Dear Editor,

We thank the reviewer for his review that has added a lot of depth to the discussion and appreciate the additional suggestions and the Editor for giving us the opportunity for further revisions. In response to these suggestions we have made the following changes

1. We have gone through the manuscript once more and have shortened/rephrased long sentences as listed below:

   Page 3 Line 9ff: "Tropospheric ozone causes damage to crop at elevated levels and crop yields are extremely important to the Indian economy~~, .as~~ 17% of India's GDP directly depends on agriculture and allied activities (RBI , 2013) . ~~However, since~~and 54% of the total and 72% of the rural working population of India still relies on agriculture as their main source of income (Census, 2011)~~,~~. -As ~~R~~rural demand for a large range of consumer products and cement depends directly on the year's crop yield, -crop yields have a much larger overall effect on the economy. ~~Rural demand for a large range of consumer products and cement depends directly on the year's crop yield.~~ Consequently every 1% decrease in crop yields causes a 0.36% decrease of India's GDP (Gadgil and Gadgil, 2006)."

   Page 4 Line 15ff. "The presence of ethylene in the leaves interferes with the functioning of the hormone abscisic acid (ABA~~), ~~). ABA is a hormone which normally controls stomata closure and reduces water loss under drought conditions (Wilkinson et al., 2012)."

   Page 4 Line 25ff "A healthy response of rice plants to soil drying would reduce the ozone uptake. This ~~and~~ could explain the higher yields frequently observed for SRI plots during field trials, as well as the spatial variability of the yield difference between SRI plots and control treatments."

   Page 5 Line 1ff "In phenotypes that are unable to control their stomata opening under ozone stress, O3 enters the leaf. ~~and~~ It acts as a strong oxidant causing reactive oxygen stress (ROS) through hydrogen peroxide, superoxide, and hydroxyl radicals that alter the basic metabolic processes in plants (Heath, 2008; Iriti and Faoro, 2009; Kangasjaärvi and Kangasjaärvi, 2014). Ozone has been shown to destroy the structure and function of biological membranes leading to electrolyte leakage. This ~~causing~~ causes accelerated leaf senescence ~~and reduced photosynthesis~~ (Calatayud et al., 2004). Moreover, ozone~~ and~~ can cause pollen sterility or induce flower, ovule, or grain injury and abortion (Black et al., 2000). In such phenotypes ozone causes visible leaf injury, senescence, and abscission (Kangasjaärvi et al., 2005). By reducing the amount of healthy green leaf area available for photosynthesis, the accumulate damage~~ and can~~ eventually reduces crop yield, even if the exposure ~~damage~~ occur~~ed~~s at an early vegetative stages of crop growth., ~~by reducing the amount of healthy green leaf area available for photosynthesis~~."

   Page 6 Line 19ff "Recently stomatal flux-based critical levels were proposed. These~~ to~~ address concerns that the AOT40-based critical levels are based on the concentration of ozone in the atmosphere, whilst the ozone related damage depends on the amount of the pollutant reaching the sites of damage within the leaf. Models using stomatal uptake of O3 (flux; F) or its cumulative value, dose (D) have significantly improved the prediction of plant injury. In particular they~~ and~~ have addressed the asynchronicity of maximum stomatal conductance (gsto) and peak ozone~~ in particular~~ in plants that close their stomata when temperatures or the water vapour pressure deficit around the leaves are too high (Ainsworth et al., 2012; Fares et al., 2013; Feng et al., 2012; Danielsson et al., 2013;

Gonzalez-Fernandez et al., 2013; Yamaguchi et al.,2014). Stomatal flux of ozone is modelled using a multiplicative algorithm adapted from Emberson et al. (2000). This algorithm ~~that~~ incorporates the effects of air temperature, vapour pressure deficit of the air surrounding the leaves, light, soil water potential, plant phenology and ozone concentration on the maximum stomatal conductance, i.e. the stomatal conductance under optimal conditions."

Page 7 line 14ff "Depite the fact that the stomatal flux based model is recommended by the UNECE CLRTAP (United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution) for ozone risk assessment in Europe ~~based on accumulated stomatal ozone fluxes over a threshold~~ (UNECE, 2010), exposure yield relationships have so far been ~~internatinally~~internationally agreed upon only for a limited number of crops (Mills et al., 2011b)."

2. While the detailed justification for the choice of the periods is too long for the main text we are now listing the periods themselves without the discussion and justification for the choice of the timing in the main text. The supplement remains unchanged. Specific change are as follows:

Page 11 line 19 ff "In this study we calculate the accumulated and average ozone exposure (AOT40/M7) for a 4 month period (120 days), which is typical of cultivars popular in the NW-IGP. We investigate the following 5 Periods:
Period 1: May 16th (emergence) to September 15th (maturity)
Period 2: June 1st (emergence) to September 30th (maturity)
Period 3: June 16th (emergence) to October 15th (maturity)
Period 4: April 15th (emergence) to August 15th (maturity)
Period 5: May 1st (emergence) to September 1st (maturity)
Wheat cultivars take between 4 to 4.5 months from emergence to maturity. High temperatures and water stress during the grain filling stage result a shorter growth period. Therefore, accumulated and average ozone exposure (AOT40/M7) was calculated for a 4.5 month period for timely sowings and for a 4 month period for late sowings. We investigate the following 5 Periods~~.~~:
Period 1: November 1st (emergence) to 15th March (maturity)
Period 2: November 16th (emergence) to 31st March (maturity)
Period 3: December 1st (emergence) to 15th April (maturity)
Period 4: December 16th (emergence) to 15th April (maturity)
Period 5: January 1st (emergence) to 30th April (maturity)
For maize we investigate two periods for each of the growing seasons.
Kharif:
Period 1: 15th June (emergence) to 15th September (maturity)
Period 2: 1st July (emergence) to 1st October (maturity)
Rabi:
Period 3: 1st January (emergence) to 31st March (maturity)
Period 4: 1st February (emergence) to 30th April (maturity)
For cotton to cover the entire range of potential ozone damage, three time windows are investigated:
Period 1: 1st May - 15th December; three pickings
Period 2: 31st May - 15th December; three pickings
Period 3: 1st May - 31st December; four pickings

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It should be noted, however, that these time windows do not correspond to the same number of pickings and more pickings will result in both in higher yields and a longer time window in which plants can accumulate damage.

3. We disagree with the comment regarding too much discussion in the figure caption. While the figure captions are long, all the details regarding how the figure was prepared were shifted to the figure caption on the request of the same reviewer in the original review, to streamline the text in the main discussion. We would like to keep these details in the figure caption, as they are better placed there.

4. To address the comment regarding uncertainty of the wheat exposure response relationship we have added the uncertainties imposed by the uncertainties of the fit parameters of the line fit both for rice (Figure 4) and wheat (Figure 6) to table 5,6 and 9 and have propagated the uncertainty while calculating crop production and economic cost losses. Table 10 is too crowded to add uncertainties in the table. Therefore, we added the uncertainties to the numbers in the discussion but not to the table.
   We have also revised the text, because there was a misunderstanding. The relationshipderived in Figure 5 is only plotted for comparison in Figure 6. This relationship wat not used to calculate crop production and economic cost losses. Only the equation based on OTC chamber studies (Figure 6) was used. We believe that the sentence on page 21 line 11ff was phrased ambiguously and is responsible for the confusion. We removed this sentence from the final revised manuscript.