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In Tiny Bean, India's Dirt-Poor Farmers Strike Gas-Drilling Gold



Kuni Takahashi for The New York Times

Rawat Singh and his son Sohan, rear, in the family's new home in Lordi, India, built with profits from guar farming. Their old mud hut is now used by goats.

By **GARDINER HARRIS**

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LORDI, India — Sohan Singh's shoeless children have spent most of their lives hungry, dirty and hot. A farmer in a desert land, Mr. Singh could not afford anything better than a mud hut and a barely adequate diet for his family.

But it just so happens that when the hard little bean that Mr. Singh grows is ground up, it becomes an essential ingredient for mining [oil](#) and [natural gas](#) in a process called hydraulic fracturing.

Halfway around the world, earnings are down for an oil services giant, Halliburton, because prices have risen for guar, the bean that Mr. Singh and his fellow farmers raise.

Halliburton's loss was, in a rather significant way, Mr. Singh's gain — a rare victory for the littlest of the little guys in global trade. The increase in guar prices is helping to transform this part of the state of Rajasthan in northwestern India, one of the world's poorest places. Tractor sales are soaring, land prices are increasing and weddings have grown even more colorful.

“Now we have enough food, and we have a house made of stone,” Mr. Singh said proudly while his rail-thin children stared in awe.

Guar, a modest bean so hard that it can crack teeth, has become an unlikely global player, and dirt-poor farmers like Mr. Singh have suddenly become a crucial link in the energy production of the United States.

For centuries, farmers here used guar to feed their families and their cattle. There are better sources of nutrition, but few that grow in the Rajasthan desert, a land rich in culture but poor in rain. Broader commercial interest in guar first developed when food companies found that it absorbs water like a souped-up cornstarch, and a powdered form of the bean is now widely used to thicken ice cream and keep pastries crisp.

But much more important to farmers here was the recent discovery that guar could stiffen water so much that a mixture is able to carry sand sideways into wells drilled by horizontal fracturing, also known as fracking.

The fracking boom in the United States has led to a surge in natural gas production, a decline in oil imports and a gradual transition away from [coal](#)-fired power plants. Fracking may also have spoiled some rural water supplies and caused environmental damage in parts of the United States, but it is hard to find anyone in Rajasthan who sees fracking as anything but a blessing.

“Without guar, you cannot have fracturing fluids,” said Michael J. Economides, a professor of engineering at the University of Houston who is a fracking expert. “And what everybody is worried about is that there is virtually no guar out there now.”

India produces about 85 percent of the world’s guar. As worries rose about the prospects for this year’s monsoon, which is vital for an adequate crop, speculation over guar production built to a frenzy. Trading in guar futures was even suspended, and with the monsoon still behind schedule, it remains postponed. Ramesh Abhishek, India’s chief commodities market regulator, said guar trading would resume when supplies proved adequate.

“If the physical market doesn’t provide enough supplies, then the futures market causes more harm than good,” Mr. Abhishek said.

Now, an international effort is under way to ensure that guar supplies come closer to meeting the soaring demand, and hundreds of thousands of small farmers here have been recruited in the effort. Leading the way is Vikas WSP, an Indian company that specializes in the production of guar powders.

Many farmers sold their seed stock last year when prices shot up, so Vikas has held rallies in small towns to pass out free seeds, including new high-production hybrids. The company persuaded farmers with irrigated land in the state of Punjab, north of Rajasthan, to plant guar in the spring instead of cotton. That crop is now coming to market.

And Vikas signed contracts with farmers guaranteeing a return of nearly \$800 per acre if they planted guar, no matter what this year's monsoon brought.

"Whatever they produce, we will buy," said Sanjay Pareek, a Vikas vice president.

Anticipating a heavy crop, Vikas is more than doubling its processing capacity by building two new plants in Jodhpur, the second-largest city in Rajasthan. By next year, the company will be able to produce 86,400 tons of guar powder each day, it said. Smaller producers are taking similar steps.

"Last year was an extraordinary year," said S. K. Sharma, managing director of Lotus Gums and Chemicals in Jodhpur. "In 35 years in this business, I've never seen that."

Mr. Sharma said his company would soon open a second plant dedicated entirely to serving gas companies, adding that he was cautiously optimistic that guar prices would remain robust. "But we know there are efforts to grow guar in China, Australia, California and elsewhere, and it has us worried," he said.

Despite the expanding supply, many analysts believe that guar prices will remain high for the foreseeable future. Neil Beveridge, an oil analyst at Sanford C. Bernstein & Company, said demand for fracking services should continue to grow rapidly as the industry expanded outside North America. "We're already starting to see a big increase in Eastern Europe, Argentina, Australia, China and India itself," he said.

Susan L. Sakmar, an energy analyst in San Francisco, cautioned that the fracking boom could slow and that guar alternatives could be developed. But Mr. Economides, the Houston fracking expert, dismissed such talk. "There are no easy or cheap alternatives to guar," he said.

That is good news for guar producers. Farmers, traders and processors around Jodhpur admitted fulfilling some long-held dreams with the profits they made last year. Some took trips to Europe; some bought gold; others got married.

At a Massey Ferguson tractor dealership in Jodhpur, where sales have doubled in recent years, Nathu Parjapat of Haripura was buying a tractor for his father-in-law,

whose own profits from farming guar allowed him to provide a dowry of 12 grams of gold and half a kilogram of silver when Mr. Parjapat married his daughter.

“So now I’m buying a tractor for him,” Mr. Parjapat said as his father-in-law stood next to him, nodding with grave approval.

Mr. Singh, the farmer with the new house, said he would plant his entire field with guar this year instead of spreading his risk among other crops. His family is able to sleep on the stone roof, where a constant breeze keeps them cool. His old mud house, now occupied by goats, has a roof made of sticks that did not allow such a luxury.

Mr. Singh’s sister, Issa Rathore, showed off a silver ankle bracelet and a toe ring, both bought with guar profits. But her smile quickly vanished when she was asked whether she expected a similar windfall in the coming months. She glanced at the sky, and the children around her grew hushed. “Will the monsoon be enough this year?” she asked. “Who knows?”

Sruthi Gottipati contributed reporting.

This article has been revised to reflect the following correction:

Correction: July 17, 2012

An earlier version of this article said incorrectly in the Web summary that the affected farmers were in northeastern India, rather than northwestern India .

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See additional photos and a map below

July 17,



Kuni Takahashi for The New York T

Farmers waited this month to receive free guar seeds from an Indian company.



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A powdered form of the bean, shown dehusked, is now widely used to thicken ice cream.

