

Docket #: S14-395

Satellite-based crop yield mapper

New advances in satellite data acquisition and processing offer promise for monitoring agricultural lands globally and would benefit both industrial and local scale crop management, research, and development, especially for areas where reliable ground-based estimates are not currently made. Stanford's Associate Professor Dr. David Lobell has introduced a novel approach for mapping crop yields using satellite data by accessing Landsat images through Google Earth Engine, and his fully functioning prototype has demonstrated significantly accurate predictions. To date there is no comparable product that provides yield estimates at such fine resolution for large geographic areas. The strength of this approach lies in its ability to leverage physiological knowledge embedded in crop models to interpret satellite observations in a scalable way, as it can be readily applied to new crops, regions, and types and timing of remote sensing observations without the need for ground calibration.

Applications

- **Fine resolution mapping to derive average regional and countrywide crop yield predictions**

Advantages

- More robust, generalizable, and scalable than existing approaches
- No locally specific ground data required
- Provides estimates of millions of fields in less than a day
- Can easily be modified for in-season forecasting

Publications

- U.S. Published Patent Application 20160171680, "[Systems and Methods for Satellite Image Processing to Estimate Crop Yield](#)".
- Lobell, D.B. Thau, D. Seifert, C. Engle, E. Little, B. 2015 [A scalable satellite-based crop yield mapper](#). J. Remote Sensing of Environment V164 pp. 324-33.

Patents

- Published Application: [20160171680](#)
- Issued: [9,953,241 \(USA\)](#)

Innovators

- David Lobell

Licensing Contact

Evan Elder

Senior Licensing Associate

[Email](#)