARHR3000      | 3000            | Arkansas       | Lawrence      | 1312.9       | 0           | 1250            | 0              | 0            | 0             | 1750        | 0            | 0           |

**Appendix Table 3. Characteristics of Representative Dairies and Ranches.**

| <b>Farm</b>  | <b>Cropland</b> | <b>State</b> | <b>County</b> | <b>Sales</b> | <b>Corn</b> | <b>Soybeans</b> | <b>Sorghum</b> | <b>Wheat</b> | <b>Other</b> | <b>Dairy</b> | <b>Beef</b> |
|--------------|-----------------|--------------|---------------|--------------|-------------|-----------------|----------------|--------------|--------------|--------------|-------------|
|              | --Acres--       |              |               | --1,000--    | --Acres--   | --Acres--       | --Acres--      | --Acres--    | --Acres--    | --Cows--     | --Cows--    |
| <b>Dairy</b> |                 |              |               |              |             |                 |                |              |              |              |             |
| CAD1710      | 1100            | California   | Tulare        | 6229.4       | 0           | 0               | 0              | 0            | 1100         | 1710         | 0           |
| NMD2125      | 0               | New Mexico   | Chaves        | 7491.4       | 0           | 0               | 0              | 0            | 0            | 2125         | 0           |
| WAD250       | 200             | Washington   | Whatcom       | 980.6        | 0           | 0               | 0              | 0            | 200          | 250          | 0           |
| WAD850       | 605             | Washington   | Whatcom       | 3371.5       | 0           | 0               | 0              | 0            | 605          | 850          | 0           |
| IDD1000      | 0               | Idaho        | Twin Falls    | 3965.6       | 0           | 0               | 0              | 0            | 0            | 1000         | 0           |
| IDD3000      | 2000            | Idaho        | Twin Falls    | 11634.3      | 0           | 0               | 0              | 0            | 2000         | 3000         | 0           |
| TXND2400     | 180             | Texas        | Bailey        | 8457.3       | 0           | 0               | 0              | 0            | 180          | 2400         | 0           |
| TXCD550      | 500             | Texas        | Erath         | 1750.2       | 0           | 0               | 0              | 0            | 500          | 550          | 0           |
| TXCD1300     | 400             | Texas        | Erath         | 4614.8       | 0           | 0               | 0              | 0            | 400          | 1300         | 0           |
| TXED550      | 350             | Texas        | Hopkins       | 1573.2       | 0           | 0               | 0              | 0            | 350          | 0            | 550         |
| TXED1000     | 750             | Texas        | Lamar         | 3525.1       | 0           | 0               | 0              | 0            | 750          | 0            | 1000        |
| WID145       | 600             | Wisconsin    | Winnebago     | 655.1        | 184         | 0               | 0              | 0            | 297          | 0            | 145         |
| WID775       | 1200            | Wisconsin    | Winnebago     | 3496.6       | 0           | 0               | 0              | 0            | 1150         | 0            | 775         |
| NYWD800      | 1440            | New York     | Wyoming       | 3387.2       | 0           | 0               | 0              | 0            | 1440         | 0            | 800         |
| NYWD1200     | 2160            | New York     | Wyoming       | 5052.5       | 0           | 0               | 0              | 0            | 2160         | 0            | 1200        |
| NYCD110      | 275             | New York     | Cayuga        | 522.7        | 64          | 0               | 0              | 0            | 211          | 0            | 110         |
| NYCD500      | 1100            | New York     | Cayuga        | 2227.7       | 0           | 0               | 0              | 0            | 1100         | 0            | 500         |
| VTD134       | 220             | Vermont      | Washington    | 614.3        | 0           | 0               | 0              | 0            | 220          | 134          | 0           |
| VTD350       | 700             | Vermont      | Washington    | 1464.8       | 0           | 0               | 0              | 0            | 700          | 350          | 0           |
| MOD85        | 260             | Missouri     | Christian     | 292.3        | 0           | 0               | 0              | 0            | 260          | 85           | 0           |
| MOD400       | 600             | Missouri     | Dade          | 1424.7       | 0           | 0               | 0              | 0            | 600          | 400          | 0           |
| FLND550      | 130             | Florida      | Lafayette     | 2013.1       | 0           | 0               | 0              | 0            | 130          | 550          | 0           |
| FLSD1500     | 500             | Florida      | Okeechobee    | 5192.6       | 0           | 0               | 0              | 0            | 500          | 1500         | 0           |
| <b>Beef</b>  |                 |              |               |              |             |                 |                |              |              |              |             |
| CAB500       | 0               | California   | Tehama        | 301.2        | 0           | 0               | 0              | 0            | 0            | 0            | 500         |
| NVB700       | 1300            | Nevada       | Elko          | 357.9        | 0           | 0               | 0              | 0            | 1300         | 0            | 700         |
| MTB500       | 640             | Montana      | Custer        | 313.2        | 0           | 0               | 0              | 0            | 640          | 0            | 500         |
| WYB500       | 300             | Wyoming      | Washakie      | 285.0        | 0           | 0               | 0              | 0            | 300          | 0            | 500         |
| COB250       | 450             | Colorado     | Routt         | 186.6        | 0           | 0               | 0              | 0            | 450          | 0            | 250         |
| NMB240       | 0               | New Mexico   | Union         | 322.0        | 0           | 0               | 0              | 0            | 0            | 0            | 240         |
| SDB450       | 960             | South Dakota | Meade         | 274.6        | 0           | 0               | 0              | 0            | 960          | 0            | 450         |
| MOB150       | 1098            | Missouri     | Dade          | 161.2        | 100         | 116             | 24             | 58           | 800          | 0            | 150         |
| MOCB350      | 1560            | Missouri     | Phelps        | 223.1        | 0           | 0               | 0              | 0            | 1560         | 0            | 350         |
| TXRB500      | 0               | Texas        | King          | 333.4        | 0           | 0               | 0              | 0            | 0            | 0            | 500         |
| TXBB150      | 3000            | Texas        | McLennan      | 1479.6       | 0           | 0               | 0              | 0            | 3000         | 0            | 150         |
| TXSB250      | 0               | Texas        | Gonzales      | 181.9        | 0           | 0               | 0              | 0            | 0            | 0            | 250         |
| FLB1155      | 3560            | Florida      | Osceola       | 609.9        | 0           | 0               | 0              | 0            | 3560         | 0            | 1155        |