



Urban Fertilizer Application Rates

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Turfgrass Application Rates

- Two components
 - Fertilizer sales data
 - Association of American Plant Food Control Officials (AAPFCO)
 - Fertilizer consumption information submitted by state fertilizer control offices – by county
 - Total fertilizer sales or shipments for farm and non-farm use
 - Pervious urban area data
 - Determined from land cover databases and analyses.
- $\text{Non-farm fertilizer mass} \div \text{turfgrass acres} = \text{turfgrass application rate}$
- Since the model is calibrated to nutrient targets, the pervious urban application rate is not as important as the change in application rate through scenarios.



Turfgrass Application Rates

Current Fertilizer Reduction Credits

- Phosphorus applications are now 70% lower in states with legislation and 60% lower in states without legislation.
- By 2016, states must show fertilizer sales/use statistics that substantiate these reductions in phosphorus applications.



Turfgrass Application Rates

Proposed Fertilizer Data + Methods

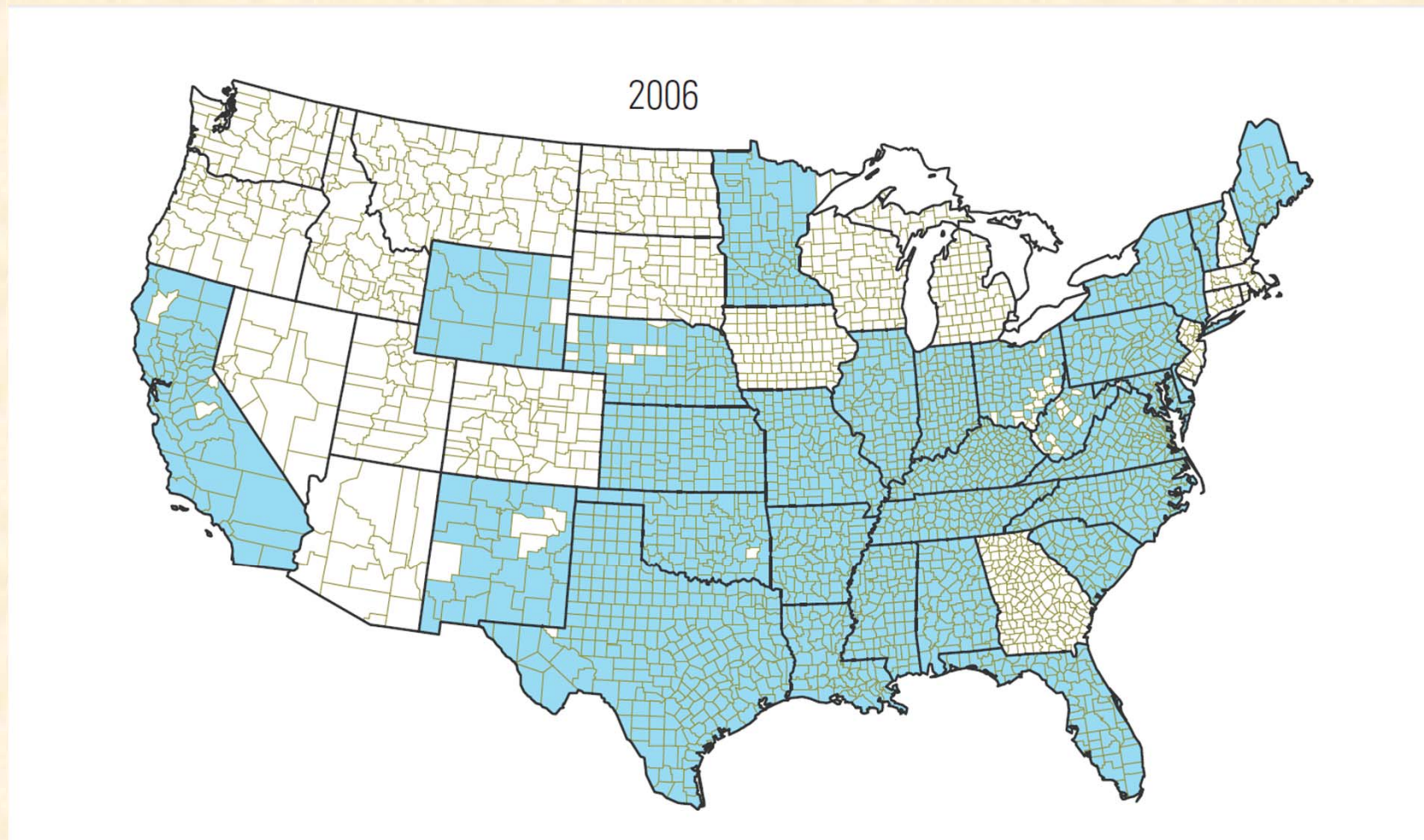
- A USGS report for National Water-Quality Assessment program updates estimated county-level farm and nonfarm N and P input from commercial fertilizer sales for the U.S. for 1987 – 2006.
- Estimates were calculated from the AAPFCO fertilizer sales data, Census of Agriculture fertilizer expenditures, and U.S. Census Bureau county population.
 - Peer-reviewed methodology at <http://pubs.usgs.gov/sir/2012/5207/>
- With a few exceptions, nonfarm nitrogen estimates were found to be reasonable when compared to the amounts that would result if the lawn application rates recommended by state and university agricultural agencies were used.



Turfgrass Application Rates

Proposed Fertilizer Data + Methods

- Location of counties with AAPFCO fertilizer product tonnage data reported at the county level, 1987–2006





Turfgrass Application Rates

Proposed Fertilizer Data + Methods

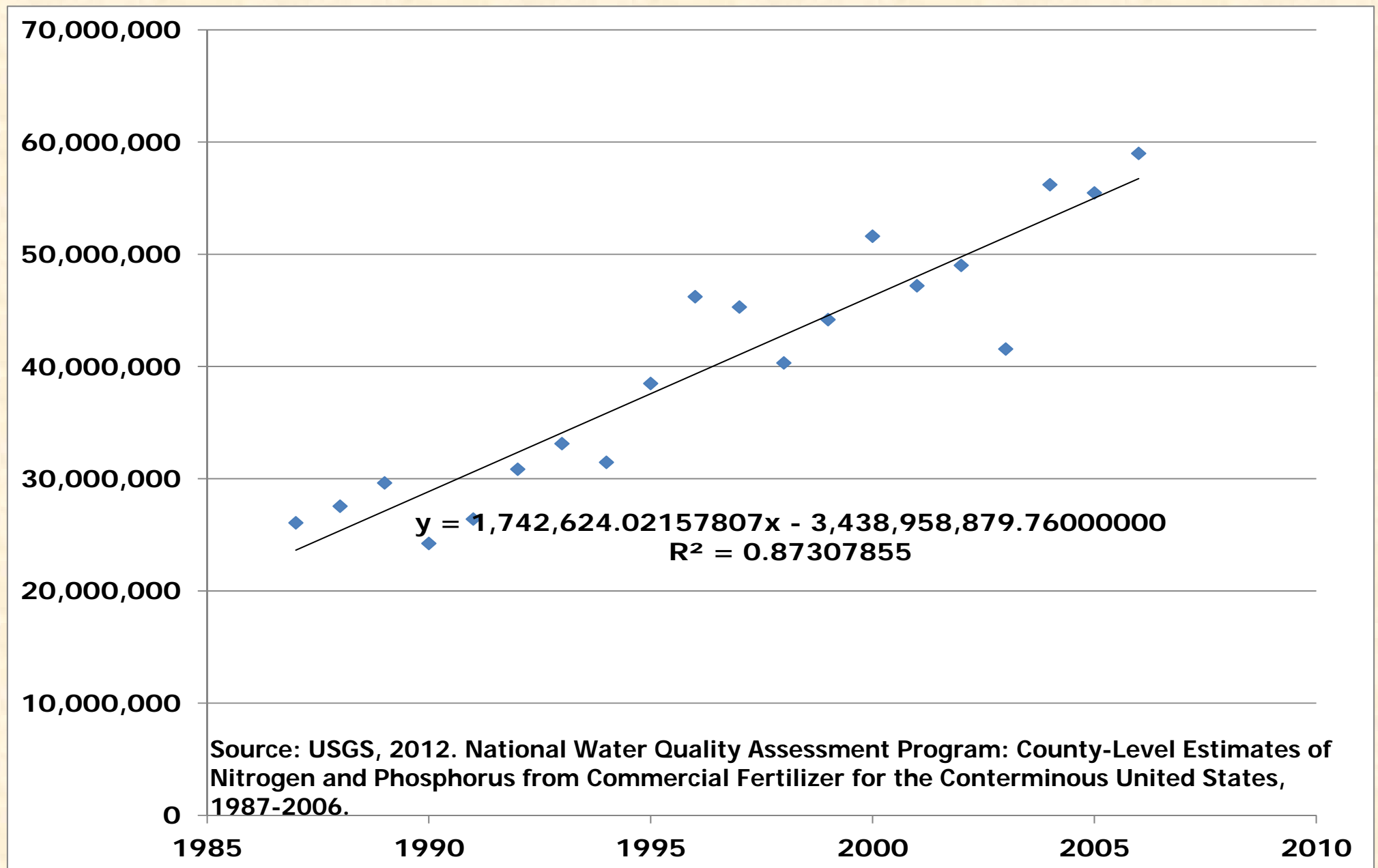
- CBPO will be obtaining AAPFCO fertilizer sales data through 2014 by June, 2016.
 - Phase 6 application rates through the calibration period
 - Potential to continue benefits of fertilizer legislation in Phase 5 WSM
- Depending on the quality of the data, may use USGS conversions from sales to use.
- Jurisdictions should continue collecting urban fertilizer data from their sources if available.
- Findings may not align with what's expected or hoped for.



Urban Fertilizer
Application Rates
Chesapeake Bay Watershed

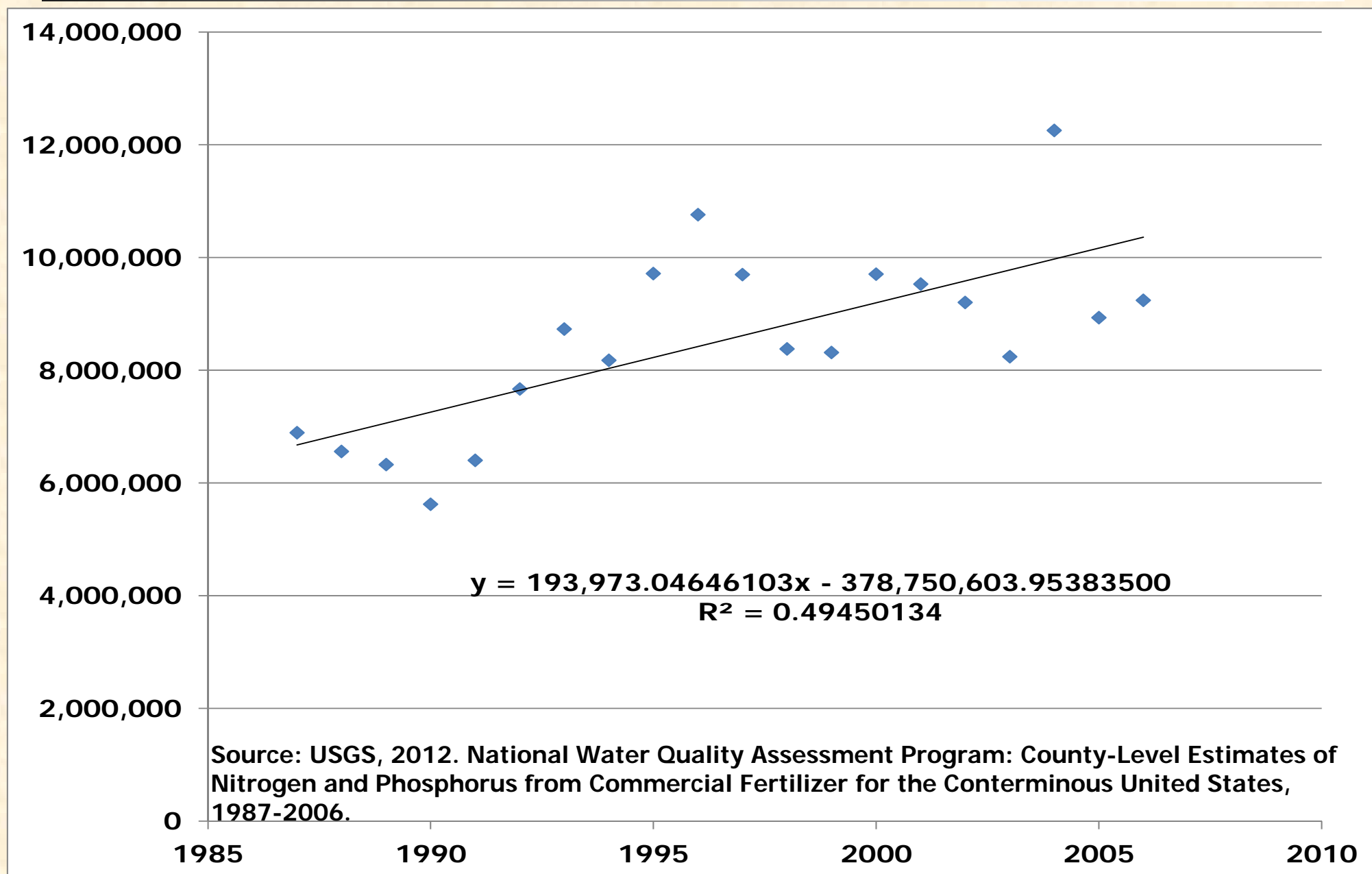


Nitrogen Fertilizer Use Pounds Annually for CB Watershed



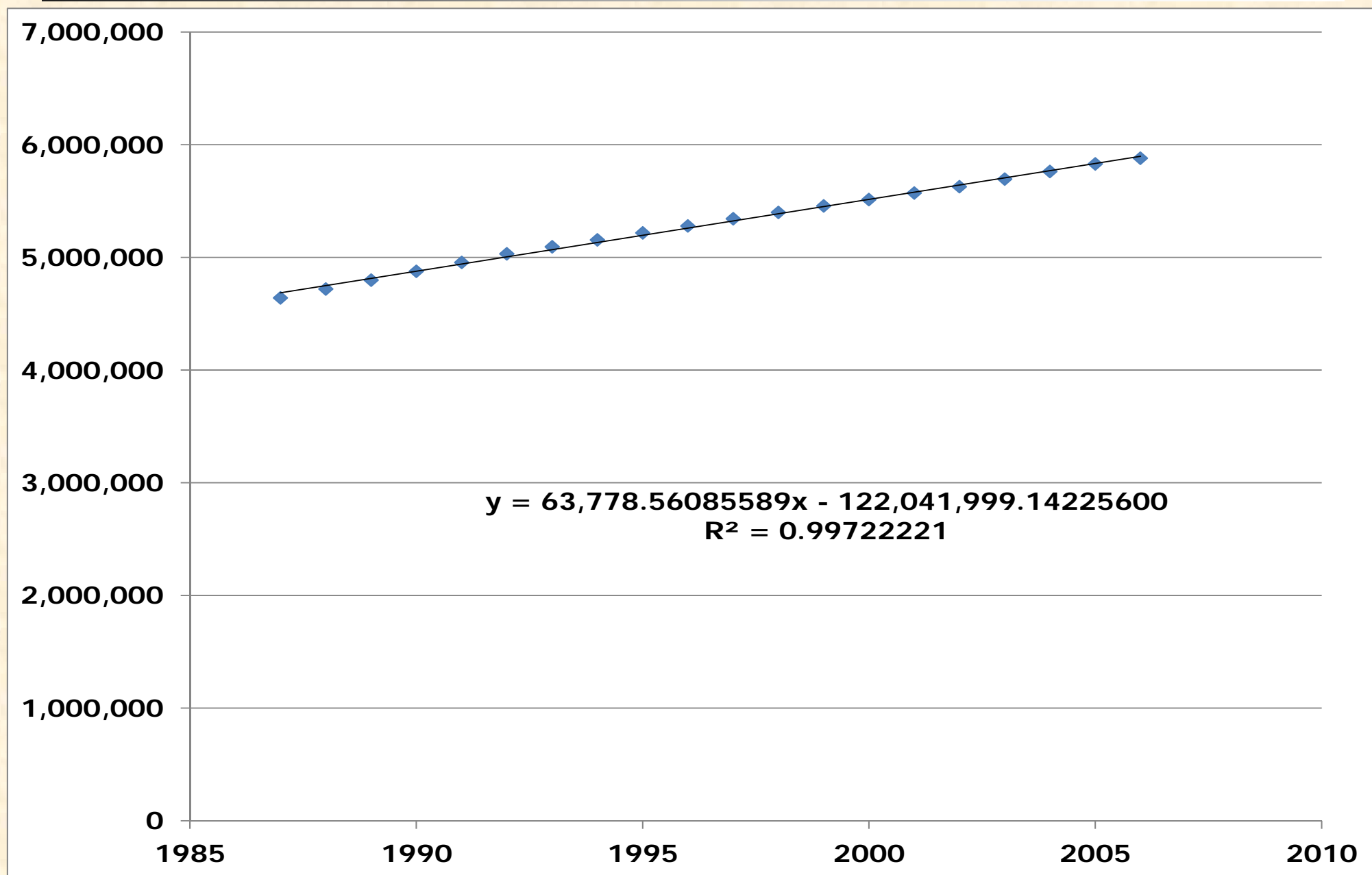


Phosphorus Fertilizer Use Pounds Annually for CB Watershed



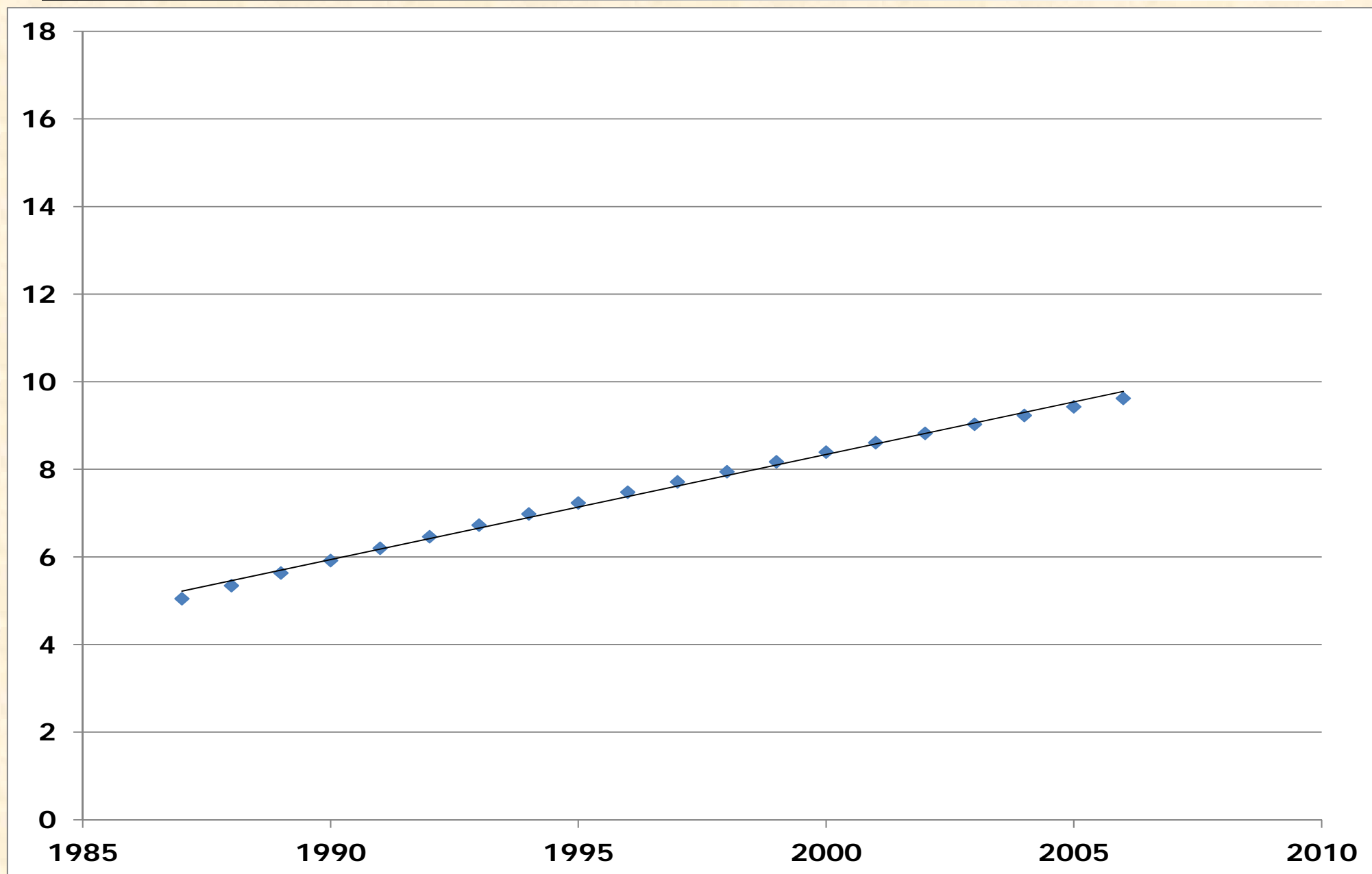


Turfgrass Acres CB Watershed



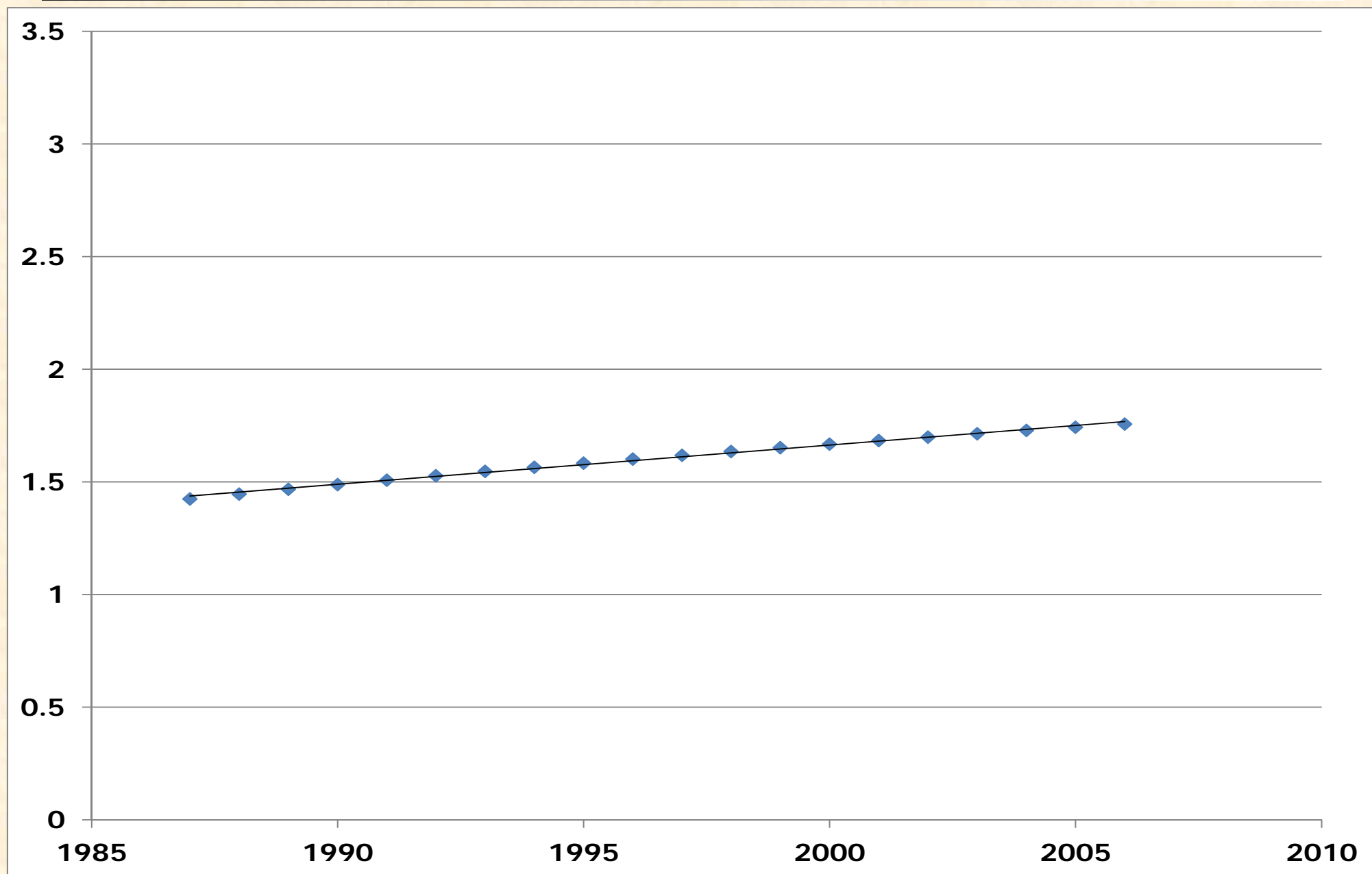


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for CB Watershed





Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for CB Watershed

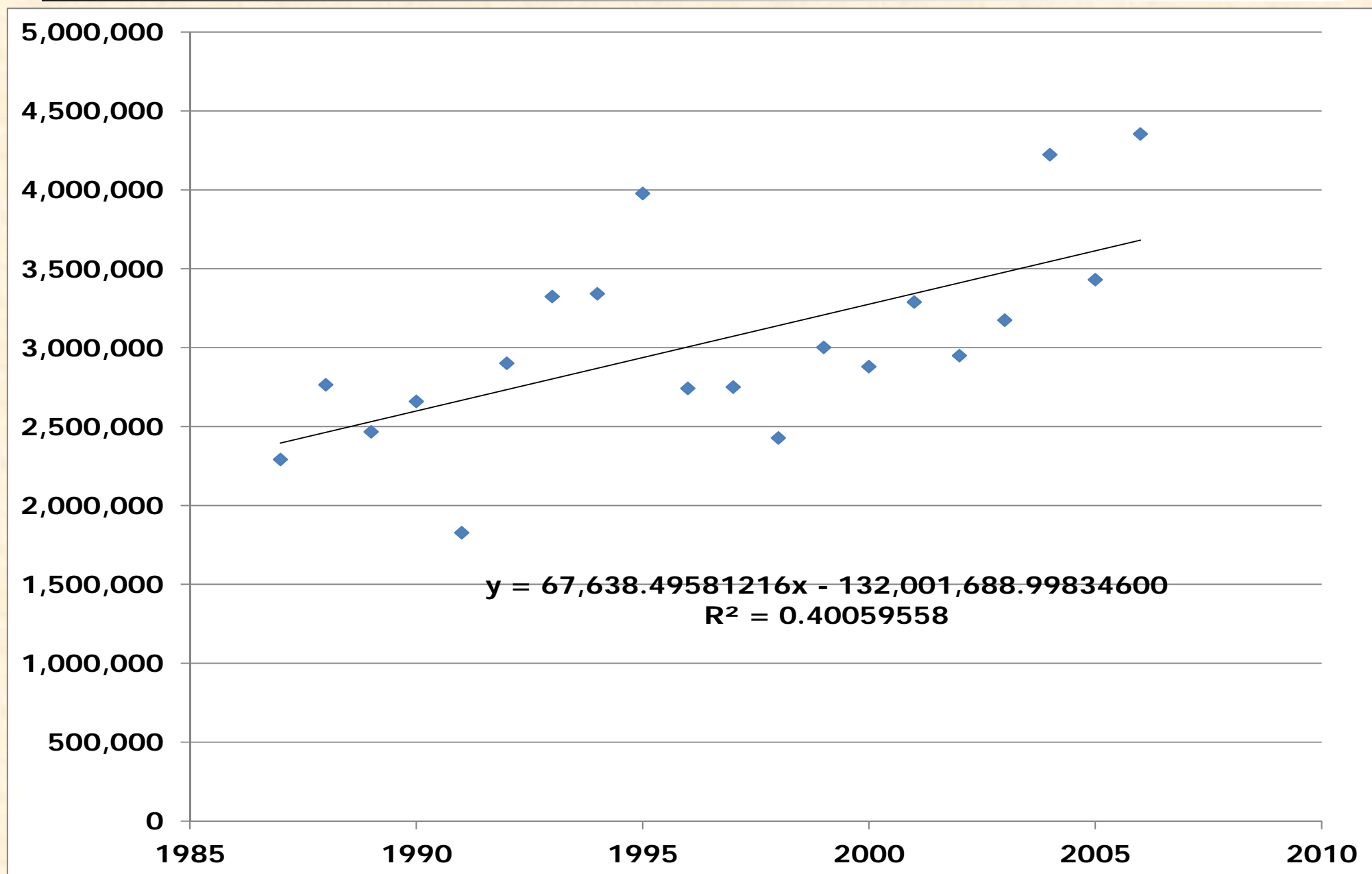




Nitrogen Fertilizer Use by State

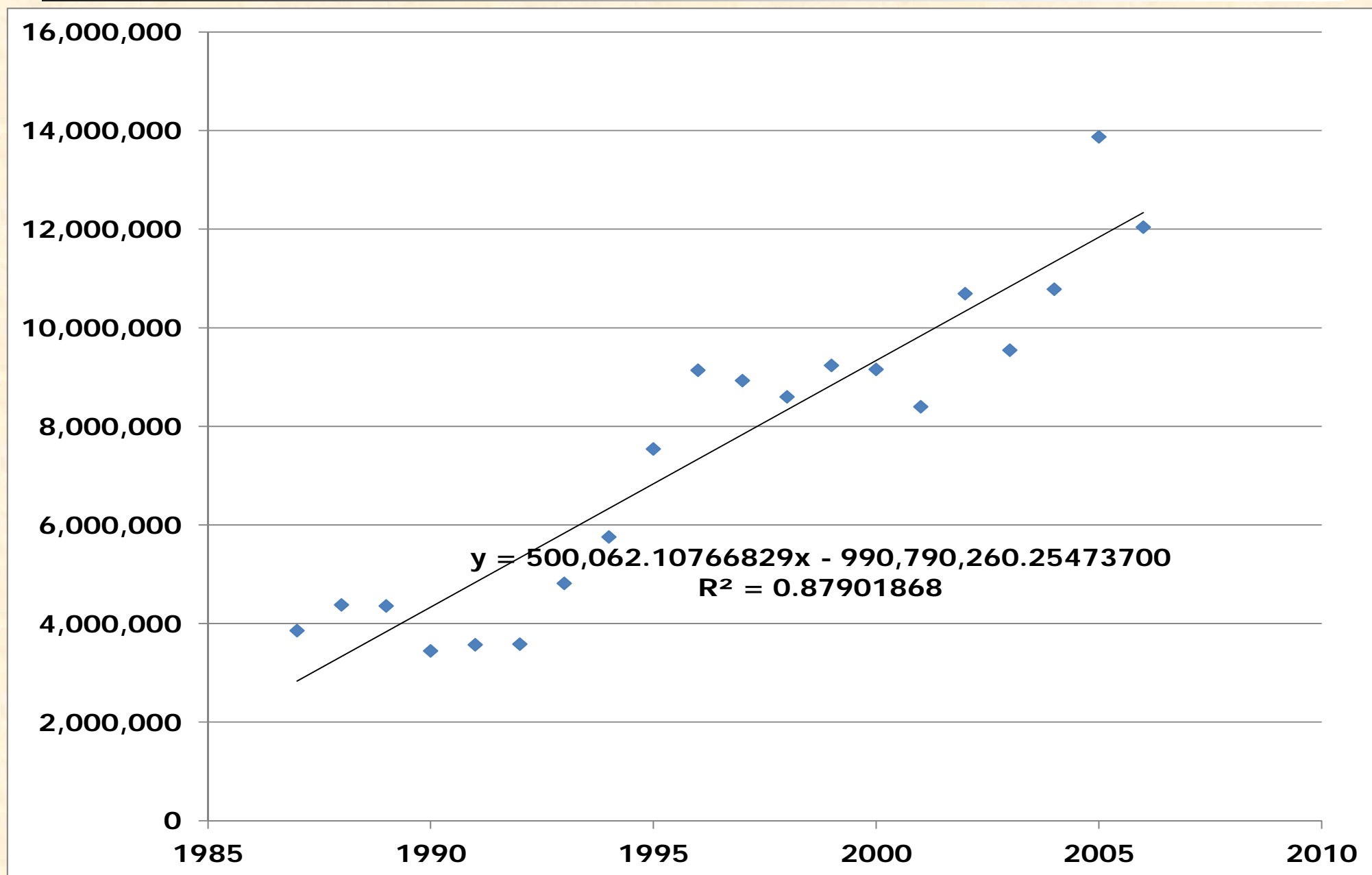


Nitrogen Fertilizer Use Pounds Annually for NY



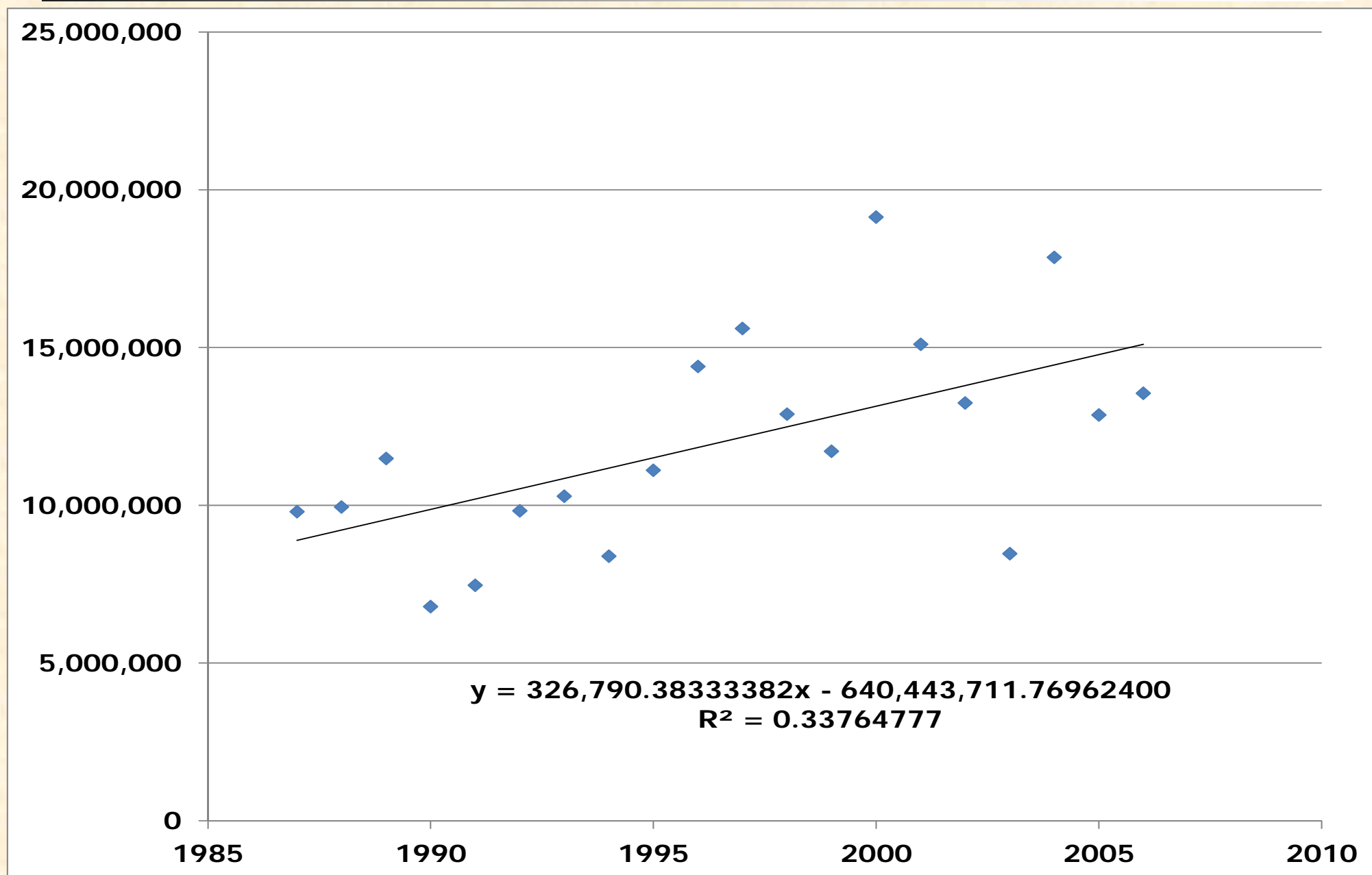


Nitrogen Fertilizer Use Pounds Annually for PA



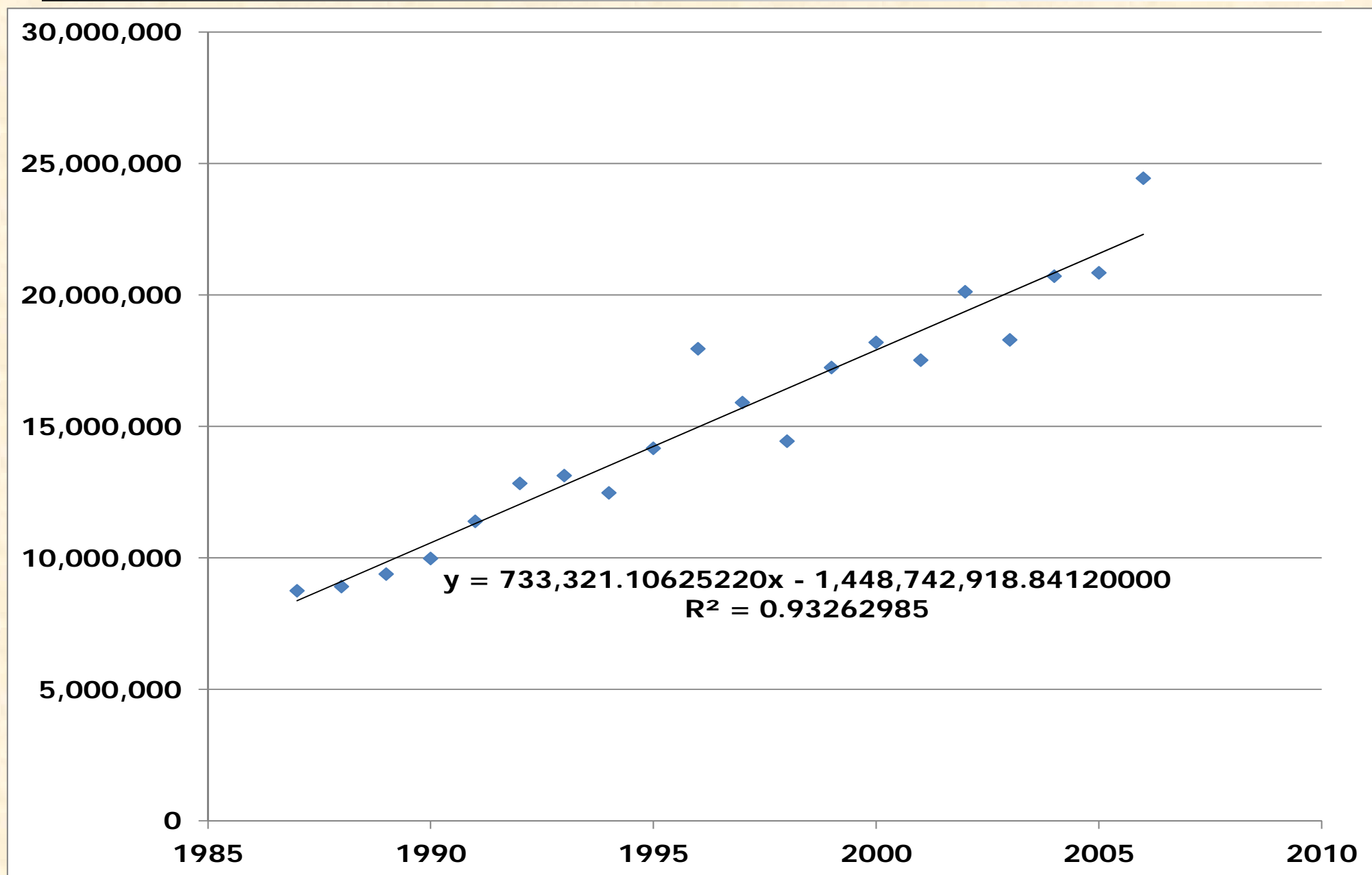


Nitrogen Fertilizer Use Pounds Annually for MD



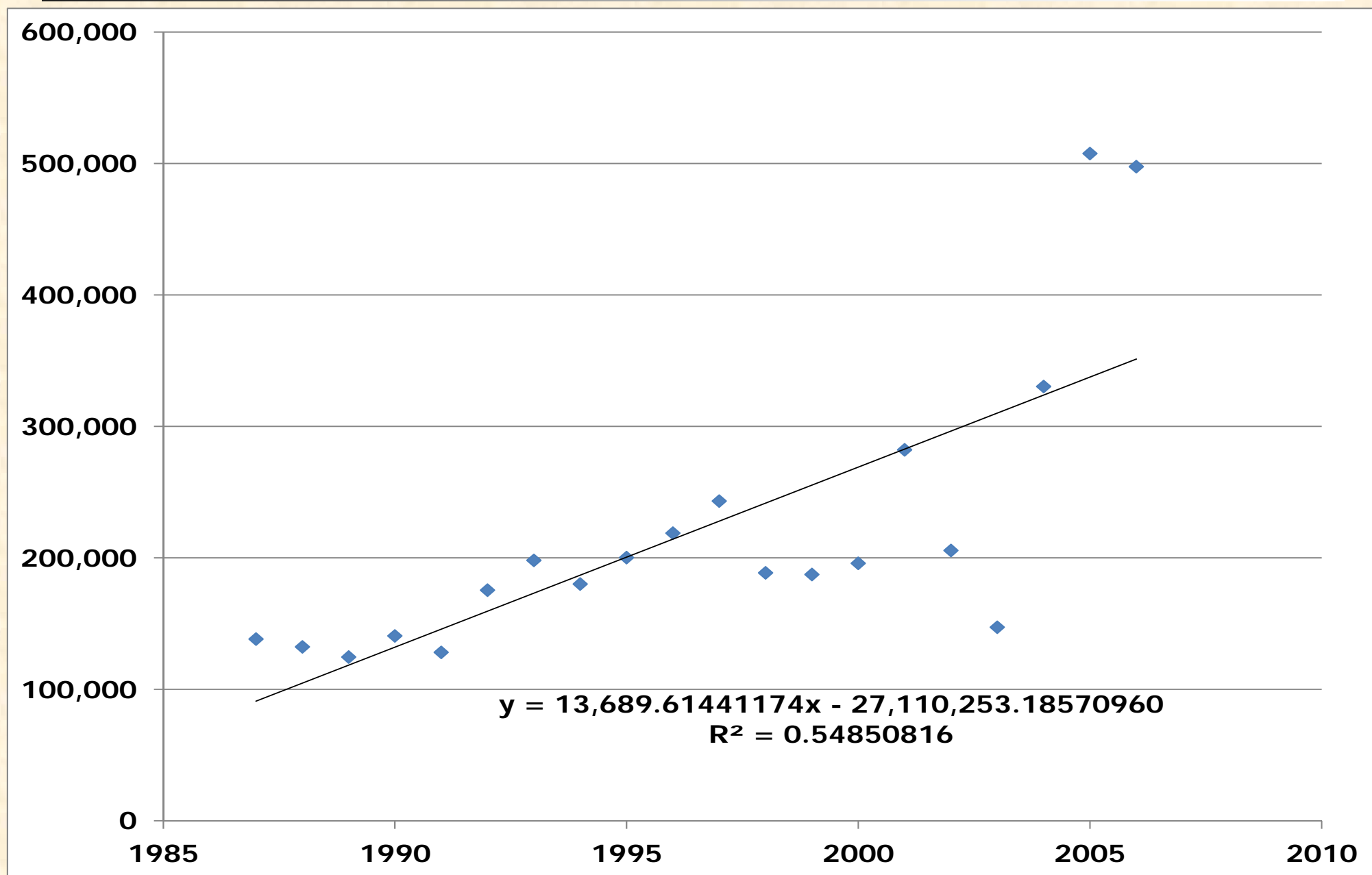


Nitrogen Fertilizer Use Pounds Annually for VA



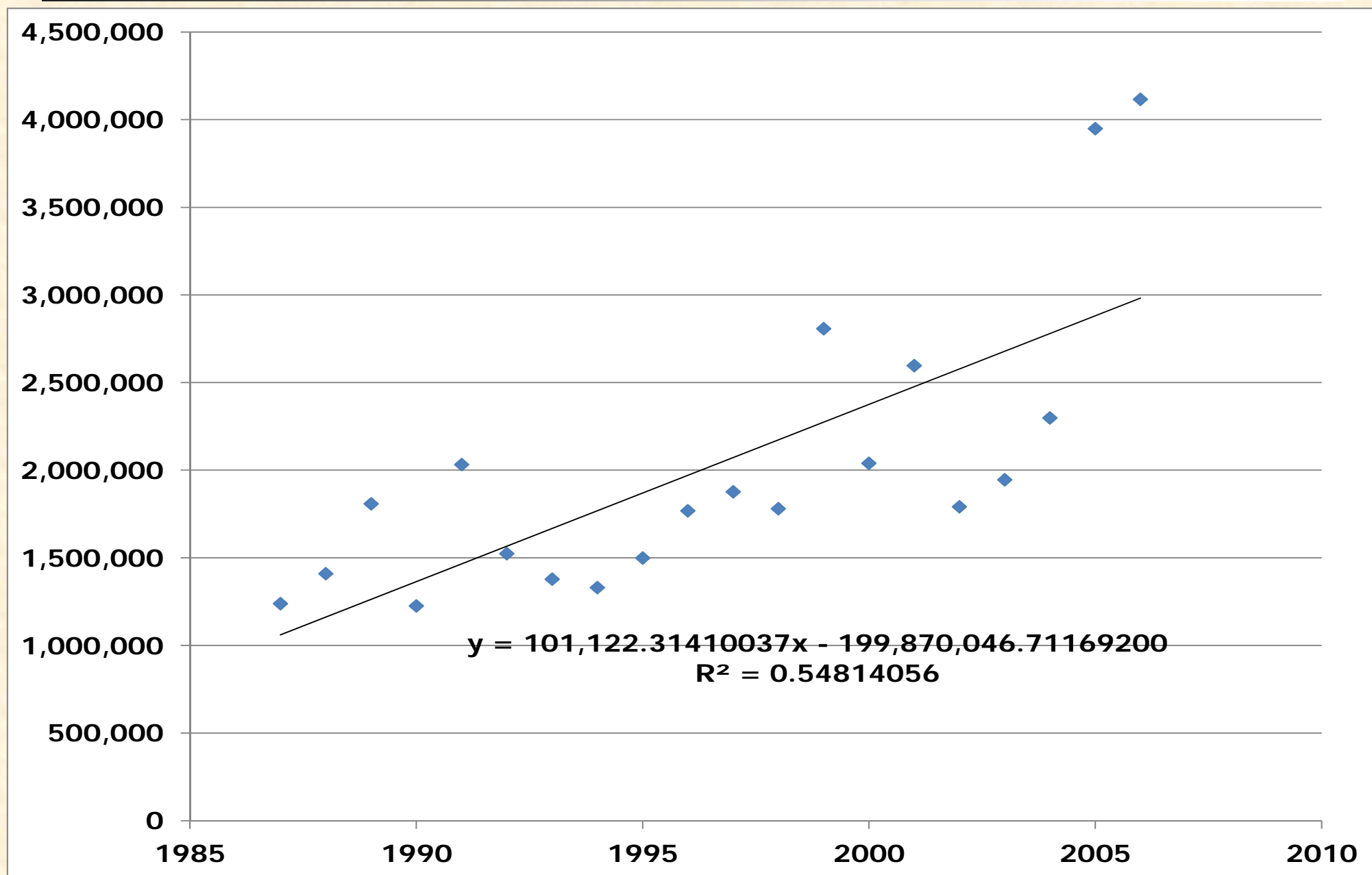


Nitrogen Fertilizer Use Pounds Annually for WV





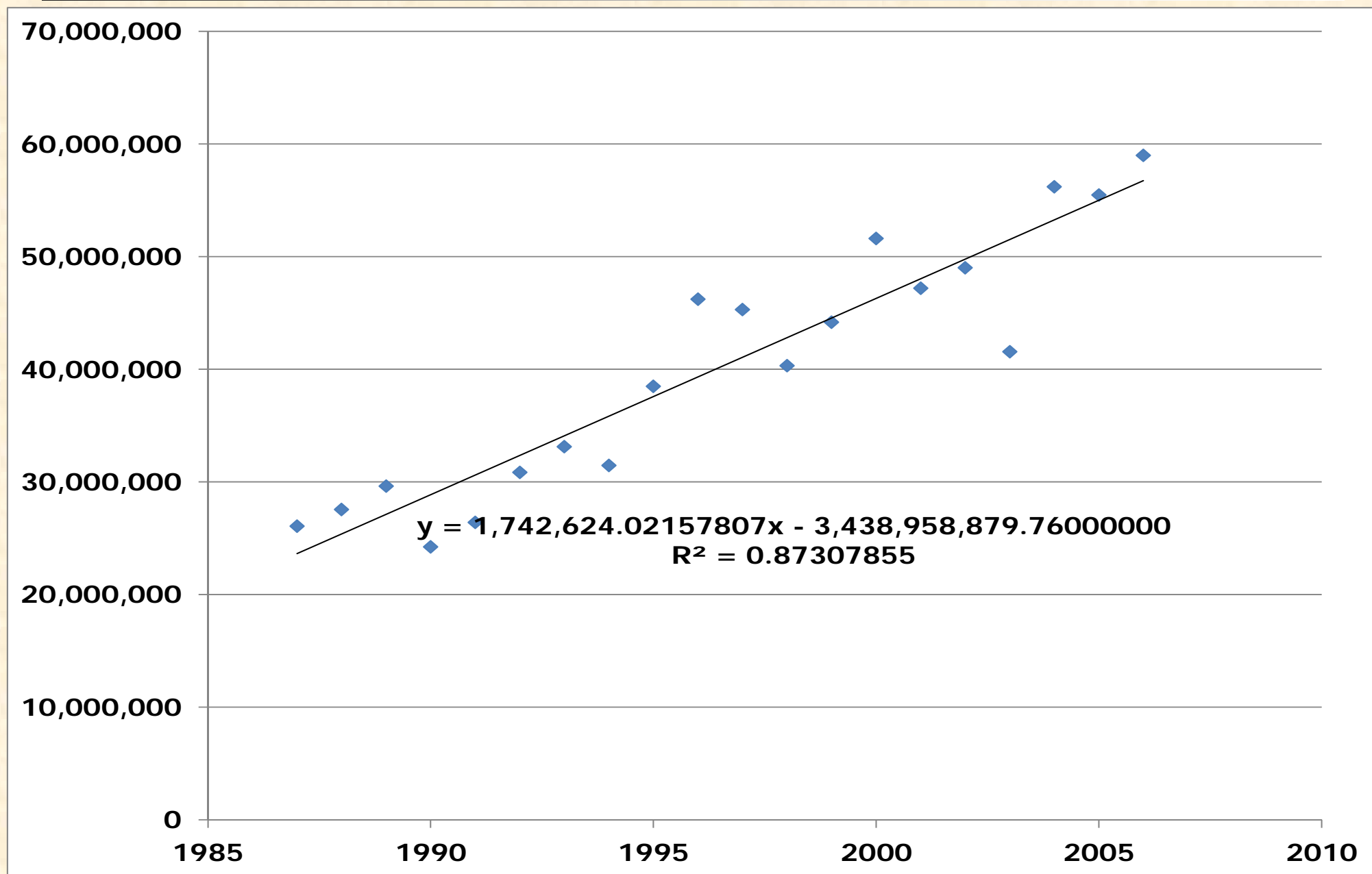
Nitrogen Fertilizer Use Pounds Annually for DE





Nitrogen Fertilizer Use

Pounds Annually for CB Watershed

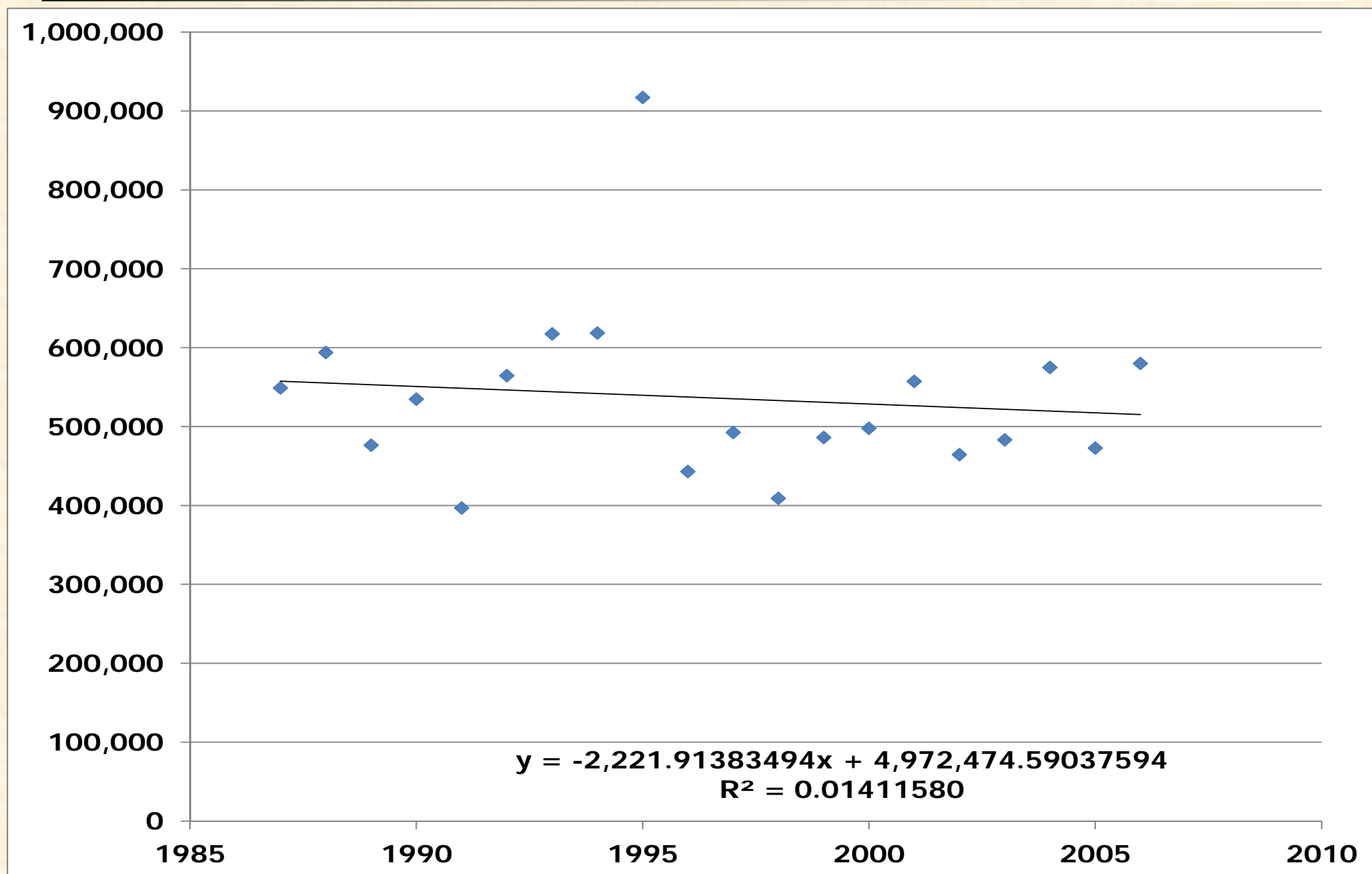




Phosphorus Fertilizer Use by State

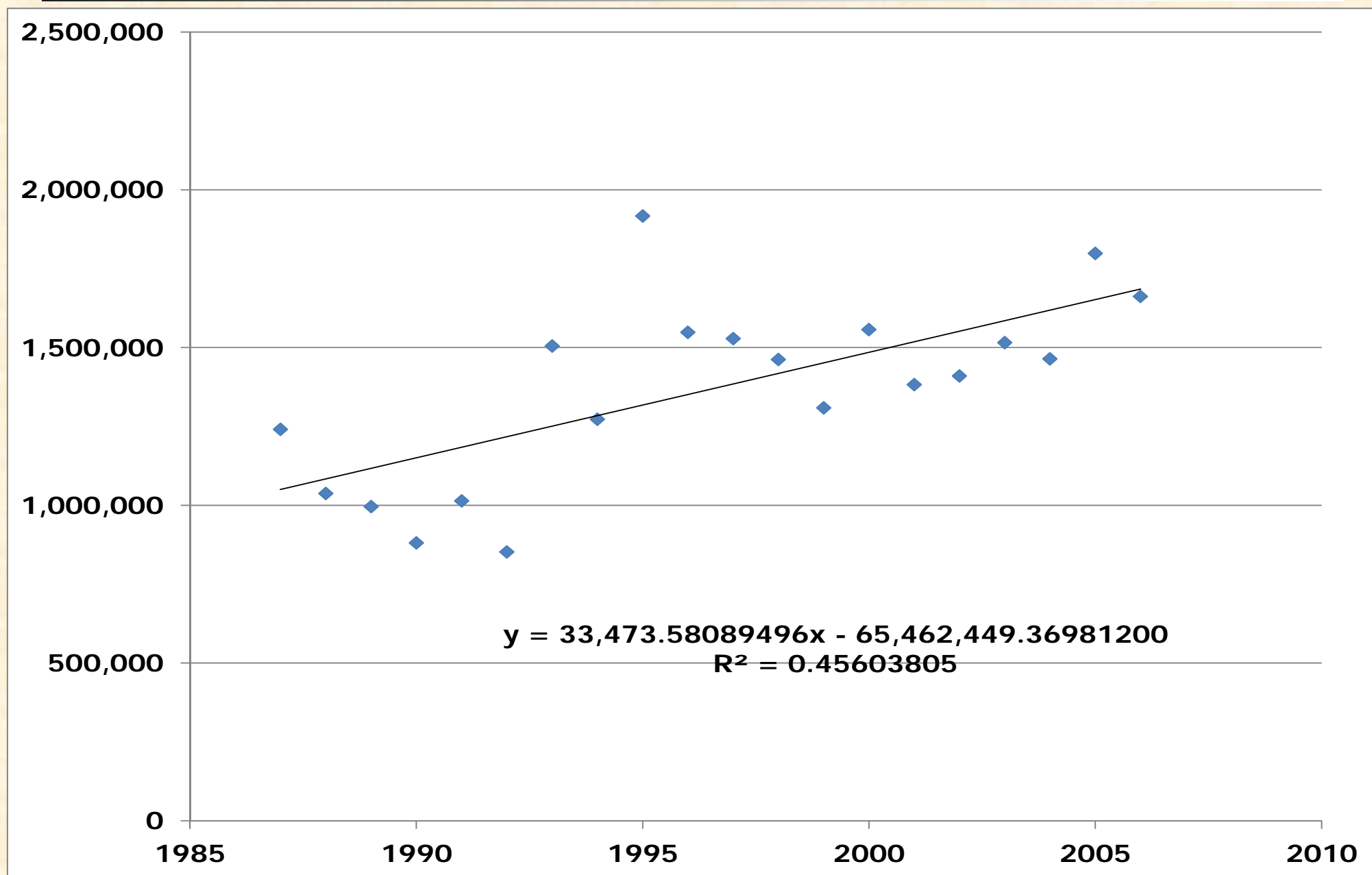


Phosphorus Fertilizer Use Pounds Annually for NY



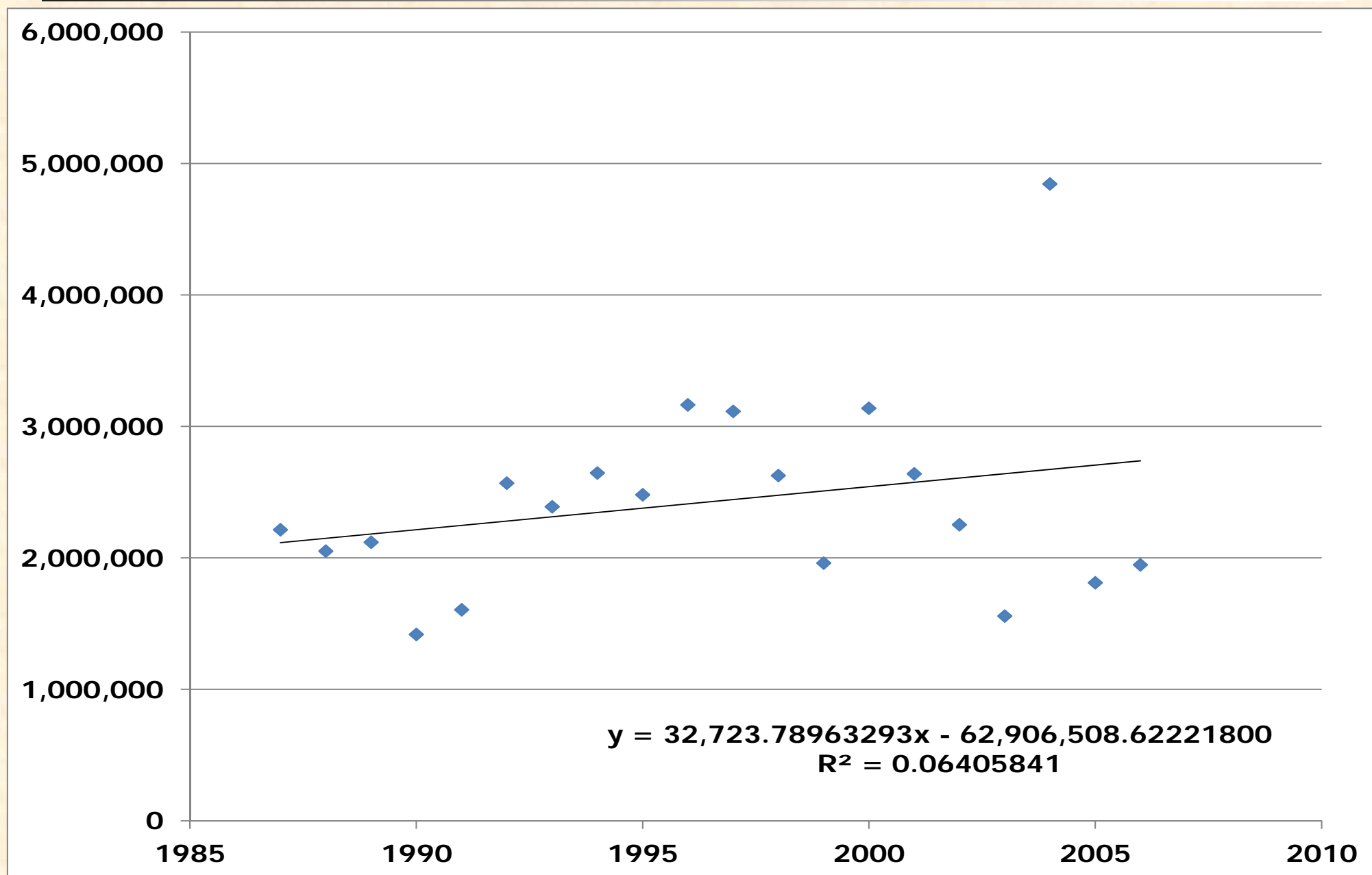


Phosphorus Fertilizer Use Pounds Annually for PA



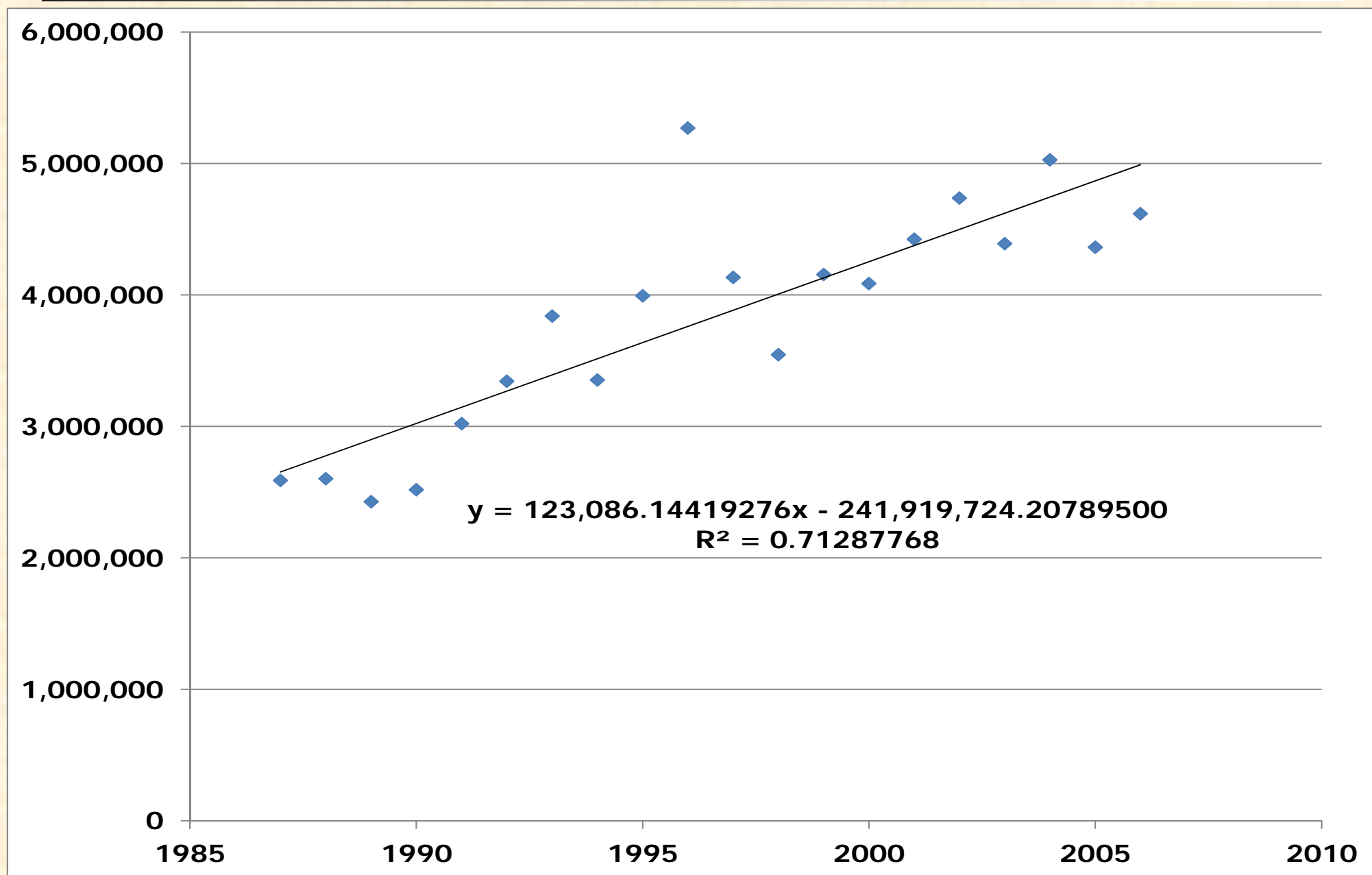


Phosphorus Fertilizer Use Pounds Annually for MD



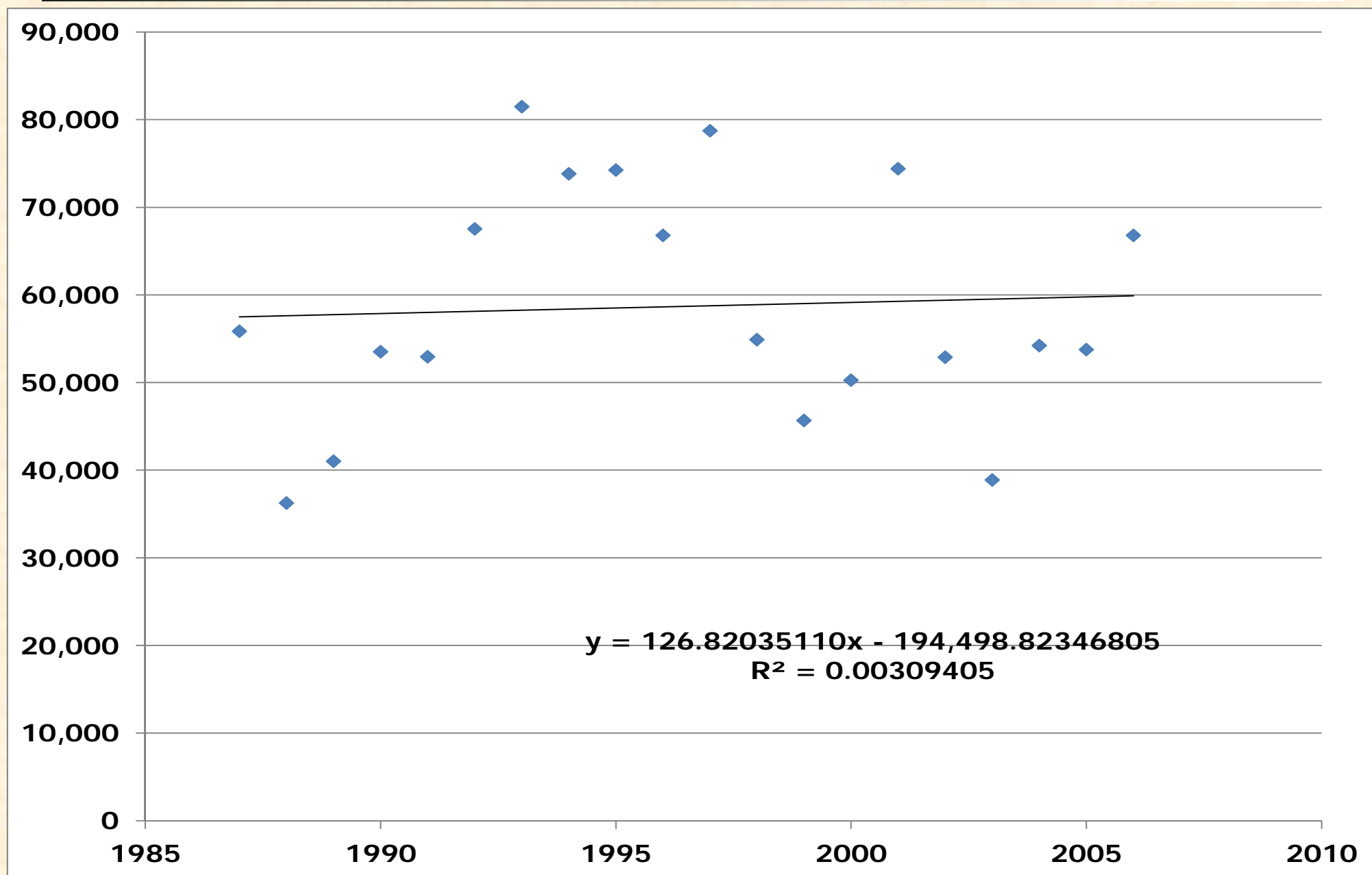


Phosphorus Fertilizer Use Pounds Annually for VA



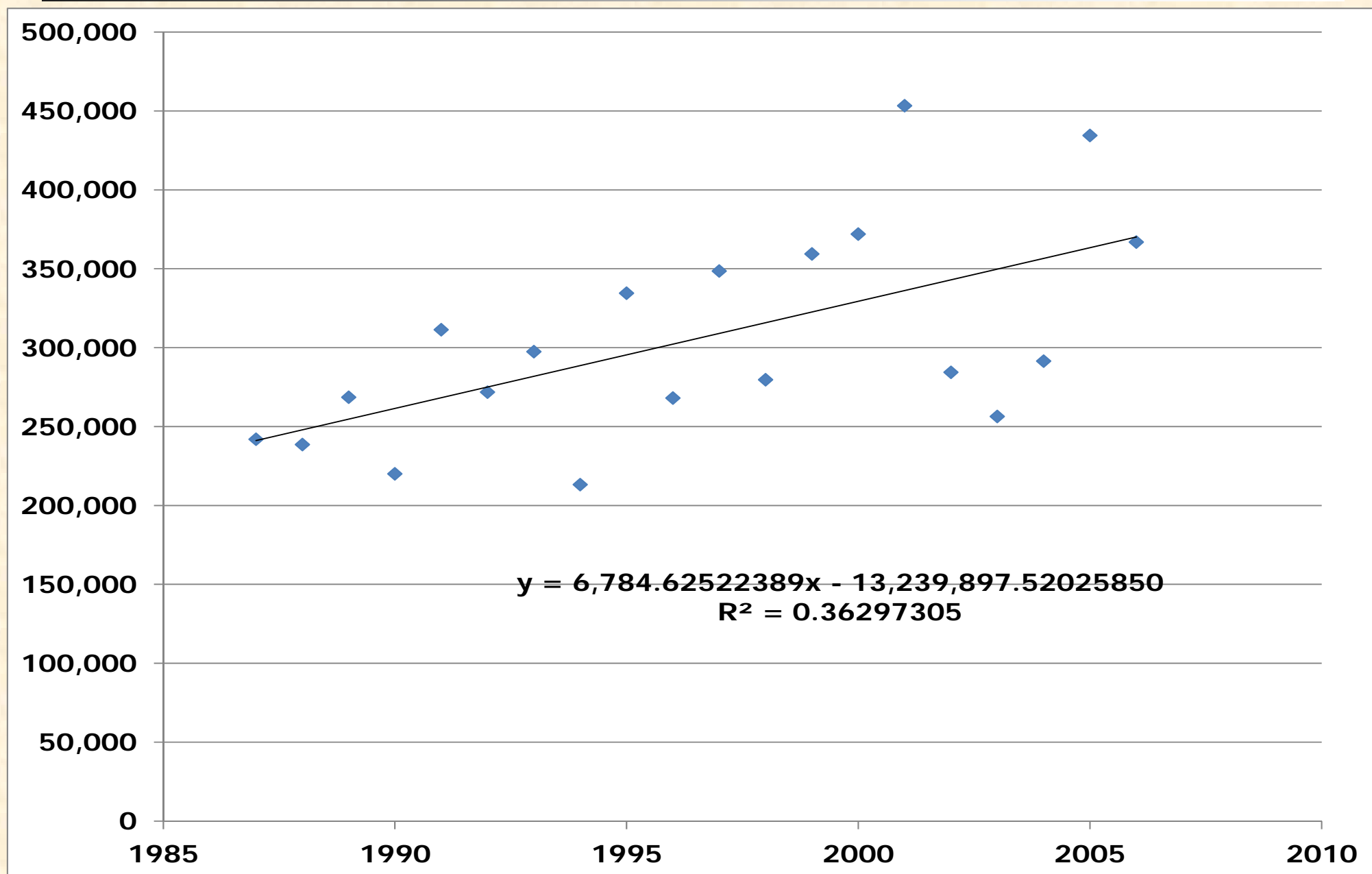


Phosphorus Fertilizer Use Pounds Annually for WV



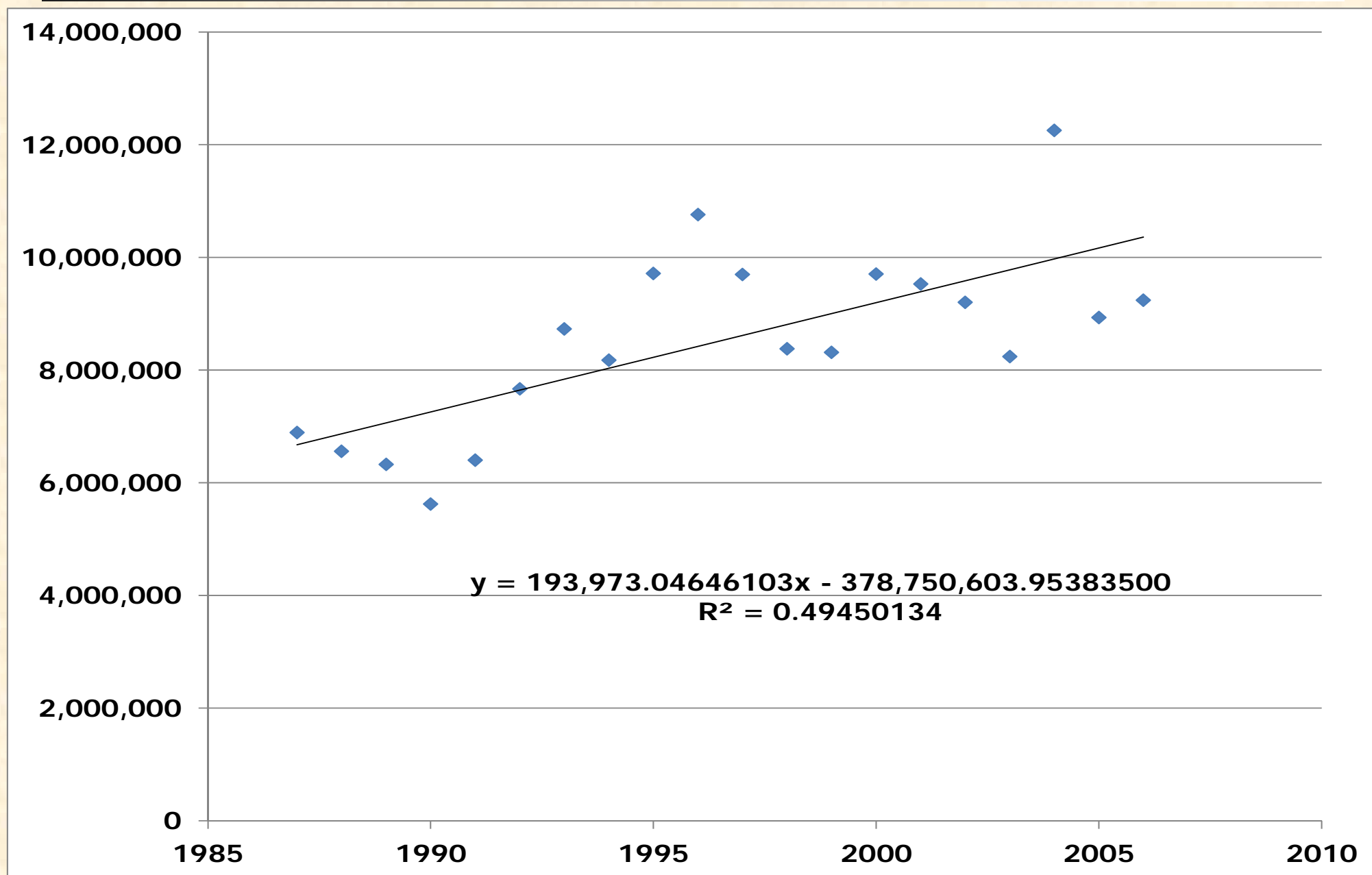


Phosphorus Fertilizer Use Pounds Annually for DE





Phosphorus Fertilizer Use Pounds Annually for CB Watershed

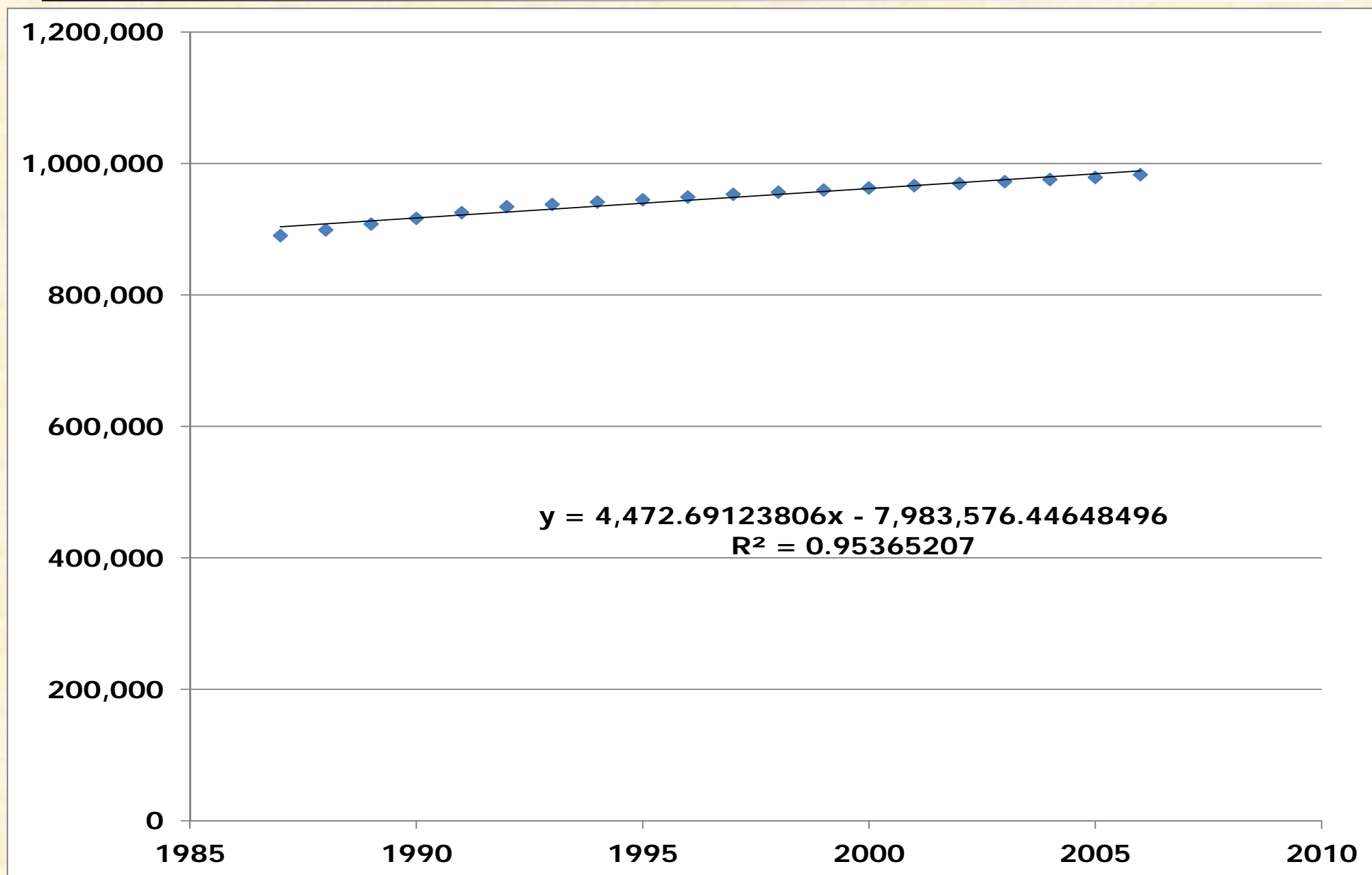




Turfgrass Acres by State

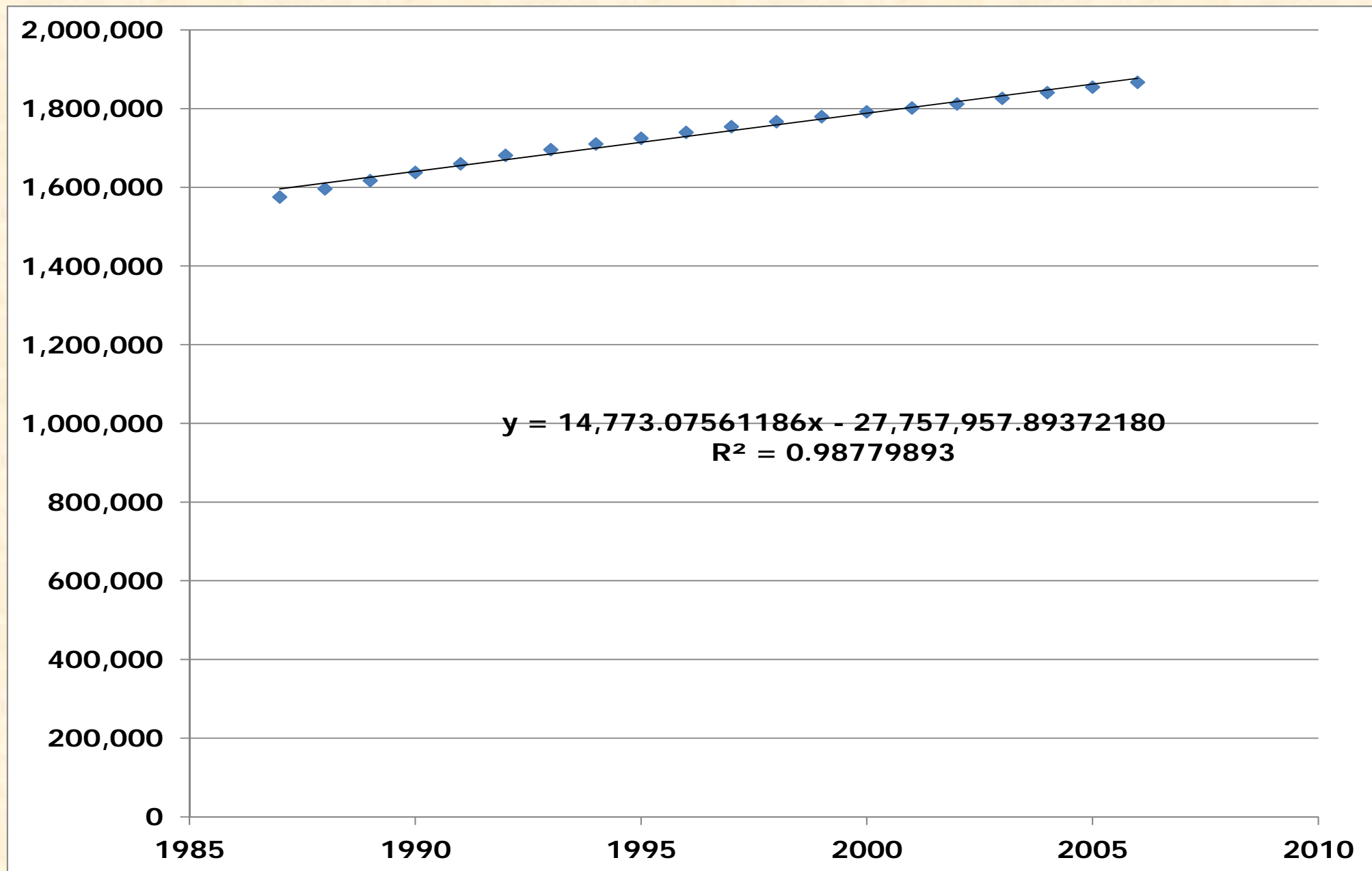


Turfgrass Acres NY



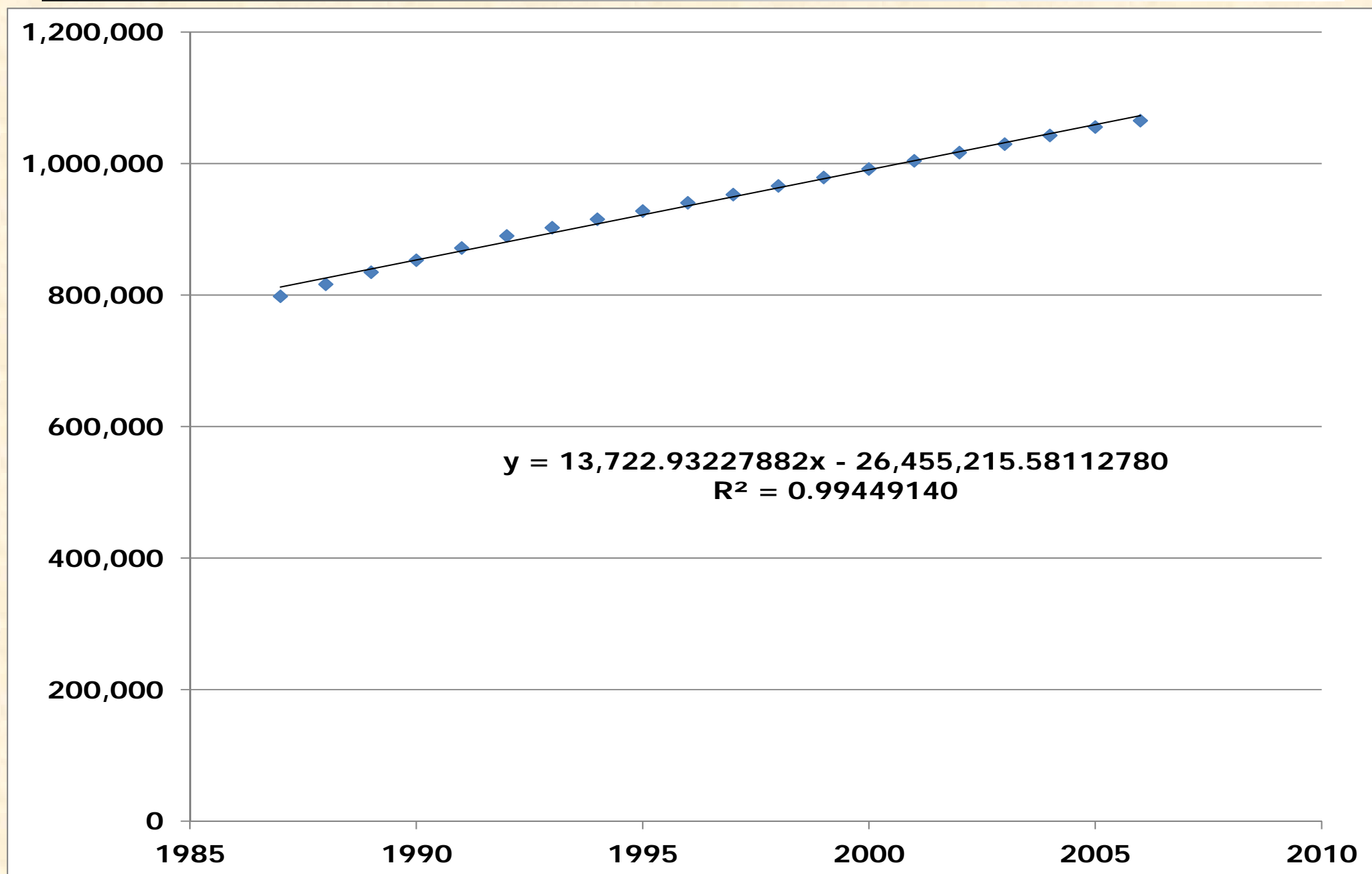


Turfgrass Acres PA



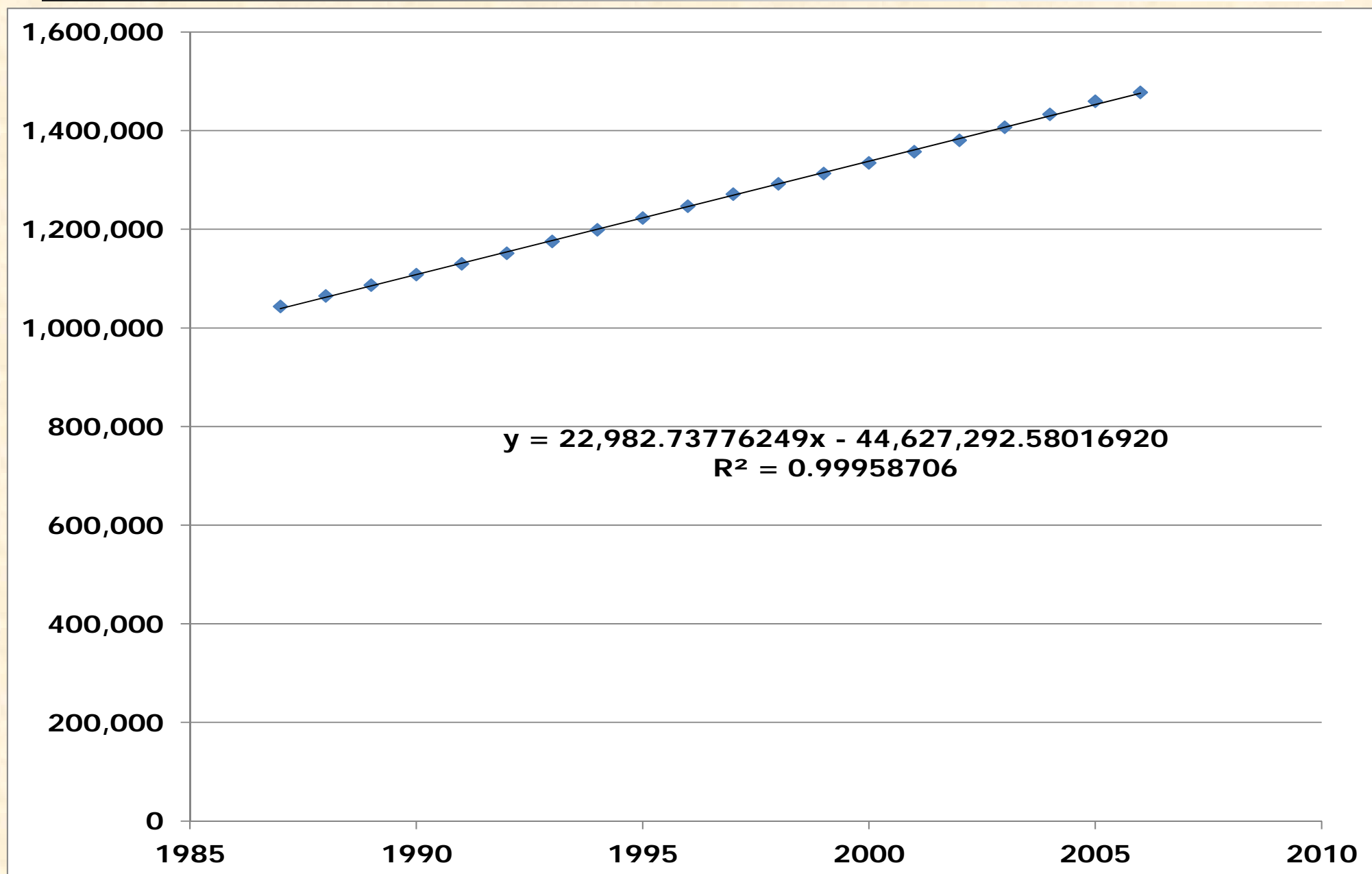


Turfgrass Acres MD



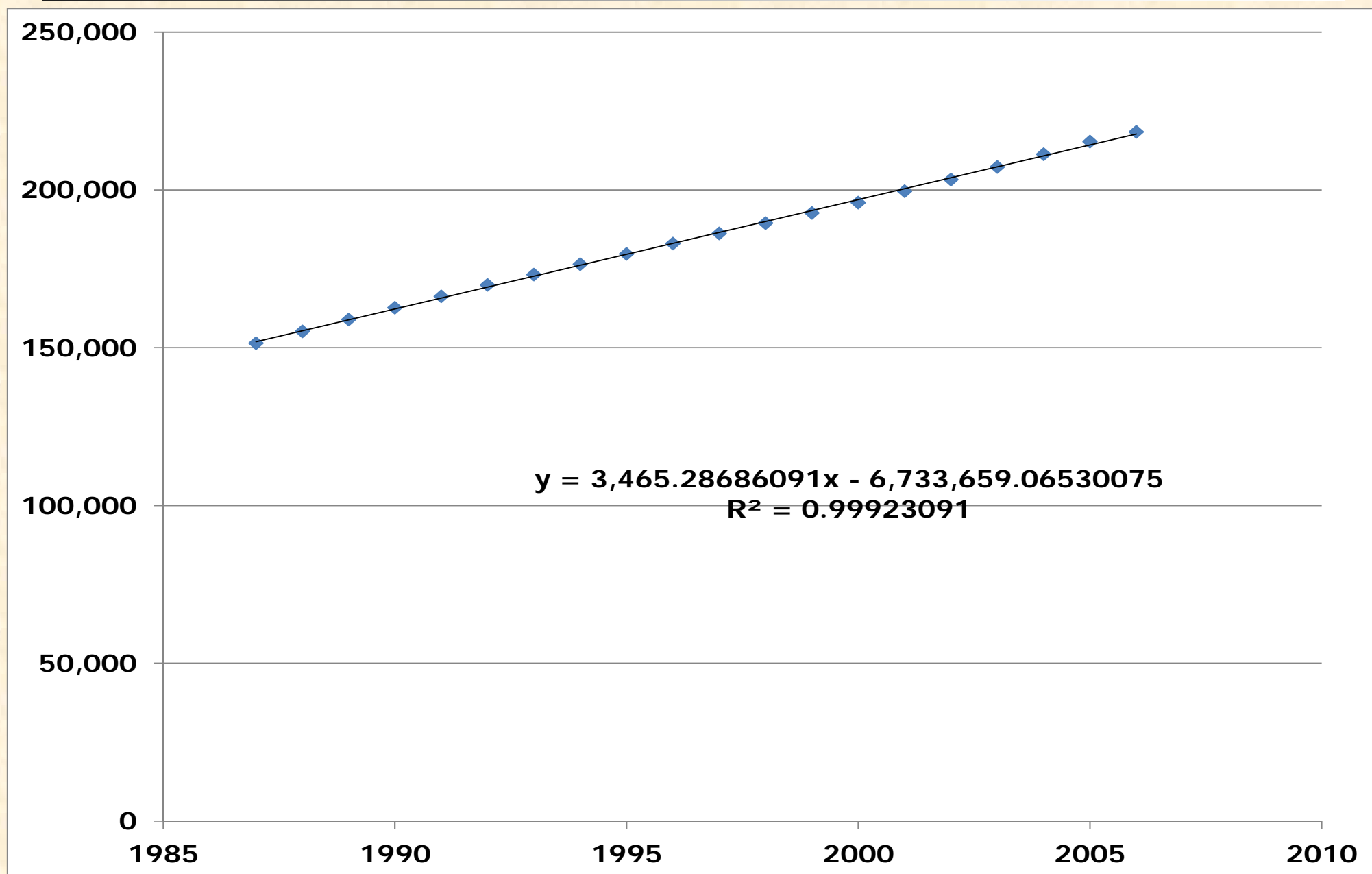


Turfgrass Acres VA



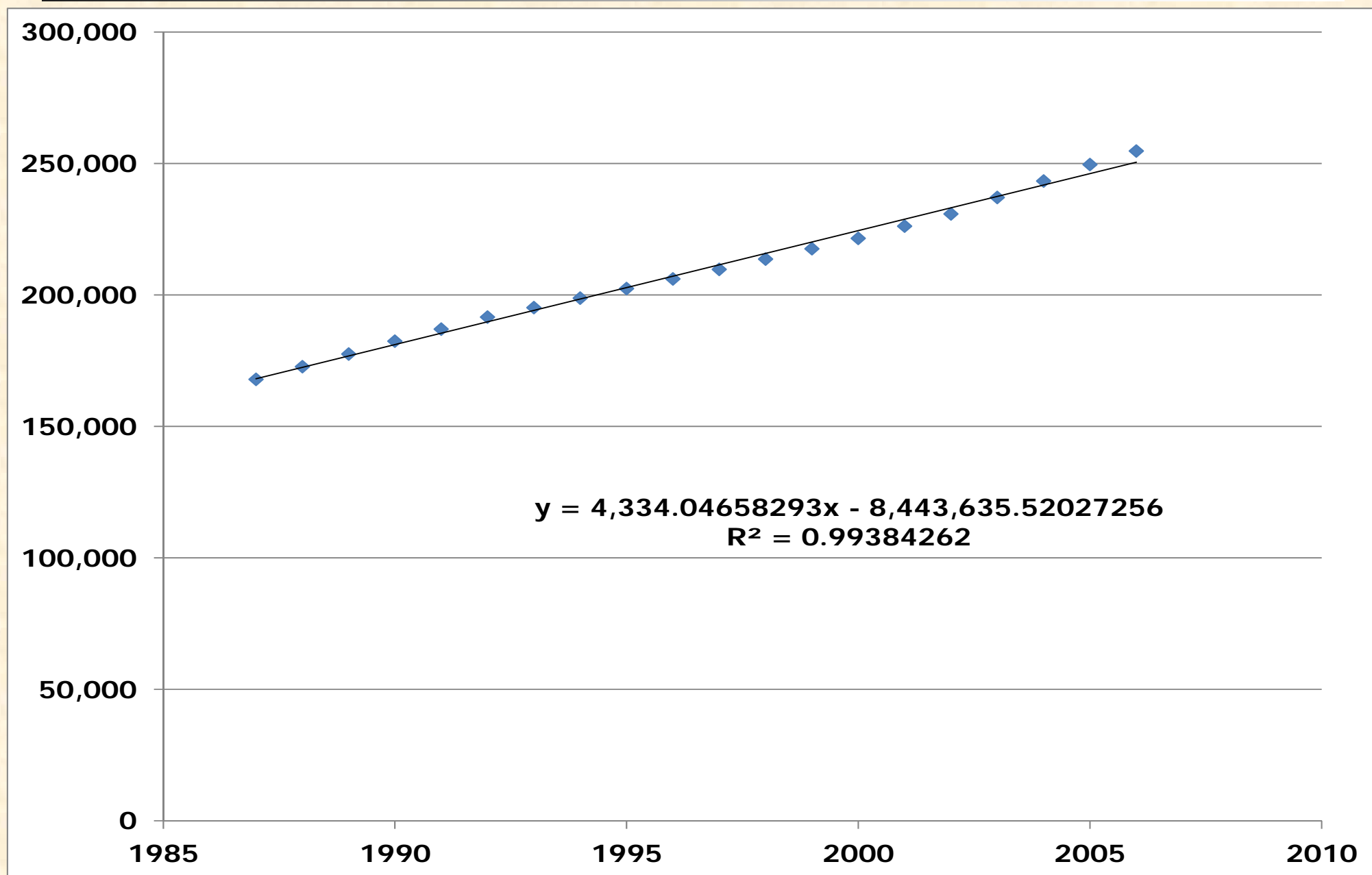


Turfgrass Acres WV



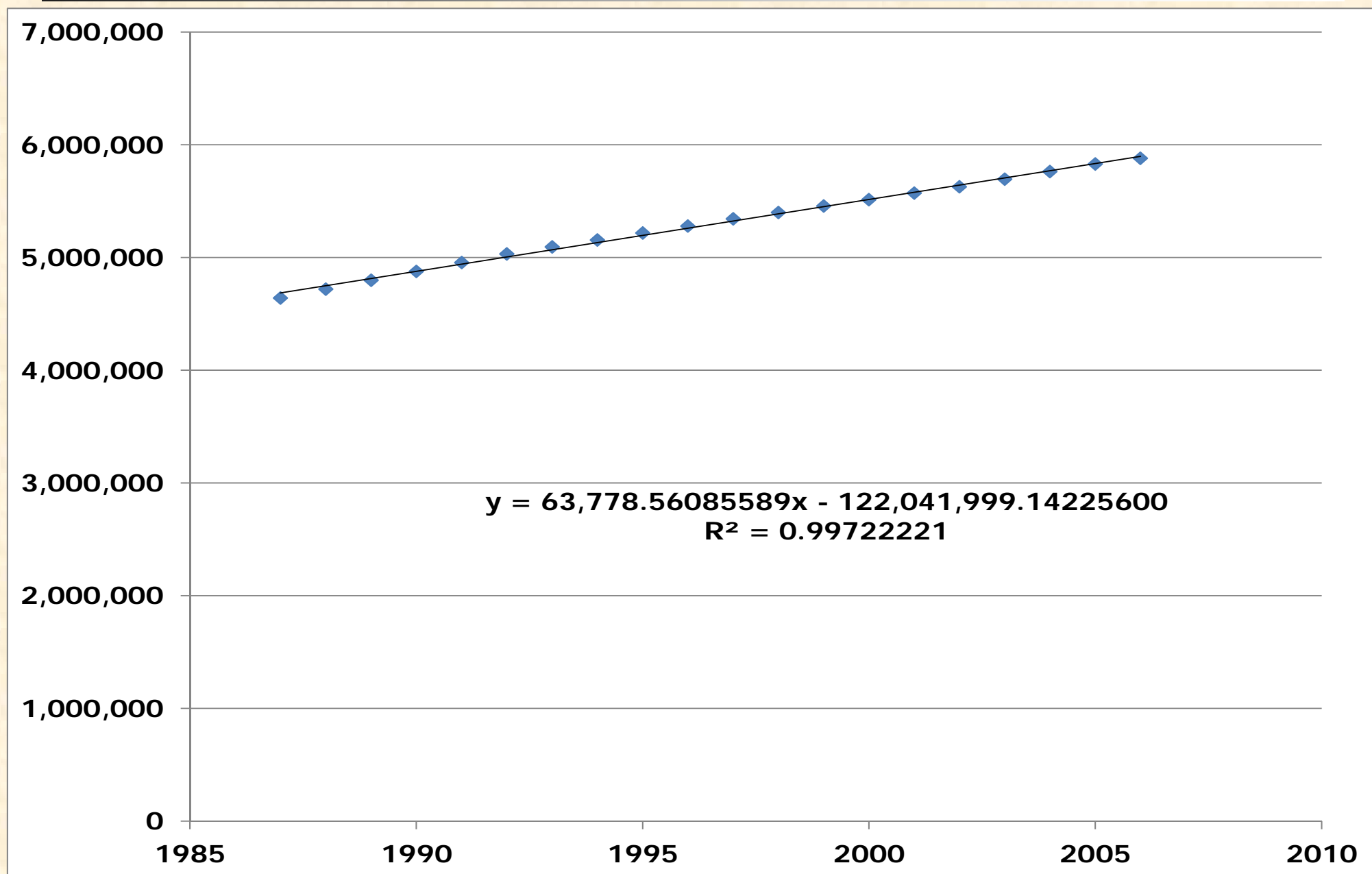


Turfgrass Acres DE





Turfgrass Acres CB Watershed

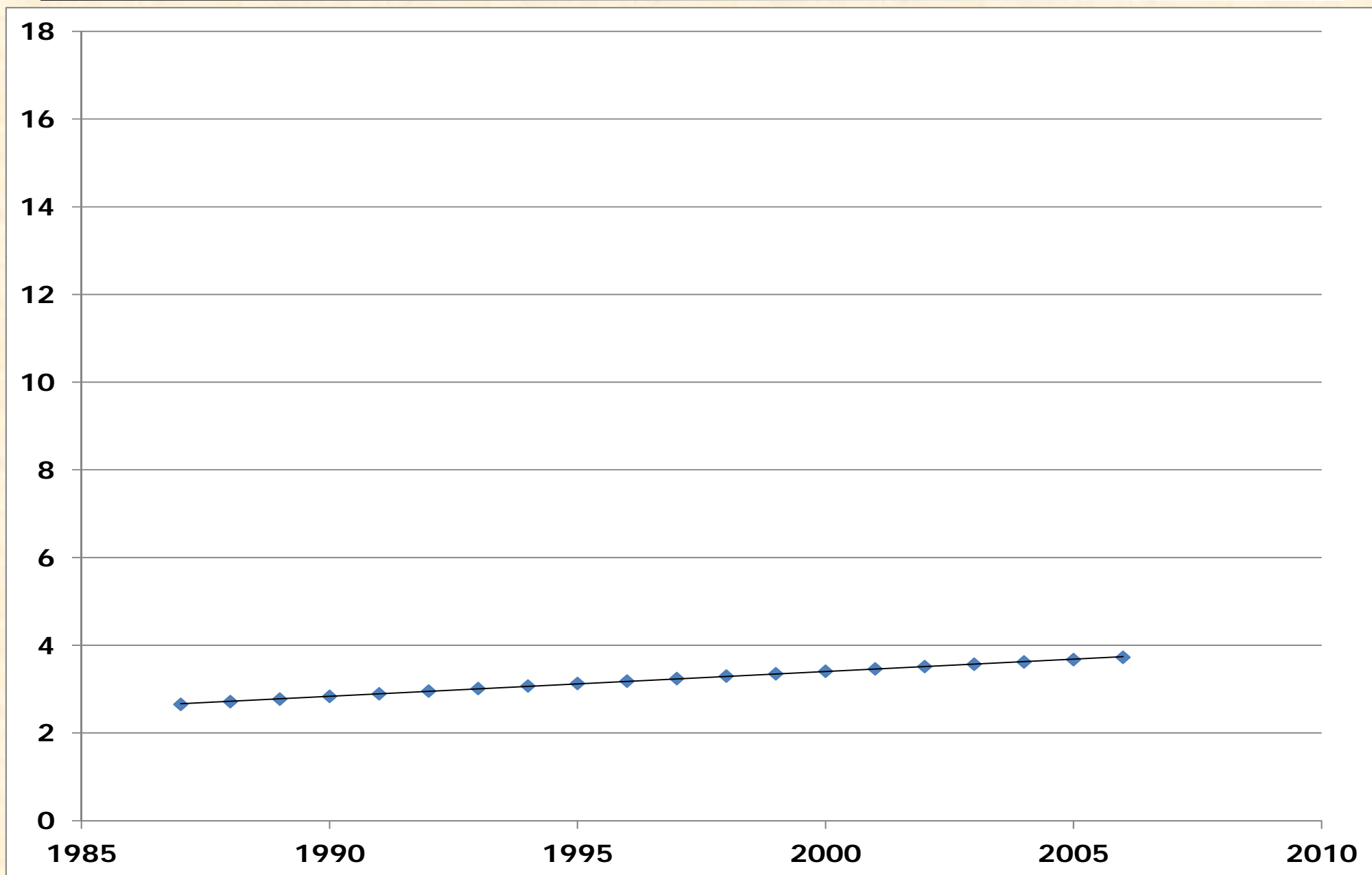




Nitrogen Fertilizer Application Rate by State

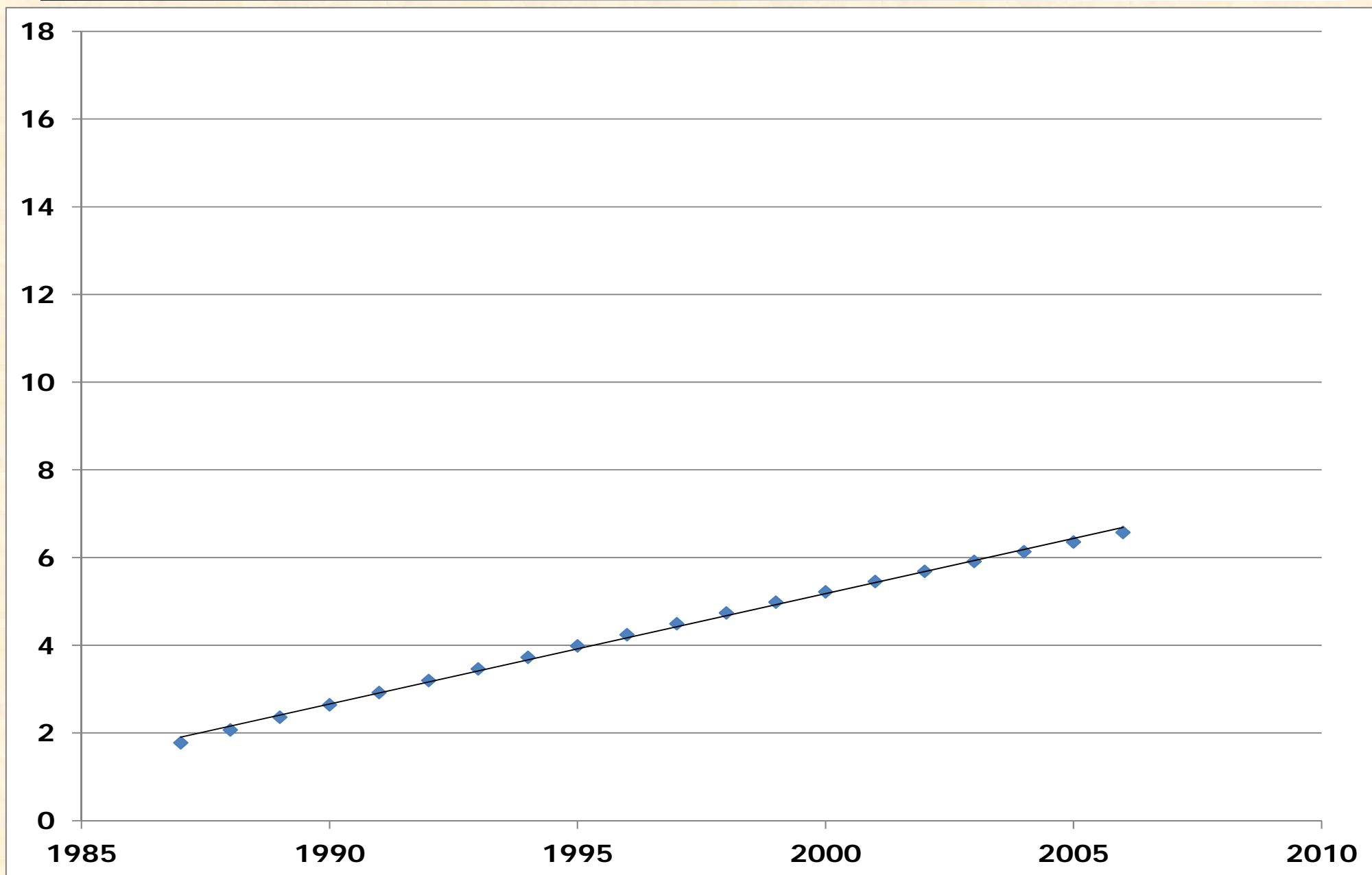


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for NY



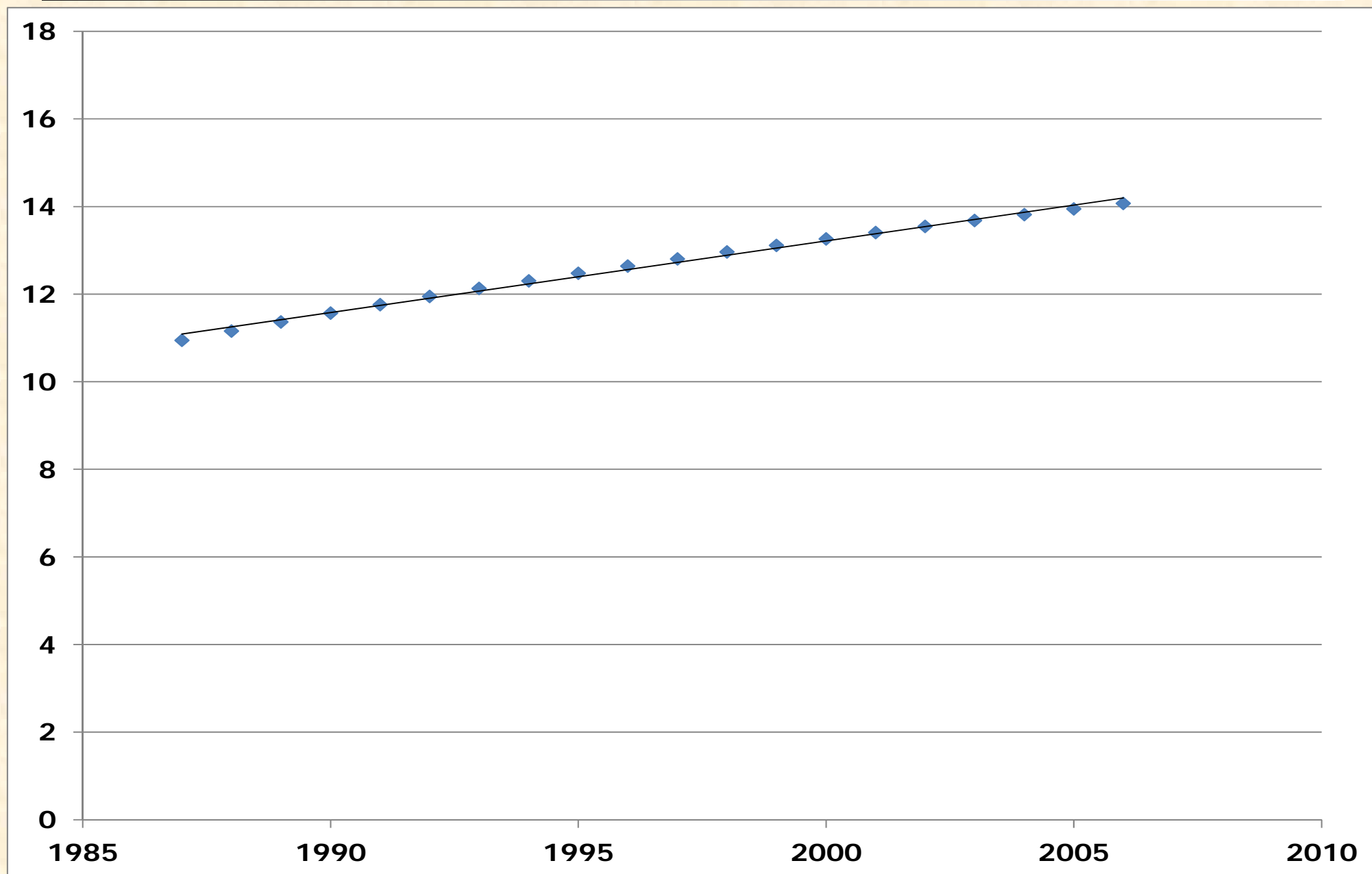


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for PA



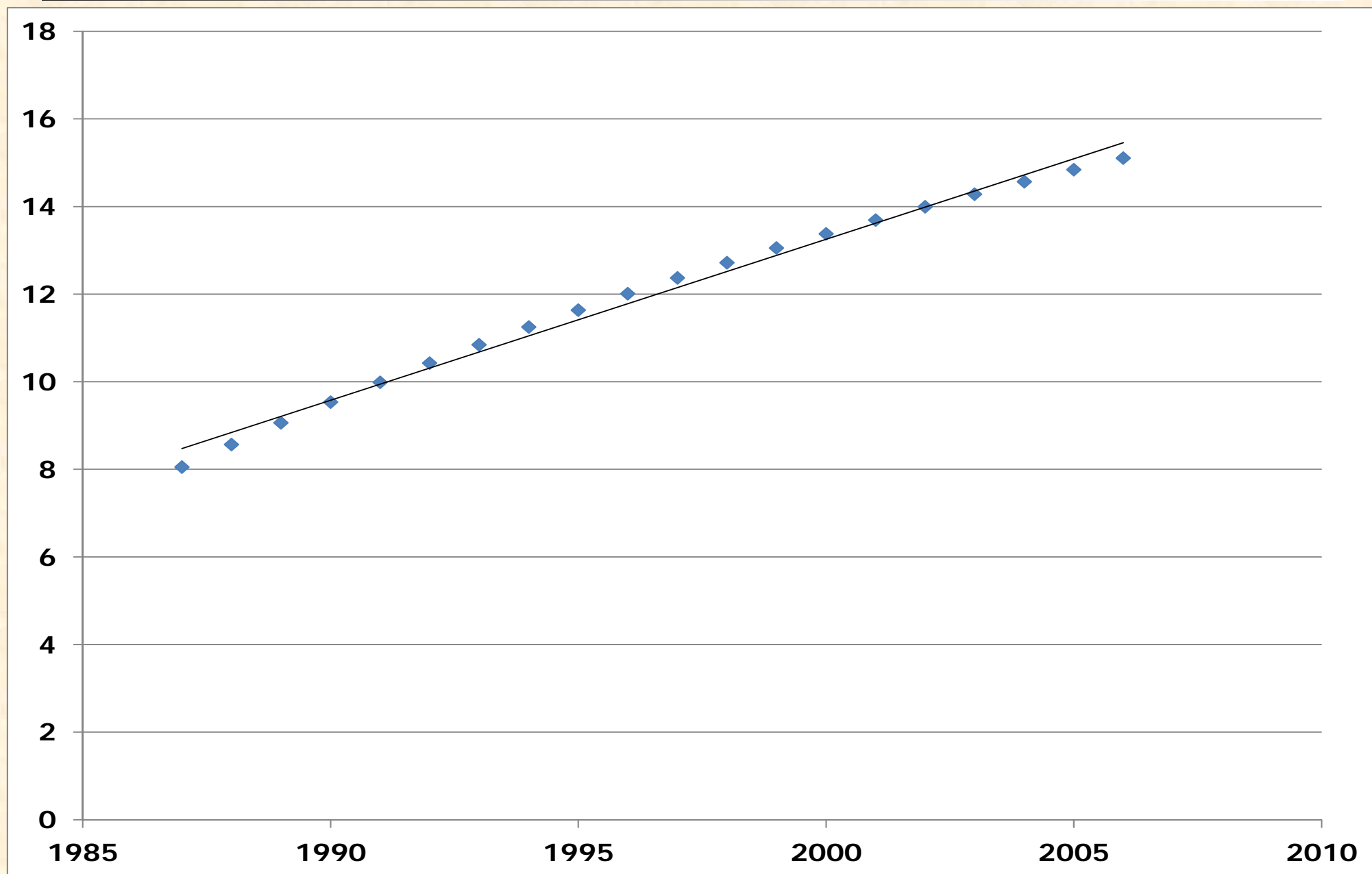


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for MD



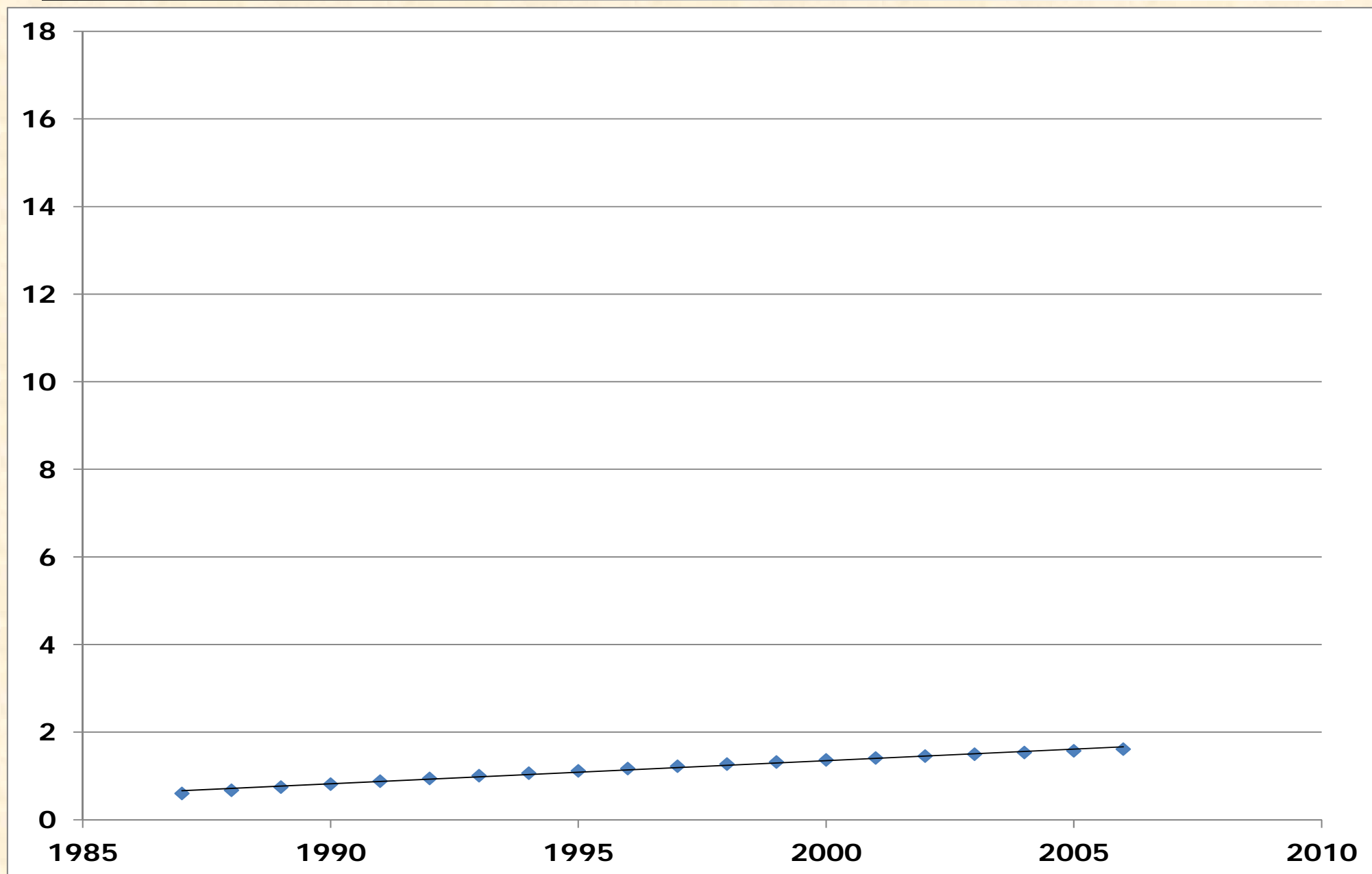


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for VA



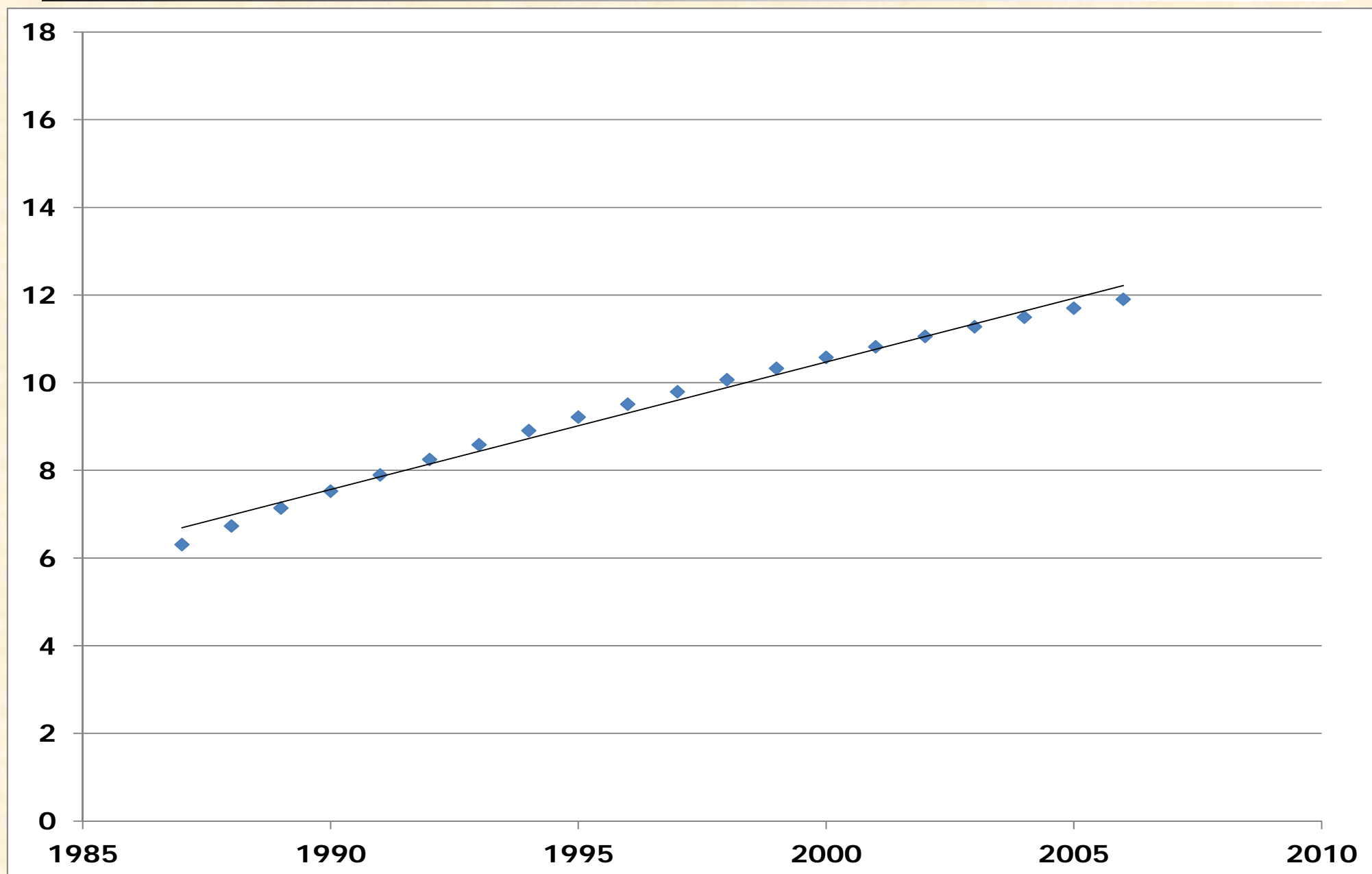


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for WV



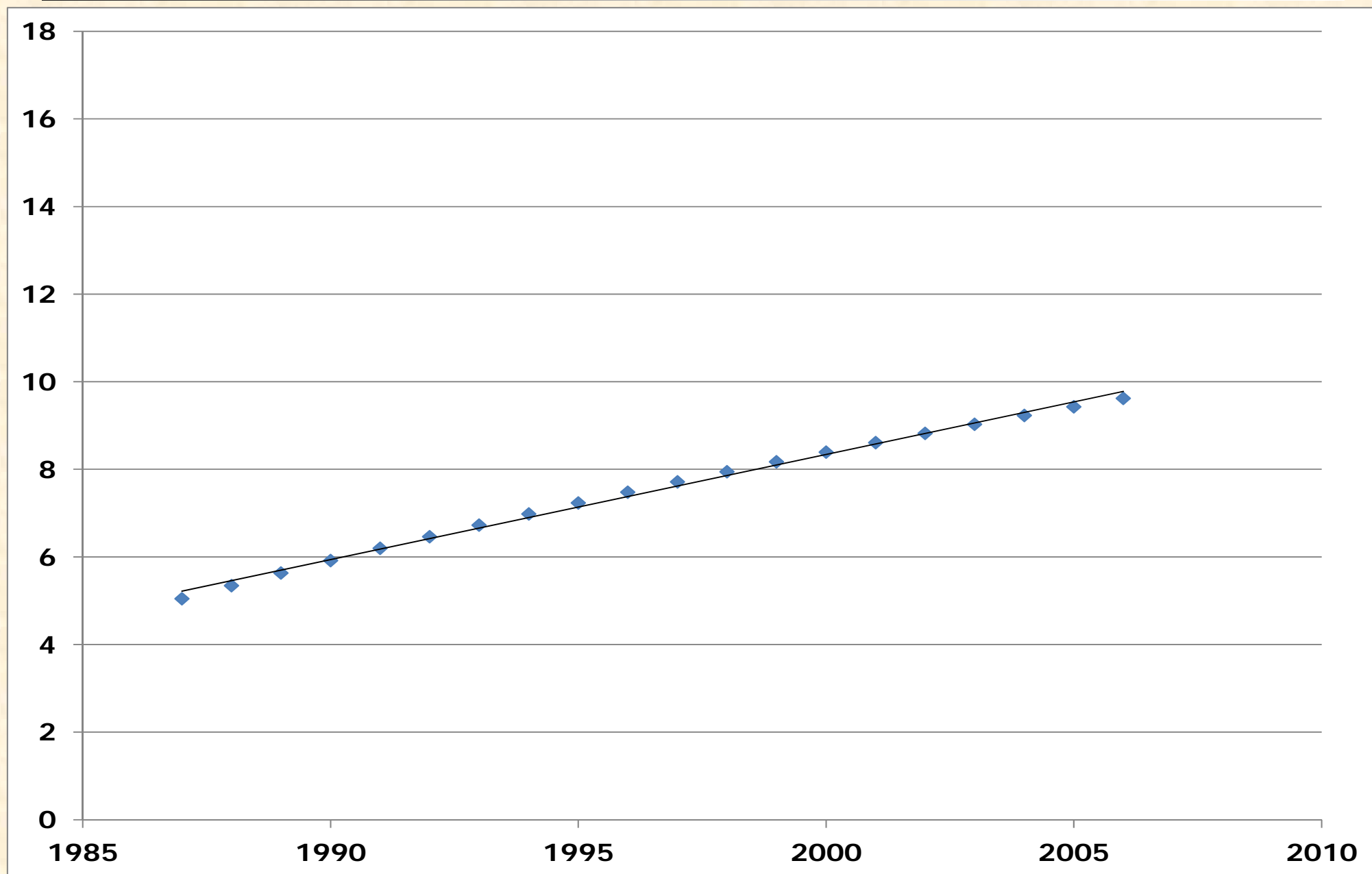


Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for DE





Nitrogen Fertilizer Application Rate Pounds/Acre from Linear Trends for CB Watershed

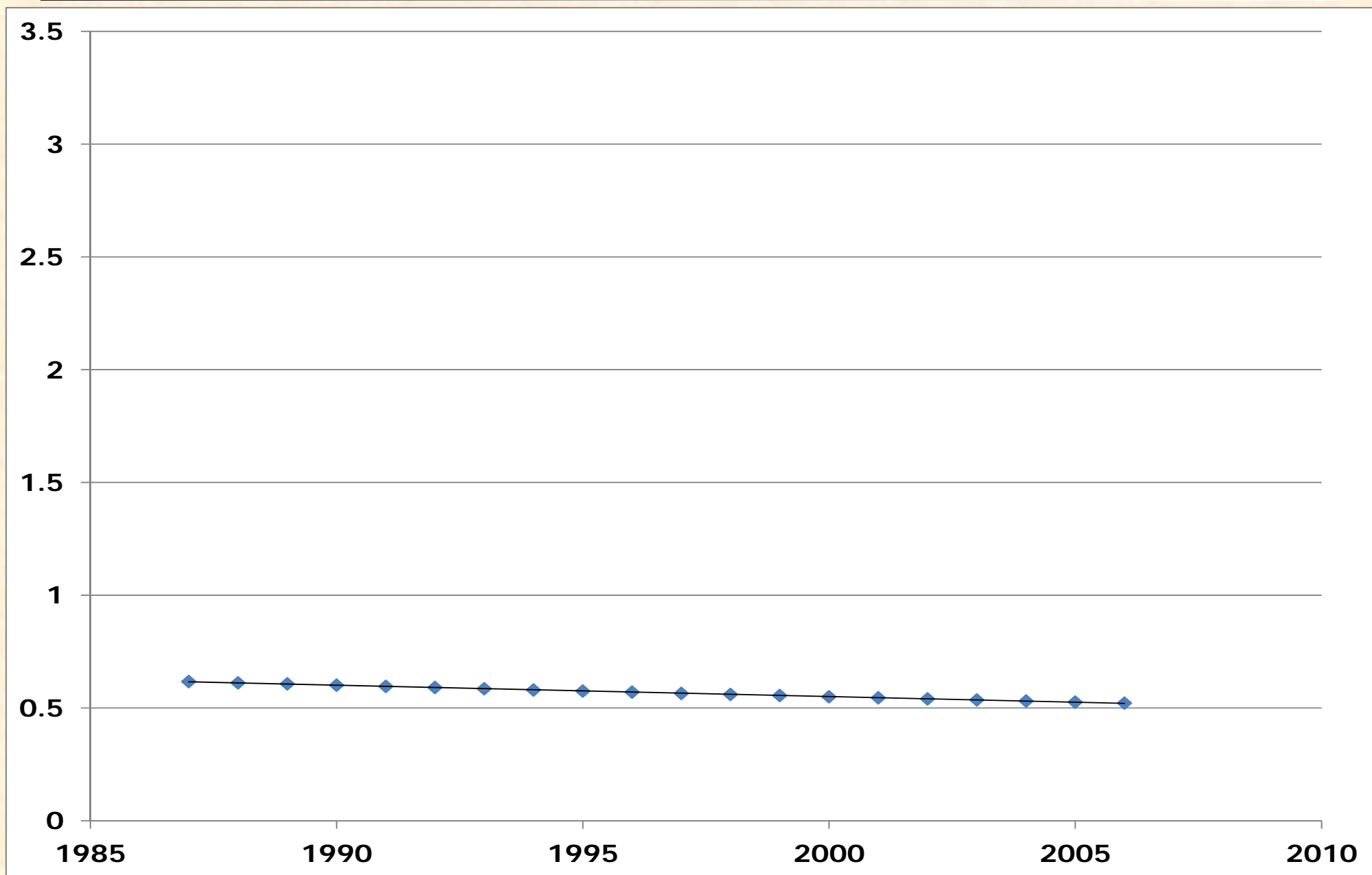




Phosphorus Fertilizer Application Rate by State

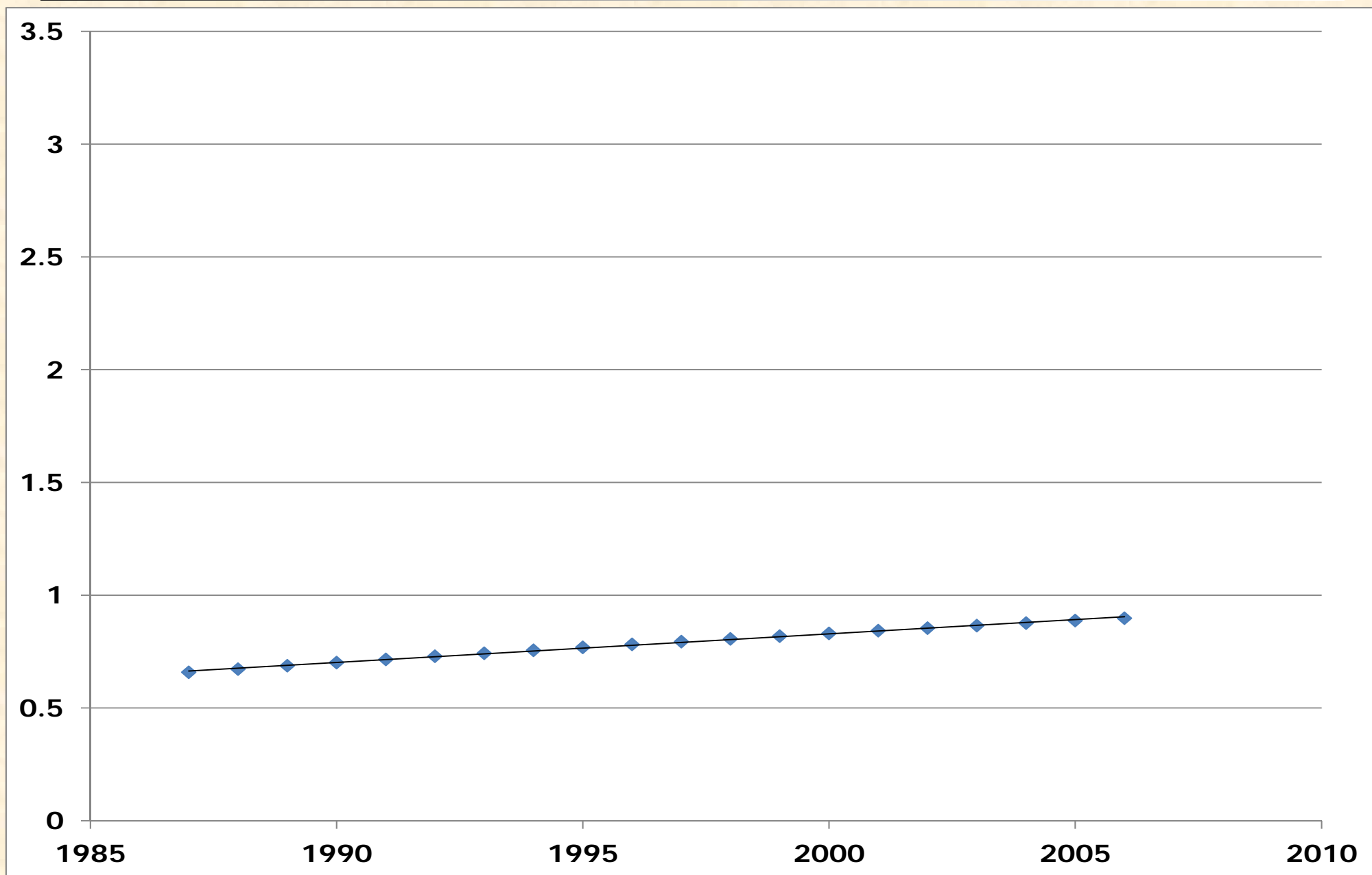


Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for NY



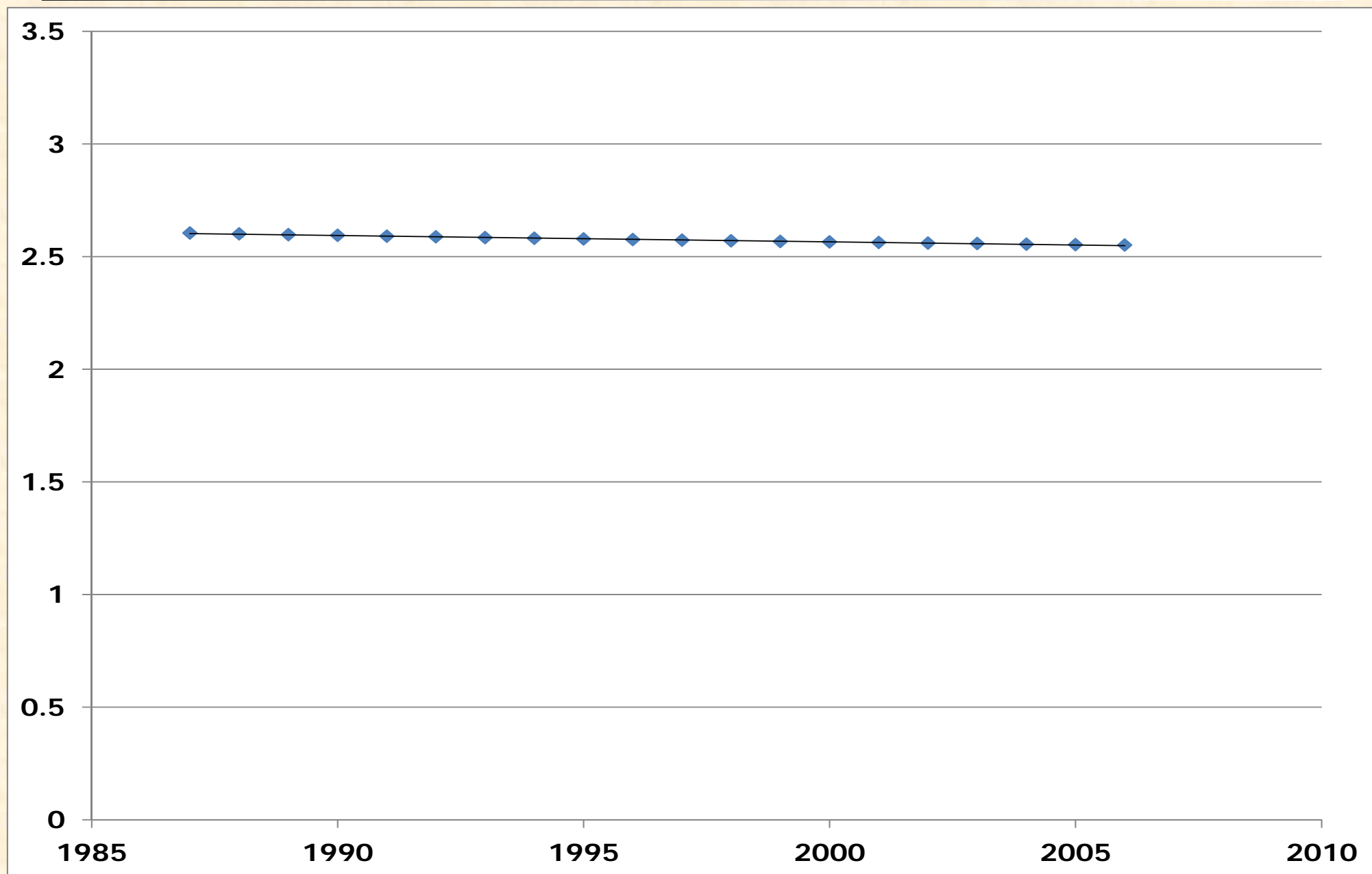


Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for PA



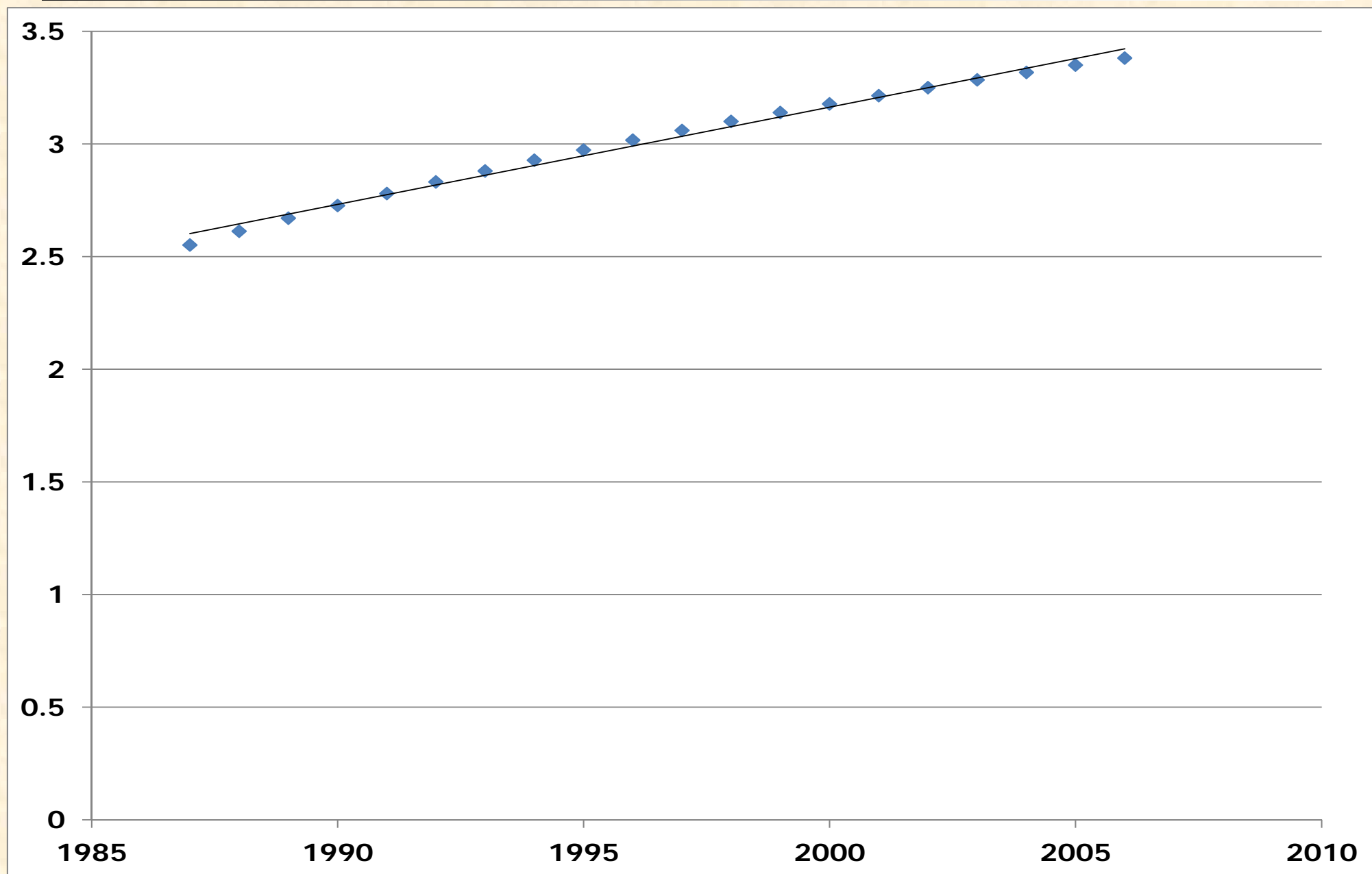


Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for MD



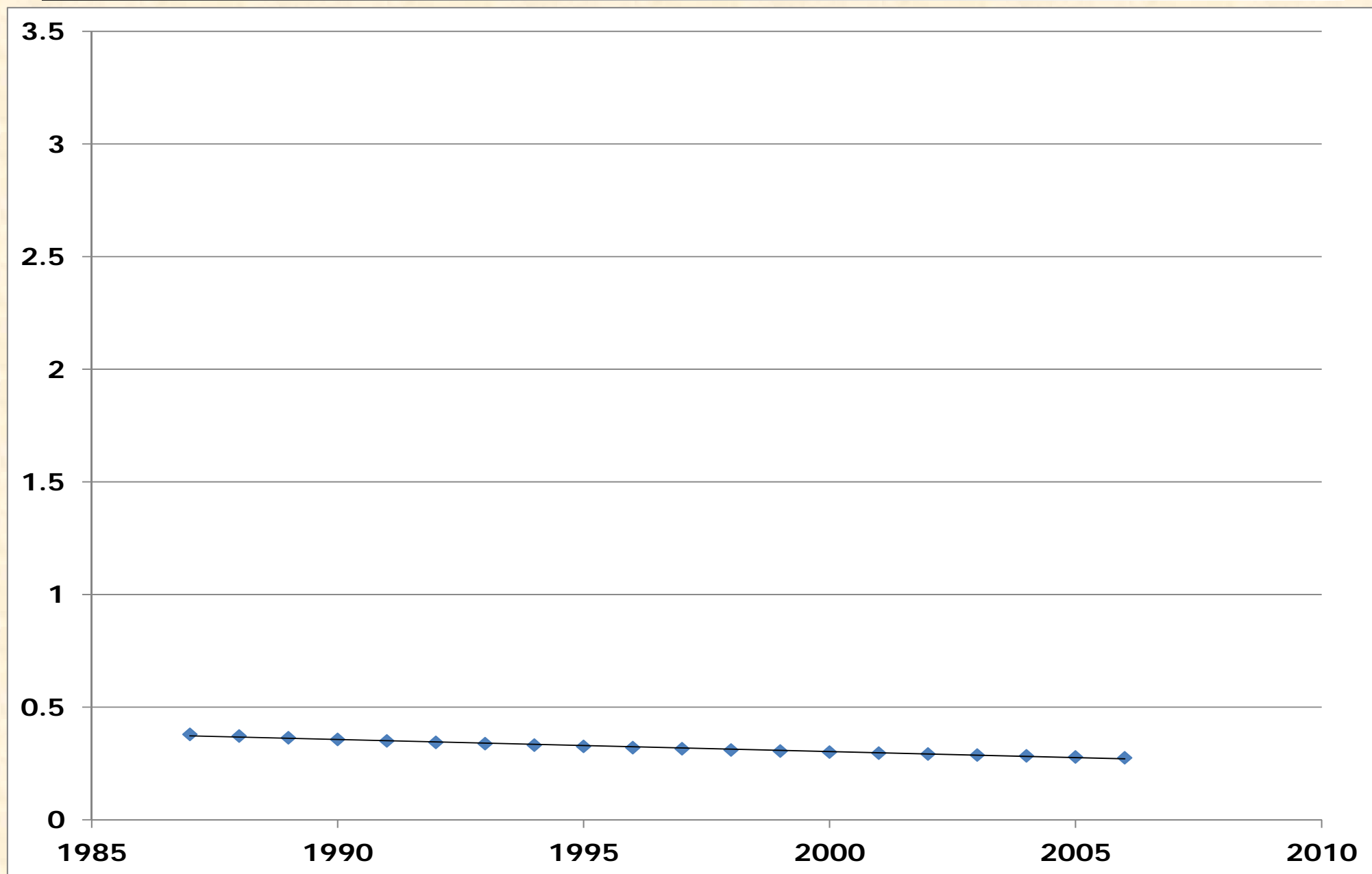


Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for VA



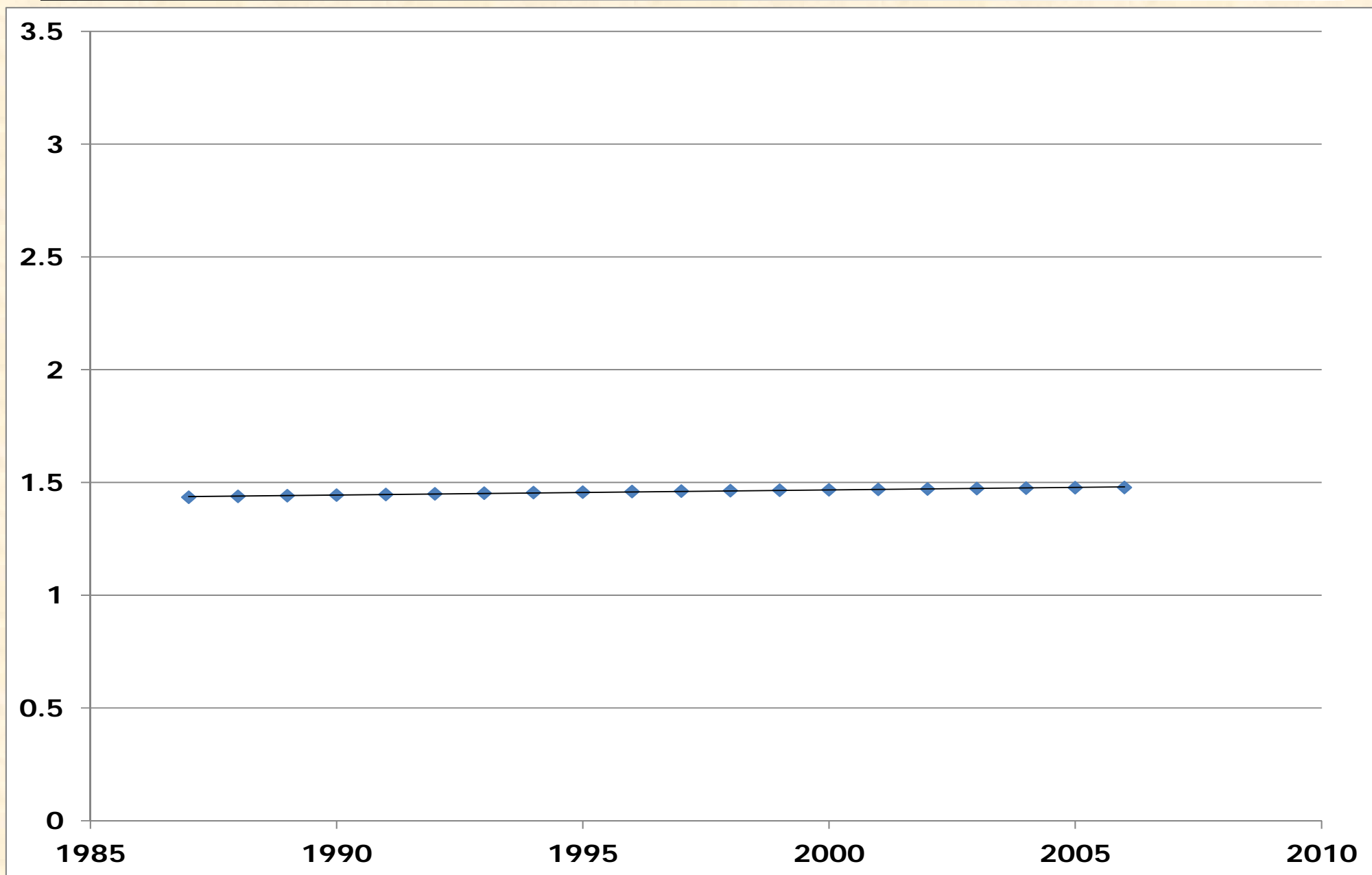


Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for WV



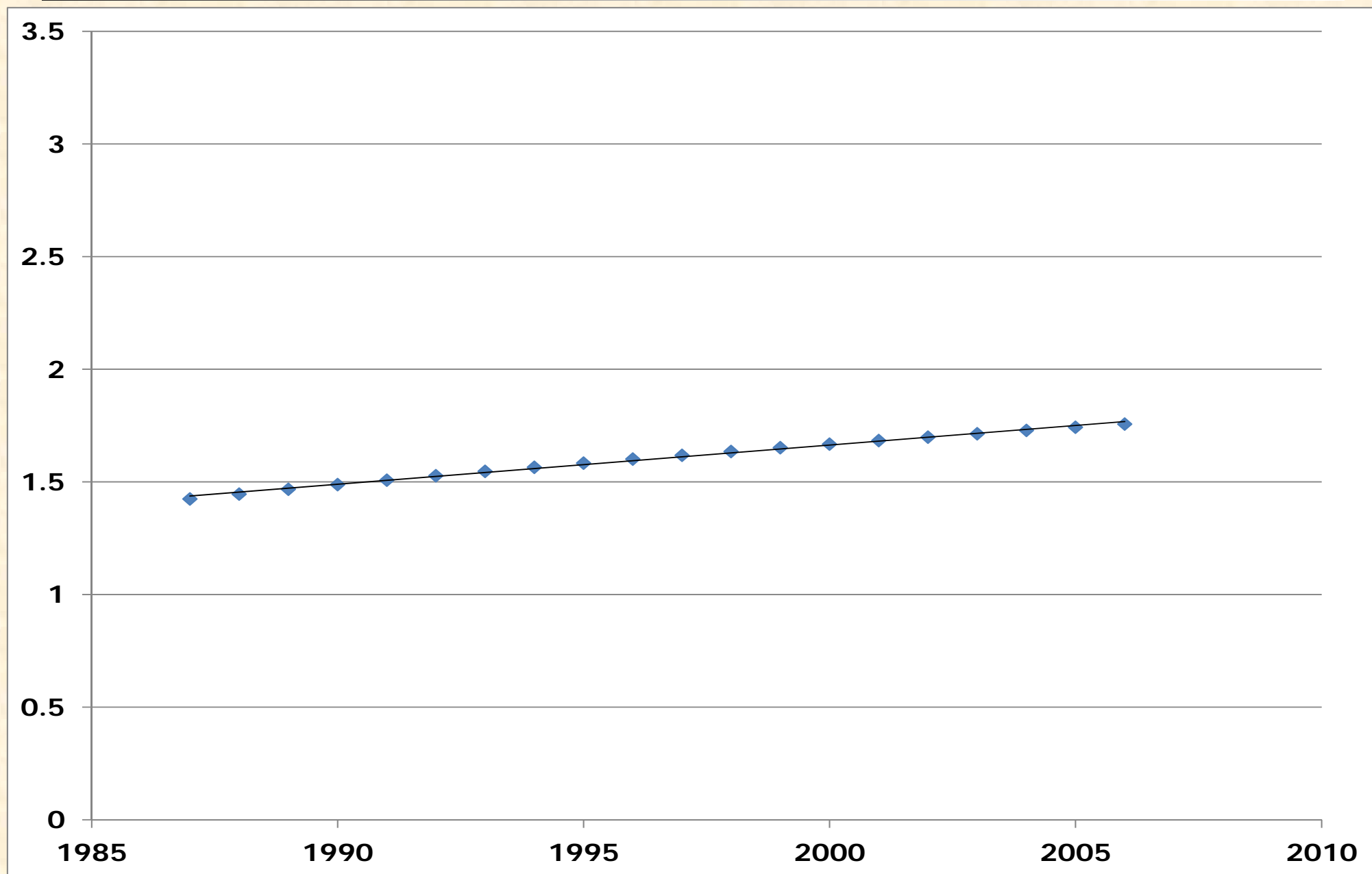


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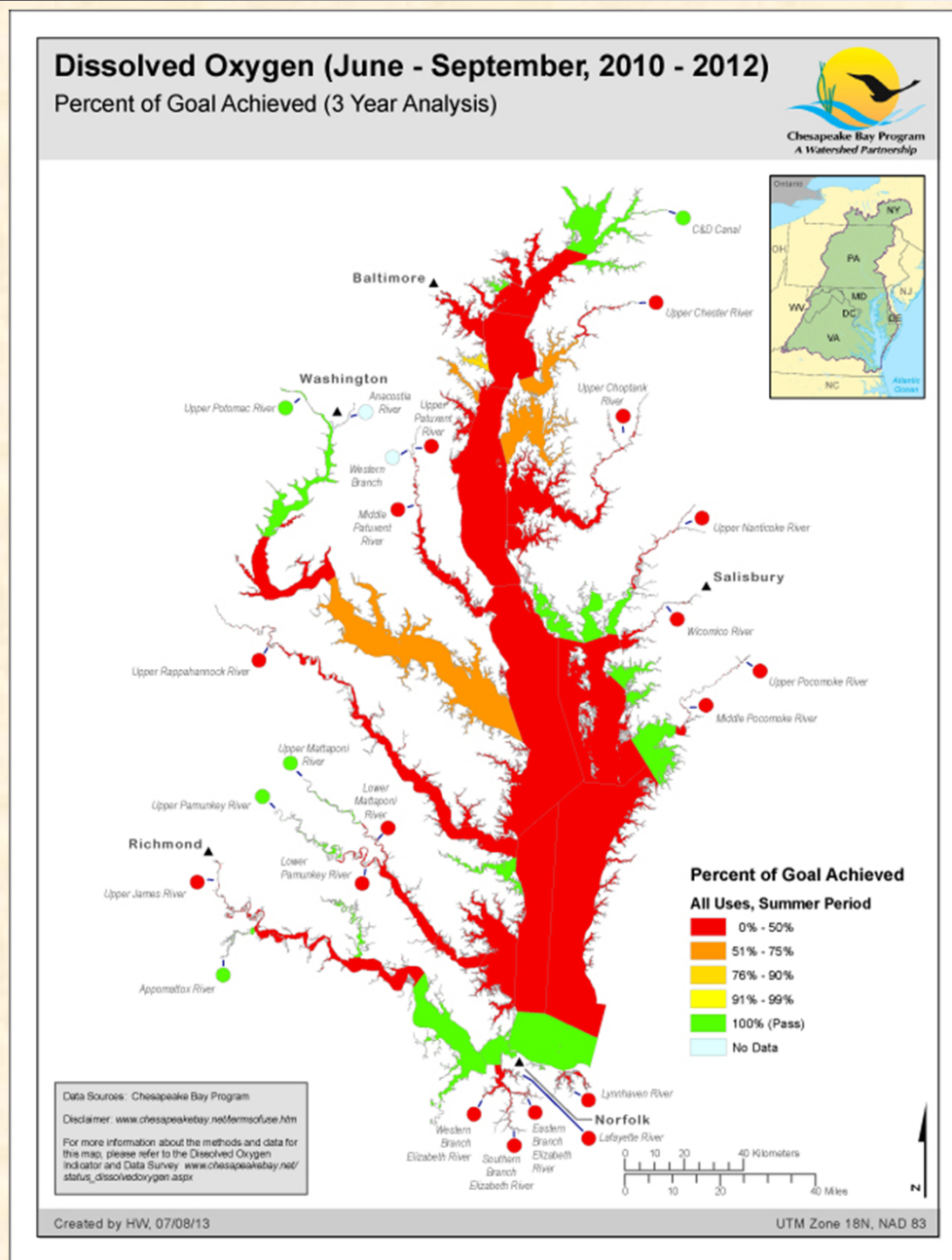


Phosphorus Fertilizer Application Rate Pounds/Acre from Linear Trends for CB Watershed





Dissolved Oxygen Attainment





Questions and Comments?