UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY
AND POLLUTION PREVENTION

November 17, 2020

Kara Valentine
Deputy Director of Air, Land and Energy
Nebraska Department of Environment and Energy
PO Box 98922
1200 N St., Suite 400
Lincoln, NE 68509-8922

Dear Ms. Valentine,

You recently contacted the Region 7 Office of the Environmental Protection Agency (EPA) about a situation at a facility in Nebraska that produces ethanol from pesticide-treated seed, which created thousands of pounds of byproduct known as "mash" or "wet cake" that contains very high levels of pesticide residues. The EPA welcomes this opportunity to explain our process for assessing pesticide risk to human health and the environment and why the residues in the wet cake far exceed the registered application rates for which EPA has conducted safety assessments for pesticide products. We would also point out that our discussion here is limited to FIFRA and does not include an analysis of any possible implications under other statutes that may be implicated. For example, land application and disposal of solid or hazardous waste should also be evaluated to determine compliance with the Resource Conservation and Recovery Act (RCRA) regulations and requirements.

In accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the EPA registers a pesticide when it determines that it will not cause unreasonable adverse effects on humans or the environment, while taking into account the economic, social, and environmental costs and benefits of the use of the pesticide. Under FIFRA, the EPA is charged with balancing risks posed by the use of a pesticide against its benefits. The EPA must determine if the benefits in light of its use outweigh the risks in order for the EPA to register a pesticide.

In evaluating a pesticide registration application, the EPA assesses a wide variety of exposure

information (i.e., where and how the pesticide is used) and studies concerning environmental fate (i.e., how the chemical will move in the environment) and toxicity (i.e., effects on humans and other non-target organisms) to determine the likelihood of adverse effects (i.e., risk) from exposures associated with the proposed use of the product. Risk assessments are developed to evaluate the environmental fate of the pesticide compound, as well as how it might affect a wide range of non-target organisms including humans and terrestrial and aquatic wildlife (plants and animals). On the basis of these assessments, the EPA evaluates and approves language for each pesticide label to ensure the directions for use and safety measures are appropriate to mitigate any potential unreasonable risk. In this way, the pesticide label communicates essential limitations and mitigations that are necessary to prevent unreasonable adverse effects. It is a violation of FIFRA to use a pesticide in a manner inconsistent with its labeling.

The EPA's evaluation of environmental fate studies determines how fast and by what means a pesticide degrades, what chemicals it breaks down to, how much of the pesticide or its breakdown chemicals will travel from the application site, and where they will accumulate in the environment. The studies also assess how the pesticide breaks down in water, soil, and from exposure to light; how easily it evaporates in air; and how quickly it travels through soil. The EPA uses these tests to develop estimates of pesticide concentrations in the environment. The typical sources of pesticide exposure to humans are through food and drinking water. Most of the foods we eat have been grown with the use of pesticides and pesticide residues may be present inside or on the surfaces of these foods. Some pesticides applied to farmland or other land structures can make their way to the ground water or surface water systems that feed drinking water supplies. Humans may also be exposed to pesticides by inhalation of dust blown from treated fields.

The EPA's ecological risk assessments evaluate the likelihood that exposure to one or more pesticides may cause harmful ecological effects. The effects can be direct (e.g., fish die from a pesticide entering waterways, or birds do not reproduce normally after ingesting contaminated fish). Some of the impacts on animals that EPA evaluates are the short- and long-term effects of varying amounts of pesticide exposure to insects and other invertebrates, fish, and birds. For plants, the EPA evaluates how toxic the pesticide is to plants, how the pesticide affects a seed's ability to germinate and emerge, as well as the plant's health and vigor as it grows.

According to the analysis conducted on March 29, 2019, by the South Dakota Agricultural Laboratories for the Nebraska Department of Agriculture, the pesticides detected in the wet cake includes neonicotinoids, strobilurons, triazoles, acylalanines and benzodioxoles. Application of the wet cake has been estimated at a rate of 15 to 20 tons per acre. Based on this and the concentrations found in the wet cake analysis, EPA concludes that it is likely that land application of the wet cake material will result in application of these ingredients to farm lands at rates that far exceed the registered application rates for which EPA has conducted safety assessments for products containing these pesticides. Some of these pesticides are known to leach and may contaminate groundwater. Some of them are systemic and can be taken up into plant tissues resulting in residues in nectar and pollen that may harm pollinators or in leaves or other plant parts that are consumed by birds and mammals. Information on the profile and characteristics specific to each of the chemicals in the wet cake is available at: https://iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1

The EPA has a comprehensive and robust assessment process for assessing the environmental effects of a chemical used as a pesticide, but the wet cake produced by the Nebraska facility represents a level of contamination that has no uniformity or limit on the number and amount of pesticides present. The EPA cannot conclude that land application of the wet cake will not result in unreasonable adverse effects on humans or the environment.

Sincerely,

Ed Messina

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Ed Messina, Esq., Acting Director
Office of Pesticide Programs

Cc DeAndre Singletary, Region 7