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*Produced Gas Well Water: Can It Be Repurposed for Agricultural Use? Year 2*

Can produced gas well water from the Raton Basin be reused for agriculture to meet the needs of both producers of natural gas and the environment? This year, this project tested to determine if produced water can support the growth of a wider variety of plants including medicago sativa, foothills mix poaceae, Hyton's medicago sativa, and agropyron cristatum. Also this project tested the chemical composition of the produced water as well as water from other sources to determine what affects the water has chemically on the plants. My hypothesis was that the water from Trinidad Lake and the produced water from the Raton Basin would support the growth of plants the best; the Trinidad Lake water and the produced water from the Raton Basin would be very rich in minerals and low in harmful chemical when tested; and the plants watered with the Trinidad Lake water and the produced water from the Raton Basin would see no negative chemical effects. To test this, I placed the seeds in mason jars and watered them using the types of water. Each day, I would record growth and would water the seeds with 70 ccs of the water. Overall, plants grown using Trinidad Lake water grew the best, then plants using produced water from the Raton Basin, then the tap water, and finally, the distilled water. Also, no harmful chemicals were found in the produced water, or the plants grown using produced water. All three parts of my hypotheses were proven correct.