Seed Corn/Ethanol Issue
August 2020 Background

An ethanol facility in Nebraska utilizes treated seed corn as its sole feed stock in the ethanol production process. It has been in operation since 2015. A little over a year ago, area residents expressed concern regarding the large piles of by-product (wet cake) being stored at the facility. There were odor and runoff concerns and allegations of one or more wildlife and/or domestic pet deaths attributed to the piles. In conversations with both the Ag and the Environmental agencies we learned that this facility processes large quantities of seed corn and had received approval from the Nebraska Department of Ag (NDA) to apply the wet cake byproduct as a soil amendment. For various reasons the land application as a soil amendment of the material had not occurred for some period and had resulted in large stock piles of wet cake and complaints.

NDA had not been aware that treated seed was the feed stock for the ethanol plant and sampling found variously high levels of both insecticides and fungicides (some older sampling results and other background attached). In conversations with OPP staff at that time, NDA and we were counseled that these levels, coupled with the amounts of material being applied per acre, could present unacceptable risks.

The lab analysis provided at the time identified significant concentrations of the following pesticides: azoxystrobin, clothianidin, fludioxonil, metalaxyl, prothioconazole, tebuconazole, thiamethoxam and trifloxystrobin, and a low concentration of imidacloprid and selenium (this is the only heavy metal reported as detected). Clothianidin (neonic insecticide) topped the chart at 427,000 ppb. NDA's calculation found the proposed land application being used at the time was likely in the range of 20 tons per acre resulting in 17 pounds of this active ingredient per acre. Their calculations indicated the annual maximum amount allowed at 0.165 pounds per acre.

NDA chose to rescind the soil amendment label as they had not been aware that the wet cake contained pesticides at these levels and agreed with OPP's thoughts that these levels could present unacceptable risks as currently managed. The decision by NDA to rescind the soil amendment label eliminated the only useful purpose for the wet cake and the Nebraska environmental agency (NDEE) determined it to be a solid waste that would require disposal in a landfill.

The facility has continued to operate. Landfilling is expensive and it's unclear to us at this point as to whether they have removed any of the wet cake or not but understand that large quantities of wet cake remain on site.

The facility has explored bio char but aren't able to process enough of the wet cake to make much difference and do not have a useful end use for the biochar which also has pesticide residues. The biochar will also yield secondary compounds through combustion and it's unclear as to exactly what those compounds may be or what risks may be associated with them. NDEE has indicated that the ethanol production process appears to concentrate the insecticides and fungicides and the believe that the bio char process and potential roasting of the material in a batch mini oven could concentrate it further in the ash.