

# Bo Cheng

## Agriculture - Biochar – Crop Modeling – Deep Learning - Environmental Science

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### Education

- 1/2022 Ph.D. Crop Soil and Environmental Science, Auburn University, USA.
- 9/2020 M.S. Crop Science, Huazhong Agricultural University, China.
- 9/2016 B.S. Agronomy, Huazhong Agricultural University, China.

### Publications

1. **Bo Cheng**, Yang Jiang, Cougui Cao. (2021). Balance rice yield and eating quality by changing the traditional nitrogen management for sustainable production in China. *Journal of Cleaner Production*. 312, 127793. <https://doi.org/10.1016/j.jclepro.2021.127793>
2. **Bo Cheng**, Shilong Hu, Mingli Cai, Cougui Cao, Yang Jiang. (2021). Nitrate application induced a lower yield loss in rice under progressive drought stress. *Plant Growth Regulation*. <https://doi.org/10.1007/s10725-021-00731-7>
3. Shilong Hu, **Bo Cheng**, Cougui Cao, Ming Yu, Jiading Wenmu, Yafei Su, Yang Jiang. (2021). Effects of Spraying Wood Vinegar on the Yield and Taste Quality of High-quality Rice under Different Nitrogen Levels. *Journal of Huazhong Agricultural University*. <http://hnxbl.cnjournals.net/hznydxzr/article/abstract/20220112>
4. Yongfa You, Hanqin Tian, Shufen Pan, William D. Batchelor, **Bo Cheng**, Dafeng Hui, Xiaoyong Li, Xin-Zhong Liang, Chaoqun Lu, Naiqing Pan, Stephen A. Prior, Hao Shi. (2022). Quantification of net greenhouse gases emissions from U.S. croplands using data-model integration. *AGU Fall Meeting Abstracts*.
5. Shijie Shi, Enting Wang, Chengxuan Li, Mingli Cai, **Bo Cheng**, Cougui Cao, Yang Jiang. (2022). Use of Protein Content, Amylose Content, and RVA Parameters to Evaluate the Taste Quality of Rice. *Frontiers in nutrition*, 8, 758547. <https://doi.org/10.3389/fnut.2021.758547>
6. Shijie Shi, Keqiang Pan, Ming Yu, Lina Li, Jichao Tang, **Bo Cheng**, Juan Liu, Cougui Cao, Yang Jiang. (2022). Differences in starch multi-layer structure, pasting, and rice eating quality between fresh rice and 7 years stored rice. *Current Research in Food Science*, 5, 1379. <https://doi.org/10.1016/j.crfs.2022.08.013>
7. **Bo Cheng**, Shijie Shi, Keqiang Pan, Jinfan Nie, Junyang Xing, Xiaodong Wang, Lina Li, Jichao Tang, Juan Liu, Cougui Cao, Yang Jiang. (2023). Untargeted metabolomics based on UHPLC-Q-Exactive-MS reveals metabolite and taste quality differences between Koshihikari rice from China and Japan. *International Journal of Gastronomy and Food Science*, 31, 100680. <https://doi.org/10.1016/j.ijgfs.2023.100680>
8. Debao Tu, Yang Jiang, Akram Salah, Mingli Cai, **Bo Cheng**, Xiaosong Sun, Cougui Cao. (2023). Influence of high natural temperature during reproductive stage on the structure and physicochemical properties of rice starch. *Frontiers in Plant Science*, 14, 435. <https://doi.org/10.3389/fpls.2023.1136347>
9. Lina Li, Shijie Shi, **Bo Cheng**, Dan Zhao, Keqiang Pan, Cougui Cao, Yang Jiang. (2023). Association between rice protein components and eating quality traits of different rice varieties under different nitrogen levels. *Cereal Science*, 113, 103760. <https://doi.org/10.1016/j.jcs.2023.103760>
10. Yongfa You, Hanqin Tian, Shufen Pan, Hao Shi, Chaoqun Lu, William D. Batchelor, **Bo Cheng**, Dafeng Hui, David Kicklighter, Xin Zhong Liang, Xiaoyong Li, Jerry Melillo, Naiqing Pan,

Stephen A. Prior, John Reilly. (2023). Net greenhouse gas balance in U.S. croplands: How can soils be part of the climate solution? *Global Change Biology*, 301, 17109.

<https://doi.org/10.1111/gcb.17109>

11. Jichao Tang, Quanyi Hu, Chengfang Li, Cougui Cao, Xuelin Zhang, Ying Zhang, Wenfeng Tan, **Bo Cheng**, Dongliang Xiong, Tianqi Liu, Yakov Kuzyakov. (2025). Air injection in paddy soil reduces N<sub>2</sub>O and NH<sub>3</sub> emissions and regulates the nitrogen cycle. *Soil and Tillage Research*, 246, 106329. <https://doi.org/10.1016/j.still.2024.106329>

### Under review

1. Debao Tu, **Bo Cheng**, Muhanmad Hassan Ahmad, Linsheng Yang, Zhong Li, Min Liu, Yang Jiang, Min Xi. (2025). Effect of temperature at different phenological stages on physiochemical properties and structure of rice starch. *European Journal of Agronomy*
2. Xiuren Liang; Bowen Yang; **Bo Cheng**; Moussa Traore; Lijun Li. (2025). Upland-paddy rotation modes and straw return promoting soil N uptake and diminishing reactive N loss by optimizing soil N pool. *Field Crop Research*
3. Zongkui Chen, **Bo Cheng**, Xiafei Li, Zhenglan Peng, Tao Liu, Xinrui Li, William Batchelor. (2025). Approaches to enhancing grain yield and carbon neutrality with organic and inorganic fertilizer practice in Chinese paddy fields. *Food Security*
4. Kai Chen, **Bo Cheng**, Yang Jiang, Cougui Cao. (2025). Co-cultivation of rice and aquatic animals: providing more rice and improving soil quality. *Soil and Tillage Research*

### Teaching experience

- 8/2022 to 10/2022: Teaching Assistant for GSEI 1200 - Digital Earth during Fall semester 2022. Taught laboratory sessions covering assignments and projects.

### Awards

- 2021 Excellent student of Huazhong Agricultural University
- 2022 China Scholarship Council

### Conference

1. The 19th China Ecology Conference, November 21-22, 2020, Beijing, China.
2. The 2nd National Congress of Metabolomic, December 4-7, 2020, Hainan, China.
3. The 20th China Ecology Conference, October 24-27, 2021, Shanghai, China.
4. 2024 ASA CSSA SSSA International Annual Meeting, November 10-13, San Antonio, USA

### Skills

- ArcGIS, R, Python, DSSAT

### Memberships

- ASA CSSA SSSA