Guar- a Potential Specialty Crop in New Mexico

What is guar?

Guar is not a word most of us hear or use on a daily basis. If we are familiar with guar at all, it is probably because we see guar gum listed as an emulsifying or stabilizing ingredient in many commercially produced food items, including ice cream and baked goods, and in other products like shampoos and hand lotions.

Guar gum is actually the powdered endosperm from the seed kernel of the guar plant. A member of the pea family, it is also known as the cluster bean. Guar gum has become a big player in the oil and natural gas industry. Its unique viscosity properties have proven effective in stabilizing the water and sand mixture used in the extraction technique of hydraulic fracturing, or "fracking."

Guar could become a viable crop for the Mesilla Valley and elsewhere in New Mexico. Given the tenfold price increase for guar gum over recent years, including it in the cropping system could help the bottom line of farmers looking for an alternative to crops traditionally grown here.

What are the potential benefits of growing guar?

For one thing, it is a legume, so its nitrogen-fixing properties are useful in maintaining soil health and reducing the need for nitrogen fertilizers with the crops that follow. Guar could be effectively rotated with non-legume crops like cotton or sorghum or other grasses. Alfalfa currently plays a similar role in local cropping systems in the area.

Like alfalfa, guar is also a good forage crop. The word "guar" means "cow food" in the Hindi language and has a long tradition as a protein-rich feed crop for livestock in India.

The young seed pods are also edible by humans. The guar gum can also be extracted as powder and incorporated into food - or used in fracking.

Why guar would be well-suited to Southern New Mexico and beyond?

It likes really hot and dry weather, thrives well on relatively sandy soil, it can grow well on saline soils or even alkaline soils, and it grows well anyplace where we receive less than 30 inches of rainfall. It can do well with only 3-6 inches of irrigated water or as few as two well-timed rains. Additionally, it has relatively few insect or disease issues. That, coupled with its low reliance on fertilizer, means it is a relatively low-cost and sustainable crop to produce. In fact, much of New Mexico, as well as West Texas, Southwestern Oklahoma and Arizona, could be viable for growing guar. Globally, guar is grown in very similar conditions in the semi-arid and arid states in India, where cotton is a major crop. Guar production is already being explored in West Texas. So the immediate issue is how it will do locally in southern NM - and which varieties will be the most productive.

The current study planted at the new Student-Centered Field Laboratory on the NMSU campus involves a preliminary evaluation of 27 lines of guar originally collected from different parts of the world and supplied by the U.S. Department of Agriculture germplasm bank. We are evaluating what varieties can perform best here under local conditions and produce the maximum amount of seed, because we are focusing on seed yield, seed production potential for these varieties in this particular study. This is the first test of guar in this part of the state. It is likely that different varieties will perform better in the different climate zones.
Guar offers significant potential as a specialty crop for the state of New Mexico because of its multiple uses as a fresh vegetable for small farmers, or as an animal feed because it is rich in protein, as well as a seed crop because of its high value product that comes from the seed, the guar gum that could be used in the food industry as well as oil drilling. Particularly due to guar gum's use in fracking, the U.S. is the world's largest importer, getting most of its supply from India, the world's largest producer. With demand growing and the price relatively high, producing it closer to where it is being used makes sense from both a sustainability angle and an economic angle. It can give a boost to the local economies.

For more information, contact:

Kulbhushan Grover, PhD.
Assistant Professor
Plant and Environmental Sciences
New Mexico State University
PO BOX 30003, MSC 3Q
N358 Skeen Hall, 945 College Drive
Las Cruces, NM 88003-8003

Phone: (575) 646-2352
Fax: (575) 646-6041
Email: kgrover@nmsu.edu