

Data Collection for Validation of OpTIS Products

CVN Workshop
25 Aug 2021

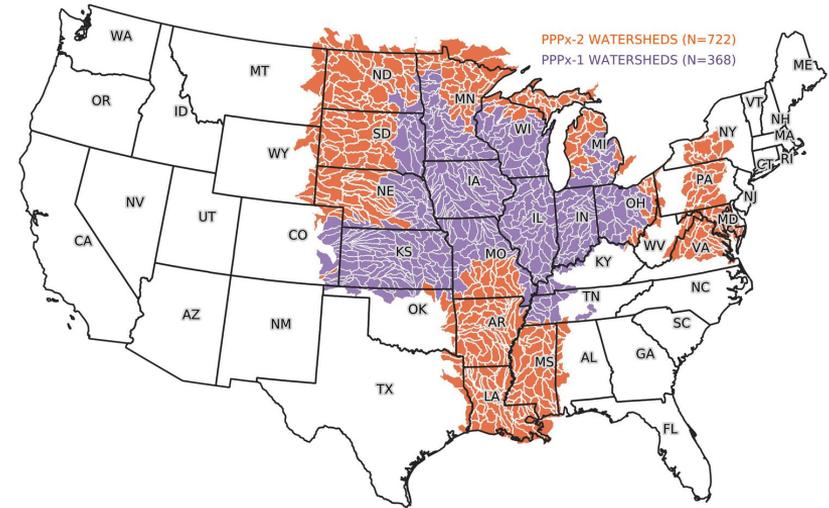
Operation Tillage Information System (OpTIS)

- Uses publicly-available **remote sensing** data to map & monitor the use of tillage practices and cover crops
- Covers wide area, back through time (2000s up through today);
- Calculations at field-scale (30 m) but publicly released at HUC8 and CRD geographic scales.
- Data freely available at ctic.org/OpTIS.
- Supported by many organizations - including TNC, CTIC, USDA, NASA, FFAR



Area Coverage

- **Pilot in Indiana:** Completed
- **Corn Belt + Kansas (purple):** Completed
- **Extended Region (orange):** In progress - Fall 2021
- **Contiguous US:** Spring/Summer 2022



Data collection overview

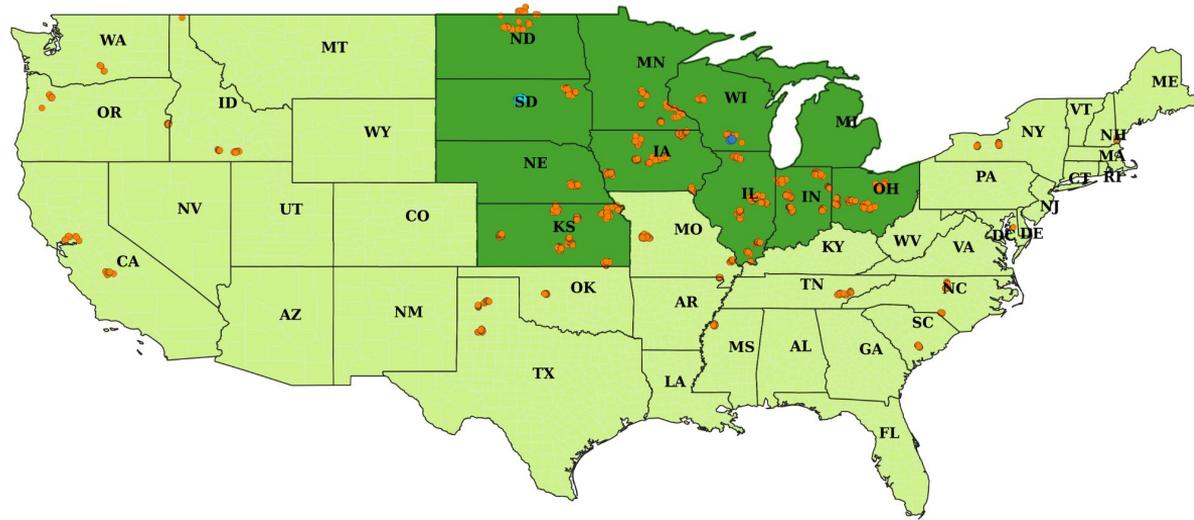
- Coordinate with certified crop advisors and SWCD officials across the US; stipend provided
- Collect roadside survey information using our mobile app;
- Collect:
 - Photos
 - Residue and green cover est.
 - Tillage practice category
 - Winter cover status



Coverage

Observation summary:

- Began in 2017
- 1,857 field-seasons
- 8,948 total submissions
- 4.8 obs per field-season
- ~10% discard/failure



Benefits and Limitations of roadside surveys

- Benefits

- Able to collect many observations across space and time at a low cost;
- Photos are key to identifying errors or inconsistencies in observations;
- Observations are fully sufficient to identify differences in the extremes
 - Conventional till vs No Till
 - No winter cover vs vigorous winter cover
- Helpful for identifying where a mapping system is working well and where there may be problems

- Limitations

- Visual estimates lack the precision of in-field transects (e.g. knot lines) or nadir photos
- Visual estimates are more subjective than in-field measurements and can be biased or inconsistent between observers

Improvements to approach

- Add checks in which two independent observers visit the same field around the same time
- Add in-field measurements at a subset of fields