Economic Analysis of Nebraska Benefits from Overuse of Republican River Water by Nebraska in 2005 and 2006

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Table of Contents

INTRODUCTION

This report describes the economic analysis of Nebraska's benefits resulting from its overuse of Republican River water in the years 2005 and 2006. The Supreme Court entered its decree ("Decree") approving the Final Settlement Stipulation ("FSS") on May 19, 2003. The years 2005 and 2006 were water-short year accounting years under the FSS, and Spronk Water Engineers ("SWE") has quantified the amount of overuse by Nebraska in 2005 and 2006. SWE has also documented a set of actions including well shutdowns, acquisition of surface water supplies, and acquisition of unused storage water, which would have brought Nebraska into compliance with the Decree. SWE has documented the irrigated acres that would have been affected by these actions had they been implemented in 2005 and 2006.

This report determines the economic value of those benefits in present dollars. The economic value of those benefits is composed of two parts, the direct, on-farm, economic effects and the secondary effects in the Nebraska businesses and communities linked economically to those farms.

ON-FARM DIRECT EFFECTS FROM NOT SHUTTING DOWN WELLS

One action that Nebraska should have taken to meet the requirements of the Decree was to shut down irrigation wells near the river. Through the linked effects of river flows and alluvial groundwater the result would have been increased flows in the river available to Kansas. This section determines the on-farm direct effects that Kansas experienced because it did not reduce its consumptive use of Republican River water by shutting down irrigation wells to meet the terms of the decree in 2005 and 2006.

Required Well Shutdown Acreage

Table 1 using data prepared by SWE shows the acres of well irrigation that should have been shut down in selected counties. The total is 115,380 acres in 2005 and 103,837 acres in 2006. This land was used to produce irrigated crops. If the wells had been shut down most of the land would still have produced crops, but without irrigation. This section evaluates the economic impacts that such a shift from irrigated to dryland crops would have had on the economy of Nebraska.

Figure 1 is a map of the Republican Basin in Nebraska, showing the acreage of required well shutdown by county and year. The map also shows (in orange outline) how the water resource districts overlay the Nebraska counties. The analysis that follows will aggregate the counties into three districts; the Upper Republican and Middle Republican as shown in the map; and the Lower Republican and Tri-Basin aggregated together and referred to subsequently as the Lower Republican. (Since there were no required well shutdowns in Kearney County it was excluded from further analysis.)

Tables 2 through 7 document the nature of dryland and irrigated crop production in the Nebraska Republican River basin on lands that would have been affected by the well shutdown. The tables present data from the United States Department of Agriculture National Agricultural Statistical Service (NASS) on crop acres and yields, by year, county and water resource district. (NASS is a well respected source for statistical data on agriculture.) Tables 2 and 5, respectively, show the NASS acres of dryland and irrigated crops, by county and region. Tables 3 and 6 show the crop mix percentages for these crops. Tables 4 and 7 show the crop yields.

Figure 2 presents pie charts showing crop mix by year, by district and by irrigated and dryland. Several results are obvious from the tables and pie charts. Corn and soybeans clearly dominate the irrigated crop mix, with the soybean share lowest in the upper district and highest in the lower districts. The dryland mix is similarly dominated by corn and wheat, with the share of wheat diminishing from west to east. The share of dryland milo and dryland soybeans, while much less than wheat and corn, also increases from west to east. This NASS data will be used to calculate what irrigated crops were actually grown on the land where wells should have been shut down, and what dryland alternatives would have been adopted if the land had been deprived of well water for irrigation.

Identifying the crops that would have been grown in the absence of well water requires taking into account the presence of soils that would not have been suitable for dryland crop production. When lands are mapped by the Natural Resources Conservation Service (NRCS) the land units are classified according to the following land capability classes:

- *Class I (1)* soils have slight limitations that restrict their use.
- *Class II (2)* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- *Class III (3)* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- *Class IV (4)* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- *Class V (5)* soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- *Class VI (6)* soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- *Class VII (7)* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.
- *Class VIII (8)* soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for esthetic purposes. (NRCS, National Soil Survey Handbook, Section 622, page 2.)

Class 1 through 4 lands are suitable for both irrigated and dryland crops. However topography or soil attributes make class 5 and 6 land unsuitable for dryland crops. SWE tabulated the acreage of class 5 and 6 land in the area affected by the required well shutdowns in 2005 and 2006. As shown in table 8 SWE overlaid a GIS map of soil classes with a map of the total area identified for well shutdown in the groundwater model. This was done by county. The areas of

class 1 through 4 lands were identified, and subtracted from the total model well shutdown acreage to give the class 5 and 6 land by subtraction. Table 8 shows that much of the land unsuited for dryland crops is in the upper Republican region – 21.5 percent of the 2005 well shutdown area, and 16.0 percent of the 2006 area. The middle and lower regions had smaller areas of class 5 and 6 land unsuited for dryland crops.

Table 9 shows the crops actually grown under irrigation in 2005 and 2006, based on the NASS crop mix from table 6. Table 9 also shows the dryland crops that would have been grown if the wells had been shut down, using the NASS crop mix from table 3. Note that the table uses the regional percentages of class 6 land from table 8 to specify the percentage of land that would be fallowed rather than shifted to dryland crops because of inadequate soil capability. The remaining land deprived of irrigation water would grow dryland crops. Irrigated alfalfa is assumed to become dryland alfalfa because it is an established perennial crop not likely to be either expanded or abandoned under the conditions of a temporary well shutdown. Likewise the acreage of irrigated wheat would become dryland wheat, because it very likely would have already been planted in the fall prior to any decision to shut down the wells. The remaining crops, corn (and silage), soybeans (and dry beans) and milo (and sunflowers) were allocated according to the percentages in the NASS dryland data. (Note that the very minor acreages of silage, dry beans and sunflowers have been aggregated into corn, soybeans and milo for this analysis.)

Crop Budget Analysis

Table 10 summarizes the NASS 2005 and 2006 yields for irrigated and dryland crops from tables 4 and 7, aggregated by region. Information to calculate yields with a yield model as was done for the Kansas loss analysis was not available for this Nebraska analysis. Consequently NASS yields were used in the Nebraska crop budget analysis.

Crop cost and return budgets are prepared by many land grant university agricultural extension programs. A new set of crop budgets is generally created for each year. The primary purpose of these crop budgets is as a source of information to help farmers and others make better management decisions. A secondary but widely used purpose of these crop budgets is to provide a source of crop cost and return information for researchers dealing with farm economic issues. The Nebraska crop budgets prepared by the University of Nebraska (UN) are used as a source of crop cost and return information in this analysis.

Tables 11 through 16 are the crop budgets for corn, milo, soybeans and alfalfa. These are based on the budgets developed by UN extension for 2004 and 2006 (no budgets were published in 2005). The particular crop budgets used in this analysis were selected (sometimes from several alternative possibilities) to represent the situation in the Nebraska Republican Basin. For example there are 3 dryland corn budgets for 2006:

- Notill, Bt seed, Continuous, 100 bu yield target, 95 bu actual yield
- Notill, Bt seed, After Soybeans, 110 bu yield goal, 100 bu actual yield
- EcoFallow, Bt seed, 2 crops in 3 years, 85 bu yield goal, 80 bu actual yield

The first was adopted for this analysis because notill is a prominent practice in the region, and because the dominance of corn in the region means that much of it must have been in a continuous corn rotation. Likewise for irrigated corn the choices were:

- Gravity irrigated, Ridge till, BT seed, Continuous, 195 bu yield goal, 180 bu actual yield
- Pivot, Notill, Bt seed, Continuous, 195 bu yield goal, 180 bu actual yield
- Pivot, Conventional, Bt seed, Continuous, 190 bu yield goal, 175 bu actual yield
- Pivot, Notill, after beans, 205 bu yield goal, 190 bu actual yield

The first was unrepresentative because of the preponderance of center pivot application systems in the region. The fourth was unrepresentative because of insufficient bean acreage and because the soil nitrogen left by the previous soybean crop would have reduced the fertilizer cost of the subsequent corn crop. The second was chosen for this analysis as most consistent with the notill practices that are commonly used in the region. In a similar fashion, representative budgets were chosen for each of the other crops.

The crop budgets were adjusted for the different crop yields used for each of the three regions in this analysis. Seeding rates, fertilizer use, crop drying and hauling are closely related to crop yields, so the costs for these four items were adjusted in proportion to the difference between the base budget yields and the yields in the three regional budgets. For example UN irrigated corn base corn budget for 2006 specified a yield of 180 bushels and fertilizer cost of $60.12. The budget for the upper region uses the yield of 200.8 bushels per acre (the 2006 NASS corn yield for the upper Republican basin reported in table 7). Fertilizer cost was adjusted in proportion to this yield difference:

$$\$60.12 * 200.8 / 180 = \$67.08.$$

which is the 2006 fertilizer cost for corn in the upper Republican shown in table 11.

The set of crop budgets includes one for fallowed land to apply to the class 5 and 6 land which is assumed to be fallowed rather than dryland cropped if the associated wells are shut down. The University of Nebraska did not produce such a budget, so it was necessary to create one for this analysis. The principal cost for fallowed land is for weed control, implying costs for herbicides and tillage. The only three cost items included in the fallow budgets are one half the herbicide, machinery fuel and oil, and machinery repair and maintenance costs from the dryland wheat budgets, for a total weed control cost of $5.71 per acre in 2005 and $7.37 in 2006.

There are three critical rows in the crop budgets, the gross returns row, the total spending on produced inputs row and the value added row. Gross returns are computed as yield multiplied by price, where the prices are those reported by NASS. Total spending on produced inputs is the sum of the produced inputs in the body of the table. Value added is the gross return minus the total spending on produced inputs. The total spending on produced inputs and the value added numbers will be used below to compute secondary impacts.

Tables 17 and 18 gather the results from the crop budgets and compute the direct economic impact of the well shutdown that Nebraska should have undertaken to deliver water to Kansas.

Table 17 shows the 2005 effects, and table 18 the 2006 effects. Each of the sub-tables has two parts, a part dealing with the irrigated crops that were actually grown in each of the three regions, and a part dealing with the dryland alternatives which would have been grown if Nebraska had implemented the well shutdown. Multiplying the irrigated acres by the gross returns per acre, and summing across gives the irrigated gross returns farmers actually got ($11.0 million for the upper Republican in 2005). Multiplying the acres in dryland alternatives by the gross returns per acre gives the dryland gross returns that would have gotten if the wells had been shut down ($2.6 million for the upper Republican in 2005). Similarly, multiplying acres by spending on produced inputs per acre and value added per acre and summing gives total spending on produced inputs and total value added for the irrigated scenario and the dryland well shutdown scenario. The difference in the value added figure ($4.1 million for the upper Republican in 2005) represents the loss of value added that these farmers would have suffered if their wells had been shut down. Alternatively it can be viewed as the Nebraska benefit because the wells were not in fact shut down. The difference in spending on produced inputs ($4.2 million for the upper Republican in 2005) represents benefits to the suppliers of these inputs because the wells were not shut down.

These net changes are summarized in table 19, which sums the results across the three regions and the two years. The benefits to Nebraska were a $33.8 million increment in value added and a $24.5 million increment in spending on produced inputs. These were Nebraska's benefits because it failed to implement the required well shutdowns in the Republican Basin that would have allowed it to meet the requirements of the decree. These will be termed "On-Farm Direct Effects" in the secondary effects analysis which follows.

ON-FARM DIRECT EFFECTS FROM NOT ACQUIRING ADDITIONAL CANAL WATER

In addition to the well shutdowns described in the previous section, Nebraska should have acquired additional surface water from canal-based irrigation projects to reduce its irrigation consumptive use as required by the Decree. SWE calculated that Nebraska should have acquired the canal water supply from 18,029 acres in 2005 and 20,799 acres in 2006. Table 20 shows how this additional acquisition of surface canal water would have been distributed across the regions. Some of this land was also served by comingled groundwater falling within the groundwater shutoff area, so the comingled groundwater area was deducted from the affected area, giving the 12,936 net affected acres in 2005 and 16,964 net affected acres in 2006.

Table 20 also identifies the acres of each crop that would be affected if this land were shifted from the irrigated crop mix that was actually grown to the dryland crop mix that would have been grown in the absence of irrigation water. The irrigated and dryland crop mixes used here are the crop mixes based on NASS data from tables 3 and 6. As was done in the well shutdown analysis, a portion of the non-irrigated land was allocated to fallow, because the class 6 soils would not support dryland crops.

Table 21 aggregates the 2005 direct economic effects of the Nebraska surface water acquisition, by region and crop. Table 22 does the same for 2006. The analysis uses the same set of crop budgets (tables 11 through 16) as were used for analysis of the well shutdown alternative. The per acre gross returns, spending on produced inputs and value added are multiplied by the acres

of irrigated crops that were actually grown. Summing these across crops for the lower region in 2005 gives the total gross returns, spending on produced inputs and value added actually obtained from the irrigated crops (i.e. $4.0 million gross returns, $2.1 million spending on purchased inputs, and $1.9 million value added). Similarly, the per acre gross returns, spending on produced inputs and value added are multiplied by the acres of dryland crops that should have been grown. Summing these across crops gives the total gross returns, spending on produced inputs and value added that would have been obtained from these dryland crops (i.e. $1.9 million gross returns, $1.2 million spending on produced inputs, and $0.7 million value added for the lower region in 2005). The right-most column in the table shows the difference between the two sums. This is the net change in farm costs and returns resulting from the water buyout (i.e. $2.1 million loss of gross returns, $0.9 million change in spending on produced inputs, and $1.2 million change in value added).

Table 23 collects these net changes in gross returns, spending on produced inputs and value added that resulted because the canal water acquisition was not implemented and sums them across regions and across years. Table 23 shows that the direct effects of the canal water acquisition would have been a $2.7 million reduction in spending on produced inputs, and a loss of value added of $4.3 million. These are economic benefits that accrued to Nebraska because it did not acquire enough canal water to satisfy its obligations under the Decree.

ON-FARM DIRECT EFFECTS FROM NOT ACQUIRING ADDITIONAL UNUSED STORED WATER

The third action (only available in 2006) for Nebraska to meet its obligations under the Decree was to acquire unused stored water from irrigation project reservoirs. Water is commonly held in storage as insurance against future water shortage. While it may be uncertain when this water will be used, it definitely has a value – the value of the crops that could be produced with that water in some future dry year. Spronk Water Engineers has identified 19,100 acre feet of unused water that was held unused in reservoirs in 2006. Table 24 shows that 16,400 acre feet was held in Swanson Reservoir, 900 acre feet in Butler Reservoir and 1,800 acre in Enders Reservoir

Water from Butler Reservoir was released for irrigation use in 2008, and Swanson storage water was released for use in 2009. The excess storage held in Enders has not been released for use. Water held in reservoirs as insurance against future water shortage is subject to evaporation and seepage losses. Delivering this water to fields is also subject to canal losses, which can be very high in this region. Table 24 notes that when Swanson storage was released in 2009, the result was 7,472 acres receiving 5.3 inches of irrigation. When Butler storage was released in 2008 the result was 556 acres receiving 5.4 inches of irrigation.

This analysis made a further adjustment to the acreage affected by these releases of stored water, based on two reasons. First, information to identify any overlap between the groundwater shutdown area and the service area of these reservoirs was not available for this analysis. Second, there is a possibility that farmers would choose to concentrate this rather limited amount of water on a subset of the acreage. For these reasons (and to be conservative) the acreage was adjusted to the acres that could be served with 10 inches of irrigation water. With this adjustment, table 24 shows the acres of crops that could have benefitted from that stored water.

Because the water was available from storage, 300 acres of irrigated crops were grown in 2008, and 3,900 acres in 2009. If the water had not been kept in storage as insurance this land would have had to revert to dryland or fallow use.

The benefits of this stored water are evaluated using the same approach and the same crop budgets as were used for canal water and the well water. The results are collected in table 25, and then summarized in table 26. Nebraska benefits from retaining this water in storage are $1.0 million in value added and $0.6 million in spending on produced inputs.

TOTAL ON-FARM EFFECTS FROM WELL SHUTDOWN, AND ACQUISITION OF CANAL AND STORED WATER

Table 27 aggregates the results from Nebraska's failure to follow the three strategies that the state should have followed to meet its obligations under the decree -- well shutdowns and canal water acquisition in 2005 and 2006, and acquisition of unused stored water in 2006. Summing across years and regions, the total effect is $27.8 million in spending on produced inputs and value added of $39.1 million. These are the on-farm direct effects that accrued to Nebraska because it did not meet its obligations under the decree.

NEBRASKA OFF-FARM SECONDARY BENEFITS

The estimation of the secondary effects of Nebraska benefits will involve some terms that are probably unfamiliar to the non-economist. This section begins with an explanation of terms, and some examples.

Explanation of terms

Value Added

Following standard practice, we measure Nebraska benefits in terms of "value added." Value added is a broad measure of income, computed as the difference between what a producer receives from the sale of output and the cost of produced inputs. In an agricultural setting, it measures the value that on-farm "primary factors of production," land, labor and capital, add to the value of produced inputs. The sum of all the value added by the various industries in a state economy equals that state's gross state product, or GSP.

Consider a simple example. Suppose a farmer pays $300 to purchase seed and fuel and brings in a crop which sells for $1,000. The farm labor, land and capital have added $700 to the value of the purchased seed and fuel, so the value added equals $700. For this analysis of change in value added in the Nebraska economy we calculate change in total farm revenues and change in total farm produced input purchases. The difference between these two indicates the on-farm direct change in value added, i.e., the initial change in Nebraska GSP. Fundamentally then, our analysis aims at estimating the increase in Nebraska GSP as a result of that state's failure to abide by the Decree.

Secondary Direct and Indirect Impacts

In our example, production and sale of $1,000 in crops resulted in $700 in value added. There are additional effects associated with the $300 spent on produced inputs (in our example, seed and fuel). Suppose one-third of these, or $100, come from sources outside Nebraska. With these there are no further effects on Nebraska income. The effects associated with the purchase of imported inputs occur in the states hosting their production.

Things are different for the inputs purchased in-state, two-thirds of $300, or $200, in this example. As with production generally, some portion is claimed as the incomes of primary factors, i.e., as value added, while the remainder goes to purchase inputs, in our example, the inputs needed to produce $200 in in-state purchased seed and fuel. Value added in the direct suppliers of agriculture constitutes a secondary impact of agriculture, in this case the *direct* secondary impact, sometimes termed the direct supply chain effect of agriculture.

The in-state suppliers of agriculture not only create value added in their own industries (the "direct effect"), but purchase supplies of their own, creating value added for these "suppliers of the suppliers." But then there are still further rounds of input purchases, from the "suppliers of the suppliers of the suppliers," and this indirectly creates additional increments of value added. The sum of all these additional effects is termed the *indirect* secondary impact of agriculture.

For simplicity, in summary effects tables below we sum the secondary direct and indirect impacts. So we have the "on-farm direct" value added, attributable to the contributions of on-farm primary factors of production, and secondary direct and indirect impacts, attributable to the contributions of primary factors in the various industries that directly or indirectly supply agriculture with produced inputs.

Secondary Consumer Spending-Induced Impacts

Farm production, or change in production, affects value added in the state economy as just described. But the overall effect on value added does not end here. A portion of the value added on farms and in farm supplying industries appears as personal income to property owners and labor. Making allowance for taxes, savings and general leakages from the economy, the change in personal income results in a change in consumer spending, and this induces still another round of secondary off-farm value added effects. We label this final effect on value added the "secondary consumer-spending induced" effect.

Constructing a Secondary Effects Model

An IMPLAN Regional Input-Output Model for Nebraska

In applied work, secondary impacts are calculated using models based on economic multipliers, and so secondary impacts will also be commonly referred to as "multiplier impacts," or "multiplier effects."

Secondary impacts (i.e., supply chain direct and indirect effects, plus consumer-spending induced effects) to the Nebraska economy were calculated using an input-output form of analysis that is generally recognized as one of the most widely applied methods in economics (see: Baumol, William, 2000. "Leontief's Great Leap Forward," *Economic Systems Research*, 12, 141-152.). National-level input-output models are now maintained by virtually all industrial countries, including the United States, where input-output analysis was first developed in the 1920s. In 1973, input-output pioneer Wassily Leontief received the Nobel Prize in Economics:

> "...for the development of the input-output method and for its application to important economic problems" (nobelprize.org).

For our analysis we used the IMPLAN regional input-output modeling system. IMPLAN was originally developed in the mid-1980s by the U.S. Forest Service and is now maintained by a private firm, MIG, Inc (Formerly Minnesota IMPLAN Group, Inc.). MIG, Inc. produces complex localized databases, conducts IMPLAN training workshops and distributes IMPLAN software to public and private organizations. The IMPLAN website (IMPLAN.com) lists hundreds of clients, including agencies of both the federal and state governments, colleges and universities, private consultants and research firms, and non-profits. IMPLAN models have been featured in hundreds of research studies and professional journal publications. In addition, MIG hosts periodic users' conferences, in recent years co-sponsored with the Mid-Continent Regional Science Association. In 2000, IMPLAN models of the Kansas and Colorado economies served in an analysis of secondary damages in the matter of Kansas v. Colorado (Arkansas River) before the Supreme Court of the United States.

The IMPLAN model for Nebraska constructed for our analysis is based on data specific to Nebraska, and provides multiplier effects, and other assorted economic measures, specifically reflecting the Nebraska economy. The data on which MIG, Inc. produces its input-output tables comes largely from federal sources but with some lag in time. A shortening of that lag in 2008 meant that IMPLAN could provide 2006 data where formerly 2005 data would be available. As a result, MIG skipped 2005 altogether, going straight from 2004 data to 2006 data. Accordingly our analysis of multiplier effects in Nebraska in both 2005 and 2006 are estimated using a Nebraska IMPLAN model for 2006. We are assuming, thereby, that Nebraska input-output multipliers exhibited general stability across this one-year time span. The professional input-output modeling literature supports this assumption, suggesting general stability in regional input-output multipliers, especially across a mere one year time span. Moreover, we use detailed industry multipliers only in so far as these produce our aggregate, i.e., all-industry combined, secondary impacts. Again the professional input-output literature would predict little error (for a review of multiplier stability and estimation of aggregate results see: Miller, R.E. and P. Blair. 2009. *Input-Output Analysis: Foundations and Extensions*. Second Edition. Cambridge University Press: New York, pages 309 to 311)

Computing Secondary Impacts Stemming from Changes in Farm Input Spending

This analysis computes the secondary impacts for 2005 and 2006, with detail for well shutdown, and for acquisition of canal water, and stored water. The following example illustrates the calculation of secondary impacts (i. e. benefits) of the avoided costs of well shutdown in 2005.

The illustration begins with table 28. The far left column labeled "original" simply repeats the total change in produced input spending and on-farm direct value added as reported in the far left column (well shutdown) of table 27. These constitute the initial changes in value added and produced input spending from well shutdown in 2005. The first step in estimating the secondary (i.e., multiplier) effects of these initial changes is to net off the portion of produced input purchases that comes from out-of-state suppliers. It is also necessary to "bridge" the farm input commodities of table 27, repeated on the far left of table 28, to standard industry categories of the IMPLAN model. The standard IMPLAN industry categories appear on the far-right of table 28.

The second column of table 8 is sub-headed "Mapped." In this column the "Original" column entry for "Irrigation Fuel and Oil" is further subdivided into diesel, electricity and natural gas sources. The detail for this subdivision was obtained from the US Census of Agriculture, Farm and Ranch Irrigation Survey – interpolating between the allocations reported in the 2003 census and the 2008 census.

The third column of table 28 is sub-headed "Wholesale trade Margins %." A farmer will normally purchase inputs such as seed, herbicide, fertilizer and such from a farm wholesaler. The purchase price less the cost of commodity sold equals the wholesaler's "mark-up," or "wholesale margin." The column headed "Wholesale Trade Margins %" shows these mark-up percents for the outputs of the IMPLAN industries listed at the far-right. These margins were obtained from the U.S. National Input-Output model for 2006, the most recent fully detailed version of the US model available. The wholesale trade margins used in this analysis are shown in IMPLAN source supporting documents, and the originals can be downloaded from http://bea.gov/industry/zip/2002detail.zip (member file: REV_NAICSUseDetail 4-24-08.txt).

The column headed "Wholesale Margin" is the margin percent times the initial purchase price, and thereby equals the net revenue (gross revenue minus cost of goods sold) of the wholesaler. The column headed "Producer Margin" is the purchase price minus the wholesale margin, and thus equals the gross revenue of the producers. Importantly, note that the sum of wholesale margins from the same-named column appears as the producer margin of its own IMPLAN industry, "Wholesale trade." The sum of changes in wholesale margins equals the change in gross revenues of the wholesale trade sector.

Along with multipliers, a standard element of modern regional input-output models is a set of "regional purchase coefficients," or RPCs. An RPC for a given industry shows the portion of overall regional demand for the output of that industry that is obtained from suppliers located in the region. As an example, an RPC of 30% indicates that 70% of the in-state demand for the particular commodity is obtained from out-of-state sources, and 30% from in-state sources. The column headed "Regional Purchase Coefficient" shows RPCs obtained from the Nebraska IMPLAN model for the specific industries shown on the far-right column of table 28.

The column headed "In-State Spending" is obtained as the product of the RPCs and producer margins. These are the reductions in the revenues of the various Nebraska industries as a result of the additional irrigation water – i.e., gross input changes from the far right column of table 27. The next step is to feed these into the Nebraska IMPLAN model and thereby calculate secondary effects.

Using IMPLAN Multipliers to Calculate Secondary Value Added Effects

Table 29 repeats the IMPLAN industries shown on the far-right column of table 28, and it repeats the in-state spending calculated in table 28. The three columns to the immediate right of these show "IMPLAN Value Added Multipliers." These multipliers are industry-specific, and they are specifically defined for the Nebraska economy. They reflect, in particular, Nebraska's unique industry mix, its export and import structure, wages, levels of output, and other factors that determine multiplier size.

The multipliers labeled "Secondary Direct" are coefficients showing the value added portion of total industry sales. Multiplying in-state purchases by value added coefficients gives the direct secondary change in value added. The multipliers labeled "Secondary Indirect" are derived from the input-output multiplier matrix. These show the sum of all the additional rounds of value added effects, beyond the direct round. The value added by the "suppliers of the suppliers," as described earlier. Finally, the multipliers labeled "Secondary Induced" are derived from the input-output multiplier matrix, and show the sum of all the value added effects induced by the spending of income on consumer goods.

The final set of table 29 columns show the overall change in Nebraska value added as a result of that state's 2005 and 2006 use of water in violation of the Decree. The "On-Farm Direct" column shows the change in value added on farm income account, i.e., the $12,952,636 number shown as change in on-farm value added in the well shutdown column of table 27. Figures in the other columns are computed as the product of change in in-state spending and the appropriate value added multipliers. These then constitute the secondary direct and indirect effects, and secondary consumer-spending induced effects on Nebraska value added from its avoidance of well shutdowns in 2005.

Summary of Secondary Effects

Table 30 summarizes the effect of Nebraska's excessive water use in 2005 and 2006. The table distinguishes between wells that should have been shut down, canal water that should have been acquired, and stored water that should have been acquired.

The "On-Farm Direct" row indicates the gain in value added taken directly from table 27 (also shown for well shutdown in the on-farm direct impacts column of table 29). As described earlier, this value is computed as the difference between the change in gross farm receipts and the change in farms' produced input purchases. For the well shutdown in 2005 example, the on-farm direct impact is a value added of roughly $13.0 million.

The "Secondary Direct and Indirect" row of table 30 shows gains in value added stemming from the action of direct and indirect multiplier effects within the Nebraska economy. Value added increases in the Nebraska industries that supply affected farmers, and in the chain of industries that supply the suppliers. For the 2005 well shutdown example, table 29 shows direct secondary impacts of $3.38 million and indirect secondary impacts of $577 thousand – which totals roughly $4.0 million in secondary direct and indirect impacts as shown in table 30.

Finally, table 30 shows a $5.0 million increase in value added from consumer-serving industries, and industries that supply the consumer-serving industries. This is the same $5.0 million shown as the total of the "Secondary Induced" column of table 29. The other columns of table 30 are filled in by value added numbers computed in the other working tables available in the spreadsheet version of tables 28 and 29.

Some analyses of secondary impacts adjust the total to account for the reemployment of production inputs in alternative uses through time. This issue was addressed by Dr. Ray Supalla (Professor Emeritus of Agricultural Economics at the University of Nebraska) in his analysis of irrigation consumptive use reduction in the Platte and Republican Basins (Supalla, et al., "Economic and State Budget Cost of Reducing Consumptive Use of Irrigation Water in the Platte and Republican Basins," prepared for the Nebraska Department of Natural Resources, August, 21, 2006). Professor Supalla's explanation of secondary impacts is as follows:

> "The off-farm costs, also called secondary costs in the economics literature are transitory because most of the resources involved eventually find alternative employment. This is why the principles and guidelines used by federal agencies for evaluating water projects do not allow project applicants to count secondary benefits or costs (US Water Resource Council, 1983). The federal agencies assume that the labor and other resources which become unemployed as a result of some change in irrigation (which is called a secondary effect) will eventually move on to alternative employment and earn as much or more than they earned before the change in irrigation. Statewide off-farm costs are indeed zero if the resources which are displaced when irrigation is reduced could immediately find comparably productive alternative employment within Nebraska. But unfortunately some resources are immobile, and in all cases it may take some time before alternative employment can be secured. In addition' some of the resources involved may shift to uses outside the community or to another state. When this happens there is a long-term economic cost at the community and/or state level."
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> "Most economists contend that secondary benefits and costs should be ignored in economic analyses because they are both transitory and difficult to estimate.... We disagree. In an agricultural state such as Nebraska there is likely to be some lasting effect, if only because some of the people and resources involved may need to leave the state to find alternative employment. In this analysis we assume that off-farm costs at the state level decrease linearly during the first 10 years from 100 percent of the multiplier effects described above in year one to 15 percent in year 10, and then remain at 15 percent for the indefinite future." (Supalla, et al., 2006, pages 8 and 9)

In the Arkansas River case (Kansas v Colorado), only 20 % of secondary impacts was counted as damages. In that case, the damages were long term – the Kansas Arkansas River Basin had been deprived of the water to which it was entitled for many years, so there was ample time for inputs to have been reemployed elsewhere. The 20 percent figure used in the Arkansas River case agrees approximately with Supalla's 100 percent in year one, declining to 15 percent in year 10, and 15 percent thereafter.

In the present case, the excess consumptive water use in Nebraska was year by year, not permanent. Nebraska farmers could hope that next year they would have their water back. They were not likely to move major amounts of resources out of farming to reemployment elsewhere. This analysis follows the implication of Professor Supalla's conclusion -- that 100 percent of secondary impacts in the first year of water overuse, 2005 and 2006, count as benefits to Nebraska.

Table 30 indicates that in 2005, Nebraska GSP was $23.8 million larger than it would have been if it had taken the required actions to meet the requirements of the Decree. In 2006, the figure was some $38.1 million larger.

INDUCED EFFECTS IN NEBRASKA OF A NEBRASKA PAYMENT TO KANSAS

If Nebraska is ordered to disgorge its benefits from overuse of Republican River water to Kansas this will cause additional consumer spending-induced value added losses in Nebraska. Thus the amount Nebraska should pay Kansas is equal to the on-farm direct plus the secondary direct and indirect portion of the benefits (shown on the "Subtotal" row of Table 30), but not the additional secondary consumer spending-induced benefits (shown on the "Secondary Consumer Spending-Induced" row of Table 30). Payment of the on-farm direct plus secondary direct and indirect secondary benefits will create consumer-induced effects of its own and the best measure of these would be the secondary consumer-spending induced impacts shown in table 30, thus removing the entire economic benefits Nebraska gained by using this water.

TIME VALUE OF MONEY

A fundamental principle of economics is that past events have a present value which is calculable through an appropriate rate of compounding representing the time value of money. Likewise a future event has a present value, calculable with an appropriate discount rate. That is, a dollar that should have been received in the past is not the same as a dollar in hand today and different yet from the value of a dollar receivable in the future. The past dollar could have been put to productive use through time, making it worth more than the dollar today. The dollar in hand can be put to productive use through time, making us value it more than a dollar receivable in the future. The productive usefulness of a dollar at any point in time is either to pay off debts or invest in productive enterprises. Thus the measure of the usefulness of a dollar is the greater of cost paid for borrowed capital or returns to reinvested capital. All money exchanges in current dollars for past or future events can, as a fundamental principle of economics or finance, be adjusted for time with an appropriate discount or compounding rate. As a matter of economic

principle, compounding a past value to a current (2012) value is a neutral process that does not result in either a windfall for the payee or a penalty for the payor.

In this case, it is necessary to compound historic Nebraska benefits to a 2012 value to have a just settlement of such benefits in the present. Another corollary of the current value rule is that delay for any reason in disgorging past benefits can be properly accounted for by appropriate compounding.

Interest rates for compounding past events to a current value must be chosen to represent the appropriate time value of money for the parties involved. For example, in money lending, the chosen interest rate will depend upon such factors as the length of the loan, the credit rating of the borrower, the amount of collateral for loan security, tax rules for interest payments received and paid, and the anticipated rate of inflation. The cost of borrowed capital is one possible measure for the opportunity cost (best alternative use) of capital. The other is the return to invested capital. Since efficient use of borrowed capital requires that returns to capital investment exceed the cost of borrowing, an entrepreneur using borrowed capital for business operations or investment must, in theory, gain more from the use of that capital than it cost in order to maintain a profitable business. In any case, the opportunity cost of capital will be the higher value of either the cost of borrowing or the rate-of-return to invested capital or a combination of these two costs if marginal funds are potentially applied to both uses.

When estimating the present value of past events, it is common that the interest rates for compounding will vary through time. This occurs because the above described factors affecting interest rates will also be changing. For example, in determining the present value of past Nebraska benefits it is necessary to choose nominal interest rates that are appropriate for the varying conditions from 2006 to the present.

Nominal interest rates are expressed in current values and contain a premium for anticipated inflation. Differences in nominal interest rates at any point in time reflect the effects of two basic phenomena, risk and taxes. The effect of risk on interest rates is to increase their level. Risk to the lender is influenced by the security of the loan, the credit worthiness of the borrower, and the length of the borrowing period. As the probability that a lender will be unable to collect all capital and interest payments due in a timely manner increases, the greater is the risk of loss and the higher must be the interest rate to account for this risk. In general, a loan secured by real property (home or land) will incur a lower interest rate than an unsecured loan. Credit card borrowers are at a much greater risk of loan default than, say, home buyers and therefore incur a much higher interest rate for borrowed capital.

Farmers in the study area are likely to encounter more than one nominal interest rate in their conduct of business due to the length of the loan period and the level of security of the loan. The interest rate on an unsecured loan for annual operating expenses will contain a premium for risk of loan default, whereas, secured loans for investments in land will likely face a lower interest rate than that for annual operating capital. It is common for each farm to obtain and use both short-term and long-term capital in both secured and unsecured form, thereby facing more than one level of interest cost for farm operations.

The "cost of capital" for a business to use as the discount rate in capital budgeting is generally considered to be the weighted average after-tax costs of debt and equity capital, using the respective ratios of debt and equity to total assets as the weights The expected returns to equity capital, including both current returns and capital gains, normally must exceed the average cost of debt by a sufficient margin to account for the borrower's greater risk in managing equity capital. This condition must hold in the long run in order for it to be feasible and profitable to borrow capital for business operations. This principle applies equally to a farm business.

Unfortunately for this study, it was not possible to find reliable measures of the costs of equity for farms in the study region for the period of analysis. As a conservative measure of interest rates for compounding past benefits to a current value, the cost of debt capital is used to represent both the cost of debt and the cost of equity capital. Since the returns to equity capital must exceed the cost of debt for long term profitability, using debt costs alone will understate the true cost of capital and, thus, reflect a conservative valuation approach.

A conservative and readily available measure of the cost of debt which also takes into account the effect of taxes is the interest rate on high grade tax free municipal bonds. Recent interest rates for high grade municipals are published by the Council of Economic Advisors. Rates for the relevant time period are shown in table 31. Interest rates only through October 8th were available at the time this report was compiled. Table 31 implicitly assumes that the 2011 average rate of 4.372 percent will persist through January 1, 2012. Since these rates are published weekly, near-current rates can be obtained to update present values to whatever date is needed for this case.

Choosing the interest rate on high grade tax free municipal bonds as the compounding factor in this analysis is a conservative choice for several reasons. Interest rates on other forms of debt are generally higher, because these other forms of debt have higher risk. Also the returns on equity capital will be higher than the interest rate on debt if the enterprise is profitable.

Using the interest rate for high grade tax free municipal bonds, table 31 shows that the 2005 direct and secondary benefits calculated above would be multiplied by 1.300 to get a present value in 2011 dollars valued as of January 1, 2012. The 2006 direct and secondary benefits would be multiplied by 1.245 to get a January 1, 2012 present value. Since the benefits from the excess stored water were actually realized in 2008 and 2009 (although the decision to retain it in storage was made in 2006) the direct and secondary benefits from using this water would be multiplied by 1.138 (for benefits realized in 2008) and 1.078 (for benefits realized in 2009) to get a January 1, 2012 present value

TOTAL NEBRASKA BENEFITS

Table 32 reports the same summary benefit values as in table 30 but compounded forward to January 1, 2012 dollars using the compounding factors from Table 31. Since all the dollar figures now represent a common year it is possible to sum them together into an aggregate Nebraska benefit estimate for both years.

Table 32 shows the final result, $80,187,021 in January 1, 2012 dollars, representing the gains to the Nebraska economy resulting from overuse of Republican River water in 2005 and 2006, in excess of the limits set by the decree. The table also shows $61,870,319 as the necessary payment by Nebraska to disgorge these benefits to Kansas. As noted above, a payment equal to the primary plus the secondary direct and indirect gains (the $61.9 million) will induce secondary consumer-spending induced impact losses in Nebraska, making up the other $18.3 million necessary to complete the disgorgement of the Nebraska benefits.

SUPPORTING DOCUMENTS

1. Dale Book, "Analysis of Measures that would have been Required for Nebraska to Achieve Water-Short Year Compliance with Republican River Compact in 2006," Spronk Water Engineers, Inc, November 2011
2. Natural Resources Conservation Service, USDA, National Soil Survey Handbook, (Part 622) http://soils.usda.gov/technical/handbook
3. NASS Data folder contains National Agricultural Statistics Service data on crop acreage and price.
4. **Secondary Damages.pdf** D. Willis, J. Hamilton, M. Robison, N. Whittlesey, and J. Draper, Secondary Damages in Interstate Water Compact Litigation, Natural Resources Journal, Summer 2008, pages 679 through 696.
5. **Supalla.pdf** R. Supalla, T. Buell and B. McMullen, "Economic and State Budget Cost of Reducing the Consumptive Use of Irrigation Water in the Platte and Republican Basins," prepared for the Nebraska Department of Natural Resources, August 21, 2006.
6. Baumol, William, 2000. "Leontief's Great Leap Forward," *Economic Systems Research*, 12, 141-152.).
7. Miller, R.E. and P. Blair. 2009. *Input-Output Analysis: Foundations and Extensions*. Second Edition. Cambridge University Press: New York.

Nebraska Tables and Figures

Table 1: Well Shutdown Acreage Needed to meet Required Consumptive Use Reduction

Upper Republican Counties	2005	2006
Chase	23,914	19,478
Dundy	8,433	8,261
Perkins	0	0
Total	32,347	27,739
Middle Republican Counties		
Frontier	8,459	9,330
Hayes	5,131	3,952
Hitchcock	10,226	10,099
Lincoln	2,993	2,085
Red Willow	10,579	12,053
Total	37,388	37,519
Lower Republican Counties		
Franklin	12,232	11,276
Furnas	13,993	9,843
Gosper	0	0
Harlan	11,165	9,815
Phelps	0	0
Webster	6,147	5,505
Nuckolls	2,108	2,140
Total	45,645	38,579
Nebraska Republican	115,380	103,837

Source: SWE Nebraska Gains report, table 2

Figure 1: Map of Nebraska Counties Affected by Well Shutdown
(Numbers show required acres shut down in 2005 and 2006)

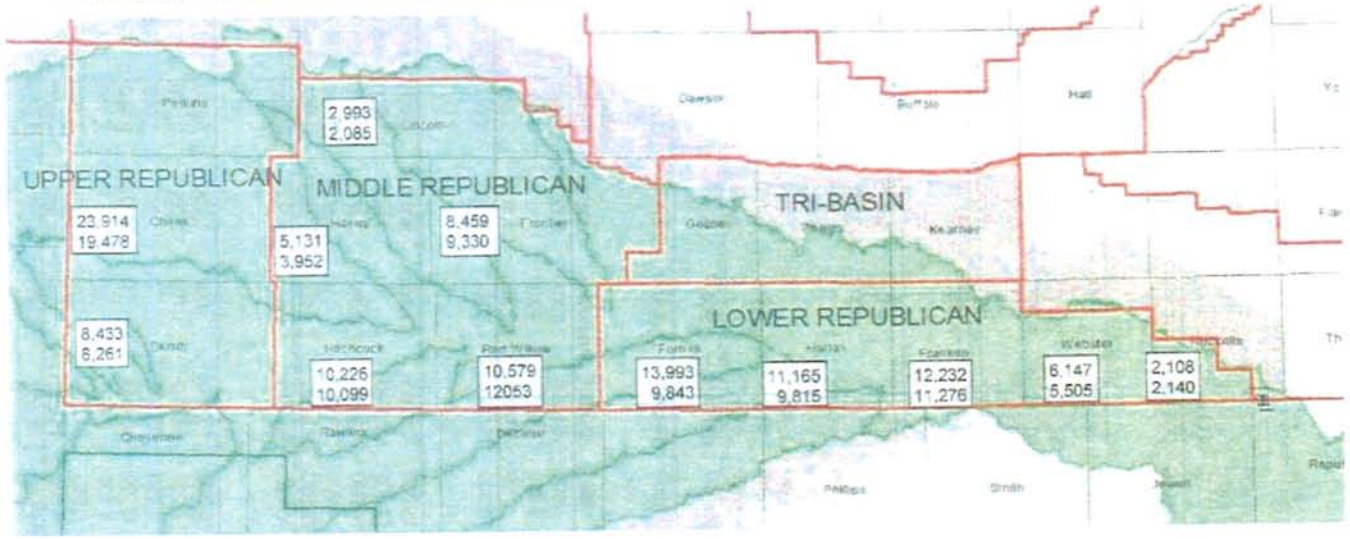

Table 2: Nebraska Planted Dryland Acreage, from NASS

2005	Corn	Soybeans	Milo	Wheat	Sunflower	Oats	Alfalfa Hay	Total
Upper Republican Counties								
Chase	16,000	0	4,400	42,000	2,700	1,800	1,100	68,000
Dundy	18,000	0	4,600	41,500	2,400	1,300	2,100	69,900
Perkins	56,000	1,200	0	118,100	9,500	1,400	500	186,700
Total	90,000	1,200	9,000	201,600	14,600	4,500	3,700	324,600
Middle Republican Counties								
Frontier	38,000	2,000	14,000	52,600	2,900	2,500	3,100	115,100
Hayes	24,000	0	9,700	37,700	2,300	2,100	2,900	78,700
Hitchcock	33,500	0	14,000	80,800	1,800	700	1,500	132,300
Lincoln	31,000	2,600	4,500	26,100	900	3,700	16,000	84,800
Red Willow	42,500	3,200	19,000	69,700	5,000	1,800	4,800	146,000
Total	169,000	7,800	61,200	266,900	12,900	10,800	28,300	556,900
Lower Republican Counties								
Franklin	20,500	10,800	5,900	18,400	900	1,900	5,800	64,200
Furnas	60,000	3,300	12,000	67,900	2,000	1,600	9,900	156,700
Gosper	18,500	2,000	5,000	16,600	0	500	1,900	44,500
Harlan	36,000	4,700	6,700	32,000	0	1,600	2,900	83,900
Phelps	10,000	6,000	1,100	4,800	0	0	3,000	24,900
Webster	41,500	12,500	10,500	31,700	1,000	1,100	8,500	106,800
Nuckolls	52,000	27,400	19,500	44,500	0	1,400	7,100	151,900
Total	238,500	66,700	60,700	215,900	3,900	8,100	39,100	632,900
Nebraska Republican	497,500	75,700	130,900	684,400	31,400	23,400	71,100	1,514,400

2006 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sunflower	Oats	Alfalfa Hay	Total
Chase	17,000	0	4,100	34,000	2,100	1,600	900	59,700
Dundy	17,000	0	6,200	31,500	1,400	0	1,600	57,700
Perkins	57,500	900	0	97,000	3,300	1,100	500	160,300
Total	91,500	900	10,300	162,500	6,800	2,700	3,000	277,700
Middle Republican Counties								
Frontier	41,000	1,300	16,000	50,000	1,300	3,800	2,000	115,400
Hayes	21,000	0	11,500	33,000	0	1,900	1,900	69,300
Hitchcock	32,000	0	16,000	69,000	1,300	1,600	1,500	121,400
Lincoln	25,000	2,700	4,900	23,500	0	3,500	12,000	71,600
Red Willow	40,500	2,400	22,000	63,000	4,200	1,500	4,900	138,500
Total	159,500	6,400	70,400	238,500	6,800	12,300	22,300	516,200
Lower Republican Counties								
Franklin	17,000	12,500	6,300	18,500	500	1,200	5,200	61,200
Furnas	50,000	4,500	17,000	67,000	1,100	2,000	9,100	150,700
Gosper	17,000	1,900	3,800	15,000	0	900	1,000	39,600
Harlan	33,000	5,900	6,500	34,000	0	2,000	3,000	84,400
Phelps	10,000	6,600	1,100	3,800	0	0	3,100	24,600
Webster	36,000	18,200	8,600	34,500	0	1,400	8,700	107,400
Nuckolls	45,500	34,200	18,500	45,600	0	1,600	7,800	153,200
Total	208,500	83,800	61,800	218,400	1,600	9,100	37,900	621,100
Nebraska Republican	459,500	91,100	142,500	619,400	15,200	24,100	63,200	1,415,000

Source: National Agricultural Statistical Service

Table 3: Nebraska Dryland Crop Mix, from NASS

2005 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sunflower	Oats	Alfalfa Hay
Chase	23.5%	0.0%	6.5%	61.8%	4.0%	2.6%	1.6%
Dundy	25.8%	0.0%	6.6%	59.4%	3.4%	1.9%	3.0%
Perkins	30.0%	0.6%	0.0%	63.3%	5.1%	0.7%	0.3%
Region Average	27.7%	0.4%	2.8%	62.1%	4.5%	1.4%	1.1%
% w/o Wheat & Alfalfa [1]	75.4%	1.0%	23.6%				
Middle Republican Counties							
Frontier	33.0%	1.7%	12.2%	45.7%	2.5%	2.2%	2.7%
Hayes	30.5%	0.0%	12.3%	47.9%	2.9%	2.7%	3.7%
Hitchcock	25.3%	0.0%	10.6%	61.1%	1.4%	0.5%	1.1%
Lincoln	36.6%	3.1%	5.3%	30.8%	1.1%	4.4%	18.9%
Red Willow	29.1%	2.2%	13.0%	47.7%	3.4%	1.2%	3.3%
Region Average	30.3%	1.4%	11.0%	47.9%	2.3%	1.9%	5.1%
% w/o Wheat & Alfalfa [1]	64.6%	3.0%	32.4%				
Lower Republican Counties							
Franklin	31.9%	16.8%	9.2%	28.7%	1.4%	3.0%	9.0%
Furnas	38.3%	2.1%	7.7%	43.3%	1.3%	1.0%	6.3%
Gosper	41.6%	4.5%	11.2%	37.3%	0.0%	1.1%	4.3%
Harlan	42.9%	5.6%	8.0%	38.1%	0.0%	1.9%	3.5%
Phelps	40.2%	24.1%	4.4%	19.3%	0.0%	0.0%	12.0%
Webster	38.9%	11.7%	9.8%	29.7%	0.9%	1.0%	8.0%
Nuckolls	34.2%	18.0%	12.8%	29.3%	0.0%	0.9%	4.7%
Region Average	37.7%	10.5%	9.6%	34.1%	0.6%	1.3%	6.2%
% w/o Wheat & Alfalfa [1]	63.1%	17.7%	19.2%				

2006 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sunflower	Oats	Alfalfa Hay
Chase	28.5%	0.0%	6.9%	57.0%	3.5%	2.7%	1.5%
Dundy	29.5%	0.0%	10.7%	54.6%	2.4%	0.0%	2.8%
Perkins	35.9%	0.6%	0.0%	60.5%	2.1%	0.7%	0.3%
Region Average	32.9%	0.3%	3.7%	58.5%	2.4%	1.0%	1.1%
% w/o Wheat & Alfalfa [1]	81.6%	0.8%	17.6%				
Middle Republican Counties							
Frontier	35.5%	1.1%	13.9%	43.3%	1.1%	3.3%	1.7%
Hayes	30.3%	0.0%	16.6%	47.6%	0.0%	2.7%	2.7%
Hitchcock	26.4%	0.0%	13.2%	56.8%	1.1%	1.3%	1.2%
Lincoln	34.9%	3.8%	6.8%	32.8%	0.0%	4.9%	16.8%
Red Willow	29.2%	1.7%	15.9%	45.5%	3.0%	1.1%	3.5%
Region Average	30.9%	1.2%	13.6%	46.2%	1.3%	2.4%	4.3%
% w/o Wheat & Alfalfa [1]	62.5%	2.5%	35.0%				
Lower Republican Counties							
Franklin	27.8%	20.4%	10.3%	30.2%	0.8%	2.0%	8.5%
Furnas	33.2%	3.0%	11.3%	44.5%	0.7%	1.3%	6.0%
Gosper	42.9%	4.8%	9.6%	37.9%	0.0%	2.3%	2.5%
Harlan	39.1%	7.0%	7.7%	40.3%	0.0%	2.4%	3.6%
Phelps	40.7%	26.8%	4.5%	15.4%	0.0%	0.0%	12.6%
Webster	33.5%	16.9%	8.0%	32.1%	0.0%	1.3%	8.1%
Nuckolls	29.7%	22.3%	12.1%	29.8%	0.0%	1.0%	5.1%
Region Average	33.6%	13.5%	10.0%	35.2%	0.3%	1.5%	6.1%
% w/o Wheat & Alfalfa [1]	57.2%	23.0%	19.9%				

[1] Mix of Corn, soybeans, milo only
Source: Table 2

Table 4: Nebraska Dryland Yields, from NASS

2005 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sunflower	Oats	Alfalfa Hay
	bu/acre	bu/acre	bu/acre	bu/acre	#/acre	bu/acre	tons/acre
Chase	51		56	36	1764	90	3.3
Dundy	43		84	36	1625	95	3.2
Perkins	49	18		29	1106	54	3.1
Region Average	48.2	18.0	70.3	31.9	1,313.0	80.2	3.2
Middle Republican Counties							
Frontier	66	20	56	49	1556	87	3.7
Hayes	61		72	38	1595	85	3.1
Hitchcock	54		81	39	2092	63	2.5
Lincoln	61	31	60	43	2137	62	2.7
Red Willow	72	17	74.2	46	1788	60	3.9
Region Average	63.5	22.4	70.2	43.0	1,768.2	72.0	3.0
Lower Republican Counties							
Franklin	94	39	85	45	1083	79	3
Furnas	62	21	75.1	43	1255	77	3.8
Gosper	77	29	58	44		54	3.6
Harlan	95	36	92	47		73	3.6
Phelps	75	35	72	40			4
Webster	97	42	91	42	1170	51	3
Nuckolls	99	43	94	42		61	3.4
Region Average	85.6	39.4	85.3	43.4	1,193.5	69.0	3.4

2006 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sun-flower	Oats	Alfalfa Hay
	bu/acre	bu/acre	bu/acre	bu/acre	#/acre	bu/acre	tons/acre
Chase	61		51	21	1322	13	2.4
Dundy	47		42	22	1201		2.9
Perkins	36	19		26.9	899	13	1.5
Region Average	42.7	19.0	45.6	24.7	1,091.8	13.0	2.5
Middle Republican Counties							
Frontier	65	16	64	36	1376	15	3.4
Hayes	43		50	28		16	2.9
Hitchcock	53		69	26	1468	21	3.2
Lincoln	46	17	59	26		47	2.3
Red Willow	56	13	45.8	42	1136	27	3.6
Region Average	54.4	15.3	56.8	32.6	1,245.4	26.5	2.8
Lower Republican Counties							
Franklin	86	38	68	36	1200	30	2.9
Furnas	49	24	64.9	30.9	1455	17	3.4
Gosper	64	32	60	31		47	1.9
Harlan	75	37	67	35		33	3.2
Phelps	78	40	68	36			3.3
Webster	59	31	70	34		35	2.8
Nuckolls	76	33	78	38.1		53	2.4
Region Average	66.4	33.6	69.8	34.1	1,375.3	34.3	2.9

Source: National Agricultural Statistical Service

Table 5: Nebraska Planted Irrigated Acreage, from NASS

2005 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay	Total
Chase	126,000	8,100	0	15,000	3,400	21,200	3,600	177,300
Dundy	58,000	4,600	0	8,500	0	6,400	5,600	83,100
Perkins	110,000	12,800	0	8,900	1,400	5,700	2,500	141,300
Total	294,000	25,500	0	32,400	4,800	33,300	11,700	401,700
Middle Republican Counties								
Frontier	37,000	15,000	3,400	3,400	0	0	2,000	60,800
Hayes	32,000	4,700	2,800	2,300	0	4,500	3,700	50,000
Hitchcock	19,500	4,300	1,900	2,200	0	0	2,800	30,700
Lincoln	167,000	32,900	0	6,900	0	1,300	21,000	229,100
Red Willow	28,500	9,800	2,300	3,300	0	0	3,800	47,700
Total	284,000	66,700	10,400	18,100	0	5,800	33,300	418,300
Lower Republican Counties								
Franklin	55,500	36,200	1,200	2,100	0	0	3,100	98,100
Furnas	38,000	15,700	0	5,100	0	0	6,600	65,400
Gosper	56,500	25,000	1,000	1,900	0	0	2,200	86,600
Harlan	51,000	31,300	1,400	2,000	0	0	4,100	89,800
Phelps	157,000	90,000	500	3,700	0	0	5,300	256,500
Webster	34,500	17,500	0	1,300	0	0	2,500	55,800
Nuckolls	37,000	22,600	800	1,500	0	0	600	62,500
Total	429,500	238,300	4,900	17,600	0	0	24,400	714,700
Nebraska Republican	1,007,500	330,500	15,300	68,100	4,800	39,100	69,400	1,534,700

2006 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay	Total
Chase	125,000	7,900	0	13,000	3,800	13,900	2,800	166,400
Dundy	64,500	5,100	3,300	11,500	0	5,000	4,600	94,000
Perkins	105,000	15,600	2,200	11,000	1,900	4,500	2,500	142,700
Total	294,500	28,600	5,500	35,500	5,700	23,400	9,900	403,100
Middle Republican Counties								
Frontier	36,500	16,200	4,300	4,000	0	0	1,700	62,700
Hayes	36,500	4,200	3,600	6,000	0	0	3,500	53,800
Hitchcock	17,000	4,000	2,100	3,000	0	0	2,500	28,600
Lincoln	157,000	44,300	3,600	7,500	0	0	19,500	231,900
Red Willow	25,500	9,100	3,200	4,000	0	0	3,000	44,800
Total	272,500	77,800	16,800	24,500	0	0	30,200	421,800
Lower Republican Counties								
Franklin	49,000	41,500	2,000	3,500	0	0	2,100	98,100
Furnas	30,000	19,500	2,400	5,000	0	0	6,000	62,900
Gosper	54,000	29,100	0	2,000	0	0	1,900	87,000
Harlan	46,000	35,100	1,300	2,000	0	0	3,800	88,200
Phelps	147,000	100,400	1,200	3,700	0	0	5,400	257,700
Webster	30,000	23,800	500	2,500	0	0	2,300	59,100
Nuckolls	33,500	23,800	500	2,400	0	0	700	60,900
Total	389,500	273,200	7,900	21,100	0	0	22,200	713,900
Nebraska Republican	956,500	379,600	30,200	81,100	5,700	23,400	62,300	1,538,800

Source: National Agricultural Statistical Service

Table 6: Nebraska Irrigated Crop Mix, from NASS

2005 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay
Chase	71.1%	4.6%	0.0%	8.5%	1.9%	12.0%	2.0%
Dundy	69.8%	5.5%	0.0%	10.2%	0.0%	7.7%	6.7%
Perkins	77.8%	9.1%	0.0%	6.3%	1.0%	4.0%	1.8%
Region Average	73.2%	6.3%	0.0%	8.1%	1.2%	8.3%	2.9%
Middle Republican Counties							
Frontier	60.9%	24.7%	5.6%	5.6%	0.0%	0.0%	3.3%
Hayes	64.0%	9.4%	5.6%	4.6%	0.0%	9.0%	7.4%
Hitchcock	63.5%	14.0%	6.2%	7.2%	0.0%	0.0%	9.1%
Lincoln	72.9%	14.4%	0.0%	3.0%	0.0%	0.6%	9.2%
Red Willow	59.7%	20.5%	4.8%	6.9%	0.0%	0.0%	8.0%
Region Average	67.9%	15.9%	2.5%	4.3%	0.0%	1.4%	8.0%
Lower Republican Counties							
Franklin	56.6%	36.9%	1.2%	2.1%	0.0%	0.0%	3.2%
Furnas	58.1%	24.0%	0.0%	7.8%	0.0%	0.0%	10.1%
Gosper	65.2%	28.9%	1.2%	2.2%	0.0%	0.0%	2.5%
Harlan	56.8%	34.9%	1.6%	2.2%	0.0%	0.0%	4.6%
Phelps	61.2%	35.1%	0.2%	1.4%	0.0%	0.0%	2.1%
Webster	61.8%	31.4%	0.0%	2.3%	0.0%	0.0%	4.5%
Nuckolls	59.2%	36.2%	1.3%	2.4%	0.0%	0.0%	1.0%
Region Average	60.1%	33.3%	0.7%	2.5%	0.0%	0.0%	3.4%

2006 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay
Chase	75.1%	4.7%	0.0%	7.8%	2.3%	8.4%	1.7%
Dundy	68.6%	5.4%	3.5%	12.2%	0.0%	5.3%	4.9%
Perkins	73.6%	10.9%	1.5%	7.7%	1.3%	3.2%	1.8%
Region Average	73.1%	7.1%	1.4%	8.8%	1.4%	5.8%	2.5%
Middle Republican Counties							
Frontier	58.2%	25.8%	6.9%	6.4%	0.0%	0.0%	2.7%
Hayes	67.8%	7.8%	6.7%	11.2%	0.0%	0.0%	6.5%
Hitchcock	59.4%	14.0%	7.3%	10.5%	0.0%	0.0%	8.7%
Lincoln	67.7%	19.1%	1.6%	3.2%	0.0%	0.0%	8.4%
Red Willow	56.9%	20.3%	7.1%	8.9%	0.0%	0.0%	6.7%
Region Average	64.6%	18.4%	4.0%	5.8%	0.0%	0.0%	7.2%
Lower Republican Counties							
Franklin	49.9%	42.3%	2.0%	3.6%	0.0%	0.0%	2.1%
Furnas	47.7%	31.0%	3.8%	7.9%	0.0%	0.0%	9.5%
Gosper	62.1%	33.4%	0.0%	2.3%	0.0%	0.0%	2.2%
Harlan	52.2%	39.8%	1.5%	2.3%	0.0%	0.0%	4.3%
Phelps	57.0%	39.0%	0.5%	1.4%	0.0%	0.0%	2.1%
Webster	50.8%	40.3%	0.8%	4.2%	0.0%	0.0%	3.9%
Nuckolls	55.0%	39.1%	0.8%	3.9%	0.0%	0.0%	1.1%
Region Average	54.6%	38.3%	1.1%	3.0%	0.0%	0.0%	3.1%

Source Table 5

Table 7: Nebraska Irrigated Crop Yields, from NASS

2005 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay
	bu/acre	bu/acre	bu/acre	bu/acre	#/acre	bu/acre	tons/acre
Chase	191	58		70.6	23.6	2335	4.7
Dundy	187	55		63		3022	5
Perkins	184	57		62	18.2	2332	5.1
Region Average	187.6	57.0		66.2	22.0	2,466.5	4.9
Middle Republican Counties							
Frontier	166	57	99	60			4.7
Hayes	186	55	100	61		2220	5.8
Hitchcock	190	57	113	61			5.4
Lincoln	177	58		61		2400	4.4
Red Willow	185	60	98	57			4.9
Region Average	178.3	57.8	101.6	60.1		2,260.3	4.7
Lower Republican Counties							
Franklin	186	60	119	50			5.8
Furnas	176	55		59			5.1
Gosper	195	58	110	67			5.3
Harlan	188	59	141	50			5.9
Phelps	205	62	108	67			5.1
Webster	187	63		62			5.8
Nuckolls	189	60	123	48			4.8
Region Average	193.8	60.3	123.0	58.7			5.4

2006 Upper Republican Counties	Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay
	bu/acre	bu/acre	bu/acre	bu/acre	#/acre	bu/acre	tons/acre
Chase	202	61		84.6	28.4	2347	3.8
Dundy	200	65	106	67		2896	4.6
Perkins	200	63	110	78	24.1	2311	5.9
Region Average	200.8	62.8	107.6	76.9	27.0	2,457.4	4.7
Middle Republican Counties							
Frontier	180	54	111	52			4.4
Hayes	197	61	111	81			4.5
Hitchcock	187	59	118	40			4.3
Lincoln	180	56	111	61			4
Red Willow	187	63	114	57			5.1
Region Average	183.4	56.8	112.4	61.2			4.2
Lower Republican Counties							
Franklin	183	59	100	67			5.6
Furnas	167	54	84	52.1			4.3
Gosper	193	62	0	66			5
Harlan	184	58	120	66			4.2
Phelps	192	60.3	108	70			4.6
Webster	175	59	96	63			5.2
Nuckolls	171	58	113	64			4
Region Average	185.0	59.2	100.2	63.0			4.6

Source: National Agricultural Statistical Service

Figure 2: Nebraska Crop Mix by Region and Year

(Source: NASS)

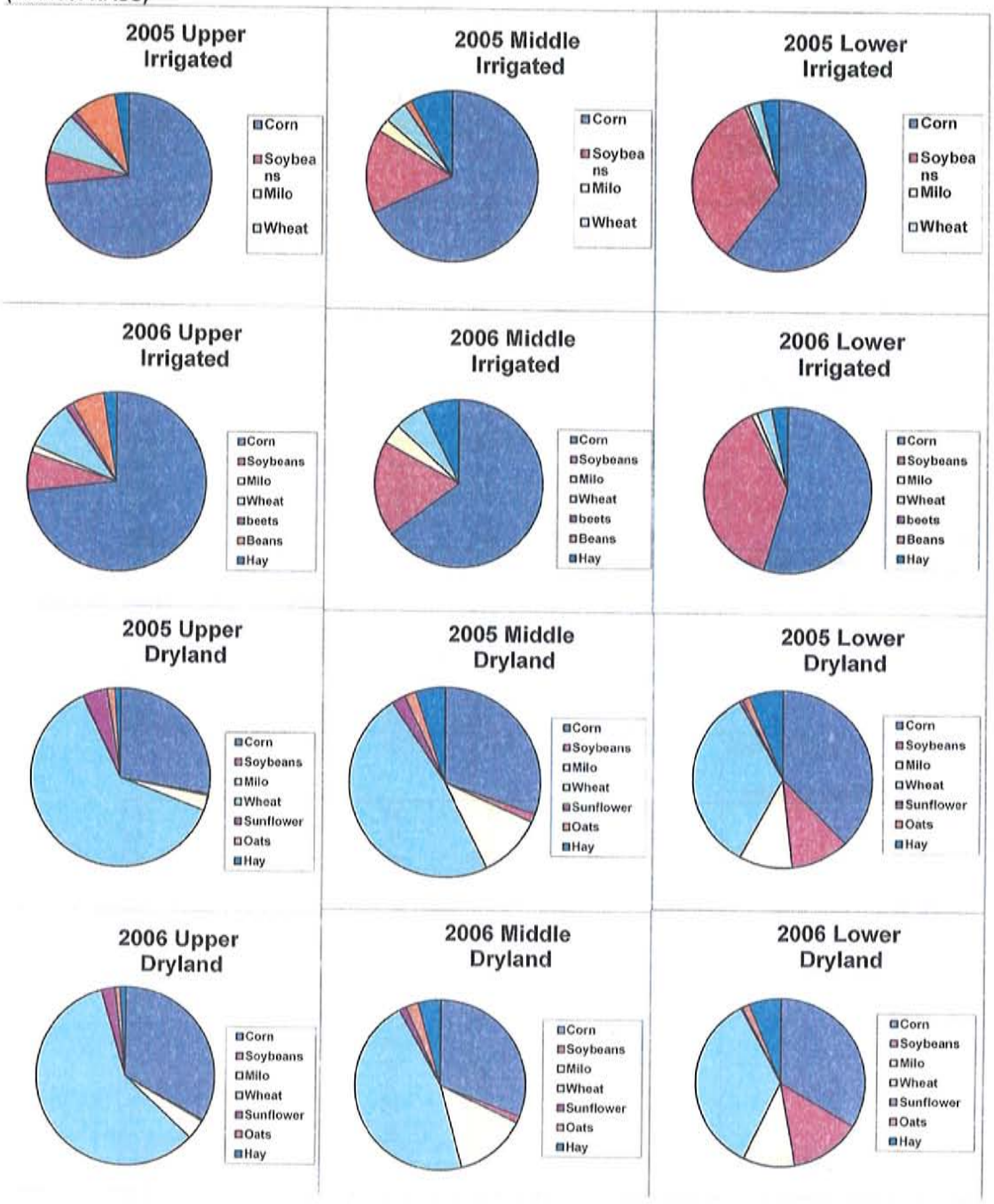

Table 8: Republican Basin Class 5 and 6 Land

Upper Republican Counties	2005 Model Reduction Acres	Model Acres in Excess of Non-Irr Class 1-4 Acres	Percentage Class 5&6	2006 Model Reduction Acres	Model Acres in Excess of Non-Irr Class 1-4 Acres	Percentage Class 5&6
Chase	23,914	4,774	20.0%	19478	2818	14.5%
Dundy	8,433	2,181	25.9%	8261	1622	19.6%
Perkins	--	--	--			
Total	32,347	6,955	21.5%	27,739	4,440	16.0%
Middle Republican Counties						
Frontier	8,459	269	3.2%	9330	460	4.9%
Hayes	5,131	327	6.4%	3952	114	2.9%
Hitchcock	10,226	424	4.1%	10099	201	2.0%
Lincoln	2,993	736	24.6%	2085	284	13.6%
Red Willow	10,579	516	4.9%	12053	422	3.5%
Total	37,388	2,272	6.1%	37,519	1,481	3.9%
Lower Republican Counties						
Franklin	12,232	354	2.9%	11276	459	4.1%
Furnas	13,993	122	0.9%	9843	23	0.2%
Gosper	--	--	--			
Harlan	11,165	476	4.3%	9815	59	0.6%
Phelps	--	--	--			
Webster	6,147	105	1.7%	5505	0	0.0%
Nuckolls	2,108	0	0.0%	2140	0	0.0%
Total	45,645	1,057	2.3%	38,579	541	1.4%
Nebraska Republican	115,380	10,284	8.9%	103,837	6,462	6.2%

Source: SWE Nebraska Gains report, tables 9 & 10

Table 9: Crop Acres Changes Resulting from Well Shutdown

		Irrigated Crops					Acres Changed to Fallow & Dryland Crops					
2005	Affected Acres	Corn[1]	Soybeans[1]	Milo	Wheat	Alfalfa Hay	Class 6 Fallowed	Corn	Soybeans	Milo[2]	Wheat	Alfalfa Hay
Upper	32,347	24,061	4,735	0	2,609	942	6,955	16,477	220	5,144	2,609	942
Middle	37,388	25,384	6,480	930	1,618	2,976	2,272	19,710	910	9,902	1,618	2,976
Lower	45,645	27,430	15,219	313	1,124	1,558	1,057	26,447	7,396	8,062	1,124	1,558
Total	115,380	76,876	26,434	1,243	5,351	5,477	10,284	62,635	8,526	23,108	5,351	5,477
2006												
Upper	27,739	20,658	3,578	378	2,443	681	4,440	16,453	162	3,560	2,443	681
Middle	37,519	24,239	6,920	1,494	2,179	2,686	1,481	19,468	781	10,924	2,179	2,686
Lower	38,579	21,048	14,764	427	1,140	1,200	541	20,403	8,200	7,095	1,140	1,200
Total	103,837	65,945	25,262	2,300	5,762	4,567	6,462	56,323	9,143	21,579	5,762	4,567

[1] Irrigated corn includes a small acreage of sugar beets, soybeans includes dry beans.

[2] Dryland milo includes a small acreage of sunflowers and oats

Source: Tables 1, 3, 6 and 8

Table 10: NASS Crop Yields and Prices

Crop Yields:

	Corn		Soybeans		Milo		Wheat		Alfalfa Hay	
Upper Republican	**Irrigated**	**Dry**	**Irrigated**	**Dry**	**Irrigated**	**Dry**	**Irrigated**	**Dry**	**Irrigated**	**Dry**
	Bu/acre		Bu/acre		Bu/acre		Bu/acre		Tons/acre	
2005	187.6	48.2	57.0	18.0	n/a	70.3	66.2	31.9	4.9	3.2
2006	200.8	42.7	62.8	19.0	107.6	45.6	76.9	24.7	4.7	2.5
Middle Republican										
2005	178.3	63.5	57.8	22.4	101.6	70.2	60.1	43.0	4.7	3.0
2006	183.4	54.4	56.8	15.3	112.4	56.8	61.2	32.6	4.2	2.8
Lower Republican										
2005	193.8	85.6	60.3	39.4	123.0	85.3	58.7	43.4	5.4	3.4
2006	185.0	66.4	59.2	33.6	100.2	69.8	63.0	34.1	4.6	2.9

Crop Prices:

	Corn	Soybeans	Milo	Wheat	Alfalfa Hay
	$/bu	$/bu	$/bu	$/bu	$/ton
2005	1.92	5.55	1.71	3.36	50.00
2006	3.00	6.05	3.10	4.57	91.00

Source: Tables 4, 7, and National Agricultural Statistics Service

Table 11: Nebraska Corn Budgets

	2004								2006							
	Pivot UN Base Budget	Upper	Middle	Lower	Dryland UN Base Budget	Upper	Middle	Lower	Pivot UN Base Budget	Upper	Middle	Lower	Dryland UN Base Budget	Upper	Middle	Lower
Univ of Nebraska Budget Page #	16				10				14				10			
Inches Irrigation	12	12	12	12	0	0	0	0	9	9	9	9	0	0	0	0
INCOME PER ACRE																
Yield per acre	155.0	187.6	178.3	193.8	90.0	48.2	63.5	85.6	180.0	200.8	183.4	185.0	95.0	42.7	54.4	66.4
Price per bushel	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Gross Returns	297.60	360.18	342.29	372.14	172.80	92.46	121.93	164.35	540.00	602.55	550.11	555.06	285.00	128.07	163.30	199.09
SPENDING ON PRODUCED INPUTS																
Seed	33.00	39.94	37.96	41.27	22.00	11.77	15.52	20.92	60.76	67.80	61.90	62.45	41.69	18.73	23.89	29.12
Herbicide	25.94	25.94	25.94	25.94	28.81	28.81	28.81	28.81	27.59	27.59	27.59	27.59	33.12	33.12	33.12	33.12
Insecticide/Fungicide	24.10	24.10	24.10	24.10	20.57	20.57	20.57	20.57	6.25	6.25	6.25	6.25	4.65	4.65	4.65	4.65
Fertilizer and Lime	41.52	50.25	47.76	51.92	34.17	18.28	24.11	32.50	60.12	67.08	61.25	61.80	60.12	27.02	34.45	42.00
Hauling	9.30	11.26	10.70	11.63	5.40	2.89	3.81	5.14	18.00	20.08	18.34	18.50	9.50	4.27	5.44	6.64
Drying	31.00	37.52	35.66	38.76	18.00	9.63	12.70	17.12	46.80	52.22	47.68	48.11	24.70	11.10	14.15	17.25
Machinery Fuel and Oil	6.50	6.50	6.50	6.50	3.50	3.50	3.50	3.50	9.00	9.00	9.00	9.00	6.20	6.20	6.20	6.20
Machinery Repairs and Maintenance	8.23	8.23	8.23	8.23	5.22	5.22	5.22	5.22	7.28	7.28	7.28	7.28	6.38	6.38	6.38	6.38
Irrigation Fuel and Oil	26.06	26.06	26.06	26.06	0.00	0.00	0.00	0.00	37.40	37.40	37.40	37.40	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	7.81	7.81	7.81	7.81	0.00	0.00	0.00	0.00	5.86	5.86	5.86	5.86	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre		237.60	230.70	242.22		100.67	114.24	133.78		300.57	282.54	284.24		111.47	128.28	145.36
Value Added $/acre		122.57	111.59	129.92		-8.22	7.68	30.57		301.98	267.57	270.82		16.60	35.02	53.73

Sources: Table 10, Nebraska Crop Budgets

Table 12: Nebraska Soybean Budgets

	2004 UN Base Pivot				UN Base Dryland				2006 UN Base Pivot				UN Base Dryland			
	Budget	Upper	Middle	Lower	Budget	Upper	Middle	Lower	Budget	Upper	Middle	Lower	Budget	Upper	Middle	Lower
Univ of Nebraska Budget Page #	32				30				30				28			
Inches Irrigation	8	8	8	8	0	0	0	0	9	9	9	9	0	0	0	0
INCOME PER ACRE																
Yield per acre	55.0	57.0	57.8	60.3	35.0	18.0	22.4	39.4	55.0	62.8	57.8	59.2	35.0	19.0	15.3	33.6
Price per bushel	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05
Gross Returns	305.25	316.11	320.75	334.69	194.25	99.90	124.52	218.91	332.75	379.97	349.65	358.31	211.75	114.95	92.55	203.51
SPENDING ON PRODUCED INPUTS																
Seed	30.00	31.07	31.52	32.89	30.00	15.43	19.23	33.81	28.00	31.97	29.42	30.15	33.60	18.24	14.69	32.29
Herbicide	17.67	17.67	17.67	17.67	17.67	17.67	17.67	17.67	10.85	10.85	10.85	10.85	13.92	13.92	13.92	13.92
Insecticide/Fungicide	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
Fertilizer and Lime	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	3.30	3.42	3.47	3.62	2.10	1.08	1.35	2.37	5.50	6.28	5.78	5.92	3.50	1.90	1.53	3.36
Drying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery Fuel and Oil	3.88	3.88	3.88	3.88	3.66	3.66	3.66	3.66	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40
Machinery Repairs and Maintenance	5.37	5.37	5.37	5.37	4.99	4.99	4.99	4.99	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30
Irrigation Fuel and Oil	17.37	17.37	17.37	17.37	0.00	0.00	0.00	0.00	37.40	37.40	37.40	37.40	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	5.20	5.20	5.20	5.20	0.00	0.00	0.00	0.00	5.86	5.86	5.86	5.86	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre		86.17	86.68	88.20		45.03	49.10	64.70		108.17	105.12	105.99		49.87	45.94	65.39
Value Added $/acre		229.94	234.07	246.49		54.87	75.42	154.22		271.79	244.53	252.32		65.08	46.60	138.13

Sources: Table 10, Nebraska Crop Budgets

Table 13: Nebraska Milo Budgets

	2004								2006							
	UN Base Pivot				UN Base Dryland				UN Base Pivot				UN Base Dryland			
	Budget	Upper	Middle	Lower	Budget	Upper	Middle	Lower	Budget	Upper	Middle	Lower	Budget	Upper	Middle	Lower
Univ of Nebraska Budget Page #	24				21				22				20			
Inches Irrigation	6	6	6	6	0	0	0	0	6	6	6	6	0	0	0	0
INCOME PER ACRE																
Yield per acre	140.0	107.6	101.6	100.2	105.0	70.3	70.2	85.3	140.0	107.6	112.4	100.2	115.0	45.6	56.8	69.8
Price per bushel	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Gross Returns	239.40	184.00	173.80	171.37	179.55	120.23	120.04	145.84	434.00	333.56	348.58	310.67	356.50	141.31	176.12	216.45
SPENDING ON PRODUCED INPUTS																
Seed	8.64	6.64	6.27	6.18	5.76	3.86	3.85	4.68	5.04	3.87	4.05	3.61	5.04	2.00	2.49	3.06
Herbicide	13.46	13.46	13.46	13.46	28.21	28.21	28.21	28.21	36.68	36.68	36.68	36.68	32.15	32.15	32.15	32.15
Insecticide/Fungicide	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Fertilizer and Lime	38.52	29.61	27.97	27.57	38.22	25.59	25.55	31.04	48.12	36.98	38.65	34.45	62.22	24.66	30.74	37.78
Hauling	8.40	6.46	6.10	6.01	6.30	4.22	4.21	5.12	14.00	10.76	11.24	10.02	11.50	4.56	5.68	6.98
Drying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery Fuel and Oil	4.91	4.91	4.91	4.91	2.60	2.60	2.60	2.60	7.02	7.02	7.02	7.02	5.43	5.43	5.43	5.43
Machinery Repairs and Maintenance	5.99	5.99	5.99	5.99	3.78	3.78	3.78	3.78	6.09	6.09	6.09	6.09	5.37	5.37	5.37	5.37
Irrigation Fuel and Oil	13.03	13.03	13.03	13.03	0.00	0.00	0.00	0.00	24.94	24.94	24.94	24.94	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	3.91	3.91	3.91	3.91	0.00	0.00	0.00	0.00	3.91	3.91	3.91	3.91	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre		85.06	82.70	82.13		69.32	69.27	76.49		131.67	133.99	128.12		75.58	83.27	92.18
Value Added $/acre		98.93	91.11	89.24		50.91	50.78	69.35		201.89	214.59	182.54		65.73	92.85	124.27

Sources: Table 10, Nebraska Crop Budgets

Table 14: Nebraska Wheat Budgets

	2004 UN Base Pivot Budget	Upper	Middle	Lower	UN Base Dryland Budget	Upper	Middle	Lower	2006 UN Base Pivot Budget	Upper	Middle	Lower	UN Base Dryland Budget	Upper	Middle	Lower
Univ of Nebraska Budget Page #	44				40				42				38			
	8	8	8	8	0	0	0	0	8	8	8	8	0	0	0	0
INCOME PER ACRE																
Yield per acre	80.0	66.2	60.1	58.7	35.0	31.9	43.0	43.4	80.0	76.9	61.2	63.0	35.0	24.7	32.6	34.1
Price per bushel	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
Gross Returns	268.80	222.58	201.88	197.34	117.60	107.18	144.64	145.89	365.60	351.22	279.70	287.87	159.95	112.95	148.98	155.65
SPENDING ON PROI																
Seed	24.00	19.87	18.02	17.62	18.00	16.41	22.14	22.33	19.20	18.44	14.69	15.12	14.40	10.17	13.41	14.01
Herbicide	8.16	8.16	8.16	8.16	4.96	4.96	4.96	4.96	6.76	6.76	6.76	6.76	5.01	5.01	5.01	5.01
Insecticide/Fungicide	13.36	13.36	13.36	13.36	3.42	3.42	3.42	3.42	12.60	12.60	12.60	12.60	4.11	4.11	4.11	4.11
Fertilizer and Lime	43.36	35.90	32.56	31.83	32.96	30.04	40.54	40.89	80.16	77.01	61.33	63.12	46.56	32.88	43.37	45.31
Hauling	4.80	3.97	3.60	3.52	2.10	1.91	2.58	2.61	8.00	7.69	6.12	6.30	3.50	2.47	3.26	3.41
Drying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery Fuel and Oil	3.44	3.44	3.44	3.44	2.47	2.47	2.47	2.47	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95
Machinery Repairs and Maintenance	4.25	4.25	4.25	4.25	3.99	3.99	3.99	3.99	4.77	4.77	4.77	4.77	4.77	4.77	4.77	4.77
Irrigation Fuel and Oil	17.37	17.37	17.37	17.37	0.00	0.00	0.00	0.00	33.25	33.25	33.25	33.25	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	5.20	5.20	5.20	5.20	0.00	0.00	0.00	0.00	5.20	5.20	5.20	5.20	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre		111.53	105.97	104.76		63.20	80.10	80.67		170.66	149.66	152.06		64.36	78.88	81.57
Value Added $/acre		111.05	95.90	92.59		43.98	64.54	65.23		180.56	130.04	135.81		48.59	70.10	74.08

Sources: Table 10, Nebraska Crop Budgets

Table 15: Nebraska Alfalfa Budgets

	2004 UN Base Pivot Budget	Upper	Middle	Lower	UN Base Dryland Budget	Upper	Middle	Lower	2006 UN Base Pivot Budget	Upper	Middle	Lower	UN Base Dryland Budget	Upper	Middle	Lower
Univ of Nebraska Budget Page #	6				5				6				5			
Inches Irrigation	16	16	16	16	0	0	0	0	16	16	16	16	0	0	0	0
INCOME PER ACRE																
Yield per acre	6.0	4.9	4.7	5.4	4.0	3.2	3.0	3.4	6.0	4.7	4.2	4.6	4.0	2.5	2.8	2.9
Price per bushel	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	91.00	91.00	91.00	91.00	91.00	91.00	91.00	91.00
Gross Returns	300.00	246.45	235.74	270.29	200.00	160.81	152.17	171.28	546.00	427.88	383.53	420.65	364.00	229.02	254.43	266.11
SPENDING ON PRODUCED INPUTS																
Seed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Herbicide	8.44	8.44	8.44	8.44	2.60	2.60	2.60	2.60	12.98	12.98	12.98	12.98	2.60	2.60	2.60	2.60
Insecticide/Fungicide	1.65	1.65	1.65	1.65	2.78	2.78	2.78	2.78	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
Fertilizer and Lime	9.75	8.01	7.66	8.78	0.00	0.00	0.00	0.00	12.75	9.99	8.96	9.82	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery Fuel and Oil	5.89	5.89	5.89	5.89	4.85	4.85	4.85	4.85	16.36	16.36	16.36	16.36	10.74	10.74	10.74	10.74
Machinery Repairs and Maintenance	12.44	12.44	12.44	12.44	6.82	6.82	6.82	6.82	29.20	29.20	29.20	29.20	13.29	13.29	13.29	13.29
Irrigation Fuel and Oil	25.67	25.67	25.67	25.67	0.00	0.00	0.00	0.00	25.46	25.46	25.46	25.46	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	8.18	8.18	8.18	8.18	0.00	0.00	0.00	0.00	8.18	8.18	8.18	8.18	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre		70.28	69.93	71.05		17.05	17.05	17.05		103.45	102.42	103.28		27.91	27.91	27.91
Value Added $/acre		176.17	165.80	199.23		143.76	135.12	154.23		324.43	281.11	317.37		201.11	226.52	238.20

Sources: Table 10, Nebraska Crop Budgets

Table 16: Nebraska Fallow Budgets

	2005 Fallow	2006 Fallow
Univ of Nebraska Budget Page #		
Inches Irrigation		
INCOME PER ACRE		
Yield per acre		
Price per bushel		
Gross Returns	0.00	0.00
SPENDING ON PRODUCED INPUTS		
Seed	0.00	0.00
Herbicide	2.48	2.51
Insecticide/Fungicide	0.00	0.00
Fertilizer and Lime	0.00	0.00
Hauling	0.00	0.00
Drying	0.00	0.00
Machinery Fuel and Oil	1.24	2.48
Machinery Repairs and Maintenance	2.00	2.39
Irrigation Fuel and Oil	0.00	0.00
Irrigation Repairs and Maintenance	0.00	0.00
Water District Assessment	0.00	0.00
Spending on Produced Inputs $/acre	5.71	7.37
Value Added $/acre	-5.71	-7.37

Sources: Table 10, Nebraska Crop Budgets

Table 17: Nebraska Well Shutdown Effects for 2005, by Region and Crop

	Irrigated Acres Affected by Well Shutdown					Full	Dryland Alternatives				
Upper Republican	Corn[1]	Soybeans[1]	Milo	Wheat	Alfalfa Hay	Irrigated Total	Fallowed	Corn	Soybeans	Milo[2]	Wheat
Acres Affected	24,061	4,735	0	2,609	942	32,347	6,955	16,477	220	5,144	2,609
Gross Returns	360.18	316.11	184.00	222.58	246.45	10,975,840	0.00	92.46	99.90	120.23	107.18
SPENDING ON PRODUCED INPUTS											
Seed	39.94	31.07	6.64	19.87	0.00	1,159,918	0.00	11.77	15.43	3.86	16.41
Herbicide	25.94	17.67	13.46	8.16	8.44	737,048	2.48	28.81	17.67	28.21	4.96
Insecticide/Fungicide	24.10	2.20	1.06	13.36	1.65	626,697	0.00	20.57	2.20	1.06	3.42
Fertilizer and Lime	50.25	0.00	29.61	35.90	8.01	1,310,293	0.00	18.28	0.00	25.59	30.04
Hauling	11.26	3.42	6.46	3.97	0.00	297,369	0.00	2.89	1.08	4.22	1.91
Drying	37.52	0.00	0.00	0.00	0.00	902,728	0.00	9.63	0.00	0.00	0.00
Machinery Fuel and Oil	6.50	3.88	4.91	3.44	5.89	189,292	1.24	3.50	3.66	2.60	2.47
Machinery Repairs and Maintenance	8.23	5.37	5.99	4.25	12.44	246,257	2.00	5.22	4.99	3.78	3.99
Irrigation Fuel and Oil	26.06	17.37	13.03	17.37	25.67	778,777	0.00	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	7.81	5.20	3.91	5.20	8.18	233,811	0.00	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre	237.60	86.17	85.06	111.53	70.28	6,482,189	5.71	100.67	45.03	69.32	63.20
Value Added $/acre	122.57	229.94	98.93	111.05	176.17	4,493,651	-5.71	-8.22	54.87	50.91	43.98
Total Spending on Produced Inputs	5,716,959	408,028	0	290,989	66,214		39,713	1,658,794	9,892	356,605	164,888
TotalValue Added	2,949,226	1,088,720	0	289,725	165,981		-39,713	-135,376	12,055	261,917	114,751
Middle Republican											
Acres Affected	25,384	6,480	930	1,618	2,976	37,388	2,272	19,710	910	9,902	1,618
Gross Returns	342.29	320.75	173.80	201.88	235.74	11,957,063	0.00	121.93	124.52	120.04	144.64
SPENDING ON PRODUCED INPUTS											
Seed	37.96	31.52	6.27	18.02	0.00	1,202,738	0.00	15.52	19.23	3.85	22.14
Herbicide	25.94	17.67	13.46	8.16	8.44	823,802	2.48	28.81	17.67	28.21	4.96
Insecticide/Fungicide	24.10	2.20	1.06	13.36	1.65	653,524	0.00	20.57	2.20	1.06	3.42
Fertilizer and Lime	47.76	0.00	27.97	32.56	7.66	1,313,704	0.00	24.11	0.00	25.55	40.54
Hauling	10.70	3.47	6.10	3.60	0.00	305,495	0.00	3.81	1.35	4.21	2.58
Drying	35.66	0.00	0.00	0.00	0.00	905,079	0.00	12.70	0.00	0.00	0.00
Machinery Fuel and Oil	6.50	3.88	4.91	3.44	5.89	217,800	1.24	3.50	3.66	2.60	2.47
Machinery Repairs and Maintenance	8.23	5.37	5.99	4.25	12.44	293,180	2.00	5.22	4.99	3.78	3.99
Irrigation Fuel and Oil	26.06	17.37	13.03	17.37	25.67	890,688	0.00	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	7.81	5.20	3.91	5.20	8.18	268,341	0.00	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre	230.70	86.68	82.70	105.97	69.93	6,874,351	5.71	114.24	49.10	69.27	80.10
Value Added $/acre	111.59	234.07	91.11	95.90	165.80	5,082,712	-5.71	7.68	75.42	50.78	64.54
Total Spending on Produced Inputs	5,856,190	561,703	76,871	171,445	208,143		12,973	2,251,778	44,664	685,853	129,588
TotalValue Added	2,832,571	1,516,803	84,688	155,152	493,497		-12,973	151,415	68,612	502,768	104,415
Lower Republican											
Acres Affected	27,430	15,219	313	1,124	1,558	45,645	1,057	26,447	7,396	8,062	1,124
Gross Returns	372.14	334.69	171.37	197.34	270.29	15,998,272	0.00	164.35	218.91	145.84	145.89
SPENDING ON PRODUCED INPUTS											
Seed	41.27	32.89	6.18	17.62	0.00	1,654,277	0.00	20.92	33.81	4.68	22.33
Herbicide	25.94	17.67	13.46	8.16	8.44	1,007,006	2.48	28.81	17.67	28.21	4.96
Insecticide/Fungicide	24.10	2.20	1.06	13.36	1.65	712,476	0.00	20.57	2.20	1.06	3.42
Fertilizer and Lime	51.92	0.00	27.57	31.83	8.78	1,482,259	0.00	32.50	0.00	31.04	40.89
Hauling	11.63	3.62	6.01	3.52	0.00	379,906	0.00	5.14	2.37	5.12	2.61
Drying	38.76	0.00	0.00	0.00	0.00	1,063,317	0.00	17.12	0.00	0.00	0.00
Machinery Fuel and Oil	6.50	3.88	4.91	3.44	5.89	251,930	1.24	3.50	3.66	2.60	2.47
Machinery Repairs and Maintenance	8.23	5.37	5.99	4.25	12.44	333,517	2.00	5.22	4.99	3.78	3.99
Irrigation Fuel and Oil	26.06	17.37	13.03	17.37	25.67	1,042,800	0.00	0.00	0.00	0.00	0.00
Irrigation Repairs and Maintenance	7.81	5.20	3.91	5.20	8.18	313,188	0.00	0.00	0.00	0.00	0.00
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Spending on Produced Inputs $/acre	242.22	88.20	82.13	104.76	71.05	8,240,675	5.71	133.78	64.70	76.49	80.67
Value Added $/acre	129.92	246.49	89.24	92.59	199.23	7,757,596	-5.71	30.57	154.22	69.35	65.23
Total Spending on Produced Inputs	6,644,127	1,342,369	25,702	117,751	110,726		6,035	3,538,079	478,515	616,639	90,671
TotalValue Added	3,563,717	3,751,413	27,926	104,070	310,470		-6,035	808,485	1,140,656	559,067	73,318

[1] Irrigated corn includes a small acreage of sugar beets, soybeans includes dry beans.

[2] Dryl- -lo includes a small acreage of sunflowers and oats

Sour- -bles 9, 11-16

Table 18: Nebraska Well Shutdown Effects for 2006, by Region and Crop

	Irrigated Acres Affected by Well Shutdown					Full	Dryland Alternatives							Net Change
Upper Republican	Corn[1]	Soybeans[1]	Milo	Wheat	Alfalfa Hay	Irrigated Total	Fallowed	Corn	Soybeans	Milo[2]	Wheat	Alfalfa Hay	Dryland Total	from Well Shutdown
Acres Affected	20,658.02	3,578	378	2,443	681	27,739	5,964	16,453	162	3,560	2,443	681	29,263	
Gross Returns	602.55	379.97	333.56	351.22	427.88	15,082,810	0.00	128.07	114.95	141.31	112.95	229.02	3,060,666	12,022,144
SPENDING ON PRODUCED INPUTS														
Seed	67.80	31.97	3.87	18.44	0.00	1,561,501	0.00	18.73	18.24	2.00	10.17	0.00	343,123	1,218,378
Herbicide	27.59	10.85	36.68	6.76	12.98	648,012	2.51	33.12	13.92	32.15	5.01	2.60	690,581	-42,569
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	168,849	0.00	4.65	2.11	1.41	4.11	1.28	92,779	76,070
Fertilizer and Lime	67.08	0.00	36.98	77.01	9.99	1,594,739	0.00	27.02	0.00	24.66	32.88	0.00	612,596	982,143
Hauling	20.08	6.28	10.76	7.69	0.00	460,235	0.00	4.27	1.90	4.56	2.47	0.00	92,808	367,426
Drying	52.22	0.00	0.00	0.00	0.00	1,078,777	0.00	11.10	0.00	0.00	0.00	0.00	182,609	896,167
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	238,297	2.48	6.20	7.40	5.43	4.95	10.74	156,707	81,589
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	206,784	2.39	6.38	6.30	5.37	4.77	13.29	160,038	46,746
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	1,014,450	0.00	0.00	0.00	0.00	0.00	0.00	0	1,014,450
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	161,781	0.00	0.00	0.00	0.00	0.00	0.00	0	161,781
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	300.57	108.17	131.67	170.66	103.45	7,133,424	7.37	111.47	49.87	75.58	64.36	27.91		
Value Added $/acre	301.98	271.79	201.89	180.56	324.43	7,949,386	-7.37	16.60	65.08	65.73	48.59	201.11		
Total Spending on Produced Inputs	6,209,115	387,081	49,833	416,917	70,478		43,927	1,833,929	8,070	269,078	157,223	19,014	2,331,242	4,802,182
TotalValue Added	6,238,307	972,563	76,412	441,081	221,023		-43,927	273,100	10,532	234,008	118,704	137,006	729,424	7,219,962
Middle Republican														
Acres Affected	24,238.80	6,920	1,494	2,179	2,686	37,519	2,279.96	19,468	781	10,924	2,179	2,686	38,318	
Gross Returns	550.11	349.65	348.58	279.70	383.53	17,914,303	0.00	163.30	92.55	176.12	148.98	254.43	6,183,372	11,730,931
SPENDING ON PRODUCED INPUTS														
Seed	61.90	29.42	4.05	14.69	0.00	1,741,982	0.00	23.89	14.69	2.49	13.41	0.00	532,927	1,209,055
Herbicide	27.59	10.85	36.68	6.76	12.98	848,240	2.51	33.12	13.92	32.15	5.01	2.60	1,030,451	-182,211
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	199,099	0.00	4.65	2.11	1.41	4.11	1.28	119,970	79,129
Fertilizer and Lime	61.25	0.00	38.65	61.33	8.96	1,699,971	0.00	34.45	0.00	30.74	43.37	0.00	1,100,894	599,077
Hauling	18.34	5.78	11.24	6.12	0.00	514,600	0.00	5.44	1.53	5.68	3.26	0.00	176,328	338,272
Drying	47.68	0.00	0.00	0.00	0.00	1,155,607	0.00	14.15	0.00	0.00	0.00	0.00	275,514	880,093
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	334,585	2.48	6.20	7.40	5.43	4.95	10.74	231,076	103,509
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	317,991	2.39	6.38	6.30	5.37	4.77	13.29	239,318	78,673
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	1,343,473	0.00	0.00	0.00	0.00	0.00	0.00	0	1,343,473
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	221,741	0.00	0.00	0.00	0.00	0.00	0.00	0	221,741
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	282.54	105.12	133.99	149.66	102.42	8,377,289	7.37	128.28	45.94	83.27	78.88	27.91		
Value Added $/acre	267.57	244.53	214.59	130.04	281.11	9,537,015	-7.37	35.02	46.60	92.85	70.10	226.52		
Total Spending on Produced Inputs	6,848,313	727,470	200,232	326,156	275,118		16,792	2,497,300	35,889	909,625	171,899	74,974	3,706,479	4,670,810
TotalValue Added	6,485,609	1,692,198	320,676	283,392	755,140		-16,792	681,704	36,402	1,014,306	152,769	608,504	2,476,894	7,060,121
Lower Republican														
Acres Affected	21,048.49	14,764	427	1,140	1,200	38,579	893	20,403	8,200	7,095	1,140	1,200	38,931	
Gross Returns	555.06	358.31	310.67	287.87	420.65	17,938,695	0.00	199.09	203.51	216.45	155.65	266.11	7,763,341	10,175,354
SPENDING ON PRODUCED INPUTS														
Seed	62.45	30.15	3.61	15.12	0.00	1,778,492	0.00	29.12	32.29	3.06	14.01	0.00	896,712	881,780
Herbicide	27.59	10.85	36.68	6.76	12.98	779,850	2.51	33.12	13.92	32.15	5.01	2.60	1,029,061	-249,211
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	179,209	0.00	4.65	2.11	1.41	4.11	1.28	128,403	50,806
Fertilizer and Lime	61.80	0.00	34.45	63.12	9.82	1,399,188	0.00	42.00	0.00	37.78	45.31	0.00	1,176,567	222,621
Hauling	18.50	5.92	10.02	6.30	0.00	488,339	0.00	6.64	3.36	6.98	3.41	0.00	216,408	271,930
Drying	48.11	0.00	0.00	0.00	0.00	1,012,545	0.00	17.25	0.00	0.00	0.00	0.00	352,051	660,494
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	326,956	2.48	6.20	7.40	5.43	4.95	10.74	246,446	80,510
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	289,314	2.39	6.38	6.30	5.37	4.77	13.29	243,446	45,868
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	1,418,479	0.00	0.00	0.00	0.00	0.00	0.00	0	1,418,479
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	227,271	0.00	0.00	0.00	0.00	0.00	0.00	0	227,271
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	284.24	105.99	128.12	152.06	103.28	7,899,642	7.37	145.36	65.39	92.18	81.57	27.91		
Value Added $/acre	270.82	252.32	182.54	135.81	317.37	10,039,053	-7.37	53.73	138.13	124.27	74.08	238.20		
Total Spending on Produced Inputs	5,982,802	1,564,850	54,698	173,385	123,907		6,580	2,965,856	536,196	653,973	93,006	33,483	4,289,093	3,610,549
TotalValue Added	5,700,409	3,725,122	77,930	154,852	380,739		-6,580	1,096,269	1,132,684	881,641	84,472	285,763	3,474,248	6,564,804

[1] Irrigated corn includes a small acreage of sugar beets, soybeans includes dry beans.
[2] Dryland milo includes a small acreage of sunflowers and oats
Sources: Tables 9, 11-16

Table 19: Summary of Nebraska Well Shutdown Effects by Region and Year

	2005				2006				Nebraska Net Change from Well Shutdown
	Upper	Middle	Lower	2005 Total	Upper	Middle	Lower	2006 Total	
Gross Returns	8,380,807	7,565,043	8,425,932	24,371,783	12,022,144	11,730,931	10,175,354	33,928,428	58,300,211
SPENDING ON PRODUCED INPUTS									
Seed	899,931	805,334	788,012	2,493,277	1,218,378	1,209,055	881,780	3,309,213	5,802,490
Herbicide	80,709	-60,854	-125,310	-105,455	-42,569	-182,211	-249,211	-473,991	-579,447
Insecticide/Fungicide	270,292	221,779	135,458	627,528	76,070	79,129	50,806	206,005	833,534
Fertilizer and Lime	799,011	519,888	326,527	1,645,426	982,143	599,077	222,621	1,803,840	3,449,266
Hauling	222,829	183,286	182,390	588,505	367,426	338,272	271,930	977,628	1,566,133
Drying	744,038	654,747	610,550	2,009,335	896,167	880,093	660,494	2,436,754	4,446,089
Machinery Fuel and Oil	97,841	98,502	99,693	296,036	81,589	103,509	80,510	265,608	561,644
Machinery Repairs and Maintenance	108,995	117,037	110,858	336,891	46,746	78,673	45,868	171,288	508,179
Irrigation Fuel and Oil	778,777	890,688	1,042,800	2,712,264	1,014,450	1,343,473	1,418,479	3,776,402	6,488,667
Irrigation Repairs and Maintenance	233,811	268,341	313,188	815,339	161,781	221,741	227,271	610,793	1,426,132
Water District Assessment	0	0	0	0	0	0	0	0	0
Total Spending on Produced Inputs	4,236,233	3,698,747	3,484,166	11,419,146	4,802,182	4,670,810	3,610,549	13,083,541	24,502,687
TotalValue Added	4,144,574	3,866,296	4,941,766	12,952,636	7,219,962	7,060,121	6,564,804	20,844,887	33,797,523

Sources: Tables 17, 18

Table 20: Crop Acres Change Resulting from Additional Canal Water Acquisition

2005	Affected Acres	Ground-water Acres	Net Affected Acres	Irrigated Crops					Acres Changed to Fallow & Dryland Crops					
				Corn	Soybeans	Milo	Wheat	Alfalfa Hay	Class 6 Fallowed	Corn	Soybeans	Milo	Wheat	Alfalfa Hay
Upper	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle	2,084	555	1,529	1,038	265	38	66	122	93	806	37	405	66	122
Lower	15,945	4,538	11,407	6,855	3,803	78	281	389	264	6,609	1,848	2,015	281	389
Total	18,029	5,093	12,936	7,893	4,068	116	347	511	357	7,415	1,886	2,420	347	511
2006														
Upper	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle	1,888	0	1,888	1,220	348	75	110	135	115	955	38	536	110	135
Lower	18,911	3,835	15,076	8,225	5,769	167	446	469	349	7,894	3,173	2,745	446	469
Total	20,799	3,835	16,964	9,445	6,118	242	555	604	464	8,849	3,211	3,281	555	604

Sources: Tables 3, 6 and SWE Nebraska Gains report, table 8

Table 21: Effects of Additional Canal Water Acquisition for 2005, by Region and Crop

Middle Republican	Irrigated Acres Affected by Canal Water Acquisition						Dryland Alternatives							Net Change from Surface Water Acquisition
	Corn[1]	Soybeans[1]	Milo	Wheat	Alfalfa Hay	Irrigated Total	Class 6 Fallowed	Corn	Soybeans	Milo[2]	Wheat	Alfalfa Hay	Dryland Total	
Acres Affected	1,038	265	38	66	122	1,529	93	806	37	405	66	122	1,529	
Gross Returns	342.29	320.75	173.80	201.88	235.74	488,990	0.00	121.93	124.52	120.04	144.64	152.17	179,614	309,376
SPENDING ON PRODUCED INPUTS														
Seed	37.96	31.52	6.27	18.02	0.00	49,187	0.00	15.52	19.23	3.85	22.14	0.00	16,252	32,935
Herbicide	25.94	17.67	13.46	8.16	8.44	33,690	2.48	28.81	17.67	28.21	4.96	2.60	36,178	-2,489
Insecticide/Fungicide	24.10	2.20	1.06	13.36	1.65	26,726	0.00	20.57	2.20	1.06	3.42	2.78	17,656	9,070
Fertilizer and Lime	47.76	0.00	27.97	32.56	7.66	53,725	0.00	24.11	0.00	25.55	40.54	0.00	32,463	21,261
Hauling	10.70	3.47	6.10	3.60	0.00	12,493	0.00	3.81	1.35	4.21	2.58	0.00	4,998	7,496
Drying	35.66	0.00	0.00	0.00	0.00	37,014	0.00	12.70	0.00	0.00	0.00	0.00	10,237	26,776
Machinery Fuel and Oil	6.50	3.88	4.91	3.44	5.89	8,907	1.24	3.50	3.66	2.60	2.47	4.85	4,879	4,028
Machinery Repairs and Maintenance	8.23	5.37	5.99	4.25	12.44	11,990	2.00	5.22	4.99	3.78	3.99	6.82	7,203	4,786
Irrigation Fuel and Oil	26.06	17.37	13.03	17.37	25.67	36,425	0.00	0.00	0.00	0.00	0.00	0.00	0	36,425
Irrigation Repairs and Maintenance	7.81	5.20	3.91	5.20	8.18	10,974	0.00	0.00	0.00	0.00	0.00	0.00	0	10,974
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	230.70	86.68	82.70	105.97	69.93	281,130	5.71	114.24	49.10	69.27	80.10	17.05		
Value Added $/acre	111.59	234.07	91.11	95.90	165.80	207,860	-5.71	7.68	75.42	50.78	64.54	135.12		
Total Spending on Produced Inputs	239,492	22,971	3,144	7,011	8,512		531	92,088	1,827	28,048	5,300	2,075	129,337	151,262
Total Value Added	115,839	62,030	3,463	6,345	20,182		-531	6,192	2,806	20,561	4,270	16,447	49,746	158,114
Lower Republican														
Acres Affected	6,855	3,803	78	281	389	11,407	264	6,609	1,848	2,015	281	389	11,407	
Gross Returns	372.14	334.69	171.37	197.34	270.29	3,998,078	0.00	164.35	218.91	145.84	145.89	171.28	1,892,380	2,105,698
SPENDING ON PRODUCED INPUTS														
Seed	41.27	32.89	6.18	17.62	0.00	413,415	0.00	20.92	33.81	4.68	22.33	0.00	216,485	196,930
Herbicide	25.94	17.67	13.46	8.16	8.44	251,658	2.48	28.81	17.67	28.21	4.96	2.60	282,974	-31,316
Insecticide/Fungicide	24.10	2.20	1.06	13.36	1.65	178,053	0.00	20.57	2.20	1.06	3.42	2.78	144,201	33,852
Fertilizer and Lime	51.92	0.00	27.57	31.83	8.78	370,427	0.00	32.50	0.00	31.04	40.89	0.00	288,825	81,601
Hauling	11.63	3.62	6.01	3.52	0.00	94,941	0.00	5.14	2.37	5.12	2.61	0.00	49,361	45,580
Drying	38.76	0.00	0.00	0.00	0.00	265,730	0.00	17.12	0.00	0.00	0.00	0.00	113,150	152,581
Machinery Fuel and Oil	6.50	3.88	4.91	3.44	5.89	62,959	1.24	3.50	3.66	2.60	2.47	4.85	38,045	24,914
Machinery Repairs and Maintenance	8.23	5.37	5.99	4.25	12.44	83,348	2.00	5.22	4.99	3.78	3.99	6.82	55,644	27,704
Irrigation Fuel and Oil	26.06	17.37	13.03	17.37	25.67	260,603	0.00	0.00	0.00	0.00	0.00	0.00	0	260,603
Irrigation Repairs and Maintenance	7.81	5.20	3.91	5.20	8.18	78,268	0.00	0.00	0.00	0.00	0.00	0.00	0	78,268
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	242.22	88.20	82.13	104.76	71.05	2,059,402	5.71	133.78	64.70	76.49	80.67	17.05		
Value Added $/acre	129.92	246.49	89.24	92.59	199.23	1,938,677	-5.71	30.57	154.22	69.35	65.23	154.23		
Total Spending on Produced Inputs	1,660,413	335,467	6,423	29,427	27,671		1,508	884,190	119,584	154,102	22,659	6,640	1,188,685	870,717
Total Value Added	890,598	937,504	6,979	26,008	77,589		-1,508	202,046	285,058	139,715	18,323	60,062	703,695	1,234,981

[1] Irrigated corn includes a small acreage of sugar beets, soybeans includes dry beans.
[2] Dryland milo includes a small acreage of sunflowers and oats
Sources: Tables 20, 11-16

Table 22: Effects of Additional Canal Water Acquisition for 2006, by Region and Crop

	Irrigated Acres Affected by Canal Water Acquisition						Dryland Alternatives							Net Change from Surface
Middle Republican	Corn[1]	Soybeans[1]	Milo	Wheat	Alfalfa Hay	Irrigated Total	Class 6 Fallowed	Corn	Soybeans	Milo[2]	Wheat	Alfalfa Hay	Dryland Total	Water Acquisition
Acres Affected	1,219.72	348	75	110	135	1,888	115	955	38	536	110	135	1,888	
Gross Returns	550.11	349.65	348.58	279.70	383.53	901,469	0.00	163.30	92.55	176.12	148.98	254.43	304,480	596,989
SPENDING ON PRODUCED INPUTS														
Seed	61.90	29.42	4.05	14.69	0.00	87,659	0.00	23.89	14.69	2.49	13.41	0.00	26,168	61,491
Herbicide	27.59	10.85	36.68	6.76	12.98	42,684	2.51	33.12	13.92	32.15	5.01	2.60	50,555	-7,871
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	10,019	0.00	4.65	2.11	1.41	4.11	1.28	5,898	4,121
Fertilizer and Lime	61.25	0.00	38.65	61.33	8.96	85,545	0.00	34.45	0.00	30.74	43.37	0.00	54,100	31,444
Hauling	18.34	5.78	11.24	6.12	0.00	25,895	0.00	5.44	1.53	5.68	3.26	0.00	8,655	17,240
Drying	47.68	0.00	0.00	0.00	0.00	58,151	0.00	14.15	0.00	0.00	0.00	0.00	13,509	44,643
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	16,837	2.48	6.20	7.40	5.43	4.95	10.74	11,388	5,448
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	16,002	2.39	6.38	6.30	5.37	4.77	13.29	11,801	4,201
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	67,605	0.00	0.00	0.00	0.00	0.00	0.00	0	67,605
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	11,158	0.00	0.00	0.00	0.00	0.00	0.00	0	11,158
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	282.54	105.12	133.99	149.66	102.42	421,555	7.37	128.28	45.94	83.27	78.88	27.91		
Value Added $/acre	267.57	244.53	214.59	130.04	281.11	479,914	-7.37	35.02	46.60	92.85	70.10	226.52		
Total Spending on Produced Inputs	344,615	36,607	10,076	16,413	13,844		845	122,446	1,760	44,600	8,650	3,773	182,074	239,481
Total Value Added	326,363	85,153	16,137	14,261	38,000		-845	33,425	1,785	49,733	7,688	30,621	122,406	357,508
Lower Republican														
Acres Affected	8,225.38	5,769	167	446	469	15,076	349	7,894	3,173	2,745	446	469	15,076	
Gross Returns	555.06	358.31	310.67	287.87	420.65	7,010,129	0.00	199.09	203.51	216.45	155.65	266.11	3,005,748	4,004,381
SPENDING ON PRODUCED INPUTS														
Seed	62.45	30.15	3.61	15.12	0.00	695,004	0.00	29.12	32.29	3.06	14.01	0.00	347,022	347,982
Herbicide	27.59	10.85	36.68	6.76	12.98	304,752	2.51	33.12	13.92	32.15	5.01	2.60	398,212	-93,461
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	70,032	0.00	4.65	2.11	1.41	4.11	1.28	49,706	20,326
Fertilizer and Lime	61.80	0.00	34.45	63.12	9.82	546,778	0.00	42.00	0.00	37.78	45.31	0.00	455,443	91,336
Hauling	18.50	5.92	10.02	6.30	0.00	190,834	0.00	6.64	3.36	6.98	3.41	0.00	83,749	107,085
Drying	48.11	0.00	0.00	0.00	0.00	395,685	0.00	17.25	0.00	0.00	0.00	0.00	136,217	259,468
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	127,769	2.48	6.20	7.40	5.43	4.95	10.74	95,436	32,333
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	113,059	2.39	6.38	6.30	5.37	4.77	13.29	94,286	18,773
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	554,317	0.00	0.00	0.00	0.00	0.00	0.00	0	554,317
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	88,814	0.00	0.00	0.00	0.00	0.00	0.00	0	88,814
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	284.24	105.99	128.12	152.06	103.28	3,087,042	7.37	145.36	65.39	92.18	81.57	27.91		
Value Added $/acre	270.82	252.32	182.54	135.81	317.37	3,923,087	-7.37	53.73	138.13	124.27	74.08	238.20		
Total Spending on Produced Inputs	2,337,975	611,516	21,375	67,756	48,421		2,571	1,147,564	207,468	253,039	36,345	13,085	1,660,071	1,426,971
Total Value Added	2,227,620	1,455,713	30,454	60,513	148,786		-2,571	424,174	438,264	341,129	33,010	111,671	1,345,677	2,577,410

[1] Irrigated corn includes a small acreage of sugar beets, soybeans includes dry beans.
[2] Dryland milo includes a small acreage of sunflowers and oats
Sources: Tables 20, 11-16

Table 23: Summary of Effects of Additional Canal Water Acquisition

	2005			2006			Net Change from Canal Water Acquisition
	Middle	Lower	Total	Middle	Lower	Total	
Gross Returns	309,376	2,105,698	2,415,074	596,989	4,004,381	4,601,370	7,016,444
SPENDING ON PRODUCED INPUTS							
Seed	32,935	196,930	229,864	61,491	347,982	409,472	639,337
Herbicide	-2,489	-31,316	-33,804	-7,871	-93,461	-101,331	-135,136
Insecticide/Fungicide	9,070	33,852	42,922	4,121	20,326	24,446	67,368
Fertilizer and Lime	21,261	81,601	102,862	31,444	91,336	122,780	225,642
Hauling	7,496	45,580	53,076	17,240	107,085	124,326	177,402
Drying	26,776	152,581	179,357	44,643	259,468	304,110	483,467
Machinery Fuel and Oil	4,028	24,914	28,942	5,448	32,333	37,781	66,723
Machinery Repairs and Maintenance	4,786	27,704	32,491	4,201	18,773	22,974	55,465
Irrigation Fuel and Oil	36,425	260,603	297,028	67,605	554,317	621,922	918,950
Irrigation Repairs and Maintenance	10,974	78,268	89,242	11,158	88,814	99,972	189,214
Water District Assessment	0	0	0	0	0	0	0
Total Spending on Produced Inputs	151,262	870,717	1,021,979	239,481	1,426,971	1,666,452	2,688,431
Total Value Added	158,114	1,234,981	1,393,095	357,508	2,577,410	2,934,918	4,328,013

Sources: Tables 21 & 22

Table 24: Crop Acres Change Resulting from Additional Stored Water Acquisition in 2006

	Unused Storage Amount af	Year Used	Acres Receiving Water	Inches Water to Farm	Effective Acres @ 10" Irrig	Fully Irrigated Crops							Acres Changed to Fallow & Dryland Crops					
						Corn	Soybeans	Milo	Wheat	Sugar-beets	Dry Beans	Alfalfa Hay	Class 6 Fallowed	Corn	Soybeans	Milo	Wheat	Alfalfa Hay
Swanson	16400	2009	7,472	5.3	3,960	2,558	730	158	230	0	0	284	156	2,055	82	1,153	230	284
Butler	900	2008	556	5.4	300	194	55	12	17	0	0	21	12	156	6	87	17	21
Enders	1800	Not Used	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19100				4,260	2,752	786	170	247	0	0	305	168	2,211	89	1,240	247	305

Sources: Tables 3, 6 and SWE Nebraska Gains report, narritive on page 4 of text

Table 25: Effects of Additional Stored Water Acquisition, by Reservoir and Crop in 2006

	Irrigated Acres Affected by Stored Water Acquisition						Dryland Alternatives							Net Change from Stored Water
Swanson Reservoir Storage	Corn[1]	Soybeans[1]	Milo	Wheat	Alfalfa Hay	Irrigated Total	Class 6 Fallowed	Corn	Soybeans	Milo[2]	Wheat	Alfalfa Hay	Dryland Total	Acquisition
Acres Affected	2,558.42	730	158	230	284	3,960	156	2,055	82	1,153	230	284	3,960	
Gross Returns	602.55	379.97	333.56	351.22	427.88	2,073,836	0.00	128.07	114.95	141.31	112.95	229.02	526,472	1,547,364
SPENDING ON PRODUCED INPUTS														
Seed	67.80	31.97	3.87	18.44	0.00	201,663	0.00	18.73	18.24	2.00	10.17	0.00	44,640	157,023
Herbicide	27.59	10.85	36.68	6.76	12.98	89,532	2.51	33.12	13.92	32.15	5.01	2.60	108,554	-19,021
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	21,015	0.00	4.65	2.11	1.41	4.11	1.28	12,663	8,352
Fertilizer and Lime	67.08	0.00	36.98	77.01	9.99	198,008	0.00	27.02	0.00	24.66	32.88	0.00	91,510	106,498
Hauling	20.08	6.28	10.76	7.69	0.00	59,438	0.00	4.27	1.90	4.56	2.47	0.00	14,753	44,686
Drying	52.22	0.00	0.00	0.00	0.00	133,603	0.00	11.10	0.00	0.00	0.00	0.00	22,806	110,796
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	35,316	2.48	6.20	7.40	5.43	4.95	10.74	24,182	11,134
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	33,564	2.39	6.38	6.30	5.37	4.77	13.29	25,059	8,505
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	141,805	0.00	0.00	0.00	0.00	0.00	0.00	0	141,805
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	23,405	0.00	0.00	0.00	0.00	0.00	0.00	0	23,405
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	300.57	108.17	131.67	170.66	103.45	937,349	7.37	111.47	49.87	75.58	64.36	27.91		
Value Added $/acre	301.98	271.79	201.89	180.56	324.43	1,136,487	-7.37	16.60	65.08	65.73	48.59	201.11		
Total Spending on Produced Inputs	768,978	79,014	20,768	39,257	29,333		1,151	229,043	4,112	87,143	14,804	7,914	344,166	593,183
Total Value Added	772,593	198,528	31,845	41,532	91,989		-1,151	34,108	5,366	75,785	11,177	57,022	182,306	954,181
Butler Reservoir Storage														
Acres Affected	193.97	55	12	17	21	300	12	156	6	87	17	21	300	
Gross Returns	550.11	349.65	348.58	279.70	383.53	143,356	0.00	163.30	92.55	176.12	148.98	254.43	49,481	93,875
SPENDING ON PRODUCED INPUTS														
Seed	61.90	29.42	4.05	14.69	0.00	13,940	0.00	23.89	14.69	2.49	13.41	0.00	4,265	9,675
Herbicide	27.59	10.85	36.68	6.76	12.98	6,788	2.51	33.12	13.92	32.15	5.01	2.60	8,230	-1,442
Insecticide/Fungicide	6.25	2.11	1.41	12.60	1.28	1,593	0.00	4.65	2.11	1.41	4.11	1.28	960	633
Fertilizer and Lime	61.25	0.00	38.65	61.33	8.96	13,604	0.00	34.45	0.00	30.74	43.37	0.00	8,810	4,794
Hauling	18.34	5.78	11.24	6.12	0.00	4,118	0.00	5.44	1.53	5.68	3.26	0.00	1,411	2,707
Drying	47.68	0.00	0.00	0.00	0.00	9,248	0.00	14.15	0.00	0.00	0.00	0.00	2,205	7,043
Machinery Fuel and Oil	9.00	7.40	7.02	4.95	16.36	2,677	2.48	6.20	7.40	5.43	4.95	10.74	1,833	844
Machinery Repairs and Maintenance	7.28	6.30	6.09	4.77	29.20	2,545	2.39	6.38	6.30	5.37	4.77	13.29	1,900	645
Irrigation Fuel and Oil	37.40	37.40	24.94	33.25	25.46	10,751	0.00	0.00	0.00	0.00	0.00	0.00	0	10,751
Irrigation Repairs and Maintenance	5.86	5.86	3.91	5.20	8.18	1,774	0.00	0.00	0.00	0.00	0.00	0.00	0	1,774
Water District Assessment	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Spending on Produced Inputs $/acre	282.54	105.12	133.99	149.66	102.42	67,038	7.37	128.28	45.94	83.27	78.88	27.91		
Value Added $/acre	267.57	244.53	214.59	130.04	281.11	76,318	-7.37	35.02	46.60	92.85	70.10	226.52		
Total Spending on Produced Inputs	54,803	5,821	1,602	2,610	2,202		87	19,984	287	7,279	1,376	600	29,526	37,425
Total Value Added	51,900	13,542	2,566	2,268	6,043		-87	5,455	291	8,117	1,223	4,869	19,868	56,450

[1] Irrigated corn includes a small acreage of sugar beets, soybeans includes dry beans.
[2] Dryland milo includes a small acreage of sunflowers and oats
Sources: Tables 24, 11-16

Table 26: Summary of Effects of Additional Stored Water Acquisition in 2006

	Swanson Storage	Butler Storage	Effects from Stored Water
Gross Returns	1,547,364	93,875	1,641,239
	0	0	
SPENDING ON PRODUCED INPUTS	0	0	
Seed	157,023	9,675	166,698
Herbicide	-19,021	-1,442	-20,463
Insecticide/Fungicide	8,352	633	8,985
Fertilizer and Lime	106,498	4,794	111,293
Hauling	44,686	2,707	47,393
Drying	110,796	7,043	117,839
Machinery Fuel and Oil	11,134	844	11,978
Machinery Repairs and Maintenance	8,505	645	9,150
Irrigation Fuel and Oil	141,805	10,751	152,556
Irrigation Repairs and Maintenance	23,405	1,774	25,179
Water District Assessment	0	0	0
Total Spending on Produced Inputs	593,183	37,425	630,608
Total Value Added	954,181	56,450	1,010,631

Source: Table 25

Table 27: Summary of Nebraska On-Farm Direct Benefits in 2005 & 2006

	Benefits in 2005			Benefits in 2006			Benefits from Stored Water	Total Nebraska Benefits
	Well Shutdown	Canal Water Acquisition	Total	Well Shutdown	Canal Water Acquisition	Total		
Gross Returns	24,371,783	2,415,074	26,786,857	33,928,428	4,601,370	38,529,798	1,641,239	66,957,894
							0	0
SPENDING ON PRODUCED INPUTS							0	0
Seed	2,493,277	229,864	2,723,141	3,309,213	409,472	3,718,686	166,698	6,608,525
Herbicide	-105,455	-33,804	-139,260	-473,991	-101,331	-575,323	-20,463	-735,046
Insecticide/Fungicide	627,528	42,922	670,450	206,005	24,446	230,451	8,985	909,887
Fertilizer and Lime	1,645,426	102,862	1,748,288	1,803,840	122,780	1,926,620	111,293	3,786,201
Hauling	588,505	53,076	641,581	977,628	124,326	1,101,954	47,393	1,790,928
Drying	2,009,335	179,357	2,188,692	2,436,754	304,110	2,740,865	117,839	5,047,395
Machinery Fuel and Oil	296,036	28,942	324,978	265,608	37,781	303,389	11,978	640,345
Machinery Repairs and Maintenance	336,891	32,491	369,381	171,288	22,974	194,262	9,150	572,793
Irrigation Fuel and Oil	2,712,264	297,028	3,009,292	3,776,402	621,922	4,398,324	152,556	7,560,172
Irrigation Repairs and Maintenance	815,339	89,242	904,581	610,793	99,972	710,765	25,179	1,640,525
Water District Assessment	0	0	0	0	0	0	0	0
Total Spending on Produced Inputs	11,419,146	1,021,979	12,441,125	13,083,541	1,666,452	14,749,993	630,608	27,821,726
Total Value Added	12,952,636	1,393,095	14,345,732	20,844,887	2,934,918	23,779,804	1,010,631	39,136,167

Sources: Table 19, 23 and 26

Table 28: Nebraska Benefits from Not Shutting Down Wells in 2005 (Part 1)

SPENDING ON PRODUCED INPUTS	Change in Value Added and Produced Input Purchases: Original	Change in Value Added and Produced Input Purchases: Mapped [1/]	Wholesale Trade Margins % [2/]	Whole-sale Margin	Producer Margin	Regional Purchase Coefficient [3/]	In-State Spending	IMPLAN Industry Code	IMPLAN Industry Name
Seed	2,493,277	2,493,277	16.8%	419,120	2,074,157	0.250941	520,490	2	Grain farming
Herbicide	(105,455)	(105,455)	25.3%	(26,627)	(78,828)	0.253304	(19,967)	159	Pesticide and other agricultural chemical man
Insecticide/Fungicide	627,528	627,528	25.3%	158,451	469,077	0.253304	118,819	159	Pesticide and other agricultural chemical man
Fertilizer and Lime	1,645,426	1,645,426	9.9%	163,062	1,482,364	0.218661	324,136	156	Nitrogenous fertilizer manufacturing
Hauling	588.505	588,505	NA		588,505	0.915700	538,894	394	Truck transportation
Drying	2,009,335	2,009,335	NA		2,009,335	0.689547	1,385,531	18	Agriculture and forestry support services
Machinery Fuel and Oil	296,036	296,036	5.7%	16,756	279,280	0.006217	1,736	142	Petroleum Refineries
Machinery Repairs and Maint	336,891	336,891	NA		336,891	0.660900	222,651	485	Commercial machinery repair and maintenance
Irrigation Fuel and Oil (Deisel)	2,712,264	1,149,605	5.7%	65,068	1,084,537	0.006217	6,742	142	Petroleum Refineries
Irrigation Electricity		1,209,124	NA		1,209,124	0.816800	987,613	30	Power generation and supply
Irrigation Natrual Gas		353,535	NA		353,535	0.931100	329,177	31	Natural gas distribution
Irrigation Repairs and Maint	815,339	815,339	NA		815,339	0.660900	538,858	485	Commercial machinery repair and maintenance
Water District Assessment	-	-	NA		-	1.000000	-	499	Other State and local government enterprises
Wholesale Trade		NA	NA	NA	795,828	0.830106	660,621	390	Wholesale trade
Intial Value Added	12,952,636	12,952,636	NA	NA	NA	NA	NA		Value Added
TOTALS	24,371,783	24,371,783		795,828	11,419,146		5,615,300		

Sources: From Table 27 except as noted below

[1/] spreadsheet file "IMPLAN source Neb 06.xls," worksheet "energy"

[2/] spreadsheet file "IMPLAN source Neb 06.xls," worksheet "margins"

[3/] spreadsheet file "IMPLAN source Neb 06.xls," worksheet "IMPLAN Neb"

Table 29: Nebraska Benefits from Not Shutting Down Wells in 2005 (Part 2)

IMPLAN Industry Code	IMPLAN Industry Name	In-State Spending	IMPLAN Value Added Multipliers [1/] Secondary Direct	Secondary Indirect	Secondary Induced	Value Added Effects: Detail and Summary On-Farm Direct	Secondary Direct	Secondary Indirect	Secondary Induced
2	Grain farming	520,490	0.48025	0.12406	0.13850	-	249,965	64,570	72,090
159	Pesticide and other agricultural chemical man	(19,967)	0.30692	0.18816	0.08036	-	(6,128)	(3,757)	(1,605)
159	Pesticide and other agricultural chemical man	118,819	0.30692	0.18816	0.08036	-	36,468	22,357	9,548
156	Nitrogenous fertilizer manufacturing	324,136	0.17673	0.17761	0.07557	-	57,285	57,569	24,496
394	Truck transportation	538,894	0.44952	0.19185	0.20668	-	242,243	103,386	111,381
18	Agriculture and forestry support services	1,385,531	0.72468	0.06348	0.38761	-	1,004,060	87,953	537,042
142	Petroleum Refineries	1,736	0.09107	0.10174	0.04283	-	158	177	74
485	Commercial machinery repair and maintenance	222,651	0.46873	0.12127	0.16180	-	104,363	27,001	36,025
142	Petroleum Refineries	6,742	0.09107	0.10174	0.04283	-	614	686	289
30	Power generation and supply	987,613	0.81289	0.03864	0.11352	-	802,823	38,159	112,116
31	Natural gas distribution	329,177	0.56512	0.08665	0.12325	-	186,026	28,525	40,570
485	Commercial machinery repair and maintenance	538,858	0.46873	0.12127	0.16180	-	252,579	65,348	87,188
499	Other State and local government enterprises	-	0.39015	0.18456	0.15259	-	-	-	-
390	Wholesale trade	660,621	0.67357	0.12850	0.20219	-	444,978	84,887	133,574
	Value Added	NA	NA	NA	0.29716	12,952,636			3,849,037
	TOTALS	5,615,300				12,952,636	3,375,433	576,859	5,011,826

Sources: Table 27, except as noted below

[1/] spreadsheet file "IMPLAN source Neb 06.xls," worksheet "IMPLAN Neb"

Table 30: Nebraska Total Benefits, Nominal Dollars

Benefits:	Benefits in 2005 Well Shutdown	Canal Water Acquisition	2005 Total	Benefits in 2006 Well Shutdown	Canal Water Acquisition	Benefits from Stored Water Realized in 2008&09	2006 Total
On-Farm Direct	12,952,636	1,393,095	14,345,732	20,844,887	2,934,918	1,010,631	24,790,436
Secondary Direct and Indirect	3,952,292	368,797	4,321,089	4,708,119	633,987	219,399	5,561,506
Subtotal	16,904,928	1,761,893	18,666,821	25,553,006	3,568,905	1,230,030	30,351,941
Secondary Consumer Spending-Induced	5,011,826	520,106	5,531,932	7,575,517	1,050,889	366,163	8,626,406
Total	21,916,754	2,281,999	24,198,753	33,128,523	4,619,794	1,596,193	38,978,348

Sources: Tables 26, 27 and 29 and other working tables in the electronic spreadsheet version of tables 28/29

Table 31: Compounding Factors for Past Nebraska Benefits

	Rate for High Grade Municipals	Compounding Factor 2005 Benefits	2006 Benefits	Benefits Realized in 2008	Benefits Realized in 2009
2006	4.42	1.044			
2007	4.42	1.090	1.044		
2008	4.80	1.143	1.094		
2009	4.64	1.196	1.145	1.046	
2010	4.18	1.246	1.193	1.090	1.042
2011					
Jan	5.02				
Feb	4.92				
Mar	4.7				
Apr	4.71				
May	4.34				
Jun	4.22				
Jul	4.24				
Aug	3.92				
Sep	3.79				
Oct 8th	3.86				
2011 Ave	4.372	1.300	1.245	1.138	1.087

Source: Council of Economic Advisors, Economic Indicators, September 2011

Table 32: Nebraska Total Benefits, January 1, 2012 Dollars

	Benefits in 2005			Benefits in 2006					
Benefits:	Well Shutdown	Canal Water Acquisition	2005 Total	Well Shutdown	Canal Water Acquisition	Butler Storage Benefits Realized in 2008	Swanson Storage Benefits Realized in 2009	2006 Total	Total Nebraska Benefits
On-Farm Direct	16,840,420	1,811,238	18,651,659	25,954,377	3,654,323	64,229	1,037,526	30,710,455	49,362,114
Secondary Direct and Indirect	5,138,587	479,493	5,618,081	5,862,171	789,390	13,325	225,238	6,890,124	12,508,205
Subtotal	21,979,008	2,290,732	24,269,739	31,816,548	4,443,713	77,555	1,262,764	37,600,580	61,870,319 *
Secondary Consumer Spending-Induced	6,516,145	676,217	7,192,363	9,432,425	1,308,483	23,271	360,161	11,124,340	18,316,702
Total	28,495,153	2,966,949	31,462,102	41,248,973	5,752,196	100,826	1,622,925	48,724,919	80,187,021

* This is the portion of Nebraska total benefits that should be paid to Kansas

Sources: 26, 30 and 31