

Friday Notes

Council for Agricultural Science and Technology

The Science Source for Food, Agricultural, and Environmental Issues

CAST

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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Reaching New Heights



Christina Koch [set space flight records](#): 328 days in space; 5,248 orbits around Earth; 6 spacewalks working outside the International Space Station.

In for the Count



The U.S. Census Bureau is [spreading the word and providing basic information](#) about the population count this year.

Announcements

The USDA is hosting a number of [career fairs](#) across the nation in the first half of 2020.

The 64th annual [Kansas State University rodeo](#) is expected to draw more than 500 contestants and 10,000 spectators Feb. 14 -16.

To [stimulate interest in STEM](#), University of Nevada-Reno graduate

February 7, 2020

Cell Cultivated Issues

More Research Needed and a CAST Publication Coming

The [scientific concept](#) behind cell cultivated meat may be relatively simple, but many other aspects are complicated. While [some companies are optimistic](#) about getting products to the public, the actual implementation is challenging. Nothing is yet available in retail outlets, and most think it will be several years before mass marketing occurs.



Food safety will be an issue, and the USDA and FDA announced they will [share regulatory oversight](#). Even the [name of the product is in flux](#). Terms currently include "cultivated meat," "clean meat," "cultured meat," "lab meat," "fake meat," "cell-based meat," and "in vitro meat." One thing most seem to agree on--[more research is needed](#). As a North Carolina State biologist says, "There are lots of technical hurdles here to overcome."

A credible source of information on this topic will be available this spring. A new CAST commentary titled Producing Food Products from Cultured Animal Tissues will look at the challenges and opportunities coming from this new technology.

News and Views

USDA Science Blueprint: USDA Agriculture Secretary Sonny Perdue applauded the publication of the [USDA Science Blueprint](#), and the USDA's Scott Hutchins called it a "roadmap for [USDA science from 2020 to 2025](#)." However, [some scientists have raised questions](#) about the government's science and environmental policies.

Coronavirus Concerns: The global [coronavirus situation changes hourly](#), but it is having an effect on many countries. This audio clip covers a [statement from USDA Secretary Sonny Perdue](#), and this opinion article looks at the source of the virus and the need for [animal research to develop a vaccine](#).



A cruise ship gets quarantined.

Trade Optimism: Producer [sentiment seems to be up](#) after the signing of the phase one trade agreement with China--and China announced a [cut in tariffs](#). Cattle producers think the [agreement with Japan](#) might have even more immediate impact.

students use presentations and interactive experiments with talented 4-H members.

STEM educators wanting to learn about NGSS-designed curriculum using the storyline process might consider this "[On the Farm STEM Event](#)" in July.

As an example of how [universities share research information](#), the Nebraska On-Farm Research Network is hosting sessions about products, practices, and new technologies for producers.

Send in Ideas

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

CAST Social Media



Economic Indicators: The [U.S. economy](#) is healthy in many respects, but some [rural communities lag behind](#), and U.S. [farm bankruptcy rates](#) rose in 2019.

News from the Far Side of the Barn

Road Trip (video): This animal bromance video went viral because the coyote and badger duo seem to be [off on a fun adventure](#).

Dimming Their Love Lives: Fireflies are suffering from several threats including [light pollution that outshines their mating signals](#).

Thinking Outside the Box (video): Scientists devised four different rounds of [escape-room challenges for this clever octopus](#).



Eight legs and a Houdini spirit--escape story at lower left.

Quality Ag Education The Importance of University Programs

Universities get ranked according to academics, athletics, cafeteria food, and even party life. The methods and results are often controversial, and the agencies who do the surveys are of mixed credibility. One thing is for sure--the 18 universities that are members of the [CAST Education Program](#) are quality agriculture schools, and they have all been included on lists that praise academic programs, student activities, faculty achievements, and many other noteworthy accomplishments.

This report from Niche College Rankings [says it carefully calculates](#) information and compares the [top agricultural science degree programs](#) including animal sciences, horticulture, aquaculture, agronomy, crop science, and turf management. Cornell, Florida, Texas A&M, Kansas State, North Carolina State, Cal Poly, UC-Davis, Ohio State, Iowa State, Mississippi State, Missouri, and Penn State are all in the top 25 of this survey. Such rankings vary, and other universities also have quality programs that are praised in a variety of ways.



The 18 universities in the CAST Education Program provide excellent academic and research programs.

Forthcoming CAST Publications

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

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.

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 woman in space photo from space.com, census graphic from cmlibrary.com, lab tissue graphic from labmeat.com, ship pic from cnn.com, and octopus pic from catapult.com. Animal Sec. wings collage from recipeforchicken.org and ichef.bbc.co.uk and milking pic from agupdate.com. Food Sec. peanut collage from whoinvented.org and channel3000.com. Plant Sec. citrus pic from npr.org and bee pic from modernfarmer.com. Inter. Sec. glacier collage from usatoday.com and pressfrom.info. Gen. Sec. energy pic from psu.edu and Seven Worlds poster from bookdepository.com. Unless otherwise noted, photos courtesy of the USDA Agricultural Research Service or CAST.



Animal Agriculture and Environmental News

Swine Fever Updates: This Asian press release covers [updates about African swine fever](#) outbreaks and suggestions about dealing with the issue.

Pig Health (videos): These pig disease experts helped produce information about how to [avoid the introduction and spread of disease](#) on the farm and how to implement [useful biosecurity practices](#).

Small Changes Make Big Improvements: In the past decade, the [amount of manure and air emissions](#) from hog facilities is down 18% per animal, according to the EPA.

Chicken and Turkey Health: The [parasitic blackhead disease--histomoniasis](#)--has returned in turkeys and chickens, and many think new approaches are needed. A vaccine is under development.

Veterinarian Shortage: Iowa State University experts are gathering [information about the shortage of veterinarians](#) in rural areas and looking at how to solve the problem.



The National Chicken Council says [Americans consumed a record-breaking 1.4 billion chicken wings](#) during Super Bowl LIV weekend--enough to circle the circumference of the Earth three times.



Family Farm Goes Automated:

This family runs a 130-cow dairy farm, and if the loans come through, the job of milking will soon be [turned over to four robots](#).

Changes in the Dairy Parlor: The dairy industry is changing, and this story focuses on Pennsylvania family farmers who are facing challenges and [hoping that innovation can help them survive](#).

Robots in the Barn (video): This clip looks at [innovation in milk production](#).

Food Science and Safety News

A Grand Eating Experiment: The tech giant Google is engineering a way to [encourage its employees to eat healthier](#).

The Shell Game: Researchers may have found a way to [prevent salmonellosis affecting eggs](#) through surface contamination.

Nutritional Considerations: While some people switch to plant-based diets for various reasons, dieticians suggest that consumers look carefully at the [possible risks of vegan "junk food."](#)

New in the Grocery Store: New [dairy products hit the shelves](#) in January--from probiotic smoothies to cheese bar snacks.



Edible Packets Replacing Plastic? Some say the time is now for edible packaging. These capsules encase liquid in a [waterproof film made from seaweed](#).

Cost? OK, But What about Health? This article provides information and opinions about the economics of [all-you-can-eat](#)

[buffets](#).



Mixed Nuts: While the FDA recently approved the first drug for the [treatment of peanut allergies](#), social media is still [divided about the weird death](#) (and reincarnation?) of Mr. Peanut.

Plant Agriculture and Environmental News

Ancient Roots: Seven date palm trees have [grown from 2000-year-old seeds](#) that were found in a desert near Jerusalem. The seeds were discovered in caves and in an ancient palace built by King Herod the Great in the 1st century BC.

Soil Organic Matter: *The Journal of Environmental Quality* collected more than 10 papers examining the state of research on [humic substances and alkaline extraction](#).

Bees in the Trees: Freshly burned longleaf pine forests have [double the total number of bees](#) and bee species than similar forests that have not burned in more than 50 years, according to North Carolina State University research.

Bee Health Matters: This CAST Commentary examines the question "[Why does bee health matter?](#)"

Brown Rice and Antioxidants: USDA/ARS scientists are [studying a brown rice variety](#) to assess its antioxidant levels and to see if it could have a new commercial lease on life.



Saving Citrus with Their Sniffers: Dogs can [detect citrus greening disease earlier](#) and more accurately than current diagnostics.

Forests and Soil: This U.S. Forest Service expert has been studying how the [reduction of air pollution and acid rain](#) is affecting forests.



Apiarists from all over America rent their hives to farmers in California, but this has meant an [uptick in bee hive theft](#). Related links at left.

International News

Fruit-pickin' Robots (video): Brexit might result in a shortage of cheap human labor for Britain's farms, so there's a [flurry of interest in robots](#) that can do the job.

Sling Blade (video): This Thai street vendor shows the skill and power needed to [slice up coconuts](#) to make them ready for purchase.

Fires and Pollination: Australian [wildfires are killing millions of bees](#) and destroying vast tracts of forest where the insects feed, putting the country's almond and honey production at risk.

Dairy and the Environment: A leaflet is being handed out to dairy farmers in England to give them the [information they need to combat criticism](#) over the sector's effects on the environment.



Gohan Burger (video): McDonalds is bringing a [burger bun made with rice to Japan](#).

Food Waste Pledge: The United Arab Emirates recovered nearly 2 million meals in 2019 and plans to [recover 3 million meals in 2020](#).



Glaciers are threatened by higher air temperatures, but this study says they are also [being attacked from below](#).

General Interest News

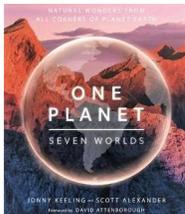
Plastics on the Menu (video): Humans produce 300 million tons of new plastic each year, and in this "TED Talk," a scientist says [some bacteria have evolved the ability to eat plastics](#).

Supply and Demand: With [advanced economics in mind](#), Jayson Lusk (Purdue and [2017 BCCA winner](#)) shows how to determine the extent to which a change in price (or quantity) results from a change in supply and/or demand.

African Studies: Tuskegee University is now the permanent home for the [impressive library of African studies manuscripts](#) collected by the late Dr. James Anthony Pritchett, a preeminent scholar in the field.



Penn State University researchers are looking at innovative [ways to improve energy storage](#) to better utilize renewable energy technologies.



Seven Worlds, One Planet

(videos): This television series celebrates the [diversity of life on each of the seven continents](#) and looks at the challenges faced by animals in a modern world.

Silencing Deadly Cells: In the battle against deadly diseases that resist antibiotics, University of Nevada-Reno researchers have shown that [stopping bacterial cells from communicating](#) can actually prevent them from amassing their lethal armies.

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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- * Agricultural & Applied Economics Association
- * American Association of Avian Pathologists

- * American Association of Bovine Practitioners
- * American Bar Association, Section of Environment, Energy, & Resources-Agricultural Management
- * American Dairy Science Association
- * American Farm Bureau Federation
- * American Meat Science Association
- * American Meteorological Society, Committee on Agricultural and Forest Meteorology
- * American Seed Trade Association
- * American Society for Nutrition Nutritional Sciences Council
- * American Society of Agricultural and Biological Engineers
- * American Society of Agronomy
- * American Society of Animal Science



- * American Society of Plant Biologists
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- * CropLife America
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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.

Members of CAST's Education Program

- * Cal Poly-San Luis Obispo
- * Cornell University
- * Iowa State University
- * Kansas State University
- * Mississippi State University
- * North Carolina Agricultural and Technical State University
- * North Carolina State University
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Dan Gogerty (Communications and *Friday Notes* Editor)
 Kimberly Nelson (Communications and Social Media Specialist)
 The Council for Agricultural Science and Technology
 4420 West Lincoln Way
 Ames, Iowa 50014-3447
 Phone: 515-292-2125, ext. 222 (Dan) and 230 (Kimberly)
 E-mail: dgogerty@cast-science.org and knelson@cast-science.org



** *With assistance from Megan Wickham (Scientific Editor) and Colleen Hamilton (Membership Specialist)*