International Research Will Benefit Corn Wet Millers In US

URBANA, ILL.

Researchers at the University of Illinois have teamed with two USDA laboratories to fine tune their research in the corn wet-milling process, using small, single-owner plants in other countries.

Vijay Singh, an associate professor in the Department of Agricultural and Biological Engineering, has led the field in the development of a process called enzymatic corn wet milling.

"This process reduces steep time and produces starch yields comparable to conventional corn wet milling," said Singh. "Conventional milling soaks corn in water with sulfur dioxide to fractionate the corn. The enzymatic technology soaks the corn in water until the germ is pliable and doesn't break when the corn is ground."

The ground corn slurry is then treated with enzymes to help in corn fractionation. Starch recovery is better with the enzymatic process and health and environmental concerns caused by the use of sulfites are eliminated.

"This technology is very useful for the large corn wet millers in the United States," Singh said, "but the technology requires some modifications at the front end of the process from what they have been using for the last 150 years; they were hesitant to do any kind of trials in their plants here."

This led Singh and David Johnston (a USDA/ARS researcher) to conduct research in other countries at smaller, single-owner plants. "These plants are much more manageable," Singh noted, "and we work directly with the owner. In Malaysia, we conducted a commercial trial at the Jamanis Corn Wet Milling Company, and the owner allowed us to modify his plant. Using our process, his starch yields jumped four to four-and-a-half percent. When we went back to the original process, they dropped. So we played around with different enzyme doses and all the doses gave us higher starch yields."

Singh's research in the wet-milling process was initially funded by the USDA Cooperative State Research, Education and Extension Service, now called the USDA National Institute of Food and Agriculture.

"Most of the work I'm doing is a team effort," Singh said. "I am part of a team of very good grad students, technicians, colleagues here at the U of I, and colleagues at two USDA research service laboratories in Peoria and Wyndmoor, Pennsylvania."

Singh and his colleagues are working to get this technology implemented in India and Israel. "We need to show that other plants can do this and get these kinds of benefits," he concluded.

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