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COMPARATIVE STUDY

Adoption, Productivity and Gender

A Comparative Analysis of Drought-Tolerant Pearl Millet Cultivation by Women Farmers in the Sahelian Zone of Chad

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ABSTRACT

{ "background": "The Sahelian zone faces increasing climatic variability, threatening food security and livelihoods. Women farmers are pivotal to cereal production but often face constraints in adopting improved agricultural technologies. Understanding the gendered dynamics of technology adoption and its productivity outcomes is critical for effective policy.", "purpose and objectives": "This study compares the adoption rates and subsequent productivity impacts of drought-tolerant pearl millet (DTPM) varieties between women and men farmers in the Sahelian zone of Chad. It specifically examines the socio-economic and institutional factors influencing women's adoption decisions and the comparative yield gains achieved.", "methodology": "A mixed-methods comparative design was employed. A stratified random sample of 320 pearl millet-producing households was surveyed. Quantitative data on adoption, inputs, and yields were analysed using a gender-disaggregated endogenous switching regression model. These were complemented by focus group discussions and key informant interviews to contextualise the quantitative findings.", "findings": "Women farmers adopted DTPM varieties at a rate 22 percentage points lower than their male counterparts, primarily due to limited access to extension services and seed credit. However, conditional on adoption, women achieved an average yield increase of 17% compared to traditional varieties, a gain marginally higher than that observed for male adopters. The productivity gap between adopters and non-adopters was significantly wider for women.", "conclusion": "Systemic barriers significantly constrain women's adoption of DTPM, but when these are overcome, women realise substantial productivity benefits. The findings underscore that gender-neutral dissemination approaches perpetuate inequities and limit overall agricultural resilience.", "recommendations": "Policy must prioritise gender-intentional extension programmes and seed delivery systems. Financial mechanisms, such as women-focused input credit, should be developed. Future breeding programmes should formally incorporate women's varietal preferences to enhance adoption potential.", "key words": "gender, technology adoption, agricultural productivity, drought-tolerant crops, pearl millet, Sahel, Chad", "contribution statement": "This paper provides novel empirical

Keywords: *Sahel, gender and agriculture, agricultural innovation adoption, drought-tolerant crops, pearl millet, women*

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| <i>farmers, Chad</i> | |
| Article Highlights <ul style="list-style-type: none">• Women's adoption rates lag 22 percentage points behind men's due to institutional constraints.• Adopting women achieve 17% higher yields versus traditional varieties.• The productivity gap between adopters and non-adopters is wider for women.• Gender-neutral dissemination approaches perpetuate inequities in agricultural resilience. | Policy Imperative <p>Findings indicate that gender-intentional extension and seed delivery systems are required to overcome adoption barriers and realise women's productivity potential.</p> <p><i>This comparative analysis reveals critical gendered dimensions of technology adoption and productivity in the Sahel.</i></p> |

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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