Supplement of

Monsoon Asia Rice Calendar: a gridded rice calendar in monsoon Asia based on Sentinel-1 and Sentinel-2 images

Xin Zhao et al.

Correspondence to: Xin Zhao (zhao.xin@nies.go.jp) and Kazuya Nishina (nishina.kazuya@nies.go.jp)

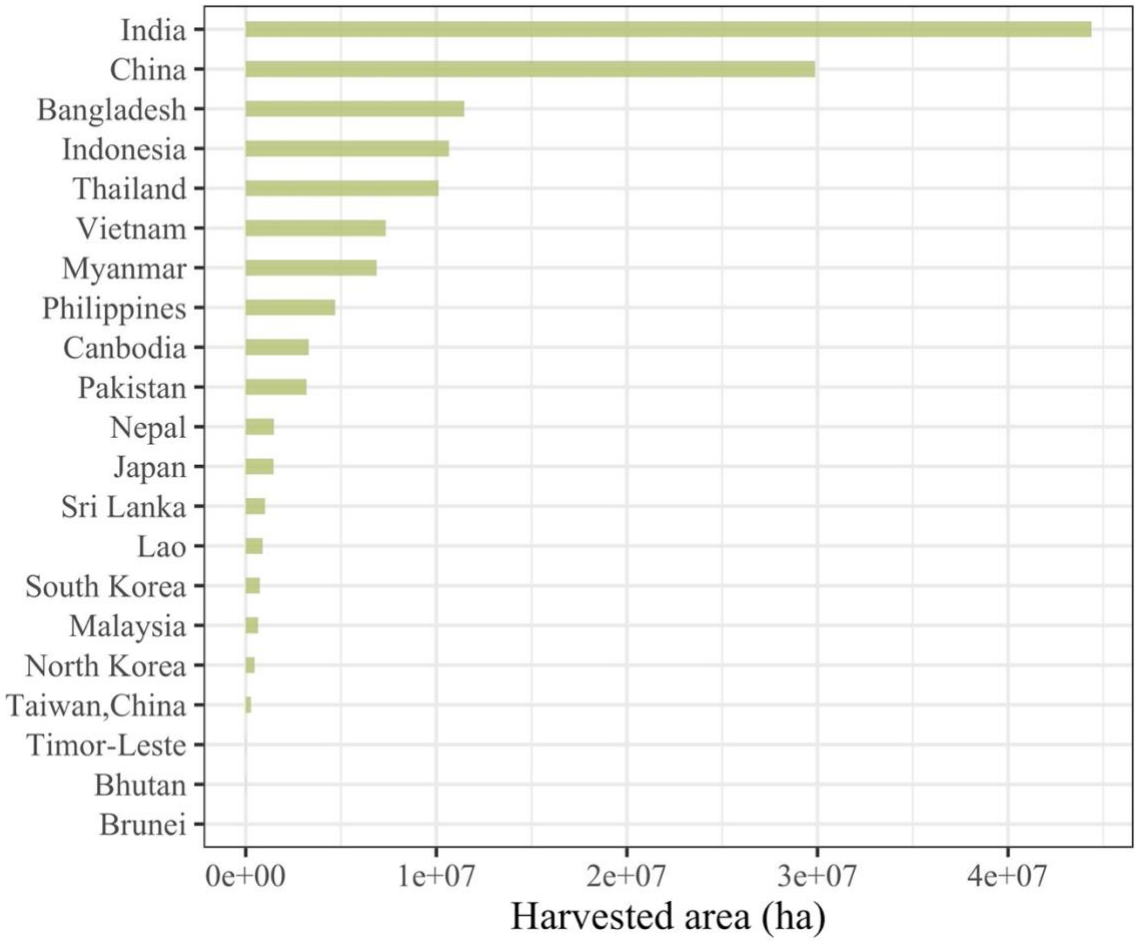

Figure S1 Harvested area of rice paddy fields for countries in monsoon Asia in 2019 and 2020. The data in this figure was derived from FAOSTAT (https://www.fao.org/faostat/en/#data) with last update on December 23, 2022 and access on 1 January 2023.

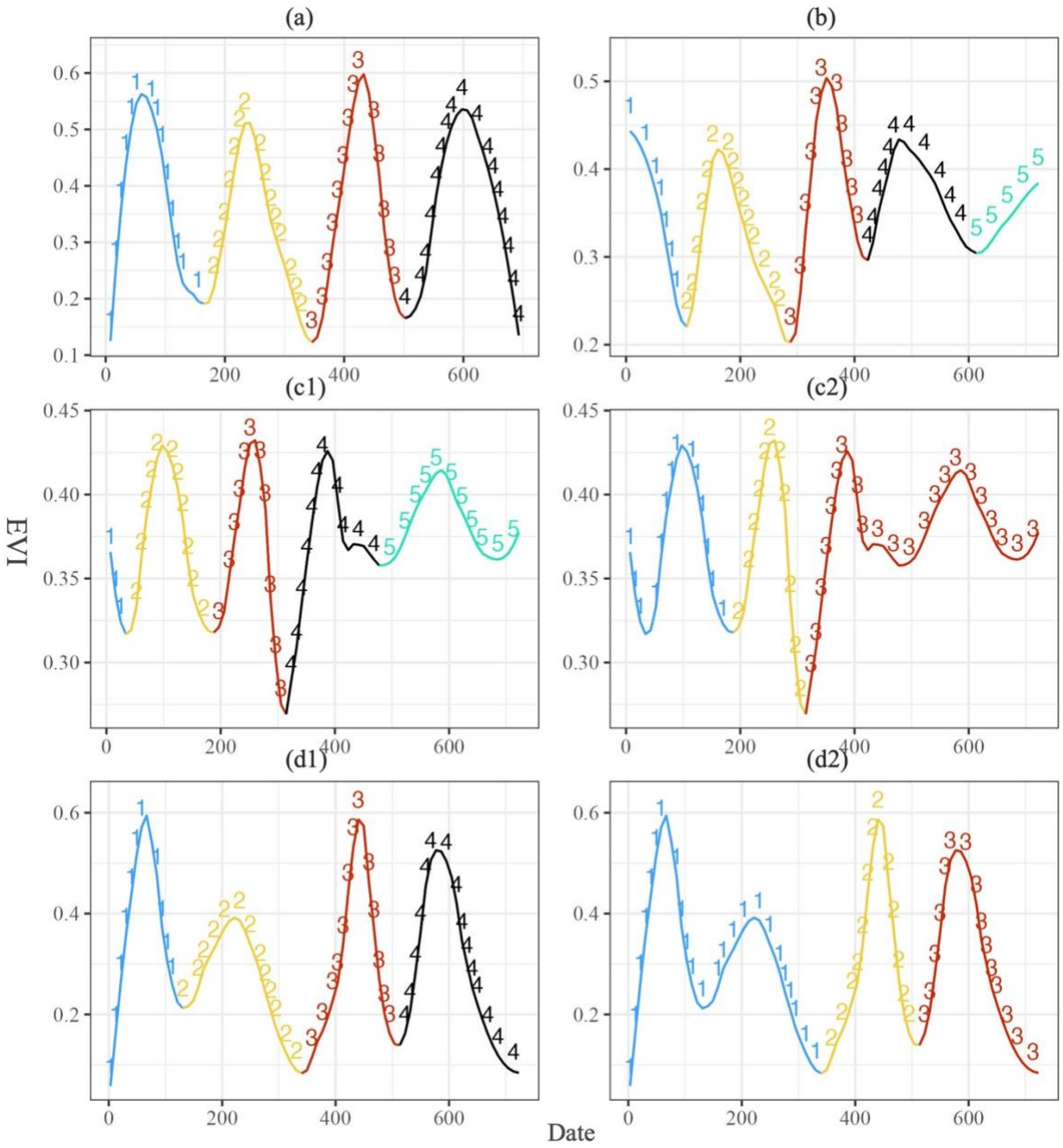

Figure S2 Example of the number of rice cropping detection using Weibull function implemented via the "cardidates" package in R, and comparison of the parameters for detection. X-axis denotes the days from 1 January 2019 to 31 December 2020, and Y-axis denotes the smoothed EVI values. The peakwindow function was used to identify the number of peaks from smoothed EVI time series (e.g., Philippines (16.25°N, 121.75E°)) **(a)**, even though there is an incomplete downward-opening shape (e.g., Philippines (7.25°N, 124.25E°)) **(b)**. Comparison of the *mincut* setting on number of rice cropping detection (e.g., Philippines (7.25°N, 124.25E°), the number of rice croppings was 5 when *mincut* equals 0.9 **(c1)**, whereas the number of rice croppings was 3 when *mincut* equals 0.8 **(c2)**. Similarly, comparison of the *minpeak* setting on the number of rice croppings detection (e.g., Philippines (8.25°N, 122.25E°)), the number of rice croppings was 4 when *minpeak* equals 0.6 **(d1)**, whereas the number of rice croppings was 3 when *minpeak* equals 0.7 **(d2)**.

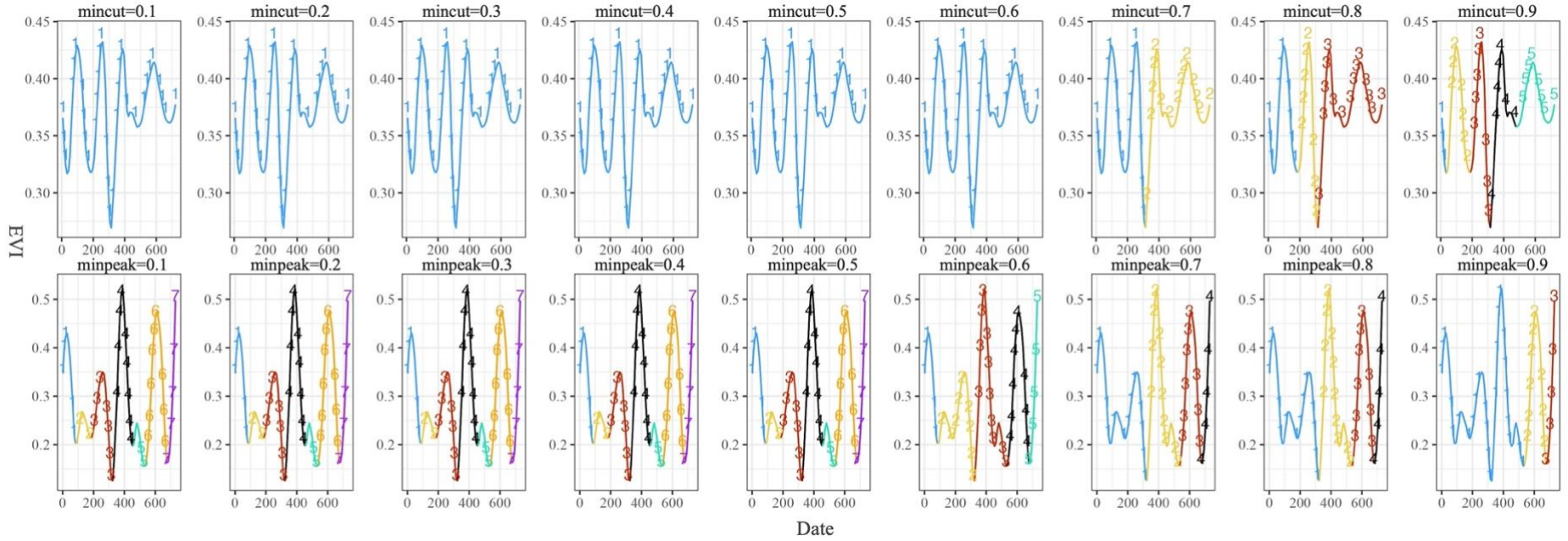

Figure S3 Comparison in *mincut* and *minpeak* values in peakwindow function of "cardidate" R package. The *mincut* and *minpeak* values are 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, and 0.9. The two grids are located at 7.25°N, 124.25E° and 15.75°N, 119.75E° in the Philippines.

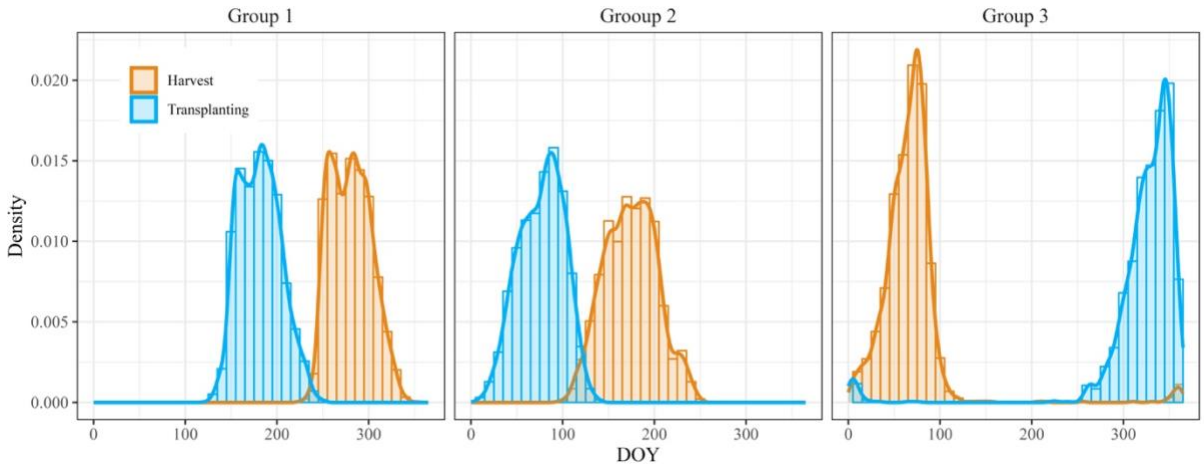

Figure S4 Distribution of transplanting and harvest dates for three groups. Blue and orange represent the transplanting date and the harvest date, respectively.

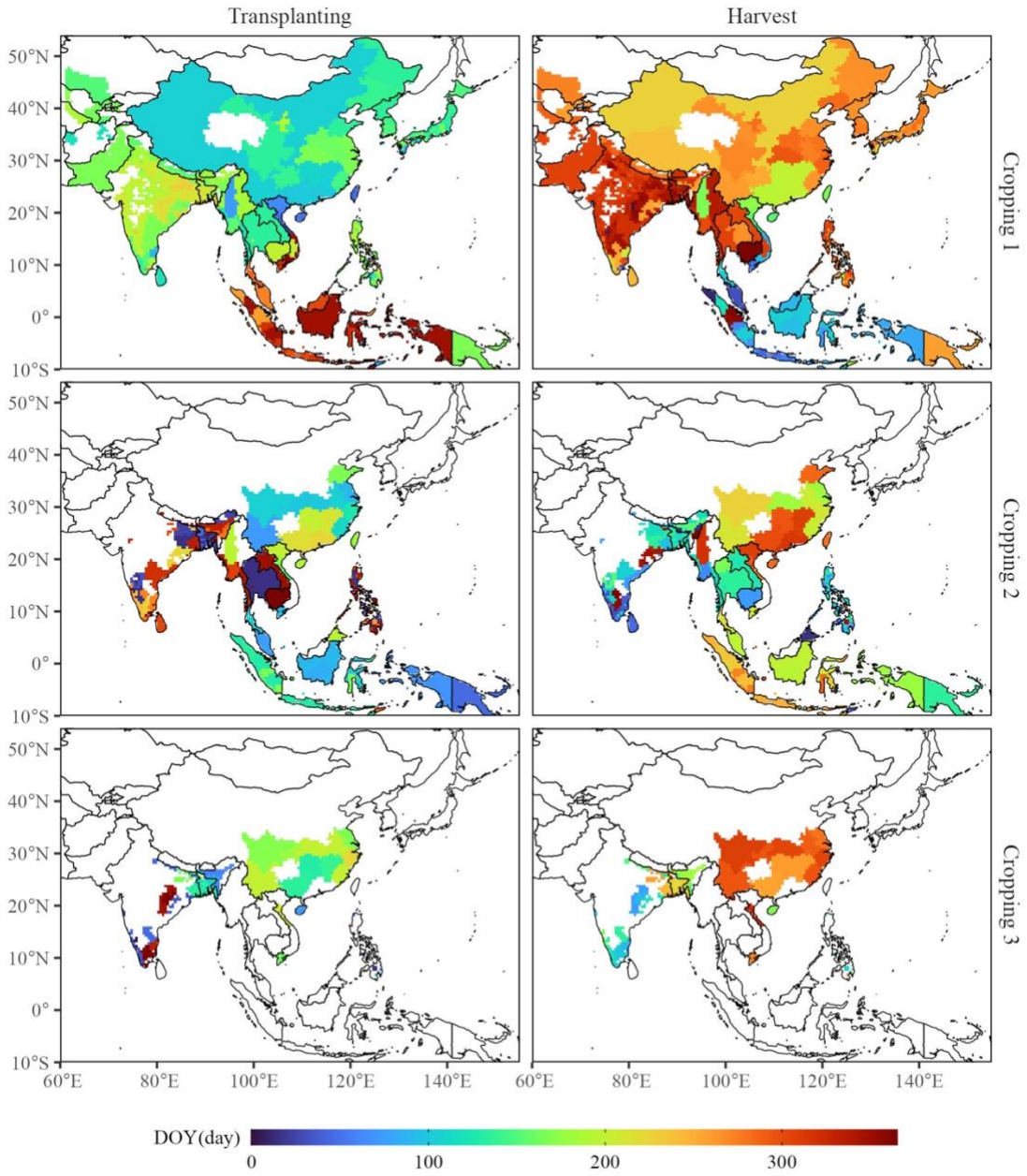

Figure S5 Transplanting and harvest dates from the RiceAtlas calendar. Upper, middle, and lower panels of the left column show the transplanting date for Cropping 1, Cropping 2, and Cropping 3, respectively. Upper, middle, and lower panels of the right column show the harvest date for Cropping 1, Cropping 2, and Cropping 3, respectively. Colour gradient from blue to red in the legend denotes the respective transplanting and harvest dates.

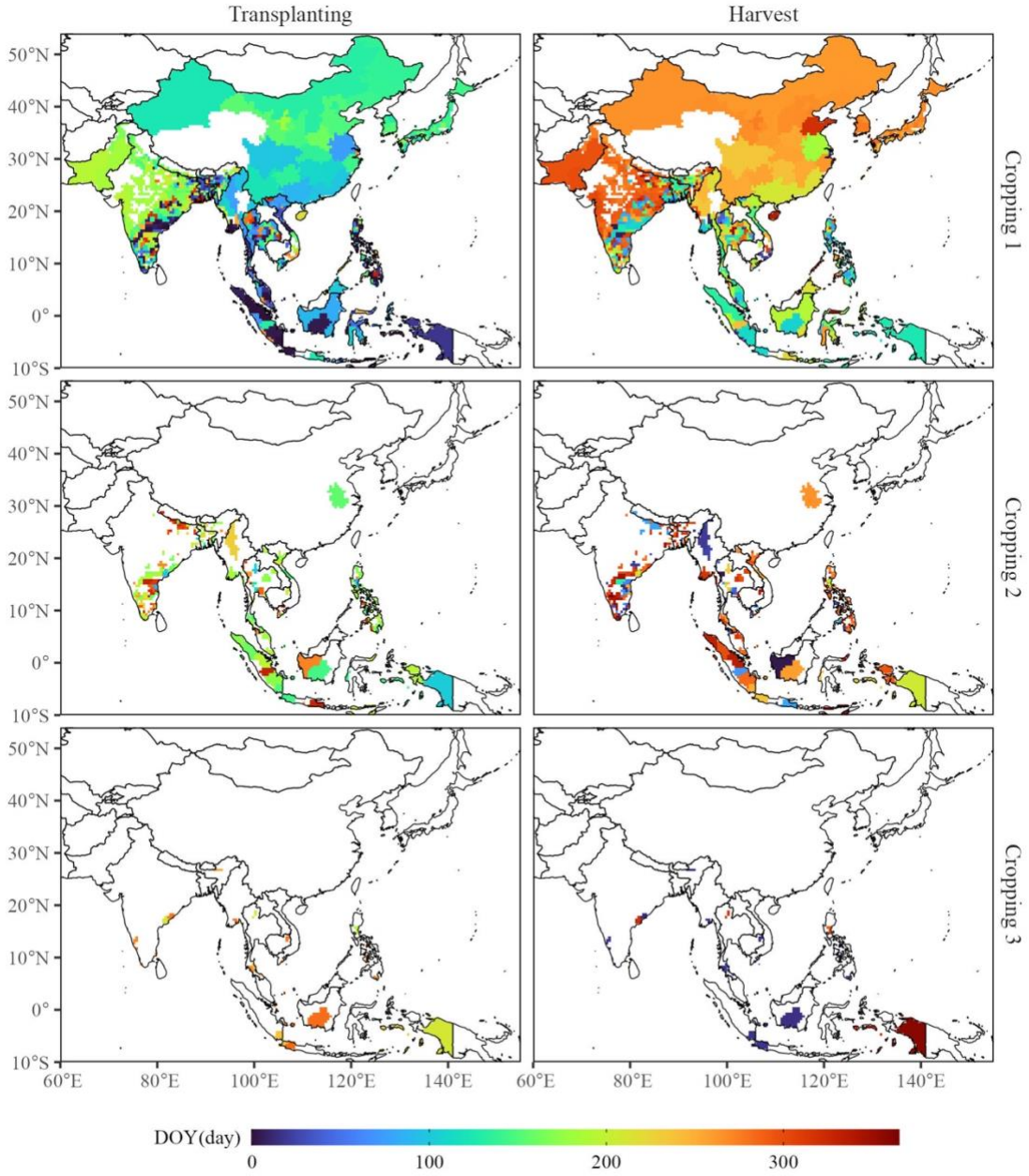

Figure S6 Transplanting and harvest dates from the RICA rice calendar. Upper, middle, and lower panels of the left column show the transplanting date for Cropping 1, Cropping 2, and Cropping 3, respectively. Upper, middle, and lower panels of the right column show the harvest date for Cropping 1, Cropping 2, and Cropping 3, respectively. Colour gradient from blue to red in the legend denotes the respective transplanting and harvest dates.

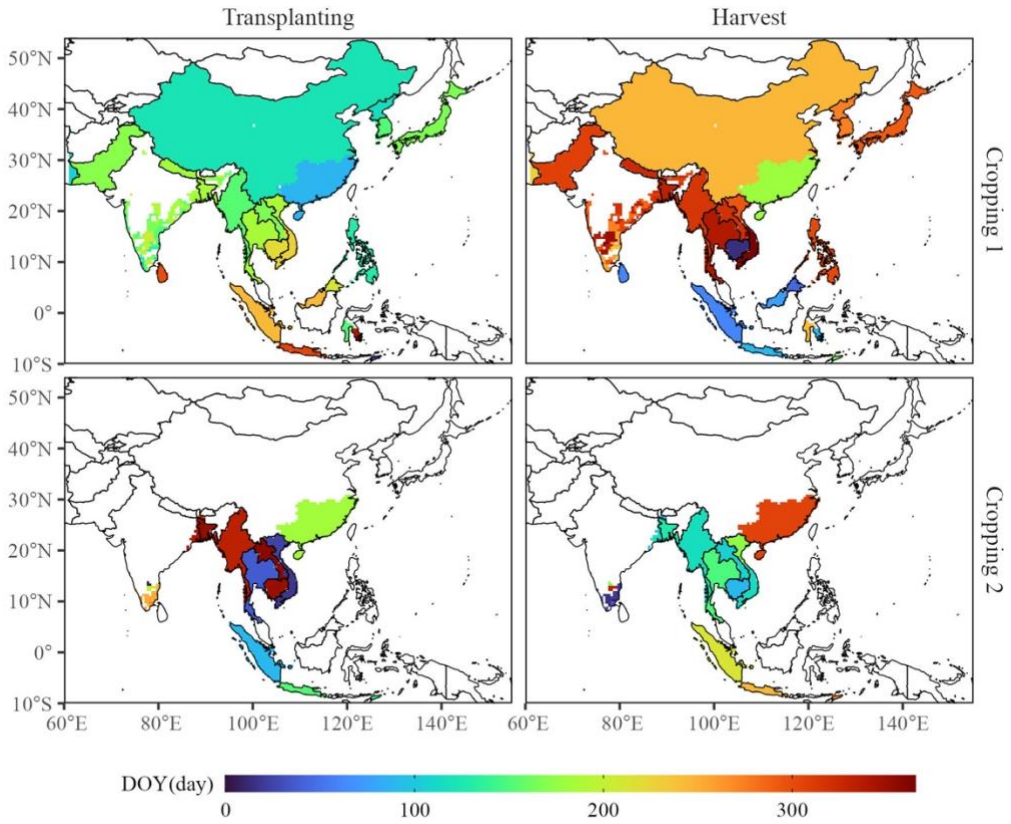

Figure S7 Transplanting and harvest dates from the SAGE rice calendar. Upper, middle, and lower panels of the left column show the transplanting date for Cropping 1 and Cropping 2, respectively. Upper, middle, and lower panels of the right column show the harvest date for Cropping 1 and Cropping 2, respectively. Colour gradient from blue to red in the legend denotes the respective transplanting and harvest dates.

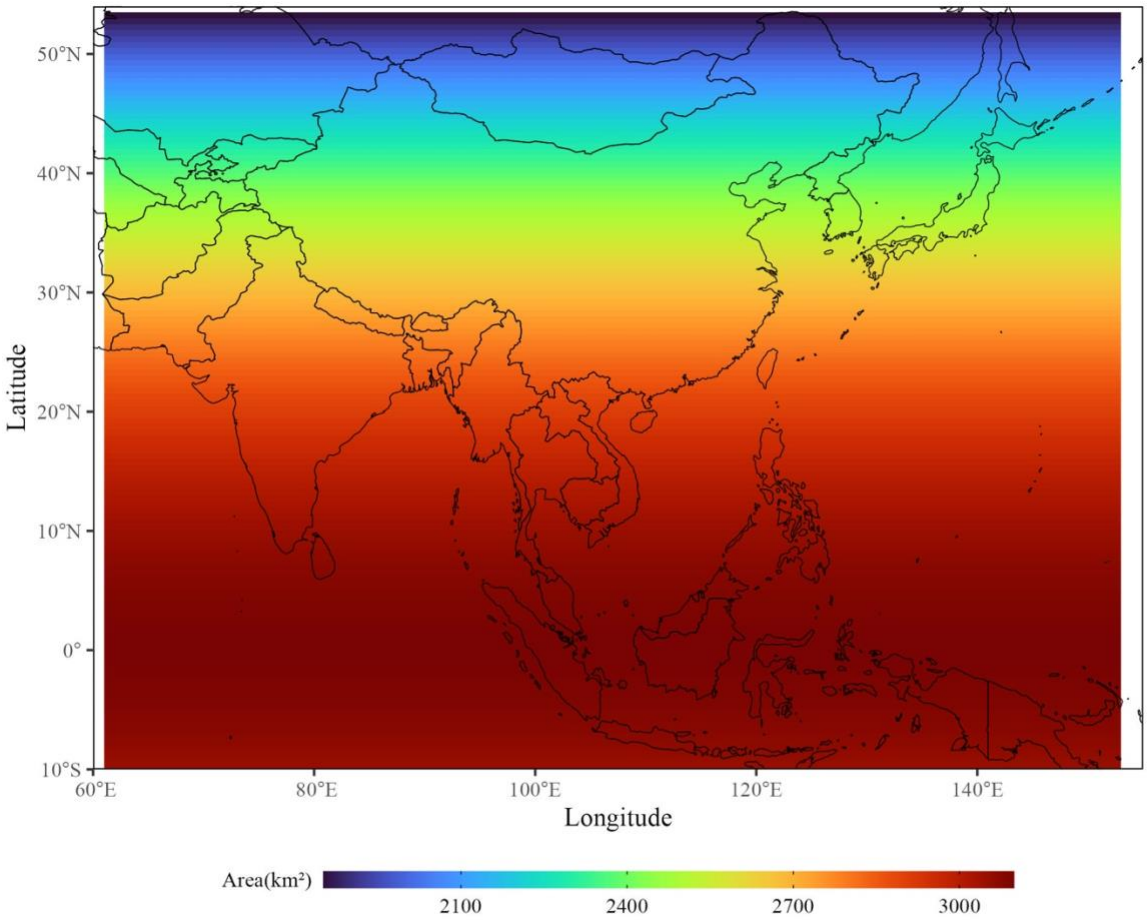

Figure S8 Area of each grid cell (0.5°) on the ellipsoidal earth within the study area (10° S to 53.5° N, 61° E to 153° E).

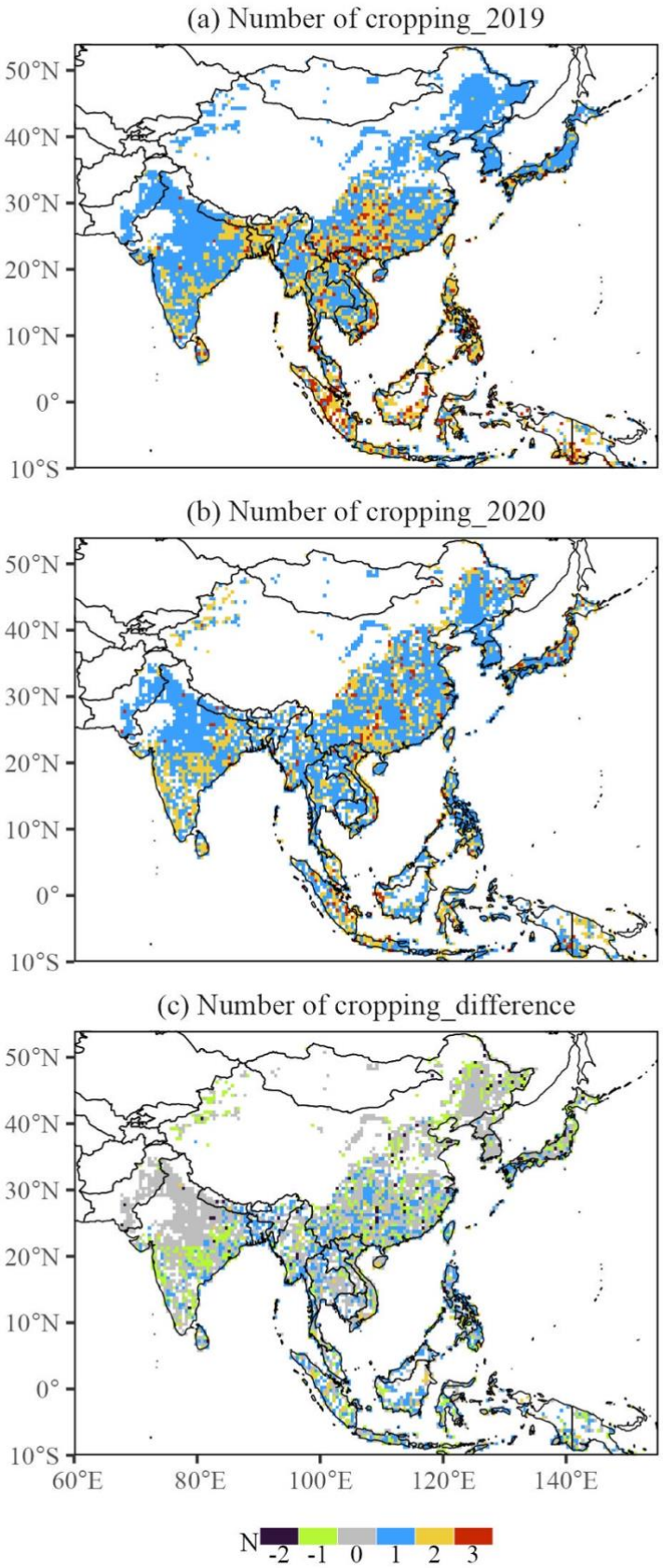

Figure S9 Detected number of rice croppings in 2019 **(a)** and 2020 **(b)**, and difference in number of rice croppings during the two years **(c)**.