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.

Friday Notes
The Science Source for Food, Agricultural, and Environmental Issues

In This Issue....
Animal Agriculture News
Food Science & Safety News
Plant & Environmental News
International News
General Interest News

Announcements

Pfizer and BioNTech announced a COVID-19 vaccine that was more than 90% effective in trials. A British vaccine is apparently close, and other groups--such as Moderna—are claiming possible breakthroughs. However, some recommend caution and patience.

The USDA announced its OneUSDA Internship Program for Summer 2021, and its Scholars Programs for students at Historically Black and Tribal Land-Grant Colleges and Universities.

The USDA will host a series of four webinars on CME specifications and live cattle and beef carcass grading on Nov. 17, Dec. 1, Dec. 8, and Dec. 15.

The USDA announced its "Updated Conservation Practice Standards" this week.

CAST College Corner

This University of Kentucky student and U.S. Army veteran

November 13, 2020

Robotics, Artificial Intelligence, and Agriculture

From early science fiction to today's science practicalities, robots have affected our folklore and our work places. Artificial Intelligence and robotics are now influencing agriculture and food production.

The following links lead to a few of the many examples: (1) A new generation of autonomous robots is helping crop growers, (2) this UC-Davis site looks at a wave of agricultural robotics and sensors, (3) the first firefighting robot in America was called into immediate action, (4) a science fiction-looking robotic vehicle works a Kansas State agronomy farm, (5) Cal Poly received a National Science Foundation Award to study small robots, (6) and this Iowa State video shows that the pandemic can't slow down a robotic lab assistant.

The CAST Issue Paper, Ground and Aerial Robots for Agricultural Production: Opportunities and Challenges, will be released November 16 with a webinar November 17. See page 2 below for details.

News and Views

Pandemic Effects: As coronavirus rates rise around the world, in the United States, rural areas are experiencing a surge in cases, and various types of gatherings seem to be spurring community spread. This USDA site looks at COVID-19 economic implications for agriculture, food, and rural America, while this CDC site provides suggestions to fight the virus.

Radio News: The USDA's weekly radio features include a look at robotics, oyster farming, and turkey preparation.

WASDE Report and Crop Projections: Check here for the latest USDA World Agricultural Supply and Demand Estimates. The USDA also trimmed projections for 2020 U.S. corn and soybean production and ending stocks.

Rural Marketing Economics: The Creighton University Rural Mainstreet Index has increased for six straight months—with
gets results—and comfort—from his research plots.

The University of Florida provides its Florida Vegetable Gardening Guide in English and Spanish—and as a downloadable app.

The Tuskegee University College of Veterinary Medicine hosted its one health symposium virtually.

Check throughout Friday Notes to see more featured articles from member universities.

CAST welcomes ideas for future publications and projects.

CAST Updates

Upcoming Publications

The new CAST Issue Paper, *Ground and Aerial Robots for Agricultural Production: Opportunities and Challenges*, will be released on November 16, with a webinar on November 17 at Noon Central. You can sign up for the free webinar here.

Today, highly automated systems are employed in crop and animal industries to enhance agricultural input efficiency and thus increase agricultural output with reduced adverse impact on the environment. Ground and aerial robots combined with artificial intelligence techniques are able to tackle the rising food, fiber, and fuel demands of the rapidly growing population that is slated to be around 10 billion by the year 2050. This issue paper presents opportunities provided by ground and aerial robots for improved crop and animal production, and the challenges associated with their progress and adoption.

Join Dr. Santosh Pitla, chair and lead author for this publication, as he presents highlights of CAST’s new Issue Paper followed by Q&A with a panel of task force authors.

Past, Present, and Future CAST Presidents
On October 28, 2020, CAST outgoing President Juan Tricarico added to the many valuable types of input he has provided during the past years by finishing his portion of the annual meeting with his usual upbeat, thoughtful comments. Incoming President David Baltensperger then began his official responsibilities, but he had already been leading webinars and performing many other crucial roles for CAST. Anna Dilger was voted in as the President-Elect, and through committees, webinars, and task force writing, she will no doubt continue to contribute in an important way. CAST thanks these leaders and the many board members and volunteers who help CAST fulfill its mission.

Be sure to check out the new CAST mission and vision statements on the website.

**Nominations Open for 2021 Borlaug CAST Communication Award**

Nominations are now open for the 2021 Borlaug CAST Communication Award, an honor that recognizes professionals actively working in the agricultural, environmental, or food sectors who are promoting agricultural science in the public policy arena. Learn how to nominate someone for the 2021 BCCA and download the 2021 nomination packet form here.

**Animal Agriculture and Environmental News**

**CRISPR Calf Called Cosmo (video):** This 30-minute clip follows the scientific journey of UC-Davis PhD student Joseph Owen, Dr. Alison Van Eenennaam, and others as they document this amazing genetic advancement.

**Feed Particle Size:** Research shows optimum particle size is critical to obtaining maximum poultry performance.

**Fluctuating Pork Exports:** U.S. pork exports have risen as African swine fever affected China’s hog herd, but some think that could be changing.

**Disease Response:** The National Pork Board announced the launch of AgView, technology designed to help the U.S. pork industry respond quickly in the event of a foreign animal disease outbreak.

**Steer-production Tips:** Kansas State experts are advising first-time cattle feeders as they raise calves to eventually produce increasingly popular locally sourced food.

**Cattle Vaccine:** Researchers at the University of Nevada-Reno and UC-Davis developed a new vaccine for cattle to protect against fetal calf loss.

**Beg Your Pardon:** The White House turkeys don’t need to worry, but most turkeys are nervous this time of year. Farmers and grocers are also anxious about what people will want on their holiday tables during this unique pandemic era.

**Food Science and Safety News**

**New Sandwich Both Anticipated and "McMocked" (two videos):** McDonald’s developed a plant-based patty it will dub the McPlant. Consumers will judge the food, but social media participants are already poking fun at the name.
A Matter of Taste: The Beef Checkoff site gives us a look at U.S. beef products that are not in demand in the United States (tongue, liver, heart, intestine, etc.), but they are highly desired by international markets.

Brain Food: Researchers discovered that a specific brain region monitors food preferences that can be shifted by targeting relevant neurons.

Food, Inflammation, and Heart Health: This study examines connections between inflammation and heart disease related to consuming certain foods.

Sweet Heart? French researchers investigated the relationship between the risk of cardiovascular disease, sugary drinks, and artificially sweetened drinks.

Got More than Milk: A $6 million grant from the USDA's AMS will provide educational opportunities to help dairy businesses manage financial risk by developing value-added dairy products.

Sunions are tearless and sweet, and they become sweeter with every additional day in storage.

Three decades of research have gone into this variety of onion that is hitting retail shelves this week. Sunions are tearless and sweet, and they become sweeter with every additional day in storage.

Plant Agriculture and Environmental News

Yield Lessons from 2020: These agronomists cite five yield lessons from 2020 for corn and soybean production.

Booming Bean Output: A Nebraska farmer uses a recipe of low population, biologicals, and nutrient application timing toward repeated yield success and savings.

Tech and Drought: This study indicates that the methods farmers use to get a decent corn crop during drought years should not leave the impression that innovation will make bad weather inconsequential.

Sorghum as Possible Ethanol Source? (video): Kansas State University researchers are tracking the nitrous oxide emissions associated with grain sorghum production and its effect on the carbon intensity score.

Growing Livestock Feed Vertically: Unlike most vertical farms that grow veggies for consumers, this Utah project grows feed for livestock.

Insect Versus Weed: USDA/ARS scientists confirmed they are releasing a biocontrol insect to fight the invasive weed known as Cape-ivy along the California coast.

Knotweed Battle (related to above): For the first time in the Netherlands, an exotic insect species has been released into the wild to combat a harmful plant species.

Corporations make climate pledges and farmers consider how to “go green.” A five-part Agri-Pulse series looks at how reductions in greenhouse gas emissions could have far-reaching effects on American farmers and ranchers. Experts such as Marty Matlock (University of Arkansas and 2018 BCCA winner) provide insights.

International News

GM Ban Removed: South Australia's ban on genetically modified crops has been removed after 16 years.

Ebola Virus Research: Scientists—including UC-Davis experts—found antibodies to the Ebola virus in people up to a year before the 2018 Congo area outbreak, and this leads to speculation about the nature of the virus.

Opening Offices: APHIS plans to expand in the Middle East.
and Africa, but the agency will scale back in some of its other offices in the Western Hemisphere.

**New Dairy:** This roundup of some recent products in British dairy aisles includes types of cheese and yogurt.

**Palm Oil Research:** Nigeria's oil palm research is set to receive its biggest funding in 10 years.

**Here Comes the Sun:** Plans have been drawn up to create a massive solar farm in England that could generate enough electricity to power thousands of homes.

By the early 1970s, Indian tigers had been hunted and poached to the edge of extinction. This video looks at the efforts of the “tiger guru” and others to save them.

### General Interest News

**Teaching about Farming--and Life:** This Marine veteran uses his nonprofit to teach other veterans how to farm in hopes of giving them purpose.

**Brain-based Computing:** Penn State engineers are attempting to pioneer a type of computing that mimics the efficiency of the brain's neural networks while exploiting the brain's analog nature.

**When the Chlorophyll Stops (video):** This Mississippi State University expert explains why leaves change color.

**Color Genes Identified:** Cornell University researchers have identified three genes responsible for changing the color of common buckeye butterfly wings.

**Slowing the Virus Spread:** The University of Nebraska–Lincoln finished upgrades to its heating, ventilation, and air conditioning systems to better prevent the spread of COVID-19 this winter.

**Galactic Neighbors?** This National Geographic story says a survey shows that millions of worlds with similar conditions to Earth are located in the Milky Way galaxy.

As in "Model T days," farmers and ranchers often go for trucks. Pickup truck sales have risen during the pandemic, and younger shoppers may be the reason.

### Photo Credits

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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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