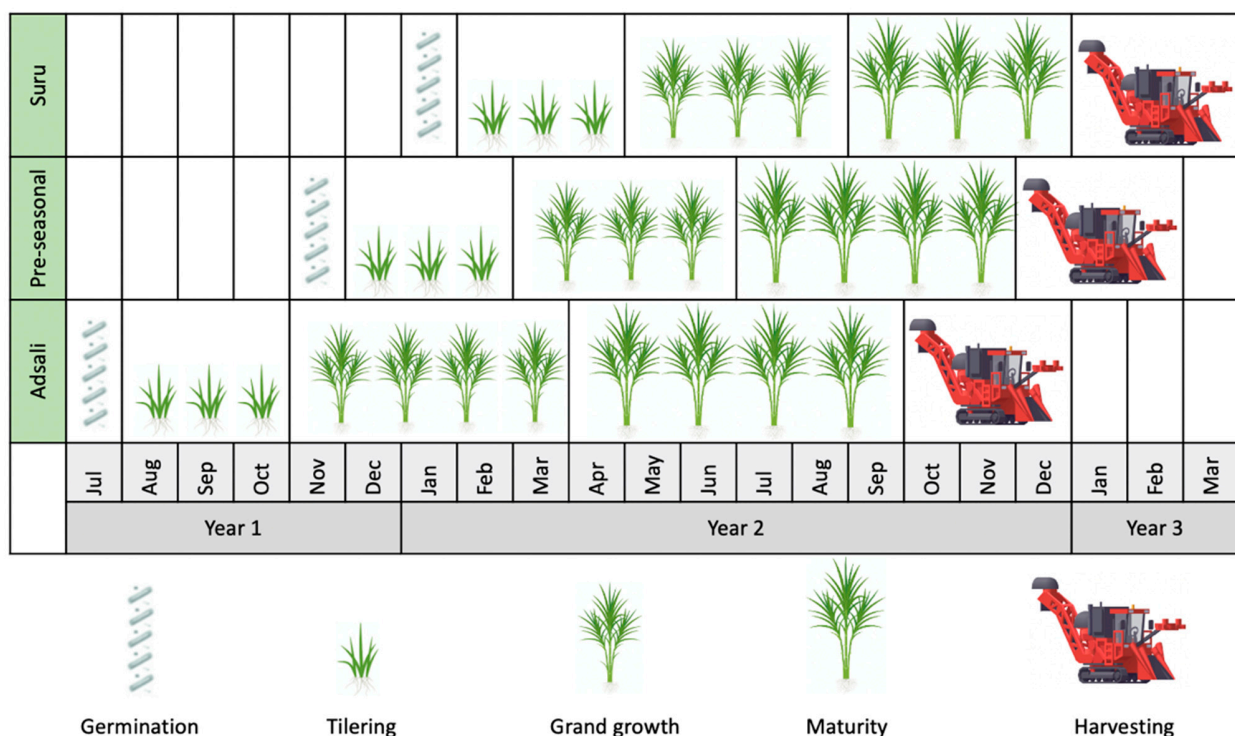


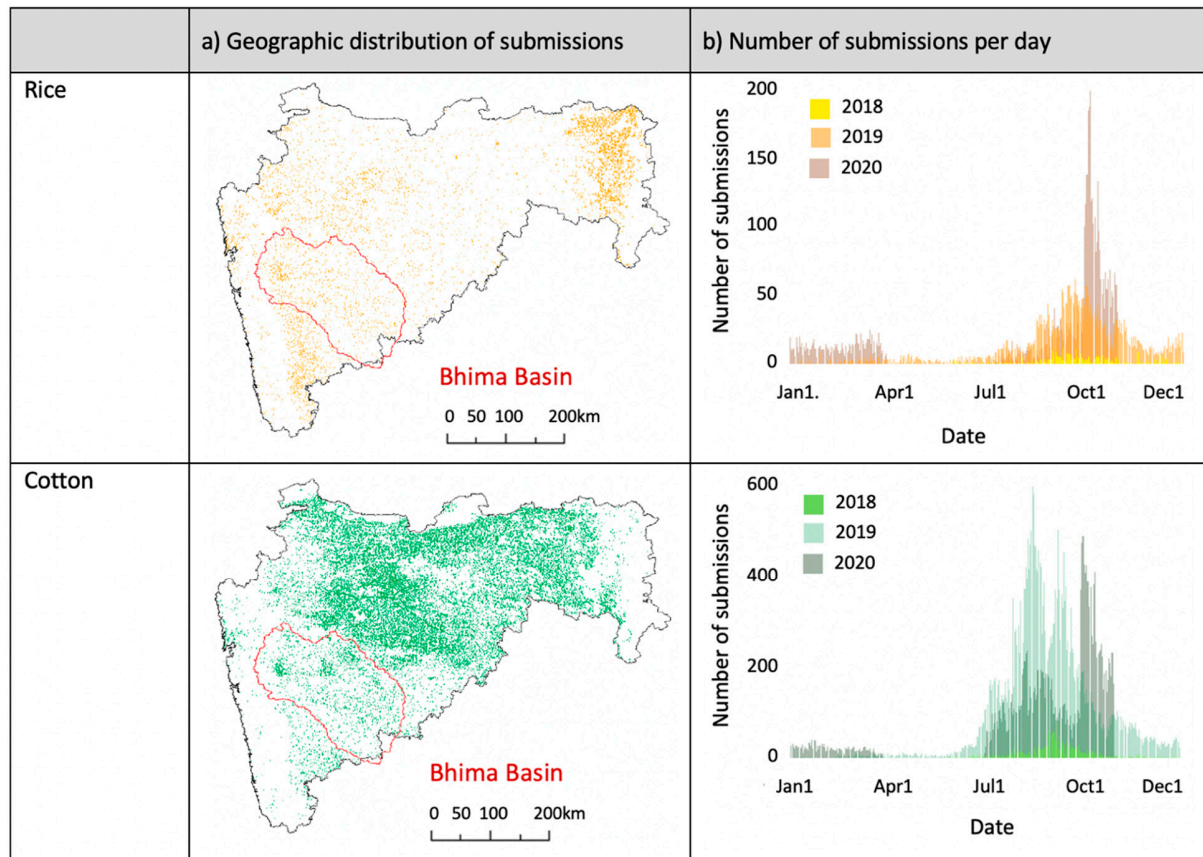
## Supplementary materials for “Mapping Sugarcane in Central India with Smartphone Crowdsourcing” (2022)

### Content

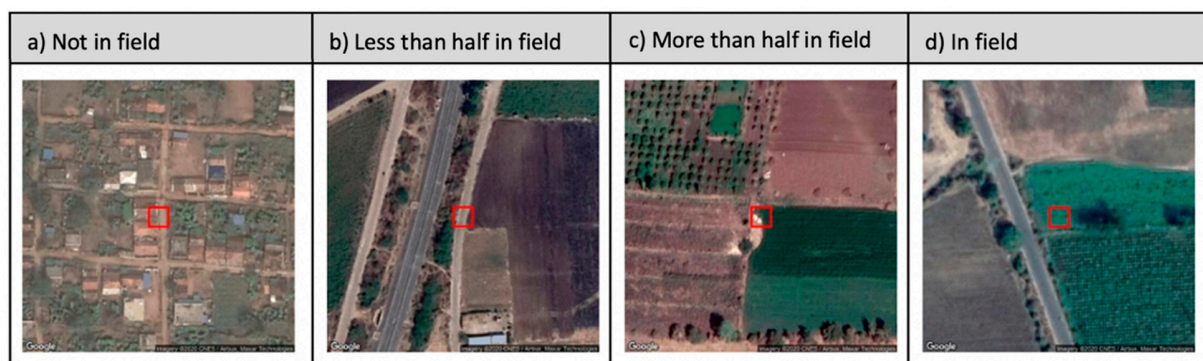
- Figure S1. Sugarcane crop calendar in Maharashtra
- Figure S2. Map and submission times of Plantix dataset for rice and cotton
- Figure S3. Sample Google Static Map images for in-field classification.
- Figure S4. Example Google Static Map and Airbus images of randomly selected points from our lower confidence sugarcane area points that appear to be a) sugarcane, b) other crops, c) non-agricultural lands, and d) trees/pastures
- Figure S5. Sensitivity analysis with total number of points evaluated
- Table S1. Average ratio of sugarcane harvested to cropped area in Maharashtra
- Table S2. Evaluation results from high-resolution satellite images



**Figure S1. Sugarcane crop calendar in Maharashtra.** The sugarcane varieties cultivated in Maharashtra have long and variable growing period of 12-18 months, different sowing and harvesting periods for different sugarcane varieties, and an extended harvest period. The crop calendar information from [36] is adjusted adjusted with information from local agricultural experts in Maharashtra. The images are from Adobestock.

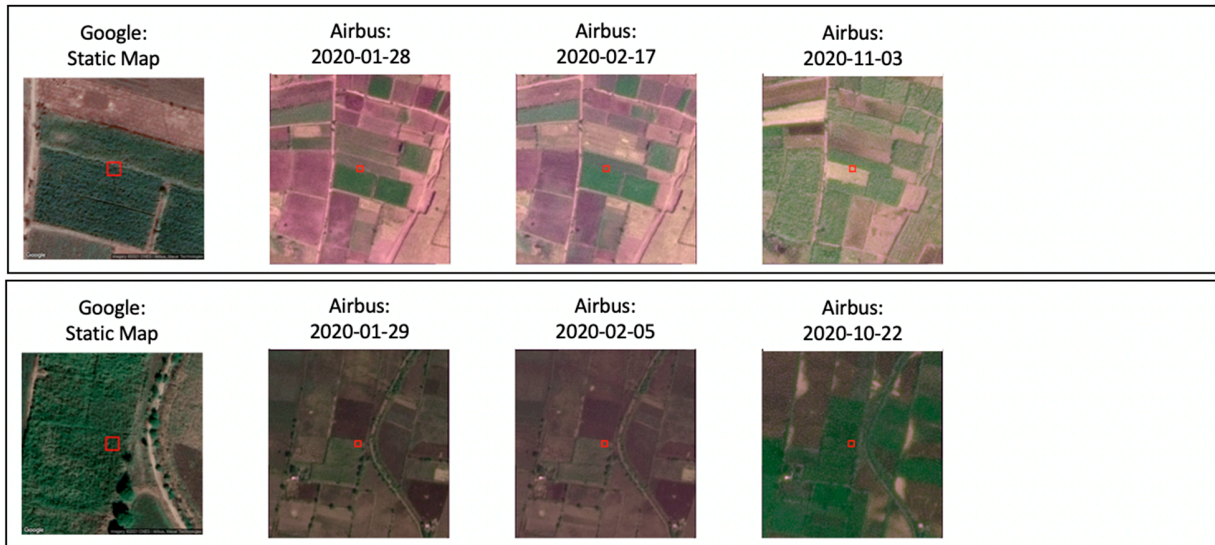


**Figure S2. Map and submission times of Plantix dataset for rice and cotton.** (a) Geographic distribution of farmer submissions (b) Number of farmer submissions per day from January 1, 2018 to December 31, 2020.

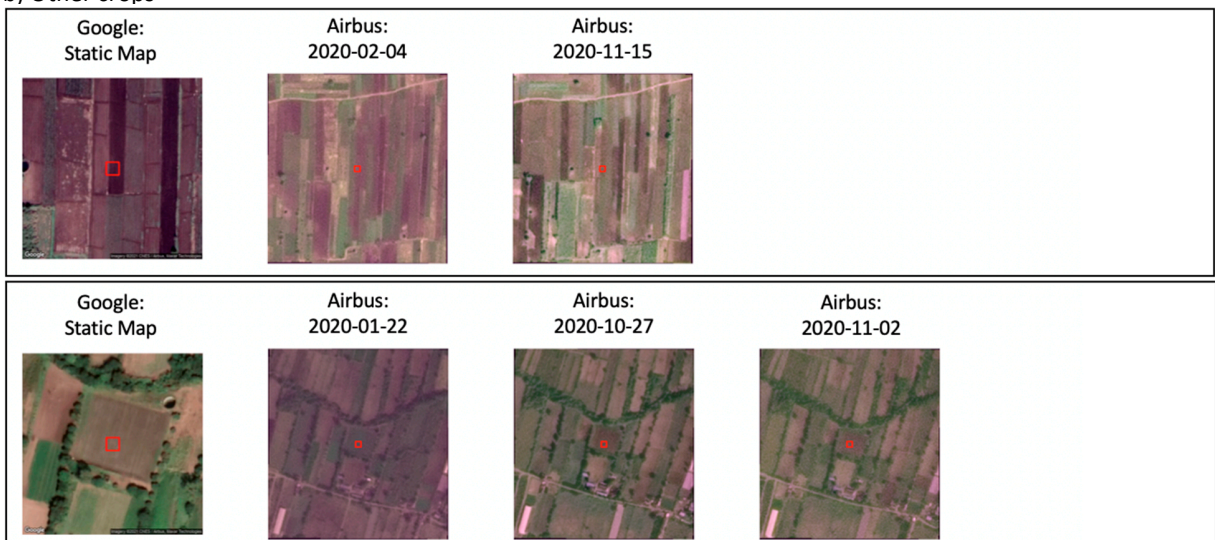


**Figure S3. Sample Google Static Map images for in-field classification.** Using a separate CNN trained on Google Static Map imagery, we classified the Sentinel-2 pixel at the Plantix data submission location as one of the following four categories: “not in field,” “less than half in field,” “more than half in field,” and “in field.” For our training and test sets, we only used the pixels that are “more than half in field” and “in field”.

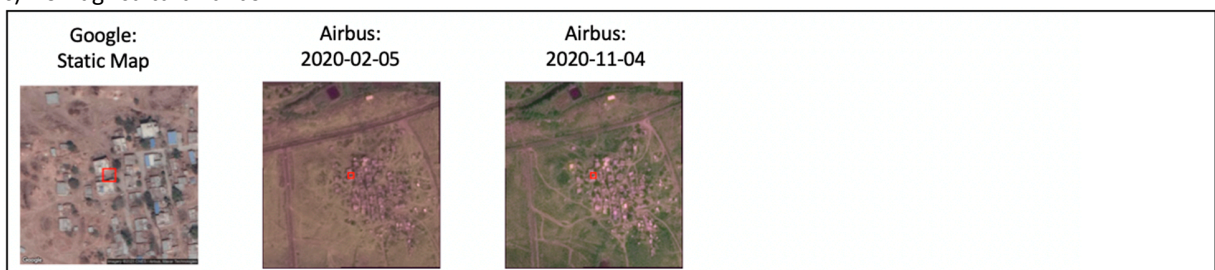
a) Sugarcane



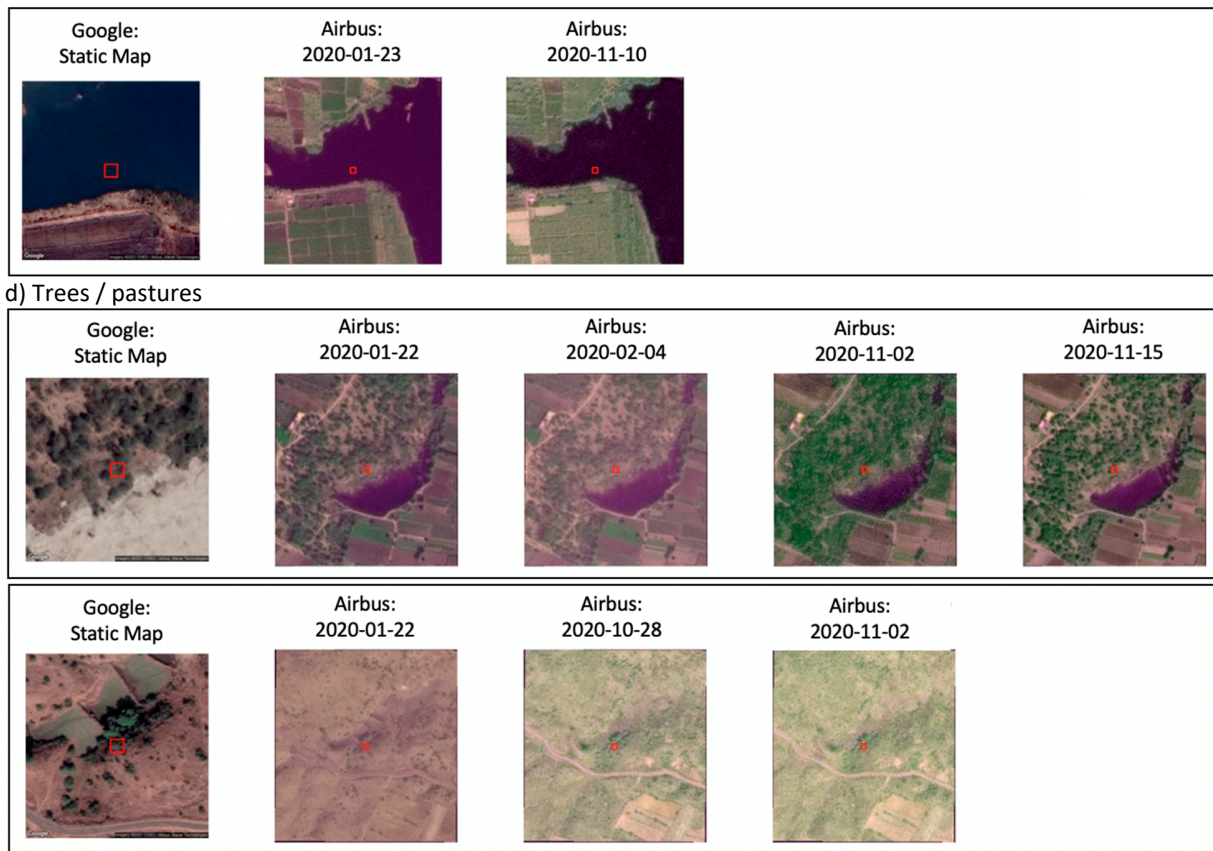
b) Other crops



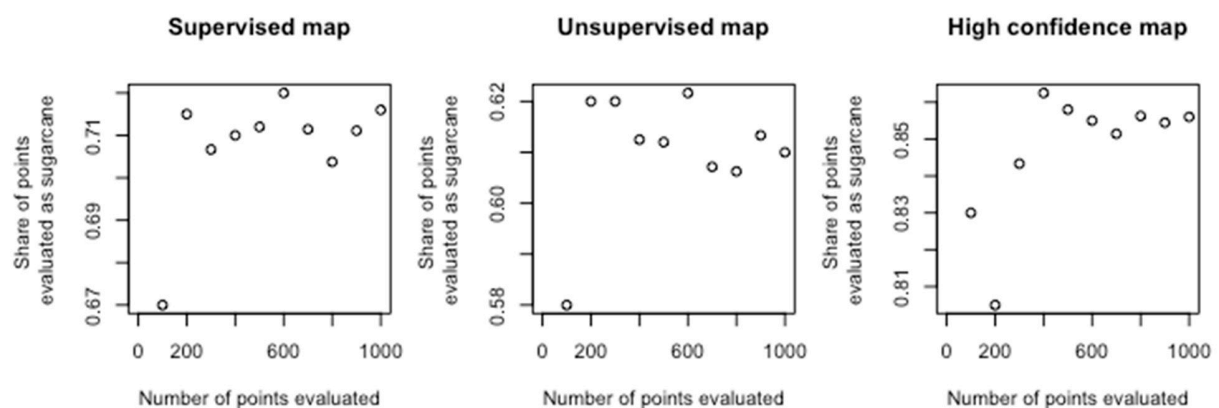
c) Non-agricultural lands







**Figure S4.** Example Google Static Map and Airbus images of randomly selected points from our lower confidence sugarcane area points that appear to be a) sugarcane, b) other crops, c) non-agricultural lands, and d) trees/pastures. The set of images in each black squared box represents one point as seen in Google Static Map and Airbus. Red square in each image represents the Sentinel-2 pixel (10m by 10m) that includes the data point.



**Figure S5.** Sensitivity analysis with total number of points evaluated. The evaluation results stabilize for a sample size larger than 400 points, depending on maps. Since we evaluated 1000 points for each map, our evaluation results are statistically robust.



**Table S1. Average ratio of sugarcane harvested to cropped area in Maharashtra.** The average ratio is 85%. Assuming that this ratio is consistent in all districts in the state, we use it to convert the APS's 2019-20 sugarcane harvested area in the Pune and Solapur districts to sugarcane cropped area.

	1970-71	1980-81	1990-91	2000-01	2010-11
Sugarcane harvested area*	167	258	442	595	965
Sugarcane cropped area*	204	319	536	687	1041
Ratio of harvested to cropped	82%	81%	82%	87%	93%

\*Available online: [http://mls.org.in/pdf2021/budget/budgetpdf/ESM\\_2020\\_21\\_Eng\\_Book.pdf](http://mls.org.in/pdf2021/budget/budgetpdf/ESM_2020_21_Eng_Book.pdf) (accessed on Nov 1, 2021)

**Table S2. Evaluation results from high-resolution satellite images.** We found that 72%, 61%, and 86% of the randomly selected points we evaluated appear to be sugarcane in our supervised, unsupervised, and high confidence maps, respectively.

Map	Evaluated as			
	Sugarcane	Other crops	Non-agricultural lands (e.g. water, road, building)	Trees/pasture
Supervised	716/1000 (72%)	202/1000 (20%)	31/1000 (3%)	51/1000 (5%)
Unsupervised	610/1000 (61%)	267/1000 (27%)	26/1000 (3%)	96/1000 (10%)
High-confidence	856/1000 (86%)	80/1000 (8%)	10/1000 (1%)	54/1000 (5%)