

DECEMBER 15, 2014 • VOLUME 3, ISSUE 12

Whatcom *Ag* Monthly

Bringing Scientific Information to the Farming Community

IN THIS ISSUE:

TOWN HALL MEETING ON AVIAN INFLUENZA

WASHINGTON SMALL FRUIT CONFERENCE

BROWN MARMORATED STINK BUG

DRYING-OFF LACTATING LIVESTOCK



Washington
State Department of
Agriculture

PO Box 42560
Olympia, Washington 98504-2560
Visit our Web site at: agr.wa.gov
[Subscribe to WSDA News Release](#)

For Immediate Release

Contact: [Hector Castro](#) (360) 902-1815

WSDA to hold town hall meeting in Lynden on avian influenza

OLYMPIA – The [Washington State Department of Agriculture](#) (WSDA) will hold a town hall meeting this Thursday to discuss avian influenza and steps poultry owners should be taking to protect their birds following confirmation of the disease among wild fowl in our state.

The [U.S. Department of Agriculture](#) (USDA) today confirmed the presence of highly pathogenic avian influenza (HPAI) in wild birds in Whatcom County. Two separate virus strains were identified: HPAI H5N2 in a northern pintail duck and HPAI H5N8 in a captive gyrfalcon that was fed hunter-killed wild birds. There have been no reports of avian influenza in Washington's domestic poultry population, though the disease can be deadly to poultry and other birds.

Humans are rarely affected by avian influenza and there has never been a reported instance of a person becoming ill from an infected bird in the United States, although some cases have occurred in foreign countries where people have come in close contact with infected birds.

"There are many strains of avian influenza and it is not uncommon for wild waterfowl to carry the virus," said Dr. Joe Baker, Washington state veterinarian. "This is why it is critical for poultry owners to take steps to protect their birds from wild fowl."

The WSDA town hall meeting will be at 6 p.m. Dec. 18 in the Mt. Baker Rotary Building at the Northwest Washington Fairgrounds in Lynden. It is open to the public and WSDA would particularly encourage poultry producers or owners of backyard flocks to attend.

The finding in Whatcom County was quickly reported and identified due to increased surveillance for avian influenza in light of the avian influenza affecting commercial poultry in British Columbia. Swab samples from the captive gyrfalcon were sent to the Washington State University Avian Health & Food Safety Laboratory in Puyallup and confirmed positive over the weekend through the USDA's National Veterinary Services Laboratory in Iowa.

The virus can be spread by direct contact with infected birds, contaminated equipment, and through airborne transmission over short distances. The virus is found in feces, saliva, and respiratory secretions of birds carrying the disease.

Washington state officials and the USDA are working jointly to do additional surveillance and testing of birds in the nearby Whatcom County area.

Birds affected by avian influenza can show a variety of symptoms, including:

- decreased appetite
- coughing and sneezing
- lowered egg production
- greenish diarrhea
- excessive thirst
- swollen wattles and combs

Persons seeing sickness in domestic birds are asked to contact the WSDA Avian Health Program at 1-800-606-3056. Sick and dead wild birds should be reported to the Washington Department of Fish and Wildlife at 1-800-606-8768. If you are concerned about sickness in you or your family, please contact Washington State Department of Health at 1-800-525-0127.

###

Follow WSDA on [Facebook](#), [Twitter](#) and [YouTube](#)

2014 WASHINGTON SMALL FRUIT CONFERENCE

The 2014 WA Small Fruit Conference was attended by over 400 people and offered a diverse set of educational opportunities and vendors from all over the region. Recordings from the sessions will become available shortly on the WSU Whatcom County Extension website found here:

<http://whatcom.wsu.edu/ag/edu/sfc/>



BROWN MARMORATED STINK BUG IN THE PACIFIC NORTHWEST

Nik Wiman

Assistant Professor, Sr. Res., Department of Horticulture, Oregon State University

The Pacific Northwest is home to more than 50 species of stink bugs, and some of them are considered to be periodic crop pests. Other species, such as the spined soldier bug, *Podisus maculiventris*, are beneficial predators that contribute to biological control of pests. Brown marmorated stink bug (BMSB), *Halyomorpha halys*, is an invasive stink bug from Asia that is making a big splash in the Pacific Northwest (Figure 1). This is a highly invasive insect that has made its way to 42 states after becoming established in Pennsylvania in the mid 1990s. In the destructive potential of this pest began to unfold in the Mid-Atlantic region of the US in 2010. That year, BMSB began to cause millions of dollars in damages to tree fruit crops and disrupted integrated pest management (IPM) programs. BMSB is now a major pest in tree fruits, vegetables, small fruits, and grain crops in the Mid-Atlantic Region. It is also a major nuisance pest in urban environments where it attacks gardens, fruit trees, ornamentals, and uses homes and other structures as sites for overwintering aggregations. This is a potential problem that concerns citizens and homeowners, land managers, and agricultural producers alike. That is because this insect has negative implications in all of these environments, and can easily move between different habitats.

The first sign of trouble in the Pacific Northwest was the collection of BMSB in a beetle trap from Portland in 2004 by Oregon Department of Agriculture. By 2010, there had been many reports of BMSB from homeowners, but it was not known outside of Portland and Salem. BMSB disperses rapidly by assisted means and under its own power. Bugs can easily hitch-hike on vehicles, in freight, and even in luggage. Adult BMSB are also excellent fliers, and are capable of covering impressive distances in short periods of time. As a



Figure 1. BMSB adult.

result, BMSB is now established in every Oregon County along the I-5 corridor, and most counties along the I-84 corridor. In Washington, the BMSB infestation began in Vancouver and it has expanded to the North and East. BMSB is now considered to be established many of the counties along the Oregon border. There have also been finds in Yakima, Chelan, Pierce, and most recently King Counties (Figure 2). Agricultural issues are currently confined to the northern Willamette Valley in Oregon, and the Vancouver area in Washington. At the current rate of invasion, BMSB will soon be ubiquitous in the PNW landscape, and agricultural problems are expected to increase in intensity and range.

For homeowners, the problems typically start

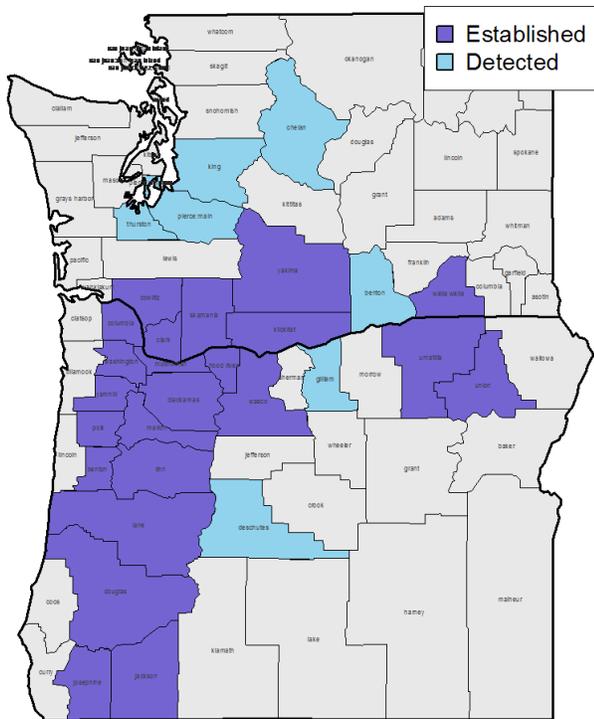


Figure 2. Current distribution of BMSB in the PNW.

when a few BMSB are noticed on the outside of the home on a warm fall day. Often, the home has a history of box elder bug infestation. This behavior indicates that the BMSB are looking for a place to overwinter, which they tend to do in aggregations. They commonly use structures, finding cracks around windows, or under siding where they will wedge themselves until spring.

Sometimes, they work their way to the interior of the house, where they might warm up and become active, flying around the interior of the house, driving pets and humans crazy. In spring, they disperse to host plants to feed, mate, and lay eggs. The bugs tend to come to the same houses, and even the same walls annually in the fall. They can become noticeable on ornamental

and food plants in the landscape. When populations get high it becomes difficult to successfully grow fruits or vegetables in the backyard. For many homeowners in the Greater Portland Area, this is the new reality. Unfortunately, urban infestation could result in an increase in insecticide use in these areas.

BMSB can be considered a distant cousin to insects such as aphids and leafhoppers, and it uses a similar mechanism for feeding. The mouthparts are the piercing-sucking type, and are comprised of straw-like tubes called stylets. The bug will feed on vegetative plant structures such as leaves and stems (even through bark), and it targets reproductive structures such as fruits, seeds, pods, and nuts. Diverse feeding strategies allow the BMSB to feed from a wide range of host plants, with over 170 known hosts in the U.S. The stylets can penetrate materials as hard as the shells of hazelnuts, and they can reach impressive depths in the food. When feeding occurs on developing fruits, the healthy cells can continue to develop around the damaged tissues, resulting in damage referred to as "cat facing". Depending on the food type, the feeding insect may salivate into the food before ingesting the resulting slurry. This may leave a characteristic sub-surface damage called "corking". Damage to fruits tends to worsen in time, possibly because the feeding damage creates an opportunity for



Figure 3. Damage on raspberry and blueberry.

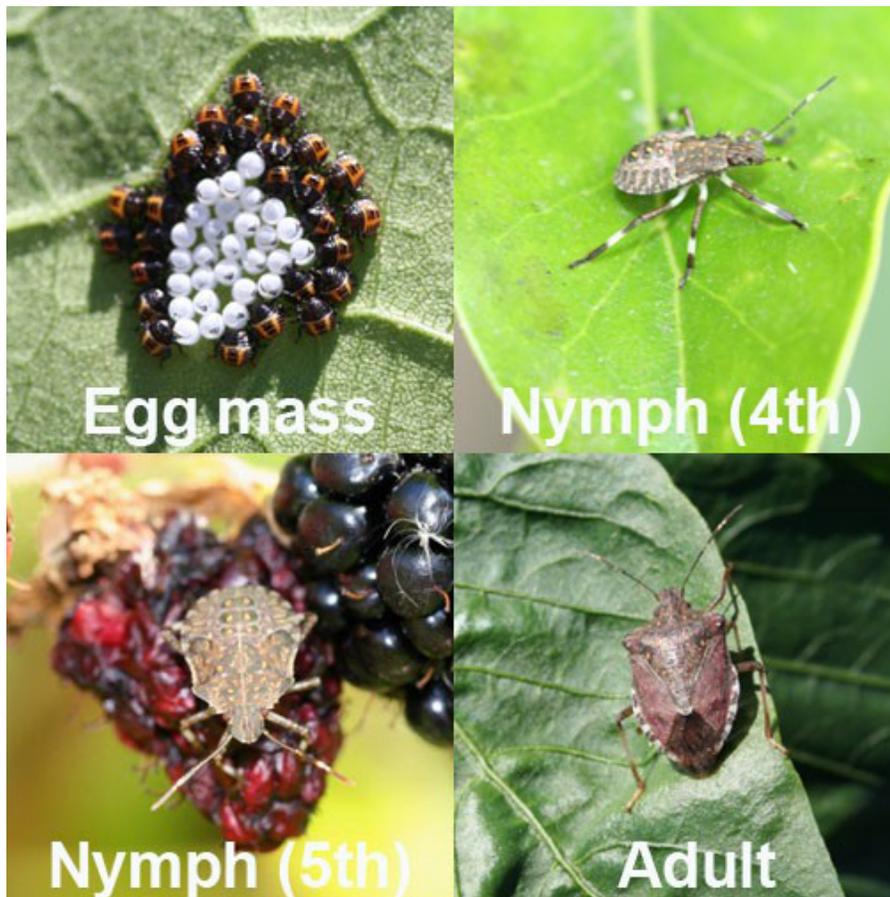


Figure 4. BMSB life stages.

secondary infection and decay.

The potential for BMSB to damage cultivated fruits crops is one of the biggest concerns for the Pacific Northwest, which is a large producer of both tree and small fruits. As we are anticipating impacts to small fruit crops in the Willamette Valley, our research has focused on characterizing the potential severity of impacts on small fruits, and damage symptoms using controlled damage studies. These studies indicate that BMSB feeding on blueberries and blackberries can cause an increase in necrotic berries and may affect other aspects of fruit quality (Figure 3). Besides direct crop damage, one of the most important ways that BMSB may affect small fruit production is by contaminating and tainting the crop. The bugs cling to vegetation and fruits, and cannot fly to escape approaching danger until they are fully mature. All life stages except for the first instar nymphs produce defensive

compounds that are released when the insect is disturbed or threatened. The reason this can be a problem in small fruits in particular is due to the increasing dependence on mechanical harvest. Mechanical harvest has many advantages, but its speed and the disturbance to the crop may result in greater risk of contamination with BMSB and potential for taint by causing stink bugs to release their defensive compounds. Preliminary research has shown that these volatile compounds can bind to fresh market blackberries and impart a highly-detectable foul odor and flavor.

The eggs of BMSB are most commonly laid in clusters of 28 on the undersides of leaves. After a few days to a week of development the nymphs emerge and encircle the egg mass to take their first meal, which comes from the egg mass itself (Figure 4). There are four subsequent immature stages, before the winged adult form is reached. The immature stages are thought to be responsible for a lot of the damage that is caused by BMSB. They can be difficult to see, and for the unfamiliar, they may not be recognized as BMSB. The immature form can have different coloration and can appear spiny, whereas adults are typically a mottled gray color on the back. The underside of the adult may be a dullish gray or cream color, but can at times be very bright yellow to orange. On all life stages the identification can be made by examining the antennae for a white band on the otherwise charcoal-colored antenna. In Oregon, and most likely in Washington, the BMSB is capable of completing two generations per season. The overwintered adults emerge in spring to mate and lay eggs, and those eggs develop into summer adults, which can mate and lay eggs that will

development the nymphs emerge and encircle the egg mass to take their first meal, which comes from the egg mass itself (Figure 4). There are four subsequent immature stages, before the winged adult form is reached. The immature stages are thought to be responsible for a lot of the damage that is caused by BMSB. They can be difficult to see, and for the unfamiliar, they may not be recognized as BMSB. The immature form can have different coloration and can appear spiny, whereas adults are typically a mottled gray color on the back. The underside of the adult may be a dullish gray or cream color, but can at times be very bright yellow to orange. On all life stages the identification can be made by examining the antennae for a white band on the otherwise charcoal-colored antenna. In Oregon, and most likely in Washington, the BMSB is capable of completing two generations per season. The overwintered adults emerge in spring to mate and lay eggs, and those eggs develop into summer adults, which can mate and lay eggs that will

have enough time to develop to the adult stage by the onset of winter.

If you encounter a suspected BMSB, particularly if the location is from outside of its known range, please try to collect a specimen or photo for remittance to your WSU Extension Specialist. Currently OSU, WSU and a large contingent USDA-ARS and land grant institutions from the east coast are working together to try to find solutions for management of BMSB. The project is funded by USDA-NIFA-SCRI and is led by Tracy Leskey at the USDA-ARS Appalachian Fruit Research Station in Kearneysville WV. An upcoming SCRI project has greater focus on the potential impacts of BMSB on the west coast. We are currently soliciting stakeholder input from growers to steer research priorities for this pest. To get involved in this project or for more information please contact: Nik.Wiman@oregonstate.edu.

Resources:

StopBMSB.org is hosted by the Northeast IPM center and has the greatest concentration of BMSB information and resources on the web.
<http://StopBMSB.org>

WSU BMSB Pest watch has some good photos for diagnosing BMSB and its damage.
<http://cru.cahe.wsu.edu/CEPublications/FS079E/FS079E.pdf>

DRYING-OFF LACTATING LIVESTOCK

Dr. Susan Kerr, WSU Regional Livestock and Dairy Extension Specialist
Washington State University (WSU), Mount Vernon Research and Extension Center

For optimal animal health and best performance in the next lactation, lactating animals should have an opportunity to rest and regenerate mammary tissue between lactations. High producers also need a dry (non-lactating) period to recoup body condition in preparation for the next birthing and lactation.

This article will describe drying-off best practices that are scientifically based. Experienced livestock producers often successfully use methods that depart greatly from the practices described here. Regardless, best practices are best practices for a reason and the consequences of improper dry off procedures can be serious and even fatal.

Natural Weaning

Beef cattle, meat goats, sheep, and horses generally wean their offspring naturally by about six to eight months. At that time, the youngster has a mature digestive tract with all its proper microbes, is consuming the diet of a mature animal, and is gaining weight well. The little nursing the animal does at that point is accompanied by teeth, so the dam is highly motivated to discourage nursing and wean the offspring. If necessary, young animals consuming a growing ration and gaining well can be separated from their mothers and weaned abruptly as described below. Weaning at about six months generally enables dams to regain the body condition needed to support the subsequent pregnancy and lactation.

Drying Off Dairy Animals

Due to the amount of milk they produce,

the drying-off process is often more complicated for dairy animals (cattle, goats, and some sheep). Preparation for dry off should begin at least two weeks prior to the dry-off date with a significant change in the animal's diet. Slowly reducing the energy content of the diet and feeding primarily a high-fiber diet will reduce the nutrients available for the animal to make milk; this is often all that is

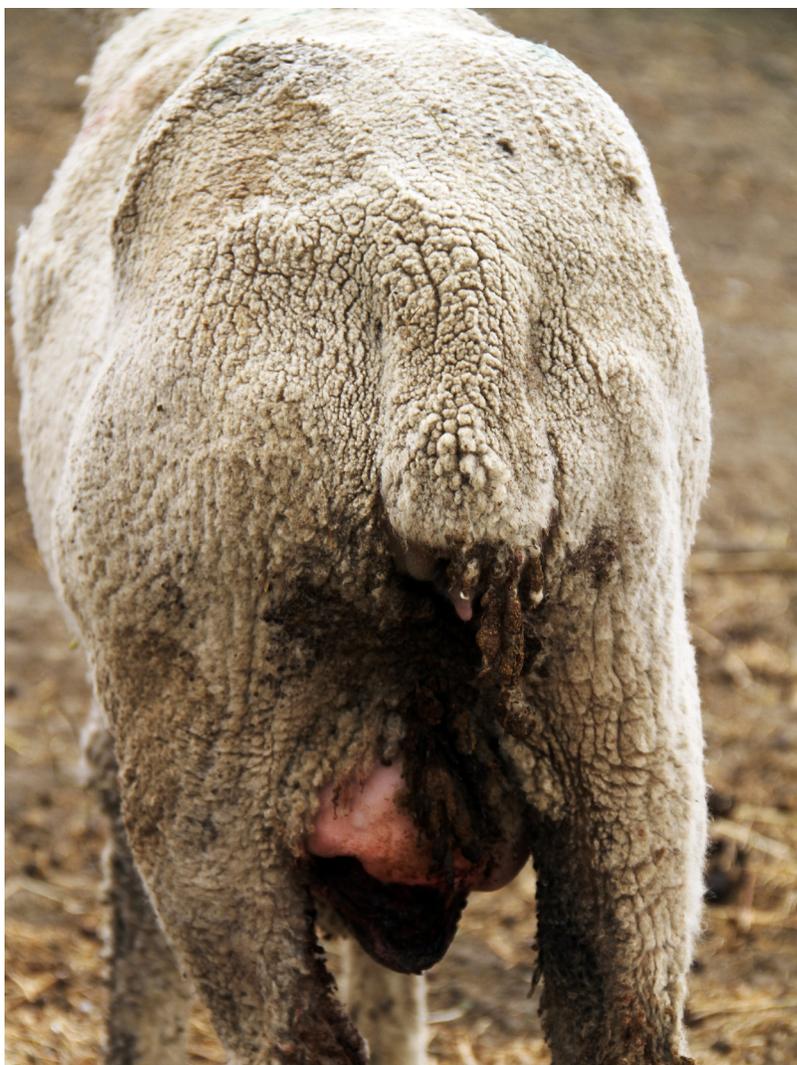


Photo 1. Severe mastitis in a sheep. Note discolored and misshapen udder. Courtesy of Susan Schoenian, University of Maryland Extension Small Ruminant Specialist.

needed to reduce milk production to a level that makes dry off safe and simple. Eliminating grain and switching from alfalfa to grass hay is often effective. However, it may be difficult to cease production in high-producing animals, and these individuals may need to be fed a very low calorie diet such as straw and water. This diet should not need to be fed longer than two weeks, after which animals can gradually be changed over to a traditional balanced maintenance or gestation diet.

Do Not Limit Feed or Water

Some dry-off protocols recommend limiting the feed of animals being dried off. Experienced livestock managers know that hungry animals often manifest undesirable behaviors such as chewing things they should not, going through fences in search of food, eating toxic plants, and fighting over food. Full feedings of high fiber, low energy diets will keep animals physically full while reducing their nutrient intake. This approach will work on dairy animals and those nursing offspring to be weaned.

Although it is a frequent recommendation in some dry-off protocols, water should never be withheld during the dry-off process. Water is the most critical nutrient and providing a constant source of clean water is a basic aspect of animal welfare and husbandry. Reduce the amount of milk produced by decreasing the nutritional content of the diet as described above.

Abrupt Dry Off Is Best

After animals have been on a high fiber, low energy diet for about two weeks, their udder should be assessed for level of continued milk production and mammary health. If all seems well, abrupt dry off should be implemented. This means the animal is milked (by a human or its offspring) a final time, then not again until the next birth and lactation. Some livestock managers will milk once a day for a while, then every-other-day, then stop milking altogether, but this interferes with the major factor responsible for the cessation of milk production: back pressure. When milk accumulates in the ud-

der, it exerts pressure on the milk-producing cells in the mammary tissue, causing them to reduce milk production (this is why animals milked every 8 hours produce more milk than those milked every 12 hours—there is less back pressure on milk-producing cells). If the pressure persists, the cells will eventually cease milk production altogether, which is exactly the goal of the drying-off process. Dry off is generally non-problematic when cows are producing less than 20#/day and goats are producing less than 3#/day.

Mastitis Treatment and Monitoring

In dairy cattle and any animal with a history of mastitis, it is a best practice to milk the animal completely out, carefully sanitize the teat end with alcohol, aseptically infuse all teats with a commercial dry cow antibiotic treatment, and apply a commercial teat dip and/or sealant. The antibiotic treatment is left in the udder for residual treatment during the dry period, helping to clear up any lingering mastitis and helping to prevent new cases from getting established; this is the best chance to clear up some cases of contagious mastitis such as *Staphylococcus aureus* and *Streptococcus agalactiae* but success is often limited with these two problematic pathogens. Follow all label instructions regarding meat and milk withholding after treatment. Dry treatment is only labeled for use in cattle, so use in other species must follow the recommendations of a licensed veterinarian and abide by all other aspects of the FDA's extra-label drug use guidelines; see "Food Animal Medications: How to Stay Within the Law" in *Whatcom Ag Monthly*, Volume 3, pp. 11-13 for more details.

Animals in the process of being dried off must be monitored closely for mastitis. Signs of mastitis can include heat, pain, redness, and swelling of the affected gland; abnormal milk (clumps, blood, watery discharge, abnormal smell, and/or gas); illness (fever, poor appetite, depression); and cold, bluish skin in the case of gangrenous mastitis (Photo 1). Contact your veterinarian if you suspect an animal has mastitis. A clean environment with excellent mud and manure management will help lower the

incidence of mastitis contracted during the dry period.

Many beef, goat, and sheep producer and some dairy cattle producers opt not to treat animals with intramammary antibiotics at dry-off time, or only treat those with a known history of mastitis. In these cases, environmental cleanliness and close monitoring are of utmost importance.

Length of Dry Period

Animals should be dry for 45 to 60 days. This is sufficient time to rest and regenerate mammary tissue. If animals have prolonged dry periods, they run the risk of becoming obese, experiencing obesity-related diseases, and having difficulty birthing.

Conclusions

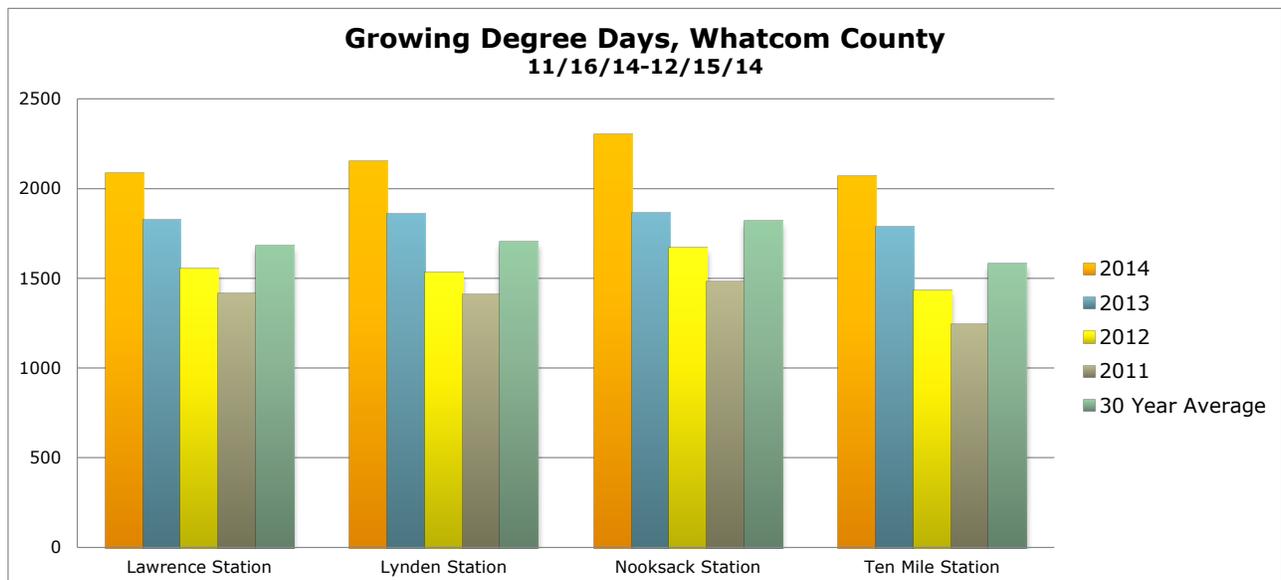
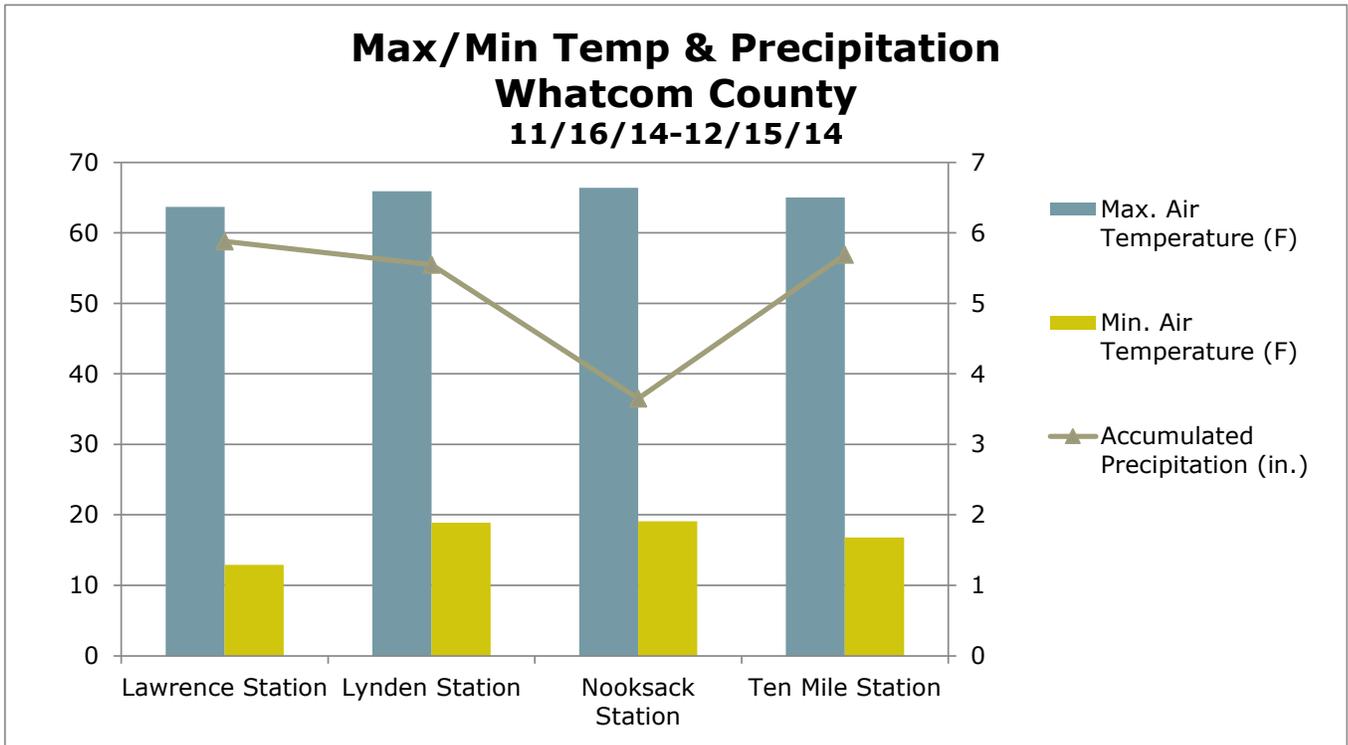
It is no surprise that proper management and planning are required for a safe and effective drying-off process. Transitioning animals to high fiber/low calorie diets, keeping a clean environment, drying off animals abruptly, using intramammary antibiotics, and monitoring for mastitis are the best management practices associated with successful dry off. A well planned and disease-free dry period will lay the foundation for an even more productive lactation next time.

For More Information

- <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2035/ANSI-4260web.pdf>
- <http://attra.ncat.org/attra-pub/PDF/dairy-goats.pdf>

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](#).



WHATCOM WATER EXCHANGE?

JANUARY 8, 2015

[Free to Attend]



1:00 pm-5:00pm

Mt. Baker Rotary Building, Lynden

Registration Open

Your early registration will help us plan for space and refreshments.

[CLICK HERE TO REGISTER](#)

Guest Speakers

Bill Clarke, Attorney at Law & Government Affairs
Peter Dykstra, Plauche & Carr Attorneys
Adam Gravley, Van Ness Feldman Attorneys
Bob Barwin, Washington Dept. of Ecology

Sponsors

Farm Friends
City of Lynden
Public Utility District No. 1
Whatcom Watersheds Information Network
WRIA 1 Watershed Project
WSU Cooperative Extension

Join us as we explore water banking and other water exchange concepts, which have been used in Washington State to address water supply issues.

- What might a water exchange or bank look like in Whatcom County with its unique water issues?
- What can and cannot be done with water banks?
- Is this a feasible way to distribute water for agriculture and municipal needs 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:

Winter sunset

Web site:

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

December

Blueberry Pruning Workshop

Dec 17th & 18th
8:00 am - 11:00 am
Lynden & Prosser, WA
Workshops will include a presentation, followed by pruning demonstrations with commercially relevant cultivars. Spanish translational services will be provided.

January

Cascadia Grains Conference

Jan 10th
9:00 am - 5:45 pm
Olympia, WA
The Cascadia Grains Conference is an exciting one-day conference focused on rebuilding a grain economy west of the Cascade Mountains in Washington, Oregon, and British Columbia through three value-added enterprises: brewing and distilling, baking and other food uses, as well as animal feed.

Whole Farm Revenue Protection

Jan 15th
9:45 am
Lynden, WA
Free informational meeting and webinar about new crop insurance program.

Crop Planning for Organic Vegetable Growers Workshop

Jan 20th
8:30 am - 4:00 pm
Mt. Vernon, WA
This workshop provides a structure for determining how to operate a profitable, diversified vegetable farm. It hones in on the core issues of farm success: which crops to grow, when to plant them, and in what quantities. Then it provides a logical, linear process for completing it all on time.

Oregon Blueberry Conference

Jan 27th
8:00 am - 8:00 pm
Portland, OR
This day-long conference focuses on blueberries and covers such topics as: blueberry production summary and trends, production systems, and pest management strategies.

Lower Mainland Horticulture Improvement Association Horticulture Growers' Short Course

Jan 30th - Feb 1st
Abbotsford, B.C.
LMHIA organizes an annual Growers' Short Course. Funds raised from registration / membership support horticulture research projects, publication of

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:

Newly fall planted lettuce gets going.

Web site:

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

two Production Guides: Berries and Vegetables, and management of the pesticide re-certification program for our members.

[The Country Living Expo and Cattleman's Winterschool](#)

Jan 31
7:30 am - 5:30 pm
Stanwood, WA
The Country Living Expo and Cattlemen's Winterschool will offer more than 185 workshops and classes in skills from cheesemaking and beekeeping to agribusiness, landscape design and small-scale solar power. Join keynote speaker Dr. Temple Grandin, the world's most famous and influential person with autism and world renowned authority on animal behavior, for this fascinating presentation, on understanding animal behavior and her desire for animals to have more than just a low-stress life.

February [Grafting Vegetables: Hands-On Workshop](#)

Feb 20th
9:00 am - 12:00 pm
Mt. Vernon, WA
Learn how to use the splice-graft technique to graft tomato and watermelon successfully. Participants will use common rootstocks for each crop and will graft 6 plants of each crop which they can take home to heal.

[Understanding Soils and Plant Nutrition](#)

2-day course
Feb 10th - 11th
17th - 18th
24th - 25th
8:00 am - 5:00 pm
Parma, ID
This 2-day class will be held at the Lab in Parma, Idaho and will cover the physical, chemical and biological properties of soil. CCA credits will be available for Oregon, Washington, Utah, and Idaho.

[Food Ingredient Technology Short Course](#)

Feb 25th - 26th
9:00 am - 5:45 pm
Seattle, WA
This is an introductory course on Food Ingredient Technology (FIT). The short course provides an overview of major food ingredients that are used in value-added foods. It provides an overview of the various functionalities of these ingredients, and how they are used in making foods with qualities that are desired by consumers.