



Friday Notes is designed to enhance communication among various agricultural sectors, educators, students, and the public who are interested in a variety of plant, animal, food, and environmental issues. *Friday Notes* advocates the pursuit of credible, unbiased, science-based information. Material contained in linked articles is from the original authors and does not necessarily reflect the views of CAST.

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USDA Science Blueprint



The [USDA Science Blueprint](#) establishes a foundation for focused leadership and direction in advancing its scientific mission through 2025.

Announcements

Students from the **University of Florida's** "Streaming Science" program have opened registration for their upcoming Skype Classroom series, "The Water Around Us." [Teachers can register their classroom online.](#)

This university **career services specialist** explains why [agriculture school graduates remain in high demand.](#)

Cal Poly will be hosting [Aspire to Grow 2020](#) on March 4. The conference will focus on innovation in the food and agriculture sectors.

Check here for nomination information about the **World Food Prize** \$10,000 [Norman Borlaug Award for Field Research and Application.](#)

February 21, 2020

Improving US Ag through New Innovation Initiative

The USDA announced a new [department-wide initiative](#) that will focus on increasing agricultural production 40% while cutting back its environmental footprint by half. The Agriculture Innovation Agenda was [announced](#) at the USDA's 2020 Agriculture Outlook Forum on February 20.



USDA AGRICULTURE
INNOVATION AGENDA

Secretary of Agriculture [Sonny Purdue](#) says the initiative will use four benchmarks to track the department's progress and hold themselves accountable, listed below. We've included relevant CAST publications for more background on the issues the benchmarks cover.

- **Food Loss and Waste (FLW):** The USDA plans to advance its goal that reduces FLW by 50% by 2050. This includes improving data tracking for FLW in the United States--currently, there is no single comprehensive estimate that exists, according to CAST Issue Paper 62, [Food Loss and Waste](#).
- **Carbon Sequestration and Greenhouse Gas:** The agenda includes [multiple paths](#) that will be utilized to mitigate agriculture's carbon footprint, many of which you can read about in our exhaustive 2011 [Task Force Report on carbon sequestration](#).
- **Water Quality:** Top water-related goals include reducing nutrient runoff and protecting watersheds. In 2019, we released two papers on the subject; the first focused on the [impact of agricultural nutrient runoff](#) and the second addressed impacts from [depleting aquifers](#) for agricultural use.
- **Renewable Energy:** The initiative plans to "support renewable fuels, including ethanol, biodiesel, and biomass."

News and Views

696 Goods: China stated some key agricultural products such as pork, beef, and soybeans are [eligible for tariff exemptions](#). Energy and medical products are also on the list of 696 exempt-eligible U.S. goods.

River Infrastructure: A [channel-deepening project in the Lower Mississippi River](#) should help with market accessibility, but many other river upgrades are still "in the works."

Spring Flood Risks: After an [eventful year of weather](#) conditions, many [Midwest states](#) are concerned once again about [above average flood risks](#) this spring.

News from the Far Side of the Barn

A **University of Nebraska** program teaches students [how to collect water samples](#) and then test them for pollutants.

An **Iowa State University** program uses a creative mix of STEM, music, and the arts to connect K-12 students with information about [natural resources and ecosystems](#).

Send in Ideas

CAST [welcomes suggestions](#) for future publications and projects.

CAST Social Media



Working without a Net (video): This footage from the Depression Era construction of the "tallest building in the world" shows [a type of extreme, high-rise confidence](#).

Close Encounter or Cloud Formation? (videos): A [flying-saucer-shaped formation](#) in the sky near California's Mount Shasta had many thinking that aliens were paying a visit.

Moldy Advertising: Burger King announced the removal of artificial preservatives from their food by showing a time lapse of their [burger growing mold](#). One [scientist questions](#) the fast-food restaurant's move.



Skyscraper lunch break--not for acrophobics. Related link at left.

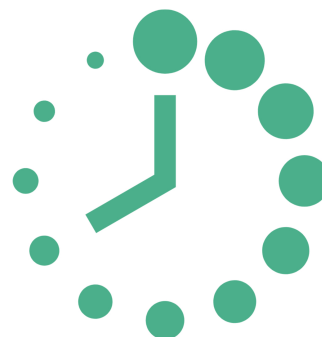
CAST Happenings

You Still Have Time to Renew Your CAST Support for 2020!

If you haven't renewed your CAST membership for 2020 yet, there are several convenient ways to do so:

- You may log in at <https://www.cast-science.org/> and renew online;
- Complete and email this [interactive membership form](#) with your credit card information to Colleen at chamilton@cast-science.org;
- Call our office at 515.292.2125 to pay by phone with your card; or
- Send a check to CAST, 4420 West Lincoln Way, Ames, IA 50014.

Don't hesitate to contact Colleen with any membership or login questions. Thank you for your continued support of CAST's work!



Forthcoming CAST Publications



Impact of Recruitment and Retention of Food Animal Veterinarians on the U.S. Food Supply is an issue paper looking at the challenges of recruiting and retaining food animal veterinarians in the United States—including factors such as consolidation, technology, funding, rural influences, student training, and financial strain.

Producing Food Products from Cultured Animal Tissues is a commentary that will focus on the issues surrounding cell-cultivated meat.

The Microbiome's Positive Impacts on Crops: A plant's microbiome holds many potential applications for pest control and yield enhancement. This paper will highlight the impact microbial products have on crop production and the importance of research.

The Need and Challenge for Effective Stewardship of New Pest Management Technologies in Agriculture is a CAST Commentary that considers the use of genetically modified crops, weeds, and pests to help with crop management.

Free Publications

CAST papers are [now available for free download](#) on the newly formatted [CAST website](#).

Friday Notes News Categories

Photos courtesy of the Agricultural Research Service (top masthead); TopLatest News (globe at right). P. 1 skyscraper pic from reuters.com. Animal Sec. bee pic from phys.org/Lars Chittka. Food Sec. food pic from ccdiscovery.com. Plant Sec. espresso pic from pexels.com and blossoms pic from usda.org. Inter. Sec. forest pic from bbc.com and New Zealand pic from geneticliteracyproject.com. Gen. Sec. cancer cells pic from bbc.com/Getty Images and emoji pic from emojiopedia.com. Unless otherwise noted, photos courtesy of the USDA Agricultural Research Service or CAST.



Animal Agriculture and Environmental News

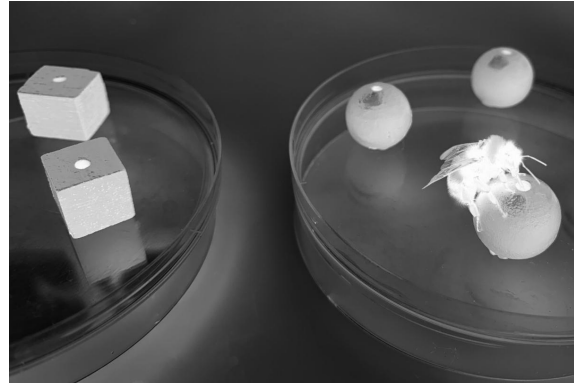
Sensing Shapes: Previous studies have shown bumblebees can remember shapes of flowers, but now [research](#) suggests they can use other senses to remember objects, too.

Complex Beef Market: This beef expert looks at the complex market system and [why some beef is imported](#) into the United States.

Ag Communication: A long-term journalist and pig production adviser [shares his expertise](#) about how to handle questions in public.

Hen Housing: Six states have called for [cage-free hen housing](#), but many U.S. egg producers predict that more than half of the U.S. hens will be in cages in 2025.

Dairy Transaction: Dairy Farmers of America [will buy Dean Foods](#), America's largest milk producer.



In a recent study, bumblebees learned how to find specific shapes in the dark that had a reward. Once the lights were on, the bees used the sense of touch to find the same shape that rewarded them in the dark. Story at top left.



Gene-editing Debate: The [debate about animal gene-editing](#) in the United States intensified following the publication of dueling articles from the FDA and the editorial board of the journal *Nature Biotechnology*.

Gene-editing Opportunities: According to these scientists, the prospect of [genome editing offers a number of promising opportunities](#) for livestock breeders. One of those experts, Dr. Alison Van Eenennaam (UC-Davis and 2014 BCCA winner), [writes extensively about the issue](#) on her blog.

Gene-editing Publication: [Click here to access](#) the CAST Issue Paper *Genome Editing in Agriculture: Methods, Applications, and Governance*.

Food Science and Safety News

Heart Health: A new [narrative review](#) finds no apparent increased risk of cardiometabolic disease development or related mortality with higher unprocessed red meat consumption.

Out of the Dark, Into the Limelight (video): Mushrooms are the "[new celebrity produce](#)" in the grocery aisle.

Hacking Kitchen Hacks (video): YouTube clips touting baking ideas have clocked up billions of views--but [do all the tips featured actually work?](#)

Brewing Science: Plant breeders, maltsters, brewers, and distillers are teaming up with plant breeders, researchers, and farmers to produce [better tasting craft beverages](#).

It Works in Mice! The combination of green tea extract and exercise [reduced the severity of obesity-related fatty liver](#) disease, according to these researchers.

Food Waste Nationally: Pennsylvania State University experts say U.S. households are [wasting nearly one-third of the food that they buy](#).



A new study claims that eating a [Mediterranean diet improves the microbiome](#) of elderly people in various ways.



Food Waste Internationally: Common [estimates for global food waste are too low](#), according to Dutch researchers.

Food Waste Publication: [Click here to access](#) CAST's Issue Paper *Food Loss and Waste*.

Plant Agriculture and Environmental News

Coffee Research (video): The University of California-Davis hopes to become the [worldwide epicenter of coffee research](#)--just as climate change threatens the multi-billion dollar industry.

Soil and Climate Research: This 655-acre Mississippi State University research facility is [one of sixteen experiment stations](#) chosen to represent the primary soil types and climates across the state.

B.F.F.s: Researchers state in an upcoming article that sudangrass can be planted as a [companion crop](#) to establish alfalfa, specifically in Quebec. It may prove to be less competitive (i.e., alfalfa produces higher yields) than oat or annual ryegrass.

Hemp Thieves: In addition to the normal challenges of farming, hemp growers have had to deal with a [different kind of problem--theft](#).



Warmer Winters, Tougher Harvests (audio included): Fruit and nut orchards in California depend on synchronized blooming for pollination--climate change is [making it tougher to produce](#) quality results.



From classes to research, UC-Davis wants to be the place for coffee research. Story at top left.

Bloomin' Letdown: False springs are events where "warm temperatures in [early spring prematurely release plants from dormancy](#), only to be harmed by a late spring frost event."

International News

Fires Ignite Contentious Debates (video): Many scientists say [climate change is behind the unprecedented intensity](#) of the bushfires that have burned a reported 27 million acres in Australia.

Locust Plague: Swarms of [desert locusts continue to devour crops](#) in the East Africa region, including South Sudan, an area facing hunger and the lingering effects of a civil war.

Waterbed 2.0? Syrian refugees and university scientists are working to create a way to grow healthy, fresh [food with nothing but water and old mattress foam](#).

Let Me In, Coach: Animals seem to love soccer--a [playful dog](#) held up this Turkish football match, and a [stubborn kangaroo](#) decided to play goalie during a game in Australia.

In the Land of the Long White Cloud: Many farmers in New Zealand are working to [reduce their greenhouse gas emission footprint](#).



The tradition of [shinrin-yoku, or forest bathing](#), is a national pastime in Japan and is believed to reduce stress and promote well being.



General Interest News

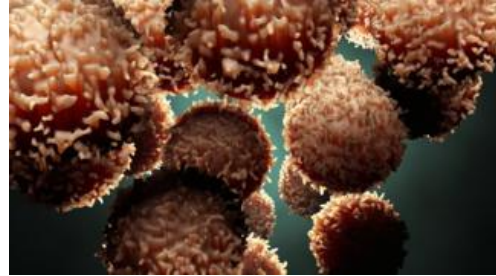
Carry That Weight (video): UC-Davis research shows that [bumblebees are the big lifters of the insect world](#)--able to fly back to the hive with almost their own body weight in nectar on board.

Happy Marshes: NOAA researchers studied "happy" and "unhappy" tidal marshes to understand what common characteristics each group has to make better [conservation management](#) choices.

A Lifestyle Approach? According to this article, diet, exercise, and weight management can [add a decade to your life](#).

'Not Your Grandfather's Lettuce': Plants that never come in contact with human or animal pathogens and are bathed in pink-purple light is called the "[vegetable farming of the future](#)" in this article.

Fighting Cancer in the Lab: More than a thousand scientists have built the [most detailed "picture" of cancer ever](#) in a landmark study.



Called a "a 100,000-piece jigsaw," more than a thousand scientists built the most detailed "picture" of cancer ever. Story below.



Emojification: Some scientists are interested in the "[emojification](#)" of what they study. An emoji means the topic has entered the shared visual language.

Food from Farm to School: Approximately 120,000 students will benefit from grants that will bring more [local farm foods to their cafeterias](#).

CAST Information

Check out CAST's page at the [YouTube site](#) to view highly regarded ag-science videos about probiotics, food safety, and water issues--or the latest video dealing with proposed mandatory labeling of GMO food items.

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- * American Society for Nutrition Nutritional Sciences Council
- * American Society of Agricultural and Biological Engineers
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- * Entomological Society of America
- * Innovation Center for U.S. Dairy
- * Land O'Lakes
- * Bayer
- * National Cattlemen's Beef Association, a Contractor to the Beef Checkoff

- * National Corn Growers Association/Iowa Corn Promotion Board
- * National Milk Producers Federation
- * National Pork Board
- * North Carolina Biotechnology Center
- * North Central Weed Science Society
- * Northeastern Weed Science Society
- * Poultry Science Association
- * Rural Sociological Society
- * Society for In Vitro Biology
- * Soil Science Society of America
- * Syngenta Crop Protection
- * The Fertilizer Institute
- * Tuskegee University
- * United Soybean Board
- * University of Nevada-Reno
- * U.S. Poultry and Egg Association
- * Weed Science Society of America
- * Western Society of Weed Science

CAST, through its network of experts, assembles, interprets, and communicates credible, balanced, science-based information to policymakers, the media, the private sector, and the public.

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