

*IN THIS ISSUE:*

**PLEASE GIVE US SOME FEEDBACK!**

**UPCOMING WORKSHOPS**

**NEW SMALL FRUIT VARIETIES**

**AFFORDABLE CARE ACT AND AGRICULTURE EMPLOYERS AND  
EMPLOYEES**

**LIVESTOCK AND LICE**

**WATER QUALITY AND AGRICULTURE IN THE PNW**

**WEATHER UPDATE**

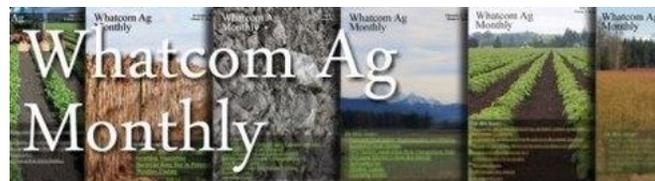
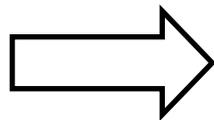
**UPCOMING EVENTS**

# SURVEY

## PLEASE TAKE 5 MINUTES TO PROVIDE FEEDBACK ON THIS NEWSLETTER

We have pulled together a short survey so that we can improve this newsletter for you, the reader. I know people shy away from filling out surveys, but to continue to provide this newsletter we need some feedback.

To get to the Survey click here (that's on the image)



[Whatcom AgMonthly Newsletter Survey](#)

# Upcoming WSU Sponsored Workshops

## 3<sup>rd</sup> Annual Northwest Washington Sustainable Agriculture Conference

Friday, March 7, 2014 at Bellingham Technical College



This conference will once again highlight issues important to produce and livestock farmers in Northwest Washington, with sessions on food safety/ GAP/FSMA, fertility management, animal feeds, livestock economics, and plant disease management. University and government experts will be presenting alongside farmers with plenty of time for discussion to get the information you are looking for.

New this year will be more farmer-to-farmer learning opportunities with facilitated discussions around hot topics. Bring your expertise and your questions!

**Cost for conference is \$35 including lunch if registered by Friday, February 21.**

**Rates go up \$10 per person on February 22.**

**Reduced rates for additional people from the same farm.**

**Tabling opportunities are available.**

Agenda information and registration are available at: <http://whatcom.wsu.edu/ag/edu/susagconf/>

## Efficiency in Drip Irrigation: Principles and Practices

WASHINGTON STATE UNIVERSITY  
WHATCOM COUNTY EXTENSION

Cost:  
\$20/person until March 3rd  
\$25/person after March 3rd

Friday, March 14, 2014 • 10am-2:30pm  
at WaterTec • 177 Birch Bay-Lynden Rd, Lynden, WA 98264

This 1/2 day workshop will cover all aspects of an irrigation system including:

- System Design
- System Components
- Irrigation Efficiency in Small Fruit Production
- Irrigation System Operation and Maintenance

More Information and Registration at:  
<http://whatcom.wsu.edu/ag/edu/irrigation>



Troy Peters  
Irrigation Specialist  
WSU Extension



Charles Burt  
Professor  
Cal Poly Irrigation  
Training & Research Center



Dave Bryla  
Research Horticulturist  
USDA-ARS



Don McMoran  
Agriculture and Natural Resource  
Extension Educator  
WSU Extension

WSU Extension programs and employment are available to all without discrimination.



# GREAT NEW SELECTIONS AND CULTIVARS FOR YOU TO TRIAL

Chad Finn  
Research Geneticist  
USDA-ARS

The Pacific Northwest berry industry is in exciting times. There are a large number of cultivars to choose from coming from breeding programs around the world and from our own backyard. The three public berry breeding programs in the Northwest are the ones with Washington State University, Agriculture and Agri-Foods Canada (AAFC), and our USDA-ARS program in Corvallis. The USDAs breeding

program started breeding strawberries, raspberries and blackberries between 1910 and 1925 and blueberries in the 1990s. This USDA has had great success over the years but would probably point to 'Willamette', 'Summit', 'Amity' and 'Canby' red raspberries, 'Marion', 'Kotata', 'Obsidian' and 'Black Diamond' blackberries, and 'Hood', 'Benton', and 'Tillamook' strawberries as the cultivars that have had the most long term and greatest im-

**Blackberry**, Top row, left to right- 'Columbia Star', 'Newberry', and 'Onyx'; Bottom row, left to right- ORUS 3447-2, ORUS 4024-3 and ORUS 2816-4.



pact. Since 1993, the USDA in Corvallis has released or co-released 39 berry cultivars. A large number of co-released cultivars reflect our effort to collaborate with as many breeding programs as we can, however the many decade long collaboration between the USDA, WSU, and AAFC programs has truly been remarkable. A number of new cultivars have been released and a number are available for grower trial; both types are available through commercial nurseries including Fall Creek Farm and Nursery, Lassen Canyon Nursery, Norcal Nursery, North American Plant Co., Northwest Plants, Oregon Blueberry Farms and Nursery, and Spooner Farms. The main difference is that for the ones that have not been named yet, you'll be asked to sign a non-propagation agreement. Here are some things to consider trying:

***Trailing blackberry (i.e. 'Marion', 'Black Diamond')***

**'Columbia Star'** (PPAF) produces excellent yields of high quality fruit that are machine harvestable. Fruit puree has been ranked by a blind panel as similar to, or better than, 'Marion' and 'Black Diamond' in color, flavor, and aroma. Puree has been evaluated by commercial jam makers and was found to be comparable to 'Marion'.

**'Newberry'** is a vigorous plant that produces very high yields of high quality fruit with an appearance and color that is similar to 'Boysen'. While selected as a mechanically harvestable berry for the processing market, the fruit has proven to be of particular value as a niche fresh market berry where its unique color, appearance, and tendency not to "bleed" set it apart from other blackberries.

**Onyx** (USPP 22358) is a very high quality, very firm blackberry with excellent skin tough-

ness. Although thorny, it has a medium-large fruit size, larger than 'Marion' but smaller than 'Siskiyou'. Yields are comparable to 'Marion' and it tolerated spring freezes better than 'Marion'. The berries ripen in the late mid-season, about a week later than 'Marion'. 'Onyx' has worked well with wholesale fresh market growers/packers.

**ORUS 1793-1** has very high quality, firm blackberry that ripens after the very early ripening 'Obsidian'. Has been trialed in the NW and California. It was identified by fresh shippers as one with excellent potential. Very good yields of very sweet fruit. Suffered severe injury due to a late freeze in one year but was comparable to 'Marion' in the same planting.

**ORUS 1939-4** has large, very firm, sweet, glossy, and attractive fruit on thorny plants. Ripens after 'Obsidian' and 'Metolius'.

**ORUS 2635-1** is a trailing blackberry with a very erect habit. Best suited to fresh market at excellent quality and high yields but thorny

**ORUS 2707-1** is one of our most promising replacements for 'Marion' but has been hard to propagate. It has outstanding yields and is thornless with excellent flavor, machines harvests, produces an outstanding processed product. Main concerns with borderline color (too purple?) like 'Marion' and susceptibility to heat/high UV injury

**ORUS 2785-2** produces high yields of very small fruit similar to 'Wild Treasure' in size.

**ORUS 2855-1** is a thornless hybrid that is 50% wild. This and ORUS 2785-2 have 'Marion' yields and very small good quality fruit

**ORUS 3172-1** has medium sized fruit and yield comparable to 'Marion'. Very high

quality and very late for trailing, about 2 weeks later than 'Marion'. Identified in grower trial by commercial grower/processor as one of interest.

**ORUS 3447-2** is a sibling to 'Columbia Star'. Thornless, high yielding, and good fruit quality but its fruit size is what sets it apart as it has beautiful berries that are giant (average 13 g).

**ORUS 3453-2** shares a parent with 'Columbia Star'. It is thornless, high yielding, with outstanding fruit quality. Consistently perceived as being sweeter than 'Columbia Star'.

attractive glossy red fruit that look like a 'Tayberry'. Picks easily and may even be machine harvestable. Wonderful flavor and commercial growers want it after 1<sup>st</sup> look.

***Semi-erect blackberry (i.e. 'Chester Thornless', 'Triple Crown')***

**ORUS 2711-1** is productive with a firm, medium sized berry with very good quality Ripens about 3 weeks after Marion and 1 week before Navaho. Has done well in California.

**ORUS 2816-3** is productive with a firm, medium sized berry with very good quality. Rip-

**Red Raspberry**, left to right- 'Lewis', ORUS 1142-1 and 'Vintage'



**ORUS 4024-3** has 'Willamette' red raspberry as a grandparent and 'Kotata' as a parent. Very

ens with 'Chester Thornless'.

**ORUS 2816-4** is productive with a firm, medium sized berry with very good quality Rip-

ens with 'Chester Thornless'. Tested well in Cal where its primocane vigor and erectness was greater than ORUS 2711-1.

**Florican red raspberry (i.e. 'Meeker')**

'Lewis' was released in 1998 due to its performance in New Zealand. It was not commercially tested at the time in the PNW but with the success of 'Wakefield', which has 'Lewis' as a parent, it is worth revisiting. It has high yields of firm, high quality fruit in the late season and will be evaluated for machine harvestability in 2014/15 in the Northwest.

**ORUS 1142-1** is primarily suited for fresh market but it may work for processing as well. Fresh market companies looking at the fruit were impressed with its ease of release, uni-

formity of medium sized fruit, and its bright color in an early season. Yields have been equal to or better than 'Coho' and 'Meeker'

**Primocane red raspberry (i.e. 'Heritage')**

'Vintage' (USPP 24,198) has moderate to high yields of beautiful, glossy, bright, well-formed, medium-large, berries with terrific flavor and excellent firmness. Fruit quality is greatly superior to 'Heritage' while yields are similar. Ripens ahead of 'Heritage'.

**ORUS 4090-1 and ORUS 4090-2** are siblings with similar characteristics. Both produce very large fruit with excellent fruit quality and yields comparable to or better than 'Heritage'.



**Black raspberry**

**ORUS 3013-1** High yields of fruit that appear to machine harvest well. Not the long-lived replacement we want for 'Munger' but may be better for the short-run.

**Blueberry;** Top row, left to right ORUS 10-1 and ORUS 235-4; Bottom row, left to right ORUS 235-3 and ORUS 197-3





**Strawberry**, left - 'Sweet Bliss', below left to right- 'Sweet Sunrise' and 'Charm'



**currently available!**

**ORUS 10-1** will be named. Yields are comparable or greater than 'Draper' and 'Bluecrop'. The fruit are very small (0.8 g), bright blue and very tasty, ideal for anything that lowbush blueberries are sold for. The fruit machine harvest easily, easier than 'Draper', as evaluated with a machine harvest simulating vibration unit. Seed set was reduced with selfing; we will be doing more extensive testing in 2014 to determine whether a concern for block planting. The plant has lowbush heritage, so while as tall as a highbush, it has fairly dense canopy.

**ORUS 197-3** has been much higher yielding than 'Bluecrop' with better quality fruit but similar tendency towards red butt. As an IQF product in 2012, it scored better than 'Draper' and comparable to 'Duke' and 'Liberty'. The fruit are sweet (15.2% SS).

**ORUS 235-3 and ORUS 235-4** had excellent fruit quality and size. The fruit flavor is very aromatic and the fruit have a nice pop when eaten. First year yields were just ok

**ORUS 3038-1.** Good yields of sweet berries that freeze well. **ORUS 3217-1.** High yields of fruit that appear to machine harvest well. 'Munger' size but not sure color is dark enough.

**ORUS 3409-1** will not only give a summer crop but it will fruit on the primocanes. The combined yields of the two crops have been very good; the fruit quality is very good with large fruit. It may have verticillium resistance.

**ORUS 3735-3** has large, tasty fruit and typically high yields. There are concerns with it for machine harvesting but it definitely has promise for the fresh market.

**Blueberry These are for 2015 and are not**

but it was the highest yielding genotype in 2013 with yield over 2x Bluecrop. The processed fruit are sweet (15.7% SS) with pH 3.5 and titratable acidity 6.14.

### ***Strawberry***

**Sweet Bliss** has excellent yields of high quality fruit that are better suited to fresh than processing. Very sweet and has worked well for in Fraser Valley for Vancouver farmers markets.

**Sweet Sunrise (PPAF)** has excellent yields of large, easy to pick fruit. Early ripening with good sweet flavor for fresh. Very good processed as well. An outstanding dual purpose berry.

**Charm (PPAF)** has been released primarily a processing berry. High yields of medium to large fruit ('Totem' size). Charm has been the highest or 2<sup>nd</sup> highest yielding genotype in every trial it has been in. Reliable- year in, year out, field to field a vigorous productive plant. Outstanding processing quality especially for ice cream market; has been identified by an ice cream company as potential 'Hood' replacement.

**ORUS 2427-4** has outstanding fresh and processed potential with high yields of large, high quality fruit

**ORUS 2678-1** is very late ripening with high quality. Very good yield but probably too light colored for processing

Whew that's a lot of things to try! They all look to have a niche in the NW and some such as 'Columbia Star' have the potential to really dominate the market. If you have any questions please don't hesitate to contact me. We also appreciate any feedback on challenges or successes with these new cultivars or selections in grower trial. Thanks!

# THE AFFORDABLE CARE ACT'S EMPLOYER MANDATE: HOW WILL IT AFFECT AGRICULTURAL EMPLOYERS & EMPLOYEES IN THE STATE OF WASHINGTON?

Bidisha Mandal

Health Extension Economist, School of Economic Sciences, Washington State University – Pullman

Michael Brady

Agricultural Extension Economist, School of Economic Sciences, Washington State University – Pullman

The Affordable Care Act (ACA) was signed into law on March 23, 2010. Although most of its provisions have already taken effect, the implementation of one of its key and perhaps most controversial requirements, the Employer Mandate, has been postponed till January 2015. The Employer Mandate requires large employers to either provide minimum essential and affordable coverage to all full-time employees, or pay a penalty. Who are 'large employers'? How do we define 'full-time employees'? And in a state like Washington, whose economy relies heavily on agriculture, with significant downstream food processing and migrant seasonal workers, what are the potential impacts of the mandate on employment in the agriculture related industries as well as expanded health coverage?

A large employer is one who employed an average of at least 50 full-time (FT) and full-time equivalent (FTE) employees during the preceding calendar year. FT employees work for at least 30 hours a week, and FTE employees have to be included in counting all FT employees based on the hours worked. For example, suppose an employer has 25 FT employees who each work 40 hours per week over 4 weeks, and 30 part-time employees who each work 25 hours per week over 4 weeks then the number of FT and FTE employees may be calculated as:

$30 \text{ part-time} \times 25 \text{ hours} \times 4 \text{ weeks} = 3000 \text{ hours for the month}$

$3000 \text{ hours} / 120 \text{ hours in the month} = 25 \text{ FTEs}$

$25 \text{ FT} + 25 \text{ FTE} = 50 \text{ total FT and FTE employees}$

Repeat this calculation for each of the 12 months in the preceding year, add total FTs and FTEs for all 12 months and then divide by 12 to get the average number of FTs and FTEs per month in the prior year.

Now, an employer is not considered to exceed 50 FT employees if the excess is due to seasonal employees working for 120 days or less during the calendar year. Here is an example of how we may calculate the number of FT employees when some of them are seasonal workers. Suppose an employer has 40 FT employees from January through December, and 80 FT seasonal employees from October through December.

$40 \text{ FT employees} \times 9 \text{ months (January-September)} = 360$

$(80 + 40) \text{ FT employees} \times 3 \text{ months (October - December)} = 360$

$(360 + 360 = 720) / 12 = 60 \text{ FT employees on average per month}$

Thus, this employer exceeded 50 employees for 3 months only when seasonal workers were employed. This employer is not a 'large employer'.

Definitions of ongoing and new hires are also

important. To calculate FT status of all employees, an employer must choose a standard measurement period from 3 to 12 consecutive calendar months, and the specific months to be used. An ongoing employee is employed during the standard measurement period. A new employee is not employed during the entire standard measurement period. If at the start date of employment it is not determined whether a newly hired employee will work at least 30 hours per week, the employee is considered to be a new 'variable hour' or seasonal employee.

Employer-sponsored plans are required to offer minimum essential coverage that satisfies the individual mandate of minimum value and affordability. The health plan is considered to provide 'minimum value' if it covers at least 60% of the total allowed cost of benefits provided under the plan in a standard population. If an employee's premium contribution for self-only coverage for the lowest cost plan exceeds 9.5% of the employee's W-2 income for the taxable year then the plan is not 'affordable'.

What are the implications of the Employer Mandate? Primarily there are two aspects under consideration. First, how will it affect employers' behavior in terms of deciding how many workers to hire, when to hire, how many hours they will work, and whether to provide coverage or pay penalty. Second, what will be the social benefits of expanded health coverage – will there be increase in the use of primary and preventive care which could in turn improve population health outcomes, and will health care costs and insurance premiums be affected in the long-run? Proponents of the Employer Mandate claim that expanding employer-based health insurance through mandates would pool risk, lower administrative costs of group coverage, and provide standardized benefits packag-

es to workers irrespective of whether they belong to small or large firms. Opponents of the Employer Mandate argue that it would lead to job losses, reduction in workers' hours, and disproportionately affect small businesses and low-wage workers. These are indeed grave concerns. To answer these questions a team of Extension Economists from the School of Economic Sciences, WSU, are initiating a project this summer to collect survey data from employers and employees in agricultural businesses. We have identified three parts of the agricultural economy in Washington that are likely to be significantly, and uniquely, affected by the ACA – (1) farm operations that specialize in fruit production that rely on a large number of seasonal workers; (2) food packing and processing industries which are a vital part of the supply chain for fruit and vegetables, and account for a large portion of the value added in the state food sector; and (3) agricultural support industries that account for most of the permanent employment in the agricultural economy, and tend to be small to medium sized operations that may be around the 50 employee line that designates which businesses must provide coverage or face a penalty. We will document workforce structure and health coverage among agricultural workers in Washington across different firm sizes and types. We will also document demand for medical care among agricultural workers. Preliminary results are expected in the middle of next year.

***Bidisha Mandal is an Associate Professor and Health Extension Economist in the School of Economic Sciences. Her program focuses on evaluating key public health issues.***

***Michael Brady is an Assistant Professor and Extension Economist in the School of Economic Sciences. His extension and research focus on specialty crops, water, and land use.***

# DO YOU HAVE LOUSY ANIMALS?

Dr. Susan Kerr, WSU NW Regional Livestock and Dairy Extension Specialist  
 Holly Ferguson, WSU-Prosser Extension IPM Coordinator Specialist

In the colder, darker, damper time of year, livestock are frequently re-visited by a pest from the past: lice. An annual problem, lice can affect animal health and farm profitability. Here is a

primer on this parasite.

## Species Specificity

Lice are generally quite species specific (Table

**Table 1.** Animal hosts and their lice species

Animal host	Biting lice		Sucking lice	
	Species	Location	Species	Location
Cattle	cattle biting louse	head, ears, neck, topline, brisket	longnosed cattle louse	head, ears, neck, topline, brisket
			little blue cattle louse	
			shortnosed cattle louse	
Goats	goat biting lice (3 species)	base of tail, between legs, head, neck, topline	goat sucking lice	neck, underline, udder
Equines	horse biting louse	at roots of forelock and mane, base of tail, hairs above hoof	horse sucking louse	side of neck, flanks, base of tail
Sheep	sheep biting louse	all over body	sheep foot louse	on foot
			face and body louse	hairy parts of skin
			African blue louse	on flanks
Swine			hog louse	in or behind ears, in neck folds, inside legs, inner flanks, under scurf of skin

1). This means poultry lice won't spread to cattle or people and vice versa. Sheep and goats can share some lice species, however. The table lists primary locations of particular lice on their host, but keep in mind that when lice numbers are very high, they may be found anywhere on the body.

### Life Cycle

The entire life cycle of most lice species takes about a month and occurs on the host. Adults and nymphs that fall off the host do not survive beyond a few days. Adults feed for about a month, then lay eggs ("nits") and die. Nits are attached tightly to hair shafts. Eggs hatch in one to three weeks and the resultant nymphs metamorphose into adults. Adult biting lice and nymphs eat dead skin cells, hair and other debris found on skin; adult sucking lice and nymphs penetrate skin and consume blood.

### Signs of Infestation

Most experienced livestock owners are well acquainted with the signs of lice infestation: rough coat, hair loss, scratching, irritated skin, secondary skin wounds and infections, weight loss and general restlessness. Occasionally, afflicted animals develop problematic hairballs from licking themselves excessively and ingesting hair. Heavy infestations of sucking lice can result in clinical anemia and even death, especially in young animals. Lice can sometimes transmit disease-causing agents, such as rickettsia. They can also debilitate animals enough to predispose them to secondary problems such as pneumonia.

### Transmission

If lice don't live off the host very well and they aren't a problem in summer, why are they a problem every winter? Some "carrier" animals

may harbor small populations of lice year-round. When it gets to be a louse's favorite time of year (dark, cold and damp), animals are usually in close contact to stay warm, making it easy for lice to move between animals. Carriers give managers another reason to closely inspect any new animals brought into a herd; consider lice treatment as something to add to your quarantine procedure.

### Diagnosis

Examine livestock for lice regularly starting in early fall. To find the more common but less pathogenic biting lice, part the animal's hair on its neck and back and look for very small

**Figure 1.** Approximate actual size of an adult



**Figure 2.** Goat sucking lice seen with a macro function on a digital camera



moving grayish or brownish insects. The dash in Figure 1 is about the same size as an actual louse; it is very small (~2-3 mm) but still visible to the naked eye. A magnifying glass or zoom lens (macro function) on a digital camera (Figure 2) makes diagnosis even easier. Sucking lice are generally larger and darker than biting lice. Depending on the host and lice species, they may also be found on an animal's muzzle, feet, legs, udder and groin areas. When in doubt, use sticky tape to capture a

specimen and take it to your veterinarian for identification.

## **Treatment and Control**

There are two important things to keep in mind regarding treatment:

1. All livestock on an affected premise should be treated at the same time.
2. Most de-lousing treatments do not kill lice eggs.

Lice treatments come in many forms including sprays, pour-ons, dust bags, back rubbers, drenches, dipping vats and even injections for some lice species. Treatment recommendations for various livestock hosts are available at the livestock section of the Pacific Northwest Insect Management Handbook, <http://pnwhandbooks.org/insect/livestock>. Your veterinarian may recommend extra-label use of other medications if a valid veterinary-client-patient relationship exists and proper record keeping is conducted. For all products, be sure to follow label instructions.

Theoretically, treating all livestock at the same time and re-treating two to three weeks later and moving to a clean environment should break the lice cycle. However, an infestation can persist if dusting powder is used and lice on an animal's underbelly escape treatment or if nits on shed hair are transported to a new site via clothing, wind, equipment etc.

An early or mid-winter series of two treatments should be conducted when routine monitoring reveals three or more lice per square inch of skin. Lice populations will naturally decline when environmental temperatures are consistently over 60°F. Excellent nutritional programs have been shown to make livestock more resilient to lice infestations.

Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

## **For more information**

<http://wiki.bugwood.org/uploads/CattleLice-Cattle.pdf>

[www.goatbiology.com/lice.html](http://www.goatbiology.com/lice.html)

[http://ipm.ncsu.edu/AG369/notes/hog\\_louse.html](http://ipm.ncsu.edu/AG369/notes/hog_louse.html)

# WATER QUALITY AND AGRICULTURE IN NORTHWEST WASHINGTON

Mark "Mak" Kaufman, Washington Department of Ecology, Water Quality Program

Andrea Hood, Washington Department of Health, Office of Shellfish and Water Protection

In Washington, the Department of Ecology (Ecology) is the agency responsible for enforcing the state's Water Pollution Control law (RCW 90.48). The act makes it unlawful to pollute water. In Whatcom County's agricultural setting, Ecology may interact with farmers related to concerns about sediment and bacteria water pollution.

For sediment pollution, state water quality standards establish maximum turbidity criteria for different aquatic life use categories (WAC 173.201A.200(1)(e)). Turbidity indirectly measures the amount of sediment suspended in a water body. For bacteria pollution, state standards set criteria to protect human health based on water contact recreation categories (WAC 173.201A.200(2)(b)).

## **Sediment and manure discharges in the agricultural setting**

While people in Whatcom County value clean water, many are unaware of problems they may contribute to by allowing sediment and/or manure-laden discharge into ditches and streams. Allowing polluted runoff into state waters is illegal. Sediment is harmful to juvenile salmon and other aquatic organisms. When rain events wash field soils into surface water, pollutants previously attached to soil particles are released into the water. Bacteria associated with fecal pollution are a human health risk.

### V-ditching

"V"-ditching done without the benefit of establishing soil-stabilizing vegetative cov-

er in the ditch can be a significant source of sediment pollution. Establishing vegetative cover in the ditch during the fall when the ditch is dug can prevent the discharge of sediments into waterways throughout the rainy winter months.

### Field conversions

In Whatcom County, high demand for blueberries, raspberries and other crops such as potatoes has led to conversion of some dairies to crop fields. Grass fields are plowed, which may leave disturbed, unstabilized soils adjacent to streams or ditches. The practice of removing vegetative cover in the fall and leaving bare soil can lead to sediment runoff, as there may not be enough time to establish erosion control measures before the winter rains start. Stabilizing plowed fields with a cover crop reduces the opportunity for disturbed soils to mix with stormwater and pollute receiving water with sediment-laden runoff.



During field conversions, an additional pollution prevention practice is to leave an undisturbed grass filter strip adjacent to all surface water. The filter strip reduces the risk of pollutants reaching surface water during rain events that happen while the cover crop is becoming established. Filter strips are especially important if manure is used as a soil fertilizer.

### Bacteria pollution

Manure-contaminated runoff can be a source of bacteria pollution and a threat to people's health. Bacteria pollution to water can occur because of inadequate buffers between waterways and manure applications, grazed pastures, livestock confinement areas, or manure storage areas. Distance of manure application to surface water, existence and condition of vegetated buffer or filter strip, timing and amount of manure application, soil type, slope, and other pollution risk factors should be taken into account when applying manure to any field.

### **Best management practices can prevent pollution**

When responding to a complaint concerning sediment or manure-laden runoff into waterways, an Ecology inspector will offer technical assistance to the landowner. Ecology's short-term goals are to quickly halt the discharge and stabilize disturbed soils. Ecology often recommends that a landowner work with a technical service provider, such as a local conservation district or private consultant, to ensure implementation of best management practices (BMPs) that prevent future discharges of pollutant-laden water.

Farms that operate under management plans developed in cooperation with conservation districts or WSU Extension generally reduce the



chance of sediment or manure discharge problems. Farms that implement and maintain all of the BMPs recommended by these management plans can reduce the risk of polluting and support community goals of clean, safe water.

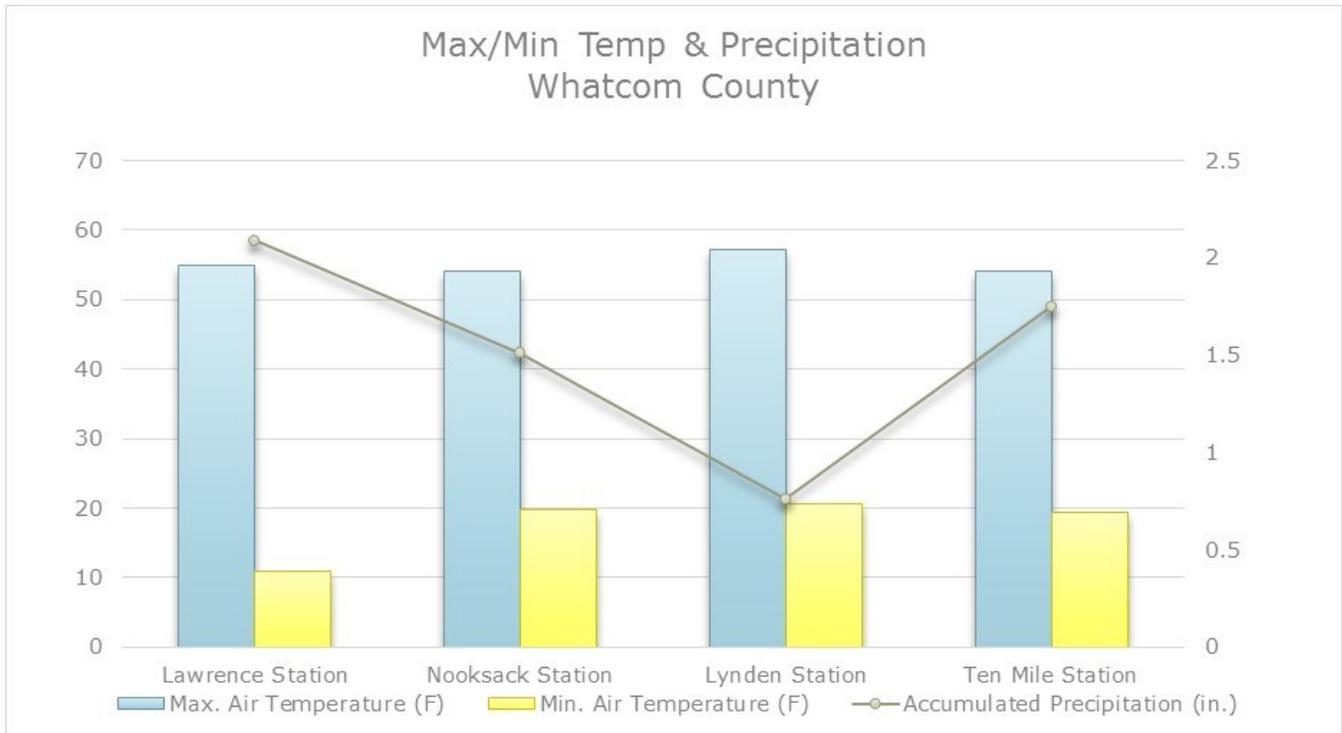
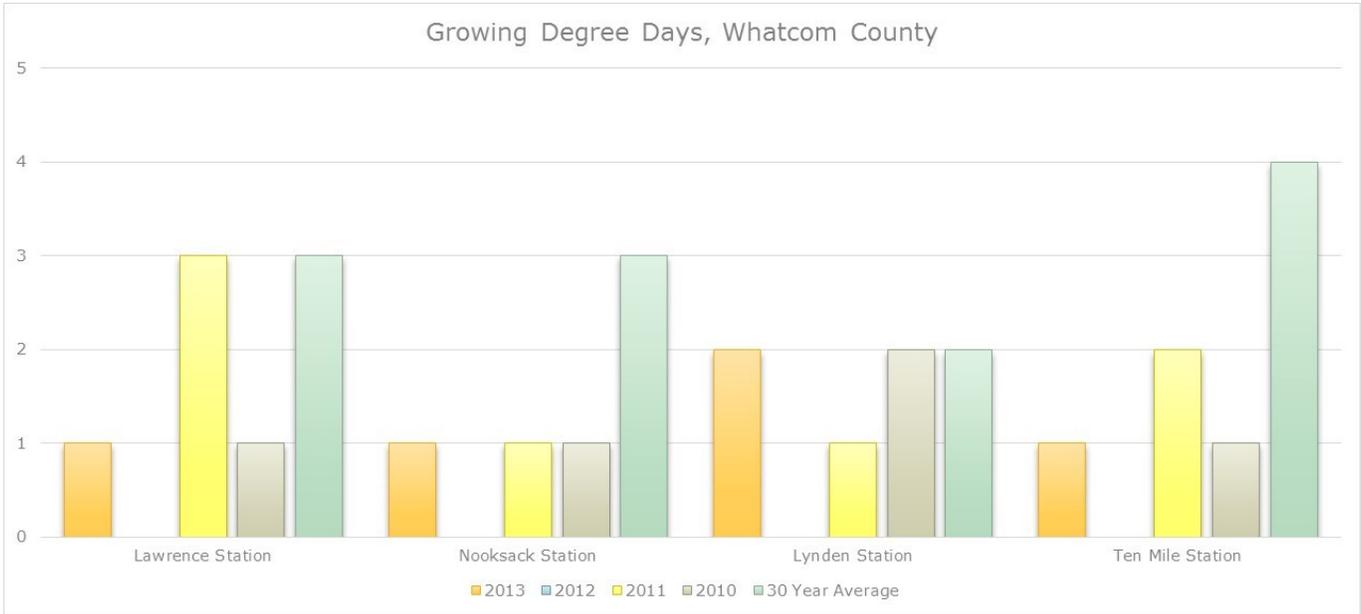
### **Department of Ecology is a source of information**

The Water Pollution Control Law also requires landowners and operators to implement "all known and reasonable technologies" (referred to as AKART) to prevent and control pollution. Ecology can require implementation of agricultural BMPs that meet AKART to prevent discharge of sediment and/or manure contaminated runoff. However, Ecology's policy is to provide technical assistance to prevent water pollution and to aid the farm community in cooperatively meeting compliance requirements.

Please contact Ecology's Bellingham Field Office (360) 715-5200 for more information about stabilizing your farm fields and keeping pollutants out of surface waters.

# WEATHER UPDATE

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](#).



**Chris Benedict**

Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 21

**Colleen Burrows**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 22

**Jessica Shaw**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 23

**Vincent Alvarez**

Designer

WSU Whatcom County  
Extension  
(360) 676-6736

**Cover Image:****Overwintering kale****Web site:**

[whatcom.wsu.edu/ag](http://whatcom.wsu.edu/ag)

*WSU Extension programs and employment are available to all without discrimination.*

*Evidence of noncompliance may be reported through your local WSU Extension office.*

*The views expressed are not necessarily those of Washington State University*

# Upcoming Events

**February****Forum on Cover Crops and Soil Health****Feb 18****10:00 am****WSU Extension, Bellingham**

You are invited to attend a free, live broadcast of the February 18<sup>th</sup> SARE-sponsored *National Conference on Cover Crops and Soil Health*. Join the conversation at one of nearly 200 *Cover Crops and Soil Health Forums* to be hosted nationwide by the Natural Resource Conservation Service (NRCS) and Cooperative Extension offices.

[Register Here](#)

**USDA/WSDA Specialty Crop Education Listening Session****Thursday Feb 20****9:30 am - 11:00 am****WSU NWREC Mt. Vernon**

As Federal farm policy continues to rely more on crop insurance, it is imperative to make sure our state's specialty crop industry's safety net needs are considered. USDA's Farm Service Agency, Risk Management Agency and the Washington State Department of Agriculture have joined together to reach out to specialty crop farmers in order to assess these needs and improve crop insurance and related programs for specialty crop farmers.

**Food Safety and Labor Berry Workshops****Feb 25 - Mt. Vernon, WA****Feb 26 - Lynden, WA****March 5 - Prosser, WA****March 6 - Vancouver, WA****9:30 am - 4:00 pm**

These workshops will discuss proposed food safety laws, food safety plans, how to survive a food safety audit, and issues around labor laws.

**Creating Business Opportunities for Rural Farms****Tuesday Feb 25****8:45 am - 4:00 pm**

Learn from Jan Tusick how a USDA designated Rural Cooperative Development Center greatly enhanced a regional food system through cooperative development and providing technical assistance for value-added product development.

**Food Ingredient Short Course****Wednesday Feb 26****7:30 am - 5:45 pm****Seattle, WA**

This is an introductory course on Food Ingredient Technology. The short course provides an overview of major food ingredients that are used in processed foods. It provides an overview of the various functionalities of the ingredients and how they are used in making foods with qualities that are desired by consumers.

**March****Western WA Fruit Research Foundation Winter Field Day****Saturday March 1****8:30 am—3:30 pm****WSU Mt. Vernon, WA**

**Chris Benedict**

Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 21

**Colleen Burrows**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 22

**Jessica Shaw**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 23

**Vincent Alvarez**

Designer

WSU Whatcom County  
Extension  
(360) 676-6736

**Cover Image:****Overwintering kale****Web site:**

[whatcom.wsu.edu/ag](http://whatcom.wsu.edu/ag)

*WSU Extension programs and employment are available to all without discrimination.*

*Evidence of noncompliance may be reported through your local WSU Extension office.*

*The views expressed are not necessarily those of Washington State University*

# Upcoming Events

WWFRF holds its annual Winter Field Day on Saturday, March 4, 2014. Rootstock and scion wood sales, workshops on pruning and grafting<sup>1</sup>, and fruit garden demonstrations on pruning.

## [Hands-On High Tunnel Construction Workshop](#)

**Saturday March 1  
9:00 am - 3:00 pm  
Arlington, WA**

The market for fresh vegetables doesn't stop when outside production becomes impossible. Puget Sound consumers still want fresh salad greens, tomatoes, cucumbers, and much more. Season-extension through the use of high tunnels is one way farmers can increase not only their repertoire of produce and times of availability, but also its overall quality. Building an inexpensive high tunnel for three-season production can be a daunting task the first time, especially if your first tunnel is used. The basics of how to prepare and square the layout, build and secure the structure are best learned from farmers that have been through the process many times.

## [Ties to the Land: Farm & Forest Succession Planning Workshop](#)

**March 6 & 13  
5:00 pm - 9:00 pm  
WSU Snohomish County  
Extension  
Everett, WA**

Do you own or care for farm or forest land? Many small landowners want to

preserve their family lands and businesses, but don't know how to involve a next generation in ownership and operation. Succession Planning--the human side of Estate Planning--focuses on ways to maintain family ties to the land from generation to generation, building awareness of key challenges of family businesses and motivating families to address those challenges.

## [Pasture Poultry Production](#)

**March 24  
9:00 am - 1:30 pm  
WSU Whatcom County Extension  
Bellingham, WA**

This workshop is for both current producers considering scaling up their production and those investigating entrance into this promising sector of the poultry industry. Workshop presenters will discuss how to safely, profitably, and legally raise meat birds. Learn about the pros and cons associated with raising meat birds and how to effectively evaluate the enterprise before getting started. Topics include breeds, chick sourcing and creating an on-farm hatchery, husbandry tips for commercial pastured poultry production, building a healthy pasture forage system, poultry nutrition overview, risk management, and requirements for on-farm WSDA processing.