

Supplementary figures

Deep Learning Based Multispectral Image Reconstruction from Single Natural Color RGB Image – Enhancing UAV-Based Phenotyping

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Table S1. The Kullback divergence based mutual information (MI) between on ncRGB-Con image and ncRGB-Cam images of maize and rice on different DOYs in 2018 either without (MI_{or}) or with ($MI_{matched}$) histogram color matching.

Images	MI_{or}	$MI_{matched}$
Maize, DOY 303, 2018	0.249	0.314
Maize, DOY 313, 2018	0.265	0.285
Maize, DOY 323, 2018	0.185	0.257
Maize, DOY 354, 2018	0.547	0.650
Rice, DOY 233, 2018	0.639	0.775
Rice, DOY 270, 2018	0.156	0.367
Rice, DOY 299, 2018	0.430	0.668
Rice, DOY 328, 2018	0.174	0.227

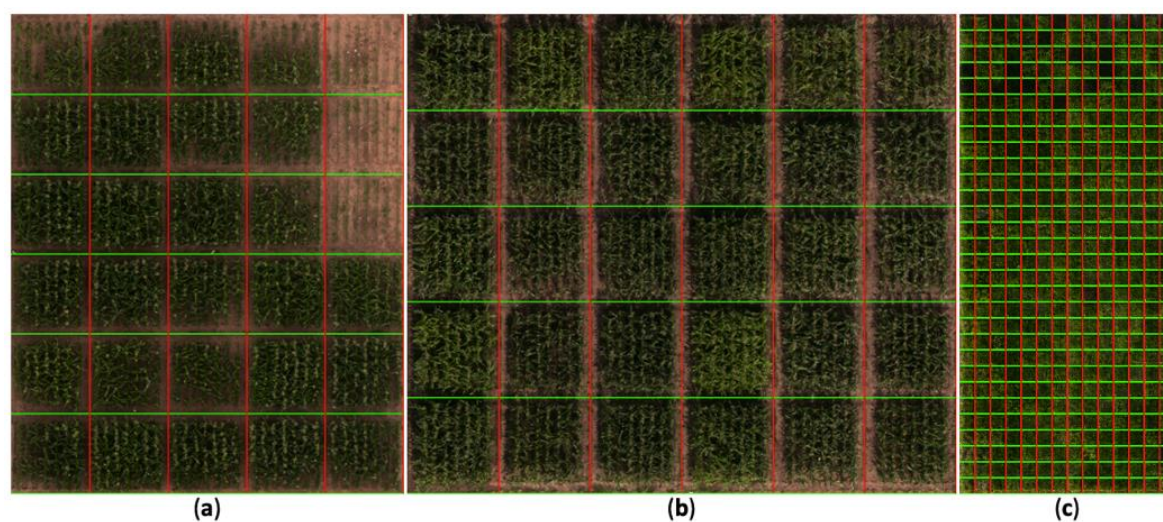


Figure S1. Examples of subplots in the fields of maize on DOY 354 in both 2018 (a) and 2019 (b), rice on DOY 328 in 2018 (c).

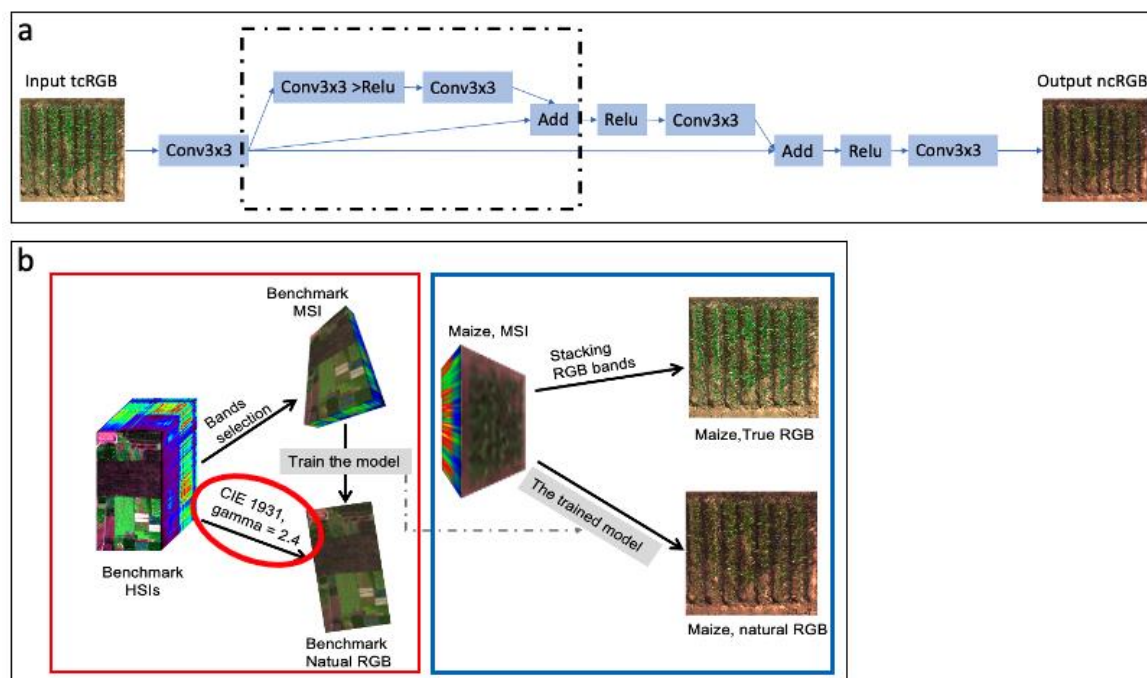


Figure S2. Model-TN for tcRGB to ncRGB image conversion. The architecture of Model-TN composed of only one residual block which is highlighted in dashed box is shown in (a). The whole process of ncRGB image conversion is shown in (b), model training in red box and prediction in blue box.

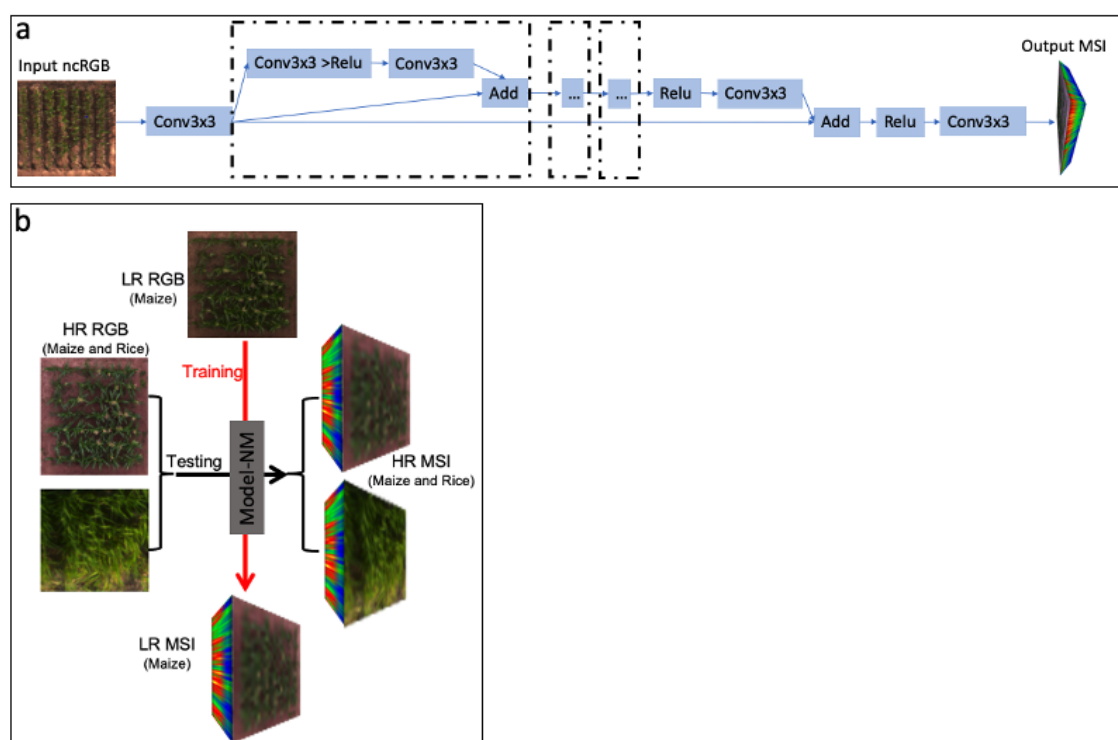


Figure S3. Model-NM for ncRGB image to MSIs conversion. The architecture of Model-NM composed of three residual blocks which are highlighted in dashed box is shown in (a). The whole conversion process from ncRGB image to MSIs is shown in (b).

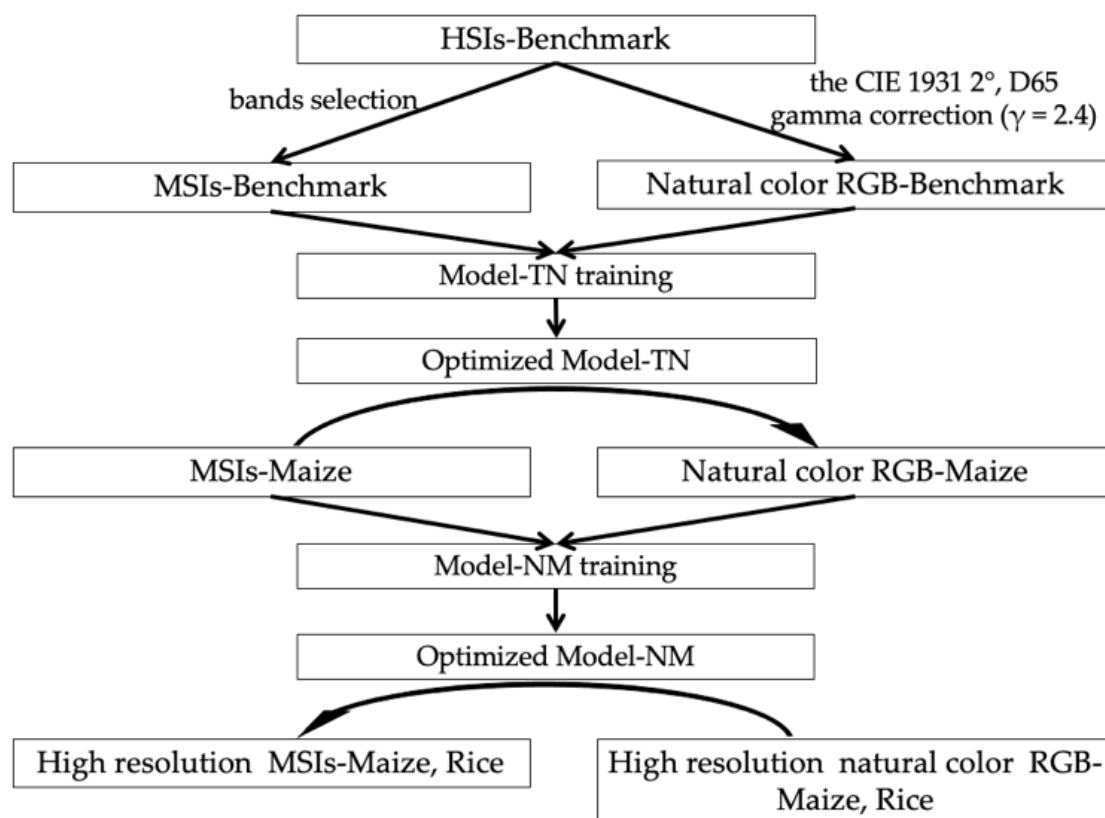


Figure S4. The flowchart of the detailed analysis.

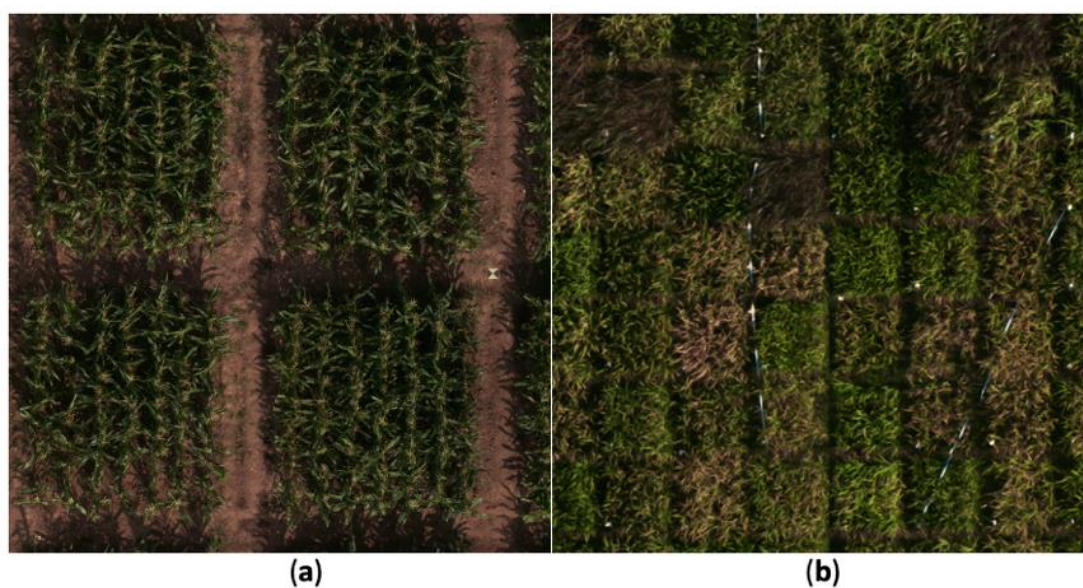


Figure S5. The ncRGB-Con images of maize on DOY 354 (a) and rice on DOY 328 in 2018 (b) used for visualization in Figures 3 and 4, respectively.