

Double Cropping Land Use

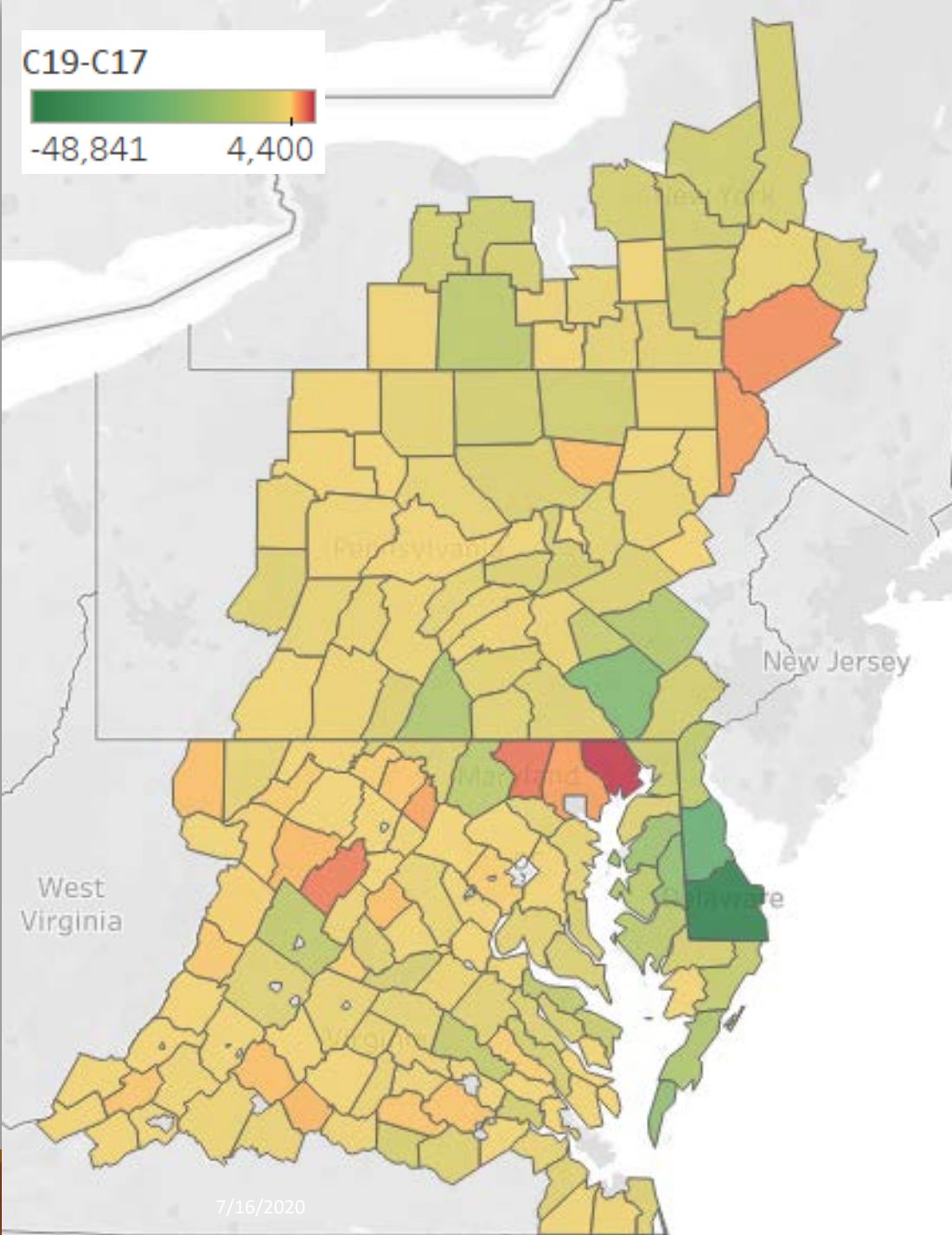
An aerial photograph of a farm illustrating double cropping. A central, vibrant green field, likely a cover crop or a second crop, is surrounded by yellow fields of mature soybeans. To the right, a portion of a harvested corn field is visible, showing the golden-brown stalks. The background features a line of trees and more agricultural land under a clear sky.

JUNE 30, 2020

AGRICULTURE WORKGROUP

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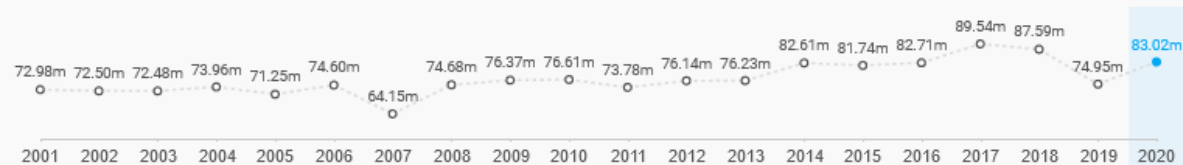
Double cropped acres change between projection for 2017 and the 2017 Ag Census

- Map shows the difference between the projected double crop acres in CAST-17d vs. CAST-19 for 2017.
- CAST-17d projected the 2017 area using data from the 2012 and earlier Ag Censuses
- CAST-19 uses actual data from the 2017 and earlier Ag Censuses

COMMODITY
Soybeans ▾

STATISTIC
Acres Harvested
Measured in Acres ▾

Print
 CSV
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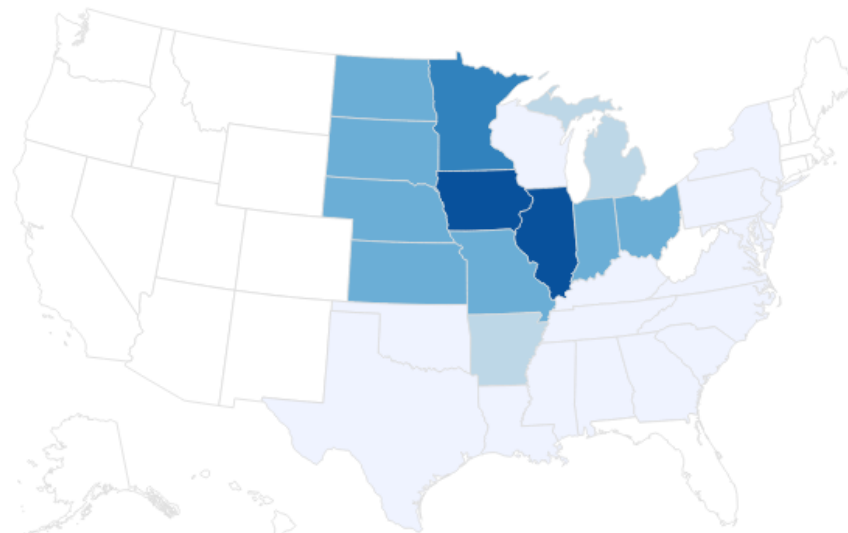


Acres Harvested – Measured in Acres

US States – 2020

Acres Harvested – Measured in Acres

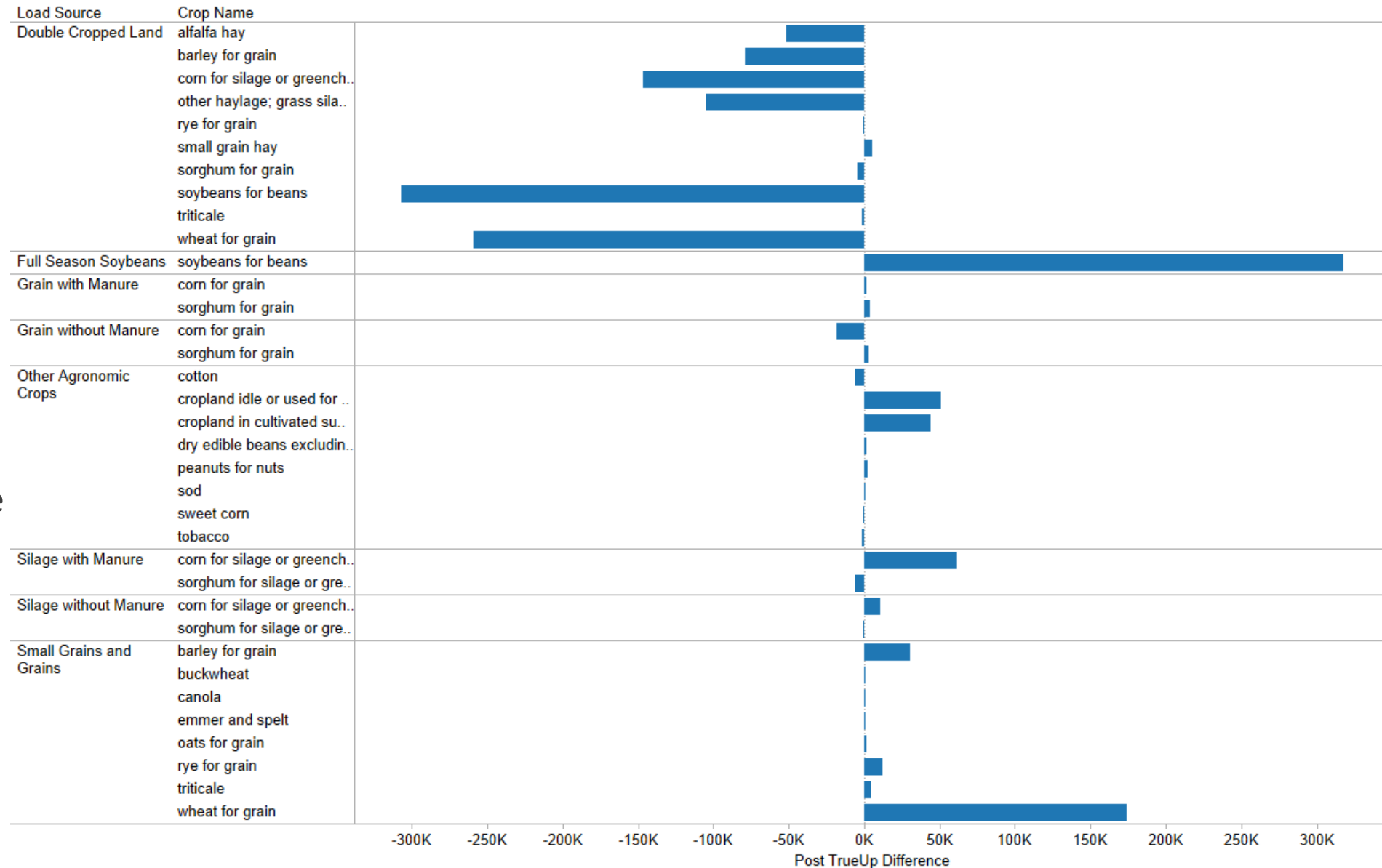
NA 0.0 2.1m 4.1m 6.2m 8.3m 10.4m



Change in Crops

Most of the change is explained by the apparent shift from double cropped soybeans to full season soybeans

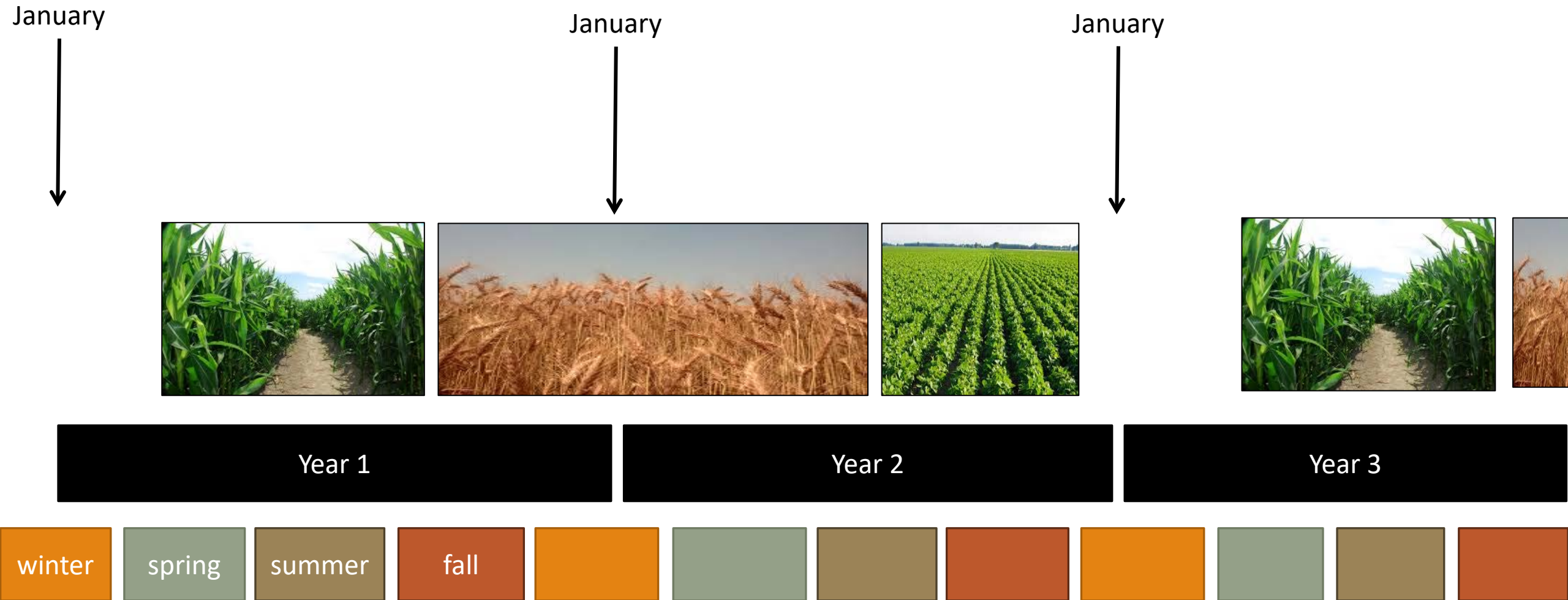
Data are for 2017 for the entire Chesapeake Bay watershed



Impacts

1. Load applications are different for crops in the double cropped land use than when those crops are full season.
2. BMPs are eligible to be applied to specific land uses.
 - Nutrient management includes four BMPs: core, rate, placement, and timing.
 - Only nutrient management core is eligible to be applied to full season soybeans since the amount of inorganic fertilizer applied is incidental.
 - The nutrient management core BMP lowers the overall nutrients applied to the crops. The other nutrient management BMPs for rate, placement, and timing reduce the amount of runoff loads but do not affect the nutrient application.

Modeling Crop Rotations in an Annual Model



Data and Method

Data Needed

- Ag Census Harvested Cropland area – total cropland area
- Ag Census individual crops area – summed for a total of all crops planted
- Ag Census early crop and late crop areas (Group 1 & 2)
 - Group 1 & 2 crops were determined by each state
 - Group 1 is primarily corn, sorghum, and soybeans
 - Group 2 is primarily small grains

Method

- Actual double cropped area is the minimum of:
 1. Area of crops in excess of the total cropland
 2. Group 1
 3. Group 2
- These calculations are performed at the county scale for each year.

Example

Harvested Crop Land Area = 5,000 acres (harvested cropland acres)

Sum of area of all crops = 8,000 acres (sum of crops)

$8,000 - 5,000 = 3,000$ (area needed to be double cropped)

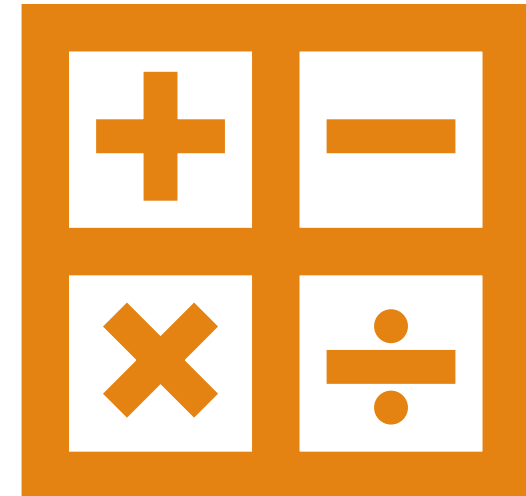
Crop group 1 (corn, beans) = 2,500 acres

Crop group 2 (winter grains) = 3,000 acres

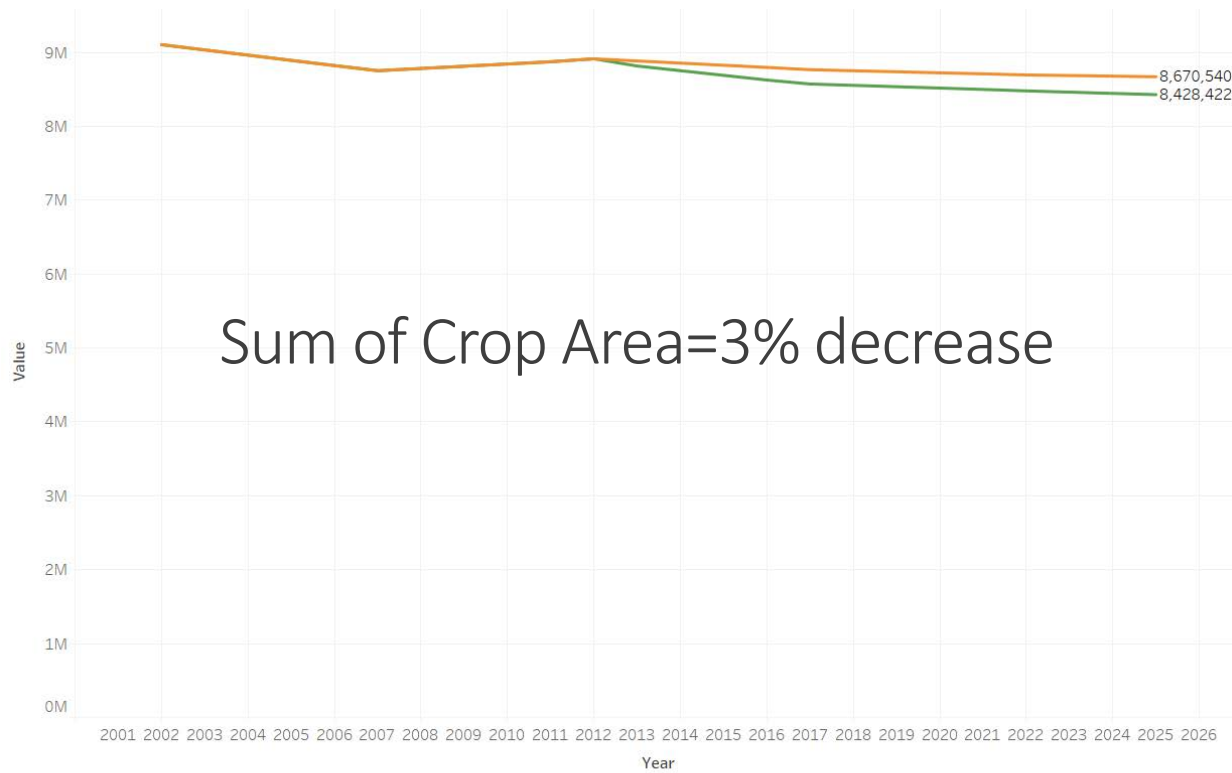
Double cropped area is 2,500. Adjusted double crop acres because not enough to double crop 1 and 2.

Each crop within its group is apportioned to the 2,500 acres using the original proportions of the crop types

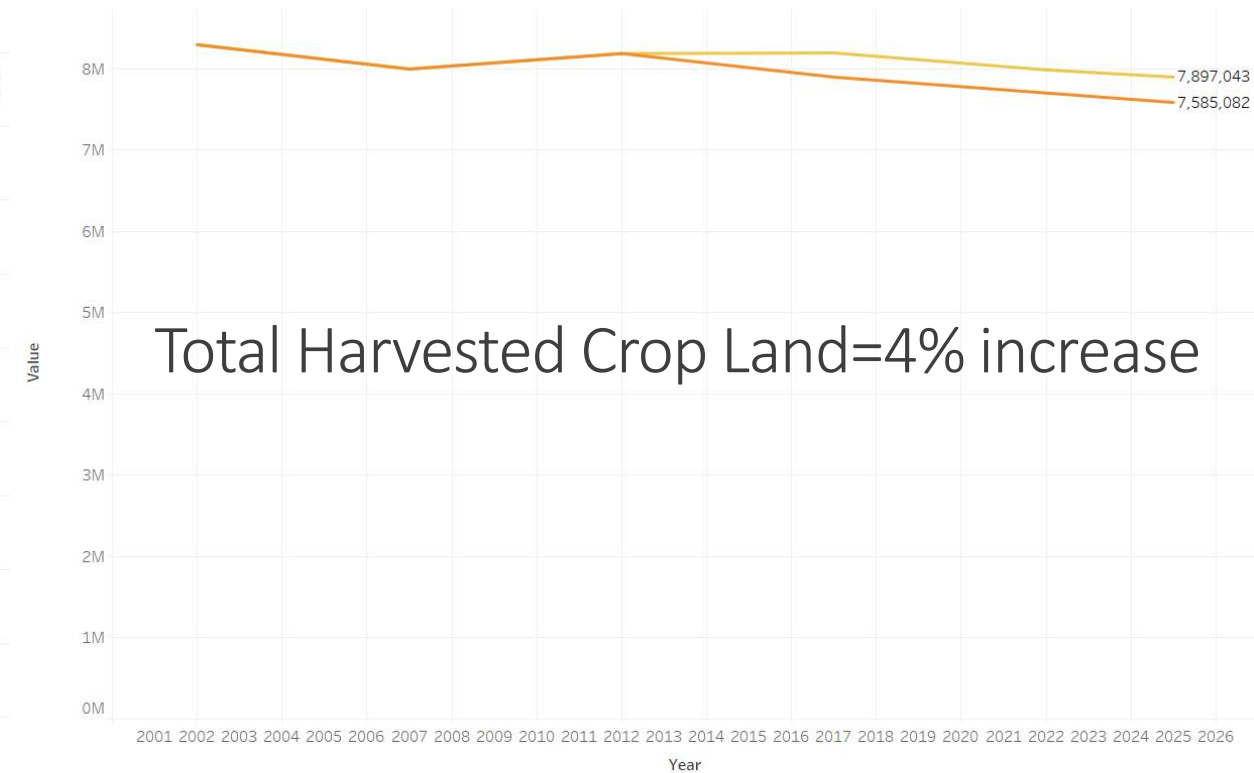
Assign appropriate plant and harvest dates and application timing to those double cropped crops



Small Changes Propagate



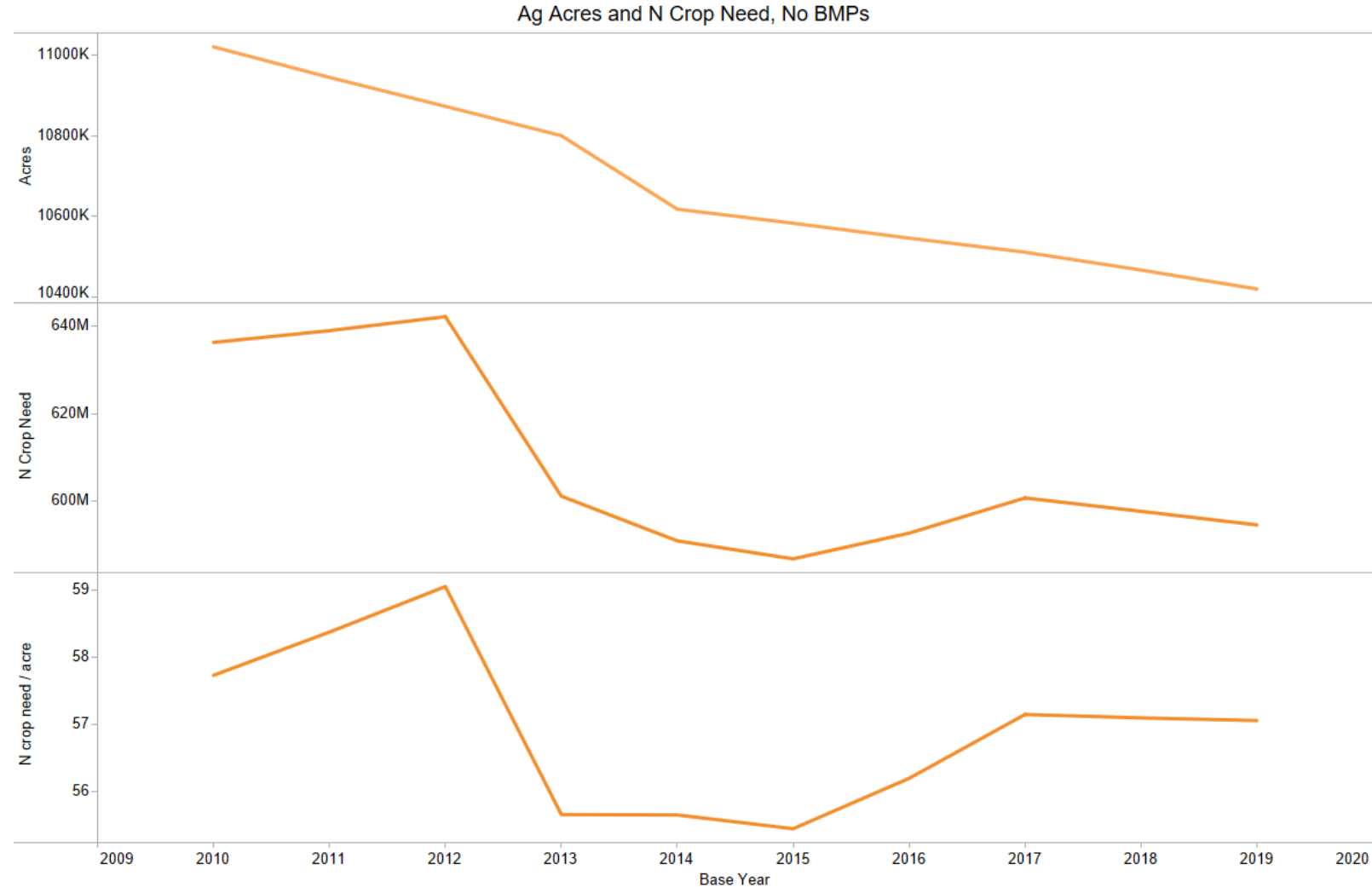
Measure Names
CropsToCompareC17
CropsToCompareC19

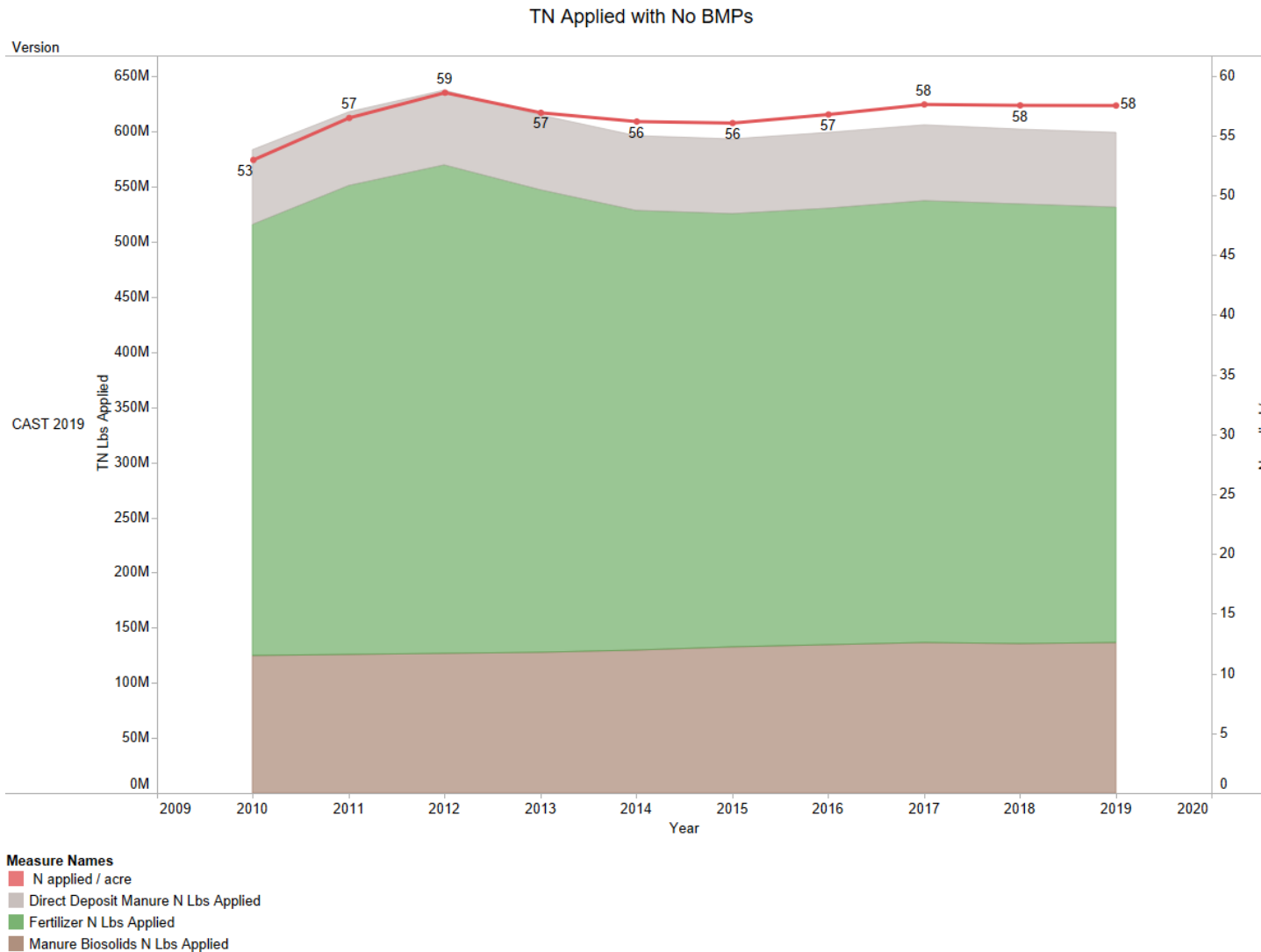


Measure Names
HarvestedCropAcresC17
HarvestedCropAcresC19

Ag Acres and Crop Nitrogen Need

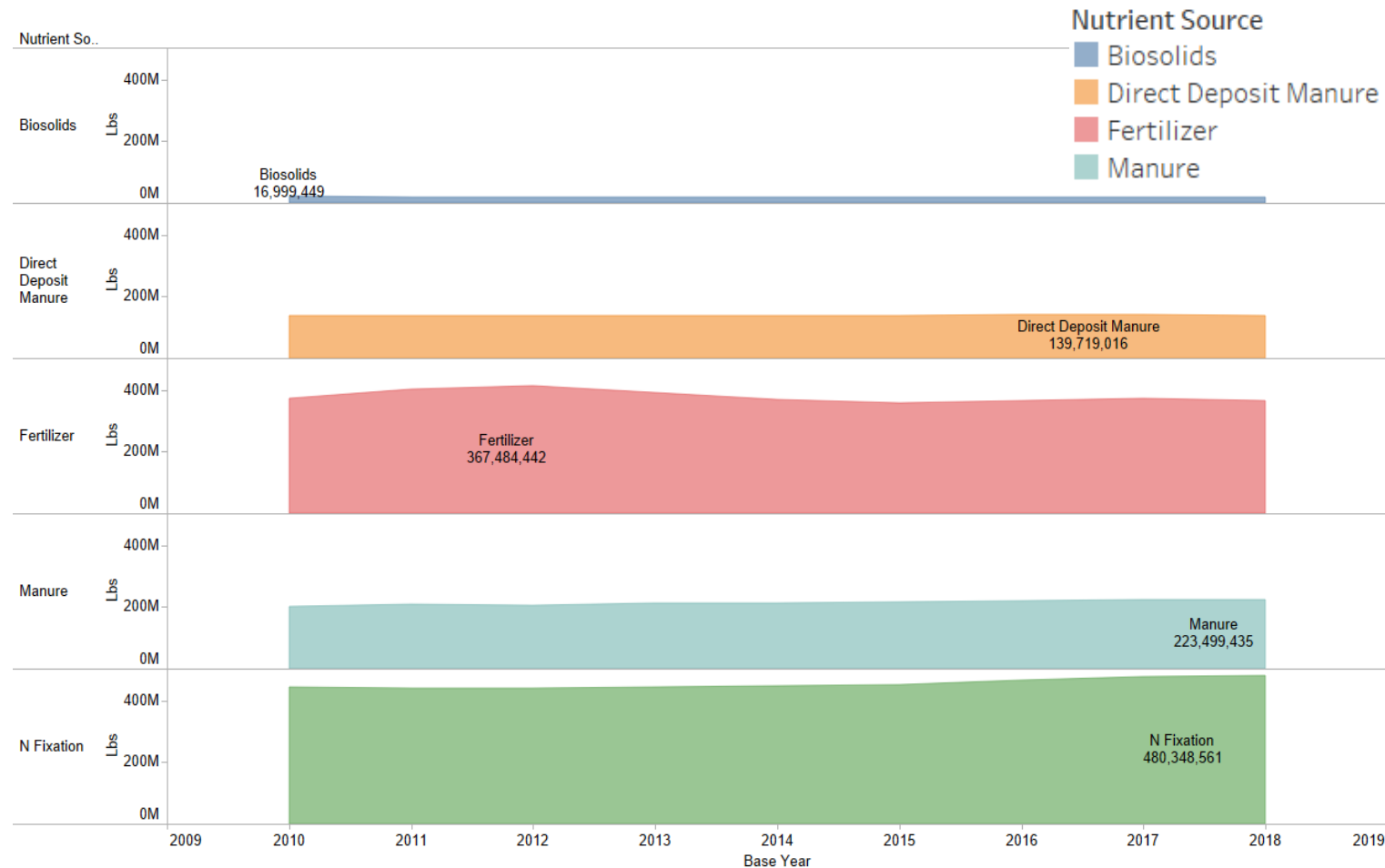
- Agriculture acres are decreasing
- Nitrogen crop need is decreasing
- Crop need/acre is fairly constant
- Fluctuation comes from types of crops
- Shown without BMPs





Agricultural TN Applications

- Application rate is flat
- Decreased inorganic fertilizer applications
- Decreased direct excretion to streams
- Increase in manure & biosolids from 124M lbs. to 136M lbs. between 2010 and 2018
- Shown without BMPs

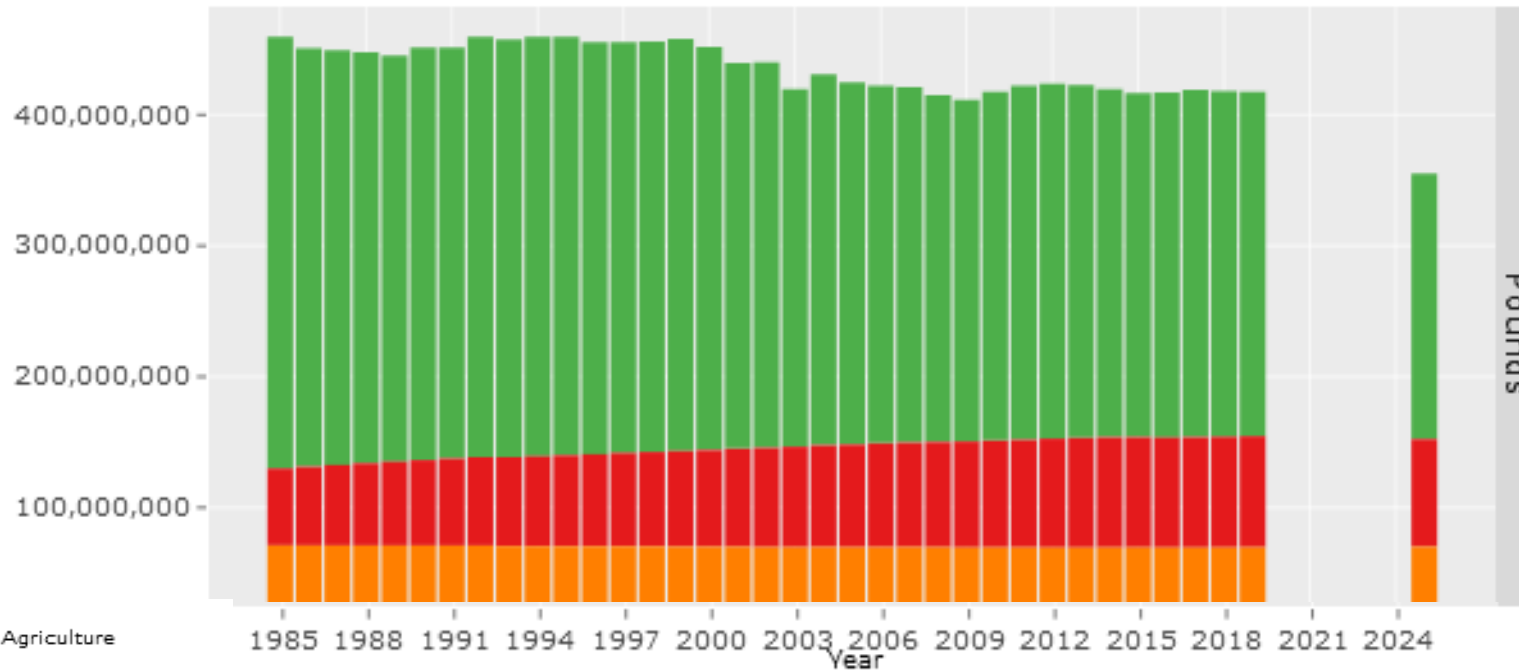


Nutrients by Source

- Label denotes 2018 value
- Increase in manure and nitrogen fixation
- What is taken up by the plant and runs off is different than the source of nutrients
- Data shown include BMPs

Viewable On CAST: Loads Delivered to Streams

Nitrogen Edge of Stream by Source and Year



t.chesapeakebay.net/Home/TMDLTracking#trendsOverTimeSection

NRCS PracticeStandards Directories Weather_Streams Chesapeake Bay Water... MoCo RFPs CAST - Transition To P...

Chesapeake Assessment Scenario Tool

PUBLIC REPORTS LEARNING ABOUT CONTACT US

Trends Over Time

View trends for loads, nutrients, animal units and septic systems for Bay jurisdictions from 1984 through 2025.

- BMPs
- Loads
- Nutrients Applied
- Animal Units
- Septic



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