

Whatcom Ag Monthly

WSU Whatcom County Extension

Volume 1, Issue 1

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Welcome to the First Whatcom Ag Monthly Newsletter

Chris Benedict, WSU Whatcom County Extension

Welcome to the newly created *Whatcom Ag Monthly Newsletter* produced by the WSU Whatcom County Extension Agriculture Program. I want to briefly describe our goal in creating this newsletter. With our modern information distribution systems, agriculture producers, professionals, and support programs are constantly barraged with information. We have created this monthly newsletter to act as an aggregator of quality information and to distribute it at monthly intervals. We strive to include information for all major agricultural sectors within Whatcom County. Our goal is to distribute scientifically-based information that is seasonally relevant. In addition to topic-specific articles written by regional specialists, we will also include relevant events and summarize weather information for each month. If you have specific topics you would like to see please let us know and we will work hard to include it.

Also, I would like to point everyone to our newly updated website (<http://whatcom.wsu.edu/ag/>) where research that has been done by this office is hosted, as well as relevant resources from the region and farther afield.

In this first edition of the newsletter, we feature an article written by Dr. Craig Cogger on interpreting soil tests, an update on the SWD management program by Dr. Lynell Tanigoshi, as well as how you can get involved in the SWD scouting program, and a weather recount. We hope you enjoy this issue. Past issues will be archived and searchable at: <http://whatcom.wsu.edu/ag/newsletter.html>

Here at WSU Whatcom County, we are hard at work in the office and field, touching on almost every aspect of Whatcom County agriculture, and many of you will see us this summer either doing research in your fields or at an educational event.

Upcoming Events

[Growing Vines, Making Wines](#)

Saturday, May 19th
Silvana, WA

[WSU Reduced Tillage Field Day](#)

Monday, May 21
WSU Puyallup, WA

[WSU Riparian Grazing & Water Quality Workshop](#)

May 22-23
WSU Mt. Vernon

[SWD Identification Workshop](#)

Wednesday, May 23
WSU Mt. Vernon
RSVP to cburrows@wsu.edu

[Small-Scale Logging Workshop](#)

June 7-9
McKenna, WA

[Orchard Management: Cider Fruit Production](#)

June 23
WSU Mt. Vernon

[Cider Making: Principles and Practices](#)

June 25-2
WSU Mt. Vernon

[2012 Small Grains Field Day](#)

June 28
WSU Mt. Vernon

WASHINGTON STATE UNIVERSITY
WHATCOM COUNTY EXTENSION

WSU Extension programs and employment are available to all without discrimination. Evidence of noncompliance may be reported through your WSU Extension office.

Interpreting Soil Tests

Craig Cogger, Soil Scientist, WSU

Soil test definition

A soil nutrient test is a measure of available nutrients in soil, used to recommend fertilizer rates needed to meet crop yield goals.

Scientific background

Soil tests are based on decades of research correlating soil nutrient levels extracted in the laboratory with crop response to fertilizer in replicated experiments done on commercial farms and at university experimental fields. This research developed chemical soil test extractants suitable for different nutrients and environments, and fertilizer recommendations based on the soil test results. The soil test extractants vary in different regions of the country, depending on local soil chemistry and climate.

The soil test report

A soil test report has two parts. The first shows the relative availability of each nutrient compared with expected crop response. This is often shown in graphical form, indicating whether the predicted availability of each nutrient is low, medium, high, or excessive relative to crop needs. The second part is a fertilizer recommendation based on these nutrient levels. A result in the high or excessive range usually means that little or none of that nutrient is needed. Increasing amounts of nutrients are recommended for medium and low soil test results.

What is included in a soil test?

A basic soil test for western Washington includes phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), pH, lime requirement, and often boron (B). A full test includes micronutrients, organic matter, cation-exchange capacity, and sulfur (S). In most cases a basic soil test is adequate.

You may have noticed that nitrogen (N) is not a part of the basic test, even though it is a critical nutrient. Why isn't N a fundamental part of every soil test? Soil tests are chemical extractions, and work well for nutrients such as K, Mg, and P, where chemical processes play a major role in their availability. Nitrogen availability is controlled by biological processes, and chemical extraction has not been a good predictor of biological N release during the growing season. Soil scientists continue to work to develop a simple, widely applicable test to predict N release during the growing season, but have not succeeded yet.

Measuring soil nitrate-N in June can help us estimate N availability for the remainder of the growing season. This has been studied the most in corn, and is known as the pre-sidedress nitrate test. Nitrate present in the soil in June in western Washington was released from soil organic matter and organic amendments during the spring, and indicates the potential to release more N during the summer. It is most useful in farming systems using manure or other organic amendments. For more information on the pre-sidedress nitrate test, see <http://tinyurl.com/753yuw8>

Three different extractants for phosphorus have been used in Washington, which can sometimes cause confusion. The Bray extractant was developed for acid soils, and is currently the most common P test for western Washington. The Olsen extractant is more suitable for alkaline soils, and is the most common test for eastern Washington. The Morgan solution was used in western Washington into the 1980s, but since has been replaced the Bray test in most labs.



Interpreting Soil Tests, continued

Interpreting soil test results

It is a good idea to use Extension bulletin guidance along with soil test results. The two go hand in hand. The recommendations from the soil test lab are often brief, while Extension publications provide more depth and background, including soil sampling considerations for a specific crop, interpretation of soil test results, and timing, placement and source of fertilizers.

Soil tests are just as valuable for organic farmers as they are for commercial farmers. Even though we consider organically farmed soils to be more biologically active than conventionally farmed soils, the same chemical processes govern the availability of P, K, Ca, and Mg and soil pH. A history of manure or compost applications will often lead to elevated levels of P and K in soils, and soil tests can indicate when it is time to switch to amendments with less P and K, or incorporate more legume N into an organic rotation.

Soil test labs often make their recommendations using examples of both conventional and organic fertilizers, but the organic sources may not be the ones that you use. The Organic Fertilizer Calculator from Oregon State University is a useful spreadsheet that allows you to convert lb/acre of a given nutrient to lb/acre of a specific organic fertilizer, based on the nutrient concentration and availability in that fertilizer. You can find the Fertilizer Calculator at: <http://smallfarms.oregonstate.edu/calculator>

Let's look two examples of soil test results and how to interpret them.

Example 1: Sweet Corn

Fertilizer Recommendations

Nitrogen: Apply 150 lb N/acre split between 30lb/acre banded at planting and 120 lb/acre at sidedress.

Phosphorus: Apply 120 lb P₂O₅/acre broadcast before planting

Potassium: Apply 100 Lb K₂O/acre broadcast before planting

Organic source: These nutrients can be supplied by applying 5 tons/acre of dried chicken manure or a 4-3-3 blended organic fertilizer.

pH is within the acceptable range for sweet corn production.

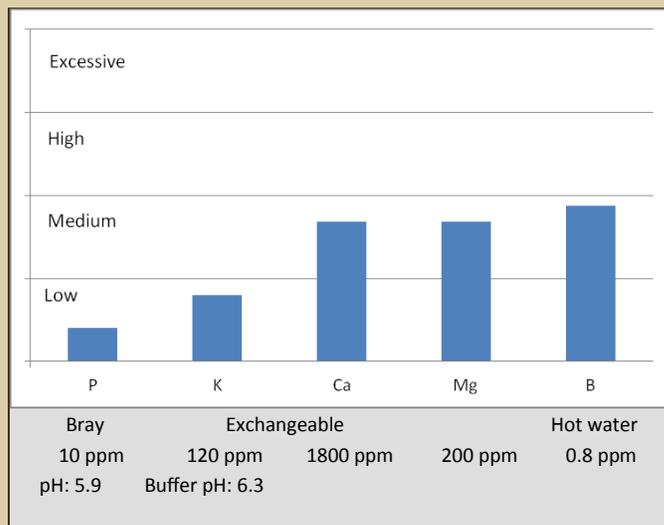
Keep monitoring pH in future years and apply lime when soil test calls for it.

Example 1 is a soil is low in P and K, typical of a soil without a history of fertilization, such as a low-input pasture.

Soil pH is adequate for sweet corn production, along with Ca, Mg, and B. The recommendation calls for N, P, and K additions, which the lab based on the soil test results, and guidance from the Northwest Extension bulletin: Sweet Corn (western Oregon). <http://tinyurl.com/7e884uf> .

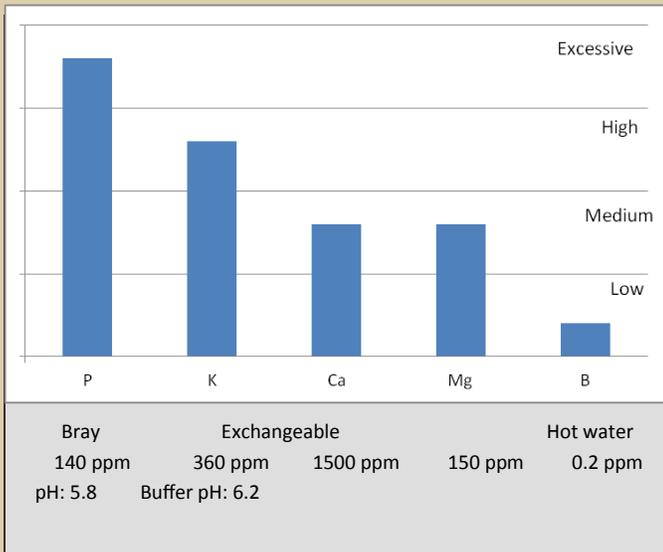
After two or three years, it will be time to soil test again, to see how P and K levels and requirements have changed, and to see if pH and other nutrient levels are still adequate.

The soil test recommendation also gives two examples of organic fertilizers that would meet N, P, and K needs specified by the soil test results. To evaluate other organic fertilizers, you can use the Organic Fertilizer Calculator described above.



Interpreting Soil Tests, continued

Example 2: Establishing New Raspberry Crop.



Fertilizer Recommendations

Nitrogen: Apply 30-50 lb/acre at planting

Lime: Spread 2 Tons/acre before planting to raise soil pH, preferably the fall before establishment.

Boron: Apply 2-3 lb/acre at planting. Do not overapply.

Organic source: Nitrogen can be supplied by applying 400-500 lb feather meal/acre.

Example 2 is typical of a soil with a history of manure applications, and has excessive levels of P and high levels of K. In this case the crop is a new planting of raspberry. The pH is low enough to recommend a lime application before planting the new raspberry crop. The report also

recommends N and a light application of boron (based on guidance from the extension publication, Commercial Red Raspberry Production in the Pacific Northwest). <http://tinyurl.com/8xb9suw>

Details on soil testing and fertilizer timing and placement for raspberry are found in the bulletin.

The organic fertilizer recommendation from this report is for feather meal, an organic amendment that is rich in N, but lower in P and K. If you use a different organic fertilizer, refer to the Organic Fertilizer Calculator to determine the appropriate rate.



[Dr. Craig Cogger Explains How to Take a Soil Sample Video](#)

Is the Spotted Wing Drosophila going to get us this season?

Lynell Tanigoshi, Bev Gerdeman & Hollis Spitler, WSU Mt. Vernon

Given the current weather pattern of warmer days and evening temperatures and longer day length, small fruit plant responses are advanced compared with last year's unseasonably cold and wet spring. SWD developmental biology is also associated with plant growth and fruiting maturity. For example, baited apple cider vinegar trap counts from comparable dates in 2011 did not detect economic levels of SWD in strawberry, red raspberry and early season blueberry varieties. Despite lack of economic injury to strawberry crops since 2009, bait traps should be in place in coastal summer strawberry varieties to detect for potential infestation levels. Red raspberry and blueberry industry consensus conclude management options are adequate and susceptible gaps can be eliminated through adjustments in timing of insecticide applications to ensure season-long protection. Grower's must rotate chemical classes through a SWD generation of 14-22 days to delay resistance development while being aware of REI, PHI and MRL's for their target markets. Dawn and dusk applications are preferred for good coverage on fruits and foliage.

Growers who followed current SWD treatment guidelines for keeping red raspberries protected with dilute applications of the traditional pre-harvest clean-up and two cover sprays during harvest, have reported economic control. Growers who missed timing for the cover sprays experienced economic fruit injury and downgraded product in 2010. Given we are 7-14 days ahead of 2011, the red raspberry insect/mite season may be a more normal season with mid-season the additional problem of protection maturing berries from egg laying SWD. Whatcom County monitoring

SWD Update, Tanigoshi, continued

program for SWD adults reported peak trap catches on 22 July 2010 (132 total) compared with 10 August 2011 (21 total) in commercial red raspberry.

Potential SWD damage in early and mid-season blueberry varieties still remains problematic. The prognosis for blueberry growers for the 2012 season is uncertain because blueberry has the longest fruiting season of all small fruits in the PNW and thus the longest period of susceptibility. Populations of SWD appeared 3-4 weeks later in 2011 than the previous two seasons. Commercial growers with early-mid-season cultivars in northern Washington counties experienced no economic losses. Organic and commercial producers that did not make 5-7 day rotations of protective cover sprays in mid-late varieties did however experience larval infested berries that never made commercial fresh grade. If this season is more like the 2010 year, the 2-5 weeks ripening period for each variety makes Northern highbush particularly vulnerable to SWD attack, necessitating prolonged spray coverage. Even though our lab bioassays and field trials provided growers with a list of 11 different compounds representing 5 toxicity categories effective against SWD in blueberry, periodic applications of these protective cover treatments to mature plantings becomes a major challenge. Whatcom County monitoring program for SWD adults reported trap catches beginning to peak on 30 August 2010 (18 total) compared with peak catches on 10 August 2011 (37 total) in late maturing blueberry varieties.

The most commonly applied insecticides (Malathion, Lanate, Mustang Max, Brigade, Delegate) all express good to excellent contact and moderate 5-7 day field residual activity on small fruit and canopy foliage. Good canopy coverage is imperative to provide an effective barrier around ripening fruit that are often difficult to cover with these contact modes of entry compounds. The newly registered Brigadier® and Voliam flexi® for strawberry are active on SWD adults.

For Further Information and Other Resources

www.mountvernon.wsu.edu/ENTOMOLOGY/pests/SWD.html

SWD Scouting for Berry Growers

Colleen Burrows, WSU Whatcom County Extension

In 2011, WSU Whatcom County Extension coordinated SWD scouting for Western Washington raspberry and blueberry fields. Trap counts were low until mid-July and many managed fields had zero SWD trapped the entire season. Results can be found online (whatcom.wsu.edu/ipm/swd/historical.html) including a time-lapse video showing first occurrence of SWD in Western Washington. First positive trap catches were seen in Southwestern Washington, which emphasizes the importance of keeping track of populations in regions south of your location in order to anticipate SWD population increases.

The season to begin SWD scouting is upon us. This year, WSU Whatcom County Extension has received grant funding from the Washington Red Raspberry Commission to perform scouting in raspberry fields in Whatcom, Skagit, and Pierce Counties. Scouting will begin in early to mid-June and is funded to continue until treatment programs are consistently underway. A limited number of fields will be scouted in 2012 that cover a diverse range of area in Skagit and Whatcom counties. Results again will be posted on the WSU Whatcom County Extension website (whatcom.wsu.edu/ipm/swd).

Additional scouting outside of the project is available on a fee for service basis. We are able to provide the service of scouting additional traps in a raspberry field, traps in a blueberry field, and scouting to the end of the season (including fruit evaluation for larval presence). Fees are \$38 per trap for the season. Results from this scouting will not be made public on the WSU website.

An SWD identification workshop will be held on Wednesday, May 23 from 1-3pm at WSU Mt. Vernon. This will be targeted towards growers who scout their fields.

If you are interested in having your field scouted on a fee-for-service basis or in attending the May 23 workshop, please contact Colleen Burrows, cburrows@wsu.edu, (360) 676-6736.



RESEARCH BRIEFS

Research from WSU Whatcom County

Quantification of Potato Virus Y (PVY) in Western Washington Potatoes: Seed and ware commercial potato fields of participating growers will be scouted in 2012 and 2013 for visual symptoms of PVY and plants showing symptoms will be sampled and lab tested for PVY.

Evaluation of Short-Season Silage Corn Varieties: Yield and yield quality of short-season corn varieties (<85days) will be evaluated at five commercial farms throughout Whatcom, Skagit and Snohomish counties and at the WSU Mt. Vernon Northwestern Research and Extension Center.

Spotted Wing Drosophila Scouting: Fields in Whatcom, Skagit, and Pierce counties will be scouted for first incidence of SWD. Results will be posted to <http://whatcom.wsu.edu/ipm/swd/index.html>

Limiting Bird Damage in Fruit Crops: This multi-state project is looking at bird damage and control practices on blueberry, apple, cherry, and grape crops. In 2012, we will be looking to quantify damage in different system types.

Improved Cultural Practices for Red Raspberry Production: Using all of the best knowledge to date, we have initiated an integrated systems trial in red raspberries that focuses on irrigation technologies, ground covers, and nutrient management.

Alternative Livestock Forage and Fodder Crops: Over the past three years we have worked to identify livestock energy sources that can be easily grown. Three field experiments will be conducted. More information can be found at: <http://whatcom.wsu.edu/ag/animal/feed/ffc/index.html>

Reduced Tillage Trials: Two research center and two on-farm trials have been underway to look at reduced tillage technologies in western Washington. Current trials focus on cover crop type/variety suitability, impacts on yields of vegetables, weed suppression, and changes to soil parameters. <http://smallfarms.wsu.edu/soils-compost/research/organicnotill.html>

Weather Recount

In this area we will summarize weather events for each month and outline a running total for certain parameters. This is not a forecasting service, but rather an up to date re-cap of what the weather has done for each month. All information here is derived from the four weather WSU AgWeatherNet stations (<http://weather.wsu.edu/awn.php>) in Whatcom County. Current weather conditions can be found at: <http://whatcom.wsu.edu/ag/currentdata.html>. Station information can be found [here](#).

	Lawrence	Nooksack	Lynden	Ten Mile
Growing Degree Days (Base 50) 2012	68	87	72	62
2011	18	31	22	16
2010	58	97	82	66
30-Year Average	50	63	50	45
Accumulated Monthly Precipitation 4/13/12-5/13/12	16.69"	13.33	17.53"	17.81
Maximum Air Temperature 4/13/12-5/13/12	76	79	76	76
Minimum Air Temperature 4/13/12-5/13/12	32	33	33	31

