

Implications of the Proposed Particulate Matter Coarse Standard for Agriculture in the Pacific Northwest

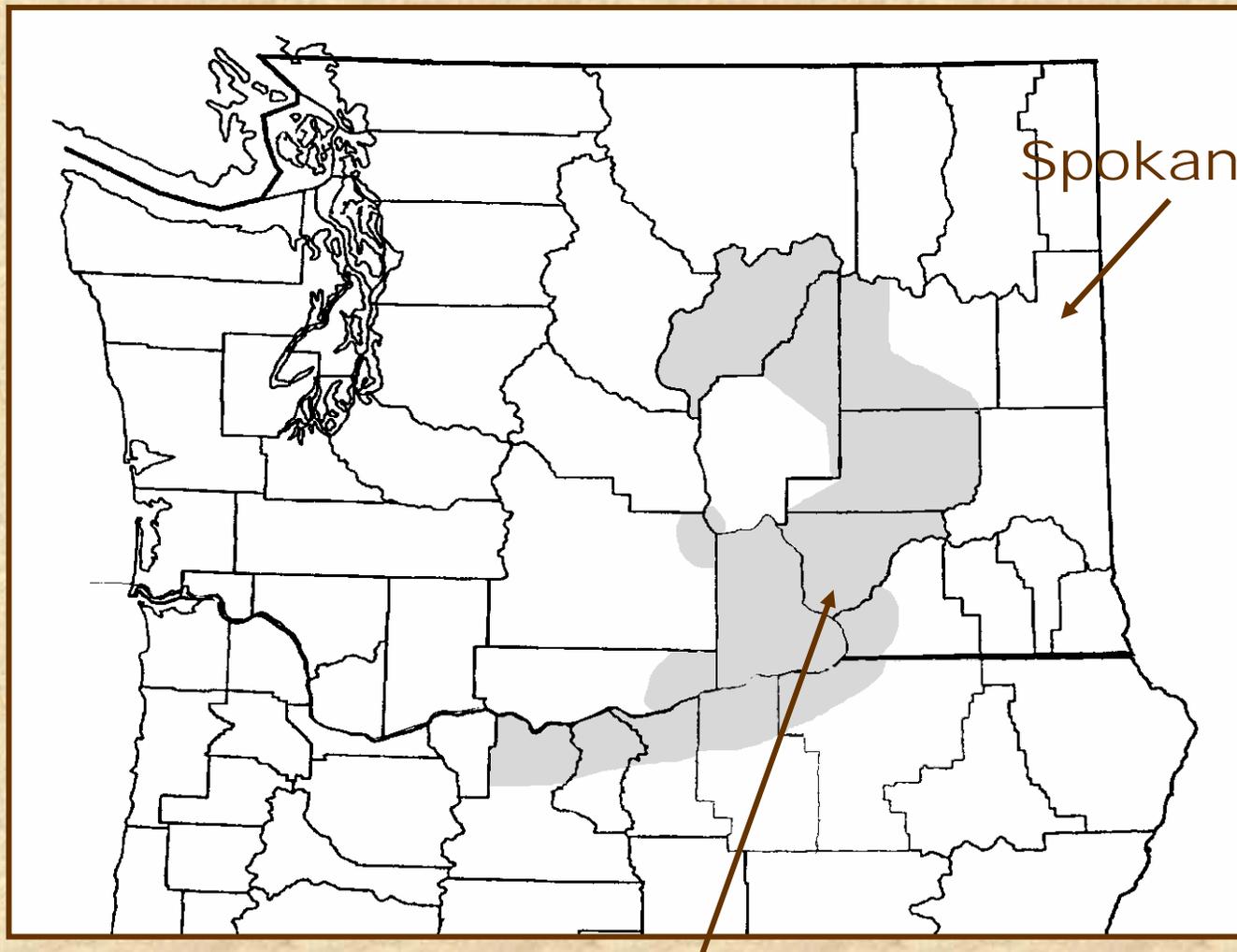
Bill Schillinger
Department of Crop and Soil Sciences
Washington State University



OVERVIEW

- The EPA has proposed to reduce the national ambient air quality standard (NAAQS) coarse particulate threshold from 150 to 70 $\mu\text{g}/\text{m}^3$ per 24-hr time period and to exempt agricultural dust sources.
- Many farmers readily accept the proposed exemption.
- Many farmers, farm organizations, scientists, and others believe dust emissions from farms during wind storms should continue to be monitored, farmers held accountable for coarse particulates, and farmers assisted to reduce emissions.

Low precipitation (6- to 12- inch annual)
dryland cropping region



Spokane, WA

Tri-Cities, WA

FACTS

- All exceedances of the current 150 ug NAAQS standard have been caused by blowing dust during wind storms.
- About 95% of PM₁₀ sized suspended particulates during wind storms are coarse material (i.e., PM_{10-2.5}). Only 5% of total particulates in such storms are PM_{2.5}.
- Fine particulates, alone, have never been the cause of previous 65 ug NAAQS exceedances during wind storms.
- Well over 80% of total particulate emissions during wind storms are derived from agricultural fields.

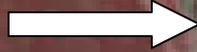




Facts continued

- BMPs to reduce blowing dust from farm fields are being developed through federal and state-funded research.
- Federal funds provide incentive for farmers to implement effective wind erosion control measures targeted at meeting the 150 ug/m³ standard.

Blade pitch adjustment



2003 4 11







Excessively tilled summer fallow





Chemical summer fallow

2003 6 5

Dryland Cropping Using Direct Seeding

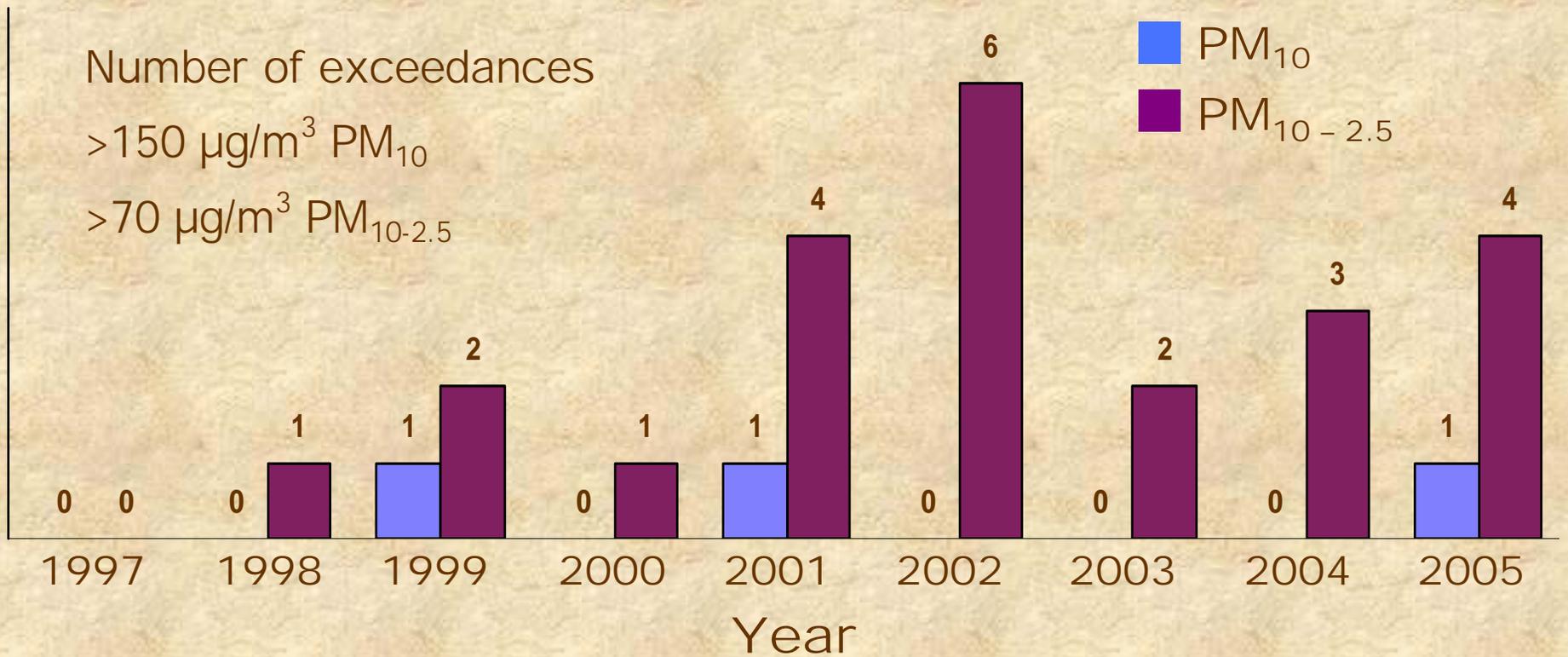


Facts continued

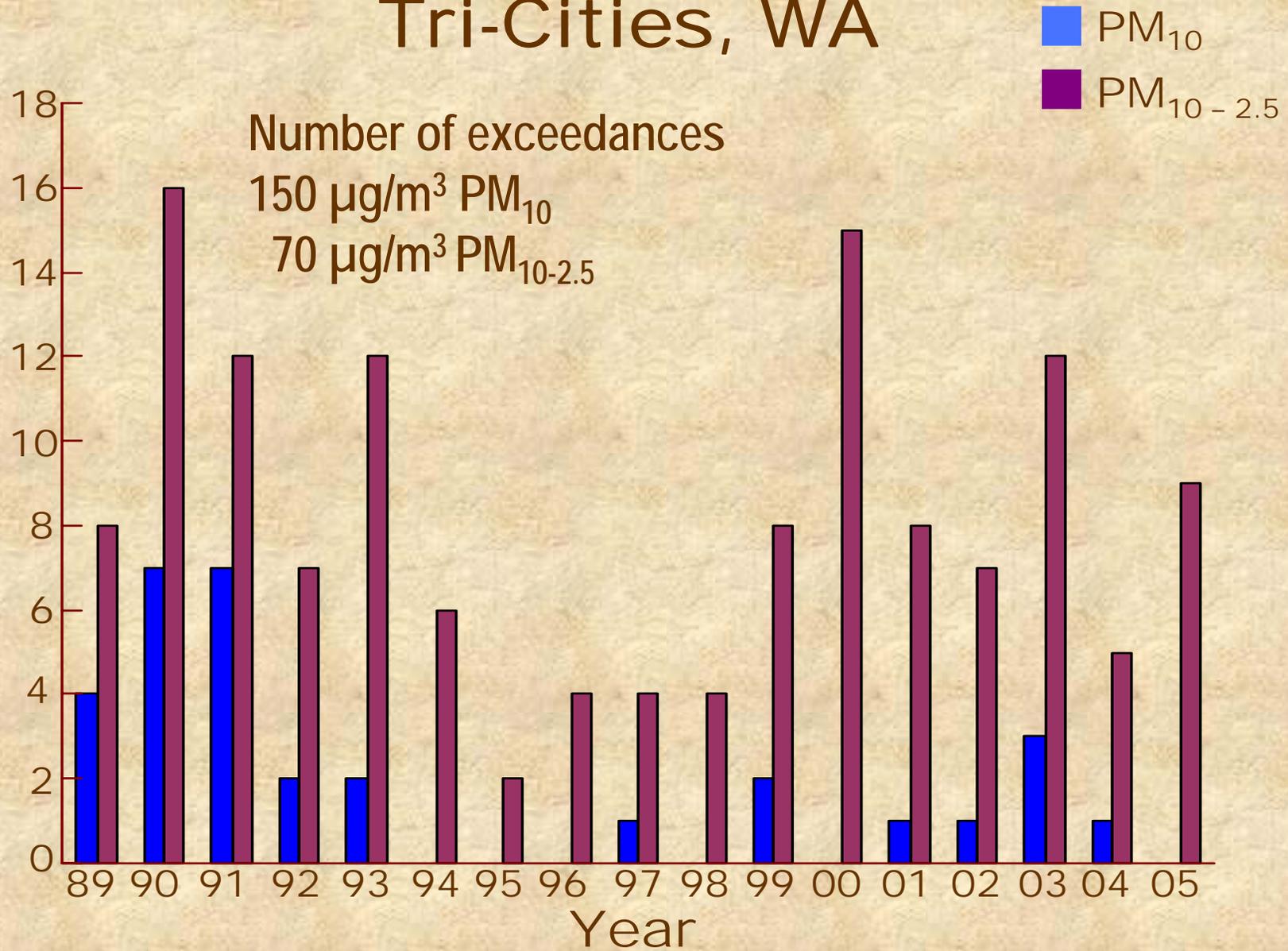
- Eastern Washington is very dependent on the Natural Events Policy (NEP) to avoid urban non-compliance penalties. Any downward revision of the threshold values must account for how increased exceedances will be handled through the NEP.
- Urban sources of dust, such as construction sites, will not be exempt under the proposed new PM coarse standard, but are a relatively minor source of emissions.
- There are presently no feasible or practical methods to separate urban-derived dust from agricultural-derived dust during wind storms.



Spokane, WA



Tri-Cities, WA



Source: Benton Air Authority, Dr. Dave Lauer

DISCUSSION POINTS

- With the new 70 ug standard, how will recurrent exceedances be documented and acted upon by EPA regulations?
- Workload for preparing NEP policy documentation will be prohibitive at the proposed new 70 ug standard.
- The EPA cites a study in Spokane (Schwartz et al., 1999) that reported no significant health risks associated with long-term exposure to coarse particles. A more recent study in Spokane (Mar et al., 2004, not cited by EPA) reported that coarse particles are a health concern. Both studies lack statistical power due to small sample size and variability among the sample population (i.e., age, smokers and non smokers, asthma, etc.).

IMPLICATIONS FOR AGRICULTURE

- Agriculture is a major part of the coarse particulate problem and should be a major part of the solution.
- If exempted, NRCS payments to farmers for wind erosion abatement practices may be reduced or eliminated.
- EQUIP, CSP, and other programs are very important to NRCS who “reward the best” to “motivate the rest”.
- The EPA must realize that agriculture is the major source of coarse particulates in the PNW and much of the Western USA.
- The EPA must provide “workable” thresholds now before programs targeting dust reduction have been dismantled.

IMPLICATIONS FOR AGRICULTURE

- Future research may well show that coarse particulates have associated health risks beyond the “nuisance” level now acknowledged.
- Farmers and researchers have worked together to develop economically viable BMPs to achieve the 150 ug 24-hour clean air standard, resulting in major reductions in 150 ug exceedances.
- Agriculture should continue to be held accountable, not exempted, for dust emissions and NAAQS should remain at the current PM₁₀ 150 ug/m³ level.

