





Land Use and Cover Inventory Database (LUCID)
National Resources Inventory

Natural Resources Conservation Service



What is LUCID?

- LUCID provides direct access to NRI estimates.
 - Tool to construct custom estimates
 - Geographically down to county level
 - Results exportable
- Estimates are focused on user needs.
 - Some are frequent standard requests
 - Most are calculated by the tool
 - All estimates include margin of error

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What is the Primary NRI?

33 Years of Status, Condition, & Trends of Natural Resources in the United States

- National sample of 800,000 points on land and water
- 49 States & Caribbean (Puerto Rico and Virgin Islands)
- Data at each point from '82, '87, '92, '97, & '00 '17
- Alaska from 2007 only
- Details on non-Federal land only, except Alaska
- Nationally consistent definitions and methods

Land cover and uses include:

- Cropland and crops
- Pasture
- Rangeland
- Forest
- Developed Land

Factors considered include:

- Soil
- Erosion
- Water and wetlands
- Conservation

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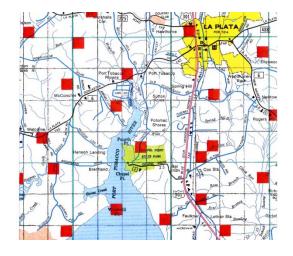
Two-Stage Sample

1st Stage: Area Segments

- Every County
- Spatially balanced
- Most are 160 acres



- Spatially balanced
- 3 in most segments





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Uncertainty

Every estimate has a margin of error (MoE)

- Estimate based on lots of points = MoE fairly small compared to the estimate
- Estimate based on few points = MoE fairly large compared to the estimate

Like a random survey of people asking whether they hunt

- By chance you could get more hunters
- By chance you could get fewer hunters

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Estimates Available

- Broad Land Cover/Use: For example, cropland (3), pasture, forest, range, developed (2), water (2), federal, other rural
- Detailed LCU: For example, specific crops and some detail on other broad cover/uses (51)
- Crop/Pasture Info: For example, conservation practices, irrigation, wind and water erosion measures, 2nd crop, General Conservation Reserve Program (CRP)

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Estimates Available (Continued)

- Soil Info: For example, name, texture, land capability class
- Wetland: For example, wetland type, cause of change
- Other Land Data: For example, prime farmland, resource concerns
- Other Data: For example, Forest Group Type

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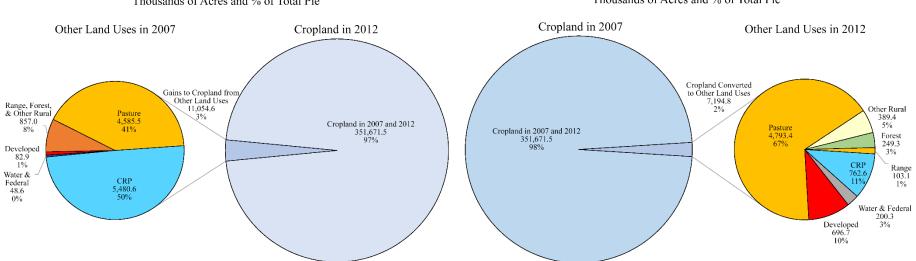


Change over Time

Repeated Collection at Points Allows Measuring Gross Change

Cropland Gains from Other Land Uses, 2007 to 2012
Thousands of Acres and % of Total Pie

Cropland Conversion to Other Land Uses, 2007 to 2012
Thousands of Acres and % of Total Pie



- Example #1 Gross: 4.6M acres of pasture became cropland (above left) and 4.8M acres of cropland became pasture (above right) Net: 0.2M acres converted from cropland to pasture
- Example #2 Gross: 5.5M acres of CRP became cropland (above left) and 0.8M acres of cropland became CRP (above right) Net: 4.7M Acres Converted from CRP to Cropland

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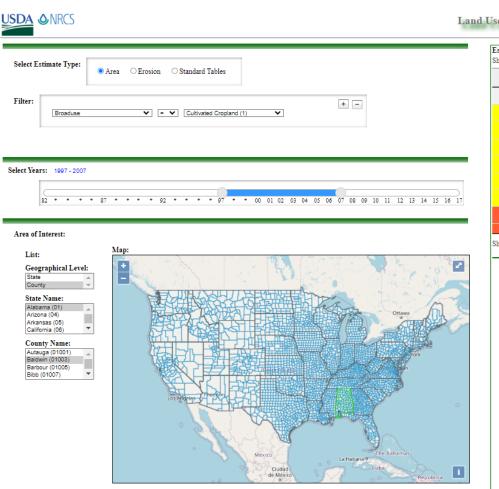


Execute

Reset

Import Query

LUCID Estimates



Land Use & Cover Inventory Database(LUCID) System





LUCID vs. Custom

LUCID

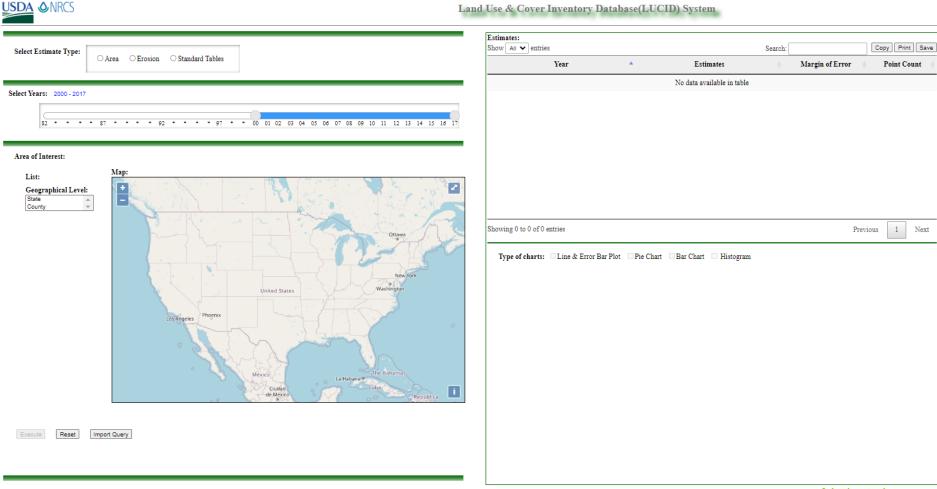
- One or more State, County
- Multi-year
- Exportable

Custom Requests (nri@wdc.usda.gov)

- Variables not in LUCID
- GIS area

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Using Ctrl +/- will zoom in and out, allowing for different configuration of the elements.

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Basic Steps To Create Estimates

- 1. Select Estimate Type
- 2. Construct Filter
 - Variable, Operator, Value
- 3. Choose Time Period of Interest
- 4. Select Area of Interest
 - Use the dropdown state/county menu OR
 - Select using the map

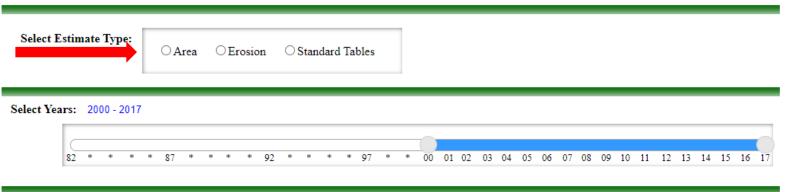
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Select Estimate Type



Land Use & Cover Inventory Database(LUCID) System



Area of Interest:

List:

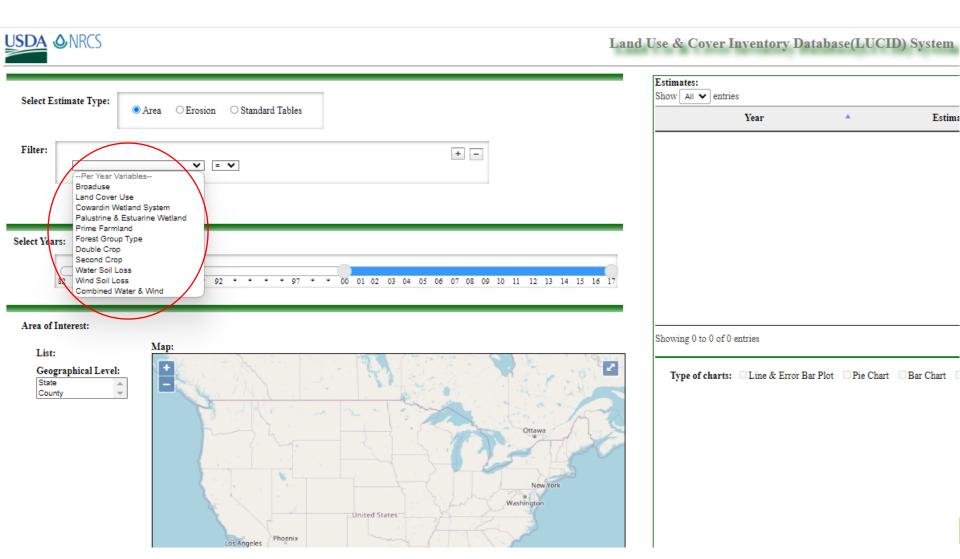
Geographical Level:

State County





Choose Variable to Filter

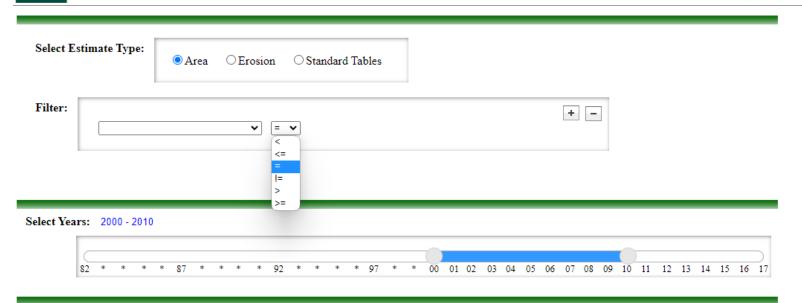




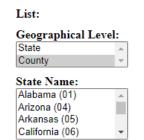
Select Operator



Land Use & Cover Inventory Database(LUCID) System



Area of Interest:



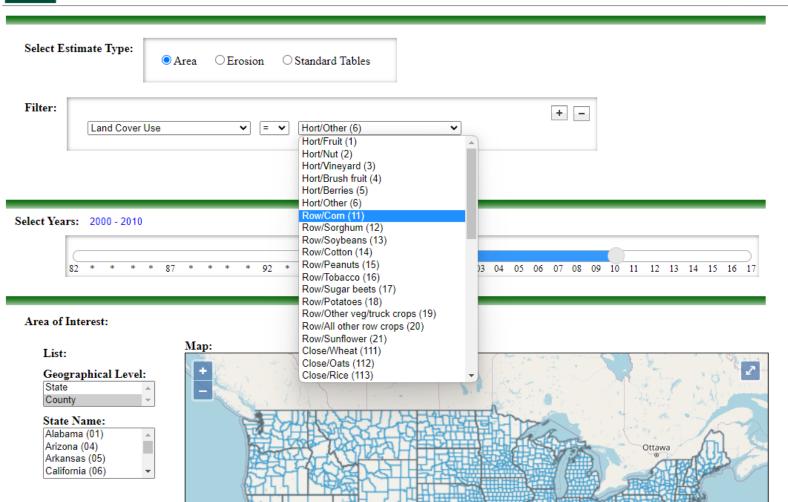




Select Value



Land Use & Cover Inventory Database(LUCID) System

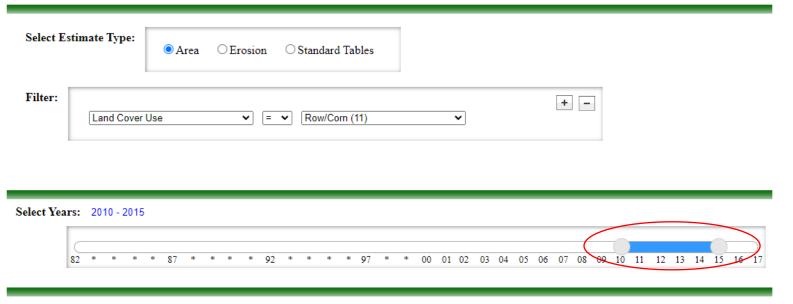




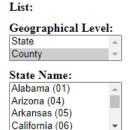
Select Time Period



Land Use & Cover Inventory Database(LUCID) System



Area of Interest:







Define Area of Interest

Area of Interest:

List:

Geographical Level:

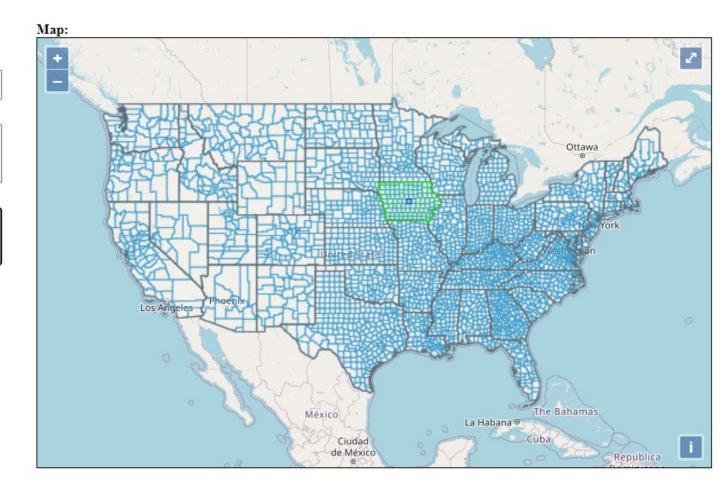
State A County

State Name:

Indiana (18)
Iowa (19)
Kansas (20)
Kentucky (21)

County Name:

Scott (19163)
Shelby (19165)
Sioux (19167)
Story (19169)



Execute

Reset

Import Query



Define Area of Interest (Continued)

- Select From List
 - State(s)
 - County or Counties
 - Use Ctrl key to select multiple
- Select from map
- Start with one and adjust using the other

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Define Area of Interest (Continued)

Area of Interest:

List:

Geographical Level:

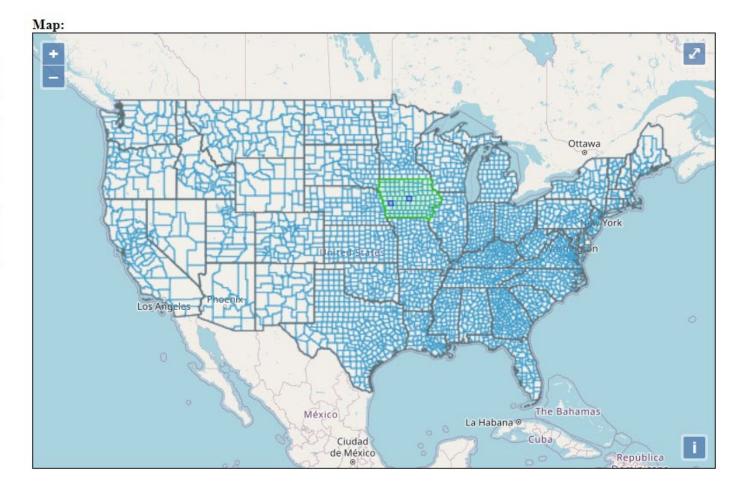
State County

State Name:

Indiana (18)
Iowa (19)
Kansas (20)
Kentucky (21)

County Name:

Scott (19163)
Shelby (19165)
Sioux (19167)
Story (19169)





Define Area of Interest (Continued)

Area of Interest:

List:

Geographical Level:

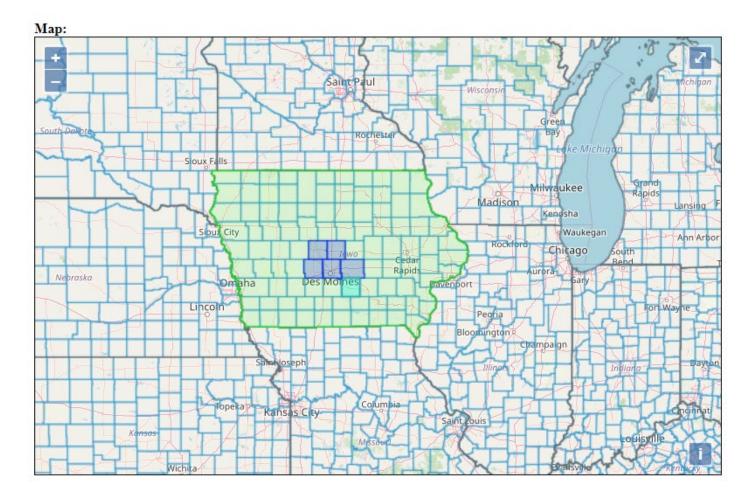
State County

State Name:

Indiana (18)
Iowa (19)
Kansas (20)
Kentucky (21)

County Name:

Scott (19163)
Shelby (19165)
Sioux (19167)
Story (19169)





Finally, Execute

Area of Interest:

List:

Geographical Level:

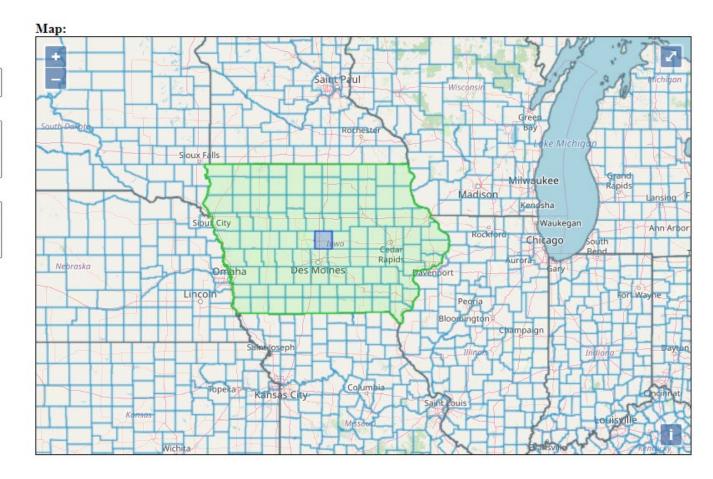
State County •

State Name:

Indiana (18)
Iowa (19)
Kansas (20)
Kentucky (21)

County Name:

Story (19169)
Tama (19171)
Taylor (19173)
Union (19175)



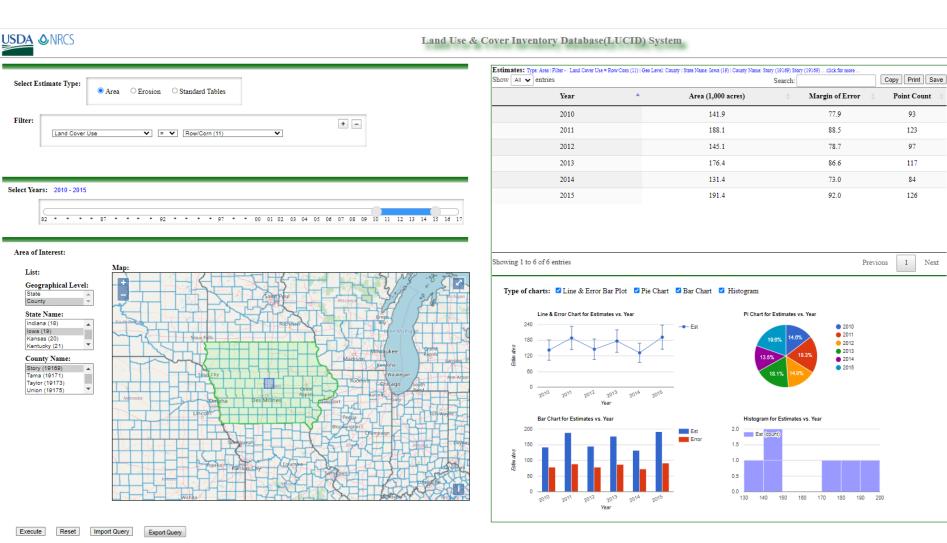


Reset

Import Query



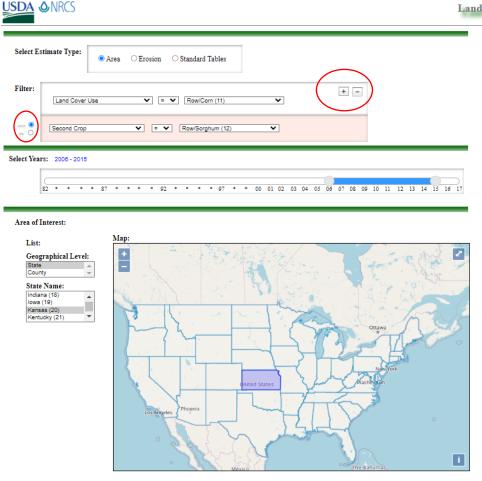
LUCID Results





Import Query

Adding Filters



Land Use & Cover Inventory Database(LUCID) System



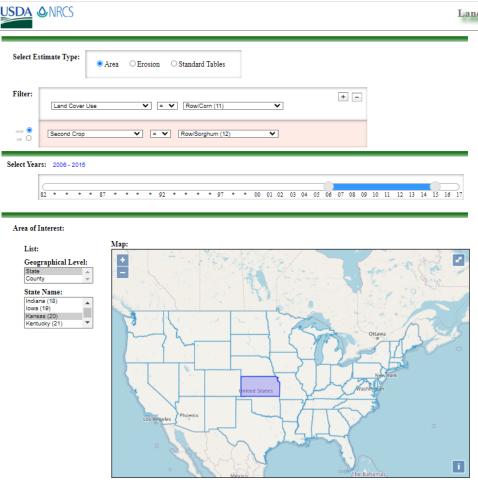
Yellow: Margin of error is 75

– 99% of the estimate

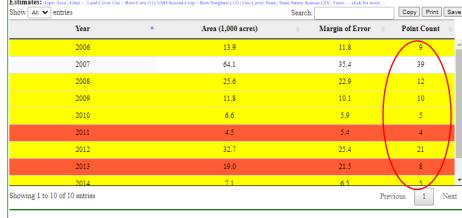
Red: Margin of error is > or = 100% of the estimate



Point Count



Land Use & Cover Inventory Database(LUCID) System



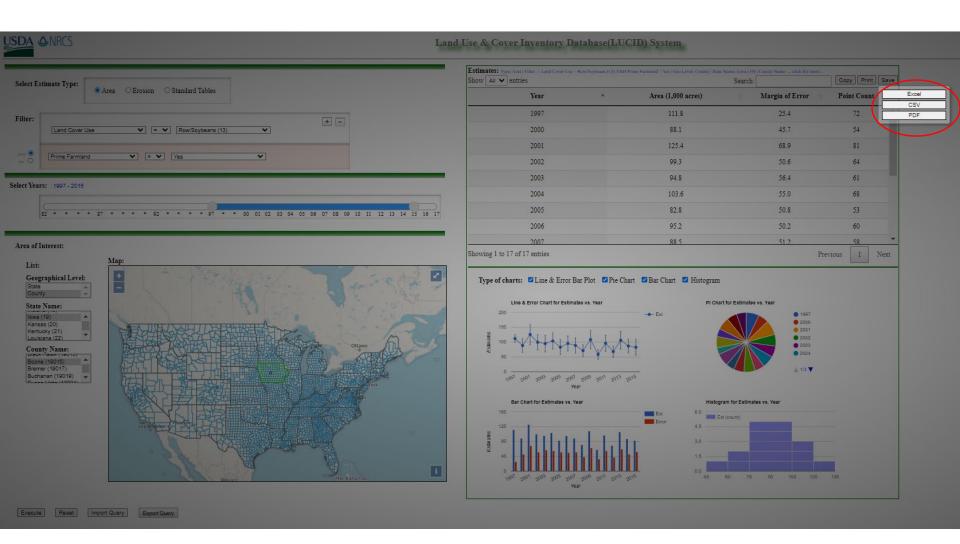
Type of charts: $\ \Box$ Line & Error Bar Plot $\ \Box$ Pie Chart $\ \Box$ Bar Chart $\ \Box$ Histogram

The last column shows the number of NRI points the estimate is based on.

Fewer points limits the accuracy.

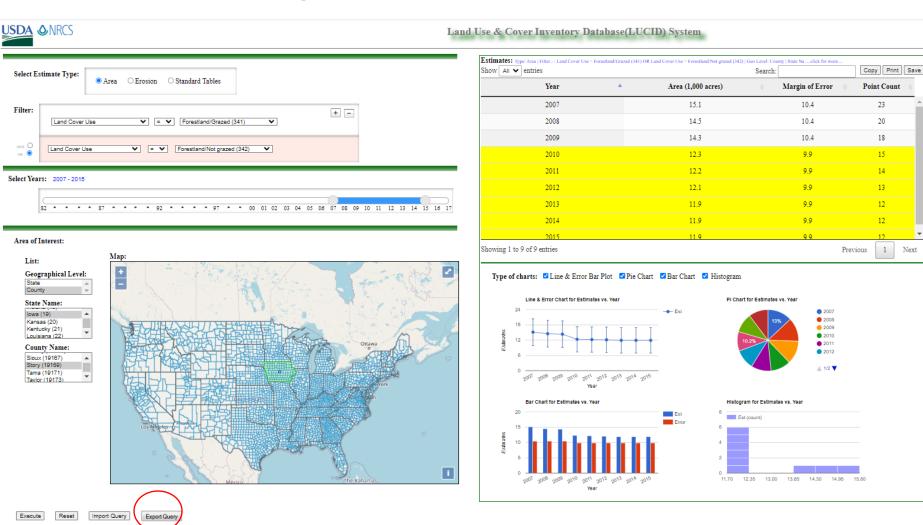


Export Estimates





Export Query





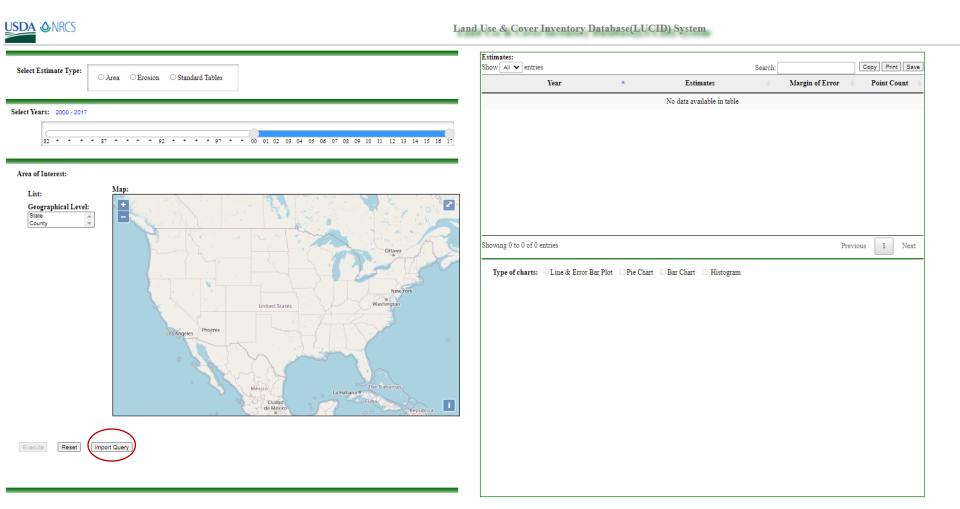
Export Query (Continued)



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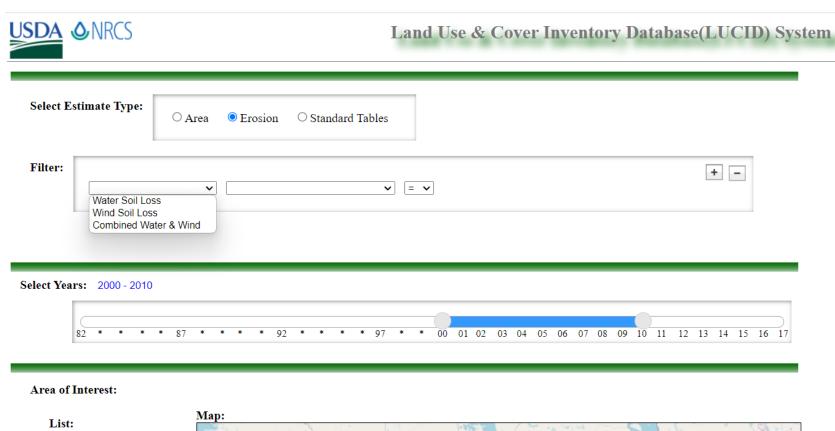


Import Saved Queries





Erosion Estimates



Geographical Level:

State County

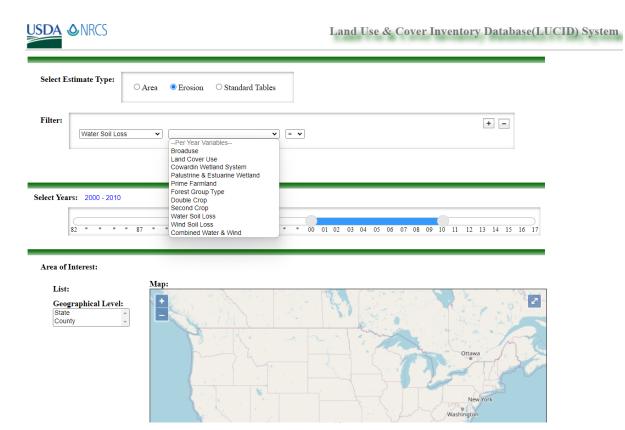




Erosion Estimates

Erosion is only calculated on:

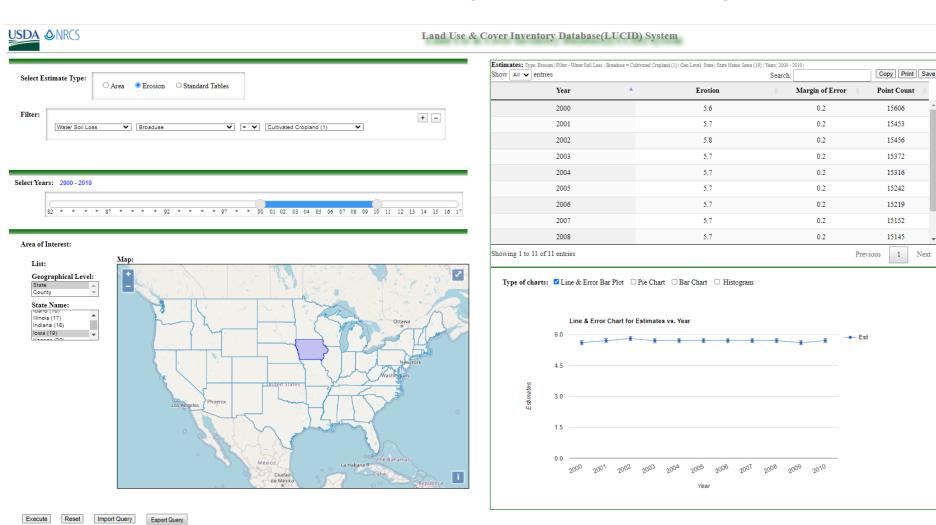
- Cultivated
 Cropland
- Non-cultivated Cropland
- Pastureland and
- Conservation
 Reserve
 Program General



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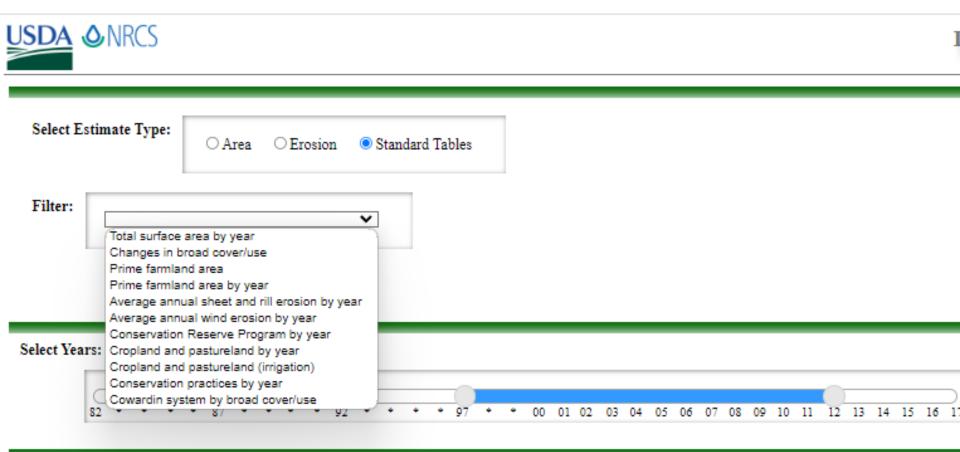


Erosion Estimates (Continued)





Standard Tables



Area of Interest:



Standard Table Result

Type: Standard Tables | FILTERS - Changes in broad cover/use : Broad Cover/Use = Cultivated Cropland-1 Noncultivated Cropland-2 Pastureland-3 Rangeland-4 Forsestland-5 Minor Land-6 Urban Builtup-7 Rural Transportation-8 Small Water-9 Large Water-10 Federal Land-11 CRP Land-12 | Geo Level: County | State Name: Iowa (19) | County Name: Boone (19015) Polk (19153) Story (19169) | Years: 1997 - 2012 |

Table 2b(NRCS Table B-2). Changes in broad cover/use between 1997 and 2002 . (SE)

1997 Broad Cover/Use	2002 Broad Cover/Use												
	Cult. Cropland	Noncult. Cropland	Pasture- land	Range- land	Forest Land	Minor Land	Urban Built-up	Rural Transport	Small Water	Large Water	Federal Land	CRP Land	Total
						1,000 acres							
ultivated Cropland	745.1	0.1	1.2	0.0	0.0	1.7	5.5	0.9	0.0	0.0	0.0	1.3	755.8
	(35.9)	(0.1)	(0.9)	(0.0)	(0.0)	(1.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(1.6)	(36.0)
ioncult. Cropland	3.3	20.6	2.2	0.0	2.0	0.0	0.2	0.0	0.0	0.0	0.0	1.3	29.6
	(2.3)	(5.8)	(1.8)	(0.0)	(3.6)	(0.0)	(1.4)	(0.0)	(0.0)	(0.0)	(0.0)	(1.6)	(7.7)
astureland	1.9	0.0	42.4	0.0	7.0	0.3	1.7	0.0	0.0	0.0	0.0	0.0	53.3
	(1.8)	(0.0)	(13.8)	(0.0)	(2.9)	(1.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(14.3)
angeland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
orest Land	0.0	0.0	0.0	0.0	46.4	0.0	2.4	0.0	0.0	0.0	0.0	0.0	48.8
	(0.0)	(0.0)	(0.0)	(0.0)	(10.5)	(0.0)	(1.5)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(10.6)
linor Land	0.4	0.0	0.1	0.0	1.1	21.4	0.0	0.0	0.0	0.0	0.0	0.0	23.0
	(0.2)	(0.0)	(0.1)	(0.0)	(3.2)	(5.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(6.0)
rban Built-up	0.0	0.0	0.0	0.0	0.0	0.0	116.1	0.0	0.0	0.0	0.0	0.0	116.1
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(15.5)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(15.5)
ural Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.1	30.3	0.0	0.0	0.0	0.0	30.4
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(1.8)	(0.0)	(0.0)	(0.0)	(0.0)	(1.8)
mall Water	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	8.5	0.0	0.0	0.0	9.2
	(0.0)	(0.0)	(0.0)	(0.0)	(0.7)	(0.0)	(0.0)	(0.0)	(1.8)	(0.0)	(0.0)	(0.0)	(1.9)
arge Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0	0.0	7.6
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
ederal Land	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0	0.0	29.6
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
RP Land	1.9	0.0	3.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	3.6	9.1
	(2.0)	(0.0)	(2.3)	(0.0)	(0.0)	(0.0)	(0.6)	(0.0)	(0.0)	(0.0)	(0.0)	(2.8)	(4.2)
otal	752.6	20.7	48.9	0.0	57.2	23.4	126.6	31.2	8.5	7.6	29.0	6.2	1111.9
	(36.1)	(5.8)	(14.2)	(0.0)	(11.9)	(5.4)	(15.6)	(1.8)	(1.8)	(0.0)	(0.0)	(3.6)	(0.0)

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LUCID and NRI Support

 Please email <u>lucid-support@iastate.edu</u> for all LUCID Support issues.

 For general NRI questions or help with data requests not available in LUCID, please email nri@wdc.usda.gov.

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