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Does organic manure and other soil management practices impact productivity and welfare outcomes of indigenous plant farmers in South Africa?

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Abstract

Employing a nationally representative dataset of small holder farmers in South Africa, this study investigates the impact of organic manure and other soil management practices on productivity of indigenous grain, fruits, and vegetables (IGFV), and farming households' welfare outcomes. The study adopts a multinomial endogenous switching regression (MESR) model to correct for selectivity bias stemming from both observed and unobserved heterogeneity. The average treatment effect on treated estimation results shows a significant impact of adopting organic manure in isolation and combination with other soil improvement practices. However, the highest pay-off on productivity and welfare outcomes was achieved when organic manure and other soil management practices were jointly adopted. The result indicates that joint adopters gained 40 % more on productivity compared to the 15 % and 13 % productivity increase from individual adoption of organic manure and other soil management practices respectively. Similarly, the per capita total consumption for joint adopters of organic manure and other soil management practices was thrice that of adopters of organic manure only, and 10 % higher than the adopters of the other soil management practices only. This study further finds out that rural farmer's education, wealth indicators, access to credit facilities, and access to training play a significant role in driving both individual and combinatory packages of organic manure and other soil management practices in South Africa. Overall, the study suggests that the joint adoption of organic manure and the identified soil management practices can enhance IGFV productivity and welfare outcomes of the rural smallholder farmers in South Africa.

Keywords: Food production, food sustainability, small holder farmer, soil conservation, underutilised plants