

***Interactive comment on “Assessment of strip tillage systems for maize production in semi-arid Ethiopia: effects on grain yield and water balance” by M. Temesgen et al.***

**Anonymous Referee #1**

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This paper contains the results of field experiments conducted with different cultivation treatments. In my view, this paper must be rejected due to poor academic writing and little scientific discussion and merit. There are numerous cases of unclear definition of terminology or non-scientific description throughout the paper. Even, the authors themselves confuse very basic definitions such as evaporation, transpiration, interception, and infiltration! This unacceptable clarity, together with very poor organization, makes the quality of the paper obviously below the very minimum standard. I can easily notice that this paper is written in a hurry and HESS should not accept the draft at the level of class projects. Lacking scientific contribution is another issue. The results of the study

may be useful in practical purpose but there is no new scientific knowledge gained from this study. I provide detailed comments for each section below.

## Introduction

This section is very poorly written in that there is no information about basic concepts used in the paper, such as hydrologic processes. Also it does not really introduce what they have done in the study, e.g., the water balance model is never mentioned here.

Line 5: what is 'poor' rainwater retention and infiltration?

## Materials and Methods

Line 8 of Experiment site subsection: The rain is distributed over a period of 7 months? Then was there no rainfall for the rest 5 months? But this is not the case (Fig. 3).

Line 14 of Experiment site subsection: 'non uncommon' means 'common'?

Item 3 of Treatments subsection: Maresha modified subsoiler suddenly appears from nowhere. Authors never introduced this before. Readers should wonder: How is this different from the Maresha plow? Why do they modified it?

5 lines below eq(1): Are authors sure that the reference [Antunes et al., 2001] is the Original reference for the leaf area index?

7 lines below eq(1): P\_0 is the population PER AREA. Don't confuse readers.

Line 2 of Modelling the water balance subsection: Transpiration and interception are NOT part of total evaporation!

Line 7 of Modelling the water balance subsection and Table 1: There are so many parameters, including D on the line, arbitrarily assumed without any appropriate source or reason!

Below eq(3), the parameter I is mentioned as the evaporation from interception. But below eq(4), the parameter I is interpreted as interception, which is inconsistent.

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3 lines above eq(5): What do authors mean by no limitation in soil moisture?

Eq (6): Authors didn't define  $p$  and  $S_w$ .

Last line of Modelling the water balance subsection: Authors used the model for 2003 and 2004. But the table 3 is for 2003-2005. Confusing.

Last line of Grain yield subsection: What statistical analysis do authors mean? Why the use of SAS is important?

### Results and Discussion

There are two study sites but authors only show the result of 1 site (Melkawoba) without any description. Is this a trivial editorial mistake?

Line 6 of Model outputs subsection: What do authors mean by the calibration and validation? These two are different and authors never mentioned their calibration procedure.

Line 3 of Grain yield subsection: What do authors mean by 'non good'? Also, what is the 'main season'? Authors keep using subjective terms without clear definitions.

Table 1: Too many assumptions without any source.

Table 2: Incomplete

Table 3: Where is the result from the other site?

Table 4&8: What is the row showing 'NS'?

Fig 2: Poor drawing. What is the area of white colour in the figure? Where are the study areas in this figure?

Fig 5: What is 'direct precipitation'?

Fig 7&8: Check the location of  $S_{FC}$ .

Fig 9: What is this figure doing here?

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Fig 10: Is this result from which site?

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 2229, 2007.

**HESSD**

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