Food insecurity, crop yields and Deep Bed Farming in Malawi

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In Malawi, poor crop yields contribute to recurring current 'serious' levels of hunger and malnutrition and contribute to many preventable child deaths. **Less than 15%** of the families in the areas where we work are food secure before project activities begin.

In a survey of 560 farmers (see Section 6.1 of our 2018 Baseline Study) 73 percent of farmers said that during the lean period before harvest time they eat fewer than 3 meals per day and, worse still, 17 percent eat only one meal per day. Tiyeni's work has the biggest impact in these lean periods, helping **families using Deep Bed Farming (DBF) to consume an extra meal per day** compared to farmers growing crops conventionally.

In our experience, farmers who have adopted DBF have enjoyed rises in crop yields typically ranging between 50% and 250% in the first year of adoption. As well as the main crop of maize, DBF also increases yields of beans, soya, pigeon peas, ground nuts and sweet potato, improving the diversity of food for family nutrition and for selling crops in the market.

In our study we found an average **146 percent rise in crop yields in 2018/19** – that is, yields were roughly two and a half times what they were before adoption of DBF.

Over the same period, **annual household income** for the group increased, on average, from MK 500,000 (over £500) to over MK 800,000. (This included farming and non-farming incomes such as remittances.)

In a focus on three of the eight Extension Planning Areas (EPAs) in the 2018 survey group, the average incomes of 323 farmers studied rose by 30% in the first year, rising to a total 40% improvement in the second year.
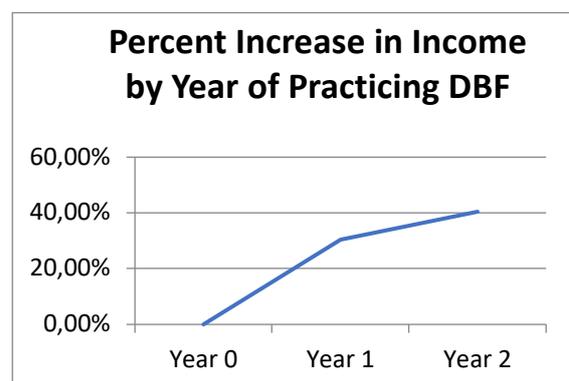
Though this is a relatively small sample, this improvement over time is consistent with our general experience that Deep Bed Farming can steadily build soil quality, with fungi and micro-organisms multiplying and acidity falling over several years.

Farmers with food security issues are risk-averse and will not change their ways of farming on all their land until they have proved for themselves that a new technology works. So farmers tend to start practicing DBF on only a small part of their land (often less than 0.1 hectares), but they then tend to expand DBF until they have converted all their land to DBF within a few years.

The collected data also tells us that the improved yields from **areas under DBF** result in a steady decline in all levels of food insecurity (mild, moderate and severe) for all DBF farmers. This includes those trained directly by us, and those trained by their fellow farmers who we have previously trained in their ongoing role as 'Lead farmers'.

The graph below plots food insecurity scores over time for the same group of 560 farmers.
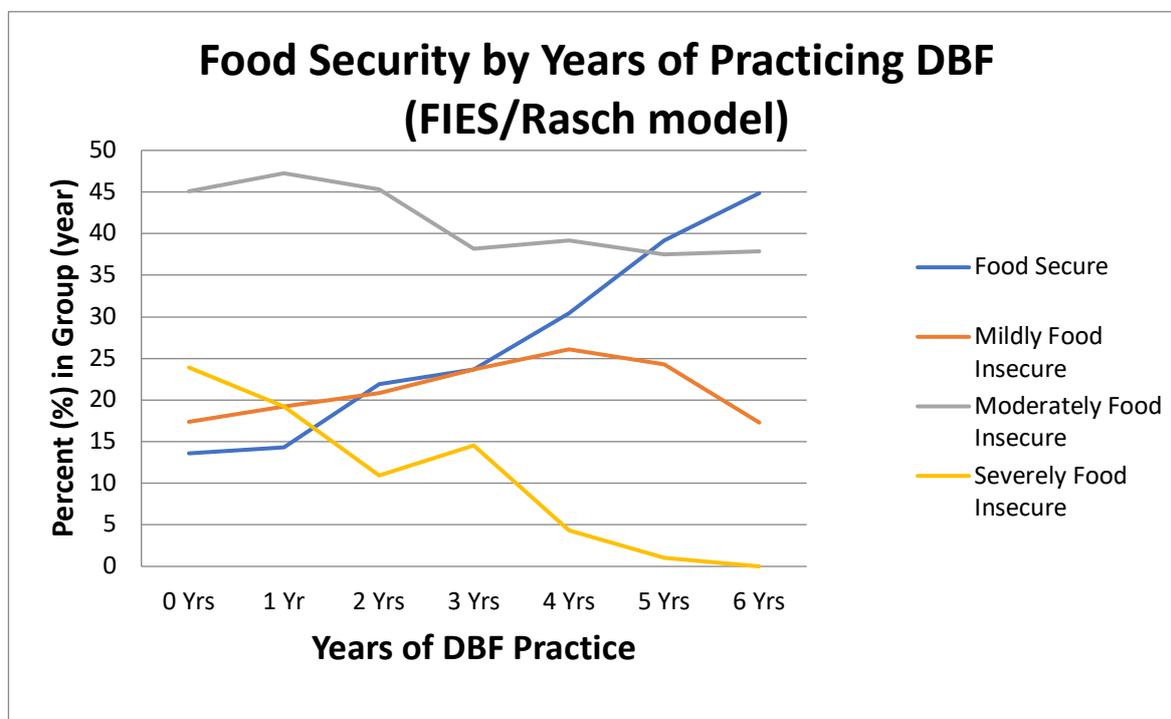
This shows a steady decline in all levels of food insecurity, and that ALL farming families in this group eradicated severe food insecurity within six years.

Tiyeni's "Deep Bed Farming" (DBF) continues to win the hearts and minds of increasing numbers of farmers and the Tiyeni team is continuing tirelessly to impart knowledge to newly registered farmers. Now, some 15,500 farmers have adopted the technology.