



# Asotin County

WASHINGTON STATE UNIVERSITY

## Newsletter

Oct–Dec 2017

**Welcome to the WSU Asotin County Extension Newsletter!** This is a quarterly electronic newsletter highlighting events and topics of interest to residents of Asotin County and the surrounding area. This newsletter can also be viewed on our website: [extension.wsu.edu/asotin/](http://extension.wsu.edu/asotin/)

Do you have an event or subject you would like added to our newsletter or website?  
Would you like to be removed from our Extension Newsletter email list?

### Contact the Extension Office

Phone: (509) 243-2009 Email: [jreed@co.asotin.wa.us](mailto:jreed@co.asotin.wa.us).

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### Contact Us

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Washington State University helps people develop leadership skills and use research based knowledge to improve their economic status and quality of life.

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

# 4-H News/Events and Youth Opportunities

**For information on 4-H events and deadlines, see the complete 4-H Calendar:**

[http://extension.wsu.edu/asotin/4h-youth-development/4h\\_members\\_page/](http://extension.wsu.edu/asotin/4h-youth-development/4h_members_page/)



## 4-H Enrollment Begins Oct 1st!

Registration for 2017-2018 begins on Oct 1st.

The registration deadline to participate in the 2018 Asotin County Fair is Nov 1, 2017.

Washington State recently implemented a mandatory State 4-H fee of \$25 beginning Oct 1st for the new 4-H year. All enrolled members, except certified volunteers, will be charged this \$25 State enrollment fee for each program year. The Asotin County enrollment fee has been lowered to \$10 and Cloverbuds will not be charged the county fee. Scholarships will be available for those that need assistance with the enrollment fee. Please contact the extension office for scholarship information.

Information on the new state enrollment fee is located at:

[http://extension.wsu.edu/asotin/4h-youth-development/4h\\_members\\_page/](http://extension.wsu.edu/asotin/4h-youth-development/4h_members_page/)

Individuals who wish to provide scholarships for low income 4-H youth who need assistance with the enrollment fee may make a donation directly to the Asotin County 4-H Leader's Council. Asotin County wishes to ensure finances will never be a barrier to participate in 4-H

Enrollment will be done through the 4-H Online program. If you were enrolled last year, you will need to re-enroll using your email and password from last year. **DO NOT** create a new profile if you cannot log in; call the Extension Office for assistance.

**If you are new to 4-H you will have to set up a Family Profile. The Extension office can help with enrollment.**

**Interested in enrolling your child in Asotin County 4-H? It's easy, just follow these steps:**

**Choose a project.** There are many projects to choose from in 4-H. Visit the "Projects and Publications" page. Each club has leaders that help the youth with certain project areas. Asotin County does not have leaders available for all the projects 4-H has to offer. If you, or someone you know is interested in becoming a 4-H leader, please contact the Asotin County 4-H office.

### **Choose a 4-H Club**

Pick a 4-H club and contact the 4-H leader to determine if they have openings for the projects you want your child to enroll in (visit the "Become a 4-H member" page). Asotin County 4-H has 4-H Clubs located in Clarkston, Asotin and Anatone. Each club offers certain projects. Review the "Asotin County 4-H Clubs" page and find which club(s) you may be interested in joining. If there are any openings, contact the organizational leader of that 4-H Club, or you can just contact the WSU Asotin County Extension office and we'll help you through the process.

**Information on the 4-H program, projects, and clubs are available at:**

<http://extension.wsu.edu/asotin/4h-youth-development/>

## 4-H News and Events

### Leader of the year

The 4-H Leader of the year award recognizes outstanding 4-H adult, teen and youth leaders.

#### **Stephanie Lathrop was named 4-H Adult Leader of the year for 2016-2017.**

She is the General Organizational Leader of the Muddy Buddyz 4-H group. Stephanie is willing to jump in and help anyone. She gives 110% at everything she does; from washing cars with the 4-H group, to putting together jars of cookies and hot chocolate for a fundraiser. She tries to find new experiences and learning tools to help the 4-H group increase their knowledge. She is a great listener and treats everyone with kindness and respect. She is always open to new ideas. Stephanie was nominated by Shannon Spinelli, Erin Hocking, Gail Campbell, and Krystal Lathrop.



#### **Kerington Tenwick was named 4-H Teen Leader of the Year for 2016-2017.**

Kerington is the 'real deal' 4-H youth. She has already begun to pay it forward by sharing her knowledge with younger 4-Hers who look up to her. She accomplishes this with such genuine and infectious caring. Kerington consistently pushes herself to learn more. She is a teen leader in 2 different 4-H clubs and has taken advantage of numerous youth and leadership camp opportunities. She regularly volunteers at fundraisers and as a teen helper at the summer youth camp. Kerington was nominated by Gail Campbell and Kim Belanger.

**Congratulations to Stephanie and Kerington and thank you for all your hard work in 4-H!**

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### State Fair Participants

Congratulations to the 6 youth from Asotin County who competed in the Washington State Fair in Puyallup. Think Outside the Hog members Rylan Hays, Elleza Potoshnik, and Grace Hart gave demonstrations. Unfortunately, Emily Adams was not allowed to do her Archery Demonstration due to Fair rules.

Jolee Sanford of Beckman Gulch and Anna Aarstad of Snake River 4-H competed in the livestock judging event. They took 3rd and 4th place which assured them spots on the 4 member team eligible to compete at the Western National Roundup in Denver in January 2018. Anna also took 1st place in Oral Reasons.



Jolee Sanford and Anna Aarstad

**Thanks to all for representing Asotin County 4-H! Congratulations!**

## Teen Rally

Asotin County normally participates in the Southeast District Teen Rally, however, the Rally was cancelled this year due to low enrollment numbers. We have cordially been invited to participate in the Northeast District Teen Rally instead.

### Northeast District Teen Rally Nov. 3-5, 2017

- ◆ Registration deadline: Oct 18, 2017 (to Asotin County)
- ◆ What is Rally? A fun filled weekend where youth meet new friends, gather with old friends, experience new things, and participate in fun activities to build leadership skills.
- ◆ Activities include rock climbing, log-rolling, educational workshops, scavenger hunt, dance and barbecue
- ◆ Who can attend? 4-H and non 4-H youth in 6th through 12th grade.
- ◆ Hosted By: Pend Oreille County 4-H.
- ◆ At: Newport, WA. Transportation provided by WSU Asotin Co. Extension.
- ◆ Cost is: \$40 and includes lodging, meals and activities. Scholarships are available (Contact Kim at the Asotin Co. Ext Office)

Please mail or bring registration and payment to the WSU Asotin County Extension office by **Oct 18th**. Make checks payable to Pend Oreille County Council.

This is a fantastic and fun opportunity for teens, please feel free to share as this event is open to non-4-H youth!!!

Information and registration can be found at:

<http://extension.wsu.edu/asotin/upcoming-events-and-workshops/>

[NE Dist Teen Rally flyer 2017](#)   [NE Dist Teen Rally Registration](#)

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## School Gardening Programs Promote Healthy Eating!

Did you know that Grantham and Parkway Elementary Schools in Clarkston, and Pomeroy Elementary School in Pomeroy each have their own school gardening programs? The WSU Asotin and Garfield County Master Gardeners provide the weekly lessons and coordinate the school gardening activities at each school. The Parkway and Grantham programs meet weekly with 4th graders; while the Pomeroy program focuses on 3rd graders.

While each program is unique in how it is delivered, they all strive to encourage youth to make healthy food choices; and to teach elementary students where their food comes from. Funding for the school gardening programs comes from grants, the Asotin and Garfield Master Gardener programs and local donations.



# Master Gardeners and Gardening

## Fall Gardening Series classes

The WSU Asotin County Master Gardeners will hold their annual Fall Gardening Series classes on Oct 18 & 25, and Nov 1st. Classes are held in the Lecture Hall at the Clarkston Campus of Walla Walla Community College from 6:00 to 8:00 pm.

**October 18th** - Selecting and Using Native Plants in your Landscape. This presentation will also include a discussion on alternatives to traditional Bluegrass/Fescue Lawns. Presenter: Kathy Hutton, Manager of *Plants of the Wild* in Tekoa. Other topics presented are Seed Saving and Propagating Plants from Cuttings by Ken Roberts, WSU Asotin County Master Gardener; and Creating Bee Friendly Lawns by Deloris Jungert Davisson, WSU Asotin County Master Gardener

**October 25th**- Organic Pest Management Strategies in your Garden: Managing Insects, Diseases and Weeds. Presenter: Brad Jaekel, Manager of the WSU Organic Farm in Pullman. WSU Asotin County Master Gardeners will speak about Garden Experiments: What we have learned from the WSU Asotin County Master Gardener Demonstration Garden.

**November 1st** - Protecting Pollinators. Presenter: Doug Finkelnburg, UI Nez Perce County Extension Agronomist. The Lewis-Clark Valley Beekeepers Association will speak about Current Topics in Home Bee Production.

Visit the calendar of events on the web site and local media for information and registration:

<http://extension.wsu.edu/asotin/upcoming-events-and-workshops/>



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## 2018 Master Gardener Training and Horticulture Classes

WSU and UI Extension will offer Master Gardener Training and Horticulture Classes beginning on January 9 and concluding on April 17, 2018. Classes will be held each Tuesday from 1:00 – 4:30 at the Clarkston Campus of WWCC. Applications are due no later than December 22, 2017. The classes will be taught by UI and WSU faculty and local horticultural experts.

The classes provide extensive horticultural training to become a WSU or UI Master Gardener volunteer in Asotin, Garfield, Nez Perce or Whitman Counties. Master Gardeners are community educators who provide science-based information on horticulture and environmentally sound gardening practices. Benefits of becoming a Master Gardener include gaining a satisfaction from helping others; developing lasting friendships with others interested in horticulture; increasing your public relations skills and self confidence; and broadening your horticultural knowledge through formal training.

There are also a limited number of openings for individuals that do not plan to become Master Gardeners but want to take the class to increase their own horticultural knowledge.

Application materials are available on-line under “Master Gardener Program, Horticulture Classes” at <http://ext.wsu.edu/asotin/>, or by contacting the Asotin, Nez Perce, Whitman or Garfield County Extension Offices. More information is available by calling the WSU Asotin County Extension Office at (509) 243-2009.

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

*Scholarships and fee waivers are available. Contact the Asotin County Extension office at 509-243-2009 for more information.*

## Preparing Your Garden for Fall and Winter

<https://www.almanac.com/content/preparing-your-garden-winter>

You can postpone the inevitable (that is, winter) for a while by covering your vegetables with old sheets or bedspreads on cold nights, but the declining light and chilly daytime temperatures will naturally bring plant growth to a halt. Here are some ways you can get your garden ready for winter:

### Vegetables

- Leave carrots, garlic, horseradish, leeks, parsnips, radishes, and turnips in the garden for harvesting through early winter. Mark the rows with tall stakes so that you can find them in snow, and cover them with a heavy layer of mulch to keep the ground from thawing.
- Pull up tomato, squash, pea, and bean plants. If they're disease-free, compost them. If any are diseased, either burn them or discard separately. Pull up and put away the stakes.
- Before the ground gets too hard, remove all weeds and debris and eliminate overwintering sites for insects and disease. Gently till the soil to expose any insects who plan to overwinter; this will reduce pest troubles in the spring and summer. This is one of the most effective ways to reduce populations of Japanese beetles, whose grubs live and overwinter in the ground.
- Once most of the garden soil is exposed, add a layer of compost, leaves, manure (if you have it), and lime (if you need it). Gently till into the soil.
- Another option is to sow cover crops, such as winter rye, to improve your soil.
- If some areas have hopelessly gone to weeds, cover them with black plastic or a layer of cardboard and leave it in place over the winter and into the spring to kill sprouting seeds.



### Herbs

- Sage is a perennial in most areas and does not need special treatment for the winter. Before frost stops its growth, cut a branch or two to dry and use in stuffing at Thanksgiving!
- Rosemary is a tender evergreen perennial that should be sheltered outside (Zone 6) or potted up and brought inside (Zone 5 and colder) for the winter.
- Thyme is fairly indestructible. A perennial, it will go dormant in the fall, then revive by itself in the spring.
- Parsley, a biennial, will withstand a light frost. In Zone 5 or colder, cover it on cold nights. It has a long taproot and does not transplant well.
- Chives are hardy perennials. Dig up a clump and pot it, then let the foliage die down and freeze for several weeks. Bring the pot indoors to a sunny, cool spot. Water well and harvest chives throughout the winter.

### Berry Patches

- In early to mid-fall, prune summer-bearing raspberries, leaving six of the strongest brown canes for every 1 foot of your row.
- Prune fall-bearing raspberries ruthlessly, cutting them to the ground after they have borne fruit. New canes will come up in the spring.
- Plant blackberries in the fall and mound up the soil around the canes to prevent hard frosts from heaving them out of the ground.
- Cover strawberry beds with straw or hay



## Preparing Your Garden for Fall and Winter (Continued)

### Perennials and Flowers

- Water your perennials and flowering shrubs in the fall; they will thank you for it this winter.
- Once the ground has frozen hard, cut perennials back to 3 inches and mulch them with a thick layer of leaves or straw.
- If you plan to put in a new flower bed next spring, cover that area now with mulch or heavy plastic to discourage emergent growth when the ground warms up in the spring.
- Before a heavy snowfall, cover pachysandra with a mulch of pine needles several inches deep.
- Move potted chrysanthemums to a sheltered spot when their flowers fade. Water well and cover with a thick layer of straw to overwinter them.
- When a frost blackens the leaves of dahlias, gladioli, and cannas, carefully dig them up and let them dry indoors on newspaper for a few days. Then pack them in dry peat moss, or shredded newspaper and store in a dark, humid spot at 40° to 50°F until spring.

### Roses

- You may water roses regularly through the fall; no need to fertilize starting 6 weeks before the first frost.
- Remove any dead or diseased canes.
- After the first frost, mulch plants with compost or leaves to just above the swollen point where the stem joins the rootstock.
- In areas where winter temperatures are severe, enclose low-growing roses with a sturdy cylinder of chicken wire or mesh and fill enclosure with chopped leaves, compost, mulch, dry wood chips, or pine needles.
- Before daily temperatures drop well below freezing, carefully pull down the long canes of climbing and tea roses, lay them flat on the ground, and cover them with pine branches or mulch.



### Trees and Shrubs

- Protect small trees or shrubs from extreme cold by surrounding them with a cylinder of snow fencing and packing straw or shredded leaves inside the cylinder.
- Inspect your trees. Remove any broken limbs, making a clean cut close to the trunk.

### Garden Chores to Do Before Winter

- Empty all of your outdoor containers to keep them from cracking during the winter. Store upside down.
- Hang a bucket over a hook in your toolshed or garage and use it to store hose nozzles and sprinkler attachments.
- On a mild day, run your garden hose up over a railing or over the shed to remove all the water. Then roll it up and put it away.
- Mow your lawn as late into the fall as the grass grows. Grass left too long when deep snow arrives can develop brown patches in the spring.
- Don't leave fallen leaves on the lawn. Rake onto a large sheet or tarp, then drag to your compost pile in thin layers mixed with old hay and other material. Or, rake the leaves into loose piles and run the mower over them to turn them into mulch for perennial and bulb beds.
- Cover your compost pile with plastic or a thick layer of straw before snow falls.
- Drain the fuel tank on your lawn mower or any other power equipment. Consult the owner's manual for other winter maintenance.
- Scrub down and put away your tools. Some folks oil their tools with vegetable oil to avoid rust.



# THE BUZZ

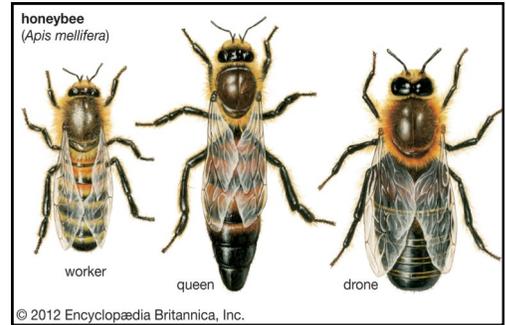


By John Freeman

President, Valley Beekeepers Association and Asotin County Master Gardener

The Valley Beekeepers Association had another busy year. The second Beginning Beekeeping class is coming to a close and they are harvesting honey from the class hives. It is time to get the hives ready for winter. Have you ever wondered what bees do in the winter? Let me tell you.

At peak season, when flowers are blooming, a typical hive contains 40,000 to 60,000 bees. The hive consists of about 50,000 female worker bees, 1,000 to 2,000 male drone bees, and only one queen. During this time the queen lays 2000+ eggs per day. The life span of the female worker bees is about 42 days. These female workers are nurse bees, foragers, guard bees, comb builders, and honey makers. They literally work themselves to death! In order to make it through the winter, the bees have to make some changes to the hive. Drone bees are important for reproduction but they don't forage or work in the hive, yet they consume some of the honey in the hive. As winter approaches the bees evict the drones from the hive to assure there is enough honey and pollen available for the queen and remaining workers. As the weather gets cooler and there is less incoming pollen and nectar available, the queen lays fewer eggs, but she lays special eggs that will survive the winter and replace the bees that were lost in the fall. This special type of bee is called a "fat bee" or "winter bee". These fat bees are different because they have more sugars and fats in their blood, lower hormones, enlarged food glands and a compound that helps them store food reserves in their body. They do not have to work hard to make honey like the summer bees do. The lifespan of these winter bees is 3 to 5 months. All of these differences make the bees fatter and better able to survive the cold winter months.



When the outside temperatures drop to about 55°F degrees, it signals the bees to start gathering for winter warmth. Bees are not like other insects that lay eggs in the fall and then die. They are active during the winter and they don't hibernate. Since bees are cold blooded, the hive must maintain a warm temperature to keep the colony alive. They do this by clustering. The bees group together with the queen in the center of the cluster. The bees shiver and flap their wings to produce heat and keep the queen warm. Outer bees trade places with inner bees to maintain a rotation of temperature and to allow honey consumption. As the temperatures drop, the cluster gets closer together to create more warmth. The bees use a lot of energy to keep the hive warm so they replenish it by eating the stored honey. Sometimes the cluster can become stranded.



Honey resources in the area of the cluster are exhausted but they are not able to reach the honey they have stored elsewhere because temperatures are too cold. This is a sad demise for the colony. If the outside temperature passes above 50°F, bees will take advantage to leave the hive and defecate, which helps keep the hive clean. These are called *cleansing flights*. Since bees cannot fly very long distances when temperatures get down around 50°F, any bee traveling too far may get stiff from the cold and be unable to return home.

The winter cluster is a amazing process though which bees find a way to survive frigid weather, thanks to an extraordinary effort and planning in the warmer months. The objective of the winter cluster is simple; to reach the spring with a healthy queen and enough workers to restart the foraging and build the colony all over again.

# Agriculture and Natural Resources

## Asotin County Noxious Weed Control Board Update

By Andrew Wolfe, Noxious Weed Coordinator

The Weed Board is going paperless! All currently offered cost-sharing opportunities and their applications can be viewed in detail at our revised and updated website:

<http://www.co.asotin.wa.us/noxious-weed-control/>. Opportunities exist while funds last so if you are planning treatments of rush skeletonweed, sulfur cinquefoil, yellow star or scotch thistles call 509-243-2098 or email Andrew Wolfe at [awolfe@co.asotin.wa.us](mailto:awolfe@co.asotin.wa.us) to find out how you can benefit.

Think you missed your opportunity to kill those weeds you just didn't have time for this summer? Fall is a great time to gain a leg up on many of your most despised species; yellow star, scotch and bull thistles, rush skeletonweed, mustards, pepperweeds, whitetop, morning glory, English ivy and many more. Many of the weed species we see during the spring germinated during the fall or even winter. Plants that germinate or persist through the fall and winter must budget energy to survive dormancy and the harsh months ahead. Generally this occurs by storing carbohydrates in the roots and provides an opportune moment for translocation of herbicides from leaf to root. Fall applications of herbicides often get better results for getting rid of hardy perennials and can remove most of an entire generation of fall/winter annuals or biennials. This will result in leaving you being ahead of the game come spring time. Look this fall for rosettes that resemble dandelions; lots of weeds in early stages look very similar to dandelion rosettes and, odds are, you don't want them!

Call your friendly neighborhood Noxious Weed Control Board for more information about species identification, management consultation and cost-sharing programs. Find and like us on facebook at <https://www.facebook.com/Asotin-County-Noxious-Weed-Control-Board-256287538173982/> for updates

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## WSDA Pesticide License Recertification Requirements

Licensed pesticide applicators have two choices to maintain their license:

- 1) Participate in the state recertification (continuing education) program
- 2) Retest every five years.

To obtain information on your current credit information visit: <https://agr.wa.gov/PestFert/LicensingEd/Search/> or contact WSDA at 1-877-301-4555. Credit statements are mailed every November.

Private Applicators—20 credits over 5 year period, no more than 10 per year.

Ranchers Private Applicators—12 credits over 5 year period.

Limited Private Applicators—8 credits over 5 year period; must be directly or indirectly related to weed control.

All Other Licensees—40 credits over 5 year period, no more than 15 per year.

## Finding courses

WSDA accredits several hundred recertification courses each year, the majority of which are open to all. Courses are sponsored by a variety of businesses, agencies and organizations. Depending on the course and sponsor, there may be a fee required for attendance. You can search for open, WSDA accredited recertification courses by location, topic and language. The Washington State University's (WSU) Pesticide Education Program sponsors a number of statewide recertification short courses each fall and winter.

Check the list of available courses at: <http://pep.wsu.edu/>

There are one-credit courses you can take online. Go to: [pep.wsu.edu/recertonline](http://pep.wsu.edu/recertonline) for a listing.

## Pesticide Recertification Clinics

Do you need pesticide recertification credits? The UI/Nez Perce County Extension will hold a 'Procrastinator's Pesticide Clinic' on Wednesday, October 25, 2017 at the Ketch Pen on the Lewiston Round-up Grounds.

8:00am– 11:45 am

\$10 per person

3 License credits for ISDA, WSDA, and CCA

For information contact the UI/Nez Perce County Extension Office at 208-799-3096 or email [nezperce@uidaho.edu](mailto:nezperce@uidaho.edu)

The Asotin County Extension will also offer a 3-credit Pesticide Re-certification program the 2nd or 3rd Friday in December in Clarkston. Additional details will be available in early November.

## Healthy Living

### Winter Nutrition Guide: 4 Foolproof Steps

[http://www.healthcastle.com/winter\\_nutrition\\_diet.shtml](http://www.healthcastle.com/winter_nutrition_diet.shtml)

**Eat high-quality carbs** Listen to your cravings - there is a reason for them! In the winter, with fewer sunny hours, your stored serotonin (the "feel-good" brain chemical) starts to decline. Your cravings for carbohydrate-loaded comfort foods are your body's cries for more serotonin. But be careful when choosing carbohydrates to boost serotonin! Opt for nutritious whole grains and choose high-quality carbs such as sweet potatoes, pumpkins, and winter squashes.



**Love seasonal produce** Winter produce may not be as exciting and colorful as summer berries, but there are still many healthy choices available. Work seasonal produce such as pomegranates, cranberries, citrus fruits, purple grapes, and orange root vegetables into your meals. You'll not only add color to your plate, you'll pack in some serious nutrition punch.

**Short daytime? Consider Vitamin D supplements** If you live in the northern hemisphere or wear sunscreen all the time, consider taking Vitamin D supplements especially in the winter months. Numerous studies have shown that oral intake of 1000 IU Vitamin D can reduce the risk of colon, breast, and ovarian cancers by as much as 50 percent. Vitamin D can be found in fortified dairy products, fatty fish, and egg yolks. But reaching the recommended level through food alone is rather difficult. Therefore, the Canadian Cancer Society recommends that all adults take 1000 IU of Vitamin D supplements every day during the fall and winter seasons. Be sure to speak to your doctor before starting any supplementation and check your existing multi-vitamins for the amount of Vitamin D you are currently supplementing.

**Eat to fight flu bugs** Despite numerous claims you may have heard, no diet remedy or supplement has scientifically proved effective at preventing cold and flu, except Vitamin D. A 2007 study found that participants taking daily Vitamin D supplements were 3 times less likely to report cold and flu symptoms. What about Vitamin C? Studies have shown that 1,000 mg of Vitamin C supplements may make your cold milder and shorten it by half a day. In addition, there's a promising perk for yogurt lovers! A German study found that probiotics (as found in yogurt with active culture) may shorten your cold episode by almost two days. So keep on eating those "friendly" bugs!

## Food Safety and Food Processing Resources

Stephanie Smith  
Statewide Consumer Food Safety Specialist  
Steph.smith@wsu.edu 509-335-0972  
<http://extension.wsu.edu/foodsafety/>

Girish Ganjyal  
Extension Food Processing Specialist  
girish.ganjyal@wsu.edu 509-335-5613  
<http://foodprocessing.wsu.edu/>

### WSDA Certifications, Licenses, Permits, Registrations:

<http://agr.wa.gov/fp/forms/formsbyalpha.aspx>

### WA Department of Health Food Safety Rules and Regulations:

- <http://www.doh.wa.gov/CommunityandEnvironment/Food/FoodWorkerandIndustry/FoodSafetyRules>
- pH of Various Foods: [http://www.fda.gov/Food/FoodbornellnessContaminants/CausesOfIllnessBadBugBook/ucm\\_122561.htm](http://www.fda.gov/Food/FoodbornellnessContaminants/CausesOfIllnessBadBugBook/ucm_122561.htm)
- <http://www.foodscience.caes.uga.edu/extension/documents/fdaapproximatephoffoodslacf-phs.pdf>

### Food Testing Laboratories (microbiology and other testing)

- Silliker - <http://www.merieuxnutrisciences.com/us/eng/our-services/food-safety-and-quality/food-testing-research-food-quality-safety-consultants>
- Cascade Analytical - <http://www.cascadeanalytical.com/client-services/food-safetyhaccp>
- Medallion Labs - <http://www.medallionlabs.com/TestLibrary/Test2.aspx?tid=1946&id=38>
- Eurofins - <http://www.eurofins.com/en/food-feed-testing.aspx>
- IEH - <http://www.iehinc.com/food-microbiology/>

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## General Canning Rules

Adapted from *Major Canning Sins*, FN-250.7, by Charlotte P. Brennand, Ph.D., Extension Food Safety Specialist, Utah State University, Logan, UT. June 2005

1. Always exactly follow a scientifically tested recipe (exceptions listed below).
2. Make altitude adjustments by adding more time to water bath canning or increasing pressure for pressure canned products
3. Unless you are sure that everything is perfect in the processing, boil product for 10 min before eating.

### Exceptions to the never change anything in a canning recipe rule

Feel free to:

- Change salt level in anything except pickles
- Change sugar level in syrup used for canned fruit
- Add extra vinegar or lemon juice
- Decrease any vegetable except tomatoes in salsas
- Substitute bell peppers, long green peppers, or jalapeno peppers for each other in salsa recipes as long as you do not increase the total amount



## Major Canning Errors Potentially Deadly



What	Why it is unsafe
Making up your own canning recipe or using an untested recipe.	Without scientific testing, you will not know how long the product needs to be processed to be safe.
Adding starch, flour, or other thickener to recipe	This will change the rate of heat penetration of the product and can result in under-processing
Adding extra vegetables to salsas or stewed tomatoes.	The extra vegetables dilute the acidity and can result in botulism poisoning.
Using oven or steam canner instead of water bath for processing	This product will be under-processed since air is not as good a conductor of heat as water.
Not making altitude adjustments	Since boiling temperatures are lower at higher altitudes, the products will be under-processed.
Not venting pressure canner 10 minutes before processing.	Lack of venting can result in air pockets which will not reach as high a temperature as needed
Using recipe for pickles with inadequate vinegar-to-water ratio.	A 1:1 ratio of vinegar-to-water is needed to prevent botulism poisoning.
Not having dial gauge pressure canner tested annually.	If the gauge is inaccurate, the food may be under-processed.
Failure to acidify canned tomatoes	Not all tomatoes have an adequate acid level, especially if the vine is dead. This can result in botulism poisoning.
Cooling pressure canner under cold, running water.	Calculations for cooking time include the residual heat during the normal cool-down period as part of the heat process.
Letting food cool before processing in the recipes that call for "hot pack".	The heat curves are based on the food being hot at the beginning of the processing. Product could be under-processed.

### Economic loss.....Hazard, but not deadly

Use of mayonnaise jars.	The jar may blow up, especially if used in a pressure canner, and it may be more difficult to obtain a good seal. However, if it seals, it is safe to use.
Use of paraffin on jams and preserves.	Small air holes in the paraffin may allow mold to grow. Also, paraffin can catch fire if over-heated. If there is mold growth, throw out the product.
Cooling too slowly after removing from canner (example: stacked jars close together).	There is a group of harmless organisms called thermophiles which can survive canning. This results in the defect known as "flat-sour", a harmless but very undesirable flavor.
Storing food longer than recommended	Lengthy or overly hot storage will decrease quality and some nutrients but the product will still be safe to eat.