WHOLE FARM ANALYSIS TOOL FOR EVALUATING THE ADOPTION OF GUAYULE AND GUAR INTO SOUTHWEST PRODUCERS CURRENT OPERATION

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The Sustainable Bioeconomy for Arid Regions (SBAR) Center of Excellence was established in September 2017, with the intended purpose of developing a systems approach for feedstock development, production, and delivery in the Southwest United States. SBAR works to optimize and integrate the production of guayule (why-oo-lee) and guar to enable the Southwest United States to impact the biofuels and other high-value product markets. Guayule (why-oo-lee) (*Parthenium argentatum* A. Gray) plant is a native to the North American Chihuahuan desert and the Southwestern United States and produces natural rubber. Currently, the Brazilian rubber tree, *Hevea brasiliensis*, which is mainly grown in the tropical regions of Southeast Asia and Africa is the primary source of natural rubber. The United States is the major importer and consumer of natural rubber. Because of rising demand, high price variability, and supply uncertainty, the natural rubber industry is looking for other alternatives to diversify the market. Guayule is a promising alternative source of natural rubber, with a long history, but limited industrialization. A principal objective of the SBAR project is to provide stakeholders, interested in expanding crop options with regional solutions that are economically viable, socially acceptable, and meet the water conservation needs of the arid Southwest (AZ, CA, NM, and TX). The introduction of any new crop into a current production system is always a difficult balance between current production practices, existing commodity markets and the economic impact the adoption will have relative to the current profits of the operation. Additional challenges occur due to imperfect market information as the local market may not exist for the new crop being evaluated. Understanding these changes are often difficult and for farmers interested in expanding crop options that might support rubber and biofuel industries, guayule and guar could be one option. To effectively evaluate the potential adoption of the these two crops, the Authors have developed a whole farm analysis tool which will allow producers to evaluate the net returns to the operation given varying levels of acreage adoption, crop mixes and changes in production inputs their by allowing the producer to make an more informed decision about the economics and overall fit of the crops into their operation.

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