



Welcome to the new CSR2

By L.S. LEONARD

THE new corn suitability rating for Iowa soils, CSR2, is accessible on the Iowa Soil Properties and Interpretations Database as of July 1, and will be available on USDA's Natural Resources Conservation Service Web Soil Survey on Oct. 1, says CSR2 developer and Iowa State University agronomist Lee Burras.

Access ISPAID at www.extension.iastate.edu/soils/ispaid. For the Web Soil Survey, go to websoilsurvey.nrcs.usda.gov.

While some farmers and others involved in farmland management are reluctant to shift from the "old" CSR to the new system, it's important to understand that this update to CSR2 is necessary due to advances in soil science, says Burras. "The goal of CSR2 is to provide a transparent system for calculating CSR such that a county assessor, farmer, realtor or any other interested person readily understands the mathematics underlying CSR."

Farmers, assessors and appraisers have relied on CSR to determine soil productivity and land valuations since it was developed at ISU in 1971 by soil scientist Tom Fenton. CSR is the result of many years of detailed analysis on the productivity of Iowa's 30 million acres of farmland, Burras says, and is "the most sophisticated and complete quantitative soil productivity rating available."

As "phenomenal" as the original CSR is, he says, the giant technological strides that have been made in agriculture over the past four decades necessitated development of a new productivity index that links to the updated NRCS soil survey and reflects modern soil mapping capabilities.

To help ease the transition and ensure users are comfortable with the new system, both CSR and CSR2 will be included in ISPAID and labeled as such. "I anticipate CSR will be maintained for at least three years and more likely for five years in ISPAID on the ISU website," says Burras.

Speaking for NRCS, state soil scientist Rick Bednarek says presently neither CSR nor CSR2 is included on the Web Soil Survey, but starting Oct. 1, CSR2 will be used. He says "it's a strong possibility" both will be available on the electronic Field Office Technical Guide. A decision hasn't been made about how long the old CSR would be on the FOTG, Bednarek notes, but probably "at least a couple of years."

New equation explained

CSR2 = S-M-F-W-D ± EJ

S – taxonomic subgroup class of the soil series

M – family particle size class

F – field conditions of a particular soil mapping unit (SMU)

W – water-holding capacity of the series

D – soil depth and tolerable rate of erosion

EJ – expert judgment correction factor (±)

Neither CSR nor CSR2 is now found on Web Soil Survey because the link had been cut last fall until the formal release of CSR2 to avoid confusion about which number was being used and how the two differed.

Comparing CSR to CSR2

Sen. Tim Kapucian, R-Keystone, has been working to raise awareness about the change from CSR to CSR2 and is a proponent of using both numbers, side by side, to help farmers transition.

"I'm pleased to see CSR will continue to be posted along with the new CSR2. This will allow a quick comparison of the two numbers," says Kapucian, who farms in Benton County. He says Iowans should have the opportunity to see both numbers and understand how they affect farmland valuations. "It's important for landowners to see the difference in the two numbers. In most cases the variance will be minimal, but some may see quite a difference."

Kapucian introduced a bill in the 2013 legislative session that "provides when a person advertises the cropland's newest

corn suitability rating (CSR2), the person must also state its corn suitability rating (CSR) using the methodology recognized by Iowa State University prior to 2013."

The bill died in subcommittee after concerns were expressed by the real estate community. Kapucian says the bill he presented "didn't necessarily need to be put into code to raise the level of awareness out in the country."

His goal was to ensure landowners understood the two numbers and their differences. "It's not known yet what direct changes will result from the new CSR2 in regard to land value and taxation rates," Kapucian adds. "The important thing is that landowners and buyers are able to see the difference in the two numbers."

A confusing beginning

While work on the new CSR2 formula has been ongoing for several years at ISU, most hadn't heard about it until last fall during the Iowa farmland auction frenzy. Just as Iowa land sales were reaching a fever pitch, CSR was showing up in ads and sale bills with a mysterious "2" behind it. Or, worse, CSR2 numbers were showing up as CSR numbers, with little or no explanation.

At the core of the confusion was that CSR2 was originally scheduled to roll out in October 2012, but numbers were prematurely released in August 2012. The high volume and eye-popping prices of land auctions only intensified the problem. To quell the confusion, ISU essentially recalled CSR2 until it could be thoroughly reviewed and officially released this month.

Crop-producing regions worldwide, including Iowa and other Midwest states, have been quantifying soil productivity for decades. Each region has its own name for the system used to rate this "inherent capability of a soil to support crops," says

GOOD REASON: Advances in soil science have made it necessary to update the Corn Suitability Rating system, a method used to rate the crop-growing productivity of Iowa soils.

Burras. Early concepts for rating Iowa soil productivity date back to the 1940s, with Fenton and colleague Jerry Miller publishing and educating the public about CSR in the 1970s.

"Soil productivity refers to some inherent capability of a soil to support crops. In the 1970s we started quantifying that by coming up with productivity models. The history of each is about equitable taxation," Burras explains. "Today most nations have one or more. Several U.S. states have such systems. Iowa has CSR."

While CSR was calculated using 11 parameters in the equation, the CSR2 formula looks like this: $CSR2 = S-M-F-W-D \pm EJ$. Simply stated, a soil series starts at 100, indicating a soil perfectly suited to corn production; then points are deducted for soil type, slope, water-holding capacity and erosion. The expert judgment factor, or EJ, could be a plus or minus. CSR2 calculations, like CSR, range from 5 to 100.

How much variation?

Burras' main goals in developing CSR2 were to reach values proportional to CSR and have CSR2 consistent with today's soil mapping, classification and government programs. While CSR2 is "generally consistent" with CSR, some variation will be seen, he notes. Statewide, the average difference between CSR and CSR2 is a 3% increase. In other words, while there are exceptions and variations throughout the state, and while some CSRs will increase and some will decrease, a rule of thumb is that if an "old" CSR was 70, the "new" CSR2 will be about 72 on average.

Dennis Reyman, a farm manager and appraiser at Stalcup Ag Service in Storm Lake, has questioned the EJ factor (expert judgment correction) since he first started hearing about CSR2. He says he had been concerned about the ability to derive a consistent number when factoring in something that appears to be subjective, but Burras' answer allayed his concerns.

Burras says EJ affects a small portion of soils in Iowa, and if EJ is used at all in the CSR2 calculation, it will always be noted and explained. "CSR2 currently has EJ terms for 29 soil series out of 500 in Iowa. So that is 6% of our series. And half of these are limited in where they are mapped."

Burras uses Cresken soil as an example. It is only mapped in Delaware County, in far northeast Iowa, on 3,560 acres and has only one soil map unit total, out of a total 10,000 SMUs for the whole state. In addition, Burras, notes, "the EJ terms pretty consistently apply to soils with parent material issues, for example, high-density till or paleosols or very high clay loess."

The overall impact of converting to CSR2 will be small, especially in eastern Iowa, Burras notes. There will be an increase in CSR2 values in parts of northern and western Iowa, because CSR2 considers climate to be a nonlimiting factor across the entire state, whereas CSR considered climate to be progressively more limiting to the north and west across Iowa.

For more on Burras' presentation of CSR2 and Iowa soils, go to www.extension.iastate.edu/soils.

Leonard writes from Holstein.

CSR began as tool for assessors

THE Corn Suitability Rating system was originally established in response to county assessors who needed a measure to assess farmland productivity.

In the late 1960s, Iowa codified soil productivity as part of farmland assessment. In 1977 the Legislature required farmland be entirely assessed on the basis of productivity and net-earning capacity.

The legislation mandates the use of modern soil surveys for property tax equalization of ag land within each county. (Code of Iowa, Section 441.21, 1e and 1f).

Other ways CSRs have been used, including predicting yields, cash rents and land-sale values, are byproducts of this original intent.

Source: ISU Extension