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## **Providing Relevant Educational Programming through Teleconference to Place-Bound Audiences**

### **Abstract**

Teleconference has been the chosen delivery method for place-bound audiences in the pork industry that subscribe to PorkBridge and SowBridge. Delivery of these programs via teleconference since 2004 and 2007, respectively, demonstrates how Extension program delivery can overcome technology accessibility issues in rural areas and/or deliver technical content to clientele with limited mobility. Through teleconferences, PorkBridge and SowBridge programs allow pork producers to learn about timely and relevant information from topic experts and further provide accessible training to meet training requirements established by the pork industry. This delivery method also allows for greater access to topic experts for place-bound audiences.

**Keywords:** teleconference, livestock programming, distance education, place-bound audiences

## **Introduction**

### **The need for Extension programs by teleconference**

Delivering research-based information to target audiences is an important goal for every Extension educator. Choosing the most effective delivery method can be challenging. Using the latest technology is not always the best approach depending on the target audience and the resources available to the audience (Dromgoole and Boleman, 2006) and the educator(s). In the pork industry, strict biosecurity practices are practiced on farms to reduce the risk of disease transmission to and from the farm (Allerson et al., 2013; Otake et al., 2002). Because of these biosecurity restrictions, pork producers can be hesitant to attend in-person seminars to obtain educational and technology updates. When barn workers leave the farm to attend educational seminars, labor supply to the farm is disrupted beyond the time workers attend the educational event. Many farm biosecurity protocols dictate a quarantine period for workers after they attend industry events to prevent movement of disease into the farm. Barn workers, supervisors, and owners are reluctant to dedicate time to attend educational trainings. These restrictions create place-bound clientele groups that still need and want educational opportunities. Extension educators are not able to visit individual farms to provide educational opportunities and technology transfer because of biosecurity restrictions, time constraints, and limited budgets to cover travel expenses. Furthermore, pig farms tend to be in rural areas where high-speed internet is not always accessible (Anderson, 2018). As a result of these challenges, PorkBridge was conceived in 2004 as a distance educational program offered to a pilot group of pork producers in Nebraska and Ohio. PorkBridge targets producers and barn workers involved in the grow-finish phase of pork production. The delivery method utilized for this program was simply a teleconference with presentation materials mailed to participants prior to the actual teleconference. Through 2021, PorkBridge still relied on the teleconference delivery format. The PorkBridge model was used to develop a similar educational program called SowBridge targeting barn workers employed on sow farms. The long-term offering of PorkBridge and SowBridge are examples of successful programming by teleconference that could be used to reach other audiences in rural areas. The

objective of this paper is to demonstrate how using teleconference for program delivery can overcome technology accessibility issues in rural areas and/or clientele facing unusual place-bound circumstances like needing to mitigate biosecurity risks.

## **Methods**

### **Program concept and teleconference structure**

PorkBridge started in 2004-2005 under the guidance of Dr. Mike Brumm, University of Nebraska Extension swine specialist and Dr. Don Levis, The Ohio State University director of the Ohio Pork Industry Center. PorkBridge began with a pilot audience of pork producers from Nebraska and Ohio with the purpose to connect pork producers with regional experts to provide timely, relevant, and accurate information to people who own or work in swine grow-finish barns. The program continues to allow pork producers in rural areas to gain access to Extension educational programming without requiring high-speed internet or risking biosecurity breeches. Additionally, PorkBridge allows several individual speakers to reach a large audience without traveling to numerous locations to present the same information, which is costly and a biosecurity risk. Following the pilot year, PorkBridge was expanded to include cooperative efforts of five university Extension swine programs: Iowa State University, The Ohio State University, South Dakota State University, University of Minnesota, and University of Nebraska. Today, PorkBridge has expanded from the five original swine programs to include those at Casper College (Wyoming), Kansas State University, Michigan State University, North Carolina State University, North Dakota State University, Pennsylvania State University, Purdue University, University of Illinois, and University of Missouri. Each collaborating university places at least one member on the organizational planning committee that guides the program.

In 2007, SowBridge was created using the successful teleconference delivery methods originally designed for PorkBridge. The difference in the two programs is their target audience. The target audience for SowBridge is owners, managers, and employees of sow farms. In the first year of SowBridge's existence (2007-2008), the program was a cooperative effort of five university Extension swine programs: Iowa State University, The Ohio State University, South Dakota State University,

University of Minnesota, and University of Nebraska. Today, the SowBridge program is guided by the same collaborative planning committee that guides PorkBridge.

The PorkBridge and SowBridge educational programming materials are delivered through a standard teleconference that allows participants to connect without requiring high-speed internet typically needed for web conferences such as WebEx, Adobe Connect, GoToMeeting, Zoom or similar web-based tools. While the communication system is not novel, it best suits the audience, as it does not require broadband, Wi-Fi, nor cellular access, often limited or devoid in rural areas. This delivery method also allows people to participate without leaving the farm, which mitigates the biosecurity risk. PorkBridge consists of six educational programs held every other month during a 12-month period (Figure 1). SowBridge consists of 12 sessions held monthly (Figure 2).

## 2021 Dates, Topics, Presenters

***All sessions begin at 11:15 a.m. Central Time and last no longer than 60 minutes***

<b>Feb. 4</b>	<b>How to Handle Activists on Farms</b> <i>Jen Sorenson, Iowa Select Farms</i>
<b>Apr. 1</b>	<b>Mental Health for Pig Barn Workers</b> <i>Monica McConkey, Rural Mental Health Specialist, MN Dept. of Ag</i>
<b>June 3</b>	<b>In-barn Impacts on Pork Quality</b> <i>Matt Ritter, Provimi</i>
<b>Aug. 5</b>	<b>Water Management to Maximize Performance</b> <i>Nat Stas, PIC</i>
<b>Oct. 7</b>	<b>Biosecurity for Grow-Finish Production</b> <i>Jeff Blythe, DVM, Pipestone Veterinary Services</i>
<b>Dec. 2</b>	<b>Interventions to Reduce Mortality: Postweaning</b> <i>Chris Rademacher, ISU</i>

Figure 1. 2021 PorkBridge schedule.

Prior to each scheduled PorkBridge and SowBridge session, the speaker prepares a PowerPoint or similarly delivered presentation that is shared with the program coordinator and logistics coordinator. The coordinators review each speaker's presentation to ensure it meets the requirements for our method of delivery. Once the educational material is ready for distribution to participants, the presentation is

saved to a CD for distribution to participants along with information on how to call in to the scheduled teleconference. The programs have since moved away from sharing materials on CD to sharing a link by email to download the presentation from an electronic shared folder. All presentations and supporting materials that individual speakers share with PorkBridge and SowBridge subscribers is stored in a shared electronic folder designated for each respective program. Even though program materials are shared electronically, the quality and bandwidth of internet needed to share PowerPoint and PDF files is far less than the internet bandwidth needed for web conferencing.

### **2021—2022 Program Year**

Sessions begin at 11:15 a.m. Central Time and last no longer than 60 minutes

<b>Feb. 3</b>	<b>Day One Sow Care</b> <i>Ashley Johnson, DVM, Zoetis</i>
<b>Mar. 3</b>	<b>Preventing COVID-19 on Swine Farms</b> <i>Erin Ehinger, Provimi North America</i>
<b>Apr. 7</b>	<b>Mental Health of Barn Workers</b> <i>Robin Tutor Marcom, North Carolina Agromedicine Institute</i>
<b>May 5</b>	<b>Gilt Development</b> <i>Steve Brier, Smithfield</i>
<b>June 2</b>	<b>How to Handle Activists on Farms</b> <i>Jen Sorenson, Iowa Select Farms</i>
<b>July 7</b>	<b>Litter Size Adjustment Strategies</b> <i>Steve Horton, Thomas Livestock</i>
<b>Aug. 4</b>	<b>Sow Lifetime Productivity Findings</b> <i>Jennifer Patterson, University of Alberta</i>
<b>Sept. 1</b>	<b>Pig Farm Safety Practices</b> <i>Melissa Millerick-May/ Beth Ferry, Michigan State University</i>
<b>Oct. 6</b>	<b>Gilt Synchronization – Tools &amp; Techniques</b> <i>Tim Safranski, University of Missouri</i>
<b>Nov. 3</b>	<b>Economics of Mortalities on Sow Farms</b> <i>Caleb Shull, The Maschhoffs</i>
<b>Dec. 1</b>	<b>Interventions to Reduce Mortalities: Pre-weaning</b> <i>Kara Stewart, Purdue University</i>
<b>Jan. 5, 2022</b>	<b>Sow Lameness</b> <i>Benny Mote, University of Nebraska-Lincoln</i>

Figure 2. 2021 SowBridge schedule.

At the scheduled session time, participants connect via teleconference to listen to the speaker present while viewing the presentation on their own computers.

Following all presentations, a question and answer period, generally lasting five to 10 minute, occurs. Over the years, PorkBridge has been offered at different times of day and fluctuation from a one-hour program to 90-minutes depending on the preference of participants. SowBridge has been offered at either 11:15 a.m. or 11:30 a.m. U. S. Central Time for a 45-to-60-minute session length that includes a five to 10 minute question and answer period.

Because pig farms are generally located in rural areas, availability of internet was an important aspect when choosing the teleconference delivery method as a way for subscribers to participate remotely in educational presentations. These rural areas often have slow internet connections or there is no internet connection at all at the barn site (Federal Communications Commission, 2010; Genachowski, 2011).

Because both PorkBridge and SowBridge were scheduled near the noon hour each month, the lack of internet connection was a major factor on deciding which program delivery method would most likely be successful because participants often connect to the programs from the barn during their lunch break.

When participants subscribe to either PorkBridge or SowBridge, they are registering for the entire program year. For PorkBridge, participants signup for all six sessions. Registration for PorkBridge is currently \$100, which covers the cost of materials and teleconference access for all six sessions. For SowBridge, participants sign up for all 12 sessions. Registration for SowBridge is currently \$200, which covers the cost of materials and teleconference access for all 12 sessions. If a farm system has multiple barn sites, they can choose to register multiple sites. Registration for either the PorkBridge or SowBridge program is half price for each additional site that registers. There is no limit on the number of listeners at each site under one subscription.

### **Program planning**

The planning committee develops the program schedules for both PorkBridge and SowBridge. Potential topics are gathered from participants via year-end surveys or from most recent session evaluations. Planning committee members offer suggestions for topics based on their continued contact with the pork industry and

latest industry events. The planning committee sorts through all potential topic ideas and evaluates them on several factors including their relevance to barn level workers.

Once program topics are identified, potential speakers are then identified. When selecting speakers, the planning committee attempts to balance speakers for the year's program to ensure that the speakers represent both university and private industry experts. When identifying speakers from universities, the planning committee attempts to have several universities represented. Ultimately, the goal is to identify speakers with the most expertise on program topics presented each year, regardless of whether the speaker comes from an industry or academic background.

Since the pilot year, University of Minnesota Swine Extension has served as program coordinator and session moderator for the majority of the PorkBridge and SowBridge sessions. Iowa State University's Iowa Pork Industry Center has managed the logistical and financial aspects of program delivery. After all speakers are confirmed for the entire year's program for both PorkBridge and SowBridge, the respective program schedule is shared with each speaker, along with presenter instructions for speakers to follow when preparing their presentation. The instructions include a deadline for submitting their presentation to both the program coordinator and logistic coordinator for review and distribution to program subscribers in a timely manner.

### **Distribution of PorkBridge and SowBridge Programs**

The audio of all PorkBridge and SowBridge sessions is recorded and uploaded to the same electronic shared folder as the presentation for each respective session. Subscribers gain access to the audio through a link shared with them in email correspondence. Subscribers can either listen to the audio or download the audio file and save it to listen to later. This allows subscribers to share the program with anyone on the farm who may have missed the live session and allows them to listen later if they are not able to participate during the live session.

The opportunity for subscribers to listen to sessions either live or recorded is a great way for those working in the barns to fulfil regular caretaker training required by the Pork Quality Assurance Plus (National Pork Board, 2021) and Common Swine

Industry Audit (National Pork Board, 2019) programs. The PorkBridge and SowBridge sessions are an acceptable training method for both Pork Quality Assurance Plus and Common Swine Industry Audit programs and provide an easily accessible opportunity for farm personnel to meet training requirements for those programs.

## **Results and Discussion**

### **Impact of PorkBridge and SowBridge Programs**

After a successful pilot program, the PorkBridge program officially started in December 2005 with an expanded pork producer audience of 47 subscribers from 12 states (Table 1). In addition to subscribers from numerous states, PorkBridge has had international subscribers too. Subscribers are not only pork producers, but include technical service providers, community college and university instructors, college students, and editors of pork publications. In this manner, the programs have the ability to reach more producers. Beginning with the 2012-2013 program year, the planning committee started gathering demographic information, such as the number of employees and number of pigs influenced annually, from subscribers. The number of people reached per year has ranged from 122 to 1,424 people, with an average of 576 people. The number of pigs influenced on a yearly basis has ranged from 120,000 to 12,147,500 pigs, with an average of 3,400,000 pigs (Table 1). Overall, participants see value in PorkBridge to learn and stay up to date on industry topics. This is evident by the number of participants that re-subscribe to the program year after year. In recent years PorkBridge has seen a decline in participants and the planning committee is not exactly sure why but have some theories as to why. One theory is many wean to finish pigs are raised by contract growers, who own the barns, but then contract with an integrator to raise pigs for them. Many of these contracts are specific on how the pigs should be raised so contract growers don't always seek out information from outside sources other than who they are raising pigs for. The planning committee is considering a needs assessment to better understand the needs of the PorkBridge audience.



Table 1. PorkBridge participants and impact at a glance.

Year	Number of subscribers	Number of U.S. states represented	Number of countries other than U.S. <sup>a</sup>	Number of people reached <sup>b</sup>	Number of pigs influenced <sup>c</sup>	Number of pork servings impacted <sup>d</sup>
2005-2006	47	12	0	-	-	-
2006-2007	24	8	1	-	-	-
2007-2008	26	12	2	-	-	-
2009-2010	26	9	2	-	-	-
2010-2011	15	6	2	-	-	-
2011-2012	20	7	2	-	-	-
2012-2013	20	9	1	122	120,000	74,496,000
2014	22	8	1	398	1,219,100	756,817,280
2015	15	6	1	173	720,750	447,441,600
2016	23	8	1	1,424	12,147,500	7,541,168,000
2017	16	8	1	818	2,794,800	1,735,011,840
2018	16	6	2	546	2,450,000	1,520,960,000
2019	31	12	2	549	4,204,550	2,610,184,640
2020	24	8	2	302	8,663,500	5,378,300,800
2021	14	8	2	204	1,455,000	903,264,000

<sup>a</sup>Countries other than U.S. represented over the years include Canada and Ireland.

<sup>b</sup>Number of people touched includes the subscribers and the employees each subscribers indicates are part of their operation. This metric was first collected from subscribers in the 2012-2013 program year.

<sup>c</sup>Number of pigs influenced is based on the number of pigs raised yearly by subscribers. This metric was first collected from subscribers in the 2012-2013 program year.

<sup>d</sup>Number of pork servings impacted was calculated using the assumptions that a market pig typically yields 116.4 lb. of lean meat (National Pork Board, 2017) and one serving of pork is 3 oz. (United States Department of Agriculture, 2019).

Over the years, the number of subscribers to the SowBridge program has averaged 44 per year and included participants from numerous states and up to four countries other than the United States (Table 2). Beginning with the 2011-2012 program year, the planning committee started gathering demographic information including the number of employees and number of sows managed from subscribers. Since that time, the number of people touched per year has ranged from 323 to 1,656 people, with an average of 716 people touched yearly. The number of sows influenced on a yearly basis has ranged from 544,275 to more than 4,900,000 sows, with an average of 1,900,000 sows influenced (Table 2). Overall, SowBridge participants see value in

the program as a means for continual training as required by Pork Quality Assurance Site Assessments and Common Swine Industry Audit. This is evident by the participants that repeatedly subscribe to the program on a yearly basis.

Table 2. SowBridge participants and impact at a glance.

Year	Number of subscribers	Number of U.S states represented	Number of countries other than U.S. <sup>a</sup>	Number of people touched <sup>b</sup>	Number of sows influenced <sup>c</sup>
2007-2008	68	14	1	-	-
2008-2009	57	13	2	-	-
2010	37	11	4	-	-
2011-2012	32	9	2	694	544,275
2012-2013	32	9	3	1,095	1,124,550
2014-2015	45	12	2	323	912,920
2015-2016	33	10	2	411	1,423,000
2016-2017	36	9	2	505	1,704,400
2017-2018	50	15	2	440	2,091,614
2018-2019	43	12	2	1,656	2,427,588
2019-2020	54	11	2	604	4,937,550
2020-2021	46	11	2	701	8,290,830
2021-2022	51	11	2	768	8,458,412

<sup>a</sup>Countries other than U.S. represented over the years include Australia, Canada, China, Ireland, and West Indies.

<sup>b</sup>Number of people touched includes the subscribers and the employees they indicate. This metric was first collected from subscribers with the 2012-2012 program year.

<sup>c</sup>Number of sows influenced is based on the number of sows subscribers indicate they have influence over. This metric was first collected from subscribers in the 2011-2012 program year.

## Conclusions

PorkBridge and SowBridge are examples of successful programming by teleconference that can be used to reach place-bound audiences in rural areas where accessibility to high-speed internet is poor. Program delivery by teleconference allowed participants to receive caretaker training on various topics related to the industry they worked in while mitigating biosecurity risks. This delivery method could be used for other industries as well, such as within the poultry industry that has similar biosecurity restrictions to swine. Teleconference delivery methods

could be used for audiences involved in industries or pursuits other than livestock production. This delivery platform can be used to reach any audience that is restricted by high-speed internet accessibility.

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