Implications of ethanol production on meat supply/production: Evidence for shifts in livestock feeding centers ???

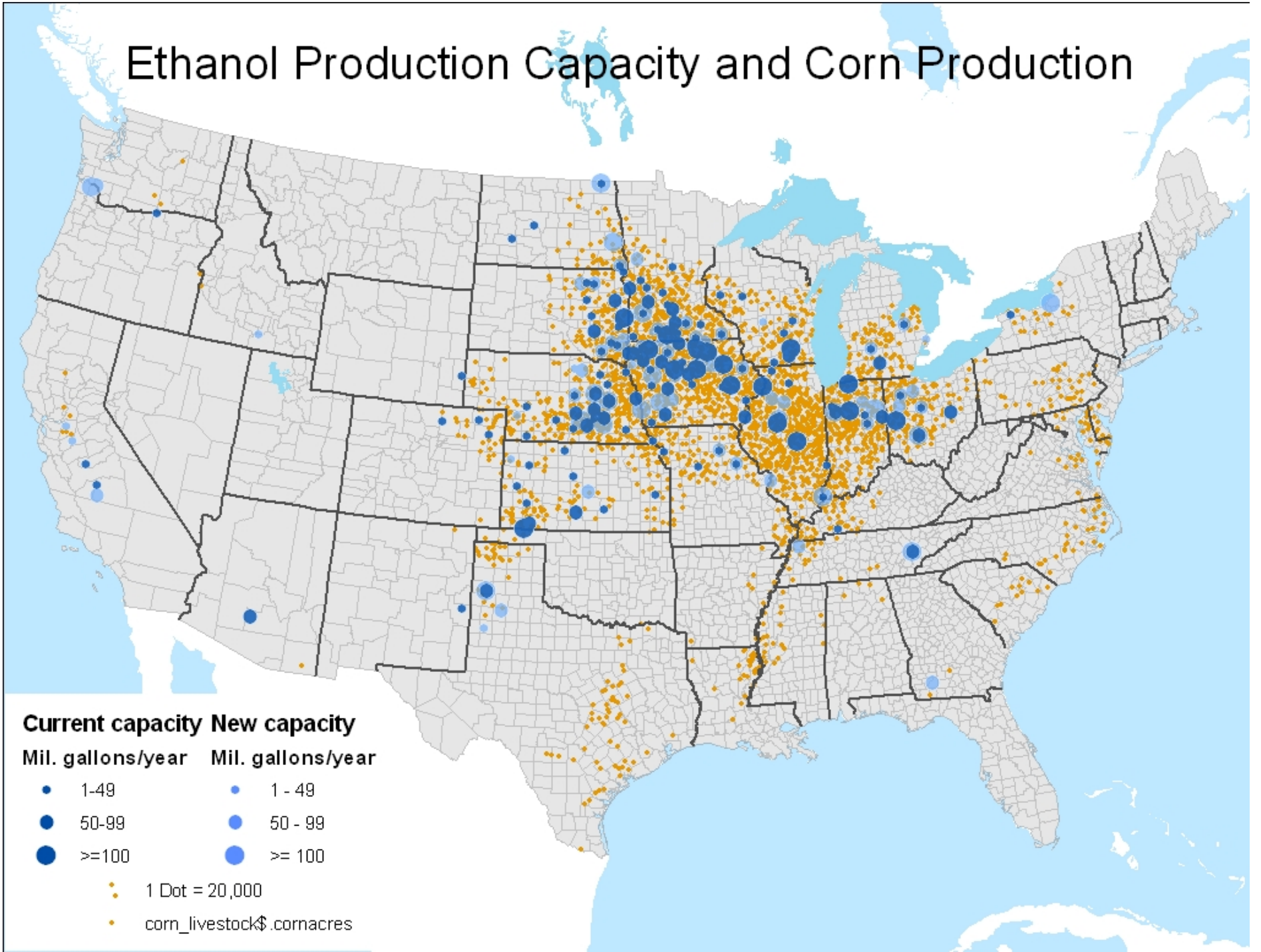
Vince Breneman

David Nulph

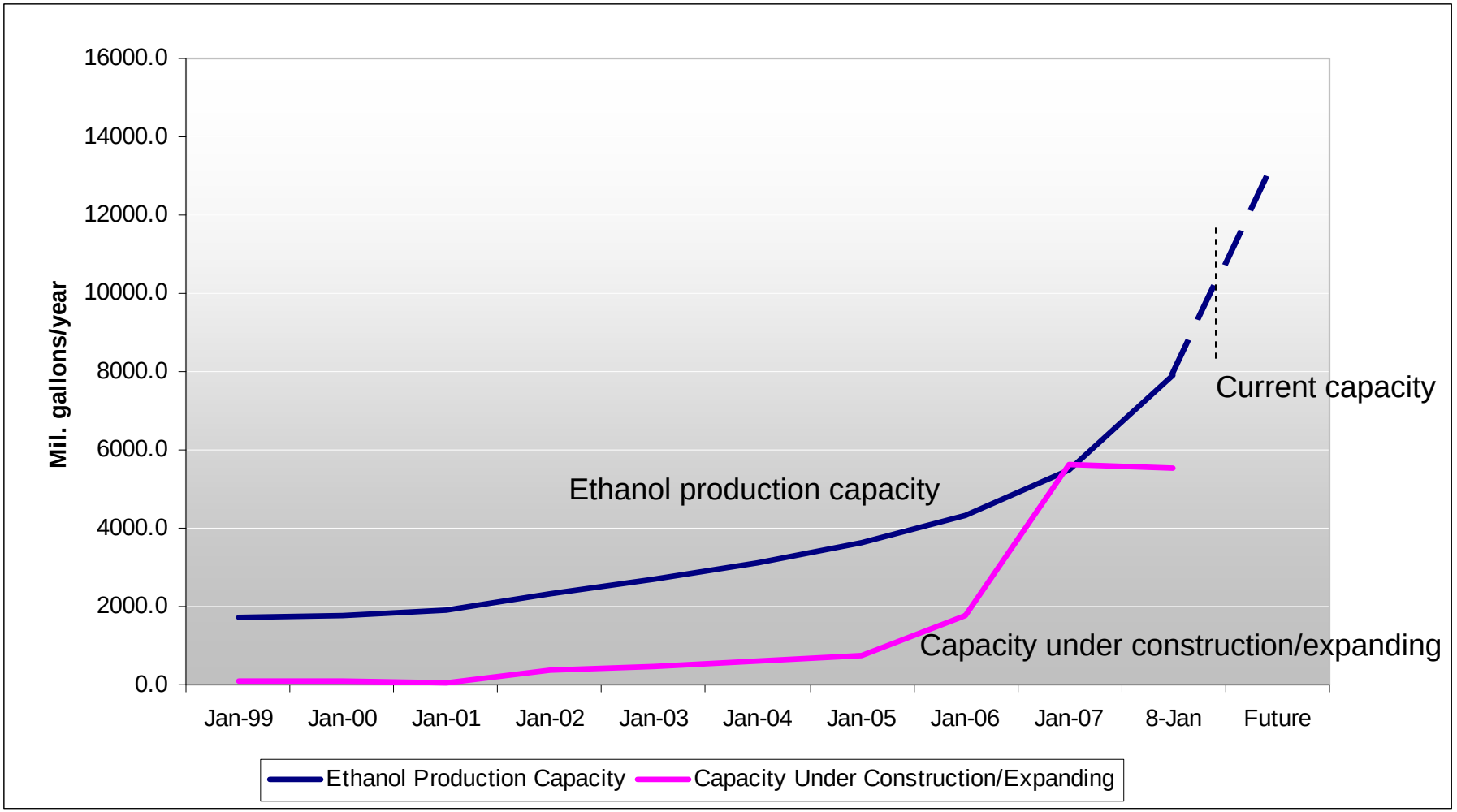
Overview

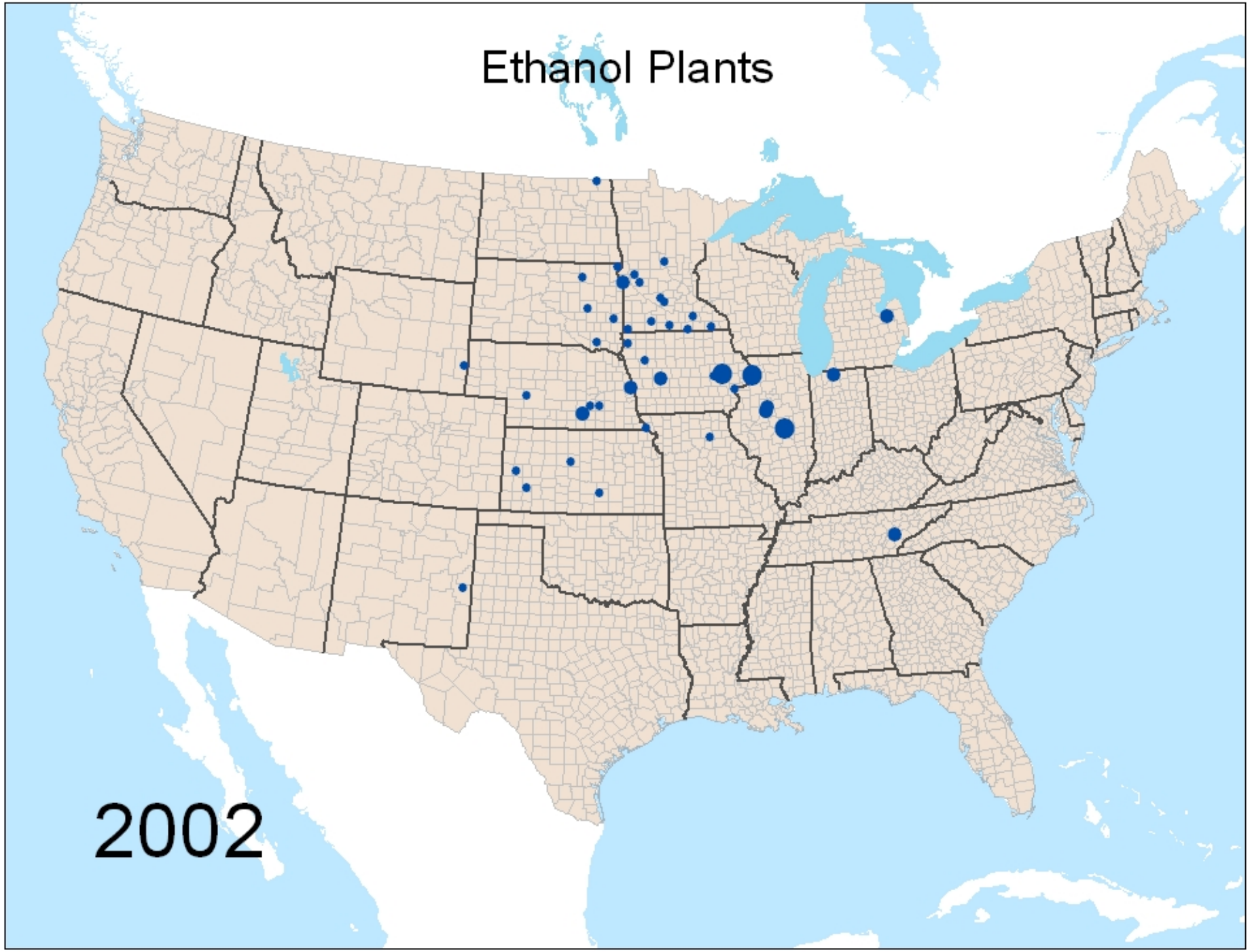
- Growth of the ethanol industry
- Local corn markets
- Potential DDG markets
- Changes in the livestock feeding centers

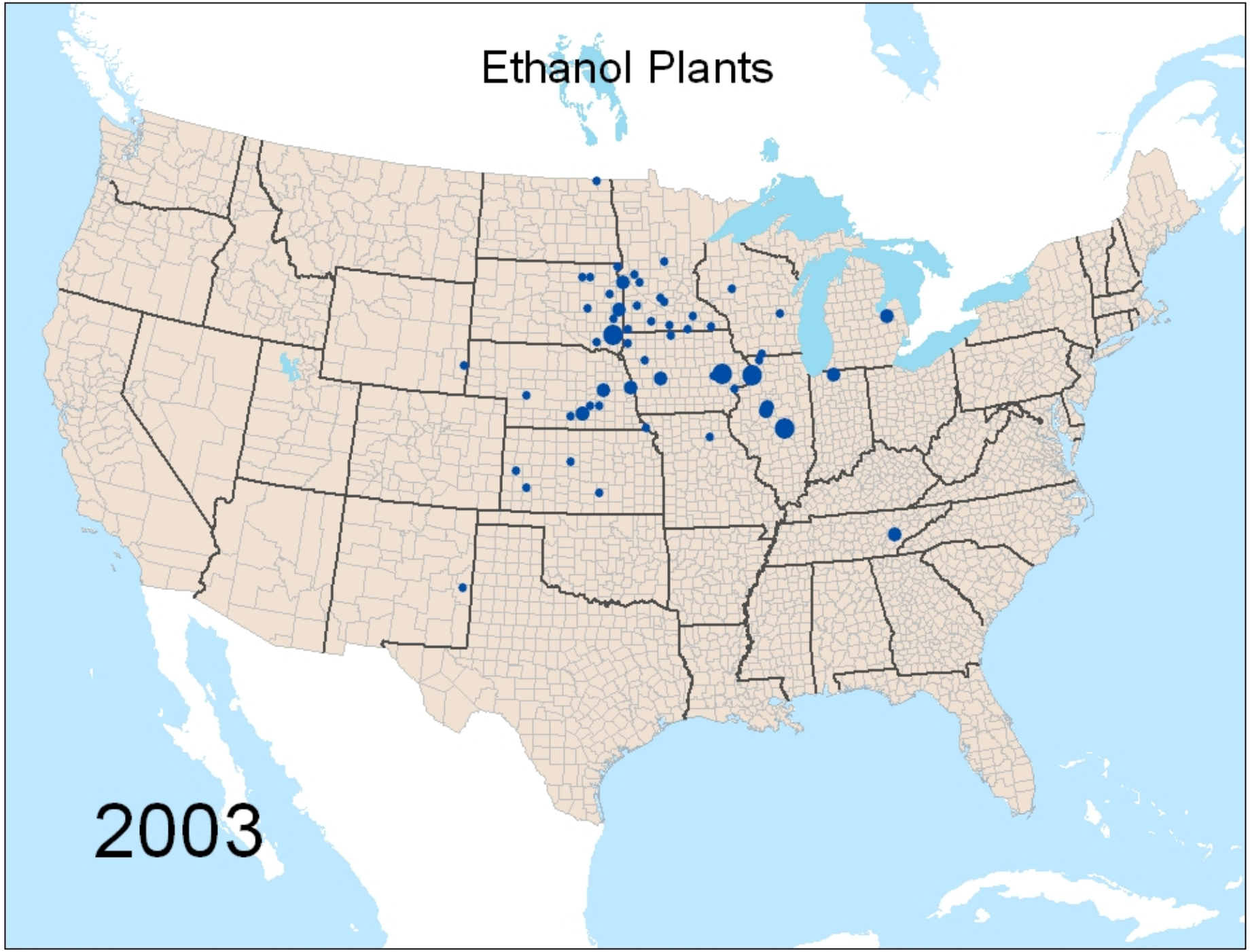
Ethanol Production Capacity and Corn Production

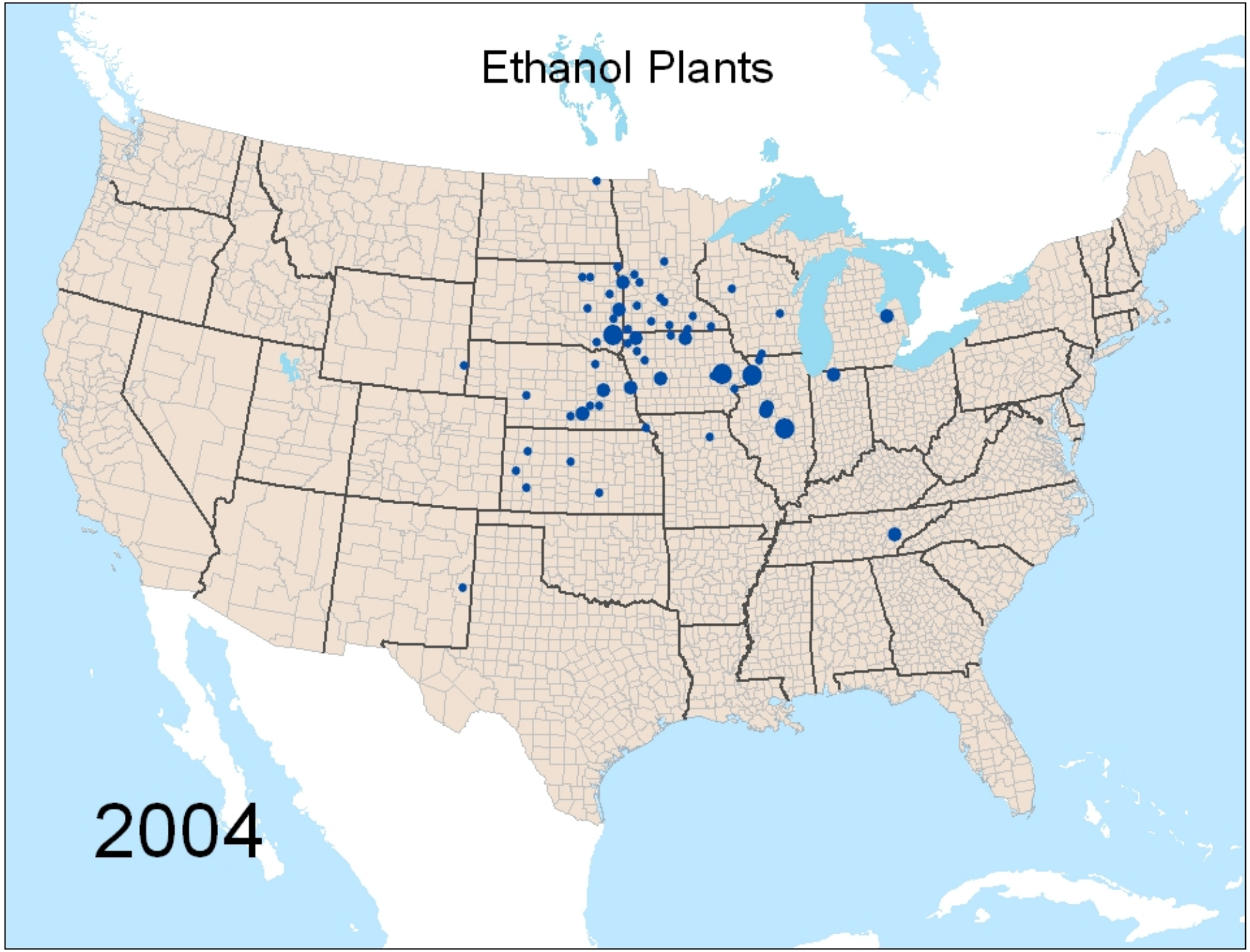


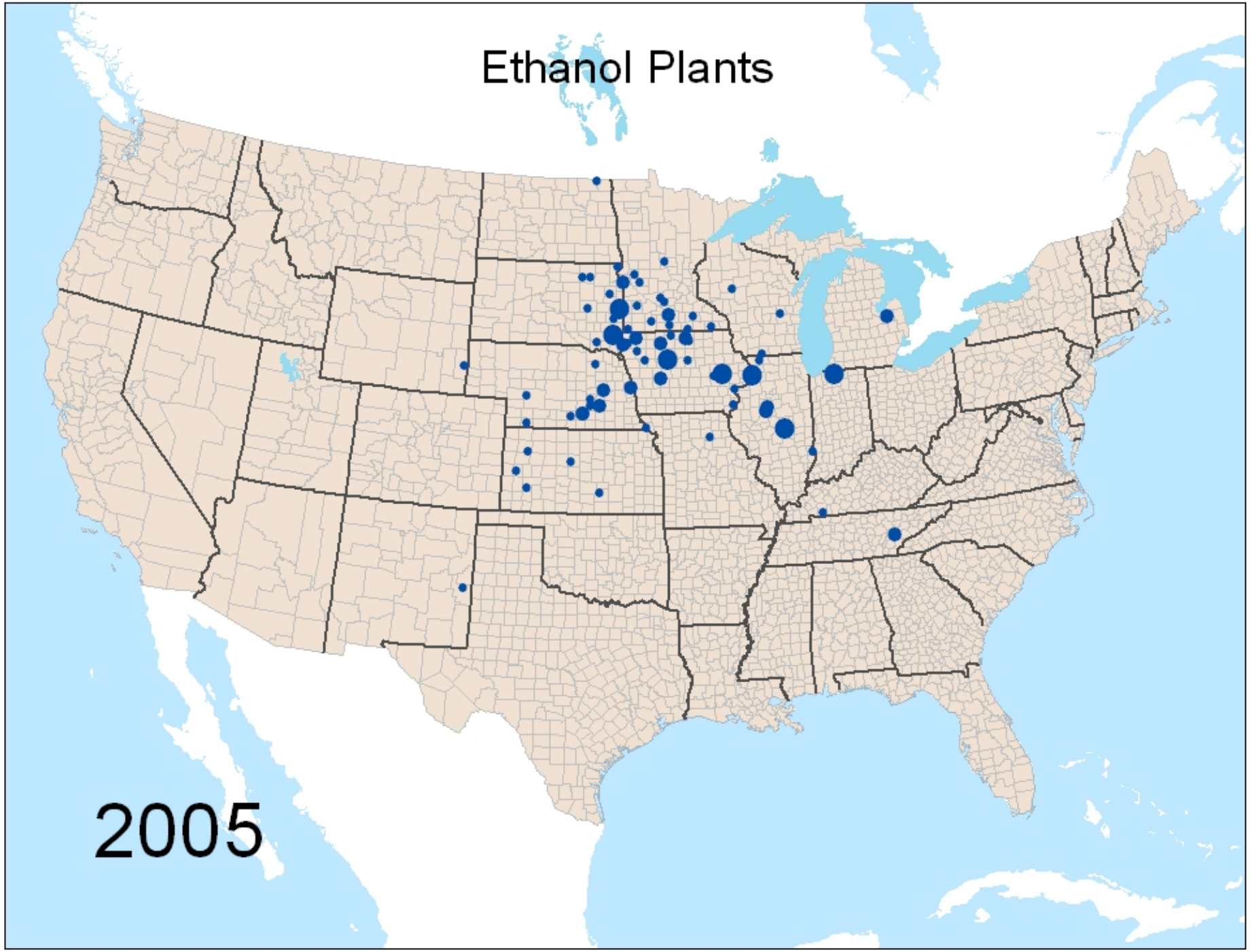
Ethanol production capacity

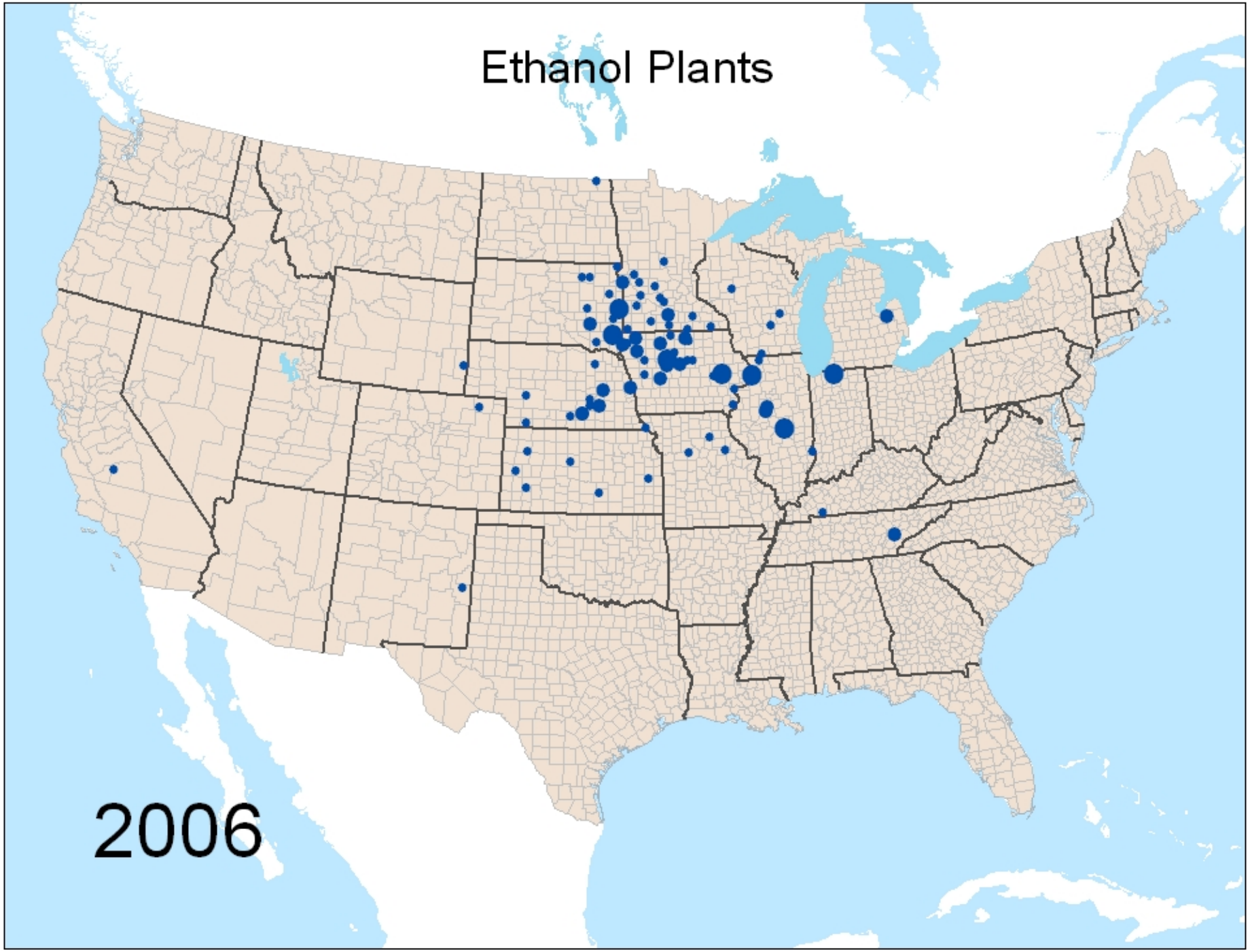


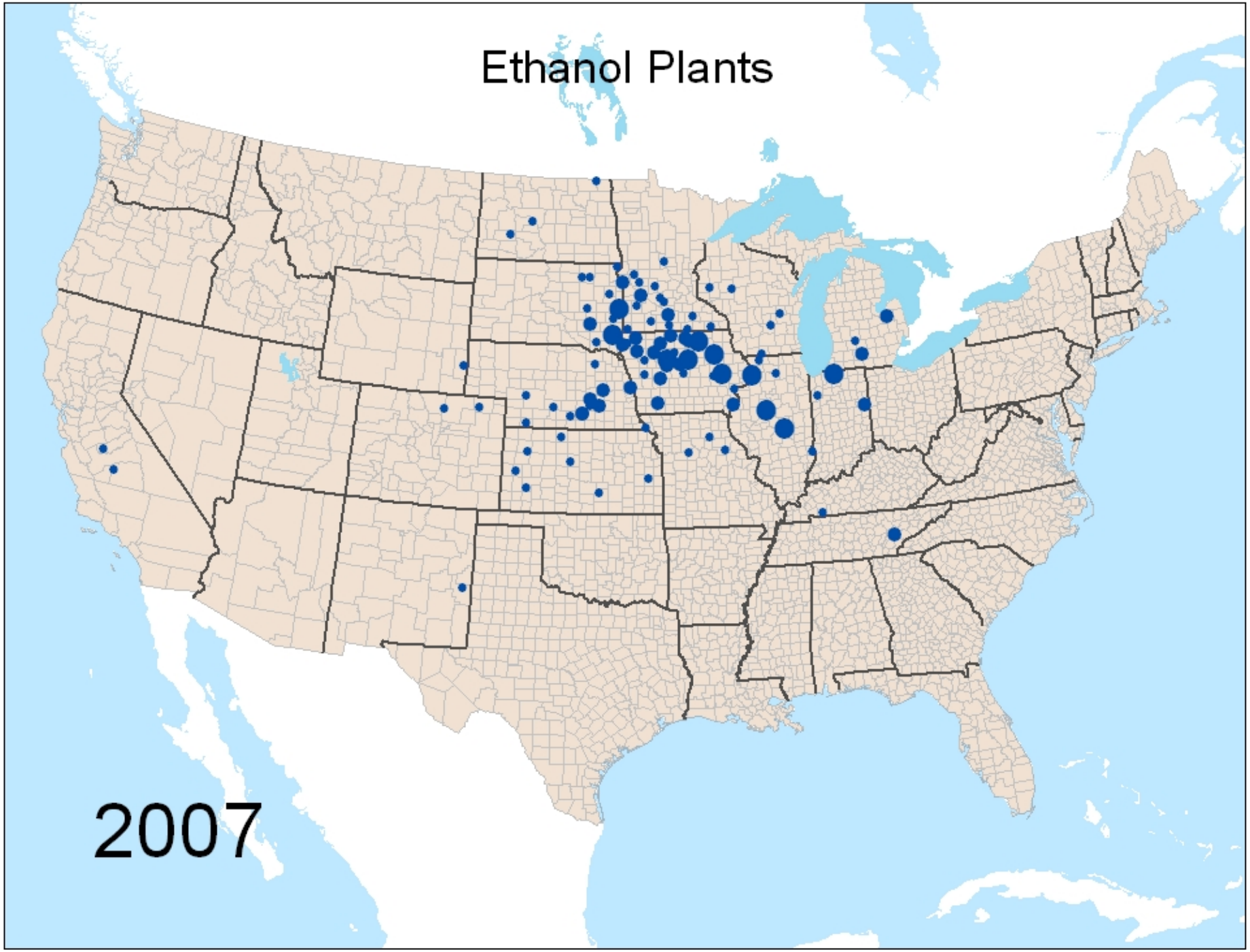

Ethanol Plants
2002

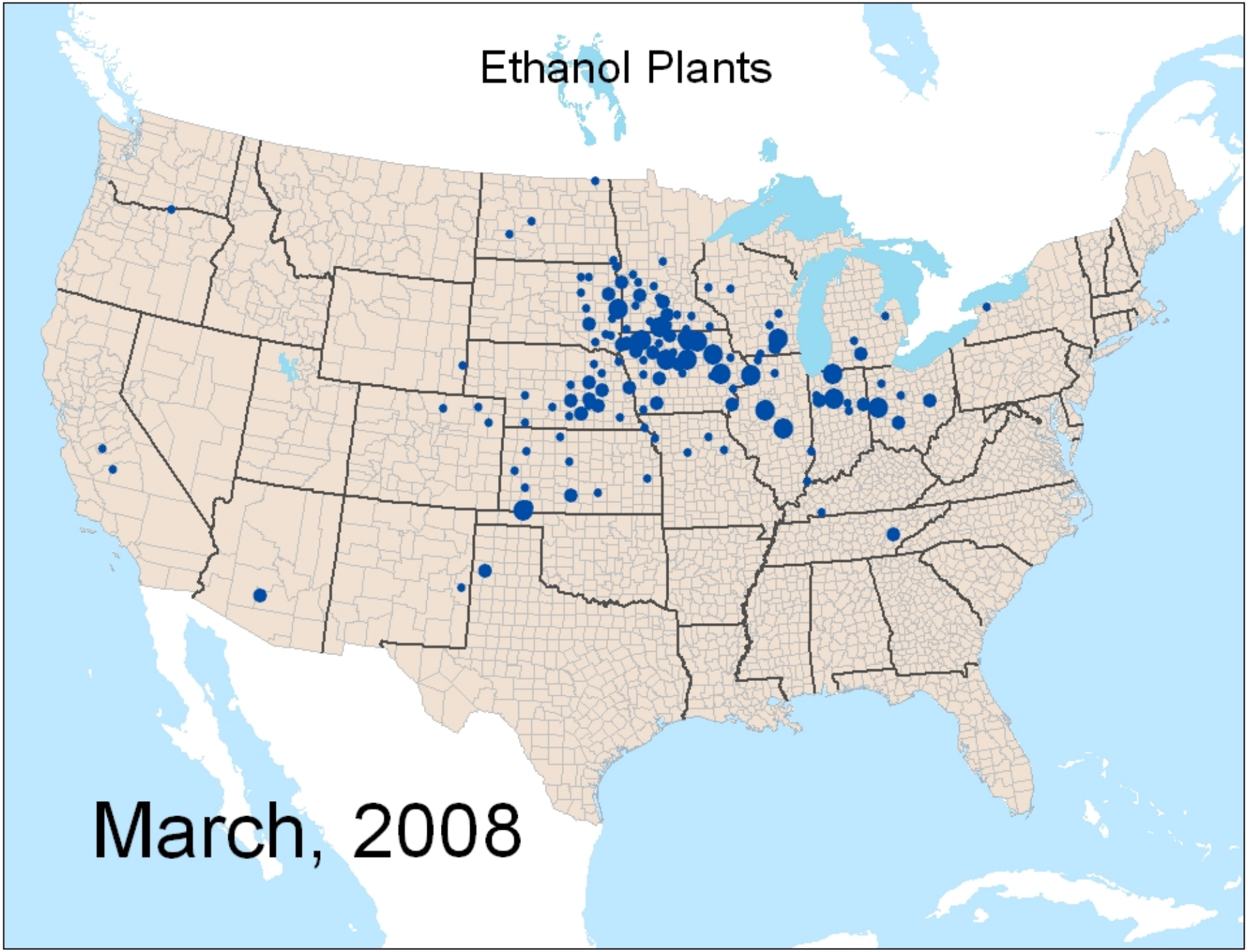

Ethanol Plants
2003

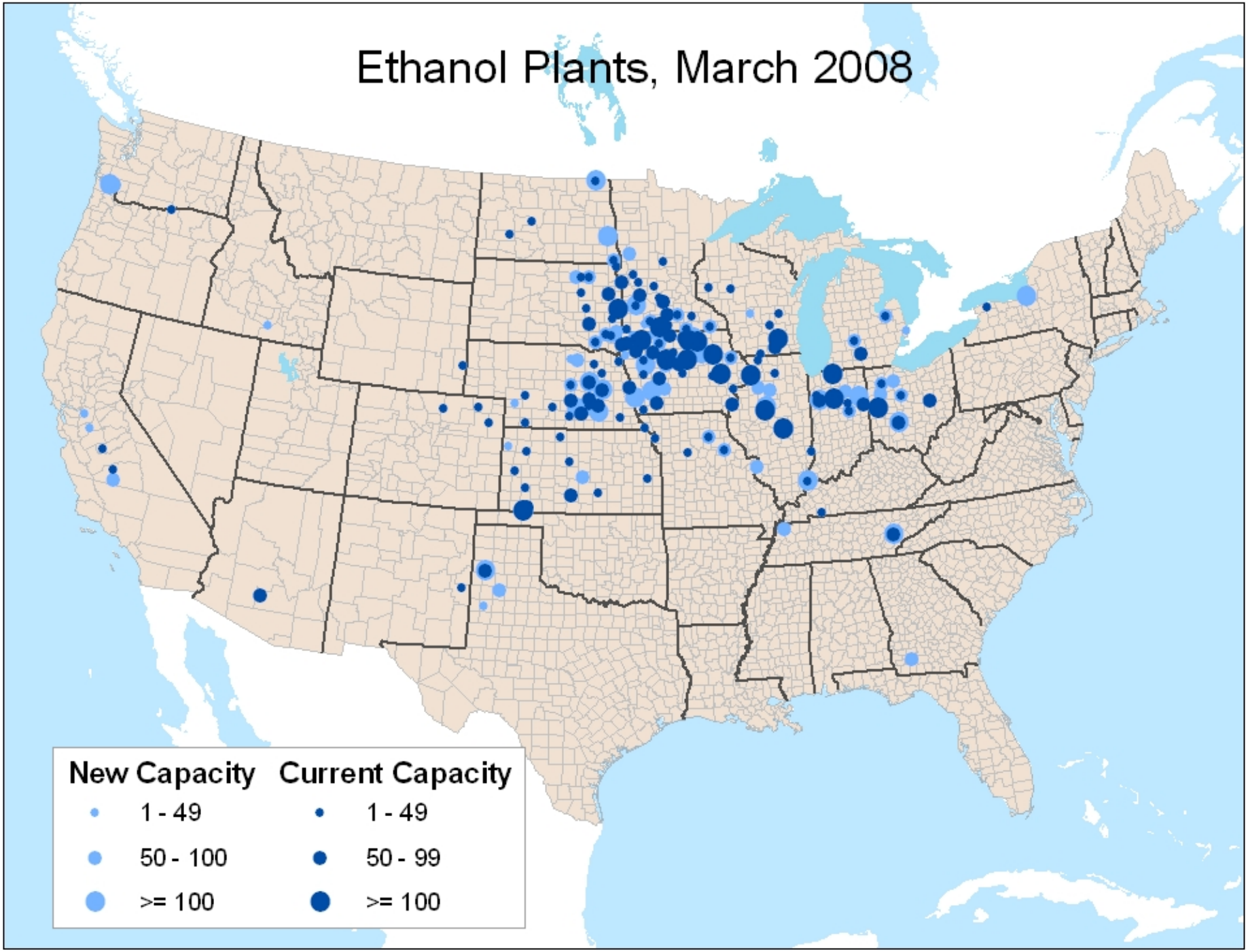

Ethanol Plants
2004


Ethanol Plants
2005

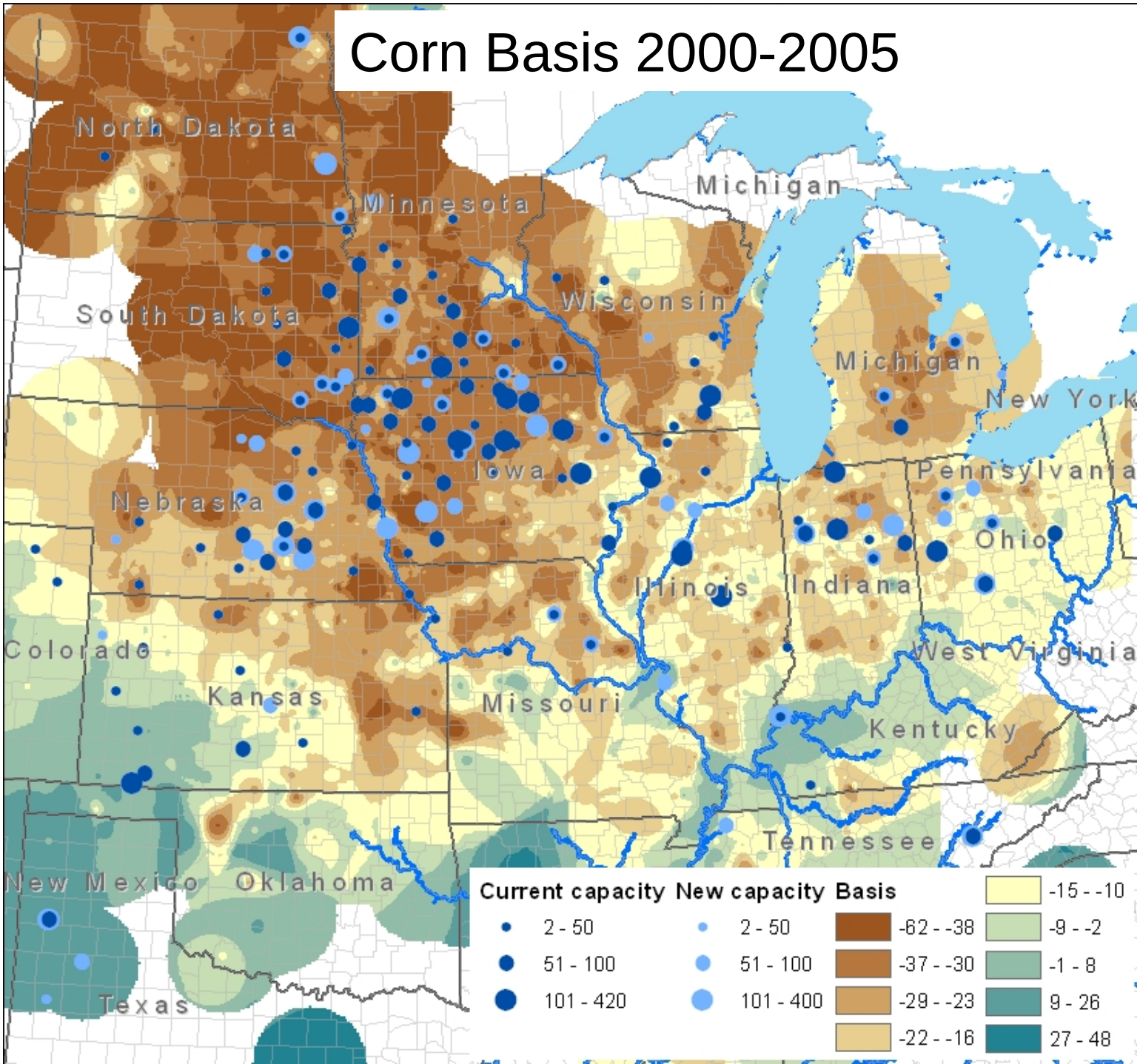

Ethanol Plants
2006

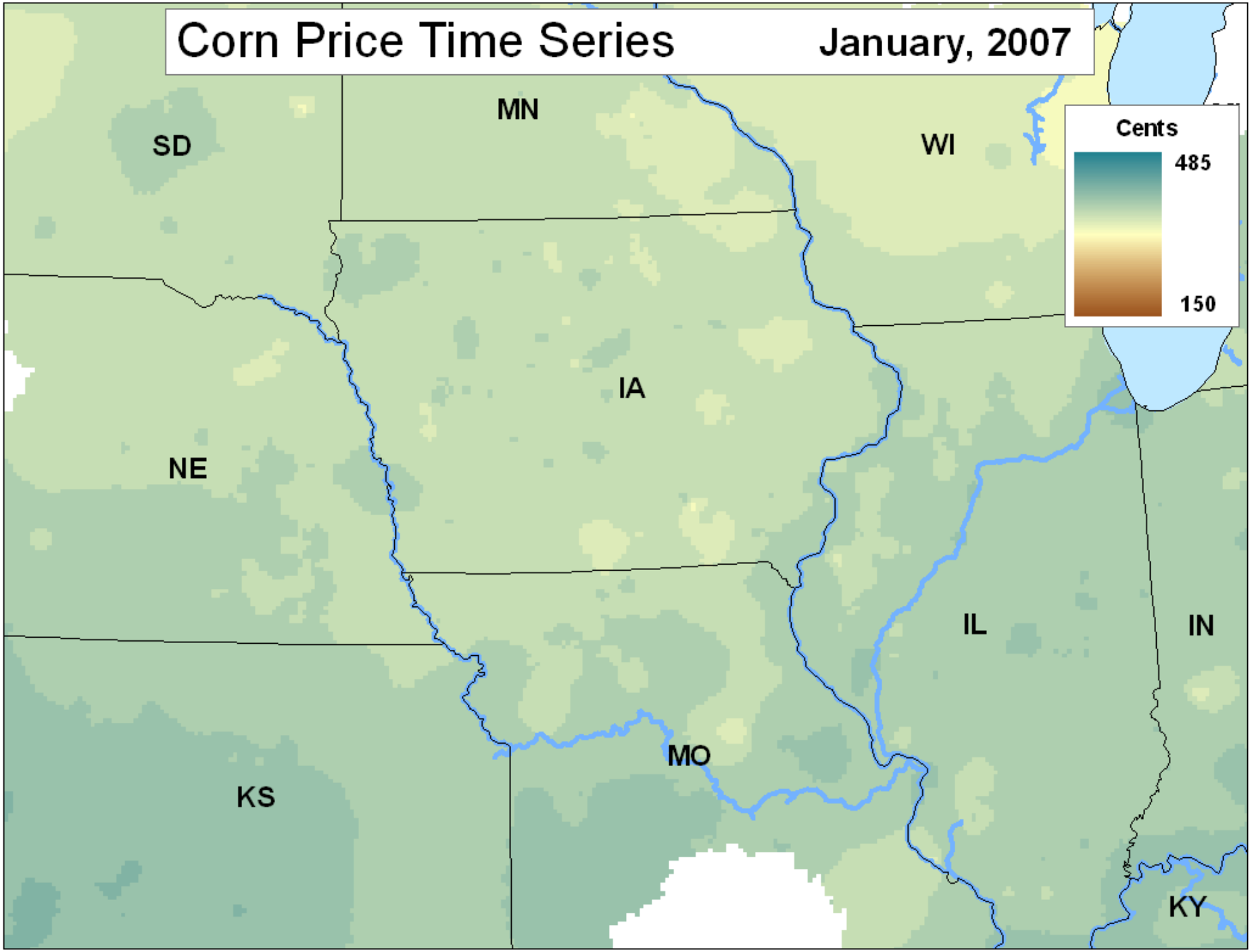

Ethanol Plants
2007

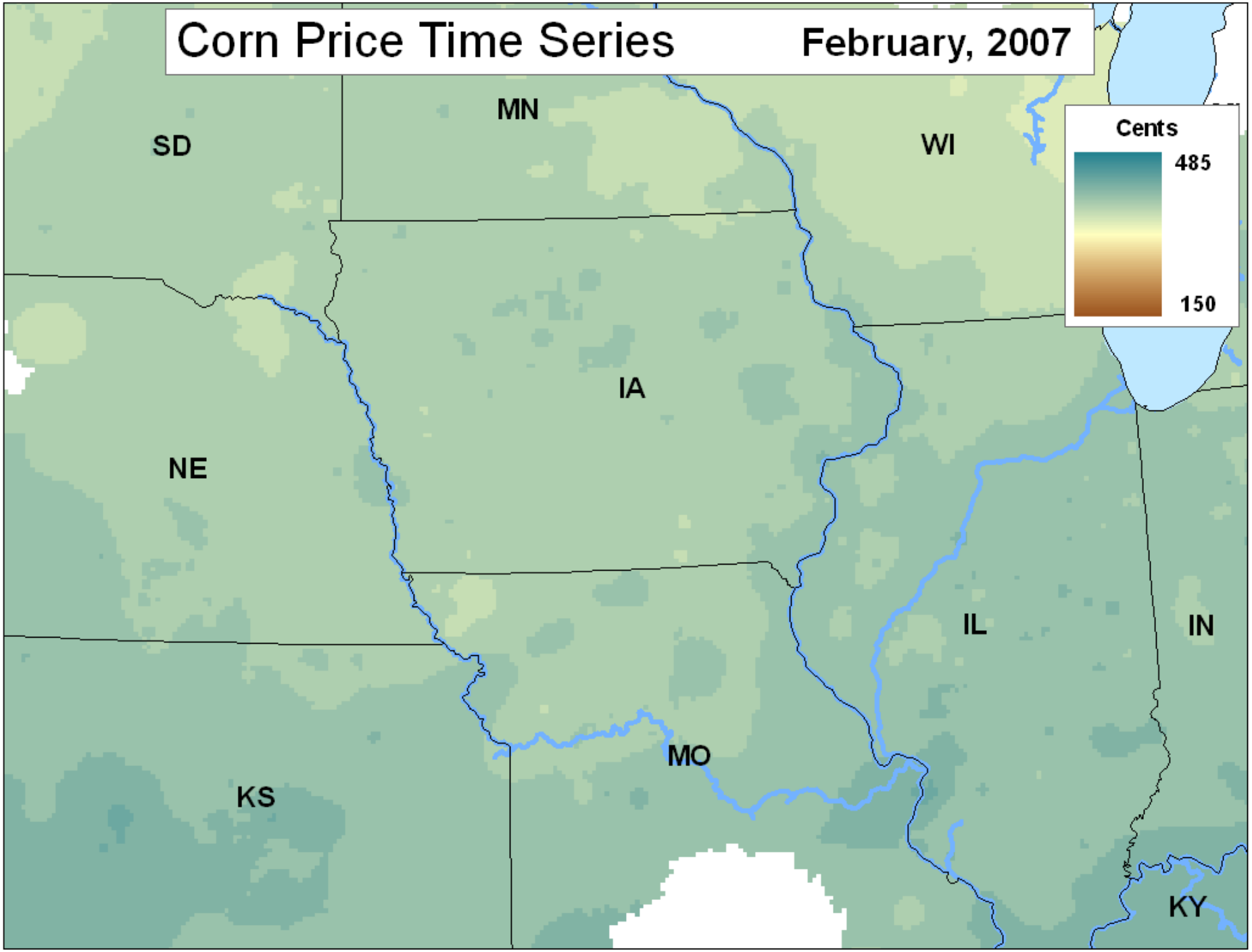

Ethanol Plants
March, 2008


Ethanol Plants, March 2008
New Capacity
1 - 49
50 - 100
>= 100
Current Capacity
1 - 49
50 - 99
>= 100

Corn Basis 2000-2005




Corn Price Time Series
January, 2007
SD
MN
WI
IA
NE
IL
IN
MO
KS
KY
Cents
485
150


Corn Price Time Series
February, 2007
Cents
485
150
SD
MN
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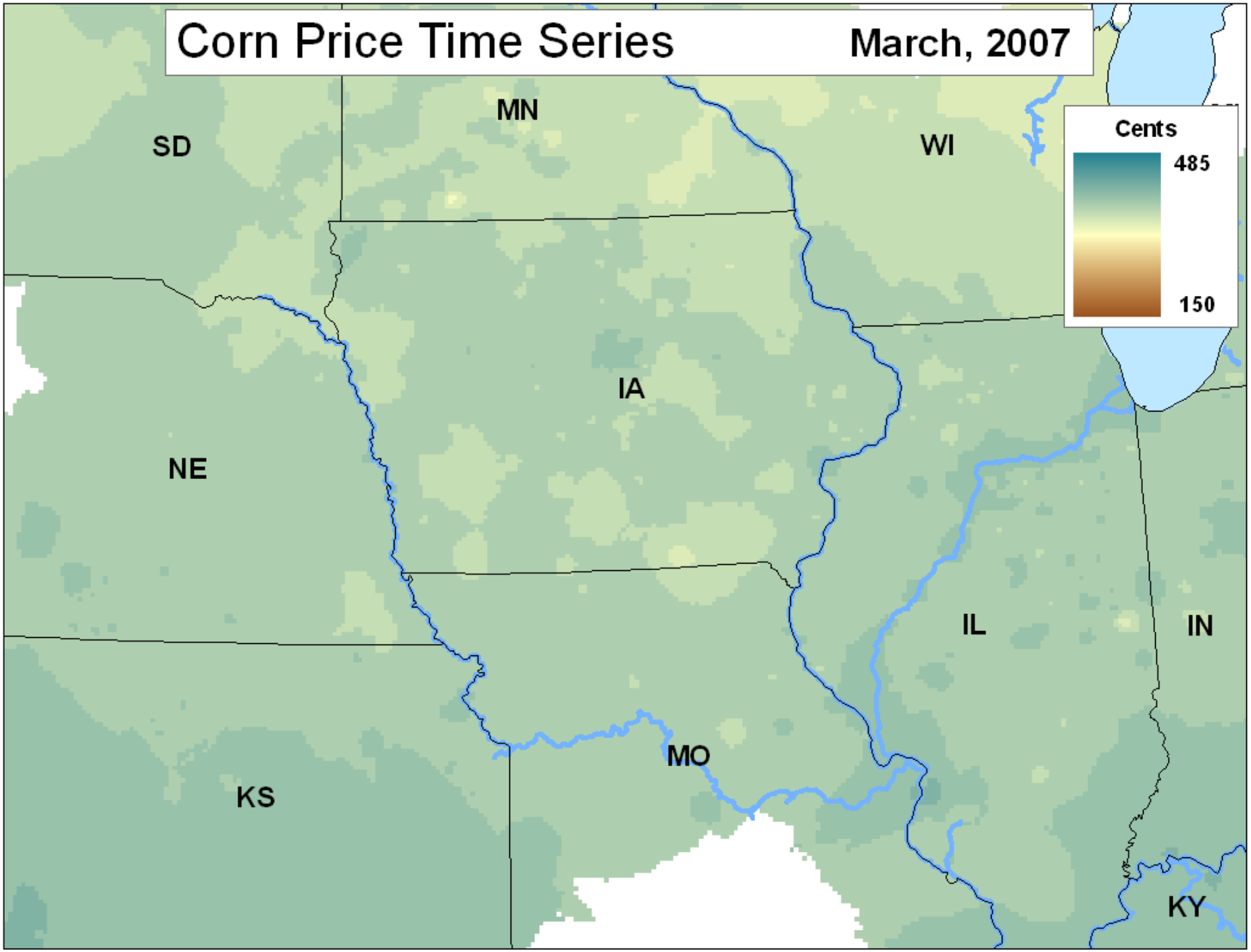
KS
KY


Corn Price Time Series
March, 2007
Cents
485
150
SD
MN
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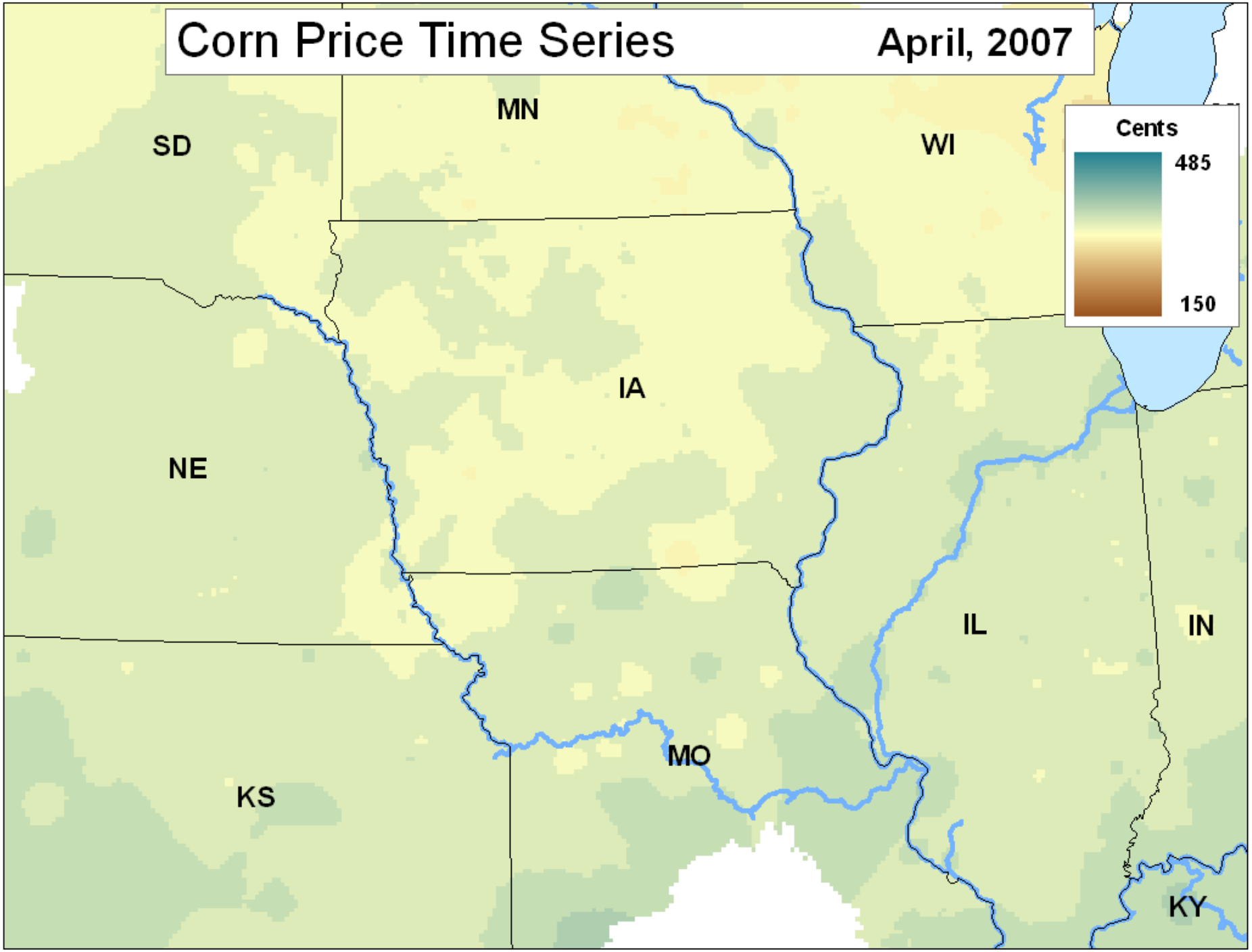
MO
KS
KY


Corn Price Time Series
April, 2007
Cents
485
150
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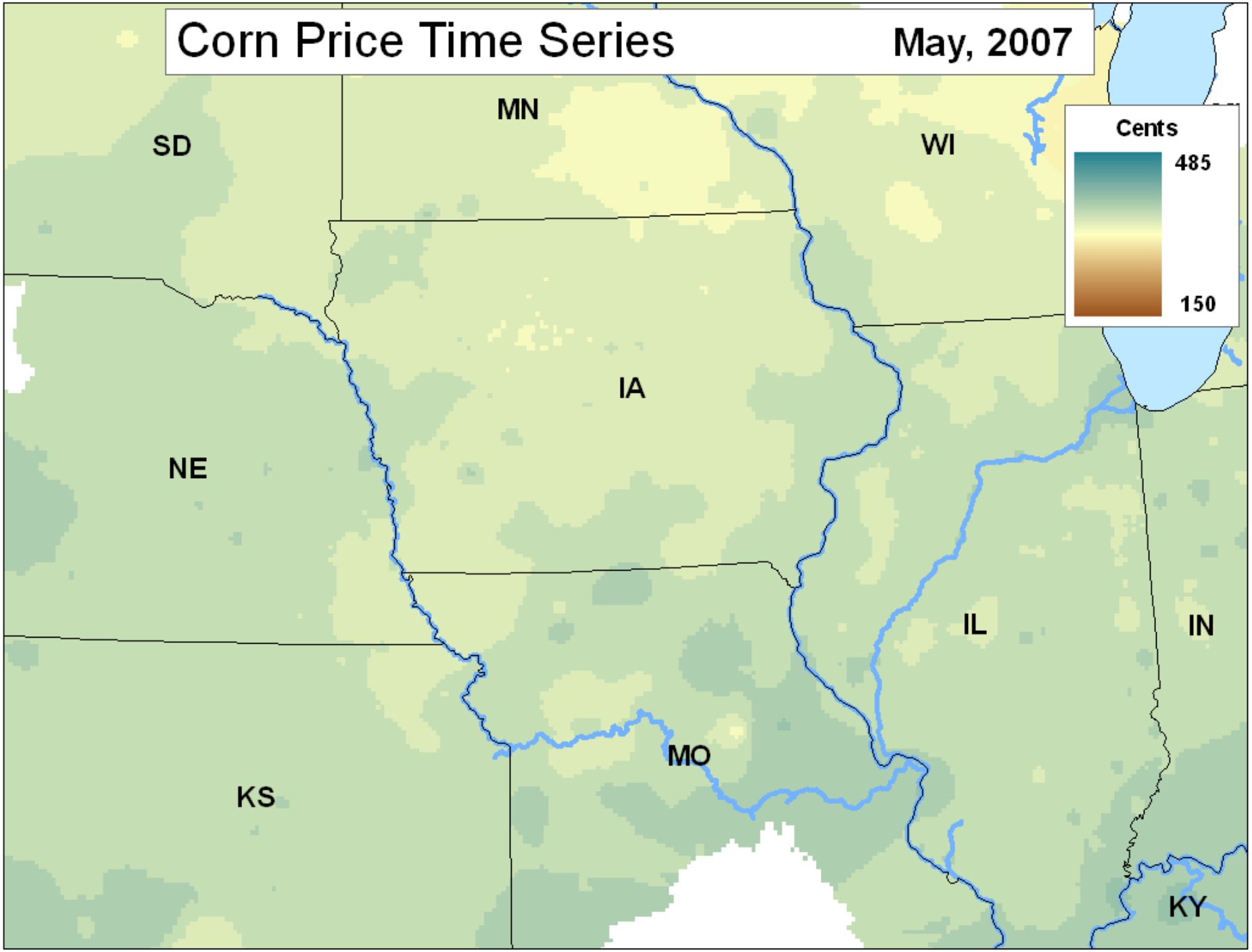
KY


Corn Price Time Series
May, 2007
Cents
485
150
SD
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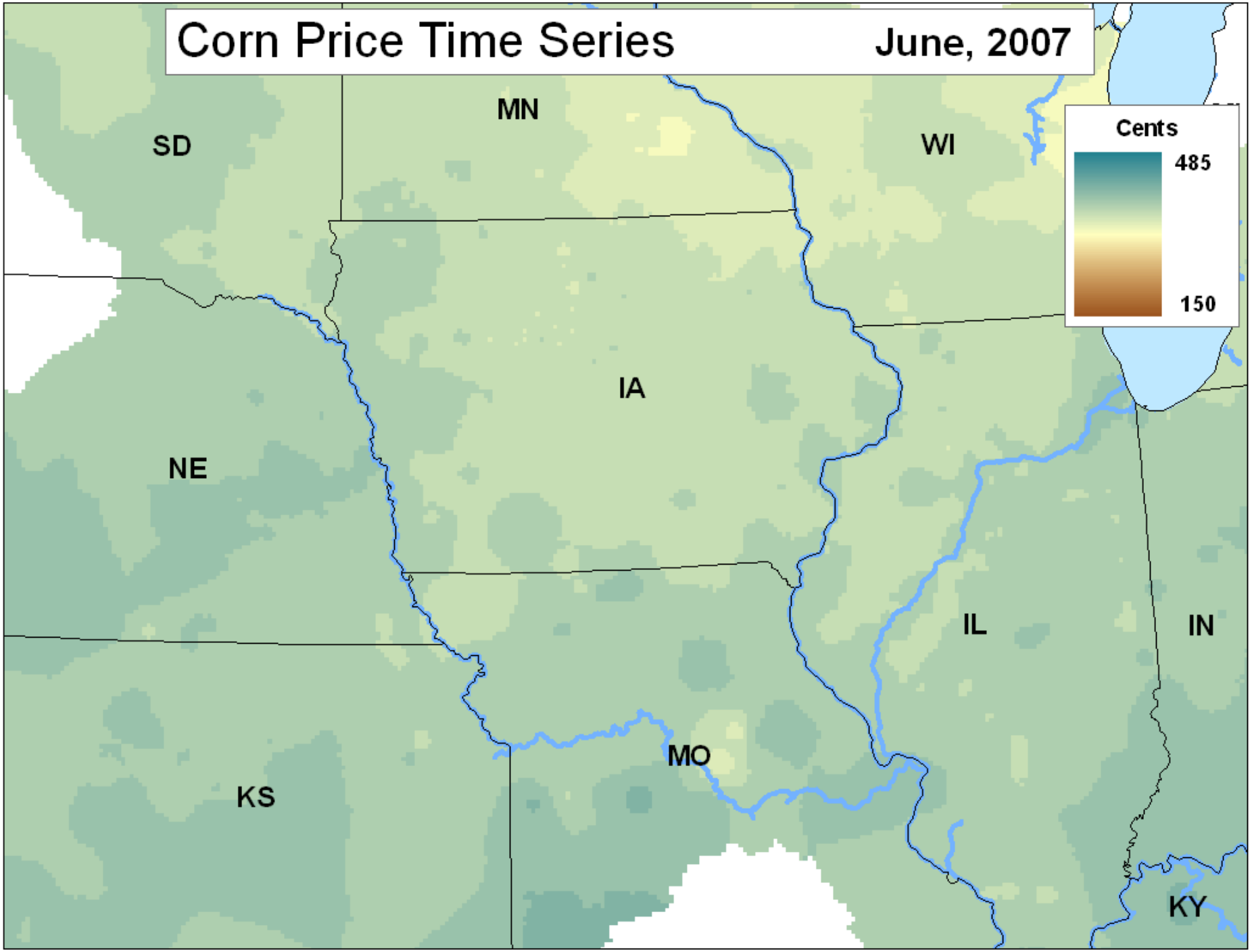
MO
KS
KY


Corn Price Time Series
June, 2007
Cents
485
150
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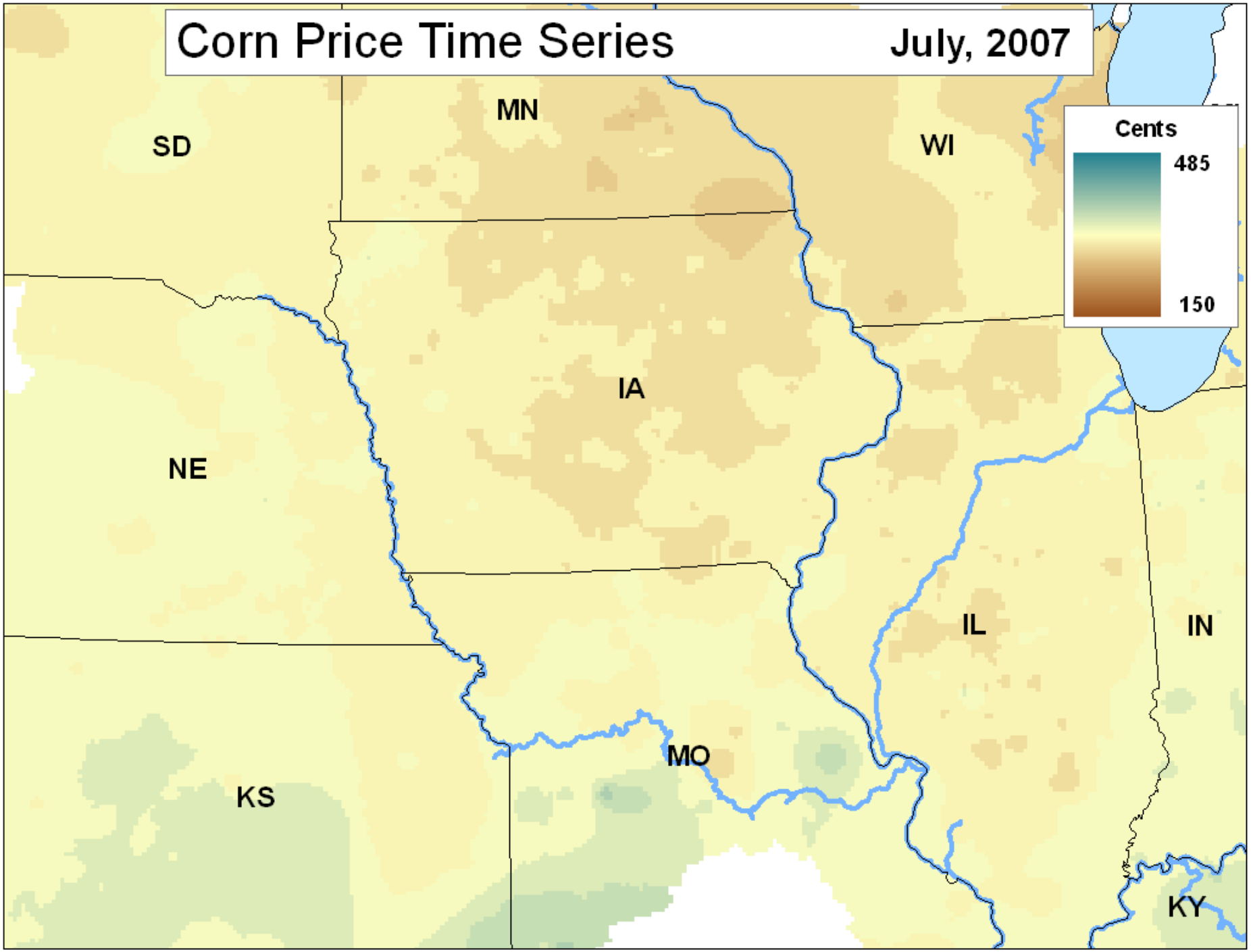
KY


Corn Price Time Series
July, 2007
Cents
485
150
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MN
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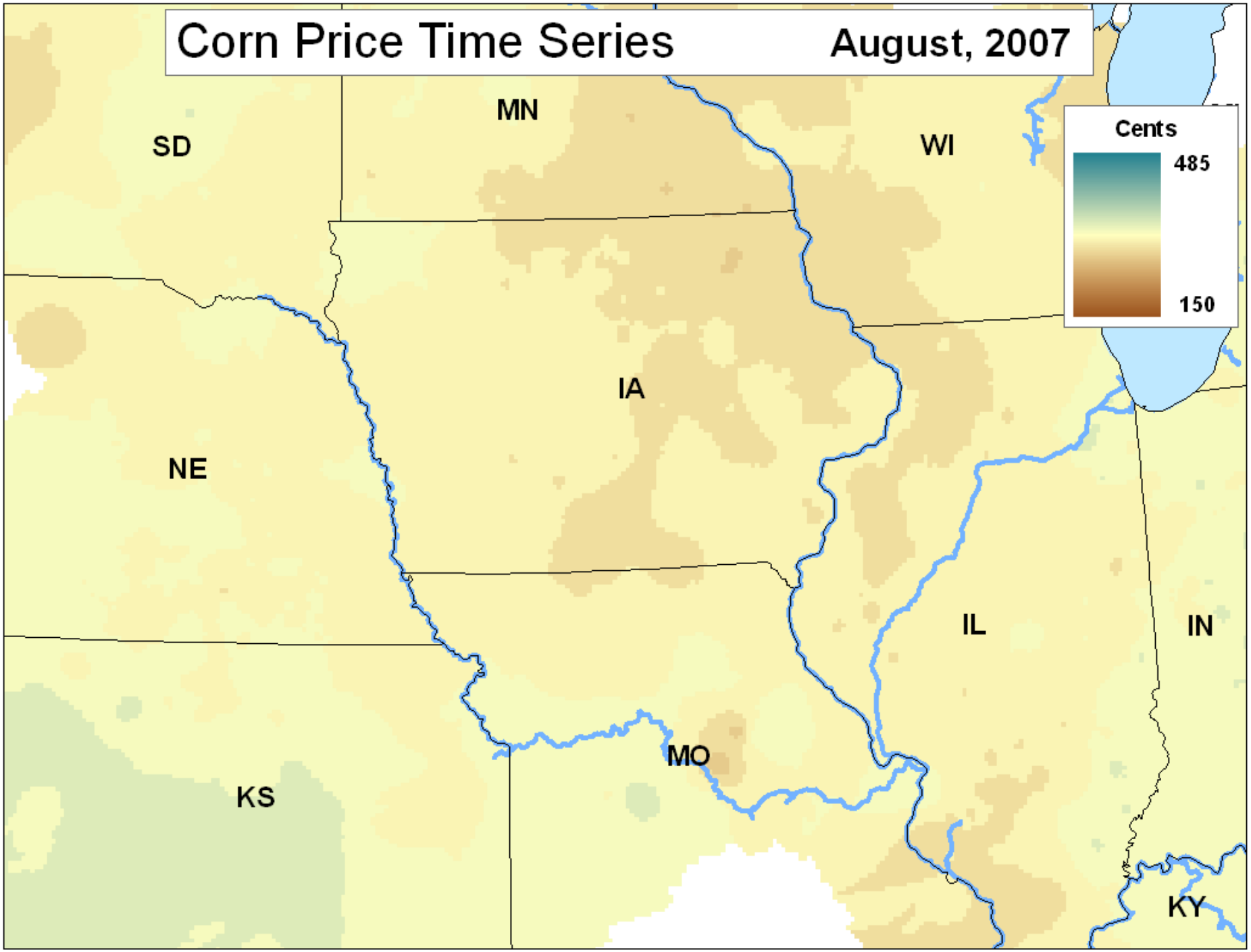
KY


Corn Price Time Series
August, 2007
Cents
485
150
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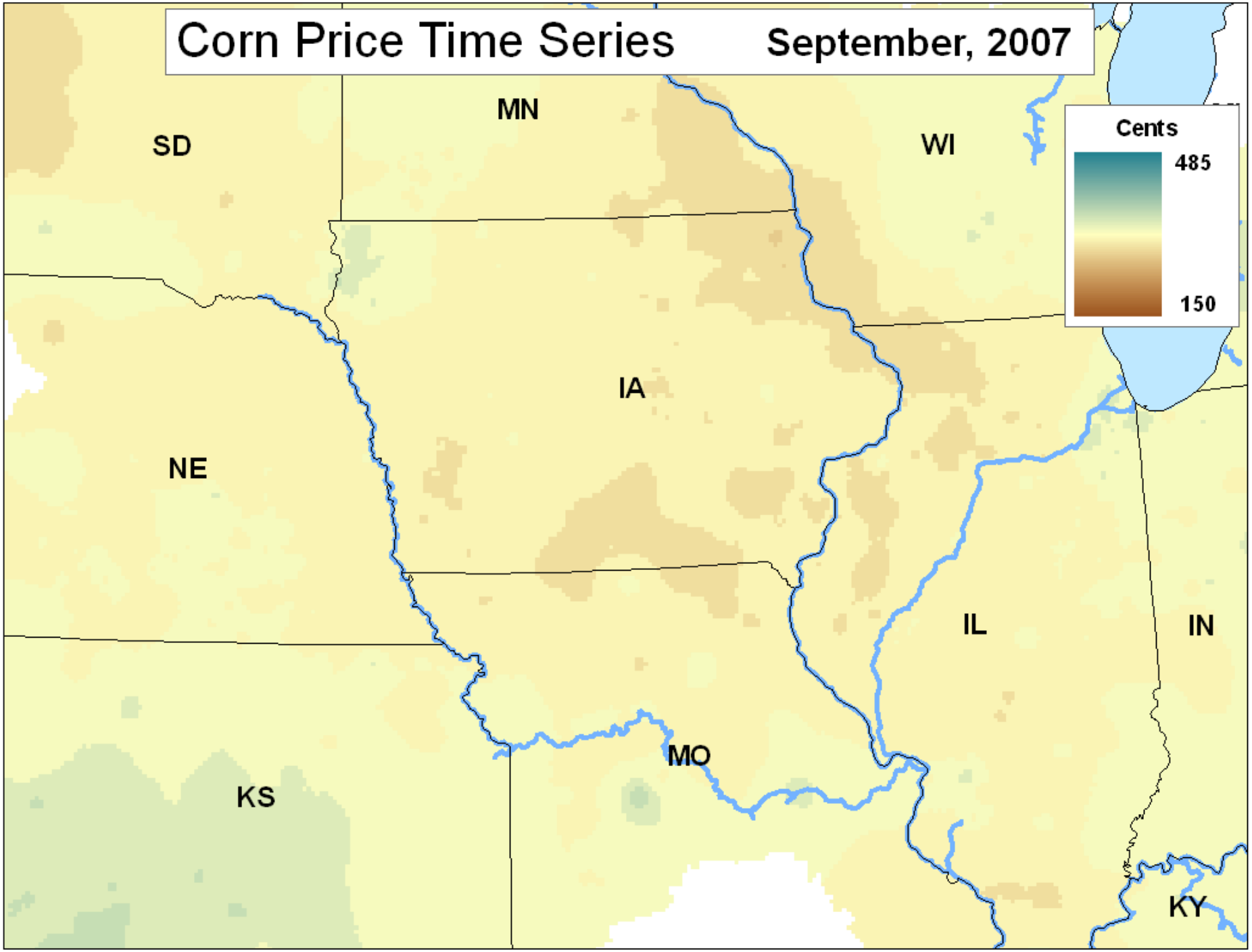
KY


Corn Price Time Series
September, 2007
Cents
485
150
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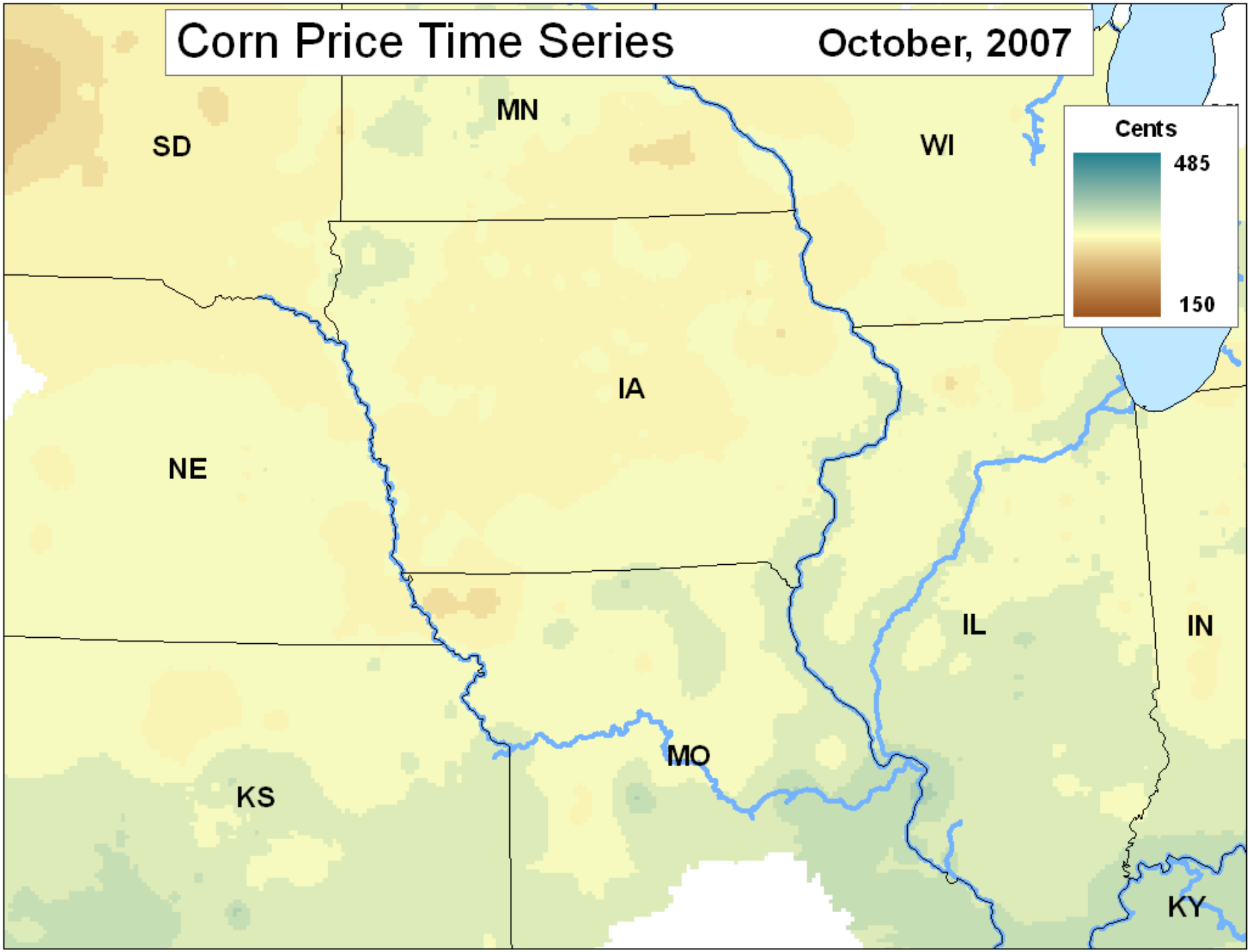
Corn Price Time Series
October, 2007
Cents
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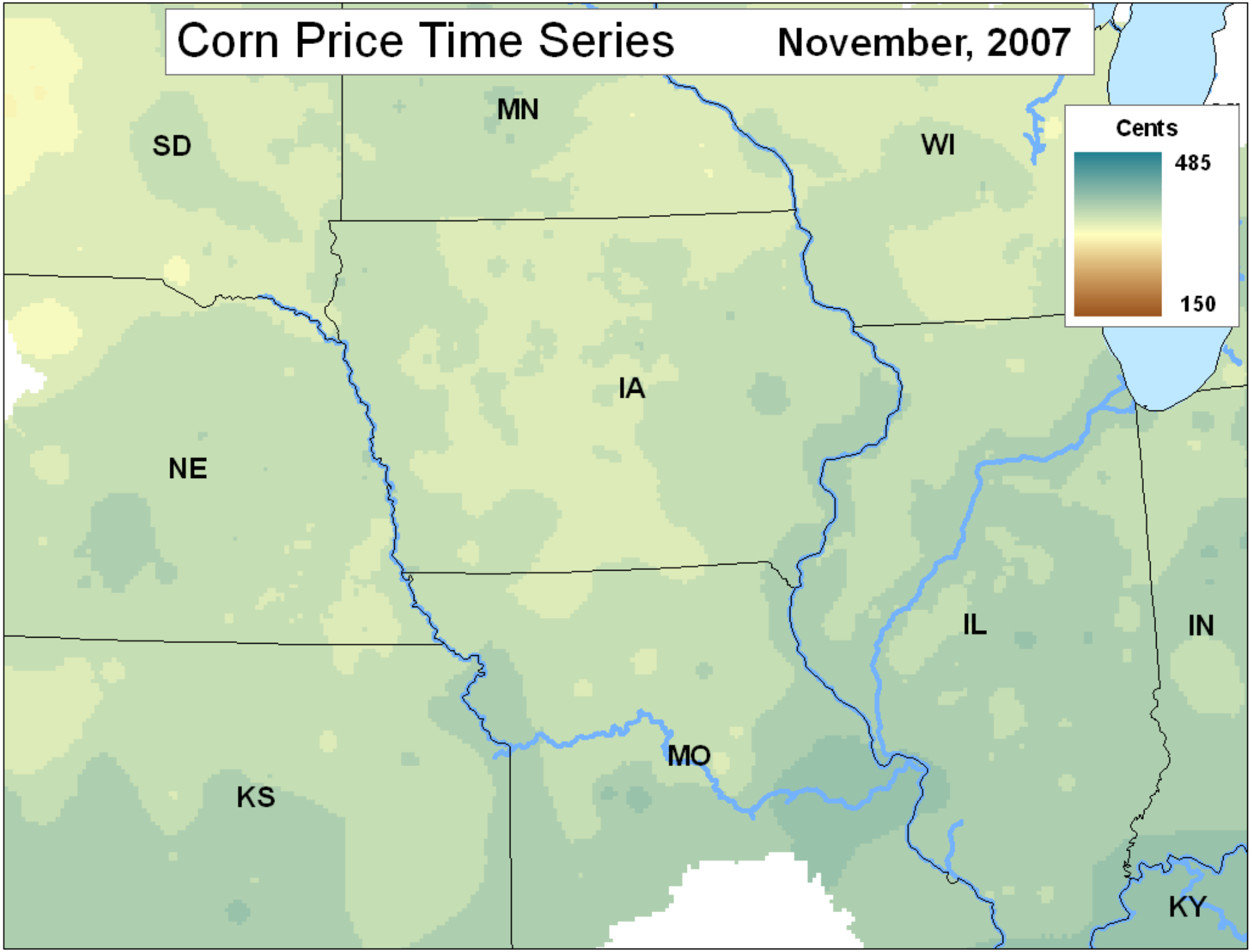
Corn Price Time Series
November, 2007
Cents
485
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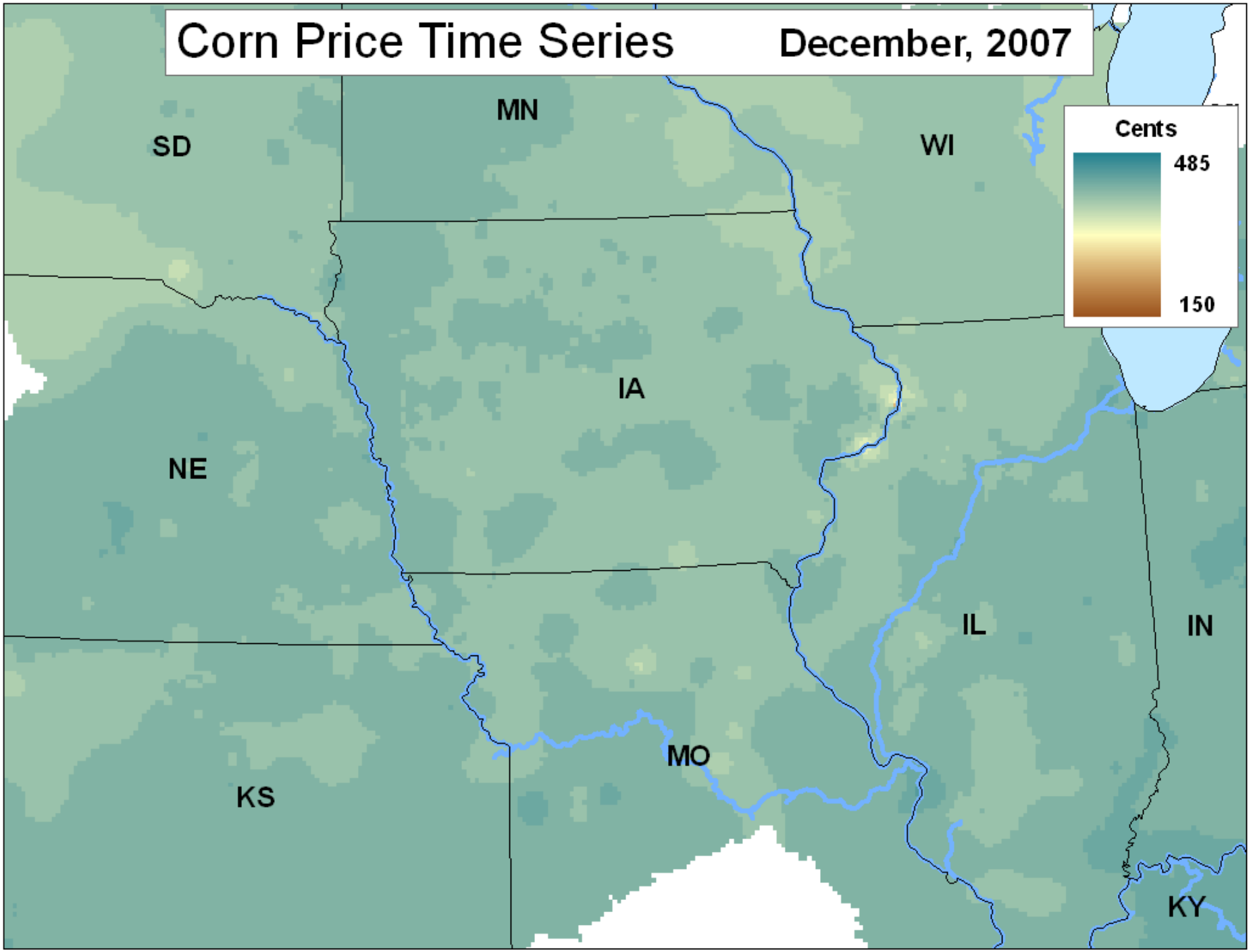
Corn Price Time Series
December, 2007
Cents
485
150
SD
MN
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KS
KY

Potential DDG consumption per head

Table 2. Potential dry distillers grains (DDGS) consumption per head, by livestock class[1]

Livestock class	Daily intake of DDGS (lbs/day as fed)[2]	Days fed/year[3]	Lbs of DDGS per animal per year[4]
Beef cows	7.22	90	650.0
Dairy cows	4.17	365	1520.8
Other cattle[5]	2.78	135	375.0
Cattle on feed	5.56	365	2027.8
Breeding swine	1.21	310	374.0
Market swine[6]	0.47	365	171.6
Breeding sheep	0.50	90	45.1
Lambs	0.38	90	34.1
Broilers	0.0207	56	1.1574
Layers	0.0325	365	11.8740
Pullets	0.0099	365	3.6261
Turkeys	0.0421	151	6.3539

[1] Intake values based on DDGS being 90% dry matter (i.e., "as fed" basis).

[2] Daily intake values calculated based on information from Johnson; Noll; and Tokach

[3] Feeding distillers grains to animals during certain periods of the year or for the entire life cycle of the animal is considered highly improbable. Hence, days are not universally 365. For example, feeding distillers grains to beef cows during the pasture season is unlikely.

[4] Values for lambs, broilers, and turkeys represent lbs of DDGS per head over life of animal

[5] Other cattle includes calves and feeder cattle (i.e., cattle that are not cows or cattle on feed)

[6] Market swine include only hogs 60 pounds and above

Source: Kevin C. Dhuyvetter, Terry L. Kastens, and Michael Boland

National DDG consumption

Table 3. U.S. livestock inventory numbers and potential DDGS consumption[1]

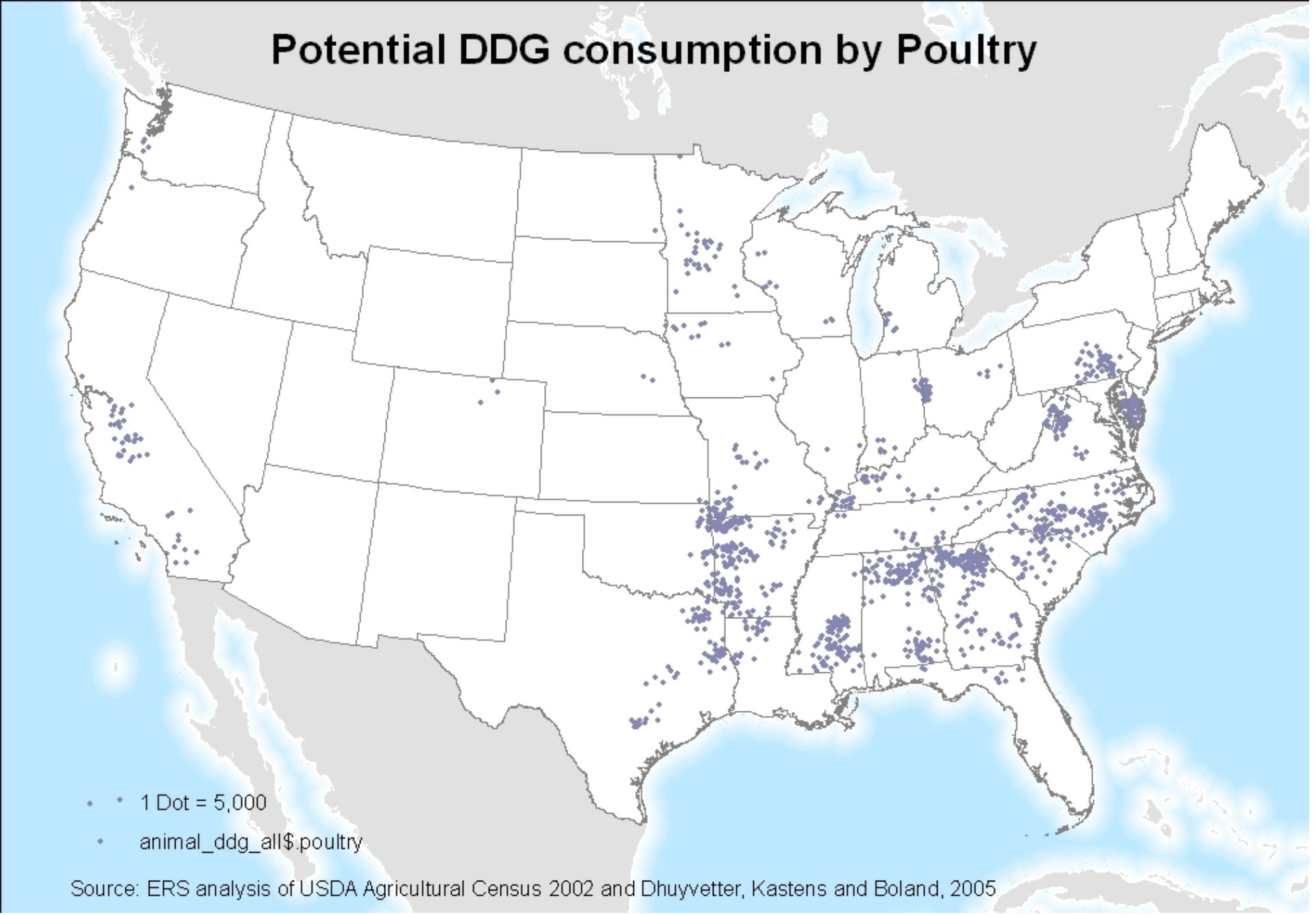
Livestock class	Annual U.S. number (1000 head)[2]	DDGS consumption (lbs/animal/year)[3]	Total DDGS (tons/year)
Beef cows	33,253	650.0	10,807,372
Dairy cows	9,099	1520.8	6,918,618
Other cattle	43,396	375.0	8,136,699
Cattle on feed	13,332	2027.8	13,517,097
Breeding swine	6,113	374.0	1,143,213
Market swine	33,742	171.6	2,895,074
Breeding sheep	4,770	45.1	107,562
Lambs	2,962	34.1	50,506
Broilers	8,545,305	1.1574	4,945,168
Layers	337,968	11.8625	2,004,573
Pullets	98,093	3.6135	177,230
Turkeys	270,746	6.3539	860,146
Total			51,563,259

[1] Intake values based on DDGS being 90% dry matter (i.e., "as fed" basis).

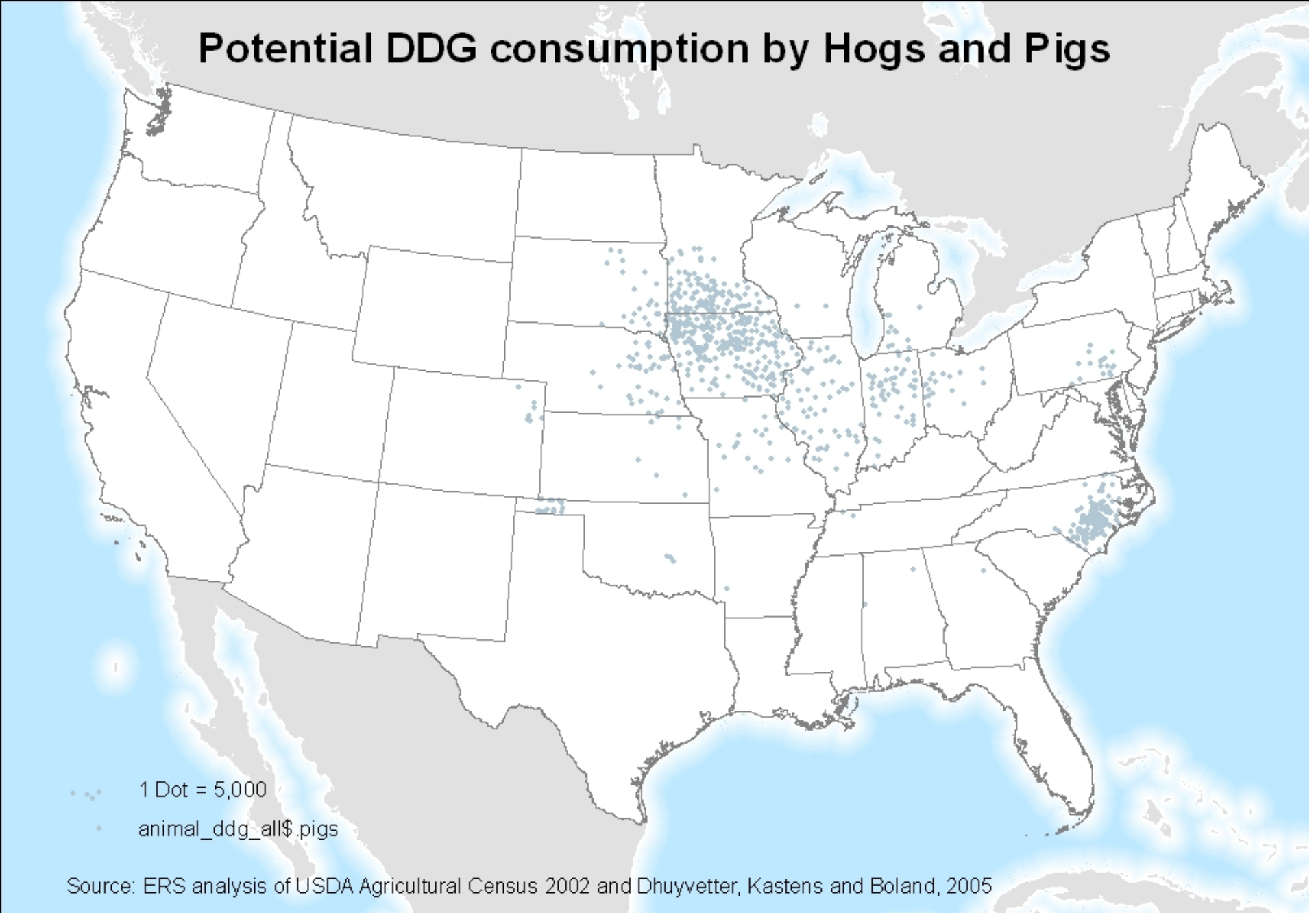
[2] Five-year (2000-2004) average U.S. inventory for all classes except broilers and turkeys which are annual U.S. production. *Source:* USDA NASS

[3] With the exception that broilers, pullets, and turkeys are pounds/bird over the life of the animal, all others are annualized lbs per animal

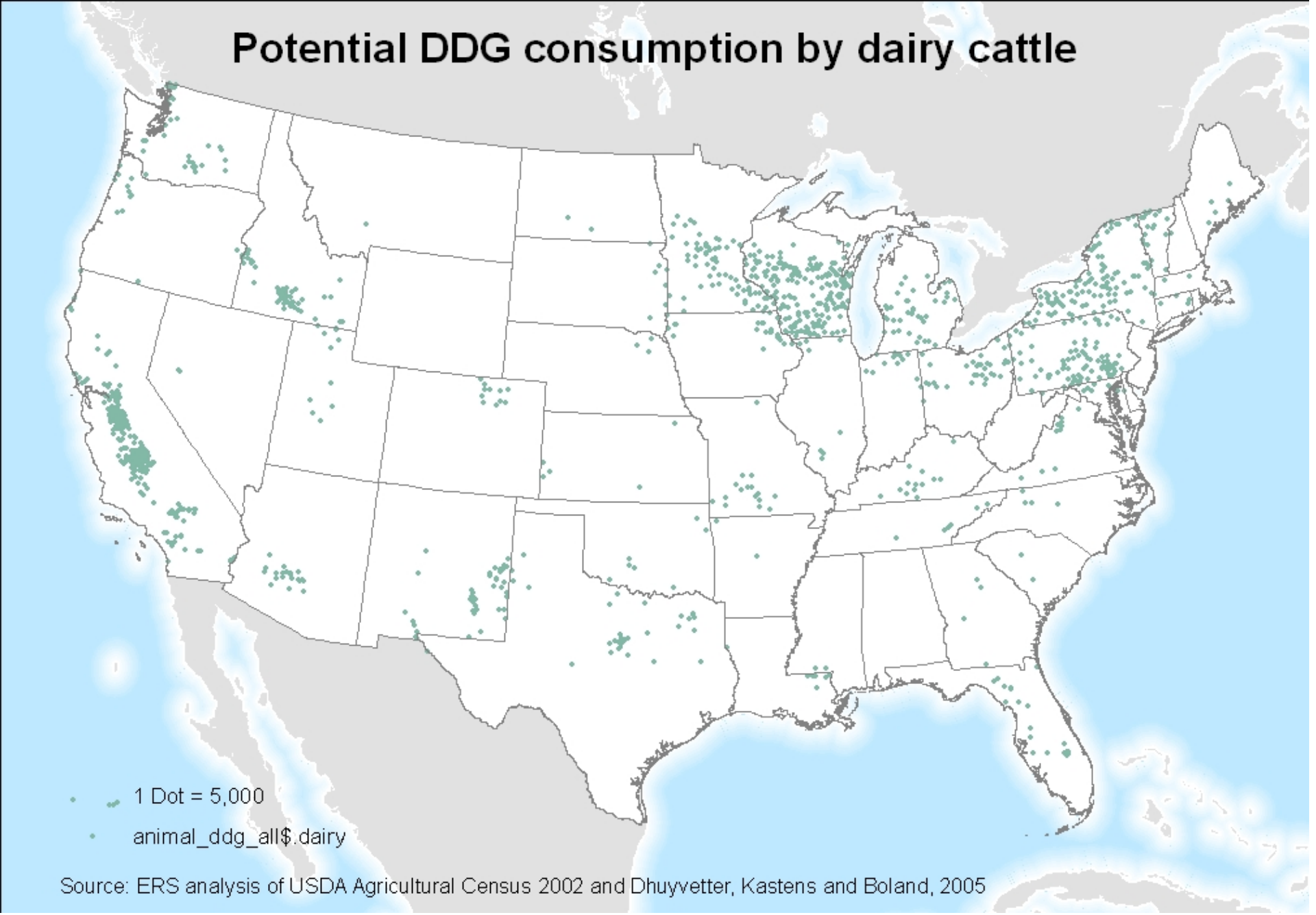
Source: Kevin C. Dhuyvetter, Terry L. Kastens, and Michael Boland



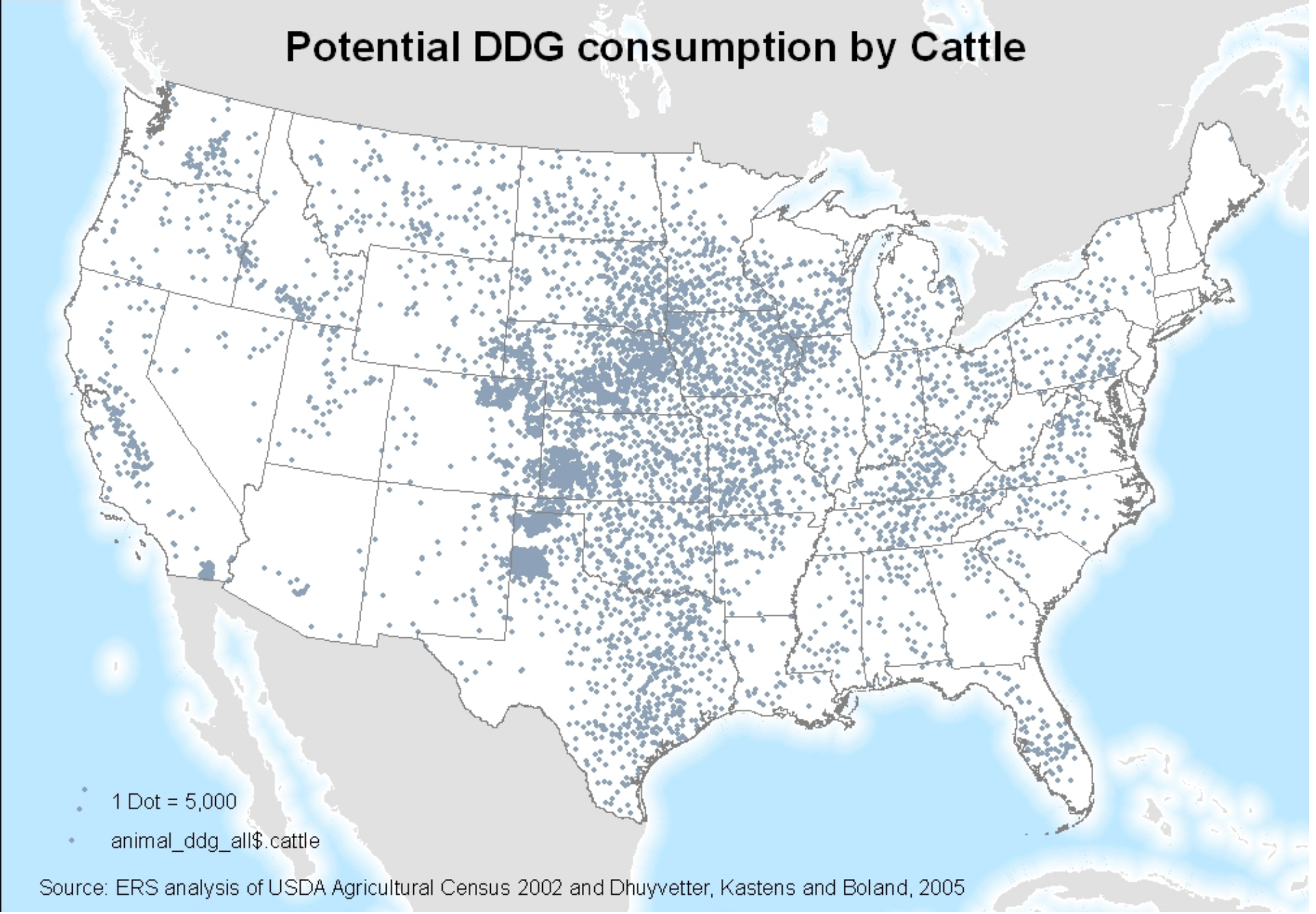
Units: Tons DDGS/Year



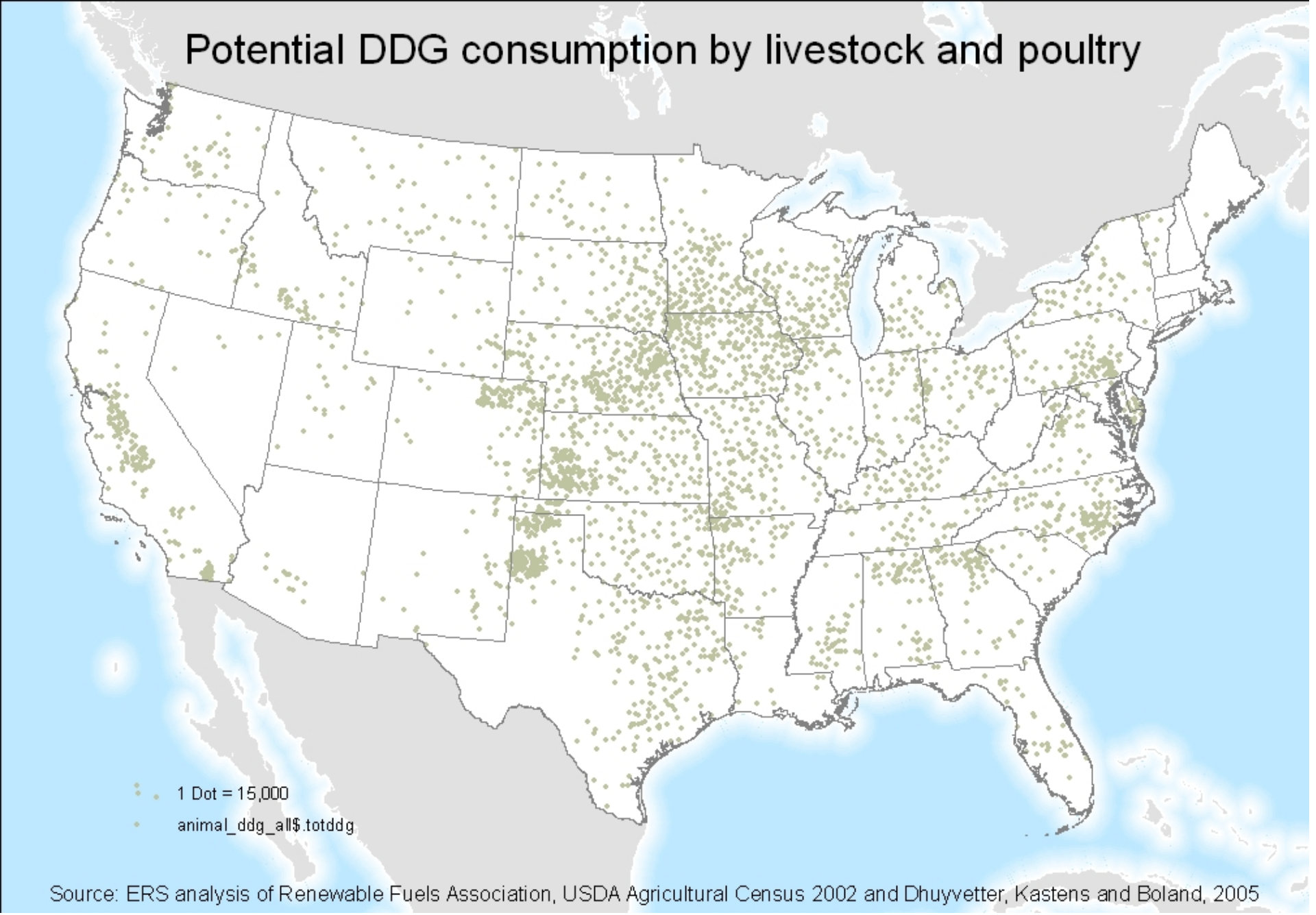
Units: Tons DDGS/Year



Units: Tons DDGS/Year

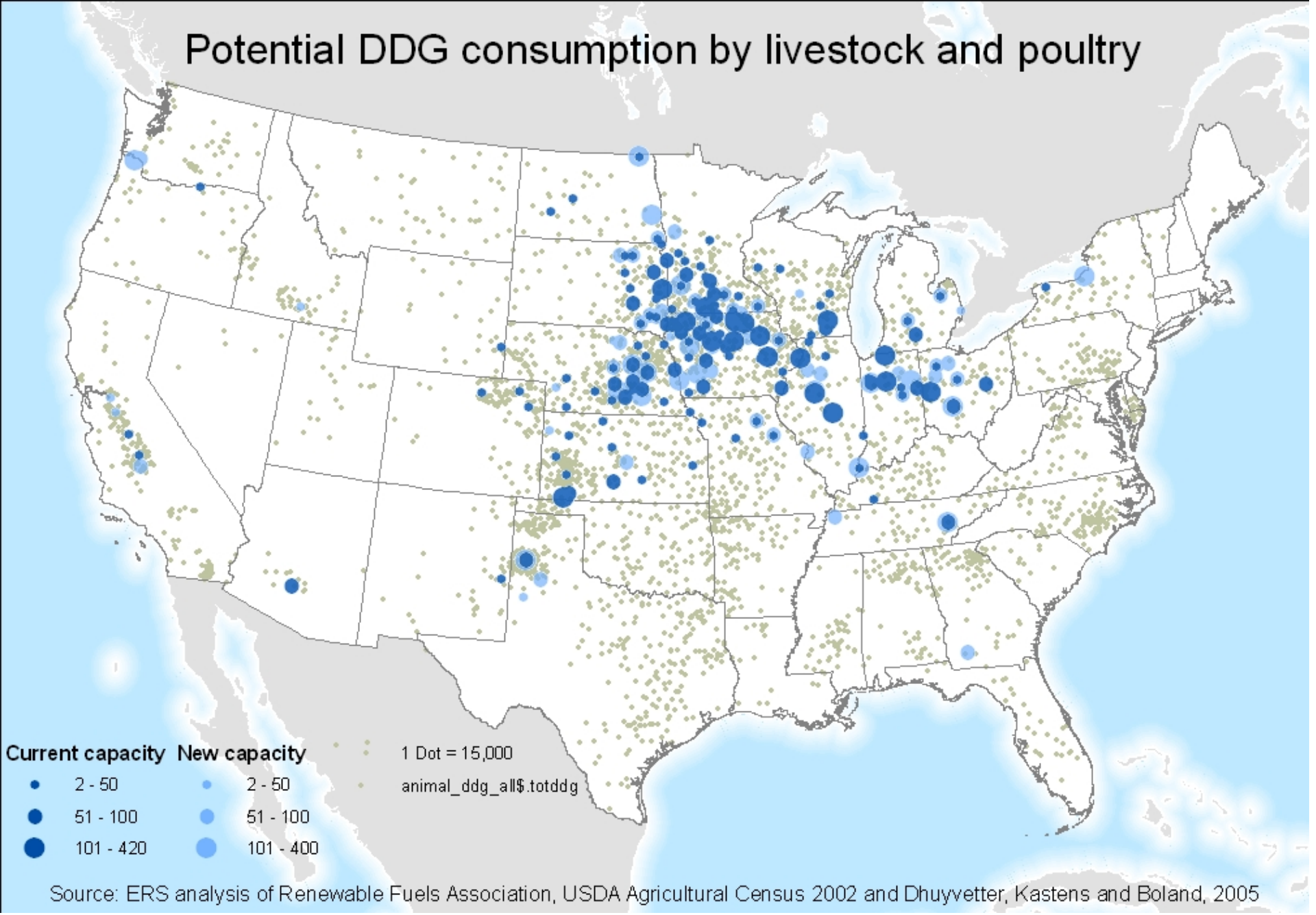


Units: Tons DDGS/Year



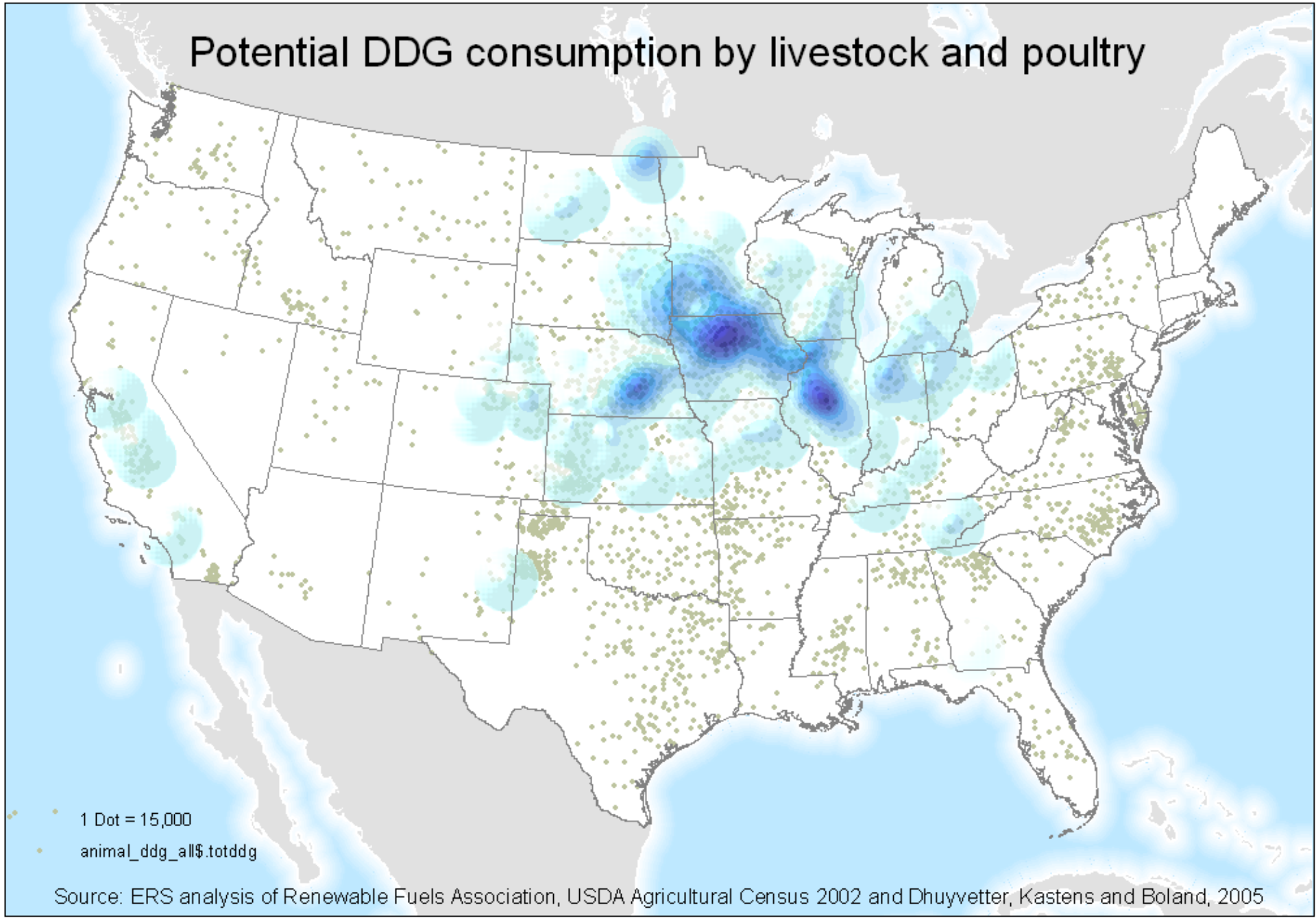
Units: Tons DDGS/Year

Potential DDG consumption by livestock and poultry



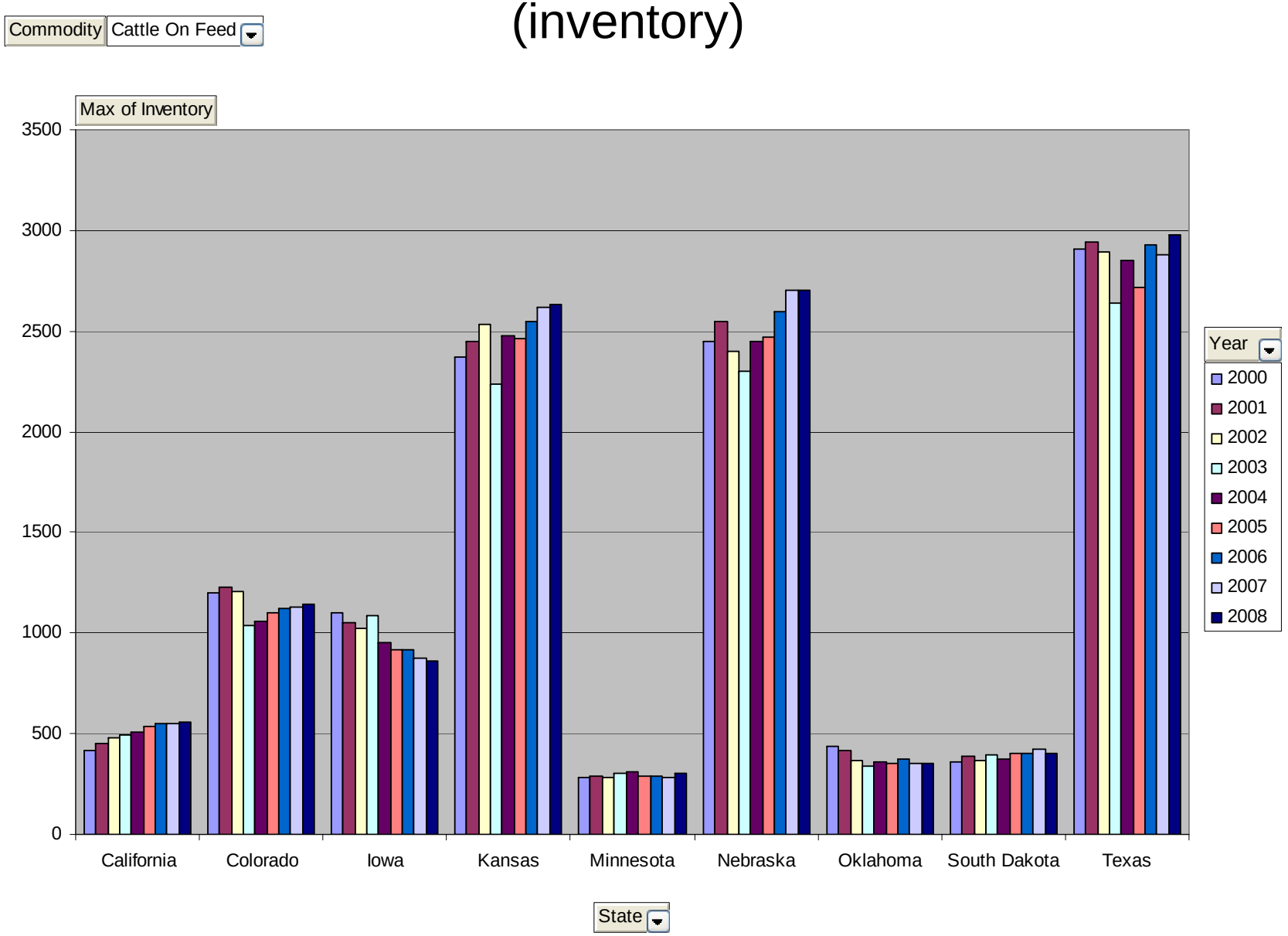
Source: ERS analysis of Renewable Fuels Association, USDA Agricultural Census 2002 and Dhuyvetter, Kastens and Boland, 2005

Potential DDG consumption by livestock and poultry

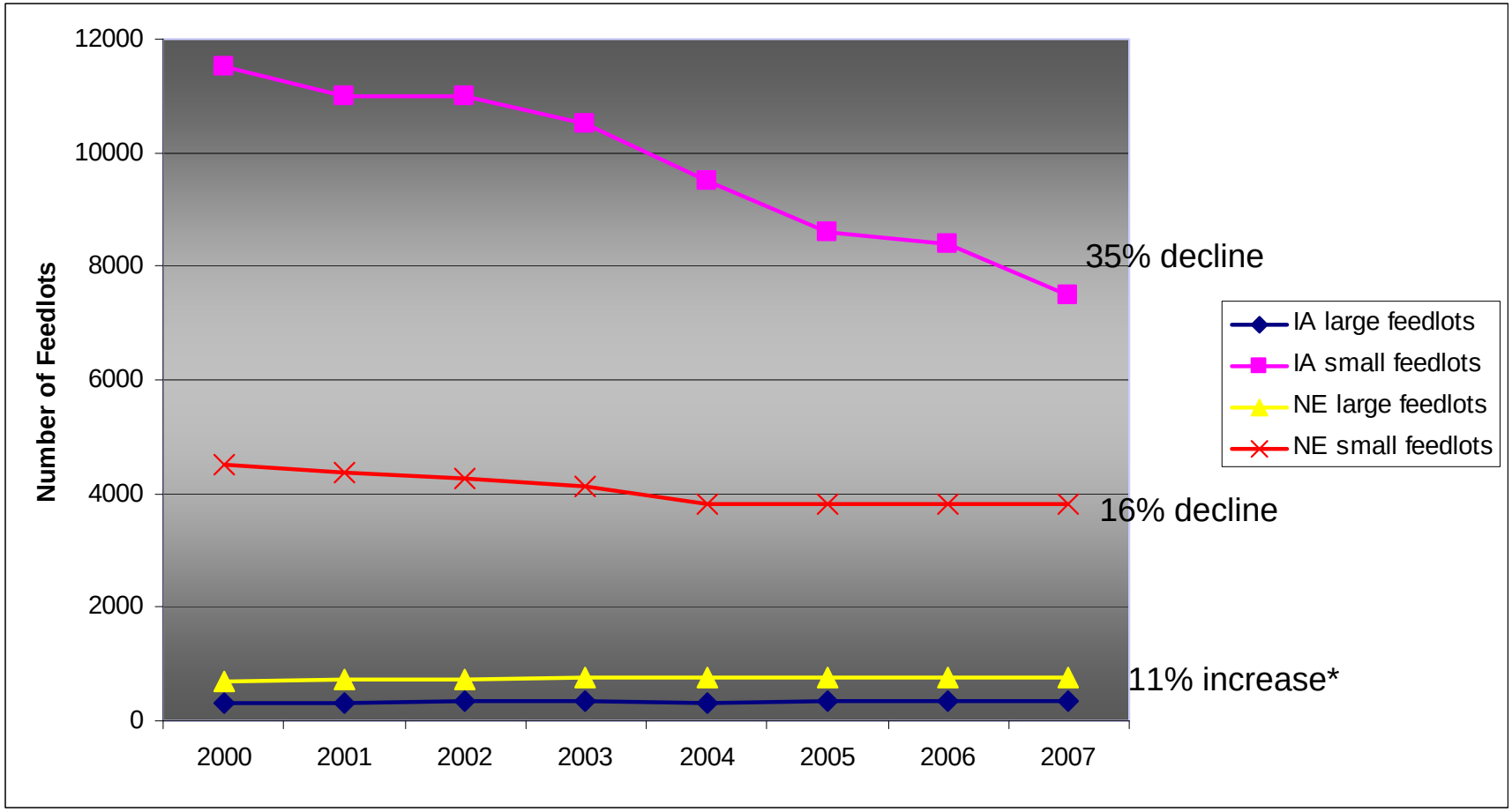


Source: ERS analysis of Renewable Fuels Association, USDA Agricultural Census 2002 and Dhuyvetter, Kastens and Boland, 2005

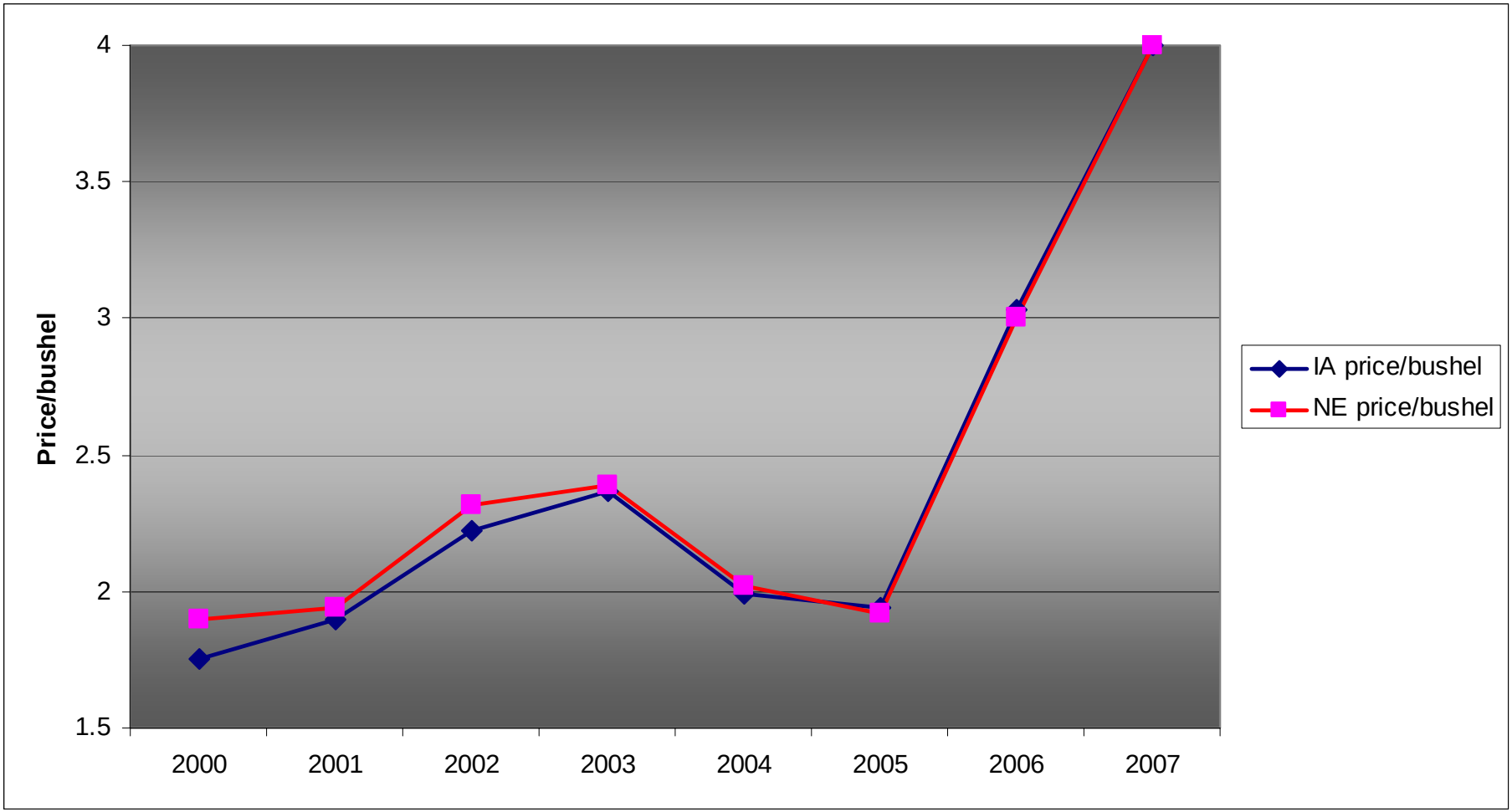
Cattle on Feed
(inventory)



Number of Feedlots



Average corn prices for NE and IA



Conclusions

- **Locational shifts in livestock operations:** There have been shifts in livestock feeding centers some growing some declining… the relationship to a growing ethanol industry is unclear
- **Locational shifts in corn ethanol operations:** There seems to be an expansion of the corn ethanol plants into livestock feeding centers
- **Scale issues:** There are fewer but larger feeding operations unclear how/if operation size affects utilization of DG's
- **Dry vs Wet DG's:** Are there advantages of feeding dry DG's vs wet DG's? Will savings in drying and transportation costs provide advantages to nearby livestock operations?
- Do ethanol plants compete with livestock operations for corn?

- 2007 ag census data may provide some clues…