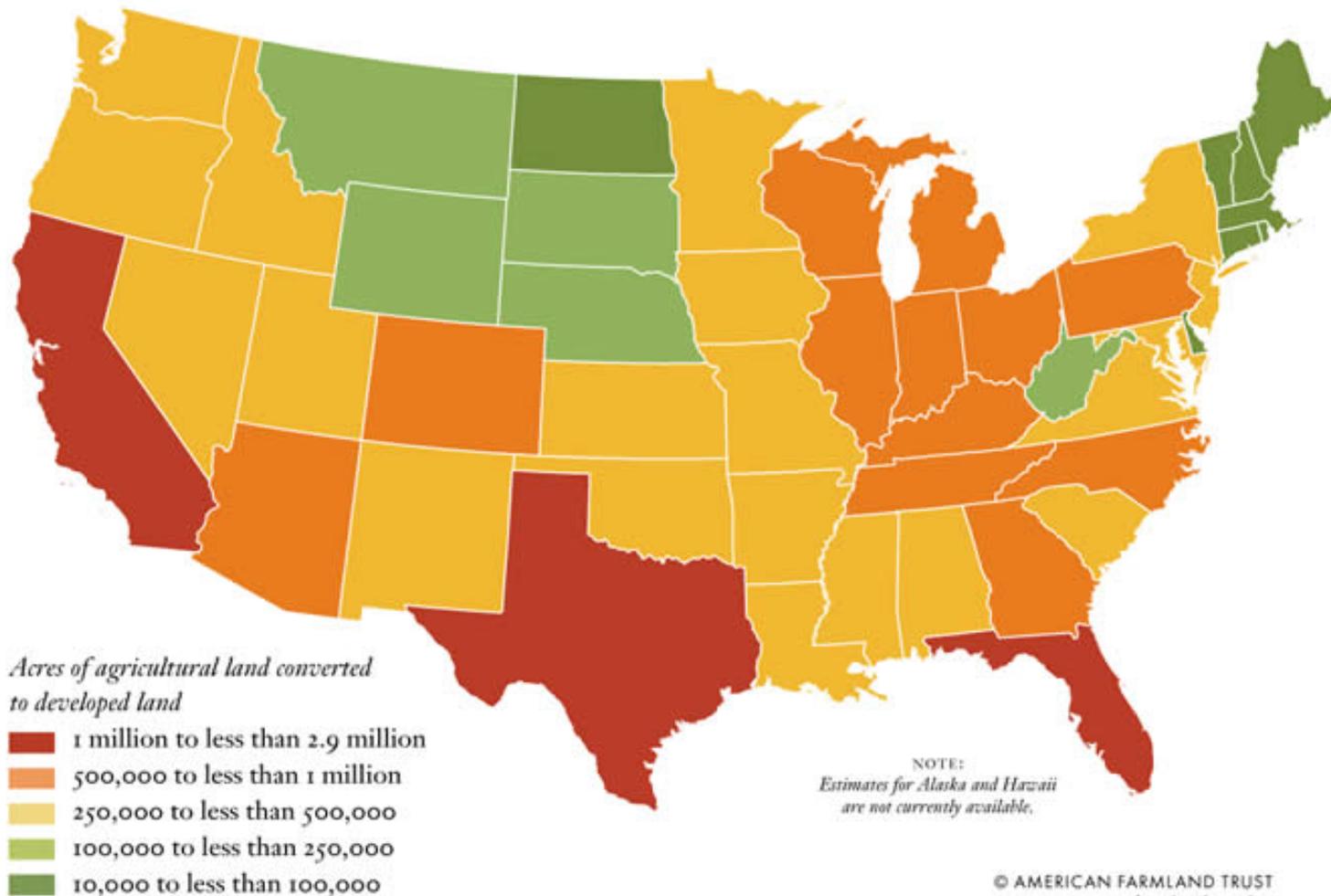


Agricultural Land Use

Lori Lynch, Professor
Agricultural and Resource
Economics
University of Maryland

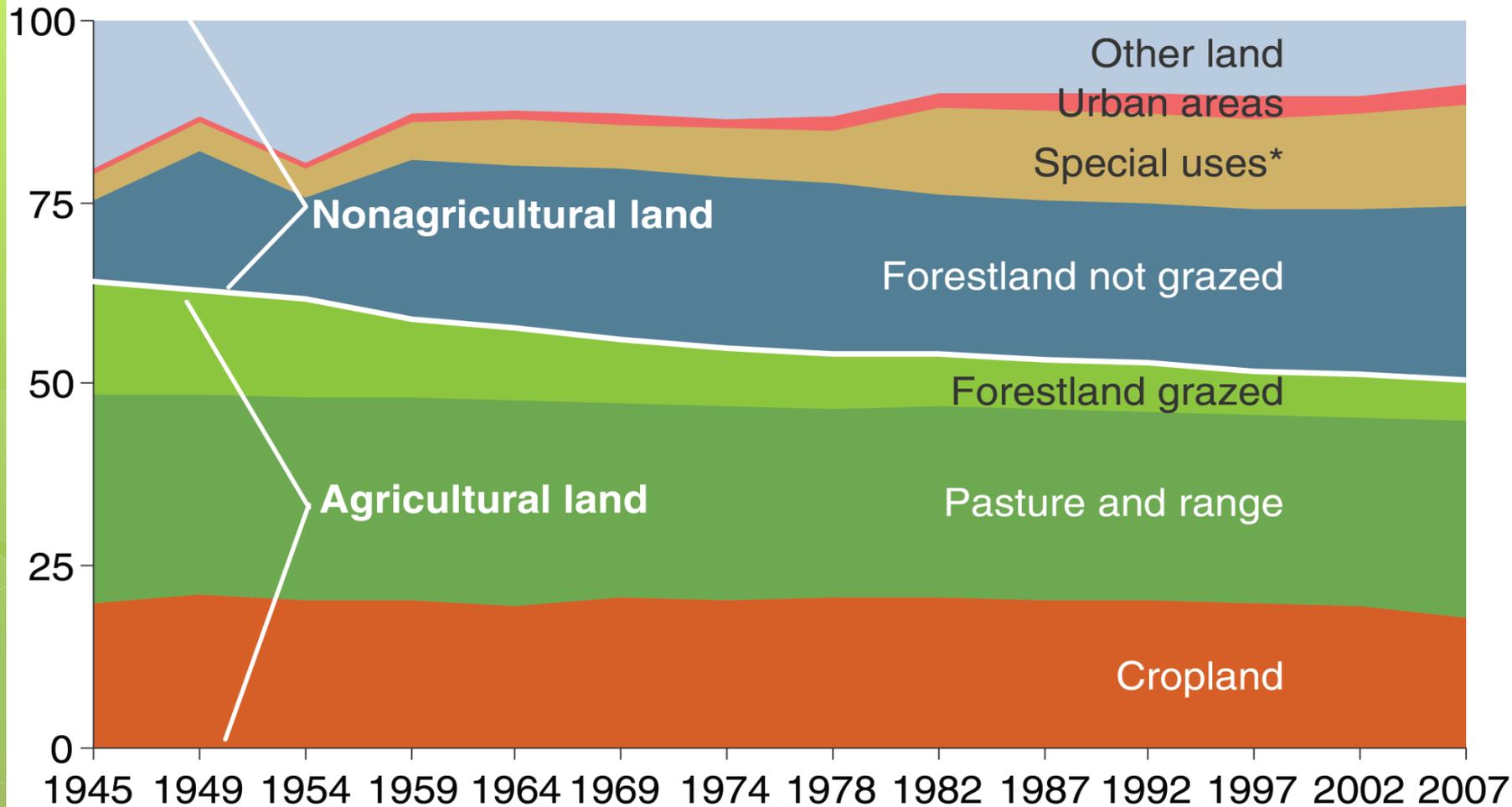
1982 -2007 Agricultural Land Conversion to Developed Uses

Every state lost agricultural land.



Major land uses in the United States, 1945-2007

Percent

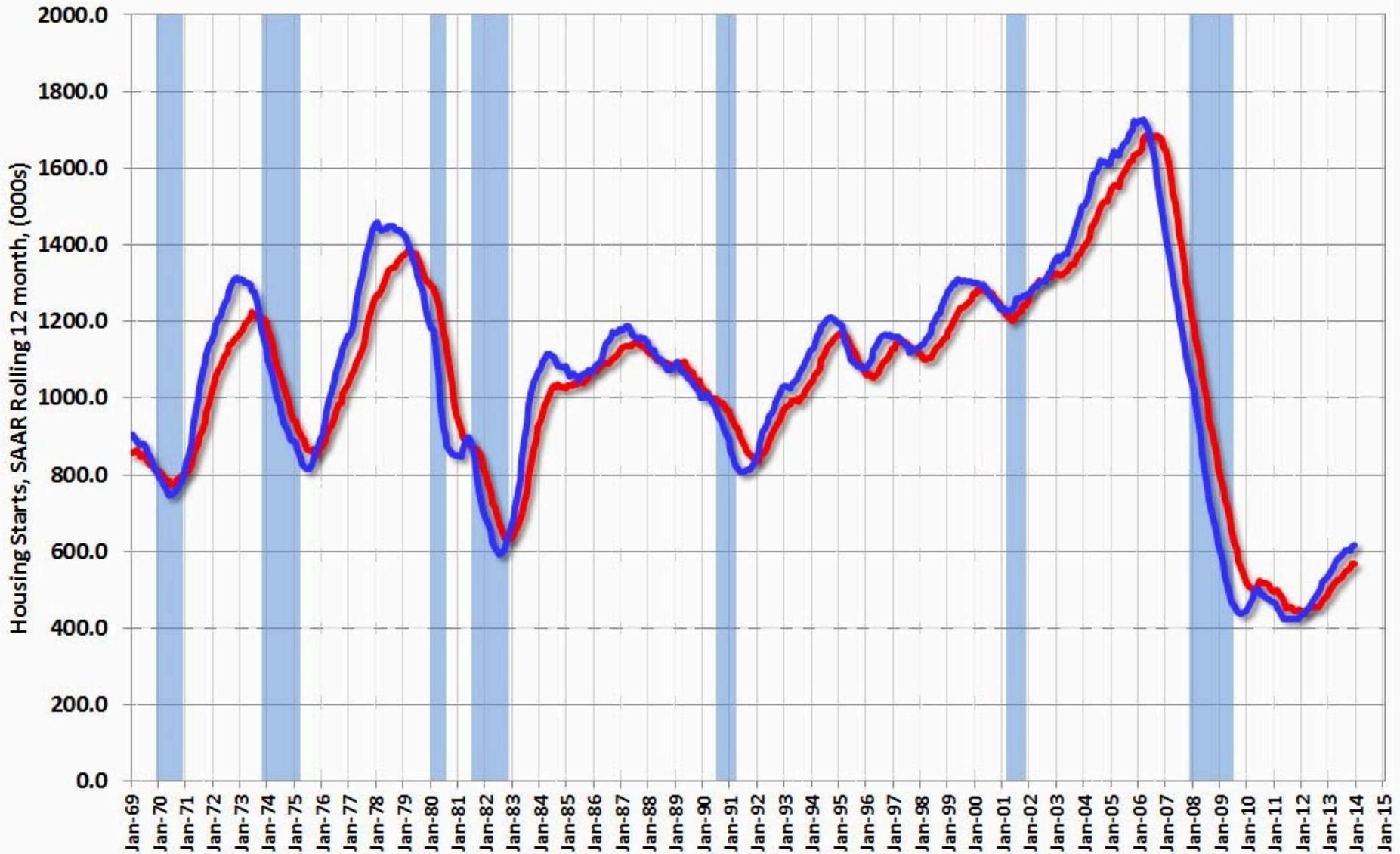


*Special uses includes rural parks and wilderness areas, rural transportation, defense/industrial lands, and farmsteads.

Source: USDA, Economic Research Service using data from the Major Land Uses series.

Housing Starts and Completions, 1 Unit Structures, Rolling 12 months

Recession Completions Starts



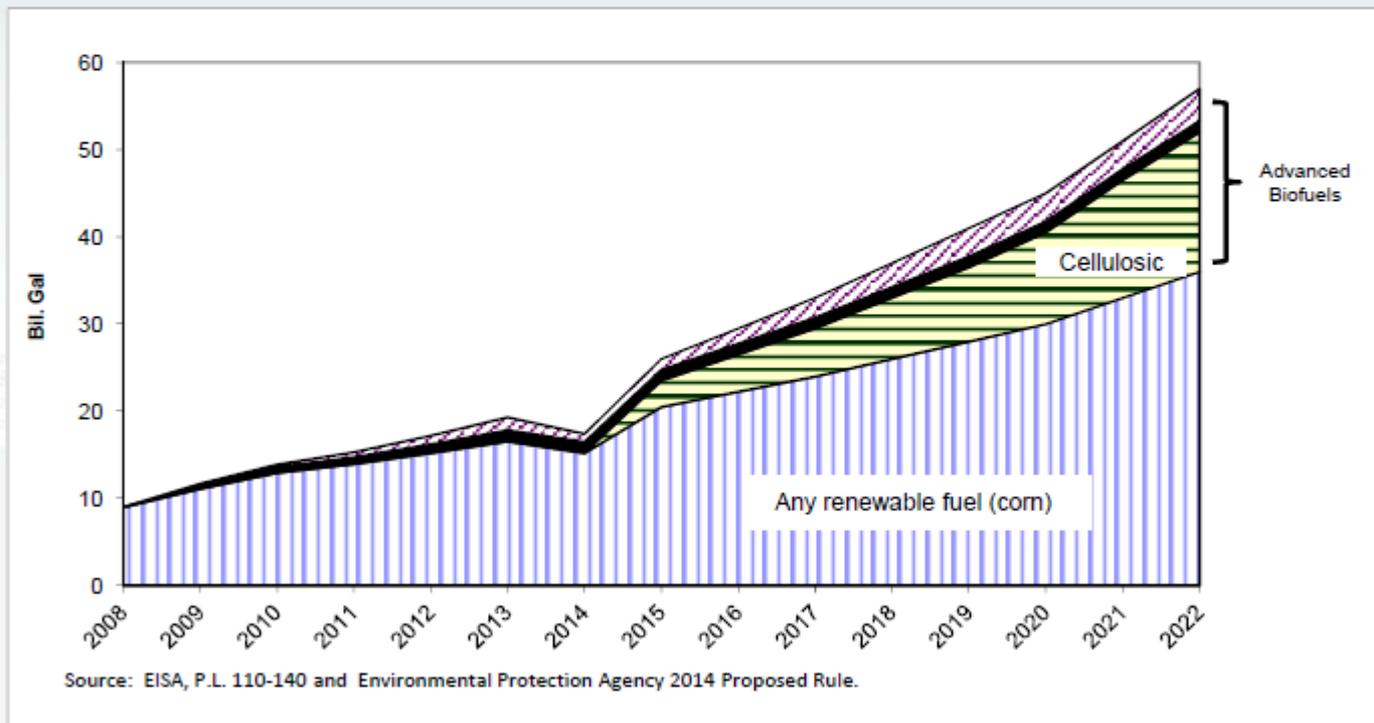
New World post 2007-2008

- Renewable Fuel Standard
 - Increased corn acreage
- Housing bubble; economic recession
 - People buying farmland as investment
- Exports – China relaxing their food security policy – need more feed
- 2014 Farm bill
- Climate change

Renewable Fuel Standard

- Since 2002, U.S. ethanol demand for corn has increased by more than 3 billion bushels, which translates to nearly 20 million acres of
- Corn acreage was up by 30% in 2013 from 1993
- Ethanol tax credit and import tariff, were allowed to expire at end of 2011
- Biodiesel credit through 2013
- Ethanol use of corn could decline as a percentage but not quantitatively over next several years – market neutral for corn.

Renewable Fuel Volumes Mandated under the Renewable Fuel Standard



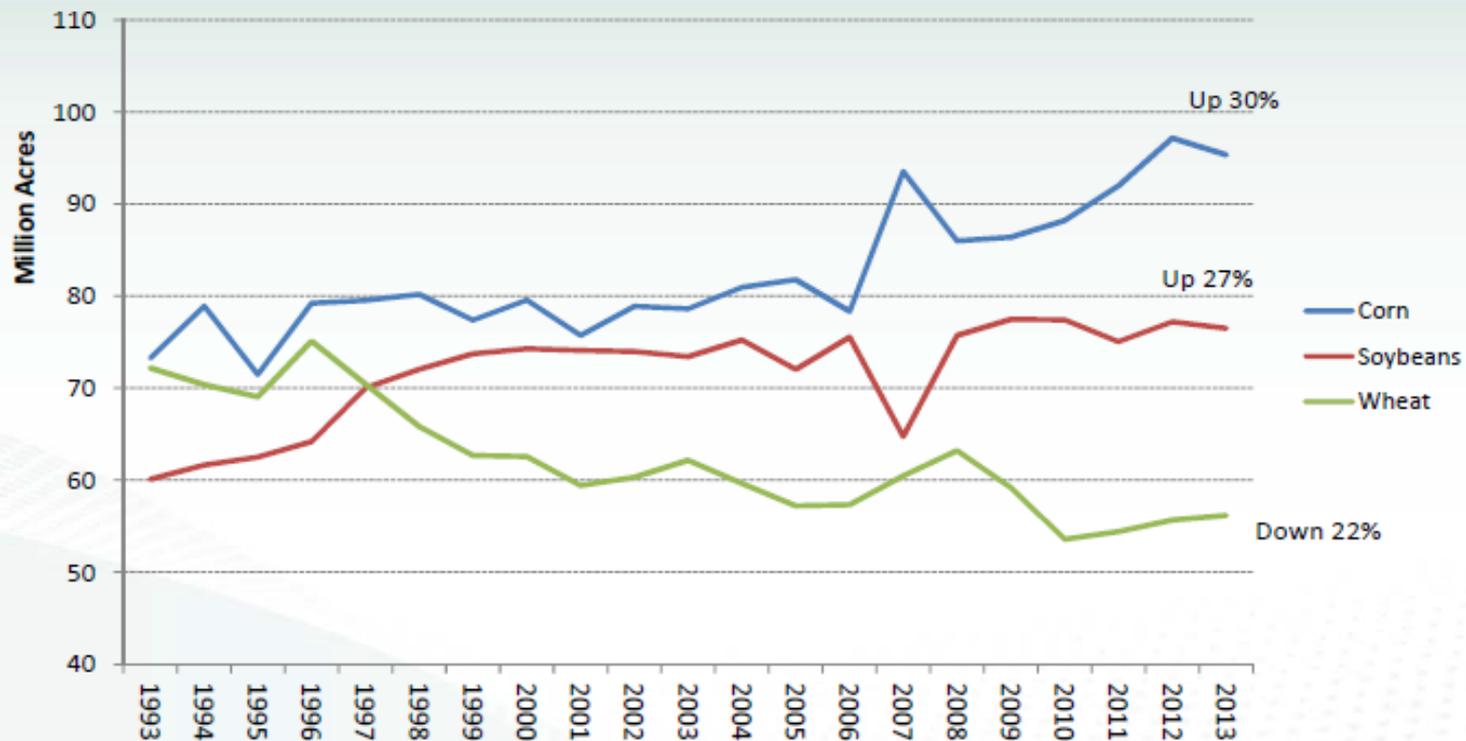
United States Department of Agriculture, Economic Research Service

The views expressed are those of the author(s) and should not be attributed to the Economic Research Service or USDA.

Exports

- Between 2000 and 2013, American fruit, grain, meat and dairy sold overseas nearly tripled to \$140.9 billion
- Beijing announced a change in its annual grain production targets to put a greater emphasis on quality rather than quantity
- Sales to developing countries were up about 250% between 2000 and 2013

U.S. Corn, Soybean and Wheat Acreage

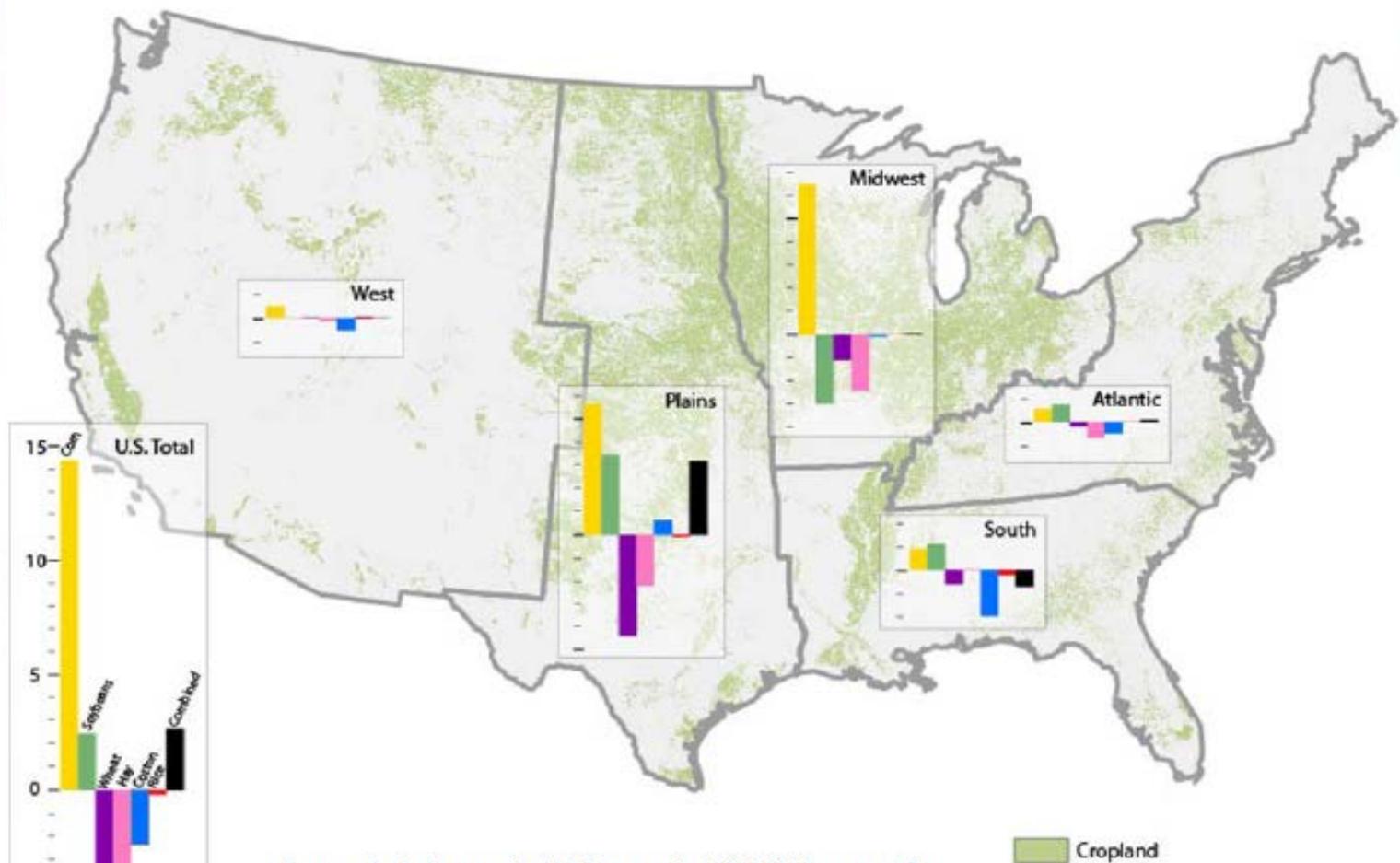


Source: USDA National Agricultural Statistics Service



United States Department of Agriculture, Economic Research Service

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Average planted acreage for the 3-year period 2010-2012, compared with the 3-year period 2000-2002.

Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics



United States Department of Agriculture, Economic Research Service

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Price Outlook

- Corn prices falling to below \$4.00; average farm price 2014/15 is \$3.65 not going back over \$4.00 until 2022
- Soybeans prices will decline \$9.75 in 2014/15 – Prices between \$9.05 to \$9.95 through 2022/23
- Wheat – Prices drop to \$4.90 in 2014/15; go down to \$4.30 then back up to between \$4.45 to \$5.35 in 2017 through 2022.

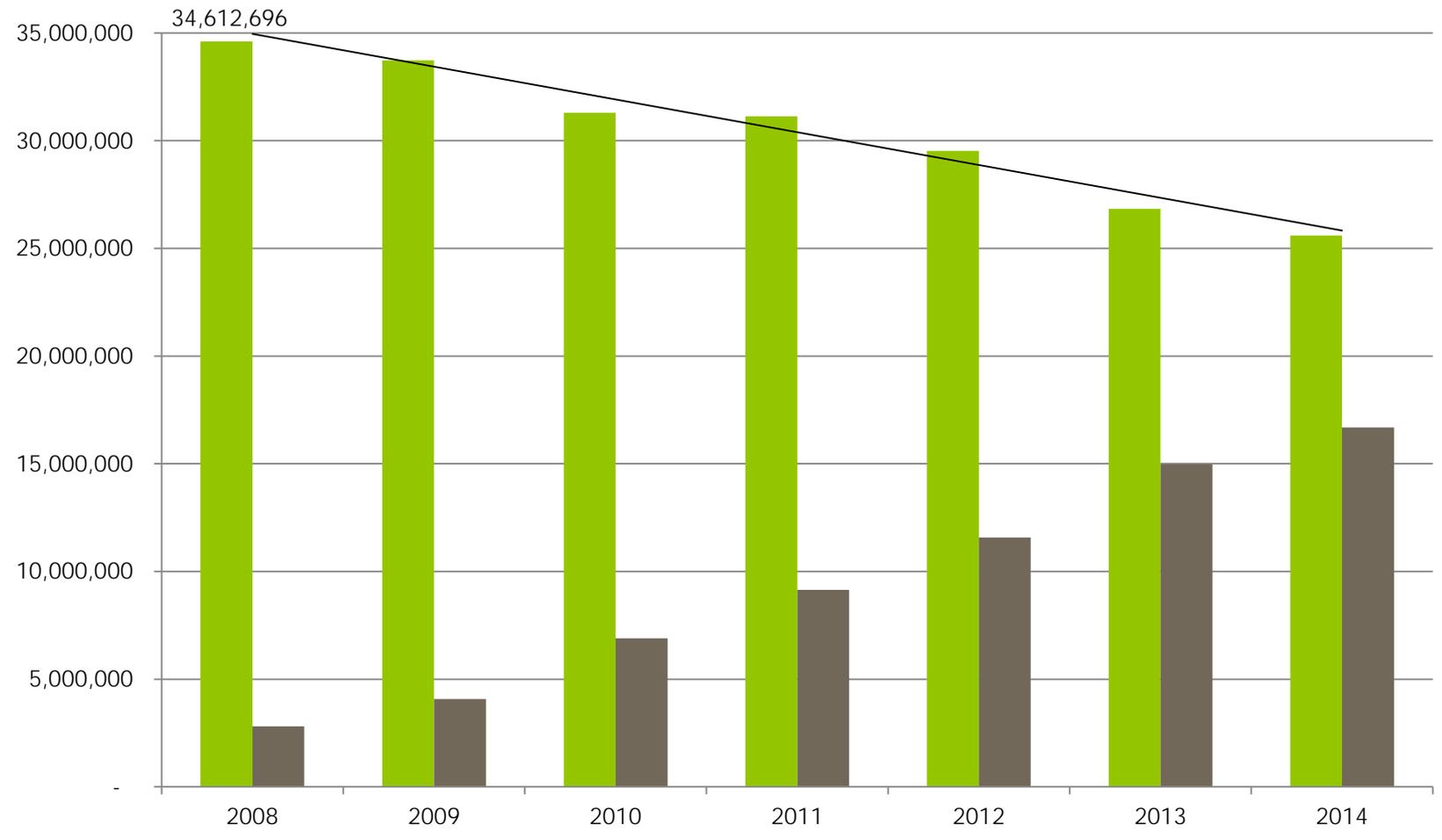
Land use outlook

- Soybeans: hover around 78 million acres
- Corn: drops from 95.3 million to 93.5 million acres; continued decline to 88.5 acres in 2017
- Wheat: slightly higher this year than 2013/14 at 57 million; decline to 52 million from 2017/18 to 2023/24
- lower prices mean soybeans and corn will be similarly profitable; reduce risk with diversification. “Sowing more soybeans, which cost \$220 less per acre to grow than corn.” Bloomberg

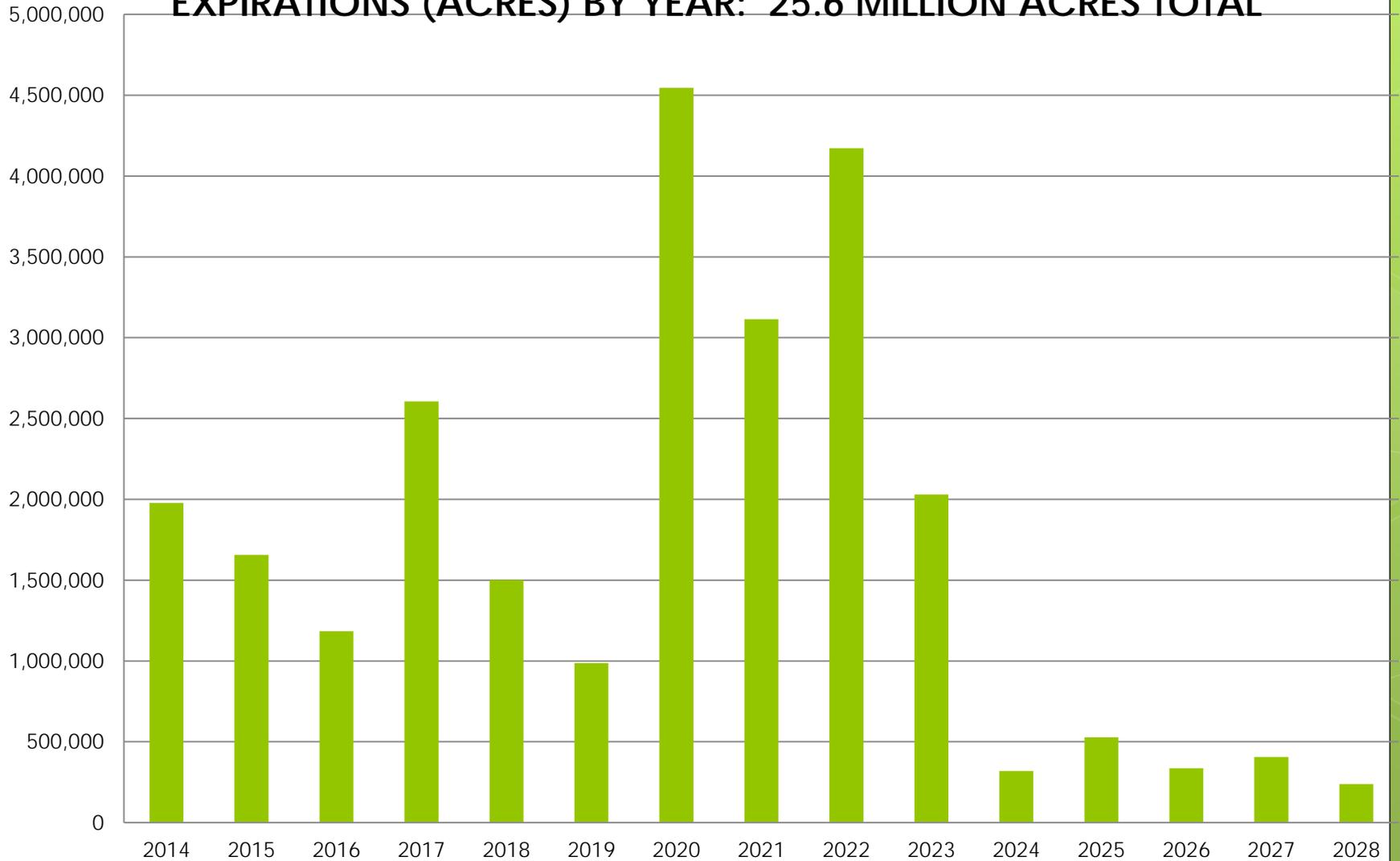
Farm bill Conservation

- 24 million by 2018 -- 8 million fewer acres than the cap in the 2008 Farm Bill.
- 25.6 million acres are enrolled in CRP
- Steady decline since 2008 – about 45% of the CRP land has left.
- In the next 5 years – contracts on another 7.5 million acres set to expire
- ‘Sod saver’ provision aimed at conserving intact prairie grasslands which may impact cropland use

CRP Enrollment and Attrition from 2008-2014



CONSERVATION RESERVE PROGRAM: CONTRACT EXPIRATIONS (ACRES) BY YEAR: 25.6 MILLION ACRES TOTAL



Climate Change: Potential impacts

- Regions in the U.S. may become more/less profitable and shifts in production may occur
- Decrease in Crop Yields due to more severe droughts reducing crop yields
- Damage and Loss to crops and livestock from severe weather
- Need for more irrigation; other changes in production costs
- Shift in pest and disease pressure also shifting production to another region

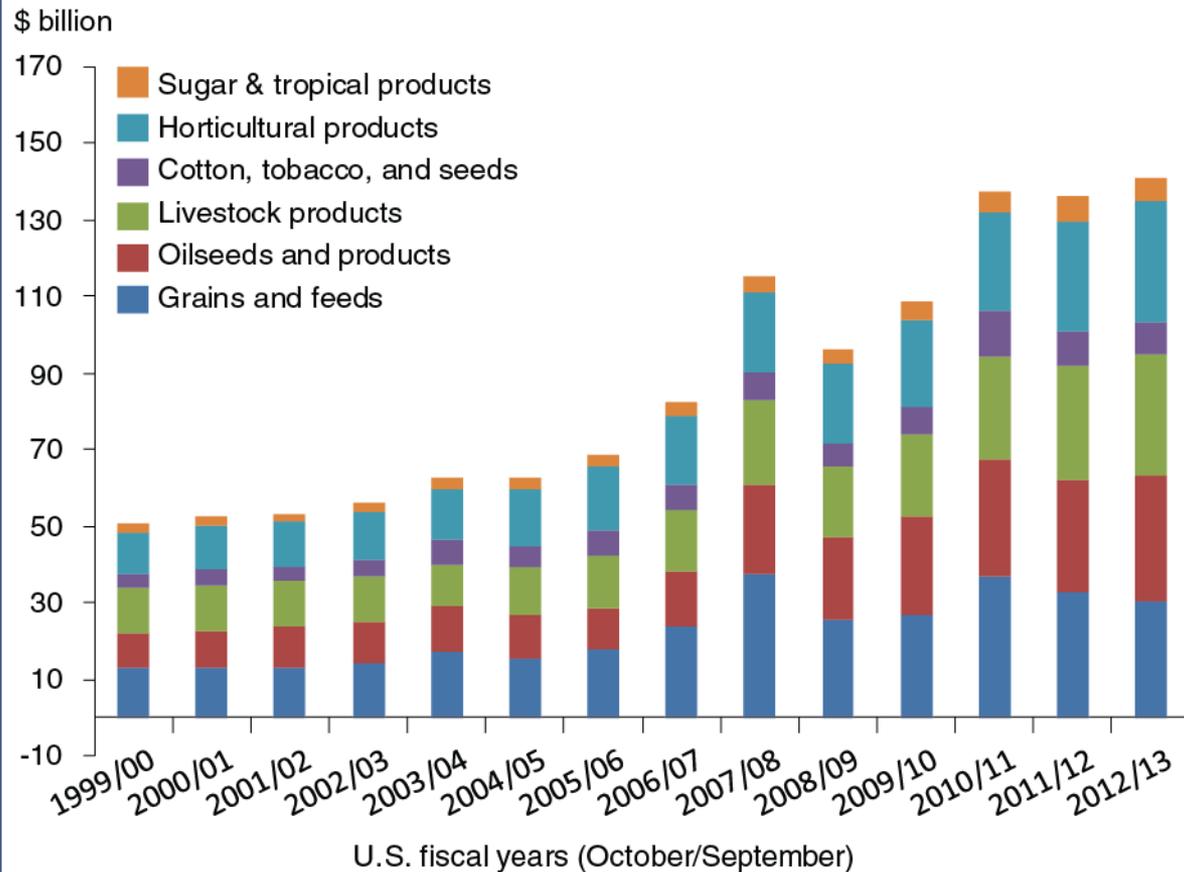
Farm bill - Preliminary

- Both ARC and PLC tied to a farmer's historic base acreage.
 - Could impact "new" corn acres those planted acres in recent years
- PLC: Counter-cyclical programs pay farmers when crop prices drop below a statutorily set reference price. Payments can be made for up to 85 percent of historical acreage
- ARC guarantees farm revenue will be 86 percent of benchmark revenue
- re-linking conservation compliance with the federal crop insurance program
 - To the degree people choose not to take crop insurance could impact planting of risky marginal acres

Other Concerns

- Water Quality – changes in farm practices; use of Best Management Practices
 - TMDL's
- Water Quantity
 - California now
 - Rangers – sufficient supplies to continue
 - Farmers have left hundreds of thousands of acres of agricultural land go fallow.

U.S. agricultural exports by category



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau.