

Testing Fertilizer Expert Group Recommendations

Tom Butler, EPA

6/5/2023

Outline

Recommendations

Fertilizer Stocks

Phase 6 recommendation details

1) Prior to release of a new CAST version, data should be collected from AAPFCO and directly from states as available. Data should be analyzed according to the following recommendations and incorporated into the new CAST version. The fertilizer data should only be updated with a version change.

2) For data covering 2016 and before, AAPFCO fertilizer sales tonnage data should be used.

3) For data covering 2017 and after direct state reports will be collected and assimilated assuming three or more out of six states provided data.

4) The watershed-wide fertilizer sales will be used up through the last year in which conditions under recommendation 3 are met.

Recommendation 3 caveats:

If less than three of six states provide data directly then AAPFCO fertilizer sales tonnage data will be used.

If at least three of six states provide data directly then state data will be used with nonreporting states data being estimated by...[currently evaluating the three methods below, but will end in a single recommendation]

- **A)** Calculate the percent change in annual fertilizer sales for the sum of states with data between the last year of available data for the state without data (AAPFCO or state data) and the year to be estimated.
 - $\text{Fert}(\text{NodataState}, \text{Year2}) = \text{Fert}(\text{NodataState}, \text{Year1}) * \frac{\text{Sum}(\text{Fert}(\text{StatesWithData}, \text{Year2}))}{\text{Sum}(\text{Fert}(\text{StatesWithData}, \text{Year1}))}$
- **B)** Continue to use the last year of available AAPFCO or state data.
 - $\text{Fert}(\text{NodataState}, \text{Year2}) = \text{Fert}(\text{NodataState}, \text{Year1})$
- **C)** Use a state-specific trend using the last 5 years of available AAPFCO and/or state data for the state without updated data. This trend will be compiled after the calculation and removal of outliers in the AAPFCO data.
 - $\text{Fert}(\text{NodataState}, \text{Year2}) = \text{Fert}(\text{NodataState}, \text{Year1}) * \text{slope} * (\text{year2} - \text{year1})$

In cases where states do not submit data directly but do submit to AAPFCO the AAPFCO data will be utilized rather than a projection.

When conditions for recommendation 3 are met subsequent data will not replace fertilizer data from previous years.

Recommendation 3

Option A: Calculate the percent change in fertilizer sales.

- Nonreporting state fertilizer value = Nonreporting states previous year of data (X) Reporting states percent change from the previous year

Option B: Continue to use the last year of data.

- Nonreporting states fertilizer data = Nonreporting states last reported data

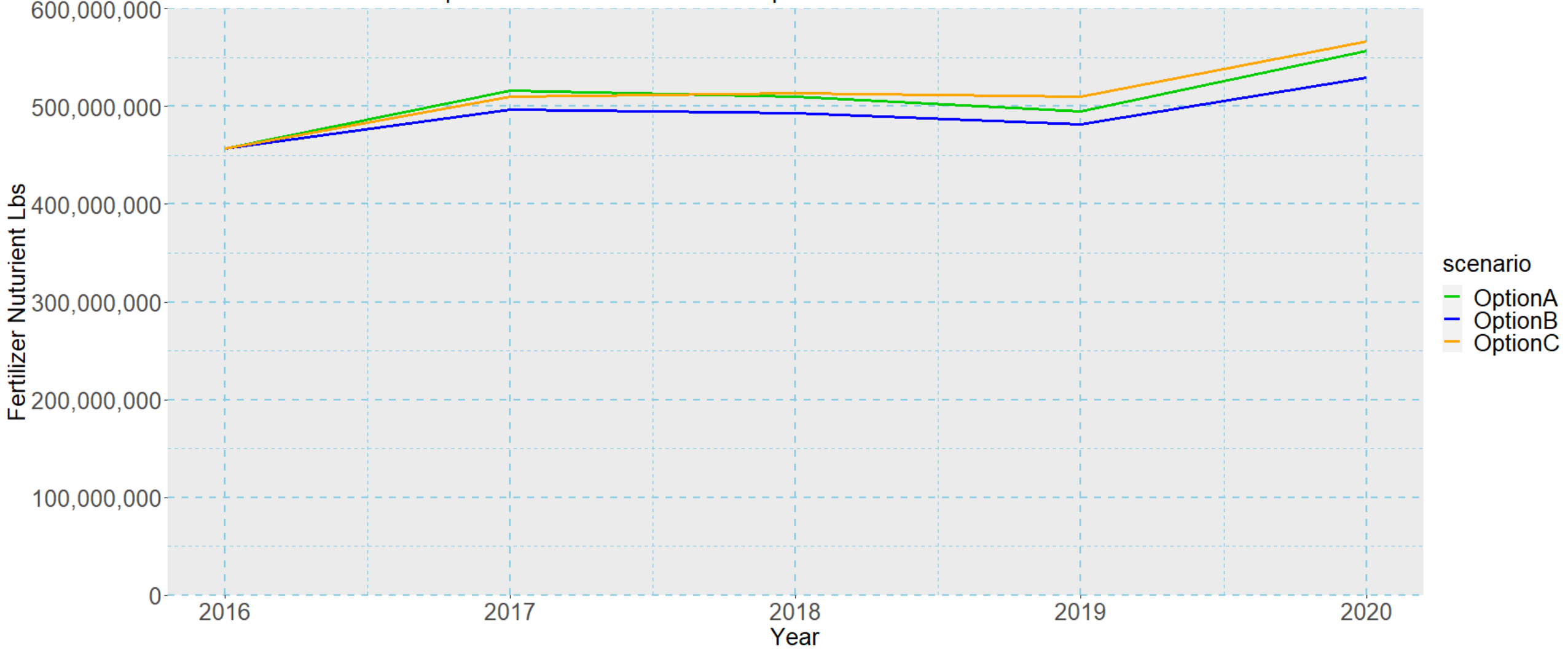
Option C: Use a state-specific trends using the last 5 years of available data.

- Nonreporting states fertilizer value = regression of the previous five years of data

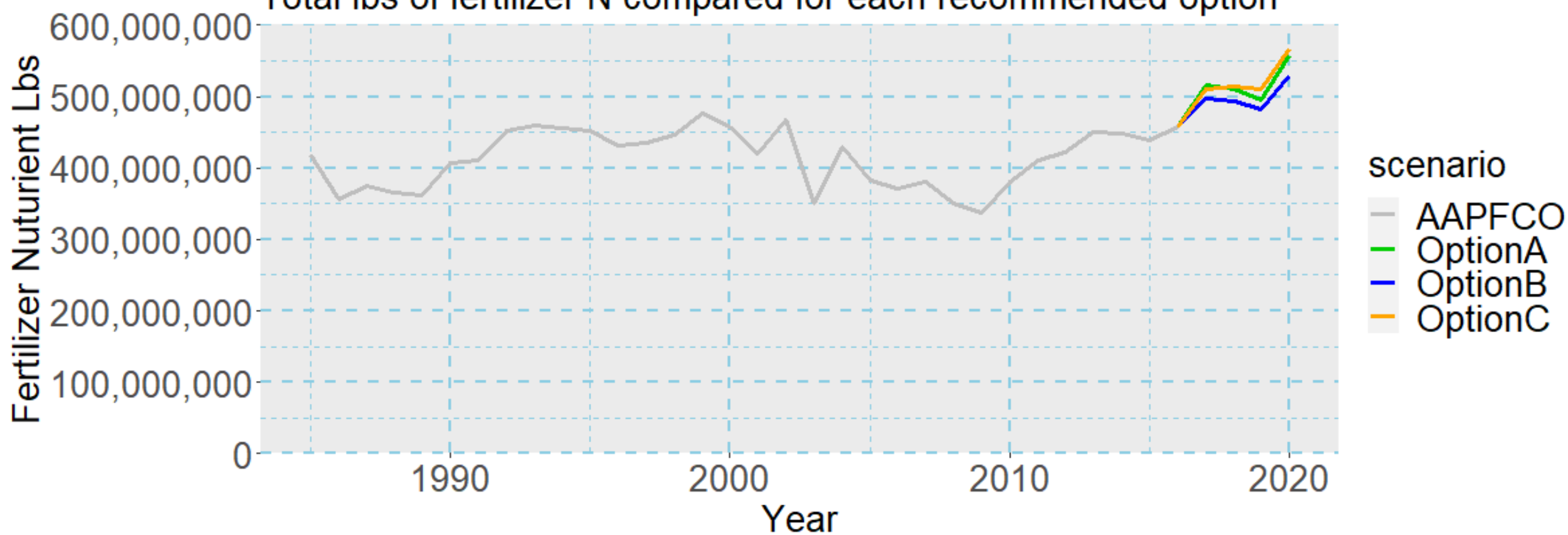
Nitrogen lbs for each recommendation

Nitrogen	Scenario description	2016	2017	2018	2019	2020
Option A	Calculate the percent change in fertilizer sales.	457005341	515878907	509703272	494775805	557016801
Option B	Continue to use the last year of data.	457005341	496866394	493002222	481850005	529149416
Option C	Use a state-specific trends using the last 5 years of available data.	457005341	509692499	513734164	510273259	566552373

Total lbs of fertilizer N compared for each recommended option



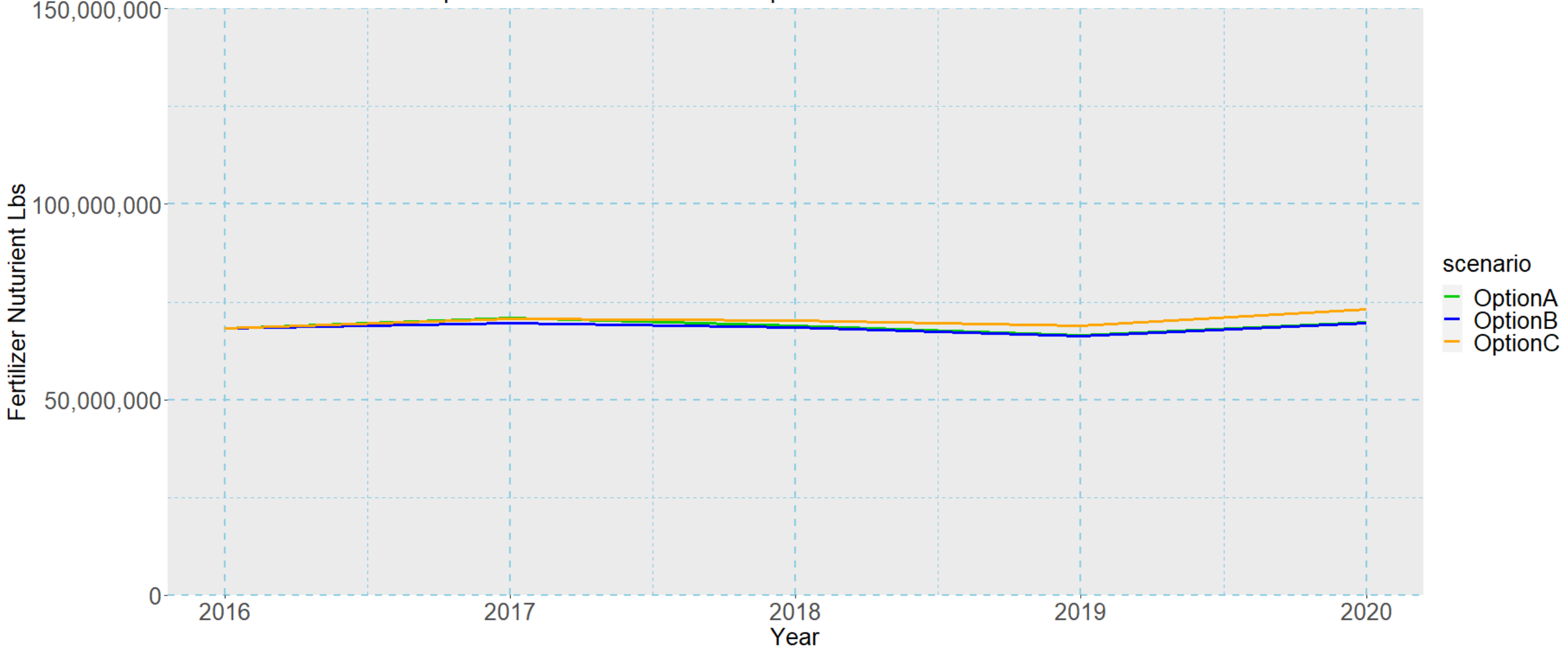
Total lbs of fertilizer N compared for each recommended option



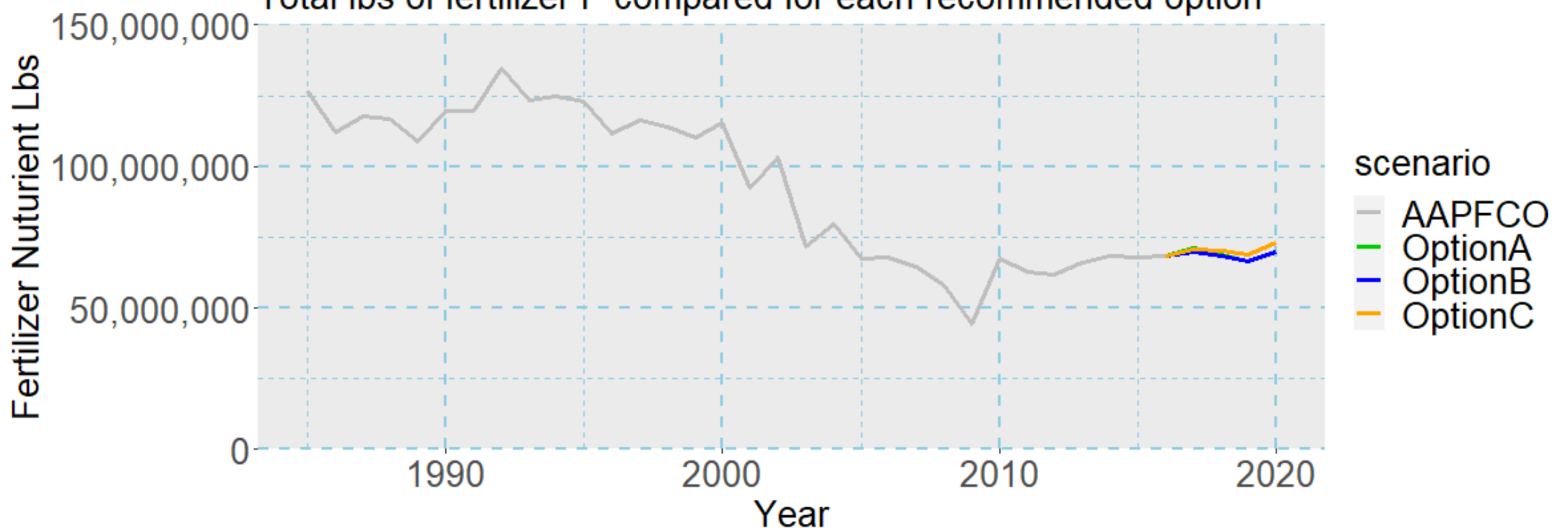
Phosphorus lbs for each recommendation

Phosphorus	Scenario description	2016	2017	2018	2019	2020
Option A	Calculate the percent change in fertilizer sales.	68201344	70956241	68900406	66429776	69737583
Option B	Continue to use the last year of data.	68201344	69638113	68403790	66266889	69608264
Option C	Use a state-specific trends using the last 5 years of available data	68201344	70750862	70299526	68880461	73153717

Total lbs of fertilizer P compared for each recommended option



Total lbs of fertilizer P compared for each recommended option



Questions?

Next Steps:

- Finalize recommendations by 6/9/23
- Prepare materials for the Water Quality Goal Implementation Team

	Draft to WQGIT	Final By WQGIT	Draft to MB	Final By MB	Presentation to PSC for approval
PSC Decision					
2 - Fertilizer	6/26/2023	7/24/2023	8/10/2023	9/5/2023	9/26/2023