

ISU scientist researches ways to squeeze two fuels from one kernel of corn

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Getting ethanol from a corn kernel has changed the way the country looks at a corn field. Now, that view might change again.

Iowa State University researcher Tong Wang is researching new ways to maximize the amount of oil that can be recovered after a corn kernel is used for ethanol fermentation.

"Potentially, a large volume of oil can be extracted from the co-products of fermentation to make biodiesel," said Wang about the possibilities of the research. "Oil that we're missing now."

The added oil for biodiesel is in addition to the ethanol that can be produced from the corn.

In most current ethanol processes, about half of the oil in corn is partitioned in the fermentation liquid -- stillage -- and the other half becomes part of the solid. After the liquid dries to a syrup, it is combined with the solid. That co-product becomes distiller's dry grain with solubles (DDGS) -- and is often used as livestock feed.

Wang says that getting that oil out of the liquid stillage before it becomes part of the dry grain co-product would be great for both biodiesel production and the DDGS. The advantage of removing that oil from DDGS is that high oil content in feed is bad for dairy cattle and, when fed to swine, it produces a softer fatty tissue that is undesirable, says Wang.

Wang is experimenting with ways to change the beginning of the ethanol-making process in order to get more oil partitioned in the liquid so the oil can be easily removed.

"We hope to get more oil from the corn," said Wang.

Wang says there hasn't been any published research on this process.

Wang is working with FEC Solutions of Des Moines on the research.

"We have high hopes for this project and hope to have technology come from the research that we can commercialize quickly," said Joe Riley of FEC Solutions. "Ethanol plant margins are being squeezed and hopefully the research Tong is doing will lead to us creating higher values for ethanol co-products. This will in turn be a win for the ethanol, biodiesel and livestock producers concentrated in Iowa and the Midwest."

FEC Solutions is a new energy company that works with agricultural products and fuels.

Wang's research is made possible by a Grow Iowa Values Fund grant to create high quality jobs through business development and expansion.

Source: Iowa State University

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