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.

In This Issue...... Click to Read

The War on Weeds--P. 2
Animal Agriculture News
Food Science and Safety News
Plant and Environment News
International News
General Interest News

Out of This World

A NASA astronaut shares amazing pics from the International Space Station--photos by Donald Pettit.

Ag-tech Jobs

The ag-tech industry is dealing with recruiting challenges--a competitive talent pool, the need for definitive ag-tech start-up experience, and a field that is growing rapidly.

Genome Editing

Publication Rollout

CAST invites you to a presentation about Genome Editing in Agriculture: Methods, Applications, and Governance.

CAST Issue Paper

Number 08
July 2018

Genome Editing in Agriculture:
Methods, Applications, and Governance

June 29, 2018

Food, Glorious Food

Agriculture and science focus on global food security

Oliver Twist and the workhouse boys understood the importance of food--they dreamed of "hot sausage and mustard" as they asked for more gruel. Although conditions have changed since the days of Charles Dickens, many around the world still yearn for a safe and secure food supply.

Every Friday Notes edition includes various links regarding food production, and this week's articles range from a Jayson Lusk blog in the Food Section below about "The Global Menu" to a story in the General Section about California ranchers growing black truffles.

The following four "late-breaking articles" also reflect the smorgasbord of food-related items: (1) Some say up to 40% of food in the United States is wasted. These tips might help consumers cut back on that waste. (2) Both the FDA and the USDA indicate a desire to have jurisdiction over the burgeoning sector of lab-grown or cultured products--animal cells used to create foods such as chicken nuggets and burgers. (3) Tyson Foods shifts its mission to focus as a protein company rather than just a meat company. (4) New research by the International Food Information Council Foundation provides insights into how labels affect buyers and why many consumers avoid biotech food products. And as this related AgriPulse article points out, simple labels increase consumer acceptance of GMOs.

News and Views

Trade Tension Relief? Secretary of Agriculture Sonny Perdue wrote an op-ed piece focusing on trade tensions and telling farmers he is working on tools to help ease the burden.

Water Act Modification: In a change affecting the Clean Water Act, EPA Head Scott Pruitt is planning to limit the agency's authority to block permits for activities that could pollute or harm waterways.
and Governance on July 9 at three locations in Washington, D.C.

Upcoming Poultry Publication Rollout

Happy Fourth of July
The next edition of Friday Notes will be sent out on July 13. Have a safe and happy Independence Day week.

UK and 4-H
The University of Kentucky hosted the 2018 4-H Teen Conference, with 600 high school students attending.

Submit an Idea
We welcome suggestions for future CAST publications and projects. Click here to submit ideas.

Catch CAST Online!
Follow us on social media to stay up to date on the latest ag trends and recent CAST news!

World Food Prize Winners:
Dr. Lawrence Haddad and Dr. David Nabarro will receive the 2018 World Food Prize for their individual and complementary global leadership in elevating maternal and child undernutrition to a central issue within the food security and development dialogue at national and international levels.

Biofuels Debate Continues: The Proposed Renewable Volume Obligations announced by the EPA are being met with scrutiny by most renewable fuels groups. Several organizations asked the U.S. Court of Appeals to review the legality of the waivers the EPA grants to oil refiners regarding biofuels laws.

Field, Lab, Earth (podcast): The American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America announced the launch of their first joint podcast, Field, Lab, Earth.

News from the Far Side of the Barn
A Bug’s Life in Hollywood (video): Movies often use live bugs on camera to make films feel more real--and skin crawl. But how do you train those insects for their roles?

The Dead Comes to Life (video): This dead leaf butterfly gets its camouflage on with its phenomenal beauty.

A Really Big Boar (video): Wild pigs cause havoc around the world, and the largest of them all--from Uganda--was caught on film.

Weed Wars
Crop protection humor, science, and controversy
In the old days, Midwest farmers could joke about the weeds in their fields with one-line comebacks: "I'm going natural." "I'm waiting to see if the volunteer corn outperforms the soybeans." "I'm considering the attractions of becoming a pigweed farmer."

Glyphosate, other herbicides, and precision farming practices have changed the weed equation—but a new menace has been developing during recent years: herbicide resistance. The Weed Science Society offers this look at the *International Survey of Herbicide Resistant Weeds*, and their recent article sums up the problem in the title—*Weeds are Winning the War Against Herbicide Resistance*.

Farmers around the world struggle to keep crops healthy, and this new CAST blog looks at a variety of links related to the topic. A good basis for understanding the issue comes from CAST IP#58, *Crop Protection Contributions toward Agricultural Productivity*.

In the "if you can't beat 'em, eat 'em" vein, some foodies recommend eating weeds in salads and casseroles. Decades ago while trying for a Boy Scout merit badge (not sure which one, but it should have been called "Hunger Games"), I had to make a meal out of what I could find in the woods. I used lambs quarter and dandelions for the salad. That's fine, but I can't imagine eating the cockleburrs, buttonweeds, and Canadian thistles we used to battle in the fields. If we don't keep innovating our crop protection methods, it could get ugly—today's Palmer amaranth plants are getting big enough they might eat us. "Feed me, Seymour."

**Friday Notes News Categories**

Photos courtesy of the Agricultural Research Service (top masthead); TopLatest News (globe at right). P. 1 NASA pic from cdn.cnn.com, Oliver photo from pkmeco.com, kangaroo pic from youtube.com, and photo of two men from worldfoodprize.org. P. 2 weed sign pic from pinterest.com and weed cartoon from pathlessstravelled.jpg. Animal Sec. woman photo from chickencheck.in.com, Food Sec. avocado pic from ecowallpaper.net, Plant Sec. white corn pic from agweb.com, Inter. Sec. tiger pic from npr.org, Gen. Sec. beaver cartoon from airspacemag.jpg. Unless otherwise noted, photos courtesy of the USDA Agricultural Research Service.

**Animal Agriculture and Environmental News**

This sixth-generation farmer and university senior explains the hard work and joy of chicken farming.
Let’s Get to the Rat Tickling (video): These researchers are using rats to tickle their way to improved animal welfare among lab animals.


Billion Dollar Virus Be Gone: Scientists have produced pigs that can resist one of the world's most costly animal diseases with the use of gene editing.

Egg Sexing Close to Market: The race to bring egg sexing tech to market is extremely close with these five contenders.

Flocks on Family Farms: The National Turkey Federation prepared a new series of videos and resources offering common-sense answers about raising healthy turkey flocks on family farms.

Livestock and Antimicrobials: In an effort to inform public debate, Kansas State experts completed an analysis of the economic impact of treating groups of high health-risk animals with antimicrobials.

Gene Editing and Dehorning: The American Veterinary Medical Association proposed using polled genetics as an alternative to dehorning dairy cattle.

Researchers "Catfishing": Mississippi State scientists developed a vaccine to protect catfish from commonly occurring bacteria that can cause death.

Food Science and Safety News

Embracing New Food Trends: Although many farmers have little trouble falling asleep after a long day's work, a cup of "moon milk" may be the answer to catching a few more zzz's--but not before they sink their teeth into the hottest steak sandwich in New York City.

Upcoming Egg Research: The Egg Industry Center has awarded two of CAST's member universities with egg research funding totaling $212,918.

Blockchain and Food Safety: When it comes to food safety issues, some advocate digital record keeping so that production can be monitored remotely.

Preparing Farmers for Blockchain (related to above): This writer says blockchain enables entities to work on a shared digital ledger, reduces waste, and has the potential to get the farmer paid sooner.

The Global Menu: Jayson Lusk looks at the need to produce enough food to feed a more populated and likely richer world in 2050--and why the issue depends on technological development and food choices.

Trans Fat Be Gone: The World Health Organization recently launched a campaign calling for all trans fats to be eliminated from the global food supply by 2023--opening an avenue for animal fat use.
Super Yields: This farmer's corn yields jumped by an astounding 100 bushels per acre, as he switched to six-row, alternating strips of corn and soybeans while focusing his fertilizer application to a specific time frame.

Floating Islands Return to Lake LaVerne: Iowa State University is putting a twist on this familiar research project as grad students prepare to study pollinator performance in addition to water quality and nutrient uptake.

Raise a Glass to Researchers: For decades Cornell researchers have been transforming how grapes are bred and grown as well as how wine is crafted.

Now a Biotech Activist: Yet again we hear from activist-turned-science-proponent Mark Lynas who says, "Genetically modified crops have been vilified and banned, but the science is clear: They're perfectly safe."

Rainfall and Weed Growth: This Mississippi State University segment looks at why excessive rain affects weed control—and crop yield.

360 Degrees, 180 Seconds: Researchers at the University of Nebraska-Lincoln have devised a new approach to automatically and efficiently gather data about a plant's phenotype.

Arctic Turns Atlantic: These scientists studying one of the fastest-warming regions of the global ocean say the Arctic might soon be another limb of the Atlantic Ocean rather than a characteristically icy sea.

Milking Deer in New Zealand: With its high fat content and protein levels, deer milk is supposedly ideal for foodservice, cosmetics, and other uses.

Women and Ag in Scotland: The Scottish government provided a grant to help break down the day-to-day barriers that limit the impact women have in the agriculture sector.

Ag Research in Africa: Scientific research involving biotechnology innovations in agriculture has largely focused on producing better crops, but increasingly, African researchers are focusing on animal sciences.
Super Crops (related to above): According to this story, super crops like iron-rich beans and drought-resistant maize have the potential to revolutionize agriculture in Africa.

A Meaty French Issue: French butchers have written to the government asking for protection from militant vegans, accusing them of trying to shut down the country's traditional meat-eating culture.

General Interest News

Drawing the Future of Shopping (video): Visualizing the future is hard, so The Wall Street Journal asked this leading innovator and entrepreneur to draw his vision on the future of shopping.

Meat Lover’s Nightmare: The Lone Star tick has spread to many states beyond Texas, and its bite can mean the victim develops an unusual allergy to red meat.

Beaver Engineers: Wildlife experts point out that beavers can change their environment to suit them, and they might manipulate their surroundings enough to make big ecological changes. Note: related story in caption at right.

Ranching Truffles (video): This California rancher is attempting the difficult task of growing Périgord black truffles. The highly sought-after delicacy is one of the most expensive foods in the world.

The Road to Science (opinion): How does a gymnast from Ecuador end up as a scientist? While there's no blueprint for this pathway, the answer is science.

Hands-on Learning: Two dozen high school students received an interactive experience learning what a career in veterinary medicine would look like.

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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