

NEBRASKA DEPARTMENT OF AGRICULTURE
PESTICIDE/FERTILIZER PROGRAM

Pesticide Complaint Investigation Report: AltEn, LLC, case 032919TLC112

Investigator: Tim Creger, Pesticide/Fertilizer Program Manager

Date of Initial Investigation: March 29, 2019

PARTIES INVOLVED

Mr. Scott Tingelhoff, General Manager
AltEn, LLC
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Mead, NE 68041
(402) 624-2000, extension 1008
stingelhoff@mtgkc.com

Mr. Dean Settje, President
Mr. Chris Reimers, Agronomist
Settje Agri-Services and Engineering
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INTRODUCTION AND BACKGROUND

On March 29, 2019, I conducted a site inspection of AltEn, LLC (AltEn), an ethanol production facility near Mead, NE. The inspection was conducted in order to collect an official sample of distiller's grain wetcake the facility was generating and labeling as a soil conditioner under the Nebraska Commercial Fertilizer and Soil Conditioner Act (NCFSCA). The investigation was opened due to allegations by the public and the Nebraska Department of Environmental Quality (NDEQ) that AltEn was using discarded corn seed treated with pesticides as a source of carbohydrate, and a preliminary field sample collected by me on January 29, 2019 that found the wetcake material generated by AltEn contained residues of numerous pesticides typically used to treat seed.

The Nebraska Department of Agriculture (NDA) was first made aware that AltEn was land applying distiller's grain from their ethanol plant in the spring of 2018, when rural residents of the Mead, NE area witnessed trucks delivering and land applying a greenish colored solid material that had a noxious odor. Those residents reported to both NDA and NDEQ that their dogs had consumed some of the material and become ill. One caller in

particular, Ms. Paula Dyas, had a small amount of the sample analyzed by the Iowa State University Veterinary Diagnostic Laboratory, which reported on May 4, 2018, non-quantified detections of metalaxyl, thiadendazole, fludioxonil, imidacloprid, tebuconazole, trifloxystrobin and ipconazole (all of which are used as seed treatments on corn and soybeans). It should be noted that the ISU report noted the diagnostic history of the affected dogs were “clinical signs of alcohol toxicosis”, and that the comment block of the report indicated that the detected compounds “singularly and in conjunction could potentially cause signs described”.

Due to the allegation of land application of an unregistered soil conditioner, NDA contacted AltEn in June of 2018 to determine if they were selling or distributing the product as a plant nutrient (fertilizer) or soil conditioner. After consultation with NDA Registration Specialist Buzz Vance, Mr. Jim Stewart of AltEn provided a test report of the distiller’s grain product from Midwest Laboratories, dated April 10, 2018, as a product label (note the AltEn test was reported before either Ms. Dyas contacted NDA with her lab report or NDA contacted AltEn). Mr. Vance responded to Mr. Stewart that the lab report did not meet the labeling requirements of the NCFSCA, and so on September 24, 2018 Mr. Vance provided Mr. Stewart with model language for soil conditioner labeling developed by the American Association of Plant Food Control Officials (AAPFCO) and used by NDA as model language for soil conditioners registered under the NCFSCA. On October 23, Mr. Scott Tingelhoff of AltEn submitted an application for registration of soil conditioner to Mr. Vance for a product named Distiller’s Grain, which was approved by NDA because it met the minimum standards for soil conditioner labeling. (Mr. Vance advised AltEn that the product should be labeled as a soil conditioner rather than a fertilizer, since labeling it as a fertilizer would require a guarantee of nutrient content, subject to regular sampling and analysis, which is difficult to accomplish given the variability of distiller’s grain to consistently remain within acceptable ranges required for fertilizers.)

On October 23, 2018, NDA approved the soil conditioner label for AltEn’s Distiller’s Grain. At no time did AltEn indicate on the application or any other way to NDA that the company was using treated seed as the carbohydrate source for the wetcake used as the Distiller’s Grain soil conditioner.

STATEMENTS

Scott Tingelhoff, AltEn, LLC

On March 29, 2019, I conducted an inspection of the AltEn facility in order to collect an official sample of the Distiller’s Grain soil conditioner, and to interview Mr. Tingelhoff. I met Mr. Tingelhoff at the facility at 10:30 a.m. on that date. I introduced myself, showed Mr. Tingelhoff my NDA credentials, provided him with my business card, and issued him a Notice of Inspection, which he signed. I told Mr. Tingelhoff that due to the allegations of possible pesticide contamination of AltEn’s Distiller’s Grain soil conditioner, I was

conducting the inspection under the authority of both the NCFSCA and the Nebraska Pesticide Act (NPA).

I asked Mr. Tingelhoff to explain the process flow of the treated seed through the ethanol extraction process, ending in generation and distribution of the Distiller's Grain soil conditioner. His written statement is included as an attachment to this report, which I will paraphrase below. I also contacted Mr. Tingelhoff by telephone on April 12, 2019 to ask him about aspects of the inbound treated seed and the outbound Distiller's Grain soil conditioner, in order to determine how the product was classified when it arrived and was distributed, and will paraphrase that information below as well.

Mr. Tingelhoff stated that he had been employed by AltEn for approximately 5 years, serving as the general manager for the last two years. He stated that it took a couple of years for the company to get to the point where treated seed was being processed in a way that provided or commercial production of marketable ethanol, which had high quality control standards in order to comply with federal and state laws for use of the product as a fuel additive. Mr. Tingelhoff stated that the company began producing marketable ethanol on January 9, 2015. He stated that the company receives treated seed that seed companies classify as "discard seed", and use it as the exclusive carbohydrate source for ethanol production. He stated the company is preparing to receive other sources of carbohydrates, such as unused starch products from food production, but they have not yet started full scale use of those materials.

Mr. Tingelhoff stated AltEn processes between 10,000 and 15,000 bushels of treated seed daily (approximately 600,000 to 900,000 pounds), and the plant runs continuously unless shut down for maintenance. He stated that AltEn has various arrangements with seed companies for the discard seed, and will sometimes pay only for inbound transportation, but also has paid for the product as well at times. Mr. Tingelhoff explained that most of the discard treated seed they receive is packaged in 1-bushel bags (typically weighing 60 pounds per bag), with some seed arriving in bulk cargo bins. He stated that employees move the bagged and binned seed into a hopper with a rotary knife system that slices the bags open and separates the bag from the seed. The empty bags are then compacted into bales that are stored on site, while the discard seed is augured into the adjacent warehouse and held for use in the ethanol plant. Mr. Tingelhoff stated that once the ethanol fermentation process is done the remaining solid material is called distiller's grain, and augured into the holding bins where I collected my sample. From these holding bins the material is moved by front-end loader to the outdoor holding area, north and east of the two large warehouses, until it is finally trucked to the field for land application.

Mr. Tingelhoff also stated that the farmers receiving the Distiller's Grain soil conditioner will pay for transportation and land application of the product, and sometimes for the material as well. He stated that AltEn contracts with Settje Agri Services and Engineering (Settje) to handle the transportation and land application of the Distiller's Grain soil conditioner. The only AltEn equipment involved in that aspect of the business were the

front-end loaders used to load the material onto delivery trucks that Settje contracts to haul the material from the AltEn facility.

Mr. Tingelhoff stated that the agronomist for Settje is Chris Reimers. He stated that it is Mr. Reimers who locates and contracts with farmers to accept the Distiller's Grain soil conditioner, and that he also is the person who is determining what rate of application the product is land applied. Mr. Tingelhoff stated that AltEn only started to distribute Distiller's Grain soil conditioner in 2018, and had been stockpiling the product on AltEn property since their start-up in early 2015 until they were able to contract with Settje to secure local fields to receive the product in early 2018.

Mr. Tingelhoff stated that the headquarters of AltEn is located in Shawnee, KS, and that to best of his understanding, the Mead ethanol plant is the only such operation the company runs in the United States. He stated that he had heard of one other plant in the U.S. that handles discard treated seed, and one in South America doing so, although he claimed he was not aware where those plants were actually located. Mr. Tingelhoff escorted me to the location where the distiller's grain wetcake is augured out of the fermenter of the production plant into two bins (see attached photos). I collected sample 4603 from the north bin of the two bins, since there was a white powder on the floor of the south bin Mr. Tingelhoff identified as soda ash that had been spilled in the plant, and the decision had been made to use the wetcake as an acceptable way to dispose of it. I asked Mr. Tingelhoff if I could see the discard seed receiving area, to get an idea of how they receive the inbound product. He took me to one of the two large warehouse buildings where the seed is received, saying that the other warehouse on the north side of the one we entered was where the loose seed was stored before it is loaded into the ethanol plant. Mr. Tingelhoff asked me to not take any photographs inside this warehouse due to concerns of confidential business information, so I took no photos in this area. The photographs attached to this report showing the bagged discard seed, compacted seed sacks and large pile of staged seed were provided to me by Jason Holsten of the NDEQ.

I ended the inspection by collecting Mr. Tingelhoff's written statement, providing him a Receipt for Samples for the wetcake sample, photographs I took, and a 7-page laboratory report from SGS North America dated October 10, 2018. When Mr. Tingelhoff handed me the SGS lab report I asked him why AltEn had Settje do that analysis. His response was that the company felt they wanted to prove there were no pesticide residues in the wetcake, but he did not indicate whether NDA or NDEQ had asked AltEn or Settje to conduct this test. It should be noted that the SGS minimum detection limits is quite high (between 1 ppm and 20 ppm) compared to the South Dakota Ag Labs that NDA uses. It is also unknown where the Settje sample was collected, what protocol was followed and how much sample material was provided to the SGS lab.

Chris Reimers, Settje Agri-Services and Engineering

I spoke with Mr. Chris Reimers by telephone on April 16, 2019. I asked Mr. Reimers what rate of application he recommends the AltEn Distiller's Grain soil conditioner be applied.

Mr. Reimers stated that he recommends application at a rate of 20 tons per acre, with some fields receiving closer to 15 tons per acre due to slope and soil testing showing the field should not receive the higher rate.

ADDITIONAL INFORMATION, TIMELINE AND OBSERVATIONS

Ms. Deb Virgl contacted me by e-mail on **January 25, 2019** claiming the AltEn product was poisoning her dogs. After contacting NDEQ and discussing it internally at NDA, I responded on 1/29/19.

On **January 28, 2019**, I received a call from Game and Parks Commission Wildlife Officer Rich Berggren regarding a complaint he had received the previous Friday from a farmer located 3 miles north of Mead. Mr. Berggren claimed the farmer told him the AltEn product had been dumped in a field across the road from his house and had resulted in at least one raccoon possibly dying. Mr. Berggren investigated and confirmed the product was present, the raccoon was visible, and the odor was overwhelming. On the same day I received a phone call from NDEQ Waste Section specialist Jason Holsten regarding a call he had received from Officer Berggren. Mr. Berggren's e-mail message to me on January 28 is reproduced below:

*Tim, as per our phone conversation, here is what I know at this time.
Reporting Party - Eric Nelson. 1952 Co. Rd 10 Mead NE 68041 402-443-6752
Property Owner of the dumped grain - John Divis. 1746 Co. Rd. 11 Mead
NE 68041 402-624-2317
Grain purchased from Genesis Ethanol Plant - 1344 Co. Rd. 10 Mead
NE 68041 816-268-1300*

Details - I was contacted by Eric Nelson on Saturday January 26, 2019 at about 1700 hours. Eric reported that his neighboring landowner was dumping large quantities of seed corn directly to the west of his driveway on Co Rd 10. This large pile of grain has a very foul smell emitting from it and he has observed sick raccoons walking away from this grain pile. Eric is concerned for the safety of the wildlife, future contamination to the soil and contamination of the nearby Upper Clear Creek which is about 100 yards away from the dumped grain site. Eric stated there are two locations of dumped grain. #1- located in the field just west of the driveway of his residence, and #2 - located in the field just north west of the intersection of Co. Rd 9 and P in Saunders County. Both locations are farmed by John Divis and near the Upper Clear Creek.

At the time of this report I was contacted by Eric Nelson who stated the product that is dumped on Divis's ground is believed to be mash and grain.

Thanks again for looking into this and contacting the reporting party.

Take care and be safe

*Rich Berggren
402-619-1355*

Rich Berggren #758

Conservation Officer

Nebraska Game and Parks Commission

402-619-1355

On **January 29, 2019**, Tim Creger, Buzz Vance and Jason Holsten visited three sites north of Mead and two east of Mead where AltEn product had been piled. All piles were similar in appearance and odor. A sample was collected from one of the piles north of town located on a field registered with the Saunders County Assessor under the name of Paula and Jeffrey Chostner (SE ¼ of Sec 12, T15N, 8E in Saunders County, NE), and sent to the South Dakota Ag Labs (SDAL) for a broad spectrum analysis of seed treatment pesticides. At this time heavy metals were not suspected as a constituent of the soil conditioner product, and the sample was not tested for those compounds.

On **March 1, 2019**, SDAL reported the analysis for the AltEn product, detecting residues of four fungicides, three insecticides and one herbicide. After considerable internal and cross-agency discussion, it was decided to collect another sample, to be considered the “official” sample for analysis of pesticide and heavy metal residues. This sample was collected by me on **March 29, 2019** and send to the SDAL lab on April 2, 2019. It was reported to the NDA on April 19, 2019.

SAMPLE ANALYSIS

The reports of analysis for both samples is shown in the table below. The first sample (4602) was collected on January 29, 2019, and tested for a broad spectrum of pesticides typically found in seed treatments. The second sample (4603) was collected on March 29 and focused on testing for the same active ingredients found in the first sample, as well as a screen for heavy metals.

Analyte	Sample 4602 (parts per billion – ppb)	Sample 4603 (parts per billion – ppb)
Insecticides		
Clothianidin	7,270	427,000
Imidacloprid	109	253
Thiamethoxam	32,000	85,100
Fungicides		
Azoxystrobin	2,380	2,340
Fludioxonil	ND	1,990
Metalaxyl	ND	1,730

Prothioconazole	3,250	6,980
Tebuconazole	12,000	11,700
Trifloxystrobin	5,840	5,640
Herbicide		
Glyphosate	119	Not requested
Heavy Metals ¹		
Selenium		0.21 ppm
¹ Other metals requested but not detected: arsenic, cadmium, lead and mercury (detection limit between 0.06ppm and 0.20 ppm)		

It would be incorrect to make any comparative conclusions on the biodegradation of the pesticide constituents in the two wetcake samples, since the discard seed moving through the AltEn facility likely changes with every batch of discard seed, since not all seed is treated with the same pesticides.

CONCLUSION

The investigation into the source material and agronomic use of AltEn Distiller's Grain soil conditioner was conducted as a result of public concerns for potential environmental impacts of the product from pesticides and heavy metals (mycotoxins were also alleged, but no testing was done for those compounds). Sample analysis of one unofficial and one official sample found high concentrations of pesticides, and all but one of the pesticides found in both samples are registered by EPA as seed treatments. The seed bag labels, received by AltEn and used as a carbohydrate source for ethanol production, clearly indicate that the unused seed cannot be used for ethanol production if the resulting byproducts contain "measurable residues" of pesticides. I contacted Mr. Jamie Green of the U.S. EPA regional office in Lenexa, KS about the toxicity of the product to wildlife, humans and the aquatic environment. At the time he wanted to contact risk scientists at the Office of Pesticide Programs in EPA's headquarters, but as of the date of this report I have not yet heard back from him or anyone else at EPA regarding the potential toxicity of the product. NDA is not in a position to make a determination of safety on the product, as the Department does not employ a toxicologist, however, given the high concentration of fungicides and insecticides in the wetcake product, I do have a concern the product could result in an unacceptable aquatic life impact if it is washed into nearby surface water by rainfall or snowmelt (see pesticide concentration discussion in the final paragraph of this report).

The NCFSCA classifies a soil conditioner as adulterated if it contains any toxic material, such as pesticides, in quantities injurious to plant or animal health. Additionally, the NCFSCA prohibits the distribution of any misbranded soil conditioner, with misbranding defined as any product that has labeling which is false or misleading in any particular or is not labeled as required by the NCFSCA. The NCFSCA authorizes the Director of Agriculture to cancel the registration or license of any person manufacturing or distributing any soil conditioner upon satisfactory evidence the registrant, licensee or guarantor has used fraudulent or deceptive practices in the registration of a soil conditioner. The NDA Pesticide and Fertilizer Registration Specialist has no evidence showing that any time did AltEn, LLC provide information that the carbohydrate source for Distiller's Grain soil

conditioner was treated seed, nor did they provide information of any suspicion the product was contaminated with pesticides. AltEn, LLC provided me with a copy of a laboratory analysis report from SGS dated October 10, 2018 showing that laboratory received a sample of "New Cake, Manure/Distillers" on September 28, 2018. The sample was tested for a broad range of pesticide active ingredients. AltEn, LLC also provided me a nutrient analysis report from Midwest Laboratories Dated April 10, 2018, showing they received a sample on April 6, 2018 of "wetcake-Black". This sample was tested for a "Nutrient Land Application" screen, and the report provided to me had handwriting on it saying "need label AltEn". This appears to demonstrate AltEn, LLC was preparing to label the wetcake material as a plant fertilizer or soil conditioner as early as April of 2018, and suspected the material was contaminated with pesticides before applying for the NDA soil conditioner label on October 23, 2018. As indicated earlier in this report, at no time did AltEn inform NDA Fertilizer Specialist Buzz Vance that the wetcake material was derived from treated discard seed.

The rate of land application Distiller's Grain soil conditioner of 15 to 20 tons per acre means some of the pesticides found in the samples were applied at rates much higher than those typically found during planting of corn seed or application of the pesticides in-season to the corn crop. The official sample detection of clothianidin at a concentration of 427,000 ppb has the potential soil surface load (at the 20 ton per acre rate) of 17.08 lb/A for the pesticide. Clothianidin is of significant concern given it is a neonicotinoid insecticide that has shown toxicity to bees (animals) and aquatic organisms in very low concentrations, and also demonstrates a bio-accumulative effect in the environment (the reason EPA requires annual application rates take into account all possible uses of the pesticide).

In reviewing a popular clothianidin seed treatment pesticide (Poncho 600, EPA. Reg. No. 264-789, 48% active clothianidin), the following statement is found on the label: Regardless of method of application, (seed treatment, soil, or foliar) DO NOT apply more than 0.2 lbs of active ingredient clothianidin per acre per year." AltEn's Distiller's Grain soil conditioner applied at 20 tons per acre, with a clothianidin concentration of 427,000 ppb, would result in 17.08 lbs of active clothianidin applied per acre, or over 85 times the maximum annual field load allowed by the seed treatment label for planted seed.

It is my recommendation that NDA initiate cancelation of AltEn Distiller's Grain soil conditioner on the grounds the company used deceptive practices by not disclosing the carbohydrate source of the wetcake material was discarded treated seed, and that the resulting product being marketed and distributed as a soil conditioner meets the definition of an adulterated product, due to the product containing toxic materials.

April 23, 2019

Tim Creger, Pesticide/Fertilizer Program Manager

A handwritten signature in black ink, appearing to read "Tim Creger". The signature is written in a cursive, flowing style.