

# GLOBAL KNOWLEDGE:

*Individual Application*

49<sup>th</sup> AASV  
Annual Meeting



March 3-6, 2018  
San Diego

# Message from the Program Chair, Dr. C. Scanlon Daniels

*Welcome to the 2018 American Association  
of Swine Veterinarians Annual Meeting!*



Our venue in San Diego, California will be an excellent location for our educational program: “Global Knowledge: Individual Application.” Our organization is approaching 50 years of existence and a lot has changed over time. Against a backdrop of global trade, multinational food production systems and the reality of transboundary

disease, we work to implement the knowledge we have gleaned from a multitude of information sources into practices that improve the health, production and well-being of the pigs in our clients’ care.

A lot has remained the same. It is easy to get caught up in everything we can’t control or

*“It is easy to get caught up in everything we can’t control or influence...”*

influence, so we strive daily to focus our efforts on the things we can mold: the health of the pigs in our care, the relationships with our clients, and the communities where we live and work.

Our program committee has brainstormed and worked diligently to put together this year’s program. I can’t thank them enough for their efforts. I strongly believe the meeting will provide tools, knowledge, and motivation attendees can take home and implement immediately. We won’t ignore the things out of our

*“We won’t ignore the things out of our control but will maintain a watchful eye...”*

control but will maintain a watchful eye towards disease risk management, changing regulatory environments, evolving social trends and

changing export markets balanced with the science of emerging and endemic diseases and control using new and proven interventions.

The Howard Dunne Memorial Lecture will be presented by Dr. Bill DuBois. His title is "How geography, culture, and socioeconomic status affect

*"I am eagerly anticipating [Dr. Bill DuBois's] introspection and message."*

global animal protein consumption: Applications for swine veterinarians." I had the pleasure of working with Bill for several years before he and his wife Angie began Christian Veterinary Mission work in Indonesia three years ago. I am eagerly anticipating his introspection and message.

The Alex Hogg Memorial Lecture will be presented by Dr. Rodger Main. His title is "This is our time, the choices are yours." Rodger has been an excellent example of effective technical leadership for me and I think you will appreciate his challenge to us.

We are also going to have several excellent general session presentations that will provide motivation and share new ways to interpret, utilize and disseminate information. As always, the preconference seminars provide something for everyone. And if you are like me, you will feel torn between some of the concurrent sessions when there are two you would like to hear that are scheduled at the same time!

I do hope you will join us and look forward to seeing all of you in San Diego!

C. Scanlon Daniels, DVM  
Program Chair



# Program Committee

## C. Scanlon Daniels, Chair

Peggy Brinkman

Eric Burrough

Emily Byers

George Charbonneau

Marie Culhane

Attila Farkas

Joseph Fent

Micah Jansen

Brad Leuwerke

Daniel Linhares

Abby Patterson

John Prickett

Alex Ramirez

Caleb Robb

Steve Sornsen

Chase Stahl

Pete Thomas

Lisa Tokach

Jon Van Blarcom

Todd Williams

Nathan Winkelman

Pam Zaabel

## Program & Proceedings

### Mobile App

Keep track of when and where you need to be with the free AASV mobile conference app! It's loaded with the most up-to-date schedule, speaker and exhibitor information, interactive maps of the conference rooms, and links to proceedings papers. Use it to create your personal schedule and "to do" list. The app will be available for download from the iOS and Android app stores using the redeem code emailed to conference registrants February 19.

An HTML5 version will also be available for web-based devices.

### Proceedings

All proceedings papers (including seminar papers) will be available for download from the AASV website prior to and during the meeting. Attendees may purchase the proceedings on USB drive for a small additional fee. There will be no printed proceedings.



For more information:  
[www.aasv.org/annmtg](http://www.aasv.org/annmtg)

# Registration & Fees

## Registration

### Registration desk located in Palm Foyer

Saturday, March 3	7:00 AM – 5:00 PM
Sunday, March 4	7:00 AM – 5:00 PM
Monday, March 5	7:00 AM – 5:00 PM
Tuesday, March 6	7:00 AM – 12:00 PM

## Fees

### Register online at [www.aasv.org/annmtg](http://www.aasv.org/annmtg)

Last day for lower pre-registration rate: Friday, February 9

Last day to register online: Monday, February 19

After February 19, all registration is CLOSED until on-site registration opens in San Diego on Saturday, March 3

AASV member pre-registration by February 9	\$345
AASV member registration after February 9	\$445
Non-member veterinarians	\$475
Add'l Tech Table representatives (limit 3)	\$475

**Veterinary students:** Registration is free for veterinary students who are 2017-18 AASV Student Members.

Join and/or register at <http://ecom.aasv.org/annmtg>.

**Graduate students:** Full-time graduate students may join AASV for ½ regular dues and register for the meeting at ½ the member rate.

**Non-veterinarians:** Must meet eligibility criteria to attend. See [www.aasv.org/annmtg/2018/reginfo.php](http://www.aasv.org/annmtg/2018/reginfo.php) for details.

## Meeting Hotel

Manchester Grand Hyatt  
1 Market Place  
San Diego, California 92101  
Tel: 619-232-1234

[www.aasv.org/annmtg/2018/lodging.php](http://www.aasv.org/annmtg/2018/lodging.php)

## Continuing Education Credit

Up to twenty (20) credit hours of veterinary continuing education are available for attendance during the regular meeting sessions on Sunday 8:00 AM through Tuesday 12:00 PM. Four (4) credit hours are available for each of the pre-conference seminars on Saturday.

# Officers

## **President**

Dr. Alejandro “Alex” Ramirez  
Iowa State University  
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ramireza@iastate.edu

## **President Elect**

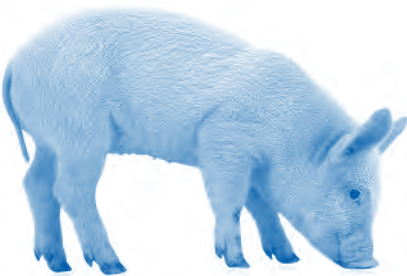
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## **Past President**

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CANADA

## Student Delegate

Jordan Gebhardt  
4440 Tuttle Creek Blvd #8  
Manhattan, KS 66502  
USA

# Technical Tables

**Location:** Seaport Foyer and Seaport F

**Monday:** 9:00 AM – 5:00 PM

**Tuesday:** 8:00 AM – 12:00 PM

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AAF Flanders  
AgCreate Solutions  
AgriLabs  
Allflex USA/Destron Fearing  
Alltech  
American Board of Veterinary Practitioners  
Animal Biotech  
Animal Health International  
Animal Science Products  
APC  
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Ceva Animal Health  
ChemoMetec A/S  
Choice Genetics USA  
Chr Hansen  
Christian Veterinary Mission  
Diamond V  
DNA Genetics  
DSM Nutritional Products  
Elanco  
Fancom BV  
Fast Genetics  
Feedstuffs/National Hog Farmer  
Gallant Custom Laboratories  
GenePro  
Genesis  
GlobalVetLINK  
Grazix Animal Health  
Henke-Sass, Wolf  
HIPRA  
Hog Slat  
Huvepharma  
Hypor  
IDEXX



# Technical Tables

IMV Technologies USA  
Innovative Heating Technologies  
Insight Wealth Group  
JBS United Animal Health  
LANXESS Corporation  
Maximum Ag Technologies  
MB Swine Reproduction  
Merck Animal Health  
Minitube USA  
MOFA Global  
MRIGlobal  
MWI Animal Health  
National Pork Board  
National Pork Producers Council  
Nedap Livestock Management  
Neogen  
Newport Laboratories  
Norbrook  
Novus International  
NutriQuest  
Olmix  
Pharmacosmos  
Pharmgate Animal Health  
Phibro Animal Health  
Phytobiotics North America  
PIC  
PigCHAMP  
PigKnows  
PMI Nutritional Additives  
Prairie Systems  
PureTek Genetics  
Quality Technology International  
Ralco  
Ro-Main  
RTI  
Struve Labs International  
Stuart Products  
Swine Health Information Center  
Swine Medicine Education Center (SMEC)  
TechMix  
Tetracore  
Thermo Fisher Scientific  
Tonistry  
Topigs Norsvin USA  
Trouw Nutrition  
USDA APHIS  
Virox Animal Health  
Wilson's Prairie View Farm  
Zinpro Corporation  
Zoetis

# Saturday Seminar 1

## AASV's Got Talent

### AASV's Got Talent

**Date:** Saturday, March 3

**Time:** 1:00 – 5:20 PM

**Location:** Seaport A

**Fee:** \$80

**Seminar Chair:** Jeff Harker

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This season of AASV's Got Talent promises to be one of the best yet. Nearly all of the participants' names were mentioned in last year's survey, and from "hands on" to "sociology," we are sure you will find an interesting presentation. The quality should be excellent as these practitioners are competing for a cash award and recognition as "Most Talented Tipster." This session should be full of energy as most of the presenters are relatively early in their careers. There are no proceedings papers for this session, so you will need to attend to garner the most benefit. Global Knowledge will be attained from this session's individual contributors, so don't miss out!

- 1:00** When disaster strikes: Considerations for feed-associated legal cases  
**Scott Radke**
- 1:20** Where's the myco?  
**Maria Clavijo**
- 1:40** New graduate experiences  
**Ryan Strobel**
- 2:00** Utilizing Ag Connect software to resolve a finisher challenge  
**Maryn Ptaschinski**
- 2:20** Tips and tricks for meningeal swabs  
**Justin Brown**
- 2:40** The 10 commandments of sow farm production  
**Joel Sparks**
- 3:00** REFRESHMENT BREAK

# Saturday Seminar 1

## AASV's Got Talent

- 3:20** Medical records: Balancing legality and practicality  
**Cara Haden**
- 3:40** Jugular catheter techniques in pre-wean piglets  
**Heather Kittrell**
- 4:00** New graduates: How to survive and not look like a fool  
**Daniel Gascho**
- 4:20** Practice from a distance, not becoming distant  
**Caleb Robb**
- 4:40** Deep tracheal sampling technique for *Mycoplasma hyopneumoniae* PCR diagnostics: An alternative to laryngeal sampling  
**Lauren Glowzinski**
- 5:00** You ain't from around here: Training employees from diverse and non-ag backgrounds  
**Neal Benjamin**
- 5:20** Seminar concludes

## STUDENT TRIVIA EVENT

Veterinary students, join us on Saturday, March 3<sup>rd</sup>, for a fun-filled, interactive evening of Swine Veterinary Medicine Trivia! Teams will be arranged when you arrive. The competition will be held in the Main Room at the Harbor House Restaurant (831 West Harbor Drive). Meet at the restaurant at 6:45 PM, or meet in the lobby of the Grand Hyatt at 6:30 PM to walk over with a group. Hors d'oeuvres and beverages will be served, thanks to our sponsor Merck Animal Health.

## AASV STUDENT TRIVIA EVENT



Sponsored by:  
**MERCK ANIMAL HEALTH**  
Saturday, March 3  
7:00 PM  
Harbor House Restaurant

# Saturday Seminar 2

## Veterinary Practice Succession

### Veterinary Practice Succession

**Date:** Saturday, March 3

**Time:** 1:00 – 5:00 PM

**Location:** Seaport B

**Fee:** \$95

**Seminar Chair:** Chase Stahl

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This seminar will focus on processes and principals involved in the succession of a veterinary practice. Three speakers will be lending their expertise and experiences on this topic. The session will provide veterinarians with insight into transition management, practice valuation, and practice financing. Veterinarians interested in purchasing or becoming a partner will be provided with an understanding of practice valuations, cash flow generation, and steps involved in securing financing. Established veterinarians considering a change such as retirement, part time employment, or adding an associate will be provided with recommendations and suggestions developed from prior, successful business transitions.

**Al Bennett**, Principle Lending Consultant and Certified Financial Planner at Compeer Financial, will begin the seminar describing his experiences helping clients with their succession planning. He will provide insight into several key components of transitional planning including: maintaining communication, sustaining core values, and understanding and managing tax implications. In addition, Al's discussion will describe his work helping clients design and implement unique and complex transition plans that mature over several years.

**Dr. Tom Burkgren**, AASV Executive Director, will provide his experience in valuing veterinary practices. Tom has used his MBA degree for many clients, helping both "buying" and "selling" veterinarians establish a true practice value. Tom's presentation will focus on the principles he uses when preparing practice valuations.

# Saturday Seminar 2

## Veterinary Practice Succession

**Dr. Jessica Trichel**, Educational Outreach at Live Oak Bank, will provide a unique view on understanding the processes involved with securing financing. Jessica, a recent veterinary graduate, routinely works with young veterinarians to provide a basic understanding of business financials. Her talk will reference several case examples focusing on young veterinarians developing business plans that facilitated practice purchase. Her presentation will be generated from a banker's perspective.

Speakers will answer questions from the attendees during the panel discussion that concludes the seminar. All speakers are very interested and eager to tackle the audience's questions.

- 1:00** Transition concepts to consider  
**Al Bennett**
- 2:45** REFRESHMENT BREAK
- 3:00** Nuts and bolts of veterinary practice valuation  
**Tom Burkgren**
- 3:30** The other F-word ... financing  
**Jessica Trichel**
- 4:30** Roundtable Q&A  
**All speakers**
- 5:00** Seminar concludes



# Saturday Seminar 3

## Monitoring and Surveillance 2.0

### Monitoring and Surveillance 2.0: Newer and simpler methods for you and your clients

**Date:** Saturday, March 3

**Time:** 1:00 – 5:00 PM

**Location:** Seaport C

**Fee:** \$95

**Seminar Chair:** Daniel Linhares

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We will describe and discuss novel tools for practical, fast, affordable, and reliable monitoring and surveilling systems (MOSS) for swine infectious diseases. There are interesting updates for MOSS in breeding herds, growing-finishing pigs, and at the abattoir. Field and “bench top” research will be presented, and practitioners will discuss field applications. We will also discuss guidelines for sample size determination for surveillance purposes. Come and join the discussion!

**1:00** Introduction  
**Daniel Linhares**

**1:05** Perspectives on current disease monitoring systems  
**Mark Schwartz**

#### Application of new tools in the breeding herd

**1:20** PRRS negative at processing time (nuts ‘n tails)  
**Will López**

**1:35** Detecting disease at low prevalence in due-to-wean piglets using family oral fluids  
**Marcelo Almeida**

**1:50** Ongoing automated production data screening for disease detection  
**Daniel Linhares**

**2:05** Comparison of aggregate/population samples to detect viruses in suckling pigs  
**Montserrat Torremorell**

**2:20** Application of new tools to declare a herd as PRRSV-negative  
**Paul Yeske**

# Saturday Seminar 3

## Monitoring and Surveillance 2.0

**2:35** Debate 1 (Q&A)  
**Schwartz, López, Almeida, Linhares,  
Torremorell, Yeske**

**2:50** REFRESHMENT BREAK

### Application of new tools in growing-finishing pigs

**3:15** Why surveil wean-to-finish pigs?  
**Kate Dion**

**3:30** Surveillance of wean-to-finish pigs: Experiences  
and perspectives  
**Rebecca Robbins**

**3:45** Oral fluids-ready diagnostic tests and sample size  
requirements as compared to serum  
**Jeff Zimmerman**

**4:15** Using “Optisample” to determine sample for  
specific needs  
**Albert Rovira**

**4:30** Abattoir-based oral fluids monitoring  
(PRRS and SVA)  
**Marcelo Almeida**

**4:45** Debate 2 (Q&A)  
**Dion, Robbins, Zimmerman, Rovira, Almeida**

**5:00** Seminar concludes



# Saturday Seminar 4

## Biosecurity

### Biosecurity

**Date:** Saturday, March 3

**Time:** 1:00 – 5:00 PM

**Location:** Seaport F

**Fee:** \$95

**Seminar Chair:** Brad Leuwerke

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The biosecurity seminar features speakers who are on the front line of disease prevention and research regarding pathogen transmission. The program includes practitioners' experiences limiting the introduction of disease, as well as how they implement biosecurity practices and utilize practical research to reduce the effects of disease and ultimately eliminate diseases from the herds they oversee.

- 1:00** Developing a culture of disease prevention  
**Tyler Te Grotenhuis**
- 1:25** Air filtration testing: Understanding filter efficacy and leakage  
**Montse Torremorell**
- 1:50** Updates on positive-pressure filtration  
**Pete Thomas**
- 2:15** Biofilms, disinfection, and biosecurity experiences from avian influenza  
**Travis Schaal**
- 2:45** REFRESHMENT BREAK
- 3:15** PRRS transmission: On-farm production practices  
**Will López**
- 3:40** Shortening time to negative: On-farm break response  
**Levi Johnson**
- 4:05** Secure Pork: FAD biosecurity and response plan  
**Pam Zaabel**
- 4:30** Biosecurity roundtable Q&A  
**All speakers**
- 5:00** Seminar concludes



# Saturday Seminar 5

## Operation Main Street Training

### Operation Main Street Training

**Date:** Saturday, March 3

**Time:** 12:00 – 5:15 PM

(Note the early start time; box lunch provided)

**Location:** Seaport G

**Fee:** No charge

**Limit:** 25; US AASV member veterinarians only

**Seminar Chair:** Al Eidson

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### Co-sponsored by AASV and the National Pork Board

In 2011, AASV and the National Pork Board partnered to train veterinarians as Operation Main Street (OMS) speakers, with a goal to help focus pork industry outreach efforts to professional veterinary associations, schools of veterinary medicine, and veterinary technical colleges.

To date, the program has 121 OMS-trained veterinarians who have presented at 29 of 30 schools of veterinary medicine. Overall, more than 284 OMS speeches have been scheduled, with an audience reach of 15,261.

This training includes updates on what activists are saying about agriculture today, and will provide attendees with the needed tools and presentations to address those concerns in a science-based, proactive manner. The objective is to equip veterinarians to speak to veterinary students and professional groups including veterinary associations and nutrition professionals. Unless otherwise indicated, presentations will be made by Al Eidson.

A box lunch will be provided. Attendees are encouraged to bring a laptop for note-taking.

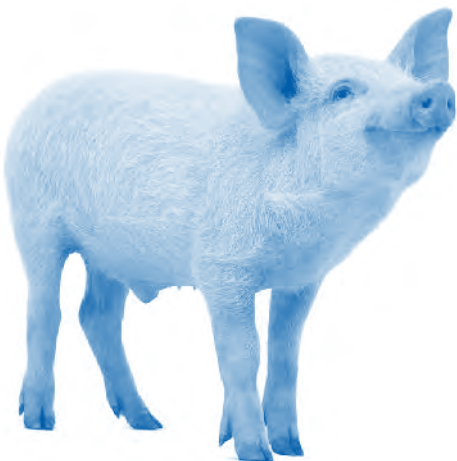
- 12:00** Welcome, overview, and introductions
- 12:15** Antibiotics update
- 1:00** A presentation for schools of veterinary medicine
- 2:15** Overview of the industry structure, trust model, and US Farmers and Ranchers Alliance (USFRA) messages
- 2:30** REFRESHMENT BREAK/Biography photos

*Continued on next page*

# Saturday Seminar 5

## Operation Main Street Training

- 2:45** Animal care and well-being
- 3:15** Environment
- 3:30** Speaker support: Schools of veterinary medicine, food chain customers, nutrition professionals, and nurses
- 3:45** Media relations guidelines; best practices for television interviews
- 4:15** Preparation for mock television interviews; hand out scenario
- 4:45** Video-recorded interview for each participant (interviews will be edited and emailed to participant)
- 5:15** Seminar concludes/evaluations



**Need to move after sitting  
through lectures and dining out?**



# **“BODY ATTACK” EXERCISE CLASS**

**Sunday, March 4**

**6:00 – 6:30 AM**

**Location: Balboa ABC**

**Hosted by DSM Nutritional Products**

**Join us for a fun, high-energy,  
30 minute-fitness class with moves  
suitable for total beginners to  
confirmed addicts.**

**Ben Pratte, a LES MILLS™ instructor, will lead a BODY ATTACK class that combines athletic movements like running, lunging, and jumping with strength exercises such as push-ups and squats. Accompanied by energizing tunes, Ben will lead you through the workout – challenging your limits and leaving you with a sense of achievement. No equipment is required other than workout clothes and shoes**

***Spouses are welcome!  
No fees or registration – just come!***

# Praise Breakfast

**Sunday, March 4**

7:00 – 8:00 AM

**Location: Seaport D**

## **Coordinators:**

Mark Brinkman, Dave Baum,  
Mitch Christensen, Monte Fuhrman

## **Sponsored by Stuart Products**

For many, Sunday is a day to gather with family and friends for spiritual nourishment and encouragement in faith. Bring your family and join your AASV friends for breakfast, music, and fellowship at the AASV Praise Breakfast!

The opportunity to sing praises to our Lord with the AASV praise team will be followed by a God-directed message from AASV member, Dr. Bill DuBois.

Your free-will offering, along with support from Stuart Products, will defray the cost of the breakfast. The program will conclude by 8:00 AM to allow you to attend the meeting sessions, but feel free to stay and visit.

***All AASV meeting attendees and  
their family members are welcome!***



# Sunday Seminar 6

## Antibiotic Alternatives

### Antibiotic Alternatives

**Date:** Sunday, March 4

**Time:** 8:00 AM – 12:00 PM

**Location:** Seaport A

**Fee:** \$95

**Seminar chair:** Nathan Winkelman

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There is a potential for lower antibiotic use due to recent increased industry regulation. There is also a potential economic advantage for antibiotic-free niche markets. This pre-conference seminar will address the risks, challenges, and potential rewards of reduced antibiotic use in today's market. We will attempt to determine if there are cost-effective alternatives to antibiotics and which pig-flow systems may have the most potential for success.

Our distinguished panel will address:

- Animal welfare dos and don'ts before attempting antibiotic-free pig flows
- A 16-year review of alternative growth promotants in peer-reviewed, original swine research trials
- How to design and evaluate these trials to sort out "good" and "not so good" science so that we can statistically analyze, interpret, and compare different experiments as a basis for management decisions
- A summary of nutraceutical (egg antibody, zinc, and essential oils) trials in the face of a *Lawsonia intracellularis* disease challenge
- Important feed or water additives for nursery pigs. Are they cost-effective with or without antibiotics?
- Experiences with NAE (no antibiotics ever) in a large system: Challenges and opportunities with disease control, performance, and mortality

**8:00** Considerations on swine welfare and antibiotic stewardship *before* raising pigs without antibiotics  
**John Baker**

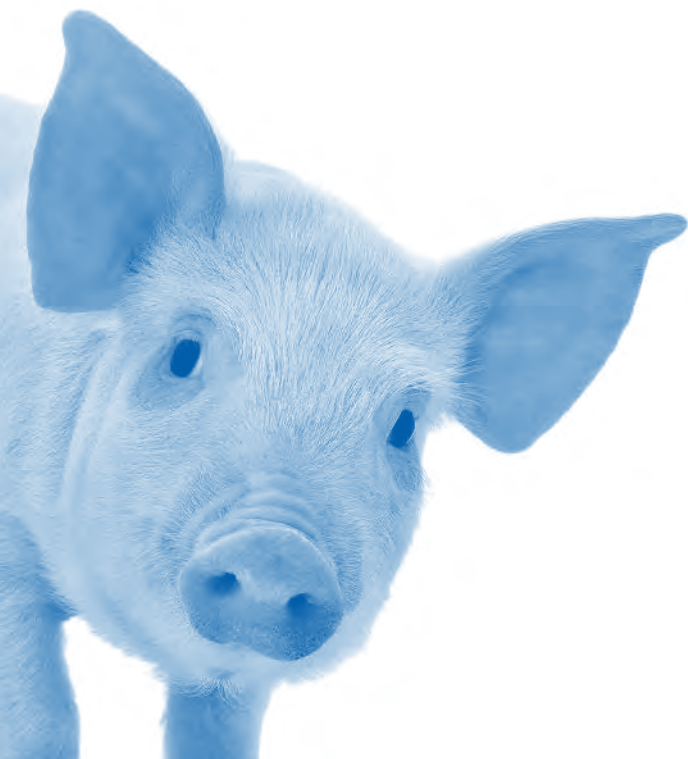
**8:40** A literature review of sub-therapeutic antibiotic alternatives for nursery diets  
**Nick Gabler**

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# Sunday Seminar 6

## Antibiotic Alternatives

- 9:20** Designing and evaluating studies on non-antibiotic feed additives  
**John Patience**
- 9:55** Nutraceutical ileitis challenge studies: Potential for success or not  
**Nate Winkelman**
- 10:15** REFRESHMENT BREAK  
**Sponsored by NOVUS INTERNATIONAL**
- 10:35** Formulation and feed additive considerations for nursery diets without antibiotics  
**Mike Tokach**
- 11:20** Sunterra Farms' first year with NAE: Challenges, results, lessons learned, and still lots of questions  
**Doug MacDougald**
- 12:00** Seminar concludes



# Sunday Seminar 7

## Leading People

### Leading People: Leadership styles training for developing more effective and productive working relationships

**Date:** Sunday, March 4

**Time:** 8:00 AM – 12:00 PM

**Location:** Seaport B

**Fee:** \$135 (includes DiSC assessment for registrant)

**Limit:** 35 (pre-registration by February 9 REQUIRED)

**Seminar chair:** Emily Byers

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Have you ever heard a colleague say, “The pigs are easy; people are the challenge”? Maybe you’ve even made this statement! Do you ever wonder why connecting with some people is more difficult for you than with others? Perhaps you’ve found some clients, colleagues, employees or supervisors easier to motivate and influence than others. If so, then join your AASV peers for the “Leading People” seminar.

This seminar will focus on enhancing the leadership and communication styles of participants based on the DiSC model. Participants will be provided access to complete an individualized DiSC assessment prior to the seminar. The results will be revealed during the interactive seminar, and participants will learn strategies to create more effective and productive working relationships by enhancing their quality of communication and leadership.

#### **Leadership coach: Amy Grinley**

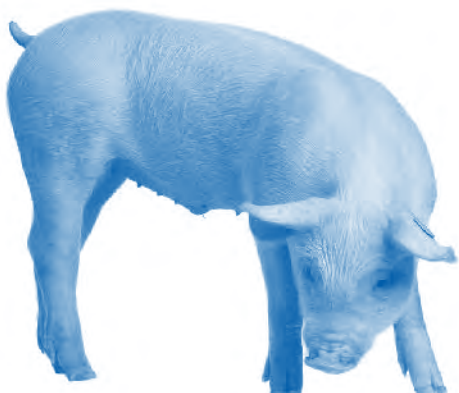
Amy Grinley is a Psychology graduate of Central College (Pella, Iowa) with post-graduate Industrial Relations training from Iowa State University. She has more than 20 years’ experience in training and development with companies such as MBS, Inc., Coach House Gifts (Hallmark), and Smithfield Hog Production. She is currently serving as the Talent Development Manager for Smithfield Foods and is responsible for employee and organizational development through programs that enhance and advance key organizational objectives.

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# Sunday Seminar 7

## Leading People

- 8:00** Welcome, overview, and introductions
- 8:15** The DiSC model and individual results interpretation
- 8:45** Understanding the four different DiSC styles to enhance working relationships
- 9:45** REFRESHMENT BREAK  
**Sponsored by NOVUS INTERNATIONAL**
- 10:00** Diagnosing the DiSC communication style preferences of others
- 10:30** DiSC application for leading people: Motivation, influence, conflict resolution and change-management
- 11:50** Seminar wrap-up and evaluations
- 12:00** Seminar concludes





# Sunday Seminar 8

## The 4-Dimensional Revolution

### The The 4-Dimensional Revolution in Food Animal Health and Production: The synthesis of diagnostics, devices, digital platforms, and data analytics

Date: Sunday, March 4

Time: 8:00 AM – 12:00 PM

Location: Seaport F

Fee: \$95

Seminar co-chairs: Marie Culhane and Dale Polson

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This seminar contains an overview of the current and fast-coming “terrain” in food animal agriculture (e.g., precision livestock farming, IoT, big data, AI, machine learning, cloud computing, cyber-physical systems), as well as more specific topics related to what’s currently available and imminent in each of the “4 D’s”:

- Diagnostics (characterizing the microbiome, meta-genomics, nano-diagnostics, point-of-care diagnostics)
- Devices (PLF-based detection and monitoring sensor systems, smart-dosing systems, etc)
- Digital (apps, cloud, web)
- Data (AI, machine learning, *ad infinitum*)

The seminar objectives:

- 1) Describe the coming wave of technology that will transform how health and production are managed on farms, in systems, across the country, and throughout the world
- 2) Review and demonstrate several new tools and platforms that will enhance and improve how veterinarians and producers more effectively manage health and performance

**8:00** Introduction

**Marie Culhane**

**8:05** The 4D revolution is here

**Dale Polson**

**8:30** Cyber-physical systems/precision livestock farming

**Madonna Benjamin and Anna Johnson**

**8:55** AgConnect

**Maryn Ptaschinski**

*Continued on next page*

# Sunday Seminar 8

## The 4-Dimensional Revolution

- 9:30** BioPortal  
**Erin Lowe**
- 10:00** REFRESHMENT BREAK  
**Sponsored by NOVUS INTERNATIONAL**
- 10:15** Dr. Bob Morrison's Swine Health Monitoring Project  
**Juan Sanhueza**
- 10:40** PigSAVI  
**Jerry Torrison**
- 11:05** AHMES & ISUFLUture  
**Leticia Linhares and Phil Gauger**
- 11:35** Sound as a diagnostic sample  
**Dale Polson**
- 12:00** Seminar concludes



# Sunday Seminar 9

## Diagnostics

### Diagnostics

**Date:** Sunday, March 4

**Time:** 8:00 AM – 12:00 PM

**Location:** Seaport G

**Fee:** \$95

**Seminar chair:** Jon Van Blarcom

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This “Global Knowledge: Individual Application” seminar will cover a variety of topics that include important diagnostic considerations from multiple integrated systems from different regions of the world. The seminar will offer experiences and suggestions on how to work up a variety of challenging cases, and it will share some of the details for the newest resources veterinarians have in their tool box. The seminar is intended to be a resource you can use immediately as well as to provide ideas about how you may use diagnostic capabilities in the near future.

**8:00** Diagnostic challenges in a Chinese production system

**Keith Erlandson**

**8:30** How to work up a swine toxicology case; what our capabilities are

**Steve Ensley and Scott Radke**

**9:15** Diagnostic testing for challenging cases

**Fabio Vannucci**

**9:45** REFRESHMENT BREAK

**Sponsored by NOVUS INTERNATIONAL**

**10:00** Use of direct pathogen detection for swine disease diagnosis

**Rachel Derscheid**

**10:25** Use of direct pathogen detection for swine disease diagnosis

**Pablo Pineyro**

**10:50** Next generation sequencing as a tool in disease investigations

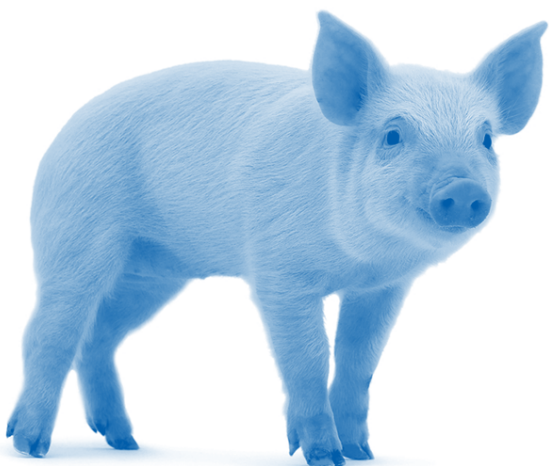
**Bailey Arruda**

*Continued on next page*

# Sunday Seminar 9

## Diagnostics

- 11:15** Don't break the system ... but quit spending so much money  
**Shamus Brown**
- 11:45** Diagnostics roundtable Q&A  
**All speakers**
- 12:00** Seminar concludes



# Sunday Seminar 10

## Swine Medicine for Students

**Date:** Sunday, March 4

**Time:** 8:00 AM – 12:00 PM

**Location:** Seaport E

**Fee:** \$95; No charge for veterinary students or 2016 or 2017 DVM graduates

**Seminar co-chairs:** Jeremy Pittman and Angela Supple

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The Swine Medicine for Students seminar is organized to provide supplemental information to veterinary students, recent graduates, and even seasoned veterinarians beyond the curriculum they are exposed to in school. We focus on cases and common themes that swine veterinarians experience every day. This year we will focus on generating lists of differentials for common disease presentations in all phases of pig production. In addition, there will be several interactive cases where the attendees will use the information presented to formulate differentials.

**8:00** The “need to knows” of enteric disease in swine  
**Laura Carroll**

**8:40** The “need to knows” of respiratory disease in swine  
**Christine Mainquist-Whigham**

**9:20** The “need to knows” of reproductive disease in swine  
**Daniel Boykin**

**10:00** REFRESHMENT BREAK  
**Sponsored by NOVUS INTERNATIONAL**

**10:30** Interactive cases  
**Angela Supple and Jeremy Pittman**

**12:00** Seminar concludes

## STUDENT RECEPTION



Sponsored by:  
**MERCK ANIMAL HEALTH**  
Sunday, March 4  
8:30 - 11:00 PM  
Seaport FGH

# Sunday Morning Research Topics

## Research Topics

**Date:** Sunday, March 4

**Time:** 8:00 AM – 12:00 PM

**Location:** Seaport H

**Session Chair:** Chris Rademacher

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- 8:00** Effects of perinatal antibiotic administration in piglets on gut microbiota composition and antibiotic resistance gene prevalence  
**James Lowe**
- 8:15** Microbial killing capacity of aqueous and gaseous ozone on different surfaces contaminated with manure  
**James Lowe**
- 8:30** Evaluation of the survival of viral pathogens in contaminated feed ingredients using transboundary shipment models  
**Scott Dee**
- 8:45** Spatial autocorrelation and what it means for swine surveillance  
**Marisa Rotolo**
- 9:00** Pathogenesis and transmission of a novel porcine parainfluenza virus type 1 isolate (MN25890NS/2016) in weaned pigs  
**Michael Welch**
- 9:15** Breeding herd factors associated with influenza in piglets at weaning  
**Fabian Chamba Pardo**
- 9:30** Is influenza vaccination a key driver of influenza genetic diversity in piglets?  
**Jayaveeramuthu Nirmala**
- 9:45** Novel approaches for influenza surveillance in swine breeding herds  
**Jorge Garrido Mantilla**
- 10:00** REFRESHMENT BREAK  
**Sponsored by NOVUS INTERNATIONAL**

# Sunday Morning Research Topics

- 10:15** Case report: Identification of *Mycoplasma hyopneumoniae* infection in a breeding herd through tracheobronchial swab monitoring  
**Frédéric Vangroenweghe**
- 10:30** Processing fluids for PRRSV monitoring and surveillance systems  
**Samantha Hau**
- 10:45** *Mycoplasma hyorhinis* associated with conjunctivitis in pigs  
**Will López**
- 11:00** PRRS outbreak investigation pilot program: Lessons learned  
**Derald Holtkamp**
- 11:15** Evaluating natural planned exposure protocols on rotavirus shedding patterns in gilts and the impact on their suckling pigs  
**Amanda Anderson**
- 11:30** Evaluation of the persistence of Senecavirus A during elimination program in a sow farm  
**Deb Murray**
- 11:45** Shedding and persistence of Senecavirus A in boars: natural exposure and experimental infection with an historical and a contemporary strain  
**Matthew Sturos**
- 12:00** Session concludes

## WELCOME RECEPTION



Sponsored by:  
**ZOETIS**

Sunday, March 4  
6:30 – 8:30 PM  
Grand CD (Lobby Level)

# Sunday Session #1

## Student Seminar

### Student Seminar

**Date:** Sunday, March 4

**Time:** 1:00 – 5:15 PM

**Location:** Seaport E

**Session co-chairs:** Andrew Bowman and Maria Pieters

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#### Sponsored by ZOETIS

- 1:00** Developing a useful model to evaluate the judicious use of a ceftiofur crystalline free acid to control umbilical infections and hernias in a commercial production system  
**Cassandra Fitzgerald, Iowa State University**
- 1:15** The effect of increased feed intake during late gestation on litter characteristics of commercial SOWS  
**Katie O'Brien, University of Illinois**
- 1:30** Evaluation of antibiotics at weaning on swine respiratory disease in the early wean-finish phase  
**Joel Steckelberg, Iowa State University**
- 1:45** Comparison of oral fluids, environmental swabs, and pooled feces for detection of dysentery-associated *Brachyspira* spp in pigs  
**Whitney Webb, Iowa State University**
- 2:00** Comparison of biosecurity aspects between swine breeding herds with low and high incidence of porcine reproductive and respiratory syndrome virus  
**Kimberlee Baker, Iowa State University**
- 2:15** Putting to test a diagnostic protocol for confirmation of *Mycoplasma hyopneumoniae* elimination in sow farms  
**Bryant Chapman, Virginia Maryland Regional College of Veterinary Medicine**
- 2:30** Evaluation of washing-disinfectant-TADD conditions required to produce a negative PCR result when monitoring the presence of PRRSV on metal surfaces  
**Rita Anne Neat, Iowa State University**



# Sunday Session #1

## Student Seminar

- 2:45** REFRESHMENT BREAK  
**Co-sponsored by GLOBALVETLINK**
- 3:15** Litter porcine reproductive and respiratory syndrome (PRRS) status at processing and relationship to PRRS status at weaning using different pools of sampling tissues  
**Mikalah Smith, Iowa State University**
- 3:30** Vaccination shedding of a porcine reproductive and respiratory syndrome (PRRS) modified live virus in nursery pigs  
**Evan Koep, Iowa State University**
- 3:45** Evaluation of Senecavirus A transmission in mice under experimental conditions  
**Elizabeth Houston, Iowa State University**
- 4:00** Utilizing piglet-processing fluids to detect PRRSV by PCR in a low-prevalence population  
**Jacob Baker, Iowa State University**
- 4:15** Geographic distribution and genetic diversity of porcine circovirus type 3 from clinical samples in the US swine farms  
**Zhen Yang, University of Minnesota**
- 4:30** Use of a hurricane fogger for *Mycoplasma hyopneumoniae* inoculation in nursery age gilts  
**Megan Nickel, Iowa State University**
- 4:45** A comparison of the use of tails versus testicles in the production of processing fluids for detection of porcine reproductive and respiratory syndrome virus  
**Megan Hood, North Carolina State University**
- 5:00** Evaluating the effects of an isotonic protein solution in nursery pigs  
**Stephanie Betbeze, Lincoln Memorial University**
- 5:15** Session concludes

# Sunday Session #2

## Industrial Partners

### Industrial Partners

**Date:** Sunday, March 4

**Time:** 1:00 – 5:45 PM

**Location:** Seaport AB

**Session co-chairs:** Brett O'Brien and George Charbonneau

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- 1:00** Effect of increasing GleptoForte dosage in newborn pigs on sow and litter performance  
**Hayden Williams**  
**CEVA ANIMAL HEALTH**
- 1:15** Effect of ButiPEARL Z FR level and feed form on nursery pig growth performance for the first 6 weeks after weaning  
**Ana Lucia de Souza**  
**KEMIN**
- 1:30** Is it possible that an antibiotic may actually reduce antibiotic resistance? Flavomycin review  
**David Nolan**  
**HUVEPHARMA**
- 1:45** Mucosal IgA production in response to a killed, Carbigen™-adjuvanted vaccine administered intranasally  
**Grant Weaver**  
**PHIBRO ANIMAL HEALTH**
- 2:00** Evaluation of a killed virus vaccine (MJPRRS®) as part of a PRRS virus mitigation program  
**Keith Kinsley**  
**PHIBRO ANIMAL HEALTH**
- 2:15** Field studies to evaluate the efficacy of Boar Better™, a new pheromone spray for sows  
**Michael Kuhn**  
**ANIMAL BIOTECH**
- 2:30** Impact of sire-specific mortality on commercial swine profitability  
**Douglas Newcom**  
**PURETEK GENETICS**
- 2:45** Effect of Tonisity Px™ administration to sows and their piglets  
**Ava Firth**  
**TONISITY**

# Sunday Session #2

## Industrial Partners

- 3:00** Production performance evaluation of Porcilis™ Ileitis in a commercial finisher using a *Lawsonia intracellularis* seeder pig challenge model  
**Brett O'Brien**  
**MERCK ANIMAL HEALTH**
- 3:15** Efficacy of swine influenza virus replicon particle vaccination, including cellular and humoral responses after challenge  
**Channing Sebo**  
**MERCK ANIMAL HEALTH**
- 3:30** Efficacy and field safety of Prime Pac™ PRRS RS, a new tool against porcine reproductive and respiratory syndrome virus  
**Erin Strait**  
**MERCK ANIMAL HEALTH**
- 3:45** Swine models: An integrated approach to providing complete nutritional solutions  
**Drew Woods**  
**TROUW NUTRITION**
- 4:00** Trends of mycotoxin contamination in US corn  
**Erika Hendel**  
**BIOMIN AMERICA**
- 4:15** Polymeric formulations are efficient and versatile adjuvants for swine vaccines  
**Sophia Bingling Xu**  
**SEPPIC**
- 4:30** Increasing intestinal mucin production using algae extract  
**Cassie Holloway**  
**OLMIX**
- 4:45** Flies shown PCR+ and VI+ for Seneca Valley virus: What questions does this pose for the industry?  
**Gene Spellman**  
**CENTRAL LIFE SCIENCES**
- 5:00** Use estimates of in-feed antimicrobials in swine production in the United States, 2012  
**Eric Bush**  
**USDA APHIS VETERINARY SERVICES**

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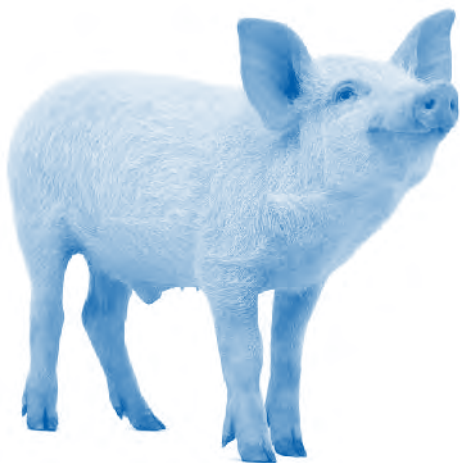
# Sunday Session #2

## Industrial Partners

- 5:15** Development of multiplex PCRs for a full swine respiratory panel  
**Eric van Esch**  
**BIOCHEK**
- 5:30** How heat placement in farrowing affects nutrient intake and PWM  
**Brian Strobel**  
**OSBORNE INDUSTRIES**
- 5:45** Session concludes

There is no scheduled refreshment break during this session, but refreshments will be available in Seaport Foyer from 2:45 – 3:15 PM.

**Co-sponsored by GLOBALVETLINK**



# Sunday Session #3

## Industrial Partners

### Industrial Partners

**Date:** Sunday, March 4

**Time:** 1:00 – 5:45 PM

**Location:** Seaport D

**Session co-chairs:** Attila Farkas and Joseph Fent

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- 1:00** Improving the speed of health-based decision making  
**Erin Lowe**  
**GLOBALVETLINK**
- 1:15** The impact of zinc amino acid complex supplementation on the porcine response to subclinical *Lawsonia intracellularis* infection  
**Fernando Leite**  
**ZINPRO CORPORATION**
- 1:30** Kavault (avilomysin) reduces diarrhea thus improves performance in the presence of *E. coli*  
**Dana Beckler**  
**ELANCO**
- 1:45** Use of tilmicosin (Pulmotil AC®) water medication for *Mycoplasma hyopneumoniae* elimination  
**Paul Yeske**  
**ELANCO**
- 2:00** Controlling bacterial pathogens in the growing pig: New technology  
**Keith Wilson**  
**NEWPORT LABORATORIES**
- 2:15** *Streptococcus suis*: Research overview and field experiences  
**Paul Lawrence**  
**NEWPORT LABORATORIES**
- 2:30** Molecules produced by probiotics prevent enteric colibacillosis in pigs  
**Jonathon Roepke**  
**MICROSINTESIS**

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# Sunday Session #3

## Industrial Partners

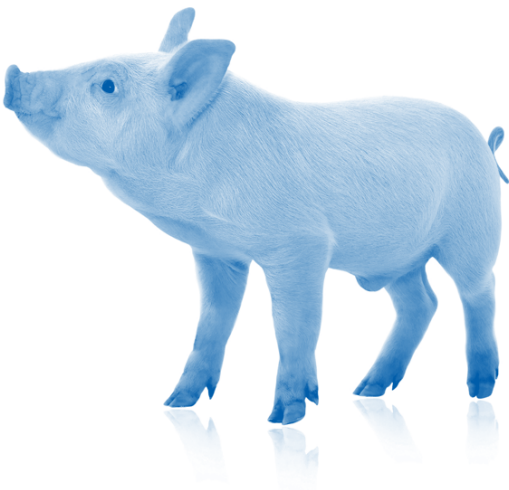
- 2:45** Genetic selection for health and welfare using meat inspection data  
**John Eggert**  
**TOPIGS NORSVIN USA**
- 3:00** Comparison of IPMA and commercial blocking ELISA for *Lawsonia intracellularis*  
**Erika Vasquez**  
**GUT BUGS**
- 3:15** Comparison of DLI<sup>®</sup> controlled immunity vs two commercial ileitis vaccines (Porcilis<sup>®</sup> and Enterisol<sup>®</sup>) vs controls in grower pigs challenged with *Lawsonia intracellularis* mucosal homogenate  
**Nathan Winkelman**  
**SWINE SERVICES UNLIMITED INC**
- 3:30** Fat-soluble vitamins: Beyond nutritional needs  
**Rob Stuart**  
**STUARTPRODUCTS**
- 3:45** Vaccination and challenge study for a swine influenza recombinant DNA vaccine  
**Timothy Miller**  
**AGRILABS**
- 4:00** Fast Genetics: The use of technology to increase stability and profitability in the swine production chain  
**Richard Leach**  
**FAST GENETICS**
- 4:15** *Lactobacillus acidophilus* fermentation product as an alternative to therapeutic zinc oxide in weaned pigs diets on performance and response to *E coli* challenge  
**Karen Lehe**  
**DIAMOND V**
- 4:30** Use of statistical quality control and metrics in PRRS control programs  
**Jose Angulo**  
**ZOETIS**

# Sunday Session #3

## Industrial Partners

- 4:45** Evaluation of a novel PCV + *Mycoplasma hyopneumoniae* vaccine in swine challenged with PCV2d and *M hyopneumoniae* under commercial conditions  
**Lucina Galina**  
**ZOETIS**
- 5:00** Safety comparative study of two reproductive vaccines administered during lactation  
**Isaac Rodriguez-Ballara**  
**HIPRA**
- 5:15** The use of LucraFit® feed and OutPace® feed additive to support the reduction of antibiotics and animal protein in young pig diets  
**Dan McManus**  
**PURINA ANIMAL NUTRITION**
- 5:30** Management considerations and tactics to maximize feed intake in lactating sows  
**Juan Carlos Pinilla**  
**PIC**
- 5:45** Session concludes

There is no scheduled refreshment break during this session, but refreshments will be available in Seaport Foyer from 2:45 – 3:15 PM.  
**Co-sponsored by GLOBALVETLINK**



# Sunday Session #4

## Industrial Partners

### Industrial Partners

**Date:** Sunday, March 4

**Time:** 1:00 – 5:45 PM

**Location:** Seaport FG

**Session co-chairs:** Abby Patterson and Peggy Brinkman

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- 1:00** The chemistry of biosecurity  
**Jeffrey Odle**  
**LANXESS CORPORATION**
- 1:15** Efficacy of Circo/MycoGard to reduce clinical disease related to *Mycoplasma hyopneumoniae* and porcine circovirus type 2  
**Dan Rosener**  
**PHARMGATE ANIMAL HEALTH**
- 1:30** Efficacy of tylvalosin (Aivlosin WSG®) to treat pigs with SRD  
**Ron Kaptur**  
**PHARMGATE ANIMAL HEALTH**
- 1:45** New approaches to sow farm data collection and reporting using Maximus software and mobile data entry  
**Tom Stein**  
**MAXIMUS SYSTEMS**
- 2:00** Development of Ingelvac Provenza™: A new tool against IAV-S  
**Marc Eichmeyer**  
**BOEHRINGER INGELHEIM ANIMAL HEALTH**
- 2:15** Laboratory efficacy evaluation of intranasal vaccination with Ingelvac Provenza™ in newborn piglets  
**Rex Smiley**  
**BOEHRINGER INGELHEIM ANIMAL HEALTH**
- 2:30** The effect of intranasal vaccination with Ingelvac Provenza™ in newborn piglets on IAV-S shedding in nasal swabs  
**Marika Genzow**  
**BOEHRINGER INGELHEIM VETMEDICA GmbH**



# Sunday Session #4

## Industrial Partners

- 2:45** Understanding factors influencing pig quality measured using pig weaning weight  
**John Sonderman**  
**DNA GENETICS**
- 3:00** eYeGrow: Is weighing pigs online the holy grail?  
**Guido Klement**  
**FANCOM**
- 3:15** Use of the swine bioassay test to evaluate the infectivity of UV-irradiated commercial liquid porcine plasma  
**Joaquim Segales**  
**APC**
- 3:30** High quality semen program  
**Pedro Ivo de Quadros Filho**  
**MB SWINE REPRODUCTION**
- 3:45** Cleaning and disinfecting critical surfaces: Farrowing crates  
**Ricardo Munoz**  
**NEOGEN**
- 4:00** Protecting animal health and profitability; air filtration solutions: Your front-line defense against PRRSV, PEDV, and influenza  
**Jerry McGuire**  
**AAF FLANDERS**
- 4:15** Field safety study of a vaginal mucosal vaccination for porcine reproductive and respiratory syndrome virus (PRRSV) in sows  
**Glen Almond**  
**APT IMMUNE BIOLOGICS**
- 4:30** The effect of Defusion® on the performance of nursery pigs fed diets contaminated with vomitoxin  
**Kari Saddoris-Clemons**  
**PROVIMI NORTH AMERICA**

*Continued on next page*

# Sunday Session #4

## Industrial Partners

- 4:45** The effects of an antioxidant support technology on sows and piglet livability  
**Kathryn Price**  
**PROVIMI NORTH AMERICA**
- 5:00** Impact of two training implementation plans on pre- and post-knowledge and impact on behavior choices of on-farm personnel  
**Sarah Probst Miller**  
**AGCREATE SOLUTIONS**
- 5:15** The impact of Swine Awake, a new, non-antimicrobial protein, in natural disease conditions in newly weaned pigs  
**Ben Hause**  
**NUTRIQUEST**
- 5:30** Next generation sequencing for veterinary diagnostics and vaccinology  
**Steve Wotton**  
**CAMBRIDGE TECHNOLOGIES**
- 5:45** Session concludes

There is no scheduled refreshment break during this session, but refreshments will be available in Seaport Foyer from 2:45 – 3:15 PM.

**Co-sponsored by GLOBALVETLINK**



# Poster Session

## Veterinary Students

### Veterinary Student Posters (#1 - #40)

**Location:** Palm Foyer

**Sunday, March 4**

12:00 – 5:00 PM

Authors present from 12:00 – 1:00 PM

**Monday, March 5**

8:00 AM – 5:00 PM

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### Sponsored by ZOETIS

Posters #1-15 have been selected for judging in the Student Poster Competition, with scholarship awards sponsored by **NEWPORT LABORATORIES**

1. Pooling sensitivity of oropharyngeal swabs when sampling for influenza A and porcine reproductive and respiratory syndrome viruses  
**Rachel Schulte, Iowa State University**
2. Medium chain fatty acids improve growth and alter fecal microbial populations in nursery pigs  
**Jordan Gebhardt, Kansas State University**
3. An assessment of hemoglobin concentrations in relation to reproductive stage and parity in sows  
**Kayla Castevens, North Carolina State University**
4. Pre-challenge microbiome composition is associated with improved weight gain in pigs after vaccination with a porcine reproductive and respiratory syndrome (PRRS) modified live virus (MLV) vaccine followed by challenge with PRRSV and porcine circovirus type 2 (PCV2b)  
**Laura Constance, Kansas State University**
5. Investigations of prevalence and causes of lameness in various age groups of gilts  
**Shelby Perkins, University of Missouri**
6. The cost of porcine reproductive and respiratory syndrome virus and porcine epidemic diarrhea virus in finishing pigs  
**Kayla Henness, University of Illinois**

*Continued on next page*

# Poster Session

## Veterinary Students

7. Immuno-modulatory influence of antibiotic therapy on the humoral immune response to vaccination of weaned pigs  
**Jenna Scott, North Carolina State University**
8. Comparison of serological responses in traditional and parity segregated flows for *Mycoplasma hyopneumoniae* and *Lawsonia intracellularis*  
**Elizabeth Noblett, North Carolina State University**
9. Utilizing serum antibody levels in post vaccinated piglets to evaluate maternal antibody interference and vaccination compliance  
**Jonathan Tubbs, Auburn University**
10. Assessment of the association between respiratory pathogen burden and the productivity of growing pigs  
**Rachel Stika, Iowa State University**
11. A novel approach to water medication calculations  
**Brent Sexton, Iowa State University**
12. Comparison of individual oral fluids, pooled oral fluid samples and Swiffer™ environmental samples of drinkers for the detection of IAV-S and PRRSV by PCR  
**Taylor Homann, University of Minnesota**
13. Evaluation of serological responses to Circumvent PCV-M G2 in sows vaccinated pre-farrowing and in pigs with maternally-derived antibodies at time of first vaccination  
**Jamie Madigan, North Carolina State University**
14. Validation of a urine dipstick as a tool to assess the potential impact of urinary tract health on reproductive performance and sow mortality  
**Jewell Bremer, North Carolina State University**
15. Evaluation of antibody titer of the weaned pig following vaccination with a killed influenza A virus vaccine in the presence of maternal antibodies both pre- and post-heterologous influenza A virus challenge  
**Abigail Ruane, Iowa State University**

# Poster Session

## Veterinary Students

16. Characterization of skin variations that may influence transdermal absorption of topical drugs  
**Samantha Anthony, Oklahoma State University**
17. Monitoring mature sows for *Mycoplasma hyopneumoniae* (Mhp) pre-and post-Mhp inoculated gilt entry  
**Megan Bloemer, University of Illinois**
18. Testing of the efficacy of various methods of urine collection for detection of flunixin meglumine (Banamine) in gilts and barrows  
**Clare Brooks, Texas A&M University**
19. Effects of Improvest® a gonadotropin releasing factor analog-diphtheria toxoid conjugate on boar behavior during trailer transport  
**Alexandria Bufford, Tuskegee University**
20. Assessing the impact of perinatal antibiotics on performance and antibiotic resistant bacteria in pre-weaned pigs  
**Brandi Burton, University of Illinois**
21. The impact of observer experience and training methods on behavioral scores in piglets  
**Enise DeCaluwe-Tulk, University of Guelph**
22. Validation and application of accelerometers to sow behavior and management  
**Mary Jane Drake, University of Pennsylvania**
23. Multiplexed phylogenetic comparison of PRRSV sequences using MinION Nanopore Sequencer  
**Taylor Engle, Virginia Maryland Regional CVM**
24. Evaluation of the impact of iron dosage on post-weaning weight gain and mortality  
**Lindsay Fredericks, Iowa State University**
25. Assessment of intra- and interrater agreement of pain behavior scores  
**Hannah Golightly, University of Guelph**

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# Poster Session

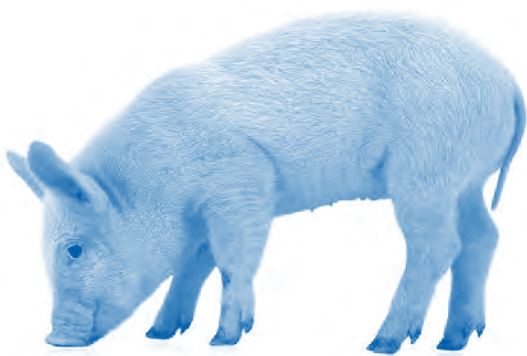
## Veterinary Students

26. *In vitro* culture of porcine B cells  
**Kevin Gustafson, University of Minnesota**
27. Understanding the impact of farrowing induction on pigs born alive  
**Olivia Hardebeck, University of Illinois**
28. Physical and behavioral indicators of animal welfare on farms using electronic sow feeders  
**John Hurst, University of Pennsylvania**
29. Efficacy of a novel interferon inducing PRRSV vaccine candidate against heterologous challenge with atypical pathogenic strain MN184  
**Ryan Kass, Iowa State University**
30. Determining the necessity of peri-processing antimicrobial use in piglets  
**Kacey Klemesrud, Iowa State University**
31. Dynamics of porcine parainfluenza virus shedding in sows and their piglets  
**Allison Knox, University of Illinois**
32. Comparison of pathogenic *Salmonella* spp detection from porcine oral fluids, over-the-shoe booties, and fecal samples  
**Samantha Naberhaus, Iowa State University**
33. Examination and comparison of worker satisfaction and animal empathy on swine farms  
**Ashley Palmieri, University of Pennsylvania**
34. Evaluation of analgesics for castration and tail docking in 3-5 day old piglets  
**Andrea Patterson, University of Guelph**
35. Using estrone sulfate urine test to determine pregnancy in sows and gilts  
**Meagan Rennie, Texas A&M University**
36. Evaluation of BoarBetter® pheromone in optimizing swine reproductive efficiencies in two commercial breeding farms  
**Michael Rohde, Iowa State University**

# Poster Session

## Veterinary Students

37. Evaluation of farrowing stall sanitation protocols with ATP bioluminescence  
**Marjorie Schleper, University of Minnesota**
38. Effects of mechanical lead system on boar behavior and saliva androstenone levels during heat checking  
**Nicole Sugai, University of Illinois**
39. Comparison of oral fluids versus tonsil swabs to diagnose *Mycoplasma hyosynoviae* infection prior to onset of clinical signs  
**Grzegorz Tarasiuk, University Center of Veterinary Medicine UJ-UR in Cracow, Poland**
40. Medicated starter feed in weaned piglets and ensuing effects on overall health  
**Bex Weaver, University of Florida**



# Poster Session

## Research Topics

### Research Topics Posters (#41 - #73)

**Location:** Palm Foyer

**Sunday, March 4**

12:00 – 5:00 PM

Authors present from 12:00 – 1:00 PM

**Monday, March 5**

8:00 AM – 5:00 PM

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- 41.** Comparative evaluation of family oral fluids and piglet sera to detect PRRSV RNA by PCR  
**Marcelo Almeida**
- 42.** Assessment of slaughter surveillance based on oral fluid samples  
**Marcelo Almeida**
- 43.** Human-like H3N2 and H3N1 swine influenza A viruses are resistant to neutralization due to antigenic variation  
**Srivishnupriya Anbalagan**
- 44.** Minimal *Mycoplasma hyopneumoniae* genetic variability within production flows  
**Alyssa Anderson**
- 45.** New duplex real time RT-PCR to detect porcine teschovirus and sapelovirus  
**Maria Barrera**
- 46.** Potential use of outer membrane proteins as subunit vaccines against *Streptococcus suis* and *Haemophilus parasuis*  
**Susan Brockmeier**
- 47.** Comparison of historic and contemporary strains of Senecavirus A  
**Alexandra Buckley**
- 48.** Serological evaluation of non-vaccinated replacement gilts on twelve farms in the United States for influenza A virus  
**James Carlson**



# Poster Session

## Research Topics

49. Evaluation of chlorine dioxide virucidal efficacy against porcine epidemic diarrhea virus, porcine reproductive and respiratory syndrome virus, Senecavirus A and influenza A virus  
**Qi Chen**
50. Identification and genetic characterization of a novel deltacoronavirus  
**Qi Chen**
51. Effect of chemical clarification for oral fluid on the detection of PRRSV IgG  
**Yuly Henao-Díaz**
52. Novel behavioral analysis of piglets treated with Metacam® thirty minutes before and at time of castration  
**Jessica Law**
53. Porcine parvovirus type 2 associated with lymphocytic perivascular lesions in nursery and finishing pigs  
**Lacey Marshall Lund**
54. Age susceptibility of pigs to *Mycoplasma hyorhinis* challenge  
**Brian Martinson**
55. Fecal microbiota transplantation improves outcome in pigs following co-infection with porcine reproductive and respiratory syndrome virus and porcine circovirus type 2d  
**Megan Niederwerder**
56. Increased microbiome diversity at the time of challenge is associated with improved growth rates of pigs after co-infection with porcine reproductive and respiratory syndrome virus (PRRSV) and porcine circovirus type 2 (PCV2)  
**Rebecca Ober**
57. Short summary on the low incidence of PCV2 in pigs at birth  
**Luis Ochoa**

*Continued on next page*

# Poster Session

## Research Topics

58. Effects of PCV2-viremia level of piglets at birth on the efficacy of PCV2 vaccine (CircoFLEX®) against exposure to PCV2-b determined by viremia levels and growth rate of pigs  
**Luis Ochoa**
59. Measuring air filter efficiencies in the discrete PRRS virus range  
**Michael Osborne**
60. Analysis of the importation of feed ingredients, live animals and genetic material into the United States to reduce the risk of foreign swine disease and health hazard introduction  
**Gilbert Patterson**
61. Oral fluid specimens can be clarified (“cleaned up”) without affecting porcine epidemic diarrhea virus (PEDV) isotype-specific (IgG, IgA) ELISA responses  
**Korakrit Poonsuk**
62. Work in progress: development of an ELISA for the detection of FMDV 3ABC antibody in swine oral fluid specimens  
**Korakrit Poonsuk**
63. General trends of *Mycoplasma hyopneumoniae* detection by PCR in cases submitted to the Iowa State University Veterinary Diagnostic Laboratory from 2004-2016  
**Guarav Rawal**
64. Co-detection of PCV2 and PCV3 in pig samples  
**Talita Resende**
65. Factors that impact PRRS time to stability  
**Juan Manuel Sanhueza**
66. Phenotypic relationship and hypervariability of the VP7 gene in porcine rotavirus B and C  
**Frances Shepherd**
67. Benchmarking pen-side sequencing for infectious disease diagnosis  
**Shaoyuan Tan**

# Poster Session

## Research Topics

68. Correlation between PRRS farm status and productive parameters in Spanish sow farms  
**Daniel Torrents Gil**
69. Live virus immunization (LVI) with a recent 1-7-4 PRRSV isolate elicits broad protection against PRRSV challenge in finishing age swine  
**Albert van Geelen**
70. Good Vaccination Practice: It all starts with good vaccine storage temperature  
**Frédéric Vangroenweghe**
71. Cup waterer:pig ratio on growth performance of growing and finishing pigs  
**Carine Vier**
72. Model to estimate PRRSV introduction in filtered farms with negative pressure  
**Carles Vilalta**
73. Use of tylvalosin (Aivlosin®) water medication for *Mycoplasma hyopneumoniae* elimination  
**Paul Yeske**



# Poster Session

## Industrial Partners

### Industrial Partners Posters (#74 - #89)

**Location:** Palm Foyer

**Sunday, March 4**

12:00 – 5:00 PM

Authors present from 12:00 – 1:00 PM

**Monday, March 5**

8:00 AM – 5:00 PM

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- 74.** Preventing PRRS outbreaks in swine environments: Monitoring air filtration for airborne diseases  
**Nicholas Woolard**  
**AAF FLANDERS**
- 75.** Pursuing American Board of Veterinary Practitioner (ABVP) certification in Swine Health Management  
**Jeff Husa**  
**AMERICAN BOARD OF VETERINARY PRACTITIONERS**
- 76.** Identification of the complete swine reproductive pheromone  
**John McGlone**  
**ANIMAL BIOTECH**
- 77.** Exploring profitability differences when average wean-finish production metrics show minor numerical differences between groups  
**Dennis DiPietre**  
**BOEHRINGER INGELHEIM ANIMAL HEALTH**
- 78.** Flies found PCR+ for PED, PRRS, and Seneca Valley virus. What now?  
**Gene Spellman**  
**CENTRAL LIFE SCIENCES**
- 79.** A *Brachyspira* challenge study to evaluate medication options  
**Chris Puls**  
**ELANCO**
- 80.** Key VFD learnings from 2017  
**Brenda Cowan**  
**GLOBALVETLINK**

# Poster Session

## Industrial Partners

81. Efficacy of Porcilis™ Ileitis against *Lawsonia intracellularis* challenge and post-vaccination seroresponse kinetics  
**Brad Thacker**  
**MERCK ANIMAL HEALTH**
82. *Streptococcus suis*: Research overview  
**Paul Lawrence**  
**NEWPORT LABORATORIES**
83. Mineral source matters conception to market  
**Bradley Lawrence**  
**NOVUS INTERNATIONAL**
84. How accurate and precise are current options for testing deoxynivalenol?  
**Sarah Weiland**  
**NUTRIQUEST**
85. Comparing the immunogenicity of Circo/MycoGard™ with other combination vaccines used in the field  
**Alex Hintz**  
**PHARMGATE ANIMAL HEALTH**
86. The effects of Defusion® on performance of pigs fed diets contaminated with vomitoxin  
**Colleen Fowler**  
**PROVIMI NORTH AMERICA**
87. Effect of diet and sex on feed efficiency and the fecal microbiome at slaughter weight  
**Jenelle Dunkelberger**  
**TOPIGS NORSVIN USA**
88. Organic acids modes of action and the impact on intestinal microbiota and performance in piglets  
**Juan Antonio Mesonero Escuredo**  
**TROUW NUTRITION (NUTRECO)**
89. A dose confirmation study evaluating 100g/ton of LINCOMIX® (lincomycin hydrochloride) for the reduction of the severity of effects of respiratory disease associated with *Mycoplasma hyopneumoniae*  
**Mike Senn**  
**ZOETIS**

# Spouse Hospitality Suite



*The AASV is  
pleased to host the  
spouse hospitality suite  
at the Manchester  
Grand Hyatt*

**Monday, March 5**

7:00 – 9:00 AM

Location: Gaslamp CD

Spouses of meeting attendees are invited to enjoy complimentary breakfast pastries, juice, and coffee.

*Make new acquaintances,  
visit with old friends,  
and plan the rest of your day  
with other AASV spouses  
and family members.*

# Technical Tables

Industry partners  
for professional success



## Visit the Technical Tables Exhibit

The Technical Tables Exhibit offers the perfect opportunity to learn about new products and services available to you and your clients from more than 90 companies and organizations (see pages 8-9).

**EXHIBITS OPEN**  
**Monday & Tuesday**

Monday, March 5  
9:00 AM – 5:00 PM

Tuesday, March 6  
8:00 AM – 12:00 PM

### **LOCATION**

Seaport Foyer AND Seaport F

All refreshment breaks on Monday and Tuesday take place in and around the exhibit tables. Spend some time visiting with our exhibitors, and be sure to thank them for supporting the AASV Annual Meeting!

# AASV Foundation Auction

Monday, March 5  
Grand Foyer and Grand CD



The AASV Foundation Auction Committee is counting on AASV members' shared sense of purpose to "SEAL the Deal" for another successful fundraising auction. The annual auction proceeds are a major source of revenue to support ongoing foundation programs, including scholarships, swine research grants, travel stipends for veterinary students, swine externship grants, tuition grants at the Swine Medicine Education Center, ACAW board certification efforts, and more.

## **Silent Auction**

Check out the items up for bid at [www.aasv.org/foundation](http://www.aasv.org/foundation). They will be on display in the Grand Foyer on auction day, Monday, March 5, but you can bid early and often from your phone using our ClickBid site. Sign up for your bidding number, bookmark the bidding site on your phone or tablet, and start bidding! You can sit back and merely follow items that you're interested in, or "rock the boat" by entering your "max" bid. ClickBid will bid incrementally for you, without revealing your limit to others. You'll receive notifications to let you know if you're winning or losing your coveted items.

The "deal will be sealed" when the silent auction closes at 7:00 PM Pacific Standard Time on Monday, March 5.

## **Live Auction**

The Live Auction will be held at the conclusion of the AASV Awards Reception Monday evening. Don't miss it!

**Thank you for supporting  
the AASV Foundation!**  
[aasv.org/foundation](http://aasv.org/foundation)



# Monday General Session

## Global Knowledge: Individual Application

### Global Knowledge: Individual Application

**Date:** Monday, March 5

**Time:** 8:00 AM – 12:15 PM

**Location:** Seaport ABCD

**Program chair:** C. Scanlon Daniels

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- 8:00**     **Howard Dunne Memorial Lecture**  
How geography, culture, and socioeconomic status affect global animal protein consumption:  
Applications for swine veterinarians  
**Bill DuBois**
- 9:00**     **Alex Hogg Memorial Lecture**  
This is our time, the choices are yours  
**Rodger Main**
- 10:00**    REFRESHMENT BREAK  
**Co-sponsored by HOG SLAT and AGRILABS**
- 10:30**    Evaluating data: What do we really know?  
**Eric Burrough**
- 11:00**    Portraying the industry in a positive light  
**Erin Churan Brenneman**
- 11:30**    Agriculture 2025: Global, local, and high tech  
**Lowell Catlett**
- 12:15**    LUNCHEON

## AASV LUNCHEON



Sponsored by:  
**BOEHRINGER INGELHEIM  
VETMEDICA, INC**

Monday, March 5  
12:15 – 2:00 PM

Grand CD (Lobby Level)

# Monday Session #1

## Not Your Father's Sow Farm

### Not Your Father's Sow Farm: Advances in Technology and Management Practices

**Date:** Monday, March 5

**Time:** 2:00 – 5:30 PM

**Location:** Seaport D

**Session chair:** Steve Sornsen

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- 2:00** Experiences with new sow farm technologies  
**Noel Williams**
- 2:30** Developing and maintaining highly prolific sows  
**Deborah Murray**
- 3:00** Leading change to improve piglet survivability  
**Larry Coleman**
- 3:30** REFRESHMENT BREAK  
**Sponsored by CEVA ANIMAL HEALTH**
- 4:00** Update on feeding strategies for the highly prolific sow  
**Mariana Boscato Menegat and Steve Dritz**
- 4:30** Sow mortality: Impact on performance and root causes  
**Clayton Johnson**
- 5:00** Roundtable Q&A
- 5:30** Session concludes

## AASV AWARDS RECEPTION



Sponsored by:  
**MERCK ANIMAL HEALTH**

Monday, March 5  
6:30 – 8:30 PM

Grand CD (Lobby Level)

# Monday Session #2

## Emerging Diseases

### Emerging Diseases

**Date:** Monday, March 5

**Time:** 2:00 – 5:30 PM

**Location:** Seaport GH

**Session chair:** Pete Thomas

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- 2:00** Next generation sequencing/metagenomics:  
Interpretation for the practitioner  
**Doug Marthaler**
- 2:30** Porcine circovirus type 3 (PCV3)  
**Emily Byers**, practitioner perspective  
**Susan Detmer**, pathologist/research perspective
- 3:00** Porcine parainfluenza virus  
**Aaron Lower**, practitioner perspective  
**Phil Gauger**, pathologist/research perspective
- 3:30** REFRESHMENT BREAK  
**Sponsored by CEVA ANIMAL HEALTH**
- 3:45** Porcine sapelovirus  
**Brian Payne**, practitioner perspective  
**Bailey Arruda**, pathologist/research perspective
- 4:15** Porcine deltacoronavirus  
**Katie Wedel**, practitioner perspective  
**Dick Hesse**, pathologist/research perspective
- 4:45** Senecavirus A  
**Laura Bruner**, practitioner perspective  
**Fabio Vannucci**, pathologist/research perspective
- 5:15** Wrap-up
- 5:30** Session concludes

# Monday Session #3

## Managing Endemic Disease

### Managing Endemic Disease

**Date:** Monday, March 5

**Time:** 2:00 – 5:30 PM

**Location:** Seaport ABC

**Session chair:** Caleb Robb

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- 2:00** Regional IAV-S vaccination strategies for breeding herds  
**Clayton Johnson**
- 2:25** Systems approach to PRRSV management  
**Hans Rotto**
- 2:50** Perennial herd closure  
**Ethan Spronk**
- 3:15** Tech tools for disease management  
**Maryn Ptaschinski**
- 3:40** REFRESHMENT BREAK  
**Sponsored by CEVA ANIMAL HEALTH**
- 4:10** *Mycoplasma hyopneumoniae*: Lateral transmission and gilt exposure methods  
**Paul Yeske**
- 4:35** Experiences managing wean-to-finish PEDV in a production system  
**Lynn Pavlovic**
- 5:00** Subclinical ileitis: Diagnostic monitoring,  $R^2$ , and economics  
**Nathan Winkelman**
- 5:30** Session concludes

## AASV FOUNDATION AUCTION



Monday, March 5

Grand Foyer and Grand CD

**Silent Auction:** Items on display at noon; Use ClickBid to bid anytime!

**Live Auction:** Immediately following the AASV Awards Reception

# Tuesday General Session

## Antibiotics

### Antibiotics

**Date:** Tuesday, March 6

**Time:** 8:00 AM – 12:00 PM

**Location:** Seaport ABCD

**Session chair:** C. Scanlon Daniels

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- 8:00** Crucial to criminal: The range of perspectives on antimicrobial use in pork production  
**Locke Karriker**
- 8:45** Antimicrobial use: Current EU perspective  
**Mark E C White**
- 9:30** What to expect when you're not expecting: A veterinarian, producer, and feed mill perspective of an educational FDA audit  
**Pete Schneider**
- 10:00** REFRESHMENT BREAK  
**Co-sponsored by**  
**QUALITY TECHNOLOGY INTERNATIONAL**
- 10:30** Measuring antibiotic use in pork production: Why, how, and for whom?  
**Peter Davies**
- 11:00** The challenges of antibiotic use monitoring programs in beef and dairy production systems  
**Mike Apley**
- 11:30** Monitoring – preparing - responding: SHIC's quickly moving on industry needs  
**Paul Sundberg**
- 12:00** Session and meeting conclude



## AASV BUSINESS BREAKFAST

Tuesday, March 6

7:00 – 8:00 AM

Seaport GH

# Saturday, March 3

**7:00 AM**

**Registration Desk open**

Location: Palm Foyer

**AASV Committee Meetings**

**8:00 AM**

**ABVP Entrance Examination**

Location: Gaslamp C

**ABVP Oral Examination**

Location: Gaslamp D

**1:00 PM** (except as noted)

**SEMINARS**

**#1 AASV's Got Talent** (page 10)

Location: Seaport A

**#2 Veterinary Practice Succession** (page 12)

Location: Seaport B

**#3 Monitoring and Surveillance 2.0** (page 14)

Location: Seaport C

**#4 Biosecurity** (page 16)

Location: Seaport F

**#5 Operation Main Street Training** (page 17)

Note early start time: 12:00 noon

Location: Seaport G

**5:00 PM**

**OPEN EVENING**

There is no reception scheduled for Saturday evening.

Enjoy San Diego!

**7:00 PM**

**VETERINARY STUDENT TRIVIA EVENT** (page 11)

Sponsored by: **MERCK ANIMAL HEALTH**

Location: Harbor House Restaurant, Main Room

(meet in Hyatt lobby at 6:30 PM to walk with a group)

# Sunday, March 4

**6:00 AM**

**“Body Attack” Exercise Class** (page 19)

Location: Balboa ABC

**6:30 AM**

**AASV Student Breakfast**

Location: Seaport C

**7:00 AM**

**Praise Breakfast** (page 20)

Sponsored by: **STUART PRODUCTS**

Location: Seaport D

**Registration Desk open**

Location: Palm Foyer

**8:00 AM**

**Canadian Association of Swine Veterinarians**

Location: Gaslamp AB

## SEMINARS

**#6 Antibiotic Alternatives** (page 21)

Location: Seaport A

**#7 Leading People** (page 23)

Location: Seaport B

**#8 The 4-Dimensional Revolution** (page 25)

Location: Seaport F

**#9 Diagnostics** (page 27)

Location: Seaport G

**#10 Swine Medicine for Students** (page 29)

Location: Seaport E

**RESEARCH TOPICS** (page 30)

Location: Seaport H



# Sunday, March 4

**12:00 PM**

## **POSTER SESSION OPEN**

Authors in attendance: 12:00 – 1:00 PM

Location: Palm Foyer

**Veterinary Student Posters** (page 43)

Sponsored by: **ZOETIS**

**Research Topics Posters** (page 48)

**Industrial Partners Posters** (page 52)

## **AASV FOUNDATION LUNCHEON**

(Advance registration required)

Location: Seaport C

**1:00 PM**

## **CONCURRENT SESSIONS**

**#1 Student Seminar** (page 32)

Sponsored by: **ZOETIS**

Location: Seaport E

**#2 Industrial Partners** (page 34)

Location: Seaport AB

**#3 Industrial Partners** (page 37)

Location: Seaport D

**#4 Industrial Partners** (page 40)

Location: Seaport FG

**6:30 PM – 8:30 PM**

## **WELCOME RECEPTION**

Sponsored by: **ZOETIS**

Location: Grand CD (Lobby Level)

**8:30 PM – 11:00 PM**

## **STUDENT RECEPTION**

Sponsored by: **MERCK ANIMAL HEALTH**

Location: Seaport FGH





# Monday, March 5

## 7:00 AM

### Registration Desk open

Location: Palm Foyer

### Spouse Hospitality Suite open (page 54)

Location: Gaslamp CD

## 8:00 AM – 12:30 PM

### GENERAL SESSION: Global Knowledge:

#### Individual Application (page 57)

Location: Seaport ABCD

**Howard Dunne Memorial Lecture:** Dr. Bill DuBois  
*How geography, culture, and socioeconomic status affect global animal protein consumption: Applications for swine veterinarians*

### Alex Hogg Memorial Lecture: Dr. Rodger Main

*This is our time, the choices are yours*

## 9:00 AM – 5:00 PM

### COMMERCIAL TECHNICAL TABLES (page 8)

Location: Seaport Foyer & Seaport F

## 12:15 PM

### LUNCHEON

Sponsored by: **BOEHRINGER INGELHEIM VETMEDICA INC.**

Location: Grand CD (Lobby Level)

## 2:00 PM – 5:30 PM

### CONCURRENT SESSIONS

#### #1 Not Your Father's Sow Farm (page 58)

Location: Seaport D

#### #2 Emerging Diseases (page 59)

Location: Seaport GH

#### #3 Managing Endemic Disease (page 60)

Location: Seaport ABC

## 6:30 PM – 8:30 PM

### AASV AWARDS RECEPTION

Sponsored by: **MERCK ANIMAL HEALTH**

Location: Grand CD (Lobby Level)

### AASV FOUNDATION AUCTION (page 56)

Location: Grand Foyer (Lobby Level)

# Tuesday, March 6

**7:00 AM**

**Registration Desk open**

Location: Palm Foyer

**BREAKFAST and AASV ANNUAL BUSINESS MEETING**

Location: Seaport GH

**8:00 AM**

**GENERAL SESSION: Antibiotics (page 61)**

Location: Seaport ABCD

**8:00 AM – 12:00 PM**

**COMMERCIAL TECHNICAL TABLES (page 8)**

Location: Seaport Foyer & Seaport F

**12:00 PM**

**MEETING CONCLUDES**

*Thank you!*

Thank you to ALL of the companies, organizations, and members who support the AASV in so many ways throughout the year!

The contributions of time, money, and resources are vital to the AASV's efforts to provide high quality educational programming at a reasonable cost to AASV members.

Plan now to  
attend the  
**50<sup>th</sup> AASV  
Annual Meeting**

**March 9-12, 2019**

**Hilton Orlando Buena Vista Palace  
LAKE BUENA VISTA, FLORIDA**



**2020          Atlanta          March 7-10**

**2021          San Francisco          March 7-10**

# Thank you!

*We extend our sincere appreciation to the following sponsors of AASV annual meeting activities:*

**AGRILABS**

Refreshment Break Co-sponsor

**BOEHRINGER INGELHEIM VETMEDICA, INC**

AASV Luncheon

**CEVA ANIMAL HEALTH**

Refreshment Break Sponsor

**DSM NUTRITIONAL PRODUCTS**

Exercise Class

**ELANCO ANIMAL HEALTH**

AASV Foundation Veterinary Student Scholarships

**GLOBALVETLINK**

Refreshment Break Co-sponsor

**HOG SLAT**

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**MERCK ANIMAL HEALTH**

AASV Awards Reception

Student Trivia Event

Student Reception

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Refreshment Break Co-sponsor

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Praise Breakfast

**ZOETIS**

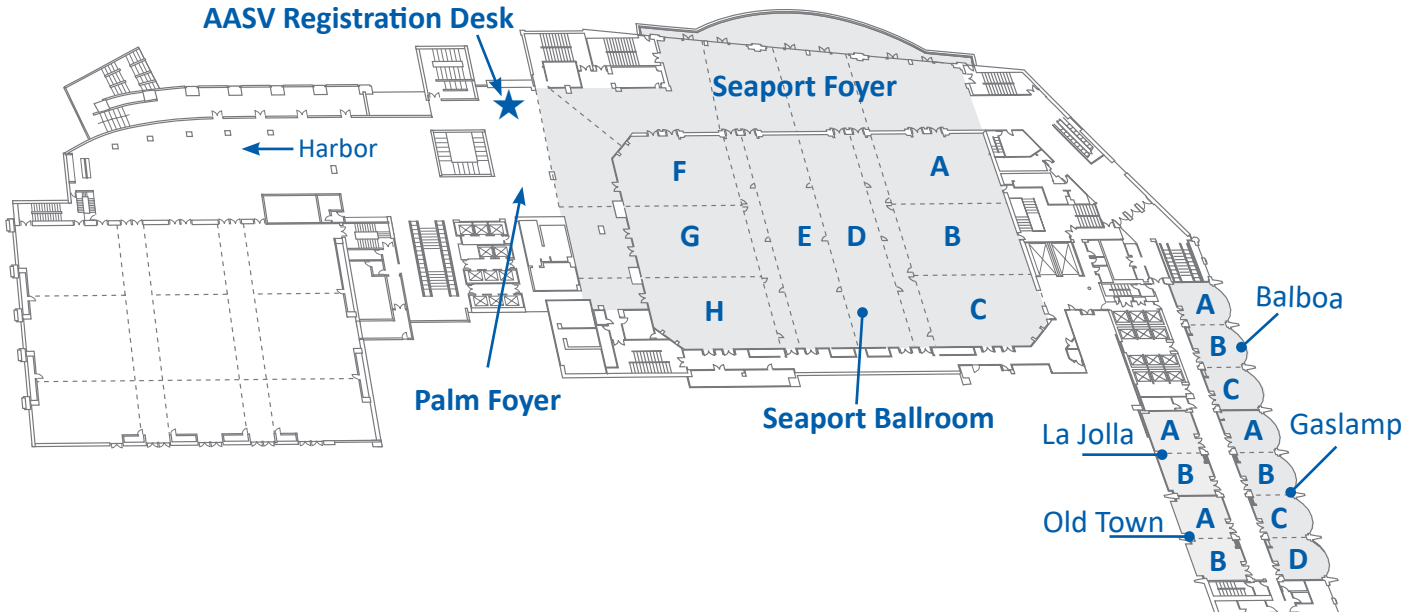
Welcome Reception

AASV Student Seminar and Student Poster Session

AASV Foundation Veterinary Student Scholarships

# MANCHESTER GRAND HYATT

## SECOND LEVEL



## LOBBY LEVEL

