

Racing to Indy

Are you ready for a great meeting? Many folks have been working hard to put together a great educational experience at the 1999 ASAS Meeting in Indianapolis.

Wonderful shopping, attractions and fine food are all within easy reach of downtown Indianapolis. You can take in a zoo, a minor league baseball game, and of course - the Indianapolis Motor Speedway! That is why we are "Racing To Indy"! In addition, several tours will allow you to experience the great state of Indiana.

Indiana has a rich agricultural heritage. Despite ranking 38th in size in the nation and having just 2 percent of the country's population, Indiana earned top 10 rankings in nearly 20 agricultural production areas in 1998! Indiana produces approximately 8 percent of the nation's soybeans or corn. You are probably aware that Indiana ranks in the top ten in production of pork, eggs, turkeys, chickens and layers. However, did you know that Indiana produces the most ducks in the US, with 1.2 million in inventory?

Back to the folks that have been toiling to make this meeting very special. Your program chairs have packaged over 600 abstracts into an exciting program. In fact, thanks to the hard work of our program chairs and ASAS and FASS staff, we are pleased to provide the entire program to you along with preregistration material. We hope this will enhance your planning.

The 1999 meeting is a mix of tried and true and new activities. Be sure to attend our opening session that will feature Dr. Eric Bradford speaking on "Animal Agriculture and Global Food Supply." Our multiple symposia, lead off by the always-popular reproductive symposium, and our poster and oral sessions are the heart and soul of our program. We have also added a new twist - Technology Forum. Thanks to generous sponsors, we are bringing you some of the very latest information on eco-nutrition, food safety, meat quality, lean growth modeling and reproductive management. We are hoping to attract many folks that have not formerly attended ASAS meetings. To you, we say Welcome! To all our sponsors, we say Thank You! Members, please take time to thank our sponsors as you meet them during the meeting. In conclusion, folks at Purdue University, University of Illinois, Elanco Animal Health, United Feeds and USDA-ARS Livestock Behavior Unit are anxiously awaiting your arrival. Please be on the lookout for folks in black or orange shirts to get your questions answered! What a pit crew! See you in Indy!

Terry Klopfenstein
ASAS President

Jeff Armstrong
1999 Annual Meeting Host

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Important Deadlines

July 1	General Registration Form Due
July 9	Last Day to Cancel Tours with Full Refund
June 4	Housing Reservation Form Due

POSTER SESSIONS

Poster sessions will be all day Wednesday, Thursday, and Friday until noon. Posters will be staffed by a presenter at times designated in the scientific program, but will be available for viewing from 8:00 a.m. to 5:00 p.m. on the day on which the session is scheduled. The Tech Forum posters will be up from Wednesday 1:00 p.m. to Thursday 11:00 a.m. and will be staffed by a presenter from 4:30 p.m. - 6:00 p.m. on Wednesday. The poster board surface is 48" high and 96" wide. Poster presenters must supply their finished poster and the push pins to display their poster. The Exhibit Hall will open at 7:00 a.m. to presenters on day of scheduled poster presentation.

REGISTRATION INFORMATION

Registration Materials

All registration materials are included in this mailing. Registration information and forms can be found on page 32A/B and are also available by visiting the ASAS Web site at <http://www.asas.org/>. Each member should complete a General Registration Form. If you have a spouse/guest or child participating in any of the activities of the meeting, they should be included on the member's General Registration Form. If events are ticketed all individuals including children must purchase a ticket (please include all names).

Registration Deadline

Register early to help us plan better. Those registrations that are postmarked before July 1 will be at a lower rate than those sent July 1 or later. No telephone registrations will be accepted. Faxed registrations can be accepted only if payment is made by credit card (FAX 217/398-4119). We accept Visa, MasterCard, and American Express.

Student Rate '99: Free Student Registration!

Again this year, students who are members of ASAS receive free registration. Student Nonmembers pay a nominal registration fee of \$20 which includes membership for 1999. A membership form on page 167 must be returned with the registration form. (Please note students are responsible for fees associated with ticketed events.)

Membership Information

You do not have to be a member of ASAS to attend the meeting; however, the differential between the member and non-member registration fee makes it very attractive to join at the time of registration. A membership application can be found on page 167 of this booklet. To take advantage of this offer you must return a membership application with the registration form.

Payment

Checks for Registration must be in US dollars drawn on US banks made payable to ASAS Annual Meeting. Payment by credit card (in US dollars) is available: complete the "Credit Card" section at the end of the General Registration Form.

Receipts

If you register before July 9 we will mail you a registration receipt, meeting badge and appropriate tickets. Verify the receipt and contact the Business Office if you have any questions. If registration is received after July 9, you may pickup your receipt, meeting badge and appropriate tickets in the ASAS Registration Area at the Indianapolis Convention Center (see Convention Center Map on page 157/158).

Program Book

The Meeting Program, included in this booklet, begins on page 36.

Abstract Book

Abstract books will not be mailed prior to the meeting. Participants will receive the book of abstracts in Indianapolis.

On-Site Registration

Registration will be located in front of Exhibit Hall E (see map on page 158) in the Indianapolis Convention Center, 100 S. Capitol Avenue, Indianapolis, IN 46225. Registration hours for the ASAS meeting, including special symposia and other events, will be as follows:

Monday, July 19, 1999	1:00 p.m. - 4:00 p.m.
Tuesday, July 20, 1999	7:00 a.m. - 8:00 p.m.
Wednesday, July 21, 1999	7:00 a.m. - 7:00 p.m.
Thursday, July 22, 1999	7:30 a.m. - 5:00 p.m.
Friday, July 23, 1999	7:30 a.m. - 12:00 Noon

The telephone number for the ASAS Registration Desk during the meeting is 317-262-0719.

Reminder

Wear your name tag! It's your admission to the Meeting Events. Tickets for special events and meal functions will be collected at the door or at the table for specific events. Your tickets and name badge will be mailed to you if you register prior to July 9. All tickets will look alike, but event name, location and date will appear on them. Be sure to give the ticket taker the appropriate ticket.

ASAS Denim Shirts



100% cotton stonewashed denim long sleeve shirts embroidered with the ASAS acronym in navy blue above the left chest pocket are available. Double stitched button down collar. Full placket front, double stitched, with seven woodtone buttons. Sizes: S, M, L, XL (men's sizes). Order in advance to ensure availability.

Introducing the Journal of Animal Science on CD-ROM

We are now taking pre-orders for a new CD-ROM that contains complete Issues of Journal of Animal Science from 1996 through the most recent issue of 1999 at the time the CD is

produced. The articles, in PDF format like those on our Web site, will be fully searchable across issues and volumes. The cost for ASAS members is \$25; the cost for nonmembers is \$90. The annual meeting registration form includes a line for ordering the CD, which we will deliver at the annual meeting in Indianapolis. Please indicate your interest on the registration form so we can be certain to produce enough CDs to meet demand.

Questions

All program registrations will be handled by the ASAS Business Office. All inquiries about preregistration or the 1999 ASAS Annual Meeting should be made to the ASAS Business Office, 1111 N. Dunlap Avenue, Savoy, IL 61874; Phone: (217) 356-3182; Fax: (217) 398-4119; E-mail: asas@assochq.org.

Special Needs

All rooms at the Convention Center are wheelchair accessible. Please indicate any special needs when sending in your registration form.

ACCOMMODATIONS

Hotels **The Westin Indianapolis** **ASAS Headquarter Hotel**

Rooms have been blocked at five hotels, all within walking distance of the Indianapolis Convention Center (see downtown Indianapolis map on page 32D). A housing information and reservation form is included (page 32C) with your preregistration materials. You may contact hotels directly with any questions you have regarding their guest room accommodations; however, all reservations (and changes to existing reservations) must be made through the ASAS Housing Bureau, (address information below). Your housing reservation form is to be returned by June 4, 1999 directly to:

ASAS Housing Bureau

Indianapolis Convention & Visitors Association One RCA Dome, Ste 100 Indianapolis, IN 46225 FAX (317) 684-2492

Hotel Information

Hampton Inn Downtown
105 S. Meridian St.
Indianapolis, IN 46225
317-261-1200
800-HAMPTON
FAX 317-261-1030
www.hampton-inn.com

Hyatt Regency Indianapolis
One S. Capitol Ave.
Indianapolis, IN 46204
317-632-1234
800-233-1234
FAX 317-231-7569

The Westin Indianapolis
ASAS Headquarter Hotel
50 S. Capitol Ave.
Indianapolis, IN 46204
317-262-8100
800-WESTIN-1
FAX 317-231-3928
www.westin.com
Omni Severin Hotel
40 W. Jackson Pl.
Indianapolis, IN 46225
317-634-6664
800-THE-OMNI
FAX 317-647-3619
www.omnihotels.com

Courtyard by Marriott
Downtown Indianapolis
501 W. Washington St.
Indianapolis, IN 46204
317-635-4443
800-321-2211
FAX 317-687-0029

Campgrounds

KOA Indianapolis - Located 14 miles from downtown at I-70 and Mt. Comfort Rd. exit 96. For specific information, contact the facilities directly: 317-894-1397.

TRANSPORTATION

Travel Planning

Conventions in America (CIA) is the official travel agency for the annual meeting. Call 1-800-929-4242 and ask for Group #695 to receive discounts on the lowest available fares of Northwest Airlines and USAirways. All CIA customers receive free flight insurance of \$100,000. Visit the CIA website: [www/scitravel.com](http://www.scitravel.com) (use #695). Outside US & Canada, call 619-232-4298 / Fax 619-232-6497 or Email - flycia@scitravel.com. If you call direct or use your own agency, refer to these codes:

Northwest 1-800-328-1111, Worldfile #NY468

USAirways 1-800-334-8644, Goldfile #97691047

Northwest Airlines Discount

Northwest Airlines is an official air carrier for the ASAS Annual Meeting. Save from \$30 to \$100 on applicable fares of \$200 or more. Travel between July 14-31, 1999. Call Northwest at 1-800-328-1111 or your travel agent. Use Worldfile #NY468 (for continental North America) or Worldfile #RB253 (inbound from Europe & Asia).

National Car Rental Discount

National Car Rental is the official car rental company of ASAS. Call National at 1-800-CAR RENT or your travel agent. Please use Contract #5710095 to receive the association discount.

Indianapolis City Smart Guide Book

Whether you are a visitor, a new resident, or an Indianapolis native, you'll find City-Smart Guidebook Indianapolis indispensable. Sights, restaurants, galleries, museums, shopping, sports and recreation--everything you need to explore Indianapolis from top to bottom, like a native. You may order this book on the registration form, a \$12.95 value for the special price of \$9.00. The book will be mailed to you, if the order is received by June 18, and after that date if available.

Shuttle Service

All hotels are within walking distance of the Indiana Convention Center this year, so conference shuttle service is not necessary. Indy Go The Transit Store has regular bus route services for the city, Tel: 317-635-3344. Non-rush hour fares are \$.75 and rush hour fare is \$1, half fare for seniors and disabled persons. Exact change is required. They also operate an "Open Door" lift-equipped van, Tel: 317-917-8747. Advance reservations are required and the fare is \$1.50 one way.

Taxi

Taxi line fares running from the Indianapolis International Airport to downtown Indy are approximately \$18 - \$22 per trip. There are also van and limousine services for shared rides that are available at the grounds transportation office across the street from the terminals at the airport. Fares for shared transportation are approximately \$6 - \$9.

Automobile

Indianapolis is centrally located in the state and is accessible from I-74, I-65, I-70, and I-69. The Indianapolis Convention and Visitors Center is located at One RCA Dome, Suite 100, at the intersection of Maryland Street and Capitol Avenue.

If approaching Indy from the north: I-65 South to West Street Exit 114, travel south on West Street (Dr. Martin Luther King, Jr. Drive) to Maryland Street, turn left (east) on Maryland and the ICVA will be on the right.

If approaching Indy from the east: I-70 West to I-65 North, exit I-65 North at the West Street Exit 114, travel south on West Street (Dr. Martin Luther King, Jr. Drive) to Maryland Street, turn left (east) on Maryland and ICVA will be on the right.

If approaching Indy from the south: I-65 North to I-70 West, exit I-70 West on West Street Exit 79A, travel north on West Street/Missouri Street to Maryland Street, turn right (east) on Maryland and the ICVA will be on the right.

If approaching Indy from the west: I-70 East to West Street Exit 79A, travel north on West Street/Missouri Street to Maryland Street, turn right (east) on Maryland and the ICVA will be on the right.

There are several parking garages in downtown Indy. Garages on Capitol and Illinois Streets will provide convenient parking for the Convention Center, however, the parking garages will fill fast so plan ahead. Most of the hotels have some parking accommodations. Contact the hotel for more specific information.

GENERAL INFORMATION

Indiana Tourism Hotline 1-800-884-4612

Indianapolis City Center

Indianapolis City Center is the official visitor center for the city. It is located across from the ICVA at the corner of Capitol and Georgia. Tel: 317-237-5200

Information Desk

A general information desk providing local information on entertainment, dining and points of interest will be located outside of Exhibit Hall B in the Convention Center.

Important Telephone Numbers

ASAS Registration Desk	317-262-0719
ASAS Media Center	317-262-0718
Emergency-Fire-Police-Ambulance	911
Methodist Hospital Emergency Medicine and Trauma Center	317-929-8355
St. Vincent Hospital and Health Services	317-338-2121
Visitor Information Center	317-237-5200
Indiana State Parks/Reservoirs Information	317-232-4124
Official Meeting Hotels	
The Westin	317-262-8100 800-WESTIN-1
Hyatt Regency	317-632-1234 800-233-1234
Hampton Inn Downtown	317-261-1200
Courtyard by Marriott Downtown	317-635-4443 800-321-2211
Omni Severin	317-634-6664 800-THE-OMNI

Black or Orange Shirts

All Host Committee Members can be identified by black or orange shirts. Purdue University, Elanco Animal Health, United Feeds, USDA, ARS, and University of Illinois are serving as your hosts! If you're lost or have a question while attending the meeting, please look for the smiling faces. Also, don't forget to thank them for hosting a great meeting!

Babysitting Services

The service provided by Babysitters to the Rescue is available for the downtown Indy area. All sitters have a college education and have undergone a thorough background check before being hired. The approximate charge is \$15.00 an hour for a single family of 3-4 children. There is a 4 hour minimum per family. Call Nancy Reiter at 317-257-7999 for more information.

Publicity/Public Relations/ Media Center

Room 140 in the Indianapolis Convention Center will be reserved as a Publicity and Public Relations Center. Publicity, news releases, and the daily newsletter will be issued from this location. The telephone number for the Media Center will be 317-262-0718.

Business Copy Center

A Business Copy Center for your use is located on the 1st floor of the Indianapolis Convention Center near the Capitol Avenue entrance. You may purchase small business items and have copies made at your expense.

Slide and LCD Projector Preview Room

A room for you to preview your slides and test your computer with an LCD projector before your presentation will be located in the Indianapolis Convention Center, Room 160. You will need to provide your own slide carousel and laptop computer.

Attention LCD Projector Users

Meeting presenters using computer display projectors should review the following guidelines before coming to Indianapolis:

IMPORTANT NOTE: All LCD presenters must check in with staff in Convention Center, room 162.

ASAS will again provide LCD projectors for those who have requested this mode of delivery. All presenters will be contacted via e-mail. If you have questions, please contact:

Mickey A. Latour at gator@purdue.edu

All individuals that have requested LCD will be contacted via e-mail with specific instructions. Briefly, we will request that individuals send their presentations via FTP or attached email ONE-WEEK prior to the event, so we can get all presentations in their proper location. In addition, Room 162 will be available during the meeting. Presentations not submitted prior to the meeting must be delivered to Room 162 AT LEAST the afternoon prior to the presentation. Our goal is to load a particular section of presentations on a single laptop computer. We will need plenty of volunteers to provide laptops. Individuals that plan to use their own computer need to arrive to their session AT LEAST 30 minutes in advance of the START of the session (**not** your talk) to test their compatibility with the projection equipment in their presentation room. (Room 160 and 162 will also be available for this purpose. If speciality software is required to run their presentation (QuickTime, RealPlayer, etc) then those individuals need to bring their own computer.

In the unlikely event that the LCD or computer fails during a presentation, the presenter must be prepared to continue verbally.

For those individuals who plan to use their own laptop, have your display set to 640x480 or 800x600 (avoid 1024x768 - it may not display correctly). Know how to configure your video settings in case there is a problem.

Avoid delays from booting your computer at the start of the presentation. Some computers require the projector be attached in order for the video port to be activated - use a computer that is able to detect a video display without requiring a reboot.

Load the presentation software and open the slide show prior to the presentation, and then put the computer in a "suspend" or "sleep" state. At the start of the presentation, attach the projector to the video port, and then "wake" or "resume" the computer.

Know how to activate your computer's video port - this often requires a specific key combination and is different on different computers.

Bring your computer's power cable/cord and use it to be sure of a strong signal from the computer to the projector. Do not plan to power your computer with the battery. You will not need an extension cord.

There will be no remote control, so plan on running the keyboard yourself.

It is highly recommended that you use your computer with an 800x600 display projector prior to the meetings so you will be familiar with the connection and configuration required for your type of computer.

A preview room (160) with LCD panel will be available.

Special Note for Macintosh Users

You must bring your own docking cable for the connection between the computer and the projector.

You must have "Video Mirroring" on your system. This can be loaded from the System disks (version 7.0 and higher).

ARPAS Continuing Education Units



The ASAS Annual Meeting is approved for up to 28 continuing education units (CEUs) for American Registry of Professional Animal Scientists certification requirements.

Sign up to take an ARPAS exam (page 165) and return with your registration. Exams will be given in Room 204. Times to be announced.

Sponsorship Opportunities

There are numerous sponsorship opportunities for companies wanting additional recognition or for those that want to support the organization. Some of the activities your contribution could

support include the Opening Reception, Cyber Café, printing of the abstracts issue, a scientific session, Fun Run, Golf Tournament, or the Daily Newsletter. All donors will receive excellent recognition and top donors (more than \$2500) get a complimentary exhibit booth (a \$700 value). For more details, visit the Meeting Web Site at <www.asas.org> or contact the marketing department at 217/356-3182 or by e-mail: lorenan@assochq.org.

INDIANAPOLIS INFORMATION

Indianapolis Entertainment

American Cabaret Theatre

Located in the beautifully renovated ballroom of the historic downtown Athenaeum, the Cabaret Theatre presents a unique blend of music, song, dance and visuals. The theatre is in its sixth season presenting original musical revues conceived and written by founding artistic director Claude McNeal. Playing the week of July 19 is "Fabulous Fifties". Contact the box office for tickets Mon.-Thurs., 9:30am-5pm and Fri.-Sat, 9:30am-8pm at 317-631-0334.

Beef & Boards Dinner Theatre

Visit Beef & Boards Theatre on July 22nd and enjoy a buffet dinner followed by the Broadway production "Nunsense Jamboree". Performances are by professional, equity companies. Doors open at 6:00pm, buffet dinner at 6:30pm and performance at 8:00pm. Reservations are suggested. Contact the Theatre at 317-872-9664 for tickets and information.

Indianapolis Indians

Check out Indy's AAA International League Indians as they play the Buffalo Bison July 19th through the 22nd at Victory Field located just west of the Convention Center. The Indians are affiliated with the Cincinnati Reds and have been Indy's professional baseball team since 1887. Game times: July 19, 20 and 22 at 7:00pm; July 21 at 2:00pm. Order tickets by phone at 317-239-5151.

Greatimes

An excellent choice if you have children at the meetings, Greatimes offers miniature golf, go carts, bumper boats, children's train, batting cages, merry-go-round, super colider, arcade games, and indoor children's play land. Admission is free but there is an activity charge. Contact 317-780-0300 for more information.

IMAX 3D Theatre

Located downtown at the White River State Park, view films 10 times the size of normal films on a screen six stories high. Call 317-233-4629 for show times and ticket information.

Murat Theatre

Formerly known as the Murat Shrine, the Murat Theatre hosts Broadway shows, top-name entertainers and musicians, special events, and trade shows. It is the largest of the 190 Shrine temples in North America and the birthplace of the Shrine Circus. Call 317-231-0000 Mon.-Fri., 9:30am-6:00pm for show and concert information for the week of July 19th.

Indianapolis Symphony Orchestra

Enjoy an excellent musical experience at the ISO! Under the brilliant direction of Raymond Leppard, the orchestra performs Classical, Pop, Family, Educational and Holiday concerts. Contact the ISO at 1-800-366-8457 for concert and ticket information for the week of July 19th.

United Artists Entertainment Complex

Visit a virtual theme park at the Entertainment Complex featuring Showscan, a motion theater of simulated high-speed action and Virtual Glider, where patrons can fly over a metropolis of the future or the Grand Canyon. Starport also offers Sega City featuring 60 of the latest arcade attractions and Virtual World, the best virtual multi-player games in town. Call 317-237-6498 for more information.

Conner Prairie

Take a trip to an 1836 village where costumes, buildings and even the actor's speech and conversation are authentic. Tour the historic 1823 William and Elizabeth Conner Estate and try 19th-century activities, games, and crafts at the hands-on Pioneer Adventure Area. Also enjoy horse drawn wagon rides and Symphony on the Prairie (Thurs. and Fri. only). For more information and ticket prices call 800-966-1836.

World Mardi Gras

Four Bars for Five Bucks! The World Mardi Gras Entertainment Complex is located in the 4th level of Circle Centre Mall and hosts the hottest national, regional, and local live music acts. The great entertainment is complimented by the state-of-the-art lighting and a festive New Orleans backdrop. Call 317-630-5483 for more information.

Indianapolis Attractions

Indianapolis Zoo

Located downtown, the Zoo opens daily at 9:00am and connects animals, plants and people. Highlights include Indiana's largest aquarium; daily dolphin shows, open exhibit areas with 350 different animal species; seasonal elephant, pony, trolley, train and carousel rides; plus "EdZootainment" shows and dynamic botanical exhibits. Call 317-630-2001 for admission fees and information.

Scottish Rite Cathedral

Tour the Tudor-Gothic style cathedral weekdays from 10:00am - 3:00pm. Judged during its early days as one of the world's most beautiful buildings and built in 1929, the Cathedral is constructed of marble, Russian white oak beams and paneling. Gothic tower rises 212 feet above street level and contains one of the largest carillons in the US Admission is free. Contact 317-262-3100 for more information.

The Children's Museum of Indianapolis

Indianapolis houses the world's largest children's museum. An exciting adventure for children and adults of all ages. Visit the museum to view the world from a seat in the CineDome theater,

dig for fossils, try your skill at rock-climbing, hop a ride on a turn-of-the-century carousel and sail through space in the SpaceQuest Planetarium. The museum is open Mon.-Sun., 10:00am-5:00pm. Call 317-924-5431 for admission fees and information.

Broad Ripple Village

This northside neighborhood 20 minutes from downtown features a concentration of eclectic boutiques, art galleries, sidewalk cafes, nightclubs, pubs, vintage clothing stores, and ethnic restaurants. Visit the Convention Center Information Desk or the Indianapolis City Center for more information.

Eiteljorg Museum of American Indians and Western Art

The Eiteljorg houses one of the finest collections of American Western and Native American art and artifacts. The museum has permanent exhibits, traveling exhibitions, daily films, demonstrations and a large museum store. Located within walking distance of downtown, the museum is open Mon.-Sat., 10:00am-5:00pm and Sun., noon-5:00pm. Call 317-636-WEST for admission fees and information.

Indianapolis Motor Speedway Hall of Fame Museum

Indianapolis is the home of the greatest spectacle in racing! Visit one of the world's largest, most varied collections of racing, classic and antique cars. More than 30 Indianapolis 500 winning cars. View a half-hour film presented in the Tony Hulman Theatre depicting the history of the track and race highlights. Also see video presentations, racing memorabilia and visit the gift shop. Call 317-484-6747 for admission fees and information.

White River State Park

Indiana's first urban state park is located on 250 acres in downtown Indy. The park capitalizes on its urban setting by offering a mix of top-quality attractions, indoor and outdoor recreational facilities and natural green spaces. Included in the park are the Indianapolis Zoo, Eiteljorg Museum, Victory Field and IMAX 3D Theater. Call 317-634-4567 for more information about how to access the walkways to get a great view of the city.

Soldier's and Sailor's Monument

Travel by elevator to the top of the Monument for a unique view of the city. The 284-foot tall Monument was completed in 1902 and stands as tribute to those in the armed forces who died in the Civil War. Operating hours are Wed.-Sun., 11:00am-7:00pm. Call 317-232-7615 for more information.

Garfield Park Conservatory

Enjoy an Amazon River Region Rain forest complete with a large collection of Bromeliads and epiphytes planted in a natural setting. Admission is \$1-\$2 and hours are Tues.-Sat., 10am-5pm. Call 317-327-7184 for more information.

Indianapolis Museum of Art

Among the oldest art museums in the US, the Museum is fully integrated with a 52-acre park including gardens, five pavilions, lecture hall, theater, concert terrace, restaurant, shops and greenhouses. Permanent collections include European and American paintings, contemporary art, Asian art, textiles and more. Call 317-923-1331 for operating hours and admission information.

James Whitcomb Riley Museum Home

Visit the home where the most well known Hoosier poet, James Whitcomb Riley, spent the last 23 years of his life as a paying guest. One of the finest Victorian preservations in the US, many of Riley's personal belongings are showcased here. Call 317-631-5885 for hours and admission information.

Morris-Butler Home

Take a tour through this beautifully restored 1865 Second Empire-style home filled with rare furnishings and elegant decorations reflecting the lifestyle of an upper-class Indianapolis family. Tours and themed events emphasis Victorian-era architecture, home decoration and 19th century history. Call 317-636-5409 for more information.

President Benjamin Harrison Home

Built in 1875, this 16-room Italianate mansion was home to the 23rd President of Harrison the United States as he campaigned for the presidency in 1888. The home has been carefully restored to the late 1800s appearance with original Victorian furnishings and political mementos. Call 317-631-1898 for more information.

Chateau Thomas Winery

This Chateau Thomas Winery located five miles west of the Indianapolis Airport is the largest winery in the greater Indianapolis area. Opened in 1984, the winery offers a tasting room, gift shop and production facilities. Call the winery at 888-761-9463 for more information.

Hoosier Park in Anderson

Standardbred Harness Racing, Wed-Sat evenings, 7:00 p.m. post time, 20 miles northeast of Indianapolis off I-69. 4500 Patch Circle, Anderson, 765-683-2585, 1-800-526-RACE,

Nashville Follies Musical Theater

Nashville, IN has both country and western and 50's shows Friday and Saturday nights in their quaint theater in historic Nashville. Combine an afternoon of shopping at over 350 shops, with supper and the show. Show Time is 7:00 p.m. 812-988-9007

Indianapolis Dining

Dining within walking distance of the Convention Center.

Majestic Restaurant*
47 S. Pennsylvania St.
317-687-8888

Del Frisco's**
55 Monument Circle
317-687-8888

St. Elmo Steak House*
127 S. Illinois St.
317-635-0636

Ruth's Chris Steak House**
45 S. Illinois Street
Circle Centre Mall
317-633-1313

Old Spaghetti Factory
210 S. Meridian St.
317-635-6325
Alcatraz Brewing Co.**
49 W. Maryland St.
Circle Centre Mall
317-488-1230

Buca di Beppo**
35 N. Illinois St.
317-632-2822
Bazbeaux
334 Massachusetts Ave.
317-636-7662

Shula's Steak House
The Westin
50 S. Capitol Ave.
317-262-8100

Shapiro's Deli Cafeteria
808 S. Meridian St.
317-631-4041

T.G.I. Friday's
Courtyard by Marriott
501 W. Washington St.
317-685-8443

Planet Hollywood
130 S. Illinois St.
317-822-9222

California Cafe**
49 W. Maryland St.
Circle Centre Mall
317-488-8686

Mikado Japanese Restaurant**
148 S. Illinois St.
317-972-4180

Palomino Euro Bistro**
49 W. Maryland
Circle Centre Mall
317-972-4180

Laria's Italian Restaurant
317 S. College Ave.
317-638-7706

*Reservations accepted.

**Reservations recommended.

Indianapolis Shopping

Circle Centre

Located in downtown Indy, this newest shopping experience boasts 100 specialty shops with anchor stores Nordstrom and Parisian and restaurants and night clubs. Entertainment includes a nine-screen cinema, a virtual reality theme park, and the Indianapolis Artsgarden, an eight-story glass dome dedicated to showing the arts. Connected to the ICVA via skywalk as well as five downtown hotels. Tel: 317-681-8000

The Fashion Mall, Keystone at the Crossing

Featuring Jacobson's, Parisian, J.Crew, Eddie Bauer, Pottery Barn, Williams-Sonoma, California Pizza Kitchen and over 100 other shops, 67 which are unique to Indianapolis, restaurants and a food court. Located at 86th Street and Keystone Ave. Tel: 317-574-4000

Castleton Square

L. S. Ayres, Lazarus, Sears, JCPenney, and Von Maur, as well as 130 specialty stores. Located on 82nd Street between Allisonville Rd. and St. Rd. 37. Tel: 317-849-9993

Indianapolis Downtown Antique Mall

Located in historic Fountain Square, this mall houses 40 individual shops on two floors with a wide variety of antiques and collectibles including glassware and furniture, American art pottery and country and primitive items. Located 11 blocks southeast of Monument Circle at 1044 Virginia Ave. Tel: 317-635-5336

SPECIAL EVENTS

Exhibit Schedule

Wednesday, July 21

Exhibits Open: 11:00 a.m.-6:00 p.m.

Reception in Exhibit Hall: 4:00 p.m.-6:00 p.m. in conjunction with Tech Forum '99

Thursday, July 22

Exhibits Open: 11:00 a.m.-5:00 p.m.

Lunch: 12:00 p.m.-1:30 p.m.

Come visit the 1999 ASAS Annual Meeting Exhibitors!

**Wednesday, July 21 -
11:00 a.m. - 6:00 p.m.**

**Thursday, July 22 -
11:00 a.m. - 5:00 p.m.**

Exhibitors as of 5/10/99

Academic Press
ALOKA
Alltech
American Protein Corporation
ANKOM Technology
ARPAS
ASAS
Baltimore 2000
Brill Corporation
Classic Medical Supply
Distribution Processing, Inc.
Elsevier Science
Fats and Proteins Research Foundation
FASS
Fitzco/Whatman
Griffin Industries Inc.
Iowa State University Press
International Ingredient Corporation
Livestock Conservation Institute
Midwest Bio Medical Company
National Pork Producers Council
Nutra-Flo
Omega Protien
Pfizer Animal Health
Prentice Hall
USDA

ASAS Awards Program and Ice Cream Social

The ASAS Awards Program has been scheduled for 8:00 p.m., Thursday, July 22, in Grand Ballroom 5 at the Westin Hotel. It will be followed by an Ice Cream Social so donors of awards can be thanked and recipients can be congratulated. The Awards Program and Ice Cream Social are open to all meeting participants, their families, and friends. (PLEASE REGISTER ON THE REGISTRATION FORM TO GIVE US AN ACCURATE COUNT)

Luncheon Programs

Minority and Women's Issues Luncheon/Program

Thursday, 12:00 noon - 2:00 p.m.
Westin Hotel, House

If you plan to attend this luncheon, don't forget to indicate this on the registration form. Tickets for the luncheon will be \$18.00.

Extension Luncheon

Thursday, 12:00 noon - 1:00 p.m.
Westin Hotel, Council

If you plan to attend this luncheon, don't forget to indicate this on the registration form. Tickets for the luncheon will be \$21.00.

International Reception

ASAS Members I strongly encourage you to attend the International Reception at ASAS in Indianapolis this year, to be held from 5-6pm, July 22, in the Maryland West Lobby of the Convention Center. ASAS has a significant number of International members, who contribute substantially to our programs, our journal and our meetings. These individuals carry the image of ASAS and the good feeling of friendship around the world when they return to their home country. I ask that you help us show our appreciation of their contributions by celebrating their membership and contributions at this reception. Please sign up, plan to attend, and bring at least one other friend! Drs. John Campbell (Oklahoma State University), Louis Boyd (University of Georgia) and Robert McDowell (Cornell University and North Carolina State University) join me in this enthusiastic encouragement! See you on July 22 at 5pm! It is the most important thing that you can be doing at that time and on that date! Leonard S. Bull (North Carolina State University; Past President).

Hospitality Room

The hospitality lounge, located in Room 150 offers adults a place to relax, get acquainted, and enjoy light refreshments. Information on scheduled ASAS activities and meetings and highlights of the Indianapolis area will be posted and/or available here.

Retiree Social

All retirees and their spouses are cordially invited to attend a social gathering to relax, reminisce, and enjoy refreshments Thursday, July 22 from 1:00 p.m. - 4:00 p.m. in Room 150 of the Convention Center.

Cyber Café

Let technology keep you caught up with work and in touch with friends and family during the ASAS Annual Meeting. ASAS meeting attendees can attend the annual meeting knowing they can easily keep up with business activities at work by visiting the Cyber Café. At the Cyber Café, meeting attendees can check e-mail throughout the day, display their companies web site, and meet with colleagues to exchange information found on the Internet. The Cyber Café will be located in Room 151 and 152 so all meeting attendees have easy access to this area. Meeting attendees can utilize the many computer stations, all with access to the Internet, each day during the conference.

Placement Center

A Placement Center will be located in the Indianapolis Convention Center, Room 151/152. Employers are invited to submit 20 copies of all position descriptions and prospective employees are invited to submit 30 copies of brief (2-page) résumés prior to the meeting. The job announcements and résumés will be organized into the following categories (please indicate preference) for posting and distribution.

Animal Health, Environment and Behavior
Breeding and Genetics
Extension
International Animal Agriculture
Growth and Development
Meat Science and Muscle Biology
Nonruminant Nutrition
Pharmacology and Toxicology
Production and Management
Reproductive Physiology
Ruminant Nutrition
Teaching

Should you have any questions please contact Dr. Mark Diekman by e-mail: mdiekman@ansc.purdue.edu or 765-494-4829. Mail job postings and résumés to:

Dr. Mark Diekman
Department of Animal Science
Purdue University
West Lafayette, IN 47907

In keeping with the '98 Joint Meeting in Denver, ASAS will again sponsor an On-Line Placement Center for the benefit of the membership. This opportunity will be in addition to the traditional Placement Center, where printed position descriptions are displayed on poster board.

The On-Line Placement Center will be a web site where prospective employees can review your job description; go directly to your company, university, or agency web site; or even

respond immediately via e-mail to your ad. The cost to include your company's listing on the On-Line Placement Center will again be only \$20, which covers a two-week listing (July 14 through 28), active links to your web site, and an active e-mail link to your contact person.

Announcements should include the name of your organization; position title; description of the position, including requirements, duties, and salary; deadline for applications; and start date, if appropriate. Please do not include logos or other artwork and try to contain the ad to a single paragraph.

The procedure for submitting a job posting will be slightly different than last year. Rather than submitting a job announcement via e-mail to the Association Headquarters, a submission form will be available electronically through the ASAS web site (www.asas.org/). The form will be available beginning June 1, and job announcements will be accepted through July 7. At the time the form is submitted electronically, please also send payment (\$20) to ASAS at 1111 N. Dunlap Ave., Savoy, IL 61874 and indicate that payment is for the placement of an ad with the On-Line Placement Center in conjunction with the 1999 Annual Meeting of ASAS.

If you have any questions or comments about this service or the submission process, please contact Amy Kemp at amyk@assochq.org or phone 217/356-3182.

SCHEDULED EVENTS AND TOURS

Opening Session

Tuesday, July 20, 6:00 p.m.

Convention Center, Sagamore Ballroom

Eric Bradford, Professor Emeritus of the University of California, Davis, will provide the opening session address entitled "Animal Agriculture and Global Food Supply." This topic comes from the CAST Task Force on "Contributions of Animal Agriculture to Meeting Global Human Food Demand." Many ASAS members have been anticipating hearing the results of this CAST Task Force, and this is the opportunity to be among the first to learn about its content and recommendations.

Opening Session Reception

A reception will immediately follow the conclusion of the Opening address. This is a good time to catch up with friends and colleagues. All meeting attendees and families are invited. Please register on the registration form.

Thanks to the following for sponsoring the

Opening Reception:

Certified Angus Beef

IPC

Monsanto Dairy Business

Youth Program

Due to the numerous opportunities in the Indianapolis area, no special youth programs or tours have been scheduled. For a list of area attractions, refer to page 16 or contact the Indianapolis Convention & Visitors Bureau at the address or telephone given on page 8.

All tours will depart from the Indianapolis Convention Center Maryland Street Lobby located across from room 104. Please meet 15 minutes prior to departure time. Tours are based on a minimum number of participants. ASAS reserves the right to cancel a tour if the minimum numbers are not met.

Purdue Animal Sciences Research and Education Center

Monday, July 19, 1999; 10:00a.m. - 2:00p.m

Come visit our research facilities at our Purdue ASREC Open Center House. Transportation is on your own. Contact the Purdue Animal Sciences Research and Education Center at 765-583-2400 to register and receive directions.

Tour A:

Elanco Animal Health

Tuesday, July 20, 1999; 8:00a.m. - 12:30p.m.

Limited to 180 participants. Cost \$10.00 (Lunch is on your own.)

Take a bus ride to tour Elanco Animal Health's Greenfield Research Laboratories. From the entrance to the 1,200-acre research and development complex you will see the distinctive Spanish Buildings which are on the Historical Register. This facility opened in 1912 and has played a vital role in the development of human and animal pharmaceutical products. You will visit modern toxicological evaluation laboratories to learn more about the elaborate process and thorough testing needed to ensure the safety of products for animals, humans and the environment. Find out how a new drug is discovered and about the many studies which support the approval of a new drug.

Tour B

United Feeds Research Farms

Frankfort, IN

Tuesday, July 20, 1999; 8:30a.m. - 1:30p.m.

Limited to 100 participants. Cost \$10.00 (Lunch is on your own)

Tour United Feeds Research Farms near Frankfort and see their two-site research/production facilities. You will visit a 1500 sow breed-to-wean research facility stocked with Australian genetics. In addition, you will tour the nearby nursery-to-finish unit where over 11,000 pigs are fed at one time by a computerized feeding system. United Feeds' Research and Development Team will be there to discuss future needs and trends in the industry. Coveralls and boots will be provided to be worn over your street clothes.

Tour C

Conner Prairie

Tuesday, July 20, 1999; 9:30a.m. - 3:00p.m.

Limited to 100 participants. Cost \$35.00 (Lunch is included.)

Travel north of Indianapolis to a living history museum of the year 1836. Conner Prairie is an authentic recreation of the buildings, furnishings, costumes and speech and conversation present during colonial days. Experience authentic frontier activities including a camp meeting, a frontier wedding celebration, and the process of preserving a hog while enjoying

horse drawn wagon rides. Tour the William Conner house, the centerpiece of Conner Prairie and well as Conner Prairie's museum center including an exhibit gallery, gift shop and restaurant.

Tour D

Historical Homes and Governor's Mansion

Wednesday, July 21, 1999; 9:00a.m. - 3:00p.m.

Limited to 50 participants. Cost \$40.00 (Lunch is included.)

Experience downtown Indy's finest homes as you tour the Indiana Governor's Mansion, President Benjamin Harrison's Home, the Morris-Butler House and James Whitcomb Riley's Home. President Benjamin Harrison campaigned for the 23rd presidency of the United States from his 16-room Italianate mansion built in 1875. The home has been carefully restored to its late 1800's appearance with original Victorian furnishings and political momentos. The Morris-Butler House is an 1865 Second Empire-style home filled with rare furnishings and elegant decorations reflecting the lifestyle of an upper class Indianapolis family. Finish your tour at Lockerbie Square where the famous Hoosier poet James Whitcomb Riley spent the last 23 years of his life. The home is considered to be one of the most perfectly preserved Victorian houses in the U.S. by historical experts.

Tour E:

Nashville, IN

Wednesday, July 21, 1999; 9:00a.m. - 3:30p.m.

Limited to 100 participants. Cost \$35.00 (Lunch is included.)

Take a short bus ride to rustic Nashville, IN to spend the day shopping in quaint shops offering candles, crafts, antiques, homemade chocolates and much more. After shopping, relax with lunch at the historical Nashville Inn. Finish the tour with a bus ride through beautiful Brown County State Park.

Tour F:

Women's Health Seminar, Eli Lilly & Company

Wednesday, July 21, 1999; 1:00p.m. - 4:00p.m.

Limited to 200 participants. Cost \$10.00 (Lunch is on your own.)

Attend the Women's Health Seminar at Eli Lilly & Company's Corporate Center in Indianapolis. Women are increasingly becoming a strong voice in the condition and quality of their own and their families' health care. This seminar can address women's health issues. Possible topics could include: Cardiovascular Disease in Women, Breast Cancer, The Heartbreak of Melanoma, Chronic Fatigue Syndrome, Relax: You have only a few minutes, Celebrate Menopause, Coping with Depression, or other women's health topics.

Tour G:

Eli Lilly & Company Research Laboratories

Thursday, July 22, 1999; 9:00a.m. - 11:30a.m.

Limited to 80 participants. Cost \$10.00 (Lunch is on your own.)

The Lilly Research Laboratories tour features stops at the mammalian cell culture facility, discovery research buildings, "Demo" the pigeon -- a demonstration of behavioral

pharmacology, 3-D human insulin hexamer -- a demonstration of computational chemistry, replica of the original Lilly laboratory, and Lilly Corporate Center campus. Learn about the Eli Lilly Company's focus on discovery research, the drug discovery process starting with the synthesis/isolation of molecules and development of assays to test the molecules, the magnitude of Lilly research practices, state-of-the-art technology, and a brief history of the company and its founders.

Golf Tournament

Plan to join us Tuesday, July 20 at the Coffin Golf Club in Indianapolis. The course is about 15 minutes from downtown and is ranked 13th in the top 25 most difficult Indy-area golf courses. Expect a challenge and a memorable course. Vans will shuttle people from the Convention Center.

Please meet at the Maryland Street Lobby at 7:00am for departure. Tee times will begin at 8:00 a.m. We will use a scramble format and attempt to pair groups by ability. Please indicate on your registration form a handicap or approximate 18 hole score. Cost is \$50 and will include green fees, cart, lunch, prizes and transportation to and from the course.

Fun Run

Start your day with a Fun Run on Wednesday, July 21 at 6:30am. The 5K run will take place at the IUPUI Campus. The \$15 participation fee will cover refreshments and the 1999 Fun Run memorabilia. The IUPUI campus is within walking distance of the Convention Center. Meet at 6:15 a.m. at the Maryland Street Lobby to walk over as a group.

Race in to the Student Mixer!

An ASAS Board-sponsored Student Mixer will be held Wednesday night, July 21, 7:00 p.m. till ? at the World Mardi Gras Entertainment Complex (Flashbaxx and Brewski's) in the 4th level of Circle Center Mall. The Student Mixer will provide plenty of opportunity for fun as well as allowing you a chance to socialize, catch up, and meet new people. Please sign up on the registration form so that we can provide an estimate of how many people will attend. There is a nominal cost of \$3.00 per person and beverage tickets will be sent with your registration confirmation.

Lunch in Exhibit Hall on Wednesday & Thursday

For your convenience a box lunch will be served in the Exhibit Hall for those individuals who order and pay for it on the registration form. You will receive a ticket with your confirmation and name badge. There will be a limited number of box lunches available for purchase in the Exhibit Hall for those individuals who do not order it in advance. The box lunches available for sale will be on a first come, first serve basis.

Schedule of Events

Monday, July 19

- 8:00 a.m. - 5:00 p.m. Board of Directors Meeting (Westin Hotel, Boardroom)
9:00 a.m. - 2:00 p.m. Purdue Animal Science Research & Education Center Tour (Purdue University)
1:00 p.m. - 4:00 p.m. Registration (Convention Center, Exhibit Hall E Entrance)

Tuesday, July 20

- 8:00 a.m. - 5:00 p.m. Board of Directors Meeting (Westin Hotel, Boardroom)
7:00 a.m. Golf Tournament (Convention Center, Maryland Street Lobby)
8:00 a.m. - 12:30 p.m. Tour A: Elanco Animal Health (Convention Center, Maryland Street Lobby)
8:30 a.m. - 1:30 p.m. Tour B: United Feeds (Convention Center, Maryland Street Lobby)
9 a.m. - 3:00 p.m. Tour C: Conner Prairie (Convention Center, Maryland Street Lobby)
7:00 a.m. - 9:00 p.m. Registration (Convention Center, Exhibit Hall E Entrance)
8:00 a.m. - 5:00 p.m. Biennial Repro Symposium (Convention Center, White River Ballroom)
12:00 p.m. - 4:00 p.m. Exhibit Set up (Convention Center, Exhibit Hall E)
6:00 p.m. - 10:00 p.m. Opening Speaker & Reception (Convention Center, Sagamore Ballroom)

Wednesday, July 21

- 6:15 a.m. Fun Run (Convention Center, Maryland Street Lobby)
6:20 a.m. - 8:00 a.m. Illinois Breakfast (Westin Hotel, House Room)
6:30 a.m. - 8:00 a.m. Kentucky Breakfast (Westin Hotel, Grand 1)
6:30 a.m. - 8:00 a.m. Oklahoma State Breakfast (Westin Hotel, Caucus)
6:30 a.m. - 7:30 a.m. 1999 Program Chairs Breakfast (Westin Hotel, Chamber)
7:00 a.m. - 7:00 p.m. Registration (Convention Center, Exhibit Hall E Entrance)
8:00 a.m. - 5:00 p.m. Oral & Poster Presentations (Convention Center)
8:00 a.m. - 10:00 a.m. ASAS Foundation Trustees (Westin Hotel, Congress 1)
8:00 a.m. - 12:00 p.m. ARPAS Governing Board (Westin Hotel, Congress 2)
8:00 a.m. - 12:00 p.m. Tour D: Historic Homes (Convention Center, Maryland Street Lobby)
9:00 a.m. - 3:30 p.m. Tour E: Nashville, IN (Convention Center, Maryland Street Lobby)
11:00 a.m. - 12:00 p.m. Resolutions Committee Meeting (Convention Center, Room 110)
11:00 a.m. - 1:00 p.m. Publication Committee Lunch (Westin Hotel, Congress)
11:00 a.m. - 6:00 p.m. Commercial Exhibits (Convention Center, Exhibit Hall E)
12:00 p.m. - 4:00 p.m. Tech Forum (Convention Center)
12:00 p.m. - 2:00 p.m. ASAS Past Presidents' Lunch (Westin Hotel, Grand 1)
12:00 p.m. - 1:30 p.m. National Block & Bridle Lunch (Westin Hotel, House)
1:00 p.m. - 4:00 p.m. Tour F: Women's Health Seminar (Convention Center, Maryland Street Lobby)
3:30 p.m. - 5:30 p.m. New Section Editor's Meeting (Convention Center, Room 107/108)
4:00 p.m. - 5:00 p.m. ARPAS Annual Business Mtg (Convention Center, Room 110)
4:30 p.m. - 6:30 p.m. Tech Forum Reception & Posters (Convention Center, Exhibit Hall E)
8:00 p.m. - 11:00 p.m. Iowa State University Social (Westin Hotel, House)

Thursday, July 22

- 6:30 a.m. - 8:00 a.m. Penn State Breakfast (Westin Hotel, House)
6:30 a.m. - 8:00 a.m. Purdue Breakfast (Westin Hotel, Council)
7:30 a.m. - 5:00 p.m. Registration (Convention Center, Exhibit Hall E Entrance)
8:00 a.m. - 12:00 noon Tech Forum (Convention Center)
8:00 a.m. - 5:00 p.m. Oral & Poster Presentations (Convention Center)
8:00 a.m. - 10:00 a.m. ARPAS Governing Board (Westin Hotel, Congress 2)
9:00 a.m. - 11:30 a.m. Tour G: Eli Lilly & Company (Convention Center, Maryland Street Lobby)
11:00 a.m. - 12:00 p.m. ASAS Business Meeting (Convention Center, Room 138/139)
11:00 a.m. - 5:00 p.m. Commercial Exhibits (Convention Center, Exhibit Hall E)
11:30 a.m. - 1:30 p.m. Lunch in Exhibit Hall (Exhibit Hall E)

12:00 p.m. - 2:00 p.m. Minority & Women's Issues Lunch (Westin Hotel, House)
 12:00 p.m. - 1:00 p.m. Extension Luncheon (Westin Hotel, Council)
 12:00 p.m. - 1:30 p.m. Section Editors Lunch (Westin Hotel, Congress 2)
 1:00 p.m. - 4:00 p.m. ASAS Retirees Social/Reception (Convention Center, Room 150)
 5:00 p.m. - 7:00 p.m. Commercial Exhibits Breakdown (Convention Center, Exhibit Hall E)
 5:00 p.m. - 6:00 p.m. International Reception (Convention Center, Maryland Street Entrance)
 5:30 p.m. - 7:00 p.m. ASAS Awards Photo Session (Westin Hotel, Senate 1)
 7:00 p.m. - 8:00 p.m. ASAS Awards Program (Westin Hotel, Grand Ballroom 5)
 8:00 p.m. - 9:00 p.m. ASAS Ice Cream Social (Westin Hotel, Grand Ballroom 1-4)
 9:00 p.m. - 11:00 p.m. Penn State Social (Westin Hotel, House)

Friday, July 23

6:30 a.m. - 8:00 a.m. 2000 Program Chairs Breakfast (Westin Hotel, House)
 7:30 a.m. - 12:00 p.m. Registration (Convention Center, Exhibit Hall E Entrance)
 8:00 a.m. - 12:00 p.m. Teaching Workshop (Convention Center, Room 151-152)
 8:00 a.m. - 5:00 p.m. Oral & Poster Presentations (Convention Center)
 11:00 a.m. - 12:00 p.m. ASAS New Board Orientation (Westin Hotel, Boardroom)
 12:00 p.m. - 1:30 p.m. Final Board Meeting (Westin Hotel, Boardroom)

SUMMARY OF SYMPOSIUM

Committee	Title
Tuesday, July 20	
Biennial Animal Reproduction	Role of the Male and Female in the Regulation of Reproduction
Wednesday, July 21	
FASS Committee on Food Safety, Animal Drugs and Animal Health	Antibiotic Update: Resistance, Regulations, and Risk Assess- ment
Meat Science and Muscle Biology	Roles of the Calpain/Calpastatin System in Muscle Growth and Meat Quality
Physiology and Endocrinology	Cytokine and NO Minisymposium
Teaching and International Animal Agriculture	Developing International Education in the Animal Sciences
FASS Committee on Food Safety, Animal Drugs and Animal Health	Demonstrating Effectiveness of Beef Cattle and Swine Produc- tion Drugs
Growth and Development	Utility of In Vitro Models of Cellular Growth and Development: Putting the Pieces Back Together
*Nonruminant Nutrition	Application of Nutritional Knowledge for Developing Eco-nutri- tion Feedings Programs on Commercial Swine Farms
Physiology and Endocrinology	Follicular Physiology Minisymposium
*Production and Management	Implications of Pre-Harvest Food Safety on Animal Production and Management Practices
Thursday, July 22	
Breeding and Genetics	From Innovation to Application—Bridging the Gap Between Animal Breeder and Producer using Decision Support Tools
Contemporary Issues	A Positive Response from Land Grant Universities to a Diminishing Societal Priority for Agriculture
Growth and Development and Dairy Committee	Conjugated Linoleic Acid: Effects on Metabolism and Health Minisymposium
*ROCHE-ASAS Foundation	Beef Carcass Quality and Yield
*Swine Committee	Advances in Swine Reproductive Management
*Swine Committee	Lean Growth Modeling
Women and Minorities	Mentoring -- Minority and Women -- Do We Need It?
Extension	The Changing Roles of Extension Specialists
Beef Committee	Heifer Programs that add value to the Beef Industry
Growth and Development	Environmental Effects on Animal Growth
Pastures & Forages	Point-Counter-Point What is the Appropriate Experimental Unit in Grazing Research?
Pastures & Forages	Round Table Discussion on Future Careers
Rabbit Committee	A New Look at Rabbits in the World
Sheep Committee	Changing the Industry
Friday, July 23	
Contemporary Issues	FAIR 2002—An Update
FASS Animal Care Committee	Navigating Animal Care and Use with the Ag Guide
Horse Committee	Advances in Gene Mapping in Horses
Pharmacology and Toxicology	Phytochemicals as Nutraceuticals
Ruminant Nutrition and Pastures and Forages	Designing Supplements for Grazing Beef Cattle

*Denotes inclusion in Tech Forum.

**XXIV Biennial Symposium on Animal Reproduction
American Society of
Animal Science**

Sponsored by:
Select Sires, Inc.
Thorn BioScience LLC

Role of the Male and Female in the Regulation of Reproduction

Tuesday, 8:30 a.m. - 5:00 p.m.
Convention Center White River Ballroom

Morning Session: The Male's Role

Moderator: Dr. C. R. Barb, USDA, ARS, Athens, Ga

- 8:30 Welcome, F. N. Schrick, University of Tennessee, Knoxville
- 8:45 Neuroendocrine Regulation of Reproduction in Male Domestic Animal Species: Role of Excitatory Amino Acids. Dr. Mark Estienne, University of Maryland-Eastern Shore, Princess Anne.
- 9:30 Efficiency of Spermatogenesis in Animals and Humans. Dr. Larry Johnson, Texas A&M University, College Station.
- 10:15 Fertilization: A Male's Perspective. Dr. David Miller, University of Illinois, Urbana.
- 11:00 Panel Discussion
- 11:15 Presentation of the L. E. Casida Award by Dr. Terry Etherton, Chairperson, Casida Award Committee.
- 12:00 Lunch

Afternoon Session: The Female's Role

Moderator: Dr. J. E. Tilton, North Dakota State University, Fargo

- 1:30 Novel Events in Uterine Organization and Function. Dr. Frank Bartol, Auburn University, AL.
- 2:15 Insights into Conceptus-Reproductive Tract Interactions in the Pig. Dr. George Foxcroft University of Alberta
- 3:00 Fetal Development of Manipulated Embryos: Possible Associations with Uterine Function. Dr. Charlotte Farin, North Carolina State University, Raleigh.
- 3:45 Panel Discussion

TECHNOLOGY FORUM

Focus on Beef and Pork

Overall Sponsors: Pfizer, Inc., and *Feedstuffs*

Wednesday, July 21 1:00 p.m. to
Thursday, July 22 11:00 a.m.

The following sessions will be held between Wednesday noon and Thursday at 11 a.m. Our goal is to give you some of the latest information that will aid the beef and pork production chains. This is designed for anyone desiring to transfer knowledge - industry, extension, research, teaching, etc. Individuals registering for Tech Forum may also feel free to attend other sessions during this time interval.

- Application of Nutritional Knowledge for Developing Eco-nutrition Feedings Programs on Commercial Swine Farms. Sponsored by Novus International, National Pork Producers Council, and Optimum Quality Grains, LLC (See page 63)
- Implications of Pre-Harvest Food Safety on Animal Production and Management Practices Symposium. Sponsored by IMC and ARPAS (through support of Hoechst Rousel Vet) (See page 70)
- Roche-ASAS Foundation Beef Symposium- Beef Carcass Quality and Yield Sponsored by Roche and ASAS Foundation. (See page 98)

- Advances in Swine Reproductive Management. Sponsored by Alliance Medical (See page 99)
- Lean Growth Modeling. Sponsored by E-Market and National Pork Producers Council (See page 99)
- Technology Forum Poster Session and Reception. (See page 77)

Reception sponsored by: American Feed Industry Association, Akey, Inc., *Beef*, E-Markets, Indiana Packers Corporation, Land O'Lakes, Monsanto Dairy Business, *National Hog Farmer*, Novus International, Purina Mills, Inc., and United Feeds.

SCIENTIFIC SESSIONS

POSTER SESSIONS

The poster sessions will be located with the commercial exhibits in Exhibit Hall E in the Indianapolis Convention Center. Poster sessions will be all day Wednesday, Thursday, and Friday until noon. Posters will be staffed by a presenter at times designated in the scientific program, but will be available for viewing from 8:00 a.m. to 5:00 p.m. on the day on which the session is scheduled. The Tech Forum posters will be up from Wednesday 1:00 p.m. to Thursday 11:00 a.m. and will be staffed by a presenter from 4:30 p.m. - 6:00 p.m. on Wednesday. The poster board surface is 48" high and 96" wide. Poster presenters must supply their finished poster and the push pins to display their poster. The Exhibit Hall will open at 7:00 a.m. to presenters on day of scheduled poster presentation.

BREEDING AND GENETICS 1

Molecular Genetics

Chair: Dr. S. Newman,
CSIRO Tropical Agriculture, Australia

Wednesday, 8:00 a.m. – 10:15 a.m.
Room 147/148

Time	Abs. No.	
8:00	51	Poser of detecting marker associated QTL effects in granddaughter design. Z. Zhang ^{*1} , R. J. Tempelman ² , I. L. Mao ² , and D. B. Banks ² , ¹ Cornell University, ² Michigan State University.
8:15	52	Medium density comparative map of bovine chromosome 25. E. Antoniou ^{*1} , D. Gallagher ² , J. Taylor ² , S. Davis ² , J. Womack ² , and M. Grosz ¹ , ¹ USDA-ARS Fort Keogh Livestock And Range Research Laboratory, Miles City, MT, ² Texas A&M University, College Station, TX.
8:30	53	Insight into the biology behind QTL affecting fat deposition in swine. G. A. Rohrer [*] , USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.
8:45	54	Genotypic effects at the <i>callipyge</i> locus for meat quality traits in lambs. B. A. Freking [*] , J. W. Keele, S. D. Shackelford, T. L. Wheeler, M. Koohmaraie, and K. A. Leymaster.
9:00	55	Evaluation of paternal polar overdominance based on all possible matings among (<i>callipyge</i> (<i>CLPG</i>) genotypes. K. A. Leymaster [*] and B. A. Freking.
9:15	56	Prediction of ovulation rate in cattle using genetic markers. G. L. Bennett [*] , R. M. Thallman, S. M. Kappes, and K. E. Gregory, USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE.
9:30	57	Candidate gene analysis for loci affecting reproductive traits in swine selected for litter size and ovulation rate. R. C. Linville [*] , R. K. Johnson, and D. Pomp.
9:45	58	The effect of estrogen receptor genotype, breed, and parity on litter traits and reproductive tract traits in swine. B. J. Isler [*] , K. M. Irvin, S. M. Neal, S. J. Moeller, M. E. Davis, and D. L. Meeker, The Ohio State University, Columbus.
10:00	59	Evidence of QTL affecting reproduction in pigs. J. P. Cassady ^{*1} , R. K. Johnson ¹ , D. Pomp ¹ , L. D. Van Vleck ² , E. K. Spiegel ¹ , K. Gilson ¹ , and G. Rohrer ³ , ¹ University of Nebraska, Lincoln, ² USDA, ARS, USMARC, Lincoln, NE., ³ USDA, ARS, USMARC, Clay Center, NE.

CONTEMPORARY ISSUES 1

Chair: Dr. D. S. Buchanan,
Oklahoma State University, Stillwater

Wednesday, 10:30 a.m. - 12:00 Noon
Room 203

Time	Abs. No.	
10:30	115	Incidence of severe welfare problem in horses arriving at slaughter. Temple Grandin ¹ , Kasie McGee ¹ , and Jennifer Lanier ¹ , Colorado State University, Ft. Collins, CO USA.
10:45	116	Differences among olfactometry labs for ambient air measurement of pork production odors. C. L. Tengman*, D. J. Uthe, and R. N. Goodwin, National Pork Producers Council.
11:00	117	Simulated greenhouse gas emissions from beef and dairy systems. H. W. Phetteplace*, D. E. Johnson, and A. F. Seidl, Colorado State University, Fort Collins, CO.
11:15		Q&A period for G. Eric Bradford, University of California, Davis on his Opening Session topic "Animal Agriculture and Global Food Supply."

ENVIRONMENT AND BEHAVIOR 1 POSTERS

Wednesday, 8:00 a.m. - 5:00 p.m.
Authors present, 8:00 a.m. - 10:00 a.m.
Exhibit Hall E

Board No.	Abs. No.	
1	118	Influence of sow gestation diet on piglet behavior. K. A. Scott ¹ , M. Shea-Moore ² , and J. Morrow-Tesch ³ , ¹ Purdue University, West Lafayette, ² USDA-ARS, West Lafayette, ³ USDA-ARS, Lubbock.
2	119	Restricting feed intake of feedlot steers during summer. S. M. Holt ¹ , T. L. Mader ² , J. B. Gaughan ¹ , R. T. Cowan ³ , and A. T. Lisle ⁴ , ¹ School of Veterinary Science and Animal Production, University of Queensland, Australia, ² University of Nebraska, Concord, USA, ³ Australian Tropical Dairy Institute, University of Queensland, Australia, ⁴ School of Land and Food, University of Queensland, Australia.
3	120	Effects of diet quality and milk flavor on post-weaning behavior of piglets. J. M. Gardner*, T. M. Widowski, and C. F. M. de Lange, Department of Animal & Poultry Science, University of Guelph, Ontario, Canada.
4	121	Preliminary study of dairy cow response to ergotized barley during heat stress. H. Al-Tamimi ¹ , D. Spiers ¹ , J. Spain ¹ , G. Rottinghaus ¹ , N. Hill ² , D. Chatman ¹ , J. Underwood ¹ , and M. Ellerseick ¹ , ¹ University of Missouri-Columbia, ² University of Georgia.
5	122	Biological markers of cattle response to heat stress on endophyte-infected tall fescue. D. E. Spiers ¹ , J. Lakritz ¹ , P. A. Eichen ¹ , G. E. Rottinghaus ¹ , H. Al-Tamimi ¹ , J. R. Dodam ¹ , and J. Underwood ¹ , ¹ University of Missouri.
6	123	A chronic rat model of performance and thermoregulatory responses to endophyte-infected tall fescue diet. P. A. Eichen*, D. E. Spiers, G. Rottinghaus, and K. Fritsche, University of Missouri - Columbia.
7	124	Cattle hair whorl position and temperament in auction houses. J. L. Lanier*, T. Grandin, R. D. Green, D. Avery, and K. McGee, Colorado State University, Ft. Collins, CO/USA.
8	125	The welfare status of adult sows: A comparison of physiological and productive indicators in different housing conditions. G. A. Maria ¹ and M. C. Aceá ¹ , ¹ University of Zaragoza (Spain).
9	126	Behavioral and physiological responses to transportation stress in three genetic lines of pigs. C. S. Busse* and M. M. Shea-Moore, USDA-ARS Livestock Behavior Research Unit.

Antibiotic Update: Resistance, Regulations, and Risk Assessment

Sponsored by: FASS Committee on Food Safety, Animal Drugs and Animal Health
Chair: Dr. W. A. Olson, Center for
Regulatory Agencies, Virginia

Wednesday, 8:00 a.m. - 11:30 a.m.
Room 208/209

Issues may include:

- Current and Proposed Regulatory Programs:
The FDA Framework
- Risk Assessment to Monitor Antimicrobial Use
in Livestock and Poultry
- NARMS: The National Antimicrobial Resistance Monitoring System
A Global Viewpoint of the Impact of
Banning Antimicrobials
- What has been the Impact of Banning
Antimicrobials in Sweden?

Discussion Session will follow.

GROWTH AND DEVELOPMENT 1

Regulation of Animal Growth

Co-Chairs: Dr. D. L. Hancock, Elanco,
Greenfield, IN and Dr. P. A. Schoknecht,
Rutgers University, New Brunswick, NJ

Wednesday, 8:00 a.m. - 12:00 Noon
Room: 205

Time	Abs. No.	
8:00	155	Expression of peroxisome proliferator-activated receptor gamma (PPAR γ) in porcine white blood cells (WBC). M. T. Leininger*, C. P. Portocarrero, and K. L. Houseknecht, Purdue University, West Lafayette, IN.
8:15	156	Characterization of the porcine Lhx3 pituitary transcription factor. S. J. Rhodes*, J. Blanton Jr., J. L. Bridwell, A. L. McCutchan, B. C. Meier, and G. E. Parker, Indiana University-Purdue University at Indianapolis, Indianapolis, IN.
8:30	157	Chronic in vitro porcine leptin treatment alters porcine adipocyte metabolism. T. G. Ramsay ¹ and X. Yan* ² , ¹ USDA-ARS, Beltsville, MD, ² Pennington Biomedical Research Center, Baton Rouge, LA.
8:45	158	Quantification of satellite cell populations using fluorescent immunocytochemistry. N. T. Mesires* and M. E. Doumit, Michigan State University, East Lansing.
9:00	159	Prolactin inhibition by bromocriptine decreases mammary gland development in pregnant gilts. C. Farmer* ¹ , D. Petitclerc ¹ , and M. Sorensen ² , ¹ Agriculture and Agri-Food Canada, Lennoxville Research Centre, Canada, ² Danish Institute of Agricultural Sciences, Foulum Research Centre, Denmark.
9:15	160	Effect of prepubertal feeding regimen on reproductive performance of gilts. J. Klindt*, R. K. Christenson, and J. T. Yen, USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE.
9:30	161	Postnatal growth of offspring in response to somatotropin treatment of sows during early gestation. G. Kuhn, C. Rehfeldt, and K. Ender*, Research Institute for Biology of Farm Animals, Dummerstorf, Germany.
9:45	162	Effects of weaning on somatotrophic gene expression and circulating levels of growth hormone (GH), insulin-like growth factor-1 (IGF-1), and IGF-2. RL Matteri* ¹ , CJ Dyer ¹ , KJ Touchette ² , JA Carroll ¹ , and GL Allee ² , ¹ Animal Physiology Research Unit, Agricultural Research Service, USDA, Columbia, MO, ² University of Missouri, Columbia, MO.

- 10:00 163 Effects of weaning on gene expression of neuroendocrine regulators of feed intake. C. J. Dyer*¹, K. J. Touchette², J. A. Carroll¹, G. L. Allee², and R. L. Matteri¹, ¹Animal Physiology Unit, Agricultural Research Service, USDA, Columbia, MO, ²University of Missouri, Columbia, MO.
- 10:15 164 Biological effects of dietary porcine plasma protein on growth performance, small intestinal mass and morphology, and plasma urea levels in early-weaned pigs. R. Jiang, X. Chang, B. Stoll, M. Fan, and D. G. Burrin*, USDA/ARS Children's Nutrition Research Center, Baylor College of Medicine.
- 10:30 165 Enhanced carcass composition in IGF-I transgenic barrows and gilts. V. G. Pursel*¹, A. D. Mitchell¹, K. D. Wells¹, R. J. Wall¹, M. E. Coleman², and R. J. Schwartz³, ¹USDA, ARS, Beltsville, MD, ²GeneMedicine, Inc., The Woodlands, TX, ³Baylor College of Medicine, Houston, TX.
- 10:45 166 Porcine (pST) somatotropin administration increases protein balance by promoting protein conservation in fasted swine. R. C. Vann*¹, H. V. Nguyen¹, J. M. Vargas¹, P. J. Reeds¹, N. C. Steele², and T. A. Davis¹, ¹USDA/ARS Children's Nutrition Center, Houston, TX, ²USDA-ARS Growth Biology Laboratory, Beltsville, MD.
- 11:00 167 Metabolic responses to short-term bST administration in milk-fed bull calves between birth and 100 days of age. J. M. Smith*¹, M. C. Diaz¹, M. E. Van Amburgh¹, M. C. Lucy², and D. E. Bauman¹, ¹Cornell University, ²University of Missouri-Columbia.
- 11:15 168 Responsiveness to growth hormone-releasing hormone (GHRH) challenge: A physiological predictor of average daily gain in beef bulls. E. E. Connor*, S. M. Barao, and G. E. Dahl, University of Maryland, College Park.
- 11:30 169 Effects of varying degrees of muscularity and muscular hypertrophy in Hereford, Limousin, and Piedmontese F2 crossbred calves on traits measured through weaning. R. E. Short*, M. D. Grosz, M. D. MacNeil, E. E. Grings, and R. A. Bellows, USDA-ARS, Ft. Keogh LARRL, Miles City, MT.
- 11:45 170 The influence of body weight and marbling EPD on the relationship of intramuscular fat content and body composition. K. W. Bruns*, R. H. Pritchard, and D. L. Boggs, South Dakota State University, Brookings.

MEAT SCIENCE AND MUSCLE BIOLOGY 1 SYMPOSIUM

Roles of the Calpain/Calpastatin System in Muscle Growth and Meat Quality

Chair: Dr. R. M. Robson,
Iowa State University, Ames

Wednesday, 8:00 a.m. - 12:00 Noon
Room 138/139

Time	Abs. No.	Title
8:00	11	The calpain system: its proteins, properties, and secrets. D. E. Goll*, V. F. Thompson, and Jinyang Cong, University of Arizona.
8:50	12	Molecular features of striated muscle calpastatin. S. Lonergan*, Iowa State University, Ames, IA.
9:40		BREAK
10:00	13	Possible role of the calpain proteolytic system in muscle growth and development: A review. M. Koochmaraie*, D. J. Nonneman, and G. H. Geesink, USDA-ARS, U.S. Meat Animal Research Center.
10:50	14	Possible role and regulation of the calpain/calpastatin system in meat quality. E. Huff-Lonergan*, Iowa State University, Ames, IA.
11:40		Round-table discussion

NONRUMINANT NUTRITION 1

Nutrient Management and Odor

Chair: Dr. G. L. Cromwell,
University of Kentucky, Lexington

Wednesday 8:00 a.m. - 11:30 a.m.
Room White River Ballroom

Time	Abs. No.	
8:00	235	Efficacy of two commercially available phytase preparations for weanling pigs fed a low-P plant-based diet. J. P. Rice*, J. S. Radcliffe, and E. T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg, VA.
8:15	236	The effects of various concentrated immunoglobulin protein sources in phase 1 diets of early weaned pigs. J. A. Godfredson-Kisic* ¹ , T. E. Shipp ¹ , and K. C. Ferrell ² , ¹ DuCoa, Highland, IL, ² MFA, Inc., Columbia, MO.
8:30	237	Dose response of Novo SP938 microbial phytase in weanling pigs fed a low-P corn-soybean meal diet. J. H. Skaggs* and E. T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg, VA.
8:45	238	Efficacy and safety of Novo SP938 microbial phytase supplementation of a corn-soybean meal diet fed to growing pigs. A. F. Harper*, J. H. Skaggs, H. P. Veit, and E. T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg, VA.
9:00	239	A new phytase expressed in yeast improves the bioavailability of phytate- phosphorus to weanling pigs. C. H. Stahl, Y. M. Han, K. R. Roneker, J. R. Thornton, and X. G. Lei, Cornell University, Ithaca, NY.
9:15	240	Phytase addition to normal corn- and low phytic acid corn-soybean meal diets for chicks and pigs. J. L. Pierce* and G. L. Cromwell, University of Kentucky, Lexington, KY.
9:30	241	Phytase effects on ileal amino acid digestibility and nitrogen balance in finishing pigs fed a low- protein plant-based diet. Z. Zhang* and E. T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg, VA.
9:45	242	Effects of microbial phytase on amino acid and mineral digestibilities in pigs fitted with steered ileo-cecal valve cannulas and fed a low protein, corn-soybean meal based diet. J. S. Radcliffe*, E. T. Kornegay, and R. S. Pleasant, Virginia Polytechnic Institute and State University, Blacksburg, VA.
10:00		What Have We Learned? - G.L. Cromwell
10:15		BREAK
10:30	243	Bioavailability of phosphorus in meat and bone meal subjected to varying processing pressures for pigs. S. L. Traylor*, G. L. Cromwell, and M. D. Lindemann, University of Kentucky, Lexington, KY.
10:45	244	Bioavailability of phosphorus assessment in commercial dicalcium phosphates and rock phosphates for growing swine. L. W. O. Souza ¹ , F. R. Lima ^{*1} , A. S. Moretti ¹ , F. M. Tucci ¹ , and P. M. Leal ² , ¹ Faculdade de Medicina Veterinária e Zootecnia, Universidade de Sao Paulo, ² Faculdade de Engenharia Agrícola, UNICAMP.
11:00	245	Effects of corn and(or) soybean meal on nitrogen and phosphorus excretion of growing pigs. B. W. Senne*, S. D. Carter, L. A. Pettey, and J. A. Shriver, Oklahoma State University, Stillwater.
11:15	246	Effects of fiber addition (10% soybean hulls) to a reduced crude protein diet supplemented with synthetic amino acids verses a standard commercial diet on pig performance, pit composition, odor and ammonia levels in swine buildings. D. C. Kendall*, B. T. Richert, A. L. Sutton, J. W. Frank, S. A. DeCamp, K. A. Bowers, D. Kelly, and M. Cobb, Purdue University, West Lafayette, IN.

PASTURES & FORAGES 1

Supplementation, Protein, Grazing Management

Chair: Dr. C. P. Bagley, Mississippi State
University, Starkville

Wednesday, 8:00 a.m. - 12:00 Noon
Room 145/146

Time	Abs. No.	
8:00	345	Supplementation strategies for beef cattle consuming low-quality forages in the western US: An executive summary of a WCC 104 publication. T. DelCurto*, Eastern Oregon Agricultural Research Center, Oregon State University, Union.
8:30	346	Forage quality and animal performance in beef heifers grazing stockpiled fescue as influenced by supplemental whole cottonseed (WCS). M. H. Poore*, M. E. Scott, S. P. Morgan, and J. T. Green, North Carolina State University, Raleigh, NC.
8:45	347	Effects of corn and decreasing levels of soybean meal on intake and digestion of prairie hay by beef steers. T. N. Bodine* ¹ , H. T. Purvis II ¹ , and C. J. Ackerman ¹ , ¹ Oklahoma Agricultural Experiment Station, Stillwater.
9:00	348	Undegraded intake protein supplementation of steers on native Sandhills range. C. B. Wilson* ¹ , T. J. Klopfenstein ¹ , and D. C. Adams ² , ¹ University of Nebraska, Lincoln, NE, ² University of Nebraska WCREC, North Platte, NE.
9:15	349	First limiting nutrient for nursing calves grazing native range in southeastern North Dakota. T. W. Loy*, G. P. Lardy, J. S. Caton, and M. L. Bauer, North Dakota State University, Fargo.
9:30	350	Effects of bypass methionine on the performance of growing cattle fed bermudagrass hay supplemented with molasses-based supplements. D. I. Hopkins ¹ , W. E. Kunkle* ¹ , A. C. Hammond ² , D. B. Bates ¹ , and B. A. Reiling ¹ , ¹ University of Florida, Gainesville, ² USDA, ARS, Brooksville, FL.
9:45	351	Nitrogen metabolism in pregnant mares fed grass hays containing different concentrations of protein. J. Boyer* ¹ , N. Cymbaluk ² , B. Kyle ² , D. Brown ¹ , and H. Hintz ¹ , ¹ Cornell University, Ithaca, NY, ² Linwood Ranch, Carberry, Manitoba.
10:00	352	Effect of nitrogen fertilization, harvest date, and species on protein fractions of warm-season grasses. C. R. Johnson*, B. A. Reiling, P. Mislevy, and M. B. Hall, University of Florida, Gainesville, FL.
10:15	353	Chemical composition and ruminal degradability of processed alfalfa products. A. F. Mustafa, D. A. Christensen, and J. J. McKinnon, University of Saskatchewan, Saskatoon.
10:30		BREAK
10:45	354	Social behavior of grazing beef cattle: implications for management. B. F. Sowell*, J. C. Mosley, and J. G. P. Bowman, Montana State University, Bozeman, MT.
11:15	355	Grazing time and assessment for beef cows on pasture using GPS. M. C. Udal, L. W. Turner, B. T. Larson, L. J. Driedger*, and S. A. Shearer, University of Kentucky, Lexington, KY.
11:30	356	Beef cow-calf production from pastures containing hay-type or grazing tolerant alfalfa hybrids grazed by season-long or complementary stocking. M. L. Hermann* and J. R. Russell, Iowa State University, Ames, IA.
11:45	357	Performance and nutrient utilization of steers consuming kenaf, pearl millet, or bermudagrass. B. J. Rude, B. S. Baldwin, K. C. Hanson*, and D. L. Trammell, III, Mississippi State University, Starkville, MS.

PHYSIOLOGY AND ENDOCRINOLOGY 1

Sponsored by: Elanco Animal Health
and Monsanto

Cytokine and NO Minisymposium

Chair: Dr. T. H. Elsasser,
USDA, ARS, Beltsville, MD

Wednesday, 8:00 a.m. - 11:10 a.m.
Room 206/207

Time	Abs. No.	
8:00		Introductory Remarks and Statement of Purpose and Mission. T. H. Elsasser, USDA, ARS, Beltsville, MD.
8:10	399	Cytokine and NO modulation of cellular energetics, mitochondrial function and cytotoxicity. J. R. Lancaster*, Louisiana State University Medical Center, New Orleans, LA.
8:45	400	Role of proinflammatory cytokines and NO in pancreatic β -cell dysfunction and β -cell insulin resistance. M. L. McDaniel*, G. Kwon, G. Xu, and C. A. Marshall, Washington University School of Medicine, St. Louis, MO.
9:20	401	Cytokine modulation of reproductive processes. J. L. Pate*, Ohio State University, Wooster, OH.
9:55		BREAK
10:10	402	Role of prostaglandins in modulating uterine immune responses in postpartum ewes. R. C. Seals* ¹ , M. C. Wulster-Radcliffe ¹ , E. L. Hensley ¹ , and G. S. Lewis ¹ , ¹ Virginia Polytechnic Institute and State University.
10:25	403	Immune system function of neonatal pigs born naturally or by Cesarean section. J. A. Daniel* ¹ , D. H. Keisler ¹ , L. A. Beausang ² , M. E. Zannelli ² , R. L. Matteri ³ , and J. A. Carroll ³ , ¹ Depart. Animal Sciences, University of Missouri-Columbia, ² Endogen, Inc., Woburn, MA, ³ Animal Physiology Research Unit, Agricultural Research Service, USDA, Columbia, MO.
10:40	404	Growth hormone (GH) administration augments and vitamine E (E) attenuates increases in plasma nitrate+nitrite (NOx) and decreases in IGF-I after endotoxin (LPS) challenge. T. H. Elsasser* ¹ , S. Kahl ¹ , T. S. Rumsey ¹ , and R. Hoffman ² , ¹ USDA, Agricultural Research Service, Beltsville, MD, ² Monsanto Co., St. Louis, MO.
10:55	405	Lutalyse changes the immune response in ewes after intrauterine bacterial inoculation. M. C. Wulster-Radcliffe*, J. L. Bardugone, R. C. Seals, and G. S. Lewis, Virginia Polytechnic Institute and State University.

PHYSIOLOGY AND ENDOCRINOLOGY 2 POSTERS

Regulation of Hormone Secretion and Action - I

Chair: Dr. S. Kahl, USDA, ARS, Beltsville, MD

Wednesday, 8:00 a.m. - 5:00 p.m.
Authors present, 10:00 a.m. - 12:00 Noon
Exhibit Hall E

Board No.	Abs. No.	
10	406	Expression of two variants of growth hormone receptor messenger ribonucleic acid in porcine liver. J. Liu* ¹ , J. A. Carroll ² , R. L. Matteri ² , and M. C. Lucy ¹ , ¹ University of Missouri, Columbia, ² Animal Physiology Unit, ARS-USDA, Columbia, MO.
11	407	Feeding-induced increases in insulin do not suppress secretion of growth hormone. C. D. McMahon, L. T. Chapin*, K. J. Lookingland, R. P. Radcliff, and H. A. Tucker, Michigan State University, East Lansing, MI.

- 12 408 LH response to slow-release Deslorelin in estradiol benzoate (EV) primed ovariectomized gilts. R. R. Kraeling^{*1}, C. R. Barb¹, G. B. Rampacek², D. Thompson³, J. Gibson⁴, S. Sullivan⁴, B. Simon⁵, and P. J. Burns⁵, ¹USDA, Agricultural Research Service, SAA; Athens, GA 30604, ²University of Georgia, Athens, Ga 30602, ³Louisiana State University, Baton Rouge, LA, ⁴Southern Biosystems Inc., Birmingham, AL, ⁵Thorn BioScience, Lexington, KY.
- 13 409 Prolactin induces activation of focal adhesion kinase (FAK) via JAK2- mediated activation of c- src. L. G. Sheffield^{*}, University of Wisconsin, Madison, WI.
- 14 410 Vasoactive intestinal polypeptide stimulates prolactin secretion in pony mares. P. R. Buff^{*}, N. C. Whitley, E. L. McFadin-Buff, W. E. Loch, and D. H. Keisler.
- 15 411 Continuous, intracerebroventricular infusion of neuropeptide Y induces a prolonged suppression of LH. C. D. Morrison^{*}, J. A. Daniel, P. R. Buff, and D. H. Keisler, University of Missouri, Columbia MO/USA.
- 16 412 Orexin regulates appetite in sheep. JL Sartin^{*1}, DL Buxton¹, CJ Dyer², RL Matteri², MA Shores¹, and BP Steele¹, ¹Auburn University, Auburn, AL, ²Animal Physiology Unit, ARS, USDA, Columbia, MO.
- 17 413 Effect of insulin administration on feed intake and conception rate in ewe lambs. E. L. McFadin-Buff^{*}, N. C. Whitley, and D. H. Keisler.
- 18 414 Leptin receptor mRNA expression in the brain, pituitary and other tissues in the pig. J. Lin^{*1}, C. R. Barb², R. L. Matteri³, R. R. Kraeling², X. Chen¹, G. B. Rampacek¹, and R. J. Meinersmann², ¹University of Georgia; Athens, GA, USA, ²USDA, Agricultural Research Service, SAA; Athens, GA USA, ³USDA, Agricultural Research Service, Columbia, MO USA.
- 19 415 Comparison of area under the curve and a two-time point method to determine growth hormone (GH) response to growth hormone releasing factor (GRF). W. J. Weber, L. H. Baumgard, and B. A. Crooker^{*}, University of Minnesota, St. Paul, MN USA.
- 20 416 Increased concentrations of IGF binding protein-1 in bovine luteal tissue during PGF_{2α}-induced luteolysis. B. L. Sayre^{*}, R. Taft, E. K. Inskeep, and J. Killefer, West Virginia University.
- 21 417 Does anterior pituitary responsiveness to GnRH predict age at puberty in beef heifers? R. L. Stanko^{*1,2} and G. L. Williams¹, ¹Texas A&M University Agricultural Research Station, Beeville, Texas, ²Texas A&M University-Kingsville, Kingsville, Texas.
- 22 418 The role of estradiol on the frequency of release of pulses of LH from 4 months of age to puberty. J. W. Koch^{*}, M. L. Mussard, L. R. Ehnis, H. Jimenez-Severiano, V. Vega-Murillo, and J. E. Kinder, University of Nebraska-Lincoln, Lincoln, Ne/USA.

RUMINANT NUTRITION 1

Byproduct Feeds

Chair: Dr. S. C. Loerch,
The Ohio State University, Wooster

Wednesday, 8:00 a.m. - 10:10 a.m.
Room 143/144

Time	Abs. No.	
8:00	541	INVITED Review of new information on the use of wet and dry milling feed byproducts in feedlot diets. R. A. Stock ^{*1} , J. M. Lewis ¹ , T. J. Klopfenstein ² , and C. T. Milton ² , ¹ Cargill Corn Milling, Blair, NE 68008-0300, ² University of Nebraska, Lincoln, NE 68583-0908.
8:40	542	Comparison of corn and wet corn gluten feed in roughage- or concentrate- based diets for growing beef heifers. J. S. Drouillard [*] , N. G. Whitham, D. A. Blasi, E. C. Titgemeyer, C. M. Coetzer, and R. D. Hunter, Kansas State University, Manhattan, Kansas.
8:55	543	Effects of virginiamycin or monensin plus tylosin on ruminal nitrogen metabolism in steers fed corn based finishing diets with or without wet corn gluten feed. S. E. Ives ^{*1} , E. C. Titgemeyer ¹ , T. G. Nagaraja ¹ , D. J. Bindel ¹ , and A. del Barrio ² , ¹ Kansas State University, Manhattan, KS, ² University of the Philippines Los Banos, Laguna, Philippines.
9:10	544	Efficiency of limit-fed fibrous by-product diets compared to limit-fed corn or free-choice hay for developing beef heifers. A. D. O'Neil, D. L. Lalman, D. R. Gill, R. P. Wettemann, and C. A. Lents, Oklahoma State University, Stillwater
9:25	545	Poultry manure as a protein and mineral supplement in high concentrate diets limit-fed to gestating and lactating beef cows. J. E. Rossi [*] , S. C. Loerch, and M. L. Borger.

- 9:40 546 Nutritive evaluation of diets containing food industry byproducts for sheep. A. S. Bertin*, H. W. Harpster, V. H. Baumer, and R. L. Swope, The Pennsylvania State University, University Park.
- 9:55 547 Feed intake of growing lambs fed diets containing oat hulls and soy hulls to provide indigestible neutral detergent fiber. M. L. Thonney* and D. E. Hogue, Cornell University, Ithaca, NY.

RUMINANT NUTRITION 2 POSTERS

Protein

Wednesday, 8:00 a.m. - 5:00 p.m.
 Authors present, 8:00 a.m. - 10:00 a.m.
 Exhibit Hall E

Board No.	Abs. No.	
23	548	Ruminal degradable protein requirements of microbes in steers consuming concentrate-based diets. C. J. Fu*, E. E. D. Felton, and M. S. Kerley, University of Missouri-Columbia.
24	549	Effect of ruminal versus postruminal administration of degradable protein on utilization of low- quality forage by beef steers. C. A. Bandyk*, R. C. Cochran, T. A. Wickersham, E. C. Titgemeyer, and C. G. Farmer, Kansas State University, Manhattan, KS.
25	550	Lamb performance and serum urea nitrogen and amino acid concentrations as influenced by concentrate- or pasture-finishing. K. E. Turner* ¹ , K. E. McClure ² , J. G. Foster ¹ , and D. P. Belesky ¹ , ¹ USDA-ARS, Beaver, WV, ² The Ohio State University, Wooster.
26	551	Characterization of variation in composition and in situ protein degradation of porcine meat and bone meal. F. Orias*, N. R. Merchen, and L. L. Berger, University of Illinois, Urbana, Illinois, USA.
27	552	Effect of substitution of chickpeas by soybean meal on total tract digestibility of finishing diets for sheep. R. Barajas, J. F. Obregon*, A. Estrada, and J. A. Felix, Universidad Autonoma de Sinaloa (Mexico).
28	553	Estimate of feed rumen degradable proteins by using the CNCPS carbohydrates and proteins fractions. F. Masoero ¹ , M. Moschini ¹ , F. Rossi ¹ , and G. Piva* ¹ , ¹ Istituto di Scienze degli Alimenti e della Nutrizione (ISAN) - Facolta di Agraria, UCSC - Piacenza.
29	554	Metabolizable protein estimates of treated soybean meal products. R. A. Mass*, D. J. Jordon, T. L. Scott, and T. J. Klopfenstein, ¹ University of Nebraska-Lincoln.
30	555	Effects of supplementation of limit-fed growing diets with either soybean meal or non- enzymatically browned soybean meal on steer performance. C. M. Coetzer*, J. S. Drouillard, C. A. Loest, D. J. Bindel, H. J. LaBrune, J. J. Higgins, R. D. Hunter, and T. Nutsch, Kansas State University, Manhattan, Kansas.
31	556	Urinary allantoin excretion of finishing steers. R. A. Mass* ¹ , D. J. Jordon ¹ , C. T. Milton ¹ , T. J. Klopfenstein ¹ , and R. A. Stock ² , ¹ University of Nebraska, Lincoln, NE, ² Cargill Corn Milling, Blair, NE.
32	557	Effects of protein source and level on weight gain and plasma urea N (PUN) levels of growing steers. G. B. Huntington, M. H. Poore, J. W. Spears, and B. A. Hopkins, North Carolina State University, Raleigh, North Carolina.
33	558	Amino Acid: Energy Relationship for Receiving Calves. J. W. Lehmkuhler*, E. E. D. Felton, P. Brooks, and M. S. Kerley, University of Missouri-Columbia.

RUMINANT NUTRITION 3 POSTERS

Microbiology

Wednesday, 8:00 a.m. - 5:00 p.m.
 Authors present, 10:00 a.m. - 12:00 Noon
 Exhibit Hall E

Board Time	Abs. No.	
34	559	Ciliate protozoal populations in the rumen of cattle fed high concentrate, barley-based diets. A. N. Hristov*, M. Ivan, L. M. Rode, and T. A. McAllister, Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB.
35	560	Effect of dietary concentrate level on polysaccharide-degrading enzyme activities and bacterial distribution in the solid and liquor fractions of in vitro ruminal digesta. Q. Meng* ¹ , X. Xiao ¹ , Z. Xia ¹ , L. Lu ¹ , and W. Gao ¹ , ¹ College of Animal Science & Technology, China Agricultural University.
36	561	Effect of sodium chlorate on <i>Escherichia coli</i> O157:H7 and <i>Salmonella</i> Typhimurium DT104 in rumen contents. R. C. Anderson*, D. J. Nisbet, S. A. Buckley, R. B. Harvey, and L. H. Stanker.
37	562	Isolation and characterization of a succinate-degrading bacterium from the rumen. T. L. Weddington*, D. M. Hopkins, H. J. Strobel, and K. A. Dawson, University of Kentucky, Lexington, KY.
38	563	Effects of defined xylanase and cellulase enzyme preparations on digestive processes of ruminal microbial cultures. J. M. Tricárico and K. A. Dawson, University of Kentucky, Lexington KY.
39	564	<i>In vitro</i> effects of steroidal saponins from <i>Yucca schidigera</i> extract on rumen microbial protein synthesis and ruminal fermentation. Y. Wang* ¹ , L. J. Yanke ¹ , Z. Xu ¹ , P. R. Cheeke ² , and T. A. McAllister ¹ , ¹ Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB, ² Desert King International, Chula Vista, CA.
40	565	Demonstration of endosymbiotic methanogens and hydrogenosomes in ruminal protozoa from sheep. R. J. Wedam*, M. L. Nelson, and V. R. Franceschi.
41	566	Inoculation with <i>Lactobacillus buchneri</i> increases the acetate and propionate content of barley silage resulting in improved aerobic stability. N. K. Ranjit ¹ , L. Kung, Jr.* ¹ , J. M. Robinson ¹ , and K. K. Kreikemeier ² , ¹ University of Delaware, Newark, ² Biotal, Eden Prairie, Minnesota.
42	567	Use of the reducible dyes resazurin, 2',6'-dichloroindophenol and methylene green to estimate rumen microbial numbers. R. E. Dodson* ¹ , S. A. Ericsson ¹ , K. L. Sternes ¹ , T. W. Downing ² , and P. H. Purdy ¹ , ¹ Sul Ross State University, Alpine, Texas, ² Oregon State University, Corvallis, Oregon.

RUMINANT NUTRITION 4

Minerals

Chair: Dr. E. B. Kegley,
 University of Arkansas, Fayetteville

Wednesday, 10:15 a.m. - 11:55 a.m.
 Room 143/144

Time	Abs. No.	
10:15	568	INVITED Assessment of trace mineral status of ruminants. R. L. Kincaid* ¹ , ¹ Washington State University, Department of Animal Sciences.
10:55	569	Performance and lipid and cholesterol metabolism in finishing steers fed varying concentrations of copper. T. E. Engle* and J. W. Spears, North Carolina State University, Raleigh, NC.
11:10	570	Effect of dietary copper level and high sulfate water on copper metabolism and growth in cattle. C. L. Wright*, J. W. Spears, T. E. Engle, and T. A. Armstrong, North Carolina State University, Raleigh, NC.
11:25	571	Trace Mineral Solubility in a free-choice mineral supplement treated with petrolatum. L. W. Greene* ¹ , D. V. Dhuyvetter ² , and N. K. Chirase ¹ , ¹ Texas A & M University System, Amarillo, ² Farmland Industries, Kansas City, MO.

- 11:40 572 Effect of decreasing dietary phosphorus on nutrient balance in beef feedlots. G. E. Erickson*, C. T. Milton, and T. J. Klopfenstein, University of Nebraska, Lincoln, NE.

**TEACHING 1 AND
INTERNATIONAL ANIMAL AGRICULTURE SYMPOSIUM**

Developing International Education in the Animal Sciences

Co-Chairs: Dr. D. Banks, Michigan State
University, East Lansing
and Dr. W. D. Hohenboken,
Virginia Tech University, Blacksburg

Wednesday, 8:00 a.m. - 12:00 Noon
Room 109

Time

- 8:00 Dr. Richard Foster, Kellogg Foundation, Battle Creek, MI
8:45 Dr. Doug Wilson, Cooperative Resources International, Shawano WI
9:15 Dr. Rebecca Thomas, Certified Angus Beef, Columbus, OH
9:45 BREAK
10:00 Dr. Brian Dennis, The Royal Veterinary and Agricultural University, Copenhagen, Denmark.
10:30 Dr. Paul Roberts, Michigan State University, East Lansing, MI
11:00 Dr. John Shelle, Michigan State University, East Lansing, MI
11:30 Panel Discussion

**FASS Committee on Food
Safety, Animal Drugs and Animal Health**

**Demonstrating Effectiveness of Beef
Cattle and Swine Production Drugs**

Chair: Dr. W. A. Olson, Center for
Regulatory Services, Virginia

Wednesday, 12:00 Noon – 1:00 p.m.
Room 204

- 12:00 Government Perspective: Demonstrating Effectiveness of Beef Cattle and Swine Production Drugs: A Discussion of Scientific Principles. Dr. Chuck Andres, Office of New Animal Drug Evaluation, Center for Veterinary Medicine, Food and Drug Administration.
12:30 Discussion: Academic Perspective.
University Speaker, TBA
Dr. Chuck Andres, FDA-CVM
University Speaker, TBA
Dr. Anna Nevius, Statistician, FDA-CVM

BREEDING AND GENETICS 2

Multiple Breed Parameter Estimation

Chair: Dr. R. M. Enns,
University of Arizona, Tucson

Wednesday, 1:00 p.m. - 3:15 p.m.
Room 147/148

Time	Abs. No.	
1:00	60	Genetic and phenotypic relationships among bull and heifer reproductive traits in a multibreed beef cattle population. P. B. Mwansa ^{*1} , R. A. Kemp ¹ , D. H. Crews Jr. ¹ , J. P. Kastelic ¹ , D. R. C. Bailey ² , and G. H. Coulter ¹ , ¹ Agriculture And Agri-Food Canada, Lethbridge Research Centre, ² Lacombe Research Centre.
1:15	61	Genotype x environment interactions in Angus, Brahman, and reciprocal- cross cows and their calves grazing endophyte-infected tall fescue, common bermudagrass, or both forages. M. A. Brown ^{*1} , A. H. Brown, Jr. ² , W. G. Jackson ³ , and J. R. Miesner ³ , ¹ USDA-ARS, Grazinglands Research Laboratory, El Reno, OK, ² University of Arkansas, Fayetteville, ³ USDA-ARS, Dale Bumpers Small Farms Research Center, Booneville, AR.
1:30	62	Analysis of litter size and piglet mortality using a multivariate model with direct and maternal effects. M. S. Lund ^{*1} , P. Luttinen ² , L. Rydhmer ³ , M. Henryon ¹ , and J. Jensen ¹ , ¹ Danish Institute of Animal Sciences, ² Finnish Animal Breeding Association, ³ Swedish University of Agricultural Sciences.
1:45	63	Crossbreeding parameter estimates for growth and litter traits in commercial rabbits. M. F. Medellin and S. D. Lukefahr [*] , Texas A&M University-Kingsville.
2:00	64	Comparison of carcass traits of <i>Bos taurus</i> × <i>Bos taurus</i> , <i>Bos indicus</i> × <i>Bos indicus</i> and <i>Bos taurus</i> × <i>Bos indicus</i> . A. P. Márquez ^{*1} , C. C. Vásquez ² , A. C. Correa ¹ , H. C. Hernández ³ , and H. G. González ¹ , ¹ Universidad Autónoma de Baja California, Instituto de Ciencias Agrícolas, ² Universidad Industrial de Santander, Colombia, ³ Universidad Autónoma de Baja California Sur.
2:15	65	Breed, muscle quality and sensory characteristics of pigs classified as high or low for glycolytic potential of the loin muscle. R. S. Emmett [*] , S. J. Moeller, D. L. Meeker, K. M. Irvin, and R. N. Goodwin ² , ¹ The Ohio State University, ² National Pork Producers Council.
2:30	66	Estimation of genetic parameters for growth traits in a dog guide population. S. K. Helmink ^{*1} , S. L. Rodriguez-Zas ¹ , R. D. Shanks ¹ , and E. A. Leighton ² , ¹ University of Illinois, Urbana, ² The Seeing Eye, Inc., Morristown, NJ.
2:45	67	Differences in fresh and cooked ham muscles due to breed and sex. R. N. Goodwin ^{*1} , R. K. Miller ² , and E. P. Berg ³ , ¹ National Pork Producers Council, ² Texas A & M University, ³ University of Missouri.
3:00	68	The genetic relationship of ovine milk score with range lamb weaning weight. G. D. Snowder ^{*1} , A. D. Knight ¹ , C. M. Bromley ² , and L. D. Van Vleck ³ , ¹ USDA, ARS, U.S. Sheep Experiment Station, ² University of Nebraska, Lincoln, ³ USDA, ARS, MARC, Lincoln.

GROWTH AND DEVELOPMENT 2 SYMPOSIUM

Sponsored by: Hoechst Roussel Vet,
Merck & Co., Inc., and Purina Mills, Inc.

Utility of In Vitro Models of Cellular Growth and Development: Putting the Pieces Back Together

Co-Chairs: Dr. G. J. Hausman, USDA, ARS, Athens, GA and Dr. S. E. Mills,
Purdue University, West Lafayette, IN

Wednesday, 1:00 p.m. - 5:00 p.m.
Room 205

Time	
1:00	Introduction - G. J. Hausman, USDA, ARS, Athens, GA.
1:05	In vitro studies of the interaction of the IGF system and extracellular matrix in smooth muscle cell growth. D. Clements, University of North Carolina, Chapel Hill.

- 1:45 A critical review of in vitro models of myogenesis. R. E. Allen, University of Arizona, Tucson.
- 2:15 In vitro studies of porcine myogenic cells: Myogenesis and the IGF system. W. Dayton, University of Minnesota, Saint Paul.
- 2:50 BREAK
- 3:05 A critical review of in vitro models of adipogenesis. G. J. Hausman, USDA, ARS, Athens, GA.
- 3:35 Studies of primary porcine stromal-vascular cell cultures. T. G. Ramsay, USDA, ARS, Beltsville, MD.
- 4:05 Studies of primary and secondary stromal-vascular cell cultures: Interactions between preadipocytes and endothelial cell growth. D. C. W. Lau, University of Ottawa and The Ottawa Hospital, Ontario, Canada.
- 4:45 General discussion

MEAT SCIENCE AND MUSCLE BIOLOGY 2 POSTERS

Proteases in Muscle Growth and Meat Quality

Wednesday, 8:00 a.m. - 4:00 p.m.
 Authors present, 1:00 p.m. - 3:00 p.m.
 Exhibit Hall E

Board No.	Abs. No.	
43	194	The influence of ageing and type of muscle on lysosomal proteinases degradation. F. Nicastro*, Università di Bari, Dipartimento di Produzione Animale, Bari, Italy.
44	195	Purification and characterization of a cysteine myosin-degrading protease. W.-C. Lai*, R. H. McCusker, and J. E. Novakofski, University of Illinois at Urbana-Champaign.
45	196	The role of the muscle specific calpain p94 in intermuscular variation in tenderness in the sheep. M Ilian* and R Bickerstaffe, Lincoln University, Canterbury, New Zealand.
46	197	Immunochemical study of the calpain system in porcine longissimus muscle with high and low shear force values. T. Parr ¹ , P. L. Sensky* ¹ , G. P. Scothern ¹ , R. G. Bardsley ¹ , P. J. Buttery ¹ , J. D. Wood ² , and C. Warkup ³ , ¹ University of Nottingham, Nottingham, U.K., ² University of Bristol, Bristol, U.K., ³ Meat and Livestock Commission, Milton Keynes, U.K.
47	198	Changes in porcine skeletal muscle calpastatin expression induced by a single dose of a β_2 -agonist. T. Parr ¹ , P. L. Sensky* ¹ , C. Warkup ² , R. G. Bardsley ¹ , and P. J. Buttery ¹ , ¹ University of Nottingham, Nottingham, U.K., ² Meat and Livestock Commission, Milton Keynes, U.K.

MEAT SCIENCE AND MUSCLE BIOLOGY 3 POSTERS

Meat Composition and Quality

Wednesday, 8:00 a.m. - 4:00 p.m.
 Authors present, 1:00 p.m. - 3:00 p.m.
 Exhibit Hall E

Board No.	Abs. No.	
48	199	Effects of genetic type and production system on carcass traits of beef steers. A. H. Brown, Jr*, Z. B. Johnson, M. A. Brown, E. L. Oxford, P. K. Camfield, and L. Y. Rakes, University of Arkansas, Fayetteville.

- 49 200 Effect of supplemental vitamin E in the diet of finishing steers, on meat color stability after 1, 3, 5 and 7 days postmortem. J. F. Calderon-Cortes*¹, F. Figueroa S.¹, A. Plascencia J.¹, N. F. Gonzalez M.², H. Gonzalez R.², and R. A. Zinn³, ¹University of Baja California, Mexicali, B.C., Mexico, ²Centro de Investigacion en Alimentacion y Desarrollo, A.C., Hermosillo, Son., Mexico., ³University of California, El Centro, CA., USA.
- 50 201 Effects of graded levels of potato by-products in barley and corn-based beef feedlot diets I. Feedlot performance, carcass characteristics, meat composition and appearance. M. L. Nelson*, J. R. Busboom, J. D. Cronrath, L. Falen, and A. Blankenbaker, ¹Washington State University, Pullman.
- 51 202 Effects of graded levels of potato by-product in barley and corn based beef feedlot diets. II. Palatability. J. R. Busboom*¹, M. L. Nelson¹, L. E. Jeremiah², S. K. Duckett³, J. D. Cronrath¹, and L. Falen¹, ¹Washington State University, Pullman, ²Agriculture and Agrifood Canada, Lacombe, AB, ³University of Idaho, Moscow.
- 52 203 Compositional analysis of beef 6-12 rib sections by dual-energy x-ray absorptiometry. A. D. Mitchell*, T. S. Rumsey, M. B. Solomon, and S. Fritsche, USDA, Agricultural Research Service, Beltsville, MD.
- 53 204 Breed effects on cholesterol and fatty acids in longissimus muscle of Hereford, Limousin, and Piedmontese F2 crossbred cattle at slaughter. D. C. Rule*¹, R. E. Short², M. D. Grosz², E. E. Grings², and M. D. MacNeil², ¹University of Wy, Laramie, ²USDA,ARS, Miles City, MT.
- 54 205 Deposition of energy and nutrients in the carcass during growth and meat quality of different cattle breeds. B. Ender*¹, H. J. Papstein², G. Nuernberg², M. Gabel¹, and K. Ender², ¹University of Rostock, Agricultural Faculty, D-18051 Rostock, Germany, ²Research Institute for the Biology of Farm Animals, D-18196 Dummerstorf, Germany.
- 55 206 Effects of antioxidant and antimicrobial addition to ground beef and lamb on microbial growth, lipid oxidation and color. S. L. Cuvala*, S. K. Duckett, G. T. Pritchard, and J. G. Andrae, University of Idaho, Moscow.
- 56 207 Effect of chilling on fresh pork quality. S. Ohene-Adjei*¹, M. Ellis, F. K. McKeith, and J. E. Cannon, ¹University of Illinois at Urbana-Champaign, ²Dekalb Swine Breeders Inc.
- 57 208 Influence of two dietary fat sources and energy levels on lipogenic activity in tissues of pigs. G. Bee*¹ and C. Wenk², ¹Swiss Federal Research Station for Animal Production, Posieux, Switzerland, ²Institute of Animal Science ETH-Zurich, Switzerland.
- 58 209 Interaction of halothane and Rendement Napole genotypes on carcass and meat quality characteristics of pigs. D. N. Hamilton*, K. D. Miller, D. F. Parrett, F. K. McKeith, and M. Ellis, University of Illinois, Urbana, IL/ USA.
- 59 210 Effect of genotype on carcass composition and meat quality characteristics. B. F. Wolter*¹, M. Ellis¹, F. K. McKeith¹, and M. Culbertson², ¹University of Illinois, ²Cotswold USA.
- 60 211 Sensory evaluation of loin chops from lambs fed concentrate or grazed on ryegrass to traditional or heavy weights. R. J. Borton*, K. E. McClure, and D. M. Wulf, The Ohio State University / OARDC.
- 61 212 Effects of Dorper genetics on tenderness, fatty acid and cholesterol content of lamb. S. K. Duckett*¹, S. L. Cuvala¹, and G. D. Snowder², ¹University of Idaho, Moscow, ²U.S. Sheep Experiment Station, Dubois.
- 62 213 Effects of rearing system on meat quality in young kids. A. Arguello*¹, A. Marichal¹, R. Ginas¹, J. Capote², J. M. Afonso¹, and J. L. Lopez¹, ¹Animal Production Unit, Las Palmas de Gran Canaria University, Arucas, Las Palmas, Spain., ²Animal Production Unit, Pastures and Forage, ICIA, Tenerife, Spain.
- 63 214 Survival of *Escherichia coli* O157:H7 in soil. R. G. Espinosa*, B. Larkin, J. Thomas, and T. May, New Mexico State University, Las Cruces.

TECHNOLOGY FORUM SYMPOSIUM

NONRUMINANT NUTRITION 2

Sponsored by: Novus International, NPPC,
and Optimum Quality Grains, LLC

Application of Nutritional Knowledge for Developing Eco-nutrition Feed- ings Programs on Commercial Swine Farms

Chair: Dr. G. C. Shurson,
University of Minnesota, St. Paul

Wednesday, 1:00 p.m. - 3:00 p.m.
Room 208/209

Time

1:00	What are the Problems of Manure Management? Dr. Alan Sutton, Purdue University, West Lafayette.
1:25	Relative Impact of Feed Ingredients and Nutrient Program on the Eco System. Dr. Bob von Bernuth, Agricultural Engineering, Michigan State University, East Lansing.
1:50	How can we manipulate the Diet and What are the Responses? Dr. Terry Prince, Akey, Inc., Lewisburg, OH.
2:15	Information needed in Problem Areas that need to be Solved Before Implementation can be Cost Effective. Dr. Martin Verstegen, Wageningen Institute of Animal Science, Wageningen, Netherlands.
2:40	Panel Discussion

NONRUMINANT NUTRITION 3

Pharmacological Responses of Zinc

Chair: Dr. G. M. Hill,
Michigan State University, East Lansing

Wednesday, 3:00 p.m. - 4:50 p.m.
Room 208/209

Time	Abs. No.	
3:00	247	Titration of pharmacological doses of zinc in the nursery pig. G. M. Hill*, S. D. Carter, R. C. Ewan, D. C. Mahan, P. S. Miller, G. C. Shurson, and T. L. Veum, NCR-42 Regional Swine Nutrition Committee.
3:15	248	The effects of different zinc oxide sources on weanling pig growth performance. J. C. Woodworth*, M. D. Tokach, J. L. Nelssen, R. D. Goodband, and J. T. Sawyer, Kansas State University, Manhattan.
3:30	249	The interactive effects of zinc source and feed grade antibiotic on weanling pig growth performance. J. C. Woodworth* ¹ , M. D. Tokach ¹ , J. L. Nelssen ¹ , R. D. Goodband ¹ , J. T. Sawyer ¹ , and T. M. Fakler ² , ¹ Kansas State University, Manhattan, KS, ² Zinpro Corp., Eden Prairie, MN.
3:45	250	Effect of diet complexity and supplemental zinc amino acid complexes on performance of nursery pigs. B. Z. de Rodas* ¹ , C. V. Maxwell ¹ , D. C. Brown ¹ , M. E. Davis ¹ , Z. B. Johnson ¹ , and T. M. Fakler ² , ¹ University of Arkansas, Fayetteville, AR, ² Zinpro Corp., Eden Prairie, MN.
4:00	251	Effect of dietary zinc on growth performance and immune response of endotoxemic growing pigs. E. S. Roberts* ¹ , E. van Heugten ² , G. Almond ¹ , and J. W. Spears ² , ¹ College of Veterinary Medicine, ² Department of Animal Science, North Carolina State University, Raleigh, NC.
4:15	252	Skeletal mineralization of nursery pigs fed diets with pharmacological additions of zinc. T. D. Crenshaw and D. K. Schneider, University of Wisconsin, Madison, WI.
4:30		What Have We Learned? - G. M. Hill

PASTURES & FORAGES 2

Energy, Intake, Silages, Vitamins, and Minerals

Chair: Dr. M. S. Kerley, University of Missouri, Columbia

Wednesday, 1:00 p.m. - 5:00 p.m.
Room 145/146

Time	Abs. No.	
1:00	358	Management influences on gaseous energy losses from grazing beef cattle. K. C. Olson* ¹ , J. A. Walker ² , B. R. Bowman ¹ , C. E. Foley ¹ , C. A. Stonecipher ¹ , and D. G. Eddington ¹ , ¹ Utah State University, Logan, UT, ² South Dakota State University, Pierre, SD.
1:30	359	Relationships between in vitro gas production and in vivo digestibility and intake of tropical feeds by cattle. E. Zerbini* and S. Fernandez-Rivera, International Livestock Research Institute - ICRISAT, Patancheru, India; - ICRISAT, Sadore, Niger.
1:45	360	Effect of water soluble carbohydrates on selection by sheep. S. W. Coleman* ¹ and H. Dove ² , ¹ USDA-ARS, El Reno, OK, ² CSIRO Plant Industry, Canberra, ACT, Australia.
2:00	361	Evaluation of equations for estimating voluntary intake of forages and forage-based diets. J. E. Moore* and W. E. Kunkle, University of Florida, Gainesville.
2:15	362	Effect of bale harvest method and feeding time on performance of yearling beef heifers. H. W. Harpster*, R. C. Stout, E. H. Cash, J. W. Comerford, L. L. Wilson, R. L. Swope, and V. H. Baumer, The Pennsylvania State University, University Park.
2:30	363	Effects of feeding spearmint silage on nutrient utilization and rumen fermentation of steers. A. F. Mustafa*, J. J. McKinnon, and D. A. Christensen, University of Saskatchewan, Saskatoon.
2:45	364	Pearl millet grain hybrid silage: Forage quality and growing steer performance. G. M. Hill* ¹ , P. R. Utley ¹ , R. N. Gates ² , W. W. Hanna ² , and J. C. Johnson, Jr., ¹ University of Georgia Coastal Plain Station, Tifton, GA, USA, ² USDA-ARS, Coastal Plain Station, Tifton, GA, USA.
3:00	365	Comparison of sorghum silages, corn silage, and a typical feedlot receiving ration for average daily gain, feed intake and feed efficiency. B. Gravett* ¹ , K. R. Pond ¹ , V. G. Allen ¹ , R. Rice ² , and C. Johnson ² , ¹ Texas Tech University, ² Seed Resource, Inc.
3:15		BREAK
3:30	366	Role of supplemental vitamin E in neonatal lamb survival. P. G. Hatfield*, J. T. Daniels, R. W. Kott, and D. E. Burgess, Montana State University, Bozeman, MT.
4:00	367	Performance of Saint-Croix ewe-lambs under intensive grazing system in a seasonal rainfall meadow. J. A. Narro Juárez*, J. Colín Negrete, S. Puente Tristán, A. González Reyna, J. Garcia Cantú, E. Olivares Sáenz, and M. L. Puente Tristán, Facultad de Agronomía, U.A.N.L. Carretera Zuazua-Marín.
4:15	368	Selenium content of beef produced in North Dakota varies by geographic region. K. J. Hintze* ¹ , J. W. Finley ² , G. P. Lardy ¹ , M. J. Marchello ¹ , and K. K. Sedivec ¹ , ¹ North Dakota State University, Department of Animal and Range Science, ² USDA-ARS Grand Forks Human Nutrition Research Center.
4:30	369	Quality characteristics and secondary chemistry of sericea lespedeza exposed to tropospheric ozone. M. C. Powell*, D. D. Crosby, R. B. Muntifering, and A. H. Chappelka, Auburn University, AL, USA.
4:45	370	Effects of Seaweed extract and Endophyte infected-tall fescue grazing prior to the finishing period on beef color and shelf life. J. L. Montgomery* ¹ , R. Evans ² , C. P. Bagley ² , R. L. Ivy ² , J. P. Fontenot ³ , K. E. Saker ⁴ , C. P. Brown ¹ , K. R. Pond ¹ , M. F. Miller ¹ , and V. G. Allen ¹ , ¹ Texas Tech University, ² Mississippi State University, ³ Virginia Polytechnic Institute and State University, ⁴ Virginia-Maryland Regional College of Veterinary Medicine.

PHYSIOLOGY AND ENDOCRINOLOGY 3 POSTERS

Host Response to Stress

Wednesday, 8:00 a.m. - 5:00 p.m.
 Authors present, 3:00 p.m. - 5:00 p.m.
 Exhibit Hall E

Board No.	Abs. No.	
64	419	Neonatal handling permanently altered behaviour and basal and stressor- induced hypothalamic- pituitary- adrenal axis activity in pigs. S. A. Weaver* ¹ , M. J. M. Meaney ² , W. T. Dixon ¹ , and A. L. Schaefer ³ , ¹ University of Alberta, Edmonton, Alberta, Canada, ² McGill University, Montreal, Quebec, Canada, ³ Agriculture and Agri- Food Canada, Lacombe, Alberta, Canada.
65	420	A prolonged surge in cortisol is evoked in pigs infected with <i>Actinobacillus pleuropneumoniae</i> . B. Ramanathan ¹ , K. J. Wright ¹ , J. L. Turner ¹ , C. M. Hill ¹ , S. S. Dritz ¹ , B. Fenwick ¹ , J. A. Carroll ² , and J. E. Minton* ¹ , ¹ Kansas State University, Manhattan, KS, ² Animal Physiology Research Unit, ARS-USDA, Columbia, MO.
66	421	Development of a mammary inflammation model of lactation failure in swine. R. S. Kensinger*, A. L. Magliaro, R. Graboski, L. M. Sordillo, and L. C. Griel, Jr., Pennsylvania State University, University Park, PA.
67	422	Effect of vitamin E and chromium-methionine supplementation on serum levels of immunoglobulin G and M, and aspartate aminotransferase enzyme in calves recently arrived to feedlot. L. Almeida* and R. Barajas, Universidad Autonoma de Sinaloa (Mexico).
68	423	Streptozotocin-induced diabetes mellitus in beef cows. H. L. Higdon III*, J. C. Spitzer, S. N. Johnson, S. P. Kennedy, G. L. Burns, and W. C. Bridges, Jr., Clemson University, Clemson, SC, USA.
69	424	Factors affecting fetal hematocrit (HC) and fetal plasma iron (PI) at 105 days of gestation in swine. J. L. Vallet*, G. A. Rohrer, H. G. Klemcke, and R. K. Christenson, USDA, ARS, Roman L. Hruska US Meat Animal Research Center.
70	425	Withdrawn
71	426	Effects of locoweed toxin (swainsonine) on bovine oocyte fertilization <i>in vitro</i> . S. Wang* ¹ , K. E. Panter ² , G. R. Holyoak ¹ , G. Liu ¹ , R. J. Molyneux ³ , R. C. Evans ¹ , and T. D. Bunch ¹ , ¹ Utah State University, Logan, UT, ² USDA-ARS, Poisonous Research Laboratory, Logan, UT, ³ USDA-ARS, Western Regional Research Center, Albany, CA.
72	427	Fish oil supplementation decreases average daily gain and changes the immune response in orphaned, milk-fed lambs. J. L. Bardugone*, J. H. Herbein, M. C. Wulster-Radcliffe, and G. S. Lewis, Virginia Polytechnic Institute and State University.
73	428	Interaction of Nutrition and <i>Acacia berlandieri</i> on Cortisol Production in Female Goats. K. N. Livingston* ¹ , J. W. Koch ¹ , C. M. Hensarling ² , S. S. Siecknius ² , T. D. A. Forbes ² , R. D. Randel ³ , T. H. Welsh, Jr ¹ , and H. R. Vera-Avila ⁴ , ¹ Texas Agricultural Experiment Station, College Station, ² Uvalde, ³ Overton, TX, ⁴ INIFAP, Mexico.

PHYSIOLOGY AND ENDOCRINOLOGY 4

Follicular Physiology Minisymposium

Chair: Dr. C. Chase, USDA, ARS, Brooksville, FL

Wednesday, 1:00 p.m. - 4:45 p.m.
 Room 206/207

Time	Abs. No.	
1:00	18	Factors regulating apoptosis during folliculogenesis in pigs. H. D. Guthrie* ¹ and W. M. Garrett ¹ , ¹ Germplasm and Gamete Physiology Laboratory, ARS, USDA, Beltsville, MD 20705.

- 1:30 19 Nutritional regulation of ovarian function in beef cattle. R. P. Wettemann*, I. Bossis, M. L. Loooper, F. J. White, N. H. Cicciooli, and T. D. Ridgway, Oklahoma Agricultural Experiment Station, Stillwater, OK.
- 2:00 20 Changes in gene expression associated with ovarian follicular development: A review. H. A. Garverick*, University of Missouri, Columbia.
- 2:30 21 Endocrinology of increased ovarian folliculogenesis in cattle selected for twin births. S. E. Echternkamp*.
- 3:00 BREAK
- 3:15 22 Influence of size of the dominant follicle, serum estradiol, and exogenous GnRH on luteal sensitivity to prostaglandin F₂ α in beef heifers. S. W. Williams*¹, M. Amstalden¹, R. L. Stanko^{1,2}, D. L. Vallejo¹, and G. L. Williams¹, ¹Texas A&M University Agricultural Research Station, Beeville, ²Texas A&M University-Kingsville, Kingsville.
- 3:30 23 Early increases in estradiol in follicular fluid from cattle with low peripheral concentrations of progesterone. R. Taft*, B. Sayre, and E. K. Inskeep, West Virginia University, Morgantown WV.
- 3:45 24 Synchronization of a follicular wave and temporary calf removal to induce ovulatory estrous cycles in postpartum beef cows. B. E. Salfen*, F. N. Kojima, J. F. Bader, M. F. Smith, and H. A. Garverick, University of Missouri, Columbia, MO.
- 4:00 25 Effect of estradiol benzoate (E₂) and (or) prostaglandin F₂ α (PG) on corpus luteum function in beef heifers. D. F. Hentges*, F. N. Kojima, B. E. Salfen, J. F. Bader, T. J. Safranski, and M. F. Smith, University of Missouri-Columbia, MO.
- 4:15 26 Effects of parity status on postpartum follicular development and endocrine profiles in the Brahman. S. M. Webb, D. A. Neuendorff*, A. W. Lewis, and R. D. Randel, Texas Agricultural Experiment Station, Overton, Texas.
- 4:30 27 Identification of the optimal dose of estradiol benzoate in combination with a progestin to program follicular turnover in cyclic cattle. V. L. Bogacz*, J. E. Huston, D. E. Grum, and M. L. Day, The Ohio State University, Columbus, OH.

TECHNOLOGY FORUM SYMPOSIUM

PRODUCTION AND MANAGEMENT 1

Sponsored by: IMC, ARPAS (through support
of Hoechst Roussel Vet)

Implications of Pre-Harvest Food Safety on Animal Production and Management Practices

Chair: Dr. J. C. Whittier, Colorado State
University, Fort Collins

Wednesday, 1:00 p.m. - 3:50 p.m.
Room White River Ballroom

Time	Abs. No.
1:00	Welcome and Symposia Overview - Jack Whittier, Committee Chair
1:05	What Consumers Expect: A Restaurant Perspective Chester R. Chet England, III, Burger King Corporation, Miami, FL.
1:35	Minimizing Microbiological Food Safety Risks: Potential For Pre-Harvest Interventions. Dr. Gary Smith, Colorado State University, Ft. Collins.
2:20	Considerations, Concerns and Comments on Food Safety Aspects of Pre-Harvest Production and Management in Large-Scale Hog Units. Jerry Torrison, DVM, PIC.
2:55	Considerations, Concerns and Comments on Food Safety Aspects of Pre-Harvest Production and Management of Beef Cattle. Gary Wilson, Green Valley Angus, New Concord, OH.
3:30	Panel Discussion and Question/Answer with Symposium Speakers
3:50	Adjourn

RUMINANT NUTRITION 5 POSTERS

Byproducts

Wednesday, 8:00 a.m. - 5:00 p.m.
Authors present, 1:00 p.m. - 3:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
74	573	In Situ Rumen Degradability of Processed Kitchen Wastes. J. J. Lechner*, B. A. Altizio, and M. L. Westendorf.
75	574	Evaluation of corn steep liquor as a rumen degradable protein source for starch and cellulose digestion by rumen microorganisms in vitro. C. C. Ribeiro-Filho* and A. Trenkle, Iowa State University, Ames.
76	575	Evaluation of a modified condensed molasses solubles (CMS) as a nitrogen source for rumen microbes in vitro. C. C. Ribeiro-Filho* and A. Trenkle, Iowa State University, Ames.
77	576	Comparative nutritional value of steam-flaked white corn and moisture-heat damaged cottonseed in diets for beef cattle. R. Barajas, A. Felix, and A. Estrada*, Universidad Autonoma de Sinaloa (Mexico).
78	577	Effect of moisture-damaged cottonseed on total tract digestion characteristics of finishing diets for sheep. R. Barajas*, J. F. Obregon, A. Estrada, and S. Arechiga, Universidad Autonoma de Sinaloa (Mexico).
79	578	Ruminal Fermentation and Microbial Protein Synthesis of Korean Cattle Fed Alcohol-Fermented Feedstuff. B. W. Kim* ¹ , C. G. Yan ² , J. S. Shin ¹ , and B. J. Hong ¹ , ¹ Kangwon National University, Korea, ² Yeon-Byeon Agriculture University, China.
80	579	The effects of feeding whole cottonseed on reproductive parameters in crossbred Nubian bucks. Quintece McCrary*, Sandra Solaiman, Hari Goyal, and Elaine Coleman, Tuskegee University.
81	580	In vitro evaluation of sunflower heads with varying levels of nonstructural carbohydrate and degradable intake protein. J. W. Lehmkuhler, D. A. Schmidt, M. D. Howard*, and M. S. Kerley, University of Missouri, Columbia, MO.
82	581	The effects of high levels of molassed sugar beet pulp or barley inclusion and floor type on performance and liver copper accumulation in early weaned lambs. T. F. Crosby*, P. J. Quinn, J. J. Callan, B. Flynn, and P. J. Malone, University College Dublin, Dublin, Ireland.

RUMINANT NUTRITION 6 POSTERS

Nutritional Management of Feedlot Cattle

Wednesday, 8:00 a.m. - 5:00 p.m.
Authors present, 3:00 p.m. - 5:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
83	582	Effects of grain sorghum planting density and processing method on in vitro ruminal pH and dry matter digestibility. P. J. Defoor* ¹ , M. L. Galyean ² , and N. A. Cole ³ , ¹ West Texas A&M University, Canyon, TX, ² Texas Tech University, Lubbock, TX, ³ USDA-ARS, Bushland, TX.
84	583	Evaluation of digestive characteristics of dry and temper rolled hulless and covered barley fed to beef cattle. J. V. Anderson* ¹ , C. W. Hunt ¹ , J. G. Andrae ¹ , G. T. Pritchard ¹ , and K. A. Johnson ² , ¹ University of Idaho, Moscow, ² Washington State University, Pullman.
85	584	Effects of grain processing and hay quality on performance of Holstein cattle in mid-lactation. F. Ysunza* ¹ , R. Gómez ² , and A. Navarro ³ , ¹ CIAD, A. C., ² PATROCIPES, A. C., ³ UNISON, Hermosillo, Sonora, México.
86	585	Effects of grain processing or protein level on feeding value of grain sorghum in limit-fed growing diets for cattle. R. D. Hunter*, E. C. Titgemeyer, J. S. Drouillard, and T. A. Nutsch.

- 87 586 Feeding concentrate computerised individual versus total mixed ration (TMR) - Studies in ruminal fermentation and chewing activity of dairy cows. C. Scheidemann*, C. Dietrich, H. Steingass, and W. Drochner, Inst. Anim. Nutr., Hohenheim Univ., Germany.
- 88 587 Effect of acetate and roughage on ruminal VFA levels and performance of steers. T. W. White* and D. C. Blouin, Louisiana State University Agricultural Center.
- 89 588 Effect of feeding high-oil corn, and control corn with added fat on ruminal and total tract digestion of finishing steers. C. Belknap* and A. Trenkle, Iowa State University.
- 90 589 Influence of ruminal pH and NDF source on in situ fiber disappearance. M. Basalan*¹, E. Polat², and F. N. Owens³, ¹Oklahoma State University, Stillwater, OK, ²Agriculture Ministry, Turkey, ³Optimum Quality Grains, Des Moines, IA.
- 91 590 Evaluation of a dietary component for limiting intake by starting cattle. L. F. Caswell*, Coronet Industries, Inc., Plant City, FL.

RUMINANT NUTRITION 7

Protein

Chair: Dr. B. T. Larson, University of Kentucky,
Lexington

Wednesday, 1:00 p.m. - 4:55 p.m.
Room 143/144

Time	Abs. No.	
1:00	591	INVITED Practical aspects of urea and ammonia metabolism in ruminants. G. B. Huntington and S. L. Archibeque, North Carolina State University, Raleigh, North Carolina.
1:40	592	Evaluation of alfalfa leaf meal in steer receiving diets. C. M. Zehnder* and A. DiCostanzo, University of Minnesota, St. Paul, MN.
1:55	593	Evaluation of alfalfa leaf meal in steer finishing diets. C. M. Zehnder* ¹ , A. DiCostanzo ¹ , and L. B. Smith ² , ¹ University of Minnesota, St Paul, MN, ² Northwest Experiment Station, Crookston, MN.
2:10	594	Expeller crambe meal as a protein source for growing calves. D. L. Riley*, M. L. Bauer, V. L. Anderson, G. P. Lardy, and J. S. Caton, North Dakota State University, Fargo.
2:25	595	Effect of a Revalor™ implant on the growth response to an animal by-product protein mixture in high energy feedlot diets. P. J. Guiroy* ¹ , D. H. Beermann ¹ , D. G. Fox ¹ , and D. J. Ketchen ¹ , ¹ Cornell University.
2:40	596	Potential Improvement of the Efficiency of Dietary Nitrogen Utilization in Holstein Steers Through the Use of Animal By-products. W. F. Knaus*, D. H. Beermann, P. J. Guiroy, M. L. Boehm, and D. G. Fox, Cornell University.
2:55	597	Accounting for the effects of a ruminal nitrogen deficiency within the structure of the Cornell Net Carbohydrate and Protein System. L. O. Tedeschi* ¹ , D. G. Fox ¹ , and J. B. Russell ^{1,2} , ¹ Cornell University, Ithaca, NY, ² Agricultural Research Service, USDA, Ithaca, NY.
3:10	598	Effects of feeding an animal by-product protein mixture in high energy feedlot diets on growth performance and composition of gain in Revalor™-implanted beef steers. P. J. Guiroy* ¹ , D. H. Beermann ¹ , D. G. Fox ¹ , and D. J. Ketchen ¹ , ¹ Cornell University.
3:25	599	Degradable intake protein requirement of finishing steers fed a high moisture corn-based diet. R. J. Cooper*, C. T. Milton, T. J. Klopfenstein, and D. J. Jordon, University of Nebraska, Lincoln, NE.
3:40	600	Urinary allantoin excretion as a bacterial crude protein marker for beef cattle. R. A. Mass* ¹ , D. J. Jordon ¹ , T. L. Scott ¹ , D. L. Harmon ² , C. T. Milton ¹ , and T. J. Klopfenstein ¹ , ¹ University of Nebraska, Lincoln, NE, ² University of Kentucky, Lexington, KY.
3:55	601	The sparing of methionine by alternative methyl groups in cattle is limited. C. A. Loest*, E. C. Titgemeyer, R. H. Greenwood, and D. C. Van Metre, Kansas State University, Manhattan.
4:10	602	Effects of dietary protein and ruminally protected betaine or choline on productivity of Angora doelings. R. Puchala*, V. Banskalieva, A. L. Goetsch, I. Prieto, and T. Sahlu, E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK.
4:25	603	Effects of escape protein and energy deprivation on weight change and carcass quality of white-face lambs. W. Pittroff* and H. D. Blackburn, U.S. Sheep Experiment Station, Dubois.

- 4:40 604 Effects of escape protein and energy deprivation on organ mass and body composition of white- face lambs. W. Pittroff* and H. D. Blackburn, U.S. Sheep Experiment Station, Dubois.

TEACHING 2

Inter-institutional Corporation in Education: Present Programs and Future Models

Chair: Dr. P. A. Schoknecht, Rutgers University, New Brunswick, NJ

Wednesday, 1:00 p.m. - 3:30p.m.
Room 109

Time	Abs. No.	
1:00	650	INVITED Regionalization within the Northeast and MidAtlantic: today's reality and tomorrow's vision. P. A. Schoknecht* and H. D. Hafs, Rutgers University, New Brunswick, NJ.
1:45	651	A regional approach to career seminar in animal science. G. E. Dahl* ¹ and P. A. Schoknecht ² , ¹ University of Maryland, College Park, MD, ² Rutgers University, New Brunswick, NJ.
2:00	652	Developing a multimedia program that emphasizes applications of functional anatomy. H. G. Kattesh*, M. H. Sims, R. W. Henry, E. K. Jackson, P. M. Ockenfels, D. K. Haines, and B. R. Harbison, The University of Tennessee, Knoxville.
2:15	653	Designing feeds and feeding for internet delivery. K. K. Ragland* and R. M. Hales, University of Kentucky, Lexington, KY.
2:30	654	Use of web pages to both enhance animal science courses and serve as outreach mechanisms. A. D. Herring* and B. L. Barham, Texas Tech University, Lubbock.
2:45	655	The integration of the world wide web in undergraduate and graduate education. J. J. Parrish*, University of Wisconsin, Madison WI.
3:00	656	Evaluation of an email discussion list used in a senior-level cow-calf management course. B. A. Reiling* and C. R. Johnson, University of Florida, Gainesville FL.
3:15	657	Electronic Storage of Journal Articles and Technical Manuals on Personal Computers. R. D. Muller* ¹ , J. E. Weatherford ¹ , M. M. Glassburn ¹ , and T. Moore ² , ¹ Elanco Animal Health, ² Purdue Univ.

**TECHNOLOGY FORUM
POSTER SESSION
AND RECEPTION
(4:00 p.m. - 6:00 p.m.)**

Overall Tech Forum Sponsors:
Pfizer, Inc. and *Feedstuffs*

Reception sponsored by: American Feed Industry Association, Akey, Inc., *Beef*, E-
Markets,
Indiana Packers Corporation, Land O'Lakes,
Monsanto Dairy Business,
National Hog Farmer, Novus International,
Purina Mills, Inc., and United Feeds

Wednesday, 1:00 p.m. - Thursday, 11:00 a.m.
Authors present, 4:30 p.m. - 6:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
TF1	38	Evidence of quantitative trait loci affecting growth and carcass composition traits in cattle segregating the muscle hypertrophy locus. E. Casas*, S. D. Shackelford, J. W. Keele, R. T. Stone, S. M. Kappes, and M. Koohmarale.
TF2	39	Effects of electrical stimulation on tenderness, color and quality attributes of beef longissimus muscle. D. L. Roeber*, R. C. Cannell, K. E. Belk, J. D. Tatum, and G. C. Smith, Colorado State University, Fort Collins, CO.
TF3	40	Use of sperm rich or entire ejaculates for breeding sows. J. D. McDonald* ¹ , T. J. Safranski ¹ , and S. L. Terlouw ² , ¹ University of Missouri-Columbia, ² Premium Standard Farms, Princeton, MO.
TF4	41	Absence of virus on pig embryos recovered from gilts vaccinated with a modified-live PRRSV vaccine. B. A. Didion* ¹ , S. T. Finn ¹ , M. Eisenhardt ² , and J. Christopher-Hennings ³ , ¹ DEKALB Swine Breeders, Inc., DeKalb, IL, ² DEKALB Swine Breeders, Inc., Plains, KS, ³ South Dakota State University, Brookings, SD.
TF5	42	Estrous cycles in gilts with or without PG-600® and boar exposure. D. F. Hentges and T. J. Safranski*, University of Missouri-Columbia, MO.
TF6	43	Boar sperm acrosomal status relative to fertility. S. T. Finn* and B. A. Didion, DEKALB Swine Breeders, Inc., DeKalb IL/USA.
TF7	44	Factors associated with incidence of PG00 intervention in weaned sows. C. J. Bracken*, W. R. Lamberson, and T. J. Safranski, University of Missouri, Columbia, MO, USA.
TF8	45	Who's there? - Community analyses of bacteria in swine feces and waste handling pits using PCR and pure culture isolation. T. R. Whitehead*, R. L. Zeltwanger, and M. A. Cotta.
TF9	46	Mucosal competitive exclusion to reduce salmonella in swine. D. E. Reeves* ¹ , P. J. Fedorka-Cray ² , J. S. Bailey ² , N. J. Stern ² , N. A. Cox ² , S. R. Ladely ² , and W. Pullen ¹ , ¹ University of Georgia, College of Veterinary Medicine, ² USDA- ARS, Russell Research Center.
TF10	47	Development of electronic nose technology as a diagnostic tool in detection and differentiation of <i>Escherichia coli</i> O157:H7. S. M. Younts* ¹ , E. C. Alcocilja ¹ , W. N. Osburn ¹ , S. Marquie ¹ , and D. L. Grooms ² , ¹ Michigan State University, ² Large Animal Clinical Sciences, Michigan State University.
TF11	48	Modeling the relation between energy intake and protein and lipid deposition in growing pigs. J. van Milgen*, N. Quiniou, and J. Noblet, INRA, Saint-Gilles, France.
TF12	49	Effect of supplemental vitamins and trace minerals on performance and carcass quality in finishing pigs. M. S. Edmonds* and B. E. Arentson, Kent Feeds, Inc., Muscatine, Iowa.
TF13	50	Efficacy of acidified sodium chlorite as a decontamination treatment for pork tongues. H. N. Zerby* ¹ , K. E. Belk ¹ , J. N. Sofos ¹ , G. R. Schmidt ¹ , N. Kotrola ² , M. L. Aldrich ² , and G. C. Smith ¹ , ¹ Colorado State University, Fort Collins, CO, ² Alcide Corporation, Redmond, WA.

BREEDING AND GENETICS 3 SYMPOSIUM

From Innovation to Application - Bridging the Gap Between Animal Breeder and Producer using Decision Support Tools

Chair: Dr. M. T. See,
North Carolina State University, Raleigh

Thursday, 8:00 a.m. - 11:00 a.m.
Room 147/148

Time

- 8:00 Introduction of Topic. Dr. M. Todd See
- 8:05 Understanding the relationship between technological and social systems operating within the DSS environment. Dr. Shaun Coffee. CSIRO, Rockhampton Australia.
- 8:45 From innovation to application - Bridging the gap between Animal Breeder and Producer using decision support tools. Dr. Thomas G. Jenkins. USDA, ARS, Clay Center, NE.
- 9:25 Priorities for coordinated research to make it happen. Dr. Richard Bourdon, Colorado State University, Fort Collins.
- 10:05 Success and failure with computerized decision making: If computers are so great why are they not used with greater frequency? Dr. Scott Newman. CSIRO Rockhampton Australia.
- 10:45 Panel discussion with all participants.

CONTEMPORARY ISSUES 2 SYMPOSIUM

A Positive Response from Land Grant Universities to a Diminishing Societal Priority for Agriculture

Chair: Dr. D. S. Buchanan, Oklahoma State University, Stillwater

Thursday, 8:30 a.m. - 11:00 a.m.
Room 138/139

Time

- 8:30 Introduction. David Buchanan, Oklahoma State University, Stillwater.
- 8:35 The Land Grant University - A Historical Perspective. John Campbell - President Emeritus, Oklahoma State University.
- 9:05 Expanding the Horizon Beyond Traditional Areas and Funding Implications. Francille Firebaugh, Cornell University, Ithaca.
- BREAK
- 9:50 The Process of Making Improvements and the Politics of Change. Max Lennon, President, Mars Hill College.
- 10:20 Visions for the Future. G. Edward Schuh, Hubert Humphrey Policy Institute, University of Minnesota.
- 10:50 Question & Answer Period with Entire Panel

ENVIRONMENT AND BEHAVIOR 2

Behavioral and Environmental Issues for Cattle, Horses, Sheep and Deer

Chair: Dr. J. L. Morrow-Tesch, USDA-ARS,
Lubbock, TX

Thursday, 8:00 a.m. - 11:00 a.m.
Room 110

Time	Abs. No.	
8:00	127	The development of indices of welfare for beef cattle in feedlots. S. C. Wilson* ¹ , L. R. Fell ² , and D. P. Collins ² , ¹ Texas Tech University, Lubbock, ² NSW Agriculture, N.S.W. Australia.
8:15	128	Altering feeding times for feedlot cattle reduced dust-generating behaviors. F. M. Mitloehner* ¹ , J. L. Morrow-Tesch ² , J. W. Dailey ² , and J. J. McGlone ¹ , ¹ Texas Tech University, Lubbock, ² USDA-ARS, Lubbock, TX.
8:30	129	Effects of water misting and shade on heat stress in feedlot cattle. F. M. Mitloehner* ¹ , J. L. Morrow-Tesch ² , J. W. Dailey ² , and J. J. McGlone ¹ , ¹ Texas Tech University, Lubbock, ² USDA-ARS, Lubbock.
8:45	130	Shade-seeking behavior of cow-calf pairs in a moderate climate. T. M. Widowski* ¹ , ¹ Department of Animal & Poultry Science, University of Guelph, Ontario Canada.
9:00	131	Reducing negative effects of weaning on behavior and growth in beef calves. J. E. Harris* and E. O. Price.
9:15	132	Aversion learning techniques to evaluate dairy cow handling practices. E. A. Pajor* ¹ , J. Rushen ² , and A. M. de Passillé ² , ¹ Department of Animal Sciences, Purdue University, West Lafayette, IN, ² Agriculture and Agri-Food Canada, Lennoxville, Canada.
9:30		BREAK
9:45	133	Sensitivity to sudden intermittent sounds and movements is related to excitability in cattle. J. L. Lanier*, T. Grandin, R. D. Green, D. Avery, and K. McGee, Colorado State University.
10:00	134	Effect of animal density and trough placement on drinking behavior and dehydration in slaughter horses. A. E. Gibbs* ¹ and T. H. Friend ¹ , ¹ Texas A & M University, College Station, TX/USA.
10:15	135	Effects of density on displacement, falls, injuries, and orientation during horse transportation. M. N. Collins*, F. D. Jousan, S. C. Chen, and T. H. Friend, Texas A & M University, College Station, Texas/USA.
10:30	136	Artificial selection for sexual performance in rams. C. J. Bench*, E. O. Price, M. R. Dally, and R. E. Borgwardt, University of California, Davis.
10:45	137	Evaluation of aggression, antler growth and testis function in yearling Fallow bucks with zeranol implants or GnRH immunization. S. M. Webb* ¹ , D. A. Neuendorff ¹ , A. W. Lewis ¹ , T. E. Adams ² , and R. D. Randel ¹ , ¹ Texas Agricultural Experiment Station, Overton, ² University of California, Davis.

EXTENSION 1

Chair: Dr. G.L.M. Chappell,
University of Kentucky, Lexington

Thursday, 8:30 a.m. - 11:00 a.m.
Room 203

Time	Abs. No.	
8:30	144	Geographic distribution and economic impact of equine infectious anemia in Louisiana. Mark Murphey* ¹ , Gary Kennedy ¹ , and William Green ¹ , ¹ Louisiana Tech University.
8:15	145	Survey of consumption and attitude for goat products. A. C. Murry* ¹ , S. Turner ¹ , M. Nelson ² , and S. Gelaye ² , ¹ The University of Georgia, ² Fort Valley State University.

- 8:30 146 Exposing and evaluating pork producers acceptance to distance education medias. S DeCamp*¹, B Richert¹, W Singleton¹, N Vines¹, and G Slipher², ¹Purdue University, West Lafayette, IN, ²Indiana Pork Producers Association, Indianapolis, IN.
- 8:45 147 Effective use of educational fair exhibits to increase the agricultural literacy of the general public. M. J. Wylie*¹, R. Schwinn², and D. A. Cashman³, ¹University of Wisconsin - Madison, ²Maryland Cooperative Extension, ³Maryland State Fair.
- 9:00 148 The Virginia cow-calf management course: teaching basic beef production to producers by a diverse combination of media. J. B. Hall*, B. R. McKinnon, S. P. Greiner, and W. D. Whittier, Virginia Tech, Blacksburg, VA.
- 9:15 149 Beef 509: A partnership educational program. J. F. Grimes*, S. L. Boyles, T. B. Turner, and J. W. Yates, The Ohio State University, Columbus, Ohio.
- 9:30 BREAK
- 9:45 150 Centralized ultrasound processing to evaluate beef cattle for carcass merit. G. H. Rouse*¹, D. E. Wilson¹, C. L. Hays¹, V. R. Amin¹, A. T. Hassen¹, S. P. Greiner², and J. Crouch³, ¹Iowa State University, Ames, IA, ²Virginia Tech, Blacksburg, VA, ³American Angus Association, St. Joseph, MO.
- 10:00 151 Development of models for prediction of percent intramuscular fat in live cattle. A. Hassen*, D. E. Wilson, G. H. Rouse, C. L. Hays, and V. R. Amin, Iowa State university, Ames, IA, USA.
- 10:15 152 Feedlot performance and carcass characteristics that affect feedlot net return. S. R. McPeake*, T. R. Troxel, M. S. Gadberry, W. T. Wallace, and G. V. Davis, University of Arkansas Cooperative Extension Service.
- 10:30 153 Effects of calving season and weaning age on bioeconomic efficiency in range beef cattle. M. H. Makarechian*¹, Hang Pang¹, and J. A. Basarab², ¹Department of AFNS, University of Alberta, ²Alberta Agriculture, Food and Rural Development.
- 10:45 154 Trace mineral fortification of winter supplement is an effective means of addressing trace mineral deficiency in spring-calving beef cows. J. D. Arthington*¹ and L. R. Corah², ¹University of Florida Range Cattle Research and Education Center, Ona, ²Certified Angus Beef, Manhattan, KS.

GROWTH AND DEVELOPMENT 3 & DAIRY COMMITTEE

Sponsored by: Land O'Lakes, Inc. and
Monsanto Dairy Business

Conjugated Linoleic Acid: Effects on Metabolism and Health Minisymposium

Co-Chairs: Dr. J. H. Eisemann, North Carolina State University, Raleigh and Dr. J. L. Garrett,
Monsanto Dairy Business, Lawrenceburg, KY.

Thursday, 8:00 a.m. - 11:00 a.m.
Room 208/209

Time	Abs. No.	
8:00	1	INVITED Biosynthesis of CLA and its incorporation into meat and milk of ruminants. Dale Bauman* ¹ and J. Mikko Griinari ² , ¹ Cornell University, Ithaca, NY USA, ² Valio Ltd., Helsinki, Finland.
8:30	2	Identification of the CLA isomer responsible for milk fat depression. L. Baumgard* ¹ , B. Corl ¹ , D. Dwyer ¹ , A. Saebo ² , and D. E. Bauman ¹ , ¹ Cornell University, ² Natural Lipids Ltd.
8:45	3	Variation of milk fat concentration of conjugated linoleic acid and milk fat percentage is associated with a change in ruminal biohydrogenation. J. M. Griinari* ¹ , K. Nurmela ¹ , D. A. Dwyer ² , D. M. Barbano ² , and D. E. Bauman ² , ¹ Valio Ltd., Helsinki, Finland, ² Cornell University, Ithaca, NY.
9:00	4	Examination of the importance of β^9 -desaturase and endogenous synthesis of CLA in lactating dairy cows. B. A. Corl* ¹ , S. H. Lacy ¹ , L. H. Baumgard ¹ , D. A. Dwyer ¹ , J. M. Griinari ² , B. S. Phillips ³ , and D. E. Bauman ¹ , ¹ Cornell University, Ithaca, NY, ² Valio Ltd., Helsinki, Finland, ³ New Crops Research Unit at the National Center for Agricultural Utilization Research, ARS, USDA.

- 9:15 5 Interactive effects between fat source and modified tall oil on growth performance and carcass characteristics of finishing pigs. J. C. Woodworth*, R. D. Goodband, J. A. Unruh, J. L. Nelssen, M. D. Tokach, A. T. Waylan, and P. R. O'Quinn, Kansas State University, Manhattan.
- 9:30 6 **INVITED** Conjugated linoleic acid (CLA): A ruminant fatty acid with beneficial effects on human health. M. A. McGuire*¹ and M. K. McGuire², ¹University of Idaho, Moscow, ²Washington State University, Pullman.
- 10:00 7 Effects of modified tall oil on body composition and serum and tissue levels of α -tocopherol, cholesterol, and phospholipids in ovariectomized rats. P. R. O'Quinn*, S. I. Koo, S. K. Noh, J. L. Nelssen, R. D. Goodband, and M. D. Tokach, Kansas State University, Manhattan.
- 10:15 8 Anti-diabetic effects of dietary conjugated linoleic acid (CLA): Isomer-specific effects on glucose tolerance and skeletal muscle glucose transport. J. Ryder¹, D. Bauman², C. Portocarrero³, X. Song¹, M. Yu¹, D. Barbano², J. Zierath¹, and K. Houseknecht*³, ¹Karolinska Institute, ²Cornell University, ³Purdue University.
- 10:30 9 Feeding conjugated linoleic acids (CLA) decreases lipogenesis and alters insulin responsiveness in porcine adipose tissue explants. M. L. Heckart*, J. M. Eggert, A. P. Schinckel, S. E. Mills, and S. S. Donkin, Purdue University, West Lafayette, IN.
- 10:45 10 Dietary conjugated linoleic acid (CLA) increases CD8 T lymphocyte subpopulation in weanling pigs. J. Basaganya*, R. Hontecillas, K. Bregendahl, M. Wannemuehler, and D. R. Zimmerman, Iowa State University, Ames.

MEAT SCIENCE AND MUSCLE BIOLOGY 4

Meat Quality

Chair: Dr. E. Huff-Lonergan, Iowa State University, Ames

Thursday, 8:00 a.m. - 9:45 a.m.

Room 143/144

Time	Abs. No.	Abstract
8:00	215	Contribution of the lean meat consumption to meet the nutrient requirement in Switzerland. M Leonhardt and C Wenk*, Swiss Federal Institute of Technology Zurich - Institute of Animal Sciences, Switzerland.
8:15	216	Determination of chemical compounds responsible for boar taint. J. L. Xue*, J. Wang, Z. Vickers, and G. Reineccius, University of Minnesota, St. Paul, MN.
8:30	217	Differences in the effects of the halothane gene and muscle fiber type composition on pork carcass composition and quality. J. M. Eggert*, F. F. S. Depreux, N. Ratliff, A. P. Schinckel, A. L. Grant, E. B. Sheiss, E. P. Berg, and D. E. Gerrard, Purdue University, West Lafayette, IN.
8:45	218	Effects of corn, conjugated linoleic acid (CLA) and duration of storage on the shelf-life of fresh pork. J. M. Eggert, C. A. Stahl*, M. A. Latour, B. T. Richert, D. E. Gerrard, J. C. Forrest, B. C. Bowker, E. J. Wynveen, J. E. Hammelman, and A. P. Schinckel, Purdue University, West Lafayette, IN.
9:00	219	Determination of freezing and thawing parameters for cooked-cured ham. D. S. Webb and R. L. Hendrickson, Oklahoma State University.
9:15	220	Pre- and post-harvest tenderization of callipyge lamb. S. K. Duckett* ¹ , J. G. Andrae ¹ , G. T. Pritchard ¹ , S. L. Cuvala ¹ , K. Watson ¹ , P. S. Kuber ² , and G. D. Snowder ³ , ¹ University of Idaho, Moscow, ² Washington State University, Pullman, ³ U. S. Sheep Experiment Station, Dubois.
9:30	221	Color and tenderness of case-ready Chevron cuts as influenced by storage time. G. Kannan*, B. Kouakou, S. Gelaye, and T. H. Terrill, Agricultural Research Station, Fort Valley State University, Fort Valley, GA.

NONRUMINANT NUTRITION 4

Nutritional Effects on Pork Quality/ Composition Carcass Modifiers

Chair: Dr. D. Boyd, PIG Improvement Company, Franklin, KY

Thursday, 8:45 a.m. - 11:00 a.m.
Room White River Ballroom

Time	Abs. No.	
8:45	253	Effects of length of feeding conjugated linoleic acid (CLA) on growth and body composition of pigs. J. C. Sparks*, B. R. Wiegand, F. C. Parrish, and D. R. Zimmerman, Iowa State University, Ames, IA.
9:00	254	Effects of conjugated linoleic acid (CLA) on the growth, carcass composition and pork quality of two genotypes of lean gilts. J. M. Eggert, A. L. Carroll*, B. T. Richert, D. E. Gerrard, J. C. Forrest, B. C. Bowker, E. J. Wynveen, J. E. Hammelman, and A. P. Schinckel, Purdue University, West Lafayette, IN.
9:15	255	Effects of high oil corn and duration of conjugated linoleic acid (CLA) supplementation on pig growth, pork quality and carcass composition. J. M. Eggert, A. L. Carroll, B. T. Richert, D. E. Gerrard, J. C. Forrest, B. C. Bowker, E. J. Wynveen, J. E. Hammelman, and A. P. Schinckel*, Purdue University, West Lafayette, IN.
9:30	256	Growth performance, whole body composition, plasma urea nitrogen and serum alpha-1-acylglycoprotein in weanling pigs fed CLA. J. Bassaganya*, K. Bregendahl, and D. R. Zimmerman, Iowa State University.
9:45	257	Efficacy of betaine as a carcass modifier in finishing pigs fed normal and reduced energy diets. G. L. Cromwell*, M. D. Lindemann, J. R. Randolph, H. J. Monegue, K. M. Laurent, and G. R. Parker, University of Kentucky, Lexington.
10:00	258	Evaluation of chromium tripicolinate addition and dietary energy level and source on carcass composition and accretion rates of growing pigs. C. P. A. van de Ligt*, M. D. Lindemann, and G. L. Cromwell, University of Kentucky, Lexington, KY.
10:15	259	Effects of dietary lysine and porcine somatotropin on the amino acid composition of whole body protein and accretion rate of whole body lysine in growing pigs. W. A. Dozier III* ¹ , G. L. Cromwell ¹ , A. J. Lewis ² , and R. M. Diedrichsen ² , ¹ University of Kentucky, Lexington, KY, ² University of Nebraska, Lincoln, NE.
10:30	260	Effects of immunization against GnRH on growth performance, carcass characteristics, and meat quality of intact male pigs. C. A. Maloney* ¹ , R. H. Hines ¹ , J. D. Hancock ¹ , D. W. Dean ¹ , J. M. DeRouchey ¹ , D. J. Lee ¹ , J. S. Park ¹ , D. H. Kropf ¹ , and T. E. Adams ² , ¹ Kansas State University, Manhattan, KS, ² University of California, Davis, CA.
10:45		What Have We Learned? - D. Boyd

NONRUMINANT NUTRITION 5

Sow Nutrition

Chair: Dr. L. J. Johnston, West Central
Experiment Station, University of Minnesota,
St. Paul

Thursday 8:00 a.m. - 11:00 a.m.
Room 107/108

Time	Abs. No.	
8:00	261	Amino acid supplementation for sows nursing large litters. R. C. Ewan* ¹ , G. W. Libal ² , and C. R. Hamilton ² , ¹ Iowa State University, Ames, IA, ² South Dakota State University, Brookings, SD.
8:15	262	Lysine requirement of sows nursing large litters. A cooperative study. D. A. Knabe*, L. I. Chiba, E. T. Kornegay, and J. C. McConnell, S-145 Committee on Nutritional Systems for Swine to Increase Reproductive Efficiency.

- 8:30 263 Lysine requirement for maximal lactation and subsequent reproductive performance of multiparous sows. H. Yang*¹, J. E. Pettigrew², L. J. Johnston¹, G. C. Shurson¹, and R. D. Walker¹, ¹University of Minnesota, St. Paul, ²Pettigrew Consulting International, Louisiana, MO.
- 8:45 264 A dynamic model to describe nutrient flow and requirement in lactating sows. S. W. Kim*, M. Grossman, and R. A. Easter, University of Illinois, Urbana, IL.
- 9:00 265 Relationship between plasma arterio-venous differences of nutrients across the porcine mammary gland and circulating insulin, prolactin, and IGF-1 concentrations. X. F. Guan*¹, J. E. Pettigrew², C. Farmer³, P. K. Ku¹, R. J. Tempelman¹, and N. L. Trottier¹, ¹Michigan State University, East Lansing, MI, ²University of Minnesota, St. Paul, MN, ³Agriculture and Agri-Food Canada, Research Center, Lennoxville.
- 9:15 266 Effects of dietary caloric ratios of protein to carbohydrate on plasma arterio-venous differences of insulin and glucose across the porcine mammary gland. X. F. Guan¹, P. E. Pettigrew², P. K. Ku¹, and N. L. Trottier*¹, ¹Michigan State University, East Lansing, MI, ²University of Minnesota, St. Paul, MN.
- 9:30 What Have We Learned? - L. J. Johnston
- 9:45 267 Effects of dietary fermentable carbohydrates on physical activity and energy metabolism in group-housed sows. M. M. J. A Rijnen*, M. J. W. Heetkamp, M. W. A. Verstegen, and J. W. Schrama, Wageningen Institute of Animal Science, Wageningen Agricultural University, The Netherlands.
- 10:00 268 Effects of increasing concentrations of neutral detergent fiber upon characteristics of performance, nutrient digestibility and intestinal morphology of gilts. J. D. F. Gomes*, R. S. Fukushima, and C. A. Gomide, Faculdade de Zootecnia e Engenharia de Alimentos da Universidade de Sao Paulo, Brazil.
- 10:15 269 Evaluating high oil corn for lactating sows. K. A. Bowers*, B. T. Richert, D. C. Kendall, S. A. DeCamp, K. M. Lemenager, and B. A. Ladd, Purdue University, West Lafayette, IN.
- 10:30 270 Effects of dietary electrolyte balance in lactating sows. J. M. DeRouchey*, J. D. Hancock, D. J. Lee, C. A. Maloney, J. S. Park, H. Cao, D. W. Dean, and R. H. Hines, Kansas State University, Kansas.
- 10:45 271 Effect of providing sows natural or synthetic vitamin E at two dietary levels over a 5-parity period. D. C. Mahan*¹, Y. Y. Kim¹, and R. L. Stuart², ¹The Ohio State University, Columbus, OH, ²Stuart Products, Inc.

NONRUMINANT NUTRITION 6 POSTERS

Weaned Pig Nutrition

Thursday, 8:00 a.m. - 5:00 p.m.
 Authors present 8:00 a.m. - 10:00 a.m.
 Exhibit Hall E

Board No.	Abs. No.	
1	272	Performance of starter pigs fed reduced calcium and phosphorus diets with microbial phytase included at different coefficients of variation. B. W. Cousins* ¹ , M. B. Coelho ¹ , B. W. Moechnig ² , J. D. Crenshaw ² , and D. P. Holzgraefe ² , ¹ BASF Corporation, ² Moor-Man's, Inc.
2	273	Effect of different levels of potato chip scraps on the performance of nursery pigs. S. Rahnema* and R. Borton, Agricultural Technical Institute, Ohio State University, Wooster, OH.
3	274	Effects of chemical hydrogenation of dietary fat on apparent lipid digestibility by finishing swine. L. A. Averette*, M. T. See, and J. Odle, North Carolina State University, Raleigh, NC.
4	275	Adipic acid (AA) increases plasma lysine, but does not reduce lysine requirements in weanling pigs. T. van Kempen*, North Carolina State University, Raleigh, NC.
5	276	High oil corn in phase feeding programs for nursery pigs and observations on grow-finish performance. R. F. Gilliam*, C. S. Darroch, K. Stalder, A. G. Mathew, and R. L. Wyatt, University of Tennessee, Knoxville, TN.
6	277	Potential for identity preserved plasma protein and ProBlend™-65 in phase 1 off-site nursery diets. C. V. Maxwell* ¹ , C. S. Wright ¹ , B. Z. de Rodas ¹ , M. E. Davis ¹ , Z. B. Johnson ¹ , B. R. Dunsford ² , and J. D. Hahn ² , ¹ University of Arkansas, Fayetteville, AR, ² Farmland Industries, Inc., Kansas City, MO.
7	278	Nutri-Sure® vs steam rolled oats in starter diets for weanling pigs. G. L. Cromwell, H. J. Monegue*, and M. D. Lindemann, University of Kentucky, Lexington, KY.
8	279	Effect of copper source on performance of weanling pigs. B. Z. de Rodas ¹ , C. V. Maxwell ¹ , M. E. Davis* ¹ , D. C. Brown ¹ , Z. B. Johnson ¹ , and T. M. Fakler ² , ¹ University of Arkansas, Fayetteville, AR, ² Zinpro Corp., Eden Prairie, MN.

- 9 280 Evaluating C-Meal™ and Sea Meal R™ as replacements for select menhaden fish meal in nursery pig diets. D. L. Kirkpatrick*¹, C. V. Maxwell¹, B. Z. de Rodas¹, M. E. Davis¹, D. C. Brown¹, Z. B. Johnson¹, and C. R. Hamilton², ¹University of Arkansas, Fayetteville, ²Esteem Products, Inc., Irving, TX.
- 10 281 Liquid diets accelerate growth of early-weaned pigs and effects are maintained until market weight. J. H. Kim¹, J. Odle*², K. N. Heo², I. K. Han¹, and R. J. Harrell², ¹Seoul National Univ., Suweon, Korea, ²North Carolina State University, Raleigh.
- 11 282 Effects of amino acid substitutions for whey protein concentrate on weanling pig performance. J. Chung*, S. D. Carter, and J. C. Whisenhunt, Oklahoma State University, Stillwater, OK.
- 12 283 Comparison between wet and dry feeding for group fed first stage pigs. P. G. Lawlor* and P. B. Lynch, Teagasc, Moorepark Research Centre, Fermoy, Co. Cork, Ireland.
- 13 284 Effects of flavor supplementation to diets of weanling pigs on growth performance and feed wastage. E. van Heugten*, North Carolina State University, Raleigh.
- 14 285 Evaluation of dried fish and porcine solubles as amino acid sources for weanling pigs. S. D. Carter*¹, M. Bauer², K. Miller², and R. Stuhr³, ¹Oklahoma State University, Stillwater, ²North Dakota State University, Fargo, ³Protein Technologies, Inc., West Bend, IA.

PASTURES & FORAGES 3 POSTERS

Thursday, 8:00 a.m. - 5:00 p.m.

Authors present:

Even numbered boards: 8:00 a.m. - 10:00 a.m.

Odd numbered boards: 10:00 a.m. - 12:00 noon

Exhibit Hall E

Board No.	Abs. No.	
15	371	Comparison of chromic oxide to chromium mordanted fiber for the estimation of ruminant fecal output. E. E. D. Felton* and M. S. Kerley, University of Missouri-Columbia.
16	372	Validation of a visual obstruction technique for estimating forage mass of Plains Old World bluestem. C. J. Ackerman* ¹ , H. T. Purvis II ¹ , G. W. Horn ¹ , M. E. Payton ¹ , L. T. Vermeire ² , S. I. Paisley ³ , and T. N. Bodine ¹ , ¹ Oklahoma State University, ² Texas Tech University, ³ Kansas State University.
17	373	Effects of terpenes on intake of alfalfa pellets by sheep. R. E. Estell* ¹ , E. L. Fredrickson ¹ , D. M. Anderson ¹ , K. M. Havstad ¹ , and M. D. Remmenga ² , ¹ USDA/ARS/Jornada Experimental Range, Las Cruces, NM, ² New Mexico State University, Las Cruces, NM.
18	374	Effects of hay composition on forage intake by beef heifers. J. R. Russell*, M. J. Hersom, M. L. Hermann, K. J. Moore, and P. K. Patrick, Iowa State University, Ames, IA.
19	375	Effects of change in dietary forage level on dairy goat performance. A. L. Goetsch ¹ , M. I. Lachica* ¹ , R. Puchala ¹ , T. Sahlu ¹ , L. J. Dawson ² , and A. L. Adams ¹ , ¹ E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ² College of Veterinary Medicine, Oklahoma State University, Stillwater, OK.
20	376	Evaluation of supplemental carbohydrate source on utilization of stockpiled tall fescue by beef steers. L. J. Driedger*, E. S. Vanzant, S. J. Lewis, B. T. Larson, and R. F. Bapst, University of Kentucky, Lexington, KY.
21	377	Effect of birdsfoot trefoil and tall fescue pastures on steer performance. L. Wen*, J. E. Williams, R. L. Kallenbach, C. Roberts, R. L. McGraw, P. Beuselinck, J. F. Thompson, and L. Gebrehiwot, University of Missouri, Columbia, MO/USA.
22	378	Ruminal parameters and voluntary intake in steers fed with a basal oat straw and supplemented with alfalfa hay. H. C. Hernández* ¹ , H. M. Ferreiro ² , L. C. De la Vega ² , A. C. Correa ³ , A. M. Pérez ³ , and H. G. González ³ , ¹ Universidad Autónoma de Baja California Sur, Area Interdisciplinaria de Ciencias Agropecuarias, ² Universidad Autónoma de Chihuahua, ³ Universidad Autónoma de Baja California.
23	379	Kinetics and particle size characterization of the solid fraction of ruminal contents and feces in steers fed a basal oat straw diet. H. G. González* ¹ , O. B. Ruiz ² , L. C. De la Vega ² , H. C. Hernández ³ , A. C. Correa ¹ , A. E. Orozco ² , A. M. Pérez ¹ , and L. B. Gerlach ⁴ , ¹ Universidad Autónoma de Baja California, Instituto de Ciencias Agrícolas, ² Universidad Autónoma de Chihuahua, Facultad de Zootecnia, ³ Universidad Autónoma de Baja California Sur, ⁴ Universidad de Sonora.
24	380	Determinant of forage quality in Clitoria ternatea. T Clavero* ¹ , ¹ La Universidad del Zulia.

- 25 381 Effects of pasture applied biosolids on forage and soil mineral concentrations in North Florida. M. E. Tiffany, L. R. McDowell*, G. A. O Connor, H. Nguyen, F. G. Martin, N. S. Wilkinson, and E. C. Cardoso, University of Florida, Gainesville, FL.
- 26 382 Digestibility of Water Oak and Shining Sumac leaves fed to Alpine goat wethers. R. Merkel*¹, C. Toerien¹, T. Sahlu¹, and C. Blanche², ¹E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ²Dale Bumpers Small Farms Research Center, USDA, ARS, Booneville, AR.
- 27 383 Effects of calendar date and summer management on in situ dry matter digestibility of stockpiled bermuda. D. A. Scarbrough*, W. K. Coblenz, K. P. Coffey, J. E. Turner, G. V. Davis, and D. W. Kellogg, University of Arkansas, Fayetteville AR/USA.
- 28 384 Effect of stocking rate on cow-calf productivity while grazing improved kikuyu pasture during fall versus spring calving seasons. J. R. Carpenter*¹, B. W. Mathews², B. R. LeaMaster¹, B. A. Buckley¹, and R. Y. Niino-DuPonte¹, ¹CTAHR, University of Hawai'i at Manoa, ²CAFNR, University of Hawai'i at Hilo.
- 29 385 Evaluation of forage management systems for spring-calving beef herds: winter. M. J. Hersom and J. R. Russell*, Iowa State University, Ames, IA.
- 30 386 Evaluation of three forage management systems for spring-calving beef herds: summer. M. J. Hersom and J. R. Russell*, Iowa State University, Ames, IA.
- 31 387 Vitamin E concentration in lamb muscle as influenced by concentrate or pasture finishing. K. E. McClure*¹, K. E. Turner², and W. P. Weiss¹, ¹The Ohio State University, Wooster, OH, ²USDA-ARS, Beaver, WV.
- 32 388 Biological treatment of rice straw using shittake culture waste. C. S. Ra*, G. Z. Lin, J. S. Shin, and B. J. Hong, Kangwon National University, Korea.
- 33 389 Effect of hybrid, maturity and processing on ruminal degradability of corn plants. J. G. Andrae*¹, C. W. Hunt¹, C. G. Doggett¹, G. T. Pritchard¹, W. Kezar², and W. Mahanna², ¹University of Idaho, Moscow, ²Pioneer Hi-Bred, Johnston IA.
- 34 390 The effect of various levels of ammonia or a buffered propionic acid-based preservative on the fermentation and aerobic stability of corn silage. J. M. Robinson, L. Kung, Jr.*¹, N. K. Ranjit, and J. Y. Tavares, University of Delaware, Newark.
- 35 391 Evaluating silage hybrids for forage quality. D. J. R. Cherney* and W. J. Cox, Cornell University, Ithaca, NY.
- 36 392 The performance of pregnant ewes offered basal diets of hay or grass silage supplemented with molassed sugar beet pulp or a commercially available concentrate. T. F. Crosby*¹, J. V. O'Doherty¹, P. Nowakowski², P. J. Quinn¹, J. J. Callan¹, B. Flynn¹, and C. McGrane¹, ¹University College Dublin, Dublin, Ireland, ²Agricultural University of Wroclaw, Wroclaw, Poland.

PHYSIOLOGY AND ENDOCRINOLOGY 5

Synchronization, Insemination, and Placental Physiology - I

Chair: Dr. F. Stormshak, Oregon State University, Corvallis

Thursday, 8:00 a.m. - 11:00 a.m.

Room 206/207

Time	Abs. No.	
8:00	429	Development of a new estrous synchronization protocol (7-11 Synch) for beef cattle with short-term feeding of melengestrol acetate (MGA). F. N. Kojima*, J. F. Bader, B. E. Salfen, M. F. Smith, and D. J. Patterson, University of Missouri, Columbia, MO.
8:15	430	Addition of GnRH to a melengestrol acetate (MGA) + prostaglandin F _{2α} (PG) estrous synchronization treatment improves synchrony of estrus and maintains high fertility in postpartum suckled beef cows. D. J. Patterson*, F. N. Kojima, and M. F. Smith, University of Missouri, Columbia, MO.
8:30	431	Effect of royal jelly on estrus synchronization and pregnancy rate of ewes using fluorogestone acetate sponges. M. Q. Husein* ¹ , R. T. Kridli ¹ , and W. D. Humphrey ² , ¹ Jordan University of Science and Technology, Irbid/Jordan, ² Arkansas State University, State University, AR/USA.
8:45	432	Evaluation of a two-part melengestrol acetate regime to synchronize estrus in beef cattle. Shelley Wright* ¹ , David Kreider ¹ , Rick Rorie ¹ , Natalie Huber ¹ , and Gary Murphy, ¹ University of Arkansas, Dept of Animal Science.

- 9:00 433 Artificial insemination outcomes in beef females using bovine sperm with a detectable fertility- associated antigen. L. R. Sprott*¹, M. D. Harris¹, D. W. Forrest¹, H. M. Zhang², J. N. Oyarzo², M. E. Bellin², and R. L. Ax², ¹Texas A&M University, College Station, TX, ²University of Arizona, Tucson, AZ.
- 9:15 BREAK
- 9:30 434 Artificial insemination outcomes in beef females using bovine sperm with a detectable fertility- associated antigen. L. R. Sprott*¹, M. D. Harris¹, D. W. Forrest¹, H. M. Zhang², J. N. Oyarzo², M. E. Bellin², and R. L. Ax², ¹Texas A&M University, College Station, TX, ²University of Arizona, Tucson, AZ.
- 9:45 435 Effects of dosage of estradiol benzoate given at time of administration of an intravaginal progesterone-releasing device on conception rates to a fixed-time insemination. D. L. Funk*¹, H. D. Hafs², and L. H. Anderson¹, ¹University of Kentucky, ²Rutgers University.
- 10:00 436 Effects of pre-synchronization and bST treatment on pregnancy rates to a timed artificial insemination protocol in lactating dairy cows. F. Moreira*¹, C. Orlandi¹, C. A. Risco², R. Mattos¹, F. L. Lopes¹, and W. W. Thatcher¹, ¹Department of Dairy and Poultry Sciences, University of Florida, ²College of Veterinary Medicine, University of Florida.
- 10:15 437 Use of asynchronous embryo transfer to investigate the role of uterine- embryo timing on placental size. M. E. Wilson*, K. A. Vonnahme, and S. P. Ford, Iowa State University, Ames IA.
- 10:30 Round Robin Discussion

PRODUCTION AND MANAGEMENT 2

Beef Cattle: Feedlot

Chair: Dr. P. A. Momont, University of Idaho, Caldwell

Thursday, 8:15 a.m. - 11:00 a.m.
Room 201/202

- | Time | Abs. No. | |
|-------|----------|---|
| 8:15 | 478 | Performance measures and pulmonary lesions at slaughter in feedlot cattle. E. M. Whitley* ¹ , F. T. McCollum, III ¹ , D. L. Montgomery ¹ , R. W. Sprowls ¹ , and G. J. Vogel ² , ¹ Texas A&M University System, ² Elanco Animal Health. |
| 8:30 | 479 | Delayed implant strategies using Synovex Plus for finishing yearling steers. C. T. Milton* ¹ , R. J. Cooper ¹ , and F. L. Prouty ² , ¹ University of Nebraska, Lincoln, NE, ² Fort Dodge Animal Health, Overland Park, KS. |
| 8:45 | 480 | Explanting to determine the response-life of a combination implant. B. A. Gardner* ¹ , H. G. Dolezal ¹ , F. N. Owens ¹ , and B. Freking ² , ¹ Oklahoma State University, ² Kerr Center for Sustainable Agriculture. |
| 9:00 | 481 | A comparison of feedlot bunk management strategies and their influence on cattle performance. R. J. Lawrence*. |
| 9:15 | 482 | Validation of a radio frequency identification system used to monitor patterns of feeding by feedlot cattle. K. S. SchwartzkopfGenswein* ¹ , C. Huisma ² , and T. A. McAllister ³ , ¹ Alberta Agriculture, Food and Rural Development, Lethbridge, AB, ² GrowSafe Systems Ltd., Airdrie, AB, ³ Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB. |
| 9:30 | | BREAK |
| 9:45 | 483 | The effect of value-added calf programs on morbidity rates and feedlot performance through the reimplant period. J. G. Gentry* ¹ , N. C. Speer ² , G. F. Jones ² , C. D. Smith ³ , and J. C. Whittier ³ , ¹ Texas Tech University, Lubbock, TX, ² Western Kentucky University, Bowling Green, KY, ³ Colorado State University, Ft. Collins, CO. |
| 10:00 | 484 | Performance of steer calves fed normal or high oil corn harvested as grain or whole plant silage. K. S. Hendrix* and D. L. Lofgren, Purdue University, West Lafayette, IN. |
| 10:15 | 485 | Effect of corn harvest technique on harvest yield and costs, beef yield, feeding costs and price received for corn when fed to beef steers. T. M. Vanzant* and K. S. Hendrix, Purdue University, West Lafayette, IN. |
| 10:30 | 486 | Evaluation of cattle breeds for an IgG assay specific to venom of the red imported fire ant (<i>Solenopsis invicta</i> Buren). J. E. Powell* ¹ , A. D. Herring ¹ , G. P. Austin ¹ , L. J. Gershwin ² , S. P. Jackson ¹ , and J. O. Sanders ³ , ¹ Texas Tech University, Lubbock, ² University of California, Davis, ³ Texas Agricultural Experiment Station, College Station. |
| 10:45 | 487 | Recruitment of the red imported fire ant (<i>Solenopsis invicta</i> Buren) by different livestock feeds. G. P. Austin*, A. D. Herring, J. E. Powell, S. P. Jackson, and H. G. Thorvilson, Texas Tech University, Lubbock. |

PRODUCTION AND MANAGEMENT 3

Swine Production and Management

Chair: Dr. M. S. Carlson, University of Missouri, Columbia

Thursday, 9:00 a.m. - 10:30 a.m.
Room 212

Time	Abs. No.	
9:00	488	Evaluation of genotype, therapeutic antibiotic and health management effects on swine carcass characteristics and pork quality. D. C. Kendall* ¹ , B. T. Richert ¹ , J. W. Frank ¹ , B. A. Belstra ¹ , S. A. Decamp ¹ , A. P. Schinckel ¹ , and M. Ellis ² , ¹ Purdue University, West Lafayette, IN, ² University of Illinois, Urbana, IL.
9:15	489	Feed withdrawal 24 h prior to slaughter improves measures of pork muscle quality. M. T. See*, W. E. M. Morrow, J. H. Eisemann, P. Davies, and K. Zering, North Carolina State University, Raleigh, NC.
9:30	490	Applications of SEW system in Taiwan after FMD outbreak. E.-C. Lin*, H. T. Liu, H. L. Li, H. L. Tsou, P. C. Yang, and H. D. Yen, Pig Research Institute Taiwan, Chunan, Miaoli, Taiwan, R.O.C.
9:45	491	Impact of wean-to-finish facility management on weaned pig performance in the nursery phase. M. C. Brumm* ¹ , A. K. Baysinger ² , E. T. Clemens ¹ , and R. W. Wills ¹ , ¹ University of Nebraska, Concord, NE, ² Alpharma, Inc., Ft. Lee, NJ.
10:00	492	Ten-year (1986-1995) breeding productivity of U.S. commercial swine recorded in PigCHAMP database. J. L. Xue*, University of Minnesota, St. Paul, MN.
10:15	493	Feed withdrawal 24 h prior to slaughter does not increase prevalence of ulcers. J. H. Eisemann*, W. E. M. Morrow, T. See, P. Davies, and K. Zering.

TECHNOLOGY FORUM SYMPOSIUM

Sponsored by: Roche Vitamins Inc. and
ASAS Foundation

Beef Carcass Quality and Yield

Chair: Dr. M. L. Galyean, Texas Tech University, Lubbock
Thursday, 8:00 a.m. - 11:00 a.m.
Room 145/146

Time	Abs. No.	
8:00		Introduction, M. L. Galyean, Texas Tech University, Lubbock
8:05	28	The importance of beef carcass quality and yield: Cattle performance, carcass-based pricing, and consumer issues. H. G. Dolezal*, Oklahoma State University.
8:40	29	Effect of backgrounding and growing programs on beef carcass quality and yield. T. J. Klopfenstein*, R. Cooper, D. J. Jordon, D. Shain, T. Milton, C. Calkins, and C. Rossi, University of Nebraska, Lincoln, NE.
9:15		Effects of growth promotants on beef carcass quality and yield. Allen Trenkle, Iowa State University, Ames.
9:50	30	Effects of nutrition on beef carcass quality and yield. Fred N. Owens* ¹ and Brett Gardner ² , ¹ Optimum Quality Grains, L.L.C., Des Moines, IA, ² Oklahoma State University, Stillwater, OK.
10:25	31	A beef quality synopsis: what we know and where we need to go. J. B. Morgan* and D. N. Vargas, Oklahoma State University, Stillwater, OK.

TECHNOLOGY FORUM SYMPOSIUM

Sponsored by: E-Market and NPPC

Lean Growth Modeling

Chair: Dr. O. W. Robison, North Carolina State University, Raleigh

Thursday, 8:00 a.m. - 11:30 a.m.
Room 211

Time

- 8:00 Introduction Dr. O. W. Robison, North Carolina State University, Raleigh
- 8:05 Genetic effects on growth and composition traits. Dr. O. W. Robison, North Carolina State University, Raleigh.
- 8:30 Dietary effects on growth, feed and composition traits Dr. Mike Tokach, Kansas State University, Manhattan.
- 8:55 Genetic and dietary effects on meat quality traits Dr. Rhonda Miller, Texas A&M University, College Station and Dr. Rodney Goodwin, National Pork Producers Council, Des Moines, IA.
- 9:20 Questions for speakers
- 9:30 Effects of alternative end weights on cost of production and net return. Dr. John Mabry, University of Georgia, Athens.
- 9:55 Calculation of Fat-Free Lean Index. Dr. Hal Sellers, National Pork Producers Council.
- 10:20 Consumer acceptance of pork (loin and ham) versus chicken breast. Dr. Steve Moeller, The Ohio State University, Columbus.
- 10:45 Questions for speakers

TECHNOLOGY FORUM SYMPOSIUM

Sponsored by: Alliance Medical

Advances in Swine Reproductive Management

Chair: Dr. T. J. Safranski, University of Missouri, Columbia

Thursday, 9:30 a.m. - 11:30 a.m.
Room 210

Time

- 9:30 Introduction Dr. Tim Safranski
- 9:35 Utilization and benefits of RealTime ultrasound for ovarian diagnosis in swine Dr. Dagmar Waberski, University of Hanover, Germany.
- 10:10 Relative accuracy of RealTime ultrasound estimation of pregnancy versus estimation using traditional devices. Dr. Billy Flowers, North Carolina State University, Raleigh.
- 10:45 Questions for speakers

TEACHING 3

Chair: Dr. C. H. Rahe,
Southwest Texas State University, San Marcos

Thursday, 8:00 a.m. - 11:00 a.m.
Room 109

Time	Abs. No.	
8:00	658	Teaching Styles: "Active Learners" Make the Best Learners. W. Ellis*, Southeast Missouri State University, Cape Girardeau.
8:15	659	A freshman seminar in animal and veterinary science. A. T. Mallilo and M. M. Nippo*.
8:30	660	Linking graduate and postdoctoral training in equine reproduction to client outreach and service: the South Texas experiment. G. L. Williams*.
8:45	661	Providing hands on experience in a senior-level beef cattle science course with cooperator- owned cattle. F. A. Thrift*.
9:00	662	Undergraduate internship in reproductive management of beef cattle. T. A. Strauch* ¹ , J. E. Williams ¹ , M. F. Smith ¹ , P. A. Kunkel ² , R. F. Hill ² , G. K. Bates ² , and D. J. Patterson ¹ , ¹ Department of Animal Science, University of Missouri-Columbia, ² Select Sires, Inc., Columbus, OH.
9:15		BREAK
9:30	663	Experiential learning in the animal sciences: A multi-species large animal management and production practicum. B. A. Reiling*, T. T. Marshall, J. H. Brendemuhl, J. A. McQuagge, and J. E. Umphrey, University of Florida, Gainesville, FL.
9:45	664	Use of a lamb feeding trial to integrate nutritional principles and practice. A. W. Bell and D. J. R. Cherney*, Cornell University, Ithaca, NY.
10:00	665	Use of peer-graded student projects in an introductory course. J. A. Moore*, North Carolina State University, Raleigh.
10:15	666	Using editorial boards to peer review: enhancing scientific writing of undergraduate students. R. C. Rhodes III*, University of Rhode Island.
10:30	667	A new writing intensive (WIC) course involving ethical issues in animal agriculture. S. L. Davis* and L. V. Swanson, Oregon State University.
10:45	668	Teaching Values and Ethics in Agriculture and Forestry. R. Dailey* and R. Cochrane.

ASAS BUSINESS MEETING

Chair: Dr. T. Klopfenstein,
University of Nebraska, Lincoln

Thursday, 11:00 a.m. - 12:00 noon
Room 138/139

**WOMEN AND MINORITIES
COMMITTEE SYMPOSIUM/LUNCHEON**

**Mentoring – Minority and Women –
Do We Need It?**

Co-Chairs: Dr. N. A. Irlbeck, Colorado State University, Fort Collins and Dr. A. C. Murry, Jr., University of Georgia, Athens

Thursday, 12:00 Noon - 3:05 p.m.
12:00-1:00 p.m. Lunch Deli Buffet
Westin Hotel, House

Time

- 12:35 Welcome Nancy A. Irlbeck, Colorado State University, Fort Collins and A. C. Murry, Jr., University of Georgia, Athens.
12:45 Role of Minorities and Women in Animal Science in the 21st Century. T. J. Klopfenstein, University of Nebraska, Lincoln.
1:15 How We Got Here From There. A. L. Siemens, Oscar Mayer Foods Division, New Glarus, WI.
1:45 Mentoring-Minorities and Women in Animal Science- Do We Need It? B. P. Glenn, Federation of Animal Science Societies, Bethesda, MD.
2:15 Discussion
3:00 Closing: Nancy A. Irlbeck, Colorado State University, Fort Collins and A. C. Murry, Jr., University of Georgia, Athens.

EXTENSION

Extension Specialist's Luncheon

Chair: Dr. T. G. Hartsock,
University of Maryland, College Park

Thursday, 12:00 Noon
Westin Hotel, Council

**EXTENSION 2
SYMPOSIUM**

The Changing Roles of Extension Specialists

Chair: Dr. T. G. Hartsock, University of Maryland, College Park
Thursday, 1:30 p.m. - 4:45 p.m.
Room 138/139

Time

- 1:30 Formalizing the Working Relationship between Extension Specialists and Commodity Organizations: the National Pork Producers Council Model; Earl Dotson, National Pork Producers Council.
2:00 Interactions of Extension Specialists with Representatives of Agribusiness and Private Consultants; William Weldon, Elanco Animal Health and Mike Veenhuizen, Livestock Engineering Solutions.
2:30 Extension Specialist's Roles in Training and Utilizing Volunteers in Animal Science Extension Programs Adult Programs: Roger McCraw, North Carolina State University 4-H/Youth Programs: Matt Claeys, Purdue University.
3:30 BREAK
3:45 The Emerging Technology of Electronic Media and Its Impact on the Role of Extension Specialists; Craig Wood, University of Kentucky.
4:15 The Evolving Role of Animal Science Extension Specialists: An Administrative Perspective; Roger Crickenberger, North Carolina.

BEEF COMMITTEE SYMPOSIUM

Sponsored by: Select Sires Inc.

Heifer Programs That Add Value to the Beef Industry

Chair: Dr. J. E. Williams, University of Missouri, Columbia

Thursday, 1:30 p.m. - 4:30 p.m.
Room 205

Time	
1:30	Introduction and recognition of speakers and sponsors. Dr. James E. Williams, University of Missouri, Columbia.
1:40	Genetic aspects of replacement heifer development in current and future production systems. Dr. Michael W. Tess, Montana State University, Bozeman.
2:10	Reproduction and management related considerations in beef heifer development. Dr. David J. Patterson, University of Missouri, Columbia.
2:40	What is the economical value of a bred heifer? Dr. Harlan Hughes, North Dakota State University, Fargo.
3:00	Economic value of specific production characteristics in heifer development. Vern Pierce, University of Missouri, Columbia.
3:20	BREAK
3:30	Roundtable Discussion of management strategies influencing heifer development
Moderator:	Dr. Larry Corah, NCBA
	Dr. Harlan Ritchie, Michigan State University, East Lansing
	Mr. Gary Teague, Teague Diversified, Fort Morgan, CO
	Dr. Roy Wallace, Select Sires Inc., Ohio
	Dr. Richard Randle, DVM, University of Missouri, Columbia

BREEDING AND GENETICS 4 POSTERS

Chair: Dr. B. L. Golden,
Colorado State University, Fort Collins

Thursday, 8:00 a.m. - 5:00 p.m.

Authors present:

Even numbered boards: 1:00 p.m. - 3:00 p.m.

Odd numbered boards: 3:00 p.m. - 5:00 p.m.

Exhibit Hall E

Board No.	Abs. No.	
37	69	Genetic comparison of top Holstein bulls and their progeny in Hungary. A. Janosa ^{*1} , B. Baranyai ² , and J. Dohy ¹ , ¹ Godollo University of Agricultural Sciences, ² Agricultural Biotechnology Center, Godollo.
38	70	Consequences of selection on mothering ability and vitality on underlying mortality traits in pigs. E. F. Knol [*] , Institute for Pig Genetics, The Netherlands.
39	71	Comparison of carcass traits from calves by Angus, Charolais, Salers, Piedmontese, Tarentaise and Hereford sires. D. C. Anderson ^{*1} , D. D. Kress ² , D. L. Boss ¹ , K. C. Davis ² , and D. W. Bailey ¹ , ¹ Northern Agricultural Research Center, Havre, MT, ² Montana State University, Bozeman, MT.
40	72	Partial DNA sequence and polymorphism for porcine anti-müllerian hormone receptor. P. A. Dyas [*] , E. V. Amargo, and B. A. Didion.

- 41 73 Allelic frequencies of the porcine H-FABP gene in two genetic lines. E. V. Amargo*, P. A. Dyas, and B. A. Didion, DeKalb Swine Breeders, Inc., DeKalb, IL.
- 42 74 Preliminary evaluation of pituitary responsiveness to GnRH as a tool to predict reproductive traits in bulls. M. G. Thomas*¹, J. A. Winder², C. C. Rasor¹, and D. M. Hallford¹, ¹New Mexico State University, Las Cruces, NM, ²Samuel Roberts Noble Foundation, Ardmore, OK.
- 43 75 Reproductive performance of beef cows with divergent genetic merit for milk production. D. S. Buchanan*, O. Cobanoglu, R. P. Wettemann, J. Minick, and S. Rupert, Oklahoma Agricultural Experiment Station, Stillwater, OK.
- 44 76 Allelic frequencies for a leptin Sau3AI RFLP in biologically diverse breeds of cattle in the southern United States and Mexico. C. C. Rasor*¹, M. G. Thomas¹, H. C. Salazar², R. M. Enns², H. M. Zhang², R. L. Ax², G. L. Williams³, R. D. Randel³, R. L. Stanko³, and J. Rios⁴, ¹New Mexico State University, Las Cruces, NM, ²University of Arizona, Tucson, AZ, ³Texas Agricultural Experiment Stations, Beeville, Kingsville and Overton, TX, ⁴University of Chihuahua, Chihuahua, Mexico.
- 45 77 Estimation of variance components for teat number in swine using REML and Gibbs sampler. C. Lee* and C. D. Wang, Hallym University, Chuncheon, Korea.
- 46 78 Effects of recipient breed on birth and weaning weight and wool follicle numbers of Merino lambs born by embryo transfer. T. Wuliji*¹, K. G. Dodds², R. N. Andrews², J. Aspinal², and T. Harison², ¹E (Kika) de la Garza Institute For Goat Research, Langston University, Langston, OK 73050, ²AgResearch, Private Bag 50034, Mosgiel, New Zealand.
- 47 79 Live weight, reproductive performance, and wool characteristics in mixed age Romney ewes selected for a single trait of fleece weight. T. Wuliji*¹, K. G. Dodds², R. N. Andrews², P. R. Turner², and R. Wheeler², ¹E (Kika) de la Garza Institute For Goat Research, Langston University, Langston, OK 73050, ²AgResearch, Private Bag 50034, Mosgiel, New Zealand.
- 48 80 Feedlot and carcass performance of Angus-, Brangus-, Gelbvieh-, and Gelbray-sired steers.. S. M. DeRouen*¹, T. D. Bidner², and W. E. Wyatt³, ¹Louisiana State University Agricultural Center, Homer, ²Baton Rouge, ³Jeanerette.
- 49 81 Estimation of litter environmental and maternal effects for performance test traits of Large White swine. Z. B. Johnson*¹, J. J. Chewning², and R. A. Nugent, III², ¹University of Arkansas, Fayetteville, ²The Pork Group, Rogers, AR.
- 50 82 Comparison of performance of pigs from three breed terminal and rotational crossbreeding systems: Growth and survival rates. K. Nadarajah*, D. L. Kuhlers, S. B. Jungst, M. R. Duffe, and J. A. Little, Auburn University, Auburn, AL.
- 51 83 Milk production of crossbred daughters of high and low milk EPD Angus and Hereford bulls. J. A. Minick*, D. S. Buchanan, and S. D. Rupert, Oklahoma Agricultural Experiment Station, Stillwater.
- 52 84 Evaluation of carcass traits of Duroc pigs from a line selected on an index of ultrasound backfat thickness and predicted feed conversion. D. L. Kuhlers*, K. Nadarajah, S. B. Jungst, B. L. Anderson, and B. E. Gamble, Auburn University, AL.
- 53 85 Use of milk EPDs to predict differences in milk production of range beef cows. S. D. Rupert*, D. S. Buchanan, and J. A. Minick, Oklahoma Agricultural Experiment Station, Stillwater, OK.
- 54 86 Sire variation for carcass traits of purebred Brahman steers. T. Smith*¹, D. E. Franke¹, T. D. Bidner¹, G. Whipple- VanPatter², and H. D. Chapman¹, ¹Louisiana State University Agricultural Center, Baton Rouge, LA, ²Nebraska Central Community College, Hastings, NE.
- 55 87 Genetic polymorphism of milk protein in Chinese black and white dairy cattle. J. Luo*, H. Qiu, S. H. Wang, and J. W. Li, School of Animal Science and Veterinary Medicine, Northwestern Agricultural University, China.
- 56 88 Development of a heterogeneous mixed linear model with maternal genetic effects for multiple trait case. E.-C. Lin*¹ and P. J. Berger², ¹Pig Research Institute Taiwan, Chunan, Miaoli, Taiwan, R.O.C., ²Iowa State University, Ames, Iowa.
- 57 89 Comparison of the reliability of genetic evaluations from an organized progeny test and a field level performance recording program. Nicolas Caron* and Robert A. Kemp, Lethbridge Research Centre.
- 58 90 Effects associated with the *Bos indicus* growth hormone receptor haplotype in *Bos taurus* cattle. C. S. Hale*, W. O. Herring, G. S. Johnson, H. Shibuya, M. C. Lucy, D. B. Lubahn, and D. H. Keisler, University of Missouri, Columbia, Missouri.
- 59 91 Mixed model estimates of genetic effects for beef cattle birth and weaning traits. D. E. Franke*, Louisiana State University Agricultural Center.
- 60 92 Verification of a quantitative trait locus for dairy form in two families of Holsteins. T. S. Sonstegard*¹, C. P. Van Tassell¹, M. S. Ashwell¹, W. M. Garrett¹, and S. M. Kappes², ¹ARS-USDA Beltsville Agricultural Research Center, Beltsville, MD, ²ARS-USDA Meat Animal Research Center, Clay Center, NE.
- 61 93 Repeatability estimates of objective measurements on the rear legs of dairy cows. P. O. Boisot*, S. Rodriguez-Zas, and R. D. Shanks, University of Illinois, Urbana-Champaign, IL.

- 62 94 Multivariate Bayesian analysis of Gaussian, right censored Gaussian, ordered categorical, and binary traits using Gibbs sampling. I. R. Korsgaard¹, M. S. Lund^{*1}, D. Sorensen¹, D. Gianola², P. Madsen¹, and J. Jensen¹, ¹Danish Institute of Agricultural Sciences, ²University of Wisconsin-Madison.

BREEDING AND GENETICS 5

Parameter Estimation

Chair: Dr. M. D. MacNeil, USDA, ARS,
Miles City, MT

Thursday 1:00 p.m. - 2:45 p.m.
Room 147/148

Time	Abs. No.	
1:00	95	Maternal and direct genetic relationships between weaning weight and traits derived from the Brody growth curve in Angus cattle. M. Kaps*, W. O. Herring, and W. R. Lamberson, University of Missouri-Columbia, Columbia, MO.
1:15	96	Genetic parameter estimation of growth and lactation curve components in Polled Hereford cattle. J. B. Glaze, Jr.* ¹ and R. R. Schalles ² , ¹ University of Vermont Extension, White River Junction, VT, ² Kansas State University, Manhattan, KS.
1:30	97	Estimation of genetic parameters for mature weight in Hereford cattle. J. M. Rumph* ¹ , R. M. Koch ¹ , K. E. Gregory ² , L. V. Cundiff ² , and L. D. Van Vleck ³ , ¹ University of Nebraska, Lincoln, ^{2,3} USDA-ARS, USMARC, ² Clay Center, ³ Lincoln, NE.
1:45	98	Estimates of genetic parameters and genetic trends for reproductive traits in Botucatu rabbits selected for litter and growth performance traits. A. S. A. M. T. Moura*, A. R. C. Costa, and R. Polastre, Faculdade de Medicina Veterinária e Zootecnia, UNESP, Botucatu SP, Brazil.
2:00	99	Genetic and environmental weaning weight parameter estimates across and within Hereford populations in three countries. J. K. Bertrand*, D. de Mattos, and I. Misztal, University of Georgia, Athens.
2:15	100	Heritabilities and genetic correlations for male scrotal circumference and female reproductive and growth traits, in Canchim cattle. M. M. Alencar* ¹ , A. M. Silva ² , A. R. Freitas ¹ , R. T. Barbosa ¹ , and L. A. Correa ¹ , ¹ EMBRAPA-Centro de Pesquisa de Pecuária do Sudeste/Sao Carlos, SP/Brazil, ² Graduate student/UNESP, Jaboticabal, SP/Brazil (Bolsista da FAPESP).
2:30	101	Interactions between genotype, environment and disease affect breeding against susceptibility for a production disease. K. H. de Greef* and L. L. G. Janss, ID-DLO Lelystad NL.

ENVIRONMENT & BEHAVIOR 3

Behavioral and Environmental Issues for Swine

Chair: Dr. H. Kattesh, University of Tennessee, Knoxville

Thursday, 2:00 p.m. - 3:30 p.m.
Room 110

Time	Abs. No.	
2:00	138	Segregated early weaning affects behavior and adrenal responses in pigs. Y. Yuan*, D. Charles, M. Tauchi, and A. J. Zanella, Michigan State University, East Lansing, MI.
2:15	139	Impact of environmental temperature on the neonatal pig's response to an endotoxin challenge. J. A. Carroll* ¹ , R. L. Matteri ¹ , C. J. Dyer ¹ , L. A. Beausang ² , and M. E. Zannelli ² , ¹ Agricultural Research Service - USDA, University of Missouri, Columbia 65211, ² Endogen, Inc., Woburn, MA 01801.
2:30	140	Behavior and environmental impact of outdoor gestating sows: effect of cold weather and grass burning. H. A. Rachuonyo* ¹ , J. L. Morrow-Tesch ² , J. G. Gentry ¹ , D. L. Anderson ¹ , S. C. Wilson ¹ , J. W. Dailey ² , H. T. Bird ¹ , and J. J. McGlone ¹ , ¹ Texas Tech University, ² USDA-ARS, Lubbock, TX.

- 2:45 141 Behavior and performance of lactating Newsham sows and piglets reared indoors or outdoors. A. K. Johnson^{*1}, J. L. Morrow-Tesch², S. C. Wilson¹, H. Rachuonyo¹, J. G. Gentry¹, and J. J. McGlone¹, ¹Pork Industry Institute, Texas Tech University, Lubbock, ²USDA-ARS, Lubbock, TX.
- 3:00 142 Dust and microbe levels from indoor and outdoor pig units. J. L. Morrow-Tesch^{*1}, F. M. Mitloehner², J. W. Dailey¹, S. C. Wilson², and J. J. McGlone², ¹USDA-ARS, Lubbock, TX, ²Texas Tech University, Lubbock, TX.
- 3:15 143 Pork quality of hogs finished on slats and deep-bedding. J. G. Gentry^{*}, M. F. Miller, and J. J. McGlone, Texas Tech University, Lubbock, TX.

GROWTH AND DEVELOPMENT 4 SYMPOSIUM

Sponsored by: Hoechst Roussel Vet,
Merck & Co., Inc., Purina Mills, Inc.

Environmental Effects on Animal Growth

Co-Chairs: Dr. K. L. Houseknecht, Pfizer, Inc., Groton, CT and Dr. W. D. Hohenboken, Virginia Polytechnic Institute and State University, Blacksburg

Thursday, 1:00 p.m. - 5:00 p.m.
Room 208/209

Time	
1:00	Modeling animal growth: Genetic x environment effects. A. P. Schinckel, Purdue University, West Lafayette, IN
1:35	Understanding the ups and downs of immunobiology in food animal production. M. E. Spurlock, Purina Mills Inc., St. Louis, MO.
2:10	Immunosensation of environmental pathogens and the genes activated to reduce food intake. R. W. Johnson, University of Illinois, Urbana.
2:45	BREAK
3:00	A genotype x environment interaction caused by the genotype of penmates: Impact of competitive behavior on growth. W. M. Muir, Purdue University, West Lafayette, IN.
3:35	Heat stress and animal growth. J. A. Nienaber, USDA, ARS, Clay Center, NE
4:10	The impact of rearing environment and disease exposure on pigs with differing genetic potential for lean growth. B. T. Richert, Purdue University, West Lafayette, IN.
4:45	General discussion

MEAT SCIENCE AND MUSCLE BIOLOGY 5

Beef Quality

Chair: Dr. S. M. Lonergan,
Iowa State University, Ames

Thursday, 1:00 p.m. - 4:30 p.m.
Room 143/144

Time	Abs. No.	
1:00	222	Effect of supplemental dietary vitamin E on the color and case-life of top loin steaks and ground chuck patties in map case-ready retail packaging systems. R. L. Stubbs ¹ , P. K. Bates ^{*1} , J. B. Morgan ¹ , H. G. Dolezal ¹ , F. K. Rav ¹ , and S. E. Williams ² , ¹ Oklahoma State University, ² Roche Vitamins Inc.
1:15	223	Effect of supplemental dietary vitamin E on the color and case-life of top loin steaks and ground chuck patties in various case-ready retail packaging systems. R. L. Stubbs, M. R. McGee [*] , J. B. Morgan, H. G. Dolezal, F. K. Ray, and S. E. Williams, Oklahoma State University.

- 1:30 224 Comparison of vitamin E and natural antioxidants on the lean color and retail caselife of ground beef. A. E. Down, K. C. Childs*, D. N. Vargas, D. S. Webb, J. B. Morgan, and H. G. Dolezal, Oklahoma State University, Stillwater, OK.
- 1:45 225 Effects of including AGRADO™ in finishing diets for beef cattle on retail case-life of ground beef and top loin steaks. C. E. Walenciak*, B. A. Gardner, H. G. Dolezal, and F. N. Owens, Oklahoma State University, Stillwater.
- 2:00 226 Effects of vascular infusion of cattle after exsanguination with saccharides, sodium chloride, and phosphates, and either vitamin C, E or C+E on carcass traits and meat palatability. M. E. Dikeman*, T. E. Dobbels¹, E. J. Yancey¹, E. Katsanidis², and P. B. Addis², ¹Kansas State University, Manhattan, ²University of Minnesota, St. Paul.
- 2:15 227 Effects of vascular infusion of cattle after exsanguination with saccharides, sodium chloride, and phosphates, plus vitamin C, E, or C+E on meat display color stability. E. J. Yancey*¹, M. C. Hunt¹, M. E. Dikeman¹, T. E. Dobbels¹, and P. B. Addis², ¹Kansas State University, Manhattan, ²University of Minnesota, St. Paul.
- 2:30 228 Effect of supplementing feedlot steers with vitamin D₃ and E on carcass traits, shelf-life attributes and longissimus muscle tenderness. D. N. Vargas*, A. E. Down, D. S. Webb, H. Han, J. B. Morgan, and H. G. Dolezal, Oklahoma State University, Stillwater, OK USA.
- 2:45 BREAK
- 3:00 229 Supplemental vitamin D₃ and beef tenderness. S. S. Swanek, N. A. Elam*, J. B. Morgan, F. N. Owens, D. R. Gill, C. A. Strasia, H. G. Dolezal, and F. K. Ray, Oklahoma State University, Stillwater, OK.
- 3:15 230 Effects of feeding Vitamin D₃ on carcass characteristics of beef cattle. K. Karges*, J. B. Morgan, F. N. Owens, and D. R. Gill, Oklahoma State University, Stillwater, OK.
- 3:30 231 Effects of dietary modifications using vitamin D₃ on calcium content and vitamin D residues in tissue and liver. J. L. Montgomery*¹, R. L. Horst², D. A. Hoy², M. A. Carr¹, G. G. Hilton¹, B. D. Price¹, and M. F. Miller¹, ¹Texas Tech University, ²National Animal Disease Center USDA/ARS.
- 3:45 232 Effect of freezing method and calcium chloride injection on beef longissimus muscle tenderness. C. D. Wallace, J. C. Mafi*, J. B. Morgan, L. L. Guenther, K. K. Novotony, H. G. Dolezal, and F. K. Ray, Oklahoma State University.
- 4:00 233 Type of container and quantity of explosive in the Hydrodyne process on beef strip loin tenderness. M. B. Solomon* and J. S. Eastridge, USDA, ARS, MSRL, Beltsville, MD.
- 4:15 234 Correlation among trained sensory panel descriptive attribute ratings and consumer ratings of beef longissimus steaks. S. D. Shackelford*, T. L. Wheeler, M. K. Meade, J. O. Reagan, B. L. Byrnes, and M. Koohmaraie, U.S. Meat Animal Research Center, Clay Center, NE.

NONRUMINANT NUTRITION 7 POSTERS

Grow-finish Nutrition

Thursday, 8:00 a.m. - 5:00 p.m.
 Authors present 1:00 p.m. - 3:00 p.m.
 Exhibit Hall E

Board No.	Abs. No.	
63	286	Amino acid supplementation of wheat-based diets for growing pigs. M. Cervantes*, J. González, N. Torren-tera, and S. Espinoza, Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, Calexico, CA.
64	287	Evaluation of dietary level of cottonseed meal on performance and carcass traits of growing pigs. M. Cervan-tes* ¹ , J. González ¹ , N. Torren-tera ¹ , S. Espinoza ¹ , and M. Cuca ² , ¹ Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, Calexico, CA, ² Colegio de Postgraduados, Montecillo, Mx.
65	288	Effect of different levels of potato chip scraps on the performance of growing and finishing pigs. S. Rahnema* and R. Borton, Agricultural Technical Institute, Ohio State University, Wooster, OH.
66	289	Study on the optimal lysine:DE ratio for growing pigs in different sexes. W. H. Chang ¹ , J. D. Kim ¹ , Z. N. Xuan ¹ , W. T. Cho ¹ , I. K. Han ¹ , and B. J. Chae* ² , ¹ Seoul National University, Suweon, Korea, ² Kangwon National University, Chunchon, Korea.

- 67 290 Effects of α -Galactosidase enzyme on ileal digestibility and large intestine fermentation in finishing pigs fed a cereal-soybean-pea diet. F. Baucells^{*1}, J. Morales², J. F. Perez², and J. Gasa², ¹Pinsos Baucells, S.A., ²Universitat Autònoma de Barcelona.
- 68 291 Molasses/fat combination as a nutrient source for swine and ducks. S. L. Selin, M. E. Einstein, O. Adeola, and B. G. Harmon, Purdue University, West Lafayette, IN.
- 69 292 The effects of expander processing and wheat inclusion levels on performance of grower-finisher pigs. J. V. O' Doherty^{*}, D. Murphy, and S. G. McGlynn, University College Dublin, Ireland.
- 70 293 A nutrient database for distiller's dried grains with solubles produced from new ethanol plants in Minnesota and South Dakota. M. H. Whitney^{*}, M. J. Spiehs, and G. C. Shurson, University of Minnesota, St. Paul, MN.
- 71 294 Energy, nitrogen, and phosphorus digestibility of growing and finishing swine diets containing distiller's dried grains with solubles. M. J. Spiehs^{*}, G. C. Shurson, and M. H. Whitney, University of Minnesota, St. Paul, MN.
- 72 295 Effects of two sources of dietary L-carnitine on nitrogen and energy balance in growing pigs. J. W. Frank^{*1}, B. T. Richert¹, S. A. DeCamp¹, C. Thomas¹, and K. Q. Owen², ¹Purdue University, West Lafayette, IN, ²Lonza, Inc., Fair Lawn, NJ.
- 73 296 Effects of dietary thiamin, folacin, or niacin regimen on growth in high lean pigs. T. R. Lutz^{*}, T. S. Stahly, D. R. Cook, and R. C. Ewan, Iowa State University, Ames, IA.
- 74 297 The influence of crude fibre level and fat supplementation on grower- finisher pig performance. J. V. O' Doherty^{*}, S. G. McGlynn, D. Murphy, and J. J. Callan, University College Dublin, Ireland.
- 75 298 Effects of adding wheat midds to low crude protein, amino acid supplemented diets for finishing pigs. J. A. Shriver^{*}, S. D. Carter, B. W. Senne, and L. A. Pettay, Oklahoma State University, Stillwater, OK.
- 76 299 Effect of wheat quality and quantity in the diet on the growth performance of finisher pigs. P. B. Lynch¹ and P. G. Lawlor^{*1}, ¹Teagasc, Moorepark Research Centre, Fermoy, Co. Cork, Ireland.
- 77 300 Effects of dietary tannic acid on feed intake, daily gain, and salivary glands of young pigs. J. A. Ford, Jr.^{*1}, I. Osaka², and W. L. Hurley¹, ¹University of Illinois at Urbana-Champaign, ²Hokkaido- Shintoku Animal Science Institute, Hokkaido, Japan.
- 78 301 Effects of sorghum starch type, endosperm hardness, and processing technologies on growth performance of broiler chicks and nutrient digestibility in finishing pigs. H. Cao^{*}, J. D. Hancock, B. W. Senne, J. M. Jiang, R. H. Hines, and K. C. Behnke, Kansas State University, Mahattan KS.
- 79 302 The effects of dietary feather meal concentration on growth performance, feed intake, and carcass characteristics. K.-W. Ssu^{*}, M. C. Brumm, P. S. Miller, and H.-Y. Chen, ¹University of Nebraska, Lincoln, NE.

NONRUMINANT NUTRITION 8 POSTERS

Nonruminant Nutrition

Thursday, 8:00 a.m. - 5:00 p.m.
 Authors present 3:00 p.m. - 5:00 p.m.
 Exhibit Hall E

Board No.	Abs. No.	
80	303	Varying Ratios of Insoluble:Soluble Fiber in Soybean Hulls Affect Nutrient Digestibilities by Ileal Cannulated Dogs. T. M. Burkhalter [*] , N. R. Merchen, A. R. Patil, L. L. Bauer, S. M. Murray, and G. C. Fahey, Jr., University of Illinois, Urbana.
81	304	Soybean hulls as an energy source for weanling horses. E. A. Ott [*] and J. Kivipelto, University of Florida, Gainesville, FL.
82	305	Ontogeny of L-threonine transport into porcine jejunal brush border membrane vesicles. Ming Z. Fan ^{*1} , Layi Adeola ² , and Eli K. Asem ² , ¹ University of Guelph, Guelph, Ontario, Canada, ² Purdue University, West Lafayette, Indiana.
83	306	The use of steered ileo-cecal valve cannulated pigs in nutrition research. J. S. Radcliffe [*] , R. S. Pleasant, and E. T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg, VA.
84	307	The rat as a model for the assessment of ileal amino acid digestibility of fishmeal for pigs. L. Gutiérrez [*] , L. García, F. Vázquez, D. Mendoza, R. Ramos, and J. Vega, Centro de Investigacion en Alimentacion y Desarrollo, A. C., Hermosillo, Sonora, México.

- 85 308 Fermentability of selected fibers by dog and cat fecal microflora. U. A. Jamikorn*¹, D. L. Harmon¹, D. J. Davenport², L. B. Deffenbaugh², and K. L. Gross², ¹Dept. of Animal Sciences, University of Kentucky, Lexington, KY, ²Hill's Pet Nutrition, Topeka, KS.

NONRUMINANT NUTRITION 9 POSTERS

Nutritional Effects on Meat Quality/ Composition

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present, 1:00 p.m. - 3:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
86	309	Dietary restrictions and growth performance and carcass traits of pigs selected for lean growth efficiency. L. I. Chiba*, D. L. Kuhlers, L. T. Frobish, S. B. Jungst, E. J. Huff-Lonergan, S. M. Lonergan, and B. L. Anderson, Auburn University, AL.
87	310	Effects of inclusion levels of vitamin and mineral premixes on growth performance, pork stability, and nutrient digestibility in finishing pigs. B. J. Chae ¹ , S. C. Choi* ¹ , W. T. Cho ² , and I. K. Han ² , ¹ Kangwon National University, Chunchon, Korea, ² Seoul National University, Suweon, Korea.
88	311	Broiler meat containing fishy aromatics after sea clam viscera was withdrawn from the diet. J. E. Wohlt*, C. A. Graybush, and P. K. Zajac, Rutgers-The State University of New Jersey, New Brunswick, NJ.
89	312	Effects of feeding cane molasses at two levels of crude protein in finishing diets on growth performance, carcass traits and pork quality. L. R. Loeza*, D. H. Beermann, K. R. Roneker, X. G. Lei, and R. W. Blake, Cornell University, Ithaca, NY.

NONRUMINANT NUTRITION 10

Weaned Pig Nutrition

Chair: Dr. D. D. Koehler, Agri-Nutrition Services, Inc., Shakopee, MN

Thursday, 1:00 p.m. - 4:45 p.m.
Room 107/108

Time	Abs. No.	
1:00	313	Utilization of blood-derived products in pig nutrition. P. Medel* ¹ , D. Torrallardona ² , L. Llaurado ² , and G. G. Mateos ¹ , ¹ Universidad Politécnica de Madrid, Spain, ² IRTA-Mas Bova, Tarragona, Spain.
1:15	314	Perfect Pro [®] as a source of protein for weanling pigs. A. C. Guzik*, L. L. Southern, and T. D. Bidner.
1:30	315	Effects of water soluble globulin on the performance of weanling pigs. B. S. Borg*, J. M. Campbell, L. E. Russell, D. U. Thomson, and E. M. Weaver, American Protein Corporation, Ames, IA.
1:45	316	Use of spray dried plasma in combination with different types of milk proteins in diets for piglets. P. Medel ¹ , F. Baucells ² , J. C. de Blas ¹ , and G. G. Mateos* ¹ , ¹ Universidad Politecnica de Madrid, Spain, ² Pinosos Baucells, Barcelona, Spain.
2:00	317	Effects of increasing pellet conditioning temperature of diets containing spray-dried animal plasma on weanling pig performance. M. U. Steidinger* ¹ , R. D. Goodband ¹ , M. D. Tokach ¹ , J. L. Nelssen ¹ , L. J. McKinney ¹ , J. C. Woodworth ¹ , B. S. Borg ² , and J. M. Campbell ² , ¹ Kansas State University, ² American Protein Corp. Ames, IA.
2:15	318	Effects of weaning diet on pig performance and intestinal morphology. K. J. Touchette* ¹ , R. L. Matteri ² , C. J. Dyer ² , J. A. Carroll ² , and G. L. Allee ¹ , ¹ University of Missouri-Columbia, ² Animal Physiology Research Unit, ARS, USDA.

- 2:30 319 Effect of source and level of dietary lysine on growth performance of 11 to 22 kg pigs. E. L. Hansen*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, J. C. Woodworth, P. R. O'Quinn, M. De La Llata, and M. U. Steidinger, Kansas State University.
- 2:45 320 Effects of free fatty acids in choice white grease on growth performance of nursery pigs. J. M. DeRouchey*, J. D. Hancock, C. A. Maloney, H. Cao, D. J. Lee, J. S. Park, D. W. Dean, and R. H. Hines, Kansas State University, Manhattan, KS.
- 3:00 BREAK
- 3:15 321 Influence of different vegetable oils on the exocrine pancreatic secretion in piglets. S. Jakob*¹, R. Zabielski², S. G. Pierzynowski^{3,5}, M. Sorhede Winzell⁴, C. Rippe⁴, L. Evilevitch³, M. Kuria³, and R. Mosenthin¹, ¹Inst. Anim. Nutr., Hohenheim Univ., Germany, ²Dept. Anim. Physiol., Warsaw Agricultural Univ., Poland, ³Dept. Anim. Physiol., Lund Univ., Sweden, ⁴Dept. Cell and Molecular Biol., Lund University, Sweden, ⁵R&D Gramineer Int. AB, Lund, Sweden.
- 3:30 322 Effects of rancidity in choice white grease on growth performance in nursery pigs. J. M. DeRouchey*, J. D. Hancock, C. A. Maloney, J. S. Park, D. J. Lee, H. Cao, D. W. Dean, and R. H. Hines, Kansas State University, Manhattan, KS.
- 3:45 323 Barley processing in poultry and piglet diets: A comparative study. M. García*¹, P. Medel¹, R. Lázaro¹, C. Pineiro², and G. G. Mateos¹, ¹Universidad Politecnica de Madrid, Spain, ²Proinserga S.A., Spain.
- 4:00 324 Effects of Hemicell[®] addition to nursery diets on growth performance of weanling pigs. L. A. Pettey*, S. D. Carter, B. W. Senne, and J. A. Shriver, Oklahoma State University, Stillwater.
- 4:15 325 Supplemental NaCl or KCl added to weanling pig diets containing naturally high Na and Cl contents. D. C. Mahan*, S. D. Carter, G. M. Hill, and J. L. Nelssen, NCR-42 Committee on Swine Nutrition.
- 4:30 326 Effect of boron supplementation on bone characteristics and plasma mineral concentrations in young pigs. T. A. Armstrong*, J. W. Spears, and L. F. Stikeleather, North Carolina State University, Raleigh, NC.

PASTURES & FORAGES 4 SYMPOSIUM

Point-Counter-Point What is the Appropriate Experimental Unit in Grazing Research?

Chair: Dr. J.G.P. Bowman, Montana State
University, Bozeman

Thursday, 1:00 p.m. - 3:00 p.m.
Room 145/146

Time	Abs. No.	
1:00	15	A liberal interpretation of the term experimental unit. C. P. Bagley*, Mississippi State University, Starkville.
1:45	16	A conservative definition of the term experimental unit. D. S. Fisher*, USDA-ARS, Watkinsville, GA.
2:30		Questions and Answers

PASTURES & FORAGES 5 SYMPOSIUM

Round Table Discussion on Future Careers
Chair: Dr. K. A. Johnson, Washington State
University, Pullman

Thursday, 3:00 p.m. - 5:00 p.m.
Room 145/146

TBA

PHARMACOLOGY AND TOXICOLOGY I POSTERS

Chair: Dr. P. R. Cheeke,
Oregon State University, Corvallis

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present, 3:00 p.m. - 5:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
90	393	Intravenous L-carnitine administration reduces hyperammonemia in Suffolk ewes experiencing urea toxicosis. M. M. Kaye* ¹ , J. M. Fernandez ¹ , L. D. Bunting ¹ , D. L. Thompson, Jr. ¹ , T. W. White ¹ , R. L. Walker ¹ , G. D. Harding ¹ , J. A. Barrett ¹ , and K. Q. Owen ² , ¹ LSU Agricultural Center, Baton Rouge, LA, ² Lonza, Inc., Fair Lawn, NJ.
91	394	Effects of locoweed on reproductive function in cattle. K. E. Panter* and L. F. James, USDA-ARs-Poisonous Plant Research Laboratory, Logan, Utah, USA.
92	395	Serum swainsonine and selected serum constituent levels in sheep during the first twenty two hours after initial locoweed consumption. M. L. Vogt*, J. R. Strickland, C. R. Krehbiel, J. B. Taylor, A. K. Clayschulte, K. M. Whittet, K. W. Creighton, and M. A. Siepel, New Mexico State University, Las Cruces, NM USA.
93	396	Effect of dietary supplements of dried red blood cell protein on growth and brain regional neurochemistry of starter pigs fed grains contaminated with deoxynivalenol and fusaric acid. T. K. Smith* ¹ and E. J. MacDonald ² , ¹ Department of Animal and Poultry Science, University of Guelph, Guelph, Ontario, Canada, N1G 2W1., ² Department of Pharmacology and Toxicology, University of Kuopio, Kuopio, Finland.
94	397	Effect of ergotamine on pancreatic hormones, metabolites, and leptin in follicular phase heifers. R. Browning, Jr.* ¹ , S. J. Gissendanner, and T. Wakefield, Jr., Tennessee State University, Nashville.
95	398	Lipopolysaccharide Challenge to Steers Grazing Endophyte-Infected Tall Fescue. N. M. Filipov* ^{1,2} , F. N. Thompson ² , T. H. Elsasser ³ , J. A. Stuedemann ⁴ , S. Kahl ³ , R. P. Sharma ² , C. R. Young ⁵ , and C. K. Smith ² , ¹ Wadsworth Center, New York State Dept. of Health, Albany, NY, ² The University of Georgia, Athens, GA, ³ USDA/ARS, Beltsville, MD, ⁴ USDA/ARS, Watkinsville, GA, ⁵ USDA/ARS, College Station, TX.

PHYSIOLOGY AND ENDOCRINOLOGY 6

Regulation of Hormone Secretion and Action - II

Chair: Dr. J. L. Sartin, Auburn University, AL

Thursday, 1:00 p.m. - 3:30 p.m.
Room 206/207

Time	Abs. No.	
1:00	438	Administration of ACTH to pregnant sows alters their pigs' hypothalamic- pituitary-adrenal (HPA) axis. M. F. Hausmann ^{*1} , J. A. Carroll ² , G. D. Weesner ³ , and D. C. Lay, Jr. ¹ , ¹ Iowa State University, Ames, IA, ² USDA, ARS, Columbia, MO, ³ Purdue University, West Lafayette, IN.
1:15	439	Effect of breed on endocrine responses to ergotamine in steers. R. Browning, Jr.* ¹ , S. J. Gissendanner, D. Jenkins, D. F. Edwards, C. A. Hightower, and T. Wakefield, Jr., Tennessee State University, Nashville.
1:30	440	Stimulation of α_2 -adrenergic receptors reduces activity of somatostatin neurons and increases concentrations of growth hormone in serum. C. D. McMahon [*] , L. T. Chapin, K. J. Lookingland, R. P. Radcliff, and H. A. Tucker, Michigan State University, East Lansing, MI.
1:45	441	NeuropeptideY: A possible link between LH and GH secretion in the gilt. C. R. Barb ^{*1} , R. R. Kraeling ¹ , G. B. Rampacek ² , and J. B. Barrett ¹ , ¹ USDA, Agricultural Research Service, SAA; Athens, GA 30604 USA, ² University of Georgia, Athens, GA 30602.
2:00	442	Dopamine antagonist affects growth hormone secretion during the follicular and metestrus phases of the estrous cycle in Holstein cows. A. Ahmadzadeh [*] , R. M. Akers, and M. A. Barnes, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
2:15	443	Feeding suppresses thyrotropin-releasing hormone (TRH) -induced secretion of growth hormone and reduces activity of TRH neurons. R. P. Radcliff [*] , L. T. Chapin, K. J. Lookingland, C. D. McMahon, and H. A. Tucker.
2:30	444	Use of Growth Hormone (GH) Response to Growth Hormone-Releasing Hormone (GHRH) to Determine Growth Potential in Beef Heifers. T. L. Auchtung [*] , E. E. Connor, S. M. Barao, L. W. Douglass, and G. E. Dahl, University of Maryland, College Park, MD.
2:45	445	Effects of provision of the anti-inflammatory ketoprofen alone or with local anesthesia during castration of bull calves on cortisol, in vitro interferon- γ production, and growth. M. A. Crowe ^{*1} and B. Earley ² , ¹ University College Dublin, Ireland, ² Teagasc, Grange Research Centre, Co. Meath, Ireland.
3:00		Round Robin Discussion

PHYSIOLOGY AND ENDOCRINOLOGY 7 POSTERS

Ovulation and Fertilization

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present, 3:00 p.m. - 5:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
96	446	Seasonal effects on estrous behavior and time of ovulation in beef cows. F. J. White [*] , M. L. Looper, and R. P. Wettemann.
97	447	Effects of estradiol benzoate (EB) on follicular turnover in lactating crossbred <i>Bos indicus</i> cows treated with an intravaginal progesterone insert (INSERT). J. K. Fullenwider [*] , J. R. Kempfer, C. L. Barnett, and J. V. Yelich, University of Florida, Gainesville.

- 98 448 Effects of passive immunization against inhibin on superovulation in cattle. BM Pannagl* and W Hansel, Pennington Biomedical Research Center.
- 99 449 Exogenous oxytocin and cervical manipulation do not affect ovum fertilization rates in sheep. E. L. Hensley*¹, E. A. Cowardin¹, M. C. Wulster-Radcliffe¹, R. C. Seals¹, J. N. Stellflug², V. LaVoie², and G. S. Lewis¹, ¹Virginia Polytechnic Institute and State University, ²USDA, ARS, USSES.
- 100 450 Effectiveness of slow release steroids on maintenance of serum progesterone concentrations and induction of puberty in heifers. C. S. Whisnant*¹, North Carolina State University, Raleigh, NC.
- 101 451 Effects of short-term calf removal at two phases of synchronization protocol on ovulation rates in Nellore cows. J. L. M. Vasconcelos*¹, E. R. Vilela¹, R. A. Figueiredo¹, A. M. M. Alessandri¹, R. L.A. Cerri¹, F. S. Wechsler¹, and C. M. Barros², ¹FMVZ - UNESP, Botucatu, Brazil, ²IB - Botucatu, SP, Brazil.

PHYSIOLOGY AND ENDOCRINOLOGY 8 POSTERS

Synchronization, Insemination, and Placental Physiology - II

Chair: Dr. D. C. Kenison, Ivy Laboratories, Inc., Overland Park, KS

Thursday, 8:00 a.m. - 5:00 p.m.
Authors present, 1:00 p.m. - 3:00 p.m.
Exhibit Hall E

Board No.	Abs. No.	
102	452	Synchronizing estrus in replacement beef heifers using GnRH, melengestrol acetate, and PGF _{2α} . J. S. Stevenson* ¹ , G. C. Lamb ² , J. A. Cartmill ¹ , B. A. Hensley ¹ , S. Z. El-Zarkouny ¹ , and T. J. Marple ¹ , ¹ Kansas State University, Manhattan, ² University of Minnesota, Grand Rapids.
103	453	Estrous synchronization in beef heifers using MGA and PGF _{2α} , or GnRH and PGF _{2α} . J. M. Cassady* ¹ , J. E. Wheaton ¹ , C. M. Zehnder ¹ , A. DiCostanzo ¹ , G. C. Lamb ² , and B. Seguin ¹ , ¹ University of Minnesota, St. Paul, ² North Central Experiment Station, Grand Rapids.
104	454	Effect of GnRH/PG combinations in synchronizing estrus in lactating crossbred cows of <i>Bos indicus</i> breeding. J. W. Lemaster*, C. L. Barnett, J. R. Kempfer, J. K. Fullenwider, M. D. Fanning, J. F. Selph, and J. V. Yelich, University of Florida, Gainesville.
105	455	Timed artificial insemination in dairy heifers fed melengestrol acetate. S. M. Pancarci* ¹ , J. Vonk ² , F. Moreira ¹ , and W. W. Thatcher ¹ , ¹ University of Florida, ² Wageningen Agricultural University.
106	456	Extending prostaglandin F _{22α} administration from 17 to 19 d in a melengestrol acetate-prostaglandin F _{22α} estrus- synchronization system for beef heifers. G. C. Lamb* ¹ , D. W. Nix ² , J. S. Stevenson ² , and L. R. Corah ³ , ¹ University of Minnesota, Grand Rapids, ² Kansas State University, Manhattan, ³ Certified Angus Beef, Manhattan, KS.
107	457	Improved synchrony of estrus with addition of GnRH to a melengestrol acetate (MGA; 14 d) - prostaglandin F _{2α} (PG; 19 d) estrous synchronization treatment in beef heifers. S. L. Wood*, M. C. Lucy, M. F. Smith, and D. J. Patterson, University of Missouri, Columbia, MO.
108	458	Follicular dynamics, estrus and pregnancy after fixed time insemination in beef cows treated with intravaginal progesterone inserts and estradiol benzoate. P. J. Bridges*, P. E. Lewis, and E. K. Inskeep, West Virginia University, Morgantown, WV.
109	459	Ovulation responses, progesterone concentrations, and pregnancy rates in dairy cows after GnRH treatment at 7, 14, or 7 and 14 days after timed insemination. J. D. Ambrose* ¹ , J. P. Kastelic ^{2a} , Y. Kappe ³ , J. Small ^{2b} , H. Mohamed ³ , R. Rajamahendran ³ , and L. Goonewardene ¹ , ¹ Alberta Agriculture, Edmonton, ² Agriculture and Agri-Food Canada, ^a Lethbridge, ^b Brandon, ³ University of BC, Vancouver, Canada.

PRODUCTION AND MANAGEMENT 4

Beef Cattle: Cow-Calf

Chair: Dr. J. C. Whittier,
Colorado State University, Fort Collins

Thursday, 1:00 p.m. - 3:15 p.m.
Room 201/202

Time	Abs. No.	
1:00	494	Development of a generalized selection index for profit in Angus sires. W. O. Herring ^{*1} , V. Pierce ¹ , M. D. MacNeil ² , and L. L. Benyshek ³ , ¹ University of Missouri, ² USDA Agricultural Research Service, ³ University of Georgia.
1:15	495	Effects of trainer cows on the health, performance and behavior of newly weaned calves. D. J. Gibb ^{*1} , K. S. SchwartzkopfGenswein ² , J. M. Stookey ³ , T. A. McAllister ¹ , and R. D. Wiedmeier ⁴ , ¹ Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB, ² Alberta Agriculture, Food and Rural Development, Lethbridge, AB, ³ University of Saskatchewan, Saskatoon, SK, ⁴ Utah State University, Logan, UT.
1:30	496	Effects of feeding supplemental fat during gestation on reproduction in primiparous beef heifers. R. A. Bellows ^{*1} , D. D. Simms ² , E. E. Grings ¹ , D. A. Phelps ¹ , S. E. Bellows ¹ , N. R. Bellows ¹ , R. E. Short ¹ , R. N. Funston ¹ , and T. W. Geary ¹ , ¹ USDA-ARS and Montana Agric. Expt. Sta., Miles City, MT, ² Consolidated Nutrition, Omaha, NE.
1:45	497	Predicting Calving Ease Peri-Partum. P. R. Tozer ^{*1} , D. L. Scollard ² , T. L. Marsh ³ , and T. J. Marsh ⁴ , ¹ The Pennsylvania State University, ² Absarokee, Montana, ³ Kansas State University, ⁴ Pharmco Animal Hospital.
2:00		BREAK
2:15	498	Fixed-time insemination in beef heifers after synchronization of estrus with melengestrol acetate and prostaglandin F ₂ α. D. J. Patterson [*] , F. N. Kojima, and M. F. Smith, University of Missouri, Columbia, MO.
2:30	499	Use of hCG or GnRH with the Select Synch Protocol in beef cows. R. R. Salverson [*] , G. E. Seidel, Jr., and T. W. Geary, Colorado State University, Fort Collins, Colorado.
2:45	500	Comparison of three synchronization protocols designed to control estrus and ovulation for timed AI in southern beef herds. S. W. Williams ^{*1} , R. L. Stanko ^{1,2} , M. Amstalden ¹ , C. D. McKown ³ , and G. L. Williams ¹ , ¹ Texas A&M University Agricultural Research Station, Beeville, ² Texas A&M University-Kingsville, Kingsville, ³ Texas Agricultural Experiment Station-La Copita Research Area, Alice.
3:00	501	The effects of reproductive management systems on luteinizing hormone, estradiol 17-β, cortisol and β-endorphin in mares. C. M. Brady ^{*1} , C. D. Corn ² , J. E. Shelle ² , A. J. Zanella ² , J. V. Marteniuk ² , P. Hitzler ² , and R. L. Fogwell ² , ¹ Purdue University, W.Lafayette, IN, ² Michigan State University, E.Lansing, MI

PRODUCTION AND MANAGEMENT 5

Sheep Production and Management

Chair: Dr. B. L. Moore,
North Dakota State University, Fargo

Thursday, 3:00 p.m. - 4:45 p.m.
Room 212

Time	Abs. No.	
3:00	502	Parasite resistance and physiological responses of hair and wool X hair lambs in a tropical environment. R. W. Godfrey [*] , H. A. Buroker, and B. M. Pannagl, Agricultural Experiment Station, University of the Virgin Islands, St. Croix.

- 3:15 503 Effects of supplementing ewes with D- α -Tocopherol on lamb serum and ewe colostrum immunoglobulin concentration, and preweaning lamb growth. Schultz C. L.* , Ross T. T., Salisbury M. W., and Melton L., New Mexico State University, Las Cruces, NM USA.
- 3:30 504 Weaning and rearing systems for American dairy sheep. B. C. McKusick*¹, Y. M. Berger¹, and D. L. Thomas¹, ¹University of Wisconsin-Madison.
- 3:45 505 Improving ewe lactational performance with administration of recombinant bovine somatotropin. D. K. Aaron*, D. G. Ely, W. P. Deweese, and E. Fink, University of Kentucky/Lexington, Kentucky/USA.
- 4:00 506 Factors affecting sale price of performance tested Dorper pasture rams: A South African experience. P. J. Fourie*¹, F. W. C. Naser², and C. van der Westhuizen¹, ¹Technikon Free State, Bloemfontein, South Africa, ²University of the Orange Free State, Bloemfontein, South Africa.
- 4:15 507 Growth and carcass traits of St. Croix White (SCW) and Barbados Blackbelly x SCW (BBSC) lambs in the tropics. R. W. Godfrey*, H. A. Buroker, and B. M. Pannagl, Agricultural Experiment Station, University of the Virgin Islands, St. Croix.
- 4:30 508 Carcass characteristics and composition for Spanish and Boer crossbred goat kids. M. R. Cameron¹, T. Sahlu*¹, G. Detweiller¹, S. Hart¹, and S. Coleman², ¹E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ²USDA/ARS Grazinglands Research Lab, El Reno, OK.

RABBIT COMMITTEE SYMPOSIUM

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Consolidated Nutrition, Farmland Industries, Inc.,
and Land O'Lakes, Inc.

A New Look at Rabbits in the World

Chair: Dr. H. A. Swartz, Lincoln University,
Jefferson City, MO

Thursday, 1:00 p.m. - 5:00 p.m.
Room 210

Time	
1:00	Procedures for International Comparison of Rabbit Production - James McNitt, Southern University, Baton Rouge, LA.
1:45	Genetic trends for growth traits in Botucatu rabbits in Brazil - Ana Moura, UNESP, Botucatu Brazil.
2:30	Unique opportunities for meat rabbit projects in developing countries - Steven Lukefahr, Texas A&M University, Kingsville.
3:15	Results from the American Rabbit Breeders Association survey on rabbit marketing - Patricia Lamar, Washington.
4:00	Panel Discussion - Impact of Rabbit Production in the World James McNitt Ana Moura Steven Lukefahr Patricia Lamar
4:45	Closing Remarks - Helen A. Swartz

RUMINANT NUTRITION 8

Nutritional Management of Feedlot Cattle

Chair: Dr. M. L. Bauer,
North Dakota State University, Fargo

Thursday, 1:30 p.m. - 4:30 p.m.
Room White River Ballroom

Time	Abs. No.	
1:30	605	Effect of high oil corn on digestibility and energy content of finishing diets fed to beef cattle. J. G. Andrae* ¹ , C. W. Hunt ¹ , S. K. Duckett ¹ , G. T. Pritchard ¹ , F. N. Owens ² , and S. Soderlund ² , ¹ University of Idaho, Moscow, ² Optimum Quality Grains, Des Moines IA.
1:45	606	Digestibility and net energy of feedlot diets containing steam-flaked high oil corn compared with steam-flaked typical corn plus added tallow. M. J. Jarosz* ¹ , D. R. Brown ² , D. E. Johnson ¹ , and S. D. Soderlund ³ , ¹ Colorado State University, Ft. Collins, CO, ² Agland/Farmland, Eaton, CO, ³ Optimum Quality Grains, Des Moines, IA.
2:00	607	Effects of grain source, grain processing, and protein level on finishing cattle performance. R. D. Hunter*, J. S. Drouillard, E. C. Titgemeyer, K. C. Behnke, T. A. Nutsch, and G. L. Kuhl.
2:15	608	Effects of corn silage hybrid and dietary proportion on yearling steer performance. A. DiCostanzo* ¹ , C. M. Zehnder ¹ , J. M. Cassady ¹ , H. Chester-Jones ² , D. Ziegler ² , and R. Greenwald ² , ¹ University of Minnesota, St. Paul, MN, ² Southern Experiment Station, Waseca, MN.
2:30	609	Degree of winter restriction on compensatory growth and subsequent slaughter breakevens of beef steers. D. J. Jordan*, T. J. Klopfenstein, C. T. Milton, and R. J. Cooper, University of Nebraska, Lincoln, NE.
2:45		BREAK
3:00	610	Effect of weaning status and implant regimen on performance, carcass characteristics and composition of growth in steers. J. P. Schoonmaker*, F. L. Fluharty, T. B. Turner, S. J. Moeller, D. M. Wulf, J. E. Rossi, and S. C. Loerch.
3:15	611	Accuracy of 1996 beef NRC computer program in prediction of cattle performance in western Canada. H. C. Block* and J. J. McKinnon, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.
3:30	612	Evaluation of the 1996 NRC Beef Model for predicting growth of backgrounding cattle in western Canada. T. A. H. Marx* ^{1,2} , J. J. McKinnon ¹ , D. A. Christensen ¹ , and W. Gwayumba ^{1,3} , ¹ University of Saskatchewan, Saskatoon, SK, ² Alberta Agriculture, Food and Rural Development, Camrose, AB, ³ Agriculture and Agric-Food Canada Research Centre, Lethbridge, AB.
3:45	613	Effects of ionophore type and level on performance by newly received beef calves and effects of ionophore type and management program on performance by finishing beef steers. G. C. Duff*, M. L. Galyean, and K. J. Malcolm-Callis, Clayton Livestock Research Center, New Mexico State University, Clayton.
4:00	614	Effect of feeding <i>Lactobacillus acidophilus</i> BG2FO4 (MicroCell) and <i>Propionibacterium freudenreichii</i> P-63 (MicroCell PB) on growth performance of finishing heifers. G. L. Huck* ¹ , K. K. Kreikemeier ² , and G. A. Ducharme ² , ¹ Kansas State University, Garden City, KS, ² Biotol, Inc., Eden Prairie, MN.
4:15	615	Rumen protected choline and free betaine effects in finishing feedlot steers. S. R. Goodall* ¹ and J. R. Brethour ² , ¹ Gladwin A. Read Company, ² Kansas State University.

SHEEP COMMITTEE SYMPOSIUM

Changing the Industry

Chair: Dr. G. D. Snowder,
USDA, ARS, Dubois, ID

Thursday, 1:00 p.m. - 5:00 p.m.
Room 211

Time	Abs. No.	
1:00		Potential Germplasms to Improve US Sheep Production
1:00	36	Potential for hair sheep in the U.S. D. Notter*.
1:45	37	East Friesian germplasm: effect on milk production, lamb growth, and lamb survival. D. L. Thomas*, Y. M. Berger, and B. C. McKusick, University of Wisconsin-Madison.
2:30		Discussion Industry Challenges and Opportunities
2:45		The Present Market Situation. Ron Cole
3:30		Potentials for New Lamb Products. Ray A. Field, University of Wyoming, Laramie.
4:15		Open Discussion

BREEDING AND GENETICS 6

Genetic Evaluation/Selection

Chair: Dr. R. M. Bourdon,
Colorado State University, Fort Collins

Friday, 8:00 a.m. - 11:30 a.m.
Room 147/148

Time	Abs. No.	
8:00	102	Effect of sire by year interaction on estimates of genetic parameters from a selection experiment with Hereford cattle. L. D. Van Vleck* ¹ , J. Dodenhoff ² , and R. M. Koch ² , ¹ USDA-ARS, USMARC, Lincoln, NE, ² University of Nebraska, Lincoln, NE.
8:15	103	Effects of sporidesmin on mouse lines divergently selected for response to toxins in endophyte- infected fescue. W. D. Hohenboken* ¹ , J. L. Robertson ¹ , D. J. Blodgett ¹ , C. A. Morris ² , and N. R. Towers ² , ¹ Virginia Polytechnic Institute and State University, ² AgResearch, Ruakura Animal Research Centre, Hamilton, New Zealand.
8:30	104	Breeding objectives for niche markets and production efficiency. A. M. Edwards* and J. W. Wilton, University of Guelph.
8:45	105	Selection of bulls for cryopreservation of semen for the conservation of Kerry Cattle. R. K. Splan* ¹ and E. P. Cunningham ² , ¹ University of Nebraska, Lincoln, ² Trinity College, Dublin 2, Ireland.
9:00	106	Effects of including rear leg defects on finishing trait EBV's of Yorkshire gilts. J. J. Chewning* and C. N. Fitzgerald, Pork Group, Tyson Foods Inc, Rogers AR.
9:15	107	Carcass expected progeny differences using real-time ultrasound measures from yearling Angus bulls. D. E. Wilson*, G. H. Rouse, C. L. Hays, V. R. Amin, and A. Hassen, Iowa State University, Ames, IA/USA.
9:30	108	Evaluation of maternal performance for crossbred cows sired by Tuli, Senepol, Brahman, Angus or Hereford sires. J. F. Baker*, R. C. Vann, and L. Varnadoe, University of Georgia Coastal Plain Station, Tifton, GA, USA.
9:45	109	Responses in ovulation rate and litter size to two-stage selection in swine. A. Ruíz-Flores* ¹ , J. P. Cassady ¹ , and R. K. Johnson ¹ , ¹ University of Nebraska, Lincoln.
10:00		BREAK

- 10:15 110 Effects of selection for below average birth weight and high yearling weight or for high yearling weight on characteristics of Line 1 Hereford females. M. D. MacNeil* and J. J. Urick, USDA Agricultural Research Service, Miles City, MT.
- 10:30 111 Evaluation of Simmental sires for daughters' length of productive life. B. E. Cunningham*¹, R. L. Quaas², and E. J. Pollak², ¹American Simmental Association, Bozeman, MT, ²Cornell University, Ithaca, NY.
- 10:45 112 Comparison of threshold and linear models for calving difficulty in beef cattle. R. Ramirez-Valverde*, I. Misztal, and J. K. Bertrand, University of Georgia, Athens, Georgia.
- 11:00 113 Analysis of herd life in a four-breed diallel in beef cattle. V. E. Vega-Murillo*¹, S. D. Kachman¹, L. V. Cundiff², and L. D. Van Vleck³, ¹University of Nebraska, Lincoln, ^{2,3}USDA, ARS, USMARC, ²Clay Center, ³Lincoln, NE.
- 11:15 114 Iterative bootstrap bias correction of (co)variance components from a bivariate linear-threshold sire model. P. J. Gates*¹, K. Johansson¹, C. Moreno², and J. Jensen³, ¹Swedish University of Agricultural Sciences, Uppsala, Sweden, ²Universidad de Zaragoza, Zaragoza, Spain, ³Danish Institute of Animal Science, Foulum, Denmark.

CONTEMPORARY ISSUES 3 SYMPOSIUM

FAIR 2002: An Update on Research Priorities

Chair: Dr. D. S. Buchanan, Oklahoma State University, Stillwater

Friday, 9:00 a.m. - 11:00 a.m.
Room 138/139

Time

- 9:00 Introduction. David Buchanan, Oklahoma State University, Stillwater.
- 9:05 The FAIR 2002 Program and Building a Consensus. James Males, Oregon State University, Corvallis.
- 9:35 Changes from FAIR 95 to FAIR 2002 and the Perspective of Land Grant University Administrations. E. D. Aberle, University of Wisconsin, Madison.
- 10:05 Working with Industry and Government. Robert Zimbelman. Emeritus Executive VP, Scientific Liaison, FASS.
- 10:35 Question & Answer

FASS ANIMAL CARE AND USE COMMITTEE SYMPOSIUM

Sponsored by: ASAS, FASS
and the Animal Industry Foundation

Navigating Animal Care and Use with the Ag Guide

Friday, 8:00 a.m. - 11:00 a.m.
Room 143/144

Moderator: Dr. J. J. McGlone, Texas Tech University, Lubbock

Time

- 8:00 Institutional and Individual responsibilities to animals and animal workers. Steve Ford (Dr. Ford is an IACUC chair)
- 8:30 IACUC components, function and training. Joy Mench. (Dr. Mench is Chair of Ag Guide Writing committee.)
- 9:00 Occupational Health and Safety - zoonoses, allergies and other human health concerns. Ralph Dell (Dr. Dell is an MD, Director of the National Academy of Sciences Institute of Laboratory Animal Resources, and an expert on Occupational Health and Safety for animal users.)
- 9:30 Break-out sessions with IACUC chairs as group leaders. Sample animal protocols provided for discussion with the Ag Guide as a resource document. A group of IACUC members and chairs will be identified to serve as group leaders
- 10:15 Reports of break-out groups and panel discussion of findings

GROWTH AND DEVELOPMENT 5 POSTERS

Molecular, Cellular and Whole Animal Studies Relating to Animal Growth

Friday, 8:00 a.m. - 12:00 Noon

Authors present:

Even numbered boards: 8:00 a.m. - 10:00 a.m.

Odd numbered boards: 9:30 a.m. - 11:30 a.m.

Exhibit Hall E

Board No.	Abs. No.	
1	171	DNA binding site requirements for Lhx3-mediated gene activation. J. L. Bridwell*, A. L. McCutchan, J. R. Price, K. W. Sloop, and S. J. Rhodes, Indiana University-Purdue University at Indianapolis, Indianapolis, IN.
2	172	Cross-species conservation of protein structure and function of the LIM homeodomain transcription factor Lhx3. K. W. Sloop*, J. L. Bridwell, B. C. Meier, G. E. Parker, and S. J. Rhodes, Indiana University-Purdue University at Indianapolis, Indianapolis, IN.
3	173	Mono-ADP-ribosylation in skeletal muscle cell cultures and modification of intermediate filaments <i>in vitro</i> . T. W. Huiatt*, W. Tong, J. Yuan, D. J. Graves, and R. M. Robson, Iowa State University, Ames.
4	174	Changes in serum and muscle myostatin proteins in response to weight restriction and compensatory growth. S. Q. Ji, R. L. Godat*, G. M. Willis, G. R. Frank, S. G. Cornelius, and M. E. Spurlock, Purina Mills, Inc., Gray Summit, MO.
5	175	Regulation of PPAR but not leptin gene expression by dietary fatty acid supplementation. M. E. Spurlock* ¹ , K. L. Houseknecht ² , C. P. Portocarrero ² , S. G. Cornelius ¹ , and G. M. Willis ¹ , ¹ Purina Mills, Inc., ² Purdue University.
6	176	Analysis of leptin and leptin receptor mRNA expression in the sheep placenta. R. A. Ehrhardt*, A. W. Bell, and Y. R. Boisclair, Cornell University, Ithaca, NY.
7	177	Glucocorticoid receptor (GR) mRNA expression in porcine fetal liver and placenta. H. G. Klemcke*, J. L. Vallet, and R. K. Christenson, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, Nebraska.
8	178	Pharmacokinetics of pig beta-adrenergic receptors. T. Naile*, H. Cao, W. Liang, and S. E. Mills, Purdue University, W.Lafayette, IN.
9	179	IGF-I expression levels in striated and cardiac muscle of IGF-I transgenic swine. K. Maruyama*, V. G. Pursel, K. D. Wells, and A. D. Mitchell, USDA, ARS, Beltsville, Maryland.
10	180	Intramuscular injection of DNA encoding IGF-I increases IGF binding protein-2 expression in pigs. R. S. R. Everett, D. E. Gerrard, and A. L. Grant*, Purdue University, West Lafayette, IN.
11	181	Nutritional regulation of the genes encoding the sheep acid labile subunit and other components of the circulating IGF system in sheep. R. P. Rhoads*, A. W. Bell, P. L. Greenwood, and Y. R. Boisclair, Cornell University, Ithaca, NY.
12	182	Somatotropin inhibits sensitivity and responsiveness to the antilipolytic effect of insulin in adipose tissue from growing, but not neonatal pigs. Y. X. Wang*, S. K. Fried, and P. A. Schoknecht, Rutgers University, New Brunswick, NJ.
13	183	Increased insulin-like growth factor-1 concentrations following injection or implantation of a human growth hormone-releasing factor (GRF) analog in growing pigs. P. Dubreuil* ¹ and P. Brazeau ² , ¹ Faculty of Veterinary Medicine, ² Notre-Dame Hospital, Univ. of Montreal, Montreal, Quebec, Canada.
14	184	The interaction of recombinant bovine somatotropin (rbST) and cottonseeds in the diet on performance, plasma hormone concentration and muscle fatty acids composition in Holstein- Friesian male calves. Z. Holzer* ¹ , Y. Aharoni ¹ , A. Brosh ¹ , A. Orlov ¹ , and D. Sklan ² , ¹ ARO, Institute of Animal Science, Newe Yaar Research Center, Israel, ² Faculty of Agriculture, The Hebrew University, Rehovot, Israel.
15	185	Effect of Posilac® and Revalor®-S alone and in combination on soft tissue composition and rate of soft tissue gain in feedlot steers. T. C. Bramble* ¹ , R. A. Roeder ² , B. C. Peterson ² , M. J. Roeder ² , and G. T. Schelling ² , ¹ Texas Tech University, ² University of Idaho.
16	186	Growth performance and carcass characteristics of feedlot steers fed MGA. W. M. Moseley*, D. M. Meeuwse, J. F. Boucher, K. J. Dame, and J. W. Lauderdale, Pharmacia & Upjohn Animal Health.

- 17 187 Effect of endotoxin (LPS) challenge on thyroid hormone status in cattle: effect of diet and somatotropin (bST) treatment. S. Kahl*¹, T. H. Elsasser¹, T. S. Rumsey¹, and R. Hoffman², ¹USDA, Agricultural Research Service, Beltsville, MD, ²Monsanto Co., St. Louis, MO.
- 18 188 Effect of selection for weight on body composition and carcass characteristics of *Bos indicus* and *Bos taurus*. R. F. Nardon¹, A. A. M. Sampaio², A. G. Razook¹, L. O. Tedeschi*³, L. A. Figueiredo¹, C. Boin⁴, and M. L. P. Lima¹, ¹Instituto de Zootecnia, Nova Odessa, Brazil, ²FCAV-UNESP, Jaboticabal, Brazil, ³Cornell University, Ithaca, NY, ⁴ESALQ-USP, Piracicaba, Brazil.
- 19 189 Adipocyte cellularity in Korean Native Cattle. C. B. Choi*¹, S. K. Hong², H. C. Kim², K. J. Na², and S. H. Lee², ¹Department of Animal Science, Yeungnam University, Gyeongsan, Korea, ²National Livestock Research Institute, Suweon, Korea.
- 20 190 Effect of a nutritionally-directed compensatory growth regimen on growth potential and lactational performance of beef heifers. W. W. Poland*¹, K. A. Ringwall¹, R. D. Danielson², J. W. Schroeder², and C. S. Park², ¹North Dakota State University, Dickinson, ²Fargo, ND.
- 21 191 Effects of increased feed intake in early gestation on sow farrowing performance and offspring carcass characteristics. R. E. Musser*¹, S. S. Dritz¹, M. T. Tokach¹, D. L. Davis¹, R. D. Goodband¹, J. L. Nelssen¹, M. Heintz², and J. Bauman², ¹Kansas State University, Manhattan, ²Global Ventures, Pipestone, MN.
- 22 192 Alterations in *in vivo* whole-body insulin resistance according to physiological state in Karakul ewes. R. M. Slepetic*, R. A. Ehrhardt, S. S. Block, Y. R. Boisclair, and A. W. Bell, Cornell University, Ithaca, NY.
- 23 193 Effect of zinc deficiency on thyroid hormone action in the rat. K. K. Guda*, H. C. Freake, and S. A. Zinn, University of Connecticut, Storrs.

HORSE SYMPOSIUM

Sponsored by: Blood Horse Inc. and Cargill Inc.

Advances in Gene Mapping in Horses

Chair: Dr. P. A. Miller,
Iowa State University, Ames

Friday, 8:00 a.m. - 11:30 a.m.
Room 145/146

Time

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- 8:00 **INVITED:** Recent Advances in Gene Mapping in Horses. Dr. Ernest Bailey, Gluck Equine Research Center, University of Kentucky.
- 8:45 **INVITED:** Application of Genome Mapping to Equine Disorders. Dr. Stephanie Valberg, University of Minnesota.
- 9:30 BREAK
- 9:45 **INVITED:** Molecular Basis of Overo Spotting in Horses. Dr. Ann Bowling, University of California-Davis.
- 10:30 Round-table Discussion

NONRUMINANT NUTRITION 11

Grow-finish Nutrition

Chair: Dr. A. J. Thulin, California Polytechnic State University, San Luis Obispo

Friday, 8:00 a.m. - 10:15 a.m.
Room 206/207

Abs.
Time No.

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- 8:00 327 Food-grade sorghum in diets for finishing pigs. D. W. Dean*, J. D. Hancock, C. A. Maloney, J. M. DeRouchey, D. J. Lee, J. S. Park, H. Cao, A. Natchanok, and R. H. Hines, Kansas State University, Manhattan, KS.
- 8:15 328 Nitrogen metabolism of growing gilts fed standard corn-soybean meal diets or low-protein diets supplemented with crystalline amino acids. J. L. Figueroa*, A. J. Lewis, P. S. Miller, and S. R. Gomez, University of Nebraska, Lincoln, NE.

- 8:30 329 Effect of low protein diets on energy utilization in growing pigs. L. Le Bellego¹, J. van Milgen^{*1}, M. Rademacher², S. Van Cauwenberghe³, and J. Noblet¹, ¹INRA, Saint-Gilles, France, ²Degussa, Hanau, Germany, ³Eurolysine, Paris, France.
- 8:45 330 Effects of increasing lysine:calorie ratio and dietary fat addition on growth performance and carcass characteristics of gilts from 27 to 120 kg. M. De La Llata^{*}, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan, KS.
- 9:00 331 Effects of increasing lysine:calorie ratio and dietary fat addition on growth performance and carcass characteristics of barrows from 34 to 120 kg. M. De La Llata^{*}, S. S. Dritz, M. D. Tokach, R. D. Goodband, and J. L. Nelssen, Kansas State University, Manhattan, KS.
- 9:15 332 Effects of increasing neutral detergent fiber (NDF) on the performance and carcass characteristics of growing-finishing swine. J. D. F. Gomes^{*1}, P. J. A. Sobral¹, R. S. Fukushima¹, C. G. Lima¹, A. C. A. Fagundes², L. W. O. Souza², S. M. Putrino¹, C. E. Utyama¹, C. Grossklaus¹, and L. L. Oetting¹, ¹Faculdade de Zootecnia e Engenharia de Alimentos da Universidade de Sao Paulo, Brazil, ²Faculdade de Medicina Veterinária e Zootecnia da Universidade de Sao Paulo, Brazil.
- 9:30 333 The effects of Hemicell[®] on digestibilities of minerals, energy, and amino acids in pigs fitted with steered ileocecal valve cannulas and fed a low and high protein corn-soybean meal diet. J. S. Radcliffe, B. C. Robbins^{*}, J. P. Rice, R. S. Pleasant, and E. T. Kornegay, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- 9:45 334 Circadian fluctuation in heat production and physical activity in group-housed pigs influenced by fermentable carbohydrates. J. W. Schrama^{*1} and G. C. M. Bakker², ¹Animal Health and Reproduction Group, Wageningen Agricultural University, ²TNO Nutrition and Food Research Inst., Dep. of Anim Nutr. and Physiol., Wageningen, The Netherlands.
- 10:00 335 Postprandial blood pH and acid base balance in pigs as affected by dietary cation-anion difference. Y. Dersjant-Li¹, M. Verstegen^{*1}, A. Jansman², J. Verreth¹, J. Schrama¹, and H. Schulze³, ¹Wageningen Institute of Animal Science, Wageningen, The Netherlands, ²TNO- Nutrition and Food Research Institute, Wageningen, The Netherlands, ³Finnfeeds International, Ltd., Marlborough, Wiltshire, United Kingdom.

NONRUMINANT NUTRITION 12

Nutrition-Health Connections

Chair: Dr. T. Wolff, Roche Vitamins, Inc.,
St. Charles, MO

Friday, 9:45 a.m. - 12:00 Noon
Room 208/209

Time	Abs. No.	
9:45	336	Effect of tannin-rich quebracho extract on ileal endogenous amino acid losses in pigs. C. A. Steendam [*] , S. Tamminga, and M. W. A. Verstegen, Wageningen Institute of Animal Sciences (WIAS), Wageningen, The Netherlands.
10:00	337	Effects of sorghum ergot in diets for nursery pigs. D. W. Dean ^{*1} , R. H. Hines ¹ , J. D. Hancock ¹ , G. A. Kennedy ¹ , J. K. Porter ² , C. A. Maloney ¹ , J. M. DeRouchey ¹ , D. J. Lee ¹ , J. S. Park ¹ , and H. Cao ¹ , ¹ Kansas State University, Manhattan, KS, ² R.B. Russell Agricultural Research Center, Athens GA.
10:15	338	The effects of antibiotic regimens on fecal shedding patterns and bacterial resistance in pigs infected with <i>Salmonella typhimurium</i> . P. D. Ebner [*] and A. G. Mathew, University of Tennessee, Knoxville, TN.
10:30	339	Inhibitory/stimulatory effect of organic acids on intestinal microflora. A. Piva ^{*1} , G. Biagi ¹ , E. Meola ¹ , J. B. Luchansky ² , and P. P. Gatta ¹ , ¹ University of Bologna, Italy, ² University of Wisconsin, Madison, WI.
10:45	340	Proximal pH changes in the porcine stomach in response to buffers in the water supply. K. D. Ange [*] , J. H. Eisemann, R. A. Argenzio, and A. T. Blikslager, North Carolina State University, Raleigh, NC.
11:00	341	Potential role of pancreatic enzymes in the formation of pars esophageal ulcers in growing pigs. T. Parr ^{*1} , V. M. Gabert ¹ , D. B. Anderson ² , and M. Ellis ¹ , ¹ University of Illinois, Urbana, IL, ² Eli Lilly, Greenfield, IN.
11:15	342	Effect of Aureomycin [®] chlortetracycline (CTC) in grower and finisher diets vs. Tylan [®] or BMD [®] on performance, health, carcass parameters, meat quality characteristics and probability of having lightweight pigs, in lean genotype, high health swine. G. Gourley ^{*1} , J. Deen ² , and T. Wolff ³ , ¹ Swine Graphics Enterprises, Webster City, IA, ² North Carolina State University, Raleigh, NC, ³ Roche Vitamins Inc., St. Charles, MO.

- 11:30 343 The effect of various factors on the analytical procedures for L- gulonolactone oxidase activity in swine liver. S. Ching*, D. C. Mahan, R. Moreau, and K. Dabrowski, The Ohio State University, Columbus, OH.
- 11:45 344 Comparison of the performance of, hematology and serum chemistry of rabbits fed supplementary antibiotics or copper or yeast or *Leuceana leucocephala*. A. A. Onifade, D. O. Adejumo, E. O. Onipede, R. I. Obiyan, A. O. Abu, O. T. F. Abanikannda, G. M. Babatunde, and A. Abubakar, University of Ibadan, Ibadan, Nigeria.

PHARMACOLOGY AND TOXICOLOGY 2 SYMPOSIUM

Phytochemicals as Nutraceuticals

Chair: Dr. G. S. Smith, New Mexico
State University, Las Cruces

Friday, 8:00 a.m. - 12:00 noon
Room 110

Time	Abs. No.	
8:00		Welcome and Introduction - G. Stanley Smith, New Mexico State University, Las Cruces.
8:05	17	Medicines from plant poisons: biomedical applications. L. F. James* ¹ , W. Gaffield ² , K. E. Panter ¹ , B. L. Stegelmeier ¹ , R. J. Molyneux ² , and D. R. Gardner ¹ , ¹ USDA-ARS-Poisonous Plant Research Laboratory, Logan, Utah, USA, ² USDA-ARS=Western Regional Research Center, Albany, California, USA.
8:40		Benefits from pharmacologic usage of saponins and other phytochemicals in livestock production. Peter R. Cheeke, Oregon State University, Corvallis.
9:15		Options for optimizing gut health and enhancing productivity. David B. Anderson, Elanco/Lilly Research Laboratories, Greenfield, IN.
9:50		BREAK
10:00		Popular fancies about scientific facts and consumer reactions. Christine M. Bruhn, Center for Consumer Research, University of California, Davis.
10:35		Nutraceutical effects of seleno-phytochemicals: Bioconcentration in food products. John W. Finley, USDA-ARS Human Nutrition Laboratory
11:10		Pharmacologic effects of phytochemicals from Ponderosa Pine: Biomedical applications. Stephen P. Ford, Iowa State University, Ames.
11:45		Discussion

PHYSIOLOGY AND ENDOCRINOLOGY 9 POSTERS

Physiological Models

Chair: Dr. R. S. Kensinger, Pennsylvania State University, University Park

Friday, 8:00 a.m. - 12:00 Noon

Authors present:

Even numbered boards: 8:00 a.m. - 10:00 a.m.

Odd numbered boards: 9:30 a.m. - 11:30 a.m.

Exhibit Hall E

Board No.	Abs. No.	Abstract
24	460	A nonlinear model for mammary gland growth in lactating sows. S. W. Kim*, M. Grossman, and R. A. Easter, University of Illinois, Urbana IL.
25	461	Relationship among genotype at the BM1500 microsatellite, performance and carcass traits and plasma leptin concentration at slaughter determined by a multi-species RIA in cattle. A. G. Van Kessel* ¹ , F. C. Buchanan ¹ , H. C. Block ¹ , J. J. McKinnon ¹ , S. M. Schmutz ¹ , and B. Laarveld ¹ , ¹ Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, CANADA.
26	462	Anesthesia of calves for computer tomography (CT) examinations using <i>Xylazine</i> and <i>Tiletamin-Zolazepam</i> preparations. G. Hollo ¹ , L. Bardos ¹ , F. Szabo* ² , I. Repa ³ , J. Pelbat ³ , I. Hollo ³ , J. Tozser ¹ , and E. Szucs ¹ , ¹ Godollo University of Agricultural Science, Godollo, ² Pannon Agricultural University, Keszthely, ³ Pannon Agricultural University, Kaposvar, Hungary.
27	463	Relationship between concentrations of ovarian steroids and insulin-like growth factor-I in the follicular fluids of the female camel (<i>Camelus dromedarius</i>). G. F. Basiouni*, King Faisal University, Al-Hofuf, Saudi Arabia.
28	464	<i>In vitro</i> production of bovine embryos in a single medium system. A. P. Gandhi* and R. L. Krisher, Purdue University, West Lafayette, IN.
29	465	Localization of zona pellucida receptors on porcine sperm by fluorescence microscopy. H. R. Burkin* ¹ and D. J. Miller ¹ .
30	466	Effect of maturation medium, stage of estrous cycle on in vitro maturation, fertilization and cleavage of bovine and buffalo oocytes. Helmy Abdel Rahman* ¹ , Fikry ElKeraby ² , Abdalla Nebar ¹ , and Sherif Shamiyah ² , ¹ Faculty of Agriculture, Shibin El Kom, Egypt, ² Animal Production Research Institute, Ministry of Agriculture, Giza, Egypt.
31	467	Effect of different energy sources on Luteinizing hormone secretion in prepubertal female goats. M. I. Vazquez*, H. Morello, M. Chaves, S. Ferrero, and G. Cufre, Universidad Nacional de Rio Cuarto, Rio Cuarto, Cba., Argentina.
32	468	The effect of flushing hair sheep ewes during the rainy season on St. Croix. R. W. Godfrey*, B. M. Pannagl, and H. A. Buroker, Agricultural Experiment Station, University of the Virgin Islands, St. Croix.
33	469	Somatotropin and folliculogenesis in yearling beef heifers. M. Tripp*, D. Schreiber, X. Yang, S. Zinn, and T. Hoagland.
34	470	Effect of season on behavioral estrus, ovulation and estrous cycle length in Angus, Brahman and Senepol cows in a subtropical environment. J. V. Yelich* ¹ , C. L. Barnett ¹ , J. K. Fullenwider ¹ , J. R. Kempfer ¹ , J. W. Lemaster ¹ , and C. C. Chase, Jr. ² , ¹ University of Florida, Gainesville, ² USDA-ARS, Brooksville, FL.
35	471	Steroid hormone enrichment of brine shrimp (<i>Artemia salina</i>) nauplii. A. R. Barker*, A. V. Spicer, and R. A. Dailey.
36	472	Effects of genetic group and dietary treatment on initial reproductive performance of Targhee ewe lambs. W. Pittroff* ¹ , V. LaVoie ¹ , D. Keisler ² , H. D. Blackburn ¹ , and J. Stellflug ¹ , ¹ U.S. Sheep Experiment Station, Dubois, ² University of Missouri, Dept. of Animal Sciences, Columbia.
37	473	Growth and the initiation of steroidogenesis in porcine follicles after weaning are associated with unique patterns of gene expression for individual components of the ovarian insulin-like growth factor (IGF) system. J. Liu*, A. T. Koenigsfeld, T. C. Cantley, and M. C. Lucy, University of Missouri, Columbia, MO.
38	474	The effect of a GnRH agonist on plasma levels of steroid hormones in neonatal intact male pigs and its relation to the compounds associated with boar taint. P Sinclair* ¹ , J Raeside ¹ , J Britt ² , V Hedgepeth ² , and J Squires ¹ , ¹ University of Guelph, Guelph, Ontario, Canada, ² University of Tennessee, Knoxville, Tennessee, USA.

- 39 475 Relationship between maternal protein loss and ovarian function in lactating first-litter sows. E. J. Clowes*, G. R. Foxcroft, V. E. Baracos, and F. X. Aherne.
- 40 476 Effect of source of Romosinuano germplasm and preweaning creep grazing on postweaning growth and puberty in bulls. C. C. Chase, Jr.*¹, R. E. Larsen², M. J. Williams¹, A. C. Hammond¹, and T. A. Olson², ¹USDA, ARS, Brooksville, FL, ²University of Florida, Gainesville.
- 41 477 Effect of mifepristone (M) and/or PGF_{2α} on 90 day ovariectomized (OVX) pregnant ewes. C Weems*, Y Weems, P Bridges, B LeaMaster, and D Vincent, University of Hawaii, Honolulu, Hawaii.

PRODUCTION AND MANAGEMENT 6: CATTLE POSTERS

Chair: Dr. J. C. Whittier, Colorado State
University, Fort Collins

Friday, 8:00 a.m. - 12:00 Noon
Authors present, 8:00 a.m. - 10:00 a.m.
Exhibit Hall E

Board No.	Abs. No.	
42	509	Effects of estradiol benzoate and trenbolone acetate, alone or combined, on performance by feedlot heifers: a multi-site study. R. M. Cleale*, L. A. Kraft, D. A. Peterson, R. L. Hale, A. N. Sinha, G. K. Jim, T. TerHune, E. G. Johnson, T. L. Mader, and T. H. Montgomery, Fort Dodge Animal Health, Princeton, NJ.
43	510	Whole vs. cracked corn in growing rations for steer calves. I. G. Rush*, B. A. Weichenthal, and B. G. Van Pelt, University of Nebraska, Scottsbluff, Nebraska, USA.
44	511	Effect of monensin plus tylosin or virginiamycin on feedlot performance of calf-fed Holstein steers fed to slaughter. G. J. Vogel*, S. B. Laudert, and C. A. Guthrie, Elanco Animal Health, Indianapolis, IN.
45	512	Effect of monensin level on feedlot performance of calf-fed Holstein steers fed to slaughter. G. J. Vogel*, J. C. Parrott, S. B. Laudert, and D. R. White, Elanco Animal Health, Indianapolis, IN.
46	513	Effect of poultry blood meal on performance and carcass characteristics of feedlot heifers. B. H. Heiser, B. J. May*, D. R. Shelby, G. R. Engdahl, and C. B. Scott, Angelo State University, San Angelo, TX.
47	514	Effects of oral calcium propionate dose level on serum calcium levels of feedlot steers. S. K. Duckett, J. G. Andrae, G. T. Pritchard, S. L. Cuvala, and K. Watson, University of Idaho.
48	515	Effects of growth implants on the performance of stock heifers grazing irrigated rye pasture. Dale A. Blasi* ¹ and Gerry L. Kuhl ¹ , ¹ Kansas State University.
49	516	Effect of poultry by-product meal on performance of growing Angus bulls. M. E. Hall, B. J. May*, D. R. Shelby, G. R. Engdahl, and C. B. Scott, Angelo State University, San Angelo, TX.
50	517	Evaluation of female reproductive traits in progeny of high and low scrotal circumference expected progeny difference Angus sires. D. J. Kemp*, W. O. Herring, and D. J. Patterson, University of Missouri, Columbia, Missouri.
51	518	Estrus detection and pregnancy rates in postpartum beef cows after synchronization with GnRH and prostaglandin F _{22α} . W. A. Greene and M. L. Borger*, The Ohio State University, Wooster.
52	519	Outcome of breeding soundness evaluations performed on 2544 yearling beef bulls. S. P. Kennedy* ¹ , J. C. Spitzer ¹ , H. L. Higdon III ¹ , F. M. Hopkins ² , and W. C. Bridges, Jr. ¹ , ¹ Clemson University, Clemson, SC, ² University of Tennessee, Knoxville, TN.
53	520	Effects of supplementation with undegraded intake protein pre- and postpartum on reproductive performance in primiparous heifers. T. A. Strauch, E. J. Scholljegerdes, D. J. Patterson, M. F. Smith, M. C. Lucy, W. R. Lamberson, and J. E. Williams, University of Missouri-Columbia, Columbia, MO.
54	521	Duration and synchrony of estrus in Angus and Beefmaster cattle given an intravaginal progesterone releasing insert plus estradiol benzoate or GnRH plus PG. W. A. Whitworth, D. R. Shelby*, C. B. Scott, B. J. May, and G. R. Engdahl, Angelo State University, San Angelo, Texas.
55	522	Impact of mastitis on the accuracy of the diphasic lactation curve model. E. H. Shim* and R. D. Shanks, University of Illinois, Urbana.

- 56 523 The use of electrical conductivity as a measure to determine feed mixing uniformity in feedlot rations. D. R. ZoBell*¹, D. Karren², R. Atkins³, D. Engstrom³, and L. Goonewardene³, ¹Utah State University, Logan UT, ²Raymond, AB, ³Alberta Agriculture Food and Rural Development, Edmonton, AB.
- 57 524 Ruminal in situ degradation of alcohol-fermented feedstuff. J. S. Shin*¹, C. G. Yan², B. W. Kim¹, and B. J. Hong¹, ¹Kangwon National University, Korea, ²Yeon-Byeon Agriculture University, China.
- 58 525 Resolution of Two Ultrasonic Units, Using a Multipurpose Tissue Mimicking Phantom as the Standard. F. N. Domatob*¹, J. E. Novakofski¹, S. L. Spahr¹, A. Mizrach², and E. Maltz², ¹University of Illinois, Urbana, ²ARO, Volcani Center, Bet Dagan, Israel.
- 59 526 Evaluation of liver copper and zinc concentrations in southwestern calves. R. C. Waterman*, J. B. Taylor, J. E. Sawyer, L. A. Balstad, D. Bradden, J. R. Strickland, and M. K. Petersen, New Mexico State University, Las Cruces, NM USA.
- 60 527 The use of on-farm Quick Tests to estimate manure nitrogen. J. S. Van Kessel* and J. B. Reeves, III, USDA-ARS, Beltsville, MD.
- 61 528 Mortality in dual-purpose calves from 0 to 12 months of age in Perija, Venezuela. O. Araujo-Febres* and S. Oliveros, The University of Zulia.

PRODUCTION AND MANAGEMENT 7: SHEEP, SWINE AND HORSES POSTERS

Chair: Dr. J. C. Whittier, Colorado State
University, Fort Collins

Friday, 8:00 a.m. - 12:00 noon
Authors present, 9:30 a.m. - 11:30 a.m.
Exhibit Hall E

Board No.	Abs. No.	
62	529	Effects of milk replacer feeding level on Alpine kid performance. A. L. Goetsch* ¹ , R. Puchala ¹ , M. Lachica ¹ , M. Cameron ¹ , T. Sahlu ¹ , and L. J. Dawson ² , ¹ E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ² College of Veterinary Medicine, Oklahoma State University, Stillwater, OK.
63	530	Postweaning growth performance in Spanish, Boer x Spanish, and Boer x Angora goat kids. M. R. Cameron* ¹ , J. Luo ¹ , T. Sahlu ¹ , S. Hart ¹ , and S. Coleman ² , ¹ E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ² USDA/ARS Grazinglands Research Lab, El Reno, OK.
64	531	Influence of breed and nutrition on growth rate, scrotal circumference, and onset of puberty in bucks of meat-type goats. S. Wildeus*, Virginia State University, Petersburg, VA.
65	532	Influence of weaning method on foal immune function. J. L. Turner* ¹ , J. E. Minton ¹ , M. J. Arns ¹ , and J. A. Pruitt ² , ¹ Kansas State University, Manhattan, KS, ² Southwest Missouri State University, Springfield, MO.
66	533	Evaluation of vitamin E and selenium supplementation in late gestation on lamb survival and pre-weaning growth. A. Ali* ¹ , D. G. Morrical ¹ , M. P. Hoffman ¹ , and M. F. Al-Essa ¹ , ¹ Iowa State University, Ames, IA.
67	534	Prickle factor in fleeces of performance-tested fine-wool rams. C. J. Lupton*, D. F. Waldron, and F. A. Pfeiffer, Texas Agricultural Experiment Station, San Angelo, Texas.
68	535	Results of skirting and classing fleeces on the value of wool from fine-wool range ewes. F. A. Pfeiffer* and C. J. Lupton, Texas Agricultural Experiment Station, San Angelo.
69	536	Production and evaluation of peptidoglycan (PG) derived from <i>e. coli</i> BL-21 as an immunopotentiator in early weaned pigs. H. Lam, R. R. Hacker*, and C. Okere, Dept. of Animal & Poultry Science, University of Guelph, Guelph, Ontario Canada N1G 2W1.
70	537	Estrus profile in female swine according to the weaning-to-estrus interval and parity. T. Lucia, M. N. Correa, J. C. Deschamps, G. Gaciba, and L. Caron, ¹ Centro de Biotecnologia - UFPEL.
71	538	Effect of subcutaneous or intramuscular administration of PG600® on estrus and ovulatory responses in prepubertal gilts. R. V. Knox*, K. Tudor, and J. Robb.
72	539	Method of Boar Exposure on Puberty Attainment in Gilts. J. L. Patterson* ¹ , H. J. Willis ² , G. R. Foxcroft ¹ , and R. N. Kirkwood ² , ¹ University of Alberta, Edmonton, Alberta/Canada, ² Agriculture Food and Rural Development, Edmonton, Alberta/Canada.

RUMINANT NUTRITION 9 PASTURES AND FORAGES 6 SYMPOSIUM

Sponsored by: Consolidated Nutrition

Designing Supplements for Grazing Beef Cattle

Chair: Dr. E. S. Vanzant, University of Kentucky, Lexington

Friday, 8:15 a.m. - 11:30 a.m.
Room White River Ballroom

Time	Abs. No.	
9:20	32	Designing supplementation programs for beef cattle fed forage based diets. W. E. Kunkle* ¹ , ¹ University of Florida.
10:00	33	Designing mineral supplements for beef cattle. L. W. Greene*, Texas A&M University System.
10:30		BREAK
10:40	34	Designing protein supplements. M. K. Petersen*, C. R. Krehbiel, J. Sawyer, and R. Waterman, New Mexico State University, Las Cruces, NM USA.
11:20	35	Dietary fats as reproductive nutraceuticals in cattle. G. L. Williams* and R. L. Stanko, Texas A&M University Agricultural Research Station, Beeville, TX, U. S. A.

RUMINANT NUTRITION 10 POSTERS

Metabolism

Friday, 8:00 a.m. - 12:00 Noon

Authors present:

Even numbered boards: 8:00 a.m. - 10:00 a.m.

Odd numbered boards: 9:30 a.m. - 11:30 a.m.

Exhibit Hall E

Board No.	Abs. No.	
74	616	Assessing fermentation efficiency and variations in cattle types. D. Boadi* ¹ and K. M. Wittenberg, University of Manitoba Winnipeg, Manitoba.
75	617	Nutritional flushing to increase ovulation and kidding rate in Spanish meat goats. S. Hart*, M. Cameron, L. Dawson, I. Prieto, T. Gipson, and T. Sahlu, E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK.
76	618	Effect of eu-, hypo- and hyperthyroidism and bst on mohair growth, ADG, and hormone status. R. Puchala, I. Prieto*, V. Banskalieva, A. L. Goetsch, M. Lachica, and T. Sahlu, E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK.
77	619	Energy expenditure of Angora does during the late trimester using the doubly-labelled water technique. C. A. Toerien* ¹ , T. Sahlu ¹ , and W. W. Wong ² , ¹ E (Kika) de la Garza Institute for Goat Research, Langston, OK, ² USDA/ARS Children's Nutritional Research Center, Houston, TX.
78	620	Effects of abomasal casein or essential amino acid infusions on splanchnic metabolism in lactating dairy cows. C. K. Reynolds* ¹ , B. Lupoli ¹ , P. C. Aikman ¹ , D. J. Humphries ¹ , L. A. Crompton ¹ , J. D. Sutton ¹ , J. France ¹ , D. E. Beever ¹ , and J. C. MacRae ² , ¹ The University of Reading, Reading, UK, ² The Rowett Research Institute, Aberdeen, UK.

- 79 621 Milk protein response to abomasal and mesenteric vein infusions of essential amino acids in dairy cows fed low protein concentrates. P. C. Aikman¹, C. K. Reynolds*¹, D. J. Humphries¹, J. D. Sutton¹, J. France¹, D. E. Beever¹, and J. C. MacRae², ¹The University of Reading, Reading, UK, ²The Rowett Research Institute, Aberdeen, UK.
- 80 622 Expression of multiple glutamate transport proteins in sheep and cattle epithelial tissue. J. A. Howell*, A. D. Matthews, K. C. Swanson, D. L. Harmon, and J. C. Matthews, University of Kentucky, Lexington.
- 81 623 A primary cell culture method for bovine pancreatic acinar cells to study α -amylase secretion. K. C. Swanson*, J. C. Matthews, C. J. Richards, and D. L. Harmon, University of Kentucky, Lexington.
- 82 624 Effects of plane of nutrition on blood metabolites and hormone concentration in goats. B. Kouakou*¹, O. S. GAzal², T. H. Terrill¹, G. Kannan¹, S. Gelaye¹, and E. A. Amoah¹, ¹Agricultural Research Station, Fort Valley State University, Fort Valley, GA 31030, ²Department of Biological Sciences, Saint Cloud State University, Saint Cloud, MN 56301.
- 83 625 Differences in blood metabolites and glucose metabolism in hair sheep and meat goat females during late pregnancy and lactation. S. Wildeus*¹ and J. M. Fernandez², ¹Virginia State University, Petersburg, VA, ²Louisiana State University Agricultural Center, Baton Rouge, LA.
- 84 626 Seasonal changes in body weight, condition and serum glucose and urea nitrogen in Brangus, Charolais and Simmental cows grazing semi-arid lands. E. M. Romero-Treviño¹, E. Gutierrez-Ornelas¹, A. M. Garcia-Garza², and H. Bernal-Barragan¹, ¹Universidad Autonoma de Nuevo Leon, Mexico, ²Union Ganadera Regional de Nuevo Leon, Mexico.
- 85 627 The effect of supplementing dextrose in the drinking water of transition cows on dry matter and water intake and blood metabolites. V. R. Osborne*, B. W. McBride, and R. R. Hacker.
- 86 628 The impact of diet composition on gastrointestinal tract ornithine decarboxylase activity and tissue polyamine concentrations. K. A. Johnson* and J. J. Michal, Washington State University, Pullman, WA.
- 87 629 Differential ¹⁵N-labeling of nitrogen fractions excreted by ruminants. S. Fernandez-Rivera*¹, J. M. Powell², A. Bationo³, C. B. Christianson³, and D. T. Hellums³, ¹International Livestock Research Institute, Niamey, Niger, ²USDA-ARS Dairy Forage Research Center, Madison WI, ³International Fertilizer Development Center, Muscle Shoals AL.
- 88 630 Ruminal versus abomasal carbohydrate infusion alters glucose metabolism in steers. C. J. Richards*¹, K. C. Swanson¹, J. A. Howell¹, J. C. Matthews¹, D. L. Harmon¹, A. D. True¹, G. B. Huntington², S. A. Gahr³, and R. W. Russell³, ¹University of Kentucky, Lexington, ²North Carolina State University, Raleigh, ³West Virginia University, Morgantown.

RUMINANT NUTRITION 11 POSTERS

Minerals

Friday, 8:00 a.m. - 12:00 Noon
 Authors present 9:30 a.m. - 11:30 a.m.
 Exhibit Hall E

Board No.	Abs. No.	
89	631	Effect of dietary chromium-L-methionine on glucose metabolism of beef calves. E. B. Kegley* ¹ , D. L. Galloway ¹ , and M. T. Socha ² , ¹ University of Arkansas, Fayetteville, ² Zinpro Corp., Eden Prairie, MN.
90	632	The effects of level of inorganic and organic mineral sources on in vitro dry matter disappearance of starch. G. B. Salyer* and M. L. Galyean, Texas Tech University, Lubbock TX.
91	633	Effects of pasture applied biosolids on performance and mineral status of grazing beef heifers. M. E. Tiffany*, L. R. McDowell, G. A. O Connor, F. G. Martin, N. S. Wilkinson, E. C. Cardoso, S. S. Percival, P. A. Rabianski, and H. Nguyen, University of Florida, Gainesville, FL.
92	634	Effect of vitamin E and Chromium-Methionine supplementation on growth performance response of calves recently arrived to feedlot. R. Barajas* and L. Almeida, Universidad Autonoma de Sinaloa (Mexico).
93	635	Levels of calcium for growing kids. Calcium excretion and P true absorption. M.S Bueno* ¹ , E. A. Cunha ¹ , L. E. Santos ¹ , and D. M. S. S. Vitti ² , ¹ Instituto de Zootecnia, Nova Odessa, SP, Brazil, ² Centro de Energia Nuclear na Agricultura - USP, Piracicaba, SP, Brazil.

- 94 636 Effects of Copper Supplementation on the performance of two-year-old cows and their calves. E. L. Muehlenbein*¹, G. H. Deutscher², D. R. Brink¹, M. P. Carlson¹, and A. B. Johnson³, ¹University of Nebraska, Lincoln, ²West Central Research and Extension Center, North Platte, NE, ³Zinpro Corporation, Eden Prairie, MN.
- 95 637 Effect of level of chromium-Methionine in receiving diets on growth performance of brahman bull calves. R. Barajas, A. Felix*, and A. Estrada, Universidad Autonoma de Sinaloa (Mexico).
- 96 638 Impact of dietary salt concentration on feed and water intake and physiological measurements of feedlot cattle. A. F. La Manna, F. N. Owens, and S. Janloo, Oklahoma State University, Stillwater, OK.
- 97 639 Phosphorus and calcium status in goats grazing the semiarid region of Zacatecas, Mexico. I. Mejia-Haro*¹, R. Espinoza², A. Mejia³, and J. Mejia³, ¹University of Nebraska, ²CIGA-ITA 20, ³UAZ.

RUMINANT NUTRITION 12 POSTERS

Vitamins/Feed Additives

Friday, 8:00 a.m. - 12:00 Noon
 Authors present 8:00 a.m. - 10:00 a.m.
 Exhibit Hall E

Board No.	Abs. No.	
98	640	The feeding value of <i>Phyllanthus discoideus</i> and its effects on fermentation parameters when fed to West African Dwarf sheep. I. I. Osakwe*, H. Steingass, and W. Drochner, Institute of Animal Nutrition, University of Hohenheim, Stuttgart, Germany.
99	641	Effect of ruminally protected choline on productivity of Angora goats. T. Shenkoru* ¹ , F. N. Owens ² , R. Puchala ¹ , and T. Sahlu ¹ , ¹ E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK, ² Animal Science Department, Oklahoma State University, Stillwater, OK.
100	642	Effects of methylpalmoixirate in mature sheep. W. Pittroff* ¹ , M. Friedman ² , S. Das ³ , and H. D. Blackburn ¹ , ¹ U.S. Sheep Experiment Station, Dubois, ² Monell Chemical Senses Center, Philadelphia, ³ Idaho State University, Dept. of Pharmaceutical Sciences, Pocatello.
101	643	Serum α -tocopherol concentrations for Venezuelan dairy cattle. O. Rosendo* ¹ , L. R. McDowell ² , N. S. Wilkinson ² , and A. Boning ² , ¹ Universidad Centroccidental 'Lisandro Alvarado', Barquisimeto. Lara, Venezuela, ² University of Florida, Gainesville.
102	644	Effect of a dietary supplement of folic acid on net flux of urea N, ammonia N and α -amino N across the ruminal wall of lactating dairy cows. C. Benchaar* ¹ , A. Desrochers ² , J. J. Matte ¹ , and C. L. Girard ¹ , ¹ Agriculture and Agri-Food Canada, Dairy and Swine R&D Centre, Lennoxville, ² FMV, Universite de Montreal, St-Hyacinthe.
103	645	Effect of Agrado™ on the Health and Performance of Transport- Stressed Heifer Calves. T. C. Stovall*, H. Han, and D. R. Gill, Oklahoma State University, Stillwater, OK.
104	646	Impact of Agrado™ on Tocopherol Metabolism by Transport-Stressed Heifers. H. Han*, T. C. Stovall, and D. R. Gill.
105	647	Influence of dietary vitamin A restriction on growth performance, concentrations of plasma thyroid hormones, carcass characteristics, and marbling scores in Japanese Black steers. K. Hodete ¹ , T. Odawara ² , Y. Sasae ² , and M. Yosiiwa ² , ¹ National Institute of Animal Industry., Tsukuba, ² Oita Animal Experimentatal Station, Japan.
106	648	Mineral availability and ruminal fluid pH of crossbred steers fed BIOSAF. A. Garcia-Estefan*, L. W. Greene, and N. K. Chirase, Texas A & M University System, Amarillo.
107	649	Effects of source and level of ruminally protected choline on performance and carcass characteristics of finishing beef steers. G. A. Nunnery*, M. L. Galyean, S. C. Harris, G. B. Salyer, and P. J. Defoor, Texas Tech University, Lubbock, TX.

TEACHING 4 PROC MIXED WORKSHOP

PLEASE NOTE: A MAXIMUM OF 40 INDIVIDUALS: There is a fee for this workshop. Sign up on the registration form (Page 32A).

Co-Chairs: Dr. D. Banks, Michigan State University, East Lansing, Dr. R. Tempelman, Michigan State University, East Lansing, and Dr. L. Douglass, University of Maryland

Friday, 8:00 a.m. - 12:00 Noon
Room 151/152 - Cyber Café

One of the missions of North Central Regional Project 47 is the development and implementation of statistical training workshops at professional meetings held within the numerous disciplines of the Agricultural Experiment Stations across the US. Dr. Rob Tempelman of Michigan State University has been charged with the leadership for ASAS and ADSA.

Currently, members of this NC committee are conducting workshops at several summer meetings of various professional societies.

This workshop will focus on the use of Proc Mixed from SAS. The workshop is directed at researchers in nutrition, physiology and others that have a use for repeated measure analysis.

NOTES

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