

House Agriculture Committee
Conservation and Forestry Subcommittee

Hearing on "Supporting Careers in Conservation: Workforce Training, Education, and Job Opportunities"

May 25, 2022

Good afternoon Chair Spanberger, Ranking Member LaMalfa, and Members of the Subcommittee. My name is Shane O'Neill, and I serve as the Forest Industry Business Development Manager at the University of Maine: an R1 research university; the state's land, sea, and space grant; and a proud member of the Association of Public & Land Grant Universities (APLU), which helped invite me here.

Thank you for the opportunity to testify on workforce challenges and opportunities in the forestry and conservation sectors, an issue of great importance to our state, which is nearly 90% forested – a number relatively unchanged since European settlement. Since then, Maine's forest has provided an ever-evolving suite of products of the highest quality to the world, as has our nearly 3,500 miles of coastline. The past and future health of Maine's rural communities is highly dependent on our so-called "heritage industries": farming, fishing, and forestry. Leveraging the vast natural resources from our fields, woods, and waters to sustain these special places through these sectors relies entirely upon our ability to innovate and access to skilled human capital.

Currently, Maine's forest products industry employs more than 13,000 people across the state. But the nature of the industry, and the jobs it supports, is rapidly changing – in great part through data-driven modernization, application of AI and increasingly sophisticated technologies – and so too must our education and training practices of our future and incumbent workforce.

Three key factors have converged over the last few decades that created the urgency, and opportunity, to transition to our next phase: a sustainable forest bioeconomy. They are not unique to Maine, nor are our strategies for moving forward. First, the impacts of climate change on forest health are increasingly evident, whether it is through temperature, drought, fire, invasive pests, muddy roads from early thaws that prevent passage of logs and equipment or heavy rain events. How we manage our forest resources and extend their application will require new practices, techniques and be technology driven. Second, the transition to a digital information age has drastically reduced the demand for print and graphic paper. Mills that couldn't adapt to these changing markets closed, causing their workers – more than 7,600 over the last 20 years just in Maine – to lose their livelihoods. Third, there is a growing understanding that sustainably managed forests and their products are a pathway to reduce carbon emissions, both in sequestration in a growing forest, and storage in long life cycle forest products. Adapting the management of our forests and advanced products manufacturing has become more technically intensive with increasing processing automation, advanced material science and engineering, remote sensing, machine learning modeling, and growth forecasting using advanced artificial intelligence systems.



From these realizations and changing markets, exciting opportunities are emerging that if we strategically partner, invest, and innovate, will ultimately diversify, strengthen, and sustain the forest economy and the communities dependent upon it. Accelerating innovation in forest products and training a skilled workforce which meets the current and emerging needs of these new products and practices is key to meeting the increasing global demand for low-carbon materials, chemicals, and fuels that can come from forests

Currently, public perceptions and attitudes demonstrate a disconnect from the reality of modern forestry. Many people view forest management, harvesting, and products manufacture as ecologically detrimental, and requiring low-tech, high-exertion labor. Some of these perceptions are informed by images from long ago, where strength and brawn were the tools required to be successful, and sustainability wasn't standard practice. In reality, the engine of the modern forest economy is knowledge: utilizing technology, automation, science and engineering to increase the precision and positive impact of forest management practices and commercialize new forest-based processes and value-added products under the most sustainable and environmentally friendly means possible. For example, the University of Maine is pioneering the development and commercialization of value-added forest bioproducts manufactured from low-value forest residuals, including cellulosic nanofibrils for use in a multitude of products, biofuels such as diesel and jet fuel directly offsetting petrochemical consumption, and advanced materials including large scale 3D-printed bioproducts for use in transportation infrastructure, housing and manufacturing.

To build from our traditional assets and strengths and strategically transition our entire forest products sector through innovation and global assessment, in 2016 a unique cross-sector collaboration called [Forest Opportunity Roadmap/Maine](#) (FOR/Maine) was initiated between industry, communities, government, education, and nonprofits with support from the U.S. Economic Development Administration and our Maine Congressional Delegation.

As a founding member of FOR/Maine with extensive expertise, broad relationships, statewide reach, and research and development capacity across the forest economy and beyond (including that supported by McIntire-Stennis Cooperative Forestry through USDA National Institute of Food and Agriculture), the University of Maine is critical to this collaboration, providing knowledge-based information and innovations to deliver on FOR/Maine's strategic objectives. And, as the largest generator of graduates in the state, we can most impact the size and skill of the workforce for this sector (and most others in Maine). To facilitate partnership and progress, the university created the position of Forest Industry Business Development Manager – the job I currently hold. By serving as a focused sector advocate with subject matter expertise and access to the full span of scientists and engineers within our system, my work plays an important role in bringing diverse stakeholders together to assess industry and community needs, and collaboratively develop solutions that address needs and include all vested voices, including those historically excluded.

Not surprisingly, preparing the workforce for the future forest products economy is one of the primary goals identified by FOR/Maine, and our high-level strategies toward this include attracting young people into the industry in our oldest-in-the-nation state; ensuring that new, replacement, and incumbent workers have the skills needed for existing jobs, and preparing the workforce for emerging products and technologies in the industry. To inform how we specifically do this, I joined colleagues from UMaine's [Margaret Chase Smith Policy Center](#) and the University of Southern Maine [Center for Business and Economic Research](#) to develop [the first-of-its kind forest industry workforce development strategy](#) through analysis of current and projected workforce

and population trends, defining skill demands for current and emerging careers, and directed surveys and interviews with forest industry employers in the state.

Our research determined that by 2035, 37% of Maine's current forest economy workforce will be at or beyond retirement age, with the oldest workers currently concentrated in harvesting and logging. This translates to approximately 5,000 positions that will need to be filled in the next 15 years. As the older workforce exits, they take with them decades of learned experience that is not easily replicable, compelling companies to identify new ways to help transfer knowledge and train younger employees. Furthermore, as Maine transitions into newer emerging technologies, it is estimated that an additional 2,600 positions will be added. Many of these will be highly skilled, specialized STEM positions like photogrammetry, industrial engineers, process technicians, and programmers. However, it should be noted that in a recent UMaine study of 177 forest product firms referenced in our report noted a strong need for employee soft skills such as managing uncertainty, flexibility, adaptability, along with communication, data-based decision making and digital skills. Professional development must include both the technical and soft skills to increase employee success.

To meet this need, our report recommends the development of workforce pipelines through six strategic actions, many of which may be relevant in your own districts and states for this and other traditional industries:

- 1) Design, prepare, and execute a coordinated marketing and branding campaign that showcases the career opportunities in forest products in Maine, as careers in the sector are often overlooked in part because of the negative publicity in recent years due to mill closures or perceptions about the types of jobs available;
- 2) Foster greater education, outreach, and awareness of opportunities in the forest products sector to Maine secondary school students and advisors, leveraging the younger generation's interest in sustainability and stewardship;
- 3) Cultivate out-of-state workforce pipelines and integrate with statewide attraction and recruitment efforts, including from labor pools in forest product cluster regions elsewhere, Veterans looking to resettle after their service, and those who enjoy the outdoors;
- 4) Leverage existing workforce infrastructure to increase coordination and engagement and expand existing internship, apprenticeship, and training programs including through university research learning experiences and inclusion of justice or substance impacted individuals;
- 5) Community placemaking is important in workforce attraction and retention including access to affordable housing and quality health care; and
- 6) Maintain systems to continuously monitor and evaluate workforce conditions and requirements across the industry to be responsive in developing and adapting workforce development initiatives.

To advance these actions, and further develop and scale our FOR/Maine efforts, UMaine is currently leading our coalition in pursuing EDA Build Back Better funding to develop a Northern Forest bioeconomy cluster, and recently submitted our Phase II proposal.

Our work, and the workforce we are developing, has never been more essential to Maine and our nation's ability to sustainably manage and utilize our nation's forest resources, mitigate forest fire and invasive risks,

sequester carbon, improve clean air, water, and habitat, and protect the economic foundation and identity of many rural communities.

In closing, I would like to again thank the Committee and APLU for the opportunity to speak with you today, and for your interest and support of our nation's forests and the citizens and communities reliant on its rich resources. I look forward to answering your questions.

Shane R.C. O'Neill, The University of Maine's Forest Industry Business Development Manager serves as a forest sector ombudsman focused on outreach and technical assistance to forest sector companies, communities and entrepreneurs, identifying resources and capacities within the University of Maine System, state agencies and NPOs, supporting technical development and commercialization, economic development, community and equity outreach, and workforce training to connect forest-focused businesses and communities within the University of Maine System and across the region with appropriate resources and agencies supporting business development, technology commercialization, and rural community economic diversification.

Mr. O'Neill is an active member of the Forest Opportunity Roadmap/Maine (FOR/Maine), serving on numerous committees including the Strategic Marketing, Workforce, Communications, and Emerging Technologies committees. Mr. O'Neill currently serves on the Ashland Area Original Mass Timber Maine (OMT Maine) Advisory Committee, a Structural Round Timber (SRT) market development initiative funded through the Future Forest Economy Initiative, a cooperative effort of the U.S. Economic Development Administration (EDA), U.S. Endowment for Forestry & Communities, and the Northern Forest Center. Additionally, Mr. O'Neill serves as the university liaison with the Maine North Atlantic Development Office (MENADO) at Maine International Trade Center (MITC) in coordination of the Finland-Maine-Michigan Forest Bioeconomy Collaboration. This collaboration, initiated between Maine and Finland in 2019, and incorporating Michigan in 2020, is focused on broader cross-collaborations, expanding forest products and systems expertise, and building inter-connected RD&C activities with the goal of advancing domestic regional sustainable forest bioeconomy development.

Prior to his current role at UMaine, Mr. O'Neill brings 18 years' experience across industry, entrepreneurship, and technical research. Mr. O'Neill received an M.S. from UMaine and a B.S. from Michigan Technological University.

Truth in Testimony Disclosure Form

In accordance with Rule XI, clause 2(g)(5)* of the *Rules of the House of Representatives*, witnesses are asked to disclose the following information. Please complete this form electronically by filling in the provided blanks.

Committee: Agriculture

Subcommittee: Conservation and Forestry

Hearing Date: 05/25/2022

Hearing Title :

"Supporting Careers in Conservation: Workforce Training, Education, and Job Opportunities"

Witness Name: Shane O'Neill

Position/Title: Forest Industry Business Development Manager

Witness Type: Governmental Non-governmental

Are you representing yourself or an organization? Self Organization

If you are representing an organization, please list what entity or entities you are representing:

University of Maine
The Association of Public and Land- Grant Universities (APLU)

FOR WITNESSES APPEARING IN A NON-GOVERNMENTAL CAPACITY

Please complete the following fields. If necessary, attach additional sheet(s) to provide more information.

Are you a fiduciary—including, but not limited to, a director, officer, advisor, or resident agent—of any organization or entity that has an interest in the subject matter of the hearing? If so, please list the name of the organization(s) or entities.

None

Please list any federal grants or contracts (including subgrants or subcontracts) related to the hearing's subject matter that you, the organization(s) you represent, or entities for which you serve as a fiduciary have received in the past thirty-six months from the date of the hearing. Include the source and amount of each grant or contract.

US Dept of Interior - \$59,000
National Science Foundation - \$965,184
US EPA - \$32,976
US Forest Service - \$1,367,462
USDA - NIFA - \$672,724
USDA - ARS - \$2,034,448
DOD - \$17,374,775
DOE - \$95,347
Northern Regional Border Commission - \$1,000,000
US Dept of Commerce - \$1,161,635

Please list any contracts, grants, or payments originating with a foreign government and related to the hearing's subject that you, the organization(s) you represent, or entities for which you serve as a fiduciary have received in the past thirty-six months from the date of the hearing. Include the amount and country of origin of each contract or payment.

None

Please complete the following fields. If necessary, attach additional sheet(s) to provide more information.

- I have attached a written statement of proposed testimony.
- I have attached my curriculum vitae or biography.

* Rule XI, clause 2(g)(5), of the U.S. House of Representatives provides:

(5)(A) Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof.

(B) In the case of a witness appearing in a non-governmental capacity, a written statement of proposed testimony shall include— (i) a curriculum vitae; (ii) a disclosure of any Federal grants or contracts, or contracts, grants, or payments originating with a foreign government, received during the past 36 months by the witness or by an entity represented by the witness and related to the subject matter of the hearing; and (iii) a disclosure of whether the witness is a fiduciary (including, but not limited to, a director, officer, advisor, or resident agent) of any organization or entity that has an interest in the subject matter of the hearing.

(C) The disclosure referred to in subdivision (B)(iii) shall include— (i) the amount and source of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) related to the subject matter of the hearing; and (ii) the amount and country of origin of any payment or contract related to the subject matter of the hearing originating with a foreign government.

(D) Such statements, with appropriate redactions to protect the privacy or security of the witness, shall be made publicly available in electronic form 24 hours before the witness appears to the extent practicable, but not later than one day after the witness appears.

External Federal Formula Funds
UMAINE COOPERATIVE EXTENSION

	SUM 6 years	Average/year	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Smith Level 3 (b&c)	\$ 12,375,354.00	\$ 2,062,559.00											
RREA	\$ 297,425.00	\$ 49,570.83											
EFNEP	\$ 2,507,901.00	\$ 417,983.50											
Total	\$ 15,180,680.00	\$ 2,530,113.33											
Smith Level 3 (b&c)													
RREA													
EFNEP													

External Federal Formula Funds
Maine Agricultural & Forest Experiment Station - Capacity Grants

Program	SUM 11 years	Average/year	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Animal Health	\$ 18,760,789.00	\$ 1,705,526.27	5,833	8,372	8,574	9,664	36,427	23,228	25,199	17,866	16,999	17,104	17,104
Hatch Regular	\$ 7,597,603.00	\$ 690,691.18	1,678,318	1,675,855	1,526,437	1,715,378	1,705,684	1,697,816	1,686,157	1,687,513	1,820,362	1,799,633	1,799,633
Hatch Multi-State	\$ 9,734,438.00	\$ 884,948.91	600,563	694,317	622,663	702,087	697,263	692,591	695,653	695,680	744,546	743,520	743,520
McIntire Stennis	\$ 36,276,720.00	\$ 3,297,883.64	344,258	841,703	778,284	889,908	881,842	887,118	883,994	906,745	990,276	965,155	965,155
Total	\$ 72,369,550.00	\$ 6,578,830.00	\$ 3,026,992	\$ 3,190,250	\$ 2,996,138	\$ 3,317,037	\$ 3,314,216	\$ 3,300,853	\$ 3,291,003	\$ 3,307,804	\$ 3,551,883	\$ 3,519,412	\$ 3,519,412

Grants/Contracts USDA State FY July 1 - June 30	Total # of New Awards in FY	Total Award Amounts from Sponsor
FY2019	67 \$	8,633,986.00
FY2020	57 \$	6,418,977.00
FY2021	73 \$	9,759,618.00
FY2022 Through May 2022	61 \$	9,216,475.00

Formuala Funds for Ag/Forestry Federal FY Oct 1-Sept. 30	UMAINE Cooperative ExtensionSmith Lever (B&C), RREA, EFNEP	Animal Health, Hatch, Hatch multi-state, McIntire-Stennis
FY2019	\$ 2,974,861.00	\$ 3,551,583.00
FY2020	\$ 3,120,967.00	\$ 3,519,412.00
FY2021	\$ 3,120,967.00	\$ 3,519,412.00
FY2022		

Start Date	End Date	Organization	PI Name	Project Description	FY18 Budget	FY19 Budget	Total Budget
10/01/2018	10/01/2018	2018583 US Dept of Agriculture	Jianjun Hao	Fungicide Resistance Monitoring of Helminthosporium solani isolate	\$ 11,565.00	\$ 16,957.00	\$ 28,522.00
09/21/2018	09/21/2018	2018769 US Dept of Agriculture	David Handley / Tori Jackson	2018-2020 Crop Insurance Education in Maine	\$ 49,193.00	\$ 238,186.00	\$ 287,379.00
09/21/2018	09/21/2018	2019092 US Dept of Agriculture	Frederick Servello	USDA Climate Hub - Cornell Climate Master Project +\$	\$ 5,552.00	\$ 10,000.00	\$ 15,552.00
09/13/2018	09/13/2018	2018710 US Dept of Agriculture	James Dwyer / James Dill	Safeguarding the US seed potato industry against emerging seed po	\$ 9,627.00	\$ 42,979.00	\$ 52,606.00
09/12/2018	09/12/2018	2018638 US Dept of Agriculture	Kristy Ouellette / Mitch Mason	Maine Community Central: Integrating 4-H Science and Life Skills w	\$ 41,054.00	\$ 170,000.00	\$ 211,054.00
09/11/2018	09/11/2018	2018596 University of Vermont / US Dept of Agriculture	Shawn Fraver	Joint Venture Agreement (modification #10) between US Forest Ser	\$ 6,614.00	\$ 15,031.00	\$ 21,645.00
08/29/2018	08/29/2018	2018776 Cornell University / US Dept of Agriculture	Anne Lichtenwalner	Innovative Resources for Small Ruminant Health	\$ 4,440.00	\$ 15,000.00	\$ 19,440.00
08/28/2018	08/28/2018	2019006 US Dept of Agriculture	Mark Huxton	Developing an Eastern Broccoli Industry - Year 3	\$ 2,909.00	\$ 20,966.00	\$ 23,275.00
08/23/2018	08/23/2018	2018260 University of Vermont / University of Connecticut / US Dept of Agric	John Dalgle	Wabanaki tribes needs assessment with EAB confirmation in Maine	\$ 7,721.00	\$ 30,616.00	\$ 38,337.00
08/22/2018	08/22/2018	2019078 Cornell University / US Dept of Agriculture	Andrej Alyokhin / James Dill / James Dwyer	Improved N management for corn using aerial images, Adept-N, che	\$ 534.00	\$ 3,983.00	\$ 4,517.00
08/20/2018	08/20/2018	2019020 US Dept of Agriculture	Thomas Schwartz	Production of 3-hydroxy-gamma-butyrolactone by the integration o	\$ 3,746.00	\$ 32,899.00	\$ 36,645.00
08/20/2018	08/20/2018	2018806 US Dept of Agriculture	Glen Koehler / Clay Kirby / Alicyn Smart	Maine Tree Fruit Commodity Survey (pre-proposal)	\$ 120,004.00	\$ 263,840.00	\$ 383,844.00
08/07/2018	08/07/2018	2018724 US Dept of Agriculture	Gregory Porter / Jianjun Hao / Mary Camil	Maine Potato Breeding and Variety Development for Improved Quality anc	\$ 3,259.00	\$ 10,546.00	\$ 13,805.00
08/07/2018	08/07/2018	2018714 US Dept of Agriculture	Stephen Shaler / Jianjun Hao / Mary Camil	Applied forest science to promote long-term sustainability of forest	\$ 92,017.00	\$ 433,370.00	\$ 525,387.00
08/07/2018	08/07/2018	2018680 US Dept of Agriculture	Aaron Weiskittel	Penobscot Experimental Forest Research and Technology Transfer +	\$ 45,687.00	\$ 64,724.00	\$ 110,411.00
08/03/2018	08/03/2018	2015515 University of New England / US Dept of Agriculture	Kate Yerxa	Supermarket Science: Multipronged Approaches to Increasing Fresh	\$ 65,160.00	\$ 115,085.00	\$ 180,245.00
08/03/2018	08/03/2018	2018686 US Dept of Agriculture	James Dill	Maine Integrated Pest Management CPPM-EIP 2017-2020	\$ 0.00	\$ 6,963.00	\$ 6,963.00
08/03/2018	08/03/2018	2018628 Atlantic Corporation / US Dept of Agriculture	John Belding	SBIR Sub Development of a Small-Scale HTST Milk Processing Line fo	\$ 77,196.00	\$ 175,444.00	\$ 252,640.00
08/01/2018	08/01/2018	2018673 Rutgers University / US Dept of Agriculture	Andrea Nurse	Protecting Pollinators with Economically Feasible and Environmental	\$ 0.00	\$ 31,920.00	\$ 31,920.00
07/02/2018	07/02/2018	2018813 US Dept of Agriculture	Shawn Fraver	Howland Research Forest AmeriFlux Network Support LVA	\$ 16,720.00	\$ 38,000.00	\$ 54,720.00

08/02/2019	2019926	US Dept of Agriculture	Aaron Weiskittel	Sustaining Productive Forests in an Uncertain Future	\$ 49,998.00	\$ 27,414.00	\$ 77,412.00
07/31/2019	2019859	US Dept of Agriculture	Aaron Weiskittel	Sustainable Northern Conifer Forest Management: New Findings and Tribes in Maine Invasive Species Project (TMISP)	\$ 9,995.00	\$ 6,480.00	\$ 16,475.00
07/30/2019	2019833	US Dept of Agriculture	John Daigle / Darren Ranco	Adapting Chinese murel cultivation strategies for farmers in the North Small Fruit Survey and Vegetable Survey	\$ 75,000.00	\$ 9,857.00	\$ 84,857.00
07/30/2019	2018257	The Pennsylvania State University / University of Vermont / US Dept of Agriculture, Conservation & Forestry / US Dept of Agriculture	Jason Lilley	Maine Integrated Pest Management CPPM-EIP 2017-2020	\$ 8,992.00	\$ 2,355.00	\$ 11,347.00
07/30/2019	2019893	ME Dept of Agriculture	David Handley / James Dill	Sustaining Productive Forests in an Uncertain Future	\$ 8,500.00	\$ 978.00	\$ 9,478.00
07/18/2019	2019682	US Dept of Agriculture	James Dill	Applied forest science to promote long-term sustainability of forest Power Fire Oak Restoration - IVA	\$ 209,390.00	\$ 92,132.00	\$ 301,522.00
07/11/2019	2019766	US Dept of Agriculture	Aaron Weiskittel		\$ 29,906.00	\$ 20,196.00	\$ 50,102.00
07/10/2019	2019793	US Dept of Agriculture	Stephen Shaler / Shawn Fraver		\$ 80,000.00	\$ 58,257.00	\$ 138,257.00
07/03/2019	2019477	US Dept of Agriculture	John-Pascal Berrill		\$ 56,301.00	\$ 25,898.00	\$ 82,199.00

Date	Project Title	PI	Organization	Start	End	Amount	Balance
09/28/2020	2021090 US Dept of Agriculture	Mario Teisl	Acquisition of Goods and Services - NEPSL			\$ 17,748.00	\$ 71,978.00
09/22/2020	2020089 University of Maryland / US Dept of Agriculture	Meggan Dwyer	Establishment of the Scallop Research Collaborative			\$ 4,087.00	\$ 16,473.00
09/22/2020	2020581 University of Vermont / US Dept of Agriculture	Lily Calderwood / Marjorie Peronto	Improving Shelf Life of Fresh Pack Wild Blueberries in Maine			\$ 8,878.00	\$ 37,148.00
09/21/2020	2020549 University of Vermont / US Dept of Agriculture	John Jemison	Beating the Weeds: comparing alternative weed management practices			\$ 9,419.00	\$ 39,412.00
09/21/2020	2021114 US Dept of Agriculture	Kristy Ouellette / Vanessa Klein / Mitch Mason	Maine 4-H Community Central: Engaging Teens in Workforce Development			\$ 1,924.00	\$ 11,724.00
09/11/2020	2021131 US Dept of Agriculture	Ian Bricknell	Research Support agreement			\$ 4,909.00	\$ 19,909.00
09/11/2020	2020625 US Dept of Agriculture	Deborah Bouchard / Meggan Dwyer / Damian B	Genetic Improvement of North American Atlantic Salmon & the East			\$ 281,822.00	\$ 1,128,822.00
09/08/2020	2020749 US Dept of Agriculture	Darren Ranco	New Beginnings for Wabanaki Students at the University of Maine			\$ 283,164.00	\$ 566,328.00
09/03/2020	2020595 US Dept of Agriculture	Kelly Cole / Ian Bricknell / Damian Brady	Development of a decision support system for sea lice management			\$ 0.00	\$ 315,000.00
09/01/2020	2020550 US Dept of Agriculture	James Dill	Maine Integrated Pest Management CPM:EP 2017-2020			\$ 81,583.00	\$ 266,998.00
09/01/2020	2021054 US Dept of Agriculture	Sheila Pendse / Ling Li / Hemant Pendse	Jessic Sustainable Energy Leaders of the Future (SELF) Residential Program			\$ 4,945.00	\$ 9,895.00
08/31/2020	2020404 US Dept of Agriculture	Sheila Pendse / Ling Li / Hemant Pendse	Surface modification of cellulose nanocrystals for effective delivery			\$ 93,133.00	\$ 186,271.00
08/28/2020	2019903 US Dept of Agriculture	Mary Camire	Climate change adaptation and mitigation research, outreach, and education			\$ 0.00	\$ 188,143.00
08/21/2020	2020685 US Dept of Agriculture	Rachel Schattman / Ivan Fernandez	Develop fundamental understanding of wood fiber packaging capabilities			\$ 52,800.00	\$ 50,808.00
08/20/2020	2021076 US Dept of Agriculture	Torsten Hahmann / Douglas Gardner / Jinwu W	Cellulose ontology and informatics: a tool to accelerate the development of i			\$ 30,000.00	\$ 13,800.00
08/20/2020	2020376 Texas A&M University System / US Dept of Agriculture	Douglas Bousfield	Tools for Genomic-assisted Breeding in Polyploids: Development of i			\$ 13,800.00	\$ 43,800.00
08/18/2020	2021037 US Dept of Agriculture	Gregory Porter / Ek Han Tan	Creating a new paradigm for potato breeding based on true seed Yr;			\$ 1,100.00	\$ 51,100.00
08/14/2020	2021046 University of Wisconsin / US Dept of Agriculture	Richard Brzozowski	USDA ARS Research Support Agreement			\$ 37,180.00	\$ 217,180.00
08/20/2020	2020780 US Dept of Agriculture	Ek Han Tan	Joint Venture Agreement between US Forest Service Northern Research			\$ 13,815.00	\$ 34,887.00
07/24/2020	2020686 US Dept of Agriculture	Deborah Bouchard / Meggan Dwyer	ME FY20 Tribes Invasive Pest 5.0244.01			\$ 38,520.00	\$ 156,220.00
07/09/2020	2020204 US Dept of Agriculture	Shawn Fraver	ME FY20 Tribes Invasive Pest 5.0244.01			\$ 16,100.00	\$ 51,100.00
07/07/2020	2020628 US Dept of Agriculture	John Daigle / Darren Ranco	Potato breeding to improve biotic and abiotic stress tolerance			\$ 9,981.00	\$ 101,256.00
07/02/2020	2020763 ME Dept of Agriculture, Conservation & Forestry / US Dept of Agriculture	Gregory Porter / John Jemison / Ek Han Tan / M	Small Fruit Survey and Vegetable Survey 2020-21			\$ 111,229.00	\$ 601,212.00
07/02/2020	2020654 US Dept of Agriculture	David Handley / James Dill	Meeting Stakeholder Needs for Long-Term Research Data and Science			\$ 1,083.00	\$ 10,593.00
07/02/2020		Aaron Weiskittel				\$ 209,592.00	\$ 317,134.00

Date	Project Title	PI Name	Project Description	Start	End	FY 2021	FY 2022	Total
09/13/2021	2021836 US Dept of Agriculture	Bee Khim Chim / Ellen Mallory	Cover crop management in the Northeast Region			\$ 75,000.00	\$ 75,000.00	\$ 150,000.00
09/16/2021	2021590 US Dept of Agriculture	Robson Machado / Christina Howai	Jumpstart to Farm Food Safety - Farm Food Safety Planning for Sma			\$ 0.00	\$ 276,476.00	\$ 276,476.00
08/23/2021	2021556 US Dept of Agriculture	Philip Fanning	Classical Biological Control for Spotted-wing Drosophila in the North			\$ 12,249.00	\$ 324,946.00	\$ 337,195.00
08/18/2021	2022087 US Dept of Agriculture	Mario Teisl	Acquisition of Goods and Services - NEPSL			\$ 30.00	\$ 90.00	\$ 120.00
08/17/2021	2021539 US Dept of Agriculture	James Dill	Maine Integrated Pest Management CPM-EP 2021-2024			\$ 64,400.00	\$ 140,000.00	\$ 204,400.00
08/05/2021	2022038 Colorado State University / US Dept of Agriculture	Jianjun Hao / Steven Johnson	Integrating Next-Generation Technologies for Management of Bact			\$ 5,210.00	\$ 73,177.00	\$ 78,387.00
07/30/2021	2021852 US Dept of Agriculture	Richard Brzozowski	Maine AgrAbility Continuation Year 4			\$ 40,778.00	\$ 183,840.00	\$ 224,618.00
07/29/2021	2021873 US Dept of Agriculture	Deborah Bouchard	Developing new techniques to detect off-flavor in water and Atlanti			\$ 16,361.00	\$ 49,991.00	\$ 66,352.00
07/28/2021	2022031 US Dept of Agriculture	Diane Rowland	Acquisition of Goods and Services			\$ 22,238.00	\$ 65,230.00	\$ 87,468.00
07/28/2021	2021703 US Dept of Agriculture	Stephen Shaler / Islam Hafez / Douj	Climate-Friendly Wood Building Products			\$ 453,639.00	\$ 1,007,267.00	\$ 1,460,906.00
07/26/2021	2021552 US Dept of Agriculture	Gregory Porter / Jianjun Hao / Mar	Potato Breeding to Improve Marketability and Resilience to Environ			\$ 164,640.00	\$ 510,104.00	\$ 674,744.00
07/20/2021	2021487 US Dept of Agriculture	Deborah Bouchard / Paul Rawson /	Genetic Improvement of North American Atlantic Salmon & the Eas			\$ 513,197.00	\$ 872,093.00	\$ 1,385,290.00
07/19/2021	2022030 US Dept of Agriculture	Mario Teisl	Acquisition of Goods and Services - NEPSL			\$ 13,746.00	\$ 42,000.00	\$ 55,746.00
07/16/2021	2022001 Cornell University / US Dept of Agriculture	Mark Hutton	Developing an Eastern Broccoli industry - Year 4			\$ 2,909.00	\$ 20,366.00	\$ 23,275.00
07/14/2021	2021791 US Dept of Agriculture	William Livingston / Shawn Frazer	Applied forest science to promote long-term sustainability of forest			\$ 53,156.00	\$ 50,000.00	\$ 103,156.00