



SANREM CRSP



# Influence of Conservation Agricultural Practices on Maize and Soybean Yields in Upper West Region of Ghana

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## Justification and Objectives

Sustainable intensification of conservation agricultural practices can improve crop productivity and soil health. These practices will help farmers to adapt their crop production systems to future changing climates and minimize carbon and water foot print.

Objectives of this research were to evaluate influence of tillage practices (conventional, minimum tillage and no tillage), fertilizer management, and soil and water harvesting techniques on grain yield of maize and soybean in different cropping systems under on-farm conditions in upper west region of Ghana.

## Materials and Methods

➤Influence of tillage practices (conventional, minimum and no tillage) were tested in on-farm conditions at three locations (Gbanko, Nyoli and Sieyiri) in different cropping systems (continuous, rotations or intercropping of maize and soybean). Experimental design was a split-split plot with three replications.

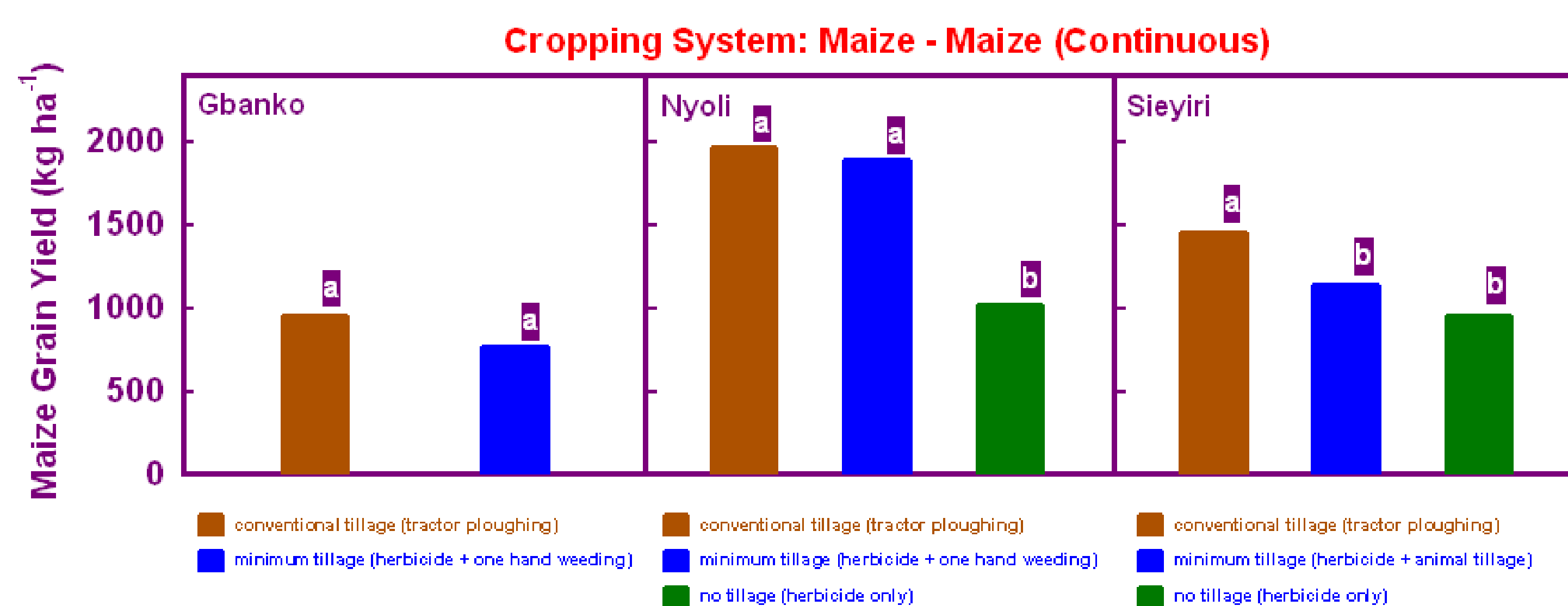
➤Effect of fertilizer practices [no fertilizer, NPK (37:16:31 kg ha<sup>-1</sup>) and P @ 26 kg ha<sup>-1</sup>] were tested in on-farm and on-station at Busa. Experimental design was a split plot with three replications.

➤Impact of soil and water management practices (flat vs. tied ridges with or without grass or pigeonpea strips) were tested in on-farm conditions at Nandom. Experimental design was a randomized complete block with three replications.

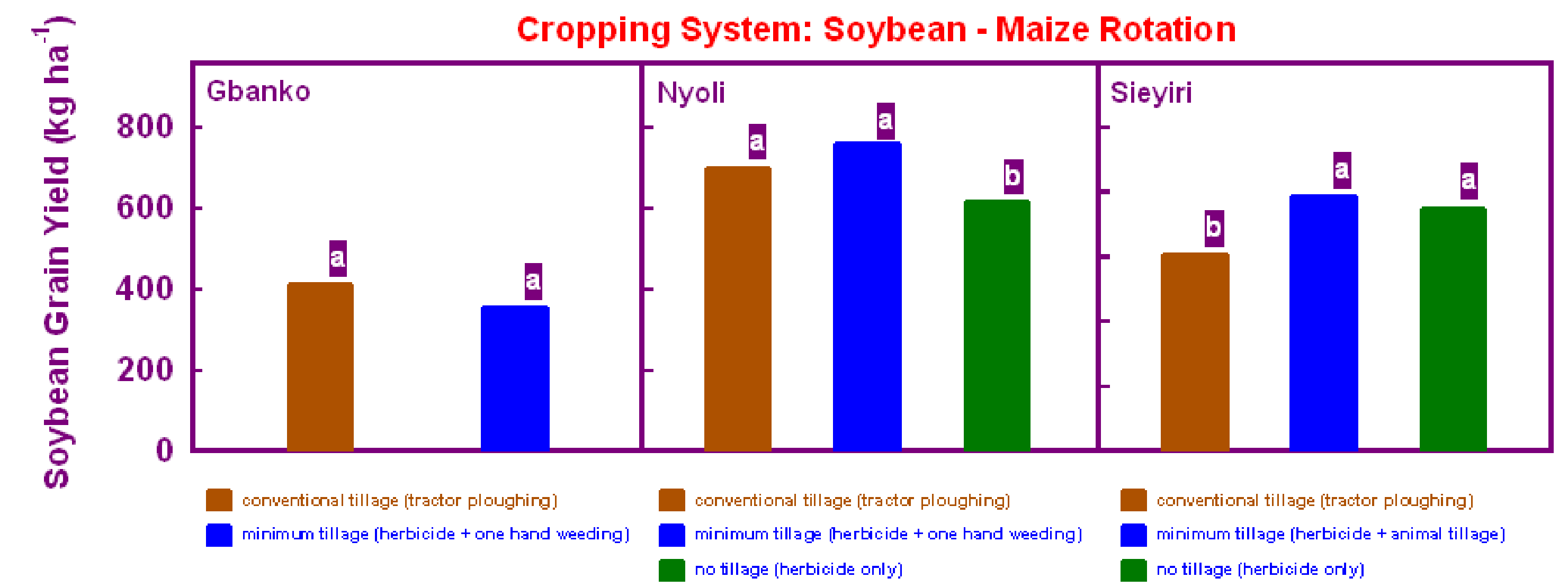


## Results and Conclusions

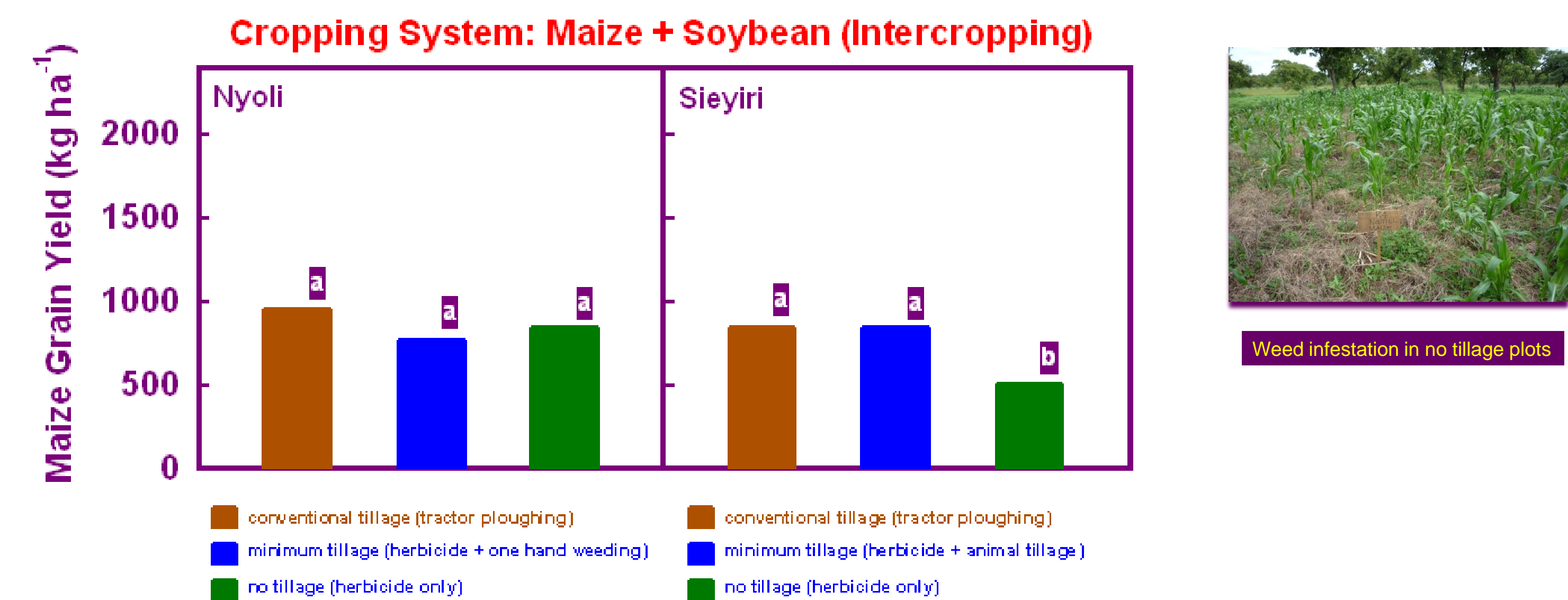
- Minimum tillage produced same grain yields of maize or soybean as conventional tractor tillage in all cropping systems.



## Results and Conclusions

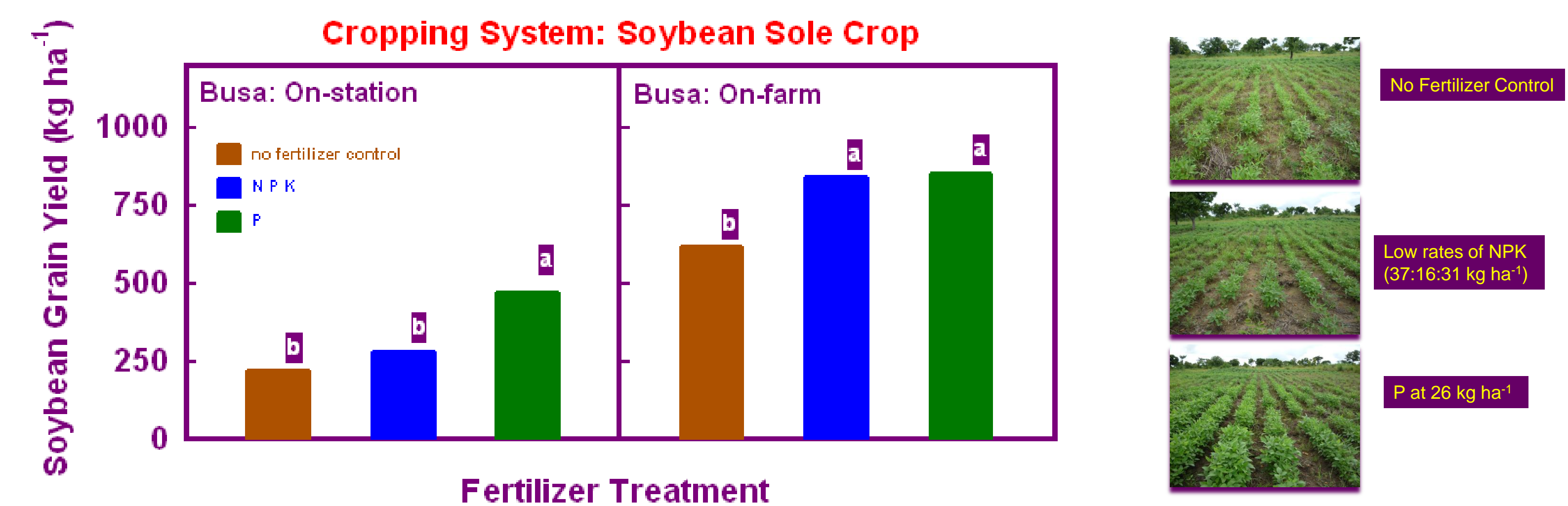


- No tillage produced lower yields due to weed infestation.



Weed infestation in no tillage plots

- Application of inorganic P fertilizer (26 kg P ha<sup>-1</sup>) produced higher yields of soybean under all tillage practices.



No Fertilizer Control

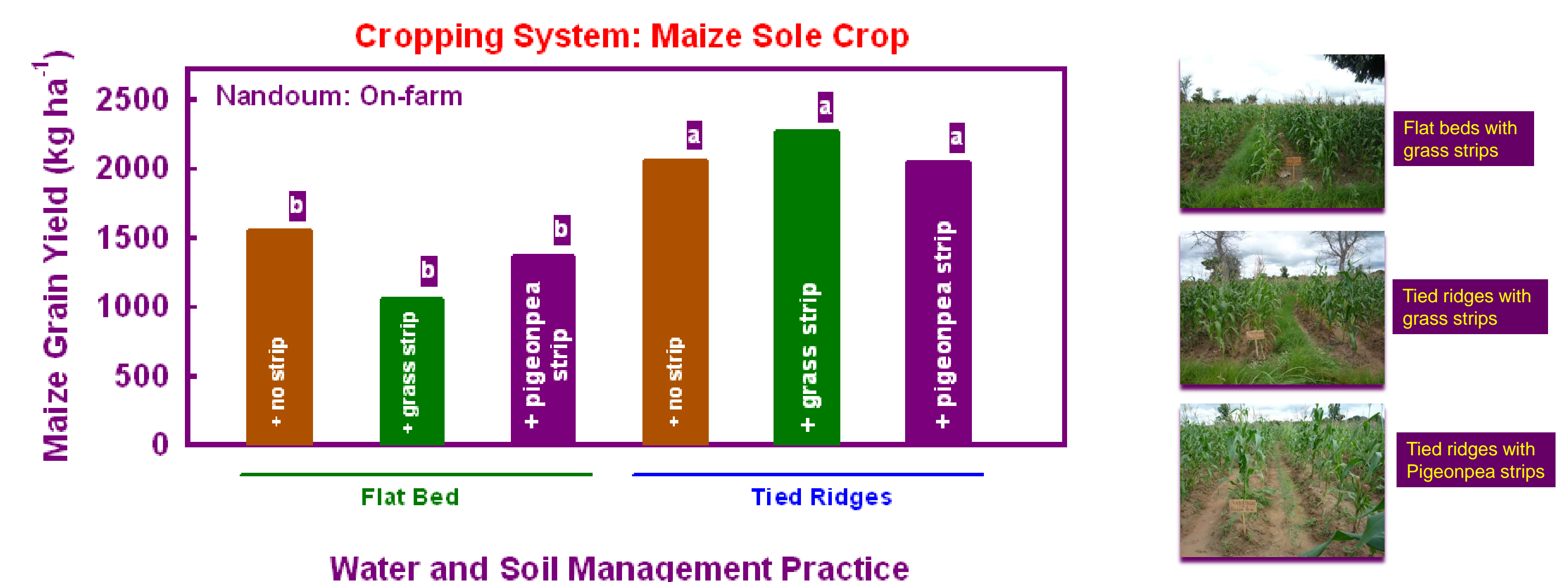


Low rates of NPK (37:16:31 kg ha<sup>-1</sup>)



P at 26 kg ha<sup>-1</sup>

- Maize planted on tied ridges produced higher grain yields than flat beds either with or without strips of grass or pigeonpea.



Flat beds with grass strips



Tied ridges with grass strips



Tied ridges with Pigeonpea strips