An Evaluation of the Performance of a Biobased Carrier made from Distillers Grains for Fertilizer Applications

Klein Ileleji, Project Leader

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<th>Cooperators:</th>
<th>Ethanol Plants in the Midwest Region</th>
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<td>Sponsors:</td>
<td>This material is based upon work supported under a National Science Foundation Graduate Research Fellowship. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the National Science Foundation.</td>
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| Goals:      | 1) Determine process parameters for coating of carriers  
2) Experimental investigation of coating molecule-DDGS granule interactions on molecule release from carrier and its functionality  
3) Determine flow properties of coated DDGS granules |
| Recent Publications: | n/a |

**Statement of Problem:**
Several years ago, the production of corn ethanol was a very profitable industry. Due to increased corn prices and futures trading mishaps, the ethanol industry is now experiencing difficulties. New uses for corn ethanol coproducts could help to increase the profitability of corn ethanol. One coproduct of the corn to ethanol process is distillers grains with soluble (DDGS). Currently, DDGS has fairly low commercial value, around $135/ton. Our lab group has invented an inert granular carrier for fertilizer and other applications using DDGS.

**Current Activities:**
Recent studies by our lab have shown that corn co-products, distillers wet grains (DWG) and condensed distillers soluble (CDS) from corn ethanol can be engineered into custom designed spherical dry pellets (granules) of given size using a rotary drum dryer. A provisional patent entitled Biobased Carriers from Distillers Grains with Soluble and Methods for Production thereof” (U.S. Patent application No. 61/042,046) has been filed based on this work.

We are currently investigating process parameters needed to obtain specially designed granules. We will then assess these granules' quality as inert carriers.

**Impact:**
This invention could have a significant impact on the profitability of ethanol. Similar inert carriers for fertilizers command prices between $200 to $600/ton. If the DDGS carriers were to be sold at these prices, profits upwards of $450/ton could be realized.