

Texas dairy industry assessment of research, education, and service importance of the Southwest regional dairy center

Abstract

The objective of this research was to determine future directions the Southwest Regional Dairy Center (SWRDC) should take and improvements the SWRDC could make. In October 2019, a Qualtrics survey (Qualtrics LLC., Provo, Utah) was distributed to the Texas Association of Dairymen to further distribute to dairy producers and industry representatives. The survey asked respondents to rank satisfaction with tours of the SWRDC from 1 to 7 (1=extremely satisfied, 7=extremely dissatisfied) and to rank community outreach events, research activities, extension events, and types of research from least important to most important. Twenty-eight producers and dairy industry representatives responded. Of the respondents, nine ranked the SWRDC tours as extremely satisfied, two ranked as moderately satisfied, two ranked as neutral and the remaining respondents did not answer the question. The respondents' highest ranked community outreach events, research activities and extension events were breakfast on the farm, research showcase, and demonstration days with continuing education credits offered, respectively. The respondents' highest ranked type of research was precision dairy monitoring technology. Survey results better inform the SWRDC administration of future directions the center should take in research, education, and service activities.

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Introduction

Many university dairy farms are closing across the United States. Texas A&M closed their university dairy in 2003.¹ The Texas dairy industry recognized the need for the land grant university to have a dairy that supported the three arms of the land grant mission: teaching, research, and extension (Lambert personal communication 2020). Therefore, the Southwest Regional Dairy Center (SWRDC), which opened its doors in October 2011, is the Texas A&M University system wide dairy located in Stephenville, TX and is administratively managed through Tarleton State University. The SWRDC mission is to provide enabling infrastructure support for teaching, research, and service/outreach programs to meet the need of higher education, the dairy industry, and society in Texas and the southwest. The SWRDC was initially financially supported through a tuition revenue bond that the Texas dairy industry supported through the legislature (Lambert, personal communication, 2020). Meaning taxpayers supported the building of the dairy and therefore, the SWRDC should provide research and extension efforts for the taxpayers.

Evaluation of university programs is essential to meet the needs of the dairy industry.^{2,3} Public resources are scarce, so evaluating where to focus these resources is essential.² In addition, commodity milk prices are extremely volatile. This volatility changes dairy management and priorities on the dairy farm.³ These changes necessitate an evaluation of future direction the SWRDC should take to help support producers in Texas. Of the three tiers of the SWRDC mission, extension has been the most successful. Extension is one of the three arms of a land grant university. Extension provides timely and useful research information to producers.⁴ In addition, the SWRDC is close to Dallas (175 kilometers), the fourth largest metropolitan area in the US. Because of the proximity to a large metropolitan area, the SWRDC is situated to be a great outreach center for clientele outside the dairy

industry. Since March 2017 (when the SWRDC administration began tracking the number of people visiting the center), the SWRDC has given tours to 2,939 people both inside and outside the dairy industry. Research and teaching entities have been slow to garner traction since the opening of the SWRDC. Thus, the objective of this research was to determine future directions the SWRDC should take and what the SWRDC could improve upon.

Materials and methods

An eight-question survey was developed using Qualtrics software (Qualtrics LLC., Provo, Utah). In October 2019, the online survey was distributed to the Texas Association of Dairymen to further distribute to dairy producers and industry representatives as well as posted to various social media outlets within the Texas dairy industry for easy access. The Survey was closed in December 2019. The study was approved through the Tarleton State University Institutional Review Board (IRB protocol number: 1465982-1). Online distribution was chosen from recommendations of the producer association for respondent easiness and wide reaching distribution. Dairy producers and dairy industry representatives were targeted as the main respondents, but no terms were stated for respondents to be eligible to complete the survey. Twenty-eight producers and dairy industry representatives responded. No surveys were discarded.

The survey was developed to maintain respondent anonymity. The survey consisted of five close-ended questions and three open-ended questions where survey respondents could express their opinions. Open-ended responses were not included in the analysis, but were included within results. The survey was short to increase the response rate.⁵ Respondents were asked to rank satisfaction with tours of the SWRDC from 1 to 7 (1=extremely satisfied, 7=extremely dissatisfied). Respondents were additionally asked to rank community outreach events, research activities, extension events, and types of research that

should be conducted from least important to most important. Options for community outreach events included individual tours, breakfast of the farm, open houses, family events, and a fill-in-the-blank option. Options for research activities included a research showcase, research open houses, research demonstrations, and a fill-in-the-blank option. Options for extension events included field days, continuing education credit events, demonstration days, youth programs, family days and a fill-in-the-blank option. Options for types of research that should be conducted included ruminant nutrition, genetics, reproduction, heat stress, animal well-being and behavior, precision dairy monitoring technology, economics, and a fill-in-the-blank option. Options for each category were chosen based on opinions of outside extension and research personnel involved with the SWRDC.

Statistical analyses were completed on the survey responses using SAS (Version 9.4, SAS Institute, Inc., Cary, NC). The MEANS procedure calculated satisfaction with tours. The FREQ procedure was used to determine the highest ranked response for community outreach events, research activities, extension events, and types of research that should be conducted. The fill-in-the-blank option was removed from analysis as it was deemed respondents did not consider the response when ranking each question.

Results

On average respondents were extremely satisfied with tours of the SWRDC (1.77 ± 1.30). Suggestions for how tours may be improved were:

- I would have bought a T-shirt to remember my day. Might be a way to raise funds for the program.
- Sell dairy products like ice cream. Not just vanilla but fresh flavors like the Louisiana State University dairy store.
- The tour is easy to understand for someone not involved in agriculture.

The respondents' highest ranked community outreach event, research activity, and extension event were breakfast on the farm, research showcase, and demonstration days with continuing education credits offered, respectively. Figure 1 highlights responses to the type of research respondents would like to see conducted. Responses to the fill-in-the-blank category involved what type of research would you like to see take place included:

- Robotic teat dipper
- Hindgut nutrition
- Automation

Responses to an open-ended question involving opinions on what other programs the respondent would like to see at the SWRDC included:

- Annual open house or producer appreciation event.
- Get the Tarleton State University Students Involved! It's supposed to be a university dairy, but there's no interest or involvement from the undergraduate students.

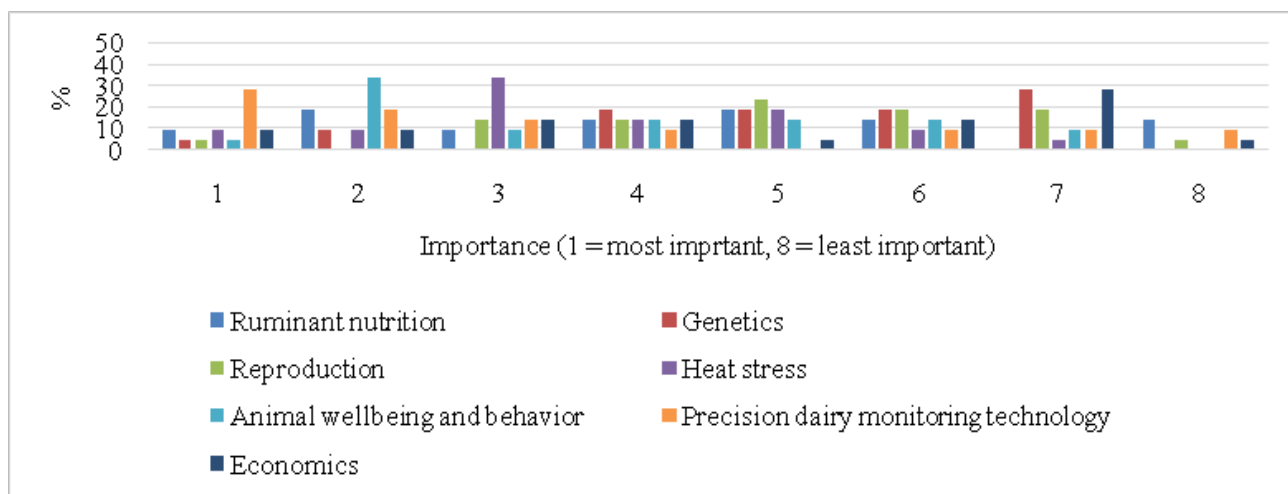


Figure 1 Results indicating the most important type of research that should be conducted at the Southwest Regional Dairy Center from a survey of the Texas dairy industry.

Responses to an open-ended question involving any additional comments respondents could make for the SWRDC included:

- Dairy is neat, clean, and appears very well run. Makes for nice tours. Would like to see students be more involved in enterprise type projects, especially so that you can produce potential employees and managers for the industry.
- Make and sell ice cream.
- I enjoyed visiting your facility.

Discussion

Responses to the survey were lower than desired and expected. This is the first survey developed from the SWRDC, so this may have caused the low response rate. Furthermore, no incentives were provided for taking the survey which may have caused the low response rate.⁵ Respondents' written open-ended answers indicated dissatisfaction with the low rate of student involvement. Students are heavily involved with research activities at the SWRDC, but these activities may not be as visible as perhaps having student's milk

cows at the SWRDC, which does not occur at this time. No questions regarding dairy industry job type (i.e. dairy producer or dairy industry representative) were asked. Therefore, stakeholder participation of the survey that first proposed and supported the SWRDC is unknown.

No questions were asked on how to deliver extension content as the SWRDC is administratively managed through Tarleton, which does not have an extension arm. However, the SWRDC is the Texas A&M system wide dairy and Texas A&M does have an extension arm. Therefore, SWRDC administration works closely with the extension personnel to deliver extension content.

In 2018, Texas was the fifth largest dairy state in the U.S. Texas has 375 dairy farms⁶ with 537,000 dairy cows each averaging 10,855 kg of milk/cow yearly.^{7,8} Therefore, university research and extension programs are key to help dairy producers within the state. Survey results better inform the SWRDC administration of future directions the center should take in research, education, and service activities.

Conclusions

The mission statement of the SWRDC is three tiered and focuses on research, education, and service. Monetary funds to build the SWRDC was from a tuition bond meaning the SWRDC should give back to the tax payers and the dairy industry. Therefore, the survey results better inform the SWRDC administration on the types of research and outreach that should occur.

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Conflicts of interest

The authors declare that no conflicts of interest exist.

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