

PROBLEM

Corn crops produced in some areas of Canada are susceptible to increased fungal growth due to moist conditions. A regional ethanol plant was faced with large volumes of contaminated process waste/by-products that could not be sold to local farms as feed. In this case, vomitoxin (VON) produced by fungi in incoming corn feedstocks was concentrated in the plant stillage. Syrup and Dried Distillers Grains (DDG) produced by the plant as saleable by-products for animal feed were rendered inedible due to very high vomitoxin contamination. The plant was faced with landfilling the by-products at extremely high costs if a solution was not provided in the short term.



APPROACH

Jagger Hims Limited was asked to provide a presentation of possible options for either reducing fungal contamination or managing by-products at a lower cost compared to landfilling. The biofuel plant agreed to a limited analytical study of the company's by-products prior to the presentation in order to gain a better understanding of the chemistry of the material and potential treatment options.

RESULTS

A presentation on alternative treatment options was provided which included blending options, land application of sludges, phytoremediation, recirculation, enhanced testing protocols, and thickening prior to landfilling. Information on how other companies address outbreaks of vomitoxin was cited. A more detailed treatability study was proposed to further assess the treatment options provided. Jagger Hims Limited also participated in a round-table discussion regarding options to address the problem. Enhanced testing methods were provided.

SOLUTION

Blending options were adopted by the plant to dilute more-contaminated syrup with less-contaminated DDG. Levels of fungal contamination in incoming corn feedstocks decreased shortly after, and mill staff increased screening of feedstock inputs. Jagger Hims Limited initiated a good working relationship with the process staff and helped to troubleshoot the problem. Jagger Hims Limited is well placed to help the company meet its future needs.