Traditional soil management systems based on shifting agriculture no longer viable due to land pressure

The cotton zone around Koutiala is characterized by high population pressure. Farmers rely on cotton and livestock for income and sorghum and millet as staple food crops. Income from cotton has been invested in cattle, leading to the high livestock densities, which bring wealth but also a vicious cycle of land degradation, leading to decreasing yields in recent years.

2012-2014 results (n=132)
There was huge variability among fields in crop yields of unamended control and treatment plots partly explained by, soil type, previous crop, and weather variability

Gravelly soils
Sandy soils
Clay soils
After cotton or maize
After sorghum or millet
maize/cowpea
replace sorghum with cowpea
replace sorghum with soybean

Contextualize and refine crop and landscape management options including

Farmers adapt options to their contexts
- Maize/cowpea intercropping combined with stall feeding increased HRE-LH and HRE farm gross margin by 20 and 26%
- Replacement of sorghum by soyabean (or cowpea) increased MRE and LRE farm gross margin by 29 and 9%