The U.S. Experience With Land Retirement for Natural Resource Conservation

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Parallels Between U.S. and China

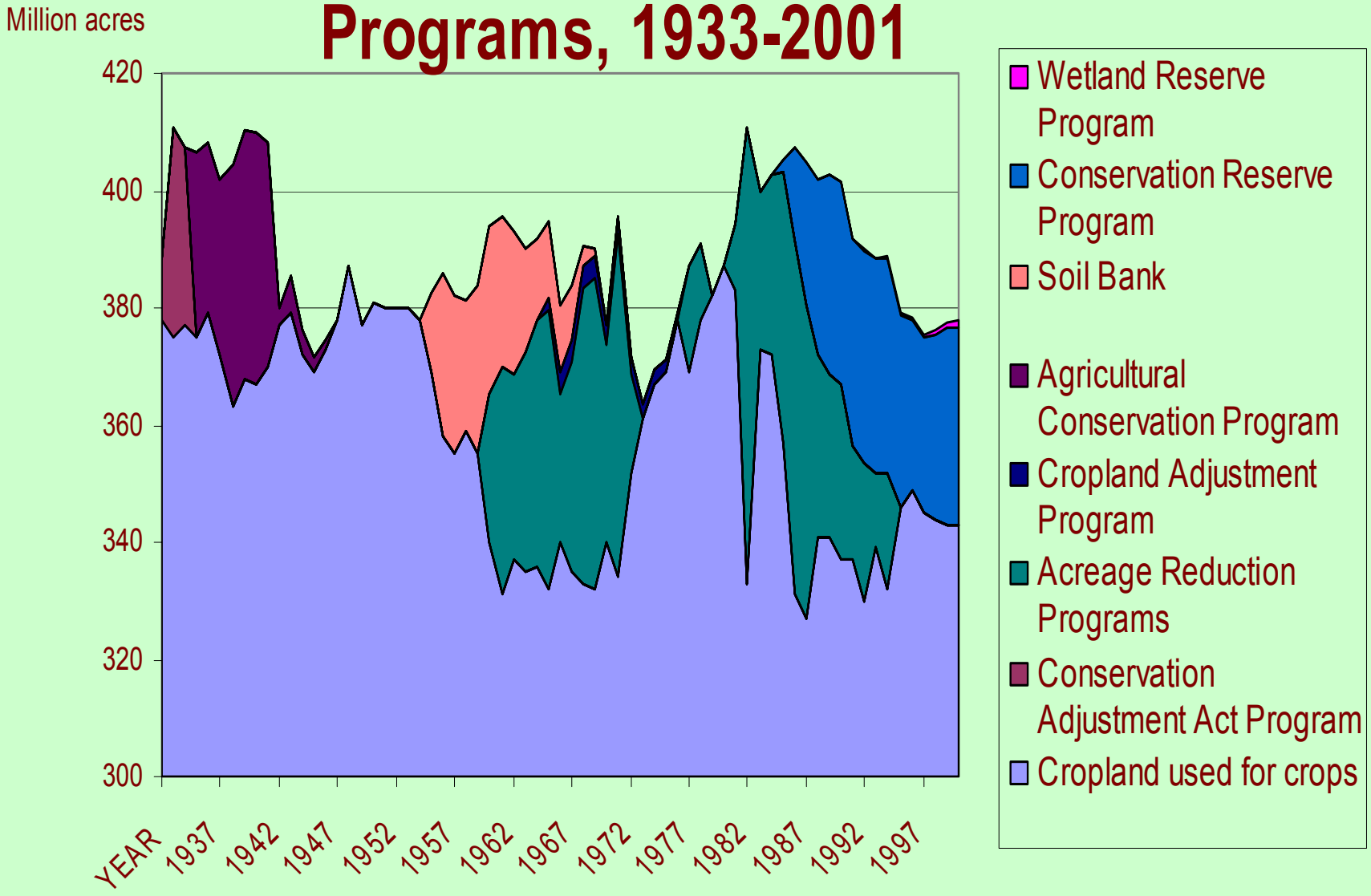
- Catastrophic floods in 1927-37
- Dust Bowl in Great Plains
- First conservation programs in Dept. of Interior
- Long history of conservation programs

- Catastrophic flood in 1998
- Sandstorms blowing across North and West China
- First conservation programs in Chinese State Forest Administration

U.S. Land Retirement Programs

- Conservation Reserve Program (CRP)
- Conservation Reserve Enhancement Program (CREP)
- Wetland Reserve Program (WRP)
- Acreage Reserve Program (ARP)
- Conservation Compliance Provisions
  - Conservation Compliance
  - Sodbuster/Swampbuster

History of U.S. Land Retirement Programs, 1933-2001



How Does U.S. Land Retirement Work?

- Voluntary Program
- Annual Rental Payment
- Cost-share for cover establishment and conservation practices (50-75 percent)
- 10-15 year contracts.
- Eligibility
  - Cropland planted 2 of the last 5 years; or
  - Marginal pastureland enrolled in other programs.

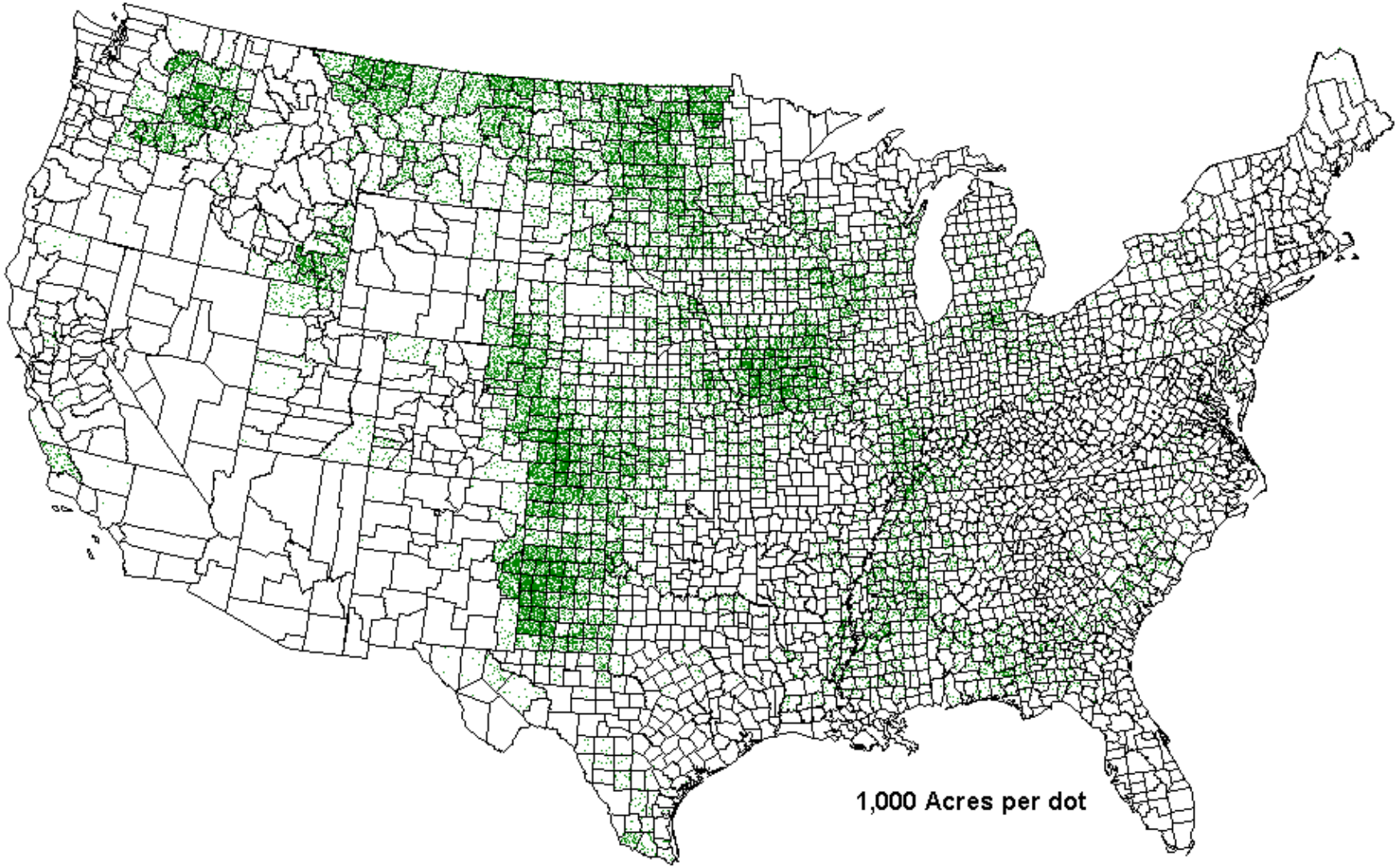
Environmental Requirements

- Erosion Index (EI) of 8 or higher
- Cropped wetland;
- Devoted to highly beneficial environmental practices (filter strips, riparian buffers, grass waterways, shelter belts, wellhead protection areas);
- Subject to scour erosion;
- Located in a national or state CRP conservation priority area; or
- Cropland associated with or surrounding non-cropped wetlands.

Current CRP (January 2002)

- 33.7 million acres enrolled in CRP (10 % of cropland)
- 1.9 million acres in partial-field enrollments under the continuous signup or CREP
- More than 560,000 contracts
- More than 370,000 farmers (about 18 %)
- $1.5 billion annual rental cost
- Average rental cost per acre is $47
- Conservation cover
  - 60 percent of CRP acreage is planted to grasses
  - 16 percent to trees or woody vegetation for wildlife
  - 5 percent to wetland restoration

CRP Acreage as of October 1, 2000



Lessons Learned From U.S. Land Retirement

- Targeting
- Getting the Rent Right
- Setting the Contract Term
- Slippage

Targeting

- 1930's-1960's--None
- Universal Soil Loss Equation (USLE) and Wind Erosion Equation (WEE)--Highly erodible land
- Onsite productivity v. Offsite impacts
- Environmental Benefits Index (EBI)

EBI Evaluated for Each Parcel

- Wildlife factor (0-100 points);
  - Wildlife cover (0-50 points)
  - Endangered species (0-15 points)
  - Proximity to water (0,5,10 points)
  - Adjacent protected areas (0,5,10 points)
  - Wildlife enhancement (0, 5 points)
- Water Quality factor (0-100 points);
  - Location (0-30 points)
  - Groundwater (0-
  - Surface water quality (0-
  - Wetlands (0-10 points)
- Erosion factor (0-100 points);

EBI (continued)

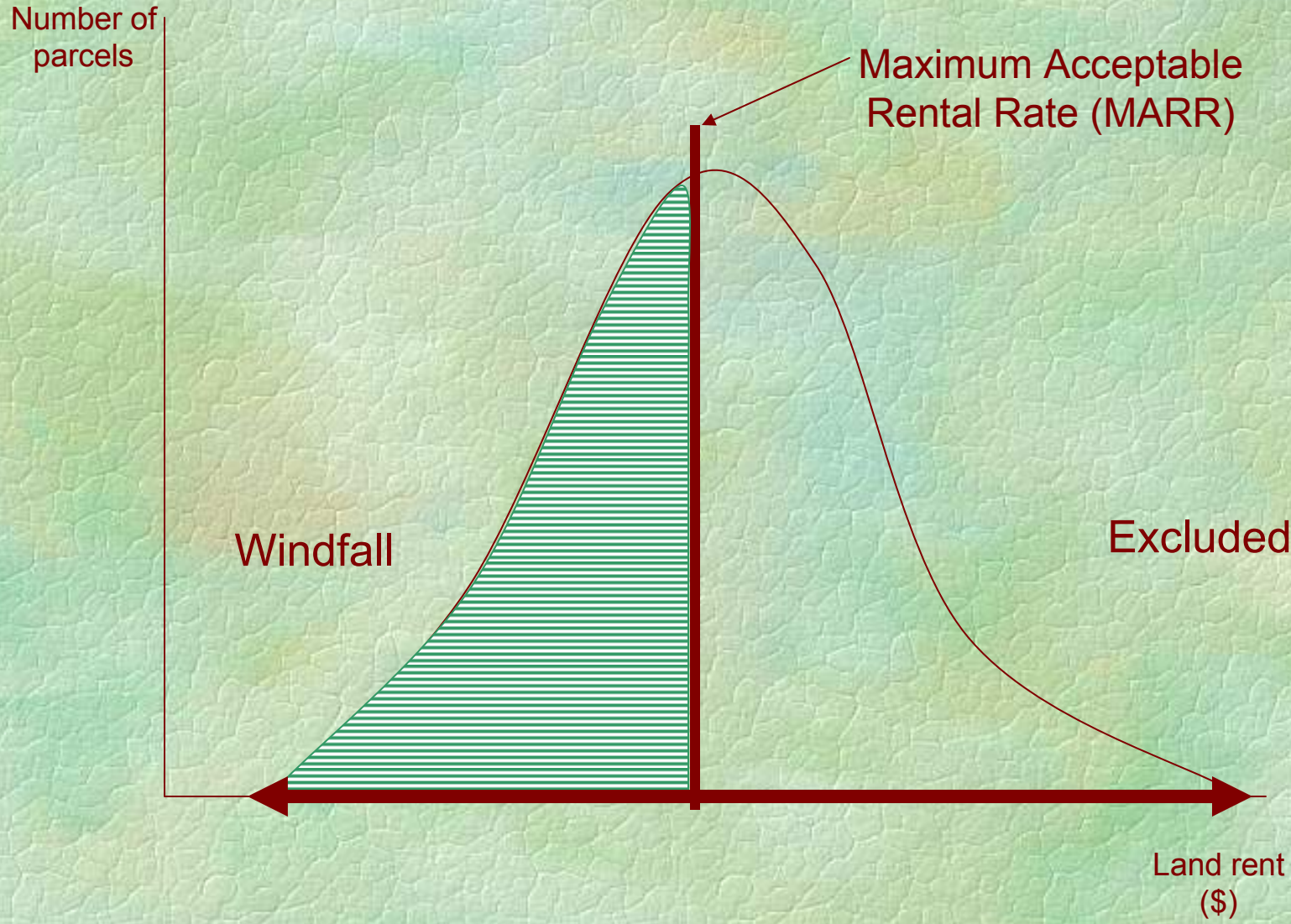
- Enduring Benefits factor (0-50 points);
- Air Quality factor (0-35 points);
  - Wind erosion impacts (0-25 points)
  - Wind erodible soils (0-5 points)
  - Air quality zones (0-5 points)
- State or National Conservation Priority Area factor (0-25 points);
- Cost factor
  - Rental rate
  - Cost-sharing
  - Amount below MARR

Getting the Rent Right

- Economic basis for all U.S. land retirement programs is compensating the farm operator for the opportunity cost of using the land in crop production.
- Modern CRP bid/acceptance process.
- Maximum Acceptable Rental Rates (MARRs)
- Soil Adjusted Rental Rates

Maximum Acceptable Rental Rates (MARRs)

Truncate the Distribution of CRP Bidders



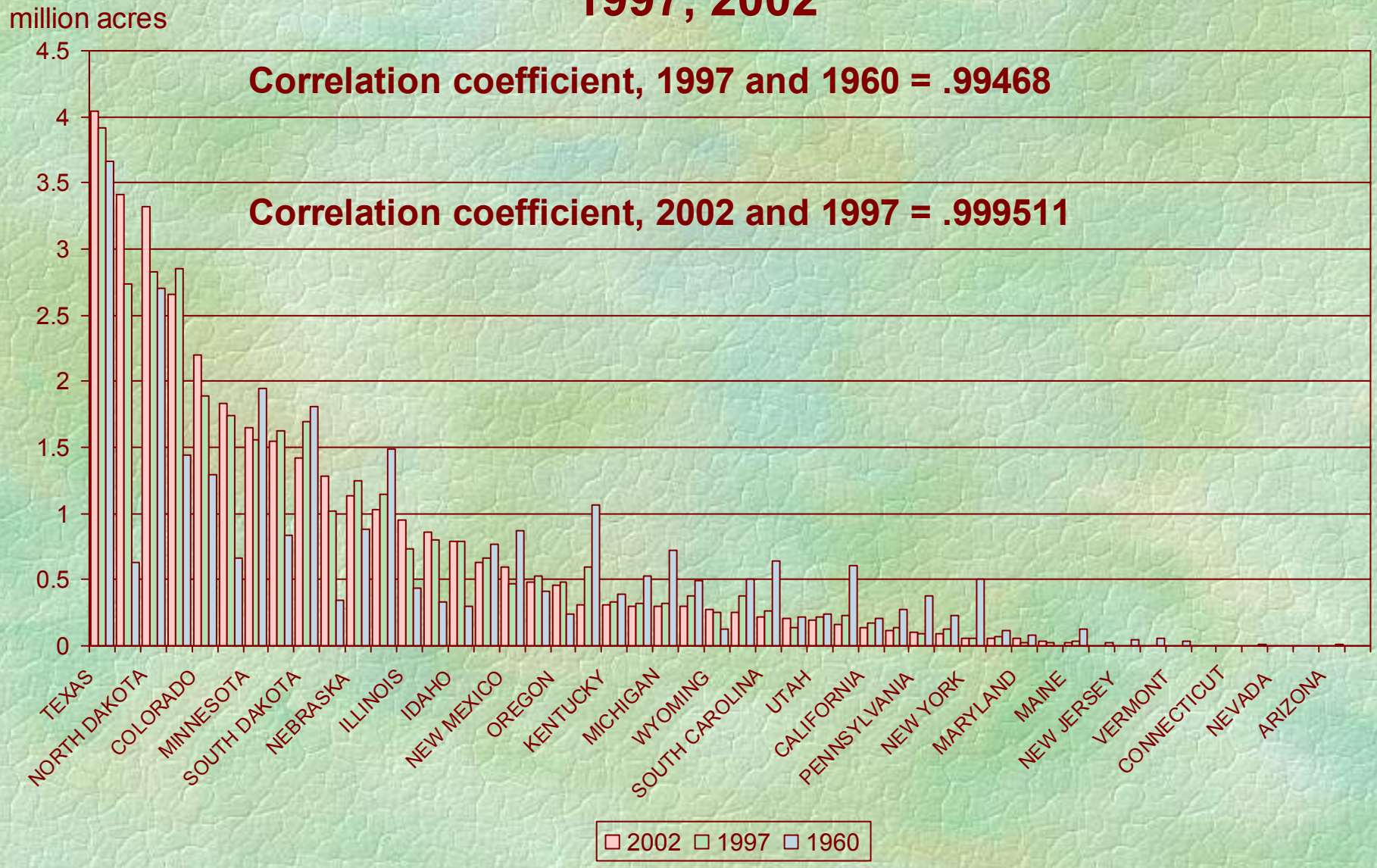
Setting the Contract Term

- Annual Set Aside (ARP)
- 10-15 year contracts (CRP, CREP)
- Permanent easements (WRP)
- Fee Title Purchase

CRP: Buying the Land Many Times?

- Was the same land retired many times?
  - 2002, 1997, 1960 State acreage correlated at .99
  - 61 Percent of 1985-95 reenrolled in 1996-2006
- Total payments for CRP-like programs since 1933 is $33 billion in 1996 constant dollars.
- 1.1 billion acre-years of conservation.
- Average real annual rental of $29.26 per acre.
- $975-$1,463 capitalized at 2-3 percent.
- Greater than or equal to $887-$1,270 U.S. average 1996-97 values.

Correlation of CRP Acreage by State, 1960, 1997, 2002

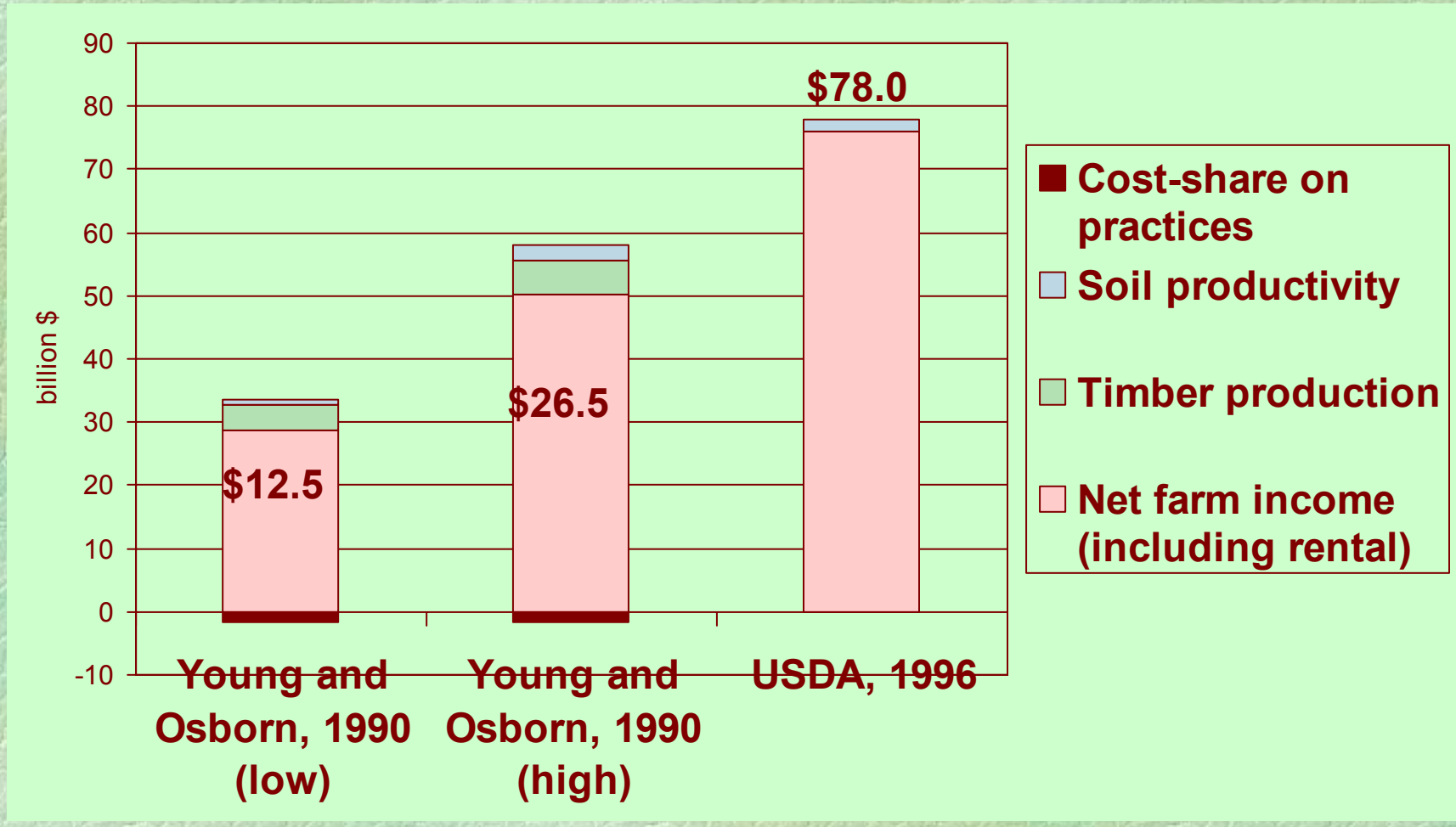


Slippage

- Increased erosion or other environmental impacts on new cropland that offsets reductions on retired land
- Conservation Compliance and Sodbuster provisions act against slippage
- Some mechanism (compliance, regulatory, taxes or fees) is needed to prevent slippage

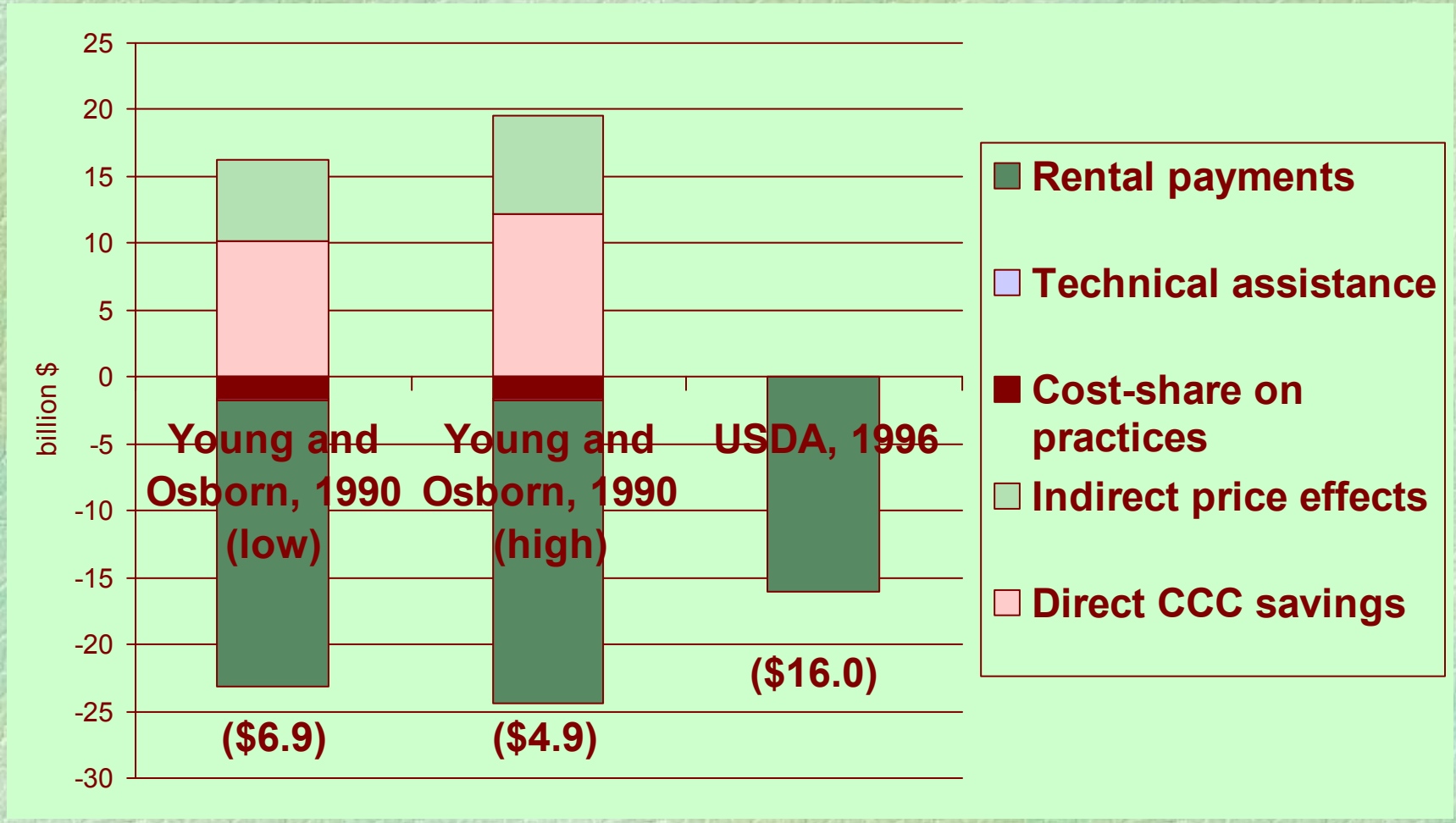
Costs and Benefits of CRP

To Landowners



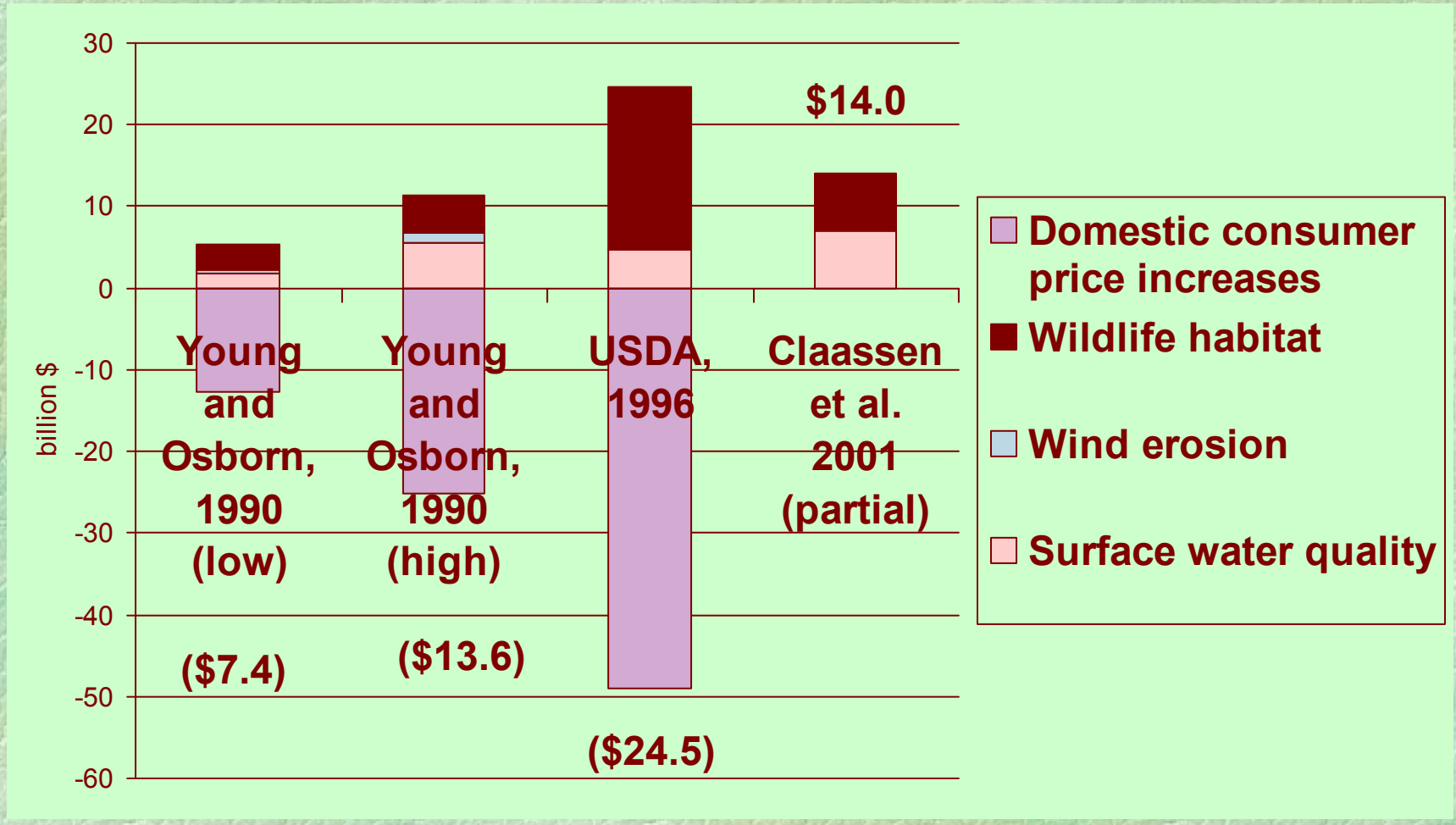
Costs and Benefits of CRP

To Government



Costs and Benefits of CRP

To Nonfarm Consumers



Benefits Not Estimated

- **Benefits from erosion and sediment reduction**
  - Picnicking, hiking, and other recreation around bays/estuaries
  - Commercial and recreational fishing
  - Endangered species protection
  - Recreation on coral reefs
  - Reduced dust for households, industry, viewing scenery
- **Benefits from wildlife habitat restoration**
  - Duck hunting
  - Big and small game hunting
  - Wildlife viewing
  - Endangered species protection
  - Ecosystem protection for for common wildlife

Benefits Not Estimated

- **Benefits from wetland preservation and restoration**
  - Waterfowl hunting
  - Endangered species protection
  - Wetland ecosystems existence
  - Wildlife viewing
  - Big and small game hunting
  - Water quality improvement
  - Flood damage control
  - Ground water recharge
  - Fishing
- **Other environmental benefits**
  - Carbon sequestation
  - Preservation of indigenous plant and animal species
  - Commercial and recreational fishing (reduced nutrient and pesticide loadings to surface water)
  - Health impacts of lower nutrient and pesticide loadings to ground and surface water