National Commodity Crop Productivity Index v2

National Commodity Crop Productivity Index is a method of arraying the soils of the United States for non-irrigated commodity crop production based on their inherent soil properties. The rating a soil is assigned is the highest one of three basic crop group indices, which are based on the climate where the crop is typically grown. Cooler climates are represented by winter wheat, moderate climates are represented by corn and soybeans, and warmer climates are represented by cotton. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_050734.pdf)

The interpretation is applicable to both heavily populated and sparsely populated areas. Ratings are for soils in their present condition. The present land use is not considered in the ratings.

Ratings are based on properties and qualities to the depth normally observed during soil mapping (approximately 6 feet). Soil, site, and climate properties that influence the growth of crops are major considerations. Soil productivity is influenced by many soil properties. An ideal soil will store adequate amounts of water to nurture the crop between rains. This soil will have a near-neutral pH, will store nutrients, and lack toxic materials. The soil will have no barriers, either physical or chemical, to root growth. Water and gas transmission through the soil will be sufficient to maintain both water and oxygen at sufficient levels in the root zone. The soil will not be saturated with water during the growing season to the point that root growth is inhibited. The soil will not be subject to excessive flooding or ponding during the growing season. Slope is an important consideration because it affects erosion by water, runoff, and the operation of equipment. The climate must provide adequate water and heat to allow the desired crop to mature. A soil that differs from the ideal in any of these features will have lower inherent productivity for a particular crop. The further a soil differs from ideality in any one or all of the factors that determine inherent productivity, the lower its inherent productivity will be.

The ratings are numerical and indicate the overall productivity of the soil. The ratings are shown in decimal fractions ranging from 1.00 to 0.001. They indicate gradations between the point at which the combination of soil, site, and climate features has the greatest positive impact on inherent productivity (1.00) and the point at which the soil features are very unfavorable (0.001).

An aggregated rating class is shown for each map unit. The National Commodity Crop Productivity Index rating that is shown has the highest value among the Corn and Soybeans, Small Grains, or Cotton (weighted average) sub-models for major earthy components. Earthy components are those soil series or higher level taxa components that can support crop growth (Dobos et al., 2012). Major components are those soil components where the majorcompflag = ‘Yes’ (SSURGO component table). NULL values are presented where data are incomplete or not available. Components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site. (http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm)
