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Partial nutrient balance in cropping systems: The case of Ganspan Settlement, Northern Cape Province

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Partial nutrient balances are calculated by estimating all nutrient inputs entering the farm by means of inorganic and organic fertilizers. Thereafter, outputs are calculated and these include crop yields harvested which will be sold to the market and exported crop residues when applicable. In agricultural production systems, the full nutrient balance serves as an important indicator of sustainability in production systems while partial nutrient balances serves as a mere indicator of management practices and provide insight into sustainability of the farm. Data required to determine partial nutrient balance was collected through semi structured interviews with the farmers in the community to gather data on cropping practices, agricultural inputs used and yields that have been harvested on the various crops planted as well as soil samples. Partial nutrient balances were calculated for major crops such as groundnuts, lucerne and wheat as well as two commonly planted vegetables cabbage and onion. Partial nutrient balances showed a negative balance for groundnuts and lucerne while wheat only had a negative balance for nitrogen and potassium. In addition, partial nutrient balances for vegetables indicated a negative balance only for potassium. When partial nutrient balances are negative, then we can be confident that the full nutrient balances are even more negative. Farmers that planted vegetables used more fertilizers in their lands compared to farmers that planted field crops. Therefore, nutrient depletion was exacerbated in field crops and these farmers contributed more to nutrient mining than a farmer producing vegetables.

Biography

Wongiwe Theodora Mngwambe has completed Master's degree from Wageningen University and Research, Netherlands. She is the Head of Department of Plant Production at Potchefstroom College of Agriculture and a Lecturer of Crop Production courses. She is passionate about improving livelihoods of farmers through equipping them with skills and knowledge to create sustainable production systems. She believes in creating synergy within the various components of farms in order to create climate resilient farms.

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