The House has officially kicked off its appropriations process for fiscal year (FY) 2022 as markups begin to take place within their respective subcommittees before being passed up to the full committees. The majority of these bills are expected to hit the House floor within the last two weeks of July. While it is still uncertain when the Senate will begin their process, it is clear that they will not be able to complete all twelve bills before August recess. However, due to the tight timeline, it is likely that these votes will extend beyond September and will result in a continuing resolution (CR), which would keep funding levels flat at FY 2021 levels. Negotiations for an infrastructure package are ongoing, but much of the debate is complicated by both political and procedural hurdles as Congress and the Administration decide if or how much of the package will be passed through reconciliation, as well as how much can be passed by regular order.

The University of Minnesota Washington Update provides intelligence and analysis on recent federal activities. Faculty visiting Washington, D.C. are encouraged to contact Sarah Neimeyer, Director of Government Relations, at neimeyer@umn.edu. Contact Christina Laridaen, Lewis-Burke Associates LLC, at christina@lewis-burke.com with any questions or comments related to the Update’s content.

Congressional and Administration Updates
Appropriations Update: House Appropriations Committee Unveils FY 2022 Agriculture Bill
On June 29, the House Appropriations Committee unveiled its fiscal year (FY) 2022 Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations bill and the accompanying report. The bill would provide a total of $26.55 billion in discretionary funding for the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA), of which more than $3.39 billion would fund agricultural research, $321 million over the FY 2021 enacted level. The bill will likely be considered on the House floor by the end of the month, the Senate has yet to take any action on appropriations.

USDA’s intramural research arm, the Agricultural Research Service (ARS) would receive $1.637 billion for its Salaries and Expenses account, $145.3 million or 9.7 percent above the FY 2021 level. Within the report, there are over seventy-five activities singled out within ARS, ranging from alfalfa research to human nutrition throughout the lifespan to precision agriculture to whitefly research. Some of these priorities are included to remind ARS of the committee’s ongoing interest in an area, others would receive new or additional funding.

In its report, the committee explicitly mentions addressing climate change, a key tenant of President Biden’s agenda. The report states that ARS is “uniquely positioned to develop agricultural solutions to climate change on a national, regional, and local scale. The committee recommends funding for the Administration’s clean
energy and climate science goals in targeted areas to build upon ongoing research activities and lay the groundwork for innovative approaches in the future.” To that end, the bill would provide $20 million in support of clean energy research and an additional $50 million to support agricultural climate science. However, the committee rejects the Administration’s proposal to fund a portion of the proposed Advanced Research Projects Agency – Climate (ARPA-C) through ARS, noting, “the budget request lacks an adequate justification of ARS’s role.” Lastly, the bill would provide funding for the National Bio and Agro-Defense Facility (NBAF) to “be used to carry out the science program and transition activities.”

Within the National Institute of Food and Agriculture (NIFA), many of its signature research and extension programs would see modest funding increases. Specifically, the Agriculture and Food Research Initiative (AFRI) would receive $450 million, an increase of $15 million over the FY 2021 enacted level but much less than the requested $700 million. Hatch, Evans-Allen, Smith-Lever, McIntire-Stennis, and Education Grants for Hispanic-Serving Institutions would all see increases. Flat funding, $5 million, would be provided for Capacity Building for Non-Land Grant Colleges of Agriculture.

Similar to ARS, the report singles out numerous areas of interest within NIFA, including:

- **Farm of the Future:** The committee encourages further integration of “applied research in precision agriculture, smart automation, resilient agricultural practices, applied socioeconomics, and improved crop varieties from advanced genomics and phenotyping across varied landscapes and locations to advance data-driven solutions to increase productivity, integrate technology, create value added agricultural products, and enhance connectivity and resilience for thriving rural communities.” $6 million would be provided for the activity, $4 million was provided in FY 2021.
- **Genome to Phenome:** The bill includes $2 million for the Agricultural Genome to Phenome Initiative (AG2PI), a $1 million increase over FY 2021. The committee instructs “NIFA to use a competitive process to issue awards in the Genome to Phenome program and urges additional focus on root stocks that increase carbon capture and can support grain crop covers. In addition, the committee supports the development of tools and datasets for the analysis of phenotypes that can be used across multiple livestock and crop species to improve the output and efficiency of agriculture.”
- **Next Generation Crops:** The committee encourages “the development of new, economically viable crops to improve the nation’s agricultural output and applications.”
- **Specialty Crop Research Initiative (SCRI):** The committee highlights the importance of “addressing the needs of the specialty crop industry through research and extension activities” encouraging “NIFA to address tools, growing techniques, and technology emissions.” The matching requirement would once again be waived.
- **Tick-Borne Disease Research:** The committee urges support for “innovative ways to conduct surveillance of tick and tick-borne pathogen surveillance and conduct strategies for surveillance and risk communication.”
- **The committee highlights that “projects that use agro-acoustics to manage pests are eligible for AFRI awards under the Pests and Beneficial Species Program.”**

Of note, the committee would provide $2 million for the Agriculture Advanced Research and Development Authority (AGARDA) under the Office of the Under Secretary for Research, Education, and Economics (REE). AGARDA was authorized in the 2018 Farm Bill but has yet to be funded. Beyond REE, but important to research and extension activities, the bill would also provide $786.6 million for the ReConnect Broadband Pilot authorized in the 2018 Farm Bill.
Finally, over $200 million is designated for “Community Project Funding”, or earmarks, the first time in over a decade earmarks have been included in the congressional appropriations process. Projects supported include the building of new ARS facilities, as well as a multitude of community facilities and broadband expansion. Importantly, the Senate Agriculture Appropriations Committee will also support congressionally directed spending requests and the two chambers will have to negotiate on which earmarks make it into a final package.

**Food and Drug Administration**

Though technically an agency under the jurisdiction of the Department of Health and Human Services (HHS), the Food and Drug Administration (FDA) is, as the title of the bill implies, funded through the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations bill. Within the House FY 2022 Agriculture Appropriations bill is discretionary funding and user fee totals for the Food and Drug Administration (FDA). The committee would provide $3.45 billion in direct appropriations for the FDA and recommended $2.81 billion in user fees. The main user fee allocations the committee would fund are detailed below:

- $1.14 billion for prescription drugs
- $241.43 million for medical devices
- $527.84 million for human generic drugs
- $43.11 million for biosimilar biologicals
- $33.83 million for animal drugs
- $23.13 million for animal generic drugs, and
- $712 million for tobacco products

The committee would provide increases to all user fee programs with the exception of tobacco products. The largest increase would go to prescription drugs which would be increased by $34.66 million over the FY 2021 enacted level.

The committee placed an emphasis on inspections by providing the FDA’s drug center with $2.1 billion dollars, of which $8.5 million would be used to increase the number of overseas drug inspections. Similarly, the committee would provide the Center for Food Safety $1.2 billion, of which $15 million would be set aside for foreign seafood import inspections.

Members of both parties agreed that too much of the medical supply chain was located overseas. For instance, the committee called on the FDA to issue regulations requiring mandatory product listing and registration for dietary supplements with the express purpose of creating transparency in the supply chain.

The committee would provide $12.9 million for the FDA’s Closers to Zero program, which provides guidance on best practices for reducing and eliminating toxic heavy metals in infant and toddler foods. The committee also called for greater diversity in clinical trials, which the FDA has begun focusing on. In addition to including a greater number of racial and ethnic minorities, the committee called on the FDA to review clinical trial designs that could include pregnant and nursing women. With regard to COVID-19, the committee is concerned that many clinical trials, particularly for specialty drugs were halted or delayed because of the pandemic.

The committee urges the agency to use its full authority under the Family Smoking Prevention and Tobacco Control Act to address the dangers of Electronic Nicotine Delivery Systems on individuals under 18 years of age. Currently, the FDA conducts premarket reviews of e-cigarettes and other deemed tobacco products.
The committee would include an additional $5 million for the Orphan Products Grants Program. The program advances the development of orphan products that could treat rare diseases or conditions, such as ALS. With respect to ALS and other neurodegenerative diseases, the committee is directing the FDA to increase its engagement with the National Institutes of Health (NIH), academic institutions, and the private sector.

As the agency recruits investigators, the committee called on the FDA to look for talent from Minority Serving Institutions.

### FY 2022 Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations

*(In thousands)*

<table>
<thead>
<tr>
<th></th>
<th>FY 2021 Enacted</th>
<th>FY 2022 Request</th>
<th>FY 2022 House</th>
<th>House vs. FY 2021 Enacted</th>
<th>House vs. FY 2022 Request</th>
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<tbody>
<tr>
<td><strong>Agricultural Research Service, Salaries &amp; Expenses</strong></td>
<td>1,491,784</td>
<td>1,849,590</td>
<td>1,637,046</td>
<td>145,262 (9.7%)</td>
<td>-212,544 (11.5%)</td>
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<td><strong>National Institute of Food and Agriculture</strong></td>
<td>1,570,089</td>
<td>1,955,863</td>
<td>1,654,804</td>
<td>84,715 (5.4%)</td>
<td>-301,059 (15.4%)</td>
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<td><strong>AFRI</strong></td>
<td>435,000</td>
<td>700,000</td>
<td>450,000</td>
<td>15,000 (3.4%)</td>
<td>-250,000 (35.7%)</td>
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<td><strong>Hatch Act</strong></td>
<td>259,000</td>
<td>329,000</td>
<td>265,000</td>
<td>6,000 (2.32%)</td>
<td>-64,000 (-19.45%)</td>
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<td><strong>Smith-Lever Act 3(b) and 3(c)</strong></td>
<td>315,000</td>
<td>315,000</td>
<td>320,000</td>
<td>5,000 (1.6%)</td>
<td>5,000 (1.6%)</td>
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<td><strong>McIntire-Stennis</strong></td>
<td>36,000</td>
<td>45,783</td>
<td>38,000</td>
<td>2,000 (5.6%)</td>
<td>-7,783 (-17%)</td>
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<td><strong>Education Grants for Hispanic-Serving Institutions</strong></td>
<td>12,500</td>
<td>12,500</td>
<td>20,000</td>
<td>7,500 (60%)</td>
<td>7,500 (60%)</td>
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<td><strong>Food Safety and Inspection Service (FSIS)</strong></td>
<td>1,075,703</td>
<td>1,165,589</td>
<td>1,153,064</td>
<td>77,361 (7.2%)</td>
<td>-12,525 (1.1%)</td>
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<td><strong>Animal and Plant Health Inspection Service (APHIS), Salaries &amp; Expenses</strong></td>
<td>1,064,179</td>
<td>1,102,222</td>
<td>1,121,427</td>
<td>57,248 (5.3%)</td>
<td>19,205 (1.7%)</td>
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<td><strong>Food and Drug Administration (FDA), Discretionary</strong></td>
<td>3,201,928</td>
<td>3,526,928</td>
<td>3,449,869</td>
<td>247,941 (7.7%)</td>
<td>-77,059 (2.2%)</td>
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<td><strong>Community Project Funding</strong></td>
<td>0</td>
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<td>202,259</td>
<td>202,597 (100%)</td>
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**Funding Opportunities and Agency Updates**

**Engagement Opportunity: DARPA Announces Virtual ERI Summit and MTO Symposium in October 2021**

The Defense Advanced Research Projects Agency (DARPA) will host its fourth annual Electronics Resurgence Initiative (ERI) Summit in conjunction with a Microsystems Technology Office (MTO) Symposium virtually on **October 19-21, 2021**. The ERI Summit will provide attendees with the opportunity to learn about recent ERI advancements, discuss what needs to be done to keep the U.S. competitive in microelectronics, and demonstrate the technical achievements from DARPA’s five-year, $1.5 billion investment in the advancement of the U.S. semiconductor industry, focusing on the progress made across ERI’s six major themes:

- mitigating the skyrocketing costs of electronic design
- overcoming security threats across the entire hardware lifecycle
- accelerating innovation in AI hardware to make faster decisions at the edge
- increasing information processing density and efficiency
- overcoming the inherent throughput limits of 2D electronics
- revolutionizing communications in the 5G era and beyond

The MTO Symposium will highlight the potential future research directions at MTO and highlight recent efforts to develop and advance microelectronics prototyping and onshore manufacturing capabilities. The Symposium will be held on **Thursday October 21, 2021**.

Although both events will be fully virtual, DARPA still plans to host informative poster sessions and technology demonstrations online where attendees will have the opportunity to engage directly with DARPA program managers, which may inform future funding opportunities.

Registration for the 2021 Summit and Symposium will open **July 19, 2021**. Early registration is encouraged as registration will be capped off at 3,000 attendees, with a potential cap of 50 attendees per organization, or closed on September 27, 2021. Registration fees are $25 per attendee and the virtual platform will only be available to registered attendees. Registration information, and updates on the event’s agenda can be found [here](https://old.lewis-burke.com/).

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**2021 DARPA Discover DSO Day Summary and Best Practices to Engage**

The Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) hosted its virtual 2021 **DARPA Discover DSO Day** on June 23, aimed at familiarizing and informing potential proposers on scientific and technical research topics of interest to DSO program managers. DSO is one of six technical offices at DARPA and is commonly referred to as “DARPA’s DARPA” due to its goal of revolutionary high-risk
and high-payoff research to advance U.S. national security. DSO’s current research thrust areas, which remain unchanged from last year, include:

- Frontiers in math, computation, and design
- Limits of sensing and sensors
- Complex social systems
- Anticipating surprise

Dr. Stefanie Tompkins, DARPA’s new Director, launched DARPA Discover DSO Day by providing background on DARPA’s history, mission, and organizational culture. Dr. Valerie Browning, Director of DARPA DSO, followed Dr. Tompkins’s remarks, giving an overview of DSO’s trends and challenges. Dr. Browning discussed DSO’s priorities including the threat from globalization of technology development, especially among competitors and adversaries. Dr. Browning also discussed the speed and complexity of modern military engagement and the need to develop better sensors and computational methods to make decisions. In addition, Dr. Browning highlighted DARPA DSO’s push to help warfighters in ungoverned or undergoverned spaces. Lastly, Dr. Browning spoke about DSO’s focus on building resilient systems, especially in the face of increasing attacks on critical infrastructure. These four trends and challenges identified by DSO complement and crosscut the office’s four research thrusts listed above.

DSO program managers provided prospective directions on research topics, such as revolutionary ideas in quantum computing including fault tolerance and visualization of information; the use of AI in novel situations and environments such as rules-of-engagement, and in complex knowledge processing; improving AI ability to better understand human and social systems; and the use of allostatic cognitive science in suicide prevention, credibility determination, and skill acquisition. Other topics DSO program managers expressed interest in were systems logistics, especially food systems; ways to secure chemical supply chains through automation and AI; and new systems to secure strategic materials, among others. DSO program managers also welcome thoughts on how to help transition these ideas into new programs.

The event noted that the 2021 Young Faculty Award (YFA) Program, which identifies rising stars in junior research positions, should be released in late summer or early fall. Lewis-Burke recommends researchers who are interested in applying for a YFA to engage with program managers to discuss potential research topics prior to the program’s release. More information on the YFA program can be found at https://www.darpa.mil/work-with-us/for-universities/young-faculty-award. Lewis-Burke’s previous 2020 YFA information and analysis can be found at https://old.lewis-burke.com/sites/default/files/funding_opportunity_-_darpa_releases_young_faculty_award.pdf.

The event also highlighted DARPA DSO’s Disruptioneering program which allows the office to engage in rapid acquisition and development. Performers are expected to start work on Disruptioneering awards no later than 90 days from its announcement. DSO notes that the program has been highly successful since its introduction in 2017 and has seen interest from other offices in the program within DARPA. DSO’s 2021 Disruptioneering program announcement can be found at https://sam.gov/opp/13b47041a06d4820b5ff17e56c46c8cf/view.

As with all DARPA technical offices, DSO recommends that potential proposers, who are interested in engaging with DSO program managers and applying to funding opportunities, to consider the following research questions, known as the Heilmeier Questions:

- “What are you trying to do?”
- “How is it done today and who does it? What are the limitations of the present approaches?”

UMN Washington Update
Prepared by Lewis-Burke Associates LLC
July 2, 2021
• What is new about our approach, and why do we think it will succeed?
• If we succeed, what difference will it make?
• How long do we think it will take?
• What are our mid-term and final exams?
• How much will it cost?”

While all seven questions are important for a successful proposal, Dr. Browning highlighted the first four questions as especially important for a strong proposal.

The full list of research topics of interests DSO program managers are exploring can be found at https://www.darpa.mil/work-with-us/what-are-we-exploring-now. The Heilmeier Questions can be found at https://www.darpa.mil/work-with-us/heilmeier-catechism.

Best Practices
Lewis-Burke recommends the following best practices for interacting with DARPA:

• Engage program managers early on in their time at DARPA. Program managers usually are in their position for three to five years, so it is best to engage early on to help influence future programs and opportunities.
  o Program managers use the Heilmeier Questions to justify proposing new programs.
  o Researchers can engage with program managers until submitting proposals.
  o Lewis-Burke maintains a database of program managers, including their research interests, start dates, and programs.
• DARPA is a mission-driven agency, so research ideas and proposals should be concise but adaptable to the program managers’ visions.
• Keep in mind that DARPA is focused on enabling revolutionary capabilities through high-risk, high-reward research rather than incremental capabilities.

Sources and Additional Information
• Presentations from the DARPA Discover DSO Day webinar, including the doing business with DARPA and contracting 101 presentations can be found at https://www.darpa.mil/attachments/DiscoverDSODayPresentations_no_video.pdf.
• DSO Program Managers’ bios, program information, and contact information can be found at https://www.darpa.mil/work-with-us/interact-with-DSO.
• DARPA’s current list of project portfolios can be found at https://www.darpa.mil/work-with-us/what-is-our-current-investment-portfolio.
• To receive DSO News Updates via Constant Contact, sign up at https://www.darpa.mil/about-us/offices/dso.

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Agency Update: DOE Advanced Manufacturing Research Priorities
The Department of Energy (DOE) Advanced Manufacturing Office (AMO) funds research, development, and demonstration activities related to decarbonizing the industrial sector and driving innovation that can lead to a more resilient and competitive domestic manufacturing sector. The goal is to improve the energy efficiency and reduce carbon emissions of U.S. manufacturers. Currently, the U.S. manufacturing sector has an annual energy bill of about $200 billion, consumes roughly one-third of primary energy in the U.S., and produces 28
percent of the Nation’s carbon emissions. The analysis below highlights new initiatives proposed in the fiscal year (FY) 2022 President’s budget request for AMO. While the budget request will continue to fund existing activities, such as Industrial Assessment Centers and the Energy Water Hub, this analysis is focused on new proposed activities of most interest to research universities. While congressional appropriations will determine final funding levels, DOE still plans to advance new program priorities. In FY 2020, approximately 40 percent of competitive awards and 40 percent of funding went to research universities.

In FY 2022, DOE plans to launch a new Decarbonizing Industry Initiative. The purpose is to decarbonize the manufacturing sector to help achieve the overall goal of economy-wide net zero emissions by 2050. This initiative will focus primarily on applied research and demonstration activities to accelerate the commercial readiness of emerging, net-zero, process technologies for the most carbon-intensive industrial sectors such as cement, chemicals, and steel. Specific funding opportunities proposed for FY 2022 include:

- $28 million to launch two new Clean Energy Manufacturing Innovation (CEMI) Institutes focused on helping the U.S. manufacturing sector in industrial decarbonization, reducing its energy use intensity, and incorporating resilience into its operations; and
- $90 million for industrial decarbonization research and development projects focused on transformative zero-carbon production technologies, electrification, electrochemical manufacturing, enhanced drying, and direct air capture as well as industrially relevant testbeds and demonstration projects in energy- and carbon-intensive sectors (e.g., steel, cement, chemicals) and green hydrogen to decarbonize energy intensive industries.

Beyond decarbonization initiatives, other funding opportunities are likely to include:

- $15 million to establish a new national lab consortium with research university and industry partners for critical materials. The Critical Materials Energy Innovation Hub led by Ames Laboratory receives its last year of funding in FY 2021 and will be replaced by a new consortium. The focus will be on validating technology innovations, such as improved upstream extraction and midstream separation and processing technologies, for critical materials and helping industry adopt those new technologies;
- $15 million for manufacturing innovations to improve performance of energy storage systems for both grid and vehicle applications and to address technical challenges and manufacturing barriers to achieve lower manufacturing costs. AMO also plans to support strategic analysis to understand supply chain vulnerabilities and adoption behavior for energy storage systems;
- $10 million for agile manufacturing to support manufacturing innovation in emerging industries to make supply chains more nimble, responsive, and adaptive to disruption and change, including advances in information technology, analytics, controls, modular processes, and manufacturing equipment design; and
- $8 million for new university-national lab-private sector workforce development partnerships to support student-led projects that would develop new tools and processes that address energy management and advanced manufacturing challenges.