

Item	Item subtask	Date addressed	Findings	Details	State POC	POC Affiliation	Fertilizer Expert	Expert Affiliation	Meeting Date:
Identify Potential Sources	State Data	12/5/2022	<p>States collect fertilizer sales tonnage data annually which can be used to show the trends in fertilizer sales across each county in the state</p> <p>State sales tonnage reports are likely more accurate than the AAPFCO data since they are the originators of the data when asked what alternative data might exist states did not have any input. Some mentioned possible changes via legislatures.</p> <p>Data such as point of sale information, or nutrient management plans are not feasible to collect at the necessary scale.</p>	Jurisdiction					
				MD	Alisha Mulkey	Program Planning and Evaluation, Program Manager	Phillip Davidson	(Office of the State Chemist Section)	9/7/2022
				PA	Frank Schneider	(Director, Nutrient Management and Odor Management Programs)	David Dressler	(Agronomic Program Specialist Pennsylvania Department of Agriculture Bureau of Plant Industry)	6/3/2022
				NY	Greg Albrecht	(Division of Plant Industry)	Jan Morawski	(Commodity and Biotechnology Specialist (Division of Plant Industry))	6/30/2022
				VA	Seth Mullins	(Virginia Dept. of Conservation and Recreation Nutrient Management Coordinator – Animal Waste)	David Gianino	(State Plant Regulatory Official (SPRO), Program Manager, Office of Plant Industry Services)	7/18/2022
				DE	Clint Gill	(Delaware Department of Agriculture Delaware Nutrient Management Environmental Scientist)	Justin Lontz	(Delaware Department of Agriculture Compliance Lab Manager)	6/27/2022
				WVA	Dave Montali	(TetraTech TMDL Program Manager)	Joshua Arbaugh	Deputy Director of Laboratories	7/28/2022
				DC	Jonathan Champion	DOEE WQ Director	Cecilia Lane	Department of Energy & Environment Government of the District of Columbia Environmental Protection Specialist	9/7/2022
				Federal Data	1/25/2023	<p>There are several sources of data that the USDA uses including:</p> <p><b>Agriculture Research Management Survey (ARMS I)</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> National sample</li> <li><input checked="" type="checkbox"/> Expenditures on fertilizer at a regional scale (larger than states)</li> <li><input checked="" type="checkbox"/> Rotate crops</li> <li><input checked="" type="checkbox"/> Not capable of being used for all crops across the watershed or even all states</li> </ul> <p><b>Agrochemical application surveys (ARMS II)</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Consistent rotation (Major Crops)</li> <li><input checked="" type="checkbox"/> State Scale (not all states)</li> <li><input checked="" type="checkbox"/> x states with the highest production give 90% of coverage</li> <li><input checked="" type="checkbox"/> No room to expand</li> </ul> <p><b>National Resource Inventory - NRCS product</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Five years point data nationwide</li> <li><input checked="" type="checkbox"/> 11 regions nationwide</li> <li><input checked="" type="checkbox"/> Not shareable</li> </ul> <p><b>Conservation Effects Assessment Project</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Actual applications</li> <li><input checked="" type="checkbox"/> Not shareable</li> </ul> <p>DOD and NPS do not currently have fertilizer information available.</p>	Jurisdiction	POC	POC Affiliation
DOD	Kevin DuBois	DoD Chesapeake Bay Program Coordinator	Jessica Rodriguez				DoD/Navy Chesapeake Bay Program Coordinator	9/23/2022	
NPS	NA	NA	Rene Senos				National Park Service	12/5/2022	
USDA	Tony Dorn	NASS	NA				NA	1/25/2023	
USDA	Lisa Duriancik	NRCS/CEAP	Candiss Williams				NRCS/CEAP	1/25/2023	
USDA	Curtis Dell	ARS	Tamie Veith				ARS	1/25/2023	

	Industry Data	3/6/2023	The Fertilizer Institute (TFI), International Plant Nutrition Institute Canada (IPNI), both use AAPFCO data in a tool called NuGIS TFI also uses autoregression models, one encompassing economics and the other crops. These two tools use AAPFCO and other data to create model results. The Mill has sales records of its own but these are the same that are taxed by the states.	Jurisdiction	POC	POC Affiliation	Fertilizer Expert	Expert Affiliation	Meeting Date:
				Industry	Tom Bruulsema	IPNI	NA	NA	3/31/2023
				Industry	Leanna Nigon	TFI	Jason Troendle	TFI	6/14/2023
				Industry	Ben Hushon	The Mill	Tim Hushon	The Mil	2/24/2023
Analyze Sources	<a href="#">States fertilizer sales tonnage data</a>	4/3/2023	Quantity comparison: Similar Latency: Reduced Geographic specificity: Same Crop specificity: NA						
	Alternative data such as point of sale information, or nutrient management plans	12/5/2022	No comparable coverages or uniform reporting across states	Not available for use					
	<a href="#">Agriculture Research Management Survey (ARMS I)</a>	3/6/2023	Quantity comparison: NA Latency: NA Geographic specificity: National Crop specificity: NA	Not available for use					
	<a href="#">Agrochemical application surveys (ARMS II)</a>	3/6/2023	Quantity comparison: NA Latency: Reduced Geographic specificity: National with select states Crop specificity: Reduced						
	<a href="#">National Resource Inventory</a>	3/6/2023	Quantity comparison: NA Latency: NA Geographic specificity: NA Crop specificity: NA	Not available for use					
	<a href="#">Conservation Effects Assessment Project</a>	3/6/2023	Quantity comparison: NA Latency: NA Geographic specificity: NA Crop specificity: NA	Not available for use					
	<a href="#">NuGIS</a>	3/6/2023	Quantity comparison: Based on national averages Latency: Same Geographic specificity: NA Crop specificity: Same						
	Autoregression models	6/14/2023	Quantity comparison: Based on national averages Latency: Same Geographic specificity: different scale watersheds Crop specificity: Same						
	<a href="#">Individual company sales</a>	3/6/2023	Quantity comparison: NA Latency: Reduced Geographic specificity: Reduced Crop specificity: NA						
Make Recommendations	<a href="#">Phase 6</a>	6/5/2023	1) Prior to release of a new CAST version, AAPFCO and Direct State reported data should be collected and incorporated into CAST following subsequent recommendations 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.	<a href="#">See Appendices</a>					
	<a href="#">Phase 7</a>	6/5/2023	1) Re-examine the use of both farm and nonfarm categories of AAPFCO fertilizer in calculating fertilizer sales totals. 2) Further examine alternative fertilizer data sets. (e.g. TFI) 3) Examine the use of additional fertilizer application datasets to ground-truth sales-based application estimates. 4) Re-examine outlier removal and filling methods. 5) Examine state stock calculations vs watershed wide 6) Examine projection methods for phase 7 (how to create data beyond the last known year)	<a href="#">See Appendices</a>	Additional data sources to examine include but are not limited to:  USGS - <a href="https://www.usgs.gov/centers/national-minerals-information-center/nitrogen-statistics-and-information">https://www.usgs.gov/centers/national-minerals-information-center/nitrogen-statistics-and-information</a>  The Fertilizer Institute/FAO  NuGIS  Chemical Application Data (USDA)				