

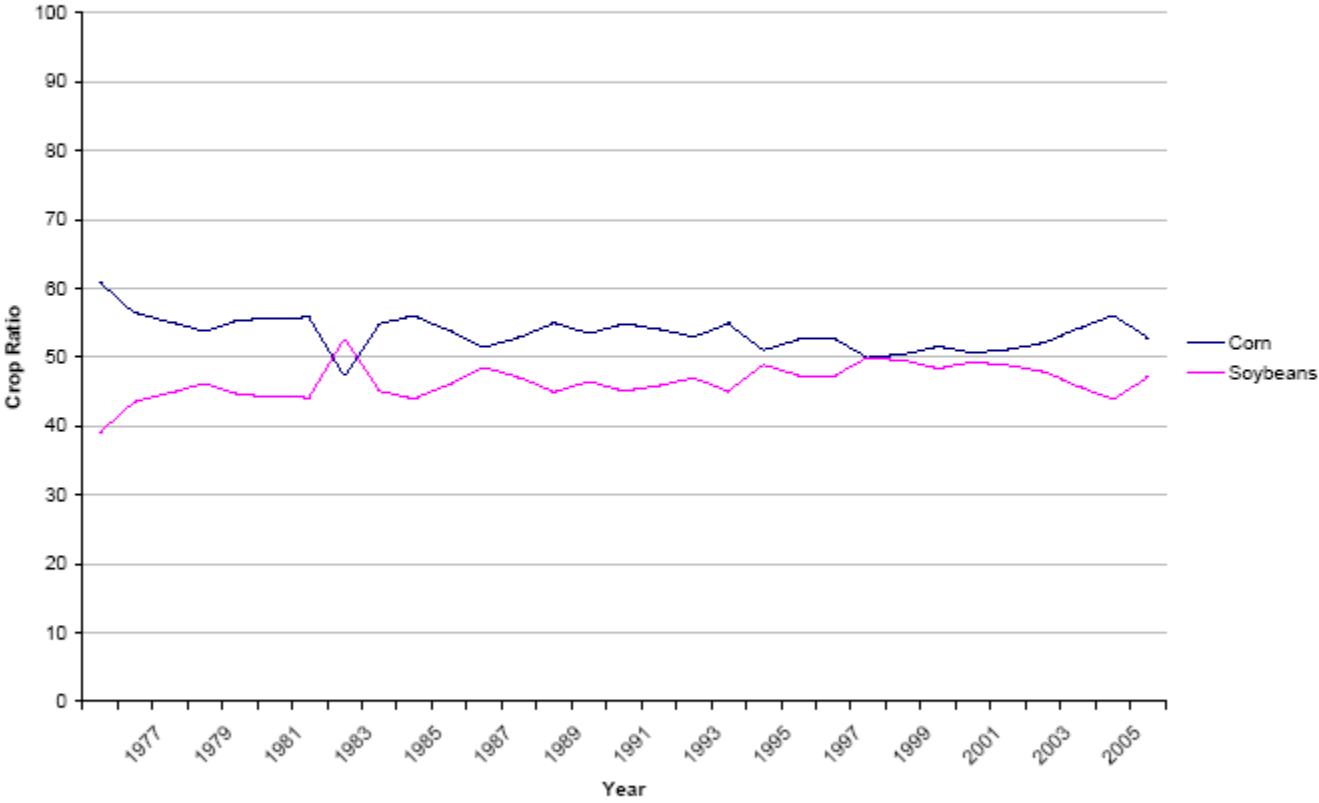
A Preliminary Look at Crop Rotation Patterns for Corn

Presented to the World Agricultural
Outlook Board
June 4, 2007

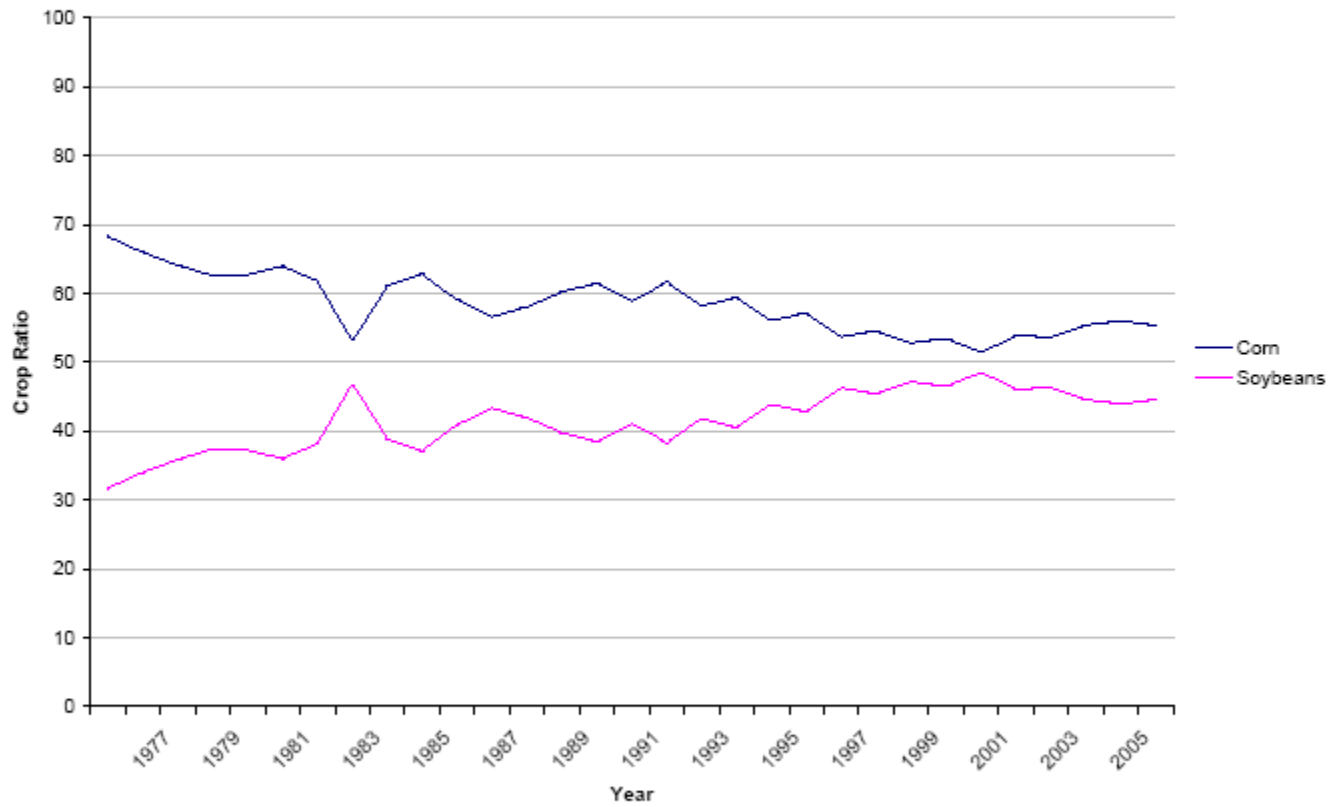
Larry Beard, Rick Mueller, Mike Craig
USDA/NASS
Spatial Analysis Research Section



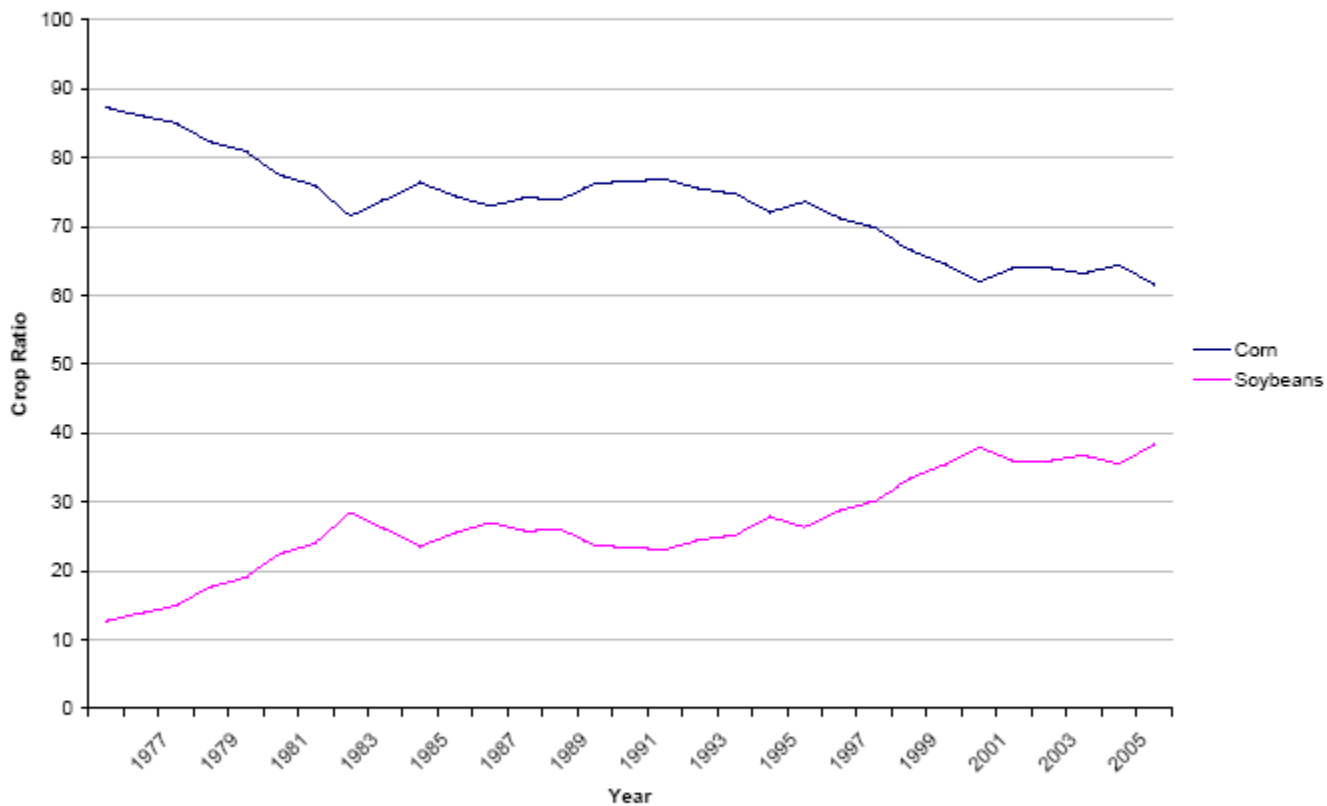
Source: Illinois NASS Planted Acreage

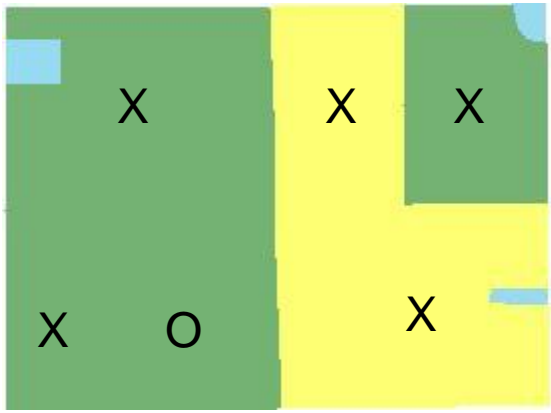


Source: Iowa NASS Planted Acreage

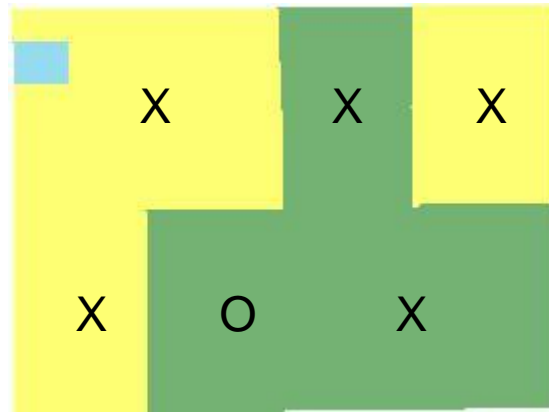


Source: Nebraska NASS Planted Acreage

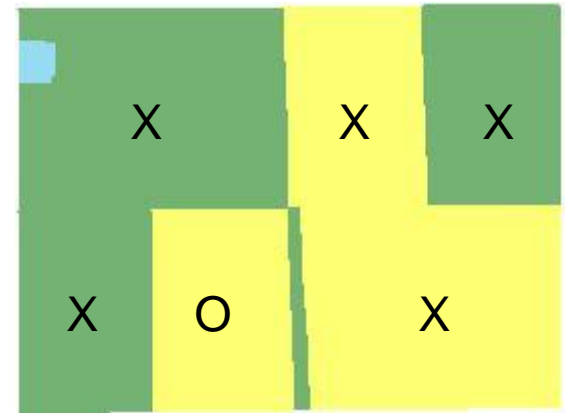




2001

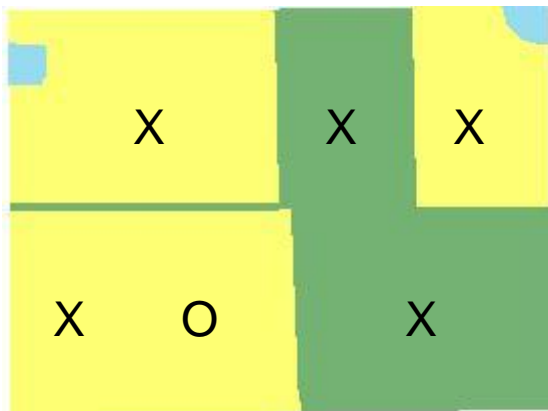


2002

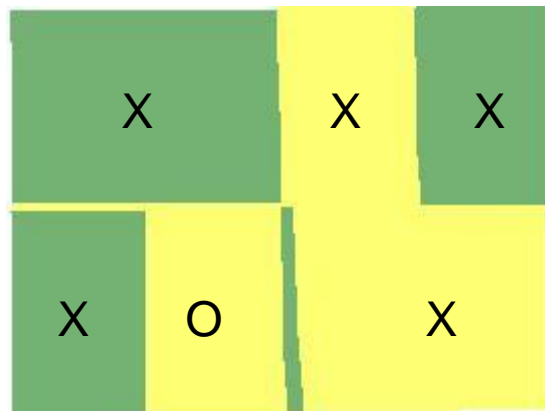


2003

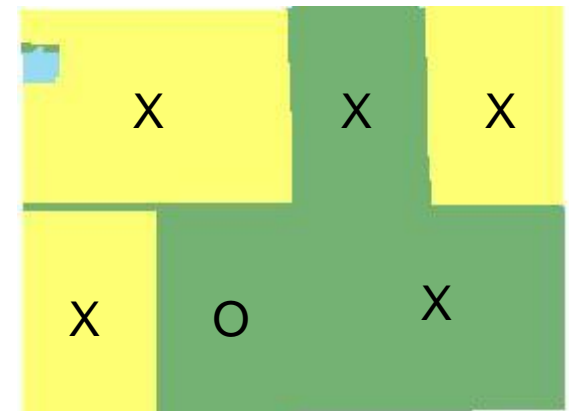
Yellow = Corn : Green = Soybeans



2004



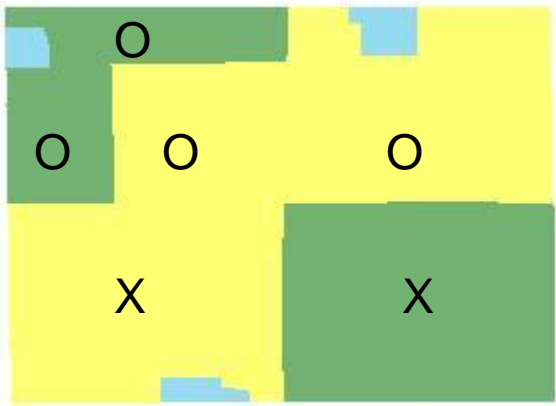
2005



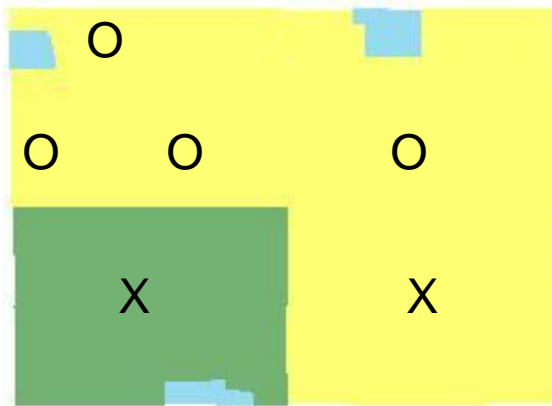
2006

Segment 1A – 'X' Corn & Soybean Alternate Each Year

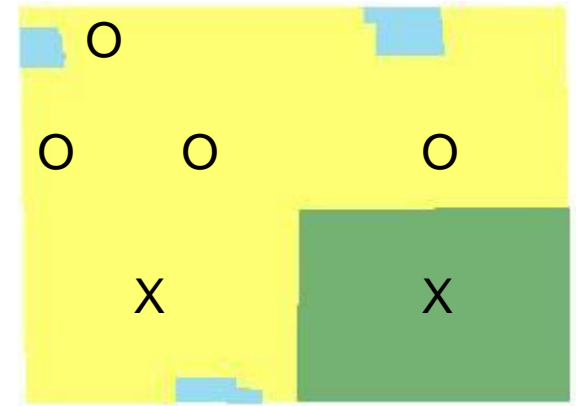
'O' Non-Alternating Rotation



2001

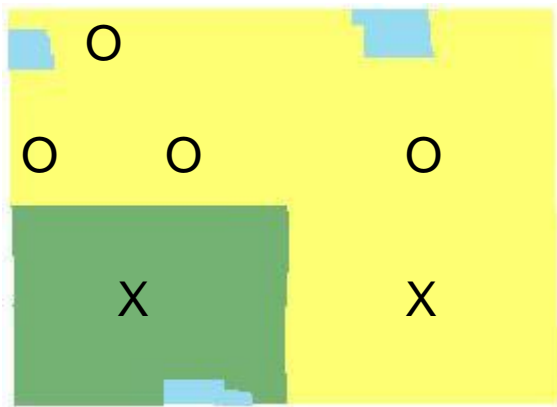


2002

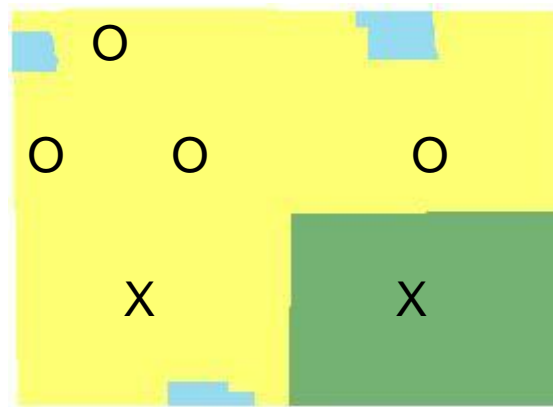


2003

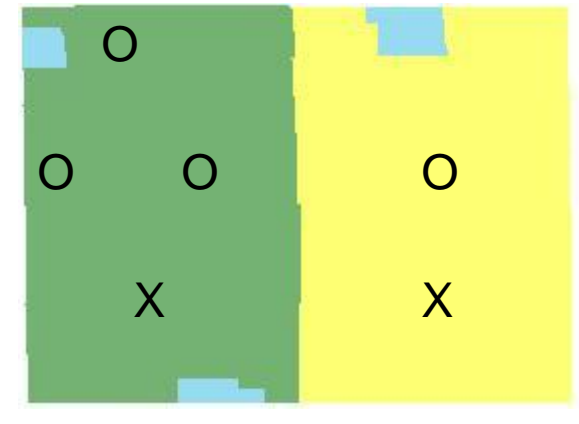
Yellow = Corn : Green = Soybeans



2004



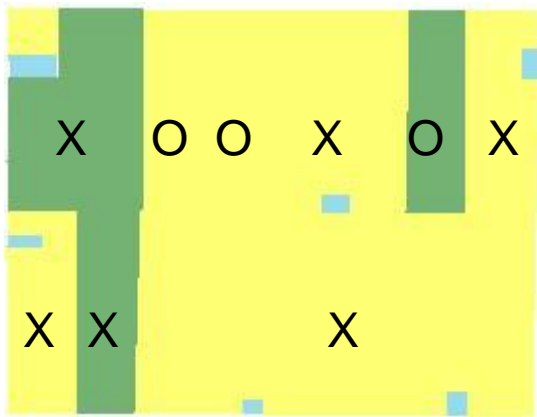
2005



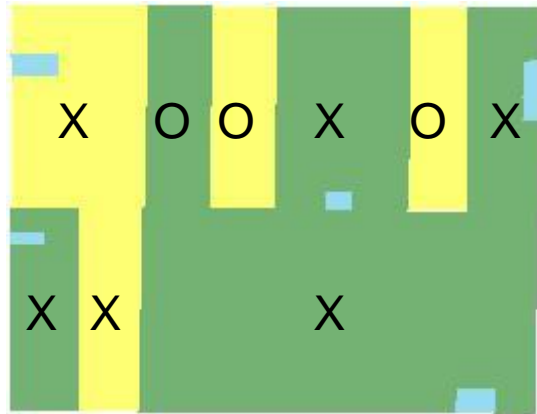
2006

Segment 1B – 'X' Corn & Soybean Alternate Each Year

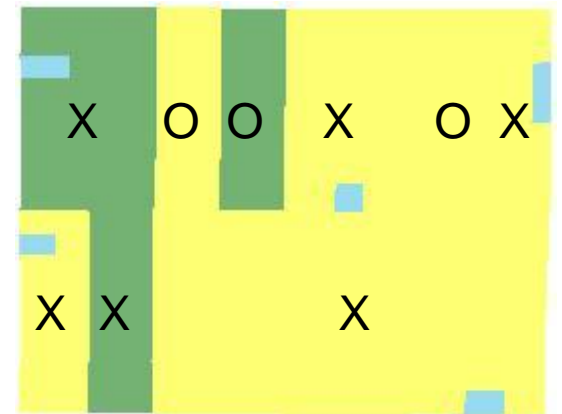
'O' Non-Alternating Rotation



2001

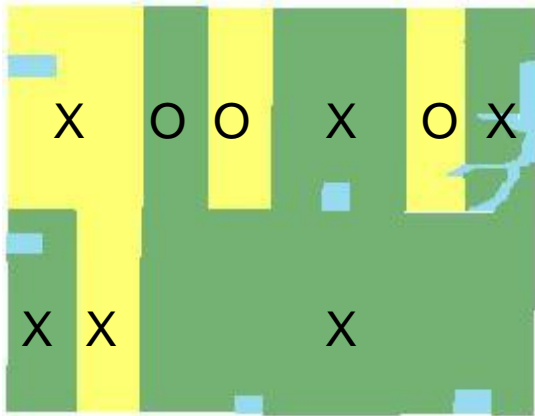


2002

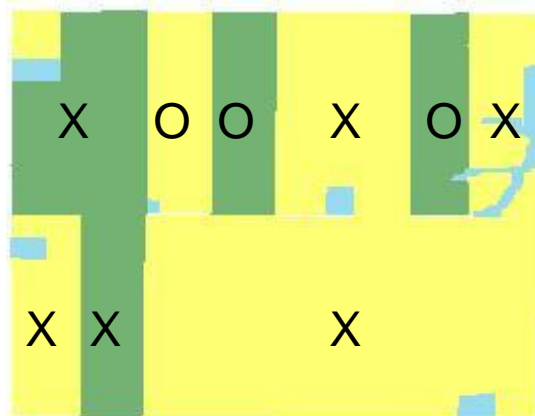


2003

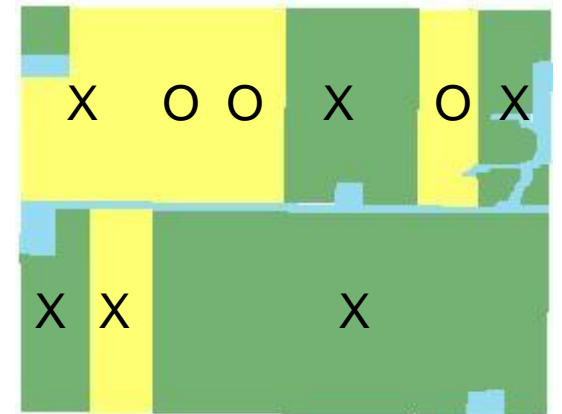
Yellow = Corn : Green = Soybeans



2004



2005

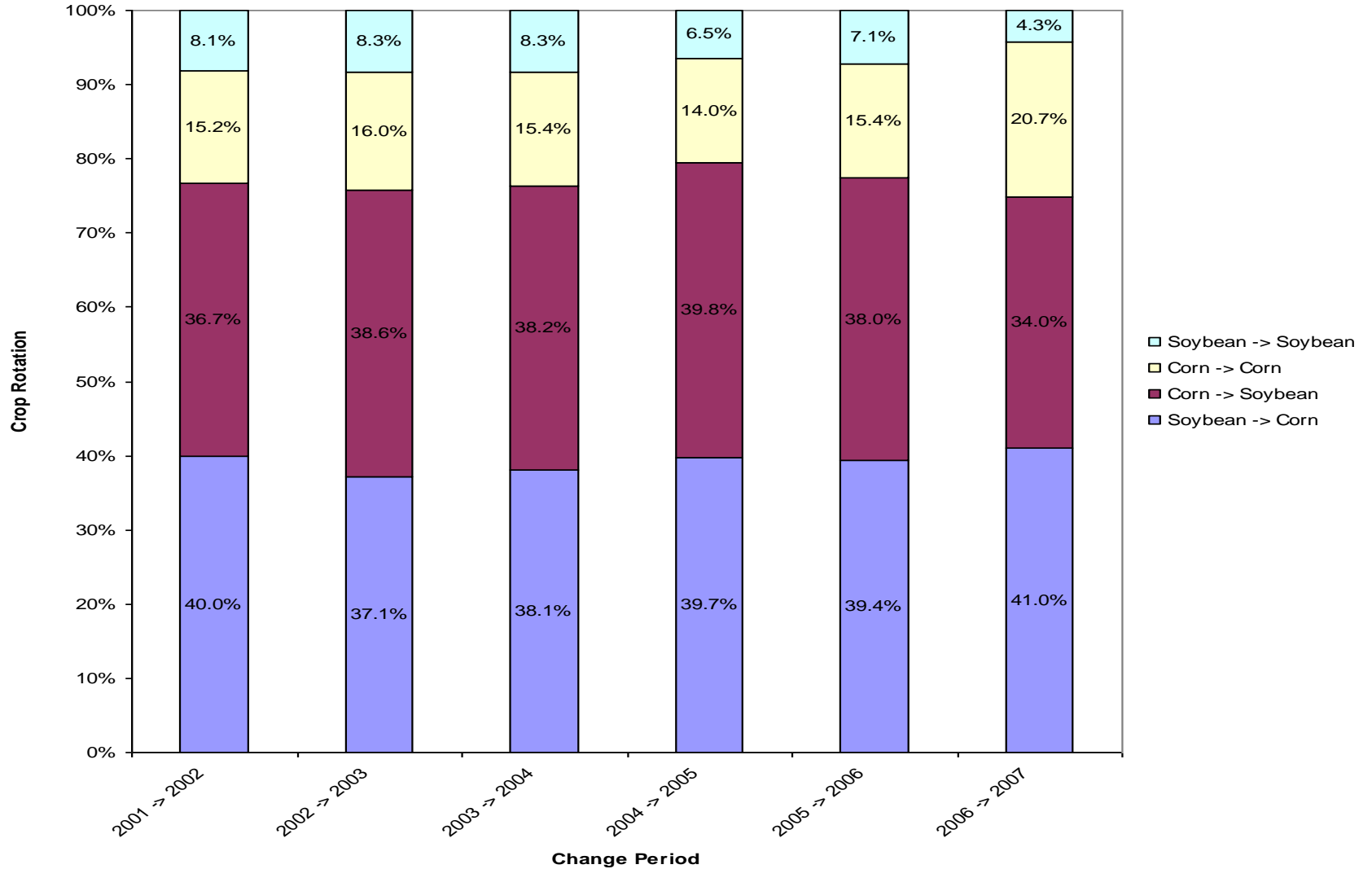


2006

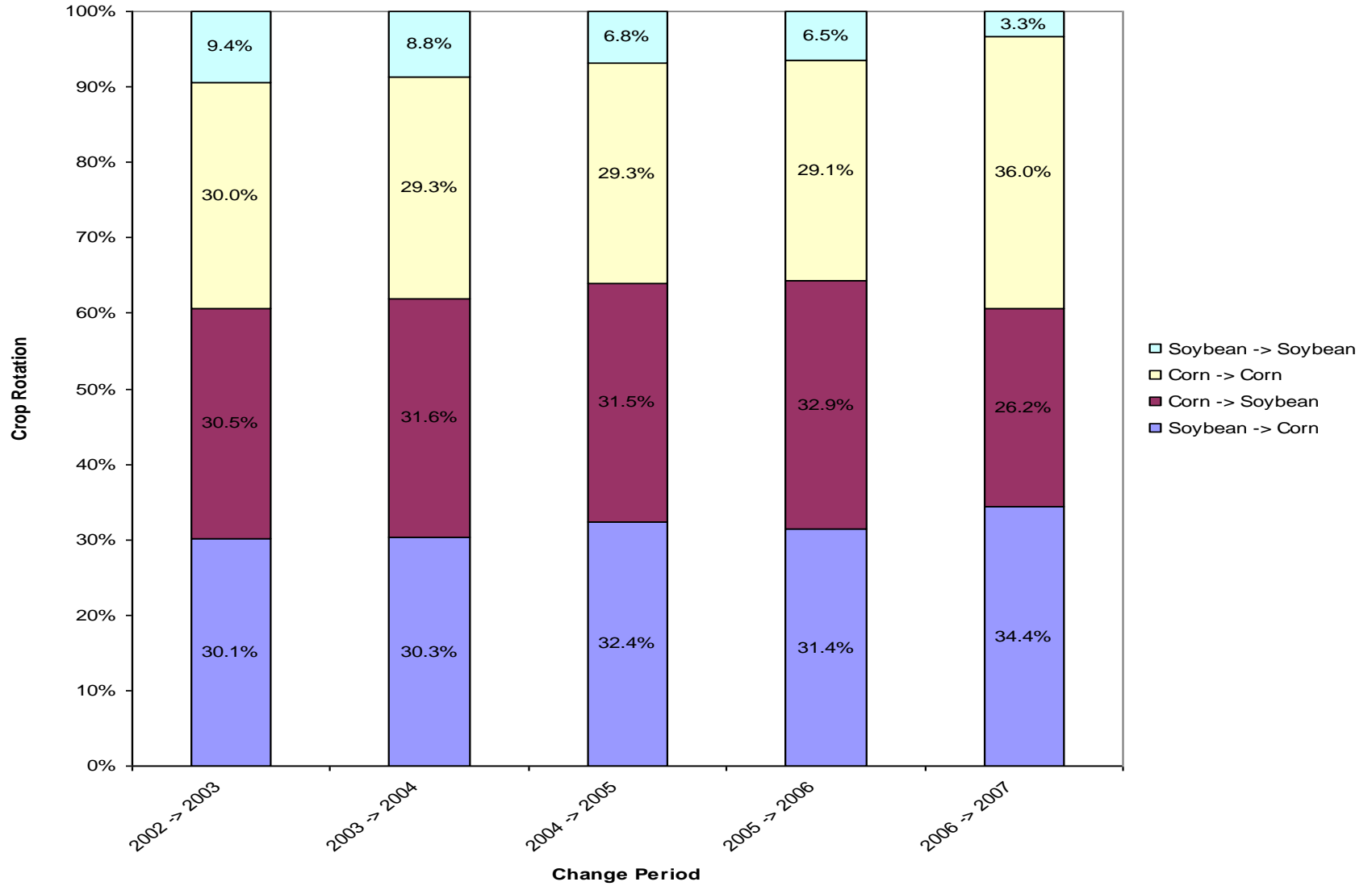
Segment 1C – 'X' Corn & Soybean Alternate Each Year

'O' Non-Alternating Rotation

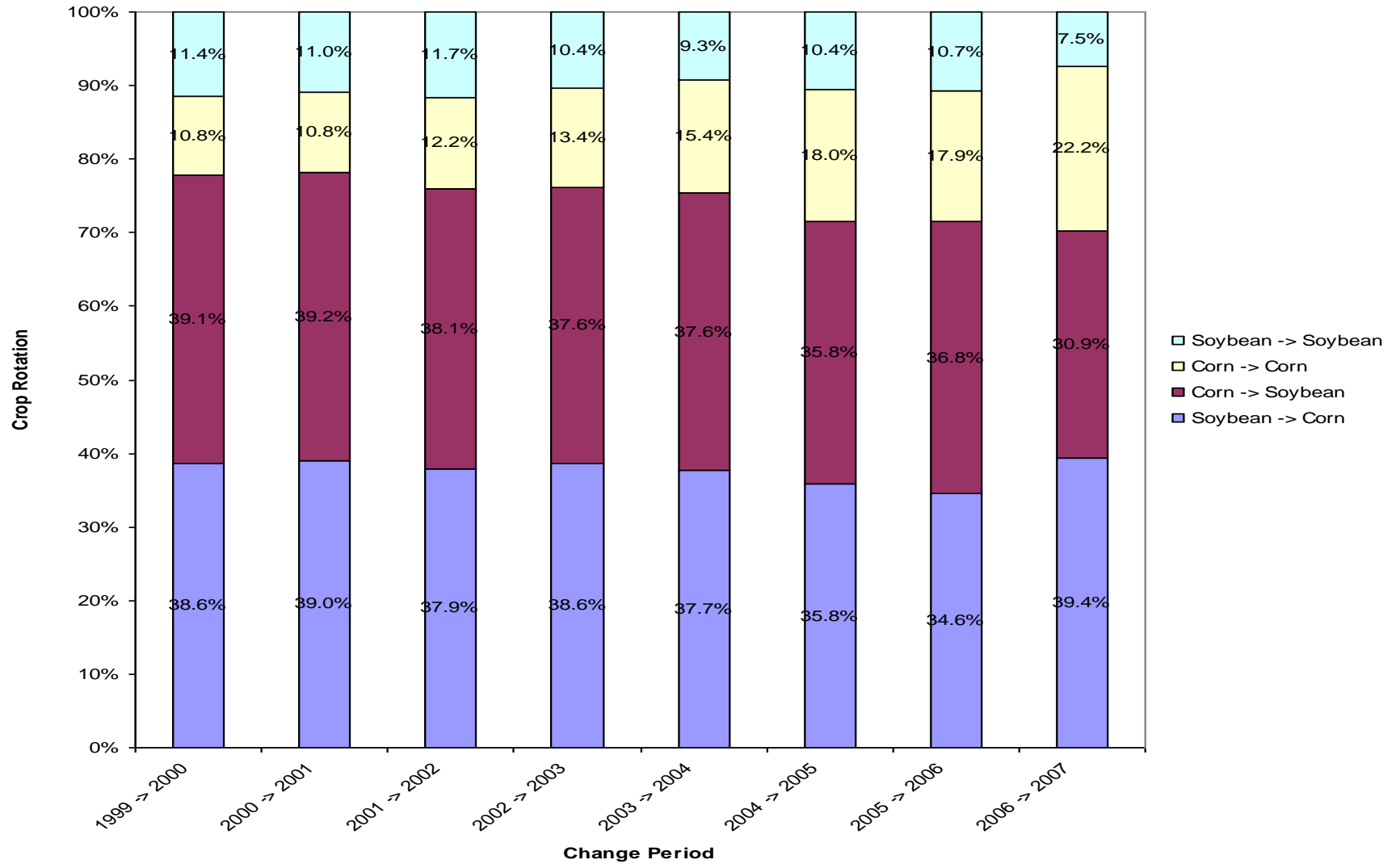
Source: Iowa 2001-2007 NASS Cropland Data Layers

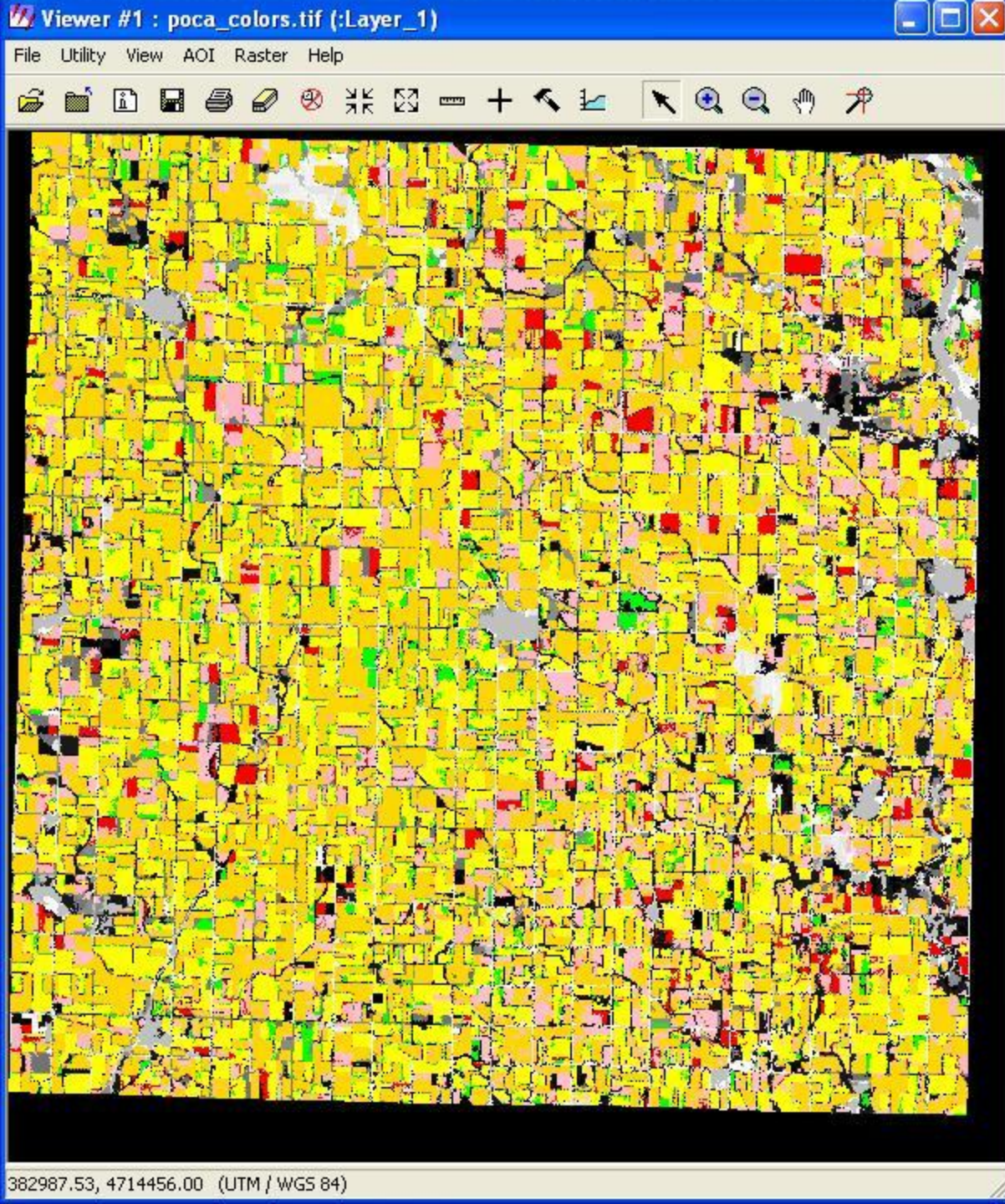


Source: Nebraska 2002-2007 NASS Cropland Data Layers



Source: Illinois 2001-2007 NASS Cropland Data Layers

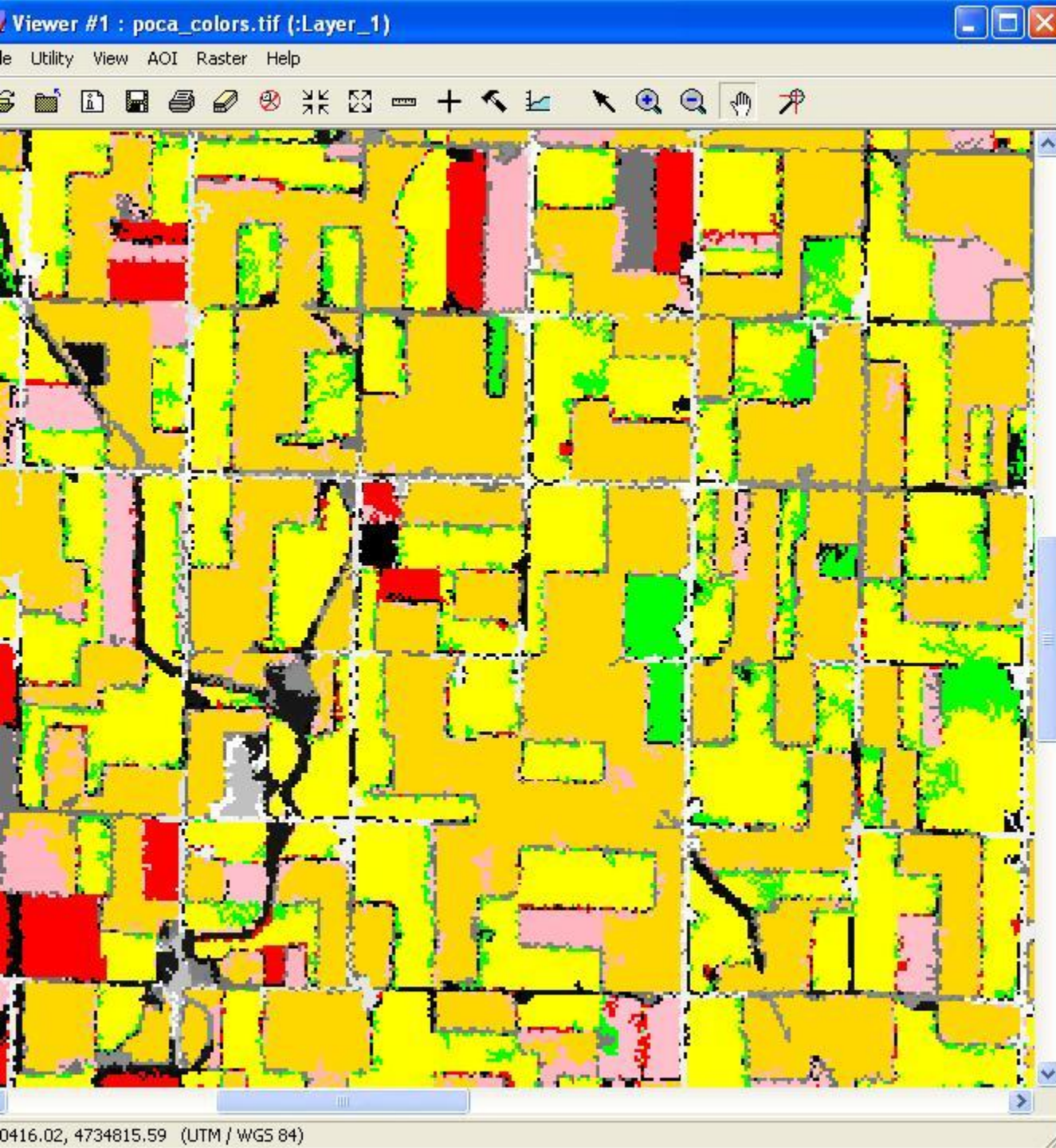




Pocahontas County,
Iowa
2001-2005

- 28.94% “12121”*
- 26.90% “21212”*
- 12.11% Cn(3)/Sb(2)
- 3.79% Cn(4)/Sb(1)
- 3.66% Cn(2)/Sb(3)
- 2.16% Other(5)

* Standard Rotations:
12121 = C/S/C/S/C
21212 = S/C/S/C/S



“Zoom”

Pocahontas County,

Iowa

2001-2005

28.94% “12121”*

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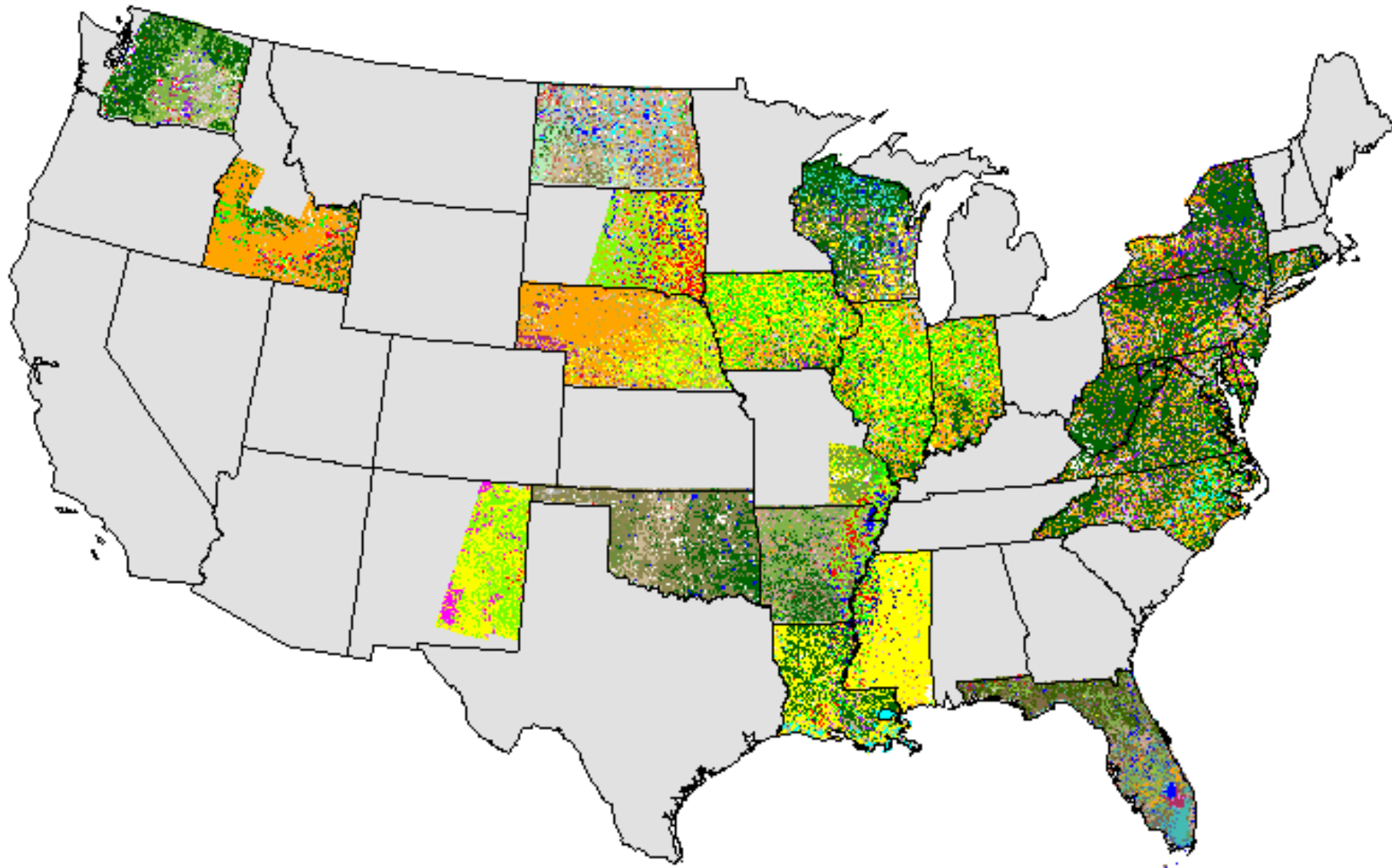
Pixels in Pocahontas County, Iowa

Number Times (Years) That:	Percent Overall (5 year period)	Percent Adjust. For Std. Pattern
Corn > Soyb	53.05	24.11
Corn = Soyb	5.12	60.95
Corn < Soyb	37.24	10.35
Usually Other	4.59	4.59
Total	100.00	100.00

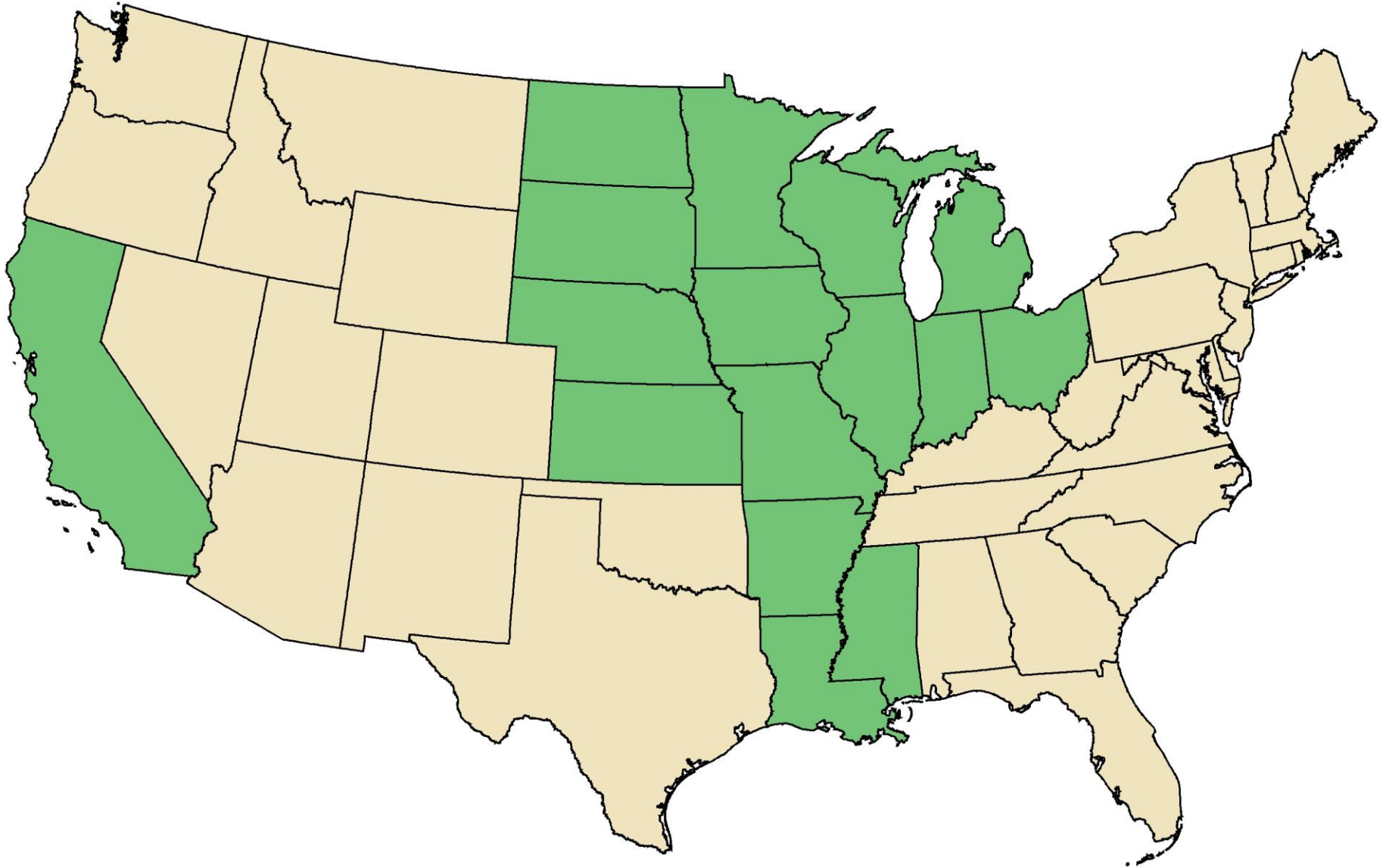
Percent of Total 'Corn + Beans' Acres Planted, Selected States

State & Year	Percent Corn	Percent Soybeans
Nebraska '01-'06	63.2	36.8
Nebraska '07 pre.	67.2	32.8
Iowa '01-'06	54.3	45.7
Iowa '07 pre.	60.2	39.8
Illinois '01-'06	52.8	47.2
Illinois '07 pre.	59.7	40.3
Arkansas '01-'06	7.9	92.1
Arkansas '07 pre.	16.2	83.8

The Cropland Data Layer Inventory 1997-2006



2007 Cropland Data Layer Coverage



Conclusions

- Although corn acreages increased significantly in 2007, corn/soybean rotation patterns for these 3 states don't appear to be radically altered. This suggests acres coming from other land uses.
- Rotation patterns vary by state
 - Official estimates show state level patterns
 - Nebraska ~ 2:1, Iowa/Illinois ~ 1:1
 - Arkansas – little or no relationship to a corn/soybean rotation
- Probability of soybean to soybean rotation is half of that for corn to corn

Conclusions

- Cropland Data Layer
 - Limited corn/soybean coverage for prior years
 - Where CDL is available, exact rotations can be extracted for display/summary
- 243 (i.e., 3^5) pattern combinations exist
 - Corn/Soybeans/Other covers over 5 years
 - All combinations have some number of pixels