# In Balance

***A Newsletter for the Whatcom County Dairy Industry***

Volume 2, Issue 3
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## What Are We Learning About PHOSPHOROUS?

It's been a little over a year since the Natural Resources Conservation Service added field Phosphorous (P) Indexing to the nutrient management planning process. The Phosphorous (P) Index provides an integrated approach (both source and transport factors are evaluated) for estimating the relative potential of phosphorous to move into surface water from a specific field. P-Indexing has now been done for up to 200 fields in Whatcom County. From these results we're beginning to learn some things about soil phosphorous in our local area including which conservation practices may prove useful in helping to ensure that P doesn't become a problem:

**Most local fields that were P-indexed had high levels of soil phosphorous:** Based on values from Oregon State University's *Soil Test Interpretation Guide*, 76% of the fields that were tested had either high or excessive P levels. However, the soil phosphorous test is just one of eleven criteria used in the P-Index. Just because a field has high or even excessive levels of phosphorous does not mean the field is highly vulnerable to off-site movement of phosphorous.

**Phosphorous tests were highest on fields receiving the most nutrients:** In general, soil phosphorous (P) tests were highest on fields closest to the barn and manure storage facilities. Soil P tests were lowest on fields located the greatest distance from the farmstead that could only be accessed by tank spreaders for manure applications. While soil P tests also tended to be higher on farms with the highest concentration of animals (i.e. highest number of cows per acre) and lowest where fewer cows per acre were maintained, there were some notable exceptions to this tendency. Soil type, cropping history, feed management and other practices that may influence soil phosphorous levels need more review.

**Different soil P tests produced similar results:** While historically the Morgan test has been used locally to measure soil phosphorous, the P-index calls for the more widely used Bray (P1) test. On several of the same soil samples, both the Morgan and the Bray tests were run. Even though we didn't find a consistent conversion factor between the two tests, the tests both tended to provide relatively similar results.

*(See "Phosphorous" continued on Page 2)*

## *New Publication from Oregon State University:*
## Post-harvest Soil Nitrate Testing for Manured Cropping Systems West of the Cascades

In May 2003 Oregon State University (OSU) published ***Post-harvest Soil Nitrate Testing for Manured Cropping Systems West of the Cascades*** by Dan Sullivan of OSU and Craig Cogger of Washington State University (WSU). This publication replaces the ***Guide To "Report Card" Soil Testing*** (aka Technical Note 35), which Sullivan published in 1994. Compared to Sullivan's earlier publication, the new suggested interpretations for post-harvest soil nitrate tests have changed considerably. In the previous publication there was one interpretation table for all crops. The new guide features separate tables for silage corn and grass and for hay and silage. Copies of this publication are available at the Whatcom Conservation District office or from OSU Extension's website (http://eesc.oregonstate.edu).

## Special Notice: Nutrient Management Sales/Use Tax Exemption Rules

Dairy producers whose nutrient management plans are certified by December 31, 2003 are eligible for a sales tax exemption on purchases of dairy nutrient management equipment and facilities. A Special Notice from the Department of Revenue seeks to clarify rules about this sales tax exemption:

**You can obtain a copy of this Special Notice at the Agriculture Service Center or by contacting the Department of Revenue (1-800-647-7706) website address: http:dor.wa.gov.**

## District Plans to Offer Low Interest Loans for On-Farm Methane Production

With funds to be made available through the Washington State Water Pollution Control Revolving Fund (SRF), the District plans to introduce a low-interest loan program to provide financial assistance for construction of methane digesters in Whatcom County. Anaerobic (methane) digesters decompose manure and reduce greenhouse gases, pathogens and odor from dairy manure. Anaerobic digesters also aide nutrient management by producing marketable fiber that, when removed, will reduce loading of organic sources of nitrogen and phosphorous. If you are considering installing an anaerobic digester on your farm, contact the Conservation District for both financial and technical assistance.

## REMINDERS:


- **Post-harvest Soil Nitrate Tests** - Take tests between August 15th-October 15th; tests taken later will not be considered valid. Try to take tests at least 30 days after manure was applied.

- **Deadline for Dairy Nutrient Management Plan Certification** - December 31, 2003.

- **Basic Soil tests** - Nutrient management records require basic soil tests for every field at least once every 3 years. A basic soil test for our area includes phosphorous (P), potassium (K), organic matter, and pH. In order to speed processing of future cost-share (EQIP) contracts and updating of nutrient management plans, request that soil phosphorous be measured using the Bray (P1) test.

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***REMEMBER - WE'RE HERE TO SERVE YOU:***

**Don't Be Afraid To Speak Up If You Have Problems With Our Service**

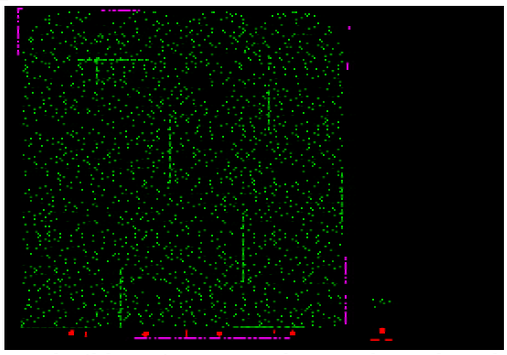
The Board of Supervisors and staff of the Whatcom Conservation District wish to remind you that you are especially important to us. As active members of Whatcom County's agricultural industry you are our main reason for being here. Most of the technical and financial assistance we provide is directed toward helping you achieve your goals and objectives so that we can live up to our mission statement of "fostering a healthy relationship between the environment and people". Please tell us if there are some ways you feel we can improve our service. All five members of the District board are actively engaged in farming and can be contacted regarding your concerns. The District Manager, George Boggs, as well as other staff would also appreciate hearing from you.

## Phosphorous *(continued from Page 1)*

**Phosphorous levels varied within a field:** On a 100 foot grid in one 35-acre field, 161 separate soil tests for phosphorous were pulled. There was a clear pattern in the way the P levels were distributed across the field. The pattern could be linked to previous nutrient application methods. Soil P levels were highest in line with the tow paths of the traveling big gun that historically has been used to apply nutrients. Soil P levels were lowest on the outer edges of the field and were intermediate at the mid point between tow paths.

**Practices that will contribute toward improved phosphorous management:**

- Manure solids separation and off-farm export - The solid fraction of manure has a greater concentration of phosphorous than the liquid fraction, but it's not clear yet how efficient solids separation is at capturing the phosphorous. Local farms that have employed solids separators and have exported most of the solids from their farm have lower soil phosphorous levels than comparable facilities that do not separate.
- Filter strips - Filter strips have already proven their usefulness in keeping nitrogen and fecal coliform out of water. Filter strips are also capable of doing the same for phosphorous.
- High pressure underground pipelines for manure transfer - The high cost of transferring manure to distant fields by tank wagon can be overcome if the manure can be pumped there instead.
- Irrigation gun calibration to ensure efficient application - *(see Irrigation/Manure Application Plan View below)*



Nutrient build up in tow paths can be reduced by making sure the wetted diameter of adjacent paths overlap by about half the radius and by avoiding application when wind speed exceeds 10 mph. Also, periodically apply nutrients by tank spreader or injector.

## Could Road Building Increase Demand for Dairy Compost?

Could the solids from this local manure separator be composted for use in roadside landscaping projects? The recent gasoline tax increase is supposed to enable new road building activity. Once road construction is complete, compost is used to rejuvenate soils alongside new roadways in preparation for landscaping. Compost has to come from somewhere. Why not from local dairies?

Specifications call for up to 13 yards of compost per 1000 square feet of ground (572 yards per acre), so the demand could rise sharply once road construction begins. A single cow's manure and bedding output for a year can be processed into 3 or more yards of finished compost (composting reduces the original volume of material by half). It would take 172 cows to produce the compost necessary to recover one acre of soil and it would take over 2000 cows to produce enough compostable material for one mile of freeway with a 50-foot wide landscaped buffer on both sides. Of course this is merely wishful speculation at this time, but if it happens, it would provide a boost in income for local farms that either supply compost or the materials necessary to produce it. Beyond that, there is the added benefit of moving some surplus nutrients (organic nitrogen and phosphorous in particular) off the farm.