



Fertilizer sensitivity: treatment and prevention

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Abstract

Fertilizers enhance crop productivity but can pose health risks, especially for agricultural workers and individuals with pre-existing conditions. Exposure can lead to skin irritation, respiratory problems, infections, or more severe conditions like chemical burns or systemic toxicity—such reactions are collectively known as fertilizer sensitivity. Treating fertilizer sensitivity depends on exposure route and intensity, and some methods of treatment include topical medications, inhalers, emergency care, and long-term avoidance. Fertilizer sensitivity prevention emphasizes using personal protective equipment (PPE) in a consistent manner, safe handling, proper storage, and application in well-ventilated areas that are away from living spaces and food sources. Providing people with Safety Data Sheets (SDSs) and training through employers can also reduce risks of developing fertilizer sensitivity. For people with fertilizer sensitivity, recognizing symptoms of fertilizer sensitivity early and following up with healthcare providers are essential steps to managing and preventing complications. In a broader sense, protecting our communities from the health dangers of fertilizers calls for promoting and understanding safe use and storage of fertilizers in both workplace and home gardening practices.

Introduction

Fertilizers are natural or artificial substances containing chemical elements that are applied to the soil to increase soil fertility and nourish crops, thereby improving their growth and yield. Despite the beneficial effects of fertilizers on plants, the exposure of human beings to fertilizers during their production and application has been linked to serious health outcomes, such as cancer, infections, and diarrhea (Tagkas et al., 2024). Fertilizers are often used alongside insecticides, herbicides, and fungicides. Hence, a big challenge in epidemiological research studying the effects of

fertilizers on human health is that it is difficult to distinguish the health impacts of fertilizers from those of other agrochemicals (Smith & Rodriguez, 2022).

There is growing evidence that some people can develop acute or chronic health conditions after exposure to certain components of fertilizers—this reaction is called fertilizer sensitivity (Lee et al., 2021). Such conditions include skin irritation, respiratory problems, and those mentioned above, occurring among vulnerable populations such as agricultural workers and people with pre-existing

illnesses. Knowing how to identify, treat, and prevent fertilizer-related health effects are essential for ensuring safe agricultural practices and

protecting our public health. The following sections will outline current treatment approaches and practical prevention strategies to reduce these risks.

Treatment

Treatment of fertilizer sensitivity depends on two factors: the route and severity of exposure. We consider skin irritation or contact dermatitis are mild cases, and to treat these, wash the affected area with soap and water. Applying topical corticosteroids or antihistamines can help relieve these symptoms as well (Lee et al., 2021).

The respiratory symptoms that people with fertilizer sensitivity manifest include coughing and wheezing, which can be managed with bronchodilators or inhaled corticosteroids. People with asthma or reactive airway disease can especially benefit from these treatment modalities.

Severe reactions to fertilizers are usually chemical burns, systemic toxicity, or allergic responses. A person who develops any of these symptoms may need emergency care, which

involves intravenous (IV) fluids, oxygen therapy or epinephrine.

Long-term management can look like avoiding further exposure to fertilizers and using personal protective equipment (PPE). Examples of PPE are gloves, safety goggles, hard hats, respirators, earplugs, and close-toed shoes. Another management tool is consulting an allergy or occupational health specialist.

Recognizing health changes promptly and seeking appropriate intervention are important for reducing risk of complications and preventing recurrence of fertilizer sensitivity events. Moreover, continued medical follow-up is often necessary, especially in occupational settings, to monitor recovery and guide future exposure precautions.

Prevention

To keep oneself from developing fertilizer sensitivity, one can begin by minimizing direct exposure during handling, application, and storage of the fertilizer(s). One of the most effective ways to achieve this is using PPE consistently (Lee et al., 2021). Tagkas et al. suggests that employers should ensure proper training on safe handling procedures, including how to read chemical labels and use safety data sheets (SDSs) to learn about a product's potential hazards, exposure symptoms, emergency measures, safe handling procedures, and storage guidelines. Another recommendation to mitigate exposure to fertilizers is applying fertilizers in well-ventilated, outdoor areas and avoiding application in windy conditions—such measures can reduce inhalation risks (Patel & Morgan, 2022).

Properly storing products in sealed containers, especially away from residences or indoor living spaces and food sources, also helps to limit accidental exposure (Gomez & Alvarez, 2023). For people with known sensitivities, regularly visiting healthcare providers and reporting symptoms early and both essential practices. Ultimately, integrating safety protocols into both workplace and home gardening settings can significantly reduce incidence of fertilizer-related health issues. strengthen emotional resilience and improve environmental quality in the community.

References

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