# IowaView

## IowaView History and Successes

### Iowa Best Management Practices Inventory Dataset

This project has been ongoing for four years and will achieve completion in May 2019. The completion of this project will provide the State of Iowa with a one-of-a-kind publicly available GIS dataset for locations of six commonly used NRCS conservation practices in every watershed in Iowa, with data from 2007-2010. There was a need to develop technologies to inventory and monitor conservation practices that could potentially meet nutrient reduction targets for Iowa watersheds. Student staff at Iowa State University digitized conservation practices in 1,711 watersheds; IowaView and Iowa DNR staff reviewed the data before making the GIS datasets public; visit https://bit.ly/2v4jfyX to read more about the project and download data. AmericaView funded portions of this work from 2015-2017.

This project had a component that entailed the evaluation of spring 2016 six-inch leaf-off imagery to determine if conservation practice changes could be found without using elevation data. Five watersheds in central Iowa were reviewed and staff found that expensive LiDAR elevation data was not necessary to locate most practice changes as long as the imagery used for change detection was color infrared and of sufficient resolution to detect narrow features such as terraces.

*Fayette County, Iowa. 2010 Iowa DNR 0.6-meter spring color infrared aerial imagery showing WASCOBS, terraces, contour buffer strip and grassed waterways.*

*MapGive event for MLK Jr Day of Service on Iowa State University campus at the GIS Facility.*

### Remote Sensing Education via MapGive Events

This is a high priority outreach event for Iowa since students and many adults do not have exposure to remote sensing or GIS. These events give participants a low-stress introduction to remote sensing/GIS and provide a hands-on service learning project to reinforce and demonstrate what they have learned. Students use a browser interface with aerial imagery and basic GIS editing tools to evaluate what they see and create data for an actual location that is reviewed by knowledgeable staff before becoming available to the public. The MapGive Program is an initiative of the US Department of State's Humanitarian Information Unit that encourages volunteers to create open geographic data.

*Cass County, Iowa. Spring 2018 color infrared aerial imagery.*

### Promote Iowa's Image Archive

The Orthoserver (http://ortho.gis.iastate.edu) has become a dependable resource for statewide imagery, elevation, and derived remotely sensed datasets such as land cover. Users from the ISU campus, public agencies, and private companies and individuals access the data with use growing each year. Data can be viewed in a browser or in GIS software. Keeping the data accessible and adding new datasets are important to enable continued research, analysis, discovery, and education for Iowans.

IowaView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G18AP00077.

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## IowaView Current Activities

IowaView staff are interested in water quality issues directly relating to the Iowa Nutrient Reduction Strategy. There is a need by entities in Iowa, two of which are current IowaView partners, to have current and reliable cover crop presence data. Cover crops are commonly planted in late summer or early fall around harvest time and terminated in the spring. The goal is to temporarily protect exposed cropland from wind and water erosion.

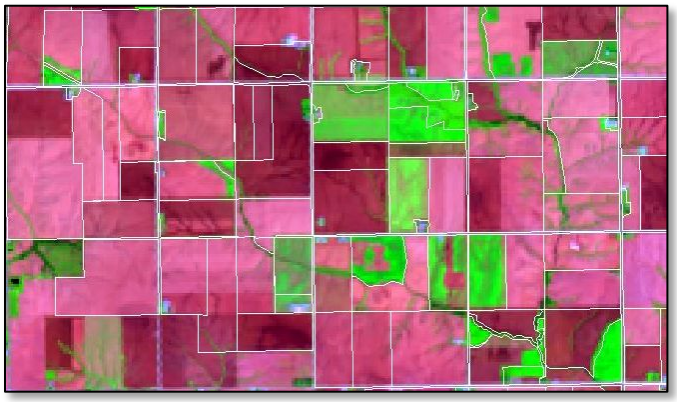
According to the NRCS "Cover crops have the potential to provide multiple benefits in a cropping system. They prevent erosion, improve soil's physical and biological properties, supply nutrients, suppress weeds, improve the availability of soil water, and break pest cycles along with various other benefits."

The goal of this project is to create a repeatable and shareable process using public imagery to produce data relatively quickly. Statewide data for cover crops has been produced by a private organization but it is almost three years out of date, there are no plans to update it and the specific creation process is not publicly known.

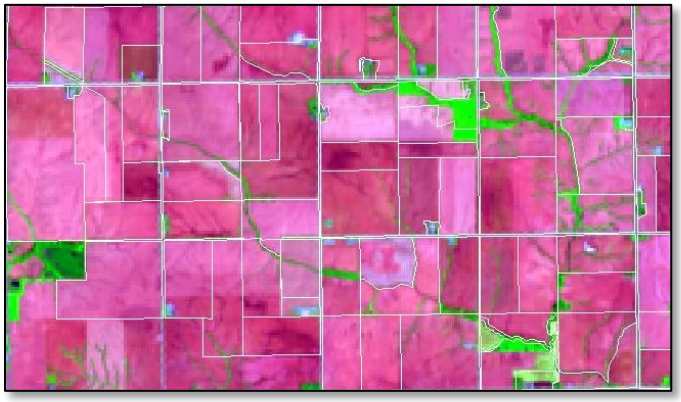
Cereal rye is the most widely planted cover crop in Iowa although others are used; this project focuses on detection of cereal rye to give our partners and other potential data users the most accurate and widely usable data. Inputs will include Landsat 8, Sentinel 2, NAIP aerial imagery and local Iowa ortho imagery. Sample sites of known cover crop plantings are being gathered from local, state and federal partners.

*Cereal rye cover crop in Guthrie County, Iowa. Planted around Labor Day, photo taken in late November 2011. Photo by Jason Johnson, Iowa NRCS.*

*Agriculture fields in Keokuk County, Iowa. Landsat 8 image from 11/13/2016. Tan/pink/red is bare ground or senescent grass. Bright green is growing vegetation. Cover crops are likely green rectangles.*



*Agriculture fields in Keokuk County, Iowa. Landsat 8 image from 4/22/2017. Cover crops and some grass are greening up and those fields are likely the green rectangles and other areas.*



*Agriculture fields in Keokuk County, Iowa. Landsat 8 image from 5/31/2017. Cover crop fields have been terminated so are no longer showing active growth (bright green). Grass is still growing but annual crops have not filled in yet.*

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