



## CSR and CSR2 - An Explanation

### The USDA NRCS Updated the Soil Survey with Iowa State's CSR2 Data in January, 2014

Iowa's soils and their inherent productivity play key roles in Iowa's wealth and ability to feed the world. The USDA Natural Resources and Conservation Service (NRCS) is the agency responsible for mapping, classifying and quantifying the differences between soil types. They began publishing a soil survey in the 1930s. Since those first surveys were published, the NRCS has been working to improve soil mapping techniques and classification methods and now publish the official soil survey on the internet as "the Web Soil Survey". The advances in the soil classification system and in soil survey publishing have made it necessary to update the way Iowa calculates and maintains its soil productivity rating system, the Corn Suitability Rating or CSR. Iowa State released CSR2 to the USDA NRCS this past fall and the NRCS completed a soil database update in December 2013 and published it in January 2014.

Because CSR2 is being introduced for the first time, there may be some confusion and misinterpretation of land values when individuals don't recognize the difference between CSR and CSR2 values. Additionally, when the NRCS reclassifies a soil type and assigns a new Soil Map Unit number, there may not be a CSR value to reference. When looking at soil maps and CSR values, it will be critically important to understand if you are looking at CSR or CSR2 values. In order to ensure that our clients receive accurate and up-to-date information, we will be including the CSR and CSR2 values and, if needed, soil maps in our listing and auction brochures as well as incorporating CSR2 into our farmland valuations for the foreseeable future as the Iowa land market adjusts to the introduction of CSR2.

### What are CSR and CSR2?

The Iowa Corn Suitability Rating (CSR) system was developed by Iowa State University in the early 1970s as a way to measure potential soil productivity based on soil profile, slope characteristics and weather conditions. It is an index ranging from 0 to 100 with CSR values of 100 being the most productive. County assessors use the CSR and the Iowa State University soils database to determine land values for property taxation. Appraisers, real estate agents, and farmland investors use it to evaluate land values and analyze comparable sales. Farm managers and farmers use it for conservation planning, lease values and crop production.

CSR2 is an index similar to the CSR concept but uses a clearly defined and easily calculated formula to determine a soil's productivity. It is more consistent with the newer, more-data driven methods the NRCS uses compared to the original CSR which was more experience and judgment based. CSR2 is also more suitable to site-specific soil measurement and precision farming uses as it takes into consideration the soil inclusions or subcomponents. Iowa State plans to publish both CSR and CSR2 values for a given soil type in their "Iowa Soil Properties and Interpretations Database" (ISPAID).

CSR2 will evaluate soil taxonomy, soil particle size, field conditions, water holding capacity, soil depth and an erosion factor. The official CSR2 formula along with CSR2 values was released in July of 2013 as part of recent ISPAID version. (ver. 8.0)

The Web Soil Survey, NRCS' official published soil survey, updated its soils data in December 2013 and released the updates in January 2014 with CSR2 values described as "Corn Suitability Ratings" making no distinction between CSR and CSR2. It is NRCS' intention to update the Web Soil Survey annually to reflect their updates and reclassifications.



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### What Does this Mean for Iowa Farmland Owners?

On a farm by farm basis, it is probable that the weighted average CSR2 value will be different than the CSR value. If the CSR2 value is lower and it is reported as a CSR value, the perceived value of your farm may be impacted even though the soils are the same. This may also have an impact on lease negotiations. The same is true if the CSR2 is higher than the CSR.

If you have a soil map or CSR records pre-dating January 2014 and compare it to the Web Soil Survey data, the Corn Suitability Rating for your farm may have changed. The likely explanation is the change from CSR to CSR2.

It's important that farmland owners are aware of both their farm's CSR and CSR2 ratings so that they can recognize the difference. This will be particularly important when referencing the USDA Web Soil Survey which does not distinguish between CSR and CSR2 at this time. It will be as important for farmland listing agents and auctioneers to disclose the CSR and CSR2 values to help their clients and the farmland market effectively evaluate productivity and analyze sales. Over a period of time the market will recognize CSR2 values as the standard.

One of the key differences between CSR and CSR2 will be the climate factor. CSR2 will not have a climate factor in its calculations. In the original CSR values, soil scientists made an adjustment based on the geographic region of a soil map unit (SMU). For example, SMUs in Northwest Iowa were adjusted downward more than SMUs in Southeast Iowa. Without a climate adjustment, CSR2 values will have an upward bias in counties located in Northwest Iowa.

According to an Iowa Department of Revenue presentation at Iowa State Association of Counties (ISAC), implementation of the official NRCS Soil Survey with CSR2 is required for all Iowa county assessors in 2017. We do not know what each county tax assessor will do with CSR2 between now and then. They base their assessments on the ISPAID data from Iowa State. Each county may work with the soil ratings differently until 2017 so please check with your local assessor regarding any updates or changes to their property tax assessments using CSR.

### CSR, CSR2 and Soil Mapping Resources

#### The explanation of the original CSR

<http://www.extension.iastate.edu/Publications/PM1168.pdf>

#### A presentation from Dr. Lee Burras, Iowa State University soil scientist, made at the May 22, 2013 Soil Management and Land Value Conference

<http://www.extension.iastate.edu/soils/>

#### The website for the official NRCS published soil survey (The Web Soil Survey) is

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

#### The Iowa Soil Properties and Interpretations Database (ISPAID)

<http://www.extension.iastate.edu/soils/ispaid>

#### The Iowa State University CSR2 FAQ

<http://hertz.ag/CSR2%20FAQ.pdf>