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Trends in Adoption of Conservation Practices in the United States

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Conservation tillage
(No-till/reduced tillage)

Nutrient Management

Cover crops

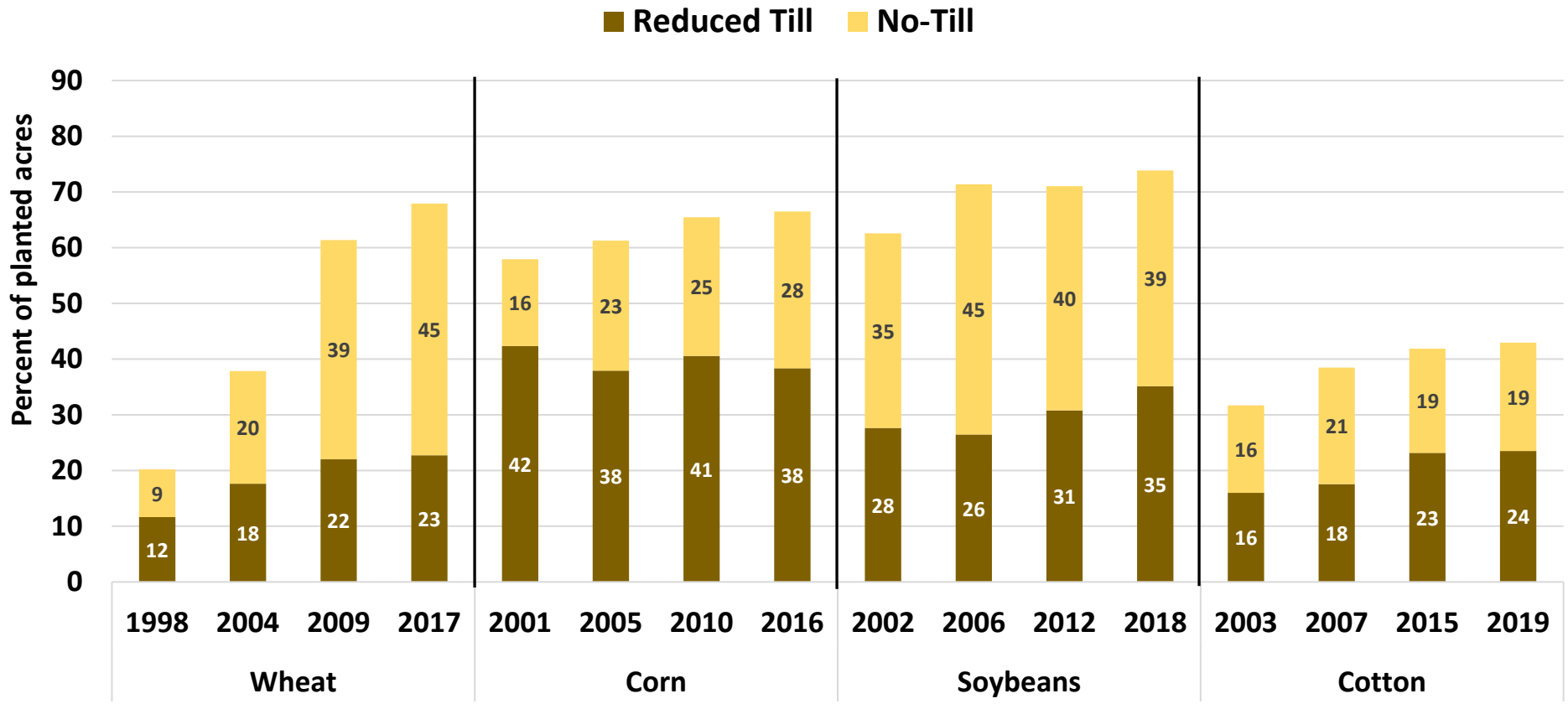
Photo credits: (1) USDA NRCS Texas; (2) USDA NRCS;
(3) NRCS/SWCS by Lynn Betts

Conservation tillage

- Tillage has historically played a role in preparing cropland for planting
- Reducing or eliminating tillage has many benefits
- Between 1994 and 2017, the number of acres in no-till expanded from 39 million acres (CTIC) to around 104 million acres (USDA Census of Agriculture)
- A number of factors contributed to this expansion

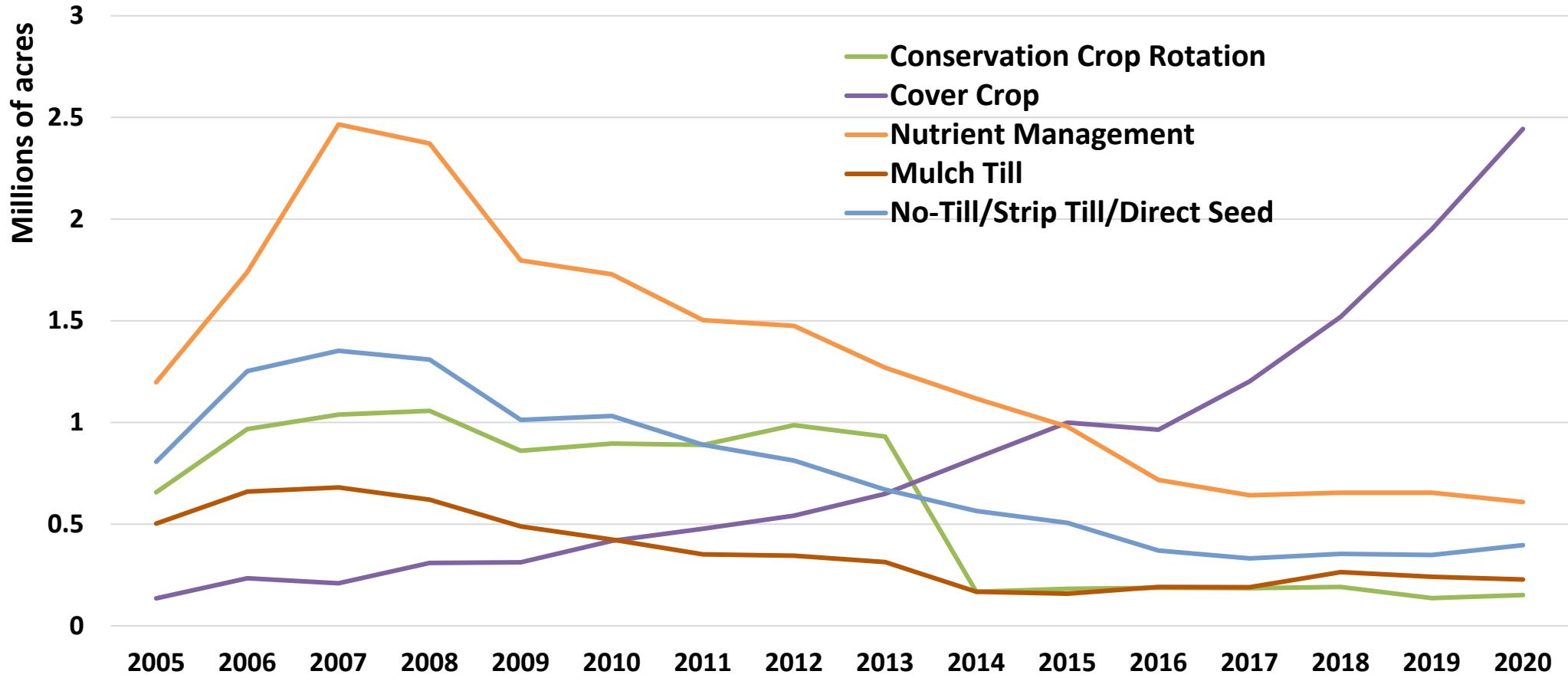
Photo credit: USDA NRCS Texas

No-till adoption has slowed for some crops, but total acres under conservation tillage continues to increase



Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, Agricultural Resource Management Survey

Financial assistance through EQIP for top cropland management practices



Source: USDA-NRCS, National Planning and Agreements Database (NPAD), October 2020 via USDA-NRCS RCA Data Viewer.

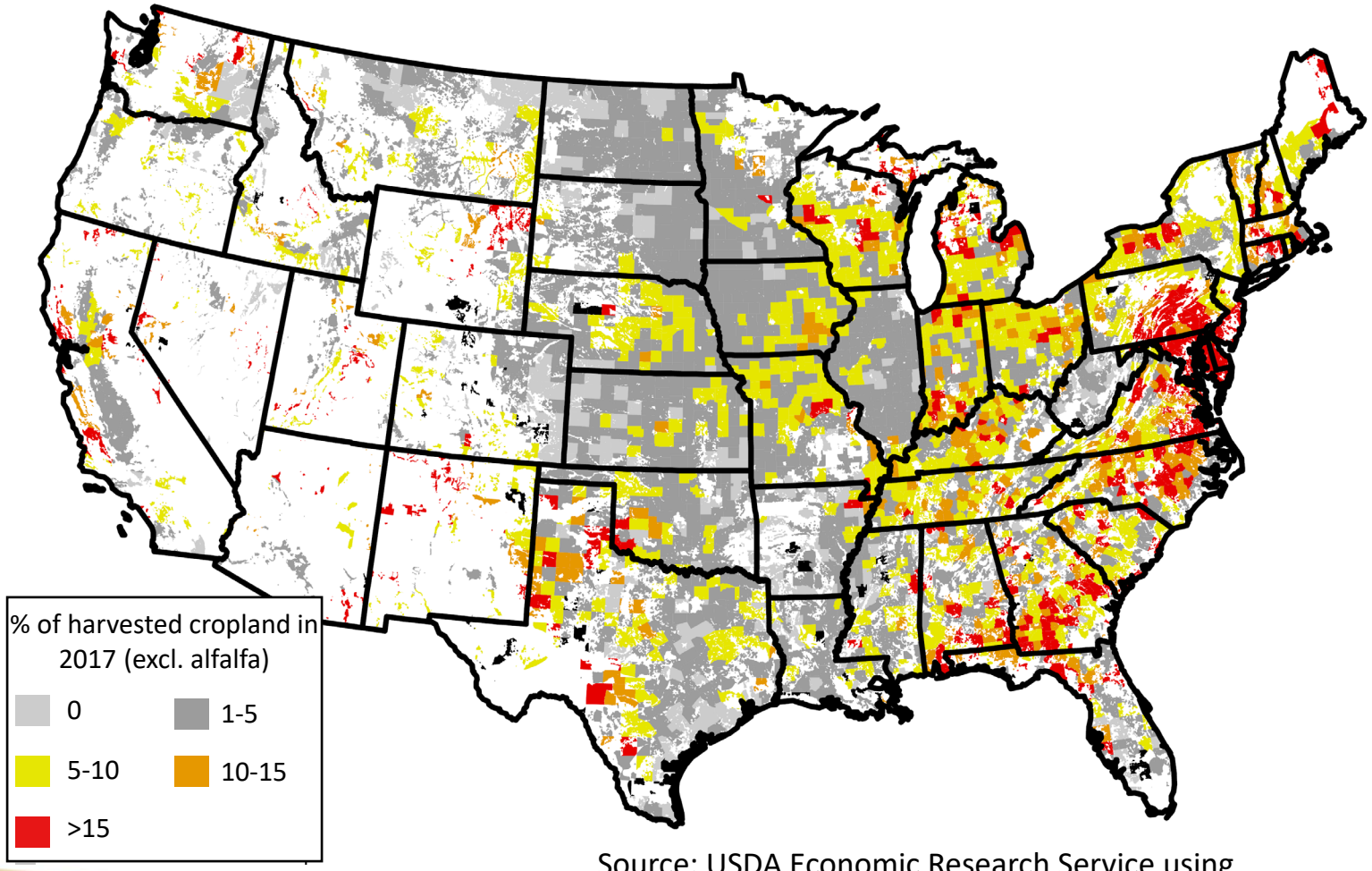
NRCS/SWCS photo by Lynn Betts

Cover crops

- Cover crops can provide a number of benefits
- Adoption is increasing across the U.S. (10 million acres in 2012 census vs. 15 million acres in 2017 census)
- ERS data suggest that this trend is continuing
- Adoption still (relatively) low compared to conservation tillage

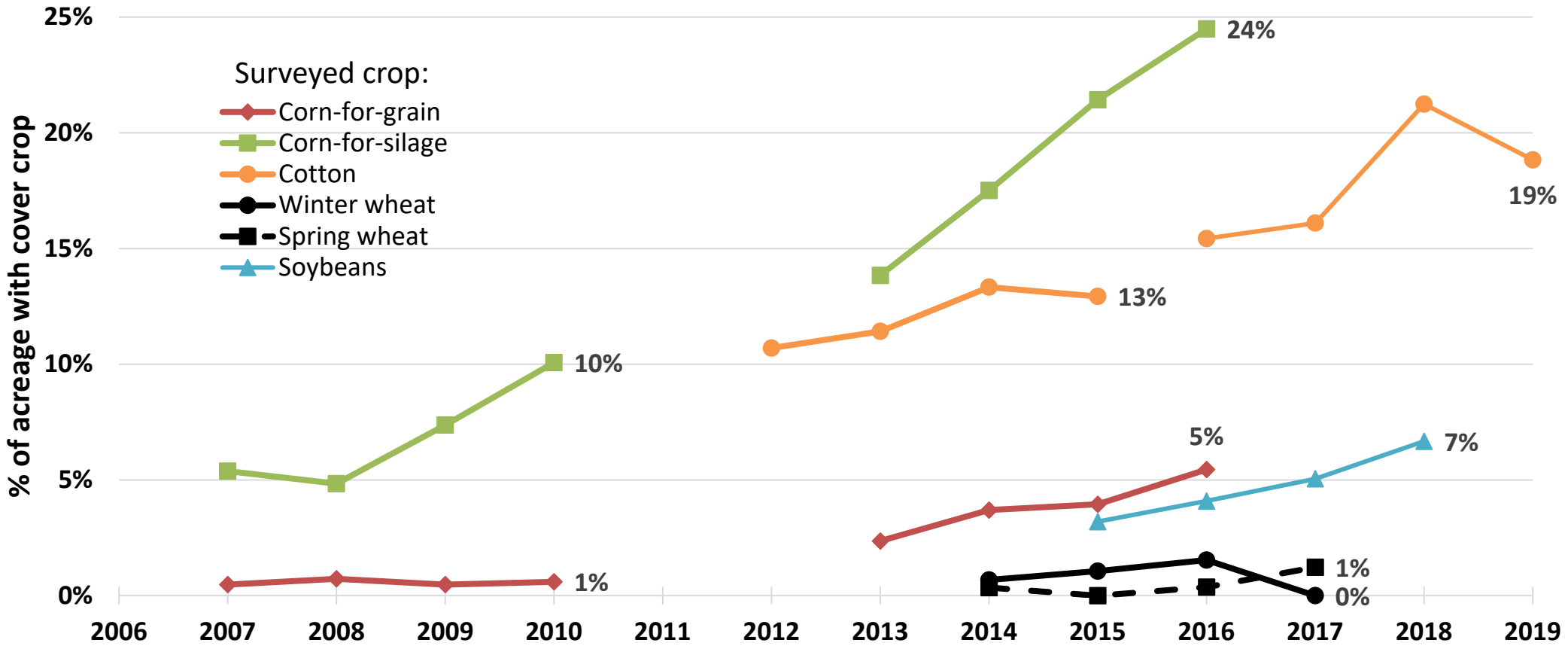
Adoption of cover crops varies across the U.S.

- Different soils, cropping and livestock systems, and climate all affect costs and benefits of cover crop adoption
- Cover crops relatively cost-effective for addressing water quality concerns
- State programs and financial incentives for cover crops play a role



Source: USDA Economic Research Service using data from the 2017 Census of Agriculture

Rates of fall cover crop adoption vary depending on the cash crop



Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, Agricultural Resource Management Survey

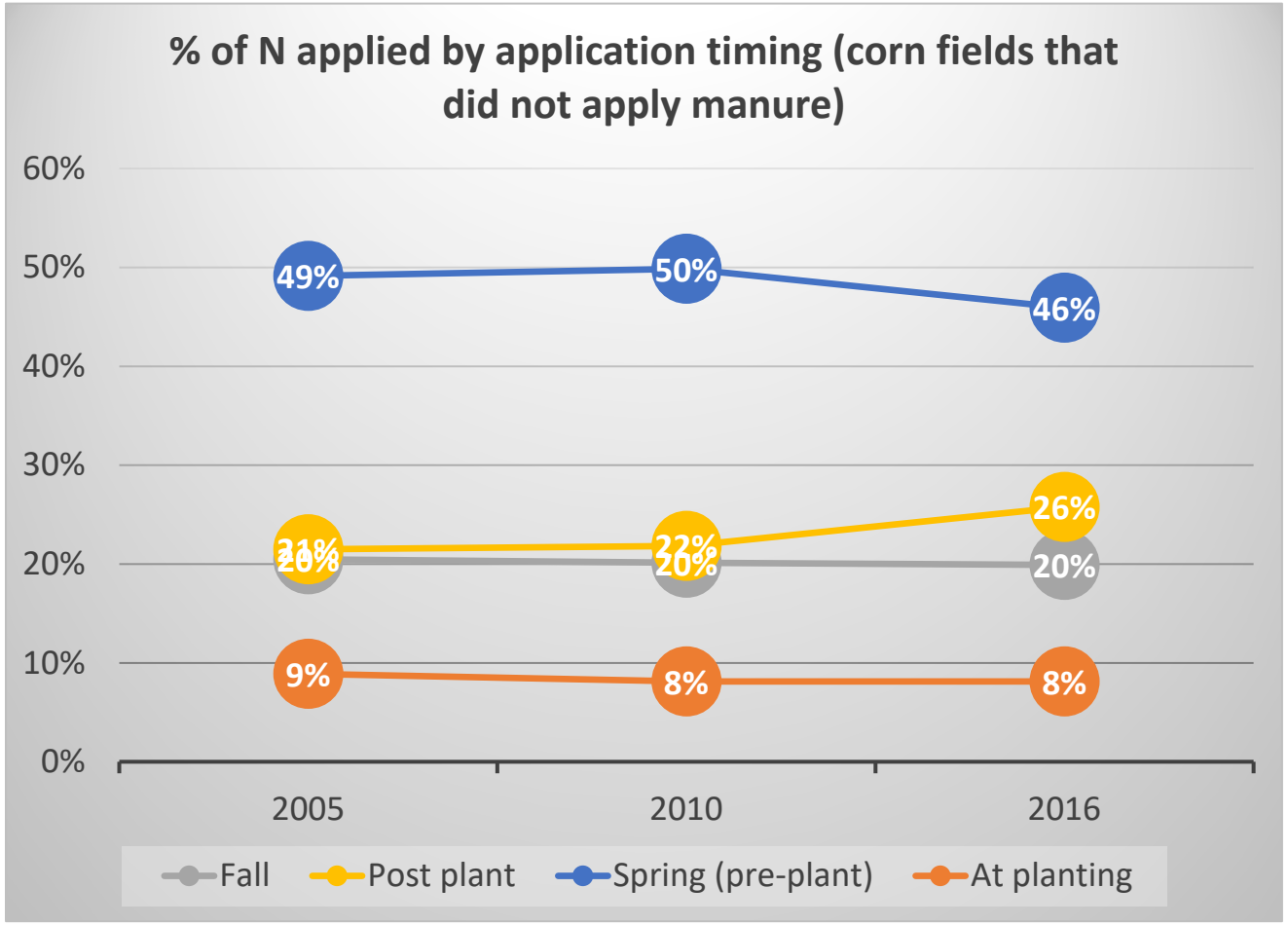
Photo credit: Jason Johnson, Iowa NRCS

Nutrient management

- Crop growth and environmental impacts of nutrient management affected by…
  - Amount (rate) of nutrients applied
  - Source of nutrients
  - Timing and placement of nutrients
- Examples of conservation at work in nutrient management:
  - No fall application, or “split application”
  - Aligning rate of nutrients applied with crop needs or profit-maximizing rate (not over-applying)
  - Using soil test results to help determine application rates

Nutrient management trends over time

- In general, share of acreage w/ application rates >125% of agronomic need has decreased (N & P)
  - Nitrogen on corn: 53% in 1997 vs. 28% in 2016
  - Phosphate on cotton: 45% in 1997 in to 29% in 2015
- When and how nutrients are being applied is changing
  - In corn, some evidence that spring application is shifting from pre-plant to post-plant
  - Will be examining trends for other crops, fields receiving manure
- What role does precision nutrient management play in conservation, and how is this changing over time?



Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, Agricultural Resource Management Survey

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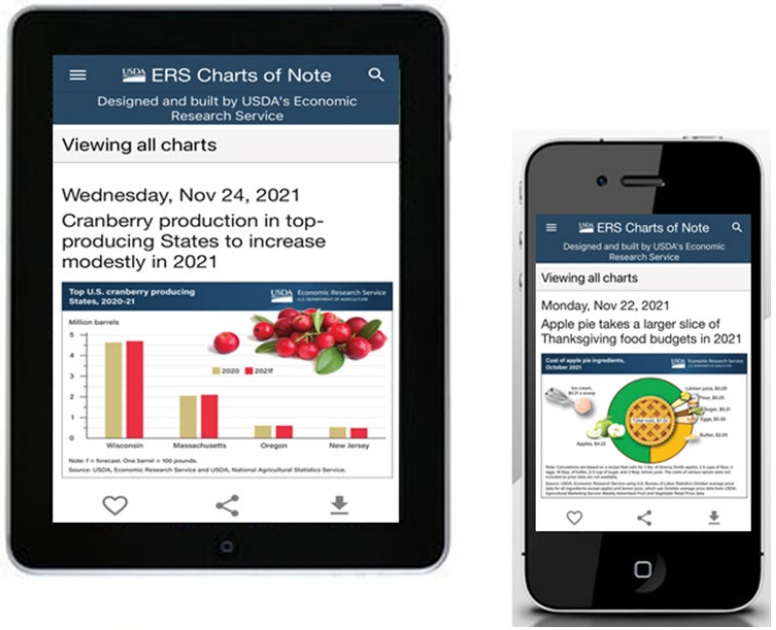

Thank you.

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