

We are grateful to the editor for their valuable comments and have modified the paper accordingly. We thank the editor for their comments which have improved the strength of the manuscript.

Line 23 For non-experts, please spell out the full name of FAO (Food and Agriculture Organization of the United Nations)

We have corrected this in the manuscript (Line 39 of the revised manuscript)

Line 27 Regions of the world with high ozone concentrations relevant to wheat were identified by the first phase of TOAR (Mills et al., 2018)

We have added this reference to strengthen the argument around high O<sub>3</sub> concentrations in key wheat growing seasons (Line 44 of the revised manuscript)

Line 34 Fowler et al. (2008) is a very good paper, but it's now a little dated. Current projections of surface ozone evolution are shown in Figure 6.20 in Chapter 6, IPCC AR6 WG-I, The Physical Science Basis (Szopa et al., 2021). They show a lot of variability in surface ozone evolution depending on the emissions scenario. Under the SSP3-7.0 scenario (approximately business as usual) annual average surface ozone continues to increase in most regions (although this figure does not show projections for strong ozone pollution episodes). Another consideration is presented by Zanis et al. (2022), who suggest that climate change could impose a “climate penalty” on surface ozone, with more frequent heatwaves exacerbating ozone in South and East Asia.

We have consulted the references and modified the sentence and citations accordingly to update the locations where O<sub>3</sub> concentrations will likely increase, and to incorporate the effect that climate change will have on O<sub>3</sub> production. To strengthen the argument we use the recommended sources above and also Fu and Tian (2019). (Lines 49-54 of the revised manuscript). We also refer to the first phase of TOAR to highlight the project

Fu, T. M. and Tian, H. (2019). Climate Change Penalty to Ozone Air Quality: Review of Current Understandings and Knowledge Gaps. *Current Pollution Reports*, 5 (3), pp.159–171. [Online]. Available at: doi:10.1007/s40726-019-00115-6.

Lines 44-46 This sentence on grain protein is difficult to understand, please reword

We agree with the editor that this sentence is confusing. We have broken it into 2 sentences and re-phrased it to enhance readability (Lines 60-63 of the revised manuscript)