Conference Information and Scientific Program

This Program Book is Brought to You By:

DSM Nutritional Products
Elanco Animal Health
Milk Products, Inc.
Monsanto
Novus International
Pfizer Animal Health

Helping shape the landscape since 1954

For more than half a century, Elanco has helped shape the animal health industry around the world — from the pastures of Nebraska to the pampas of Argentina, and in dozens of nations spanning the global horizon.

Wherever they raise animals, food producers count on Elanco for groundbreaking products that keep animals comfortable and healthy so they can perform to their full potential. We are known for a service philosophy founded on integrity, and for sharing reliable advice based on decades of experience and exploration.

Looking ahead, we remain devoted to transforming animal agriculture through superior products and services—supported by people who care.
Welcome to the 2007 Joint Meeting of ADSA™-PSA-AMPA-ASAS

Gary Hartnell
ADSA President

Drew Giesen
PSA President

Claudio Arzola-Alvarez
AMPA President

Maynard Hogberg
ASAS President

We’re pleased you’ve joined us here in San Antonio to see old friends and make new ones and to exchange information with other scientists. The program committee’s intent is to provide the very best in professional networking and educational opportunities for dairy, poultry, and animal scientists. This joint meeting is the first four-society meeting for ADSA, PSA, AMPA, ASAS, and we encourage each attendee to take advantage of the numerous cross-species, cross-discipline, and cross-cultural opportunities available.

This year’s program is outstanding and promises something for everyone, including two pre-meeting symposia: the Triennial Growth symposium and Informal Nutrition symposium. The opening session will highlight Trent Loos as he delivers his positive perspectives on the state of agriculture today. Trent is respected for his general agriculture knowledge as well as his enthusiasm and passion. You don’t want to miss his unique presentation as he sets the stage for the remainder of the week. During the joint meeting there will be 999 oral presentations, 1,117 posters, and more than 40 symposia. Our program committees did a tremendous job organizing symposia covering a wide range of important topics including food safety; bioethics; foodstuffs; nutrition; teaching/undergraduate and graduate education; breeding and genetics; physiology and endocrinology; animal behavior and well-being; growth and development; international animal agriculture; production, management, and environment; and a session on ongoing changes in the ingredient arena.

Poster presentations will be held from 7:30 to 9:30 am on Monday, Tuesday, and Wednesday. Oral scientific sessions will follow from 9:30 am to 12:30 pm on Monday and Tuesday, 10:30 am to 12:30 pm on Wednesday, 8:30 am to 12:30 pm on Thursday, and from 2:00 to 5:00 pm on Monday, Tuesday, and Wednesday.

The award ceremonies are certain to be on the list of highlights again this year. Award ceremonies have been staged to avoid conflicts among the respective societies. The ASAS awards ceremony will be held on Monday, July 9, ADSA’s ceremony will be held on Tuesday, July 10, and the PSA banquet and awards ceremony will be held on Wednesday, July 11. Ideally, this allows you to attend one or all award ceremonies. In addition, AMPA will have a dinner on Wednesday night. An old-fashioned ice cream social open to all attendees will be held on Tuesday night after the ADSA award ceremony. Be sure to join us.

We invite all meeting attendees and their families to attend the closing reception on Wednesday, July 11. The agenda for this year’s meeting is a testament to the program organizers, who have invested enormous amounts of time and effort to bring distinguished scientists in animal agriculture and animal food products from around the world for this special event. Our thanks go out to the ADSA-PSA-AMPA-ASAS program committees and especially the staff of ADSA, PSA, ASAS, and FASS for their hard work. Our program committee, Murray Bakst (Chair), Maurice Eastridge, Ron Pearson, Steven Lonergan, Jim Oltjen, Muqarrab Qureshi, Mary Beck, and Claudio Arzola-Alvarez along with FASS staff members Jennifer Gavel, Joy McClugherty, Keely Roy, Louise Audrieth, Louise Adam, Judy McClughen, Vicki Paden, Mary Swenson, Cara Tharp, Ted Veach, Mark Budden, and Kevin Wolter (to name just a few), have done a fantastic job. As well, we must extend special thanks to the Executive and Associate Executive Directors of ADSA, PSA, and ASAS—Peter Studney, Jim Kessler, Meghan Wulster-Radcliffe, and Paula Schultz—for working hard to keep everything headed in the right direction.

Thank you for participating in the ADSA-PSA-AMPA-ASAS joint meeting and for making it a success.
# Table of Contents

- Welcome Letter .......................... 1
- General Meeting Information ........... 3
- Headquarter Hotels ...................... 5
- San Antonio Information ............... 6
- Transportation .......................... 12
- Special Events .......................... 13
- Award Donors .......................... 20
- Exhibit Schedule and Floor Plan ....... 21
- Guide to Exhibitors ..................... 22
- Exhibit Directory ....................... 24
- Corporate Sustaining Members ........ 43
- Downtown San Antonio Housing Map ... 45
- Convention Center and Hotel Maps ... 46
- Meeting Sponsors ....................... 54
- Schedule of Events ..................... 55
- ADSA SAD Schedule of Events ........ 59
- Scientific Program Table of Contents .. 63
- ADSA Dairy Foods Division Schedule of Events 72
- Scientific Sessions ..................... 73
- Author Index ........................... 233
- Program at a Glance .................... 262


**Important Message**

In the event that protestors interrupt your meetings, please ignore them. Their goal is to attract attention. Any attention you give them will only help them. Please ignore them and continue your regular business. Convention staff has a plan in place to handle these situations and they depend on your cooperation. If the media approaches you for an interview, please politely refuse and direct them to the convention’s media room, where spokespersons are available.

*Thank you for your cooperation.*
General Meeting Information

Location
The Henry B. Gonzalez Convention Center is nestled in the heart of historic downtown San Antonio along the banks of the world-famous River Walk. The River Walk has multiple personalities—quiet and park-like in some stretches and full of activity with European-style sidewalk cafés, specialty boutiques, nightclubs, and gleaming high-rise hotels in other areas. The River Walk stretches for approximately 2½ miles from the Convention Center on the north end to the King William Historic District on the south end. The River Walk offers attendees easy access to shopping, restaurants, and hotels.

Schedule of Events
The meeting will kick off Sunday evening with the opening session and reception and then continue with 3½ days of scientific sessions, ending at noon on Thursday. The 2007 opening session will feature Trent Loos as keynote speaker. The complete schedule of events can be found on page 55 of this program, or online at http://adsa.psa.ampa.asas.org/2007.

Program Format for 2007
Poster sessions: 7:30 am - 9:30 am
Scientific sessions: 9:30 am - 12:30 pm
Lunch breaks: 12:30 pm - 2:00 pm
Scientific sessions: 2:00 pm - 5:00 pm

Registration Hours
Registration will be located in front of Exhibit Hall C of the Henry B. Gonzalez Convention Center in San Antonio. Registration hours for the 2007 ADSA-PSA-AMPA-ASAS Joint Meeting, including special symposia and other events, will be as follows:

Saturday, July 7 (pre-registered only) 12:00 pm - 5:00 pm
Sunday, July 8 7:00 am - 7:00 pm
Monday, July 9 6:30 am - 4:00 pm
Tuesday, July 10 7:00 am - 3:30 pm
Wednesday, July 11 7:00 am - 3:00 pm
Thursday, July 12 8:00 am - 10:00 am

Important Phone Numbers
Registration Desk 210-582-7011
Drury Plaza Hotel 210-270-7799
Hilton Palacio del Rio 210-222-1400
Hotel Valencia 210-227-9700
Hyatt Regency 210-222-1234
Marriott Rivercenter 210-223-1000
Marriott Riverwalk 210-224-4555
Westin Riverwalk 210-224-6500
Henry B. Gonzalez Convention Center 210-207-8500
San Antonio Convention and Visitors Bureau 800-447-3372
Time, Temperature & Weather 210-225-0404
Online weather information is available at: http://www.sanantoniocvb.com/visitors/com_weather.asp
Media Check-In
Please check in at the Registration Desk outside Exhibit Hall C of the Convention Center.

Speaker Ready Room
The Speaker Ready Room is located in Room 211 on the 2nd level of the Convention Center. This room will be available for speakers from 7:00 am to 5:00 pm on each day of the meeting.

Business Center
For your convenience, The UPS Store is located on the main level of the Convention Center between the lobby area and the registration area. The store is open Monday through Friday from 8:00 am to 6:30 pm and on Saturday from 9:00 am to 5:00 pm.

Hospitality Lounge
The Hospitality Lounge will be located in Room 208 on the 2nd level of the Convention Center. This lounge will offer attendees an area to relax, network, and catch up with old friends.

Notice to Oral Presenters and Invited Speakers
Please note that all session rooms will be equipped with a computer and LCD projector. All oral presentations and invited speaker presentations will be preloaded before the meeting.

Poster Presentations
We have dedicated a two-hour block each morning to poster presentations. The “open posters” will be from 7:30 am to 9:30 am on Monday, Tuesday, and Wednesday in the Convention Center, Exhibit Hall C. Oral sessions will begin at 9:30 am on Monday and Tuesday, 10:30 am on Wednesday, and 8:30 am on Thursday.

Each poster presentation will be available for public viewing for the entire day, with the presenting authors present during the “open posters” time (7:30 am to 9:30 am). All posters must be mounted on the board 30 minutes before the beginning of the day’s session (poster sessions open at 7:30 am, so posters must be mounted on boards by 7:00 am). The exhibit hall will open at 6:15 am, Monday through Wednesday. Posters must be removed between 5:00 pm and 5:30 pm each day. Any posters remaining after 5:30 pm will be removed by the convention center staff and discarded.

The poster board surface area is 48 inches high and 96 inches wide; use of this space is dictated by the presenter with the following exceptions: the top of the poster space should include the abstract number, title, authors, and affiliations. The lettering for this section should be at least 1 inch high.

Locating the Correct Poster Board
Each poster board number corresponds to the abstract number as noted in the program. Monday posters will have an “M”, Tuesday posters a “T”, and Wednesday posters a “W” preceding the board number.

Camera, Video Camera, and Cell Phone Policy (NEW)
Use of cameras, video cameras, and cell phones (for calls or as cameras) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Anyone found in violation of this policy will be asked to leave the session.

ARPAS Continuing Education Units
The 2007 ADSA-PSA-AMPA-ASAS Joint Annual Meeting has been approved for up to 21 continuing education units (CEUs) for the American Registry of Professional Animal Scientists certification requirements. Check the schedule of events for times and location of the ARPAS exams.
Continuing Education Credits for Veterinarians - RACE

Many of the symposia at the 2007 ADSA-PSA-AMPA-ASAS Joint Annual Meeting will be approved for RACE credits. Symposia approved for RACE credits will be posted online at http://adsa.psa.ampa.asas.org/2007. Information regarding the RACE program can be found at www.aavsb.org.

Job Resource Center


Cyber Café

Keep in touch with work, family, and friends during the ADSA-PSA-AMPA-ASAS Joint Annual Meeting at the Cyber Café. Located in Exhibit Hall C of the Henry B. Gonzales Convention Center, the Cyber Café is available to all meeting attendees.

Official Meeting Hotels

**Hilton Palacio del Rio – PSA HQ**
200 South Alamo Street
San Antonio, Texas 78205
Phone: 210-222-1400; Fax: 210-270-0761

**Marriott Rivercenter – ADSA/ASAS HQ**
101 Bowie Street
San Antonio, Texas 78205
Phone: 210-223-1000; Fax: 210-223-6239

**Marriott Riverwalk – ADSA/ASAS HQ**
711 East Riverwalk
San Antonio, Texas 78205
Phone: 210-224-4555; Fax: 210-224-2754

**Hyatt Regency San Antonio – Student HQ**
123 Losoya
San Antonio, Texas 78205
Phone: 210-222-1234; Fax: 210-227-4925

**Westin Riverwalk – overflow hotel**
420 W Market Street
San Antonio, Texas 78205
Phone: 210-224-6500; Fax: 210-444-6000

**Drury Plaza Hotel – overflow hotel**
105 S. St. Mary’s Street
San Antonio, Texas 78205
Phone: 210-270-7799; Fax: 210-222-8863

**Hotel Valencia Riverwalk – overflow hotel**
150 E. Houston Street
San Antonio, Texas 78205
Phone: 210-227-9700; Fax: 210-227-9701
Welcome to San Antonio

San Antonio captures the spirit of Texas. Now the eighth-largest city in the United States, the city has retained its sense of history and tradition, while carefully blending in cosmopolitan progress. Sounds and flavors of Native Americans, Old Mexico, Germans, the Wild West, African-Americans, and the Deep South mingle and merge. Each year, almost twenty million visitors delight in the discovery of San Antonio’s charms.

Texas History 101

For history buffs, San Antonio is a mecca. Native Americans first lived along the San Antonio River, calling the area “Yanaguana,” which means “refreshing waters,” or “clear waters.” A band of Spanish explorers and missionaries came upon the river in 1691, and because it was the feast day of St. Anthony, they named the river “San Antonio.”

The actual founding of the city came in 1718 by Father Antonio Olivares, when he established Mission San Antonio de Valero, which became permanently etched in the annals of history in 1836 as the Alamo, where 189 defenders held the old mission against some 4,000 Mexican troops for 13 days. The cry “Remember the Alamo!” became the rallying point of the Texan revolution against Mexico. Located in the heart of downtown, today the Alamo is a shrine and museum.
The Alamo
300 Alamo Plaza, San Antonio
Phone: 210-225-1391 x34
www.thealamo.org

On the east side of Alamo Plaza is the most famous spot in Texas, where 189 defenders fell on March 6, 1836, after repeated attacks by Mexican General Santa Anna’s army. Mission San Antonio de Valero (the Alamo) was established in 1718 as the city’s first mission. The chapel, one of the most photographed façades in the nation, and the Long Barracks are all that remain of the original fort. Hours: 9 am to 5:30 pm, Monday to Saturday; 10 am to 5:30 pm, Sunday. Admission free; donations accepted.

Aztec on the River
201 E. Commerce Street, Suite 300, San Antonio
Phone: 210-227-3930; Toll free: 800-432-9832
www.aztecontheriver.com

The Aztec On The River™ is the River Walk’s newest and most exciting attraction. This historic 1926 movie palace has been meticulously restored, complete with a Mighty Wurlitzer theatre organ. Enjoy a free multi-million dollar special effects show in the Grand Lobby every 90 minutes, a giant screen theatre with incredible surround-sound, plus unique shopping and dining. Open daily; call for show times. Group, senior, and military discounts available. On the River Walk at the corner of E. Commerce and N. St. Mary’s Streets.

La Villita
418 Villita #900, San Antonio
Phone: 210-207-8612
www.lavillita.com

A unique arts and crafts community with shops, working artists, restaurants, and a post office. The Old San Antonio Exhibit (located in Bolivar Hall) houses a collection of art objects, artifacts, and symbols relevant to the history. Shops open daily 10 am to 6 pm; closed on holidays. Free admission.

Market Square-El Mercado
514 W. Commerce, San Antonio
Phone: 210-207-8600
www.marketsquaresa.com

From early morning until late at night, Market Square is alive with activity. Visitors browse through the 32 shops at “El Mercado,” an area patterned after an authentic Mexican market. In addition, there are 80 specialty shops in Farmer’s Market Plaza. Hours: 10 am to 8 pm. Free admission.

River Walk (Paseo Del Rio)
110 Broadway, Suite 440, San Antonio
Phone: 210-227-4262
www.thesanantonioriverwalk.com

Lush green foliage lines the banks of this peaceful, historic river. Cobblestone walkways lead visitors to the river-level restaurants and shops. The river bubbles to the surface on the grounds of the University of the Incarnate Word and flows to downtown, threading its way through the city one level below the hustle and bustle of city streets.
San Antonio Botanical Garden
555 Funston, San Antonio
Phone: 210-207-3250
www.sabot.org

At this 33-acre living museum, one can enjoy colorful seasonal floral displays, a serene native forest walk, exotic plant specimens from around the world, modernistic glass pyramids, and even an authentic log cabin. The historic Carriage House, your entry point to the garden, also includes the gift shop and restaurant (kitchen closed on Mondays). Garden is open every day from 9 am to 5 pm. Admission: adults $6.00; children (3-13) $3.00; seniors (55 and up) $4.00; student/military (with ID card) $4.00.

San Antonio IMAX Theatre Rivercenter
849 E Commerce, #285, San Antonio
Phone: 210-247-4629; Toll free: 800-354-4629
www.imax-sa.com

“Alamo-The Price of Freedom,” is a 45-minute docudrama about the 13-day siege and fall of the Alamo. Watch the battle unfold, where 189 defenders who fought and died for the cause of Texas liberty. Other IMAX features, including IMAX 3D, also show. Shows daily from 9 am to 10 pm. Admission: adults $9.25; children (3-11) $6.24; senior (65+) and youth (12-17) $8.33 (plus tax). Advance reservations and assigned seating are available.
San Antonio Missions National Historical Park
2202 Roosevelt Ave., San Antonio
Phone: 210-534-8833
www.nps.gov/saan

Representing both church and state, these missions were charged with converting the local Native Americans, collectively called Coahuiltecas, into devout Catholics and productive members of Spanish society. This was the greatest concentration of Catholic missions in North America. The visitor center is located next to Mission San Jose and includes a theater showing a 20-minute depiction of early life at the mission as well as a museum and book shop. Hours: 9 am to 5 pm daily. Free admission.

San Antonio Zoological Gardens and Aquarium
3903 N. St. Mary’s St., San Antonio
Phone: 210-734-7184
www.sazoo-aq.org

Ranked as one of the best zoos in the nation exhibiting more than 3,500 animals of 750 species. At the headwaters of the San Antonio River, the zoo encompasses 35 landscaped acres and includes one of the largest bird collections in the world. The zoo has a magnificent mini-zoo designed specifically for children under 5. Open 365 days a year. Hours: 9 am to 6 pm. Admission: adults $9; seniors (62+) and children (3-11) $7; military $8; under 2 free.
**Spanish Governor’s Palace**  
105 Plaza de Armas, San Antonio  
Phone: 210-224-0601  
www.sanantonio.gov/sapar

A national historic landmark labeled “the most beautiful building in San Antonio” by the National Geographic Society, the palace once housed the officials of the Spanish Province of Texas. Hours: 9 am to 5 pm, Monday to Saturday; 10 am to 5 pm, Sunday. Admission: adults $1.50, children (7-13) 75 cents.

**Sunset Station**  
1174 E Commerce, San Antonio  
Phone: 210-474-7640  
www.sunset-station.com

Sunset Station, nestled in the historic St. Paul district, offers you a unique experience in downtown San Antonio. Enjoy dining at Aldaco’s Mexican Cuisine or Ruth’s Chris Steak House or experience a self-paced walking tour to marvel at the turn-of-the-century architecture. Free evening shuttle service is available (just ask your concierge), and Sunset Station is also a stop on the yellow trolley line. Sunset Station blends the romance of the Hispanic culture with the charm of South Texas.
Built in honor of the 1968 World’s Fair celebrating San Antonio’s 250th anniversary, the 750-foot-tall Tower of the Americas has offered residents and tourists of San Antonio the most breathtaking view of the Alamo City for more than 35 years.

- The Eyes Over Texas restaurant treats guests to pure dining pleasure with a delectable menu, sophisticated atmosphere, and 360-degree revolving vistas.

- The Skies Over Texas is a sophisticated ride that takes visitors on a high-flying trip across the Lone Star State. The 4-D theater zooms in on such scenes as a Friday night high-school football game, a space shuttle at NASA, and more.

A ground-level café and retail shop give visitors more ways to enjoy their day. Additional amusements, attractions, and food vendors greet guests at the base of the Tower.
Currency Exchange

Bank of America
300 Convent, San Antonio
Phone: 800-299-2265
Hours: 9 am - 4 pm, Monday to Thursday; 9 am - 5 pm, Friday
Languages: English and Spanish
Currencies: major
Traveler’s checks: accept foreign up to $500; sell foreign in exchange for US currency only (ask for guidelines).

Frost Bank
100 W. Houston, San Antonio
Phone: 210-220-5651
Hours: 9 am - 4 pm, Monday to Thursday; 9 am - 5 pm, Friday
Languages: English and Spanish
Currencies: 18
Traveler’s checks: accept and sell selected foreign traveler’s checks.

Transportation

Accessibility
San Antonio is accessible by car from three major interstate highways: I-35, I-10, and I-37. The San Antonio International Airport is approximately eight miles from downtown and is directly linked via US Hwy 281.

Transportation in San Antonio
Shuttle service from the airport to downtown San Antonio is available for $14 one-way and $24 round-trip through SATRANS Airport Shuttle (phone: 210-281-9900; http://www.saairportshuttle.com/).

Cab fare between the airport and downtown San Antonio is approximately $20 each way. The trip takes approximately 15 to 20 minutes. Taxicabs can be hailed at the airport or from your hotel in minutes.

Downtown travel is a breeze on the VIA Streetcar, an open-air authentic reproduction of a rail streetcar that traveled the streets of San Antonio more than 50 years ago. There is convenient access to all routes from the downtown streetcar station on Convention Plaza. Fare is $1.00.
Special Events
Scheduling and locations are subject to change without notice.

William Chalupa Recognition Symposium, Reception & Dinner*
Saturday, July 7
1:00 pm - 6:00 pm Symposium
Convention Center, 006CD

6:00 pm - 10:00 pm Reception & Dinner
Convention Center, Grotto & 008AB
*Pre-registration required for these events

Throughout his 40-year career in academia and the pharmaceutical industry, Dr. Chalupa has made important contributions to the dairy industry. Join us for the afternoon symposium, which will cover highlights of his career presented by colleagues and industry associates, and then stay for the evening reception and dinner for an enjoyable opportunity to mix and mingle with the many friends and fans of Dr. Chalupa.

Dairy Quiz Bowl
Sunday, July 8
5:00 pm - 5:30 pm
Convention Center, 007D

On Sunday, university teams from across the US will compete in the ADSA Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division invites you to join them for the excitement of the final round of competition as the top two schools go head-to-head for the title of 2007 Dairy Quiz Bowl Winning Team.

Opening Session
Sunday, July 8
7:00 pm - 8:00 pm
Convention Center, Ballroom C

Join us for an unforgettable opening session as Trent Loos delivers his positive perspectives on the state of agriculture today. Host of the daily radio programs “Loos Tales” and “Rural Route” as well as other broadcasts, Trent is well-known for his agricultural activism. He has traveled the United States (and, cyberly, the world) to share his passion for an industry he truly believes in. This program serves as the perfect upbeat lead-in to the informative and challenging sessions ahead.
Opening Reception  
Sunday, July 8  
8:00 pm - 10:00 pm  
Convention Center, Ballroom C

Wind down the evening by joining us in the Ballroom foyer after the opening session for some long-awaited socializing with colleagues and friends.

ASAS Graduate Student Business Meeting  
Monday, July 9  
12:30 pm - 1:00 pm  
Convention Center, 207A

The ASAS Graduate Directors invite all ASAS graduate student members to a business meeting on Monday, July 9, from 12:30 pm to 1:00 pm. This business meeting has been established in response to a direct request from several graduate student members. It serves as an opportunity for graduate students to voice their opinions and concerns. The ASAS Graduate Directors are seeking graduate student members’ opinions on the direction of ASAS and how the society can meet their needs. All registrants interested in opportunities for ASAS and graduate students are welcome to attend.

ADSA Town Hall Meeting  
Monday, July 9  
5:00 pm - 6:00 pm  
Convention Center, 206A

The ADSA Board of Directors invites attendees to a town hall meeting on Monday, July 9, from 5:00 pm to 6:00 pm in the Convention Center. This year’s meeting will focus on progress made in implementing ADSA’s 2006 Strategic Plan. A report on the ADSA Foundation will also be made. All registrants interested in ADSA are welcome.

ASAS Awards Program  
Monday, July 9  
7:00 pm - 8:30 pm  
Marriott Rivercenter, Salon E

All meeting participants, families, and friends are welcome to attend the 2007 ASAS Awards Program. Please join us at this special event to recognize and congratulate the 2007 ASAS award winners at the Marriott Rivercenter on Monday, July 9.

Graduate Student Mixer*  
Monday, July 9  
9:00 pm - Closing  
Steers & Beers Steakhouse & Saloon  
Rivercenter Mall  
*Pre-registration recommended

Join your fellow graduate students from ASAS, ADSA, PSA, and AMPA at a mixer at Steers & Beers steakhouse and saloon (http://www.steersandbeers.net). Located on the River Walk in the heart of the entertainment district, Steers & Beers is a down-home Texas establishment where you can kick back and relax in a Western environment. This event will provide an opportunity to catch up with old friends and make new ones, so don’t miss it. Pre-registration is highly recommended.
Exhibitor Reception
Monday, July 9
4:00 pm - 6:00 pm
Convention Center, Exhibit Hall C

Relax after a high-energy first day of meeting with drinks and snacks in the Exhibit Hall. While there, take some time to peruse the exhibits to learn more about the latest products and services in our industries.

5K Fun Run*
Tuesday, July 10
6:15 am
Meet at the San Antonio Convention Center
*Pre-registration required

Join in the fun on Tuesday, July 10, at 6:15 am. Enjoy beautiful downtown San Antonio while running this 5-km course. T-shirts and refreshments will be provided.
Spouse Events*
Tuesday, July 10

10:30 am - 11:30 am
City Trolley Tour, meet in front of the Alamo
*Pre-registration required; attendance is limited

See the San Antonio sites as they did in days gone by—with a view from the Alamo Trolley. Beginning at the Alamo, this fully narrated one-hour trolley tour takes you through the heart of San Antonio’s historic and cultural districts to give you an insider’s perspective on this Texas landmark city.

11:30 am - 1:30 pm
Luncheon at the historic Menger Hotel; meet in the Menger lobby
*Pre-registration is required; attendance is limited

At the conclusion of the trolley tour, step next door to experience the unique charms of the Menger Hotel. You’ll enjoy a satisfying buffet lunch while a long-time hotel employee regales you with fascinating stories from the hotel’s past…including a few ghost sightings.

SAD Awards Luncheon*
Tuesday, July 10
11:45 am - 2:00 pm
Convention Center, 008AB
*Pre-registration required

Plan to attend this year’s SAD Awards Luncheon. The afternoon will be capped with presentation of student awards and announcement of the new SAD officers. Both students and professionals are encouraged to attend. This is a wonderful chance to get to know the next generation of the dairy industry.

Poultry Science Student Luncheon*
Tuesday, July 10
12:30 pm - 2:00 pm
Hilton Palacio del Rio, El Mirador
*Pre-registration required

Poultry science students—don’t miss this opportunity to meet and interact with your peers from other universities while creating your own “taste of San Antonio” taco extraordinaire! Hang out, make friends, and enjoy the company of the future of poultry science.
The ASAS Northeast Section and ADSA Northeast Branch will hold their annual business meeting and awards luncheon on Tuesday, July 10. Members are invited to attend and catch up with other members of the section. This is a good time to honor the NE award winners and the Graduate Student Competition winners.

San Antonio River Talk: The ASAS Open Forum
Tuesday, July 10
5:00 pm - 6:00 pm
Convention Center, 203

Attendees are invited to the San Antonio River Talk: The ASAS Open Forum on Tuesday, July 10, from 5:00 pm to 6:00 pm in Room 203 of the Convention Center. You will have the opportunity to join in on discussions on current ASAS issues including Open Access and on the new ASAS Strategic Plan that is scheduled to be presented to the membership in 2008.
ADSA Awards Program  
*Tuesday, July 10*  
*7:00 pm - 8:00 pm*  
*Marriott Rivercenter, Salons A-B*

All meeting participants, families, and friends are welcome to attend the 2007 ADSA Awards Program. Please join us at this special event to recognize and congratulate the 2007 award winners at the Marriott Rivercenter.

**2007 ADSA-PSA-AMPA-ASAS Ice Cream Social**  
*Tuesday, July 10*  
*8:15 pm - 9:30 pm*  
*Marriott Rivercenter, Salon I*

Ice cream—we’re going to eat ice cream! All meeting participants, families, friends, and award donors are invited to join us for the time-honored Ice Cream Social.

**ADSA Foundation Auction and Raffle**  
*Tuesday, July 10*  
*8:15 pm - 9:30 pm*  
*Marriott Rivercenter, Salon E*

This year, the ADSA Foundation Auction and Raffle will offer a wide array of items including dairy antiques, valued collectibles, trips, and much more. To donate an item or view the latest list of items, visit the auction web site at: [http://www.adsa.org/FoundationAuction2007/](http://www.adsa.org/FoundationAuction2007/)

**Closing Reception**  
*Wednesday, July 11*  
*4:30 pm - 6:00 pm*  
*Convention Center, 006*

All meeting participants, families, and friends are welcome to attend the closing reception, highlighting this year’s involvement of AMPA, on Wednesday evening. Again this year, attendees will have the opportunity to indicate their home affiliation on a world map; check the Exhibit Hall for the poster board before the reception.

**PSA Awards Banquet***  
*Wednesday, July 11*  
*6:00 pm - 10:00 pm*  
*Hilton Palacio del Rio, Salon del Rey*  
*Pre-registration required*

Please join us for a celebratory evening honoring the 2007 award winners. All meeting participants, spouses, and friends are welcome at this event. The banquet will be at the Hilton Palacio del Rio (the PSA headquarters hotel). The evening is sure to be a good time for all. Please make sure to purchase your ticket in advance; a limited number of tickets will be available for purchase at the registration desk.
AMPA Dinner*
Wednesday, July 11
6:30 pm - 10:30 pm
Marriott Rivercenter, Conference Rooms 17-18
*Pre-registration required

Please join us and visit with Mexican friends. All meeting participants, spouses, and friends are welcome at this event. Please make sure to purchase your ticket in advance. A limited number of tickets will be available for purchase at the registration desk.
2007 ADSA Award Donors

Alltech, Inc.
ABS Global, Inc.
ADSA Foundation
American Dairy Science Association
American Feed Industry Association
Cargill Animal Nutrition, Inc.
DMI Inc.
Danisco USA, Inc.
Delaval Inc.
Elanco Animal Health
Hoard’s Dairyman
International Dairy Foods Association
Land O’Lakes
Land O’Lakes, Purina Feed LLC
Merial Limited, Inc.
Milk Industry Foundation
National Milk Producers Federation
Nutrition Professionals, Inc.
Pfizer Animal Health, Inc.
Pioneer Hi-Bred International, Inc.
West Agro, Inc.

2007 ASAS Award Donors

ABS Global, Inc.
American Feed Industry Association
American Society of Animal Science
American Society of Animal Science Foundation
Center for Regulatory Services, Inc.
DSM Nutritional Products, Inc.
Elanco Animal Health
Land O’Lakes, Purina Mills LLC
Merial Limited
Monsanto Company
Morrison Award Fund
Omega Protein Corporation
Pfizer Animal Health
The Iams Company

2007 PSA Award Donors

Alltech, Inc.
American Egg Board
American Feed Industry Association
Embrex, Inc.
Hy-Line International
Land O’Lakes, Purina Feed LLC
Maple Leaf Duck Farm
Merck & Co., Inc.
Merial Select, Inc.
National Chicken Council
Nicholas Turkey
Phibro Animal Health
Poultry Science Association, Inc.
Poultry Science Foundation
Tyson Foods, Inc.
United Egg Producers

2007 AMPA Award Donors

Fundacion Produce Nuevo Leon A. C.
Fundacion Produce Chihuahua A. C.
Consortio Técnico del Noreste de México A. C.
Universidad Autónoma de Chapingo
AGROPEC Star
Exhibit Schedule

Exhibit Hours:

Sunday, July 8  Exhibit Setup  8:00 am - 5:00 pm
Monday, July 9  Exhibits Open  7:30 am - 6:00 pm
Monday, July 9  Exhibitor Reception  4:00 pm - 6:00 pm
Tuesday, July 10 Exhibits Open  7:30 am - 5:00 pm
Wednesday, July 11 Exhibits Open  7:30 am - 3:00 pm
Wednesday, July 11 Exhibit Teardown  3:00 pm - 6:00 pm

Exhibit Hall Floor Plan

ADSA-PSA-AMPA-ASAS 07
July 8-12, 2007
Henry B Gonzales Convention Center
Hall C
San Antonio, Texas
2008 ADSA-ASAS Joint Meeting/Indianapolis . 403
AAALAC International . 309
Acadian AgriTech . 109
Adisseo . 117, 119, 216, 218
ADM Alliance Nutrition . 208
ADSA (American Dairy Science Association) . 402
Ag Processing . 518
Agri-Nutrients Technology Group . 206
Albion Advanced Nutrition . 326
Alltech . 435, 437, 439, 534, 536, 538
Aloka Ultrasound . 334
Alternative Design Mfg. . 235
AMPA (Asociación Mexicana de Producción Animal) . 408
Analab . 318
Ankom Technology . 417, 516
APC . 111
Arm & Hammer Animal Nutrition . 526, 528
ARPAS (American Registry of Professional Animal Scientists) . 502
ASAS (American Society of Animal Science) . 404
ASAS Centennial 2008 . 411
ASAS Journal of Animal Science . 405
Balchem Corporation . 311, 410
Bar Diamond . 137
Biomin America . 421, 423, 520, 522
Blackwell Publishing . 101
Brilliant Alternatives . 135
CABI (Commonwealth Agricultural Bureaux International) . 329
CAST (Council for Agricultural Science & Technology) . 203
Chr. Hansen . 217, 219
Classic Ultrasound Equipment . 207
Cumberland Valley Analytical Services . 105
Dairy Records Management Systems . 401
Dalex Livestock Solutions . 227
DASCOR . 305
Degussa Corporation . 237, 239
DHHS-FDA-CVM . 426
Diamond V . 209, 211, 308, 310
Distillers Grain Technology Council . 429
DSM Nutritional Products . 316
Elanco Animal Health . 202, 204
Elsevier . 201
FASS (Federation of Animal Science Societies) . 407, 409
Feed Management Systems . 510
FeedAC (Feed Analysis Consortium) . 504
Feedstuffs . 121
GrowSafe Systems . 230
GTC Nutrition . 103
H.J. Baker & Bro. . 223
IceRobotics . 236, 238
ICFIE (International Center Food Industry Excellence) . 419
IIC (International Ingredient Corporation) . 500
ILSI (International Life Sciences Institute) . 220
Lallemand Animal Nutrition . 131
MSC Speciality Nutrition . 322
National Institute for Animal Agriculture . 306
Novus International . 229, 328
Omega Protein . 307
PetAg . 300
Pﬁ zer Animal Health . 427
Poultry Protein & Fat Council . 210
Prentice Hall . 107
Prince Agri Products . 317, 416
Pro-Biotech International . 139
PSA (Poultry Science Association) . 406
Quality Technology International . 327
Remote Animal Monitoring Solutions . 234
Renewable Fuels Association . 205
Ross University School of Veterinary Medicine . 304
S.A.E. Afikim . 530
Saf-Agri/Lesaffre Feed Additives . 302
Soy Best . 301, 400
Soybean Meal INFOcenter . 303
SoyPLUS, SoyChlor (West Central) . 200
Trouw Nutrition USA . 123, 222
Unity Scientiﬁc . 431
USDA-Agricultural Research Service . 508
USDA-Animal Welfare Information Center . 506
Varied Industries Corporation . 336, 338
Western Yeast Company . 428
Zinpro . 321, 323, 420, 422

A special thank you to our
2007 ADSA-PSA-AMPA-ASAS Joint Annual Meeting Exhibitors!
Wireless Gas Production Measurement

Introducing...
ANKOM™
GAS PRODUCTION SYSTEM

- Easily measure kinetics of microbial metabolism
- Continuous computer control of each module
- Modular and Expandable (up to 50 modules)
- High Sensitivity Pressure Measurement
- Remotely controlled pressure release
- Data interface with Excel® for graphing
- Gas sampling capability

See it in action at booth: 417 / 516

For more info:
Visit: www.ANKOM.com
Email: gaspro2@ankan.com

ANKOM Technology
2052 O'Neil Road
Macedon, NY 14502
315.986.8090 phone
315.986.8091 fax
2008 ADSA-ASAS Joint Annual Meeting  
July 7–11, Indianapolis, IN  
www.adsa.org; www.asas.org  
Booth(s): 403

Discover the fun that awaits you in Indy during the 2008 Joint Annual Meeting. A representative from the city of Indianapolis will be on hand to give you the inside scoop. Don’t wait until the last minute—start planning next year’s trip now!

AAALAC International  
5283 Corporate Drive, Suite 203  
Frederick, MD 21703  
Phone: 301-696-9626; fax: 301-696-9627  
www.aaalac.org  
Booth(s): 309

AAALAC International offers accreditation, assessment and education services for agricultural animal research programs. Earning accreditation demonstrates dedication to responsible animal care, and assures research partners, funding sources, and the public of a commitment to quality research and good science. More than 700 institutions in 29 countries have earned AAALAC accreditation.

Acadian AgriTech  
30 Brown Avenue  
Dartmouth, Nova Scotia, B3B 1X8, Canada  
Phone: 902-468-2840; fax: 902-468-3474  
www.tasco.ca  
Booth(s): 109

Tasco is a natural feed ingredient made of proprietary processed Ascophyllum nodosum. Tasco is generally regarded as safe (GRAS) in animal feeds and it is legal to feed in all classes of livestock. Over 15 years of research shows that feeding Tasco to livestock can improve production and producer profitability.

Adisseo  
One Point Royal  
4400 North Point Parkway, Ste. 275  
Alpharetta, GA 30022  
Phone: 678-339-1500; fax: 678-339-1600  
www.Adisseo.com  
Booth(s): 117, 119, 216, 218

Adisseo offers a wide range of feed additives in various forms, adapted for all types of feed and for all species. Our products include Microvit (full line of vitamins), Rhodimet (methionine in both powder and liquid analog forms), MetaSmart and Smartamine (ruminant methionine), and Robabio (enzymes in both liquid and powder forms).

ADM Alliance Nutrition  
1000 North 30th  
Quincy, IL 62301  
Phone: 800-775-3295; fax: 217-222-9278  
www.admani.com  
Booth(s): 208

ADM Alliance Nutrition, a wholly owned subsidiary of the global Archer Daniels Midland Company (ADM), is a provider of custom blending services and natural-source ingredients. ADM is recognized as an industry leader in the research, development, and manufacturing of innovative products and providing solution-based ingredients. ADM Alliance Nutrition is your source for feed ingredient solutions.

ADSA (American Dairy Science Association)  
1111 N. Dunlap Ave.  
Savoy, IL 61874  
Phone: 217-356-5146; fax: 217-398-4119  
www.adsa.org  
Booth(s): 402

Established in 1906, ADSA is an international organization of educators, scientists, industry, and government representatives who are committed to advancing the dairy industry. All are keenly aware of the vital role the dairy sciences play in fulfilling the economic, nutritive, and health requirements of the world’s population. Together, ADSA members have discovered new methods and technologies that have revolutionized the dairy industry. Please visit www.adsa.org for more information.

Ag Processing, Inc.  
PO Box 2047  
Omaha, NE 68103  
Phone: 402-492-3309; fax: 402-496-6686  
www.agp.com  
Booth(s): 518

AminoPlus is a natural all soybean based ingredient used to enhance the productivity of dairy cattle. This bypass protein provides dairy producers a feed source that can help ensure superior performance and yield. Our patented technology takes advantage of palatable soy proteins to supply a high level of highly digestible essential amino acids to the small intestine without the addition of chemicals or any non-soybean components. AminoPlus appearance is that of a toasted soybean meal with a reddish-brown color and a sweet, toasted aroma. Flowability, handling, and storage characteristics of the product are excellent.
Agri-Nutrients Technology Group
23011 Air Park Drive
Petersburg, VA 23803
Phone: 804-732-6551; fax: 804-733-1368
Booth(s): 206

Agri-Nutrients Technology Group (ANTG) is a research and development and process engineering company that serves a variety of industries. ANTG develops novel life-science products encompassing granulation, encapsulation, and controlled-release technologies, manipulates physical and chemical properties of products through proprietary technologies, and designs or improves production processes. Pilot plant, laboratory, consulting, project design and review, process engineering, and patent services are available.

Albion Advanced Nutrition
101 N. Main Street
Clearfield, UT 84015
Phone: 801-773-4631; fax: 801-773-4633
www.albion-an.com
Booth(s): 326

Albion Advanced Nutrition is the pioneer in development of metal amino acid chelates, (highly absorbable chelated minerals). Albion’s first patent was granted in 1965. Albion continues to provide chelated minerals with high bioavailability, the ability to avoid common nutritional interferences, and the ability to improve biological efficiency of supplemental minerals.

Alltech, Inc.
3031 Catnip Hill Pike
Nicholasville, KY 40356
Phone: 859-885-9613; fax: 859-885-6736
www.alltech.com
Booth(s): 435, 437, 439, 534, 536, 538

For more than 25 years, Alltech has been researching and providing all-natural nutritional solutions that benefit animal health, performance, and productivity. Alltech’s cutting-edge brands—Yea-Sacc, Sel-Plex, Bio-Mos, MTB-100, Bioplex, and Sil-All—set a unique example of how all-natural technologies backed by dedicated research can move the industry forward. Alltech is the proud and first-ever title sponsor of the World Equestrian Games. The Alltech FEI World Equestrian Games 2010 will be held in Lexington, Kentucky, September 25-October 10, 2010. These world-class events showcase the world’s most exceptional equine athletes at the zenith of their performance. For more information, visit www.alltech.com.

---

The natural way.

**BIOMIN Natural Growth Promoters**

have proven effective in many commercial and scientific trials.

- **Better FCR in piglets than with AGPs**
  Kansas State University, USA, 2007

- **Improved nutrient digestibility**
  Univ. of Natural Resources and Applied Life Science, Austria 2007

- **ROI of more than 1:9**
  Farmers cooperative, Bretagne, France, 2006

**BIOMIN USA Inc.** 1846 Lockhill Selma, Suite 101, San Antonio, TX 78213 U.S.A.
Tel: +1 210 342 9555, Fax: +1 210 342 9575, e-Mail: office.usa@biomin.net

[www.biomin.net](http://www.biomin.net)
Aloka Ultrasound
10 Fairfield Boulevard
Wallingford, CT 06492
Phone: 203-269-5088; 800-872-5652; fax: 203-269-6075
e-mail: inquiry@aloka.com
www.aloka.com
Booth(s): 334

Aloka, the innovator in ultrasound, offers a full line of veterinary ultrasound systems. The Alpha 10 and Alpha 5 offer superb image quality for the most challenging cases. More cost-effective solutions are the SSD-3500 and SSD-4000. Our two portables, the SSD-500 and SSD-900, are reliable and rugged systems.

Alternative Design Mfg.
PO Box 6330
Siloam Springs, AR 72761
Phone: 479-524-4343; fax: 479-524-4125
www.altdesign.com
Booth(s): 235

Alternative Design Mfg. manufactures a complete line of caging systems for the research and commercial poultry industry. Super brooders, brood grow, laying hen, and artificial insemination cages are available in various sizes and configurations. ALTDESIGN produces a feed bin lid that permits feed truck drivers to open, fill, and close feed bins from inside the vehicle for convenience. The company also makes a replacement heater system for Petersime brooders.

AMPA (Asociación Mexicana de Producción Animal)
Facultad de Zootecnia, Universidad Autónoma de Chihuahua
Periférico Fco. R. Almada km. 1
Apartado Postal 4-28
Chihuahua, Chihuahua CP 31031, México
Phone: 01-614-434-0303
www.agropecstar.com/usuarios/ampa/index.htm
Booth(s): 408

AMPA aspires to be the national association in animal production that has the highest technical interaction with national and international scientists and producers. The organization’s mission is to promote animal science research and education through the exchange of scientific and technical information and applications to animal agriculture, public policy, and public understanding.

Analab
18246 Waller Rd., PO Box 208
Fulton, IL 61252
Phone: 800-435-9560; fax: 815-589-4565
www.analabtest.com
Booth(s): 318

Analab Laboratory had been providing testing services since 1972. As a fully certified laboratory, Analab offers a full range of chemical, biological, and microbiological testing to the livestock and seed industries. Samples tested at Analab include animal feeds, forages, silages, grains, manure, and urine. Analab is dedicated to satisfying our clients through accurate, precise, and timely analysis.

Ankom Technology
2052 O’Neil Road
Macedon, NY 14502
Phone: 315-986-8090; fax: 315-986-8091
www.ankom.com
Booth(s): 417, 516

Ankom Technology is known for the development of filter bag technology for simplifying the determination of fiber and fat content in feeds and foods. Ankom will highlight the new radio frequency gas production system during the joint meeting. This system provides an easy method to monitor and record gas production during fermentation.

APC, Inc.
2425 SE Oak Tree Court
Ankeny, IA 50021
Phone: 515-289-7600; fax: 515-289-4360
www.functionalproteins.com
Booth(s): 111

APC Inc. is a world leader in the development of functional proteins for animal health and nutrition. For 25 years, APC’s research investments have yielded safe and effective products to improve animal performance in the swine, ruminant, aquaculture, companion animal, and poultry industries.

Arm & Hammer Animal Nutrition
469 North Harrison St.
Princeton, NJ 08543
Phone: 800-526-3563; fax: 609-497-7176
www.ahdairy.com
Booth(s): 526, 528

Arm & Hammer Animal Nutrition is a leading supplier of innovative dairy feed ingredients that affect each phase of a cow’s life cycle. The products in our “Portfolio for Profitability” have been specially formulated to give you more profit per cow. Trust Arm & Hammer Animal Nutrition for innovative, proven, and trusted nutritional solutions.

ARPAS (American Registry of Professional Animal Scientists)
1111 N. Dunlap Ave.
Savoy, IL 61874
Phone: 217-356-5390; fax: 217-398-4119
www.arpas.org
Booth(s): 502

ARPAS is the organization that provides certification of animal scientists through examination, continuing education, and commitment to a code of ethics. Continual improvement of individual members is catalyzed through publications (including the Professional Animal Scientist journal) and by providing information on educational opportunities.
ASAS (American Society of Animal Science)
1111 N. Dunlap Ave.
Savoy, IL 61874
Phone: 217-356-9050; fax: 217-398-4119
www.asas.org
Booth(s): 404

Established in 1908, ASAS is a professional organization for animal scientists designed to help members provide effective leadership through research, extension, teaching, and service for the dynamic and rapidly changing livestock and meat industries. Please visit www.asas.org for more information.

ASAS Centennial Celebration 2008
Joint Annual Meeting, July 7-11, 2008,
Indianapolis, Indiana
Phone: 217-356-9050; fax: 217-398-4119
http://www.asas.org/100years/
Booth(s): 411

100 years of service through Animal Agriculture. Play your part in the next 100 years.

ASAS Journal of Animal Science
1111 N. Dunlap Ave.
Savoy, IL 61874
Phone: 217-356-3182; fax: 217-398-4119
jas.fass.org
Booth(s): 405

The Journal of Animal Science (JAS) is the premier journal for animal science and serves as the leading source of new knowledge and perspective in this area. JAS publishes more than 400 peer-reviewed research articles, invited reviews, technical notes, and letters to the editor each year. According to the Institute for Scientific Information (ISI), JAS consistently ranks as one of the top journals (among 43 titles) in the category of Agriculture, Dairy, and Animal Sciences in terms of impact factor, immediacy index, and cited half-life and is in the top 1% of STM publishing (50,000+ titles) by total ISI citations.

Advancing Nutrition for Healthy Animals for 150 Years

The year was 1858. While the animal nutrition products industry was not then our core business, it was still the beginning for Prince Agri Products.

With advances in the science of animal nutrition, we entered the nutrition business with a few mineral products. Today, we offer one of the largest selections of basic animal nutrition ingredients and a growing line of specialty nutrition products. And, we’re just getting started.

Other things have grown too, like long term business partnerships and strong customer service relationships throughout the animal industry we have so proudly served for 150 years.

150th Anniversary
1858-2008
PRINCE AGRI PRODUCTS, INC.
Advancing Nutrition for Healthy Animals™
Balchem’s Animal Nutrition and Health Division brings the benefits of patented proprietary encapsulation and chelated trace mineral technology to the livestock, poultry, and companion animal industries. Encapsulation and chelation technologies offer “protection nutrition” to sensitive compounds. Hence, these compounds become available when and where they offer the most benefit to the animal. Thanks to quality research, product testing, and manufacturing, these technologies are available today.

Bar Diamond, Inc.
PO Box 60
Parma, ID 83660
Phone: 208-722-6761; fax: 208-722-6686
www.bardiamond.com
Booth(s): 137

Bar Diamond, Inc. provides the world with rumen cannulae and accessories. New in 2007 is a 5-inch (center diameter) rumen cannula for use when the fistula just continues to stretch.

Biomin is a leader in healthy animal nutrition. We use state-of-the-art research and technology to produce natural feed additives that enhance productivity and unlock the performance potential of livestock the natural way. Biomin is a customer-oriented company that has a significant market share in more than 100 countries worldwide.

Blackwell Publishing Professional is one of the world’s leading publishers in animal science, veterinary medicine, agriculture, and food science. We have a vast selection of books, manuals, and references, which cover every area.
CABI (Commonwealth Agricultural Bureaux International)
Nosworthy Way
Wallingford, OX10 8DE, United Kingdom
Phone: +44 (0) 1491 829374; fax: +44 (0) 1491 832111
www.cabi.org
Booth(s): 329

CABI is a leading publisher of authoritative and unbiased scientific information on agriculture and the environment. Our products include the world-renowned CAB Abstracts along with other specialist databases, encyclopedic compendia, journals, and books.

CAST (Council for Agricultural Science & Technology)
4420 W. Lincoln Way
Ames, IA 50014
Phone: 515-292-2125; fax: 515-292-4512
www.cast-science.org
Booth(s): 203

CAST is a nonprofit organization composed of 37 scientific societies and many individual, student, company, nonprofit, and associate society members. CAST’s Board of Directors is composed of 38 representatives of the scientific societies and individual members representing over 170,000 member scientists, and an eight-member Executive Committee. Established in 1972, the primary work of CAST is the publication of task-force reports, commentary papers, and issue papers written by scientists from many disciplines.

Chr. Hansen, Inc.
9015 W. Maple St.
Milwaukee, WI 53214
Phone: 414-607-5800; fax: 414-607-5701
www.chr-hansen.com
Booth(s): 217, 219

Chr. Hansen Animal Health & Nutrition has been ranked by dairy nutritionists as the most trusted direct-fed microbial source. As the “World’s Microbial Experts,” Chr. Hansen has been the leading supplier of lactic acid bacteria and other ingredients since 1874. A history rich in science, research, and quality has produced products such as Probios, Biomate, Biomax, and BioPlus.

Classic Ultrasound Equipment
19900 Mona Road, Suite 105
Tequesta, FL 33469
Phone: 800-722-6838; fax: 561-746-4212
www.classicmedical.com
Booth(s): 207

Classic Ultrasound introduces a new notebook computer-based ultrasound system. The TelaVet 1000, now with the 17-cm animal science probe, also features the new ultra-portable Palm Scan Enhanced and the self-contained Classic InSight for external ruminant imaging. Visit www.classicmedical.com for the latest information on our new portable and notebook ultrasound systems.

---

EAAP is the European Federation for Animal Science federating national member organisations from 40 countries in Europe and the Mediterranean area. The member organisations represent the professional interests of scientists, academics, professionals and producers, technicians, extension officers, government departments and farmer organisations.

**Invitation**

On behalf of the Irish Organising Committee, we are pleased to invite you to the 58th Annual Meeting of the European Association for Animal Production in Dublin from the 26th to the 29th August 2007.

The main theme of the meeting is: “Sustainable Animal Production—Meeting the Challenges for Quality Food”

We are aware of the prominence of the EAAP meeting in the calendar of agri-food research events and will ensure that the 2007 meeting is keenly focused and topical. Our industry must continue to meet new challenges and opportunities in which we all have significant roles to play. We have planned a very extensive Conference Programme and assembled an excellent panel of Guest Speakers to examine the issues and plot a course for the future.

Ireland last hosted the EAAP Annual Meeting in 1989. Since then, many changes have taken place on Irish farms and in particular relating to animal production. We look forward to showing you the state of animal production in Ireland in 2007 and indeed have planned field excursions that we hope you will enjoy and benefit from. Ireland is known as the “Country of one hundred thousand welcomes Cead Mile Failte” and we look forward to enabling you to sample the social side of Dublin and indeed Ireland. We have planned a special programme of social events and events for accompanying persons.

We look forward to seeing you in Dublin in August 2007
Cumberland Valley Analytical Services, Inc. is a full-service forage testing laboratory that serves clients nationally and internationally. We are one of the largest providers of chemistry services including in vitro fiber digestibility, in situ evaluations, and forage fermentation analysis. We routinely perform work on research samples for universities and private companies, including plot evaluation work for hybrid evaluation.

Dairy Records Management Systems' PCDART software has served the nation’s most intensively managed dairy farms for over 25 years. With features like timed AI, a comprehensive protocols/chores system with treatment regimes, RFID, handheld input and review, and real-time networking, PCDART delivers well-designed solutions for herd managers and consultants. DRMS provides top-notch support by animal and dairy science graduates with on-farm experience at no additional charge.

Dalex Livestock Solutions provides ration formulation, feeding management, animal performance, and nutrient management solutions for the livestock industry. Dalex has long been synonymous with ration balancing and is the home of the “consulting nutritionist.” Using the most up-to-date scientific data and models, we provide a complete solution to formulate, monitor, and assess accurate livestock feeding situations.
DASCOR, Inc.
PO Box 462885
Escondido, CA 92046
Phone: 760-796-7788; fax: 760-796-7785
www.dascor.com
Booth(s): 305

DASCOR specializes in the design, development, and production of custom instrumentation and control products for OEM and private-label clients as well as marketing a proprietary line of data loggers, signal conditioners, and related products. Working closely with Sensorex as a distributor of their pH and ORP sensors, and with eminent researchers with the University of Alberta and Lethbridge Research Centre, DASCOR has developed an autonomous datalogger for monitoring rumen pH, ORP, and temperature for extended periods in cannulated cattle. Systems in development will include provisions for additional sensors (such as pressure or motion), true wireless communication, extended memory, and reduced size for esophageal insertion. On-going field investigations are also leading to a custom pH sensor designed specifically for long-term survivability in the rumen. Please visit DASCOR at booth 305.

Degussa Corporation
1701 Barrett Lakes Blvd., Suite 340
Kennesaw, GA 30144
Phone: 678-797-4311; fax: 678-797-4313
www.aminoacidsandmore.com
www.makemilknotmanure.com
Booth(s): 237, 239

Degussa is the only company in the world to supply, from a single source, all four of the important amino acids for animal nutrition: DL-methionine, L-lysine (Biolys), L-threonine, and L-tryptophan. Mepron, a rumen-protected DL-methionine, rounds off the company’s product range as part of its “one-source” strategy.

DHHS-FDA-CVM
7519 Standish Place, Suite #3508
Rockville, MD 20855
Phone: 240-276-9301; fax: 240-276-9115
www.fda.gov/cvm
Booth(s): 426

The US Food and Drug Administration, Center for Veterinary Medicine is a public health consumer protection organization. We foster public and animal health by approving safe and effective drugs, devices, and food additives given to over one hundred million companion animals, and millions of poultry, cattle, swine, and minor animal species.

Diamond V
838 1st St. NW
Cedar Rapids, IA 52407
Phone: 319-366-0745; fax: 319-366-6333
www.diamondv.com
Booth(s): 209, 211, 308, 310

Diamond V is the world’s leading manufacturer of fermented yeast culture products. For over 60 years, we have provided customers with YC, XF, XPC Concentrate, and XP DFM (a direct-fed microbial blend for ruminants). SelenoSource AF is our premier organic selenium yeast. We now introduce DV Aqua, our premier yeast culture designed and manufactured specifically for aquaculture.

Distillers Grains Technology Council (DGTC)
University of Louisville
435 Lutz Hall
Louisville, KY 40292
Phone: 800-759-3448; fax: 502-852-1577
www.distillersgrains.org
Booth(s): 429

DGTC is a non-profit association that has been in existence since 1945. At the DGTC booth, we will have information on feeding wet and dry distillers grains to dairy and beef cattle, calves, sheep, goats, and horses as well as information on combining it with other feed ingredients to reduce corn usage and costs.

DSM Nutritional Products
45 Waterview Blvd.
Parsippany, NJ 07054
Phone: 800-677-6243; fax: 971-257-8653
www.nutraaccess.com
Booth(s): 316

DSM Nutritional Products is the global leader in micro-ingredients solutions. DSM Nutritional Products is proud to offer the most comprehensive line of vitamins available in the marketplace. along with enzymes and direct-fed microbials. With our network of 34 premix plants globally, DSM Nutritional Products can deliver customized nutrition solutions anywhere in the world.

Elanco Animal Health
2001 West Main Street, PO Box 708
Greenfield, IN 46140
Phone: 317-276-4124; fax: 317-276-4471
www.elanco.com
Booth(s): 202, 204

Elanco is a global research-based company that develops and markets products to improve the health and production of animals in more than 100 countries. Elanco is a division of Eli Lilly and Company, a leading innovation-driven pharmaceutical corporation. Elanco products enhance animal health, wellness, welfare, and performance to help the food industry produce an abundant supply of safe and affordable food.
Elsevier is the leading publisher in veterinary medicine and animal science, and publishes journals such as *Livestock Science*, *Applied Animal Behaviour Science*, and *Animal Feed Science and Technology*. Visit our exhibit booth for sample copies and more information on these and our other journals.

**FASS (Federation of Animal Science Societies)**

1111 N. Dunlap Ave.
Savoy, IL 61874
Phone: 217-356-3182; fax: 217-398-4119
www.fass.org
Booth(s): 407, 409

FASS was formed on January 1, 1998, by mutual consent and for the mutual benefit of three founding member societies: the American Dairy Science Association (ADSA), the American Society of Animal Science (ASAS), and the Poultry Science Association (PSA). Currently, FASS provides services to more than 10,000 professionals from animal agriculture. The Congressional Science Fellowship Program was established by FASFAS in 1990 and continued by FASS. Each year, PhD scientists in animal science compete for the opportunity to represent FASS in Congress. Many of these individuals stay on the Washington scene after their fellowship year and continue to serve animal agriculture in significant ways.

**Feed Management Systems**

6120 Earle Brown Drive, Suite #300
Brooklyn Center, MN 55430
Phone: 763-560-8139; fax: 763-560-8160
www.feedsys.com
Booth(s): 510

Feed Management Systems is the leading software solutions provider linking critical information for feed manufacturers with our Feed Mill Manager, Brill Formulation, Feed Ration Balancer, and Feed Tags software. Ensure the safety, quality, and affordability of your feed supply by automating and optimizing formulas, pricing, ordering, labeling, delivery, and compliance.

**FeedAC (Feed Analysis Consortium)**

1111 N. Dunlap Ave.
Savoy, IL 61874
Phone: 217-356-3182, x28; fax: 217-398-4119
FeedAC@assocchq.org
Booth(s): 504

The Feed Analysis Consortium, Inc. (FeedAC) is a membership-based nonprofit organization dedicated to the advancement of feed analysis and nutritional modeling. The mission of FeedAC is to serve the animal feed industry by building and maintaining a Feed Information System for all farm animals, developing improved methods of feed analysis, and encouraging the development of improved diet formulation and evaluation models. FeedAC replaces the previously established Ruminant Feed Analysis Consortium (RFAC). Please visit www.feedac.org for membership information.
Feedstuffs
12400 Whitewater Dr., Suite #160
Minnetonka, MN 55343
Phone: 952-931-0211; fax: 952-938-1832
www.feedstuffs.com
Booth(s): 121

Feedstuffs is the only weekly paid news source for agribusiness. Every week, we keep our subscribers informed on the important issues affecting the business of producing food for the world.

GrowSafe Systems, Ltd.
280105 Range Road 22, RR#1, Site #1, Box 19
Airdrie, Alberta, T4B 2A3, Canada
Phone: 403-912-1879; fax: 403-398-1327
Booth(s): 230

GrowSafe technology continuously measures individual animal feed intake, weight, and feeding behavior in research and commercial environments. This year we began piloting new “in-pen” technology to manage feedlot cattle. We will release preliminary results during the 2007 ADSA-PSA-AMPA-ASAS Joint Annual Meeting in San Antonio. Visit us at Booth 230 to receive an invitation to this presentation.

GTC Nutrition
600 Corporate Circle, Suite H
Golden, CO 80401
Phone: 303-216-2489; fax: 303-216-2477
www.gtcnutrition.com
Booth(s): 103

GTC Nutrition is a recognized leader in providing innovative, science-based ingredient solutions for the pet food and animal feed industries. The company’s flagship animal ingredient, FortiFeed short-chain fructooligosaccharides (scFOS) prebiotic fiber, offers numerous health and functional benefits. For more information, call 800-522-4682 or visit www.fortifeed.com.
PRO-LAK, from H.J. Baker & Bro., Inc., is a multi-source marine and animal by-pass protein designed to complement the protein from rumen microbial activity and is specially formulated for today’s high-producing dairy cow. The desired nutrient balance is accomplished by 72% of the protein bypassing rumen degradation and delivering the essential amino acid profile to support maximum milk production. Research has been conducted to evaluate milk production, digestibility, and feed efficiency of PRO-LAK and can be found on our website (www.bakerbro.com).

IceRobotics
Logan Building
Roslin BioCentre
Roslin, Midlothian, EH25 9TT, Scotland
Phone: +44 (0)131 527 4380; fax: +44 (0)131 527 4381
www.icerobotics.co.uk
Booth(s): 236, 238

IceRobotics develops and manufactures the IceTag and IceSampler devices for use in livestock research. The IceTag activity monitor enables second-by-second recording of animal activity, recording both step count and lying time. The IceSampler blood-sampling device enables automated collection of blood samples from cattle.

NEW DATA!
PRO-LAK IMPROVES FEED EFFICIENCY!

- University Research shows Pro-Lak improves Feed Efficiency by an average of 8.05%.
- Dr. Mike Hutjens, University of Illinois states "A move from 1.5 to 1.6 (0.1 change in FE) equals $.20 / cow / day"
- What would 8.05% improvement in Feed Efficiency save you in feed costs?

Call your feed supplier, nutritionist or H.J. Baker today!

For more information:
H.J. Baker & Bro., Inc. • 228 Saugatuck Ave, Westport, CT 06880 USA
Phone (203) 682-9200, Telex ITT 42-0944, Fax (203) 227-8351
Email: salesinfo@bakerbro.com • Website: http://www.bakerbro.com

H.J. BAKER & BRO., INC.
Quality Products Since 1850
Our Difference is Dependability
Kevin Maloney, Western Regional Sales 707-753-1039
Ed Gilman, Central Regional Sales 417-725-1961
Dan Wright, National Sales 770-458-7658
International Ingredient Corporation
150 Larkin Williams Ind. Ct.
Fenton, MO 63026
Phone: 636-343-4111; fax: 636-349-4845
www.iicag.com
Booth(s): 500

International Ingredient Corporation (IIC) is a manufacturer of high-quality ingredients for the feed, pet food, and aquaculture industry. IIC has nine plant locations and a dedicated staff to meet your quality standards and expectations.

Lallemand Animal Nutrition
6120 W. Douglas Ave.
Milwaukee, WI 53218
Phone: 414-464-6440; fax: 414-464-6430
www.lallemand.com
Booth(s): 131

Lallemand Animal Nutrition is the only major supplier of yeast and bacteria that is a primary producer of both. Core products for dairy cattle are Levucell SC and SB (probiotic active dry yeasts), Alkosel mineral-enriched yeast, Agrimos (a manno-oligosaccharide), and Biotal forage inoculants. For more information, visit www.qualitysilage.com.

MSC Specialty Nutrition
PO Box 278, Illinois & Water St.
Dundee, IL 60118
Phone: 847-426-3411; fax: 847-426-3636
www.msccompany.com
Booth(s): 322

MSC Specialty Nutrition is a leading, research-driven supplier of nutrition and health products designed to optimize animal performance. Major brands for dairy producers include Excelerate and KwikMix (calf milk replacers) and Energy Booster 100 (rumen inert-fat). MSC Specialty Nutrition serves both national and international customers. For more information, visit www.msspecialtynutrition.com or call 1-800-343-4274.

National Institute for Animal Agriculture (NIAA)
1910 Lyda Ave.
Bowling Green, KY 42104
Phone: 270-782-9798; fax: 270-782-0188
www.animalagriculture.org
Booth(s): 306

The NIAA is a forum for building consensus and advancing solutions for animal agriculture and for providing continuing education and communications linkages to animal agriculture professionals. Our mission truly reflects NIAA—where it’s been, where it is, and where it’s going. NIAA is the only forum where producers/owners (cattle, equine, poultry, small ruminants, and swine), scientists (corporate, academic, and government), veterinarians (private practice, industrial, and government), regulators (state and federal), and business executives (corporate and association) meet in a common effort to deal with shared issues and opportunities. Visit our web site at www.animalagriculture.org.

Novus International, Inc.
530 Maryville Centre Drive
St. Louis, MO 63141
Phone: 314-576-8441; fax: 314-576-4635
www.novusint.com
Booth(s): 229, 328

Novus International is a global leader in the animal health and nutrition industries. Through a worldwide network, Novus markets more than 60 products in six key categories: amino acids, nutrition and health, minerals, energy metabolism, specialty products, and feed quality. Brand names include Alimet, Minitrex, Agrado, Activate, Cryspan, and Zorien.

Omega Protein, Inc.
2101 CityWest Blvd., Bldg. 3, Suite 500
Houston, TX 77042
Phone: 800-345-8805, fax: 713-940-6169
www.omegaproteininc.com
Booth(s): 307

Omega Protein is the nation’s largest producer of omega-3 fish oil, protein-rich fishmeal, and fish solubles. The company markets a variety of products derived from menhaden, an inedible fish found in abundant quantities in coastal waters off the US mid-Atlantic and Gulf coasts.

PetAg, Inc.
255 Keyes Ave.
Hampshire, IL 60140
Phone: 847-683-2288; fax: 847-683-2343
www.petag.com
Booth(s): 300

Fermacto is an aspergillus mycelium product for monogastrics. It has been shown in poultry to demonstrate increased maturity levels of the gastrointestinal tract of the immature bird. During the first three weeks, the gastrointestinal tract matures both microbeologically as well as physically, including villi length, short-chain fatty acid concentrations, and motility to maximize uniformity in flock development. Of critical importance is the increase in lactocin-producing lactobacilli, which tend to reduce the foci of pathogen development. Please stop by and meet us.
For farm animals such as cattle and swine, Pfizer Animal Health offers the broadest line of products in the world to improve their health and quality of life. We are also pleased to provide outstanding technical support and service throughout the United States to help beef, dairy, and pork producers (and their veterinarians) improve the safety, quality, and productivity of their livestock by taking full advantage of Pfizer Animal Health products. Because our goal is to do more than any other company to further animal health, we are the worldwide leaders in animal health research.

Poultry Protein & Fat Council
1530 Cooledge Road
Tucker, GA 30084
Phone: 770-493-9401; fax: 770-493-9257
www.poultryegg.org
Booth(s): 210

The Poultry Protein & Fat Council is a consortium of 13 member companies that produce high-quality poultry meal, feather meal, and poultry fat. Request our free video or CD at www.poultryegg.org.

Prentice Hall
One Lake Street
Upper Saddle River, NJ 07458
Phone: 201-236-5889; fax: 201-236-5888
www.prenhall.com
Booth(s): 107

Prentice Hall is proud to be the leading provider of educational products for your agriculture courses. Please stop by our booth or visit our website at www.prenhall.com to see what is new and to see what we have planned.

Prince Agri Products
PO Box 1009
Quincy, IL 62306
Phone: 217-222-8854; fax: 217-222-5098
www.princeagri.com
Booth(s): 317, 416

A global provider of proven and science-based ingredients for the animal feed industry, Prince Agri Products has long been successful by helping customers meet their goals through product solutions and innovation, the highest standards for quality and credibility, and with unmatched customer service and dedication. Put the Prince team to work for you by calling 217-222-8854.

Probiotech International, Inc.
6225 Choquette Street
St-Hyacinthe, Quebec, J2S 8L2, Canada
Phone: 450-771-7252; fax: 450-771-4509
www.probiotech.com
Booth(s): 139

Probiotech International, Inc. develops and provides the animal nutrition industry with natural solutions. Our line of products was designed using the principles of biotechnology to promote animal health and maximize agriculture production with the respect of our environment in mind. Products range from patented rumen-protected choline for dairy cows to organic acidifiers for swine and poultry.

PSA (Poultry Science Association)
1111 N. Dunlap Ave.
Savoy, IL 61874
Phone: 217-356-5285; fax: 217-398-4119
www.poultryscience.org
Booth(s): 406

PSA is a professional organization consisting of approximately 3,500 educators, scientists, extension specialists, administrators, and producers committed to advancing the poultry industry. The association is dedicated to discovery and dissemination of knowledge generated by poultry research that enhances human and animal health and well-being and provides for the ethical and sustainable production of food. Since 1908, the PSA has maintained a level of prestige that ranks it among the top professional organizations in the field. Please visit www.poultryscience.org for more information.

Quality Technology International, Inc.
2250 Point Blvd., Suite #322
Elgin, IL 60123
Phone: 217-847-9300
www.qtitech.com
Booth(s): 327

Quality Technology International (QTI) specializes in innovative technologies and solutions for the agricultural marketplace. It is a leader in ethanol co-products, identity preserved grains, and animal health. QTI markets and distributes Calsporin, the world’s leading Bacillus-based direct-fed microbrial for the poultry industry.

Remote Animal Monitoring Solutions, LLC (RAMS)
Box 1361
Starkville, MS 39760-1361
Phone: 662-312-1795; fax: 662-323-3293
www.rams-online.com
Booth(s): 234

RAMS strives to provide exceptional service to our clientele through advanced imaging capabilities and is working to become a recognized leader in the marketing and development of unique sampling and monitoring devices for both research and field-based large animal applications.
Renewable Fuels Association  
One Massachusetts Ave., NW, Suite 820  
Washington, DC 20001  
Phone: 202-289-3835; fax: 202-289-7519  
www.ethanolrfa.org  
Booth(s): 205

As the national trade association for the US ethanol industry, the Renewable Fuels Association (RFA) promotes policies, regulations, and research and development initiatives that will lead to the increased production and use of fuel ethanol. RFA membership includes a broad cross-section of businesses, individuals, and organizations dedicated to the expansion of the US fuel ethanol industry.

Ross University  
School of Veterinary Medicine  
499 Thornall St., 10th floor  
Edison, NJ 08837  
Phone: 877-ROSS-EDU; fax: 732-978-5304  
www.rossu.edu  
Booth(s): 304

Ross University offers doctor of medicine and doctor of veterinary medicine degree programs. Ross University School of Medicine was founded in 1978 and is located in the Caribbean country of Dominica. Ross University School of Veterinary Medicine was founded in 1982 and is located on the Caribbean island of St. Kitts.

S.A.E. Afikim  
Kibbutz Afikim  
Jordan Valley 15148  
Israel  
Phone: 972-4-6754812; fax: 972-4-6751862  
www.afimilk.com  
Booth(s): 530

S.A.E. Afikim was founded in the early 1970s and was a pioneer in introducing electronics into the milking parlor. Since then, S.A.E. Afikim has been committed to develop, manufacture, and market computerized dairy management systems. The Afimilk brand name consists of milk meters, individual cow identification, pedometers, and management and analysis software.

Saf Agri/Lesaffre Feed Additives  
7475 W. Main St.  
Milwaukee, WI 53214  
Phone: 414-615-4138; fax: 414-615-4003  
www.saf-agri.com  
Booth(s): 302

Saf Agri provides innovative products produced by the Lesaffre Group, the world’s oldest and largest yeast manufacturer, to livestock feed producers and pet food manufacturers throughout the Americas. The product line includes active dry yeast for pelleted and nonpelleted feeds, inactive dry yeast, mineral yeast (Se, Cr, Mn, Zn), enzymes, and mannan oligosaccharides.

Soy Best  
PO Box 157  
West Point, NE 68788  
Phone: 402-372-2429; fax: 402-372-3305  
www.soybest.com  
Booth(s): 301, 400

Soy Best High Bypass Soybean Meal is bypass protein for dairy cows. Manufactured by a mechanical process, it contains no chemical solvents and is all natural. Soy Best now includes fresh soy gums with lecithin and phosphatidylcholine. Research shows these nutrients behave like rumen-protected fat, resulting in even more bypass protein with excellent intestinal digestibility.

Soybean Meal INFOcenter  
4554 NW 114th St.  
Urbandale, IA 50322-5410  
Phone: 515-251-8640; fax: 515-251-8657  
www.soymeal.org  
Booth(s): 303

Soybean Meal INFOcenter provides technical information on soybean meal to the feed manufacturer, professional nutritionist, feed formulator, livestock and poultry producer, and the public. Its website (www.soymeal.org), fact sheets, and bimonthly newsletters highlight new information on this important supplemental protein for livestock, poultry, aquaculture, and companion animals.

SoyPLUS/SoyChlor (West Central)  
406 First Street, PO Box 68  
Ralston, IA 51459  
Phone: 712-667-3200; fax: 712-667-3215  
www.soyplus.com; www.soychlor.com  
Booth(s): 200

For decades, SoyPLUS and SoyChlor have stood as the gold standards of dairy feed ingredients. SoyPLUS is a bypass industry leader, consistently delivering dairy bypass protein and demonstrating unbeatable protein quality and intestinal digestibility. SoyPLUS contains research-proven higher energy and rumen-inert fat than its competition. SoyChlor has proven itself as a valuable tool in efficiently and effectively balancing DCAD in herd health. SoyChlor’s key ingredient, hydrochloric acid, is the most palatable source of chloride available. SoyChlor offers dairy cows low 19% protein, low potassium and sodium, low phosphorus, beneficial amounts of calcium and magnesium, and consistent flowability.
Trouw Nutrition USA offers innovative nutrition solutions, specialty products, and premixes for the livestock, poultry, and pet food industries, including Optimin Chelated Minerals, Protimax Specialized Egg Globulin, TNbetain, Selko Mold Inhibitors/Preservatives, and NovaSil Plus. Trouw offers custom blending and manufacturing of premixes, trace mineral packs, vitamin packs, supplements, and customer formula products.

Unity Scientific manufactures and sells a complete line of cost-effective, network-ready NIR (near infrared) and NIT analyzers for a wide variety of laboratory at-line and process applications. Unity offers a wide range of applications for the food, feed, pet food, dairy, tobacco, pharmaceutical, and general industrial markets. Unity also offers a complete line of sample preparation equipment that includes auto distillation, solvent extraction, and block digestion.
Varied Industries Corporation  
905 S. Carolina Ave., PO Box 1483  
Mason City, IA 50401  
Phone: 641-423-1460; fax: 641-423-0832  
www.vi-cor.com  
Booth(s): 336, 338  

In 1974, a patent was issued to a small company in Mason City, Iowa, for a fermentation process for animal feeds. This process became the foundation technology upon which Varied Industries Corporation (Vi-COR) was founded. Vi-COR has expanded to a company with a global focus, a manufacturer of world-class fermentation products providing custom manufacturing services.

Western Yeast Company  
305 W. Ash St.  
Chillicothe, IL 61523  
Phone: 309-274-3160; fax: 309-274-5393  
www.westernyeast.com  
Booth(s): 428  

Western Yeast Company was founded in 1932 and uses the Newhaven process for making yeast culture. Western Yeast Culture is an active, all-natural feed supplement designed to improve animal nutrition. It consists of live yeast cells plus the media on which they were grown, carefully dried to maintain the fermentation activity of the cells.

Zinpro  
10400 Vicking Drive, Suite 240  
Eden Prairie, MN 55344  
Phone: 800-445-6145; fax: 952-944-2749  
www.zinpro.com  
Booth(s): 321, 323, 420, 422  

Zinpro Performance Minerals, the premier source of trace minerals in the industry, deliver consistent, performance-driven results. Performance minerals must meet essential, measurable criteria based on return, response, repeatability, research, and reassurance.
EXCEDE®
MORE THAN BETTER SCIENCE, IT’S BETTER MATH.

In a single dose, EXCEDE (ceftiofur crystalline free acid) Sterile Suspension delivers the kind of BRD therapy that used to require 3 to 5 doses.
- Powerful, sustained-release, broad-spectrum antibiotic performance
- Extended therapy in a single dose for greater compliance, fewer dosing errors
- Zero-day milk discard for 100% peace of mind
- All with simple, base of ear injection

Ask about EXCEDE. No matter how you add it up, it equals more disease treatment with less handling.

As with all drugs, the use of EXCEDE is contraindicated in animals previously found to be hypersensitive to the drug. Though safe in cattle when properly given, inadvertent intra-arterial injection in the ear is possible and is fatal. EXCEDE has a pre-slaughter withdrawal time of 13 days.

Pfizer Animal Health

EXCEDE® (Ceftiofur Crystalline Free Acid) Sterile Suspension
No other dose goes so far.

www.excede.com 1-866-387-2287
For subcutaneous injection in the posterior aspect of the ear where it attaches to the head (base of the ear) in lactating dairy cattle. For subcutaneous injection in the middle third of the posterior aspect of the ear or in the posterior aspect of the ear where it attaches to the head (base of the ear) in beef and non-lactating dairy cattle.

**CAUTION**
Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

**INDICATIONS**
EXCEDE Sterile Suspension is indicated for treatment of bovine respiratory disease (BRD) associated with Mannheimia haemolytica, Pasteurella multocida, and Actinobacillus somni in beef, non-lactating dairy, and lactating dairy cattle. EXCEDE Sterile Suspension is also indicated for the control of respiratory disease in beef and non-lactating dairy cattle when there is a high risk of developing BRD associated with H. haemolytica, P. multocida, and A. somni.

**CONTRAINDICATIONS**
As with all drugs, the use of EXCEDE Sterile Suspension is contraindicated in animals previously found to be hypersensitive to the drug.

**WARNINGS FOR USE IN ANIMALS ONLY, NOT FOR HUMAN USE.**
**KEEP OUT OF REACH OF CHILDREN.**

Penicillins and cephalosporins can cause allergic reactions in sensitized individuals. Topical exposure to such antimicrobial agents can result in generalized reactions in some individuals. Repeated or prolonged exposure may lead to sensitization. Avoid contact with the product with the skin, eyes, mouth and clothing. Sensitive skin may be avoided by wearing latex gloves.

Persons with a known hypersensitivity to penicillin or cephalosporins should avoid exposure to this product.

In case of accidental skin exposure, flush with water for 15 minutes. In case of accidental eye exposure, wash with soap and water. Remove contaminated clothing. If allergic reaction occurs (e.g., skin rash, hives, difficult breathing), seek medical attention.

The material safety data sheet contains more detailed occupational safety information. To obtain a material safety data sheet (MSDS) please call 1-800-733-6500. To report any adverse event please call 1-800-306-5285.

Injection of EXCEDE Sterile Suspension into the arteries of the ear is likely to result in sudden death to the animal.

**RESIDUE WARNINGS**
- Following label use as a single treatment, a 13-day pre-slaughter withdrawal period is required.
- Following label use as a single treatment, no milk discard period is required for this product.
- Use of dosage in excess of 6.6 mg CEiG or administration by unapproved routes (subcutaneous injection in the neck or intramuscular injection) may cause violative residues.
- A withdrawal period has not been established for this product in pre-ruminating calves.
- Do not use in calves to be processed for veal.

**PRECAUTIONS**
Following subcutaneous injection in the middle third of the posterior aspect of the ear, thickening and swelling (characterized by aseptic cellular infiltrate) of the ear may occur. If other parenteral injections, localized post-injection bacterial infections may result in abscess formation. Attention to hygienic procedures can minimize their occurrence.

Following injections at the posterior aspect of the ear where it attaches to the head (base of the ear), areas of discoloration and signs of inflammation may persist at least 13 days post administration resulting in trim loss of edible tissue at slaughter. Injection of volumes greater than 35 ml, in the middle third of the ear, may result in open draining lesions in a small percentage of cattle.

The effects of calfhood on bovine reproductive performance, pregnancy, and lactation have not been determined.

**ADVERSE EFFECTS**
Administration of EXCEDE Sterile Suspension into the ear arteries is likely to result in sudden death in cattle. During the conduct of clinical studies, there was a low incidence of acute death (nine out of approximately 600 animals). Three of these deaths were confirmed to be the result of inadvertent intra-arterial injection. No other adverse systemic effects were noted for either the antibiotic or formulation during any of the clinical and target animal safety studies.

**STORAGE CONDITIONS**
Store at controlled room temperature 20° to 25°C (68° to 77°F) (see USP). Shake well before using. Contents should be used within 12 weeks after the first dose is removed.

**HOW SUPPLIED**
EXCEDE Sterile Suspension is available in the following package sizes: 100 mL, vial. U.S. Patent No. 5,721,369 and other patents pending. NADA No. 141,209. Approved by FDA. Distributed by:

**Support the ASAS Foundation through the Next Century Fund: Promoting**
**Membership **New programs **Continued sustainability**

Contact ASAS@assocchq.org for more information.
To be classified as Performance Minerals, products must meet essential measurable criteria based on the following principles:

- Return
- Response
- Repeatability
- Research
- Reassurance

If you’re not sure what level of performance your current mineral program provides, talk to your feed supplier or nutritionist and ask for Zinpro Performance Minerals®.

800-445-6145 | www.zinpro.com
2007 ADSA-ASAS
Corporate Sustaining Members
(as of May 10, 2007)

ADSA

Adisseo
Ag Processing Inc.
Akey
Alltech Biotechnology Center
Arm & Hammer Animal Nutrition
BioZyme Incorporated
Cargill Animal Nutrition
Custom Dairy Performance, Inc.
Danisco USA Inc.
Darling International Research
Diamond V Mills Inc.
DSM Nutritional Products
Elanco Animal Health
Fort Dodge Animal Health
Grande Cheese Company
Kent Feeds, Inc.
Kraft Foods
Land O’Lakes Inc.
MIN-AD, Inc.
Monsanto Corporation
Novus International
Performance Products, Inc.
Pioneer, A DuPont Company
Prince Agri Products, Inc
Pfizer Animal Health
Varied Industries Corporation
Westfalia Surge Inc.
Zook Nutrition & Management Inc.

ASAS

Ajinomoto Heartland LLC
Akey
Albion Advanced Nutrition
Archer Daniels Midland Co.
Babcock Genetics, Inc.
Darling International, Inc.
Diamond V Mills, Inc.
Elanco Animal Health
Global Pig Farms Inc.
International Ingredient Corporation
Kent Feeds Inc.
Land O’Lakes, Purina Feed LLC
MIN-AD, Inc.
Monsanto Company
National Pork Board
Nutra-Flo Protein and Biotech Products
PCS Sales (USA) Inc.
Pfizer Animal Health
PIC North America
Pioneer, A DuPont Company
Ralco Nutrition, Inc.
Trouw Nutrition USA
Zinpro Corporation

Thank you for your support!
2007 POULTRY SCIENCE JOURNAL SPONSORS

PATRONS
Archer Daniels Midland Co.
Ajinomoto Heartland, LLC
Cobb-Vantress, Inc.
Mosaic
Novus International, Inc.
Prince Agri Products, Inc.
Tyson Foods, Inc.

SUSTAINING MEMBERS
Adisseo USA, Inc.
Alpharma
Akey, Inc.
Aviagen
Cargill Animal Nutrition
Diamond V Mills, Inc.
Foster Farms
Huvepharma, Inc.
Hy-Line International
Land O’Lakes / Purina Feed, LLC
Lohmann Tierzucht GmbH
Nicholas Turkey Breeding Farms

2007 THE JOURNAL OF APPLIED POULTRY RESEARCH SPONSORS

GOLD PATRONS
Alpharma
Cobb-Vantress, Inc.
Degussa Corporation
Novus International, Inc.
Syngenta Animal Nutrition

SILVER PATRONS
ChemGen Corp.
Foster Farms
Griffin Industries, Inc.
Hybrid Turkeys
Hy-Line International
Perdue Farms, Inc.
Zinpro Corporation

Thank you for your support!
Downtown San Antonio
Henry B. Gonzales Convention Center
Street Level

Exhibit Hall C

East Registration
Hilton Palacio del Rio

Conference Center

Mezzanine

Lobby
Marriott Riverwalk
Thank you to the
2007 ADSA-PSA-AMPA-ASAS
Joint Meeting Sponsors!

**Platinum ($20,000+)**
- Elanco Animal Health
- Monsanto Company
- Pfizer Animal Health

**Gold ($10,000+)**
- Ajinomoto Co., Inc. and Ajinomoto Heartland LLC
- Alpharma
- Diamond V Mills
- DMI
- European Association for Animal Production (EAAP)
- Renewable Fuels Association

**Silver ($5,000+)**
- ABSTC
- Biomin, USA
- Church and Dwight Co., Inc./Arm & Hammer Animal Nutrition
- Danisco Animal Nutrition
- DSM Nutritional Products
- Iams
- Jones-Hamilton
- Novus International
- USDA-CSREES
- West Central

**Bronze ($2,500+)**
- Adisseo
- Archer Daniels Midland Company
- ASAS Foundation
- Cargill Animal Nutrition
- Cobb-Vantress
- FASS
- Kemin Americas, Inc.
- Lucta USA, Inc.
- Maple Leaf Farms
- Milk Products, Inc.
- Nestle Purina
- Prince Agri-Products, Inc.
- Ralco Nutrition, Inc.
- Tyson Foods

**Donor ($1,500+)**
- Agilent Technologies
- Asociacion Mexicana de Produccion Animal A.C. (AMPA)
- Albion Advanced Nutrition
- Ankom
- American Society of Animal Science (ASAS)
- BASF Plant Science/Ex Seed Genetics
- California Dairy Research Foundation
- Degussa
- MSC
- National Pork Board
- Southern Poultry Science Society
- Syngenta Animal Nutrition
- U.S. Poultry & Egg Association
- Vi-Cor, Varied Industries Corporation
- Zinpro Corporation

**Contributor**
- American Sheep Industry (ASI)
- Akey
- Aviagen
- BASF
- Blue Seal Feeds
- Herbuck Poultry Ranch, Inc.
- Hilmar Ingredients
- Huvema
- Hybrid Turkeys
- Lallemand Animal Nutrition
- Premier 1 Supplies
- Quality Technology International
- Midwest Poultry Federation
- Newsham Genetics
- Renaissance Nutrition
- Sydell
- The Sheppard
- United Feed Co-op, Inc.
- Western Milling Quality Feeds
Schedule of Events
Scheduling and locations are subject to change without notice.

**Friday, July 6**

8:30 am - 4:30 pm  PSA Board of Directors Training  .  .  .  .  .  .  .  .  .  .  .  . Hilton Palacio del Rio, Corte Real
4:00 pm - 6:00 pm  ASAS Membership Committee Meeting  .  .  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 10
7:00 pm - 9:00 pm  ASAS New Board Orientation Meeting/Dinner  .  .  .  .  Marriott Rivercenter, Conf. Rm. 11

**Saturday, July 7**

7:30 am - 5:00 pm  ADSA Board of Directors Meeting  .  .  .  .  .  .  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 5 & 18
8:00 am - 5:00 pm  PSA Board of Directors Meeting  .  .  .  .  .  .  .  .  .  .  .  . Hilton Palacio del Rio, La Corona
8:00 am - 5:00 pm  ASAS Board of Directors Meeting  .  .  .  .  .  .  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 6 & 17
12:00 pm - 5:00 pm  Registration Open
(Pre-registered, badge and material pick-up only)  .  .  .  .  .  .  .  .  .  .  Convention Center, East Registration
1:00 pm - 5:00 pm  William Chalupa Recognition Symposium  .  .  .  .  .  .  . Convention Center, Room 006CD
3:15 pm - 4:30 pm  SAD Tour: The Alamo  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  . Meet in the Hyatt lobby
5:00 pm - 6:00 pm  William Chalupa Recognition Reception  .  .  .  .  .  .  . Convention Center, Grotto
5:15 pm - 7:00 pm  SAD Undergraduate Informal Mixer:
Café Olé Riverwalk Cruise  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  . Meet in the Hyatt lobby
7:00 pm - 9:00 pm  William Chalupa Recognition Dinner  .  .  .  .  .  .  .  .  . Convention Center, Room 008AB
7:30 pm - 9:00 pm  ARPAS Executive Committee Meeting  .  .  .  .  .  .  .  .  . Marriott Rivercenter, Conf. Suite 514

**Sunday, July 8**

7:00 am - 7:00 pm  Registration Open  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  . Convention Center, East Registration
7:30 am - 10:00 am  ADSA New Board Orientation  .  .  .  .  .  .  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 16
8:00 am - 12:00 pm  ASAS Board of Directors Meeting  .  .  .  .  .  .  .  .  .  .  . Marriott Rivercenter, Salon J
8:00 am - 5:00 pm  PSA Board of Directors Meeting  .  .  .  .  .  .  .  .  .  .  . Hilton Palacio del Rio, La Corona
8:00 am - 12:00 pm  Commercial Exhibit Set-Up  .  .  .  .  .  .  .  .  .  .  .  . Convention Center, Exhibit Hall C
8:00 am - 5:00 pm  Student Dairy Clubs Set Up Exhibits  .  .  .  .  .  .  .  .  .  . Convention Center, Exhibit Hall C
8:00 am - 5:00 pm  ARPAS Governing Board Meeting  .  .  .  .  .  .  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 11
8:00 am - 5:00 pm  Hospitality Lounge  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  . Convention Center, Room 208
8:00 am - 5:00 pm  Triennial Growth Symposium  .  .  .  .  .  .  .  .  .  .  .  . Convention Center, Room 214D
11:00 am - 12:00 pm  SAD Officers and Advisor Meeting  .  .  .  .  .  .  .  .  . Convention Center, Room 007B
12:00 pm - 1:00 pm  ADSA-SAD Midday Mixer and Taco Bar  .  .  .  .  .  .  . Convention Center, Room 008AB
12:00 pm - 1:00 pm  ADSA JDS Editors and Journal Management Committee Luncheon  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  Marriott Rivercenter, Conf. Rm. 7
1:00 pm - 3:00 pm  ASAS Foundation Board of Trustees Meeting  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 16
1:00 pm - 5:00 pm  ADSA Journal Management Committee Meeting  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 7
1:00 pm - 5:00 pm  ADSA-SAD Quiz Bowl Seating/Preliminary Rounds  .  .  .  . Convention Center, Rooms 007C & D
1:00 pm - 5:00 pm  Informal Nutrition Symposium  .  .  .  .  .  .  .  .  .  .  .  . Convention Center, Room 214A
2:00 pm - 3:00 pm  ADSA Production Division Council Meeting  .  .  .  .  .  . Convention Center, Room 204A
2:00 pm - 3:30 pm  ADSA Foundation Board of Trustees Meeting  .  .  .  .  .  . Marriott Rivercenter, Conf. Rm. 5
3:00 pm - 4:00 pm  ADSA Production Division Nominating Committee  .  .  .  . Convention Center, Room 204A
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00 pm - 5:00 pm</td>
<td>2007 and 2008 Program Committee Meeting</td>
<td>Convention Center, Room 207B</td>
</tr>
<tr>
<td>4:30 pm - 6:30 pm</td>
<td>Plenary Session—The DC Connection: Science Policy, Research Support, and the Professional</td>
<td>Convention Center, Room 205</td>
</tr>
<tr>
<td>5:00 pm - 6:00 pm</td>
<td>ADSA Dairy Foods Division Council Meeting</td>
<td>Convention Center, Room 204B</td>
</tr>
<tr>
<td>5:00 pm - 5:30 pm</td>
<td>ADSA-SAD Quiz Bowl Final Round</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>5:30 pm - 7:00 pm</td>
<td>Triennial Growth Symposium Reception</td>
<td>Convention Center, Room 214C</td>
</tr>
<tr>
<td>7:00 pm - 8:30 pm</td>
<td>2007 ADSA-PSA-AMPA-ASAS Opening Session</td>
<td>Convention Center, Ballroom C</td>
</tr>
<tr>
<td>8:30 pm - 10:00 pm</td>
<td>2007 ADSA-PSA-AMPA-ASAS Opening Reception</td>
<td>Convention Center, Ballroom C</td>
</tr>
</tbody>
</table>

**Monday, July 9**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am - 9:00 am</td>
<td>ADSA Production Division Extension Breakfast</td>
<td>Marriott Rivercenter, Salon D</td>
</tr>
<tr>
<td>6:30 am - 8:00 am</td>
<td>Quadrennial Poultry Extension Workshop Breakfast</td>
<td>Hilton Palacio del Rio, Ibiza Restaurant</td>
</tr>
<tr>
<td>6:30 am - 4:00 pm</td>
<td>Registration Open</td>
<td>Convention Center, East Registration</td>
</tr>
<tr>
<td>7:00 am - 8:15 am</td>
<td>ADSA-SAD Exhibit Set-up</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>7:30 am - 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>7:30 am - 6:00 pm</td>
<td>Commercial Exhibits and ADSA-SAD Exhibits Open</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>7:30 am - 5:00 pm</td>
<td>Job Resource Center</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>8:00 am - 5:00 pm</td>
<td>Hospitality Lounge</td>
<td>Convention Center, Room 208</td>
</tr>
<tr>
<td>8:30 am - 9:15 am</td>
<td>ADSA-SAD Business Meeting</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>9:30 am - 10:30 am</td>
<td>ADSA-SAD Judging of Yearbooks, Scrapbooks, Annual Reports</td>
<td>Convention Center, Room 007D</td>
</tr>
<tr>
<td>9:30 am - 10:30 am</td>
<td>ADSA-SAD Interviews for Outstanding Student and Advisor Awards</td>
<td>Convention Center, Room 008A</td>
</tr>
<tr>
<td>9:30 am - 10:45 am</td>
<td>ADSA-SAD Activities Symposium</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>9:30 am - 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
</tr>
<tr>
<td>10:00 am - 11:00 am</td>
<td>ASAS Retirees Gathering</td>
<td>Convention Center, Room 216A</td>
</tr>
<tr>
<td>10:30 am - 12:30 pm</td>
<td>ARPAS Exam</td>
<td>Convention Center, Room 218</td>
</tr>
<tr>
<td>11:00 am - 5:00 pm</td>
<td>ADSA-SAD Undergraduate Paper Presentations</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>12:30 pm - 2:00 pm</td>
<td>ASAS Past Presidents’ Luncheon</td>
<td>Marriott Rivercenter, Conf. Rm. 17-18</td>
</tr>
<tr>
<td>12:30 pm - 1:00 pm</td>
<td>ASAS Graduate Student Business Meeting</td>
<td>Convention Center, Room 207A</td>
</tr>
<tr>
<td>12:30 pm - 2:00 pm</td>
<td>ADSA Past Presidents’ Luncheon</td>
<td>Marriott Rivercenter, Conf. Rm. 12</td>
</tr>
<tr>
<td>12:30 pm - 2:00 pm</td>
<td>ACAN Annual Meeting</td>
<td>Convention Center, Room 218</td>
</tr>
<tr>
<td>12:30 pm - 2:00 pm</td>
<td>ASAS Publications Committee Luncheon</td>
<td>Marriott Rivercenter, Conf. Rm. 5</td>
</tr>
<tr>
<td>12:30 pm - 2:00 pm</td>
<td>USDA-ARS Staff Update Luncheon</td>
<td>Convention Center, Room 007B</td>
</tr>
<tr>
<td>12:30 pm - 2:00 pm</td>
<td>Michigan State Lunch</td>
<td>Convention Center, Room 007A</td>
</tr>
<tr>
<td>2:00 pm - 4:00 pm</td>
<td>ARPAS Exam</td>
<td>Convention Center, Room 218</td>
</tr>
<tr>
<td>2:00 pm - 3:30 pm</td>
<td>DISCOVER Steering Committee Meeting</td>
<td>Convention Center, Room 216A</td>
</tr>
<tr>
<td>2:00 pm - 5:30 pm</td>
<td>Southern Branch ADSA Symposium and Business Meeting</td>
<td>Convention Center, Room 210</td>
</tr>
<tr>
<td>4:00 pm - 6:00 pm</td>
<td>Exhibitor Reception</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>5:00 pm - 7:00 pm</td>
<td>Informal Calf Gathering</td>
<td>Marriott Rivercenter, Salon M</td>
</tr>
<tr>
<td>5:00 pm - 6:00 pm</td>
<td>ADSA Town Hall Meeting</td>
<td>Convention Center, Room 206A</td>
</tr>
<tr>
<td>5:30 pm - 7:00 pm</td>
<td>ASAS Award Winners Reception and Photo Session</td>
<td>Marriott Rivercenter, Salon A-B</td>
</tr>
<tr>
<td>6:00 pm - 9:00 pm</td>
<td>SAD Informal Mixer: Picnic in the Park</td>
<td>HemisFair Park</td>
</tr>
<tr>
<td>7:00 pm - 8:30 pm</td>
<td>ASAS Awards Program</td>
<td>Marriott Rivercenter, Salon E</td>
</tr>
</tbody>
</table>
8:00 pm - 11:00 pm Iowa State Reception ................................... Marriott Rivercenter, Conf. Rm. 17-18
9:00 pm - Closing Graduate Student Mixer ................................. Steers & Beers Steakhouse and Saloon

Tuesday, July 10

6:15 am 5K Fun Run .................................................. Meet at the Convention Center
6:30 am - 8:00 am ADSA Dairy Foods Division Extension Breakfast ...... Marriott Rivercenter, Conf. Rm. 5
6:30 am - 8:00 am JDS Editorial Board Breakfast/Meeting .................. Marriott Rivercenter, Conf. Rm. 6
6:30 am - 8:00 am Penn State Breakfast ................................ Marriott Rivercenter, Conf. Rm. 1-2
6:30 am - 8:00 am University of Illinois Breakfast ......................... Marriott Rivercenter, Conf. Rm. 3-4
6:30 am - 8:00 am National Poultry Waste Organization Committee Breakfast ........................................ Convention Center, Room 007A
7:00 am - 8:00 am Kentucky Breakfast ................................... Marriott Rivercenter, Conf. Rm. 12
7:00 am - 3:30 pm Registration Open .................................. Convention Center, East Registration
7:30 am - 9:30 am Poster Presentations ................................. Convention Center, Exhibit Hall C
7:30 am - 5:00 pm Commercial Exhibits and ADSA-SAD Exhibits Open .. Convention Center, Exhibit Hall C
7:30 am - 5:00 pm Job Resource Center ................................ Convention Center, Exhibit Hall C
8:00 am - 5:00 pm Hospitality Lounge .................................. Convention Center, Room 208
8:30 am - 9:30 am ADSA-SAD Business Meeting - Election of Officers .... Convention Center, Room 007C
9:30 am - 5:00 pm Scientific Sessions ................................... Convention Center
9:30 am - 10:15 am ADSA-SAD Student Career Symposium ................ Convention Center, Room 007C
10:30 am - 11:30 am ADSA-SAD Job Fair ................................ Convention Center, Room 007D
10:30 am - 11:30 am Spouse Event-Trolley Tour .......................... The Alamo
11:30 am - 1:30 pm Spouse Event-Luncheon ................................ Menger Hotel
11:30 am - 12:30 pm ADSA Production Division Business Meeting ...... Convention Center, Room 203
11:30 am - 12:30 pm ADSA Dairy Foods Division Business Meeting .... Convention Center, Room 201
11:45 am - 1:30 pm ADSA-SAD Awards Luncheon ........................ Convention Center, Room 008AB
12:30 pm - 2:00 pm NE ASAS/ADSA Business Meeting and Awards Luncheon ....................................................... Convention Center, Room 007B
12:30 pm - 2:00 pm ADSA Dairy Foods Division Milk Proteins and Enzyme Committee ............................................... Convention Center, Room 201
12:30 pm - 2:00 pm ARPAS Business Meeting ............................ Convention Center, Room 207A
12:30 pm - 2:00 pm ADSA Dairy Foods Division Program Planning Lunch .. Marriott Rivercenter, Conf. Rm. 10
12:30 pm - 2:00 pm ASAS Editors’ Luncheon ............................. Marriott Rivercenter, Conf. Rm. 1-2
12:30 pm - 2:00 pm PSA Student Luncheon ................................ Hilton Palacio del Rio, El Mirador
12:30 pm - 2:00 pm Poultry Extension Luncheon .......................... Convention Center, Room 007A
2:00 pm - 3:00 pm WPSA Lecture ...................................... Convention Center, Room 205
3:00 pm - 5:00 pm PSA Business Meeting ................................ Convention Center, Room 205
2:00 pm - 4:00 pm ARPAS Exam ....................................... Convention Center, Room 218
2:00 pm - 3:00 pm ADSA-SAD Award and Club Photos ................... Convention Center, Room 007C
2:30 pm - 3:30 pm ADSA-SAD Committee Meeting - Old and New Officers and Advisors ................................................... Convention Center, Room 007D
3:30 pm - 5:00 pm ASAS JAS Forum (Division/Associate Editors and Authors) ......................................................... Convention Center, Room 206A
4:00 pm - 4:30 pm CAST Issue Paper .................................... Convention Center, Room 207A
4:30 pm - 5:00 pm Three I’s and U: A CAST Town Hall Meeting ........ Convention Center, Room 207A
Wednesday, July 11

6:30 am - 8:00 am  Poultry Science Editors’ Meeting and Breakfast ........ Hilton Palacio del Rio, La Princesa
6:30 am - 8:00 am  Purdue University Breakfast .................. Marriott Rivercenter, Conf. Rm. 17-18
6:30 am - 8:00 am  Virginia Tech Breakfast ..................... Marriott Rivercenter, Conf. Rm. 7
7:00 am - 8:30 am  Poster Presentations ......................... Convention Center, Exhibit Hall C
7:00 am - 8:00 am  Commercial Exhibits Open .................... Convention Center, Exhibit Hall C
8:00 am - 10:00 am  ADSA Business Meeting ...................... Convention Center, Room 206B
10:00 am - 10:30 am  ASAS Business Meeting .................... Convention Center, Room 207A
10:00 am - 10:30 am  AMPA Business Meeting .................... Convention Center, Room 207B
10:30 am - 5:00 pm  Scientific Sessions ......................... Convention Center
12:30 pm - 2:00 pm  ADSA Board of Directors Meeting ............. Marriott Rivercenter, Conf. Rm. 18
12:30 pm - 2:00 pm  American Poultry Historical Society Luncheon .. Hilton Palacio del Rio, Ibiza Restaurant
12:30 pm - 2:00 pm  JAPR Editors’ Meeting and Luncheon .......... Hilton Palacio del Rio, La Princesa
12:30 pm - 2:00 pm  PSA New Board Luncheon ..................... Hilton Palacio del Rio, La Corona
12:30 pm - 2:00 pm  Feed Analysis Consortium ..................... Convention Center, Room 205
1:00 pm - 2:30 pm  ASAS Board of Directors Meeting ............. Marriott Rivercenter, Conf. Rm. 17
2:00 pm - 4:00 pm  ARPAS Exam .................................. Convention Center, Room 218
3:00 pm - 6:00 pm  Commercial Exhibits Dismantle ............... Convention Center, Exhibit Hall C
4:30 pm - 6:00 pm  2007 Closing Reception ....................... Convention Center, Room 006
3:00 pm - 5:00 pm  GrowSafe User Group Meeting ................. Convention Center, Room 204A
5:30 pm - 7:00 pm  Distillers Grains Symposium Reception .......... Convention Center, Tower View Lobby
6:00 pm - 10:00 pm  PSA Awards Banquet ......................... Hilton Palacio del Rio, Salon del Rey
6:30 pm - 10:30 pm  AMPA Dinner ............................... Marriott Rivercenter, Conf. Rm. 17-18

Thursday, July 12

8:00 am - 10:30 am  ADSA-ASAS-PSA Joint Executive Committee Breakfast .......................... Marriott Rivercenter, Conf. Rm. 18
8:00 am - 10:00 am  Registration Open ............................ Convention Center, East Registration
8:30 am - 11:30 am  Scientific Sessions .......................... Convention Center
ADSA Student Affiliate Division Program

SAD Special Events
Scheduling and locations are subject to change without notice.

Saturday, July 7

SAD Tour: The Alamo*
3:30 pm – 4:30 pm
The Alamo, 300 Alamo Plaza in downtown San Antonio
Meet in the Hyatt lobby by 3:15 pm to walk as a group
*Pre-registration required

More than 2.5 million people a year visit the 4.2-acre complex known worldwide as “The Alamo.” Most come to see the old mission where a small band of Texans held out for 13 days against the Centralist army of General Antonio López de Santa Anna. Located on Alamo Plaza in downtown San Antonio, the Alamo represents nearly 300 years of history. Three buildings—the Shrine, Long Barrack Museum and Gift Museum—house exhibits on the Texas Revolution and Texas history. Visitors are welcome to stroll through the beautiful Alamo Gardens. Just a short distance from the River Walk and the Hyatt (the student hotel), the Alamo is a “must see” for all who come to San Antonio.

SAD Undergraduate Evening Informal Mixer: Café Olé Riverwalk Cruise*
5:30 pm – 7:00 pm
Café Olé, 521 Riverwalk (located at the corner of Losoya and Commerce Streets)
Meet in the Hyatt lobby by 5:15 pm to walk as a group (approx. two blocks)
*Pre-registration required

No trip to San Antonio is complete without a beautiful cruise along the San Antonio River. The River Walk is one of the largest tourist attractions in San Antonio. Located in the city’s downtown area, the San Antonio River Walk is three miles of riverfront walking area winding under the busy streets and bridges of San Antonio. The Café Olé Riverwalk Cruise offers onboard soft drinks and cocktails. This will be a great opportunity to get acquainted with the area and discover the many fine shops, restaurants, cafés, clubs, and hotels that line the San Antonio River Walk.

Sunday, July 8

SAD Midday Mixer and Taco Bar*
12:00 pm – 1:00 pm
Convention Center, 008AB
*Pre-registration required

Plan to join us for the first official event of the Student Affiliate Division Meetings. The mixer is a great way to have a free lunch and become acquainted with undergrads from other clubs who will be participating in the meetings. Registration is limited to undergraduate students and advisors.
Dairy Quiz Bowl  
1:00 pm – 5:30 pm  
Convention Center, 007C-007D

The Dairy Quiz Bowl invites teams from all universities to participate in this year’s event. Seating test will be held immediately following the Midday Mixer and Pizza Party. Once teams are placed, competition will begin and continue throughout the afternoon. The top teams will move onto the final round, which will be held on Sunday evening at 5:00 pm. To enter your club’s team, go the meetings section of the ADSA-SAD web site at www.adsa.org/sad.asp/.

Monday, July 9

SAD Informal Mixer: Picnic in the Park*  
6:00 pm – 9:00 pm  
HemisFair Park (200 South Alamo Street)  
Go South on Losoya past Rivercenter Mall, approximately 0.9 miles  
Meet in the Hyatt lobby by 5:45 pm to walk as a group  
*Pre-registration required

Get ready for a mix of Southern hospitality and Southern home cookin’—a taste of Louisiana in the heart of Texas! This picnic features Louisiana jambalaya, white beans, and salad, and is set in one of San Antonio’s outdoor jewels, HemisFair Park. Originally created as the grounds for the 1968 World’s Fair, this park is a favorite of locals and visitors alike. Stroll through the park’s 12 acres of fountains, pools, and beautifully landscaped grounds.

Tuesday, July 10

SAD Career Symposium: Student Job Fair  
9:30 am – 11:30 am  
Convention Center, Exhibit Hall C

This two-part program will begin with a career panel of professionals representing various facets of the animal agriculture industry. Students will have the opportunity to visit with the panelists and learn about careers in the industry, get useful tips on career planning, and much more. After the panel, students will attend the Student Job Fair in the Exhibit Hall. More than 70 companies related to the dairy and animal science industry will be in the Exhibit Hall, so students will have ample opportunity to visit with company reps, and inquire about careers and internships that may be available to undergraduate students. Students are encouraged to dress professionally (business casual or better) and bring several copies of their resumes.

SAD Awards Luncheon*  
11:45 am – 2:00 pm  
Convention Center, 008AB  
*Pre-registration required

Plan to attend this year’s SAD Awards Luncheon. Back by popular demand—be entertained as the student officers go head-to-head with ADSA Board members in a mini dairy quiz bowl! See who really knows more about the history of ADSA and the dairy industry! There are sure to be a few surprises and plenty of laughs along the way. The afternoon will culminate with the presentation of student awards and announcement of new SAD officers. Both students and professionals are encouraged to attend. This is a wonderful chance to get to know the next generation of the dairy industry.
SAD Schedule of Events
Scheduling and locations are subject to change without notice.

Saturday, July 7

12:00 pm - 5:00 pm  Registration Open
(Pre-registered, badge and material pick-up only)  Convention Center, East Registration

3:15 pm - 4:30 pm  SAD Tour: The Alamo  Meet in the Hyatt lobby

5:15 pm - 7:00 pm  SAD Undergraduate Informal Mixer:
Café Olé Riverwalk Cruise  Meet in the Hyatt lobby

Sunday, July 8

7:00 am - 7:00 pm  Registration Open  Convention Center, East Registration

8:00 am - 5:00 pm  Student Dairy Clubs Exhibit Set-Up  Convention Center, Exhibit Hall C

11:00 am - 12:00 pm  SAD Officers and Advisor Meeting  Convention Center, Room 007B

12:00 pm - 1:00 pm  ADSA-SAD Midday Mixer and Taco Bar  Convention Center, Room 008AB

1:00 pm - 5:00 pm  ADSA-SAD Quiz Bowl Seating/Preliminary Rounds  Convention Center, Rooms 007C & 007D

5:00 pm - 5:30 pm  ADSA-SAD Quiz Bowl Final Round  Convention Center, Room 007C

7:00 pm - 8:30 pm  2007 ADSA-PSA-AMPA-ASAS Opening Session  Convention Center, Ballroom C

8:30 pm - 10:00 pm  2007 ADSA-PSA-AMPA-ASAS Opening Reception  Convention Center, Ballroom C

Monday, July 9

6:30 am - 4:00 pm  Registration Open  Convention Center, East Registration

7:00 am - 8:15 am  ADSA-SAD Exhibit Set-Up  Convention Center, Exhibit Hall C

7:30 am - 9:30 am  Poster Presentations  Convention Center, Exhibit Hall C

7:30 am - 6:00 pm  Commercial Exhibits and ADSA-SAD Exhibits Open  Convention Center, Exhibit Hall C

8:30 am - 9:15 am  ADSA-SAD Business Meeting  Convention Center, Room 007C

9:30 am - 10:30 am  ADSA-SAD Judging of Yearbooks, Scrapbooks, Annual Reports  Convention Center, Room 007D

9:30 am - 10:30 am  ADSA-SAD Interviews for Outstanding Student and Advisor Awards  Convention Center, Room 008A

9:30 am - 10:45 am  ADSA-SAD Activities Symposium  Convention Center, Room 007C

11:00 am - 5:00 pm  ADSA-SAD Undergraduate Paper Presentations  Convention Center, Room 007C

4:00 pm - 6:00 pm  Exhibitor Reception  Convention Center, Exhibit Hall C

6:00 pm - 9:00 pm  SAD Informal Mixer: Picnic in the Park  HemisFair Park
### Tuesday, July 10

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:15 am</td>
<td>Fun Run</td>
<td>Meet at the Convention Center</td>
</tr>
<tr>
<td>7:00 am - 3:30 pm</td>
<td>Registration Open</td>
<td>Convention Center, East Registration</td>
</tr>
<tr>
<td>7:30 am - 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>7:30 am - 5:00 pm</td>
<td>Commercial Exhibits and ADSA-SAD Exhibits Open</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>8:30 am - 9:30 am</td>
<td>ADSA-SAD Business Meeting - Election of Officers</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>9:30 am - 10:15 am</td>
<td>ADSA-SAD Student Career Symposium</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>10:30 am - 11:30 am</td>
<td>ADSA-SAD Job Fair</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>11:45 pm - 2:00 pm</td>
<td>ADSA-SAD Awards Luncheon</td>
<td>Convention Center, Room 008AB</td>
</tr>
<tr>
<td>2:00 pm - 3:00 pm</td>
<td>ADSA-SAD Award and Club Photos</td>
<td>Convention Center, Room 007C</td>
</tr>
<tr>
<td>2:30 pm - 3:30 pm</td>
<td>ADSA-SAD Committee Meeting - Old and New Officers and Advisors</td>
<td>Convention Center, Room 007D</td>
</tr>
<tr>
<td>3:00 pm - 5:00 pm</td>
<td>Open to attend sessions</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>3:00 pm - 5:00 pm</td>
<td>Dismantle SAD Exhibits</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>7:00 pm - 8:00 pm</td>
<td>ADSA Awards Program</td>
<td>Marriott Rivercenter, Salon A-B</td>
</tr>
<tr>
<td>8:15 pm - 9:30 pm</td>
<td>2007 ADSA-PSA-AMP-ASAS Ice Cream Social</td>
<td>Marriott Rivercenter, Salon I</td>
</tr>
<tr>
<td>8:15 pm - 9:30 pm</td>
<td>ADSA Foundation Auction and Raffle</td>
<td>Marriott Rivercenter, Salon E</td>
</tr>
</tbody>
</table>

### Wednesday, July 11

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am - 3:00 pm</td>
<td>Registration Open</td>
<td>Convention Center, East Registration</td>
</tr>
<tr>
<td>7:30 am - 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>7:30 am - 3:00 pm</td>
<td>Commercial Exhibits Open</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>10:30 am - 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
</tr>
<tr>
<td>3:00 pm - 6:00 pm</td>
<td>Dismantle Commercial Exhibits</td>
<td>Convention Center, Exhibit Hall C</td>
</tr>
<tr>
<td>4:30 pm - 6:00 pm</td>
<td>2007 Closing Reception</td>
<td>Convention Center, 006</td>
</tr>
</tbody>
</table>

### Thursday, July 12

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am - 10:00 am</td>
<td>Registration Open</td>
<td>Convention Center, East Registration</td>
</tr>
<tr>
<td>8:30 am - 11:30 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
</tr>
</tbody>
</table>
# Scientific Program

## Table of Contents

### Sunday, July 8

**SYMPOSIA**

- SYMPOSIUM: Triennial Growth Symposium: Interface Between Growth and Immunology ................................................................. 73
- SYMPOSIUM: Informal Nutrition Symposium: The Impact of Imprinting on Biological and Economic Performance of Animals ..................... 74
- PLENARY SESSION: The DC Connection: Scientific Policy, Research Support, and the Professional Animal Scientist ................................. 74

### Monday, July 9

**POSTER PRESENTATIONS**

- Animal Behavior & Well-Being - Livestock and Poultry I ................................................................. 75
- Animal Health - Livestock and Poultry: Bovine I .............................................................................................. 75
- Breeding and Genetics - Livestock and Poultry I .............................................................................................. 76
- Egg and Meat Science and Muscle Biology - Livestock and Poultry I .............................................................. 78
- Extension Education - Livestock and Poultry .............................................................................................. 79
- Food Safety - Livestock and Poultry ............................................................................................................. 80
- Forages and Pastures - Livestock and Poultry: Forage Quality and Nutritive Value .............................................. 81
- Goat Species I ............................................................................................................................................. 82
- Growth and Development - Livestock and Poultry I ...................................................................................... 83
- Immunology - Livestock and Poultry I ............................................................................................................. 84
- International Animal Agriculture - Livestock and Poultry ............................................................................... 85
- Lactation Biology: Mechanisms Regulating Lactation and Mammary Function ............................................. 85
- National ADSA Production Division Graduate Poster Competition .............................................................. 87
- Nonruminant Nutrition: General Nonruminant Nutrition .............................................................................. 87
- Nonruminant Nutrition: Poultry Nutrition I ............................................................................................................. 88
- Nonruminant Nutrition: Weanling Pig Nutrition and Physiology .......................................................................... 89
- Physiology & Endocrinology - Livestock and Poultry: Endocrinology and Metabolism ............................. 90
<table>
<thead>
<tr>
<th>Session</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry I</td>
<td>92</td>
</tr>
<tr>
<td>Ruminant Nutrition I</td>
<td>93</td>
</tr>
<tr>
<td><strong>SYMPOSIA AND ORAL SESSIONS</strong></td>
<td></td>
</tr>
<tr>
<td>ADSA Southern Branch Graduate Student Competition</td>
<td>99</td>
</tr>
<tr>
<td>SYMPOSIUM: Alpharma Beef Cattle Nutrition Symposium</td>
<td>99</td>
</tr>
<tr>
<td>Animal Behavior &amp; Well-Being - Livestock and Poultry I</td>
<td>99</td>
</tr>
<tr>
<td>Animal Health - Livestock and Poultry: Poultry and Swine I</td>
<td>100</td>
</tr>
<tr>
<td>Breeding and Genetics - Livestock and Poultry: Poultry</td>
<td>101</td>
</tr>
<tr>
<td>SYMPOSIUM: Egg and Meat Science and Muscle Biology - Livestock and Poultry: Meat Packaging and Shelf Life</td>
<td>102</td>
</tr>
<tr>
<td>SYMPOSIUM: Food Safety - Livestock and Poultry: Current and Future Salmonella Challenges</td>
<td>102</td>
</tr>
<tr>
<td>Horse Species</td>
<td>103</td>
</tr>
<tr>
<td>Immunology - Livestock and Poultry I</td>
<td>103</td>
</tr>
<tr>
<td>Graduate Student Paper Competition: National ADSA Dairy Foods Division</td>
<td>104</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Bioactive Compounds and Prebiotics in Swine Nutrition</td>
<td>105</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Poultry Nutrition - Protein and Amino Acids</td>
<td>106</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Swine Mineral Nutrition and Metabolism</td>
<td>107</td>
</tr>
<tr>
<td>Physiology &amp; Endocrinology - Livestock and Poultry: Estrous Synchronization</td>
<td>108</td>
</tr>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry: Dairy Production and Management I</td>
<td>108</td>
</tr>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry: Poultry Production, Management and Environment</td>
<td>109</td>
</tr>
<tr>
<td>Ruminant Nutrition: Feedstuff Modification and Growing/Finishing Nutrition</td>
<td>110</td>
</tr>
<tr>
<td>Ruminant Nutrition: Ruminal Fermentation - Dairy</td>
<td>111</td>
</tr>
<tr>
<td>SYMPOSIUM: Teaching/Undergraduate &amp; Graduate Education: Visual Learning in Animal Science</td>
<td>112</td>
</tr>
<tr>
<td>Graduate Student Competition ADSA-ASAS Northeastern Branch</td>
<td>112</td>
</tr>
<tr>
<td>ADSA-SAD Undergraduate Competition - Dairy Production</td>
<td>113</td>
</tr>
<tr>
<td>SYMPOSIUM: ADSA Southern Section Symposium: Keeping Dairy Going and Growing</td>
<td>114</td>
</tr>
<tr>
<td>ADSA-SAD Undergraduate Competition - Dairy Foods</td>
<td>115</td>
</tr>
<tr>
<td>SYMPOSIUM: Bio Ethics - Livestock and Poultry: The Ethics of Food</td>
<td>115</td>
</tr>
<tr>
<td>Breeding and Genetics - Livestock and Poultry: Beef Cattle</td>
<td>115</td>
</tr>
<tr>
<td>Breeding and Genetics - Livestock and Poultry: Dairy Cattle I</td>
<td>116</td>
</tr>
<tr>
<td>Companion Animals: Companion and Comparative Animal Nutrition</td>
<td>117</td>
</tr>
<tr>
<td>Dairy Foods: Cheese I</td>
<td>118</td>
</tr>
<tr>
<td>SYMPOSIUM: Egg and Meat Science and Muscle Biology - Livestock and Poultry:  Meat Marination</td>
<td>118</td>
</tr>
<tr>
<td>Food Safety - Livestock and Poultry: Cattle and Swine</td>
<td>119</td>
</tr>
<tr>
<td>SYMPOSIUM: Horse Species: Recent Advances in Understanding Metabolic Disorders in Horses</td>
<td>120</td>
</tr>
<tr>
<td>Lactation Biology: Metabolism and Gene Expression in Support of Lactation</td>
<td>120</td>
</tr>
<tr>
<td>Graduate Student Paper Competition: National ADSA Production Division</td>
<td>121</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Poultry Nutrition - Gut Health and Early Nutrition</td>
<td>122</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Poultry Nutrition - Breeder and Laying Hen Nutrition and Broiler Environment</td>
<td>123</td>
</tr>
<tr>
<td>Physiology &amp; Endocrinology - Livestock and Poultry: Poultry</td>
<td>124</td>
</tr>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry: Broiler and Broiler Breeder Production and Management</td>
<td>125</td>
</tr>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry: Dairy Production and Management</td>
<td>126</td>
</tr>
<tr>
<td>Ruminant Nutrition: Nitrogen Metabolism/Immunology</td>
<td>127</td>
</tr>
<tr>
<td>SYMPOSIUM: Ruminant Nutrition: Opportunities to Improve Forage Utilization and Rumen Function</td>
<td>128</td>
</tr>
<tr>
<td>SYMPOSIUM: Teaching/Undergraduate &amp; Graduate Education: Enhancing the Undergraduate Learning Experience in Animal Agriculture, Through the Integration of Teaching and Research</td>
<td>128</td>
</tr>
<tr>
<td>ADSA-SAD Undergraduate Competition - Original Research</td>
<td>129</td>
</tr>
</tbody>
</table>
Tuesday, July 10

POSTER PRESENTATIONS

Animal Behavior & Well-Being - Livestock and Poultry II ................................. 130
Animal Health - Livestock and Poultry: Poultry/Swine/Goat/Sheep ....................... 130
Beef Species ............................................................................................................. 132
Breeding and Genetics - Livestock and Poultry II .................................................. 133
Companion Animals: Nutrition and Health .............................................................. 134
Contemporary & Emerging Issues - Livestock and Poultry ..................................... 135
Dairy Foods: Cheese, Dairy Products and Chemistry .............................................. 135
Egg and Meat Science and Muscle Biology - Livestock and Poultry II .................. 137
Forages and Pastures - Livestock and Poultry: Harvested Forages:
   Fermentation and Nutritive Quality ................................................................. 138
Goat Species II ........................................................................................................ 139
Growth and Development - Livestock and Poultry II ............................................. 140
Immunology - Livestock and Poultry II .................................................................. 141
Nonruminant Nutrition: Feeder Pig and Sow Nutrition I ....................................... 142
Nonruminant Nutrition: Poultry Nutrition II ......................................................... 144
Physiology & Endocrinology - Livestock and Poultry: Estrus Synchronization ......... 146
Production, Management & the Environment - Livestock and Poultry II .............. 148
Ruminant Nutrition II .............................................................................................. 149

SYMPOSIA AND ORAL SESSIONS

Animal Behavior & Well-Being - Livestock and Poultry II ................................. 154
Animal Health - Livestock and Poultry: Bovine I .................................................... 154
Beef Species I .......................................................................................................... 155
Breeding and Genetics - Livestock and Poultry: Analyses and Methods I ............. 156
SYMPOSIUM: Breeding and Genetics - Livestock and Poultry:
   New Challenges and Opportunities From Automation of Animal Data Recording .... 157
Egg and Meat Science and Muscle Biology - Livestock and Poultry I ...................... 157
Food Safety - Livestock and Poultry: Poultry ......................................................... 158
SYMPOSIUM: Forages and Pastures - Livestock and Poultry:
  Understanding Diet Selection in Temperate Biodiverse Pasture Systems ............ 159

SYMPOSIUM: Goat Species: Nutrient Requirement of Goats .................................. 160

Growth and Development - Livestock and Poultry I .............................................. 160

Immunology - Livestock and Poultry II ................................................................. 161

SYMPOSIUM: Joint National Extension Workshop: Accountability Issues in Extension:
  Identifying, Measuring and Reporting Impacts ................................................. 161

SYMPOSIUM: Nonruminant Nutrition: Lessons and Logistics of Application of Digestible
  Amino Acids in Diet Formulation ........................................................................ 162

Nonruminant Nutrition: Poultry Nutrition - Enzymes, Feeds, Feed Ingredients,
  and Manufacturing .............................................................................................. 162

SYMPOSIUM: Physiology & Endocrinology - Livestock and Poultry:
  Role of Lipids and Fatty Acids in Regulation of Reproductive Function ............... 163

Production, Management & the Environment - Livestock and Poultry:
  Poultry Production and Reproduction ............................................................... 163

Ruminant Nutrition: Acid:Base Balance/Metabolism - Dairy .................................. 164

Ruminant Nutrition: Corn Milling Co-Products - Beef .......................................... 165

SYMPOSIUM: Teaching/Undergraduate & Graduate Education:
  Shaping Animal Sciences Curricula for 2020 ....................................................... 166

ADSA Foundation Scholar Lecture – Dairy Foods .................................................. 166

Danisco International Dairy Science Award Lecture ............................................. 167


OTHER EVENTS

PSA Business Meeting ............................................................................................. 167

SYMPOSIA AND ORAL SESSIONS

World’s Poultry Science Association Lecture ....................................................... 168

SYMPOSIUM: Animal Behavior & Well-Being - Livestock and Poultry:
  New Methodologies Symposium ........................................................................ 168

Animal Health - Livestock and Poultry: Bovine II ............................................... 168

Breeding and Genetics - Livestock and Poultry: Dairy Cattle II ............................. 169
SYMPOSIUM: Companion Animals: Pet Food Ingredients - Mining, Dredging, and Extrapolating Effective Nutrient Delivery ........................................... 170

Dairy Foods: Chemistry and Microbiology ........................................... 170

SYMPOSIUM: Dairy Foods: On the Road from Analysis and Discovery of Functional Milk Bioactives to New Products and Health Outcomes ........................................... 171

Forages and Pastures - Livestock and Poultry: Harvesting, Ensiling, and Forage Quality ........................................... 172

Goat Species ........................................................................................................... 172

SYMPOSIUM: Joint National Extension Workshop: Changing the Future of Food Animal Production ........................................... 173

Nonruminant Nutrition: Feeder Pig and Sow Nutrition ........................................... 173

Nonruminant Nutrition: Protein and Amino Acid Nutrition in Swine ........................................... 174

SYMPOSIUM: Nonruminant Nutrition: Understanding Protein Synthesis and Degradation and Their Pathway Regulations ........................................... 175

Physiology & Endocrinology - Livestock and Poultry: Endocrinology ........................................... 176

Ruminant Nutrition: Corn Milling Co-Products - Dairy ........................................... 177

Ruminant Nutrition: Intake and Performance - Beef ........................................... 177

SYMPOSIUM: Sheep Species: Biology and Management of Low-Input Lamming Management in Easy-Care Systems ........................................... 178

Teaching/Undergraduate & Graduate Education:
Teaching Session I - Assessment & Evaluation ........................................... 179

ADSA Foundation Scholar Lecture - Production ........................................... 179

Teaching/Undergraduate & Graduate Education:
Teaching Session II - Curricular Innovation ........................................... 179

OTHER EVENTS

A New CAST Paper: A Briefing ........................................... 180

CAST Town Hall Meeting ........................................... 180

Wednesday, July 11
POSTER PRESENTATIONS

Animal Behavior & Well-Being - Livestock and Poultry III ........................................... 181

Animal Health - Livestock and Poultry: Bovine II ........................................... 181

Breeding and Genetics - Livestock and Poultry III ........................................... 183

Dairy Foods: Dairy Processing, Products and Microbiology ........................................... 184
Egg and Meat Science and Muscle Biology - Livestock and Poultry III ............... 186
Forages and Pastures - Livestock and Poultry: Pastures and Grazing ............... 187
Goat Species III ..................................................... 188
Nonruminant Nutrition: Feeder Pig and Sow Nutrition II ......................... 189
Nonruminant Nutrition: Poultry Nutrition III ..................................... 191
Physiology & Endocrinology - Livestock and Poultry: Reproductive Physiology ........ 193
Production, Management & the Environment - Livestock and Poultry III ........ 195
Ruminant Nutrition III .................................................. 196
Sheep Species: Sheep Production and Management ..................................... 201
Swine Species ............................................................. 202
Teaching/Undergraduate & Graduate Education ........................................... 203

OTHER EVENTS

ADSA/ASAS Joint Business Meeting ..................................................... 204
ADSA Business Meeting .............................................................. 204
ASAS Business Meeting .............................................................. 204
AMPA Business Meeting ............................................................. 204

SYMPOSIA AND ORAL SESSIONS

Animal Health - Livestock and Poultry: Poultry and Swine II ....................... 205
Nonruminant Nutrition: Poultry Nutrition - Ingredient and Mineral Nutrition ........ 206
Production, Management & the Environment - Livestock and Poultry:
  Poultry Management, and Environment ............................................. 206
SYMPOSIUM: Distillers Grains Symposium ............................................. 207
SYMPOSIUM: ARPAS Symposium:
  Current and Future On-Farm Auditing & Assessment ................................ 208
Breeding and Genetics - Livestock and Poultry: Dairy Cattle III ................... 208
Dairy Foods: Products and Processing ................................................ 209
Egg and Meat Science and Muscle Biology - Livestock and Poultry II ........... 209
Extension Education - Livestock and Poultry: Extension Dairy Session ............ 210
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactation Biology: Applied Lactation Biology</td>
<td>210</td>
</tr>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry:</td>
<td></td>
</tr>
<tr>
<td>Livestock, Production, and Management</td>
<td>211</td>
</tr>
<tr>
<td>Production, Management &amp; the Environment - Livestock and Poultry:</td>
<td></td>
</tr>
<tr>
<td>Livestock Production, Management, and Environment</td>
<td>212</td>
</tr>
<tr>
<td>Ruminant Nutrition: Nutrition and Animal Health</td>
<td>212</td>
</tr>
<tr>
<td>Ruminant Nutrition: Protein and Fiber Digestion</td>
<td>213</td>
</tr>
<tr>
<td>Swine Species</td>
<td>214</td>
</tr>
<tr>
<td>SYMPOSIUM: Teaching/Undergraduate &amp; Graduate Education:</td>
<td></td>
</tr>
<tr>
<td>From Choosing a Graduate Program to Embarking on a Successful Career:</td>
<td></td>
</tr>
<tr>
<td>A Guide for Livestock and Poultry Science Students</td>
<td>214</td>
</tr>
<tr>
<td>Bio Ethics - Livestock and Poultry</td>
<td>215</td>
</tr>
<tr>
<td>SYMPOSIUM: Distillers Grains Symposium</td>
<td>215</td>
</tr>
<tr>
<td>SYMPOSIUM: ADSA Production Division Symposium</td>
<td>215</td>
</tr>
<tr>
<td>Breeding and Genetics - Livestock and Poultry: Swine</td>
<td>216</td>
</tr>
<tr>
<td>Dairy Foods: Cheese II</td>
<td>216</td>
</tr>
<tr>
<td>SYMPOSIUM: Dairy Foods: Milk Proteins and Enzymes: Proteomics and Milk</td>
<td>217</td>
</tr>
<tr>
<td>Extension Education - Livestock and Poultry: Extension Livestock Session</td>
<td>217</td>
</tr>
<tr>
<td>Forages and Pastures - Livestock and Poultry: Grazing</td>
<td>218</td>
</tr>
<tr>
<td>SYMPOSIUM: Growth and Development - Livestock and Poultry:</td>
<td></td>
</tr>
<tr>
<td>Transcriptional Factors and Cell Mechanisms for Regulation of Growth and Development with Application to Animal Agriculture</td>
<td>219</td>
</tr>
<tr>
<td>SYMPOSIUM: International Animal Agriculture - Livestock and Poultry:</td>
<td></td>
</tr>
<tr>
<td>Global Livestock and Poultry Issues</td>
<td>219</td>
</tr>
<tr>
<td>Nonruminant Nutrition: General Topics</td>
<td>220</td>
</tr>
<tr>
<td>SYMPOSIUM: Nonruminant Nutrition: Natural Phytobiotics for Health of Young Animals: Applications and Mechanisms</td>
<td>221</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Weanling Pig Nutrition</td>
<td>221</td>
</tr>
<tr>
<td>Physiology &amp; Endocrinology - Livestock and Poultry: Reproductive Physiology</td>
<td>222</td>
</tr>
<tr>
<td>Ruminant Nutrition: Intake Behavior/Acidosis/Metabolism - Dairy</td>
<td>224</td>
</tr>
</tbody>
</table>
Thursday, July 12

SYMPOSIA AND ORAL SESSIONS

Beef Species II: Feed Intake and Efficiency ........................................... 227
Breeding and Genetics - Livestock and Poultry: Analyses and Methods II .................. 227
SYMPOSIUM: Contemporary & Emerging Issues - Livestock and Poultry:
Contemporary and Emerging Issues .......................................................... 228
Nonruminant Nutrition: Poultry Nutrition - Phosphorus and Phytase ...................... 228
Physiology & Endocrinology - Livestock and Poultry: Metabolic Physiology .......... 229
SYMPOSIUM: Poultry-Breeding and Hatchery Symposium:
Semen Evaluation and Fertility Determination in Poultry .................................. 230
Ruminant Nutrition: Nitrogen Digestion/Metabolism ...................................... 231
SYMPOSIUM: Swine Species: Impact of Season on the Boar and Sow .................... 232
SYMPOSIUM: Teaching/Undergraduate & Graduate Education: Swine Teaching ...... 232
ADSA Dairy Foods Division
Schedule of Events

**Sunday, July 8**

5:00 pm – 6:00 pm  ADSA Dairy Foods Division Council Meeting, Convention Center, Room 204B

**Monday, July 9**

9:30 am – 12:30 pm  Graduate Student Paper Competition: National ADSA Dairy Foods Division, Convention Center, Room 201 (page 104)


2:00 pm – 5:00 pm  Dairy Foods: Cheese I, Convention Center, Room 201 (page 118)

**Tuesday, July 10**

7:30 am – 9:30 am  Posters - Cheese, Dairy Products and Chemistry, Convention Center, Exhibit Hall C (page 135)

9:30 am – 10:30 am  ADSA Foundation Scholar Lecture - Dairy Foods, Convention Center, Room 201 (page 166)

10:30 am – 11:30 am  Danisco International Dairy Science Award Lecture, Convention Center, Room 201 (page 167)

11:30 am – 12:30 pm  ADSA Dairy Foods Division Business Meeting, Convention Center, Room 201

12:30 pm – 2:00 pm  ADSA Dairy Foods Division Milk Proteins & Enzymes Committee, Convention Center, Room 201

2:00 pm – 5:00 pm  Dairy Foods: Chemistry and Microbiology, Convention Center, Room 201 (page 170)

2:00 pm – 5:00 pm  SYMPOSIUM: Dairy Foods: On the Road From Analysis and Discovery of Functional Milk Bioactives to New Products and Health Outcomes, Convention Center, Room 202 (page 171)

**Wednesday, July 11**

7:30 am – 9:30 am  Posters - Dairy Processing, Products and Microbiology, Convention Center, Exhibit Hall C (page 184)

9:30 am – 10:00 am  Joint ADSA/ASAS Business Meeting, Convention Center, Room 206B (page 204)

10:00 am – 10:30 am  ADSA Business Meeting, Convention Center, Room 206A (page 204)

10:30 am – 12:30 pm  Dairy Foods: Products and Processing, Convention Center, Room 202 (page 209)

2:00 pm – 5:00 pm  Dairy Foods: Cheese II, Convention Center, Room 201 (page 216)

2:00 pm – 5:00 pm  SYMPOSIUM: Dairy Foods: Milk Proteins and Enzymes: Proteomics and Milk, Convention Center, Room 202 (page 217)