



Economic Analysis of Water Conservation in Irrigated Agriculture: Findings from the Rio Grande

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Abstract

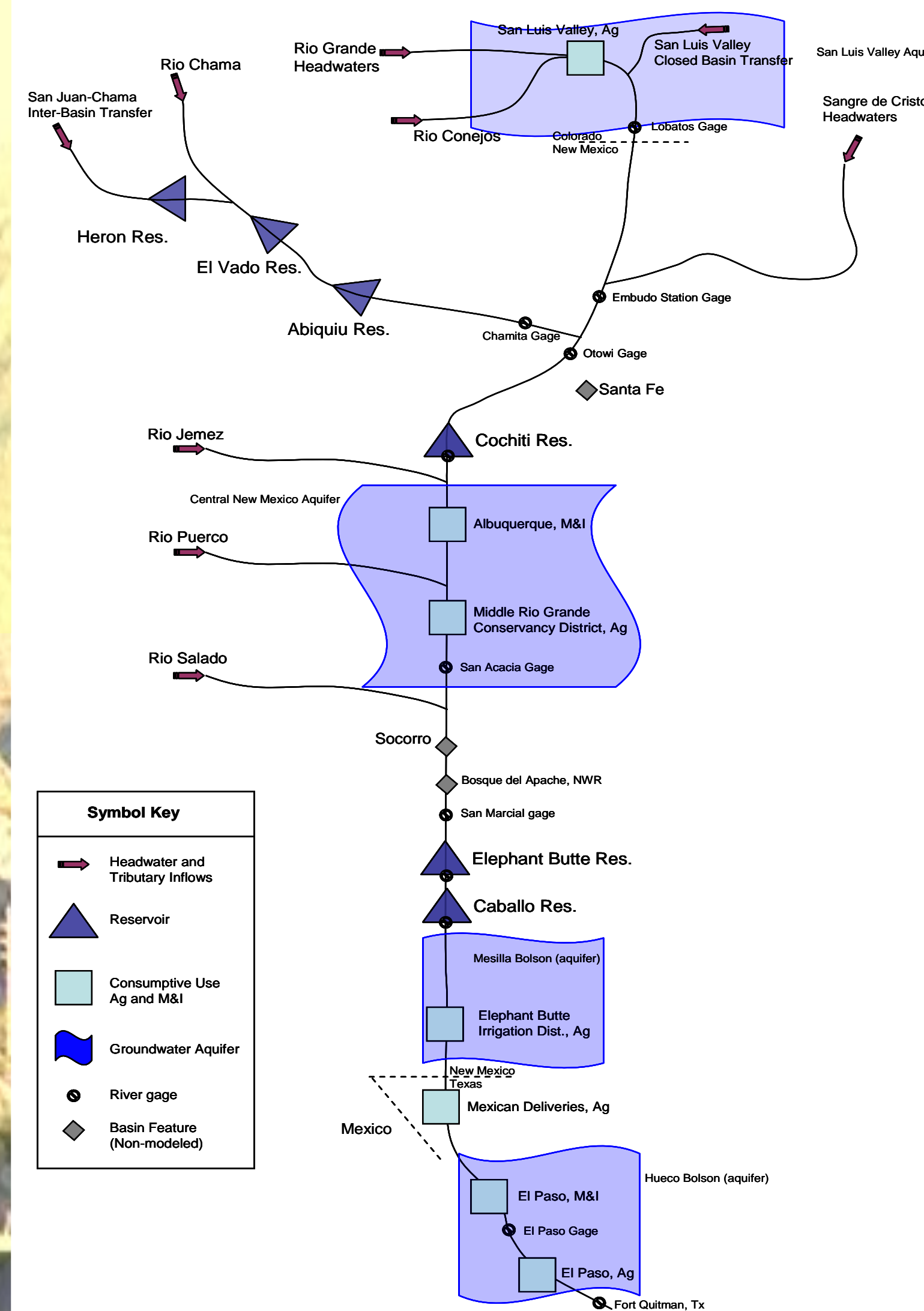
Population growth, climate change, drought, and growing environmental values that are increasing demands for water in the Rio Grande Basin. Irrigated agriculture is the basin's largest water user, and offers the greatest potential for water conservation.

Due to the current lack of reliable data on economics for water conservation in irrigated agriculture; the objective of this research is to identify cost effective measures for promoting water conservation.

These results of the farm income optimization model can inform the design of water conservation policies for irrigated agriculture, and provide information to policymakers who need to formulate cost-effective water-conservation policies.



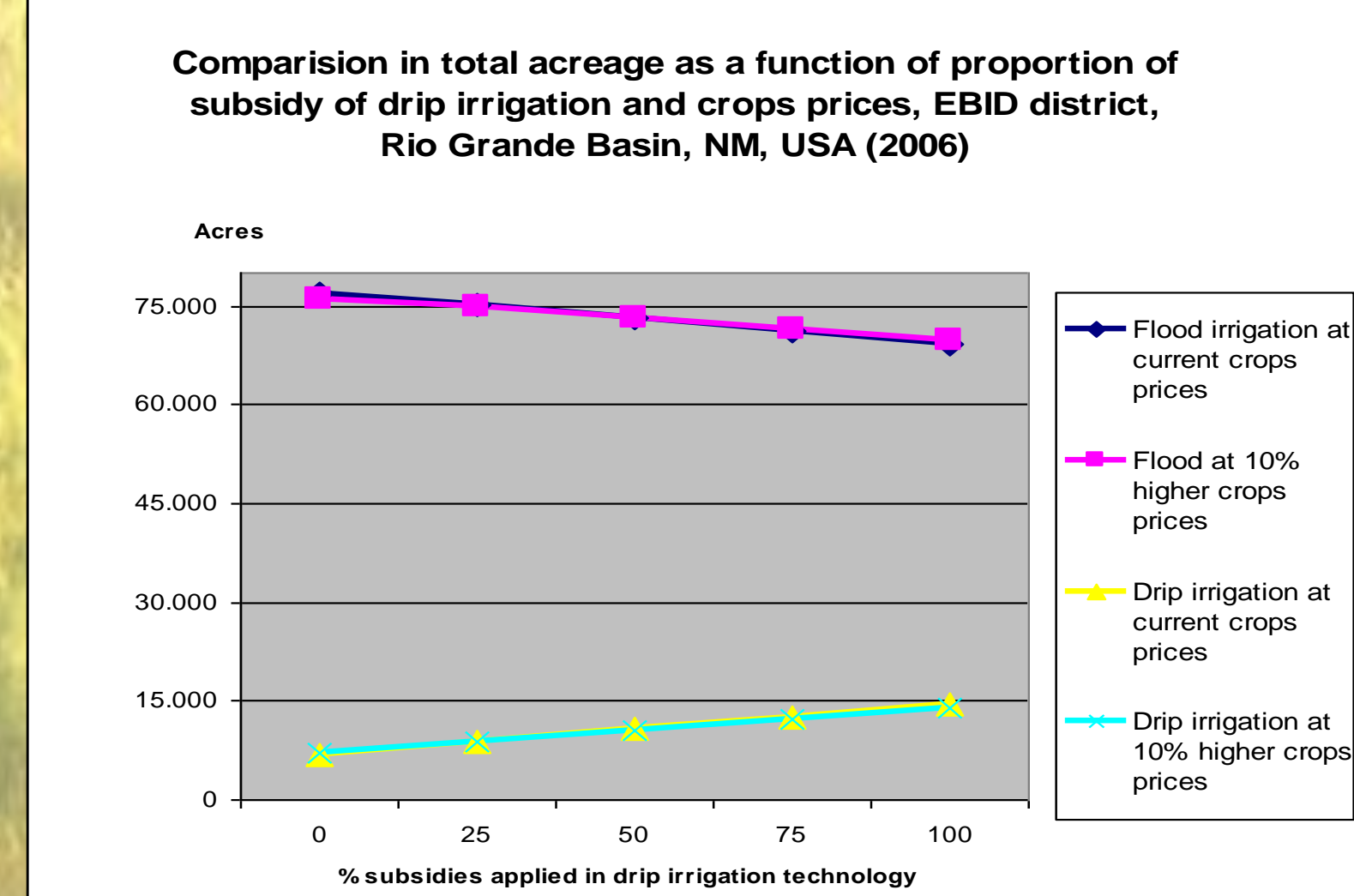
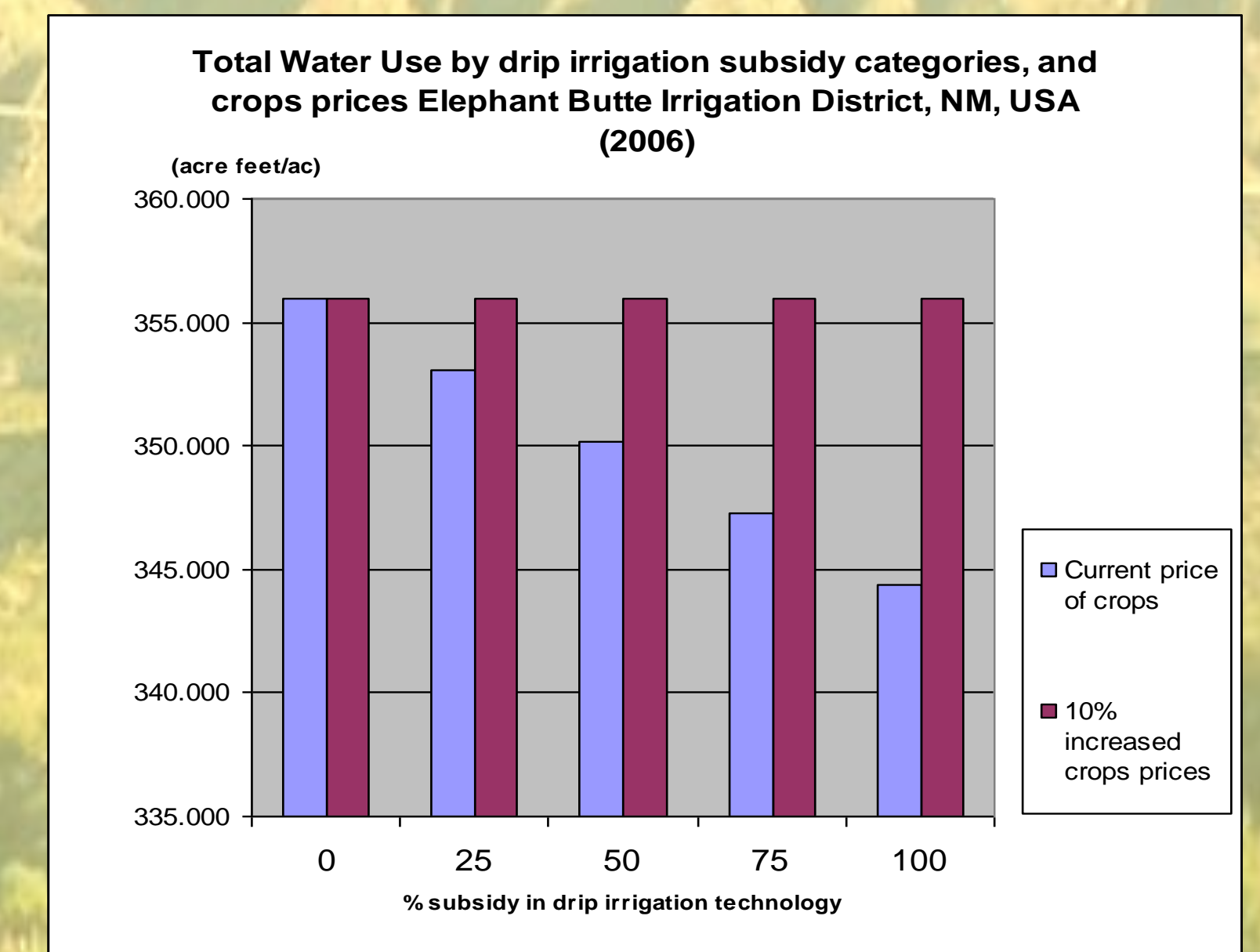
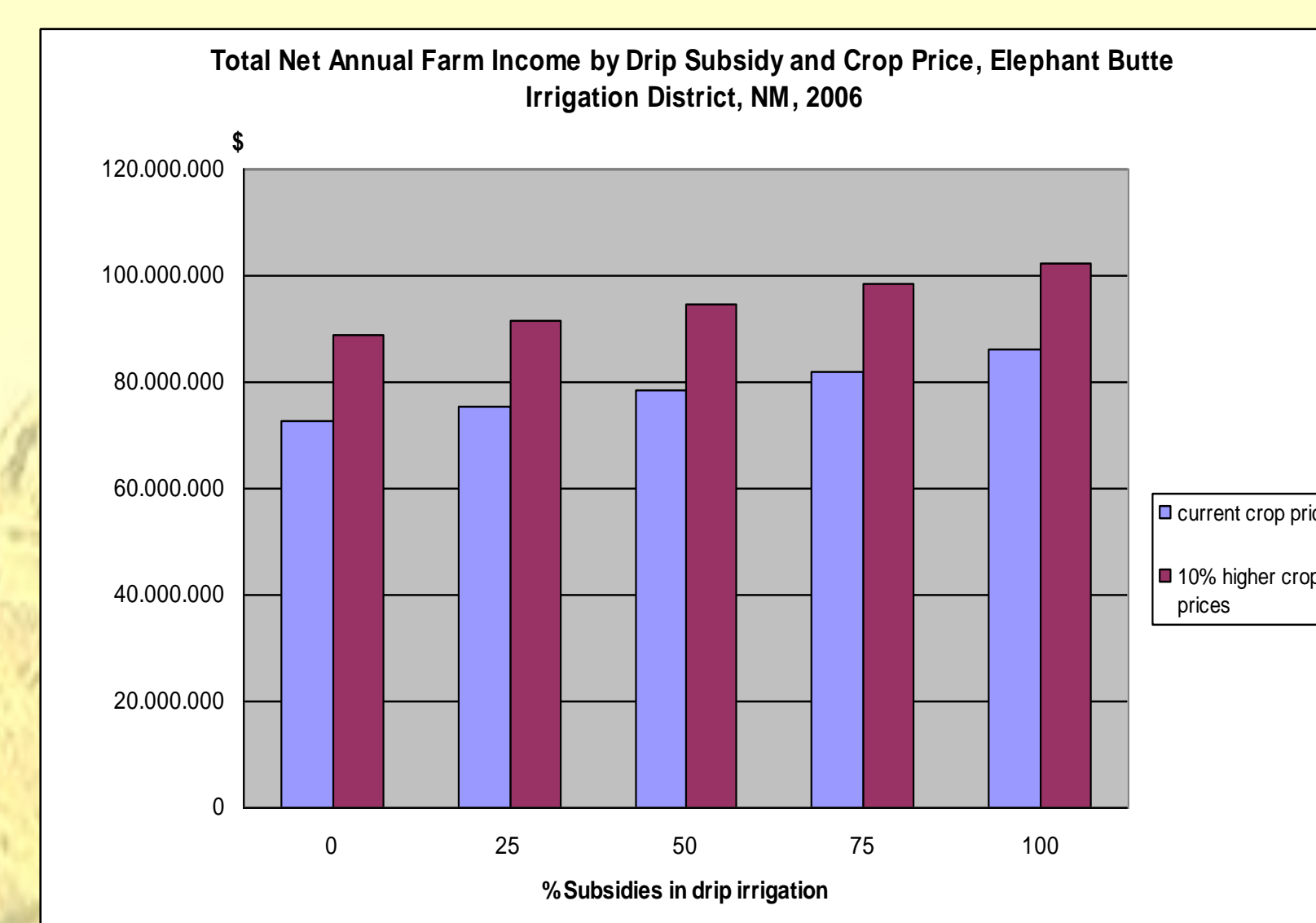
Fig. 1 Rio Grande Schematic Basin Flow Chart



Results

✓ The present results are showing, the influence by governments subsidies in agricultural development applied in water irrigation policy, when the adoption of new irrigation technology is address to contribute in revenues for farmers and also, policies that could contribute to efficiency in distribution of water resources.

✓ When, farmers adopting Drip irrigation technology by governments subsidies. The net farm income could increase as a maximum of \$13,544.155 with the current prices in agricultural crops.



Conclusion

✓ The economical benefits are reflected in the amounts of production and net revenues achieved by the application of subsidies in irrigation technology.

✓ These benefits are still discussed because it has not shown that the amount of water applied in irrigation has decrease with the use of irrigation technology in future scenario with increased prices for production in agricultural crops.

✓ Although results using subsidies for drip irrigation technology for current prices in irrigated crops demonstrated that it can use less amounts of water, and do not produce harmful in the basin river system, which water amounts are calculated and estimated for specifics water uses.



Methods of Analysis

Some of the steps to realize this analysis are;

✓ Function for yield response was based on literature revision in previous agricultural and water policy studies in RGB from crop-land production function relationships.

✓ A "Sensitivity Analysis", consisting of formulating alternatives in water policy, considering irrigation technology and marginal prices.

✓ A PMP technique (a programming method for calibration) was implemented for behavior in field regional level and to optimize behavior in predictability.



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