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The Impact of USU Extension on Agricultural Productivity

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The Impact of USU Extension on Agricultural Productivity

Outcomes and Impact Quarterly: Special Edition

Lead Contact: Justen Smith

Primary Critical Issue: Global Food Security and Hunger

Utah has over 18,000 farms and ranches spanning 11 million acres, which generate more than \$21 billion in total economic output (after adjusting for the multiplier effect). While it is true that Utah becomes more urbanized each year, it is also true that agriculture continues to play a vital part in our state. As the population of Utah and the United States continues to grow, food production is more important than ever before. Utah State University (USU) Extension has led the way for 105 years in providing non-biased, research-based technical assistance to producers and the Utah agricultural industry. USU Extension has nationally and internationally recognized faculty with expertise in all areas of agriculture production and science. Our on-campus and county faculty conduct cutting-edge research that is disseminated to producers and other stakeholders through methods such as field days, workshops, printed and online publications, classes, online courses, and social media outlets.

Extension continues to meet the needs of traditional agriculture while evolving to meet the needs of developing agricultural industries. As we focus our efforts on persistent and emerging needs, we recognize Utah is the second driest state in the nation, so irrigation efficiency, water conservation, and improved water-efficient crop varieties continue to be focus areas for our faculty and researchers. With urban and small farms becoming more popular, Extension faculty are working with producers to find innovative ways to produce food on minimal acreage. The long-term goals of the Agriculture and Natural Resource (AG/NR) program are to (a) increase the productivity and efficiency of Utah agricultural operations, and (b) promote sustainable natural resource use through relevant education on conservation practices.

Selected Highlights of 2022

Beginning Beekeeping Extension Education

USU Extension Faculty Contact: Andree' Walker Bravo

Beekeepers have experienced a 20-30% increase in hive losses statewide according to the Utah Department of Agriculture and Food Apiary program. In Utah, the majority of hive deaths are due to Varroa mite infestations caused by poor hive management. In Salt Lake County, the Thriving Hive Beginning Beekeeping program was offered to individuals interested in beekeeping. The Thriving Hive Beginning Beekeeping program is facilitated at Wheeler Historic Farm in Murray where USU Extension maintains a 10-15 hive apiary.

Evaluation results showed a significant improvement in participants' knowledge of all topics, specifically Varroa mites, and the services performed by the county bee inspector after the series. Evaluation results also indicated 100% of respondents strongly agreed that the series "increased my comfort level in working with bees", "increased my confidence in being a beekeeper",

“help[ed] me be a more successful beekeeper”, and “gave me the confidence to start keeping bees.” After the series, participants indicated strong intentions to implement Varroa mite management practices. One participant said, “This class is instrumental in helping educate novice beekeepers as well as those interested in learning more about helping to support honey bees.”

With close collaboration with the Utah Department of Agriculture and Foods Apiary program, the Thriving Hive Beginning Beekeeping program effectively responded to the apiculture needs in Utah. Moving forward, the Thriving Hive Beginning Beekeeping program will continue to deliver hands-on experiential education to novice beekeepers in Utah.

Preventing Injury Among Master Gardeners

USU Extension Faculty Contact: Gabriela Murza

Gardening is shown to have many health benefits, especially in older adults, but injuries are common. The Adaptive Gardening and Minimizing Injury with Tools, Techniques, and Stretches workshop teaches participants best practices, proper postures, and correct tool use to help prevent and minimize pain and injury while engaging in common gardening activities. Educating gardeners on proper posture and tool use can help prevent or minimize injury.

Based on the short-term evaluation results, participants improved their knowledge of all three major concepts; best practices for gardening, safe movement in gardening, and stretches and exercises to ease pain and discomfort. In addition, most participants adopted recommended practices for gardening behaviors related to using proper stances and stretching. In the six-month follow-up survey, participants reported their continued behavior engagement in best practices. The average perceived pain level of participants decreased from 4.65 to 3.00 (on a 10-point scale, with 10 being the highest level of pain).

Gardening injuries occur mainly due to improper posture and tool use. Workshop participants shared their experiences of pain and injury when gardening. Survey results suggest that after the workshop, the majority of participants adopted best practices relating to gardening behaviors of proper posture and stretches for garden safety.

Utah Agriculture in the Classroom (UTIC) Preservice Teacher Seminar

USU Extension Faculty Contact: Denise Stewardson

Agriculture in the Classroom organizations implements programming to increase agricultural literacy among pre-kindergarten, 12th-grade teachers, and students. The Utah Agriculture in the Classroom (AITC) program seeks to increase pre-service teachers' agricultural literacy, provide lesson plans for future use, and increase teachers' self-efficacy in using agriculture as a context for addressing content standards. AITC partners with universities across Utah including to host preservice teacher seminars reaching nearly 600 elementary education teachers annually.

The evaluation results pertain to AITC participants since 2017. Results showed 70% of the participants indicated they agreed or strongly agreed their agricultural knowledge increased after the seminar. Most participants (98%) stated it was likely or very likely they would use the

resources provided in the seminar and explore the Utah AITC website for further resources. Results also showed participants felt somewhat comfortable using agriculture as a context to teach lessons in their classes.

The results have provided insights for Utah AITC program planners to improve the curricula and program implementation model. To encourage graduates to use the agricultural literacy materials, Utah AITC will seek new ways to follow up or engage with teachers in professional learning communities during their first few years of teaching to remind the new educators about the resources and how to use them to address curricular standards.

Inclusive Farmers Markets

USU Extension Faculty Contact: Roslyn Brain McCann

Farmers' markets play a vital role in supporting communities by providing gathering spaces and fostering local agriculture and economic development. However, market demographics are predominantly white across staff, vendor, and customer populations, posing high barriers to entry for people of color. The Utah Farmers Market Network (UFMN) prioritized exploring how farmers' markets could be more welcoming and inclusive to all individuals regardless of racial background. The UFMN used USDA funding to convene a virtual Diversity, Equity, and Inclusion (DEI) Community of Practice (CoP). The goal was to explore how markets could be more welcoming and inclusive to historically excluded populations.

Evaluation results indicated all participants who completed the CoP had an increased understanding of the demographic makeup and lived experience of the target audience. Many participants reported a more developed frame of reference concerning issues of DEI, which permeated their personal and professional lives. One participant said, "I feel like I have a whole new lens - I now see things in a different light and am aware of injustice happening around me." Another reported, "I did not realize how many barriers there are, and have been, for those who are marginalized and how it affects every interaction they have throughout their days and lives."

The markets that participated in the CoP now have a variety of tools they can use to deepen their personal understanding of DEI and implement changes within their market organizations and their physical markets. Current and future vendors, customers, and staff will benefit from the DEI interventions by these farmers' markets. The UFMN team is currently designing inclusive welcome signage that will be available to farmers' markets managers who participated in the CoP. A DEI best practices document is also being created, along with several reports.

IPM Demonstration Farms

USU Extension Faculty Contact: Mair Murray

Pesticides, both organic and conventional, are often necessary for the production of healthy crops and landscapes. However, Integrated Pest Management (IPM) practices promote the use of non-chemical options first and pesticides as the last resort. The USU Extension IPM team saw a need for a practical demonstration site due to the recurring questions and comments from clientele relating to non-chemical options to manage arthropod pests and plant diseases. Pests cause economic loss and aesthetic damage which can often be prevented or maintained at low levels by

using proper IPM practices. The IPM program established a vegetable IPM farm to test and demonstrate various IPM techniques for vegetable production.

A total of 48 individuals participated in the on-farm workshop, and a total of five (5) CEU credits were awarded to attendees with a pesticide applicator's license. Based on the retrospective evaluation results, there was an improvement in participants' knowledge of all IPM topics covered in the workshops. Results indicated there was a 73% increase in participants' knowledge of general IPM tactics, a 78% increase in row cover use to control pests, a 100% increase in trap crop/companion planting, a 32% increase in weed control methods, and 65% increase in pest identification. Participants were likely to use row covers, trap cropping, and plastic mulch.

Evaluation results from the IPM demonstration farm indicated participants increased their knowledge of vegetable IPM practices and intended to apply what they learned in the workshop. The IPM outreach activity provided participants with the skills to identify, monitor, and manage pest problems, which can ultimately reduce pesticide use. The potential long-term outcomes of IPM adoption include reduced human and environmental exposure to pesticides and reduced yield losses for producers.