Dear Editors and Reviewers:

Thank you again for your comments on our work. We have revised our manuscript according to the advice from Referee #3. The responses are shown as follows:

Referee #3: The manuscript has shown notable improvements in clarity and organization. Regarding the methodology, the division of China's rice growing season into early, middle, and late phases, though new, might be readily adaptable by other algorithms. Therefore, the challenge lies in substantiating how this approach enhances existing algorithms. While the authors have added the comparison of the proposed algorithm's performance with existing ones, it would benefit from more detailed elaboration on the specifics of this comparison, specifically in how the comparisons were conducted and the results obtained. Inclusion of additional figures, akin to Figure 4, and a consolidated figure showcasing all algorithm results, would be encouraged. Additionally, it is crucial to employ a consistent resolution when generating the crop calendar data using the other algorithms for a fair comparison. A clearer understanding of the paper/data's contribution to the field could be achieved with a comprehensive presentation of the comparison results. Consequently, I recommend another major revision to facilitate a more informed decision-making process.

Thank you very much for the comments. According to your suggestions, we employed a consistent data resolution, validation approach, and benchmark for different rice calendars to reveal advantages of our ChinaRiceCalendar dataset. We compared the accuracy of multi-season calendar datasets on annual and seasonal scales and added Figure 5 into the manuscript. In China, our calendar dataset demonstrates high accuracy across all three rice seasons, while ChinaCropPhen1km exhibits suboptimal performance in early-rice seasons, RiceAtlas underperforms in middle-rice seasons, and RICA falls short in both middle- and late-rice seasons. Actually, our estimation yields superior results not solely due to the categorization of early, middle, and late seasons in China, but also stems from the localized algorithm parameters based on the phenological characteristics of early, middle, and late rice in each province (Table 1). Comprehensively, the pre-identification of potential growing periods, the localization of PhenoRice parameters, and the segmentation of rice seasons contribute to good performance of ChinaRiceCalendar in early, middle, and late rice.

Method section: Taking AMS field observations as benchmarks, we evaluated the accuracy of rice calendar dates derived from four multi-season rice calendars: ChinaRiceCalendar, ChinaCropPhen1km, RiceAtlas, and RICA. These regional rice calendars can be divided into 2 categories: raster datasets (ChinaRiceCalendar and ChinaCropPhen1km) and district-level datasets (RiceAtlas and RICA). To ensure a fair comparison between ChinaRiceCalendar and ChinaCropPhen1km, we uniformly resampled all raster data to 1 km resolution and sought the nearest rice pixel around each AMS site for data pairing. In instances where there was no corresponding rice pixel within a 4 km radius around an AMS site, the site was excluded from the analysis. Also, we conducted a comparison between district-level rice calendars obtained from RiceAtlas and RICA, juxtaposed with AMS data distributed within the respective districts.

Result section: The RMSE of rice phenological dates obtained from ChinaRiceCalendar, ChinaCropPhen1km, RiceAtlas, and RICA is 13.8 days, 15.0 days, 17.9 days, and 22.6 days, respectively. According to the accuracy evaluation at the seasonal level (Fig. 5), ChinaRiceCalendar is the only dataset where the RMSE does not exceed 15 days across three rice seasons. Compared with the ChinaRiceCalendar dataset, ChinaCropPhen1km exhibits suboptimal performance in early-rice seasons (RMSE=18days), RiceAtlas underperforms in middle-rice seasons (RMSE=22days), and RICA falls short in both middle- and late-rice seasons (RMSE>30days). Overall, ChinaRiceCalendar demonstrates superior accuracy in the estimated rice calendars compared to ChinaCropPhen1km, RiceAtlas, and RICA at the annual and seasonal levels in China.

Figure and table section:

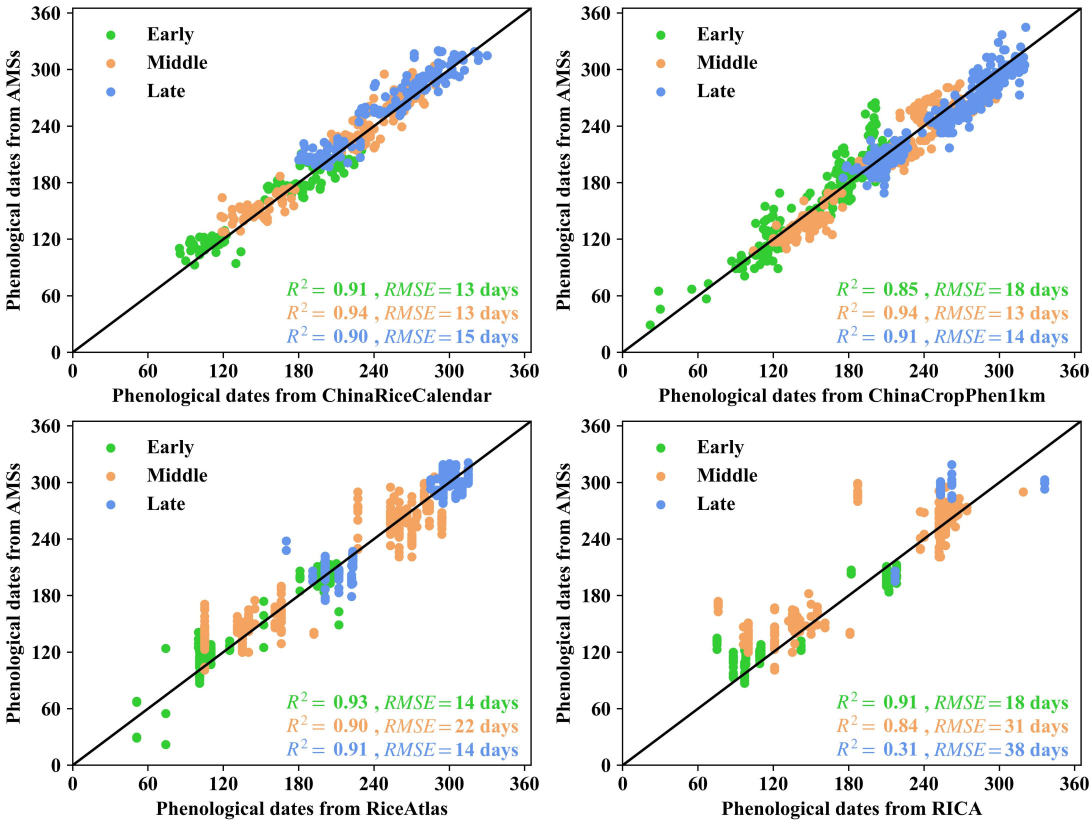

Figure 5 Comparison of rice phenological dates between calendar datasets and AMS data at the site scale in early (green), middle (orange), and late (blue) seasons.

Table 1 PhenoRice parameters used in the study (EVI_{max_th}: EVI threshold above which a local maxima can be considered as a peak of a growing season; EVI_{min_th}: EVI threshold below which a local minima min can be considered as a start of a growing season; vl1: shortest vegetative growth length; vl2: longest vegetative growth length; tl1: shortest total field growth length; tl2: longest total field growth length; LST_{th}: minimum land surface temperature for rice planting; Winfl: time window for capturing flooding signals; minndfi: threshold for NDFI; Win_{decr}: threshold for a decline window after EVI maximum; dec_{th}: percent decrease of EVI after EVI maximum)

Province	EVI_{max_th}	EVI_{min_th}	vl1 (days)	vl2 (days)	tl1 (days)	tl2 (days)	LST_{th} (^oC)	Winfl (days)	minndfi	$Wind_{ecr}$ (days)	Dec_{th}
Anhui	0.4	0.25	32	72	64	120	15	24	0	64	0.5
Chongqing	0.4	0.25	64	88	96	136	15	24	0	64	0.5
Fujian	0.4	0.25	24	88	56	128	15	24	0	64	0.5
Guangdong	0.4	0.25	40	96	72	120	15	24	0	64	0.5
Guangxi	0.4	0.25	40	88	72	120	15	24	0	64	0.5
Guizhou	0.4	0.25	56	96	80	152	15	24	0	64	0.5
Hainan	0.4	0.25	56	112	80	128	15	24	0	64	0.5
Hebei	0.4	0.25	56	112	104	152	15	24	0	64	0.5
Heilongjiang	0.4	0.25	56	96	104	136	15	24	0	64	0.5
Henan	0.4	0.25	56	88	96	120	15	24	0	64	0.5
Hubei	0.4	0.25	24	112	56	152	15	24	0	64	0.5
Hunan	0.4	0.25	32	96	56	136	15	24	0	64	0.5
Jiangsu	0.4	0.25	56	88	104	136	15	24	0	64	0.5
Jiangxi	0.4	0.25	32	80	64	120	15	24	0	64	0.5
Jilin	0.4	0.25	56	96	96	136	15	24	0	64	0.5
Liaoning	0.4	0.25	56	96	104	152	15	24	0	64	0.5
Ningxia	0.4	0.25	64	88	112	152	15	24	0	64	0.5
Shaanxi	0.4	0.25	64	88	104	128	15	24	0	64	0.5
Shandong	0.4	0.25	56	80	96	120	15	24	0	64	0.5
Shanxi	0.4	0.25	64	88	104	128	15	24	0	64	0.5
Sichuan	0.4	0.25	56	96	80	160	15	24	0	64	0.5
Yunnan	0.4	0.25	24	112	56	160	15	24	0	64	0.5
Zhejiang	0.4	0.25	32	72	64	128	15	24	0	64	0.5