2015

Final 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:

Changes in land values are recommended to Utah State Tax Commission for the 2015 year as a result of data representing the 2014 production year. The changes are summarized according to land use as follows: *Irrigated Cropland*- Irrigated Cropland values were mixed due to declines in wheat prices received and increases in the alfalfa prices received by producers. Due to the preponderance of alfalfa acreage in most counties in the state, any change in hay returns have a large impact on the average county land values. Land value decreases occurred in Box Elder, San Juan, and Salt Lake counties. The greatest increases in land values occurred in Carbon, Iron, Kane, Morgan, Summit, Rich, Piute, Wasatch, Wayne, and Garfield counties. These counties saw an average increase of 2.2%. *Orchard Cropland*- Orchard Cropland values declined slightly throughout the state due to a decrease in the yield of apricots and sweet cherries and decreases in the prices of sweet cherries and peaches. Apple prices increased slightly, but that increase was more than offset by increases in the cost of production. *Meadow Cropland*- Meadow land values were also mixed, with the majority of the counties showing an increase. *Dry Cropland*: Decreases in land values are recommended for dry land acreage where small grains are the major crops. *Grazing Land*: Grazing land values remained relatively constant. The cost of production increased at approximately the same rate as the increase in prices received by producers. *Non Production Land*: No change in value for nonproduction land is being 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 often influences 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 for each county every year. There are well over 100 budgets that have to be developed and so we are updating the budgets on an 8-9 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. To access the existing budgets, please go to the following website: https://apecextension.usu.edu/htm/agribusiness.

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 except in index form and because costs are generally increasing. 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 (commodity yield multiplied times price). 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 (2012), which is taken every 5 years. This is where the proportional acreage devoted to each crop can be determined.

6. The county-level values are 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 (for longer-term investments) determined by gathering data on long-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 values are discounted or brought to a present value. This then becomes the average value of the land base in that particular county.

Of course, no county is 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 twentieth annual *draft* 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 given in more 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).

Summary of General Approach Adopted

Although there are a number of different approaches that might be used in estimating farmland values, agriculture-specific 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, location, and even environmental amenities. 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., relatively 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 conditions are 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 returns less costs* should be *representative* of the per acre value of land in agricultural production for a particular county and a specific land type. Returns

and costs are brought to the present point in time using a *discounting* process, which reflects the "time value of money."[1] Discounting is widely accepted as the correct approach to evaluate costs and returns that occur at different points in time. This method eliminates the vagaries of location, proximity to other property, unique location characteristics, etc.

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 existing public information. Crop mixes vary by county. Some counties have a very limited agricultural 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 sized 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-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.

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—a few counties every year. We currently have well over 100 different crop budgets that have 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 prices and costs. Using the current updating process, it is possible that the some budgets being used for any one county will be 8-9 years old, depending on how many county budgets can be developed each year. However, all older budget values are updated to the 2014 production year to be consistent with other available data on yields and prices.

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 a different budgeting process because multiple years of varying yield and prices must be considered using a discounting process. These budgets are more difficult to develop for each county, yet they also need to be updated on a regular basis. Again, some crop budgets could be 8-9 years old and will require updating through the process described below for those crop budgets which are not current.

[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.

Valuing Land in Agricultural Production

In order to accurately reflect the value of land in agricultural production, five areas warrant special attention—prices, costs, 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 all 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 *higher* 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 *lower* 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. For example, if the previous five years of prices (*excluding* the most recent price) were $3/bu., $6/bu., $5/bu., $5/bu., and $5/bu., respectively, the average price would be (3 + 6 + 5 + 5 + 5)/5 = $4.80/bu. If the most recent price is $4/bu., the latter five-year average price will still be *higher* than in the earlier period due to the deletion of the $3/bu. and the addition of the $4/bu., i.e., (6 + 5 + 5 + 5 + 4)/5 = $5.00/bu. Hence, even though the price declined in the most recent year, the average did not go down since the $4/bu. price that was added was still higher than the $3/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.

Table 1. Prices Received for Utah's Major Crops (2009-2014)						
Crop	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**
Alfalfa	$190.00	$ 181.00	$189.00	$ 186.00	$ 104.00	$ 113.00
Barley	$3.13	$ 4.20	$ 5.90	$ 5.60	$ 3.10	$ 2.25
Corn (grain)	$4.20	$ 5.35	$ 7.70	$ 6.75	$ 5.75	$ 4.35
Corn (silage)	$52.75	$ 42.00	$ 54.81	$ 50.00	$ 33.50	$ 32.00
Oats	$3.80	$ 4.30	$ 4.40	$ 4.35	$ 2.60	$ 2.50
Wheat (all)	$7.05	$ 8.10	$ 8.50	$ 8.65	$ 7.10	$ 6.30

Table 2 provides a summary of the 2009-2013, 2010-2014, and percentage change for each crop between these two intervals.

Table 2. Five-Year Field Crop Price Averages for Years 2009-2013, 2010-2014, and Percentage Change.			
Crop	**2009-2013**	**2010-2014**	**% Change**
Alfalfa	$ 154.60	$170.00	**+ 9.96%**
Barley	$ 4.21	$4.39	**+ 4.18%**
Corn (grain)	$ 5.98	$5.95	**- 0.50%**
Corn (silage)	$ 42.46	$46.61	**+ 9.77%**
Oats	$ 3.63	$3.89	**+ 7.16%**
Wheat(all)	$ 7.73	$7.88	**+ 1.94%**

Table 3 includes the prices received for fruit crops since 2009. For many of the fruit products, there has been considerable variation in price, brought about in large part by the changes in supply in Utah and elsewhere.

Table 3. Prices Received for Utah's Fruit Crop (2009-2014).						
Fruit	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**
Apricots	$1,510.00	$ 1,010.00	$ 919.00	$ 1,235.00	$ 432.00	$ 862.00
Sweet Cherries	$1,680.00	$ 2,490.00	$1,450.00	$ 1,428.57	$ 1,860.00	$ 2,280.00
Tart Cherries	$ 0.43	$ 0.48	$ 0.51	$ 0.29	$ 0.27	$ 0.27
Apples	$ 0.32	$ 0.48	$ 0.26	$ 0.22	$ 0.25	$ 0.30
Peaches	$ 981.00	$ 1,080.00	$1,080.00	$ 1,000.00	$ 691.00	$ 1,040.00

Table 4 includes the percentage change for each fruit crop between 2009-2013 and 2010-2014, using 5-year averages. The increase in apricot price and the decrease in sweet cherries did not have a large impact on the values because their production is a small portion of the total fruit production in the state.

Table 4. Five-Year Fruit Price Averages for Years 2009-2013, 2010-2014, and Percentage Change.			
Fruit	**2009-2013**	**2010-2014**	**% Change**
Apricots	$ 891.60	$ 1,021.20	**+ 15%**
Sweet Cherries	$ 1,901.71	$ 1,781.71	**- 6%**
Tart Cherries	$ 0.36	$ 0.40	**+ 9%**
Apples	$ 0.30	$ 0.31	**+ 2%**
Peaches	$ 978.20	$ 966.40	**- 1%**

(2) *Changing Costs.* The second area that needs updating in the crop budgets is that of input costs. When input costs increase, the net returns of a particular land use decline (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.

Data for updating costs are available in the "*producer's prices paid*" indices published by 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 is (a) there are no *time series* data sources readily available that show the type of county-level data needed for such averaging and (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. 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 nation-wide costs for a few of the inputs used in the major crop categories is shown below in **Table 5**. ERS production cost data cover *all farm expenses*, not just the few noted in **Table 5**.

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

Table 5. Change in Input Costs (2013-2014).	
Fertilizer	**+ 3.3**
Chemicals	**- 8.2**
Fuel	**- 35**
Machinery	**+ .09**
Feed	**- 6.2**
Seed	**- 2.7**
Change in All Farm Costs	**+ 9.0**
Consumer Price Index	**+ 0.8**

The overall total average cost for all production inputs for Utah's typical crops *rose* 9% from the previous year. The Consumer Price Index (CPI) change is also shown for comparative purposes in brown font. The CPI index (.8%) actually rose significantly less than did the cost of the production items.

(3) *Crop Yields.* The third area of consideration is that of 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., particularly dryland wheat, but the vagaries of weather and precipitation almost always bring about a change in all crop yields from year to year **(Table 6).**

Table 6. Production for Utah Crop's, 2009-2014.						
Crop	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**
Alfalfa	3.52	3.77	3.62	4.10	4.00	4.20
Barley	83.00	79.00	80.00	83.00	90.00	85.00
Corn (grain)	160.00	170.00	167.00	164.00	172.00	155.00
Corn (silage)	22.00	23.00	22.00	25.00	23.00	23.00
Oats	69.00	62.00	76.00	81.00	74.00	81.00
Wheat	50.30	44.50	45.40	49.40	48.70	49.50

A change in the 5-year average yield for these crops is provided in **Table 7**. The results are mostly unchanged except for the production of hay and oats—both of which declined over 3%.

Table 7. Five-Year Crop Production Averages for 2009-2013, 2010-2014, and Percentage Change.

Crop	2009-2013	2010-2014	% Change
Alfalfa	3.94	3.80	**- 3.45%**
Barley	83.40	83.00	**- 0.48%**
Corn(grain)	165.60	166.60	**+ 0.60%**
Corn(silage)	23.20	23.00	**- 0.86%**
Oats	74.80	72.40	**- 3.21%**
Wheat	47.50	47.66	**+ 0.34%**

Yields for the various fruit crops are shown in **Table 8** with the five-year average in percentage change shown in **Table 9**. Yields of every fruit crop increased significantly between 2013 and 2014. However, the five-year average production of fruit dropped for apricots and sweet cherries and increased for tart cherries, apples and peaches.

Table 8. Annual Production Yield for Utah's Fruit Crop (2009-2014).

Fruit Crop	2014	2013	2012	2011	2010	2009
Apricots	228	135	269	170	280	320
S. Cherries	1,000	830	1,300	770	1,100	1,540
T. Cherries	49,800,000	26,800,000	40,000,000	34,500,000	22,500,000	34,000,000
Apples	22,400,000	16,500,000	14,000,000	1,830,000	12,000,000	18,000,000
Peaches	6,200	5,421	5,200	4,100	4,300	5,800

Table 9. Fruit Production Yield Average for 2009-2010, 2010-2014, and Percentage Change.

Fruit	2009-2013	2010-2014	% Change
Apricots	235	216	-7.84%
S. Cherries	1,108	1,000	-9.75%
Tart Cherries	31,560,000	34,720,000	10.01%
Apples	12,466,000	13,346,000	7.06%
Peaches	4,964	5,044	1.61%

(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 only through the five-year agricultural census. The new 2012 agricultural census numbers were used in the calculation of the land values. Additional crops are being produced within the State of Utah. As more acreage of these crops are produced, they will need to be included in our land value calculations.

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). Alfalfa acreage is dominant in virtually all counties and its price continues to dominate that for wheat, barley, and other crops. The only exception is for a small number of counties with a relatively large proportion of fruit acreage.

The change in crop mix between the 2007 and the 2012 Agricultural Census (NASS, USDA) are given in **Table 10** for the crops comprising the 4 highest percentages. In general, all areas showed some minor change in the crop mix. With the exception of one county, at least 90% of the county acreage was in the production of these 4 crops.

(5) *Dated Prices and Costs – 2014 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 *2015*) are for the *2014* crop year. Hence, the actual net return in 2015 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 *2016*, 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.

Table 10. Crop Mix for the 2012- and 2007-Agricultural Census, Respectively.*								
	Current (2012)/Previous (2007) Crop Percentage Mix							
County	*Forage (all hay)*		*Corn (Grain)*		*Corn (silage)*		*Wheat*	
Beaver	87%	93%	6%		4%	6%	3%	
Box Elder	45%	44%	6%	4%	5%	5%	41%	39%
Cache	59%	60%	2%	2%	7%	7%	22%	18%
Carbon	96%	93%				1%	1%	4%
Daggett	100%	100%						
Davis	63%	57%	1%	11%	0%	3%	10%	13%
Duchesne	89%	89%	5%	5%	5%	5%		
Emery	93%	97%	5%		0%	2%		
Garfield	100%	100%						
Grand	87%	94%				3%	7%	2%
Iron	94%	97%		2%	5%			
Juab	73%	70%	2%	5%	8%	4%	13%	16%
Kane	100%	98%						
Millard	76%	86%	8%	1%	8%	8%	5%	2%
Morgan	90%	88%		1%	3%	3%		2%
Piute	100%	98%				2%		
Rich	99%	99%						
Salt Lake	56%	44%	1%		1%		32%	55%
San Juan	13%	15%					86%	72%
Sanpete	89%	91%			7%	6%	1%	
Sevier	81%	88%	3%		12%	9%	3%	
Summit	100%	58%		4%		8%		25%
Tooele	88%	87%	5%				5%	10%
Uintah	90%	91%	4%	3%	2%	4%	2%	
Utah	64%	58%	5%	4%	8%	8%	18%	25%
Wasatch	100%	97%						
Washington	96%	100%					3%	
Wayne	98%	97%						
Weber	73%	87%	1%	1%	11%	11%	10%	

*The difference between the sum of the row totals and 100% for each year is that portion of the land used to produce different crops. Yellow cells show the 2012 acreage and white cells show 2007 acreage.

(5) *Dated Prices and Costs – 2014 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 *2015*) are for the *2014* crop year. Hence, the actual net return in 2015 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 *2016*, 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 2014 reporting year: prices, costs, crop mix, and productivity or yields.

(1) *Crop prices.* Prices for the field crops in 2014 were mostly up using the five year average. The price received by farmers for the major Utah crops for 2009-2013, 2010-2013 and the five year average percentage changes were previously illustrated in **Table 2**.

(2) Fruit prices were mixed between 2014 and 2013. Apple prices increased by almost fourteen and one half percent and apricots increased by almost fifteen percent. Tart Cherry prices increased by nearly nine percent, while peaches decreased by eleven point eight percent. The 2009-2013 and 2010-2014 average prices producers received and the percentage change between the two years, using a five year average, can be found in the previously identified **Table 4**. Apples and tart cherries are the two primary fruit crops in the state of Utah with apple production increasing by 2% and tart cherry production declining by 9%.

(3) *Cost Changes.* Costs were mixed in 2014 with feed, seed, fuel, and chemicals all decreasing, while machinery and fertilizer increased. The total change in the price of the inputs had a net effect of a 9% percent ***increase*** to the cost of production (see **Table 5** above). Interest rates were one of the production costs that remained relatively constant in 2014 as shown in **Figure 1**.

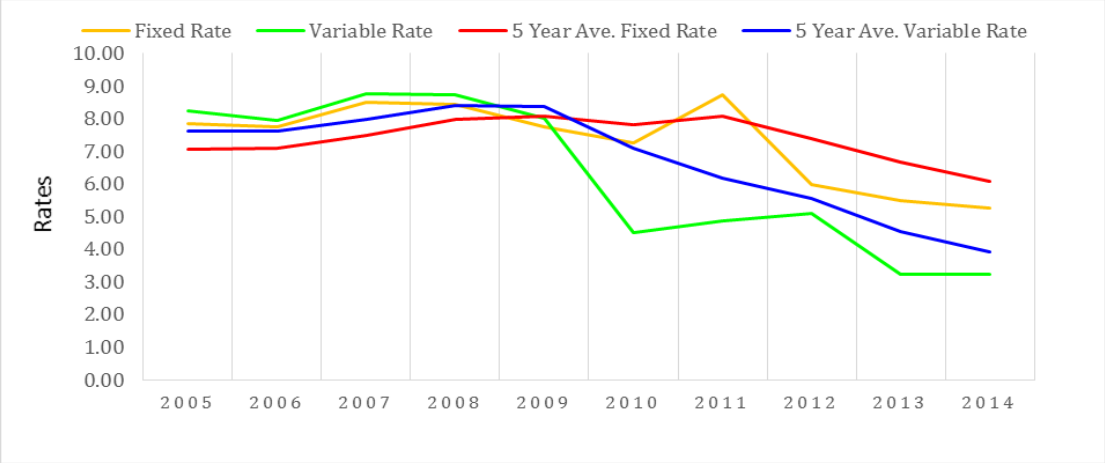

Figure 1. The historical moving average cost of financial capital, 2005-2014.

You can see the results of using a five-year moving average instead of using the actual current interest rate in this figure. The longer the time period, the fewer significant

fluctuations you see. A five-year average typically allows sufficient fluctuation for year-to-year changes, but does not show the extreme changes that can occur year-to-year. The five-year averages are shown with the *blue* and *red* lines for fixed rates and variable rates, respectively. Once again, this has a tendency to minimize property value changes.

(4) *Crop Yields*. Average crop yield changes from 2009-2013 to 2010-2014 mostly decreased, with only grain corn and wheat increasing less than one percent (refer to **Table 7** shown earlier). None of the yield increases were very large, and the decrease in alfalfa had the greatest effect because of the number of acres in alfalfa production in the state. Safflower, onions, and vegetables will have to be included in the crop production and price history as soon as they comprise at least 3% of the crop acreage in select counties, though frankly, it is going to be difficult to value vegetable production and prices as they are often based on different output units, i.e., the number of heads, bushels, pint cups, trays, etc.

Fruit production yields were mixed as well in 2014, apricots, and sweet cherries both decreased. Tweet cherries, apples, and peaches all increased in production in 2014. The decrease in sweet cherries and apricots did not affect the land values greatly because of the limited number of acres in those fruit production. The smaller increase in apple production had a greater effect on land values (please see **Table 9** given above). Apples production accounts for 52 percent of all fruit production in the state, followed by tart cherries at 25 percent, peaches at 18.5, with sweet cherries and apricots accounting for the remaining 4.5 percent.

(4) Crop Mix. The mix of crops on a county-by-county basis is based on the 2012 census data (2012, NASS, USDA). The 2012 census information revealed some changes in the crop mix in many of the counties in the state. However, there was not a large shift to a single crop, just subtle movement of one crop to another. One area that is increasing in importance is the vegetable grower. The number of large and small growers appears to be increasing throughout the state. That may pose a challenge in future years with regards to how they should be included in this report as noted above.

<u>*Summary*</u>. 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 would *increase* by approximately 2% (i.e., +8 +1 -7 = 2).

Suggested Land Values

Irrigated Land

Irrigation methods continue to change in many counties [e.g., Cache, Carbon, and Box Elder Counties]. More center pivot and wheel line systems have been put into place and fewer hand lines and less flood irrigation is being used. This influences the cost of production and this change is being incorporated in current and future reports as our update of county budgets continues. Once again, increased pumping depths are not considered as there are no good secondary data sources showing water table declines. This obviously impacts pumping costs and likely understates the cost associated with irrigation for some counties (e.g., Iron and Millard).

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 alfalfa hay production tend to dominate the overall land values on a county-by-county basis. Yields decreased slightly and the average price received by producers in the state increased approximately five percent in 2015, using the 5-year average. The cost of production rose approximately 9% for the state utilizing Economic Research Service (ERS) associated with the USDA. There were decreases in land values in the counties where wheat was the major commodity.

Orchard Land

The yields for fruit production in the state of Utah were mixed in 2014. The cost of production increased at a slightly higher rate than the increases in prices received by producers. Once again, apples and tart cherries are the two major fruit crops and their net returns tend to dominate those of the other fruits.

Meadow Land

Small *decreases/increases* in the land values for meadowland are recommended in the state on a county-specific basis. Beef prices were constant, hay prices increased slightly, leaving meadow lands constant throughout the state.

Dry Land

The level of precipitation over a 5 year average, ending in 2014, varied depending on the area of the state in question, as usual. Most areas are still below the average normal level of precipitation, (see **Figure 2** where 100 is used to denote average precipitation over the most recent five year period)**.**

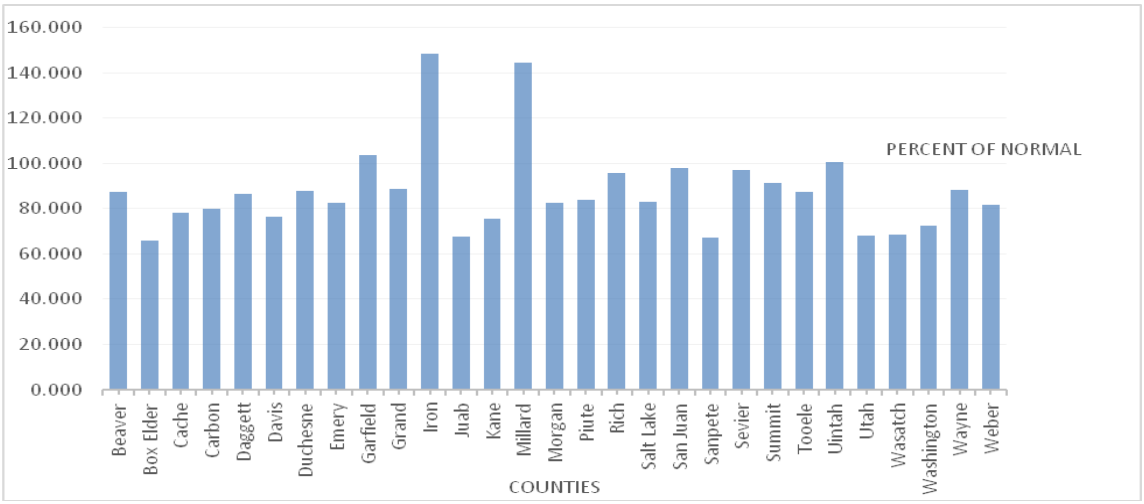

Figure 2. County Five-year Precipitation Average, 2010 - 2014.

Grazing Lands

The two most significant factors impacting the value of grazing land are the level of precipitation received and the price or value of cattle. The chart above **(Figure 2.)** summarizes the average five-year 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. However, the results are the best one can expect given the public information available.

Most of the counties in the state received less than average precipitation when considering a five-year running average. The only counties receiving more than an average level over the last 5 years were Iron and Millard Counties. On average, Box Elder, Juab, Utah, Sanpete and Wasatch Counties received the lowest precipitation over the last 5 years.

Non-Production Ground

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

Summary

A consolidation of the proposed land values is included in **Table 11**. More detailed recommendations in terms of what actual increases/decreases are proposed for 2014 (using 2010-2014 average data) are provided in **Appendix B**. Unlike previous years, all orchard land classes (I-IV) are reported under one column.

Table 11. 2015 Proposed Farmland Assessment Values.*

	Irrigated Land				Orchard	Meadow	Dryland Farms		Grazing Lands				Non Prod
County	I	II	III	IV	I-IV	IV	III	IV	I	II	III	IV	VI
Beaver	0	0	554	455	601	234	51	15	70	22	16	6	5
Box Elder	789	693	545	450	651	252	92	58	74	23	17	5	5
Cache	681	581	441	342	601	261	117	82	70	23	15	5	5
Carbon	511	407	269	173	601	127	48	15	51	15	12	5	5
Daggett	0	0	0	185	0	153	0	0	51	14	11	5	5
Davis	839	738	593	496	656	264	51	16	60	19	12	5	5
Duchesne	0	476	334	234	601	163	53	19	68	22	13	5	5
Emery	487	392	247	153	601	135	0	0	70	21	14	6	5
Garfield	0	0	206	111	601	102	47	15	75	23	16	5	5
Grand	0	375	237	143	601	130	48	15	76	22	15	6	5
Iron	777	681	541	442	601	256	48	15	73	22	15	6	5
Juab	0	437	294	195	601	150	50	16	64	19	13	5	5
Kane	410	315	174	79	601	107	47	15	74	24	15	5	5
Millard	774	679	537	437	601	190	46	14	75	24	16	5	5
Morgan	0	0	379	281	601	193	63	28	66	21	13	6	5
Piute	0	0	326	228	601	187	0	0	89	26	18	6	5
Rich	0	0	174	81	0	103	47	15	64	20	13	5	5
Salt Lake	692	595	453	351	601	222	53	15	68	21	14	5	5
San Juan	0	0	171	78	601	0	52	17	74	24	16	5	5
Sanpete	0	526	385	290	601	190	53	19	62	18	13	5	5
Sevier	0	549	409	313	601	195	0	0	63	18	13	5	5
Summit	0	451	307	212	601	198	47	15	71	20	14	5	5
Tooele	0	440	295	201	601	183	51	14	70	20	13	5	5
Uintah	0	0	363	268	601	203	53	19	79	28	19	6	5
Utah	734	635	487	391	661	246	49	16	65	23	13	5	5
Wasatch	0	478	332	237	601	205	47	15	52	17	12	5	5
Washington	636	542	398	300	711	223	47	14	64	21	13	5	5
Wayne	0	0	322	227	601	169	0	0	87	28	18	5	5
Weber	780	684	544	444	656	292	76	44	68	20	14	6	5

Suggestions for Additional Work

We will continue working with the USU Extension agricultural agents 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 agriculture agents, who in turn work under the supervision of 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 it has now been modified to fit Utah's

situation. The budgets will be much more similar now that we have this budgeting program in place for Utah's producers.

Budget updates, 8-9 for each county, for an additional 3-4 counties are expected to be updated this next year, which may bring about some changes in land values. Updating all of these budgets is a time intensive activity and that is why it continues over an 8-9 year period.

Appendix A

2015 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 values were mixed in the counties throughout the state in 2015 as shown in **Table B1**. For those counties without any land in a particular class, a value of zero is given consistent with previous reports.

Table B1. Irrigated Farmland, Classes I through IV.

	2014	2015	2014	2015	2014	2015	2014	2015
County	**I**	**I**	**II**	**II**	**III**	**III**	**IV**	**IV**
Beaver	0	0	0	0	546	554	449	455
Box Elder	798	789	701	693	552	545	456	450
Cache	674	681	576	581	437	441	339	342
Carbon	500	511	398	407	263	269	170	173
Daggett	0	0	0	0	0	0	185	185
Davis	835	839	734	738	590	593	494	496
Duchesne	0	0	468	476	328	334	230	234
Emery	479	487	385	392	242	247	151	153
Garfield	0	0	0	0	202	206	108	111
Grand	0	0	370	375	233	237	141	143
Iron	760	777	666	681	530	541	432	442
Juab	0	0	432	437	291	294	193	195
Kane	401	410	308	315	171	174	78	79
Millard	764	774	670	679	530	537	432	437
Morgan	0	0	0	0	371	379	274	281
Piute	0	0	0	0	319	326	223	228
Rich	0	0	0	0	170	174	79	81
Salt Lake	695	692	597	595	454	453	352	351
San Juan	0	0	0	0	178	171	81	78
Sanpete	0	0	515	526	377	385	283	290
Sevier	0	0	539	549	401	409	307	313
Summit	0	0	441	451	300	307	208	212
Tooele	0	0	434	440	290	295	198	201
Uintah	0	0	0	0	356	363	263	268
Utah	730	734	631	635	484	487	389	391
Wasatch	0	0	467	478	325	332	232	237
Washington	624	636	532	542	391	398	294	300
Wayne	0	0	0	0	315	322	222	227
Weber	769	780	675	684	537	544	438	444

The largest decrease of any land type was -$10/acre for Box Elder County and the largest increase was $17 for Iron County as shown in **Table B2**.

Table B2. Specific Changes in Irrigated Farmland Values.

County	I	II	III	IV
Beaver	0	0	8	7
Box Elder	-10	-8	-7	-5
Cache	7	6	4	3
Carbon	11	8	6	4
Daggett	0	0	0	0
Davis	4	4	3	2
Duchesne	0	8	6	4
Emery	9	7	4	3
Garfield	0	0	4	2
Grand	0	6	3	2
Iron	17	15	12	10
Juab	0	5	3	2
Kane	9	7	4	2
Millard	10	9	7	6
Morgan	0	0	9	6
Piute	0	0	7	5
Rich	0	0	4	2
Salt Lake	-3	-2	-2	-1
San Juan	0	0	-7	-3
Sanpete	0	11	8	6
Sevier	0	10	8	6
Summit	0	10	7	5
Tooele	0	7	4	3
Uintah	0	0	6	5
Utah	4	4	3	2
Wasatch	0	10	7	5
Washington	12	10	7	6
Wayne	0	0	7	5
Weber	11	9	8	6

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

Orchard Land

Land values for orchard lands declined in all counties. Even though production of some fruits increased, such as tart cherries and apples, production cost increases more than offset production or price increases (**Table B3)**.

Table B3. Suggested Changes in Orchard Land Values (Land Classes I-IV, 2014-2015).

County	2014	2015
Beaver	603	601
Box Elder	653	651
Cache	603	601
Carbon	603	601
Daggett	0	0
Davis	658	656
Duchesne	603	601
Emery	603	601
Garfield	603	601
Grand	603	601
Iron	603	601
Juab	603	601
Kane	603	601
Millard	603	601
Morgan	603	601
Piute	603	601
Rich	0	0
Salt Lake	603	601
San Juan	603	601
Sanpete	603	601
Sevier	603	601
Summit	603	601
Tooele	603	601
Uintah	603	601
Utah	663	661
Wasatch	603	601
Washington	713	711
Wayne	603	601
Weber	658	656

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

All counties that have orchard land declined in value by two dollars as noted in Table B4.

Table B4. Specific Proposed Changes in Orchard Land Values.

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

Meadow Land

Meadow land values were mixed and are shown for the 2015 report year in **Table B5**.

Table B5. Suggested Values in Meadow Land, 2014-2015.

County	2014	2015
Beaver	231	234
Box Elder	255	252
Cache	259	261
Carbon	125	127
Daggett	153	153
Davis	263	264
Duchesne	160	163
Emery	133	135
Garfield	100	102
Grand	128	130
Iron	251	256
Juab	148	150
Kane	105	107
Millard	187	190
Morgan	189	193
Piute	183	187
Rich	100	103
Salt Lake	223	222
San Juan	0	0
Sanpete	186	190
Sevier	191	195
Summit	193	198
Tooele	180	183
Uintah	199	203
Utah	244	246
Wasatch	200	205
Washington	219	223
Wayne	165	169
Weber	288	292

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

The largest decline in meadow land value was $3/acre in Box Elder County and the greatest increase was $6 in Iron County as shown in **Table B6**.

Table B6. Specific 2015 Proposed Changes in Meadow Land Values.

County	2015
Beaver	3
Box Elder	-3
Cache	3
Carbon	3
Daggett	0
Davis	1
Duchesne	3
Emery	2
Garfield	2
Grand	2
Iron	6
Juab	2
Kane	2
Millard	2
Morgan	4
Piute	4
Rich	2
Salt Lake	-1
San Juan	0
Sanpete	4
Sevier	4
Summit	4
Tooele	3
Uintah	4
Utah	1
Wasatch	4
Washington	4
Wayne	4
Weber	4

Dry Farm Land

There were declines in some dry farmland and small increases in other counties as shown in **Table B7**.

Table B7. Suggested Values for Dry Farm Land, 2014-2015.

	2014	2015	2014	2015
County	**III**	**III**	**IV**	**IV**
Beaver	50	51	15	15
Box Elder	93	92	59	58
Cache	116	117	81	82
Carbon	47	48	14	15
Daggett	0	0	0	0
Davis	50	51	16	16
Duchesne	52	53	19	19
Emery	0	0	0	0
Garfield	46	47	14	15
Grand	47	48	14	15
Iron	47	48	14	15
Juab	49	50	15	16
Kane	46	47	14	15
Millard	46	46	13	14
Morgan	61	63	28	28
Piute	0	0	0	0
Rich	46	47	14	15
Salt Lake	53	53	15	15
San Juan	54	52	17	17
Sanpete	52	53	19	19
Sevier	0	0	0	0
Summit	46	47	14	15
Tooele	50	51	14	14
Uintah	52	53	19	19
Utah	49	49	15	16
Wasatch	46	47	14	15
Washington	46	47	13	14
Wayne	0	0	0	0
Weber	75	76	43	44

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

The largest change in dry land values was -$2/acre in San Juan County and the largest increase was $1/acre in several counties as can be seen in **Table B8**.

Table B8. Specific 2015 Proposed Changes in Dry Land Values.

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

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

Grazing Land

In general, grazing lands are similar to other land in production agriculture land values are calculated using the costs and prices received by famers. Prices increased slightly and the costs of production increased as well, so only small changes in the value of grazing land values are reported in **Table B9**.

Table B9. Suggested 2014-2015 Grazing Land Values.

	2014	2015	2014	2015	2014	2015	2014	2015
County	I	I	II	II	III	III	IV	IV
Beaver	69	70	22	22	16	16	6	6
Box Elder	75	74	23	23	17	17	5	5
Cache	70	70	23	23	15	15	5	5
Carbon	50	51	15	15	12	12	5	5
Daggett	51	51	14	14	11	11	5	5
Davis	60	60	19	19	12	12	5	5
Duchesne	67	68	22	22	13	13	5	5
Emery	69	70	21	21	14	14	6	6
Garfield	74	75	22	23	16	16	5	5
Grand	75	76	22	22	15	15	6	6
Iron	71	73	22	22	15	15	6	6
Juab	63	64	19	19	13	13	5	5
Kane	72	74	23	24	15	15	5	5
Millard	74	75	23	24	16	16	5	5
Morgan	64	66	21	21	13	13	6	6
Piute	87	89	25	26	18	18	6	6
Rich	63	64	20	20	13	13	5	5
Salt Lake	68	68	21	21	14	14	5	5
San Juan	77	74	25	24	16	16	5	5
Sanpete	61	62	18	18	13	13	5	5
Sevier	62	63	18	18	13	13	5	5
Summit	69	71	20	20	14	14	5	5
Tooele	68	70	20	20	13	13	5	5
Uintah	78	79	27	28	19	19	6	6
Utah	65	65	23	23	13	13	5	5
Wasatch	51	52	17	17	12	12	5	5
Washington	63	64	21	21	13	13	5	5
Wayne	85	87	27	28	18	18	5	5
Weber	67	68	20	20	14	14	6	6

Table B 10. Specific Proposed 2015 Changes in Grazing Land Values.

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

Non-Production Land

No changes are proposed for non-production land for the 2015 report year as shown in **Table B11**.

Table B11. Suggested Changes in Non-Production Land Values, 2014-2015.

County	2014	2015
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