

2020 Annual Report of Accomplishments and Results

Nebraska

University of Nebraska-Lincoln

University of Nebraska Combined Research and Extension Annual Report

I. Report Overview

The NIFA reviewer will refer to the executive summary submitted in your Plan of Work. Use this space to provide updates to your state or institutions as needed.

1. Executive Summary (Optional)

The Institute of Agriculture and Natural Resources (IANR) is a part of the University of Nebraska-Lincoln and encompasses the three-part mission of teaching, research, and extension. Strategic planning is integral to IANR's function as a land-grant institution, and it prides itself on working as an integrated inclusive environment across the three mission areas. IANR strives to combine research, teaching and extension in a transdisciplinary, collaborative and inclusive environment that encourages creativity and innovation from across the University and private enterprise to ensure Nebraska's competitiveness in addressing global challenges and wicked problems. Six communities of practice were formed in 2011. Faculty from across IANR's departments and academic centers focused on areas of relevance and strengths that the institution as a whole could build upon. That type of bold collaboration and transdisciplinary thinking is propelling Nebraska forward. We are striving to excel and achieve excellence across these communities of practice and invite collaborators and learners to become part of the conversation. We welcome feedback, ideas, engagement, and support in our ongoing endeavor to make IANR a global leader in these key areas.

Communities of Practice:

Computational Sciences

Drivers of Economic Vitality for Nebraska

Healthy Humans

Healthy Systems for Agricultural Production and Natural Resources

Science Literacy

Stress Biology

To ensure that IANR's priorities reflect the needs of the state's residents we are continuously engaging in strategic and dynamic discussions between IANR and our stakeholders in the state. In 2018, strategic discussions moved to a new, higher plane as Vision for 2025 was implemented to ensure Nebraska's competitiveness in addressing global challenges. This visioning process was created to determine how IANR will contribute to the critical need of doubling the world's food supply to feed over 9 billion people; address climate change, weather extremes (e.g., floods and droughts) and environmental stresses (biotic and abiotic); respond to the increasing need for renewable energy sources; and consider how to

help increase economic income opportunities for communities and thus the long-term economic growth and prosperity for Nebraska. In Nebraska, one in four jobs is directly tied to agriculture or agribusiness, and the state strives to increase job opportunities in this field of expertise. IANR informs and engages partners and clientele in our focus areas of IANR are food, fuel, water, landscapes, and people.

These five focus areas are representative of the societal challenge areas of the National Institute of Food and Agriculture (NIFA). For example, in the Nebraska planning process "food" represents the continuum of food from farm to fork, which included production, food security and hunger, childhood obesity, nutrition and food safety, and science/food literacy. Resilient Food Production and Ecological Systems represents the productivity, resilience and sustainability of all of our agro-ecosystems and natural resources. Water is highlighted because of its importance to our agro-ecosystems and natural resources in Nebraska. Fostering Healthy and Productive People represents the well-being of children, youth, and families as they interact with their environment.

The Future of Rural Communities is a crosscutting thread in each of these five focus areas. In 2019, the IANR Vice Chancellor challenged all the Institute's rural community resources to explore how we could deepen our commitment, better articulate with how we work with rural communities and expand our impact. The importance was highlighted in 2020 by the launch of the Rural Prosperity Nebraska, an IANR led initiative that combines the strength of campus-based theory with community-based practice.

Agricultural producers and other stakeholders have faced significant environmental and economic challenges in recent years including flooding, extreme weather events, and an economic downturn have taken their toll on Nebraskans and their communities. Research-based information from across multiple disciplines is helping producers mitigate weather extremes, reduce input costs, increase efficiencies, improve productivity, resiliency and sustainability of farm operations. Agricultural System Economist educators are serving to enhance our capacity to complete this work.

The Agricultural Research Division (ARD) is supporting critical research and infrastructure to address these emerging issues and challenges, and Nebraska Extension served as a key statewide collaborator during the historic flooding response and recovery efforts that commenced in 2019 and continued in 2020.

The COVID-19 pandemic has brought unprecedented change to Nebraska and the world. Just as Nebraskans turned to Extension during the 2019 floods to cope with uncertainty, challenge and recovery, they reached out to Extension again in 2020 to help navigate the pandemic. Whether in person or virtual, Nebraska Extension has stood steadfast in our commitment to Nebraskans to deliver on our mission of sharing research-based solutions using innovative approaches and timely delivery. Similarly, ARD co-sponsored wide array of research projects to address the COVID-19 ranging from vaccine development to societal impacts.

IANR combines research, teaching and extension in a multidisciplinary, collaborative environment that encourages transdisciplinary efforts from across the University and private enterprise; to ensure Nebraska's competitiveness in addressing prevalent, current and emerging global challenges.

Through the dedicated and innovative research of our ARD community across IANR, we continue to build on our strengths to support new technologies and discoveries, translate basic to applied science, and use transdisciplinary systems approach to address complex problems related to the grand challenges of global food security, resilience and healthy humans under changing climate and declining natural resources. Across the broadly diverse expertise of our Faculty, and through their strong collaborative spirit and the support of our Stakeholders, we are effectively applying Team Science ‘from Healthy Fields and Landscapes to Healthy Communities’. We understand that Big Data is key for solving many of these complex problems and for moving IANR to the next frontier in research, discovery, innovation, and impact. ARD is being instrumental in contributing to IANR and UNL’s efforts in developing the foundation for “Big Data” architecture in agriculture. IANR is also committed to creating a diverse, equitable and inclusive environment and has created an IANR task force to address this issue, and faculty participate in a campus wide effort to address this at the UNL and community levels. We continue to build partnerships with our tribal, black, and Hispanic communities in Nebraska and our faculty are increasing their engagement with historically black colleges outside of Nebraska.

Engagement with Nebraska government leaders, stakeholders, representatives of organizations, faculty and students/youth continue. Listening sessions, surveys, departmental reviews, and input from advisory groups maintain public involvement which are critical to this vision's success. IANR identified eleven engagement zones in 2019 and hired engagement zone coordinators in 2020 to elevate engagement internally and externally. Engagement zone coordinators will foster employee success in Extension programming, build strong stakeholder engagement and connect localpeople to the University of Nebraska-Lincoln.

In addition to focusing on priority areas, IANR strived to meet the needs of its Nebraska citizens through engagement in internationally recognized science and education. This mission is being met by: advancing knowledge along a continuum from fundamental research to application; engaging learners in education that addresses the current and emerging needs of the state's residents; and teaching tomorrow's professionals through formal and nonformal learning settings. The ongoing cultivation of public-public and public-private partnerships helps make our mission achievable.

In 2020, UNL underwent a process to identify the university’s grand challenges – major societal issues that can be solved only through interdisciplinary collaboration. Eight grand challenges were identified and IANR is at the epicenter of several including:

- Anti-racism and racial equity
- Climate resilience
- Community and economic vitality
- Early childhood education and development
- Health equity
- Quantum science and engineering
- Science, engineering, and technology for society
- Sustainable food and water security

The importance of integrated mission is evident in our scholarly output and discoveries, patents, broader impacts, the continued upward trajectory of grant/contract dollars received, the high-quality publications and profile of our community, the rigor/impact of educational programs delivered in both formal and nonformal settings, and in the placement of graduates in careers.

II. Merit and Scientific Peer Review Processes

The NIFA reviewer will refer to your Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA’s attention.

Process	Updates
<p>1. The <u>Merit Review Process</u></p>	<p>Interdisciplinary extension issue teams, comprising of faculty representing interest groups (beef systems; 4-H youth development; the learning child; community vitality initiative; cropping and water systems; food, nutrition and health; community environment, reaching one, reaching all; next generation extension; and disaster education), update their team plans annually using stakeholder input and evaluation results from delivered programs.</p> <p>Faculty members (either as individuals or teams) who hold research appointment in ARD, each has an active peer-reviewed research project in their area of expertise. The peer review process for research projects includes the Unit and (if applicable) Research and Extension Center head, at least two faculty members with relevant expertise, and an Associate Dean of ARD. Following the review and acceptable revisions (if necessary), the project is approved by ARD and is forwarded to USDA-NIFA for inclusion in the REEport database.</p>
<p>2. The <u>Scientific Peer Review Process</u></p>	<p>Academic units (subject matter departments and research, extension and education centers) complete a comprehensive five-year review to ensure program quality and relevance. Teams of three to six external panel members and two or three faculty panel members from other academic units conduct these reviews. The review team assesses the work of the academic unit to ensure that programmatic efforts and research are relevant and focus on Nebraska, national and global most critical needs. The review team completes its assessment with the development of a report that helps the administrative unit focus its work for the next five years. It is the responsibility of the IANR Deans to assist the unit administrator and faculty to accomplish the goals identified by the unit, as a follow-up to the review process.</p> <p>Another review process, which combines merit and peer review, is the annual review of more than 100 research and extension proposals by state commodity check-off boards. Proposals selected for funding</p>

	<p>address the current and emerging issues facing our stakeholders and clearly communicate the research's relevance to user needs.</p> <p>Stakeholder input remains key to IANR success throughout the process mentioned above.</p>
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III. Stakeholder Input

The NIFA reviewer will refer to your Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA's attention.

Stakeholder Input Aspects	Updates
<p>1. Actions taken to seek stakeholder input that encouraged their participation with a brief explanation</p>	<p>Ongoing input from stakeholder groups, e.g. advocacy, advisory, and commodity groups, keeps extension, research and teaching team plans current. Ongoing relationships with stakeholder groups such as the Agriculture Builders of Nebraska (ABN) and Family, Youth and Community Partners (FYCP), Nebraska Association of County Extension Boards (NACEB), along with listening sessions led by IANR personnel and extension board reviews of local and regional programs, ensure that critical needs are addressed. The accuracy of the team's plans is verified using the following methods:</p> <ul style="list-style-type: none"> • Extension Issue Teams and Interest Groups meet regularly to assess their goals and progress made toward achieving them. These interdisciplinary teams include both faculty of academic departments who understand long-term trends and faculty located in extension offices who see, on a daily basis, the needs of Nebraska residents. Many of these faculty members of academic departments have joint research and extension appointments and can represent fundamental as well as applied research and extension education plans. <p>Issue teams and Interest Groups;</p> <ul style="list-style-type: none"> ○ Use frequent phone and/or video conferencing to stay on track. ○ Consult with subject-matter department administrators annually to ensure that the Team's and Group's goals are congruent with university department research and extension goals. ○ Engage with their stakeholders to garner input to determine future plans. ○ Refine programs to ensure that content goals support needs identified by stakeholders and demographic trends.

	<ul style="list-style-type: none"> ○ Are coached by members of the Extension Leadership Team to enhance sharing and collaboration efforts. ○ Additionally, extension-developed 'Impact at a Glance' publications are used by stakeholders to tell others of the impact/public value of extension and then seek input for programmatic direction. (Go to: https://extension.unl.edu/impact/ to see "Impacting All of Nebraska" impact summaries). These annual impact reports are developed and are available online, which helps stakeholders understand the value of and differences being made by today's extension/research programs. Impact reports are given to decision-makers and extension board members to help guide their advocacy efforts on behalf of IANR at the local, regional, and national levels. <ul style="list-style-type: none"> • Agricultural Research Division faculty currently participating in multistate projects receive research funding through the multi-state research component of the Capacity Funds. These projects are selected and approved by regional director associations because they are high priority needs identified for multistate activity.
<p>2. Methods to identify individuals and groups and brief explanation.</p>	<p>Nebraska is a state in which the public is very engaged with its university. Research and extension's strategic relationships with local, state, and federal decision-makers is valued. Advocacy groups, advisory groups for subject matter, departments, research and extension centers, and extension boards are utilized to gather input. Farm organizations and industries related to agriculture routinely are at the planning table. Below are examples of how research and extension addressed the needs of underserved and underrepresented populations.</p> <ul style="list-style-type: none"> • Agricultural Research Division research programs related to human nutrition and healthy lifestyles were highlighted under the federal goals and key themes. The research results feed science-based information directly into Nebraska Extension programs that target underserved and underrepresented populations. • Nebraska Extension built a strong partnership with Little Priest Tribal College and Nebraska Indian Community College and recently hired a Tribal Extension Educator who has a local office. Through this partnership, Native American teens have become more involved in outside activities and interact with youth and adults outside their schools. The University of Nebraska–Lincoln Native American Coalition (NAC) builds relationships and partnerships between the Nebraska Extension and Native American communities and organizations. The work of NAC is to help Nebraska Extension staff work more effectively with Native American communities, to build bridges between tribal and non-tribal communities, to facilitate community development and leadership in Native communities and to bring Native American traditional worldviews, languages, cultures and histories to the University of

	<p>Nebraska and non-tribal communities.</p> <ul style="list-style-type: none">• The Expanded Food and Nutrition Program (EFNEP) and the Supplemental Nutrition Assistance Program-Education (SNAP-Ed) supports Nebraska Extension’s efforts to address health equity. Low-income families and youth (many are from the underrepresented populations) are engaged in direct education, virtual on-line experiences and community based efforts to improve their diets, improve their nutrition practices, stretch their food dollars further, handle food more safely, and increase their physical activity level. SNAP-Ed also implements Policy, Systems, and Environmental (PSE)change strategies in schools, communities and childcare settings to modify the environment to make healthy choices practical and available to all community members.• The College of Education and Human Sciences, extension and the Nebraska Department of Education have undertaken a programmatic effort with targeted school districts to address needs of first generation families. Programs focused on early childhood development, social-emotional health and rural wellness are a result of continued collaborations between the college and extension.• An extension educator addressed the needs of Hispanic and Native American youth in Scotts Bluff County. This program engages middle and high school youth in after-school and community-based programs. Coalitions of Hispanic and Native American individuals contributed to the success of this youth program. An extension educator in northeast Nebraska connected Nebraska Extension youth development programs with Hispanic and Native American families in this region.• Ongoing efforts to recruit and retain a more diverse pool of faculty that can serve as a gateway into underserved and underrepresented populations are underway.• In 2013, IANR participated in a Civil Rights Review through USDA NIFA and developed and started several new initiatives to improve connections with underserved audiences. One direct outcome is a \$100,000 extension-funded competitive grant program for proposals that reach new audiences. A summary of our commitment to a diverse faculty and diversity of audiences reached by our education programs is found at: https://ianr.unl.edu/diversity• In 2019, IANR hosted rural community prosperity listening sessions where Nebraskans were invited to share experiences in rural community development and explore how the university can be most effective in strengthening the economic prosperity and vitality of rural communities. <p>Nebraska Extension is committed to ensuring access and opportunity for all Nebraskans to receive, and benefit from, our programming. We demonstrate excellence in valuing everyone as an important member of the communities that we already serve and those we seek to serve. Nebraska Extension offers "Navigating Difference (ND) Multicultural and Diversity Training and Intercultural Development Inventory (IDI)" professional development to faculty, staff and community members.</p>
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<p>3. Methods for collecting stakeholder input and brief explanation.</p>	<p>In 2018, Nebraska Extension launched the Extension 2025 Strategic Priorities Planning Process. Nebraska Extension partnered with the University’s Bureau of Sociological Research to conduct a statewide random survey of 10,000 Nebraskans to determine how Nebraska Extension could most effectively meet their needs. This survey data is being used to determine program areas, staffing patterns, and programmatic outcomes. This data was supplemented by statewide stakeholder listening sessions designed to help identify extension programming priorities for the next five years.</p> <p>The Nebraska Association of County Extension Boards (NACEB) engaged in a NextGEN NACEB initiative in 2018 designed to strengthen their relationships with extension and to enhance advocacy efforts for both extension and IANR. This effort included 10 face-to-face stakeholder engagement meetings throughout the state and an online engagement opportunity for extension board members. Additionally, there was an ongoing effort by extension boards to talk one-on-one with their neighbors and colleagues about needs within their geographic regions.</p> <p>Extension is a partner with the 1994 land-grant institutions in our state. Extension and the Nebraska Indian Community College (NICC) have had a continuous partnership to support the implementation and management of tribal college extension programs in three different NICC communities. IANR extension faculty who work routinely with the tribal colleges serve as a conduit to move content and planning information between these entities. Research opportunities are being explored with these colleges.</p> <p>The Nebraska Panhandle has both recent and longtime Hispanic residents. An extension educator in the Scottsbluff area works with audiences and local planning groups to ensure a cross-cultural understanding. The program is in three parts: history of Mexican people in the Panhandle, cross-cultural communications, and formal education for audiences working with English language learners. This workshop is presented for public school educators, health professionals, students in education, health and human services employees, community leaders, chambers of commerce members, and companies. This is just one example of extension's engagement as a teacher for other organizations that seek increased understanding and involvement with all of our state's residents. In addition, Nebraska has worked to increase the number of extension educators who can target diverse youth audiences. For example, a Spanish-speaking 4-H educator works specifically with underserved audiences in northeast Nebraska.</p>
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	<p>Nebraska Extension continues to partner with Iowa State University on a joint educator position. This person is working on business development and youth entrepreneurship, focusing on Latino audiences in the Sioux City, Nebraska, area.</p>
<p>4. A Statement of how the input will be considered and brief explanation of what you learned from your stakeholders.</p>	<p>Input from stakeholders is used to identify emerging issues for both research and extension, and to help set priorities. Stakeholders are invited to provide input during the selection of administrators; for example, stakeholders serve as members of search committees for unit administrators, deans, vice chancellors, etc. Local stakeholders are invited to interview extension educators for positions located in their geographic regions.</p> <p>Stakeholders expect IANR and its divisions of research, extension, and teaching to remain focused on critical issues facing Nebraska. They expect the land-grant institution to do cutting-edge work that is well regarded by the academy, has global impact, and is of value to Nebraska's residents and economy. Stakeholders recognize that programming priorities must be established. During 2015, 18 extension issue teams were developed from the direction of our stakeholders to address the issues and needs of Nebraskans. In addition, 10 interest groups were formed under these issue teams to directly develop research-based programs and information that will positively impact these stakeholders, allowing them to make informed decisions relevant to these issues. These issue teams and interest groups were active through 2020. New and innovative collaborative team models are in developmental stages within IANR.</p>

IV. Planned Program Table of Contents

No.	Program Name in order of appearance
1.	Food Production/Security and Landscapes
2.	People and Their Well-being
3.	
4.	
5.	
6.	
7.	

V. Planned Program Activities and Accomplishments

Please provide information for activities that represent the best work of your institution(s). See Section V of the Guidance for information on what to include in the qualitative outcomes or impact statements. Add additional rows to convey additional accomplishments. You may expand each row as needed.

No.	Title or Activity Description	Outcome/Impact Statement	Planned Program Name/No.
1.	Food Production and Responsible and Sustainable use of Resources	<p>Programming delivered in 2020 generated that allowed Nebraska farmers, ranchers and clientele with landscapes to increase productivity, profitability, and sustainability of food, feed, fuel, or fiber production systems through adoption of cutting-edge research and extension information provided by IANR programs.</p> <p><u>Target audience</u> Nebraska has 1.9 million people, 530 towns, 25,000 row crop producers, 20,000 cow/calf producers, and 4,500 feedlot operators. Agriculture drives the economy of Nebraska. Survival of communities in Nebraska is underpinned by a profitable, sustainable, and responsible agriculture sector.</p> <p><u>What has been done</u> We create best learning environments by offering year-round programming with direct interaction with you through field and demonstration days, farm tours, hands-on workshops and on-farm research in your field and cab. Equally important, we offer 24/7 information through technology-focused websites and social media.</p> <p><u>Results</u></p> <ul style="list-style-type: none"> • Precision Agriculture Training program trained 55 NRCS employees in crop development and precision ag. • Previous cooperators with Project SENSE reported reducing crop input rates in following seasons, improving on-farm profitability ranging from \$10 to \$40 per acre. 	Food Production/Security and Landscapes/ Address Outcome No. 1, No. 2, 3, and 5

2020 Annual Report of Accomplishments and Results (AREERA)

		<ul style="list-style-type: none"> • Project SENSE demonstrated the potential for producers to reduce nitrogen applications up to 30 lb-N/ac with no significant loss in corn yield from 2015-2018. 	
2.	Nebraska On-Farm Research Network	<p>Nebraska On-Farm Research Network conducted nearly 18 meetings to discuss 2020 on-farm research studies covering a wide range of topics. Practices such as cover crops, row spacing, planting population, starter fertilizer and more were evaluated, as well as technologies such as drones, sensors, and models for nitrogen management and variable-rate seeding technology.</p> <p>The Nebraska On-Farm Research Network conducted over 68 on-farm research studies impacting over 2.5 million acres. The research and meetings impacted attendees from 44 counties. The total value placed on the knowledge gained \$15.5 million. 91% plan to use statistical significance when making decisions; 94% noted the relevancy of topics was good to excellent.</p>	Food Production/Security and Landscapes/ No. 3, 5, and 6
3.	Integration of livestock in forage and cropping systems	<p>Situation: Livestock producers are challenged with cyclical markets that impact management decisions. Attending Nebraska's Ranch Practicum, participants will develop the ability to efficiently use decision support tools to critically evaluate numerous management and marketing alternatives dealing with: grazing strategies and systems; methods of managing market risk; calving and weaning dates; winter livestock nutrition; cull cow management; feed rations and seasonal mineral supplements</p> <p>Response: Developed and delivered an educational program, Nebraska Ranch Practicum. The Ranch Practicum participants meet face to face in June, July, September, November, and January which encompasses critical months of the production calendar.</p> <p>Impact: Nebraska Ranch Practicum influenced decisions on 148,370 acres and 11,255 head of livestock. In addition, participants impacted an additional 206 people, 150,325 acres and 10,810 head of cattle through consultation and other educational activities. Participants reported the</p>	Food Production/Security and Landscapes/ No. 1 and 4

		<p>value of the Practicum at \$19.44 per head. The total reported benefit per producer was \$33,726. The total reported economic impact of the practicum was \$202,357. In addition, 95% reported improved skills in monitoring vegetation and livestock and 94% indicated they would make management changes. Participants reported gaining new knowledge in 30 identified areas of livestock, range, and financial management and through pre-post-tests improved 19.4% in knowledge gained. The Practicum generated \$18,250 in fees.</p>	
<p>4.</p>	<p>Nebraska’s Response to COVID-19</p>	<p>Crop & Livestock Systems <i>Supporting Nebraska families who produce our nation’s food supply</i></p> <ul style="list-style-type: none"> • On-farm research continues to answer ag productions in partnership with farmers. A \$17 million value to those participants. • Helping farmers establish crop budgets for optimal profitability in a challenging ag market • Sharing best practices for producers and processors and their employees to stay healthy as they continue to do their essential work in the midst of COVID-19. • Tailgate Talks are brief video clips providing timely updates and resources for beef cattle producers generating 3,900 views. • Over 191,000 viewers tune in weekly to watch Backyard Farmer; with 45,000 more direct contacts and subscribers to landscape and entomology social media. • In response to the Covid pandemic, ag producers were provided real-time field information through “N” Field Observations on social media with 49,752 views. 	<p>Food Production/Security and Landscapes/ No. 1-6</p>

<p>5.</p>	<p>Food Safety – Home Food Preservation Virtual Learning</p>	<p>Due to the COVID-19 pandemic, many have experienced challenging and uncertain times, especially regarding food insecurity (Feeding America, 2020). Many people in the United States used gardening to supplement their food supply and increase local food access (Rao, 2020; Mobilian, 2020). However, with this increase in gardening, there was also increasing interest in food preservation, which if not done properly, can lead to serious illness. During 2020, the Extension food safety team created a Home Food Preservation Virtual Learning Series to provide individuals with the skills and confidence to safely preserve foods grown in their gardens. Traditional face-to-face sessions were adapted to an online platform with audio and video conferencing capabilities. Four sessions were offered live and recorded during summer and fall, reaching 205 contacts across 9 states. Each 60-minute session included an educational component, time for questions, and handouts and resources for participants. Recorded sessions and handouts/resources were also posted to the Extension website, which resulted in 1,551 unique pageviews in 2020. Survey respondents (n=54) indicated a wide range of prior experience with food preservation (44% had 10 or more years). Overall, participants reported significant ($p < 0.05$), positive increases in knowledge, understanding, and confidence for preserving food. At post, 100% said they would recommend the program to others and 98% learned something new. Participants also reported intending to use food preservation resources provided (90%), check if food preservation resources at home are up to date (66%), follow research-based directions provided by Extension/USDA (86%), and preserve more food at home (66%).</p> <p>Sources: https://www.feedingamerica.org/research/coronavirus-hunger-research https://www.nytimes.com/2020/03/25/dining/victory-gardens-coronavirus.html https://www.gardencentermag.com/article/scotts-miracle-gro-shares-gardening-statistics-covid-19/</p>	<p>People and Their Well-being/ No. 1</p>
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		<p>Overview: A Home Food Preservation Virtual Learning Series was created to provide individuals with the skills and confidence to safely preserve foods grown in their own gardens. Four sessions were offered live and recorded during summer and fall 2020, reaching 205 contacts. Each 60-minute session included an educational component, time for questions, and handouts and resources for participants. Recorded sessions and handouts/resources were also posted to food.unl.edu, with Google Analytics showing the webpage had 1,797 pageviews and 1,551 unique pageviews in 2020. Overall, participants demonstrated positive increases in knowledge, understanding, and confidence for preserving food, which will help reduce bacterial growth that may cause food poisoning, helping to keep food safe.</p> <p>Demographic, attendance, and impact data from survey respondents (n=59):</p> <p>Demographics: Respondents represented 9 different states, with Nebraska being the majority (72%) and reaching people across 15 different Nebraska counties. Majority were female (95%) and White (90%), with age ranges as follows: 18-29 years old (8.6%), 30-59 years old (55.2%), and 60 years plus (36.2%). Respondents indicated the following about prior experience with food preservation, indicating the program attracted individuals with a wide range of experience:</p> <ul style="list-style-type: none"> Completely new to food preservation (30.5%) 1-2 years (10.2%) 3-5 years (8.5%) 6-9 years (6.8%) 10 or more years (44.1%) 	
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		<p>Attendance: Respondents indicated they watched the sessions live (76%), recorded (5%), or both (15%) and attended the following sessions: Food Preservation 101 (59%); Boiling Water Canning/Steam Canning/Pressure Canning (52%); Freezing/Dehydrating (39%); and End of Season Food Preservation (15%). Number of sessions attended were: 1 session (59%); 2 sessions (22%); 3 sessions (13%); and 4 sessions (5%).</p> <p>Impact data: Survey respondents reported significant ($p < 0.001$), positive increases across all areas (Table 1). When looking at percent increase in agree to strongly agree responses from pre-post, the following was found:</p> <ul style="list-style-type: none"> • 40% felt more confident about their ability to safely preserve food at home • 51% increased understanding of the importance of following up-to-date, research tested recipes • 56% increase in seeking out USDA resources for questions about safely preserving foods at home • 44% increased their confidence for finding research-based food preservation recommendations online <p>Participants reported intending to do the following activities/practices post-programming:</p> <ul style="list-style-type: none"> • Use the food preservation resources provided (90%) • Explore the information on the USDA and/or food.unl.edu website (90%) • Check if food preservation resources at home are up to date (66%) • Follow the research-based directions provided by Extension/USDA (86%) • Preserve more food at home (66%) • Share what they learned with others (73%) • Purchase additional/updated equipment (34%) 	
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<p>6.</p>	<p>Next Chapter</p>	<p>Next Chapter at Nebraska, a college-readiness program delivered through the Nebraska 4-H program in partnership with the University of Nebraska–Lincoln Office of Admissions, is a college-readiness program that helps students prepare for and succeed in college by providing the skills students need to reach their academic goals.</p> <p>The Next Chapter at Nebraska program: https://admissions.unl.edu/specialized-information/next-chapter/</p> <ul style="list-style-type: none"> • Inspires youth to choose to continue their education after high school. • Promotes awareness of higher education options. • Develops college and career readiness skills. • Helps students pair their interests with career choices. • Encourages students to explore careers. • Develops important life skills, including social skills, stress management, self-discipline, self-motivation, and responsibility. • Is offered to students beginning in 8th grade. • Requires enrollment in the 4-H program. <p>We completely refreshed the program in 2020 as well as finished Chapter 4. We started our first 4-year cohort in the fall and they will be graduating this spring. We developed a handbook and conducted multiple virtual trainings to assist Extension Educators in administering the program and expand our reach statewide. We sold the curriculum to 2 states officially in 2020 and have met with four others that have expressed interest. We presented about Next Chapter at two national conferences in 2020 (NAE4-HYDP (October 2020) and ACTE’s CareerTech VISION (December 2020).</p> <p>2020 before the shutdown, we reached 803. We updated and refreshed the Connecting The Dots program this past fall while we had time, bringing all data pieces shared to 2020 (information, salaries on career sheets, etc.). With the passage of Perkins V legislation creating a programming gap at the 5th grade through middle school age, we started</p>	<p>People and Their Well-being/ No. 2</p>
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		<p>to develop a pre-cursor program to Connecting the Dots, focused on the 6 career fields in a broader sense versus the 16 career clusters, that we will be piloting spring, 2021. We continue to have our stakeholders want the program and new schools continuing asking as well. As we continue to open our state back up, we believe our reach with Connecting the Dots with continue to expand, particularly through new partnerships with ESUs across the state as well as through public and parochial schools as well as the homeschool network.</p>	
<p>7.</p>	<p>Virtual and At-Home Learning</p>	<p>A collaboration was developed between 4-H and The Learning Child teams to develop and deliver a statewide, virtual Building Better Babysitters program. Over 100 youth from nearly half (41) or Nebraska counties were trained. 83% of participants identified that they felt confident babysitting a child by themselves after participating in the course.</p> <p>The 4-H STEM Reading Connections program was developed to help young children become introduced to STEM. These early childhood storybook guides expand upon the already successful library-based program. The eight early childhood storybook guides reached professionals and parents in 7 states, sparked a collaboration between Nebraska Extension and North Carolina Extension, included seven professional trainings, and the creation of a new website that has over 1,000 page views.</p> <p>SNAP-Ed and EFNEP. In 2019-2020 Nebraska SNAP-Ed reached <u>95,304</u> individuals through direct education, environmental strategies and indirect education.</p> <p><i>Direct individuals:</i> SNAP-Ed reached <u>12,723</u> Nebraskans during 2019-20; 2,470 adults and 10,253 youth.</p>	<p>People and Their Well-being/ No. 2</p>

		<p><i>Policy, system and environmental (PSE) interventions: 35,430 Nebraskans were reached through the PSE efforts of Nebraska SNAP-Ed. NAP SACC worked with 42 child care facilities, which indirectly reached 2,998 children. After participating in Go NAP SACC, centers reported meeting 70.8% of physical activity, 58.8% of outdoor play and 71.1% of screen time best practices. This reflects a 33%, 29.2%, and 31.2% pre to post improvement EFNEP.</i></p> <p>EFNEP classes provide hands-on learning so adult and youth participants can gain skills and confidence in planning for, purchasing, preparing, an eating healthy meals and snacks. Participants enjoy family-based classes so families can learn, adapt and change health behaviors together - a practice backed by research to make behavior change long-lasting. 82% of parents and caregivers were better able to manage their food resources and provide healthy meals for their families as a result of attending EFNEP classes. 78% of adult participants also improve food safety practices, including handwashing. 538 families taught via EFNEP, 1917 total family members impacted; 2493 youth taught in EFNEP programs; 92% of adults improved diet quality as a result of participating in EFNEP; 79% children and youth improved their ability to choose healthy food.</p>	
<p>8.</p>	<p>Nebraska’s Response to COVID-19</p>	<p>The COVID-19 pandemic has brought unprecedented change to Nebraska and the world. Just as Nebraskans turned to Extension during the 2019 floods to cope with uncertainty, challenge and recovery. Whether in person or virtual, Nebraska Extension has stood steadfast in our commitment to Nebraskans to deliver on our mission of sharing research-based solutions using innovative approaches and timely delivery.</p> <p>Here are just a few ways Nebraskans are connecting with Nebraska Extension during the pandemic in 2020:</p> <p>Learning Child & 4-H Youth Development <i>Collaborating with Nebraska educators and parents</i></p> <ul style="list-style-type: none"> • Providing unique educational experiences via webinars and online 	<p>People and Their Well-being/ No. 3</p>

	<p>resources while youth are at home</p> <ul style="list-style-type: none"> • Providing support and education for child care professionals • Facilitated county fairs for nearly 19,000 4-H’ers across the state. Additionally, 3,383 of those went on to exhibit almost 9,000 entries at the Nebraska State Fair. • Living Room Learning offered hands-on virtually guided activities for youth during COVID-19. Over 10,000 youth across the state engaged in live, real-time, educational programs that were delivered online. • A Beautiful Day was created with children and families in mind to foster learning and play and support caregivers during times of physical distancing resulting in 12,000 views <p>Food, Nutrition & Healthy Lifestyles <i>Keeping families fed and safe as they stay at home</i></p> <ul style="list-style-type: none"> • Offering guidance on nutrition, food safety and stretching the family food budget. During COVID-19, Nebraska Extension’s food and fitness team reached over 13,595 followers with up-to-date food safety information to help consumers make the best decision regarding their food choices. • Developing programming and connecting rural Nebraskans with resources to help them address mental health concerns. • More than 10,000 pounds of produce was grown and donated or sold at “pay what you can” markets in communities of need; served at least 500 families in Omaha. Growing Together Nebraska donation gardens produced over 40,930 pounds of produce worth over \$51,700 impacting over 15,100 individuals. • When COVID-19 forced schools to close, Marathon Kids started to help families at home stay active. Over 300 people joined the group, with 56 youth and 28 adults logging over 4,187 miles. • NE Extension worked with 79 child care facilities (59 child care centers and 20 child care homes) in FY20. 190 child care providers were trained and an additional 28 child care providers participated in TA. A total of 28 sites completed all of the requirements of the Go NAP SACC process. Through this work, approximately 5,439 children were reached through the NAP SACC programming. 16 different NAP SACC trainers 	
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	<p>worked with these sites, and provided over 548 hours of technical assistance to the child care centers/homes.</p> <ul style="list-style-type: none"> • 27,000 participants were reached through healthy lifestyle education programming (75% youth, 25% adult). <p>A home food preservation virtual learning series was created to provide individuals with the skill and confidence to safely can foods they grew in their own gardens. Four sessions were offered live and recorded that reached 205 contacts.</p> <p>Rural Prosperity <i>Leveraging resources to mitigate economic impact</i></p> <ul style="list-style-type: none"> • Sixty Latino businesses were created with the help and support of Nebraska Extension. • Assisted 32 communities in grocery store transitions In partnership with the Nebraska Cooperative Development Center. Estimated \$420,000 annual economic impact in one community alone. • The Entrepreneurial Community Activation Process (ECAP) program helped Plainview jumpstart their community toward action. In just two years, 12 new businesses filled downtown, a new 12-lot housing subdivision with five new homes, and a new community center is being planned that will create a gathering place. • The Latino Small Business Program reaches out to welcome, network, and support Latino businesses and potential entrepreneurs. Over 185 hours of training helped 156 businesses thrive create prosperous communities. 	
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