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Dear alumni and friends:

Our December graduation proceeded as always and without incident. Festivities began as usual in Litton-Reaves with the much anticipated and appreciated omelet breakfast organized by the department. Cooking was spearheaded by a highly qualified and adorned faculty. Most estimates suggest some 100 graduates and their respective families and friends spent the morning with us in Blacksburg. This is perhaps one of the most exciting times on campus, the anticipation of the holiday season coupled with the excitement of graduation absolutely makes the day magical!

The department continues to grow, both from a student population and programmatic faculty members. We matriculated our largest class this fall and all indications suggest next fall will be even larger. While growth in undergraduate populations mirror those of our sister institutions across the country and benefit the college, this increase presents some challenges for the department. Finding classrooms to handle such large enrollments has become almost impossible. Further, teaching such large courses with significant laboratory components really challenges instructors and animals alike. Even so, we have been fortunate to add additional instructors and faculty members to the department to handle these growths in enrollment. The opportunity to receive a college education while studying animals remains a huge asset for the department and Virginia Tech.

As in the past, our facilities remain one of most pressing issue, not only from a teaching and outreach perspective but also this lack of modernized assets severely challenges our ability to create new information and technology for our stakeholders. Introduction of new knowledge keeps our industry progressive and profitable. Many of our facilities were built in the 1950s and nearly all of these structures have simply outlived their utility. Fortunately, our stakeholders have worked effectively with government officials and as such, the governor and the General Assembly have provided funding for new facilities. This likely represents one of the most significant developments for this department in my tenure at Virginia Tech. It clearly shows the significance of the animal industry has in the commonwealth and its support in Richmond. We look forward to working with our stakeholders, friends, allied industries, university administrators, and government officials to make these facilities a reality.

As always, should you find yourself in Blacksburg for whatever reason, please don’t hesitate to stop in for visit.

Sincerely,

David E. Gerrard
Department Head and Professor
Animal and Poultry Sciences
State 4-H Horse Judging Team concludes successful year!
Leona Ransdell
Youth Equine Extension Program Associate

The 2015 State 4-H Horse Judging team had a great year competing at several events throughout the year. The team competed at Southern Regionals (Georgia), American Quarter Horse Youth Worlds (Oklahoma), All American Quarter Horse Congress (Ohio) and Arabian Nationals (Oklahoma). The team was made up of several first year and returning members! Members included Libby Arnold of Prince William; Anna Henderson-Cox of Gloucester; Katie Define, Caitlyn Russ and Sarah Moran of Albemarle; Charlotte Manvell of Orange; Ruth Martin of Montgomery; and Morgan Strickler of Frederick.

Some highlights of the year include seventh place in Team Performance, 10th in Team Reasons and ninth place overall out of 30 teams at the All American Quarter Horse Congress. Ruth Martin placed 19th overall individually. Southern Regionals also brought success as the teams finished second and seventh overall with many individual and other team placings. Arabian Nationals brought several ribbons and awards but among the most impressive was Katie Define's fourth individual overall placing. Morgan Strickler was fifth, Sarah Moran was sixth and Ruth Marin was 10th! The two Virginia teams also took 2nd and 3rd overall! Coaching the teams this year were Celeste Crisman- Extension Horse Specialist, Leona Ransdell- Extension Horse Associate, Will Golden- 4-H Volunteer, Lisa Arbogast-4-H Volunteer,Yvonne Miller- 4-H Volunteer and Kara Hite- 4-H Volunteer. What a great year the team had!

(L-R): Sarah Moran, Caitlyn Russ, Katie Define, Ruth Martin, Charlotte Manvell, Libby Arnold, Morgan Strickler

Virginia State 4-H Livestock Team wins Southeast Regional Contest
David Roper
Extension Youth Livestock Specialist
Virginia Tech

The 2015 Virginia State 4-H Livestock Judging Team competed at the Southeast Regional Livestock Contest in Raleigh, North Carolina, on Oct. 31. The contest was held at the North Carolina State University teaching farm and included 22 teams from Indiana, Maryland, Tennessee, and North Carolina. The 2015 Virginia State 4-H Livestock Team was comprised of 10 members and was selected based on individual placings at the State Livestock Judging Contest held in June at Virginia Tech. The team included: Caley Ellington, Broadway; Hannah Craun, Bridgewater; Sarah Harris, Buchanan; Cassidy Simmons, Staunton; Sara Jane French, Cumberland; Jenna Kibler, Edinburg; Hailey Shoemaker, Edinburg; Blake Hopkins, Louisa; Mathew Ferrari, Purcellville; and Cole Reeves, Churchville. Team members practiced and traveled together throughout late summer and fall, attended contests in Maryland, Indiana, North Carolina and at the National Contest held in Louisville Kentucky as part of the North American International Livestock Show and Exposition.

Before the Southeast Regional Contest, the team competed at the Stockman's Livestock Judging Contest in Indiana and finished 11th (tied for 10th). However, the trip to North Carolina was a successful weekend and served as a breakthrough for
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The Department of Animal and Poultry Sciences

Eastern National 4-H Roundup 2015

Sandy Arnold
Youth Equine Extension Program Associate

The 4-H State Horse Program is proud to announce the placings of our Virginia representatives who competed at Eastern Nationals 4-H Horse Roundup in Louisville, Kentucky, on Nov. 6-8, 2015. Virginia 4-H had teams and individuals compete in public speaking, hippology, horse judging, horse bowl, and the presentation contest.

Kaitlyn Barber, represented our state in public speaking and placed 9th overall! She is a member of the Bedford Horse and Pony 4-H Club in Bedford County, Central District.

The hippology team won fifth place overall. This team is represented by Anna Henderson-Cox, Rachel Buehren, Lacie Dunson and Emily Johnston all from Southeast District. In the photos you will see the numerous ribbons, plaques and Dover gift certificates they earned. Team member, Emily Johnston, won several individual overall awards – second place in the Horse Judging phase, seventh in stations phase, and eighth overall individual. The hippology team also won first place overall in the horse judging phase, sixth team overall in stations, eighth in the written test, and ninth in the team problem. Of the four members on the team, Buehren represents the Silver Stirrups 4-H Club in Hanover County, Johnston represents the Saddle Smarts 4-H Club and Henderson-Cox and Dunson represent the Midnight Glo 4-H Club both from Gloucester County.

Libby Arnold represented the State 4-H Horse Judging program as an individual in the Horse Judging Contest winning fifth overall individual, eighth overall individual in halter, ninth overall individual in performance and sixth overall individual in reasons. Libby is from the Northern District and is a member of the Nokesville 4-H Club in Prince William County.

The Horse Bowl team members, Newlin Humphrey, Chelsea Bickley, Savannah Stillwell, Abbey Strickland, and Mariah Casaday represented Virginia 4-H though several impressive rounds, and represented Virginia 4-H wonderfully. Strickland, Casaday and Bickley represent the Fluvanna Colts & Fillies 4-H Club, Humphrey represents Fluvanna Horse N’ Around 4-H club, all in Northern District and Stillwell represents her club, the Millennium Riders 4-H Club from the Southeast District.

Mattie Ruth Stanley presented The Lucky Eleven in the Individual Presentations Contest and did an awesome job in a tough division! Stanley is a member of the Dickenson County 4-H Saddle Club in the Southwest District.

Thank you to all the parents and coaches for being so committed to the teams and making this a priority for our 4-Hers. This contest will be forever a great memory to them. As these 4-Hers have now concluded their career in the division that they competed at Nationals, they are encouraged to reach out as mentors to the younger aspiring 4-Hers in their area of expertise around the state!

Visit and LIKE our Virginia 4-H Horse Program Facebook page for more pictures and updates.

Virginia 4-H Nets Several Wins at National Contests

David Roper
Extension Youth Livestock Specialist
Virginia Tech

The Virginia 4-H Livestock Judging Team and the Virginia 4-H Livestock Skillathon Team placed first and third at the recent North American International Livestock Exposition in Louisville, Kentucky. The event is the world’s largest purebred livestock show.

Livestock Judging Team

The Livestock Judging Team competed against 34 other teams in the 91st National 4-H Livestock Judging Contest and was high team overall with 2,525 points, followed by the 2015 National Champion 4-H Livestock Judging Team. Sitting (L-R): Hannah Craun, Blake Hopkins, Sarah Harris, Caley Ellington. Standing (L-R): Doyle Wolverton (sponsor), David Roper (coach), Todd Conway (sponsor).
Livestock Skillathon Team

The Livestock Skillathon team also performed well at the expo and included

Gracie Bailey of Woodstock, Virginia.

Tiffany Heishman of Strasburg, Virginia.


Hailey Shoemaker of Edinburg, Virginia.

Jerry Funkhouser of Edinburg, Virginia, served as the team’s coach.

The team placed second in identification and quality assurance, and sixth in evaluation, and third overall.


The Livestock Skillathon contest is multidisciplinary and challenges 4-Hers livestock husbandry skills. This year was the 17th contest. Virginia has won the contest five times previously.

The Virginia 4-H Foundation’s 4-H Livestock Youth Development Endowment provided support for the teams’ travels this fall.

For more information about supporting these teams or any Youth Livestock Event in Virginia, contact David Roper at 540-231-4732.
Intercollegiate Livestock Judging Program revived at Virginia Tech

By Bain Wilson
Youth Livestock Educator/Livestock Judging Team Coach
Virginia Tech

The Department of Animal and Poultry Sciences at Virginia Tech has taken steps to revive the intercollegiate livestock judging program. This program was started at Virginia Tech in the 1940s, but has not been active since 2009. Intercollegiate livestock judging has been a staple extracurricular activity offered by agricultural colleges since the early 1900s and has served to develop many of the leaders of animal agriculture throughout Virginia and the country. Virginia Tech has been fortunate to have influential leaders of the intercollegiate livestock judging program, including Gary Minish and Dan Eversole. In the past, Virginia Tech has had high individuals at both the American Royal and Chicago International Livestock Exposition.

At the college level, most livestock judging contests require contestants to place 12 classes of livestock and defend the placings of eight of those classes with oral reasons. Intercollegiate livestock judging provides students the opportunity to increase their exposure to the livestock industry through experiences that cannot be obtained in the classroom. Team members have the opportunity to visit state and nationally prominent livestock operations and the ability to form lasting connections within the livestock industry. Livestock judging serves to develop critical decision-making and communication skills that build confidence and leadership, often translating to career success. Participation on the Virginia Tech livestock judging team is not limited to students majoring in Animal and Poultry Sciences, but is open to all undergraduates interested in the livestock industry.

The intercollegiate livestock judging program will be led by Bain Wilson, an instructor hired by the Department of Animal and Poultry Sciences in September. Wilson is a native of North Carolina and recently graduated with his Ph.D. from the University of Illinois, where he studied beef nutrition. As an undergraduate, Wilson competed in livestock judging at Black Hawk College in Kewanee, Illinois and at Kansas State University. While in graduate school, Wilson had the opportunity to coach the 2011 National Champion 4-H livestock judging team from Illinois. In addition to coaching the Virginia Tech livestock judging team, Wilson will teach the Livestock Evaluation course, be involved with beef extension programming, conduct applied research in beef cattle nutrition and management, and serve as an advisor to the Block and Bridle Club.

The 2016 livestock judging team will compete throughout the spring and fall semesters. Plans are for the team to travel to the Dixie National, Jackson, Mississippi, Purdue Block and Bridle Contest, West Lafayette, Indiana; and the National Meat Animal Evaluation Contest, Lincoln, Nebraska, in the spring. Fall contests will include: Keystone International Livestock Exposition, Harrisburg, Pennsylvania; Stockman’s Contest, Michigantown, Indiana; the American Royal, Kansas City, Missouri; and the National Collegiate Livestock Judging Contest held at the North American International Livestock Exposition, Louisville, Kentucky. For more information about the Virginia Tech intercollegiate livestock judging program, contact Bain Wilson at tbwilson@vt.edu or 540-231-5253.

www.apsc.vt.edu
Students interested in applying for veterinary school, like Dillon Didehvar, a senior from Hockessin, Delaware, enjoyed the experiences and guest lectures.

“I really liked the different vets who visited the class. We have had everyone from a vet who spoke about holistic medicine to a board-certified veterinary cardiologist,” Didehvar said.

“We learned how to manage aggressive animals, give CPR, and sew sutures on dogs and cats using mannequins,” said Jasmine Mingo, a senior from Richmond, Virginia, who plans to work as a veterinary technician.

Lab animals were a component of the syllabus too, and students completed training to work with rats and mice in a laboratory. Students also learned about lab animal management.

“This class made us aware of other careers in animal science beyond the traditional avenues of vet medicine and farming,” said Katelyn Westerholm, a senior from Stafford, Virginia. “We learned about career options in the research field, in the public health sector developing vaccines, and in companion animal management in disaster situations.”

Flossy the hound mix learned something, too — humans need her just as much as she needs them.

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By Jordan Wicks

A group of Virginia Tech undergraduates traveled to Lincoln, Nebraska for the 68th Annual Reciprocal Meats Conference and participated in the quiz bowl competition. Team members included: Savanah Hutchinson, Gerry Pydeski, Rachel Daniels, Skylar Workman and Casey Federovich, all undergraduate students in the department. They were accompanied by Richard Preisser, a graduate student and Jordan Wicks, the manager of the Virginia Tech Meat Center and also a graduate student, both in the meat science program.

The group toured several Tyson’s facilities in Iowa and Nebraska in route to the competition. They included case-ready, bacon, and pepperoni operations. The day before the quiz bowl, ConAgra Foods sponsors the Iron Chef Competition, where students are assigned to teams with others from sister land grant institutions across the country. Each team is charged with creating a three-course meal, which is then evaluated and placed by a panel of experts.

The following day, students participated in the quiz bowl competition, using information learned from previous courses and reviewed throughout the spring semester. Teams representing universities from across the country competed in this event that is primarily designed to test a group of individual's knowledge and understanding of meat science, meat production and food safety. Virginia Tech competed successfully in a number of rounds before being eliminated.

During the remainder of the week, students attended lectures on issues facing the meat industry. Ancillary to these activities, the conference also organized a career fair and many other networking events. In summary, attending this conference for these individuals resulted in a healthy dose of exposure to additional academic, industry and networking opportunities.

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Hands-on learning
Careers
Animal science
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Faculty Recognition

Two Department of Animal and Poultry Sciences faculty members receive animal science awards

By Amy Loeffler

Two faculty members from Virginia Tech’s College of Agriculture and Life Sciences were recently recognized for their outstanding contributions to the field of animal science.

The American Society of Animal Sciences honored David Gerrard, professor of animal and poultry sciences and head of the department, and David Notter, professor emeritus of animal and poultry sciences. Gerrard received the 2015 Meats Research Award and Notter received the Bouffault International Animal Agriculture Award at the organization’s annual meeting.

2015 Meats Research Award
Sponsored by Elanco Animal Health
David E. Gerrard

David E. Gerrard received his B.S., M.S., and Ph.D. from Purdue University. Gerrard joined the faculty at the University of Missouri-Columbia in 1992 and was a visiting scientist at the Institut National de Recherche Agronomique, France. In 1996, Gerrard relocated his program to Purdue University and began studying the mechanisms controlling energy metabolism in skeletal muscle. He was promoted to professor in 2001 and was recognized as a University Faculty Scholar for his achievements.

In 2009, Gerrard moved his research group to Blacksburg, Virginia, where he leads the Department of Animal and Poultry Sciences at Virginia Tech. Gerrard has educated over 30 individuals who hold positions at a number of university, government and privately funded research environments. He has been PI or co-PI of some 15 federal grants worth over $6M and has published over 105 refereed publications in a variety of journals including JAS, Meat Science, FASEB, AJP, Cell Calcium and PLOS ONE.

2015 Bouffault International Animal Agriculture Award
Sponsored by Center for Regulatory Services, Inc.
Dr. David Notter

David Notter was born in 1950 in Gallipolis, Ohio, and grew up on a small tobacco and cattle farm. He has a B.S. degree in animal science from The Ohio State University, M.S. and Ph.D. degrees from the University of Nebraska, and was a faculty member at Virginia Tech until his retirement in 2010. As emeritus professor, he remains active in the department and continues to do applied research in quantitative genetics.

Notter has made important global contributions to the characterization, conservation, appropriate use, and continuing improvement of farm animal genetic resources through diverse assignments with the United Nations Food and Agriculture Organization and International Atomic Energy Agency. He mentored developing-country scientists through collaborations and cooperative research in India and Bangladesh, and recently initiated collaborations involving the genetic evaluation of sheep in Mexico and development of a breeding nucleus for alpaca in Peru.
Virginia Cooperative Extension provides tips on protecting bird flocks from avian flu
By Amy Loeffler

Virginia Cooperative Extension is reminding people with backyard chickens and small commercial flocks to remain vigilant to protect their animals from the avian flu.

To date the current outbreak includes two strains of the virus known as H5N2 and H5N8, neither of which has spread to Virginia. Its closest proximity to the commonwealth has been in wild birds in Kentucky and a backyard flock in Indiana. It is not thought to be a threat to human health.

However, agricultural authorities are requesting that backyard, hobbyist, and small, local poultry producers take precautions to prevent the flu from spreading to Virginia.

The disease is spread through migratory birds that travel on overlapping flyways — major and minor routes used by wild birds which allow the virus to spread quickly over the globe. So far no avian flu has been found in the Atlantic Flyway, the route that passes over Virginia, but the risk will continue into the fall as birds that have been in summer ranges fly south for the winter.

“This is a disease that can move very quickly and it’s a tremendous catastrophe if a flock becomes infected because there is no way to treat the disease except for destroying the infected flocks,” said Mike Persia, Extension poultry specialist and assistant professor of animal and poultry sciences in the College of Agriculture and Life Sciences. “It’s not here now but that doesn’t mean it won’t be here tomorrow.”

Some warning signs of the avian flu in poultry include
- Sudden high mortality rate of 50-70 percent.
- Reduced feed intake.
- Reduced egg production and misshapen eggs.
- Swelling of the face and hocks.
- Sneezing, coughing, and nasal discharge.

In order to prevent the spread of avian flu, agricultural specialists and authorities caution backyard, hobbyist, and small-scale poultry producers to practice basic biosecurity by doing the following
- Protect flocks from wild birds by putting them in a coop if possible.
- Cover any exposed feed and water sources that your flock uses. Don’t let domestic birds have access to streams or ponds.
- Limit exposure to other birds. Seal structures where birds nest and cover holes. If birds have outside access, cover the area to reduce exposure.
- Do not use wild bird feeders or birdbaths that would attract other birds to areas that house poultry.
- If you hunt migratory birds you risk exposing your flock to the virus. Have dedicated footwear and equipment that is only used on your poultry flock.
- Contact the Virginia Department of Agriculture and Consumer Services at 804-786-2483 to test deceased birds or visit their website for more information.

New Faculty

Leona Ransdell
Youth equine extension program associate

Originally from Newberry, South Carolina, Ransdell grew up on a dairy farm and then attended Clemson University as a fourth generation student. She graduated with a Bachelor of Science in Animal and Veterinary Sciences with an Equine Business Concentration. While at Clemson Ransdell was very involved on the Clemson University Equestrian Team and volunteering for the local and state 4-H Programs. After graduation she began working as a 4H Agent in Lexington and Richland Counties. Ransdell was very involved in the 4H Equine Program in South Carolina and was able to serve as a coach for several regional and national educational teams. In her spare time she loves riding and showing her horse and hiking with her husband and dog.

Sandy Arnold
Youth equine extension program associate

Sandy Arnold joined the State 4-H Horse Program in September as the new 4-H Youth Equine Extension Associate, housed...
Tastes like chicken
How to satisfy the world’s surging appetite for meat
The race is on to breed better birds as chicken emerges as the protein of the masses

By Jacob Bunge

This is a reprint of a story that appeared in the Wall Street Journal on Dec. 4, 2015

The chickens squawking in a cinder-block barn near the heart of the Virginia Tech campus in Blacksburg, Virginia, don’t know it, but they play an important part in the plans of the agriculture industry. The challenge: How to feed the 2.4 billion additional people expected to join the global population by 2050.

Unlike the roughly 60 billion chickens world-wide now slaughtered for meat each year, these birds are raised for their DNA. Paul Siegel, professor emeritus of animal and poultry sciences, studies how their genes influence the way they pack on pounds and fight off disease. The research helps companies seeking to breed chickens that will grow faster on less feed and require fewer drugs to stay healthy.

“We’re talking about feeding the masses,” says Dr. Siegel, 83, who began breeding chickens as a teenager in the late 1940s. His office walls are lined with records charting 50 generations of chicken ancestry. “The question becomes, how do you get there?”

The meat industry has long sought to breed better birds, but the work of geneticists like Dr. Siegel has taken on new urgency as the industry confronts two issues: preparing for a larger, more affluent populace with a growing taste for meat while addressing concerns about how agricultural practices affect the environment, animal welfare and human health.

Food producers face a monumental task. At current consumption rates, the world would need to generate 455 million metric tons of meat annually by 2050, when the global population is expected to reach 9.7 billion, from 7.3 billion today. Given today’s agricultural productivity, growing the crops to feed all of that poultry, beef and other livestock would require every acre of the planet’s cropland, according to research firm FarmEcon LLC—leaving no room for raising the grains, fruits and vegetables that humans also need.

Producing more meat will be critical because protein is an essential component of the human diet, providing cells with amino acids that the body can’t produce itself. Individually, nuts and vegetables can supply some of those amino acids, but animal-based proteins typically deliver all of them—and history shows that people consume more meat as their incomes rise. Chicken is widely expected to be the main choice.

Rising household incomes among rapidly growing populations of developing countries are expected to whet the world’s appetite for meat. Global meat production nearly quadrupled over the past 50 years, while the population only slightly more than doubled. Over the next 35 years the world will need to increase meat production by another two-thirds as global GDP roughly doubles, according to United Nations projections.

Agribusiness executives, academics and farmers say they will be able to meet the challenge. The past half-century of agricultural development defied Malthusian doomsday predictions. The “Green Revolution”—emphasizing large-scale crops augmented by fertilizer and pesticides—and other innovations have been so successful at meeting the growing global appetite that there are now more people in the world considered overweight or obese than hungry.

“Does the world have the natural resources to get there? Yes,” says Greg Page, executive director of Cargill Inc., the suburban Minneapolis-based agribusiness conglomerate. But feeding a larger population while minimizing the environmental toll will require large-scale food production and technology like genetically modified crops, he says.

Big U.S. agriculture companies have spent decades industrializing the processing of crops and meat. They have bred chickens and livestock to grow bigger more quickly, and they have deployed antibiotics and other drugs and additives to prevent illness and help animals add extra flesh. They have engineered genetically modified strains of corn, soybeans and other components of animal feed to help produce more bushels per acre. And they have mechanized much of the slaughter and processing of animals.

But those approaches increasingly clash with other social priorities, especially in the

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developed world. Consumers and public health officials in the U.S. and elsewhere are pushing livestock producers to wean animals off antibiotics, arguing that the drugs have hastened the emergence of antibiotic-resistant bacteria. In recent months, meat companies like Brazil’s JBS SA and U.S.-based Tyson Foods Inc. have pledged to phase out most or all antibiotics for some of their chickens.

Animal-welfare advocates have also pressed successfully in Western nations for more space and better living conditions for poultry and livestock, arousing consumer anger with video exposés targeting companies including Tyson and Hormel Foods Corp.

Environmentalists and consumers who share their concerns are pressuring companies over water use: Crop and livestock production accounts for nearly 70% of the global total. Some of these groups are also battling the expansion of biotech crops, in part because of fears that they rely on synthetic pesticides and fertilizers blamed for hurting wildlife and water quality. Some groups raise concerns about the crops’ impact on human health, though major government agencies and the World Health Organization have deemed them safe to eat.

In the U.S., Vermont passed a law in 2014 requiring food made with such crops to be labeled—a move that food companies fear could prompt shoppers to avoid them—and activists have been pushing similar measures in other states. More than half of European Union member countries have moved to bar cultivation of genetically engineered crops, and other countries like India heavily limit the use of such seeds.

Critics of the meat giants are working to export their campaigns to developing markets. Humane Society International has opened offices and launched campaigns in countries like India and China. It will soon open an office in South Africa. Farm Animal Rights Movement is developing networks in Central America and elsewhere to steer burgeoning middle classes toward vegetarian diets. Others promote smaller-scale, localized operations that shun widespread pharmaceutical use and provide more spacious pens—or open fields, in the case of free-range chickens.

“If you were scored on how much meat you produced, [the current] system would score very high,” said Ricardo Salvador, director of the food and environment program for the Union of Concerned Scientists. “If you were scored on the environmental and social impact, you would score very low, and you don’t get away with just being scored on one.”

Backyard chicken coops and similar operations can be “a huge resource for rural and small-scale cities,” said Sara Scherr, chief executive of EcoAgriculture Partners, a Washington-based nonprofit that promotes decentralized agricultural production. “Industrial” meat production, she said, carries larger-scale risks, including those associated with animal diseases, which can threaten human health. “It makes a lot of sense to have a more decentralized food system, for a lot of reasons.”

Several startups, including Impossible Foods and Beyond Meat, go further. Backed by funding from investors like Google Ventures and Microsoft Corp. co-founder Bill Gates, they’re betting on burgers and chicken strips made from plant-based substitutes like soybeans and grains.

Big companies say that such approaches aren’t enough. Their focus on scale and efficiency is on display inside a cavernous barn near Phra Puttabat, Thailand, where 20,000 broiler chickens scamper across a bed of discarded rice hulls. These birds are among 240,000 on one of more than 100 farms supplying Cargill’s Thailand poultry plants. Altogether, Cargill slaughters and processes 2.6 million chickens weekly here for shipment to customers including McDonald’s Corp. in Japan and Europe.

Before entering the barn, visitors proceed through four separate showers and two disinfecting sprays before donning baggy blue uniforms and rubber boots—strict biosecurity measures designed to safeguard Cargill’s chickens from avian influenza and other maladies. Inside the barn, chickens perch on low benches and peck at large bottle caps hung from the ceiling as toys, part of “enriched housing” designed to help the chickens stay active—and placate consumers who want better living conditions for animals.

“We want them to feel respected through their entire lives,” Chuck Warta, who heads Cargill’s meat operations in Thailand, says of the birds. “And at the end, one day, they’ll have a bad day.”

Cargill opened its Thailand poultry business in 1990, targeting a region ripe for growth. Within 10 years production capacity had nearly tripled, and by 2006 Cargill was slaughtering 330,000 chickens a day. In 2013 it finished expanding capacity by another third—anticipating even more demand.

Today Cargill exports about 100,000 metric tons of chicken a year from Thailand, and it is discussing hundreds of millions of dollars of investments in new chicken operations in Indonesia and the Philippines over the next few years. Senior Cargill executives say it is likely to start meat-processing operations in the next decade in sub-Saharan Africa, where they expect meat demand will grow as city populations swell. In 2011, rival CP Foods, a Thai conglomerate, built a feed mill and chicken farm in Tanzania that currently supplies other processors.
The Department of
Animal and Poultry Sciences

“...We have a high degree of confidence that when people move up into that middle class range...people are going to want to consume more animal-based protein,” said Brian Sikes, a Cargill vice president who oversees meat businesses.

Agribusiness executives say that chicken will be the main meat of the future for several reasons. Its mild flavor and broad cultural and religious acceptance make it more universal than beef and pork. Chicken generally requires less land to produce and is cheaper.

The U.N. Food and Agriculture Organization projects that chicken will overtake pork as the world’s most-consumed meat by 2020, and meat companies are ramping up production. Brazil’s JBS, one of the world’s biggest meat companies, with deep roots in beef, is betting heavily on chicken to become the top global protein, says Wesley Batista, one of two sons of the founder who now run JBS.

Chicken’s rise already is changing time-honored habits. In Argentina, where grass-fed beef has long been central to daily life, per-capita poultry consumption is projected to climb 7.5% this year to a record level, while beef consumption is expected to decline 6.3%. Even in pork-loving China, the government has subsidized large-scale poultry farms and breeding operations over the past decade to increase output.

As this year’s bird flu epidemic in the U.S. shows, chicken also carries risks. Poultry are vulnerable to diseases spread by wild fowl, and the vast numbers and close quarters of domestic flocks mean that contagions can spread rapidly. Fear of disease and contaminated production have slowed anticipated growth in China’s poultry sector, damping business there for Tyson and Cargill.

Breeding experts see solutions to many of the concerns in chickens’ DNA. Because of the birds’ rapid reproduction and quick maturation cycle, geneticists can effect changes in chickens relatively quickly. Already scientists have increased the meat on each bird: Today, a 5.3-pound chicken can be produced in 35 days using about 8 pounds of feed, according to data from Virginia Tech. Thirty years ago, it took a little over 7 pounds of feed to rear a 3-pound bird in the same time. In some cases, breeders have had to solve problems of their own making, like leg problems and heart failure that have arisen as breeding efforts evolved the relatively wiry birds toward broad-breasted specimens.

Scientists completed sequencing of the chicken genome in 2004—before any other major livestock animal. Geneticists are now incorporating gene-scanning technology to better understand how different sequences of poultry DNA interact with one another, and how to emphasize traits that help birds resist disease, which the breeders believe could reduce the poultry industry’s reliance on antibiotics to keep animals healthy.

“We are only at the beginning of understanding everything we can do,” says Olivier Rochard, the global head of the poultry genetics business at Groupe Grimaud, one of the world’s largest suppliers of breeding chickens. Some of the company’s prized purebred birds can now add a pound of weight for every 1.2 pounds of feed consumed, making them among the most efficient weight-gainers in the world.

APSC has research facilities all over the commonwealth to help students and faculty carry out important research on livestock and companion animals.

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Arnold encourages Extension agents and horse leaders to reach out to her as a resource for programming support and questions they may have. She hopes to grow the 4-H horse program statewide and bring more awareness to this wonderful educational project which can potentially lead our youth into lifelong animal science careers and an increase in support of the Virginia equine industry.

Jennifer Bradley
Academic and student support advisor

Jennifer Bradley joined the Department of Animal and Poultry Sciences in January 2016 as an academic and student support advisor. Bradley is originally from Hamilton, Virginia, where she was involved in both 4-H and FFA. She earned her B.S. from the Department of Animal and Poultry Sciences at Virginia Tech, during which time she served as a student ambassador for the Department and for the College of Agriculture and Life Sciences. Bradley obtained both her M.S. and Ph.D. from the Department of Animal and Poultry Sciences at Virginia Tech. Her graduate research investigated the impacts of non-optimal incubation conditions on intestinal development and post-hatch performance of broilers and turkeys. Prior to joining the undergraduate advising office, Jennifer worked in the APSC Department as a technician in the laboratory of Sally Johnson and Alan Ealy. Bradley is thankful for the opportunity to continue serving in the APSC Department and is looking forward to contributing to the undergraduate program.

Bain Wilson
Youth livestock educator/livestock judging team coach

Bain Wilson was hired as Youth Livestock Educator in the Department of Animal and Poultry Sciences in September. His responsibilities at Virginia Tech include: coaching the Virginia Tech livestock judging team, teaching the Livestock Evaluation course, beef extension programming, conducting applied research in beef cattle nutrition and management, and serve as an advisor to the Block and Bridle Club. Wilson grew up in Locust, North Carolina, and became active in livestock judging and showing cattle through 4-H and FFA. He was a member of the livestock judging team at Black Hawk East in Kewanee, Illinois, where he earned an A.S. degree in 2007. Wilson then continued his education at Kansas State University where he also participated on the livestock judging team, conducted undergraduate research, and graduated with a B.S. degree in Animal Science and Industry. He then earned his M.S. in 2012 and Ph.D. in 2015 at the University of Illinois in Animal Science where he studied Ruminant Nutrition. Wilson’s beef research interests include: grazing systems, development of least-cost supplementation and feeding strategies, and the long-term impacts of maternal nutrition of subsequent progeny.
The Department of
Animal and Poultry Sciences

Graduate Students

Kristen Marie Stuftt (M.S.)
Stuftt received her B.S. in animal sciences from Penn State and joined the department as the assistant meat laboratory manager and a M.S. student in the Gerrard laboratory. Stuftt’s research topic was fresh ham quality, specifically those characteristics of muscle associated with the two-toning that often plague fresh hams. During Stuftt’s tenure in the department, she educated a number of students that participated in the meat science quiz bowl competition held at the American Meat Sciences Association national meetings. Stuftt also worked tirelessly to manage and promote the meat center. Stuftt received her M.S. degree for a thesis entitled “Biochemical Basis of Fresh Ham Color Development” in the summer of 2015, returned to Pennsylvania where she accepted a position as a Food Safety, Quality and Regulatory associate for Cargill Meat Solutions, Hazleton, Pennsylvania.

Eric Michael England (Ph.D.)
Eric England received his B.S. degree from Milligan College. Pursuing his culinary interests, England joined the Gerrard laboratory hoping to study meat tenderness. After publishing a paper in fresh beef meat tenderness, England began studying the biochemistry responsible for postmortem metabolism in muscle. During his time in the department, England served as a mentor to an untold number of undergraduate researchers and helped teach courses surrounding meat science and other animal-based products. England was awarded the Kornegay outstanding Ph.D. student and submitted a thesis entitled “Postmortem metabolism in porcine skeletal muscle” for his Ph.D. Eric is currently an assistant professor in the Department of Animal Sciences at The Ohio State in Columbus, Ohio.

Bly Addison Patterson (Ph.D.)
Patterson joined the Gerrard laboratory immediately after receiving her B.S. from the department. Patterson worked on a joint industry project funded by Scott Eilert and Cargill. Patterson’s project focused on the divergent color observed in fresh turkey breast muscle. During her time in the department Patterson worked extensively with youth programming activities. Bly received her M.S. for a thesis entitled “Pectoralis Muscle of Turkey Displays Divergent Function as Correlated with Meat Quality” early last summer and returned to the valley where she is a Food Safety, Quality, & Regulatory Associate at Cargill Turkeys and Cooked Meats in Dayton, Virginia.

Tracy Leigh Scheffler (Ph.D.)
Scheffler received her B.S. and M.S. degrees in animal sciences from Michigan State University and Purdue University, respectively. Scheffler’s doctoral studies in the Gerrard laboratory focused on energy metabolism in Rendement Napole (Hampshire) pigs harboring a natural-occurring mutation in the AMPK gamma 3. These pigs store abnormally high levels of glycogen and produce pork with reduced quality characteristics. During her stay in Blacksburg, Scheffler contributed significantly to the teaching and outreach missions of the department. She taught a number of modules for our youth and adult programs and regularly contributed to the animal growth course. Scheffler was awarded the Kornegay outstanding Ph.D. student by the department and submitted the second-best life science-based dissertation across campus. After receiving her Ph.D. for a thesis entitled “AMP-activated Protein Kinase and Muscle Metabolism”, Scheffler accepted an assistant professor position in the department of animal science at the University of Florida in Gainesville, Florida.

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Football games may dominate the fall social calendar for many Hokies but not the Virginia Tech Horse Judging Team. Eight students came together to prepare for competing in two national competitions.

This team of students made the extra commitment to learn the criteria for conformation and performance judging of 12 different events in the Quarter Horse judging contests. In addition to the challenges of judging everything from hunter under saddle to ranch riding, equitation, reining and calf tie down, students became very competent in the delivery of oral reasons, a competition category where students orally defend their class placings to a judge and are scored on their accuracy and quality of delivery.

Judging in the Limited Division at the Ohio Quarter Horse Contest in Columbus, Ohio were Taylor Franzreb of Navesink, New Jersey; Lexy Golub of Leesburg, Virginia; Harleigh Humphries of Middleburg, Virginia; and Stevie Williams of Centreville, Virginia. The Limited division competitors judge the full slate of classes but give fewer oral reasons than competitors in the Senior Team division. Competitors in the limited division only compete for individual awards. Golub and Humphries tied for fifth overall in the limited division. Both Williams and Golub placed in the top ten individuals in performance and reasons while Taylor was tenth in reasons.

Stepping up to the Senior Team division this year were Hanna Bartnick of Roanoke, Virginia; Rachel Bell of Falls Church, Virginia; Hannah McDonald of Cross Junction, Virginia; and Rachel Owens of Virginia Beach, Virginia. After five sets of reasons at the Congress, Rachel Bell placed eighth in performance judging and the others finished just under the top ten placings to push the team scores into the top five! Virginia Tech placed fourth in halter judging, fifth in performance, sixth in reasons and tied for fourth overall in the contest with Oklahoma State and Texas A&M Universities. The contest was won by West Texas A & M University and Mississippi State was reserve with seventeen full teams in the contest.

Encouraged by the strong team finish at the Congress, the senior team wanted one more contest. In the first Hokie appearance at the AQHA World Horse Show in Oklahoma City, Oklahoma, in recent history (or ever?), the girls prepared to judge additional cattle classes including Calf Roping, Heading and Working Cow Horse. And the merits of working together as a team once again proved to be a successful approach to this ultimate contest. The Hokies were led by Hannah McDonald’s individual ninth place in performance judging along with Hanna Bartnick in the eleventh spot. The team was proud to take home team honors that included fifth in performance judging and fifth overall in the contest. Oklahoma State won the contest followed by West Texas A & M, Mississippi State, and Colorado State. Sixteen teams competed.

Julia McCann of the Department Animal and Poultry Science teaches the equine evaluation classes and coaches the horse judging team. The team is grateful for the support of the APSC departent and many industry professionals who shared their time, horses and expertise. The fall the team valued time with Mik Jennings, Steve Meadows, Rick Baker, Kyle Hughes, Debra Wright, Will Knabenshue, and Heather Young.

Team travels are possible because of the financial support provided by the Pat Stuart funds that make many equine opportunities possible for the undergraduates in the growing equine program.
The Department of Animal and Poultry Sciences

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Would you like to be contacted concerning support of one of our scholarship programs or extra-curricular group activities?

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Poultry Club
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Pre-vet Club
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Sheep Center ..................................................231-6988
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Swine Center ..................................................231-6250
Poultry Center ..................................................231-5810
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The Department of Animal and Poultry Sciences newsletter is published by the Department of Animal and Poultry Sciences, 3460 Litton Reaves Hall (0306) Virginia Tech, Blacksburg, VA 24061.
Please contact 540-231-6311 or vtapsc@vt.edu with questions, comments, or requests for information.