



The 3rd International Forum
on Water and Food
Tshwane, South Africa
November 14 – 17, 2011



Co-hosted by:



Improved management of vertisols can impact local agricultural water productivity and downstream water flow: An example from the Abbay Basin, Ethiopia

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Session: Rainwater management

LOCATION OF THE VILLAGES SURVEYED (TOP – DOWNSTREAM VILLAGES; BOTTOM – UPSTREAM VILLAGES)

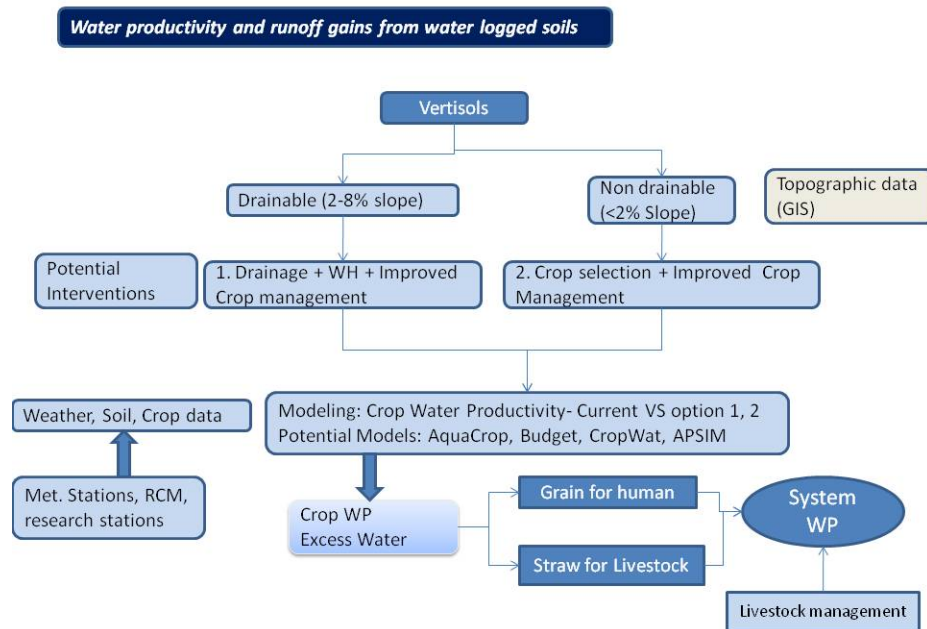
Key Message

Managing water logged Vertisols enhances crop water productivity, and improves both downstream water quantity and quality. Introducing livestock management further enhances system water productivity.

Summary

The Abbay basin (Blue Nile) contributes about 40% of agricultural products and 45% of the surface water of Ethiopia. However, the characteristic-intensive biophysical variation and the lack of systematic approach to target areas suitable for agricultural intensification pose significant challenges to sustained agricultural productivity in the basin. Here we hypothesize that waterlogged Vertisols are among the high potential soils where management interventions can result in immense positive impacts. To this end, the Vertisols areas in the basin have been classified into four slope classes (0-2%, 2-5%, 5-8% and > 8%) and potential practices (suitable crops, surface drainage and water harvesting) have been evaluated for their effect on crop water productivity and water balance using FAO AquaCrop model. In addition,

the effect of the options on the livestock feed availability, quality and livestock water productivity were assessed. The results show that improving water management of Vertisols enhances water productivity of crops and livestock, creates opportunities for crop intensification and enhances water availability downstream.



FRAMEWORK FOR EVALUATING VERTISOL MANAGEMENT OPTIONS FOR ENHANCED CROP WATER PRODUCTIVITY