

Environmental Degradation and Livestock Productivity under Climate Stress: Implications for Sustainable Agricultural Development

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Abstract

Environmental degradation is a multifaceted issue that drastically reduces production in Pakistan's agricultural sector. This study aims to investigate how environmental degradation affects cattle production in Pakistan, with implications for sustainable sectoral growth between 1980 and 2022. A data analysis method called the Autoregressive Distributed Lag estimator is used to determine how environmental deterioration (measured by CO₂) and other factors, like water availability, heat stress, inflation, floods, and crop and forest productivity, affect livestock output. The results corroborate the substantial and detrimental long-term impacts of inflation and CO₂. Livestock productivity is positively and significantly affected by forest area, agricultural land, and water availability. The findings demonstrate that decreasing environmental deterioration and improving resource management and adaptability are necessary for Pakistan's cattle industry to thrive sustainably. The report also highlights the necessity of unified strategies focused on resource optimization, climate resilience, and environmental management.

Keywords: Environmental degradation; Livestock productivity; Climate stress; CO₂ emissions; Heat stress; Sustainable agricultural development; Pakistan

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