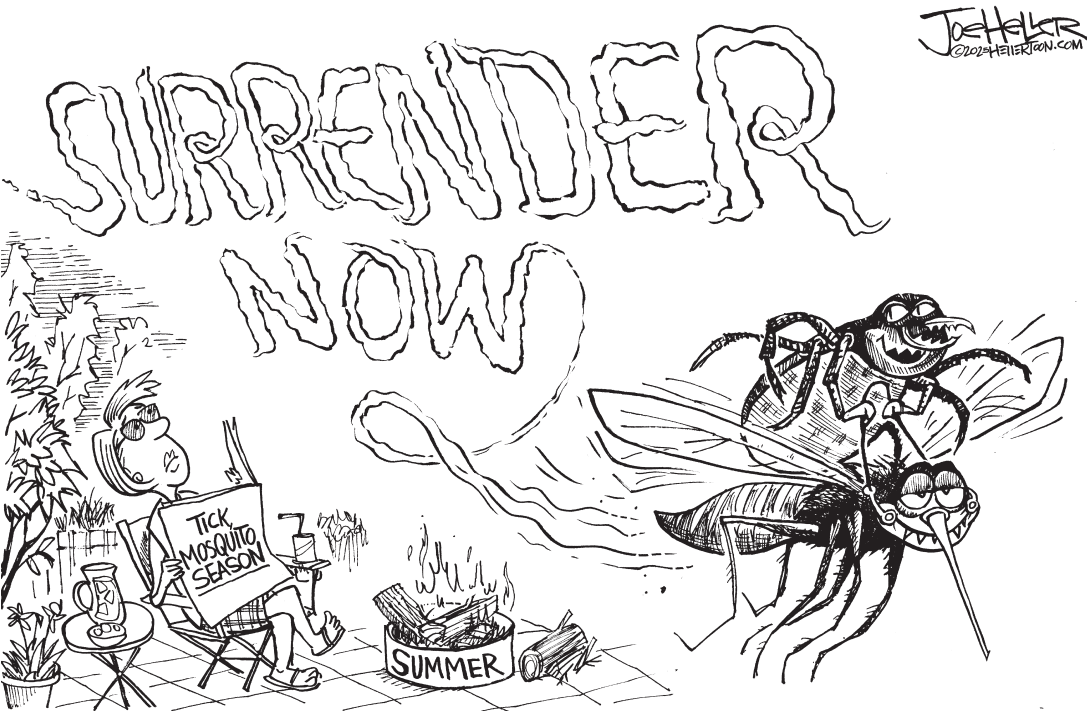


Opinion



Ask

DR. UNIVERSE

Dr. Universe: What would happen if you put a baseball-sized piece of neutron star on the Earth? Would it fall to the core of the Earth and become part of the core or pass through the Earth?

— MacKenzie, 12, Louisiana

Dear MacKenzie,

A neutron star is what's left after a massive star runs out of fuel and explodes as a supernova.

I asked my friend Matthew Duez about it. He's an astrophysicist at Washington State University.

He told me that a neutron star is the densest known object in the universe. Its mass is like the sun's mass. But a neutron star is the size of a city.

When something is dense, it has lots of stuff—or mass—crammed into a small space.

Imagine if we took all the humans on the planet and squished them together. We mash and squash them until they fit into a space the size of just one die from a pair of dice. That's a density like a neutron star's density.

Think how heavy that die would be. If we scooped out a bit of neutron star that same size, it would weigh a billion tons. That's as much as a billion cars.

A baseball-sized chunk of neutron star would weigh even more.

Duez told me that if we grabbed a baseball-sized bit of the inside of a neutron star, it would explode.

"The intense gravity of a neutron star squeezes the matter inside of it to extremely high pressure," he said. "Taken suddenly away from the neutron star interior, its own high pressure would make a piece of neutron star matter blow outward in all directions."

But let's say we magically get that neutron ball to Earth. We gently set it on the ground.

Earth's crust won't be able to withstand all that weight and pressure in such a small area. The neutron ball will sink.

"It's going to be pretty much free-falling," Duez said. "So, it's going to sink down to the core and then bounce around in there a bit."

Our neutron ball will pick up speed as falls. It will overshoot the core and pass to the other side. Then Earth's gravity will tug it back toward the center. It will change direction and pass the center and get tugged back by gravity again.

It's like what happens on a playground swing. You swing way up in front of you. Then gravity pulls the swing back down. You swing way up behind you. Then gravity does its thing again.

As the neutron ball goes back and forth, it will pick up bits of rock. It will get bigger. Eventually it will slow down until the neutron ball settles in the Earth's core.

Duez told me this all changes if we don't set our neutron ball down gently.

Maybe we throw it down hard enough to overcome Earth's gravity—called escape velocity. Then our neutron ball will pass through the whole planet. It will zoom off into space.

Or we could throw the neutron ball horizontally. Then it will orbit the center of the Earth, following an oval-like path instead of just bobbing up and down. If we throw it forward with just the right, very high speed, it might circle the Earth and come back to us from behind.

Like a super-dense, kinda-scary boomerang.

Sincerely,  
Dr. Universe

Got a question? Ask Dr. Universe! Send an email to Washington State University's resident cat-scientist and writer Wendy Sue Universe at [Dr.Universe@wsu.edu](mailto:Dr.Universe@wsu.edu) or visit her website at [askdruniverse.com](http://askdruniverse.com).

Brown spots in your lawn

Laura Phillips

Meadowlark District Extension Agent Horticulture

K-State Research and Extension

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email: [lauraphillips@ksu.edu](mailto:lauraphillips@ksu.edu)

As the summer heats up, many homeowners notice brown spots on their lawns. While there are many causes of discoloration in turf grasses, one common reason is a disease called Brown Patch.

Brown Patch will affect all cool-season turf grasses, making it one of the most widespread turf diseases.

Brown Patch causes roughly circular patches of — you guessed it — brown grass that can appear seemingly overnight. It can also cause tan lesions with black outlines on the individual blades of grass. Brown Patch is caused by a fungus known as *Rhizoctonia solani*. Our Kansas summers provide favorable conditions for Brown Patch, as it thrives in hot, humid weather.

Proper lawn care can prevent the appearance of Brown Patch or reduce its severity. When applying fertilizer, use only what the lawn needs, as excessive nitrogen from fertilizer will promote Brown Patch. Never fertilize when a Brown Patch is active.

Avoid watering your lawn in the late afternoon or evening, as the water will not get a chance to evaporate before the sun goes down, allowing for moisture to stay on your grass longer.

If the Brown Patch is severe, some home fungicides can fight Brown Patch. If your lawn has Brown Patch, start by practicing good lawn care, and reach out to our extension office for more care tips and fungicides available in your area.

PUBLIC NOTICE						
(Published in The Valley Falls Vindicator July 17, 2025)1t						
NOTICE OF BUDGET HEARING						
<p>The governing body of  <b>Ozawkie Township and Ozawkie Fire District #7</b>  <b>Jefferson County</b></p> <p>will meet on August 7, 2025 at 7:00 p.m. at the Jefferson County Fire District #7 for the purpose of hearing and answering objections of taxpayers relating to the proposed use of all funds, the amount of ad valorem tax and the revenue neutral rate.</p> <p>Detailed budget information is available at Jefferson County Clerk's Office and will be available at this hearing.</p> <p><b>BUDGET SUMMARY</b></p> <p>Proposed Budget 2026 Expenditures and Amount of 2025 Ad Valorem Tax establish the maximum limits of the 2026 budget. Estimated Tax Rate is subject to change depending on the final assessed valuation.</p>						
Fund	Prior Year Actual 2024	Actual Tax Rate*	Current Year Estimate 2025	Actual Tax Rate*	Proposed Budget 2026	Proposed Estimated Tax Rate*
General	25,826	0.999	21,700	0.920	28,740	0.860
Fire General	115,000	6.999	127,000	8.019	213,650	7.496
Totals	140,826	7.998	148,700	8.939	242,390	8.356
Revenue Neutral Rate-Township General**					0.860	
Revenue Neutral Rate-Fire District**					7.496	
Less: Transfers	0		0		0	
Net Expenditure	140,826		148,700		242,390	
Total Tax Levied	134,352		162,146		XXXXXXXXXXXXXXX	
Assessed Valuation:						
Township General	18,461,001		26,888,527		21,395,480	
Library						
Fire District	16,559,035		17,921,969		19,172,139	
Outstanding Indebtedness,						
Jan 1	2023		2024		2025	
G.O. Bonds	0		0		0	
Other	0		0		0	
Lease Purchase Principal	0		0		0	
Total	0		0		0	
*Tax rates are expressed in mills.						
**Revenue Neutral Rate as defined by KSA 79-2988						
Amy Kramer, Township Treasurer						

Governor signs bill to address water challenges

Gov. Laura Kelly ceremonially signed Senate Substitute for House Bill 2172 in Hays July 9, establishing the water program task force to create a long-term investment program for water with a dedicated revenue source.

The task force will also evaluate current funding for water and the state's water planning statutes, submitting reports detailing its findings to the governor and the Kansas Legislature in 2026 and 2027.

"Kansas' water challenges require us to act now to secure this essential, nonrenewable resource," Kelly said. "Kansas' agriculture industry, economy, and communities must have a secure water supply to thrive, now and into the future. This bill is a significant step forward in protecting our water quality and quantity for generations to come."

The task force includes 16 voting members spearheaded by a bipartisan group of legislators. Of those 13 voting members, six members were Kansans appointed by legislative leadership. The task force also includes a five-member water planning work group, which is tasked with reviewing and modernizing the State Water Resources Planning Act.

Kelly was joined at the signing by co-chairs of the task force, Kansas State Senator Kenny Titus and Kansas State Representative Jim Minnix.

"Over the last several legislative sessions, water has received some long overdue attention. Now it is time to take the next step," said Sen. Kenny Titus, District 18. "If we want to continue to make progress with our state's water issues, we must develop clear priorities for investment and make sure we have the necessary accountability measures in place to create a sustainable water supply for future Kansans."

The task force will prepare and submit a preliminary report to the governor and Legislature on or before Jan. 31 and a final report Jan. 31, 2027. The report will include recommendations on the water program's long-term structure to address Kansas' current and future water needs, the roles and responsibilities of the state, municipalities, and regional entities, and identify a dedicated funding source for the State Water Plan fund.

"The livelihood of our state is dependent upon the actions we take now to ensure Kansas has the water it needs to prosper in the coming decades," said Rep. Jim Minnix, District 118. "The task force's work will be crucial to support our farmers and ranchers, economy, and every corner of Kansas that must have access to a reliable, clean water supply."

Kelly encouraged the Legislature to form the task force during her State of the State address in January. The Kelly administration and Kansas Water Authority also conducted 14 public meetings across the state in 2024 to gather feedback from Kansans on local priorities and needs for a long-term program. The results of these meetings were published in the Strategic Implementation Framework for water, which can serve as a blueprint for the task force's work in constructing a long-term water program.

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Fungicides on soybeans

David Hallauer

Meadowlark District Extension Agent Crops and Soils

K-State Research and Extension

785-863-2212

email: [dhallaue@ksu.edu](mailto:dhallaue@ksu.edu)

As early soybeans begin pod set and fungicide applications are made to our corn crop, the next decision on the minds of soybean growers might be whether that crop is next to need a fungicide. While some of the same principles that apply to corn certainly apply to soybeans as well, the decision in soybeans is often a little more complex.

Disease pressure is an issue in soybeans, and they can result in significant losses. Estimates from the Crop Protection Network put the average over the last five years at approximately \$27/A. However, that's across all diseases (seedling diseases, nematodes, fungal disease, viruses, etc.).

The fungal complex of foliar diseases portion of the total is much smaller, making in-season foliar fungicide applications a little more complicated. Thorough scouting is important to make sure what we're treating is actually a disease we can do something about.

Efficacy of foliar fungicides for disease control is evaluated annually in trial by University Plant Pathologists (see the 2024 results on the Crop Protection Network site: [cropprotectionnetwork.org/publications/fungicide-efficacy-for-control-of-soybean-foliar-diseases](http://cropprotectionnetwork.org/publications/fungicide-efficacy-for-control-of-soybean-foliar-diseases)). We know from these trials which fungicides work best for controlling which disease.

What is more variable is how a fungicide will perform if applied in the absence of

disease. An 18-treatment (including a non-treated check) Iowa State study showed inconsistent results with no significant yield response. A nine-treatment study conducted by Kansas State University showed similar results: Some products performed very positively, while others were more neutral.

Strip trials in Missouri from 2018-2023 suggested a slightly less than two-bushel per acre response. Bottom line: foliar fungicide applications can result in good yields — but results will likely be more inconsistent without disease present.

It's important to consider disease resistance as well. Other states have confirmed QoI fungicide-resistant strains of Frogeye Leaf Spot and Septoria Brown Spot and Kansas is now no different.

A 2022 study of fungicide resistance from Kansas soybean fields showed almost 80% of the samples were resistant to the QoI fungicide class. Caution should therefore be exercised when using fungicides to make sure multiple modes of action are used and that products are used in such a way — and combined with other integrated disease management tools — as to preserve future efficacy.

For more information on fungicide products or to request a copy of the fungicide efficacy chart referenced above, feel free to drop me a line or contact me at any Meadowlark office.

Crossword Puzzle

CLUES ACROSS

1. Resorts  
5. One point south of southwest  
9. Musical performances  
11. Matched  
13. Four-footed animal part  
15. Express severe disapproval of  
16. Type of leaf  
17. Preparatory  
19. Walk heavily  
21. Succulent plants  
22. Rectangle of grass  
23. Lump in yarn  
25. Too  
26. Foot (Latin)  
27. Afflicts  
29. Smoothed  
31. Mind (Greek)

33. Tampa ballclub  
34. Semitic language  
36. Sheltered sides  
38. Ocean  
39. Electronic point of sale  
41. Thrust a knife into  
43. 12th month (abbr.)  
44. Ringworm  
46. Father of Aoris (Greek myth.)  
48. Fighting back  
52. Cease to exist  
53. Insects in adult stage  
54. Freestanding sculpture  
56. Caps  
57. Repents  
58. Brown and Wallace are two  
59. Moved quickly

CLUES DOWN

1. Goes bad  
2. Yard structure  
3. They \_\_\_\_  
4. Marine invertebrate  
5. European river  
6. Office supplies firm  
7. Physically abused  
8. Service stations in Australia  
9. Kills  
10. Liquid body substances  
11. Particular to a given individual  
12. Brave or noble act  
14. Sicilian city  
15. Conqueror  
18. Elected officials  
20. Type of "pig"  
24. Drop of viscous substance

26. Monetary unit of Spain  
28. Guarantees  
30. Coloring materials  
32. Reddish browns  
34. Square measure  
35. Full not  
37. Canned fish  
38. Appeared  
40. Six (Spanish)  
42. Took off  
43. Negligible amount  
45. Posts in a Greek temple  
47. Witnesses  
49. Phil \_\_\_\_, former CIA  
50. Places to park  
51. Guns  
55. Dance to pop music

(Crossword puzzle solution found elsewhere in this edition)

THE VALLEY FALLS

VINDICATOR

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