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Towards Global Monitoring of Key Commodity Crops Using Multi-Source Data

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Improved time-series data sets and synergistic mapping and sampling methods enable large-scale monitoring and area estimation of key commodity crops such as soybean, maize and wheat. In this presentation, a generic method is presented that employs turn-key algorithms to target crop types for probability-based allocation of samples of reference data which are used to generate within season area estimates. The method includes field data and freely available Landsat and Sentinel 2 time-series imagery. PlanetScope data are presented for a highly heterogeneous landscape of intensive smallholder production, highlighting both the spatial and temporal detail of Planet imagery. Results illustrate the utility of remotely sensed data to facilitate unbiased crop type area estimates with low uncertainties. The ability to employ the same method across all major growing regions promises a more consistent global reporting capability. Importantly, yield data may be collected in a similar manner, allowing for production estimates from an internally consistent, large-scale methodology. Results will be shown for soybean and corn in the United States, soybean in South America, corn in China, and wheat in Pakistan.

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