

NOVEMBER 14, 2014 • VOLUME 3, ISSUE 11

Whatcom *Ag* Monthly

Bringing Scientific Information to the Farming Community

IN THIS ISSUE:

WA SMALL FRUIT CONFERENCE

COMPOST OUTREACH PROJECT

FOOD ANIMAL MEDICATIONS: HOW TO STAY WITHIN THE LAW

WINTERIZING YOUR DRIP IRRIGATION SYSTEM

FSMA PROPOSED RULES OVERVIEW

WASHINGTON SMALL FRUIT CONFERENCE *and* LYNDEN AG SHOW

DECEMBER 4 & 5, 2014
NW WASHINGTON FAIRGROUNDS, LYNDEN, WA



WASHINGTON **Red** 
Raspberries

WASHINGTON
Blueberries 

WASHINGTON STATE UNIVERSITY
 WHATCOM COUNTY EXTENSION

WHATCOM
Farmfriends

Thursday, December 4 — Agenda

Registration opens at 7:00am	
Main Conference Room	Small Conference Room
<p>8:30-10:30am</p> <p>Water: Quantity and Quality Issues</p> <p><i>Welcome and Overview of Water Banking Symposium</i> Sue Blake, WSU Whatcom County Extension</p> <p><i>Update on the Whatcom Ag Coalition</i> Randy Honcoop, Honcoop Farms</p> <p><i>Water Rights Success Stories</i> Jim Bucknell, RH2 Engineering</p> <p><i>Assessing the Effectiveness of Streamside Vegetation in Reducing Pesticide Loading to Surface Water</i> Kelly McLain and Jaclyn Hancock, WSDA</p> <p><i>Reducing Sediment Run-off in Berry Fields</i> Chris Leurkens, WSDA and Chuck Timblin, Whatcom Conservation Dist.</p>	<p>8:30-10:30am</p> <p>Spray Technology and Cold Damage</p> <p><i>Spray Nozzle Technology</i> Dugan Peterson, TeeJet Industries </p> <p><i>Cold Damage in Berry Crops Grown in Western Washington</i> Lisa W. DeVetter, WSU Mt. Vernon</p>
10:30 –11am COFFEE BREAK AND TRADE SHOW	10:30 –11am COFFEE BREAK AND TRADE SHOW
<p>11am-noon</p> <p>Keynote Address: Bill Marler <i>Marler Clark, The Food Safety Law Firm</i></p>	
Noon-1pm LUNCH AND TRADE SHOW	Noon-1pm LUNCH AND TRADE SHOW
<p>1-2:45pm</p> <p>Precision Agriculture</p> <p><i>Shellfish traceability – might systems in use or being considered be applicable to fruit</i> Bill Dewey, Public Policy & Communications Director, Taylor Shellfish Farms</p> <p><i>Precision Irrigation</i> Mike Cahn, University of California</p> <p><i>Handheld and Laptop Technology on the Farm (panel)</i> Jon Maberry, Maberry Farms Torey, Ebe Farms Jason Smith, Fraser Berry Farms</p> <p><i>Use of Precision Agriculture in Berry Production in California</i> Mark Bolda, University of California</p>	<p>1-2:45</p> <p>Weed Biology and Herbicide Mode of Action Tim Miller, WSU Mt. Vernon </p>
2:45-3:15pm COFFEE BREAK AND TRADE SHOW	2:45-3:15pm COFFEE BREAK AND TRADE SHOW
<p>3:15-4:45pm</p> <p>Fertility and Irrigation</p> <p><i>Fertigation practices for high yield and quality in blueberry</i> <i>Water requirements for drip and sprinkler irrigation of raspberry</i> <i>Irrigation practices to reduce heat-related fruit damage in blueberries</i> Dave Bryla, USDA-ARS Corvallis</p> <p><i>Simplified Irrigation Scheduling on Your Phone or Web Browser</i> Troy Peters, WSU</p>	<p>3:15-4:45pm</p> <p>Pollination</p> <p><i>Impact of Neonicotinoids on Pollinator Health</i> Tim Lawrence, WSU</p> <p><i>The Effects of Agricultural Practices on Native Bee Diversity and Blueberry Production</i> Melanie Fabian, Western Washington University</p> <p><i>Understanding the Relationship Between Honeybee Activity and Yield in Washington Blueberry</i> Lisa W. DeVetter, WSU Mt. Vernon</p>
<p>4:45-7pm</p> <p>CATERED SOCIAL HOUR and POSTER SESSION</p> <p><i>Sponsored event with snacks and refreshments. An opportunity for networking with farmers, researchers, and industry personnel. Poster presenters will be available to discuss their work.</i></p>	

Friday, December 5 — Agenda

Registration opens at 7:00am	
Whatcom Farmers Coop Room	Fall Creek Nursery Room
7:30-9:00 Washington Blueberry Commission Meeting	8:15-10am Pesticide Safety and Handling (see continued below)
9:15-10am Crisis Management—Why Now is Too Late Gerald Baron, Agincourt Strategies	When Mr. Yuk Stickers Won't Do – Protecting Yourself from Pesticide Exposure Tom Hoffman, WSDA 
10-10:30 COFFEE BREAK AND TRADE SHOW	10-10:30 COFFEE BREAK AND TRADE SHOW
10:30-11:15 State of the Industry Panel Discussion Brad Rader, Rader Farms Diane Klatt, Pacific Coast Fruit Products	10:30-noon Personnel Management for Farm Supervisors Speakers TBD
11:15-noon Keynote Address: US Representative Suzan DelBene	
Noon-1pm LUNCH AND TRADE SHOW	Noon-1pm LUNCH AND TRADE SHOW
1-2:45pm Pest Management  <i>SWD and the Threat of Re-Emerging Pests</i> Beverly Gerdeman and Lynell Tanigoshi, WSU Mt. Vernon <i>Status of Fungicide Resistance in Botrytis cinerea infecting Raspberry and Blueberry in the PNW</i> Tobin Peever, WSU <i>Brown Marmorated Stink Bug</i> Nik Wiman, Oregon State University	1:00-2:00pm Organic and Fresh Market Berries <i>Berry Production for Local and Organic Markets in California</i> Mark Bolda, University of California Cooperative Extension <i>Fresh-Market Strawberries: Varieties, Management, and Organic Considerations</i> Wendy Hoashi-Erhardt, WSU Puyallup <i>Organic SWD Management Strategies</i> Alan Schreiber, Ag Development Group
ADJOURN	ADJOURN

Registration information

2014 Washington Small Fruit Conference



Find more information and register online at:

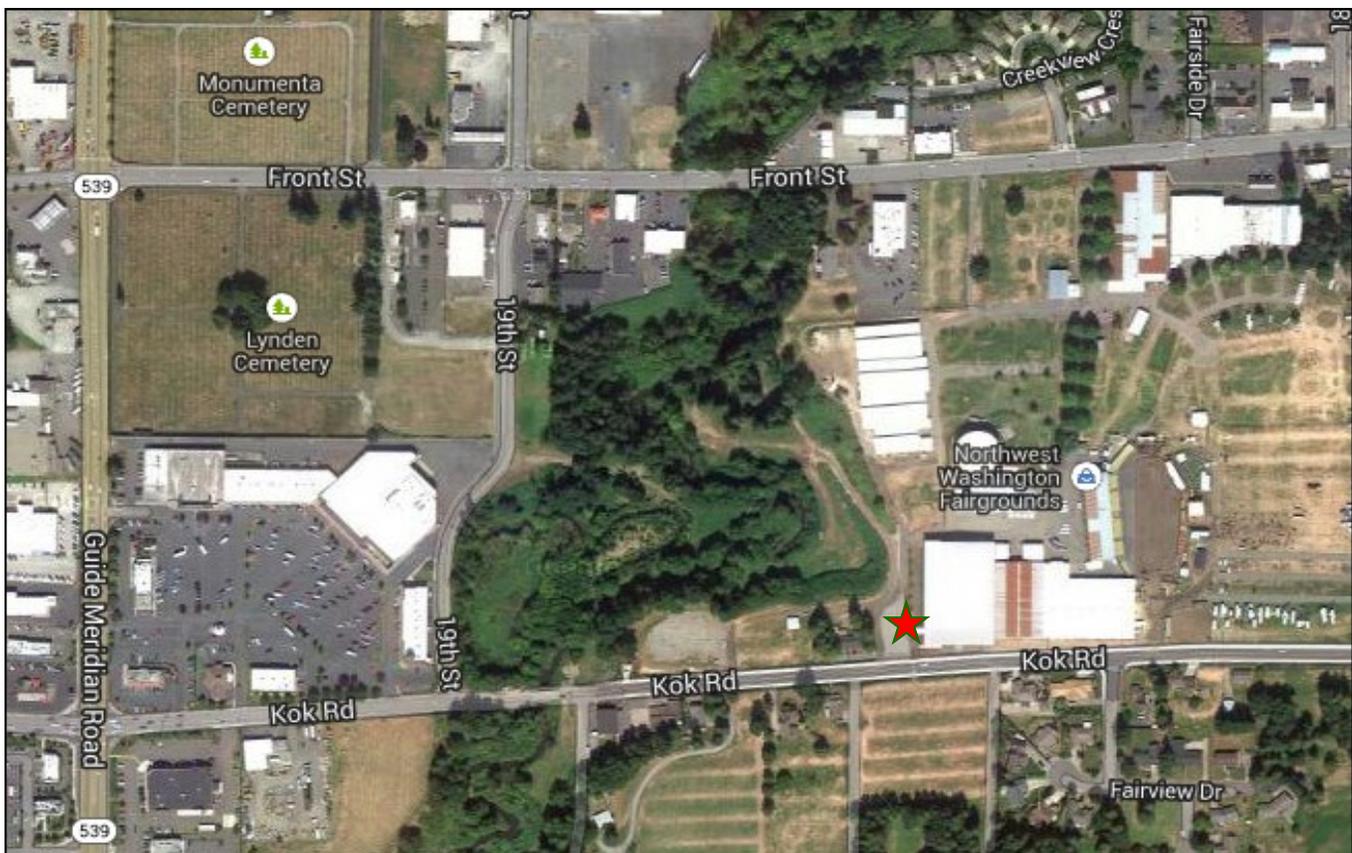
<http://whatcom.wsu.edu/ag/edu/sfc>

Registration Rates:	Rate before December 1, 2014	Rate after December 1, 2014
2-Day Conference Registration (includes lunch & snacks both days plus catered social hour)	\$95	\$105
Thursday Conference Registration only (includes Thursday lunch & snacks plus catered social hour)	\$60	\$70
Friday Conference Registration only (includes Friday lunch & snacks)	\$55	\$65

Sponsorships, Trade Show Exhibit Space, and Program Advertising is available. See website for additional details.

Event Location:

Northwest Washington Fairgrounds: 1775 Front Street, Lynden, WA
(event is in the horse arena at the south end of the fairgrounds)



COMPOST OUTREACH PROJECT, IMPROVING YIELDS AND SOIL QUALITY

Andrew Corbin¹, Hallie Harness¹, Leif Fixen²

¹WSU Snohomish County Extension, ²Snohomish Conservation District

Below is a series of reports from the WSU Compost Outreach Project.

Carleton Farm 2014 Pickling Cucumber Compost Research Trial

Compost research started with Carleton Farm in 2011, when a Cedar Grove compost application rate of approx. 20 dry tons/acre, led to a 25% increase in pumpkin yield (although the result was not statistically significant due to a large variation in pumpkin sizes). Pumpkins were grown in the research plot for a second year in a row in 2012 and 27.5 dry ton/acre of compost produced a significant 20% increase in pumpkin yield. Farmer Reid Carleton reported that the pumpkin plants in the compost treatment had less disease and grew quickly enough to out-compete the weeds. In 2013, sweet corn was grown in the research plot and three treatments were compared: compost applied 3 consecutive years (COM3yr), compost applied 2 consecutive years (COM2yr), and Business as Usual (BAU). In the COM3yr treatment, sweet corn marketable ear weight was significantly increased compared to the BAU control and a blind taste test conducted with farm stand visitors revealed that 58% of participants preferred the corn grown with compost (while 10% had no preference).

A meeting with the farmers in April 2014 pinpointed pickling cucumbers as the research crop for 2014. After pumpkins, pickling cucumbers are the second most profitable crop grown at Carleton farms with a large quantity of annual sales from their farm stand and a portion of their cucumber crop being utilized in Carleton Farm original recipe pickles. The cucumber variety chosen for the trial is meant



Figure 1. Compost plots in pickling cucumbers.

to be harvested in a single day as opposed to over multiple harvest days, so the results from the trial will be relevant to large-scale cucumber farmers who utilize mechanical harvesters.

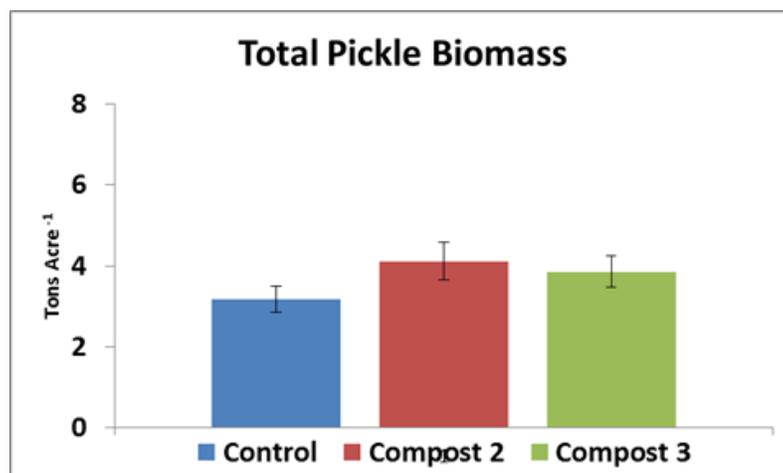


Figure 2. Total pickle biomass. **Control**= 3.17 tons/acre, **Compost 2**=4.11 tons/acre, **Compost 3**= 3.86 tons/acre. Since Compost 2 and 3 did not differ significantly, the combined average of those treatments was compared against the control. Compost 2 and 3 treatments combined average resulted in an additional .82 tons/acre of Pickles compared to the control.



Soil samples taken at the research plot and analyzed in April 2014 revealed that no additional macronutrients were needed, therefore, no additional compost was incorporated. As a result, no starter fertilizer was applied in the research plot. This trial will help us begin to assess how compost application can contribute to long term productivity and potential reductions in fertilizer use.

On May 15th, the research site was marked and infiltration tests were conducted. Farmer Reid Carleton applied the plastic mulch and direct-seeded cucumbers.

Results:

Compost treatment averages resulted in 2.55 additional tons/acre of marketable cucumbers (Pickles and Slicers) compared to the control. At \$1.30/lb, an additional \$6,630/acre of gross profit is possible. When comparing only Compost 3 and Control an additional yield of 2.68 tons/acre of cucumbers, a potential gross profit of \$6,968. Expenses such as compost, additional labor, fuel, and equipment needed for spreading have not been subtracted.

Williams Farm 2014 Beet Seed Compost Research Trial

One of the SCACROP 2014 research trials is on a beet seed crop at the Williams Farm in Stanwood, WA utilizing Bailey Compost. Beet seed crops grown in western Washington supply 95% of the US and 50% of the world's supply of table beets. In recent years, these crops have suffered due to unknown reasons. Some speculate that dry, hot conditions or disease may have impacted these crops. A positive result in this trial could open up a market for compost use in the production of this high-value crop.

Beet planting and compost topdressing took place on Wednesday May 7th. Garret Williams cooperated in outlining the planting pattern for the beets and Rick Williams operated the equipment to spread the compost. Bailey Compost was delivered by Topsoils NW, arriving just in time to apply it Wednesday evening. Hallie and Drew marked the plots in a randomized complete block design. Soil was sampled in all four of the research blocks prior to compost application. Compost was applied directly after planting the

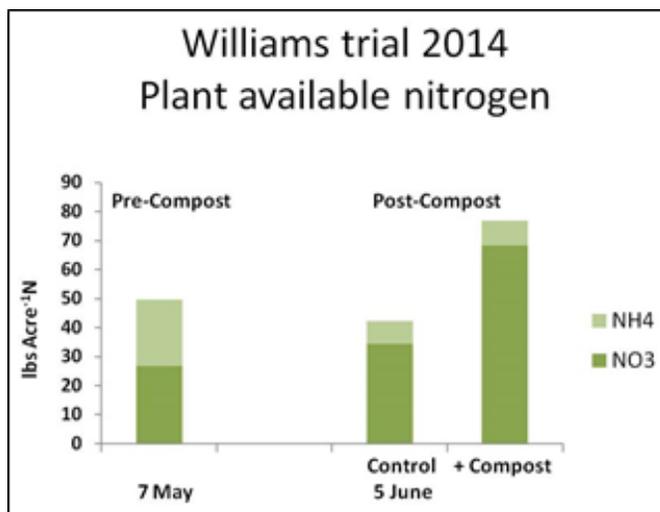


Figure 3. Soil nitrogen before and after compost application.

beets at a rate of approx. 55 cu yds/acre.

Soil samples were taken by treatment prior to side-dress fertilizer application in June. Harvest yield data collection took place on Sept. 22nd. Flags were placed to mark 200ft sections of the four compost and four BAU reps. The Williams Farm combine was modified to direct beet seed into a metal trash can, put in place to collect the seed from only the 200 ft sections of each row. **(See Figures 4 & 6).** Four Compost and four BAU rows were sampled. Samples were weighed and recorded.

Results:

The compost application resulted in a 21% in-



Figure 4. Leif signals as Drew captures seed from each subsample.

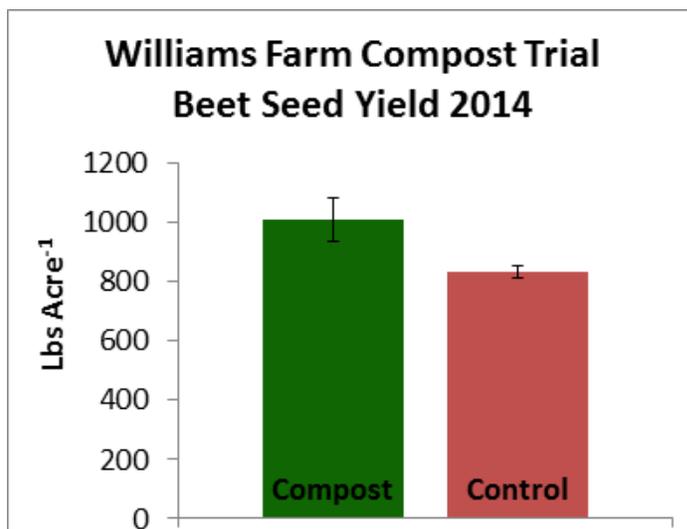


Figure 5. Compost trial beet seed yield results.



Figure 6. Garrett Williams, Leif and Drew modify the combine hopper.

crease in beet seed yield compared to the control.

At \$1.50 per pound, this increase in yield equates to a \$262.88/acre gross increase in profit.

At the 55 cu yd/acre application rate and including spreading expenses such as labor, fuel, and machinery, the break-even point for the Williams' is \$4.80 per cubic yard of compost, delivered and applied.

Darrell Hagerty 2014 Organic Green Beans Compost Research Trial

Registered organic compost from Lenz Enterprises has made it possible to conduct a 2014 compost research trial on Darrell Hagerty's organic green beans. As the second largest organic grower (by acreage) in western Washington, Darrell farms over 1200 + certified organic acres and markets his green beans to wholesale grocery outlets including Costco. Darrell utilizes chicken manure, cover cropping, wood ash, organic fertilizers, and reduced tillage practices to maintain fertility and this year's trial has provided him the opportunity to utilize food and yard waste compost as an experimental input. Data collected through the program will analyze the effect of the Business-as-Usual (BAU) + Compost treatment compared to the BAU Con-



Figure 7. Green bean seed is planted using a 12-row planter.



Figure 8. Compost spreading with the BBI Endurance Green manure spreader 5/26/14

trol. Lenz Organic Green Blend compost was applied at Darrell Hagerty Farms on May 26th 2014 at a rate of approx. 24.8 cu yd/acre (approx. 6.5 dry tons/acre). Organic green beans were planted two days later. Pelleted chicken manure and Nutra-rich fertilizer was applied evenly across all plots.

Results:

Compost resulted in a statistically significant 19% (.64 ton/acre) increase in yield compared to the business-as-usual treatment. At \$485/ton of green beans, this increase in yield translates to a \$312/acre gross increase in profit for Darrell. Including spreading expenses such as labor, fuel, and machinery, the break-even point for Darrell is \$12.58 per cubic yard of compost, delivered and applied.

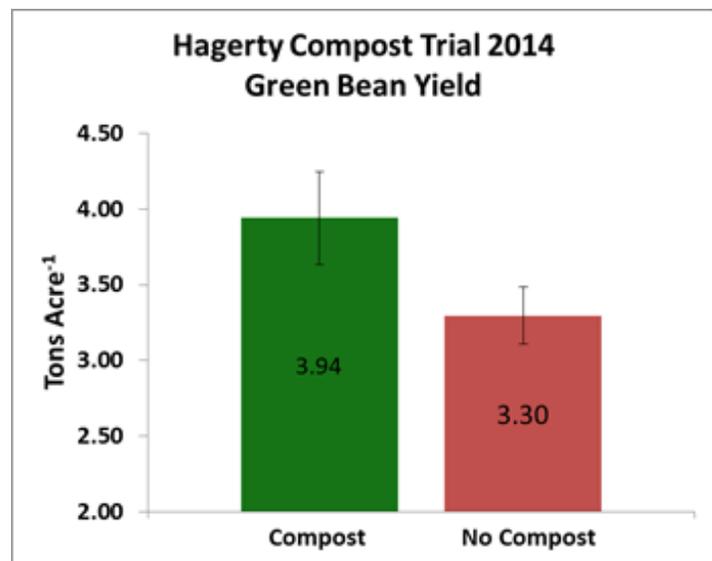


Figure 9. Using the gauge to determine marketable vs unmarketable beans.



Special thank you to Reid and Darren Carleton for multiple years of research trial cooperation and significant time contributions to the compost program over the years! It's truly invaluable to have Carleton Farms as a key participant in the SCACROP program! Thank you to Cedar Grove for the provision of compost and to Denise Bartlett for assistance in harvest data collection three years in a row. To the research team and Leif Fixen with the Snohomish Conservation District- thank you for your attention to detail and morale!

Special thank you to Rick and Garret Williams for their cooperation in this research trial and to Topsoils Northwest who rearranged their delivery schedule to make sure the compost arrived in time.

Special thank you to Darrell Hagerty for participating in this compost research trial and to Lenz Enterprises for provision of the organic compost!

FOOD ANIMAL MEDICATIONS: HOW TO STAY WITHIN THE LAW

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

How would you feel if you received this notice from the U.S. Food and Drug Administration (FDA) about a tissue residue violation in a food animal product you marketed?

A goat sold for food on or about Sept. 30, 2007, is adulterated within the meaning of Section 402(a)(2)(C)(ii) of the Food, Drug and Cosmetic Act. Analysis of tissues disclosed the presence of fenbendazole at 2.4 ppm in the liver. The tolerance level for this drug in goat liver is 0.8 ppm. Our investigation revealed that you are responsible for this violation.¹

To comply with federal laws, food animal producers must follow instructions on medication labels meticulously and keep detailed treatment records. These steps are two of the quality assurance practices livestock producers must take to ensure the safety and wholesomeness of food animal products.

Unfortunately, very few medications are approved for use in goats and sheep. Indeed, "A critical shortage of approved animal drugs for minor uses and minor species exists because of limited sales opportunity, low profit margins, and the high capital investment necessary for bringing a drug to market."² Also, sometimes an approved medication is known to be more effective when administered in a way or at a dose different from label directions.

What, then, are livestock producers to do if animals need treatment with unapproved medications or non-label treatment protocols? Without proper treatment, animals will experience pain and suffering and some may die; producers will experience increased expenses, decreased reve-

nues, and other economic hardships. Yet indiscriminant use of animal medications in unapproved species and in unapproved ways can lead to dangerous medication residues in food animal tissues that enter the food supply.

On Label and Extra-label Drug Use

As shown in the example in Figure 1, medication labels contain information about conditions for which the medication is indicated, how much to give an animal, how long to give the medication, how to administer it, how long to withhold animal products from the food supply and so on. Using an over-the-counter or prescription medication exactly as indicated on the label is called "on label drug use." Any deviation from the medication's label directions, whether giving a higher dosage of the medication, dosing for a longer duration, using the medication in a different species, using it for an unlisted illness, administering using a different route, etc., is called "extra-label drug use" (ELDU).

Without the involvement of a licensed veterinarian, ELDU by producers is illegal and a violation of the federal Food, Drug and Cosmetics Act (FDCA). Many producers unwittingly violate this important act, which was enacted to help protect consumers. "Extra-label use of drugs by non-veterinarians in food-producing animals is a significant public health concern and a contributing factor in illegal residues in edible animal tissue."³

Requirements for Legal ELDU

Congress passed the Animal Medicinal Drug Use Clarification Act (AMDUCA) in 1994. This act amended the FDCA and made ELDU legal given certain conditions:

1. ELDU is legal only under the supervision of a

Omnibiotic
(Hydrocillin in Aqueous Suspension)

Directions for use: See package insert

For use in Beef Cattle, Lactating
and Non-Lactating Dairy Cattle, Swine and Sheep

Read Entire Brochure Carefully Before Using This Product
For Intramuscular Use Only

Active Ingredients: Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

Indications: **Cattle** - bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections. **Swine** - erysipelas, pneumonia. **Sheep** - foot rot, pneumonia, mastitis; and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

Recommended Daily Dosage

The usual dose is 2 ml per 100 lb. of body weight given once daily.
Maximum dose is 15 ml/day.

Body Weight	Dosage
100 lb	2 ml
300 lb	6 ml
500 lb	10 ml
750 lb or more	15 ml

Continue treatment for 1 or 2 days after symptoms disappear.

Caution: 1. Omnibiotic should be injected deep within the fleshy muscle of the neck. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2. If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3. Treated animal should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4. Omnibiotic must be stored between 2° and 8° C (36° to 46° F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

Warning: Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

How supplied: Omnibiotic is available in vials of 100 ml.



Observe Label Directions

Figure 1. The item presented in this image is copyrighted material of the Sheep Learning Laboratory Kit from The Ohio State University Curriculum Materials Service, <http://cms.osu.edu>. Used with permission.

- licensed veterinarian and when a valid veterinarian-client-patient relationship exists.
- The veterinarian has diagnosed the animal's problem.
 - No labeled medication exists that will treat the problem OR labeled medications will not be effective if used according to label directions.
 - Treated animals are identified and all treatment-related information is recorded.
 - The veterinarian has made a determination of the withholding period for all food products from the treated animal.
 - Only FDA-approved animal or human medications can be used.
 - ELDU is for disease treatment purposes only, not for production or reproduction purposes. ELDU rules also apply to medications delivered in

A medication's withdrawal or with-holding period is the amount of time after the last medication treatment that all food products from the treated animal (meat, milk, eggs or other products) must be held from sale and/or consumption until residues of the medication have fallen to acceptable levels in all tissues. Withdrawal periods are established by medication manufacturers through tissue residue studies using the label directions. ELDU of any medication can cause tissue residues with unpredictable medication clearance rates, thereby endangering consumers' health.

water but not in feed.

- ELDU is not permitted if it will cause a drug residue in food and pose a public health risk.
- Specific medications are completely banned for use in food animals and cannot be used via ELDU even with veterinary oversight. A list of banned medications can be found at www.farad.org/eldu/prohibit.asp.

A Valid Veterinarian-Client-Patient Relationship is Essential

Several key factors must be present for a valid veterinarian-client-patient relationship to exist:

- A veterinarian has taken responsibility for making judgments about an animal's health and treatment and the client has agreed to follow the veterinarian's instructions.
- Through examinations or farm visits, that veterinarian is personally acquainted with the animal's care and environment.
- That veterinarian has enough knowledge about the animal(s) to make a preliminary diagnosis of the animal's problem.
- That veterinarian is available or has made provisions for emergency service in case of unfore-

Key Steps to Prevent Illegal Medication Residues

- Identify and track treated animals
- Properly store, label, and administer all medications and medicated feed
- Make and keep excellent records

seen reactions or treatment failure.

Avoiding Illegal Medication Residues

No matter what type of medication is administered to food animals, producers must make and keep accurate records. These records should be kept for two years or the animal's lifetime, whichever is longer. The FDA may ask to review such records in the event of an illegal tissue residue situation. The information below must be recorded for every treatment on every animal:

- Date(s) of treatment
- Name of product and its active ingredient
- Product manufacturer
- Product's lot and serial number
- Dosage given (e.g. 10 cc)
- Route and location of administration (for example, SQ left neck)
- Withdrawal period (days or hours) specified for meat, milk and/or eggs
- Name of person(s) who administered the product
- Animal identification (individual or group; include number of animals treated)
- Species treated
- Condition treated (pneumonia, foot rot, etc.)
- Length of treatment (e.g. 5 days)
- If ELDU, record of veterinarian's name and contact information

ELDU Label Requirements

If a veterinarian recommends ELDU, the following information must be included on a label attached to the medication. Such a label must also be attached to any prescription medication used on-label or extra-label:

- Date
- Producer's name and contact information
- Veterinarian's name and contact information
- Medication's name
- Directions from the veterinarian (dosage amount, route and duration)
- Warnings or cautions
- Withdrawal period for meat, milk, eggs or other animal-derived food products
- Animal's species and name or number

Conclusion

Producers can both stay within the law and treat their animals if they remember to abide by extra-label drug use procedures and work closely with a licensed veterinarian within a valid veterinarian-client-patient relationship. Proper animal identification and record keeping practices also go a long way toward avoiding illegal medication residues in marketed products. Producing safe, nutritious, delicious, and wholesome food products is the challenging yet rewarding duty of every food animal producer.

Resources and References

Federal Food, Drug, and Cosmetic Act

www.fda.gov/opacom/laws/fdcact/fdctoc.htm

Food and Drug Administration's Animal and Veterinary Web Page

www.fda.gov/cvm

Animal Medicinal Drug Use Clarification Act

www.avma.org/reference/amduca/amduca1.asp

Food and Drug Administration's Manual of Compliance Policy Guides

www.fda.gov/ora/compliance_ref/cpg/cpgvet/cpg615-200.html

Sheep Safety and Quality Assurance Implementation

www.colostate.edu/programs/SSQA/chapter_3.htm

¹Adapted from wording in U.S Food and Drug Administration Compliance Policy Guide, Compliance Policy Guidance for FDA Staff, CHAPTER 6, SUBCHAPTER, 615 Sec. 615.115 Extra-label Use of Medicated Feeds for Minor Species, April 4, 2001.

²JAVMA News, Sept. 1, 2004.

³U.S. Food and Drug Administration/Office of Regulatory Affairs Compliance Policy Guides, Sec. 615.200, "Proper Drug Use and Residue Avoidance by Non-Veterinarians" (CPG 7125.37), 1993.

⁴Extralabel Drug Use (ELDU): An Informational Outline of the Animal Medicinal Drug Use Clarification Act (AMDUCA), American Veterinary Medical Association, 2006.

WINTERIZING YOUR DRIP IRRIGATION SYSTEM

Dr. William Lamount, Professor of Vegetable Crops
Penn State University

The changing of the color of the leaves and the advent of falling temperatures at night along with pumpkin, broccoli, potato and apple harvest signals to me that cooler weather is just around the corner. Having worked many years with irrigation systems and drip irrigation systems in particular, I thought that this would be an appropriate time to share with you some tips on winterizing irrigation systems so that your system will be ready for next spring.

Drip irrigation systems all use valves, filters, plastic fittings, PVC pipe, poly pipe, or layflat hoses that can easily burst if water freezes inside any of these components. I know this from personal experience and it can drive you crazy. This can prove costly to replace or repair.

Winterizing a drip irrigation system will take about fifteen minutes to an hour, and is best done before the first freeze. A little of your time spent now will result in a low maintenance irrigation system that will reduce the need for replacing frozen parts. In extremely cold winters, freezing temperatures can severely damage your irrigation system and all the main water lines.

The goal in winterizing your drip irrigation system is to shut off the water supply to the system, and flush all of the water that is left in the system from the backflow device, valves, filters, main lines, sub-lateral lines, sprinklers, drippers, and drip line. One way to make sure that the system will not freeze (flat terrain) is to install automatic drain valves in the lowest point of the system. The drain valve assures that any water in the line will drain out. This is extremely important. Also in a drip irrigation system, I like to run some chorine (2 PPM) through the system



Figure 1. Protect the investment you have made in your drip irrigation system by protecting it from winter damage.

and then flush it out thoroughly to clean everything up before storing it for the winter. That way it is ready to be used again next year.

About the parts of the irrigation system:

Pumps

Always drain a pump by opening the lowest plug or drain outlet (replace with drain valve). Make sure to check that no water is left inside. Drain plugs usually are extremely difficult to remove, not to mention difficult to get to, making an unpleasant project out of a simple task. For some of our portable drip irrigation trailer units (engine and pump located on a trailer) and with drip irrigation systems fed from a pond or a stream, drain the suction line. That is pull it out of the water, drain it and cover the open ends to prevent creatures from making it a winter home. I have experienced that also and it needs to be avoided. Also the open end of the pump where the suction line connects needs to be covered so that rocks, pebbles, nutshells, leaves, and animals from mice to snakes can find their way into the impeller. Simply covering open ends will save time and headaches. Again I speak from personal experience.

Valves and valve assembly

I also know from years of experience that gate and ball valves will not tolerate freezing. A gate valve, when closed, traps water in the bonnet. A ball valve holds water inside the ball. If the valve is closed when water is in the line and the line is drained without opening this valve, the water trapped above the gate or inside the ball will freeze and have no place to expand. The signs of freezing are very distinctive: a ball valve will burst the side out, and a gate valve will split its bonnet, packing nut, or have a hairline crack down its side. Take my word for it that replacing a three-inch brass gate valve is not cheap.

Solenoid valves are best winterized by leaving them open for the winter. The manual bleed lever on the valves varies by model and manufacturer, but is usually a thumb type screw on top of the valve or lever on the side of the bonnet (cover).

Automatic control valves such as pressure reducing, pressure relief or combination valves, containing external control tubing, pilots, and other parts will require special care to thoroughly drain. If the entire unit can be easily removed from the pipe, I would recommend storing the unit in an inside location for the winter. This is the method that I prefer after years of winterizing systems. If removing the valve or valve assembly is not practical, then from the pressure-reducing valve remove the control tubing connections in the lower part of the valve to drain all the parts of water. The valve bonnet should also be loosened or removed to remove all the water from the top of the diaphragm by loosening the screws on the top of the bonnet.

Valve assemblies such as battery operated controllers or AC valves with filter, pressure regulator, and swivel adapter; also require special care to thoroughly drain. If the entire assembly can be easily removed from the pipe, it may be simple to store the assembly unit from the controller to the pressure regulator in an inside

location for the winter. If removing the filter assembly or valve assembly is not practical, the valve bonnet should be loosened or removed to remove all the water from the top of the diaphragm, the filter cap should be removed from the filter, and remove the filter cover and screen to make sure that no water is left inside any part of the assembly.

Drip tape

First disconnect the drip tape from the laterals and in most cases it is disposed of as it is considered an annual expensed item. When Plastofuel finally becomes a reality it will become a feedstock for Plastofuel, which is then burned at 2000 degrees F and will create electricity.

Poly pipe hose and vinyl layflat hose

Poly pipe and layflat hose have to be drained. Layflat or poly pipe hose can be lifted a few feet at a time and section-by-section, making sure that any water left in the hose will drain out. After you finish draining the layflat hose or poly pipe hose and the micro tubing or connectors, make sure to close the ends of the hoses using the hose ends. The layflat hose definitely is easier to roll up than the poly pipe hose, and can even be automated on a spool.

Summary

The best prevention I have found once the system is drained completely is to take those parts of the system that are prone to damage inside a building. That is the nice thing with our trailer mounted portable pumping and filtering units used at the Penn State Horticulture Research Farm, which can be drained and then moved into a building for storage during the winter. The vinyl layflat hose or poly pipe hose with connectors is cleaned up and rolled up and stored so the mice and rodents will not bother it. Hopefully you are then all set to kick your feet up by the woodstove and know that your irrigation system is ready for winter storage and use again in the spring.

FSMA Proposed Rules Overview

Supplemental Versions of the Proposed Produce & Preventive Control for Human Food Rules have been released and comments are due to FDA by December 15

Join us to hear more about the changes to the proposed rules

For agenda, online registration, or more information please visit this website:

<http://foodsafety.wsu.edu/fsma/>

The Food Safety Modernization Act will significantly impact growers, packers and processors in the coming years. Members of the food industry have the opportunity to submit comments to FDA on aspects in the supplemental versions of the proposed rules that will be used to regulate the food industry in the coming years. There is a need to be familiar with the proposed rules in order to submit relevant comments to FDA by the December 15 deadline. A multi-state team involving universities and regulatory agencies in partnership with FDA is offering two opportunities to review the changes to the proposed rules. FDA will be presenting information and offering input throughout the workshop.

Food growers, packers, and processors are encouraged to take this opportunity to learn more about the proposed rules.

Registration is \$20. Seating is limited and registration is required. For each workshop, check-in starts at 7:30am.

The program will begin at 8:00am through 5:00pm. Boxed lunch is provided.

For questions regarding registration, please contact Cathy Blood, blood@wsu.edu or 509-335-2845.

Dates	Locations
November 17, 2014	Howard Johnson Hotel 9 N 9th St. Yakima, WA 98901
November 20, 2014	North Willamette Research & Extension Center/OSU 15210 NE Miley Rd Aurora, OR 97002

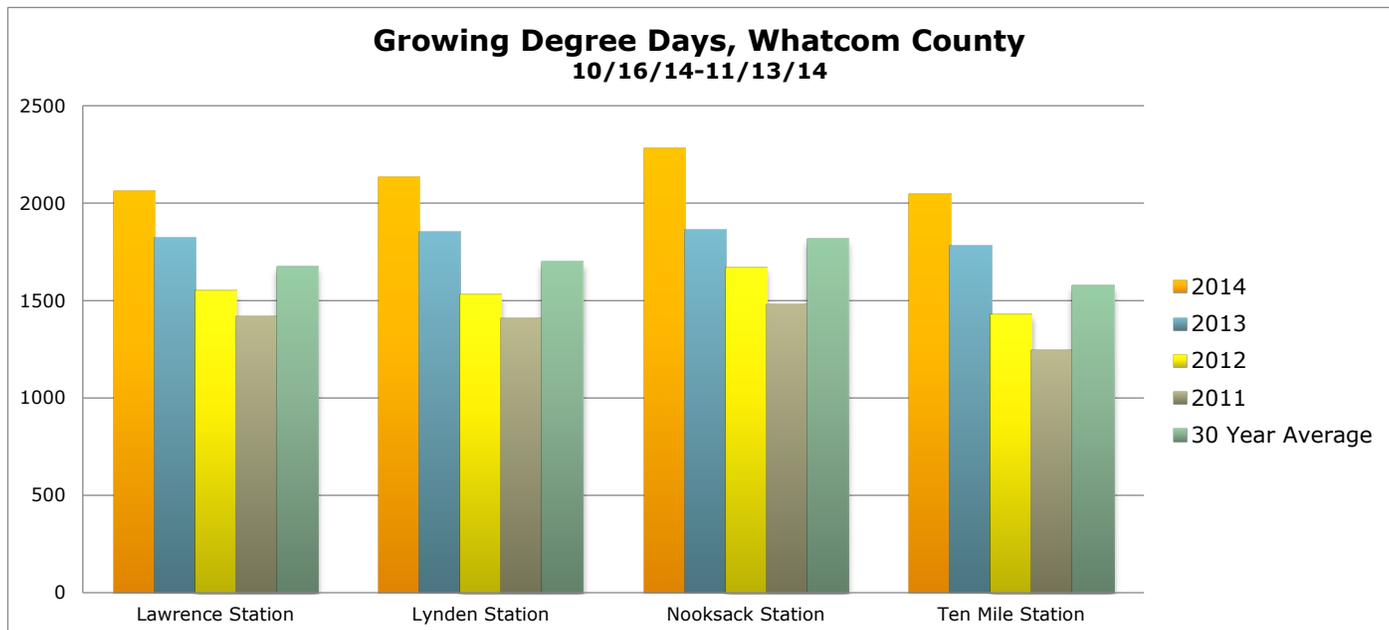
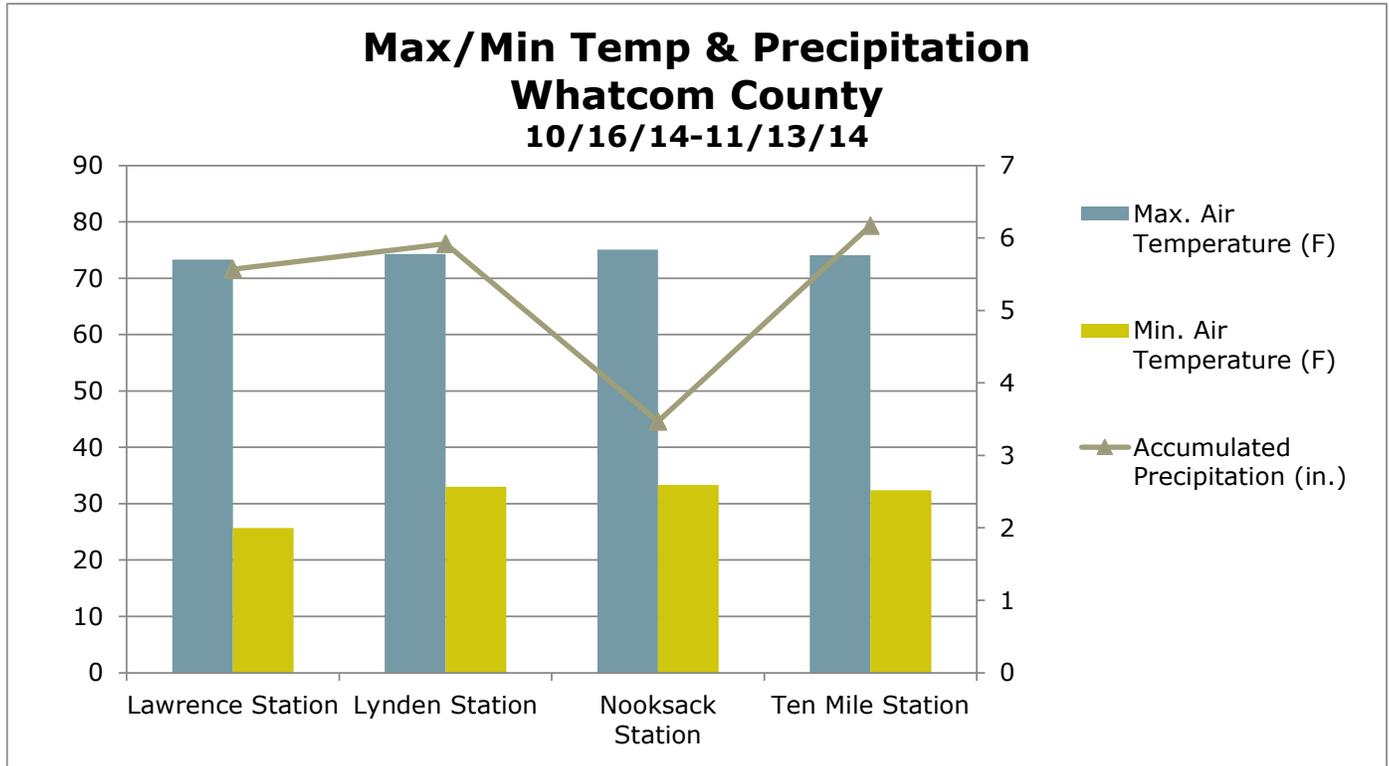
Co-Sponsored by:



- Funded by 2013 Washington & Oregon USDA Specialty Crop Block Grant Funds – WSU & OSU.

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:

An aging fenceline.

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

November

Fresh market strawberries: What it takes to be successful

Nov 19
9:30 am - 7:00 pm
Woodburn, OR
This is the second of two workshops the OSC is sponsoring to introduce growers to Fresh Strawberry market opportunities. Speakers will include growers, buyers, and researchers who will discuss fresh market strawberry varieties, the differences between processed and fresh production, harvest methods, and how to find opportunities for fresh market strawberry sales.

Product Development For Value-Added Prepared Foods

Nov 24
9:00 am - 4:00 pm
WSU Tri-Cities Richland, WA
This workshop will provide the region's small scale prepared food producers with up-to-date information and technical knowledge of the food product development process for the specialty food industry and how to bring such products to market - targeted to start-up entrepreneurs and food product developers.

Focus on Farming Conference

Nov 20th
Monroe, WA
11th annual conference will feature keynote speakers, including Fred Kirschenmann, a longtime national and international leader in sustainable agriculture., industry trade show, networking opportunities and 24 great workshop classes in six industry tracks.

December WA Small Fruit Conference and Lynden Ag Show

Dec 4th-5th
Lynden, WA
This is the Fourth Annual Washington Small Fruit Conference. Researchers, farmers and policy-makers will present topics of new research, emerging issues and novel ideas for you to take back to your farm and business. Topics include: Water Issues Spray Technology, Precision Agriculture Pest Management, Fertility and Irrigation Pollination, Organic & Fresh Market Production Pesticide Safety and Handling, Personnel Management State of the Industry. There will be a catered social hour Thursday evening.

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

[Puget Sound Food Hub Bi-Annual Farmer Gathering](#)

Dec 8th
9:00 am - 3:30 pm
La Conner Flats, WA
Take advantage of this daylong gathering with fellow food hub farmers and ranchers to share experiences, recap 2014 and plan for 2015 before the winter break. The day will include sessions on crop planning, pricing, marketing, standard operating procedures and other best practices to optimize participation and increase sales to commercial and institutional buyers. Light breakfast pastries and lunch provided.

[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 confer-

ence 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.

[Lower Mainland Horticulture Improvement Association Horticulture Growers' Short Course](#)

Jan 30th - Feb 1
Abbotsford, B.C.
LMHIA organizes an annual Growers' Short Course. Funds raised from registration / membership support horticulture research projects, publication of two Production Guides: Berries and Vegetables, and management of the pesticide re-certification program for our members.