

# ***Interactive comment on “Water footprint of crop production for different crop structures in the Hebei southern plain, North China” by Yingmin Chu et al.***

**Anonymous Referee #1**

Received and published: 16 November 2016

## General Comments:

This manuscript investigated the water footprint of crop production for different crop structures in the HSP based on the statistics data of crop yield, crop acreage, fertilization and water withdrawal in 2012. The water footprint was decomposed into blue water footprint, green water footprint, and grey water footprint. Eight different crop structure planning scenarios were used for the assessment of water footprint for different crop structure. Although in my opinion the subject of research is interesting and may be helpful for the water resource management in the HSP, there are several important issues need to be addressed. So I recommend a major revision.

Major points:

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1. The language of the manuscript needs to be improved, since some sentences are too long and not well expressed. I would suggest the manuscript refined by a native speaker.
2. In my opinion, the result in section 3 is rather brief, which is not robust enough for the publication in this high-quality journal. The study of water footprint for only one year (2012) is obviously lack of persuasion. I suggest extending the length of time series (such as 5 or 10 years) to compare the interannual variability of water footprint in the HSP.
3. The scenarios setting of crop structure has a large impact on the results. Why choose eight scenarios rather than ten scenarios in this study? My question is whether or not these eight scenarios represent all possibilities of the crop structure. In addition, why cotton and peanut are not involved in the scenarios setting (Table 2)? Do they show little impact on water footprint in the HSP? Please clarify it.
4. The conclusion (section 5) is too simple and less appealing to the readers. Please re-organize this part to highlight your innovation and new findings.

#### Specific Comments:

Page 2, line 30: "has becoming..." should be "has become..."

Page 2, line 44: what is the meaning of "As s metric...?"

Page 3, line 60: please give the full name of "HSP", since it first appeared in the introduction of the paper.

Page 3, line 77: "are located in ...." » "is located in ...."

Page 4, line 80: it is better to use "from July to September"

Page 4, line 88: please check the number of weather stations in Figure 1. It seems to me that only 22-23 stations can be found. Please add the id number to the stations in Figure 1.

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Page 7, line 138: please move the sentence “ETc is crop actual evapotranspiration (mm)” to the front of the sentence “Pe is the effective . . .”

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Page 10, line 204: please change to “indicated that vegetables and winter wheat. . .”

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-447, 2016.

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