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# Iowa Farm Bureau Carbon Credit Aggregation

# IOWA FARM BUREAU CARBON CREDIT AGGREGATION PROGRAM



FARMERS CAN REGISTER AND SELL CARBON CREDITS FROM AGRICULTURAL PRACTICES THROUGH THE IOWA FARM BUREAU CARBON CREDIT AGGREGATION PROGRAM

SOIL



## SOIL

- IMPROVES SOIL QUALITY AND TILTH
- CREDITS OFFERED FOR CONTINUOUS, NO-TILL, STRIP-TILL OR RIDGE-TILL CROP PRODUCTION IN ELIGIBLE AREAS
- CREDITS ALSO OFFERED FOR NEW GRASS PLANTINGS (AFTER JAN. 1 1999)
- RANGELAND IMPROVEMENT PROJECTS ELIGIBLE
- ELIGIBILITY BY ZONE



SOIL

FORESTRY



## FORESTRY

- IMPROVES SOIL RECOVERY AND DEPLETED BIODIVERSITY
- CREDITS EARNED FOR NET CARBON SEQUESTERED DURING THE CONTRACT PERIOD
- REFORESTATION OR NEW PLANTINGS (AFTER JAN. 1 1999) ON AFFORESTED LAND
- ALL AREAS OF THE U.S. ELIGIBLE



FORESTRY

METHANE



## METHANE

- ON FARM METHANE DIGESTERS
- DRASTICALLY REDUCES METHANE EMISSIONS INTO THE ATMOSPHERE
- CREDITS OFFERED FOR DIGESTERS INSTALLED AFTER JAN. 1 1999
- ALL AREAS OF THE U.S. ELIGIBLE



METHANE

FOR INFORMATION ON THESE AND OTHER IOWA FARM BUREAU ENERGY PROGRAMS PLEASE CALL 515-225-5431 OR VISIT [WWW.IOWAFARMBUREAU.COM/CARBON](http://WWW.IOWAFARMBUREAU.COM/CARBON).



# Topics to be Covered

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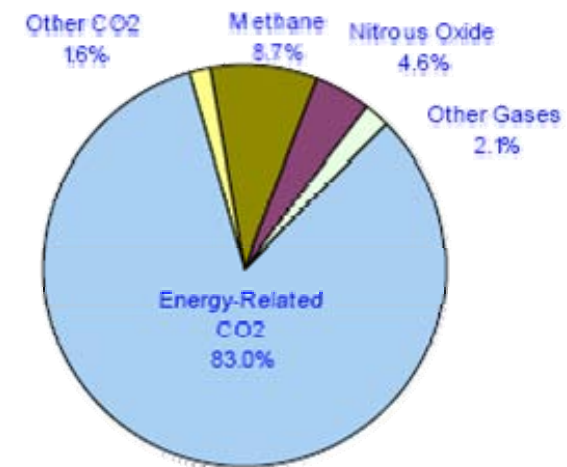
- What is Carbon Sequestration?
- Background on the Chicago Climate Exchange
- Exchange Offsets
- Exchange Offset Sales Contracts



# Greenhouse Gases

- Carbon Dioxide (CO<sub>2</sub>)
- Methane (CH<sub>4</sub>)
- Nitrous Oxide (N<sub>2</sub>O)
- Sulfur Hexafluoride (SF<sub>6</sub>)
- Perfluorocarbons (PFCs)
- Hydrofluorocarbons (HFCs)

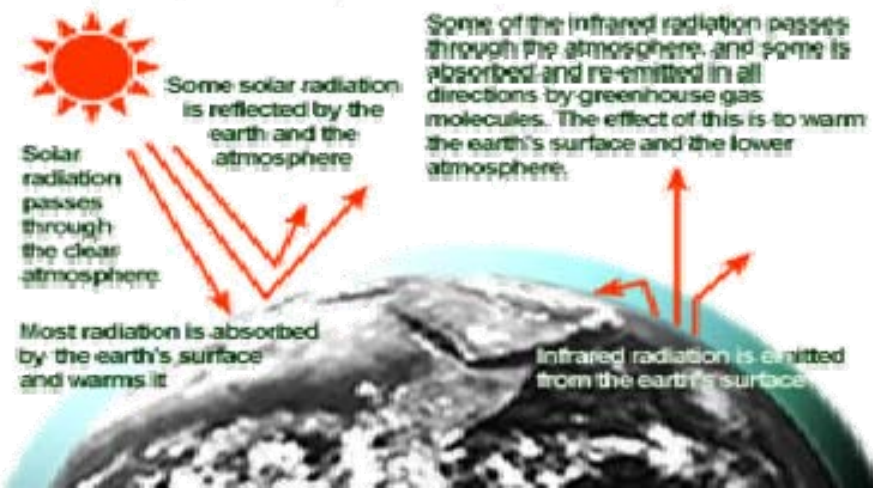
Predominant Sources of 2003 U.S. Greenhouse Gas Emissions



Source: EIA, Emissions of GHG gases in the United States 2003

- 6.9 billion metric tons CO<sub>2</sub>e total
- 545 million metric tons from CH<sub>4</sub>
- ~40 million metric tons from manure management **alone**

## The Greenhouse Effect





# What is carbon sequestration?

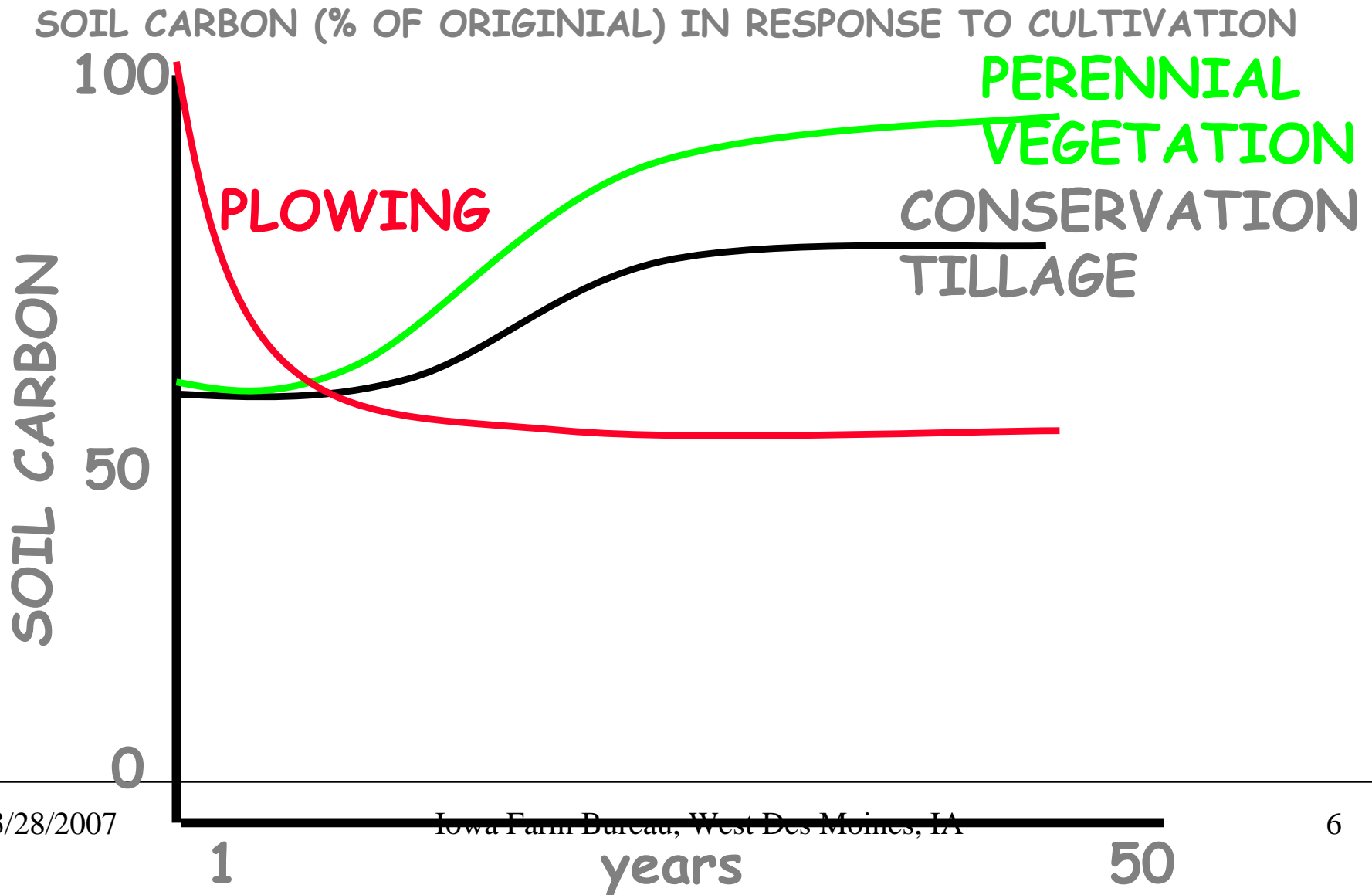
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- Transformation of atmospheric carbon to a fixed-state carbon. Land-based carbon sequestration is typically done through:
  - Forestry
  - Increased Soil Organic Matter (SOM)
    - Reduced tillage
    - Grass plantings





# SOIL CARBON DYNAMICS IN RESPONSE TO TILLAGE

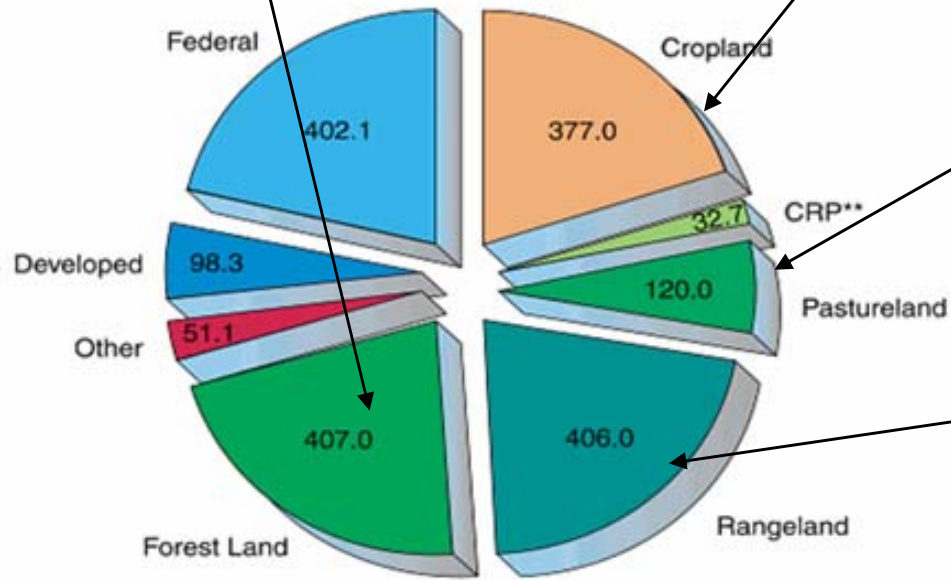




# HOW OUR LAND IS USED



Millions of Acres\*



\*Non-Federal Land 1,492 million acres, including conterminous United States, Hawaii, Puerto Rico, and U.S. Virgin Islands.

Source: USDA, Natural Resources Conservation Service, 1997 National Resources Inventory, Revised December 2000

Des Moines, IA

\*\*Conservation Reserve Program Land



# What are Carbon Credits?

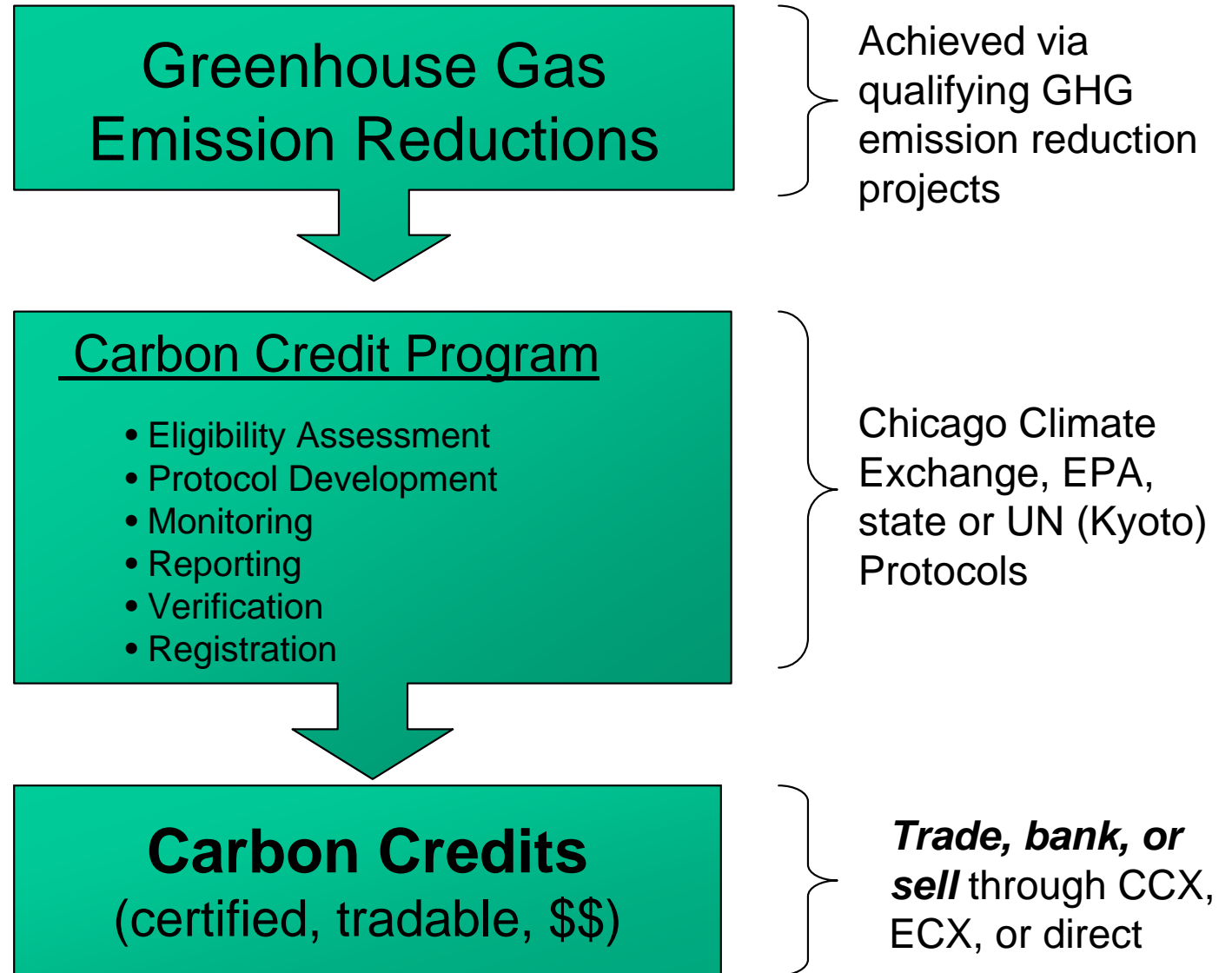
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- Carbon credits encompass two ideas:
  - (1) Prevention/reduction of carbon emissions produced by human activities from reaching the atmosphere by capturing and diverting them to secure storage.
  - (2) Removal of carbon from the atmosphere by various means and securely storing it.





# Carbon Credit Program





# The Chicago Climate Exchange

Phase 1: Pilot Project 2003 - 2006

Phase 2: Pilot Project 2006 - 2010



# The Chicago Climate Exchange®

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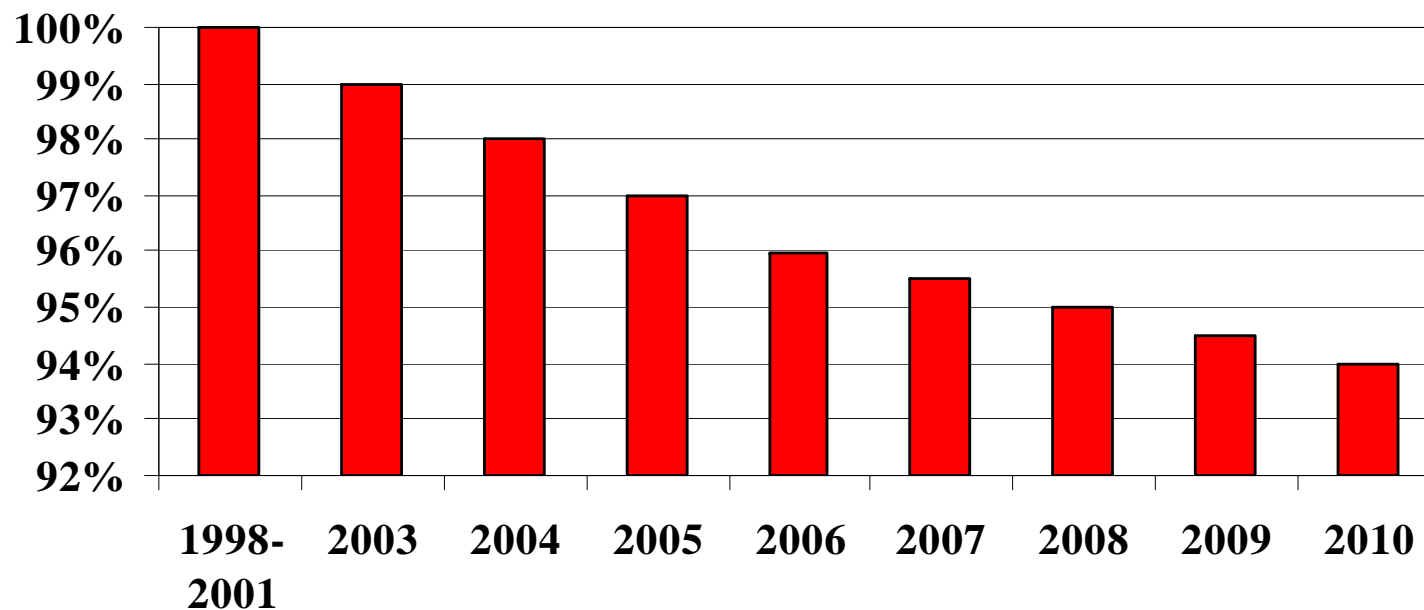
- The Chicago Climate Exchange® (CCX®) is a greenhouse gas (GHG) emission reduction and trading pilot program for emission sources and offset projects in the United States and for offset projects undertaken in Brazil. CCX® is a self-regulatory, rules-based exchange designed and governed by CCX® Members.
- These members have made a voluntary, legally binding commitment to reduce their emissions of greenhouse gases by four percent below the average of their 1998-2001 baseline by 2006, the last year of the first phase of the pilot program.



# CCX Reduction Timetable

- 2003-2006: Reduce emissions to 1%, 2%, 3%, 4% below 1998-2001 baseline
- 2006 – 2010: Reduce emissions to 6% below 98-01 baseline

**CCX Emission Reduction Schedule**







# Meeting CCX Reductions

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- Allowances (x% less than baseline)
- Own reductions
- Industry credits from excess reductions
- Offsets (no more than 50% of reduction requirement)
  - Industry
  - Agriculture
    - No-till
    - Rangeland Improvement
    - Ag Methane
  - Forestry



# XSO Eligible Land

- Land must be in the eligible project area
- Land must be capable of being cropped
  - Must be farmed with no-till, strip till or ridge till practices
  - Crop land can be in hay, but if row-cropped must be done in compliant manner
- Crop land that was recently converted to permanent grass (after Jan 1, 1999)



# Exchange Soil Offsets (XSOs)

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- Commitment to 5 years of conservation tillage
- Annual certification of compliance
- Credits transferred to FB on Jan 1
- 20% reserve held until end of pilot project
- Transfer price will be the price as determined by sale through CCX less a 10% service fee.



## Documentation For CCX<sup>®</sup> Ag sector offsets

- Enrollment form information
- legal description of acreage, practice(s) employed
- FSA maps and crop report (CCC-578)
- lessees: reasonable expectation that acres are under control through 2010.
  - *Failure to keep land in compliance throughout the pilot program voids all credits on non-compliant land during the pilot program.*
- Submit annual signed attestation to aggregator
- acknowledge that CCX verifiers will be given access to fields and CCX documents





# Definition of Conservation Tillage

- For CCX purposes these practices are as defined in the Natural Resources Conservation Service National Handbook of Conservation Practices.
- No-till/Strip-till - Managing the amount, orientation, and distribution of crop and other plant residue on the surface year-round while growing crops in narrow slots or tilled or residue-free strips in soil **previously untilled by full width inversion implements**;
- Ridge-till - Managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round while growing crops on preformed ridges alternated with furrows protected by crop residue.

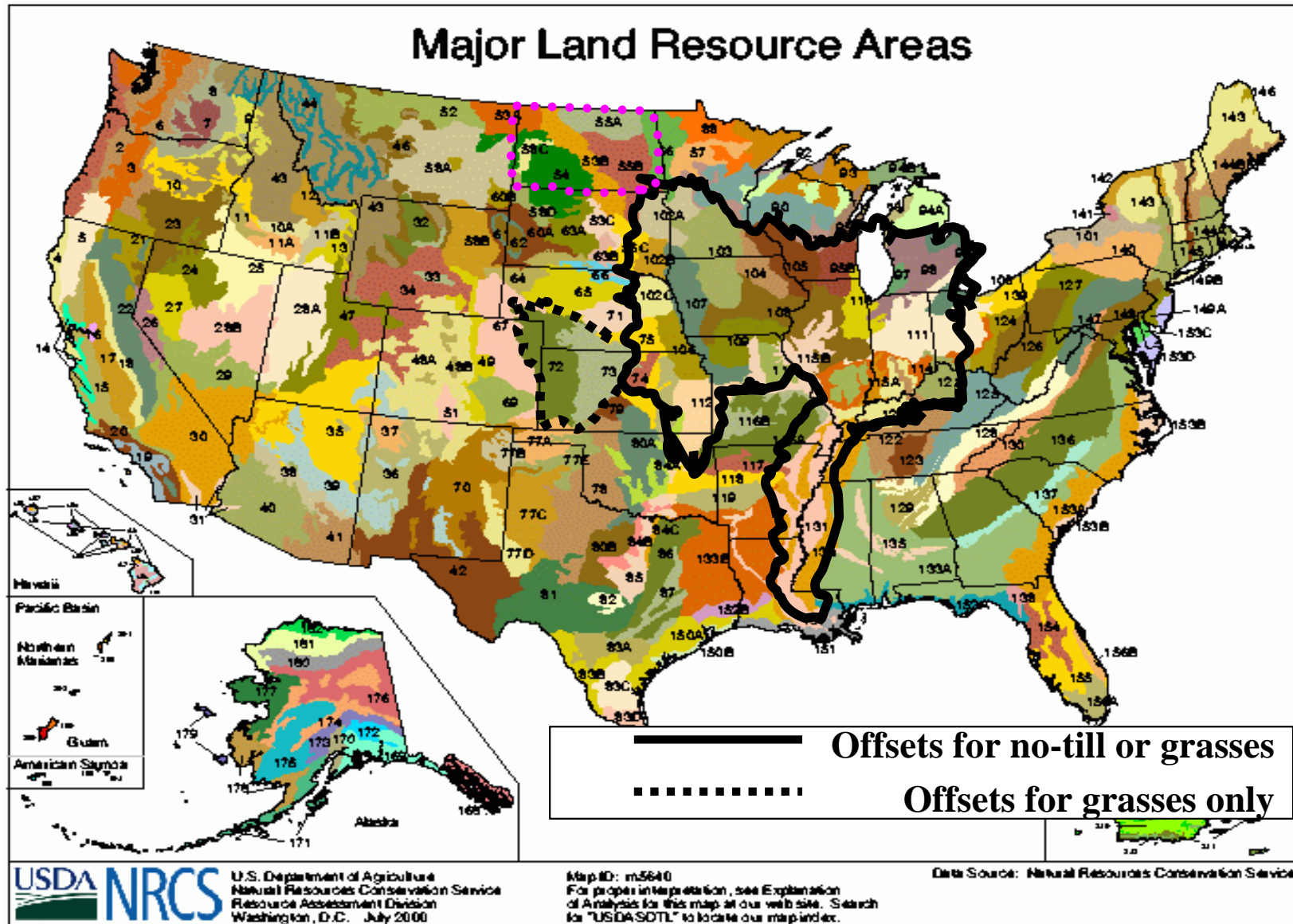


# Tillage Equipment

- Full width inversion
  - Moldboard plow
  - Chisel plow
  - Field cultivator
  - Tandem disk
  - Offset disk
  - Row crop cultivator (except ridge till)
- Okay to use
  - No-till/ridge-till planter
  - No-till drill
  - Rolling harrow
  - Tools with wide knives
    - Subsoiler/ripper
    - Anhydrous applicator
    - Manure knife applicator
  - Ridge till cultivator
- General Guideline: After the implement has been through the field, there must still be a substantial amount of surface residue present and the soil disturbance must not be full width. If use of the implement would require that a leveling or smoothing activity follow, it would probably result in too much soil disturbance.

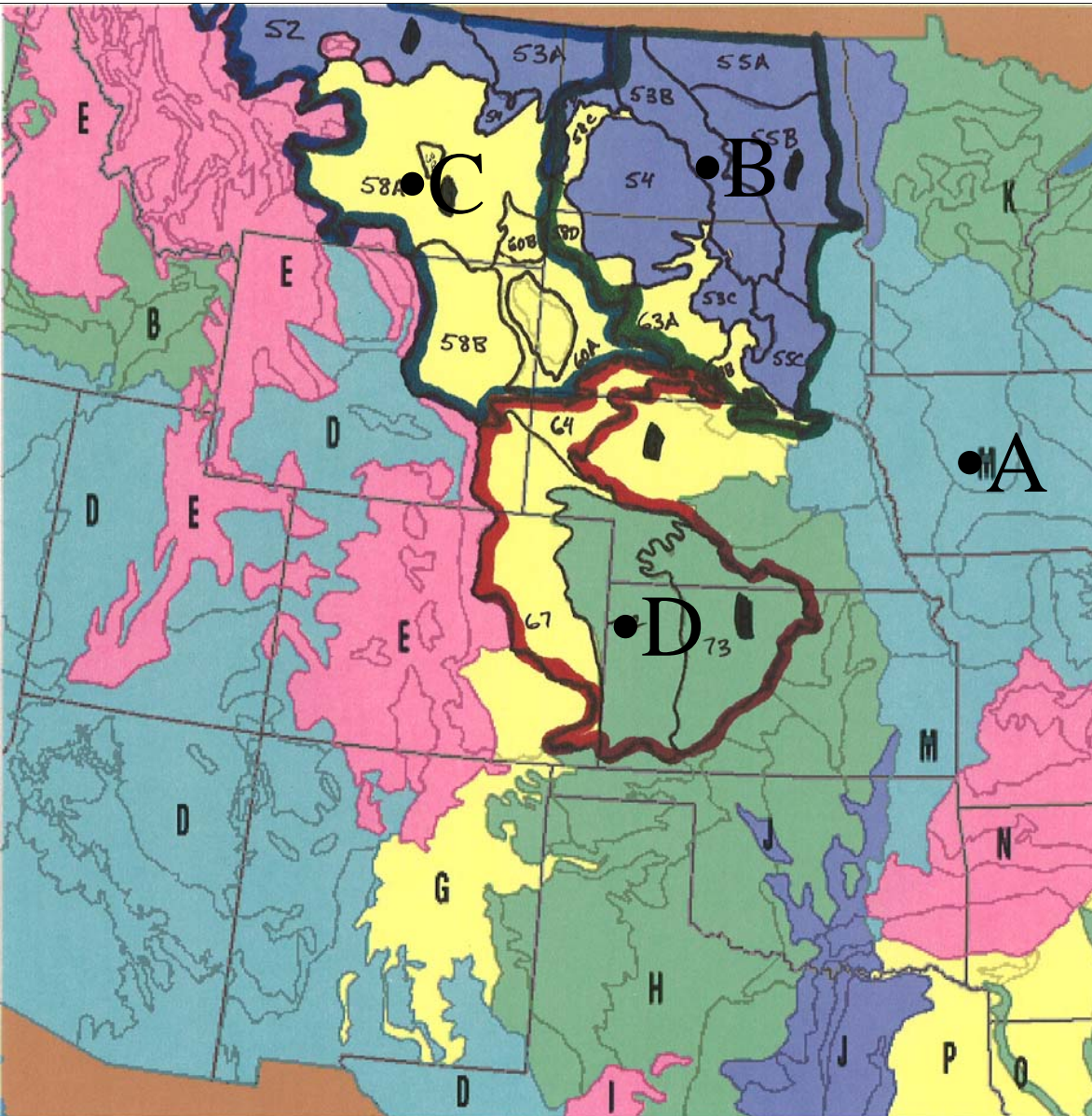


# Current Region for CCX<sup>®</sup> Soil Offsets





# Proposed new XSO Areas



- 0.75 Ton CO<sub>2</sub>/acre/yr
  - Grass (Zones A, B, C, D)
- 0.5 Ton CO<sub>2</sub>/acre/yr
  - Zone A
  - Zones B, C, D (Irrigated)
- 0.4 Tons CO<sub>2</sub>/acre/yr
  - Zone B dryland
- 0.3 Tons CO<sub>2</sub>/acre/yr
  - Zone C dryland
- 0.2 Tons CO<sub>2</sub>/acre/yr
  - Zone D dryland





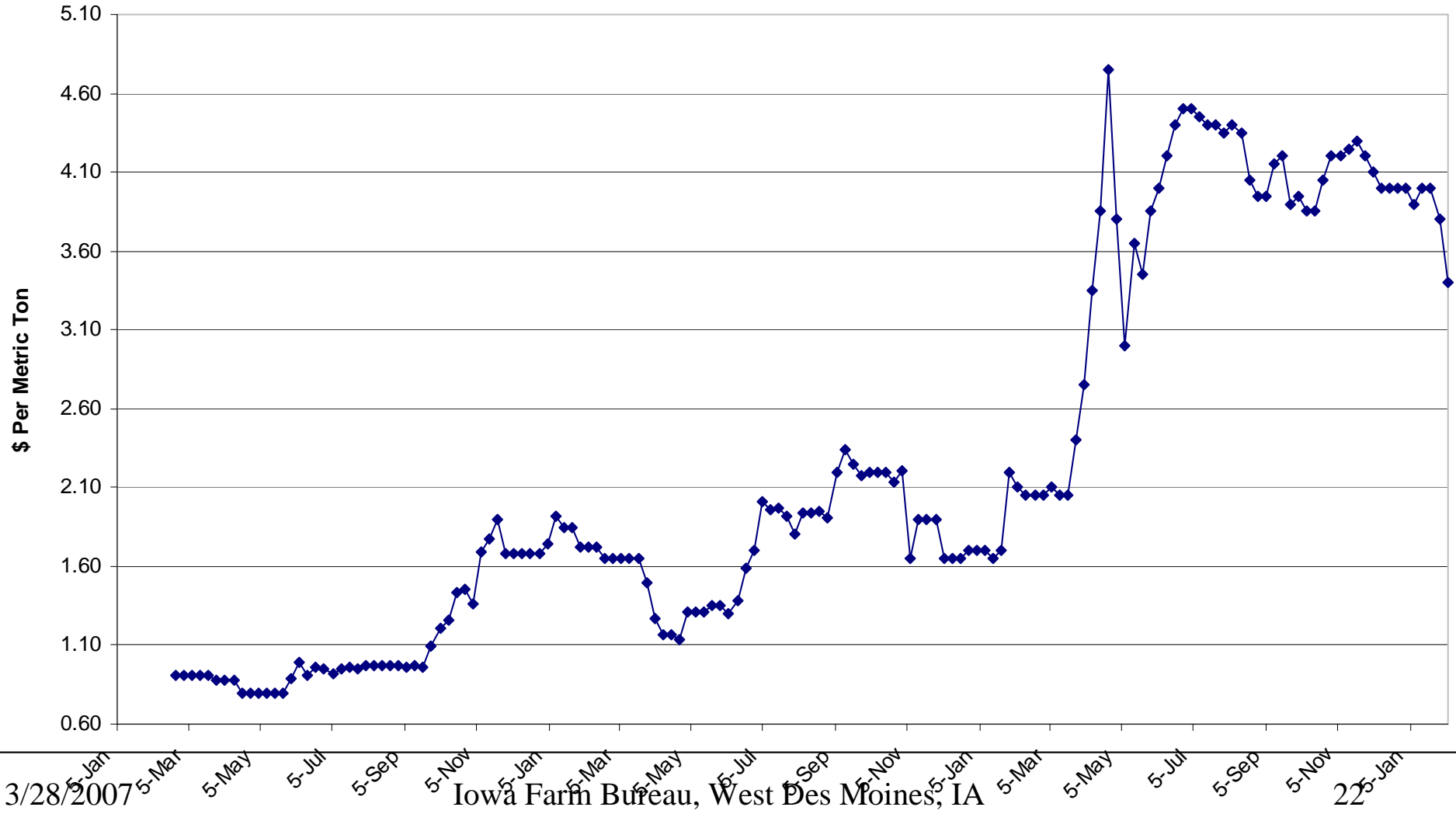
# Pool 1-3 Statistics

State	Total Contracts	No-Till	Old Grass & Alfalfa	New Grass	Total Acres
CO	6	0	0	650	650
IA	490	222,208	6,675	19,852	249,058
IL	8	9,814	0	33	9,847
IN	2	1,484	0	305	1,789
KS	95	100,416	0	1,980	102,396
KY	1	641	0	20	661
MI	1	740	0	259	999
MN	10	4,220	0	634	4,854
MO	1	0	0	35	35
NE	710	479,786	41.5	26,528	507,055
OH	7	4,853	0	242	5,95
SD	10	6,836	0	640	7,476
WI	6	6,493	0	339	6,832
Total	1,358	844,619	6,799	52,881	905,419



# Carbon Offset Prices 2004 - 2006

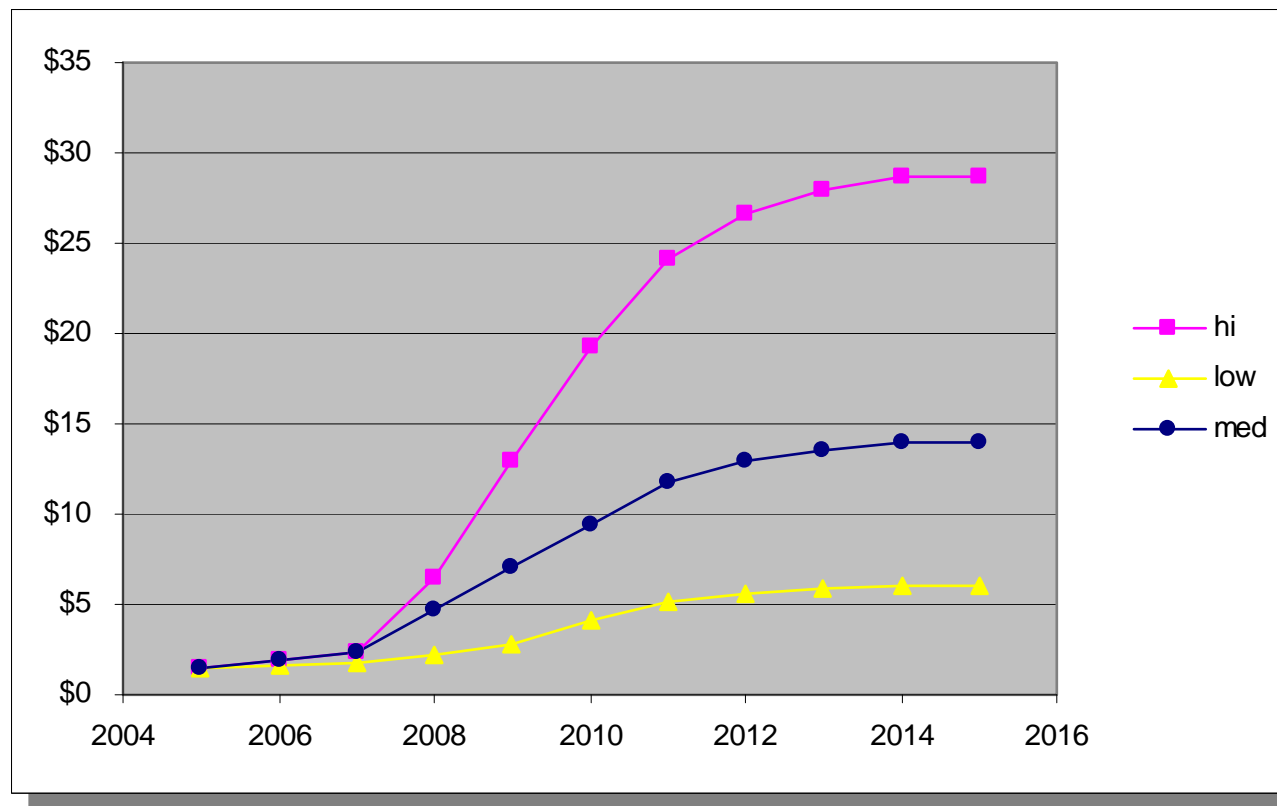
## 2006 Vintage Carbon Offset Prices





# Price forecasts for US carbon credits

Figure 1. Projected price curves for US carbon credits (\$US per metric ton).



Sources: Carbon Finance, August 2004; EIA/DOE 2004. Analysis of S. 1844, the Clear Skies Act of 2003; S. 843, the Clean Air Planning Act of 2003; and S. 366, the Clean Power Act of 2003. Energy Information Administration, USDOE, SR/OIAF/2004-05, May 2004; EIA/DOE 2005. Impacts of Modeled Recommendations of the National Commission on Energy Policy. Energy Information Administration, USDOE, SR/OIAF/2005-02, April 2005; AEP 2004. An assessment of AEP's actions to mitigate the economic impacts of emissions policies. American Electric Power, August 31 2004



# Rangeland Project Eligibility

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- Land meets CCX definition of Rangeland
- Rangeland is in a CCX-approved area
- Project involves rangeland management practices that include use of *all* of the following tools:
  - Light or Moderate Stocking rates;
  - Sustainable Livestock Distribution





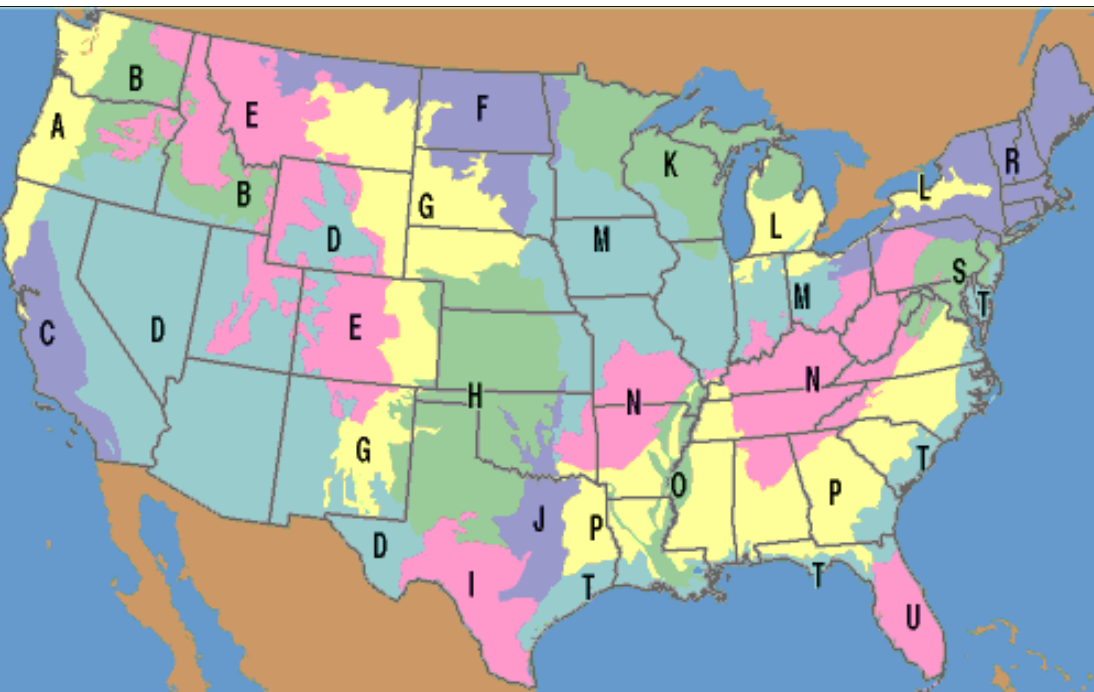
# Rangeland Protocol

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- The Natural Resources Conservation Service (NRCS) Field Office Technical Guides publish guidelines for managing the controlled harvest of vegetation with grazing animals.
- Stocking rates and livestock distribution criteria are defined according to County and State in the NRCS “Prescribed Grazing Specification” code.



# Rangeland Areas



## Rangeland Credit Rates

(Metric Tons CO2 Per Acre Per Year)

Rangeland Area	Non-Degraded	Degraded
<b>Northwestern Wheat and Range Region (B)</b>	0.12	0.20
<b>California Subtropical Fruit, Truck, and Specialty Crop Region (C)</b>	0.16	0.16
<b>Rocky Mountain Range and Forest Region (E)</b>	0.12	0.28
<b>Northern Great Plains Spring Wheat Region (F)</b>	0.12	0.24
<b>Western Great Plains Range and Irrigated Region (G)</b>	0.27	0.40
<b>Central Great Plains Winter Wheat and Range Region (H)</b>	0.20	0.52

Eligible rangeland project crediting rates are based on appropriate below-ground carbon sequestration rates according to Land Resource Region, as well as status of the land (degraded or non-degraded) prior to inception of project



# Forestry Offsets

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- Eligible Projects
  - Planting and/or natural regeneration after Jan 1, 1990 on land not forested on Dec 31, 1989.
  - Working forest lands projects
- Credits based on net annual increase in carbon stocks (CO<sub>2</sub> equivalents) during 2003-2010.
- Long-term commitment
  - Evidence that the carbon stocks in forest parcels will be subject to long-term maintenance in a manner deemed acceptable by CCX Offset Committee (easement, contract, etc.)



## Forestry Offsets Cont'd

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- XFOs will be issued based on annual increases in above-ground living biomass.
- Forestation projects are subject to verification by CCX approved verifiers.
- Small & medium forestry can use CCX tabled quantities.



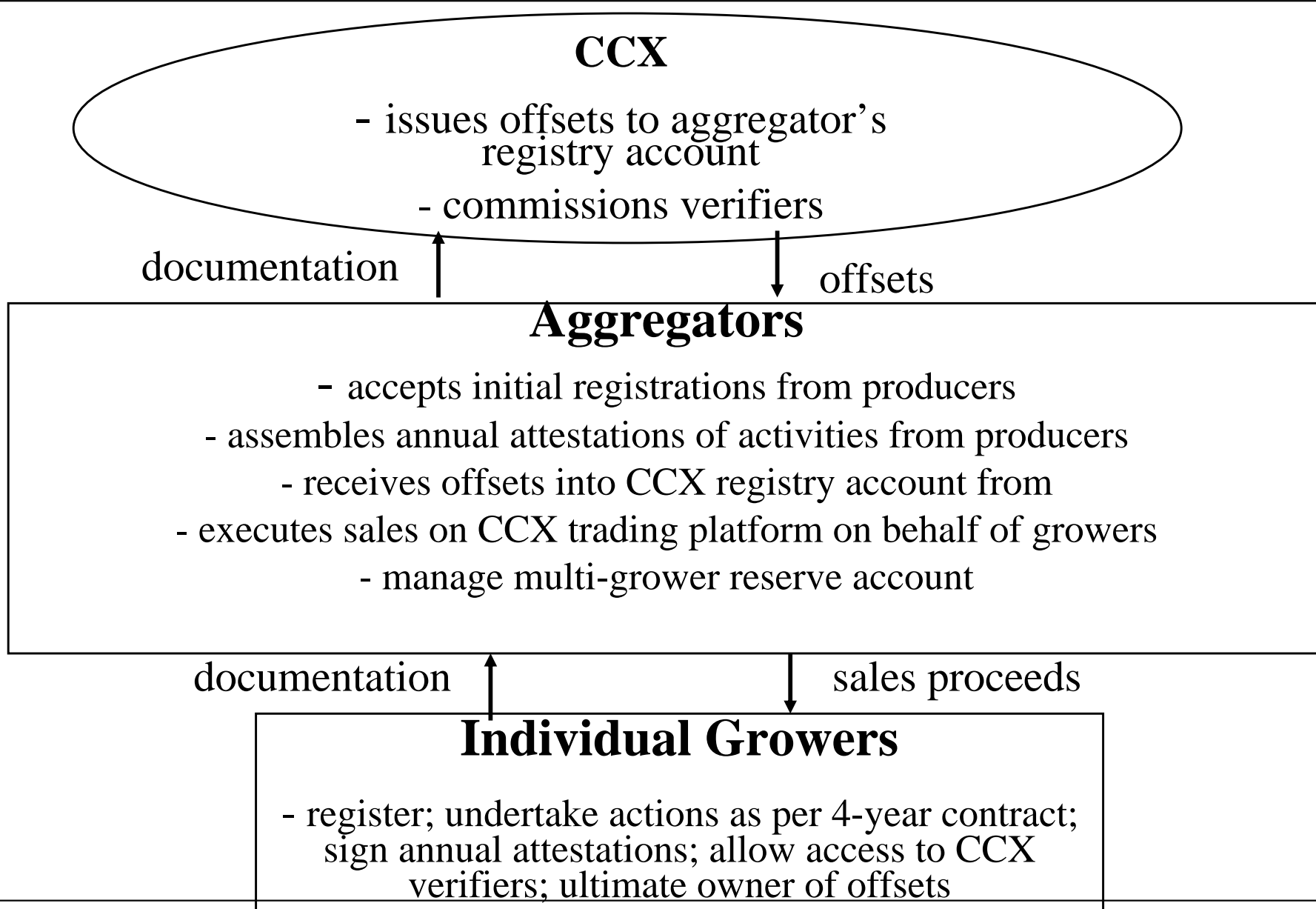
# Methane Offsets

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- Ag Methane destruction projects that were put into place after Jan 1, 1999.
  - Dairy
  - Swine
- Credits accrue at the rate of 18.25 tons CO<sub>2</sub> per ton of methane



# Mechanics of Ag Offset Aggregation in CCX<sup>®</sup>

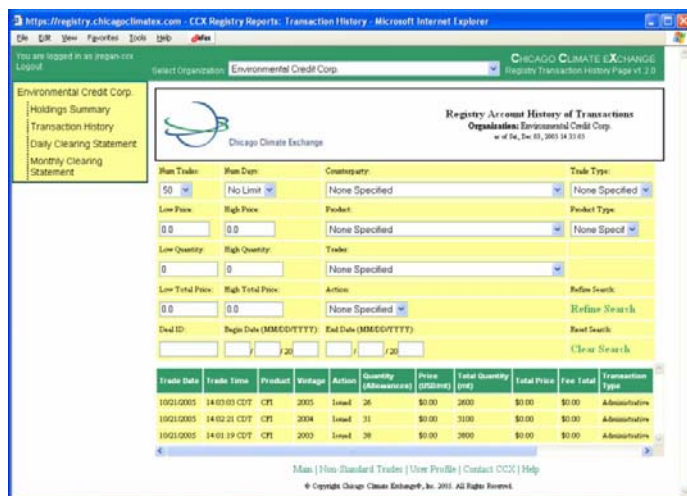






# Mechanics of Trading

- CCX Registry



- CCX Trading Floor



## CCX DAILY PRICES

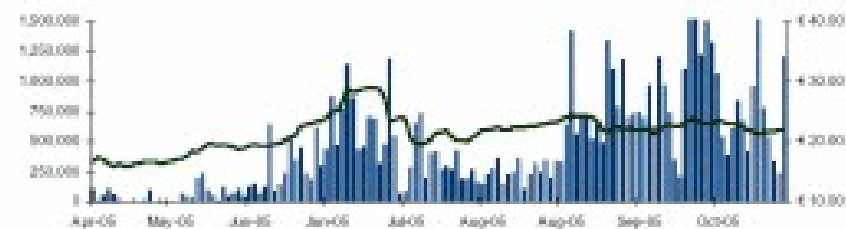
(3 year monthly fees)



## ECX DAILY PRICE & VOLUME

(Europe per month fees)

(million tons)





# Contact Information

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David Miller  
Director, Commodity Services  
Iowa Farm Bureau  
5400 University Ave  
West Des Moines, IA 50266

[www.iowafarmbureau.com/carbon](http://www.iowafarmbureau.com/carbon)

Ph: 515-225-5431

E-mail: [damiller@ifbf.org](mailto:damiller@ifbf.org)