

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land-forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes. In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

(Class 1) soils have slight limitations that restrict their use.

(Class 2) soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

(Class 3) soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

(Class 4) soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

(Class 5) soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

(Class 6) soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

(Class 7) soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

(Class 8) soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the Land Capability and Component Yields table.

#### Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in "Land Capability and Component Yields" table. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, animal waste manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in this table, are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service (NRCS) or the Cooperative Extension Service (CES) can provide information about the management and productivity of the soils for those crops.

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

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Riley County, Kansas  
(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land Capability		Alfalfa hay		Smooth brome grass	
	N	I	N	I	N	I
027CS: CRETE-----	2e	---	---	---	---	---
027CX: CRETE-----	4e	---	---	---	---	---
027HN: HOBBS-----	5w	---	---	---	---	---
027KS: KIPSON-----	6e	---	---	---	---	---
SOGN-----	6e	---	---	---	---	---
061BE: BENFIELD-----	6e	---	---	---	---	---
FLORENCE-----	6e	---	---	---	---	---
061CF: CLIME-----	6e	---	---	---	---	---
SOGN-----	6s	---	---	---	---	---
061CR: CRETE-----	2s	---	---	---	---	---
061CS: CRETE-----	2e	---	---	---	---	---
061EU: EUDORA-----	2w	---	---	---	---	---
061HE: HAYNIE-----	5w	---	---	---	---	---
061KA: KAHOLA-----	5w	---	---	---	---	---
061KB: KAHOLA-----	2w	---	---	---	---	---
061RE: READING-----	1	---	---	---	---	---
061TO: TULLY-----	3e	---	---	---	---	---
117PA: PAWNEE-----	2e	---	---	---	---	---
117PB: PAWNEE-----	3e	---	---	---	---	---
149HS: HAYNIE-----	3w	---	---	---	---	---
SARPY-----	3w	---	---	---	---	---
149PS: PAXICO-----	5w	---	---	---	---	---
149SF: SARPY-----	4s	---	---	---	---	---
197CM: CLIME-----	4e	---	3.50	---	3.10	---
197FL: FLORENCE-----	6e	---	---	---	---	---
LABETTE-----	6e	---	---	---	---	---
197IB: IRWIN-----	3e	---	---	---	---	---
197ID: IRWIN-----	4e	---	---	---	---	---

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

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Map symbol and soil name	Land Capability		Alfalfa hay		Smooth brome grass	
	N	I	N	I	N	I
197IV: IVAN-----	2w	---	---	---	---	---
197IX: IVAN-----	5w	---	5.60	---	5.00	---
197PN: PAWNEE-----	3e	---	3.50	4.80	---	---
197WE: WAMEGO-----	4e	---	3.90	---	5.00	---
201CS: CRETE-----	2e	---	---	---	---	---
201CX: CRETE-----	4e	---	---	---	---	---
201KS: KIPSON-----	6e	---	---	---	---	---
SOGN-----	6e	---	---	---	---	---
201LC: LANCASTER-----	4e	---	---	---	---	---
Ad: IVAN-----	5w	---	---	---	---	---
AED: ARENTS, EARTHEN DAM-----	8	---	---	---	---	---
BE: BENFIELD-----	4e	---	---	---	---	---
Bf: BENFIELD-----	6e	---	---	---	---	---
FLORENCE-----	6e	---	---	---	---	---
Bk: WYMORE-----	6e	---	---	---	---	---
KENNEBEC-----	1	---	---	---	---	---
BOP: BORROW PITS-----	---	---	---	---	---	---
Ca: CARR-----	3w	---	---	---	---	---
SARPY-----	3w	---	---	---	---	---
Ch: CHASE-----	2w	---	---	---	---	---
Cs: CLIME-----	6e	---	---	---	---	---
SOGN-----	6e	---	---	---	---	---
CT: CRETE-----	3e	---	---	---	---	---
Dr: DWIGHT-----	4e	---	---	---	---	---
IRWIN-----	4e	---	---	---	---	---
Dw: DWIGHT-----	4e	---	---	---	---	---
IRWIN-----	4e	---	---	---	---	---
Em: ELMONT-----	3e	---	---	---	---	---
En: ELMONT-----	6e	---	---	---	---	---

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

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Riley County, Kansas  
(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land Capability		Alfalfa hay		Smooth brome grass	
	N	I	N	I	N	I
CLIME-----	6e	---	---	---	---	---
Eu: EUDORA-----	2w	---	---	---	---	---
Ga: GEARY-----	2e	---	---	---	---	---
Ge: GEARY-----	3e	---	---	---	---	---
Ha: HAYNIE-----	1	---	---	---	---	---
HO: HOBBS-----	2w	---	---	---	---	---
Ic: IRWIN-----	4e	---	---	---	---	---
Id: IRWIN-----	4e	---	---	---	---	---
Ie: IVAN-----	2e	---	---	---	---	---
Iv: IVAN-----	2w	---	---	---	---	---
KENNEBEC-----	1	---	---	---	---	---
Ka: KAHOLA-----	1	---	---	---	---	---
Ke: KENESAW-----	3e	---	---	---	---	---
Kf: KENESAW-----	4e	---	---	---	---	---
KN: KENNEBEC-----	2w	---	---	---	7.10	---
M-W: MISCELLANEOUS WATER-----	---	---	---	---	---	---
Ma: MAYBERRY-----	3e	---	4.50	---	4.30	---
Mb: MAYBERRY-----	3e	---	---	---	---	---
Mu: MUIR-----	1	---	---	---	---	---
QUA: QUARRIES-----	---	---	---	---	---	---
Rd: READING-----	1	---	---	---	---	---
Re: READING-----	2e	---	---	---	---	---
Sa: SARPY-----	4s	---	---	---	---	---
Sm: SMOLAN-----	2e	---	---	---	---	---
Sn: SMOLAN-----	3e	---	---	---	---	---
So: SMOLAN-----	4e	---	---	---	---	---
St: CLIME-----	7e	---	---	---	---	---

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued  
Riley County, Kansas

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Map symbol and soil name	Land Capability		Alfalfa hay		Smooth brome grass	
	N	I	N	I	N	I
Su: SUTPHEN-----	3w	---	---	---	---	---
Ts: TULLY-----	2e	---	---	---	---	---
Tt: TULLY-----	3e	---	---	---	---	---
Tu: TULLY-----	3e	---	---	---	---	---
Tv: TULLY-----	4e	---	---	---	---	---
W: WATER-----	---	---	---	---	---	---
Wm: WYMORE-----	2s	---	---	---	---	---
Wn: WYMORE-----	2e	---	---	---	---	---
Wo: WYMORE-----	3e	---	---	---	---	---
Wr: WYMORE-----	3e	---	---	---	---	---
Ws: WYMORE-----	4e	---	---	---	---	---

