This is a short, informative and to my mind original, article on the development of a tool to improve grain farming in Canada. This topic is new to me in the reviews I have done and found I had a sharp learning experience to enlighten me.

Thank you for the positive comment.

There is nothing seriously poor herein that needs to be attended to. Most of my remarks are attached to the Figures and the odd Table, to make reading easier. To repeat a passage I wrote as a comment after the conclusion, I make an appeal which I hope will help the readers of the article: "Most potential readers will probably scan the Abstract, look at the Figures and possibly read the Conclusion, before they decide to read the whole. Please repeat the text referred to by the acronyms in this passage.   Because you have a lot of them, please add them in an appendix for reference below the text. Your article is relatively short, so an extra page will not hurt!"

Yes, thank you for this comment. I broke down Table 1 into two tables to make the reading easier. I also corrected various aspects of the figures to ensure clear visual communication.

I have added a list of acronyms at the end of the manuscript.

After some tidying up, I recommend that a reviewed version will likely be acceptable to the Editor. I would be happy to see the revision. My comments to the Authors follows my Signature below this passage, which is my wont.

We appreciate it. Thanks again for the review.

Geoff Pegram

6 May 2022

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Details of comments inserted in the article. Clips of your text are numbered and my remarks follow introduced by #. I will not copy the trivial suggested corrections, but I will take the more pithy selections and add them here.

11 MSWEP

Multi-Source Weighted-Ensemble Precipitation

 In the new version, I completely rewrote the Abstract, so there is no need for that.

24 population of 9.1 billion (UN/ISDR, 2007; FAO, 2009

I checked and found World Population Clock 2 May 2022: They give 7.9 Billion People (2022) – Worldometer

I meant the projected population of 9.1 billion by 2050. The new projection is 10 billion by 2050. I fixed that in the text: "… by 2050 to feed the projected population of 10 billion"

Table 1

What do these numbers mean? Please make your caption more informative. Add PET = Potential ET. Rotate the table so we don't have to crane our necks! It fits if you make the columns a bit thinner and deeper.

 I broke Table 1 into two tables, so both are rotated and easy to read. The first table shows the land use, which is very easy to understand. The second table is described in the text. I added Potential ET to PET in the caption of Table 2.

Page 8

At this stage, I have copied as many acronyms that I can find, some of them having their meaning explained, but after listing 23 at this stage, I plead for a list of acronyms that we can check out after the conclusion, before Refs.

 A list of acronyms is added at the end of the manuscript.

149 ……0.1 is the scale factor meaning that the data had to be corrected by multiplying them by 0.1

(Running et al., 2019).

I do not understand this sentence; reducing the data by a factor of 10? What for?

This is because of the way MODIS data are gathered. It was out of my control, and only by reading the manuals, I was able to figure that out. I do think it is too much unnecessary detail, and to avoid confusion, I decided to remove this sentence.

167 V280 combined with the MSWX product (?)

$ In place of (?) I suggest "as they match in frequency (3 hr) and pixel size (0.10)"

I actually got this part clarified as "we will use MSWEP combined with MSWX to provide real-time forecasts {Beck_H.E.-2022-01}."

175

Getting info from the farmers is very smart

I agree.

Fig.2

Good informative layout

Thank you.

2.5 Relative importance of FarmCan inputs to P

Does not make sense - inputs FROM Precipitation ?

Thank you for pointing this issue out. I removed the P from the title, I think it was confusing.

230 variables (ET, PET, SM, and RZSM) are used first as predictants

predictant is not a word in the Oxford English Dictionary, nor could I find it on the Web. Nice try but you might substitute:"seen as items to be estimated"

This word is used very commonly in other articles, especially the ones in the statistics and data science domain. If you search for it, several articles and presentations come up

with this name as a synonym for "predictor". I know it might sound unfamiliar, as I too, had to learn it the first time. But I have seen it enough to now use it.

Fig. 3

That is seriously good corroboration cell for cell - almost identical - by eye (I did it in one minute) and I would estimate a cross correlation average of 95%

 Thanks.

Figure 4. Spatial patterns of climatology. Data was collected from 2015-2020 for the agricultural months (Apr-Oct).

That is pretty much all we had back then for SMAP; yet, several articles refer to this as the climatology that SMAP can show so far. I have removed the word " climatology" for the consideration of the short record to avoid confusion.

Please expand the legend in this relatively short article, as most readers will check the abstract, then possibly the figures which need to be self-explanatory. Then they might take the challenge of the text if they have been enticed! Expand the acronyms here, as well as listing them at the end of the text.

 I have done that in the new manuscript and ensured all the figures are explained enough. More explanation for each figure is also brought in the text.

Fig. 5

In the caption please change Apr—Oct to "April and October". Also, please give horizontal definition of columns in legend - it took me a while to unpack …

I change Apr-Oct to April to October. I reproduced all the plots and made the fonts more significant, changed the labels, and explained the plots extensively in the text.

Fig. 6

Make these sample bars thicker as in the figure - their colours are indistinguishable in this legend;

I have done it in the new manuscript.

Fig. 7 gets it right. What is 'Teal'? Light green? Make the bar-chart thicker? The dates are unpackable - they are a jumble. In my first look I had no clue as to which is day, month nor year and what the numbers below the blank spaces are designed to tell the reader. Why not give dates, of start and finish, of the readings?

 I regenerated this and made sure the dates read precisely as intended, the legends are more prominent and hopefully easier to understand.

Fig. 8

What about (b) & (c). Nevertheless, our figures are well laid out imbedded in the text. Also, the 3 & D are chopped off ... the images are very readable and can be reduced in size without loss of message - same for Fig. 7 which I missed

 Yes, I made sure nothing was chopped off.

Fig. 9

Enlarge the words Predicted as they are unreadable at an A4 size - Observed as well. There's enough space. Also please make the caption more informative

 Instead of putting the labels in the figure, I just explained them in the caption of the figure. This was because it was confusing for some reviewers that NI was also predicted, which was not. NI is calculated from predicted values.

4 Conclusions#

Most potential readers will probably scan the Abstract, look at the Figures and possibly read the Conclusion, before they decide to read the whole. Please repeat the text referred to by the acronyms in this passage.   Because you have a lot of them, please add them in an appendix for reference below the text. Your article is relatively short at 350 lines including Figs & Tables, so an extra page will not hurt!

I added a list of acronyms.

Thank you for your time and care in writing a comprehensive review.