



Asotin County *Newsletter*

WASHINGTON STATE UNIVERSITY
EXTENSION

Oct–Dec 2020

The Asotin County Courthouse is currently open to the public. You must enter and exit through the main doors by the parking lot. Check in with the attendant in the foyer. Masks are required and available at the front desk.

Make an appointment to visit the WSU Asotin County Extension Office by contacting us at 509-243-2009 or email jreed@co.asotin.wa.us.

We appreciate your patience while we work through the current restrictions.

Welcome to the WSU Asotin County Extension Newsletter!

This is a quarterly newsletter highlighting events and topics of interest to residents of Asotin County and the surrounding areas.

This newsletter can also be viewed on our website: extension.wsu.edu/asotin/

Contact Us

Office location: 135 2nd St, B107 in Asotin
(Basement of the Asotin County Courthouse)

Hours: Mon-Fri 8:00 to 5:00
(closed 12:00 to 1:00)

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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

Hello 4-H families,

4-H Online open enrollment period will begin **October 15th** with an extended enrollment deadline.

Details to come, including:

- new deadline
- new system (4-H Online 2.0)
- participation guidelines for 2020-2021 program year



Asotin County

4-H 

WASHINGTON STATE UNIVERSITY
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Thank you for your patience during these changing times.



Dear 4-H members and families:

We are thrilled to start the new 2020-2021 4-H year and are celebrating our youth by offering a free 4-H Kick Off Kit to all youth members who enroll between October 1st and November 15th, 2020! Each kit will include a 4-H notebook, mood pencil, sharpie, and a 4-H logo mask!



This year's enrollments will be processed through the brand new 4Honline 2.0!

We hope you find that enrollment through the updated site is not only more modernized, but also easier to use and navigate. Your County Extension Office will send out a step by-step-guide to enrollment.

If you need help with enrollment, please reach out to your club leader, or your county's WSU Extension 4-H coordinator.

Sincerely,

WSU 4-H Faculty and Staff

Master Gardeners and Gardening

Fall Garden Series

Sponsored by the Master Gardener Foundation of Asotin and Garfield Counties

Due to restrictions on meeting in person, the Asotin & Garfield County Master Gardeners will hold their annual Fall Garden Series lectures via Zoom.

The ZOOM meeting link will be emailed to participants prior to the class.

We will also hold a practice meeting on Oct 9 for those that need assistance with Zoom.



Cost is \$5 per class, or enroll in all 3 classes for \$12
Classes will be Oct, 13, 20, and 27 from 6:00 to 8:00 pm.

Oct 13: Seasonal Gardening and Controlling Problem Weeds

- ◆ Spokane County Master Gardener Emeritus, Kurt Madison, will discuss gardening through the seasons.
- ◆ WSU Whitman County Extension Educator Steve Van Vleet will discuss fall and early spring week control for problem weeds

Oct 20: Taking Care of Business: Fall Trees

- ◆ Joel Ewing of Pen and Oak Landscaping will discuss the proper way to prune trees.
- ◆ Carrie Kyser, LCSC Arboretum Co-Chair, will talk about selecting tree species for fall interest, plus basic care and planting.

Oct 27: Keep it Growing: Gardening Year Round with Houseplants

- ◆ Dominic Villareal, A Modern Plantsman, will discuss house plant selection and care.
- ◆ Asotin County Master Gardeners Aileen Ruchert and Anna Duman will talk about indoor gardening.

To register and pay online, go to our website:

<https://extension.wsu.edu/asotin/gardening/horticulture-classes-and-workshops/>

To Register via email:

Send your name, email address, and classes you are taking to: janice.reed@wsu.edu.

Payment can be mailed to PO Box 9, Asotin, WA 99402

or dropped off at our office in the basement of the Asotin County Courthouse.

Persons with a disability requiring special accommodations while participating in this program may call WSU Asotin County Extension at 509-243-2009. If accommodation is not requested 2 weeks in advance, we cannot guarantee the availability of accommodation on site.



Choosing and Planting Cover crops for Raised beds

By Tara Nolan

<https://savvygardening.com/cover-crops-for-raised-beds/>

What are cover crops?

On a broader scale, cover crops are planted by farmers to revitalize and improve the soil structure in their fields between plantings. You might see the word *tilth* used in descriptions of cover crops. Soil tilth refers to the health of the soil. A variety of factors from aeration and soil composition to moisture content contribute to the health of your soil (or lack of).

Cover crop seeds are sown in your raised bed, and the plants are later turned into the soil. An added bonus? These fast-growing, shallow-rooted crops help to prevent weeds. Cover crops are also known as green manure or green crops, because you're basically growing your own compost.

Planting cover crops for raised beds

How do you make this nutrient-rich compost? Fall is a great time to grow cover crops because your veggie-growing season is coming to an end, and the beds will be empty until spring. When you're ready to plant your cover crop, pull all the existing plants and weeds out of the raised bed. Densely seed your raised bed in late summer or early fall. Be sure to read the seed packet for timing as some plant varieties need warmer weather to germinate than others.



However you don't want the plants to mature before the winter. Some cold-tolerant cover crop varieties can be planted up to a month before your first frost date.

I just sprinkled the seed mix that I chose from my hands, being sure to broadcast the seed evenly throughout the raised bed. I want the plants to grow close together to keep the weeds away! Allow the cover crop plants to grow through the fall and forget about them until spring. Plants will grow until winter arrives. Some varieties will go dormant and others will be killed off by the winter weather. In the winter, plants help to provide cover for microorganisms to overwinter. In the early spring, if they're perennial, the plants may provide nectar for early pollinators, depending on when you mow them.

You want to make sure you mow down your plants before the seed heads mature. In a raised bed, I will likely use my whippersnipper (edge trimmer) to cut the plants. You could also try using your lawnmower. Then, I'll use a rake to lightly turn the plants into the soil. You want to give the plants a few weeks to decompose before sowing seeds or digging in transplants. I've seen recommendations range anywhere from two to four weeks, to four to six weeks. Consult the seed packet for this info.

Choosing and Planting Cover crops for Raised beds (continued)

Which cover crops should you plant in your raised beds?

There are a few options to consider when choosing cover crops for raised beds.

Peas and oats: Plant a pea and oat 50/50 mix. It's listed as a "very effective nitrogen and biomass builder." And that the oats will utilize available nitrogen, building soil structure and suppress weeds (which is what I need them to do), while the peas will fix nitrogen for the following crops (which I will plant next spring). I will allow the plants to die off over the winter and then till the plants into the soil in the spring.



Buckwheat: Not only is buckwheat fast growing, it also breaks down quickly. If you let it flower, it will attract pollinators and beneficial insects. Mow the plants within 10 days of blooming, or anytime before.

Winter rye: This is a fast-growing crop that doesn't mind the cold. You can plant it later in the season than many other plants. It's touted as a great soil builder that helps to loosen compacted soil.



Clover: Clovers fall under the legume category with alfalfa, which is typically used in farmers' fields. White Dutch clover is a popular cover crop choice because of the flowers, which will attract bees. Some gardeners are starting to use this in their lawns, as well. Clover also attracts beneficial ground beetles and helps to combat cabbage worms. Crimson clover has really pretty flowers and doesn't mind a bit of shade. This might be a good choice for raised beds that get more dappled shade.



What effect will the 2020 fires have on bees?

<https://extension.oregonstate.edu/forests/fire/what-effect-will-2020-fires-have-bees#>

If 2020 couldn't get any worse, it has. We are facing the worst series of fires in the state's history. And it seemed to come out of nowhere. It was nice on Labor Day and then the smoke appeared. The skies are now the most foreboding shade of red. Thousands of people have been evacuated from their homes or are nervously waiting for a call to evacuate.

In the midst of this all, OSU Extension has gotten questions from gardeners and the public wondering what effects these fires have on bees. People have noticed that the bees have suddenly stopped flying. People wonder whether honey bee colonies are being choked by the smoke. People want to know that in spite of all the mayhem and loss "Will the bees be okay?".

In this article we discuss what is known about the effect of forest fires on bees, how bees respond to the land ravaged by fire and how you can help bees while also protecting your property from future fires.

Honey bee colonies

The fires will be disruptive to the state's 80,000 bee colonies. As we write this, a number of apiaries are at risk of being consumed by the advancing flames. If you recall, 10,000 colonies were lost to the massive brush fires in New South Wales, Australia in 2019-2020. Already in California there are reports of large apiaries that are lost.

Fires move quickly and an apiary can turn into a pile of ash in hours. But even among surviving colonies, beekeepers are struggling to get to their apiaries ready for winter, since conditions are currently unsafe for beekeepers to work and manage their colonies. These preparations are particularly important to ensure high colony survival over the next five months.

Wild bee nests

By now, most of the state's native bees have completed their reproduction and are hunkering down in nests for winter. But the susceptibility of these nests depends on where they are located. About 70% of our bee species nest in underground chambers. While soil temperatures can be very hot directly at the surface of a fire, they can fall to normal temperatures just 4 inches down.

Although we don't exactly know the average depth our bees nest in Oregon, a global survey estimated that over 75% put their young in chambers deeper than 4 inches. So, most of these bees won't even notice the fire.

But around 30% of our bee fauna nest above ground in twigs and stems, including small carpenter bees, mason bees and leafcutting bees. Nests of these bees that are not directly burned, will likely overheat and die. Research by the OSU Forest Animal Ecology Lab, for example, noticed a conspicuous absence of typically common stem-nesting small carpenter bees 5 years after the big Douglas Complex Fires in southern Oregon.



Sunflowers in the haze around Salem
Brooke Edmunds

Smoke and bee behavior and physiology

Many people noticed something was wrong with the bees when the smoke rolled in; they suddenly weren't visiting the flowers like they were when it was clear. One reason is that smoke has lowered temperatures and bees just aren't as active when it's cooler. A second answer comes from a Swedish research group who were studying the qualities of light around forest fire haze in Alaska.

Many insects, including bees, use the pattern of polarized light in the sky as a kind of compass to know where they are going. These patterns are invisible to us, but appear to bees as varying levels of polarized light in the sky. Bees use these gradations in polarized light as guideposts to navigate from their nest and to flowers and back. These patterns are maintained even when it's cloudy. But apparently, this pattern gets very distorted once that red-haze sets in. Most significantly, the amount of polarized light in the sky can fall to levels below what a bee can discern, but also the pattern shifts.

Essentially, the strength of the polarization "compass" that bees use not only gets weaker, but it also points the bees in a different direction than normal. Getting to a flower gets to be a very hard task. At this time, beekeepers are reporting bees are flying normally from the colony and collecting pollen, so their absence in gardens may indicate they are taking shorter flights to flower-patches closer to home.

The ash itself may interfere with the ability of bees to breathe, smell, taste, as well as have other effects on their physiology. Although there is very little research on these effects, one group of researchers observed that when they exposed butterflies to simulated smoke conditions, the ash particles didn't work its way into the butterfly respiratory system, but it nonetheless reduced the survival and growth-rate of caterpillars. They interpret their results to mean that the ash isn't interfering with breathing as much as is poisoning the larvae as they consume the toxic material contained in the ash.

Post wildfire effects

Okay. But there is a bright spot in all this gloom. Very few bees live in closed canopy forests. For this reason, bee diversity and abundance typically increases in the years following a fire.

Think of it -- there is a huge flush of flowering forbs and shrubs that puts thousands of acres of new bee food in the landscape in the span of a few years while also creating open habitat in areas that were previously closed canopy forest. This was certainly the case following the massive 2013 Douglas Fire Complex in southern Oregon.

As we alluded to earlier, the OSU Forest Animal Ecology Lab surveyed these burned areas after 4 and 5 years following the fire. Remarkably, they found in areas where the fire was most severe, bee abundance and species richness was the highest. They also found that the blue orchard bee was able to rear its offspring across the gradient of fire severity, and produced more females at higher fire severity levels.

One reason for this boost was undoubtedly caused by the fact that the diversity of the flowering plant community that supported these bees was also enhanced by high intensity fires; another was that the open areas had more favorable temperatures for bee foraging. Their work suggests that periodic forest fires are part of a regular pattern of success of bee communities across the state, and that wild bees help post-fire habitats return to functioning ecosystems.

“How can I help?” after the clean-up

After things return to some semblance of normality, it's time to think about landscaping for bees in a way that is “fire safe”. That means if people live in fire-prone areas they should practice fire-resistant landscaping, using plants that feed-bees but that do not add to the fuel-load. And it means planting in a way that ensures a defensible space around your home. OSU Extension has a great publication to help you balance fire-preparedness and planting for bees:

Fire-resistant plants for home landscapes: Selecting plants that may reduce your risk from wildfire.
<https://catalog.extension.oregonstate.edu/pnw590>

Agriculture and Natural Resources

Noxious Weed Update

Taken from the Sept. 2020 WSU Garfield County Extension Newsletter
By Courtney Smith, NRCS

Recent inspections of Conservation Reserve Program (CRP) contracts in Garfield County have confirmed the occurrence of three new noxious weeds. These threaten to displace native plant species and even introduced pasture grasses on hayland, pasture, and CRP acreage.

Oxyeye daisy (*Leucanthemum vulgare*) is a medium height plant (to three feet) with solitary white ray flowers surrounding a dark yellow disk. Leaves at the base of the plant are dark green and lobed, with the size of the leaves declining up the stem. It resembles Shasta daisy, a close cousin, and mayweed. It is a vigorous seed producer, yielding up to 26,000 seed per plant. It also spreads by rhizomes.



Meadow hawkweed (*Hieracium pratense*), also known as “King Devil hawkweed”, is one of a group of introduced species. These plants have small, yellow flower-heads produced on clusters on spindly, leafless stalks growing about 18” high. Foliage at the base of the seedhead is often black or black-tinged, which contrasts with the yellow flowers. The plants are hairy throughout. Some hawkweeds produce chemicals which suppress other competing vegetation. Introduced hawkweeds can hybridize, and there are native hawkweed as well. Identification of this invader can be difficult.



Sulphur cinquefoil (*Potentilla recta*) generally has leaves divided into five (to seven) leaflets, joined to a single base, which describes the plant’s genus (cinquefoil = five leaves). We are told that it resembles a small marijuana leaf. Flowers occurring in midsummer have notched, or heart-shaped, pale yellow petals surrounding a dark yellow center. The plants are hairy, and the underside of the leaves is green, rather than white, as is the case with native cinquefoils. The most prevalent native cinquefoils are larger and produce darker yellow flowers and also can be quite competitive.



Noxious Weed Update, continued

These are particularly aggressive weeds and they have exploded in surrounding areas. Daisy and hawkweed occur throughout north Idaho, where they now dominate pastures into timberline. Cinquefoil is common in northeast Oregon and southern Asotin County on mountain pasture, hayland, and ranges from mid to high elevation. The Washington State Noxious Weed Control Board lists hawkweed and cinquefoil as class B weeds, occurring regionally but required to be controlled. Daisy was downgraded from Class B to class C (control requirements set locally) in 2013.

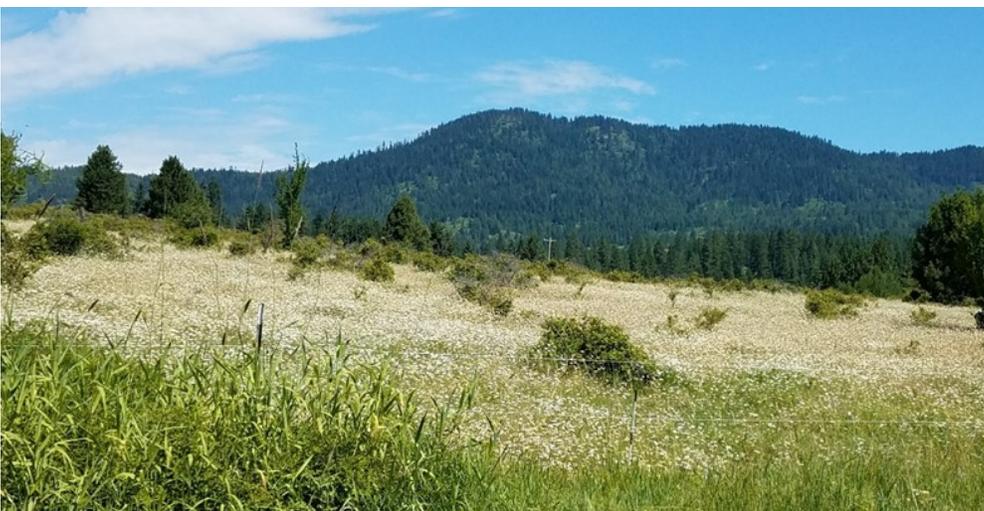
While goat and sheep grazing can suppress seed production in Oxeye daisy, it is not heavily used by cattle, and even if grazed it can spread by rhizomes. Neither hawkweed or cinquefoil are palatable to cattle. Fertilization can help pasture grasses outcompete Oxeye daisy, and cultivation controls all of these species. But for the vast majority of pasture and rangeland impacted by these species in the region, the only reliable control is herbicides. Herbicide recommendations for these and other problem weeds can be found at the Pacific Northwest Weed Control Handbook:

<https://pnwhandbooks.org/weed>



Oxeye daisy infestation at Deary, Idaho.

Courtesy Alan Martinsen,
Latah County Noxious
Weed Control



Hawkweed infestation in Latah County

Courtesy Alan Martinsen

Nightmare on Aphid Street – wooly white insects invade neighborhoods, parks

October 27, 2017

By Linda Weiford, WSU News



PULLMAN, Wash. – Hovering masses of puffy gnat-like bugs have invaded the Inland Northwest, sticking to windshields, dive-bombing people’s eyes and getting into their mouths.

They’re called smoky-winged ash aphids and their massing has been spawned by warm autumn days, said entomologist Richard Zack of Washington State University. “We’ve had some recent nice sunny, mild days this fall, which triggers the aphids to fly. They’re most active in the mid to late afternoon when it is warmest. Sometimes, they appear to be everywhere,” he said.

If possible, look beyond the annoyance factor and enjoy the aphid airshow. Once in flight, their fuzzy white posteriors pulse in mid-air. Consequently, the insects flit about like snowflakes on steroids refusing to fall.

“Many aphid species produce a wax-like substance that gives them a whitish color and wooly appearance when they fly, especially when backlit by the sun,” Zack explained.

After hosting on fir trees and other conifers during summer months, the females are making their autumn move to ash trees to lay eggs.

“Only the eggs will survive winter. Everything we see flying around right now will die,” he said.

Expect the huge clouds of aphids to dissipate around Halloween as temperatures start to dip. In the meantime, keep in mind that the ample insect swarms are a nuisance, not a threat. While some aphids destroy vegetation, not the smoky-winged ash variety.

“They are of little to no economic importance to trees and plants. And no, they don’t suck blood,” said Zack.



*Swarms of white, fuzzy aphids pulse the air in Moscow, Idaho, during a late-October afternoon
(Photos by Linda Weiford, WSU News)*

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Healthy Living

Star-shaped brain cells may hold the key to why, how we sleep

September 24, 2020

By Judith Van Dongen

WSU Health Sciences Spokane Office of Research

SPOKANE, Wash. – A new study published today in the journal *Current Biology* suggests that star-shaped brain cells known as astrocytes could be as important to the regulation of sleep as neurons, the brain's nerve cells.

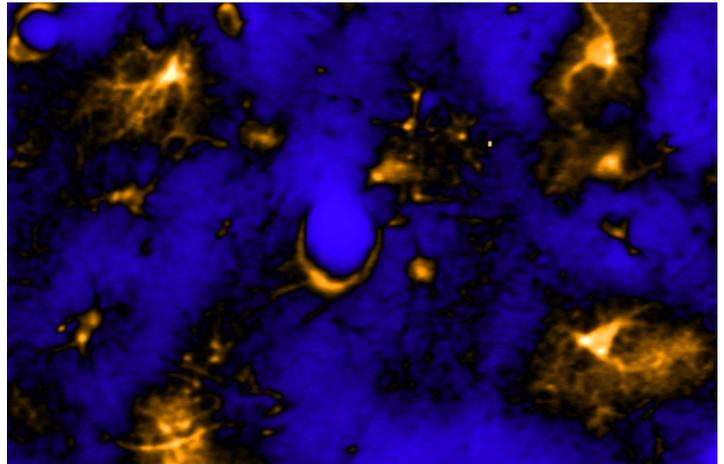
Led by researchers at Washington State University's Elson S. Floyd College of Medicine, the study builds new momentum toward ultimately solving the mystery of why we sleep and how sleep works in the brain. The discovery may also set the stage for potential future treatment strategies for sleep disorders and neurological diseases and other conditions associated with troubled sleep, such as PTSD, depression, Alzheimer's disease, and autism spectrum disorder.

"What we know about sleep has been based largely on neurons," said lead author and postdoctoral research associate Ashley Ingiosi. Neurons, she explained, communicate through electrical signals that can be readily captured through electroencephalography (EEG). Astrocytes—a type of glial (or "glue") cell that interacts with neurons—do not use electrical signals and instead use a process known as calcium signaling to control their activity.

It was long thought that astrocytes—which can outnumber neurons by five to one—merely served a supportive role, without any direct involvement in behaviors and processes. Neuroscientists have only recently started to take a closer look at their potential role in various processes. And while a few studies have hinted that astrocytes may play a role in sleep, solid scientific tools to study their calcium activity have not been available until recently, Ingiosi said.

Study provides window into the brain

To delve deeper into astrocytes' role in sleep, she and her coauthors used a rodent model to record astrocytes' calcium activity throughout sleep and wake, as well as after sleep deprivation. They used a fluorescent calcium indicator that was imaged via tiny head-mounted microscopes that looked directly into the brains of mice as they moved around and behaved as they normally would. This indicator allowed the team to see calcium-driven fluorescent activity twinkling on and off in astrocytes during sleep and waking behaviors. Their one-of-a-kind methodology using these miniature microscopes allowed the team to conduct the first-ever study of astrocytes' calcium activity in sleep in freely behaving animals.



Astrocytes in the brain expressing a fluorescent calcium indicator captured with a two-photon microscope. Image by Ashley Ingiosi, courtesy of Current Biology

Continued—Star-shaped brain cells may hold the key to why, how we sleep

The research team set out to answer two main questions: do astrocytes change dynamically across sleep and wake states like neurons do? And do astrocytes play a role in regulating sleep need, our natural drive to sleep?

Looking at astrocytes in the frontal cortex, an area of the brain associated with measurable EEG changes in sleep need, they found that astrocytes' activity changes dynamically across the sleep-wake cycle, as is true for neurons. They also observed the most calcium activity at the beginning of the rest phase—when sleep need is greatest—and the least calcium activity at the end of the rest phase, when the need for sleep has dissipated.

Next, they kept mice awake for the first 6 hours of their normal rest phase and watched calcium activity change in parallel with EEG slow wave activity in sleep, a key indicator of sleep need. That is, they found that sleep deprivation caused an increase in astrocyte calcium activity that decreased after mice were allowed to sleep.

Their next question was whether genetically manipulating astrocyte calcium activity would impact sleep regulation. To find out, they studied mice that lacked a protein known as STIM1 selectively in astrocytes, which reduced the amount of available calcium. After being sleep deprived, these mice did not sleep as long or get as sleepy as normal mice once allowed to sleep, which further confirmed earlier findings that suggest that astrocytes play an essential role in regulating the need for sleep.

Finally, they tested the hypothesis that perhaps astrocyte calcium activity merely mirrors the electrical activity of neurons. Studies have shown that the electrical activity of neurons becomes more synchronized during non-REM sleep and after sleep deprivation, but the researchers found the opposite to be true for astrocytes, with calcium activity becoming less synchronized in non-REM sleep and after sleep deprivation.

“This indicates to us that astrocytes are not just passively following the lead of neurons,” said Ingiosi. “And because they don’t necessarily display the same activity patterns as neurons, this might actually implicate a more direct role for astrocytes in regulating sleep and sleep need.”

Future research direction

More research is needed to further unravel the role of astrocytes in sleep and sleep regulation, Ingiosi said. She plans to study astrocytes' calcium activity in other parts of the brain that have been shown to be important for sleep and wake. In addition, she would like to look at astrocytes' interactions with different neurotransmitters in the brain to start to tease out the mechanism by which astrocytes might drive sleep and sleep need.

“The findings of our study suggest that we may have been looking in the wrong place for more than 100 years,” said senior author and professor of biomedical sciences Marcos Frank. “It provides strong evidence that we should be targeting astrocytes to understand why and how we sleep, as well as for the development of therapies that could help people with sleep disorders and other health conditions that involve abnormal sleep.”

Support for the study came from the National Institutes of Health.

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Dr. Universe: Why do we get morning breath? -Stephanie, 10

Dear Stephanie,

If you've ever caught a whiff of someone's stinky morning breath, or even your own, you know it can be pretty rotten. We can trace the smell back to tiny culprits that live in our mouths. They are called microbes and they live around your gums, between your teeth, and on your tongue.

"They like to eat what you eat," said my friend [Claire Burbick](#), a veterinarian and microbiologist at Washington State University.

A feast for microbes

The microbes feed on leftover bits of food in your mouth. They not only help break down your food, but they also get energy from that food. As they eat, grow, and multiply, they also release some smelly gases—some of them might even remind you of rotten eggs.

When microbes eat foods rich in protein, such as meat or dairy, they tend to grow and multiply pretty fast, Burbick said. They are particularly stinky. Something else that adds to the stink is leftover food. If food sits in your mouth too long, it will start to rot. The mouth can get kind of gross, but it also has a way to clean itself out.

Self-cleaning mouth

One way it does this is with saliva, or your spit. Saliva helps you swallow your food. It's mostly made out of water and contains a few chemicals that help fight off bad bacteria.

Saliva is kind of like a built-in cleaning system. Of course, it isn't perfect, so brushing your teeth also helps. Not to mention, your family and friends will thank you for it.

Bad breath isn't just a people problem either, Burbick said. Cats, horses, cows, and of course dogs, also get bad breath. Whether snoring or just breathing deeply, sometimes animals and humans sleep with their mouths open. When air moves in, it can dry out the mouth and create an environment that makes the stinky bacteria go wild. They start to multiply and build up.

In the morning, you might wake up with some extra bad breath. You'll probably want to brush your teeth again, sending those stinky microbes down the drain and leaving your breath fresh.

Fighting the smell

Bad breath is actually pretty common, Burbick said. It turns out humans have been battling bad breath for thousands of years—and they've come up with some creative ideas. Some researchers have found evidence that Ancient Egyptians mixed together spices and honey to create a kind of breath freshener. They also used thin twigs with frayed edges to scrub their teeth.

One of the first toothbrushes in human history was made in China. It had bristles made of hog hair and inspired the plastic toothbrushes humans use today. These days, humans also have minty toothpaste, gum, and mouthwash that can help mask morning breath—or garlic breath, or onion breath, or whatever kind of stinky breath might come your way.

Sincerely,
Dr. Universe