



Seeds of Change: The Effects of the Introduction of Bt Cotton in India

First Submission: RR_IND_2025_488

Ankriti Singh, Nihaa Sajid
reproducibility@worldbank.org

November 24, 2025

This review verifies the reproducibility of the exhibits included in the paper “*Seeds of Change: The Effects of the Introduction of Bt Cotton in India*”.

Contents in this review:

1. Main findings
2. List of exhibits and reproducibility status
3. Reproduction Environment

Main findings

- **Every exhibit in the main section of the paper has been reproduced accurately.**
- The code was successfully executed on a new computer after:
 1. Updating the working directory.
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 10 minutes to run.
- We conducted our reproducibility analysis based on the paper shared by the authors.
- ArcGIS component not verified due to access limitations. Users should follow the detailed instructions provided in the package to recreate the intermediate datasets.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on two types of data: open and accessible (public but not included in the reproducibility package).
 - Open data is included in the public reproducibility package.
 - Reviewers used forthcoming/accessible/restricted data provided directly by the authors to conduct the reproducibility verification, and this is not included in the public reproducibility package.
 - *data_hash_report.csv* lists the SHA256 hashes of all files in the Data folder to support data integrity checks. Users who acquire the forthcoming/accessible/limited-access/restricted data can use this file to verify that the data has not been altered.
- **Reproducibility Summary:**

- **Data:** All data sources are publicly available but not all are included in the reproducibility package.
- **Code:** All code files (from cleaning to analysis) are included in the reproducibility package.
- **Outputs:** Some outputs are not generated by code (created manually in ArcGIS, etc) but instructions for producing these outputs are included in the README file.
- **Dependencies environment:** The reviewers created a new environment using the latest versions of dependencies available at the moment of the review.

List of exhibits and reproducibility status

Results in the Main Section of the Paper

- **Figure 1** Reproduced.
- **Figure 2** Does not Apply.
- **Figure 3** Reproduced.
- **Figure 4** Reproduced.
- **Figure 5** Reproduced.
- **Figure 6** Reproduced.
- **Figure 7** Reproduced.
- **Figure 8** Reproduced.
- **Figure 9** Reproduced.
- **Figure 10** Reproduced.
- **Table 1** Does not Apply.
- **Table 2** Does not Apply.

Results in the Annex

- **Figure B1** Reproduced.
- **Figure B2** Reproduced.
- **Figure B3** Reproduced.
- **Figure B4** Reproduced.
- **Figure B5** Reproduced.
- **Figure B6** Reproduced.
- **Figure B7** Reproduced.
- **Figure B8** Reproduced.
- **Figure B9** Reproduced.
- **Figure B10** Reproduced.

Reproduction Environment

Paper exhibits were reproduced on a computer with the following specifications:

- OS: Windows 11 Enterprise
- Processor: INTEL(R) XEON(R) PLATINUM 8562Y+ 2.80 GHz (4 processors)
- Memory available: 32.0 GB
- Software version: Stata 18.0 MP