Welcome to the WSU Garfield County Extension Newsletter!
This is an electronic newsletter highlighting events and topics of interest to residents of Garfield County and the surrounding area. This newsletter can also be viewed on our website: https://extension.wsu.edu/Garfield/

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?
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Nitrate Poisoning: When to Be Concerned
Adapted from John Fouts, Retired WSU Extension Educator

Nitrate poisoning is a noninfectious disease condition that can affect all species consuming forages or drinking water containing toxic levels of nitrate. Range livestock are most commonly poisoned by nitrates in forages, rather than in water. Cattle are the most susceptible, while sheep are less affected, possibly because of their ability to break down nitrate more quickly than cattle. Non-ruminants are less susceptible to nitrate poisoning, but it can still be a problem in horses because of the fermentation in the cecum. The nitrite converted from nitrate by the bacteria is the real toxic culprit.

So, when is there a problem of too much nitrate in a forage? Both growing and harvested forages can have problems with nitrate accumulation.

There are species of plants that have a propensity to accumulate higher levels of nitrates. All plants take nitrogen from the soil and convert it to amino acids, the building blocks of protein. Nitrate is one of the intermediary compounds in the process. Some species of plants have a tendency to accumulate higher levels of nitrate during this process. These are in species that we need to be the most concerned with.
Below is lists common plants known to accumulate nitrates. Most problems in the PNW occur with grain hays and weedy hays.

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<thead>
<tr>
<th>Common Plants Known To Accumulate Nitrate</th>
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<td>Barley</td>
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<td>Canada Thistle</td>
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<td>Corn</td>
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<td>Flax</td>
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<td>Jimsonweed</td>
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<td>Millet</td>
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<td>Johnson Grass</td>
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<td>Oats</td>
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<td>Kochia</td>
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<td>Rape</td>
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<td>Lambsquarter</td>
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<td>Rye</td>
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<td>Nightshade</td>
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<td>Soybean</td>
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<td>Pigweed</td>
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<td>Sorghum</td>
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<td>Russian Thistle</td>
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<td>Sundangrass</td>
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<td>Smartweed</td>
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<td>Wild Sunflower</td>
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<td>Sweetclover</td>
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<td>Wheat</td>
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The next situation that can cause higher levels of nitrate accumulation is what I group as plant stress. This can include drought, frost, hail, and/or herbicide treatment. Not all drought conditions cause high nitrate levels in plants. In plants that survive drought conditions, nitrates are often high for several days following the first rain. If there is a nitrate problem at the time of cutting, the resulting hay will have a nitrate problem. The ensiling process decreases the nitrate level in the silage.

Frost, hail, and low temperatures may damage reduce or completely destroy the leaf area of the plant. A decrease in leaf area limits the photosynthetic activity of the plant, so nitrates absorbed by the roots are not converted to plant proteins, but are accumulated in the stem or stalk instead.

Herbicide treatment with phenoxyacetic herbicides (2,4-D, Banvel, MCPA, etc.) promotes rapid plant growth. Nitrate concentrates tend to be highest 3 to 5 days after herbicide application.

Fertilization with nitrogen fertilizer can be a cause of nitrate poisoning. Acute nitrate poisoning may occur if livestock consume nitrate fertilizer. Avoid grazing immediately after spreading fertilizer. Crops grown on soils that have received high applications of manure or nitrogen fertilizer may accumulate high levels of nitrate.
So, how do you know if you have a nitrate problem in you hay? The only real way is to have your hay tested for nitrates. This can be done at the same time and with the same sample submitted for nutrient analysis. If you suspect any problem with nitrate accumulation, it is very cheap insurance to have the hay tested for nitrates. Remember a representative sample is the most important thing to get an accurate analysis.

Once you get your analysis report back, you can tell whether you have a problem with nitrates and how serious the problem is. Different labs test for and report nitrate content differently. There are many opinions on the toxicity levels. Once you get your report back, consult with your veterinarian or County Extension Agent on the safety of your hay.

There are many good Extension bulletins on nitrate poisoning. Just do a web search using any search engine for “nitrate poisoning” or “nitrate toxicity”.

Washington farmers produce over 300 different commodities
Sagebrush Hospitality: a home for good bugs can save vineyards

WSU Insider, July 20, 2018
Prosser, WA—Sagebrush is a protective home for good bugs that help fight harmful pests on grape vines, according to new research from WSU scientists.

This finding could be a huge benefit for local vineyards who want to manage pests and reduce their use of pesticides.
The work recently was published in the journal Insects.

Number one out of 120 Plants
“We’ve looked at about 120 native plants near vineyards over the last few years to see how attractive they are to different beneficial insects,” sais WSU entomologist David James. “Sagebrush had the highest number of beneficial insects of any plant we’ve studied so far.”

The most common helpful insects in sagebrush were several species of parasitic wasps, tiny parasites that feed on pests that harm healthy wine grapes. One kind of parasitic wasp loves to feed on leafhoppers, a major pest for vineyards.

“The wasps don’t harm people or crops, and are often too small to even see,” said James, an associate professor with WSU Prosser Irrigated Agriculture Research and Extension Center. “These aren’t yellow jackets, but they’re really helpful in combating pests.”

Year-Round Surprise
The entire team was surprised by how hospitable the sagebrush is to beneficial insects, he said. One reason was that the bugs don’t just live in the sagebrush when it’s flowering and has nectar in the autumn. The team found insects throughout the spring and summer as well. It’s a year-round benefit,” James said. “We suspect that’s because insects have evolved to rely on it as a refuge from the heat or wind.”

James now recommends that vineyards leave sagebrush in as many areas as possible. More sagebrush nearby means more beneficial insects to feed on pest bugs and less need to apply pesticides.

James said he’s been asked if sagebrush attracts pest insects as well as the beneficial ones. Not an issue, he said.

“The parasitic wasps and other natural enemies seem to provide sagebrush with good protection from pests,” James said. “Sagebrush in eastern Washington appears to rarely suffer from pest damage. Given the likely long association between beneficial insects and sagebrush, this makes perfect sense.”
Not as Prevalent as Before

One problem is that sagebrush isn’t nearly as common as it once was, James said,
“Central Washington and Oregon used to be a virtual sea of sagebrush, but the ecosystem is threatened and fragmented now,” he said. “Everybody takes sagebrush for granted. It doesn’t necessarily look very nice, but it’s a valuable resource. And can be really useful in helping agriculture.”

James’ research has been supported by state and federal funding, as follows:
- Northwest Center for Small Fruits Research
- Washington State Grape and Wine Research Program
- Western Sustainable Agriculture Research and Extension

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A Note from Master Gardener Barb Deherrera

Have you ever considered becoming a Master Gardener? This may influence your decision!

How a Master Gardener Program Changed My Life
By Barb Deherrera, Master Gardener

My husband and I moved cross-country, camping along the way. I am sure I mentioned how spiders liked me and how I had a fear of them. For whatever reason, they tend to gravitate toward me. I knew this and was generally aware of any in my surroundings. We were stopped at a campground, and decided to get up early; that would be 5 AM, shower and get on our way. There was a family shower, it had plenty of room to change clothes, shower and get ready for the day. When we entered the shower, I had noted a LARGE spider in the corner, farthest away from us. While showering, I kept my eye on him, continually. I needed to wash my face; I told my husband to watch that spider while I washed my face. Apparently, I had not yet learned that spouses do not always listen of fully understand directions. I washed my face quickly, opened my eyes......yes, the LARGE spider had traversed the room, and was now dangling 6 inches from my face! I screamed, more than once. My husband hit the spider, it was so large it made a resounding smack on the wall and bounced back at us. That was his last swing and he was disposed of. My husband now understands what I mean about spiders and me, and keeps them away!

What does this story have to do with the Master Gardener Program? Last week I let a spider go! That is no small change in attitude for me!!

In the late summer of 2017, my friend started encouraging me to take the Master Gardener training program. In our area, it is offered every 2 years and January, 2018 would be the next class or I would have to wait another 2 years. I had retired, then returned to work part time. I really wanted to take the class, but it was only offered on Tuesday afternoon, and that was the one day I was required to work. My friend told me I would just have retire again! So I did! That was a good choice!

I was reading something recently that talked about following your passion. I was already passionate about gardening, so I took the Master Gardener Program to develop my passion. I now look at the world differently. I see things flying through the air….wait, what is that? Friendly pollinator or crop-damaging insect? I see things crawling on the ground, on flowers or shrubs or trees; wait, what is that? Is that a good guy or damaging guy? And, how much damage and I willing to put up with in order to not harm the good guys? I see a branch that does not look quite right. I get closer to inspect for signs and symptoms of disease. Through all of this, I try really hard not to trespass on others property, but I am curious about everything now! I never realized that a ladybug goes through a complete metamorphosis; egg, larvae, pupa, adult. I am sure I have squished lots of baby ones thinking they were some sort of damaging insect.

Life Cycle of the Ladybug
How becoming a Master Gardener Changed My Life (cont’d)

Another class was on turf management, a subject that was not particularly interesting to me. However several weeks later, my husband was watching a golf game and said, “look at that grass growing on the steep hillside! I wonder how they maintain that?” I said, “Let me tell you about the type of grass they use for that purpose!”

Because of the WSU/Garfield County Master Gardener Program, I look at our world differently, and now let spiders go!

Thank you Mark Hetistuman for organizing our program! Thank you Susan Morrow for making me retire! Thank you Sue Fitzgerald for welcoming me into the WSU/Garfield County Master Gardener Program! And, Thank You to all my mentors!

Barbara Deherrera

A NOTE FROM MASTER GARDENER SUE FITZGERALD

The USDA has updated their low temperature zone map. Our county is now listed as zone 7a. Since our goes from 700 feet above sea level along the snake river to 4000+ plus in the Blue Mountains. This does not take into consideration our hot dry summer with low humidity, or our areas that get down to 5-10 degrees with the wind blowing. So when buying plants, you want to look for plants that are more hardy.

As the weather cools, plant some lettuce, spinach, radish or other short maturing cool growing weather crops. This winter is supposed to be an El Nino winter and could stay mild into late November. Have something handy to cover your crop just in case fairly low temperatures are predicted. When you veggies are done growing and you have pulled and composed everything that is not diseased, plant a cover crop. This can be wheat, rye, clover or a legume. This will protect the soil and next spring it gets tilled in to add organic material to the soil. Clean up your flower beds as the annuals quit blooming. Perennials need to be cut to the ground. Many of them will have a powdery mildew; a white, flour coating on the leaves. These stems and leaves need to be put in the garbage, not the compost. Keep your plants watered if conditions are dry. Perennial shrubs and trees will winter better if the soil is moist before freezing weather hits. Cut out all raspberry canes that have fruited as they will not fruit again. The new canes can be pruned back to 4 feet, if overly tall, so they will not get whipped by the wind or pushed over by a heavy snow. Fall is a good time to start perennial seeds. Many need a period of chilling before they will germinate. Plant in a sheltered place in your garden or plant in containers that will drain and put them in a sheltered place, covered by leaves. Follow directions on seed packet for depth of seed. Try some petite bulbs. You may not find them in stores, so you will have to order them from an online garden store. Plant them three times the depth of the bulb. They grow in moist soils, but do better in light soil. Some of the best are:

**Winter Aconite (eranthis hyemalis):** Bright yellow flowers that sit on a ruffled collar of foliage, 6 inches tall. Very early bloomer, in sun or part shade. They are deer resistant.

**Snow Drop (gulanyhus nivalis):** Early bloomer. Delicate white flowers marked with green at the neck, dangle from 10 inch plants. There is also a double version. Grows in part shade. Deer resistant.

**Siberian Squill (scilla siberian):** Spring Beauty, bright blue blooms, or Alba white blooms. 3 inches to 6 inches tall. Mid season, deer resistant, sun or part shade.
**Glory of the Snow**: (chionc doya species) 4 to 6 inchestall, they come in many colors, have an early mid season bloom, like full sun.

**Fritillaria Meleagris**: Hanging tulip like flowers in checkered pattern, in shades of Purple. 4 inches tall, plant in moist soil in part shade.

There are many other small bulbs, so plat a few of several varieties someplace where you can see them often as spring arrives.

Toward the end of September and into October, before there is a hard frost, dig your potatoes. Chose a day that is warm and dry. Lift the tubers carefully, trying not to bruise them. Leave in a shady spot for an hour or two for them to dry. If the soil is caked on the tubers, carefully wash, then dry in the shade. Next, bring them in a dark place to cure with a temperature of 55 to 60 degrees and high humidity of 80%. Leave them for a couple of weeks to cure, then move to a cooler dark place that is 35 to 40 degrees with less humidity and is well ventilated. Store in slated wooden bins or plastic milk crates. The potatoes need good air circulation, so don’t pile them too high, no more that 4 to 6 inches. Potatoes will keep for 8 months. If the temperature is higher, they will sprout and not keep as long. If the potatoes are exposed to light, they will turn green. There is a slightly toxic, bitter substance called solarine. Eating a very large helping may cause you to get sick. Peeling off the skin and any green on the potato usually eliminates the problem as it should not be through out the whole potato. For those who can’t eat a lot of carbs, which potatoes have, a new lower carb potato was developed. The Huckleberry Gold, will be available for production in the next few years by commercial growers.

If you have more than your share of Yellow Jackets, Wasps and Hornets, (please do not call them bees), try filling cottage cheese containers part way full with a mixture of a little sugar, a dribble of dish soap, and water. They will fly in to get the water and drown. Plastic water and pop bottles can be used as well. Cut the bottle about 2 to 3 inches below the top. Put a couple of inches of water, sugar and a drop of dish soap in the bottle. Take the cutoff top, invert it, and put back into the bottle to make a funnel to trap the,. They will fly in and not fly out!!

If you have a Humming bird feeder, place one of the above Wasp catchers on a stand near the feeder, the Yellow jackets should go to the sugar, water mix and mostly leave the feeder alone. You will be surprised at how many yellow jackets swarm around this, so if you have small kids put the traps where the kids won’t get stung.

Enjoy the rest of your summer and the beautiful season of fall!

Sue Fitzgerald and all the Garfield County Master Gardeners
Myth: I know my refrigerator is cold enough – I can feel it when I open it! Anyway, I have a dial to adjust the temperature.

Fact: Unless you have thermometers built into your fingers, you need to use a thermometer to ensure your refrigerator is at or below 40 °F. And that dial? Important, but it is not a thermometer.

As many as 43% of home refrigerators have been found to be at temperatures above 40 °F, putting them in the food safety “danger zone” where harmful bacteria can multiply and make you and your family sick!

Slow the growth of bacteria by using a refrigerator thermometer to tell if your refrigerator is at 40 °F or below. And if it isn’t? Use that dial to adjust the temperature so it will be colder. Then, use your refrigerator thermometer to measure again.
Garfield County 4-H & FFA

Garfield County Fair & Rodeo
“Buckles, Boots & Rodeo Chutes”
September 14, 15, 16, 2018
GOOD LUCK AT THE FAIR!!

1/2 cup/1 stick unsalted butter 1/2 cup packed brown sugar
1/2 cup white sugar 2 large eggs
1 cup all purpose flour 1/2 cup whole wheat flour
1 tsp. baking soda 1 tsp. fine sea salt
1/4 tsp. ground cinnamon 1/2 cup crème fraiche
3 Tbls. Apple brandy 1 tsp. vanilla extract
3 apples, peeled, cored and diced 1/2 cup chopped, toasted pecans

Preheat the oven to 350°. Grease a loaf pan with butter or cooking spray. Place the butter in a medium skillet and melt over medium heat. Continue cooking, swirling occasionally to prevent burning, until the butter is bubbling and golden brown with a nutty aroma. Combine the butter in a large mixing bowl with the sugar, brown sugar, and eggs. Whisk to combine. Add the flours, baking soda, salt, and cinnamon, and stir with a wooden spoon until just combined. Follow with the Crème Fraiche, apple brandy, vanilla, apples and pecans; the batter will be very thick. Transfer the batter to the prepared loaf pan and smooth the top. Bake loaf for 1 hour. Allow to cool for 20 to 30 minutes before removing from loaf pan.

*If you don’t have crème fraiche, you can substitute sour cream, buttermilk or plain yogurt.
*Use a mix of tart and sweet apples, such as Granny Smith, Braeburn, Gala, Golden Delicious, Honey Gold, Johnathan, McIntosh or Honeycrisp.

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