



# Chesapeake Bay Restoration

## CAST-21 Urban Fertilizer Application Rates

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Urban Stormwater Workgroup Meeting

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# Turfgrass Nutrient Application Rates

## Phase 6 Model

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- A few states commented about the change in turf grass application rates between CAST19 and CAST21, especially those where rates went up considerably for nitrogen and/or phosphorus.
- Other state's application rates went down, some considerably.
- This presentation describes the issue and proposes a slight change to the current method for the workgroup to consider.
- Not asking for a decision at this time.



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- AAPFCO non-farm fertilizer sales data by county
- Urban method uses mass of fertilizer nutrients for each state distributed to one “crop” type = turfgrass
- Additional credit for practices that make up nutrient management – depending on high-risk, low-risk, blended



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- June 21, 2016 USWG decision:
  - The USWG approved the proposed method to vary nutrient application on urban lands in the Chesapeake Bay Watershed Model by jurisdiction and through time.



# Turfgrass Nutrient Application Rates

## Phase 6 Model

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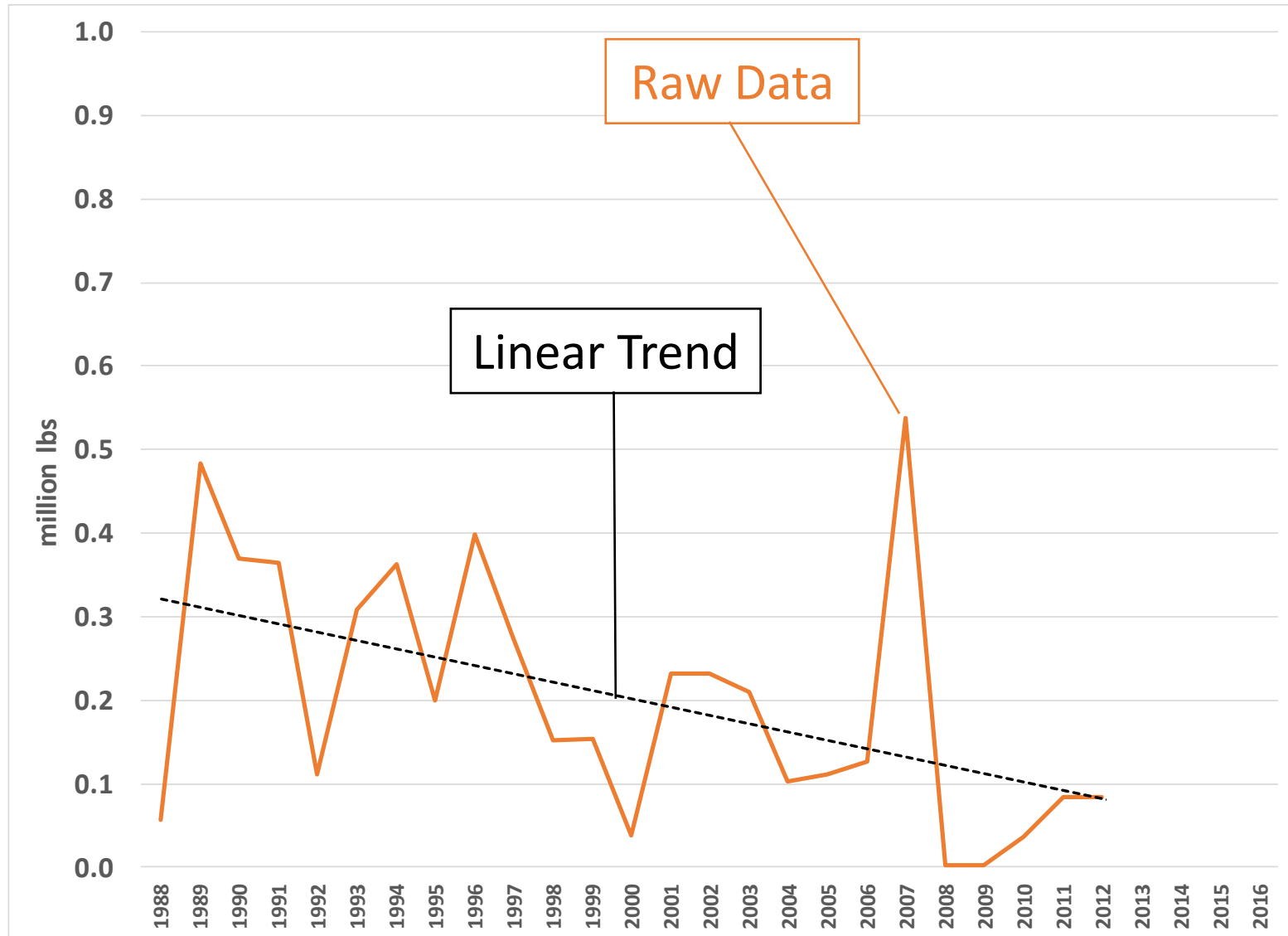
- Two components:
  - Fertilizer mass data
  - Turfgrass acres – High-resolution land cover w/ approved change-product 2013-2017
- Non-farm fertilizer mass  $\div$  turfgrass acres = turfgrass application rate



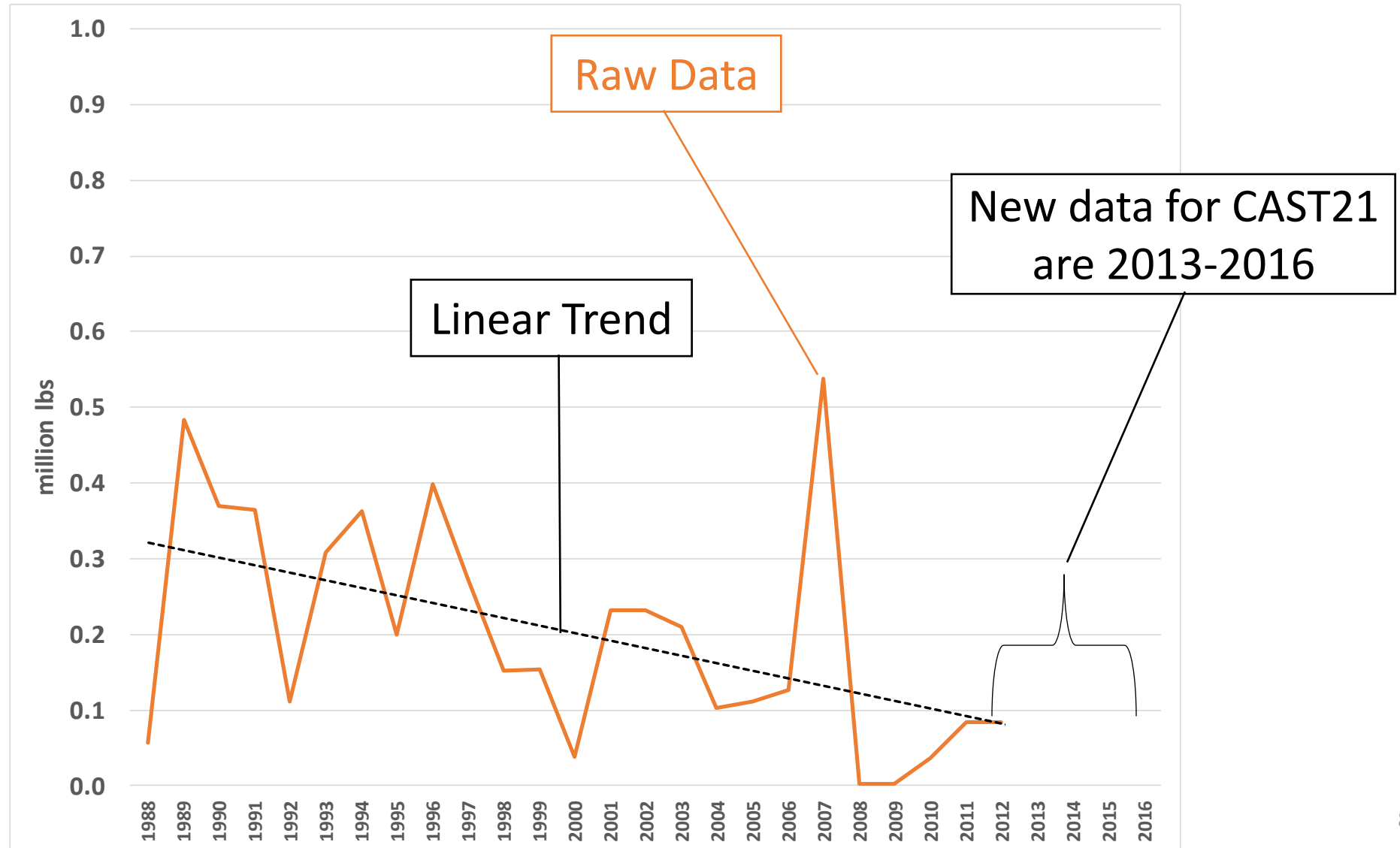


# WEST VIRGINIA

# WV Pounds of Nitrogen Applied (1988–2012)

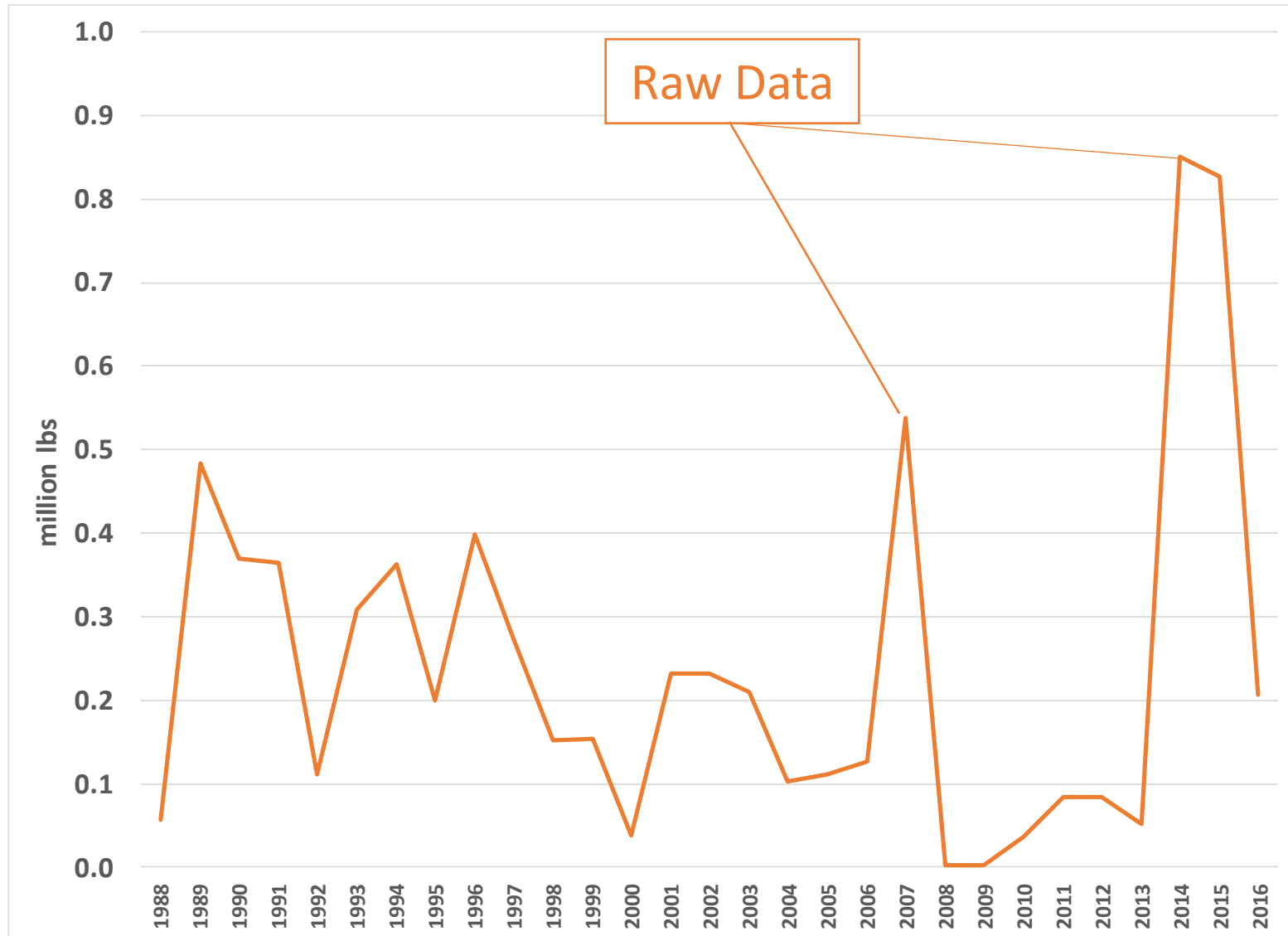


# WV Pounds of Nitrogen Applied (1988–2012)

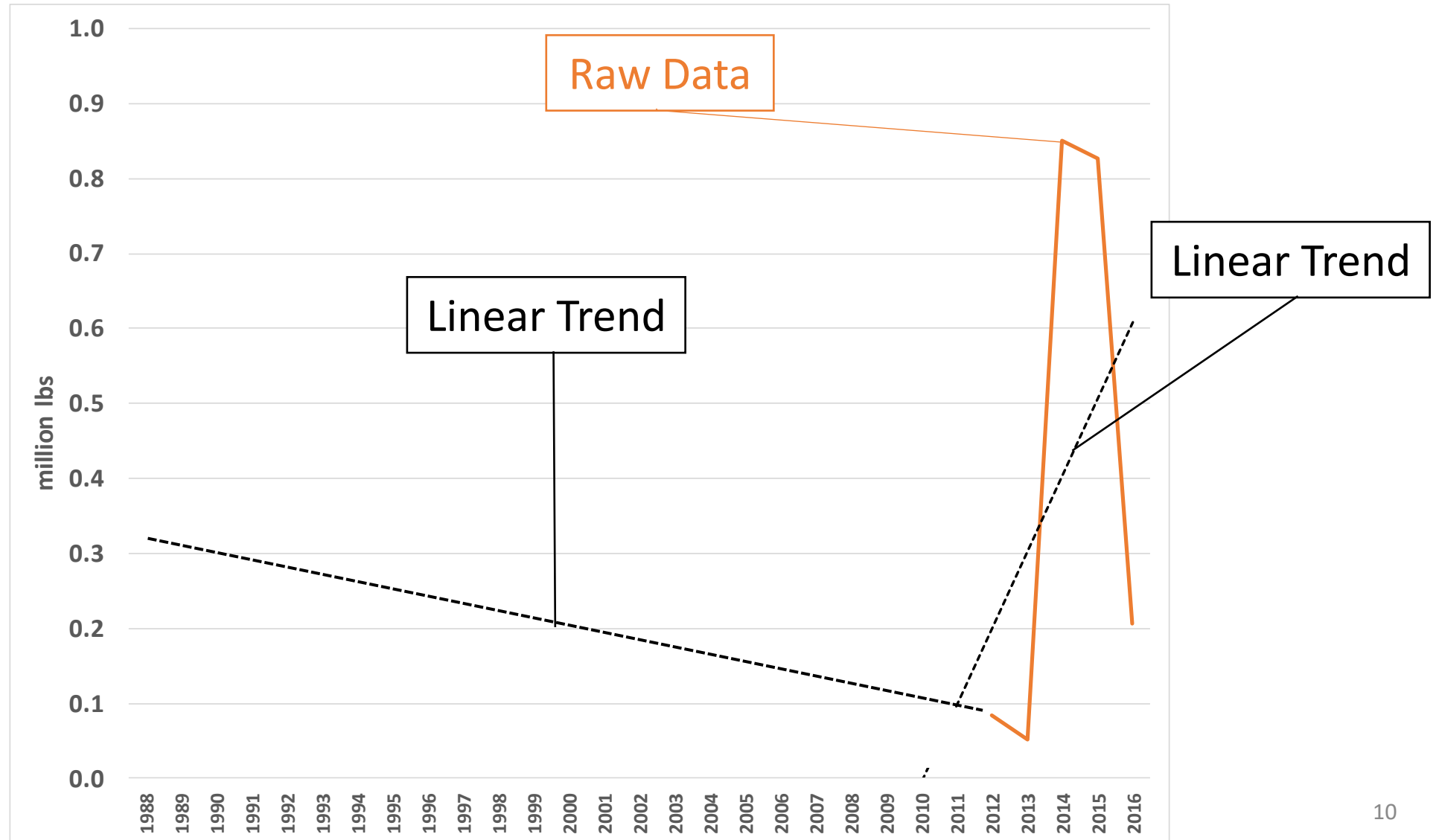




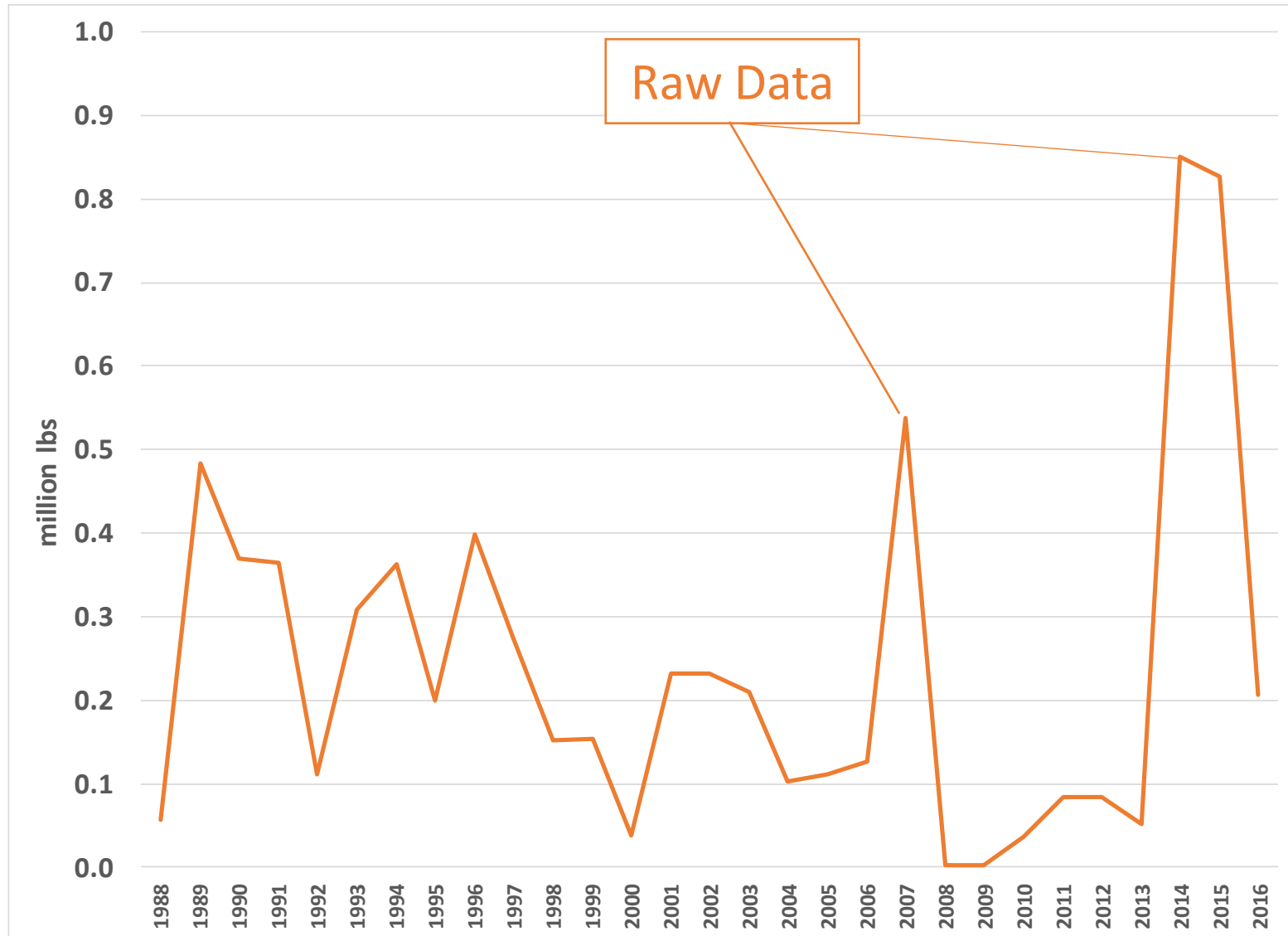
# WV Pounds of Nitrogen Applied (1988–2012 + 2013–2016)



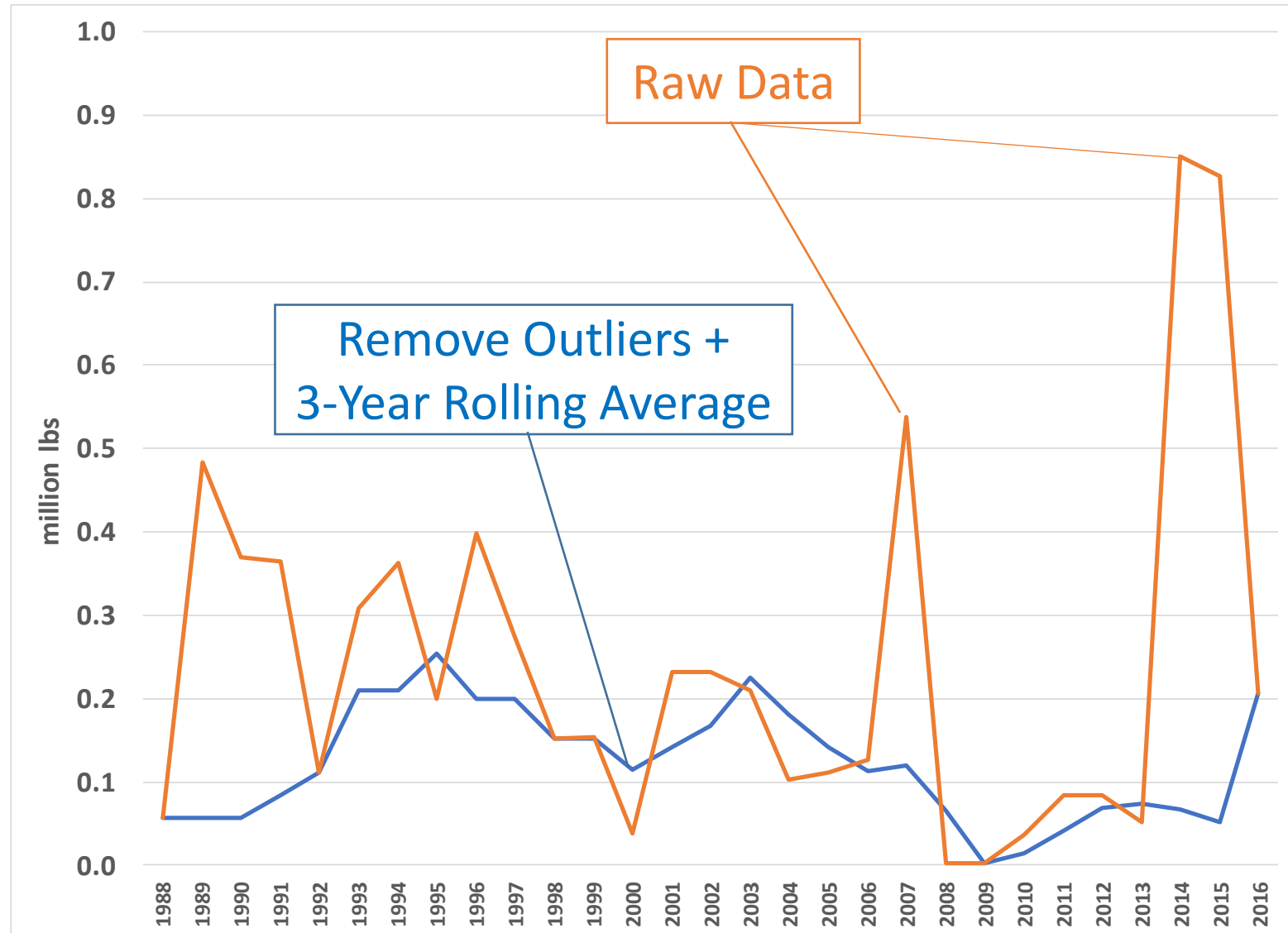
# WV Pounds of Nitrogen Applied (2012–2016)



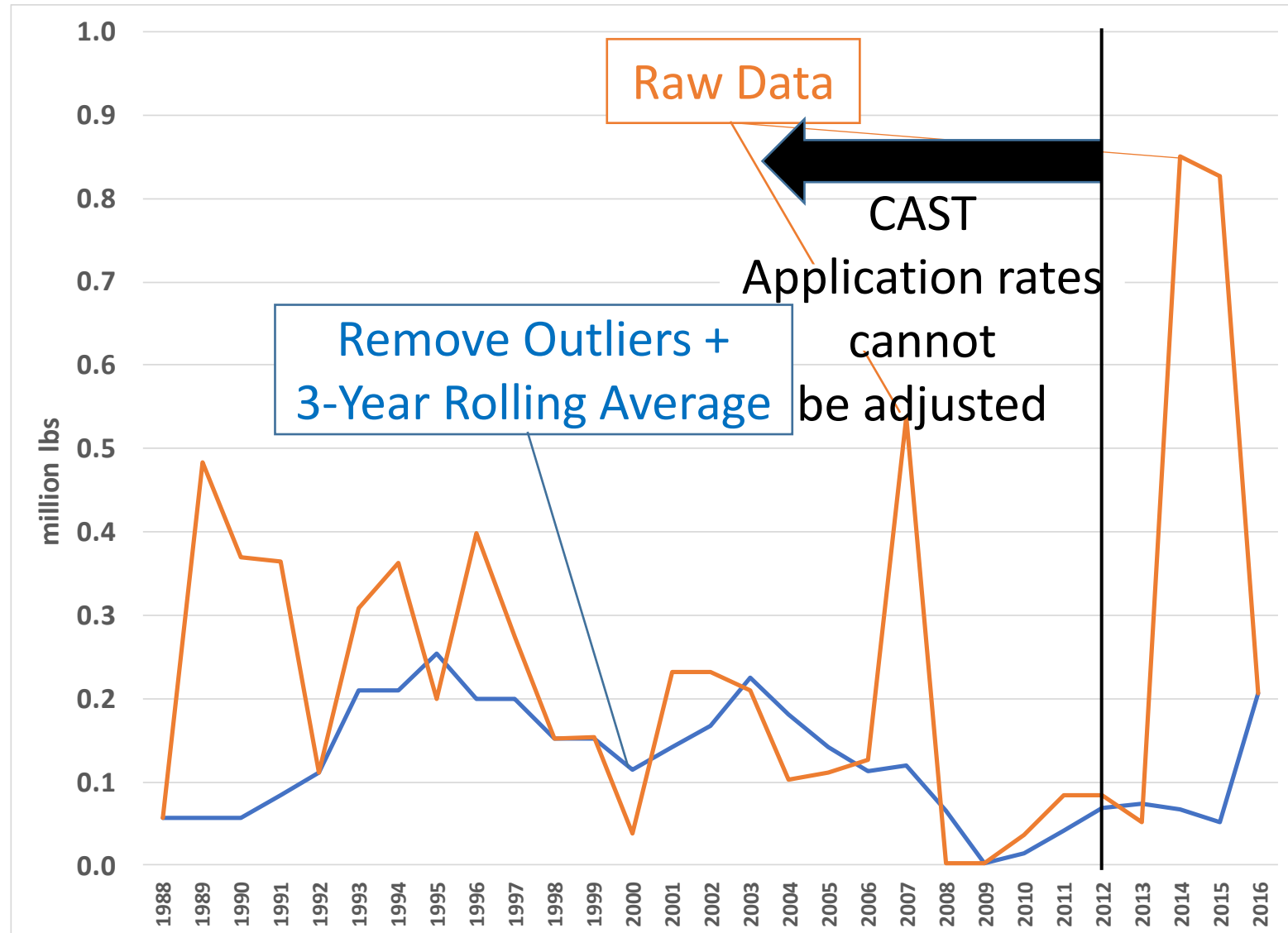
# WV Pounds of Nitrogen Applied (1988–2012 + 2013–2016)



# WV Pounds of Nitrogen Applied (1987–2012 + 2013–2016)

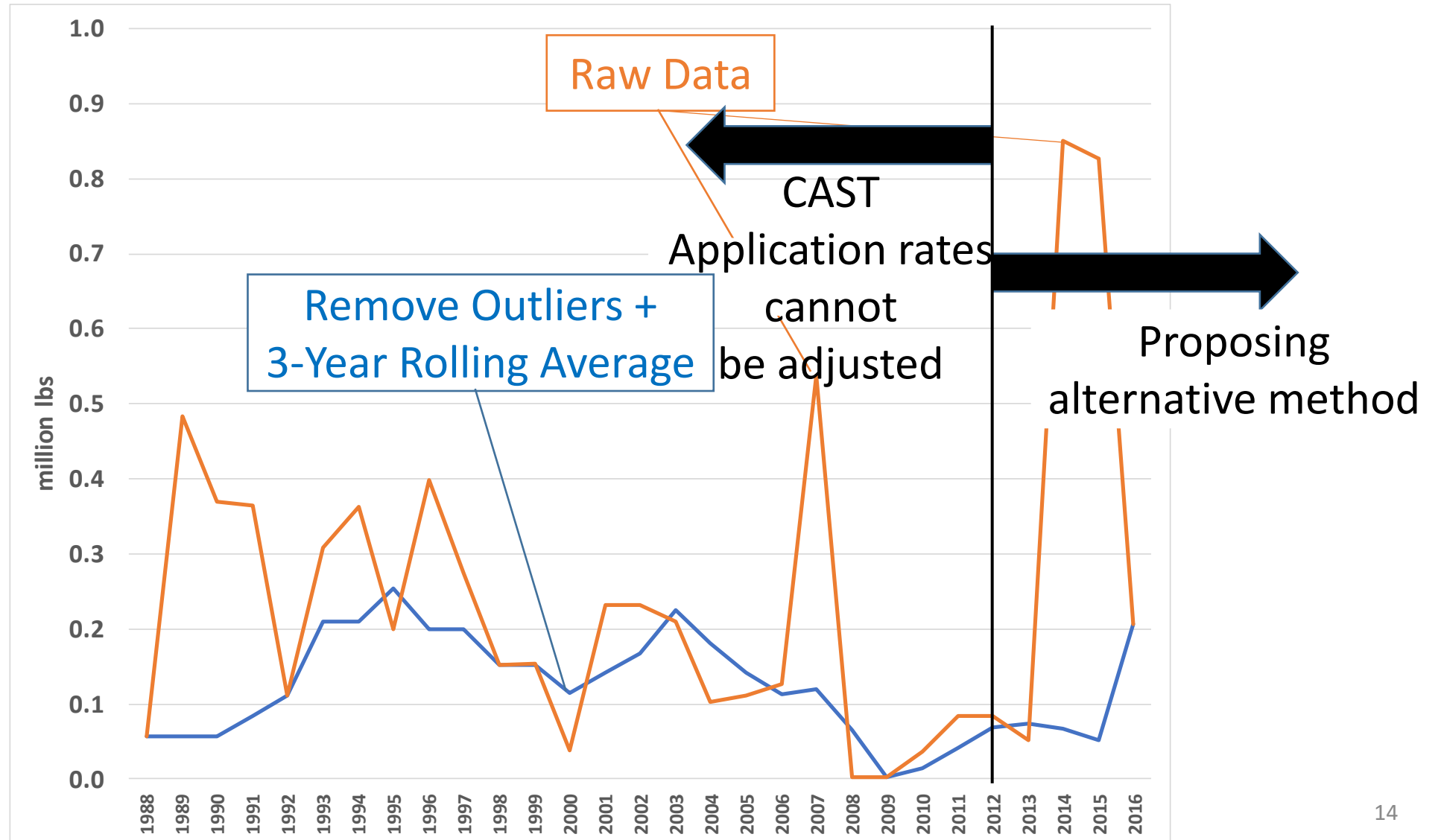


# WV Pounds of Nitrogen Applied (1987–2012 + 2013–2016)

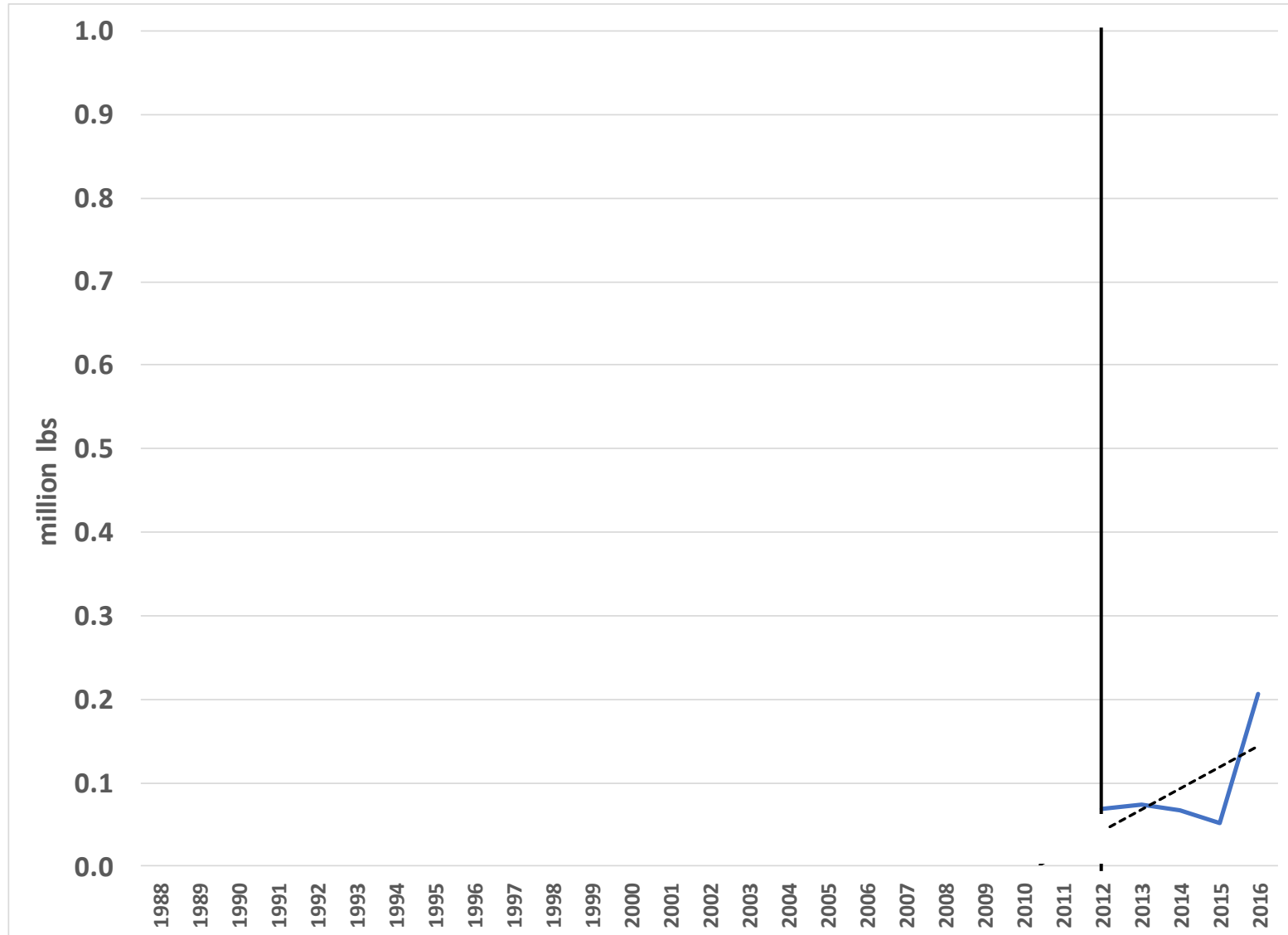




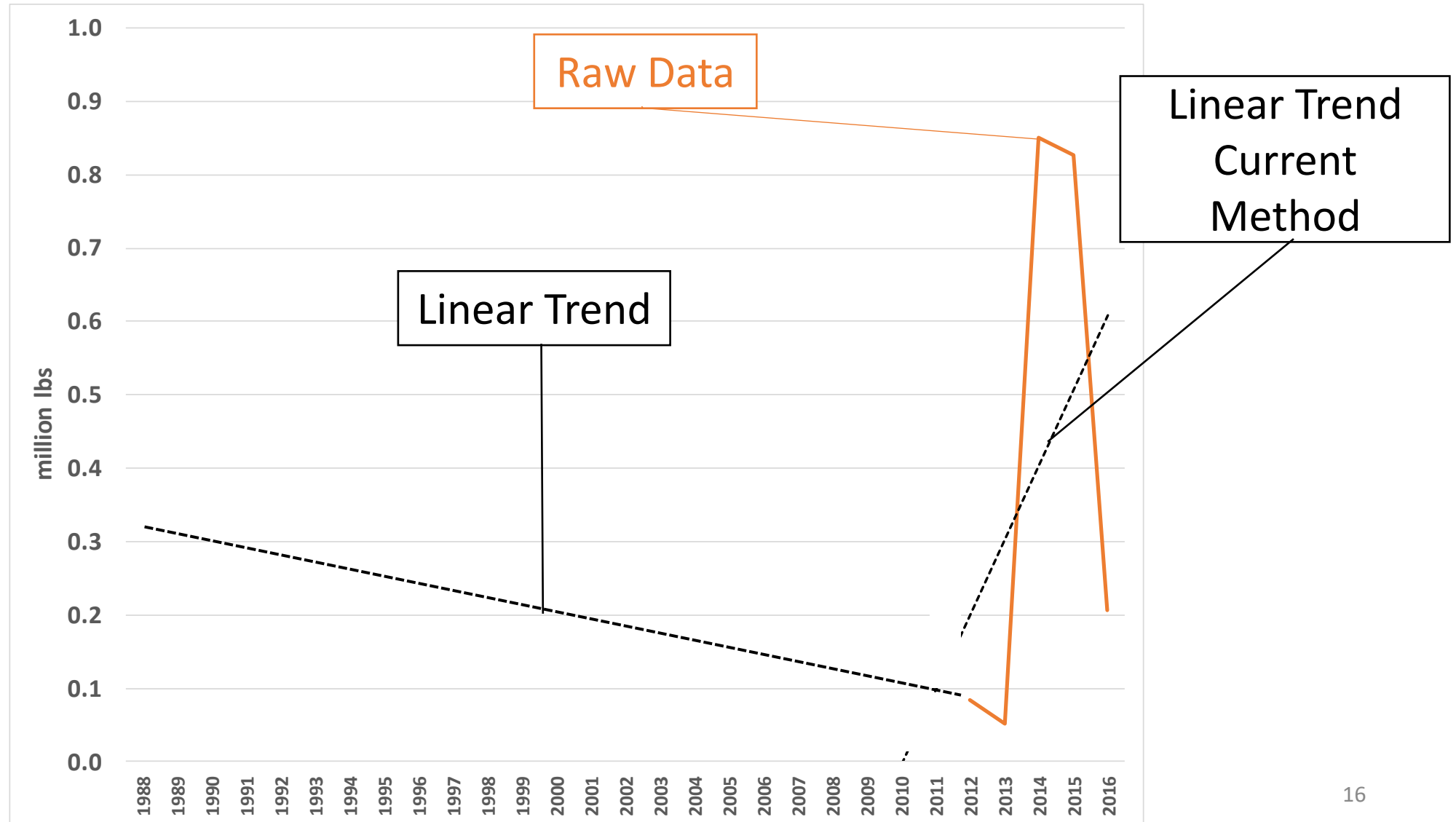
# WV Pounds of Nitrogen Applied (1987–2012 + 2013–2016)



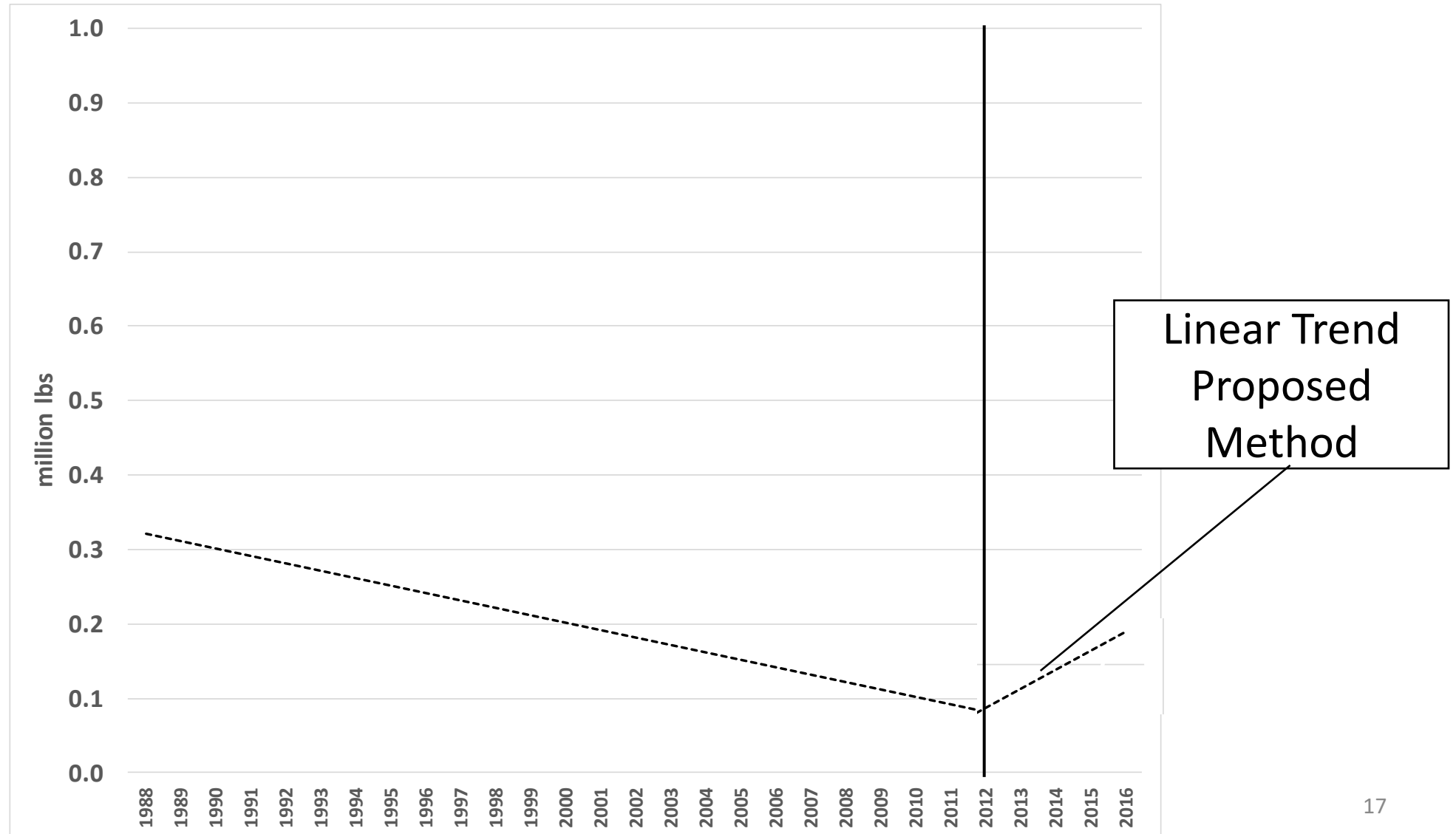
# WV Pounds of Nitrogen Applied (2012–2016)



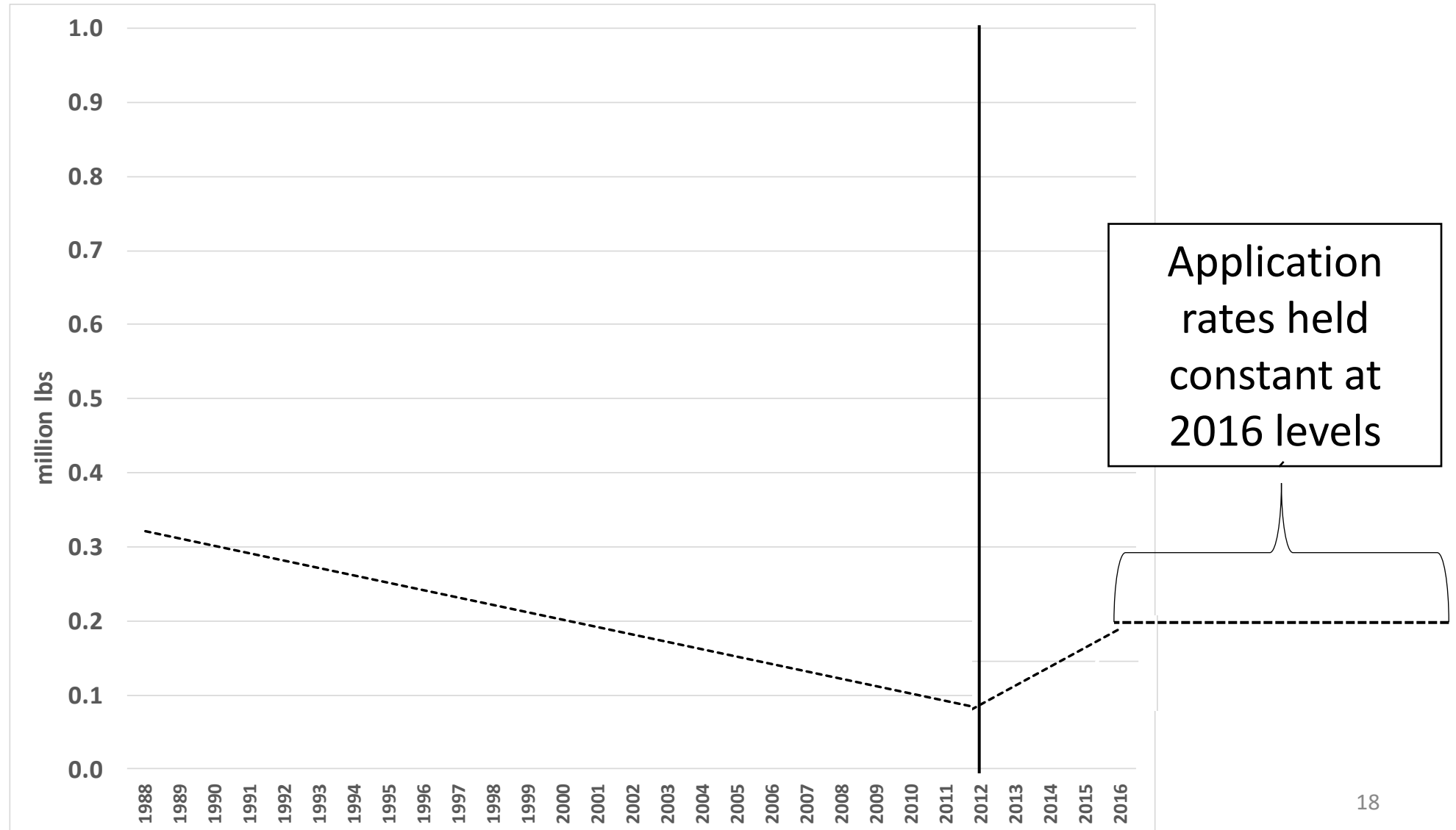
# WV Pounds of Nitrogen Applied (2012–2016)



# WV Pounds of Nitrogen Applied (1988–2012 + 2013–2016)



# WV Pounds of Nitrogen Applied (1988–2012 + 2013–2016)

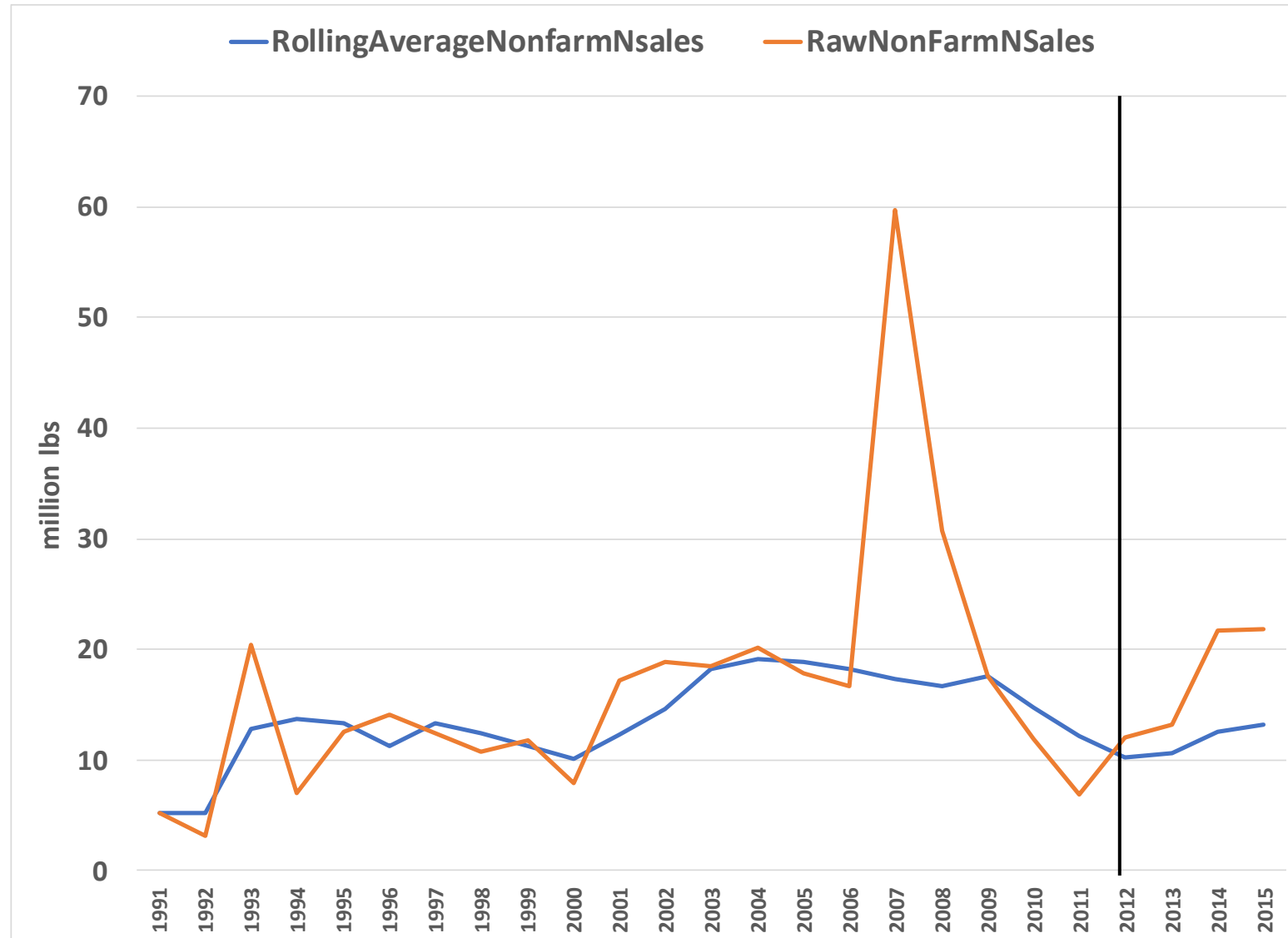




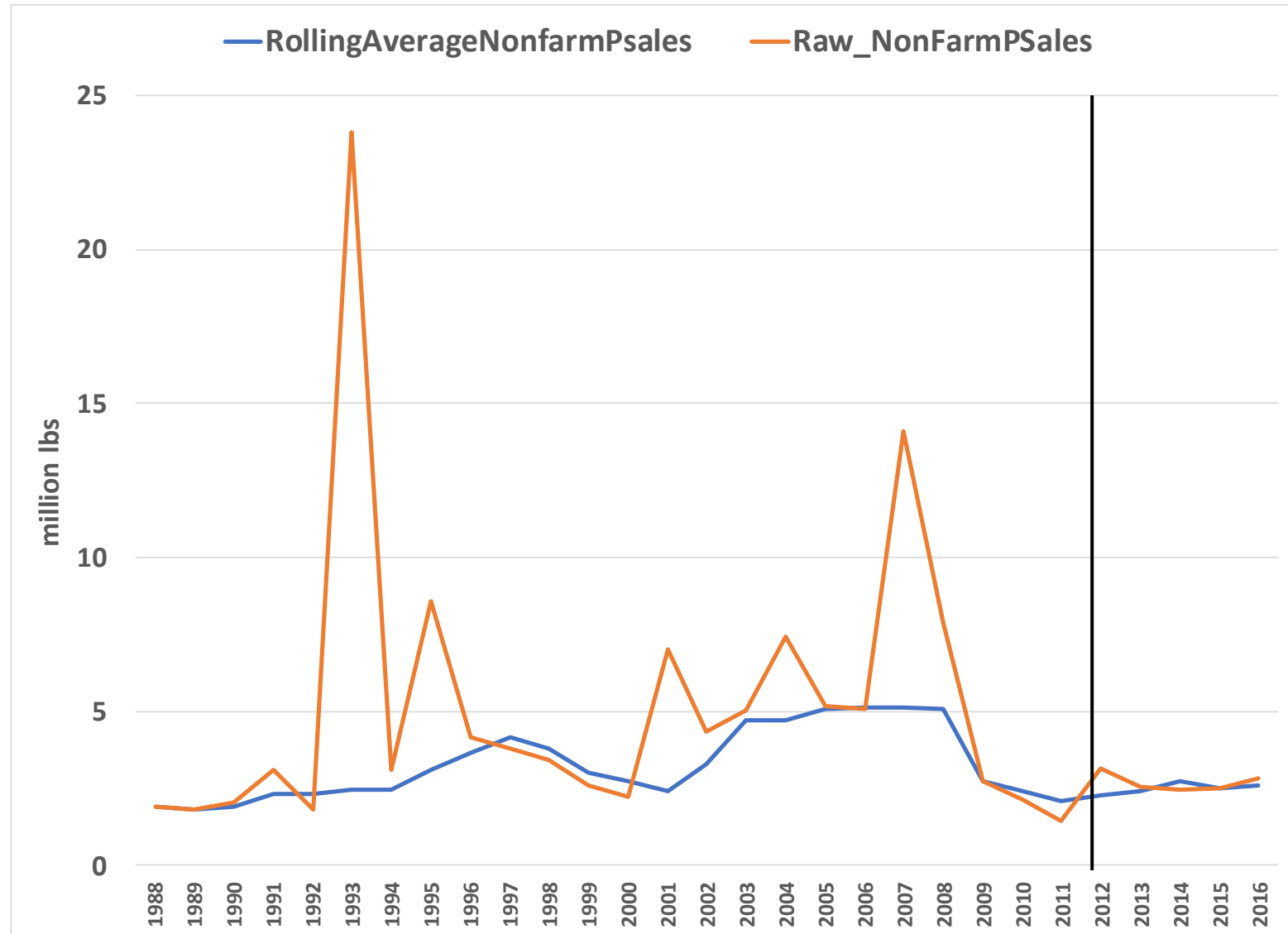


PENNSYLVANIA

# PA Pounds of Nitrogen Applied (1991–2015)



# PA Pounds of Phosphorus Applied (1988–2016)

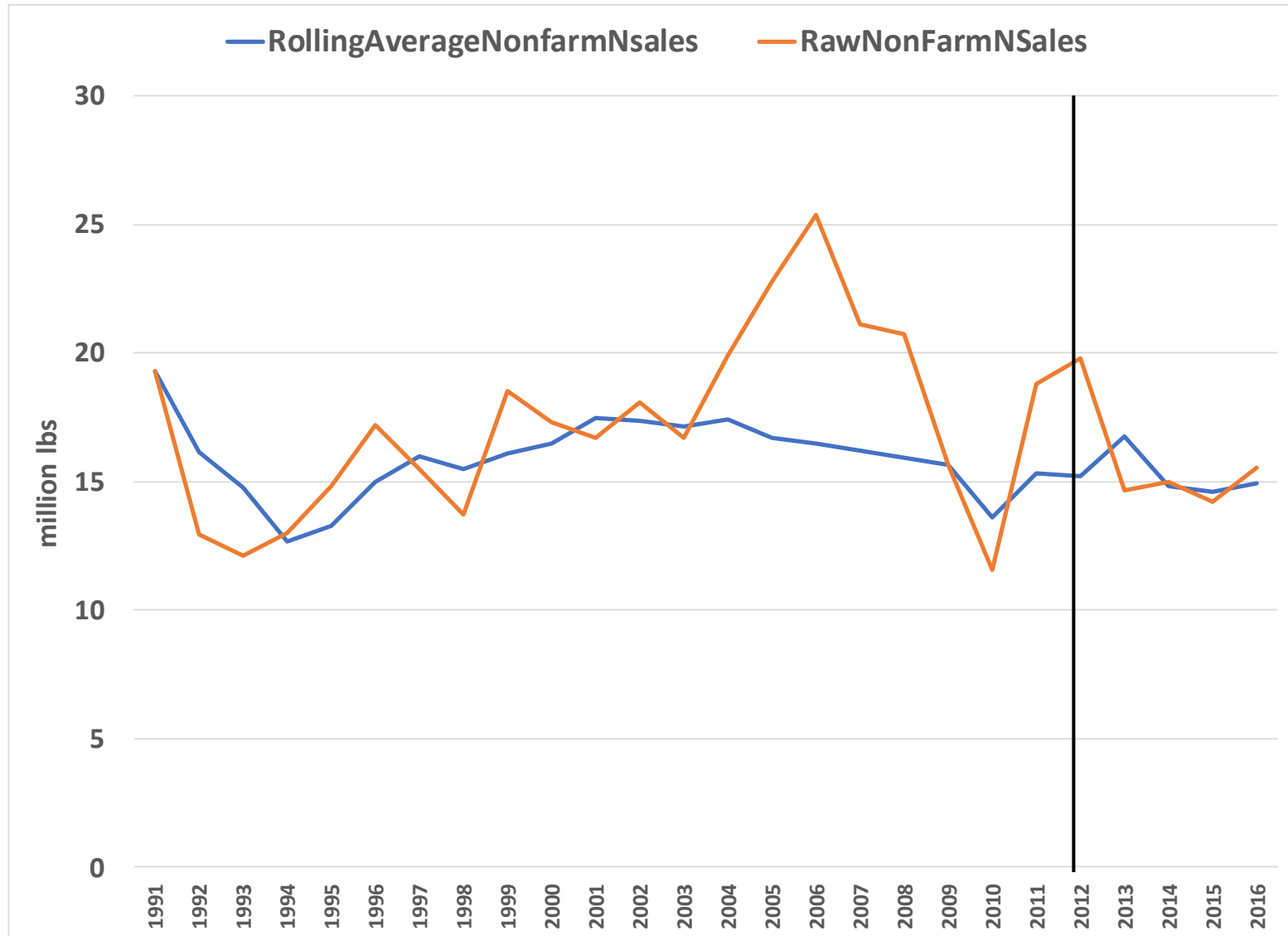






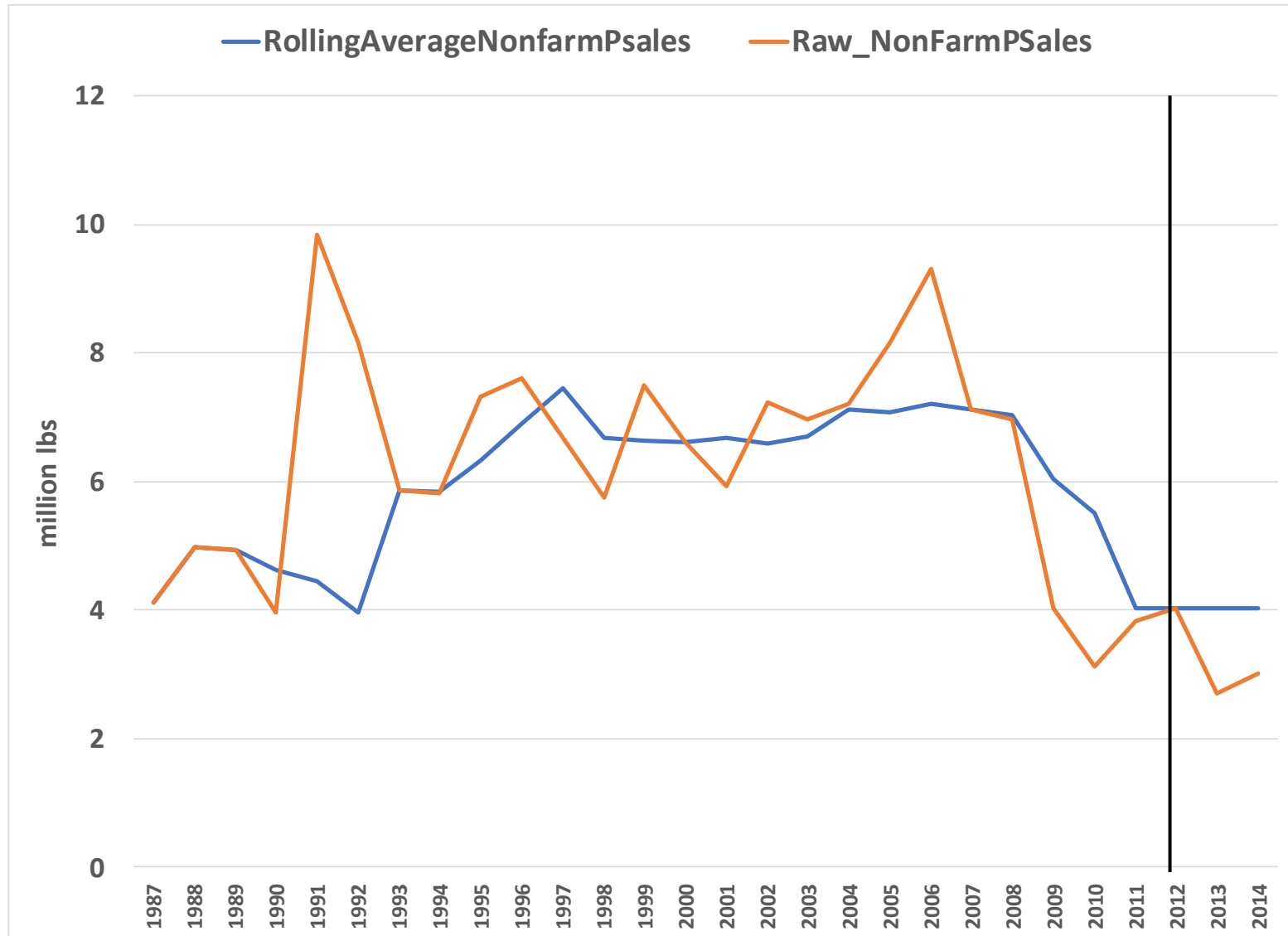
VIRGINIA

# VA Pounds of Nitrogen Applied (1991–2016)





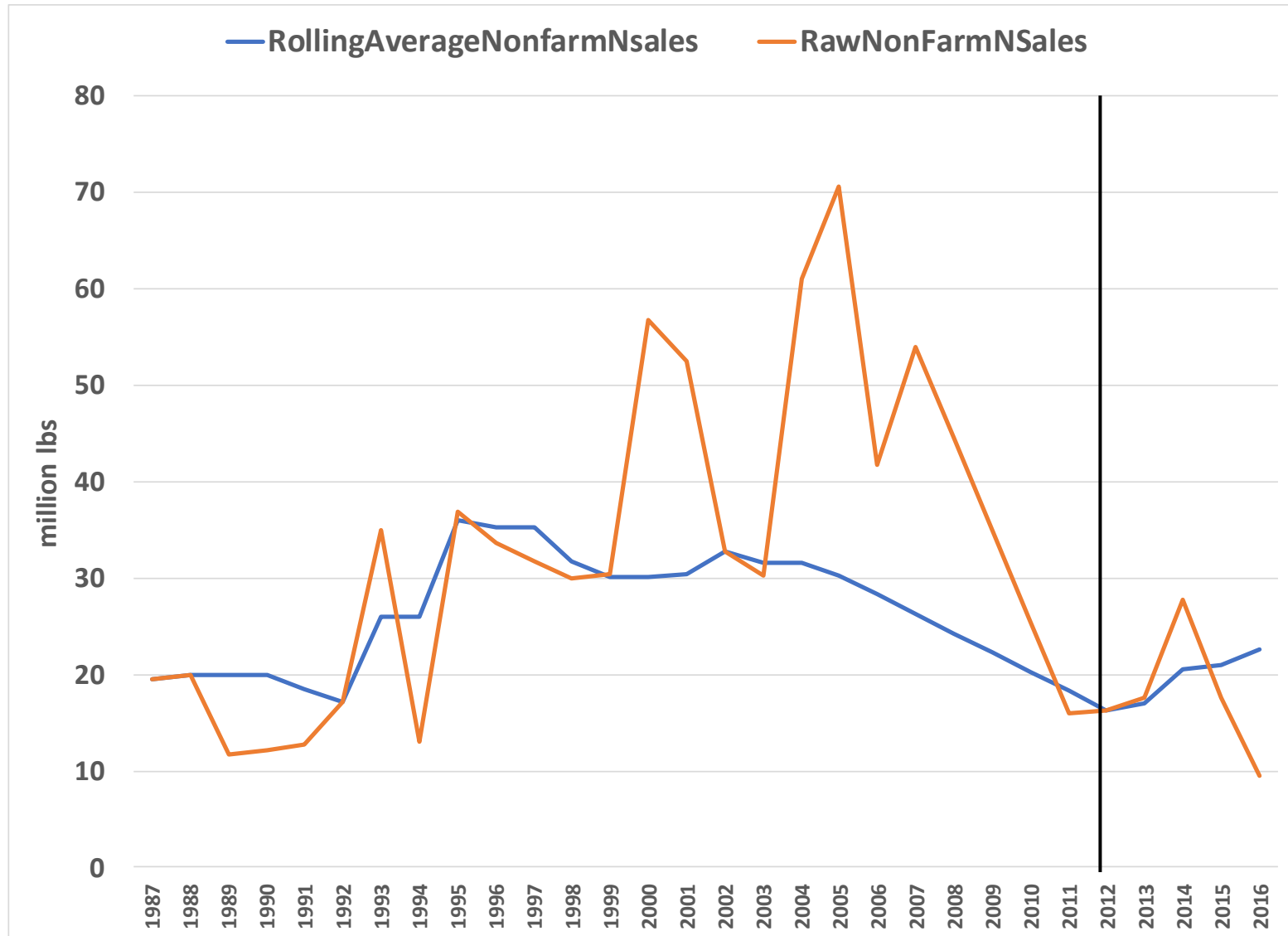
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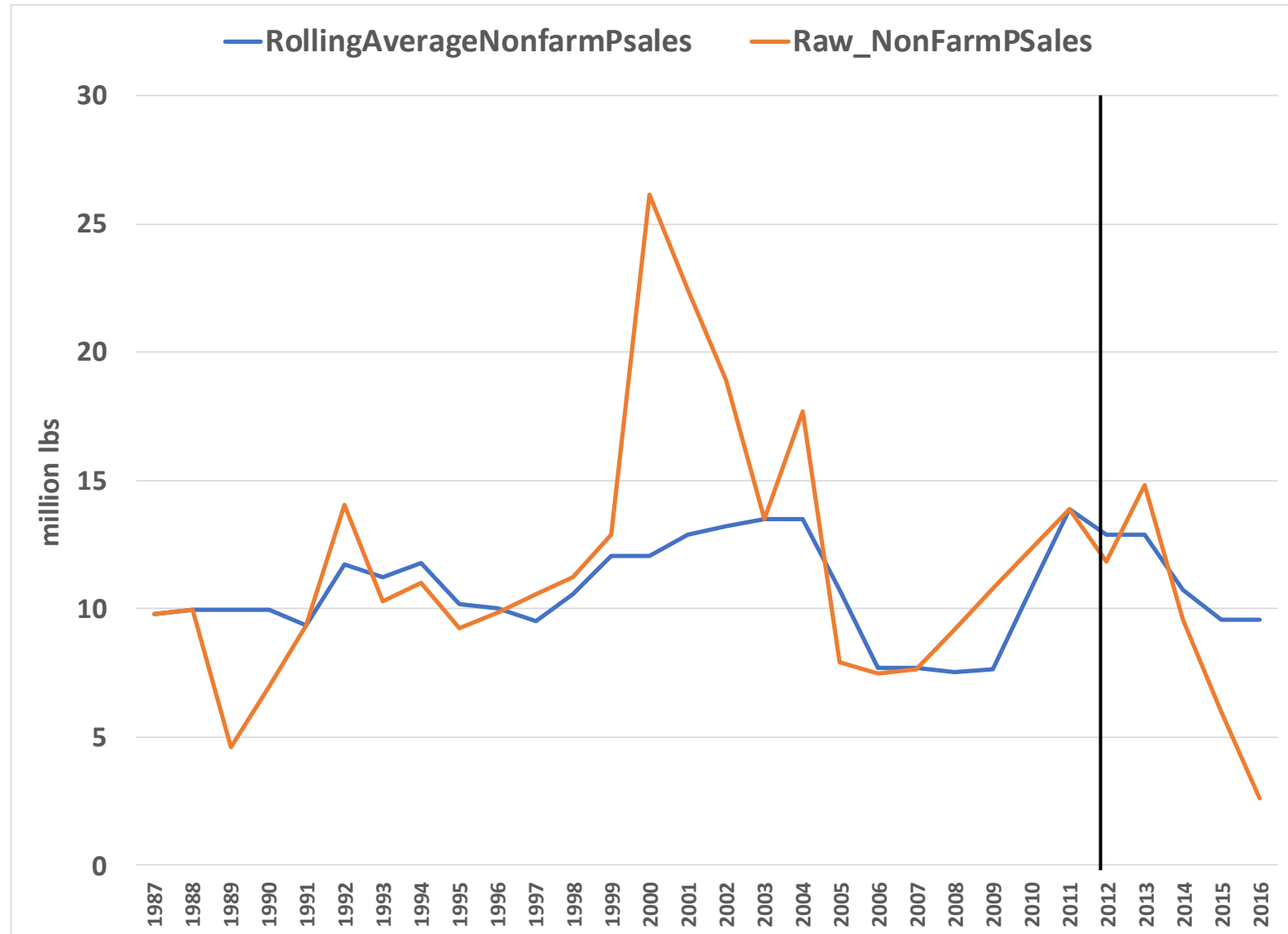


MARYLAND

# MD Pounds of Nitrogen Applied (1987–2016)



# MD Pounds of Phosphorus Applied (1987–2016)



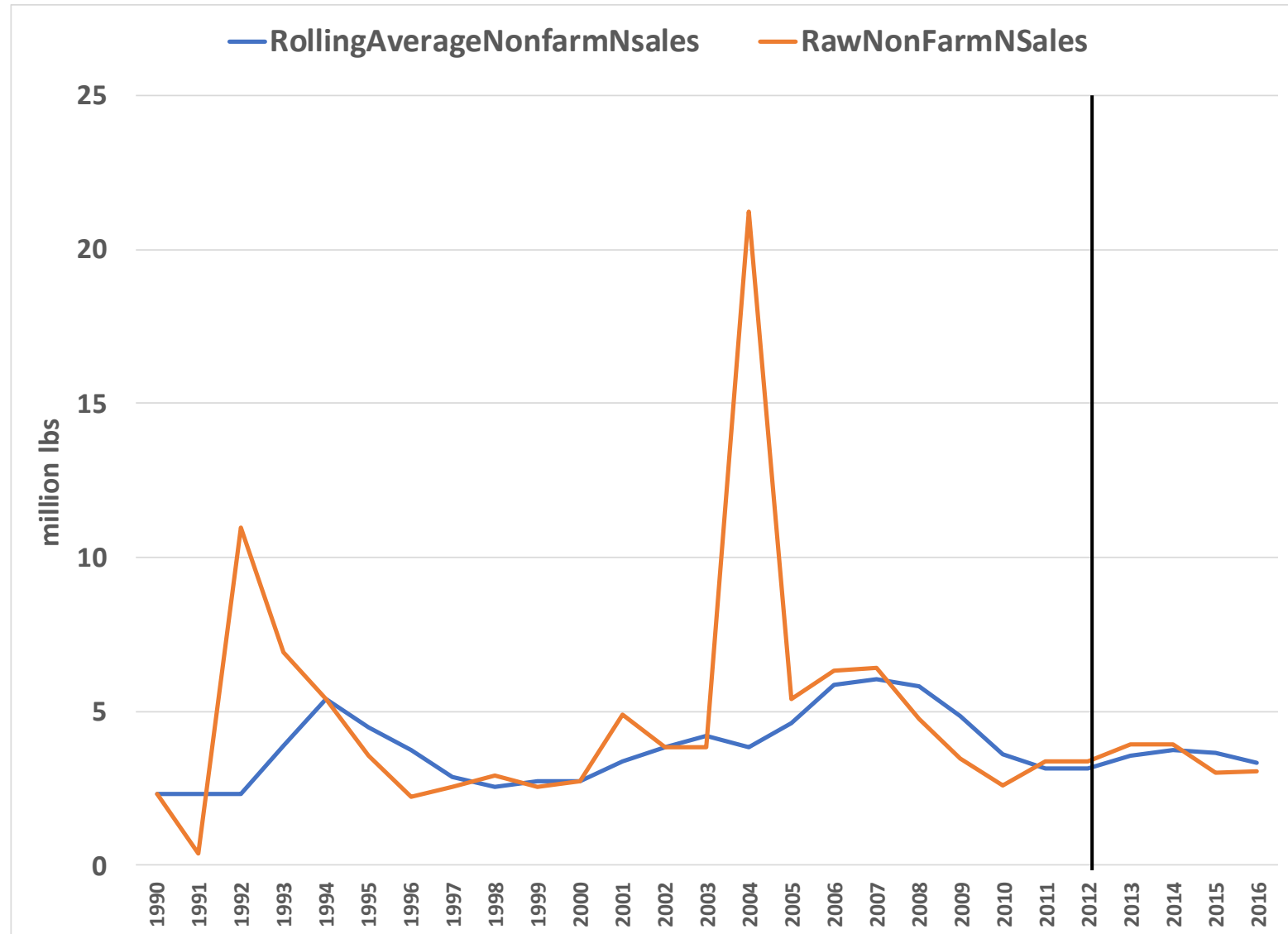




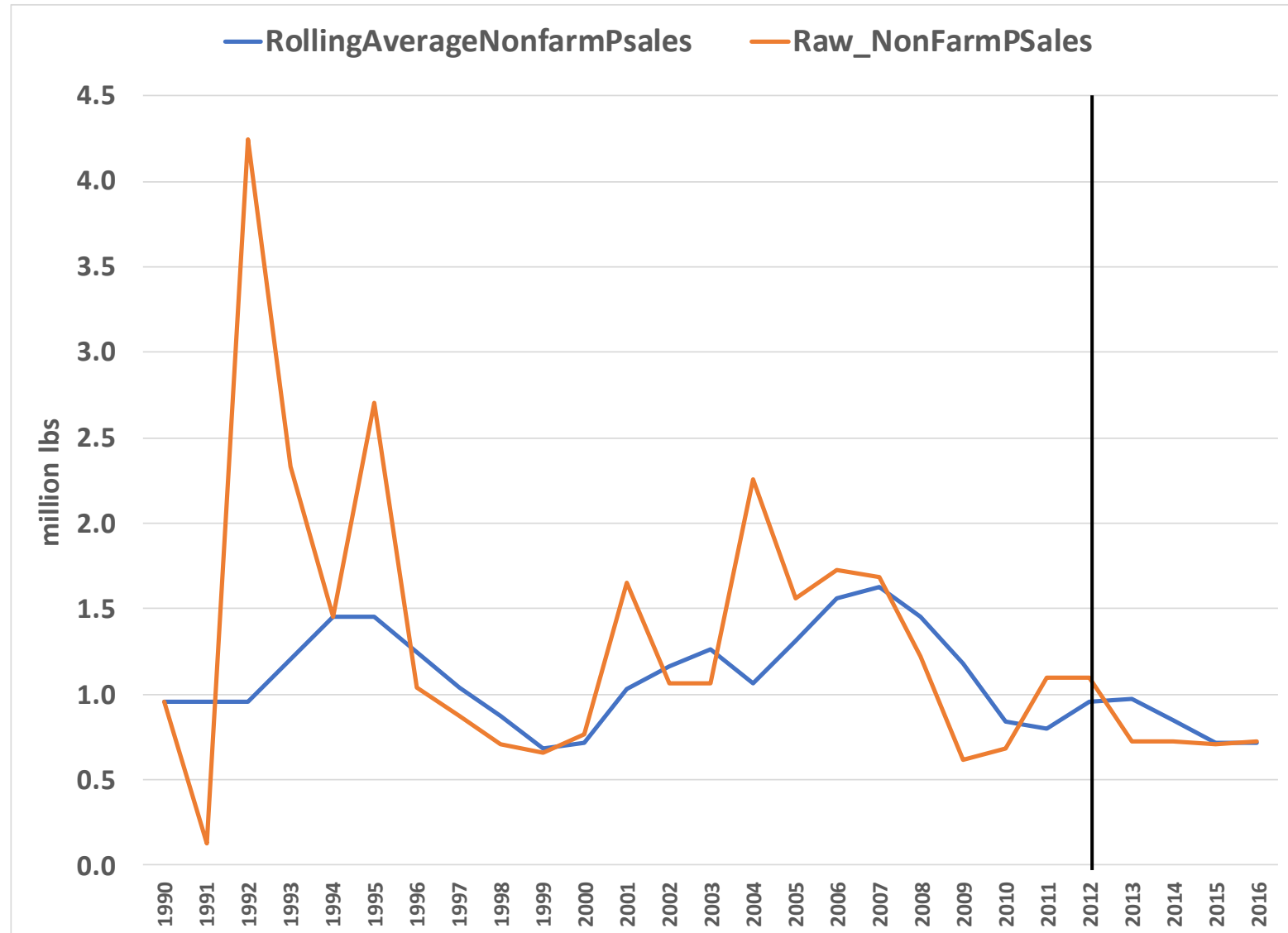
NEW YORK



# NY Pounds of Nitrogen Applied (1990–2016)



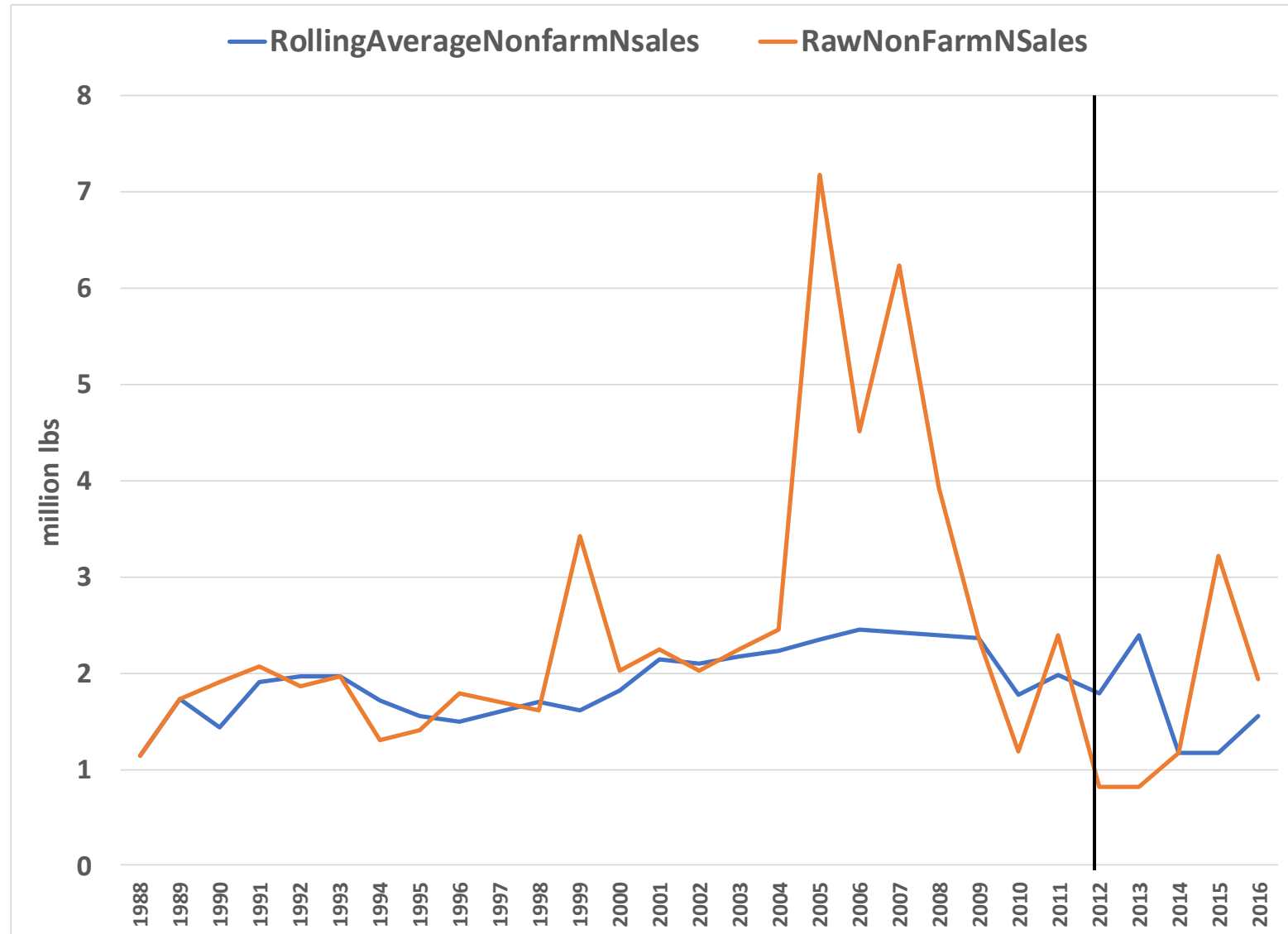
# NY Pounds of Phosphorus Applied (1990–2016)



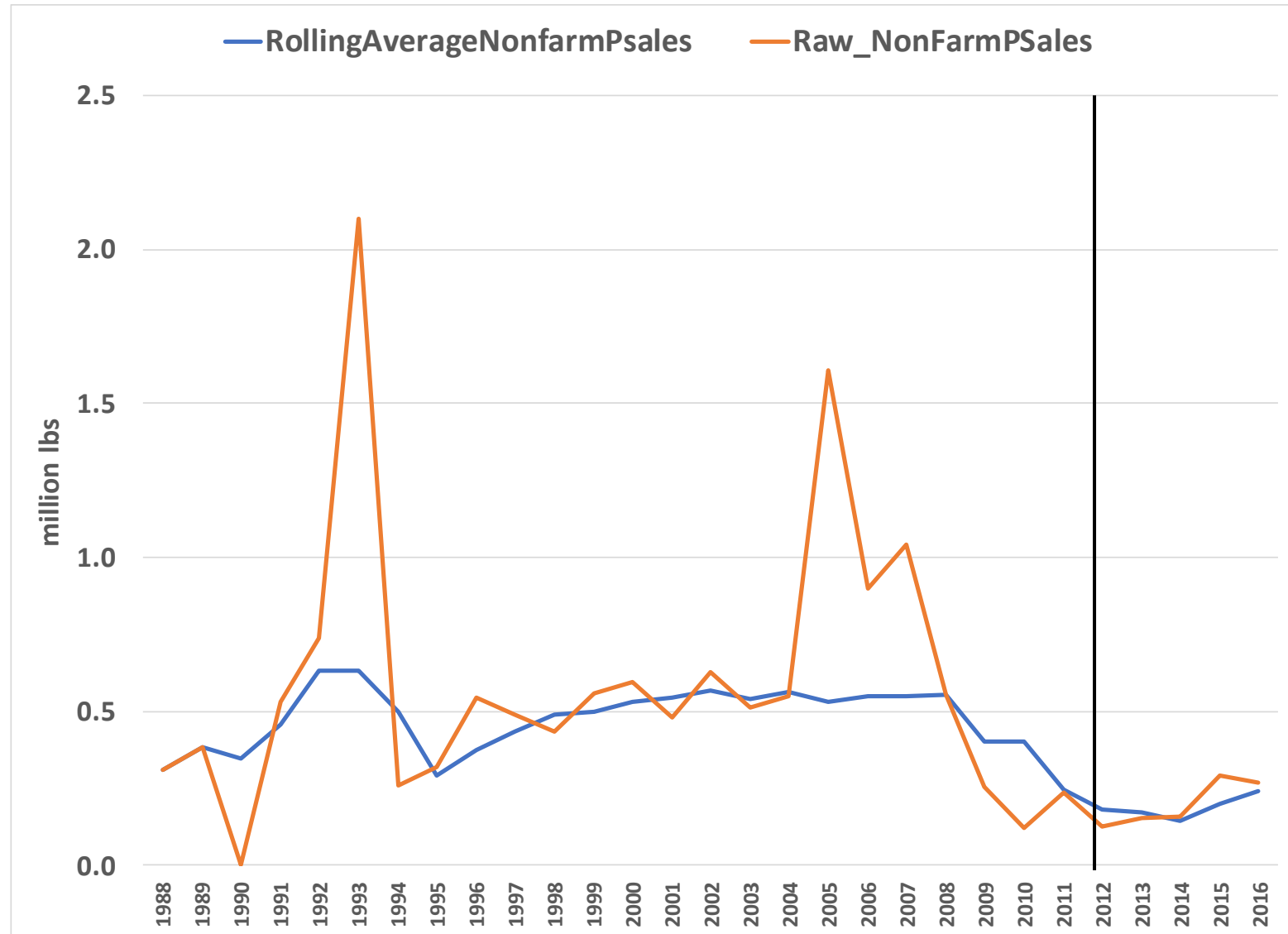


DELAWARE

# DE Pounds of Nitrogen Applied (1988–2016)



# DE Pounds of Phosphorus Applied (1988–2016)





# Turfgrass Nutrient Application Rates

## Phase 6 Model

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	Nitrogen			Phosphorus		
		CAST19 Method	Revised Method		CAST19 Method	Revised Method
	1985-2012	2012-2016	2012-2016 Rolling Average	1985-2012	2012-2016	2012-2016 Rolling Average
<b>NY</b>	increase	decrease	increase	decrease	decrease	decrease
<b>PA</b>	increase	increase	increase	increase	decrease	increase
<b>MD</b>	increase	decrease	increase	decrease	decrease	decrease
<b>VA</b>	increase	decrease	decrease	increase	decrease	decrease
<b>WV</b>	increase	increase	increase	decrease	increase	increase
<b>DE</b>	increase	increase	decrease	decrease	increase	increase