Friday, October 3, 2025 at 09:43:15 Pacific Daylight Time

Subject: Re: LUBGWMA RAC Meeting 7
Date: Friday, October 3, 2025 at 9:18:09 AM Pacific Daylight Time
From: STAPLETON Isaak * ODA <Isaak.STAPLETON@oda.oregon.gov>
To: [redacted]
CC:
Attachments: image001.png

Hi Dani and Jeff,

Thank you both for taking the time to review the RAC meeting recording and sharing your detailed feedback. We appreciate the thoughtful analysis and the specific data references you provided. Your input will be taken into consideration and added to the online page as part of the rulemaking process.

Thanks,

Isaak Stapleton, Division Director
Oregon Department of Agriculture – Natural Resources
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CELL: 503.931.5608 | WEB: Oregon.gov/ODA
Pronouns: he/him

From: Svedin, Jeff [redacted]
Date: Friday, October 3, 2025 at 8:19 AM
To: Dani Lightle [redacted]

[redacted]

Subject: RE: LUBGWMA RAC Meeting 7

I think Dani's response was very comprehensive regarding the additional sampling into the 6th foot, I'd like to add a small comment. The water holding capacity of the sandiest soils in the LUBGMWA can store about 1" of water in each 1 ft depth in soil. So for water to move from the soil surface past the 5th foot there generally would need to be over 5" of water added to saturate the soil profile. This applies to the sandiest of soils in the LUB, other loamy soils can store over 1.5" of water in each 1 ft depth of soil, which would require even more water to move past the 5th ft of the soil profile. This supports the comments in the meeting from the practitioners that were skeptical about needing to sample an additional foot after 3" of rainfall.

Thanks,

Jeff

Jeffrey Svedin, CCA, PhD | ***Agronomy Manager***

[redacted]

AgriNorthwest

Good Land - Good People - Good Food

From: Dani Lightle [redacted]

Sent: Thursday, October 2, 2025 5:21 PM

[redacted]

Subject: RE: LUBGWMA RAC Meeting 7

Hi Renee and Isaak –
I had a chance to review the recording of the RAC meeting from Tuesday, and wanted to take a minute and address the LUB-specific data in the ODA Fertilizer Research Program Grant funded study, and how I think it informs the 3" rain / 6 foot sampling as proposed in the rule.

First, here's an overview of the raw data, as reported in the study:

- In every sample where both the 5th foot and 6th foot were measured (only two dates – December 2014 and December 2016), the 5th foot always had higher levels of nitrate than the 6th foot depth sampled at the same location within the field.
- The project tracked nitrate during the cropping cycle of onions, carrots and cover crops, but focused on 1st, 3rd, and 5th foot. The 6th foot was sampled only at the beginning and end of the study. There is no seasonal data presented within the study to support a rainfall trigger for sampling depth.
- Soil moisture probes were placed down to 8 feet and continuously sampled throughout the study duration (except where the occasional malfunction occurred). Soil moisture probes can detect changes and/or trends in soil moisture but not absolute values. The moisture probes only registered change deeper than 4 feet after an unusually large storm (1.2 inches within 24 hours). Typical irrigation events and the rainfall events throughout the rest of the study period did not cause a bump or "pulse" in soil moisture readings.

The idea presented in the rules is to change nitrate soil sampling depth from 5ft to 6ft after 3" of rain; however, the data in this report don't justify this approach.

- Typical rainfall events and normal irrigation events did not trigger the moisture sensors below 4th foot. As mentioned by Blaine during the RAC meeting, it takes a lot of water to move beyond the 5th foot level – such as flood irrigation or super-saturated soil – and the soil moisture probe data in this particular study bear that out. The rules specifically call out that "area rules do not apply to conditions resulting from unusual weather events" and likewise, the provisions of the rules should be written for typical weather events, not atypical ones.
- There is no data in this report that shows that the 6th foot becomes a "nitrate maximum" after

rainfall. While there are only two sampling dates that went to the 6th foot, all samples were in fact LOWER in nitrate at the 6th foot than the 5th foot.

Renee mentioned that the deeper samples had higher nitrates than the 5th foot sample, and this is true some of the time. However, the variability of the three areas sampled – for this study, all within the same field – demonstrates why using deep soil nitrate measurements as a program evaluation metric across the basin is problematic.

- Area 1: in 2014, nitrates were greatest at the 8th foot, then the 4th foot, and were the lowest at the 5th and 6th foot, which had equivalent measurements. At the same spot in 2016, nitrates were greatest at the 8th foot, then at the 5th and 7th foot, and lowest at the 6th foot.
- Area 2: in 2014, nitrates were equivalent at the 5th and 8th foot, and lower but equivalent at the 6th and 7th foot. At the same spot in 2016, nitrates were greatest at the 7th foot, lower but equivalent at the 5th and 8th foot, and lowest at the 6th foot.
- Area 3: in 2014, nitrates mirrored what was seen in Area 2 – equivalent at the 5th and 8th foot, and lower but equivalent at the 6th and 7th foot. However in 2016, unlike in Area 2, nitrates here were greatest in the 8th foot, followed by the 7th foot, 5th foot, and lowest at the 6th foot.

The proposed deep soil nitrate sampling metrics will already suffer from significant variability and outlier datapoints, and highlighting the variability inherent to these types of data is the reason I wanted to make sure you had seen this data set. Sampling from multiple depths and trying to compare these against each other will add more variability and further complicate the ability to draw out trends.

Dani

[redacted]