

2013

Title: Economic Impacts of the Special Subdistrict #1 Assessment on Potato Growers in the San Luis Valley

Funding Source: CPAC

Investigators: Dr. Jennifer Bond-Assistant Professor, Department of Agricultural and Resource Economics, Colorado State University. Chris Huber, Graduate Student Assistant, Department of Agricultural and Resource Economics, Colorado State University.

Nature, Scope, and Objectives: The San Luis Valley (SLV) is a top agricultural producing region in Colorado as measured by gross receipts. Farm gate revenues comprise nearly half of the SLV gross domestic product and irrigated crops are the primary source of farm gate sales. In turn, this agricultural activity generates indirect and induced non-agricultural economic activity, however, the collective enterprise has taken a toll on area natural resources.

Steve Vandiver, manager of the Rio Grande Water Conservation District, states that “past groundwater use practices have severely depleted area aquifers in many locations and has caused injurious depletions to surface water rights on many streams.” In order to return the aquifers to a level that is sustainable and replace depletions to streams affected by pumping practices, a reduction in groundwater pumping volumes, and therefore irrigation, is necessary.

Guided by the State Engineer, a Board of Managers that includes area producers, and other stakeholders, a system of assessments has been adopted in order to stabilize the aquifer. The assessments are variable from year to year and are intended to generate a revenue stream to help retire irrigated acres and reduce pumping to a sustainable level. Acting under the 2004 Colorado Senate Bill 04-222, representatives from Groundwater Subdistrict #1 sent the first assessment notices to area groundwater users in late January of 2011. An increase in the assessment was approved by the Board of Managers in late 2012.

To date, there has been no formal, research-rooted discussion of the optimality and effectiveness of the assessments nor discussion of the farm-level and regional economic effects of the combination of water policies and assessments as related to Subdistrict #1. As such, the purpose of the proposed study is to provide conditional forecasts of the net effect economic of the variable assessments on area producers including potato growers and the SLV region, generally.

Our first objective will be to collect data on water usage, production requirements, and a variety of other indicators. Our second objective will be to develop the econometric input/output model and our third objective will be to provide conditional estimates of the costs and indirect economic impacts of scaled assessments on the SLV potato industry and distribute the findings in verbal and published form.

Methodology and Facilities: To accurately model the current and future economic and hydrological situation in the SLV it will be essential to partner with members of the Board of Managers for Subdistrict #1, the State Engineer’s Office, groundwater users, and representatives from the Rio Grande Water Conservation District. An economic production model will be built and coupled with extensive sensitivity analysis that will take into account a range of production practices, soil conditions, and weather possibilities. We intend to both econometrically model potential impacts of the assessment on producers as well as utilize IMPLAN software to estimate collective regional impacts.

Competitiveness: Knowledge of the impacts of additional restrictions on water usage and additional costs associated with imposed assessments will put producers in a better position to plan for forecast economic impacts. Further, we will be able to estimate the number of acres of agricultural production entering and/or leaving the system, giving valuable *ceteris paribus* information on the effects of assessments and associated programs on estimated production in the Valley. In addition, with research-based economic information about the optimality and effectiveness of current and potential assessment rates, growers and Board members will better understand the associated costs and benefits of planned rates and to identify assessments that are effective in achieving the subdistrict's goals.

Extension-Outreach Plan: Based on our data collection and modeling efforts, we intend to make available both technical and outreach reports that accurately estimate potential economic costs and benefits of the proposed assessments. We also intend to coordinate our outreach and education efforts with Valley water authorities, including the Rio Grande Water Conservation District, in order to clarify the scope and magnitude of any economic changes that may stem from conservation efforts. Associated with the various reports, we also anticipate sharing our results in person with interested groups in the Valley including members of CPAC and the Subdistrict #1 Board of Managers.

Potential to Leverage Funding: We intend to submit an additional grant to support an extended version of this project to the Colorado Water Institute and possible to the Western SARE research program.

Timeline:

| Project Completion Timeline by Objective | | | | | | | | | | | | |
|--|-------|-----|------|------|------|------|-----|-----|-----|-----|-----|-----|
| | April | May | June | July | Aug. | Sept | Oct | Nov | Dec | Jan | Feb | Mar |
| Obj. 1 Data Collection | | | | | | | | | | | | |
| Obj. 2 Model Development | | | | | | | | | | | | |
| Obj. 3 Interpretation and Distribution | | | | | | | | | | | | |

Outcomes: In the short term our research will assist potato grower to anticipate direct and indirect costs and benefits associated with the policies of Subdistrict #1. We also anticipate that our results will assist the Board of Managers to better understand the economic impacts of the assignment of assessment rates and to select a closer-to-optimal rate structure that contributes to the achievement of the Subdistrict's goals. In the long term, we anticipate that our methodology and application to economic cost-benefit analysis and impact analysis will aide other Subdistrict's design improved rate structures and to better understand the direct and indirect effects of collective Subdistrict policies.

Detailed Annual Budget: Budget is for one month of faculty time (\$9955), three months of a 1/2 time GRA (\$4,455) and an allocation for within state travel (\$1200). **Total budget is \$16,110.**

TOTAL BUDGET: \$16,110

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| Personnel | |
| PI Salary and Fringe (1 month) | 9,955 |
| Grad Research Associate (3 months, 50% time) | 4,455 |
| Subtotal | \$14,410 |
| Materials and Supplies | |
| Outreach Materials and Printing | 500 |
| Subtotal | \$500 |
| Travel | |
| Bond/Pritchett/GRA (3 visits @ \$400/visit) | 1200 |
| Subtotal | \$1200 |
| TOTAL | \$16,110 |