2012

Report to the Farmland Advisory Committee prepared for the Utah Tax Commission

by

Donald L. Snyder, Ph.D.
and
Robert Lee, Research Associate
Department of Applied Economics
Utah State University

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Executive Summary

Summary of Study Recommendations:

Some change in land values are recommended to Utah State Tax Commission for the 2013 as a result of the 2012 study for farmland values. These changes are summarized according to land use as follows. *Irrigated Cropland*- Irrigated land values increased primarily due to dramatically improved hay and grain prices. While costs increased, they did not increase as much as prices for most irrigated hay and grain products. Due to the preponderance of alfalfa acreage in most counties in the state, any positive changes in hay prices have a large impact on average county irrigated land values. The largest increases occurred in Davis and Salt Lake Counties, with the smallest changes occurring in Garfield, Rich, and Kane counties. *Orchard Cropland*- Orchard land values declined throughout the state due to reductions in yield on several orchard crops and price declines. Costs continued to increase and also played a role in declining orchard land values. The largest declines in orchard land values occurred in Box Elder, Davis, Utah and Washington counties. *Meadow Cropland*- Meadow land values were also impacted by the increasing value of feeds and forages, though only marginal changes in value are suggested in this report due to increasing costs. The largest increases in suggested land values were +$3/acre for Davis, Iron, and Weber counties. *Dry Cropland*: No changes are recommended for dry land acreage throughout the state. Increasing grain prices were offset by proportionate increases in costs. *Grazing Land*: Grazing land values are impacted by other forage prices, precipitation levels, livestock prices, and production costs. Results were mixed for grazing lands depending on the precipitation levels received, though they declined or held constant for most of the counties in the state. The changes recommended are for generally $\mp$ $1/acre except for Box Elder and Kane counties where a negative $2/acre change is recommended. *Non Production Land*: No change in value for nonproduction land has been recommended.

Outline of Process Used in Determining Agricultural Land Values:

A general outline of the steps followed in making these recommendations is as follows. The overall approach requires that we find the present value of acreage-weighted net returns for various crops. This allows us to come up with county-specific estimates of the value of land when used only for crop production. This removes the value of development potential, unique land characteristics, location within a county, and many other factors that influence land values.

1. The analysis begins with development or updating of individual crop budgets. It is not possible with the budget allocated for this work to update the individual, county-specific budgets for each of the major crops within the county every year. There are well over 100 budgets that have to be developed and so we are updating the budgets on a 3-4 year cycle. For the updated budgets, we use the cost information directly for the year in question, but for those budgets that have not been updated that year, we use the National Agricultural Statistical Service's (NASS) "producer prices paid" indices to update the costs in the older crop budgets to the current year.

2. We use a five-year average of commodity prices and a five-year average of yields (both obtained from NASS, USDA, or state sources) to determine the gross return from each crop.

3. Most current cost data are used because time series data on actual costs do not exist. These costs are adjusted for county-to-county differences where possible.

4. These costs (exclusive of any return to land) are subtracted from the total revenue. This represents the net returns per acre for any crop.

5. The crop mix for any county is determined from the most recent U.S. Census of Agriculture, which is taken every 5 years. This is where the proportional acreage devoted to each crop can be determined.

6. The county land value is developed by taking each crop's net return times the proportion of acreage in each crop. For instance, if the net return from an acre of alfalfa was $200 and 75% of the county's acreage was devoted to alfalfa and the net return per acre of grain (the only other crop grown in this fictitious county) was $75 and it comprised the remaining 25% of the county's agricultural land, the weighted average value of agriculture in this county would be: (.75) x ($200) + (.25) x ($75) ≅ $169/acre.

7. The annual value of $169/acre net of land costs would then be determined by assuming that acre provided the same value over time and discounting this sum of values using an interest rate (reflective of borrowing for equipment and other longer-term investments) determined by gathering data on mid-term borrowing as obtained from public and proprietary records. Using this discount (or interest) rate, the net returns are entered into an Excel spreadsheet and the value is discounted or brought to a present value. This then becomes the average value of the land base in that particular county.

Of course, no counties are this simple. In some counties, more than a dozen crops are grown and county-specific budgets must be made for each one of them. But these are the general steps followed in determining per acre land values used solely for agricultural production purposes.

Introduction

This report represents the seventeenth annual report to the Farmland Advisory Committee recommending "productive values" for lands that qualify for the Farmland Assessment Act (FAA). The methodology used to derive the suggested values is summarized in detail below. The relevant statutes for this work are provided in Appendix A. Instructions relative to make-up of the various land classes can be found at http://propertytax.utah.gov/standards/standard07.pdf (Land classification guidelines for each classification of agricultural land, Property Tax Division's Standards of Practice, Tax Commission Website).

Explanation of General Approach Adopted

Agricultural land values are not easily derived because land market *values* reflected in farm sales typically include the potential value for alternative development, existing landownership patterns, even environmental amenities, etc. Even when sold for continued agricultural use, these lands may have intrinsic values associated with farm expansion, location considerations, and unique characteristics that limit the usefulness of such data in assessing actual farm production values.

Finally, the actual market involving agricultural land sales is very thin (i.e., few sales occur) and sale values for one area would not necessarily reflect the values of similar farmland in another area due to differences in climate, productive capacity, crop mix, etc.

Lease data might be an alternative method of calculating agricultural land values. However, even in areas where leases occur, the market is thin and comparables are difficult to come by. Some lease arrangements are also made because of local considerations. Finally, the application of a lease rate in one area of the state would not likely be appropriate for other areas in the state. There is too much variation in conditions to allow an overall comparison.

Unfortunately, this means that it is generally not possible to get an accurate idea of agricultural land values directly from market signals. Thus, an alternative approach that is theoretically consistent with market values is needed.

Partial Budgeting

The theoretically consistent approach selected for this analysis is that of identifying the present value of agricultural-producing lands based strictly on the use of that land in agriculture production. That is, the best estimate of the value of alfalfa-producing land should be based on land whose sole function is producing alfalfa hay. In fact, the present value of the *future flow of total returns less costs* should be *representative* of the per acre value of land in agricultural production for a particular county for a specific land type. This eliminates the vagaries of location, proximity to other property, unique location characteristics, etc. Returns and costs are brought to the present point in time using a *discounting* process, which reflects the "time value of money."[1]

$$NR = \sum_{t=1}^{T} \frac{\sum_{i=1}^{m}(P_{it} - C_{it})}{e^{rt}} \qquad (1)$$

where NR = net returns, t = time, T = total number of years, i = crop, m = total number of crops, P_{it} = price of crop i at time t, C_{it} = cost of crop i at time t, e = exponential function, and r = discount rate. Discounting is widely accepted as the correct approach to evaluate costs and returns occurring at different points in time.

Partial budgeting is the tool used in determining the net returns for each crop or land use. This involves a determination of *localized costs* and *localized prices*, at least as much as possible given the information available. Crop mixes vary by county. Some counties have a very limited agriculture complex (Daggett County); while others have a large number of different crops (Box Elder County), so it is very important that these county-by-county differences be taken account of. The smallest size unit that can be specified is the county level due to existing data limitations. Unfortunately, gathering data even on a county basis is becoming more difficult due to the USDA's disclosure rules which prohibit the release of data wherein individual producers could be identified. This county-wide value approach admittedly precludes consideration of many within-

[1] The *time value of money* is based on our actions wherein we prefer payment today rather than the same payment at a later point in time.

county variations or changes. For example, if the majority of the county still relies on flood irrigation, this means that the land value will be based in part on flood irrigation, even if some producers utilize more costly wheel lines or irrigation circles. As budgets are developed, we attempt to take account of these differences depending on the acreage involved.

Though desirable, it is a complex and costly process to develop county-level crop budgets annually for the most important crops on a county-by-county basis, so budgets are being developed on an ongoing basis—approximately 1/3 of the counties every year. We currently have well over 70 different crop budgets that have yet to be updated. The budgets that are not developed for the current year using producer panels have to be updated using available information on both the price side and the cost side. All older budget values are updated to the 2011 production year using production price indices. Using the current updating process, it is possible that the some budgets being used for any one county will be three to four years old, depending on how many county budgets can be developed each year. The 2012 budgets that have been completed thus far can be found at:

www.apecextension.usu.edu

under "*Agribusiness and Food*", then under the "*Crops*" section. Dr. Kynda Curtis has been primarily responsible for the development of these new budgets, with invaluable help from the county extension agents and producer panels.

A somewhat unique situation exists for fruit budgets as there is a long time-frame for startup and production—up to 25 years. This requires budgeting over a much longer time frame, then discounting all future returns and costs to the current year. These budgets are more difficult to develop for each county, yet they also need to be updated on a regular basis. Some fruit budgets will be five to seven years old and will require updating through the indexing process described above for those fruit budgets which are not current. It should further be noted that not all counties will even have production of each of the fruit crops budgeted and so nearby orchard lands values have to be used. Finally, the values are the same for irrigated land classes I through IV because most of the fruit production occurs on class II and class III lands and the costs and returns are not substantially different between these two land classes.

Valuing Land in Agricultural Production

In order to accurately reflect the value of land in agricultural production, five areas warrant special attention—crop prices, crop costs, crop yields, crop mix, and temporal data limitations.

(1) *Changing Prices*. The first area that needs to be considered for changes in crop budgets is commodity prices or returns. As prices rise, the net value of the crop in question also rises (assuming costs remain fixed). When prices fall, the net value declines, other factors fixed. Agricultural commodity prices have been quite variable historically and such variability is difficult to deal with, both as producers and as assessors. In order to temper annual price declines and increases, we have determined that a five-year average of prices result in sufficient stability in assessment values and associated taxes.

It is very important to remember that while this approach adds some stability to the value of agricultural land, when prices are *increasing*, a five-year average of past prices will mean that the most current five-year average will be *below* that of the most recent price. When prices are *declining*, the most current five-year average will lie *above* the most recent price.

For example, if hay prices have averaged $75, $85, $95, $105, and $115 per ton over the past five years, the price that would be used in the crop budget would be ($75 + $85 + $95 + $105 + $115)/5 = $95/ton (which is considerably *lower* than the two most recent years). On the other hand, if the prices over the past 5 years had averaged $115, $105, $95, $85, and $75, then the average price would still be $95/ton, but note that it is considerably *higher* than the last two years. This is simply the result of the averaging process utilized. Furthermore, even if prices have *declined* in the most recent year, the overall price average will depend on the price that was *dropped* from the calculation from six years earlier and the price that is added in the most current year.

As an example, if the previous five years of prices (*excluding* the most recent price) were $2/bu., $4/bu., $4/bu., $4/bu., and $4/bu., respectively, the average price would be (2 + 4 + 4 + 4 + 4)/5 = $3.60/bu. If the most recent price is $3/bu., the latter five-year average price will still be *higher* than in the earlier period due to the deletion of the $2/bu. and the addition of the $3/bu., i.e., (4 + 4 + 4 + 4 + 3)/5 = $3.80/bu. Hence, even though the price declined in the most recent year, the average did not go down since the $3/bu. price that was added was still higher than the $2/bu. price that was dropped. This potentially can happen with any crop.

The important point is that by using a five-year average, year-to-year changes in land values are minimized. This effectively stabilizes land values for tax purposes. **Table 1** shows the past six years of state-wide price data for Utah's major crops. In this situation, we would drop the 2006 price and add the 2011 price in the five-year average. Note that this will increase the 5-year average revenue figures used in the budget calculations in every case except for oats because in this case, $4.46/bu. was replaced by $4.35/bu.

Table 1. Average Prices Received, Utah, 2006-2011.

	2006	2007	2008	2009	2010	2011
Alfalfa ($/ton)	99.50	129.00	197.00	113.00	104.00	**186.00**
Barley ($/bu.)	3.02	3.99	4.41	2.25	3.10	**5.60**
Corn (grain) ($/bu.)	3.29	4.18	4.40	4.35	5.75	**6.75**
Corn(silage) ($/ton)	30.00	37.00	40.00	32.00	33.50	**50.00**
Oats ($/bu.)	4.46	2.65	3.20	2.5	2.60	**4.35**
Safflower ($/cwt.)	13.50	18.60	24.90	14.40	15.00	**24.00**
Wheat ($/bu.)	4.85	8.30	7.97	6.30	7.10	**8.65**
Onions ($/cwt.)	10.00	6.15	13.40	8.95	13.20	**10.03**

Table 2 includes the prices received for fruit crops since 2006. In taking a five-year average for fruit prices, we also drop 2006 fruit prices and added 2011 fruit prices in the calculation of

our five-year moving average price. This will increase the revenue for peaches, tart cherries, and apricots, but reduce the revenue from sweet cherries and apples.

Table 2. Utah Fruit Prices, 2006-2011.

Fruit	Price/unit	2006	2007	2008	2009	2010	2011
Peaches (All)	cents/lb.	33.60	33.35	86.80	52.00	34.51	**50.00**
Cherries Sweet	$/ton	1,540.00	1,380.00	1,440.00	2,280.00	1,860.00	**1,428.00**
Cherries Tart	$/lb.	0.27	0.25	0.33	0.27	.27	**.29**
Apples(All)	$/lb.	0.37	0.33	0.29	0.30	.25	**.22**
Apricots	$/ton	1,000.00	815.00	468.00	862.00	432.00	**1,288.00**

(2) *Changing Costs*. The second area that needs updating in the crop budgets is that of costs. When input costs increase, the net returns of a particular land use declines (assuming that prices remain constant). While costs usually do not change as rapidly as prices, they still change and almost always in an upward direction (at least over the past few decades). Therefore, costs associated with various elements of production also need to be adjusted in order to get an accurate estimate of the "current" value of land in agricultural production.

Other than the information found within each updated budget, there are few sources for cost information. What is available over time that allows an updating of older budgets are the "*producer's prices paid*" indices published by Economic Research Service (ERS), USDA, and NASS, USDA.[2] Because of the steady growth in input prices (i.e., fertilizer, fuel, pesticides, etc.), we take account of only the most recent year's cost changes. This means that there is a conservative bias in the approach used to determine prices versus the approach used to determine costs, i.e., we average past prices but use only the most current costs.

The primary justifications for adopting this approach are (a) there are no *time series* data sources readily available that show the type of county-level data needed for such averaging, (b) since production costs are almost always increasing, taking a five-year average of production costs would consistently understate the actual costs of doing business, and (c) current costs are more readily available. There is more justification to consider a rolling five-year average for prices, which move both up and down, than there is for costs. A summary of the percentage change in state-wide costs for general farm expense categories given shown below in **Table 3**. The overall weighted average cost increase for all production items for Utah's typical crops was over 5%. Note the particularly large increases in costs for fertilizer and fuel. But all areas of farm expenditures increased except for the *cost of capital*, i.e., the interest rate farmers paid for operating and expansion loans, which continued a several year decline.

[2] Economic Research Service (ERS) and National Agricultural Statistical Service (NASS), U.S. Department of Agriculture, Washington, D.C.

Table 3. Cost of Some Basic Input Categories, 2010-2011.	
Fertilizer	**up 22 percent**
Chemicals	**up .7 percent**
Fuel	**up 16 percent**
Machinery	**up 4.7 percent**
Seed	**up 7.3 percent**
Interest Cost	**down 1.25%**
Consumer Price Index	**up 3.4 percent**

The *Consumer Price Index* (*CPI*) changes are also shown for comparative purposes (shown in red font). Most production items rose much faster than did the *CPI* index (+3.4%).

(3) *Crop Yields*. The third area of consideration is the yield of each crop as this also helps determine the actual value of land kept in agricultural production. Yield changes directly impact the net returns of various crops, whether grains, forages, or fruit. By necessity, we have had to rely on those crops for which annual yields are reported. Some crops simply are not included in an annual record of yields. Yields are quite variable and a five-year average on per acre yields has also been used. This also helps to stabilize farm values over time. Some crops are particularly susceptible to yield fluctuations, e.g., dryland wheat, but the vagaries of weather and precipitation almost always bring about some change in all crop yields from year to year.

(4) *Crop Mix*. The fourth item that needs to be considered is the change in crop mix on a county-by-county level. Shifts in crop mix are difficult to capture on a year-to-year basis because data on crop mixes are determined through the five-year agricultural census. Unfortunately, we are five years removed from the most recent agricultural census that was conducted in 2007. Therefore, we can only estimate changes in each county's crop mix that might have occurred since by working with the county agents and NASS. We hope to have the updated agricultural census this next year (2013). We include in our analysis any crop that comprises 1% or more of the acreage in any county providing price and production data are available. A large number small acreage crops are of necessity excluded from this analysis since no production or price data are readily available. They would not likely impact the value of any particular county in any event given the preponderance of other major crops.

To illustrate how the crop mix impacts the suggested values, consider a county where only three crops are produced, all under irrigation: alfalfa hay, wheat, and barley. If the net change in crop values were +3%, +5%, and -1%, respectively, and the crop mix consisted of 75% of the land being planted in alfalfa, 10% in wheat, and 15% in barley, then the suggested land value for that county would change by taking a weighted average of the three net changes: (.75 x 3)+(.10 x 5) + (.15 x -1) = 2.60 (or a net increase in assessed value of 2.6% for that county and acreage configuration). In reality, alfalfa acreage is dominant in virtually all counties and its value continues to dominate that for wheat, barley, and all other crops. The only exception is for a small number of counties with relatively large percentages of fruit acreage.

(5) *Dated Prices and Costs – 2011 Crop Year.* Finally, it needs to be remembered that price and cost data remain *dated* in the sense that the only complete data we have available now (in *2012*) are for the *2011* crop year. Hence, the actual net return in 2012 may be different than that found in this report. Further complicating matters is the fact that this year's reported values will not become effective until 2013, leaving us two years behind what the actual crop picture might be. There does not appear to any acceptable way around this problem and the only thing that can be said is that *net* returns typically do not change by large amounts following the approach adopted.

General Trends Affecting Productive Land Values

As implied above, several factors have influenced the suggested FAA land values for the 2012 reporting year: prices, costs, crop mix, and productivity or yields.

(1) Crop prices. Prices for almost all crops were up in 2011 using a five-year average. The largest percentage increases occurred for Barley at 80 %, however the increase in Alfalfa at 77% was a greater factor because of the larger number of acres in production of alfalfa. The other price changes were all greater than 15%. The price increases brought the crop budget values up from the previous year. Price changes were the major factor contributing to the increase in suggested land values (**Table 4**).

Table 4. Utah Crop Prices, 2010-2011.

Crop	2010 Prices	2011 Prices	Change
Alfalfa	$105.00	$186.00	**$81.00 per ton**
Barley	$ 3.10	$ 5.60	**$ 2.50 per bu.**
Corn(grain)	$ 5.75	$ 6.75	**$ 1.00 per bu.**
Corn(silage)	$ 34.70	$ 50.00	**$15.30 per ton**
Oats	$ 2.60	$ 4.35	**$ 1.75 per bu.**
Wheat	$ 7.10	$ 8.65	**$1.55 per bu.**

Fruit prices were mixed between 2010 and 2011. Peach and Apricot prices increased, Sweet Cherries and Apples decreased and Tart Cherries remained relatively constant as noted in **Table 5**.

Table 5. Fruit Prices, 2010-2011

	Price		
Fruit	**2010**	**2011**	**Change***
Apricots	$ 432.00	$ 1235.00	**$ 803.00**
Sweet Cherries	$ 1,860.00	$ 1428.00	**-$ 432.00**
Tart Cherries	$ 0.27	$ 0.29	**$0.02**
Apples	$ 0.25	$ 0.22	**-$ .03**
Peaches	$ 690.00	$ 1000.00	**$ 310.00**

*The changes in red are negative values.

(2) *Cost Changes.* Costs increased in almost all cases, with changes ranging from a 0.7 percent increase for chemicals to a 22% increase for fertilizer (from **Table 3**). Interest rates used

for O&M and expansion loans were one of the only costs that decreased, as illustrated in **Figure 1**.

You can see the results of different moving averages in this figure. A five-year average typically allows sufficient fluctuation for year-to-year changes. Even though there are numerous approaches that can be followed in taking out the variation in prices, it is standard practice to take a 5-year average. However, note that the longer time periods (i.e., 10 years relative to 3 years) usually result in more stable values.

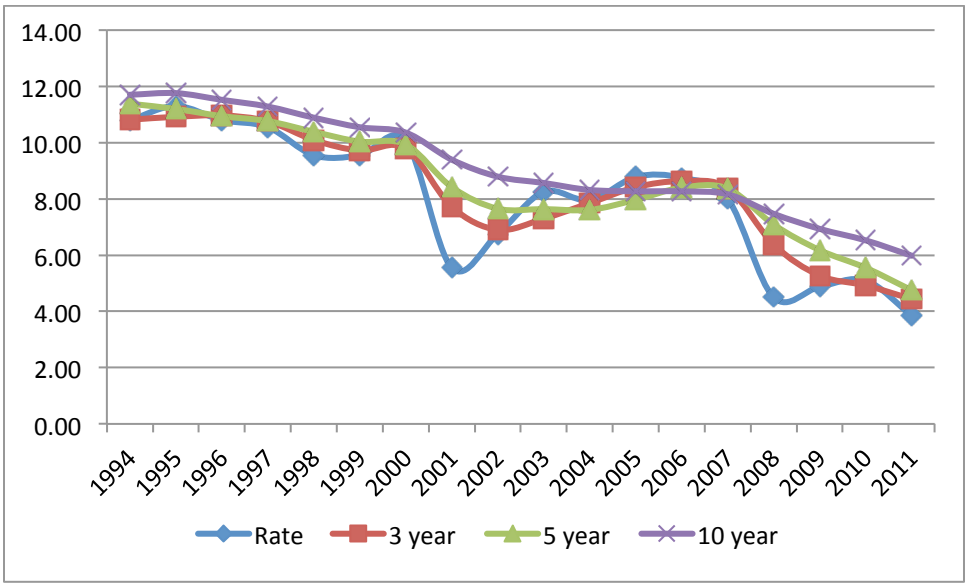

Figure 1. The historical moving average cost of borrowing, 1999-2011.

(3) *Crop Yields*. Crop yield changes from 2010 to 2011 were quite mixed with corn silage and oat yields exhibiting the largest increases among the basic crops (see **Table 6**).

Table 6. Utah Yields, 2010-2011

Crop	2010 Yield	2011 Yield	Change
Alfalfa	4.0 tons per acre	4.1 ton per acre	**0.1 ton**
Barley	90 bu. per acre	83 bu. per acre	**-7 bushel**
Corn(grain)	172 bu. per acre	164 bu. per acre	**-8 bushel**
Corn(silage)	23 tons per acre	25 ton per acre	**2 ton**
Oats	74 bu. per acre	81 bu. per acre	**7 bushel**
Wheat	48.7 bu. per acre	49.4 bu. per acre	**.7bushel**

Fruit production yields were also mixed in 2011, with Apples and Tart Cherries increasing while yields for Apricots, Sweet cherries, and Peaches decreased (**Table 7**).

Table 7. Fruit Production, 2010-2011			
	Production		
Fruit Crop	2010	2011	Change
Apricots(tons)	280	170	**-110**
Sweet Cherries(tons)	1100	770	**-330**
Tart Cherries(lbs.)	2250000	3450000	**1,200,000**
Apples	12,000,000	18,300,000	**6,300,000**
Peaches (tons)	4300	4100	**-200**

However, the five-year moving average yield declined for all fruits except tart cherries. The effects of yield changes are also accounted for declines in the suggested land values.

(4) *Crop Mix*. The mix of crops on a county-by-county basis is based on the 2007 agricultural census data (2008, National Agricultural Statistical Service). We are currently working with the USU county extension agents and NASS to ensure the proper crop mix will be represented now and in the future as crop budgets are developed. Furthermore, we should have access to the 2012 Agricultural Census by next year's reporting date.

Summary: As an illustration of the process used in calculating changes in net returns, if the average price of a particular crop mix *increased* **8%**, yields *increased* by **1%**, the crop mix was *unchanged* from year to year, and costs *were up* by **7%**, land values for this particular crop would *increase* by approximately **2%**. In reality, net return changes (after accounting for increased costs) ranged from **-21%** for apples to **+8%** for corn grain. Of course you will not see any counties with these magnitudes of decreases/increases because apples and corn grain generally do not comprise much of the land in counties where they are grown.

Suggested Land Values

Irrigated Land

Irrigation methods continue to change in many counties [e.g., Cache and Box Elder counties]. More wheel lines and center pivot systems have been put into place and fewer hand lines and less flood irrigation methods are being used. This influences the cost of production and this change has been and will continue to be incorporated into future reports as our update of county budgets continues. Once again, increased pumping depths are not considered because the last survey of irrigation practices conducted Robert J. Hill (Professor, Utah State University, 2008) did not include any questions regarding changes in irrigation depth. This obviously impacts pumping costs and likely understates the cost associated with irrigation for some counties (e.g., Iron and Millard). This will also likely be taken care of as we get budgets developed by those counties impacted the most by increasing well depth.

Alfalfa remains the crop with the largest acreage devoted to it throughout Utah. Because of the relatively large proportion of acreage producing alfalfa, changes in the price of alfalfa hay tend to dominate the overall land values county-by-county. The second largest crop is typically dependent on the county considered.

As a result of the changes in prices, costs, yields, and crop mix, marginal *increases* in land values are recommended for irrigated land at the county level ranging from $1/acre up to $21/acre.

Orchard Land

All fruit production declined in 2011 except for tart cherries and apples. Average prices increased for apricots, peaches and tart cherries. The average price decreased for apples and sweet cherries as reflected in **Table 5**. Costs continued to increase for orchard producers. Consequently, declines in orchard land values are suggested for orchard lands ranging from -$12/acre to -$14/acre.

Meadow Land

Only slight increases in values were made for specific counties. No yields on meadow land are available on a county or state-wide basis. Meadow land is usually put into some forage that is either grazed or harvested as hay and grazed. The meadow land values are also compared to local grazing values which are a function of both beef and hay prices. The increases ranged from $0/acre up to $3/acre.

Dry Land

The level of precipitation in 2011 varied depending on the portion of the state you were in, as usual. However, most areas received insufficient precipitation, where "1.0" is used to denote average precipitation over five years (**Figure 2**). The yields associated with dryland wheat production remained at about the same levels with barley yields declining slightly between 2010 and 2011. (As noted above, you can have a decline in yields but whether the five-year average declines will depend on the yield in the year you are adding versus the one you are dropping.) Prices for dryland wheat continued to increase, 2011's price was almost 22% higher than 2010's, though the 5-year average was much smaller (see **Table 4**). Alfalfa prices also increased from 2010 to 2011, almost doubling the prices received in 2006, the first year of the five year average. The 5-year average did not increase anywhere near this amount. Cost increases offset virtually all of the price increases such that there are no suggested increases in dryland value.

Grazing Lands

The three most significant factors impacting the value of grazing land are the level of precipitation received, the price or value of cattle, and the costs associated with grazing activities. **Figure 2** summarizes six-year precipitation averages on a county-by-county precipitation levels as a percent (%) of "normal." Note that these data do not provide detail on when the precipitation was received, which can also impact productivity. Furthermore, the level of precipitation even changes within individual counties and these data apply only to certain county rain gauge areas. Values declined between -$2/acre to $1/acre.

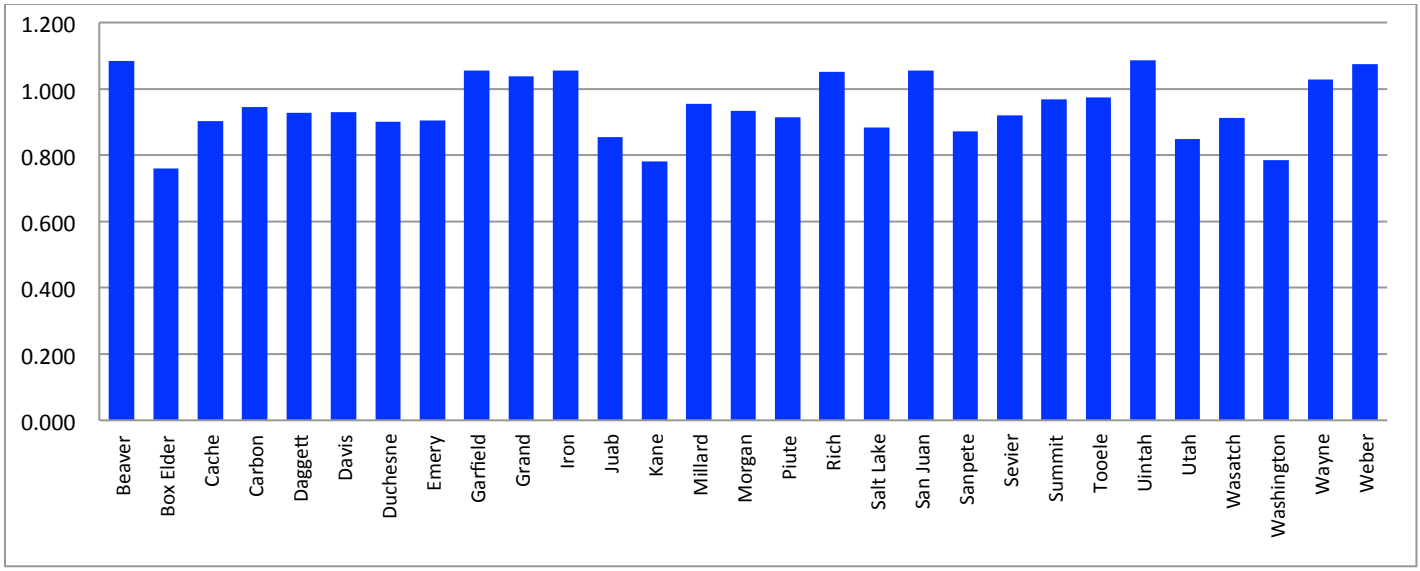

Figure 2. County Six-Year Precipitation Average, 2006-2011.

It is apparent that the counties receiving the *least* amount of moisture relative to the average for a "normal" year included Box Elder, Kane, and Washington, though many others experienced less than "normal" precipitation. The counties receiving the *highest* level of precipitation relative to a "normal" year were Beaver, Garfield, Grand, Iron, Rich, San Juan, Uintah, Wayne, and Weber. Counties with higher-than-average precipitation usually experienced an increase in forage yields or, at the very least, experienced no significant decline in forage yields. However, when costs were taken into account, grazing land values declined in most counties.

Non-Production Ground

No change is recommended for ground that is non-production.

Suggestions for Additional Work

Dr. Curtis has already begun, and will continue, working with the USU Extension agricultural agents and producer groups to develop accurate crop budgets for each of the counties in the state. The process adopted at the county level is to bring together a group of representative landholders to work out localized budgets under the direction of the USU Extension county agricultural agents, who in turn work under the supervision of Dr. Curtis and others from the Applied Economics Department at Utah State University. In addition, we adjust the budgets for any known factors that influence the returns and/or costs of production. This should enhance producer acceptance of the budgeted values. We are using a new budgeting program and have had to modify it to fit Utah's situation. I believe we are at a point where we are providing reliable estimates using this program.

Some changes in farm practices, particularly with respect to the irrigation method and equipment are noted, but not in all counties. We have not completed all the budget updates so we do not have the complete picture of what and where these changes have taken place. Not only are the crop

budgets being updated, but factors such as irrigation methods are also being examined to determine the exact cost of producing crops in each county.

We still anticipate making some significant changes in the crop budgets for tart cherry production. Even though we do not show tart cherries as very profitable, acreage continues to grow in certain areas of the state, which suggests our budget values may be too low. It could also be that substantial economies of size or scale exist in tart cherries that we are not accounting for. Alternatively, sufficient earnings may be made in the processing of the tart cherries so that the overall profitability of tart cherries is better than shown in the existing crop budgets. If this is the case, we will need to adjust our pricing mechanism. We expect to complete this budget during the 2013 fiscal year. As noted above, these types of budgets are time intensive and will require a substantial effort.

Budget updates for an additional 5-7 counties are expected to be updated this next year, which may bring about some changes in land values. Note that several budgets need to be developed for each county. Those will be added as they become available.

A consolidation of the proposed land values is included in **Table 8**. More detailed information in terms of what the actual increases/decreases are proposed from the 2011 recommendations is provided in **Appendix B**.

Table 8. 2012 Proposed Farmland Assessment Values.

	Irrigated Lands				Orchard Lands				Mead	Dry Farm		Grazing Lands				Non Prod
	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012
County	I	II	III	IV	I	II	III	IV	IV	III	IV	I	II	III	IV	
Beaver	0	0	610	502	588	588	588	588	247	56	17	75	23	17	6	5
Box Elder	872	766	603	498	637	637	637	637	266	102	64	76	23	18	5	5
Cache	752	642	487	378	588	588	588	588	275	129	90	73	24	16	5	5
Carbon	560	446	295	190	588	588	588	588	133	53	16	53	16	13	5	5
Daggett	0	0	0	208	0	0	0	0	163	0	0	54	15	12	5	5
Davis	914	803	646	540	642	642	642	642	278	55	17	62	20	13	5	5
Duchesne	0	523	367	257	588	588	588	588	170	58	21	70	23	14	5	5
Emery	537	432	272	169	588	588	588	588	142	0	0	73	22	15	6	5
Garfield	0	0	227	122	588	588	588	588	107	52	16	80	24	17	5	5
Grand	0	414	261	158	588	588	588	588	137	53	16	81	23	16	6	5
Iron	851	746	593	484	588	588	588	588	268	53	16	77	23	16	6	5
Juab	0	477	321	213	588	588	588	588	156	54	17	66	20	14	5	5
Kane	449	345	191	87	588	588	588	588	112	52	16	75	24	16	5	5
Millard	853	748	592	482	588	588	588	588	200	51	15	79	25	17	5	5
Morgan	0	0	416	308	588	588	588	588	202	69	31	69	22	14	6	5
Piute	0	0	358	250	588	588	588	588	196	0	0	92	27	19	6	5
Rich	0	0	191	89	0	0	0	0	108	52	16	67	21	14	5	5
Salt Lake	763	656	499	387	588	588	588	588	231	58	17	70	22	15	5	5
San Juan	0	0	195	89	588	588	588	588	0	59	19	80	26	17	5	5
Sanpete	0	576	422	317	588	588	588	588	199	58	21	64	19	14	5	5
Sevier	0	602	448	343	588	588	588	588	204	0	0	65	19	14	5	5
Summit	0	497	338	234	588	588	588	588	207	52	16	74	21	15	5	5
Tooele	0	487	326	222	588	588	588	588	192	56	16	73	21	14	5	5
Uintah	0	0	397	293	588	588	588	588	212	58	21	84	29	20	6	5
Utah	801	693	531	427	647	647	647	647	257	54	17	67	24	14	5	5
Wasatch	0	524	364	260	588	588	588	588	214	52	16	53	18	13	5	5
Washington	703	599	440	331	696	696	696	696	234	52	15	66	22	14	5	5
Wayne	0	0	354	250	588	588	588	588	177	0	0	91	29	19	5	5
Weber	856	751	597	487	642	642	642	642	311	83	48	72	21	15	6	5

*When a county has no acres of a given class of land, a $0 taxable value is listed.

Appendix A

2011 State Farmland Evaluation Advisory Committee
Applicable Statutes and Administrative Rule

State of Utah Law
Utah Code Annotated 59-2-514. State Farmland Evaluation Advisory Committee -- Membership -- Duties.

(1) There is created a State Farmland Evaluation Advisory Committee consisting of five members appointed as follows:

(a) one member appointed by the commission who shall be chairman of the committee;

(b) one member appointed by the president of Utah State University;

(c) one member appointed by the state Department of Agriculture and Food;

(d) one member appointed by the state County Assessors' Association; and

(e) one member actively engaged in farming or ranching appointed by the other members of the committee.

(2) The committee shall meet at the call of the chairman to review the several classifications of land in agricultural use in the various areas of the state and recommend a range of values for each of the classifications based upon productive capabilities of the land when devoted to agricultural uses. The recommendations shall be submitted to the commission prior to October 2 of each year.

R884. Tax Commission, Property Tax.
R884-24P. Property Tax.
R884-24P-72. State Farmland Evaluation Advisory Committee Procedures Pursuant to Utah Code Ann. Section 59-2-514.

(1) "Committee" means the State Farmland Evaluation Advisory Committee established in Section 59-2-514.
(2) The committee is subject to Title 52, Chapter 4, Open and Public Meetings Act.
(3) A committee member may participate electronically in a meeting open to the public under Section 52-4-207 if:
(a) the agenda posted for the meeting establishes one or more anchor locations for the meeting where the public may attend;
(b) at least one committee member is at an anchor location; and
(c) all of the committee members may be heard by any person attending an anchor location.

Title 52. Public Officers
Chapter 4. Open and Public Meetings Act
Section 104. Training.
52-4-104. Training.
The presiding officer of the public body shall ensure that the members of the public body are provided with annual training on the requirements of this chapter.

Utah Code §59-2-505:

The county assessor shall consider only those indicia of value that the land has for agricultural use as determined by the commission when assessing land . . . that meets the requirements of Section 59-2-503 to be assessed under this part.

APPENDIX B: Values of Land in Alternative Uses

Irrigated Farm Land

Irrigated farmland increased in value in all counties as shown in **Table B1**. Note that two years have been included for comparative purposes. For those counties without any land in a particular class, a value of zero is given consistent with previous reports.

Table B1. Irrigated Lands, Classes I-IV.

	2011	2012	2011	2012	2011	2012	2011	2012
County	I	I	II	II	III	III	IV	IV
Beaver	0	0	0	0	602	610	495	502
Box Elder	852	872	748	766	589	603	505	498
Cache	740	752	632	642	479	487	376	378
Carbon	552	560	440	446	291	295	187	190
Daggett	0	0	0	0	0	0	206	208
Davis	893	914	784	803	631	646	539	540
Duchesne	0	0	514	523	361	367	254	257
Emery	530	537	427	432	269	272	166	169
Garfield	0	0	0	0	224	227	121	122
Grand	0	0	410	414	258	261	157	158
Iron	848	851	744	746	591	593	485	484
Juab	0	0	468	477	315	321	212	213
Kane	444	449	341	345	189	191	86	87
Millard	840	853	737	748	583	592	477	482
Morgan	0	0	0	0	411	416	304	308
Piute	0	0	0	0	354	358	247	250
Rich	0	0	0	0	188	191	88	89
Salt Lake	742	763	638	656	485	499	393	387
San Juan	0	0	0	0	189	195	88	89
Sanpete	0	0	569	576	416	422	313	317
Sevier	0	0	593	602	442	448	339	343
Summit	0	0	491	497	334	338	232	234
Tooele	0	0	480	487	322	326	219	222
Uintah	0	0	0	0	391	397	289	293
Utah	782	801	677	693	519	531	427	427
Wasatch	0	0	518	524	359	364	257	260
Washington	695	703	592	599	435	440	327	331
Wayne	0	0	0	0	350	354	247	250
Weber	843	856	739	751	588	597	481	487

*When a county has no acres of a given class of land, a $0 taxable value is listed.

The largest increase for any land type was $21/acre as shown in **Table B2**, but increases for most counties were much smaller.

Table B2. Recommended Changes in Irrigated Land Values[3]

County	I	II	III	IV
Beaver	0	0	8	7
Box Elder	20	18	14	12
Cache	12	10	8	6
Carbon	8	6	4	3
Daggett	0	0	0	2
Davis	21	19	15	13
Duchesne	0	9	6	4
Emery	7	6	3	2
Garfield	0	0	3	1
Grand	0	4	3	2
Iron	3	2	2	1
Juab	0	9	6	4
Kane	5	4	2	1
Millard	13	11	9	7
Morgan	0	0	5	4
Piute	0	0	4	3
Rich	0	0	2	1
Salt Lake	21	18	14	11
San Juan	0	0	6	3
Sanpete	0	7	5	4
Sevier	0	8	6	5
Summit	0	6	4	3
Tooele	0	7	5	3
Uintah	0	0	6	4
Utah	19	16	12	10
Wasatch	0	6	4	3
Washington	8	7	5	4
Wayne	0	0	4	3
Weber	13	12	9	8

[3] Some differences (+ or - $1) could occur between the suggested land values and the differences in land value due to rounding differences.

Orchard Land

Land values for orchard lands declined in all counties (**Table B3**). Even though there were price and yield increases in some orchard crops, the losses in production and price for the remaining fruit crops overwhelmed the other increases.

Table B3. Orchard Lands, Land Classes I-IV.

	2011	2012	2011	2012	2011	2012	2011	2012
County	I	I	II	II	III	III	IV	IV
Beaver	600	588	600	588	600	588	600	588
Box Elder	650	637	650	637	650	637	650	637
Cache	600	588	600	588	600	588	600	588
Carbon	600	588	600	588	600	588	600	588
Daggett	0	0	0	0	0	0	0	0
Davis	655	642	655	642	655	642	655	642
Duchesne	600	588	600	588	600	588	600	588
Emery	600	588	600	588	600	588	600	588
Garfield	600	588	600	588	600	588	600	588
Grand	600	588	600	588	600	588	600	588
Iron	600	588	600	588	600	588	600	588
Juab	600	588	600	588	600	588	600	588
Kane	600	588	600	588	600	588	600	588
Millard	600	588	600	588	600	588	600	588
Morgan	600	588	600	588	600	588	600	588
Piute	600	588	600	588	600	588	600	588
Rich	0	0	0	0	0	0	0	0
Salt Lake	600	588	600	588	600	588	600	588
San Juan	600	588	600	588	600	588	600	588
Sanpete	600	588	600	588	600	588	600	588
Sevier	600	588	600	588	600	588	600	588
Summit	600	588	600	588	600	588	600	588
Tooele	600	588	600	588	600	588	600	588
Unitah	600	588	600	588	600	588	600	588
Utah	660	647	660	647	660	647	660	647
Wasatch	600	588	600	588	600	588	600	588
Washington	710	696	710	696	710	696	710	696
Wayne	600	588	600	588	600	588	600	588
Weber	655	642	655	642	655	642	665	652

*When a county has no acres of a given class of land, a $0 taxable value is listed.

The largest decline in orchard land values was -$14/acre for Washington County as reflected in **Table B4**.

Table B4. Suggested Changes in Orchard Values, Land Classes I-IV.[4]

County	I	II	III	IV
Beaver	-12	-12	-12	-12
Box Elder	-13	-13	-13	-13
Cache	-12	-12	-12	-12
Carbon	-12	-12	-12	-12
Daggett	0	0	0	0
Davis	-13	-13	-13	-13
Duchesne	-12	-12	-12	-12
Emery	-12	-12	-12	-12
Garfield	-12	-12	-12	-12
Grand	-12	-12	-12	-12
Iron	-12	-12	-12	-12
Juab	-12	-12	-12	-12
Kane	-12	-12	-12	-12
Millard	-12	-12	-12	-12
Morgan	-12	-12	-12	-12
Piute	-12	-12	-12	-12
Rich	0	0	0	0
Salt Lake	-12	-12	-12	-12
San Juan	-12	-12	-12	-12
Sanpete	-12	-12	-12	-12
Sevier	-12	-12	-12	-12
Summit	-12	-12	-12	-12
Tooele	-12	-12	-12	-12
Uintah	-12	-12	-12	-12
Utah	-13	-13	-13	-13
Wasatch	-12	-12	-12	-12
Washington	-14	-14	-14	-14
Wayne	-12	-12	-12	-12
Weber	-13	-13	-13	-13

[4] Some differences (+ or - $1) could occur between the suggested land values and the differences in land value due to rounding differences.

Meadow Land

Small changes were made in meadow land values, primarily due to the increase in revenues that were not totally offset by cost increases **(Table 5)**.

Table B5. Meadow Lands, Land Class IV.

	2011	2012
County	IV	IV
Beaver	247	247
Box Elder	266	266
Cache	275	275
Carbon	132	133
Daggett	161	163
Davis	275	278
Duchesne	168	170
Emery	141	142
Garfield	106	107
Grand	136	137
Iron	265	268
Juab	154	156
Kane	111	112
Millard	198	200
Morgan	200	202
Piute	194	196
Rich	108	108
Salt Lake	231	231
San Juan	0	0
Sanpete	197	199
Sevier	202	204
Summit	206	207
Tooele	190	192
Uintah	210	212
Utah	255	257
Wasatch	212	214
Washington	232	234
Wayne	176	177
Weber	308	311

*When a county has no acres of a given class of land, a $0 taxable value is listed.

The largest increase for any county for meadowland was $3/acre as noted in **Table B6**. The increases were due primarily to higher forage prices.

Table B6. Suggested Changes in Meadow, Class IV.[5]

County	IV
Beaver	0
Box Elder	0
Cache	0
Carbon	1
Daggett	2
Davis	3
Duchesne	2
Emery	1
Garfield	1
Grand	1
Iron	3
Juab	2
Kane	1
Millard	2
Morgan	2
Piute	2
Rich	0
Salt Lake	0
San Juan	0
Sanpete	2
Sevier	2
Summit	1
Tooele	2
Uintah	2
Utah	2
Wasatch	2
Washington	2
Wayne	1
Weber	3

[5] Some differences (+ or - $1) could occur between the suggested land values and the differences in land value due to rounding differences.

Dry Farm Land

The recommendation is that dryland farm values on a per acre basis remain the same (**Table B7**). Price increases were generally offset by cost increases.

Table B7. Dry farm Lands, Land Classes III-IV.

	2011	2012	2011	2011
County	III	III	IV	IV
Beaver	56	56	17	17
Box Elder	102	102	64	64
Cache	129	129	90	90
Carbon	53	53	16	16
Daggett	0	0	0	0
Davis	55	55	17	17
Duchesne	58	58	21	21
Emery	0	0	0	0
Garfield	52	52	16	16
Grand	53	53	16	16
Iron	53	53	16	16
Juab	54	54	17	17
Kane	52	52	16	16
Millard	51	51	15	15
Morgan	69	69	31	31
Piute	0	0	0	0
Rich	52	52	16	16
Salt Lake	58	58	17	17
San Juan	59	59	19	19
Sanpete	58	58	21	21
Sevier	0	0	0	0
Summit	52	52	16	16
Tooele	56	56	16	16
Uintah	58	58	21	21
Utah	54	54	17	17
Wasatch	52	52	16	16
Washington	52	52	15	15
Wayne	0	0	0	0
Weber	83	83	48	48

*When a county has no acres of a given class of land, a $0 taxable value is listed.

No increases are recommended for dryland acreages as noted in **Table B8**.

Table B8. Dry Farm Lands, Classes III and IV.

County	III	IV
Beaver	0	0
Box Elder	0	0
Cache	0	0
Carbon	0	0
Daggett	0	0
Davis	0	0
Duchesne	0	0
Emery	0	0
Garfield	0	0
Grand	0	0
Iron	0	0
Juab	0	0
Kane	0	0
Millard	0	0
Morgan	0	0
Piute	0	0
Rich	0	0
Salt Lake	0	0
San Juan	0	0
Sanpete	0	0
Sevier	0	0
Summit	0	0
Tooele	0	0
Uintah	0	0
Utah	0	0
Wasatch	0	0
Washington	0	0
Wayne	0	0
Weber	0	0

Grazing Land

In general, grazing land values increased slightly (**Table B9**). Grazing land values are dependent on three primary factors: quantity and quality of the forage and the price of beef and sheep. Cattle and sheep prices continued to increase during 2010, but forage quantity and quality declined as a general rule. This has resulted in nearly stable grazing land values.

Table B9. Grazing Lands, Classes I-IV.

	2011	2012	2011	2012	2011	2012	2011	2012
County	I	I	II	II	III	III	IV	IV
Beaver	74	75	23	23	17	17	6	6
Box Elder	78	76	24	23	18	18	5	5
Cache	74	73	24	24	16	16	5	5
Carbon	53	53	16	16	13	13	5	5
Daggett	55	54	15	15	12	12	5	5
Davis	63	62	20	20	13	13	5	5
Duchesne	71	70	23	23	14	14	5	5
Emery	74	73	22	22	15	15	6	6
Garfield	79	80	24	24	17	17	5	5
Grand	80	81	23	23	16	16	6	6
Iron	76	77	23	23	16	16	6	6
Juab	67	66	20	20	14	14	5	5
Kane	77	75	25	24	16	16	5	5
Millard	79	79	25	25	17	17	5	5
Morgan	69	69	22	22	14	14	6	6
Piute	93	92	27	27	19	19	6	6
Rich	67	67	21	21	14	14	5	5
Salt Lake	71	70	22	22	15	15	5	5
San Juan	79	80	26	26	17	17	5	5
Sanpete	65	64	19	19	14	14	5	5
Sevier	66	65	19	19	14	14	5	5
Summit	74	74	21	21	15	15	5	5
Tooele	73	73	21	21	14	14	5	5
Uintah	83	84	29	29	20	20	6	6
Utah	68	67	24	24	14	14	5	5
Wasatch	54	53	18	18	13	13	5	5
Washington	67	66	22	22	14	14	5	5
Wayne	91	91	29	29	19	19	5	5
Weber	71	72	21	21	15	15	6	6

*When a county has no acres of a given class of land, a $0 taxable value is listed.

Only minor reductions in land values are recommended for grazing lands and that applies strictly to Class I and II lands (**Table B10**). This can primarily be attributed to precipitation patterns. The values range from -2 to a +1.

Table B10. Suggested Changes Grazing Land, Classes I-IV.[6]

County	I	II	III	IV
Beaver	1	0	0	0
Box Elder	-2	-1	0	0
Cache	-1	0	0	0
Carbon	0	0	0	0
Daggett	-1	0	0	0
Davis	-1	0	0	0
Duchesne	-1	0	0	0
Emery	-1	0	0	0
Garfield	1	0	0	0
Grand	1	0	0	0
Iron	1	0	0	0
Juab	-1	0	0	0
Kane	-2	-1	0	0
Millard	0	0	0	0
Morgan	0	0	0	0
Piute	-1	0	0	0
Rich	0	0	0	0
Salt Lake	-1	0	0	0
San Juan	1	0	0	0
Sanpete	-1	0	0	0
Sevier	-1	0	0	0
Summit	0	0	0	0
Tooele	0	0	0	0
Uintah	1	0	0	0
Utah	-1	0	0	0
Wasatch	-1	0	0	0
Washington	-1	0	0	0
Wayne	0	0	0	0
Weber	1	0	0	0

[6] Some differences (+ or - $1) could occur between the suggested land values and the differences in land value due to rounding differences.

Non-Production Land

The suggested prices for the 2012 values of non-production land are given in **Table B11**. Also reported are the 2010 and 2011 values.

Table B11. Non-Production Land Value.

	2011	2012
County		
Beaver	5	5
Box Elder	5	5
Cache	5	5
Carbon	5	5
Daggett	5	5
Davis	5	5
Duchesne	5	5
Emery	5	5
Garfield	5	5
Grand	5	5
Iron	5	5
Juab	5	5
Kane	5	5
Millard	5	5
Morgan	5	5
Piute	5	5
Rich	5	5
Salt Lake	5	5
San Juan	5	5
Sanpete	5	5
Sevier	5	5
Summit	5	5
Tooele	5	5
Uintah	5	5
Utah	5	5
Wasatch	5	5
Washington	5	5
Wayne	5	5
Weber	5	5

No changes are proposed for non-production land for the 2012 report as illustrated in **Table B12**.

Table B12. Suggested Changes in Non-Production Land	
County	
Beaver	0
Box Elder	0
Cache	0
Carbon	0
Daggett	0
Davis	0
Duchesne	0
Emery	0
Garfield	0
Grand	0
Iron	0
Juab	0
Kane	0
Millard	0
Morgan	0
Piute	0
Rich	0
Salt Lake	0
San Juan	0
Sanpete	0
Sevier	0
Summit	0
Tooele	0
Uintah	0
Utah	0
Wasatch	0
Washington	0
Wayne	0
Weber	0