Title: Global Soil Erosion and Desertification: Impacts on Agricultural Productivity and Environmental Sustainability

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The growing demand for agricultural production, coupled with poor land use practices, has led to increased erosion worldwide. Soil erosion, primarily caused by rainfall, is the main driver of siltation and contamination of water bodies through the transport of sediments and nutrients. This erosive process directly impacts agricultural productivity, with losses estimated at \$400 billion globally. Worldwide, soil loss due to erosion can reach up to 75-100 t ha-1 y-1 in some regions, positioning soil erosion as a critical environmental issue. This process, especially in arid, semi-arid, and sub-humid regions, can be classified as desertification. Globally, desertification affects approximately 1.9 billion hectares of land, threatening food security, biodiversity, and the overall well-being of millions of people. Desertification not only threatens agricultural productivity but also exacerbates environmental degradation, leading to the loss of essential natural resources, and posing a serious challenge to global sustainability.

Key words: Desertification, sustainability, erosion, agriculture, soil