2016

Economic Impact Analysis Activity Tool for Alternative Irrigated Cropping: County Level Tool Report

Contact: Rebecca Hill, Agriculture and Resource Economics, Colorado State University, email: Rebec.L.Hill@gmail.com, Ph: 970-491-7119 or James Pritchett, Agriculture and Resource Economics, Colorado State University, email: james.pritchett@colostate.edu, ph: 970-491-5496

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Contents

Introduction: 2
Objectives 3
Objective 1: Introduce the individual county level economic impact tools 3
Alamosa County: 4
Conejos County: 5
Costilla County: 6
Mineral County: 7
Rio Grande County: 8
Saguache County: 9
Objective 2: Discuss the uniqueness of a county level analysis and tool relative to a regional analysis and tool 10
Objective 3: Demonstrate some examples of county level scenario analysis using Conejos County 11
Scenario One 12
Scenario Two 13
Scenario Three 14
Final Remarks 15
References 17

Introduction:

The economy in the San Luis Valley is firmly connected to agriculture with a significant share of its gross domestic product coming from agricultural sales and associated income. Important agricultural goods include the Valley's premier potato production and its high quality alfalfa, barley and cattle. Agriculture is tightly woven with other industry sectors because of the local purchase of inputs and the local spending of wages. Irrigation is the lifeblood of the agricultural engine, as seldom is more than eight inches of precipitation received each year.

Snowmelt is the primary source of water for surface irrigation in the San Luis Valley, and centuries of the ensuing runoff have filled the aquifer that lies beneath the surface of farmland acres. Irrigation wells have tapped this rich water resource. However, persistent drought conditions in the last decade reduced the recharge that occurs from natural runoff or diverted irrigation flows from the Rio Grande causing underground aquifers to be depleted at an unsustainable rate.

The communities, governments and citizens of the San Luis Valley are mobilizing positive approaches for maintaining the sustainability of underground water supplies and the economic base of local communities. One approach is the reduction of irrigated agriculture's aquifer depletions through a mix of conservation strategies, alternative crop rotations and the fallowing of agricultural lands.

An important set of questions centers on the overall economic ripple effects that occur when irrigated cropping changes in the San Luis Valley. These questions include:

- What is the benchmark level of irrigated agriculture in the San Luis Valley?
- How are final product sales, input purchases and wages for irrigated agriculture connected to allied industries and employment in local communities?
- In what way does irrigated agriculture and allied industries contribute to government revenues that are then spent on local infrastructure and services?
- How will the economic adaptations from reduced groundwater depletions be distributed among stakeholders (e.g., businesses, households and government) in the local economy?

The San Luis Valley Council of Governments, Colorado Water Institute and CSU Extension partnered to provide insights into these key questions, and a local engagement process provides important advice. An advisory committee of local stakeholders helped to guide the research and engagement activities. Beginning in May 2015, the advisory committee met to define objectives for the research activities and to provide needed feedback on the project's progress, evaluate preliminary results and to suggest alternative approaches. The advisory committee and research team developed the following objectives:

1. Identify sectors of the region's economy most closely aligned with the economic activity generated by irrigated crop production.

2. Create a tool that uses economic activity matrices for assessing future changes to economic activity in the region.

3. Characterize the economic ripple effects of proposed strategies for reducing groundwater depletions such as changing the crop mix and conservation fallowing cropland.

Objectives

This report is a supplement to a larger report entitled, "Economic Impact Analysis and Regional Activity Tool for Alternative Irrigated Cropping in the San Luis Valley." Please refer to the larger report for a more in-depth discussion on methodology.

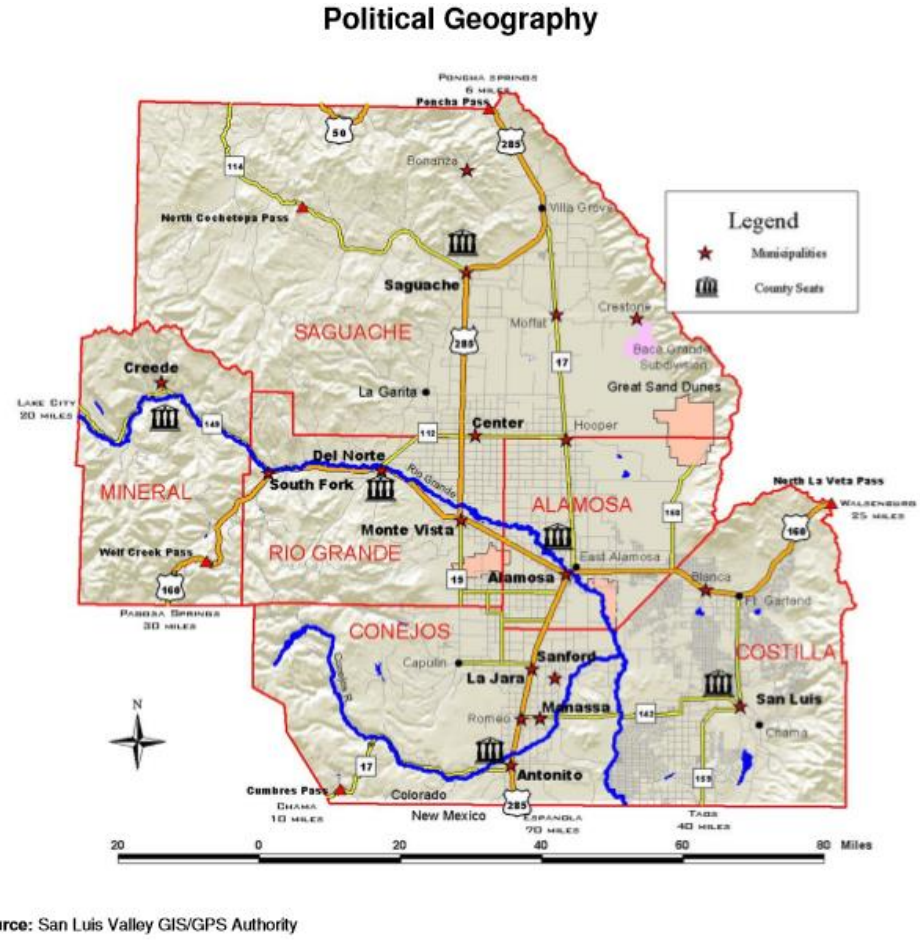
The objectives of this supplemental report are as follows:

- Objective 1: Introduce the individual county level economic impact tools
- Objective 2: Discuss the uniqueness of a county level analysis and tool relative to a regional analysis and tool
- Objective 3: Demonstrate some examples of county level scenario analysis using Conejos County

Objective 1: Introduce the individual county level economic impact tools

The San Luis Valley Region has six counties: Alamosa, Conejos, Costilla, Mineral, Rio Grande and Saguache. While the larger report discussed the regional economic impact 'what-if' tool this report will describe each of the six counties in the San Luis Valley and the series of 'what-if' tools that are being created for each of the six counties in the region. Figure 1 displays the San Luis Valley Region and the boundaries between the six counties. Agriculture in each of the six counties will be discussed in this section.

Figure 1: The Six Counties of the San Luis Valley; Political Geography (Pulled from CEDS, 2013)



Source: San Luis Valley GIS/GPS Authority

Alamosa County:

Alamosa County is home to the City of Alamosa which serves as the regional hub of the San Luis Valley. Alamosa has the Valley's largest hospital, an airport, motels, business services as well as railroad and trucking terminals and industrial parks. In addition, Alamosa is home to Adams State University and Trinidad State Junior College and several major tourist attractions such as the Great Sand Dunes national Park and Preserve (CEDS, 2013). As can be seen in Table 1, two of the top ten industries by output in Alamosa County are directly agriculture related: Potato (#3) and alfalfa (#10). In addition to potato and alfalfa several other top ten industries such as monetary authorities (#7) and truck transportation (#10) are likely related to agricultural activities. The top industry by output in Alamosa County is the Hospital and the related outpatient care centers (#8) also show up on the top ten by output list.

Table 1: Alamosa County Top 10 Industries by Output (IMPLAN)

	Employment		Output
Hospitals	586	$	72,202,377
Electric power transmission and distribution	54	$	68,915,848
Potato	313	$	60,768,002
Wholesale trade	206	$	51,335,167
Real estate	247	$	35,290,741
Retail - General merchandise stores	358	$	26,442,511
Monetary authorities	168	$	21,779,240
Outpatient care centers	160	$	21,547,119
Truck transportation	133	$	21,434,652
Alfalfa	113	$	20,059,999

Both Potato's and Alfalfa are important industries to Alamosa County. As shown in Table 2 there are 23,000 Alfalfa acres and 16,800 acres of Potato's in Alamosa County. While there are more Alfalfa acres in the county the output for potatoes is significantly greater due to the higher value per acre of the potato crop.

Table 2: Crop Acres and Output in Alamosa County (USDA and IMPLAN)

Crop	Acres	Output
Barley	9,900	$7,706,850
Alfalfa	23,000	$20,060,000
Wheat	1,064	$1,154,144
Potato	16,800	$60,786,000

Conejos County:

Conejos County is home to the Cumbres and Toltec Scenic Railroad and the Conejos County Hospital. Conejos County has many small farms and ranches with hay, sheep, and cattle. These small farms and ranches are a visible part of the county economy (CEDS, 2013). Table 3 shows the top ten industries by output for Conejos County. Agriculture is important to the Conejos County economy and the top two industries in the county based on output are alfalfa and beef cattle ranching and farming. Dairy cattle and milk production is also in the top ten industries by output in the Conejos economy.

Table 3: Conejos County Top 10 Industries by Output (IMPLAN)

	Employment	Output
Alfalfa	356	$34,928,000
Beef cattle ranching and farming	129	$28,696,795
Scenic and sightseeing transportation	131	$19,172,783
Truck Transportation	104	$15,479,358
Dairy Cattle and Milk Production	14.2	$13,558,468
Wholesale trade	57.4	$9,284,686
Hospitals	68.3	$9,732,863
Construction of other new residential structures	34.9	$8,681,153
Securities and commodity contracts brokerage	152	$7,657,360
Retail - Non store retailers	75	$6,493,724

Alfalfa is a significant industry for the Conejos County economy, and depending on the associated prices and yields Alfalfa can be the largest generator of revenues to the Conejos County economy. Table 4 displays the acres and output in Conejos County associated with the four main crops of the San Luis Valley: Barley, Alfalfa, Wheat and Potato. Alfalfa is by far the most widely grown crop in Conejos County with 46,000 acres. The next largest crop is barely (4,900 acres) followed by potato (900 acres) and wheat (355 acres).

Table 4: Crop Acres and Output in Conejos County (USDA and IMPLAN)

Crop	Acres	Output
Barley	4,900	$4,028,190
Alfalfa	46,000	$34,928,000
Wheat	355	$385,076
Potato	900	$3,394,493

Costilla County:

Costilla County is home to several major tourist attractions such as the museums in Fort Garland and notable fishing areas. The County also contains the San Luis valley's largest tracts of private lands including the Vlanca-Trichera Ranch and the La Sierra tract (CEDS, 2013). Agriculture is important to the economy of Costilla County, Table 5 shows the top ten industries in Costilla County by output. Five of the top ten industries, including the top two industries, are agriculture related. They include: Alfalfa (#1), Potato (#2), Support activities for agriculture (#4) and Beef cattle ranching and farming (#6).

Table 5: Costilla County Top 10 Industries by Output (IMPLAN)

	Employment		Output
Alfalfa	101	$	20,296,000
Potato	49	$	12,069,310
Other Local Government Enterprises	49	$	11,856,931
Support Activities for Agriculture	245	$	8,848,537
Gold Ore Mining	12	$	8,627,098
Beef Cattle ranching and farming	43	$	7,628,598
Advertising and public relations	50	$	6,844,349
Miscellaneous manufacturing	20	$	4,834,858
Barley	7	$	4,406,370
Truck transportation	37	$	3,859,738

Table 6 displays the acres and output associated with each of the four main crops grown in the San Luis Valley. Alfalfa is the largest in Costilla County in both acres, 25,000, and output, $20,296,000. The next largest crop by acres is barley, while the next largest by output is potatoes. Potatoes have a larger value per acre relative to barley and this leads to a greater total output on a smaller number of acres than barley.

Table 6: Crop Acres and Output in Costilla County (USDA and IMPLAN)

Crop	Acres	Output
Barley	5,500	$4,406,370
Alfalfa	25,000	$20,296,000
Wheat	355	$385,076
Potato	3,200	$12,069,307

Mineral County:

Mineral County is home to the City of Creede which is known for its art and sporting goods shops, the famous Creede Repertory Theatre, and airport. Mineral County is also home to Wolf Creek Ski Area as well as guest ranches, ghost towns, and gold metal fishing (CEDS, 2013). As can be seen in Table 7 agriculture is not one of the top ten industries by output in Mineral County. The top industry is silver ore mining followed by other financial investment activities.

Table 7: Mineral County top 10 industries by Output (IMPLAN)

	Employment	Output	
Silver ore mining	40	$	34,524,212
Other financial investment activities	74	$	11,016,345
Performing arts companies	102	$	5,606,818
Real estate	37	$	5,567,736
Other amusement and recreational activities	80	$	4,399,934
Wired telecommunication carriers	5	$	2,797,389
All other food and drink places	35	$	2,316,386
Lessors of nonfinancial intangible assets	1	$	2,162,352
Gambling industries	16	$	2,153,598
Construction of other new residential structures	8.4	$	2,117,781

Rio Grande County:

Rio Grande County is the largest potato and barley producing County in Colorado. Rio Grande County contains the city of Monte Vista which is known as the San Luis Valley's agribusiness center. The city of Del Norte serves as a gateway for tourists and has an expanded Rio Grande Hospital (CEDS, 2013). The top ten industries in Rio Grande County are displayed in Table 8. Six of the top ten industries in Rio Grande County are agriculture: Support activities for agriculture (#3), Potato (#4), Dairy cattle and milk production (#5), Alfalfa (#6), Beef cattle ranching and farming (#8) and Barley (#10).

Table 8: Rio Grande County top 10 industries by Output (IMPLAN)

	Employment	Output	
Electric power transmission and distribution	65	$	80,153,259
Wholesale trade	282	$	700,574,532
Support activities for agriculture	1,618	$	60,868,694
Potato	449	$	51,084,000
Dairy cattle and milk production	24	$	31,636,425
Alfalfa	200	$	26,195,999
Hospitals	118	$	15,209,003
Beef Cattle ranching and farming	50	$	15,156,219
Construction of other new residential	62	$	14,969,433
Barley	36	$	12,720,200

Table 9 displays acres and output in Rio Grande County for four crops: barley, alfalfa, wheat and potato. Alfalfa has the most acres in the county with 26,000 acres. While alfalfa has the most acres in the

county Potato has the largest output with just over $51 million due to the high value per acre of potato relative to alfalfa.

Table 9: Crop Acres and Output in Rio Grande County (USDA and IMPLAN)

Crop	Acres	Output
Barley	14,300	$12,720,200
Alfalfa	26,000	$26,196,000
Wheat	2,000	$1,875,500
Potato	15,400	$51,084,000

Saguache County:

Saguache County is the largest county in the region and is a busy potato processing, shipping and warehousing center of activity with San Luis Central Railroad providing freight service. The county is also home to agricultural treatment facilities supporting a potato processing plant and farmworker housing. Saguache County has several tourist attractions including a museum, Valley View and Mineral Hot Springs, and Baca Ranch which became the Baca National Wildlife Refuge as part of the designation of the Great Sand Dunes as a national park (CEDS, 2013). As can be seen in Table 10, agriculture is important to the Saguache County economy with half of the top ten industries being directly related to agriculture. The top industry in the County is potato farming with an output of almost $52 million.

Table 10: Saguache County top 10 industries by Output (IMPLAN)

	Employment	Output	
Potato	292	$	51,895,802
Beef cattle ranching and farming	87	$	29,969,645
Support activities for agriculture	788	$	29,436,800
Wholesale trade	153	$	26,855,869
Other financial investment activities	139	$	19,799,305
Alfalfa	99	$	15,812,000
Roasted nuts and peanut butter manufacture	16	$	10,039,794
Barley	23	$	9,970,200
Real estate	66	$	8,997,816
Truck transportation	63	$	7,807,252

Table 11 displays crop acres and output for Saguache County. Potato farming, as the top industry by output in the county, is the crop with the highest output. Alfalfa has the greatest acreage in the county with 17,000 acres followed by potato with 13,300 acres and barley with 12,000 acres.

Table 11: Crop Acres and Output in Saguache County (USDA and IMPLAN)

Crop	Acres	Output
Barley	12,000	$9,970,200
Alfalfa	17,000	$15,812,000
Wheat	2,127	$2,307,203
Potato	13,300	$51,895,800

Objective 2: Discuss the uniqueness of a county level analysis and tool relative to a regional analysis and tool

Using Input-Output (IO) analysis and data on county production this research creates an empirical representation of the economy and its inter-sectoral relationships keeping track of the purchases and sales of every sector within the economy. The inter-sectoral relationships are embedded in a planning tool which allows users to determine the economy-wide effects resulting from a change in the production of one sector, such as changes to irrigated cropping. For more details on IO modelling and the methodology employed in this research please see the entire report entitled, "Economic Impact Analysis and Regional Activity Tool for Alternative Irrigated Cropping in the San Luis Valley." In the full report a regional 'What-if' analysis tool is introduced. As a supplement to the San Luis Valley regional 'What-if' analysis tool this report outlines the county level tools that are being created.

It is important to have an independent discussion of County level analysis relative to regional level analysis as the smaller economic region comes with unique challenges and opportunities. The basic economic assumptions about the technical relationships and business behavior behind IO modelling is the same independent of the region size. The basic IO modelling assumptions are as follows:

- Constant returns to scale: This implies that the production of goods and services are scalable and linear in the scaling --if additional output is required, all of the necessary inputs increase proportionately. This assumption generally holds in economic analysis for short run periods and for incremental changes.

- No supply constraints: With this assumption, an industry has limitless access raw materials at a fixed price, and industry output is limited only by the demand for its products. This assumption is generally reasonable for agriculture, with the exception of water, which can certainly be a limiting factor in production. Because this study looks at industry contraction, rather than expansion, limiting inputs is of less concern.

- Fixed commodity input structure: This implies that price changes do not cause a firm to buy substitute goods--changes in the economy will affect the industry's output but not the mix of commodities and services it requires to make its product. This is the most troubling assumption

and is the reason that the model is static and should not be used to forecast much beyond one year.

- Homogenous sector output: This implies that the proportions of all the commodities produced by that industry remain the same, regardless of total output--an industry won't increase the output of one product without proportionately increasing the output of all its other products. This is a reasonable assumption for the agricultural sector.

- Homogenous industry technology: This implies that an industry uses the same technology to produce all of its products. This is a reasonable assumption for the agricultural sector.

The size of your region (in this example San Luis Valley vs County level regions) will have impacts both on the results of the analysis as well as the interpretation of the results. It is almost always the case that the larger the region, the larger the economic multiplier effect. Put another way the larger the region the more inter-linkages within the economy, while a smaller region will have more leakages of purchases outside the region. Often in order to isolate the effects of a change it can be desirable to create as small a region as possible. Creating a region at the County level as opposed to a San Luis Valley regional level allows for the focal point to be the County itself and highlights the importance of local businesses on the local economy.

While it may be desirable to perform an analysis at the county level there can be some drawbacks to the smaller sized region. One of the potential drawbacks is the availability and quality of secondary data at the county level. In addition, in general the closer the region resembles a functional economic area the more robust and credible the IO analysis is likely to be. A functional economic area is a semi self-sufficient economic unit which includes the places where people live, work and shop (Thilmany et al, 2016). It should be noted that a county level analysis may overstate the impacts to households and businesses within the County as it looks at them in isolation of the larger regional linkages which can be more realistic to true spending patterns.

Objective 3: Demonstrate some examples of county level scenario analysis using Conejos County

A series of 'what-if' user-friendly analysis tools are being created with which stakeholders can examine changes to the local economy, such as when the crop mix shifts from more water intensive crops to less water intensive crops or the fallowing of land. For more details on the 'what-if' tool please refer to the entire report entitled, "Economic Impact Analysis and Regional Activity Tool for Alternative Irrigated Cropping in the San Luis Valley."

The following scenarios serve as examples to illustrate the use of the Conejos County 'what-if' analysis tool to describe one-time changes to the Conejos County economy when an economic disruption, such as changing crop mix, occurs. This report highlights these Conejos County scenarios as examples of

scenario creation and usage of the County level tool. Similar scenarios could be created and analyzed for the other counties.

In the following three **hypothetical** scenarios, the economic disruption involves three different approaches to reducing the consumptive see of groundwater irrigation in the County by 6,000 acre feet. The three hypothetical strategies are as follows:

- *Scenario 1*: A combination of shifting acres from alfalfa to barley and fallowing alfalfa acres to meet the water saving goal
- *Scenario 2*: The same combination of shifting acres from alfalfa to barley and fallowing alfalfa acres as described in scenario one, with the addition of CREP enrollment for the fallowed alfalfa acres
- *Scenario 3*: A combination of unfunded conservation efforts, shifting from alfalfa to barley production and fallowing of alfalfa acres.

Scenario One

The first scenario shifts 3,000 acres of alfalfa production to barley production. Barley is a lower water using crop and thus this shift from alfalfa to barley would translate to a reduction in consumptive use of 3,000 acre feet. To reduce the other 3,000 acre feet (for a total 6,000 acre feet reduction) 1,224 acres of Alfalfa are fallowed. Table 12 illustrates the acreage change as well as the change in sales (output) that would be associated with our hypothetical scenario one.

Table 12: Change in Sales (Output) Associated with Scenario One

	Acreage change	Direct Economic Output Change
Barley	3000	$ 2,532,000
Alfalfa	-4224	$ (2,171,136)
Potatoes	--	--
Wheat	--	--

The reduced sales (output) listed in Table 12 are entered into the input page of the 'what-if' spreadsheet tool. The values are then multiplied by the embedded economic activity matrix to develop measures of total economic output changes associated with the direct economic output changes from the scenario. Figure 13 shows the results of these changes as calculated by the 'what-if' tool. The analysis shows that overall the total economic impact for output is positive for this scenario, output increases by a little over $500,000. This increase in output is due to the greater value per acre generated from barley then from alfalfa in 2013, thus the shift from alfalfa to barley results in an increase in output. The opposite story is true for employment, scenario one results in a decrease of total employment in the County of almost 17 employees.

Table 13: Scenario One Results from the 'What-if' Tool

SUMMARY RESULTS: Outcome values from specificed changes in economic activity

	Direct	Indirect	Induced	Total
Total Output	$ 360,864	$ 274,566	$ (129,396)	$ 506,034
Employment	-17.9	2.3	-1.2	-16.8
Value Added	$ (1,145,717)	$ 123,360	$ (69,841)	$ (1,092,198)
Non-Property Tax	$ (17,861)	$ 10,270	$ (9,242)	$ (16,833)

Note that the Conejos County Tool reports the economic impacts not just in aggregate as shown in Table 13 but also by individual industry. The tool contains 184 unique industries that are present in the San Luis Valley Economy (all industries may not currently be located in the individual county) each of which can be individually shocked.

Scenario Two

The second scenario is the same as the first scenario with one distinction. In scenario two the fallowing of alfalfa acres is not an entire loss of output to the Conejos County economy. The fallowed acres are enrolled in the Conservation Reserve Enhancement Program (CREP) and a payment is received for each acre that is fallowed. The CREP payment policy was chosen for our scenario analysis as it has been utilized in sub-district one already and is a potential option that could be used to mitigate some of the negative economic impacts that are associated with reductions in irrigated agriculture. The CREP program provides an incentive for farmers who conserve irrigation water and groundwater withdrawals while also enhancing water quality, reducing erosion, improving wildlife habitat and conserving energy within the watershed.

CREP payments are payments from the USDA directly to the farmer. Since these payments are federal they are essentially money coming from outside Conejos County into the region they can be counted as a direct increase in output in the County. If these payments came from within the County they would not be considered as direct impacts as they would just involve shifting of money within the County. The Rio Grande CREP has USDA irrigated rental payments in the region of $175 per acre taken out of production per year through the term of the contract (RGWCD, 2015), so a value of $175 per acre for a CREP is used in this scenario. This assumption of a $175 payment is an oversimplification of the complexities involved in the CREP program but is used here as an illustration of how the 'what-if' tool can be used to evaluate the impacts of a program such as CREP. The acreage and direct economic output changes related to this scenario are shown in Table 14.

Table 14: Change in Sales (Output) Associated with Scenario Two

	Acreage Change	Direct Economic Output Change
Barley	3000	$ 2,532,000
Alfalfa	-4224	$ (2,171,136)
Potatoes	--	--
Wheat	--	--
CREP Payment	$ 214,286	$ 214,286

The change in sales (output) listed in Table 14 are entered into the input page of the 'what-if' spreadsheet tool. The values are then multiplied by the embedded economic activity matrix to develop measures of economic output changes. Table 15 shows the results of these changes as calculated by the 'what-if' tool. The results show that, similar to scenario one, the shift to barley acres more than out weights the loss that comes from the reduction in alfalfa acres. This difference in scenario two is that there is also a CREP payment that moves through the economy and the total economic output increase, $784,926, is greater than in scenario one and the reduction in employment, 2.6, is lessor than in scenario one. Showing that a CREP payment has potential to lessen the economic impact of the acreage reduction but likely would not completely mitigate the negative impacts, at least in this hypothetical scenario.

Table 15: Scenario Two results from the 'what-if' tool

SUMMARY RESULTS: Outcome values from specificed changes in economic activity

	Direct	Indirect	Induced	Total
Total Output	$ 575,150	$ 274,566	$ (64,790)	$ 784,926
Employment	-4.2	2.3	-0.6	-2.6
Value Added	$ (931,431)	$ 123,360	$ (34,981)	$ (843,051)
Non-Property Tax	$ (17,861)	$ 10,270	$ (4,652)	$ (12,242)

Scenario Three

Scenario three is similar to scenario one and scenario two in that some acres are transitioned from alfalfa to barley and other acres are fallowed. Where scenario three differs is that it accounts for unfunded conservation efforts that are both un-subsidized but also do not reduce crop sales. This could be reflected in producers more closely monitoring their water applications and continuing to produce the same amount with less water though placing water right next to the soil surface or in-canopy. In this scenario 2,000 acre feet are reduced through unfunded conservation efforts, 2,000 acre feet are transitioned from alfalfa to barley (this transition translates to a 2,000 AF reduction in water use) and 816 alfalfa acres are fallowed (816 acres fallowed translates to a 2,000 AF reduction in water use). Table 16 shows the acreage reductions and the direct economic output change associated with scenario three.

Table 16: Change in sales (output) associated with Scenario Three

	Acreage Reduction	Direct Economic Output Change
Barley	2,000	$ 1,688,000
Alfalfa	-2,816	$ (1,447,424)
Potatoes	--	--
Wheat	--	--

The change in sales (output) listed in Table 16 are entered into the input page of the 'what-if' spreadsheet tool. The values are then multiplied by the embedded economic activity matrix to develop measures of economic output changes. Table 17 shows the results of these changes as calculated by the 'what-if' tool. Table 17 shows that this scenario has a positive impact on the total output, while resulting in a negative impact to total employment, value added and non-property taxes.

Table 17: Scenario Three Results from the 'What-if' Tool

	Direct	Indirect	Induced	Total
Total Output	$ 240,576	$ 223,519	$ (112,812)	$ 351,283
Employment	-7.4	1.9	-1.0	-6.5
Value Added	$ (1,078,230)	$ 99,415	$ (60,893)	$ (1,039,708)
Non-Property Tax	$ (12,013)	$ 7,952	$ (8,065)	$ (12,126)

Final Remarks

Irrigated cropping is an important base industry in the counties of the San Luis Valley generating significant direct sales in the county economies, creating important demands for the suppliers of agricultural inputs and generating significant wage income for workers that can drives household demand for local goods. Regional economic issues often involve many stakeholders, and thoughtful deliberation of these issues often entails measuring the economic ripple effects of different policy scenarios. To this end, a spreadsheet tool was created that houses the economic activity matrix for the counties of the San Luis Valley, and three irrigated cropping scenarios for Conejos County demonstrate how such a matrix might be used. Rules of thumb suggest that including high value crops in acreage reductions may create larger economic impacts vis a vis lower value crops, that prevailing prices and yields play an important role in the determining overall impacts, and that CREP payments may not be sufficient to offset losses to economic activity, as well as the fact that payments may not be distributed to all those impacted by reduced irrigated cropping. Care should be taken when interpreting the results from the three scenarios due to the assumptions they are built on. In addition to the key assumptions of input-output analysis outlined in this report, the scenarios make the fundamental assumption that the four crops are generating revenue values equivalent to the level in the most recently available data,

2013. The ‘what-if’ tool can be used to relax this assumption and evaluate scenarios based on circumstances in which high revenue years or low revenue year prevail.

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