March 18,2019

Mr. David Brown
Section Manager
Department of Ecology
1250 W Alder St
Union Gap, WA 98903-0009

Dear Mr. Brown,

I writing to comment on the draft Lower Yakima Valley Ground Water Management Program. I live in Prosser and attended the public hearing in Sunnyside. I served as the extension soil scientist with WSU at the Irrigated Agriculture Research and Extension Center at Prosser from 1985 to 2009. I worked extensively in the area of nutrient and irrigation management. I was also active in the Columbia Basin GWMA.

In reviewing the draft plan I am especially concerned about the presentation of the deep soil sampling data. If this data is to become a permit part of the record, I believe some additional editing needs to be done on both reports. This is especially true in Ms. Mendoza's summary. The units on the tables and grafts are very confusing. Soil test nitrate is reported as nitrogen as nitrate (nitrate-N). Ms. Mendoza uses a number of units such as NO_3-N, N lbs/acre, lbs NO_3 per acre. The units in the tables and figures should be consistent and an explanation of how they were reached should be presented.

I agree with both summaries that only limited conclusions can be drawn from this data set. The Washington hop commission funded a WSU, three year, deep sampling to 6 ft. in 23 hop yards from 1990-1992. This study showed the variability between spring and fall sampling and explained some of the reasons why this happens. It also demonstrated how variable management practice can effect soil test nitrate over time.

Ms. Mendoza points out that higher soil test nitrate levels were seen with double cropping with triticale following corn. Double cropping, ie a winter cover crop, was

designed to take up residual nitrate left in the soil after harvest especially in hops and then corn. Over time the addition of nitrogen to the triticale crop with out recognition of residual soil nitrogen following corn has lead to excess nitrogen addition to the two crops.

The noted range in deep soil test nitrate in alfalfa fields may well be related to high levels where liquid manure has been applied to the alfalfa because of the crops ability to remove large amounts of nitrogen.

I strongly agree with the plan's stress on nutrient and irrigation management as the two critical BMPs that need to be addressed. On page 189 under Appendix G I would recommend that residual soil nitrogen be included in the list of accounting for all sources on nitrogen. The relative return on investment for most of the other BMPs listed is very small compared to water and nutrient management.

I realize that a diverse group worked to put this plan together and appreciate all the effort. I believe that the greatest reductions in ground water nitrate levels can be achieved by implementing programs that encourage adoption of irrigation and nutrient management practices.

Please contact me if I can provide any explanation of my comments (509 781 0588).

Sincerely,

Robert G. Stevens

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