Update on CAST-2019

OLIVIA DEVEREUX, DEVEREUX CONSULTING, INC.

APRIL 2, 2020

Timeline for CAST-2019 Review

- February 21, 2020
  - Email sent to Water Quality Goal Implementation Team, the Watershed Technical Workgroup, and Interested Parties asking for comments over a one-month period and stating the release date is the week of March 23, 2020.
  - Access to the CAST-2019 Beta version was granted to all CAST users who are members of the WQGIT, WTWG and Interested Parties. Others have been granted access upon request. Access includes shared scenarios: all progress years, E3, NA, and the Final WIP3. The list of changes between versions was made available on CAST.
- March 5, 2020
  - Presentation on updates to the Watershed Technical Workgroup
- February 21 to March 22, 2020
  - Comments received from WV, MD, PA, DE, and VA
  - Meetings held with each state prior to the March Water Quality Goal Implementation Team
  - Updates made to hay crops and the land policy BMP processing
- March 23, 2020
  - CAST-2019 is presented to the WQGIT
- April 2, 2020
  - Presentation on updates to the Watershed Technical Workgroup
- April 27, 2020
  - Updates presented to the WQGIT
  - CAST-2019 goes live following final updates
  - CAST-2017d web-access is removed
  - Migrate Scenarios option is available to all users who have CAST-2017d scenarios

Comments Received

Change in Projected Hay Acres

The 2017 Agricultural Census collapsed three categories of hay that were separate in previous censuses

- Wild hay
- Other Hay
- Small grain hay

The early CAST-2019 beta split the acres equally among the three categories.

UPDATE—the 2017 hay acres are proportioned according to the percentages in the 2012 census

4

Developed acres

States using land policy BMPs were seeing increases in developed acres.

- Evident in the WIP scenario for WV, PA, and MD.

The processing of the land policy BMPs had an error.

UPDATE—the processing of these BMPs has been corrected and now the expected effect of conservation is evident

Some concerns were expressed that the process used to bring in the agricultural census data, construction acres, and harvested forest was causing this result. The issue was found with the processing of the land policy BMPs, not the "true up".

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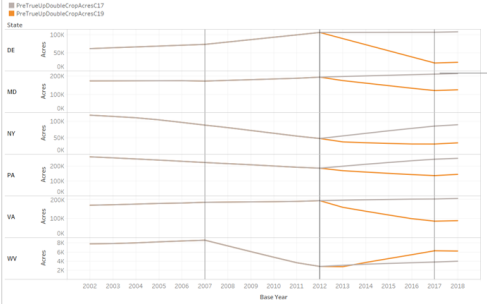

Decrease in Double Crop Acres

Available acres determined using difference between the Agricultural Census categories

- Total harvested cropland
- Sum of the acres of each crop harvested

The 2017 Ag Census shows us that the projections from the 2012 Ag Census led to an overestimation of double crop acres used in CAST-2017d for 2013 to 2025.

The new data from the 2017 Ag Census corrects the previous projections

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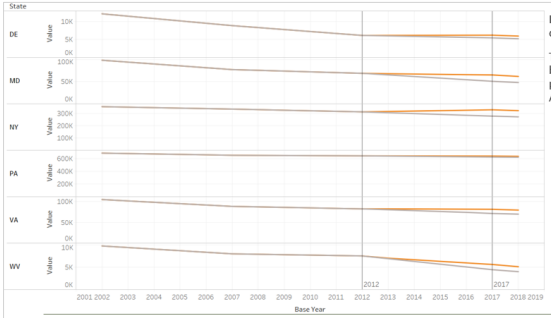
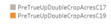


Dairy animals have been decreasing over time.

The rate of decrease has been faster than was predicted using the 2017 Agricultural Census

Change in Projected Dairy Animals



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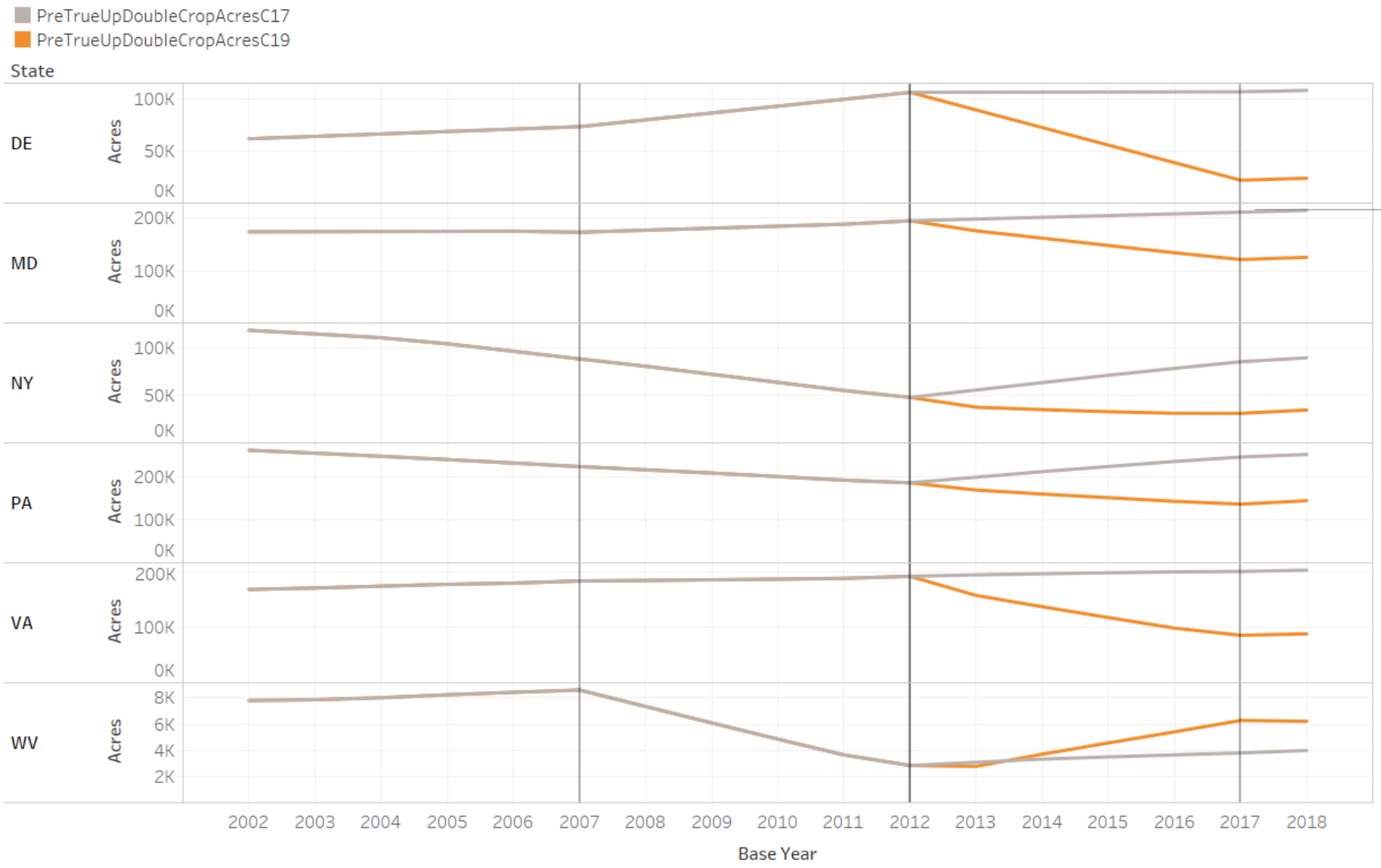

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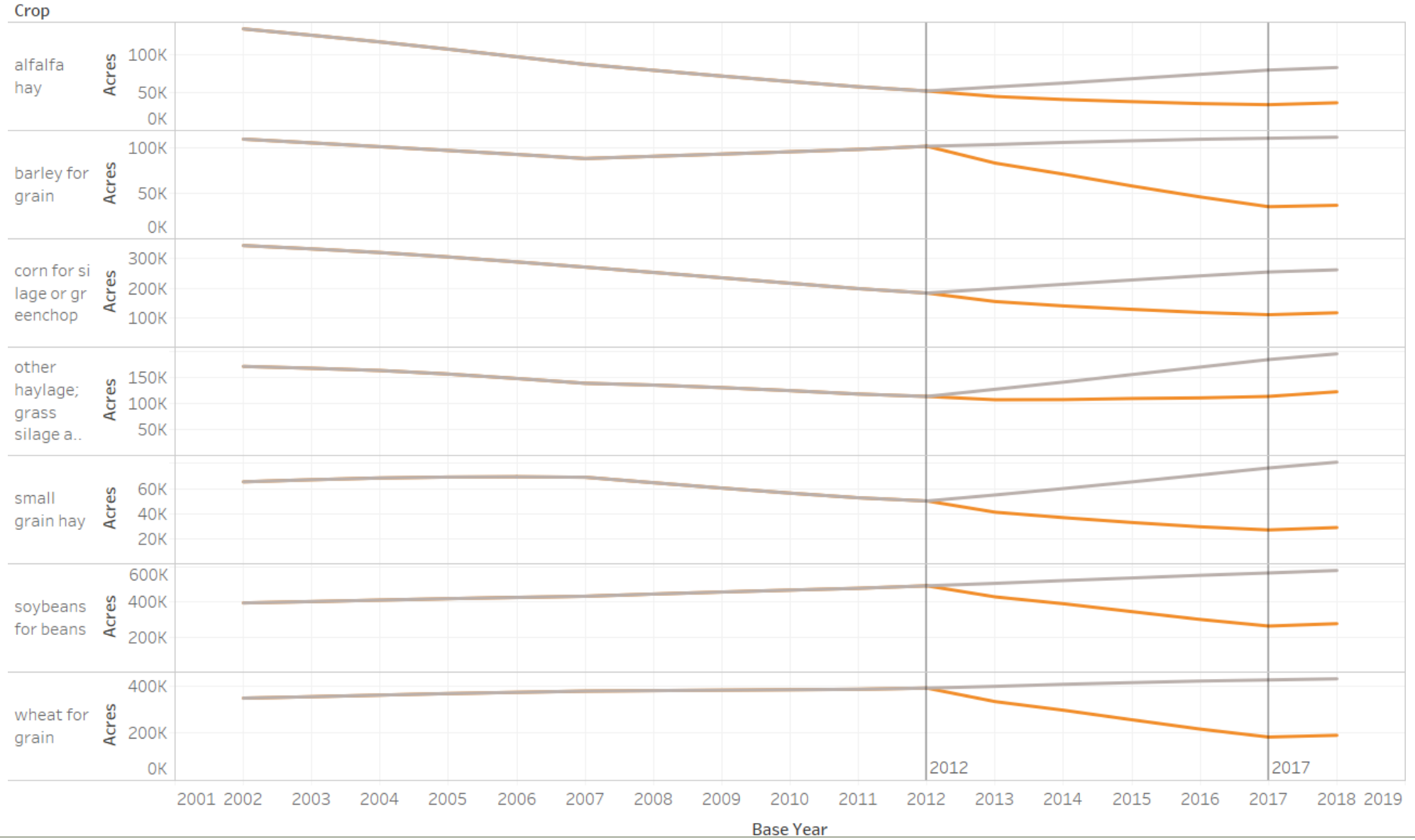


Change in Projected Double Cropped Crop Acres

PreTrueUpDoubleCropAcresC17
PreTrueUpDoubleCropAcresC19

Soybean Nutrient Application

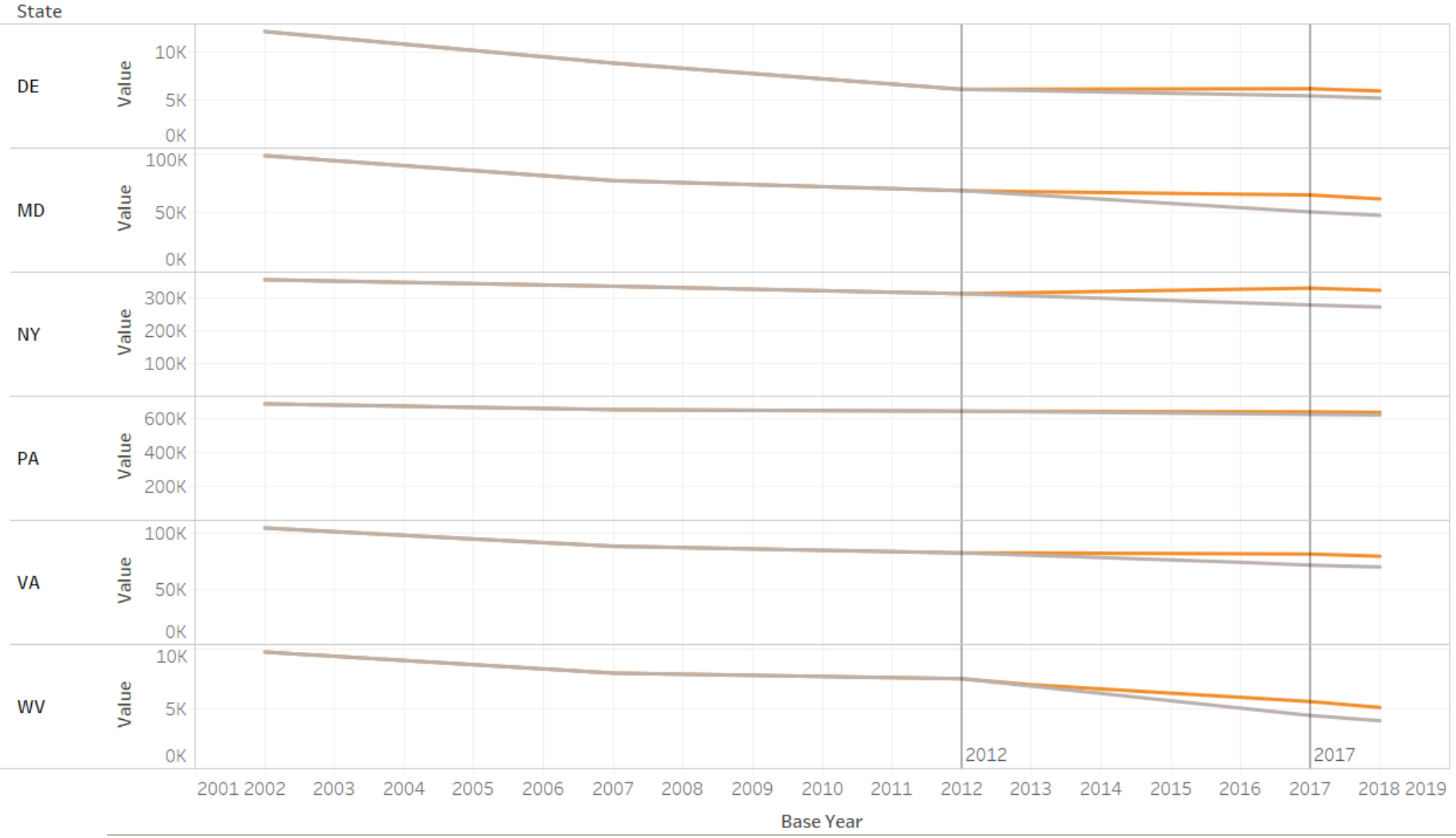
Nitrogen loads are impacted by whether soybeans are full season or double cropped.

- Double-cropped soybeans = Zero nitrogen allocated
- Full season soybeans Nitrogen allocation
  - 0.12 lb per bushel or 5.70 lbs/acre
  - 2.23 inorganic lbs/acre applied on average throughout the watershed
  - 1.35 organic lbs/acre applied on average throughout the watershed

The UMD, Penn State, and VT nutrient management guidelines recommend zero N on full-season or double-cropped soybeans.

The UMD guidelines (SFM-1) for nutrient applications state:

- Nitrogen application is not recommended for soybean production, however, use of commercially available fertilizer formulations may result in application of up to 50 lb N / acre when fertilizer formulation and application rate is determined by crop P2O5, K2O, S, or other nutrient needs.
- Organic waste nitrogen application to full-season soybean is not recommended because it is an agronomically inefficient use of applied nutrients.
- Organic wastes should only be applied to small grain - double-crop soybean rotations at rates and timings to supply the recommended nitrogen rate to the small grain crop



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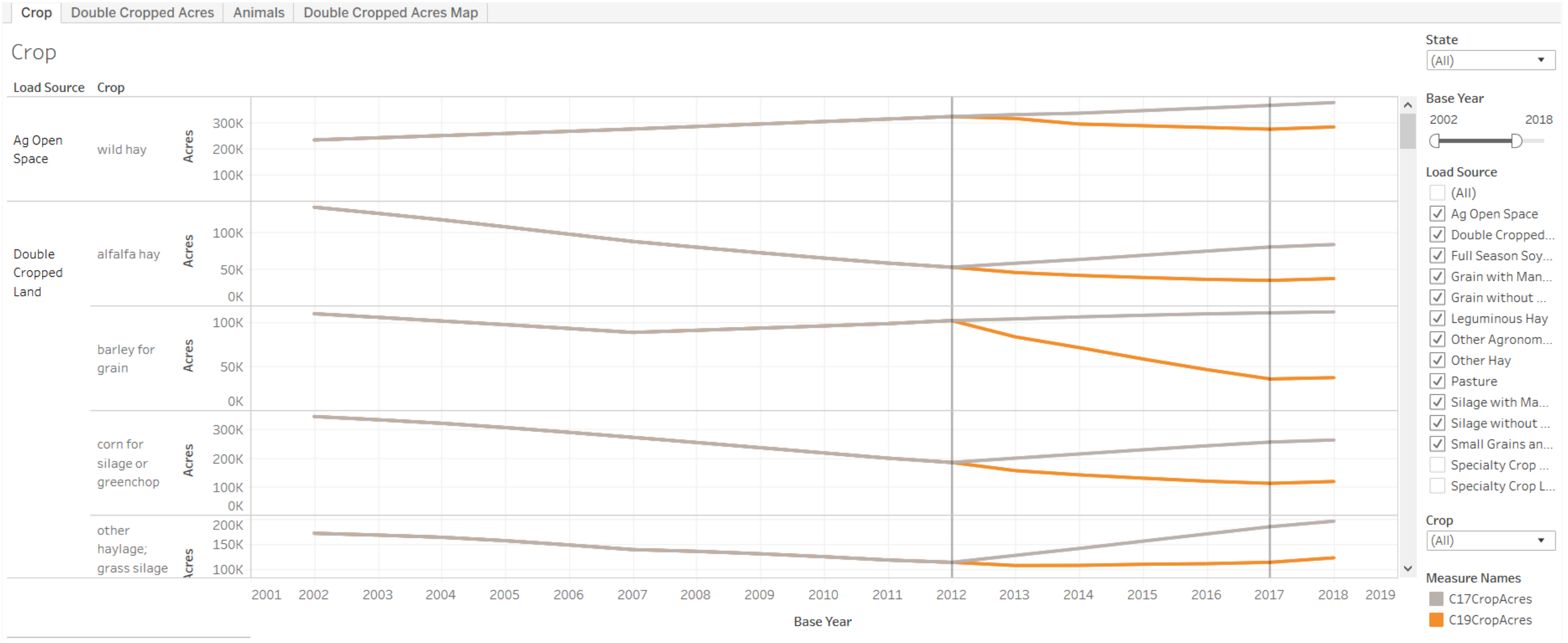
Data Available

https://public.tableau.com/views/CASTProjectionDifferenceswithActual_rev3262020/Crop?:display_count=y&publish=yes&:origin=viz_share_link



CAST-2021 Schedule

September 1, 2021 - All data and approved methods

November 1, 2021 - CAST-2021Beta release

January 1, 2022 - Final CAST-2021 release

Questions?

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