**Response to reviewer 2 comments**

Reviewer #2:

Abstract:  
1. It would be beneficial to briefly explain the specific nature of the "computational spatial ex-ante approach" to give readers a "face-value" understanding of the approach.

Response: We thank the reviewer for the suggestion. We have included edits to explain the golden section search algorithm used and the implications of the approach to the development of climatic risk proof strategies.   
  
Introduction:  
2. While the introduction is rich in content, it might benefit from breaking down technical jargon into clearer explanations to enhance readability and comprehension for a wider audience. For instance, technical aspects of the study, such as the "robust and risk-oriented framework" and the "computational risk assessments," could be explained in simpler terms to ensure clarity for readers who might not be familiar with these methods.

Response: We thank the reviewer for this comment. We have edited all parts to add more detail or use alternative phrases like “climatic risk proof”.   
  
Methods:  
3. In table 2: comparison of SOSD, why is the interpretation of upper and lower bound for column Q(base) vs G, "G F/SOSD Q"?

Response: We have now just included SOSD to mean G second order stochastically dominate Q. The F/ part was to show that G also first order stochastically dominate Q.   
  
4. Could you possibly give the resolution of the APSIM model results and the gridded LCAS data?

Response: APSIM was run using 0.05◦ × 0.05◦ spatial resolution input data.   
  
5. Clarify any specific assumptions or limitations in the APSIM model inputs and how these might affect the study's outcomes.

Response: Reported in the previous papers that we cite (Urfels et al 2022 and Montes et al 2022) but we have now edited so as to clarify the assumptions. The key limitations are: no N limitation and on some scenarios no water irrigation to isolate effect of planting date with climate. Future studies would need to consider more interactions – but again our paper is meant to showcase the methodology for evaluating risk regardless of whether APSIM or other crop models are used.   
  
6. Are there specific details regarding data sources, accuracy, and representativeness of the simulated strategies that could be included for reference?

Response: As stated in the methods sections, the crop model details are reported in Urfels et al (2022) and for Bihar in Montes et al (2022) as well as the full crop model can be replicated from: These references already provided extensive data sources, accuracy and representativeness assessments. For example: state recommendations were based on state government recommendations while the onset is strategy we hypothesized to be beneficial and evaluated for yield in Urfels et al (2022) and here to show the riskiness onset was calculated based Stiller reeves methods for monsoon rainfall detection (see Urfels 2022).   
  
7. How does the analysis incorporate or consider climate variability and potential changes in weather patterns over time?

Response: We simulated as mentioned in Urfels et al (2022) across climate from 1982-2015 so that it incorporate climate variability and change across a historical time slice to represent in more than 20 years common for climate change analyses.   
  
Results  
8. While the data presented is extensive, linking it back to the broader context of rice agriculture or the socio-economic landscape of the Indo-Gangetic Plains could provide a more holistic perspective.

Response: Climate change impacts hotspot.. Andy paper impact on wheat yields and key cause of late rice planting. But irrigation infrastructure making timely planting very risky.. mention last el nino event and late monsoon – causing farmers to fallow and reduce rice area. Similar issues of importance of timing and precip variability in other farming systems. So recommendations require to consider riskiness evaluation and will need to include also field evaluation of riskiness after first pass model ex-ante simulations.   
  
9. Consider including content on limitations, addressing any potential constraints or weaknesses in the methodology. For instance, absence of nutrient-limited and/or other management practices that play a role in farmers' risk aversion.

Response: Thanks for the suggestion. We have included a limitations section in which we have mentioned some of these limitations.   
  
10. Some sentences are lengthy and might benefit from breaking them down into shorter, clearer phrases for easier understanding. For instance paragraph starting line 370-374.  
Response: We thank the reviewer. We have edited the text accordingly.

Conclusion:  
11. It would benefit from providing specific figures or statistical outcomes that reinforce the concluded statements.  
  
12. Rather than only using statements, consider alternative ways (using examples/scenarios) that can emphasise the potential real-world impact of the risk-assessment approach on smallholder farmers, and how this framework could aid them in decision-making  
  
13. Consider touching upon potential policy implications of the recommendations arising from the study, highlighting actionable insights for policymakers or stakeholders.  
  
General comments:  
14. Review and proof read to correct any grammatical or spelling errors e.g., line 54, 161, 96, 251, among others.  
  
15. Review the image resolution, aspect ratio and font size of all image/figure axes and axes labels, to enhance visibility.