



SUSTAINABLE BIOECONOMY  
FOR ARID REGIONS

# GUAYULE: POTENTIAL BENEFITS

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## IRRIGATION WATER SITUATION – CENTRAL ARIZONA

- > Declining water availability for agriculture in the southwestern United States necessitates new strategies to sustain rural economies. High-value crops that are drought and heat tolerant, grow on marginal lands, and that provide economic returns are crucial to the farming industry. Guayule (*Parthenium argentatum*) is a crop that meets these demands and could potentially meet the economic requirements as well.
- > Central Arizona agricultural users face major water cutbacks under Tier 1 shortages expected in the coming years from the Central Arizona Project (CAP), triggered by Lake Mead's dropping water levels. Surface water losses will be offset somewhat by an increase in groundwater pumping, but agricultural production cannot be sustained without major changes to crop production.

## CURRENT CROP PRODUCTION

- > Currently, Central Arizona field crop production is comprised of forage crops and cotton (USDA NASS 2017). These crops require a wide range of irrigation water application from ~3.5 to 6 acre feet of irrigation water (Erie, et al. 1981).
- > Many factors determine where certain crops are grown, but guayule could potentially replace some at-risk acres if its products reach the economic potential of cotton or alfalfa. Although still being studied, the anticipated maximum irrigation requirement for guayule is ~4 acre feet/year.

## LEARN MORE

- > "Colorado River Shortage Fact Sheet" – Central Arizona Project  
<https://www.cap-az.com/documents/departments/planning/colorado-river-programs/CAP-FactSheet-CoRiverShortage-041921.pdf>

## GUAYULE'S FUTURE POTENTIAL

- > Native, desert-adapted shrub
- > Requires less water than current crops
- > Co-products will determine its full value
- > Low requirement for herbicide application

## GUAYULE'S POTENTIAL

- > Since guayule is a native, desert-adapted shrub, it could potentially require less water than anticipated to produce a viable and economic crop. It will certainly require less water than other field crops currently being grown.
- > The true potential for this crop will be based in the value of its products: rubber and resin. While rubber is a high-demand commodity throughout the world, guayule resin does not yet have a market.
- > Guayule resin is currently being researched for several commercial products and is expected to be a high-value component co-product of guayule production.



## REFERENCES

**Erie, L.J.; French, O.F.; Bucks, D.A.; Harris, K. 1981.** Consumptive Use of Water by Major Crops in the Southwestern United States. United States Department of Agriculture, Conservation Research Report No. 29.

**U.S. Department of Agriculture, National Agricultural Statistics Service (USDA NASS). 2019.** 2017 Census of Agriculture: Arizona State and County Summary Highlights, Volume 1, Chapter 2, Table 1.

For more information: <https://sbar.arizona.edu>



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