

## Message to YRCAA – August, 13, 2015

I am here to talk politics with respect to air pollution in Yakima County.

We know that agriculture contributes to air pollution. It would help if the agencies that are authorized to address problems in the Yakima Valley would tell us how much of local air pollution comes from each segment of agriculture. They have not done this so we are left with estimates from the literature.

There comes a time when the amount of pollution exceeds the ability of the environment to absorb it and compensate. For example, ammonia in the air acts as a fertilizer to plants. It is absorbed through their leaves. . . . up to a point. After that point it becomes toxic to the plants. After that point ammonia kills the plants. It would help if the agencies that are authorized to address air pollution problems in the Yakima Valley would provide an estimate of how much air pollution we can tolerate.

### Eutrophication

We know that air pollution contributes to eutrophication of the rivers and streams and that this worsens during periods of drought. We know that the Lower Yakima River is currently green with invasive plants that put this stretch of the river in the “impaired” category for pH and dissolved oxygen. (Wise et al, 2009). It would help to describe and clarify how ammonia in the air contributes to this situation. We all need this information in order to solve our collective problems.

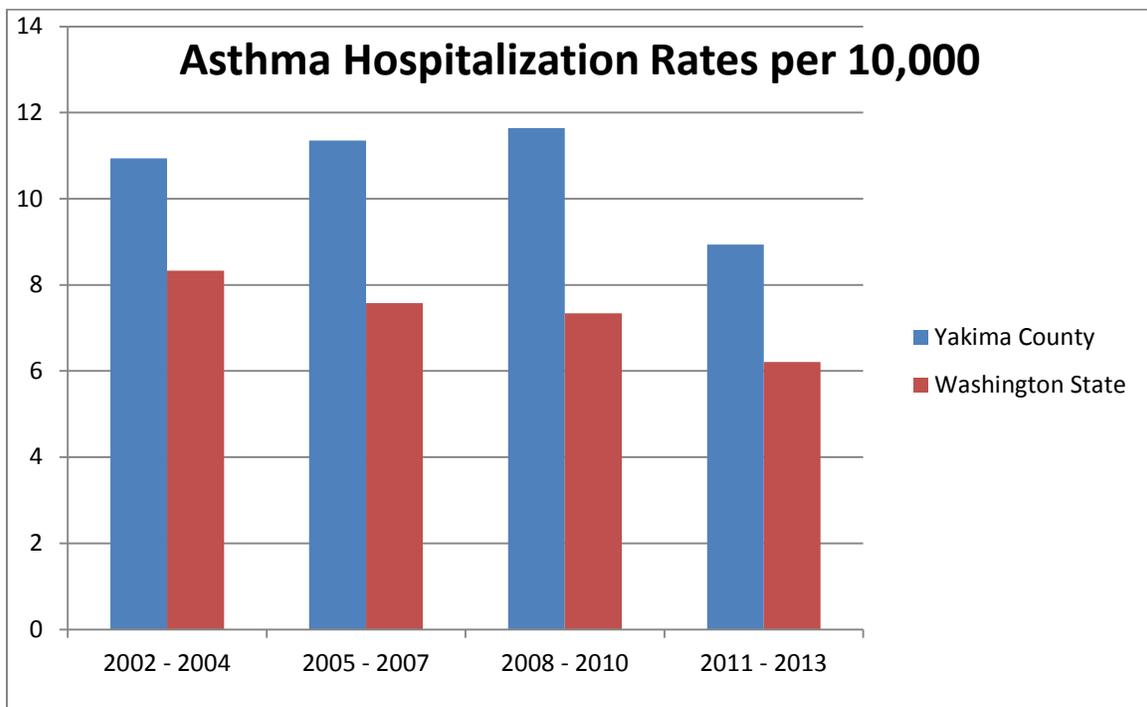


Courtesy of the U.S. Geological Service

## Cost Benefit

Air pollution related costs for some individuals and groups far exceeds any benefits they received from agriculture. We need to know who pays the price for pollution and how much.

- For example, how many fish die from eutrophication of the river? People are working hard to save the fish runs and, it appears, that others are sabotaging their efforts through careless pollution of the waters and the air.
- For example, Yakima County has the highest hospitalization rates for asthma of any large county in the state. (WA State Dept. of Health, n.d.). This happens in spite of the fact that demographically speaking we should have lower asthma rates. What is the cost to individuals, to families and to tax payers for this high rate of illness? In 2012 hospital charges for asthma admissions in Yakima County totaled \$3,907,609



Source: WA State Department of Health, Washington Tracking Network at <https://fortress.wa.gov/doh/wtn/WTNPortal/#!q0=370>

## Industry Argument against Regulation

Earlier this summer the Washington State Department of Ecology submitted a plan to address Non-Point Source Pollution in the state. This plan is required in order for Washington to receive certain federal monies. The Washington State Dairy Federation (WSDF) submitted a comment regarding Chapter 3 of that plan *Strategies for Addressing Non-Point Source Pollution*. (WA DOE, 2015, page 98)

Extreme regulations and costs will devastate the dairy industry in our state. Given that dairy is the most - regulated sector of agriculture, it stands to reason that even in the best - case scenarios is that dairy would be replaced with less – regulated agriculture. Often, when a farm of any kind goes out of business, the result is sprawl of large - lot estates with septic systems. Local governments also experience greater costs to serve and protect neighborhoods and homes in this kind of sprawl. (Emphasis added)

This last statement is disturbing, given that dairies have aggressively moved in on established communities and farms in Yakima County; given that dairies have driven many, many people from their homes. Is the WSDF saying that dairies are valuable because they drive people from rural homes into urban ghettos and it costs government less to service people when they live like this?

## Wood Stoves

There is an EPA document entitled *Reducing Air Pollution from Residential Wood Burning* that says “Just 20 old non-EPA-certified wood stoves can emit more than 1 ton of fine particles into your community during the cold months of the year.” This comes to 100 pounds of fine particulate per stove. That is a lot of smoke. We know that the Yakima Regional Clean Air Agency has done a heroic job of replacing old wood stoves with more efficient ones. But . . . are wood stoves really the leading cause of air pollution in the Yakima Valley?

According to Dr. L.E. Chase from Cornell University (2011) one milk cow produces about:

- 0.4 pounds per year of N<sub>2</sub>O
- 85 pounds per year of NH<sub>3</sub>
- 2,780 pounds per year of CH<sub>4</sub>
- 9,660 pounds per year of CO<sub>2</sub>

## Other Sources of Fine Particulates

**YAWNS:** Smoke from wood stoves is not the only source of particulate matter in the Yakima Valley. We know from the *Yakima Air Winter Nitrate Study (YAWNS) (WA DOE, 2014)* that a significant portion of fine particulate matter is in the form of  $\text{NH}_4\text{NO}_3$ . The YAWNS was mostly performed in the upper Yakima Valley which limits the analysis regarding agriculture. The authors of the YAWNS stated that there was more  $\text{NH}_3$  available than  $\text{NO}_3$  and that  $\text{NO}_3$  was the limiting factor. They stated that  $\text{NO}_3$  is primarily the product of vehicle emissions. Read on.

**Fertilizer Application:** The literature tells us that, in rural areas,  $\text{N}_2\text{O}$  and  $\text{NO}_x$  emissions from fertilizer application may be the dominating sources. (Sheppard et al, 1991; Bouwman et al, 2002). This is important for those of us who live in the lower valley. Traffic here is not heavy. If we are suffering from high levels of particulate matter, if the limiting factor is  $\text{NO}_x$ , and if the major source of  $\text{NO}_x$  is fertilizer application, then the solutions for the lower Yakima Valley are different from city solutions. The fact that some very large farms have over applied fertilizer and manures, up to nine times as much as the crops can utilize, suggests that this would be an easy target for addressing the problem. In the case of dairy operations nutrient management plans have failed to stop this over application.

**Dairy Research:** According to Dr. A.N. Hristov in the *Journal of Dairy Science* (2011, page 3135), if all  $\text{NO}_3$  and  $\text{SO}_4$  in the air react with  $\text{NH}_3$  to form fine particulates then about 19% of winter PM 2.5 in the northwest is due to animal agriculture. Remember, this is a regional assessment for the northwest as a whole. With more farming and less industry the percentage of PM 2.5 due to  $\text{NH}_3\text{NO}_3$  is much higher in our community.

## Local Solutions

There is a very appropriate emphasis on local involvement to develop local solutions. Environmentalist Jan Whitefoot has recently stated that no one is going to come and save us, that we must do this ourselves. On many levels the Yakima Regional Clean Air Agency speaks for the Yakima Valley. That is your job. It is also the County Commissioners' job. YRCAA has both the opportunity and obligation to tell the world that air pollution is harming both the people and the environment in the Yakima Valley. We ask YRCAA to do the following:

1. Analyze and describe how much air pollution comes from each major segment of agriculture in Yakima County
2. Analyze and describe the impact of wet and dry deposition of ammonia and ammonium on the land, vegetation, rivers and streams in Yakima County
3. Estimate the cost and benefits from PM 2.5 and ammonia with respect to public health, fisheries, recreation, tourism and the tax base in Yakima County
4. Seek funding for relevant research and mitigation programs
5. Correctly inform outside researchers and agencies about the unique characteristics of the Yakima Valley, for example:
  - a. The likelihood that NO<sub>x</sub> in the Lower Yakima Valley comes from fertilizing fields
  - b. The likelihood that air pollution contributes to eutrophication in the river
  - c. The likelihood that elevated hospitalization rates for asthma and myocardial infarction are related to high levels of fine particulate matter.
  - d. The importance of the people in the Yakima Valley who work very long and hard hours to harvest the crops that feed the state and the nation. We are more than units of production on Wall Street spreadsheets.
6. Discuss and analyze the ways that air pollution impacts all aspects of life in the Yakima Valley.
7. Read and consider the document *Hidden Cost of U.S. Agricultural Exports: Particulate Matter from Ammonia Emissions* by Harvard scientists Fabien Paulot and Daniel J. Jacob.
8. Inform decision makers that lung health is not addressed in the Yakima Valley in spite of the fact that we have the worst air quality in the state. Here are the facts:
  - a. The Yakima Health District does not address lung health.
  - b. The budget for the Yakima Health District is less than the budget deficit for the King County Health District
  - c. Our population over all has lower socio-economic status than most others in the state and is in need of more services, not less.
  - d. The Yakima Valley Farmworker's Clinic cares for a large part of the county population with asthma. In years past John Thayer and Griselda Arias-Pedraza led that program. Now Griselda is doing it alone.
  - d. The American Lung Association no longer maintains an office in Yakima

e. The WA State Department of Health Asthma program was reduced in size and scope over a year ago. In the past there was a project coordinator who did a wonderful job of sending out monthly information and setting up workshops. That no longer happens.

9. Impose appropriate regulations that control Yakima Valley air pollution. Voluntary measures do not work as evidenced by:
  - a. Large operations apply up to nine times more manure/fertilizer than the crops can take up
  - b. Farm experts currently promote composting as a way to mitigate water pollution. Composting increases the loss of reactive nitrogen to the atmosphere. WSDA estimates that about 50% of nitrogen in stored manure is lost to the atmosphere.
  - c. When citizens asked for simple moratorium on spreading manure/fertilizer during air inversions the Washington Dairy Commission resisted in a strong and successful manner that included mischaracterization of the literature and practices in the Yakima Valley.
  - d. There are programs underway that promote an increase in the number of dairy cows in the Lower Yakima Valley. Even if all operations are well managed, which they are not, this increase in the number of animals will increase the emission of ammonia and greenhouse gasses.

The environmental community has clearly demonstrated a willingness and eagerness to participate in air quality solutions. Please let us provide data, help with grant writing, inform the research, and help YRCAA to advocate on behalf of the people and the land. I can personally volunteer one full day a week of professional time to this project.

With all due respect, I ask the Yakima Regional Clean Air Agency Board of Directors to review this letter over the next month and provide an official response at your September meeting.

Sincerely,

*Jean Mendoza*

Jean Mendoza

Executive Director, Friends of Toppenish Creek

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cc:

Yakima County Commissioners

Yakama Nation

Indian Health Services

Yakima Health District

Yakima Valley Farmworkers Clinics

Legislators for the 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> Legislative Districts

U.S. Environmental Protection Agency

Washington State Department of Ecology

Washington State Department of Agriculture

Washington State Department of Health

Governor's Interagency Council on Health Disparities

Washington Conservation Commission

Washington Dairy Commission

Washington Dairy Federation

Washington Farm Bureau

Yakima Dairy Federation

Yakima Farm Bureau

Lower Yakima Valley Groundwater Management Area

Yakama Nation Review

Yakima Herald Republic

Sunnyside Daily Sun News

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