

2026-2028 USPOULTRY

Research Priorities

The U.S. Poultry & Egg Association (USPOULTRY) is committed to advancing the growth, progress, and welfare of the poultry industry and supporting the interests of its individual and corporate members. Promoting research that addresses industry challenges and supporting the training of graduate students are key priorities of the Association.

Proposed research projects should be designed to generate practical, meaningful information with the potential to address or resolve real-world challenges facing the poultry industry. USPOULTRY recognizes that emerging issues and novel challenges continually arise and that researchers may identify important areas of concern that are not yet included among the Association's established research priorities. Proposals addressing needs outside the identified priority areas are therefore welcome; however, applicants should provide sufficient background, supporting evidence, and justification to clearly demonstrate the significance and industry relevance of the proposed research.

USPOULTRY research funding is intended to support research that addresses broad industry needs and provides meaningful benefits to the poultry and egg industries. Projects primarily focused on the development, validation, or advancement of a commercial product or technology, or projects receiving substantial support from a commercial company, may be less likely to receive funding.

The ranked research priorities presented herein represent the research needs identified by the poultry industry and are intended to guide the development and evaluation of research proposals.

Top Overall Research Priorities

Category	Research Needs Statement
Animal Welfare	Evaluate new methods of mass depopulation, specifically for broilers, turkeys, layers and breeders.
Breeder Management	Improve the understanding of the transmission of all critical public health <i>Salmonella</i> serovars from breeders to progeny.
Meat Bird Management	Define and describe the microbiological effects of layout time and interventions that can substitute for layout time (i.e., sanitation practices, litter composting, litter amendments, etc.).
Commercial Egg Production	Identify an appropriate type of sample to take in the hatchery which will assist in understanding <i>Salmonella</i> transmission from hatch to the grower house. Determine if the sample type is adequate for a <i>Salmonella</i> surveillance program.
Diseases	Develop a live <i>Salmonella</i> vaccine that is equally effective across multiple serogroups.
Environmental Management	Develop best practices for peracetic acid use in poultry processing to optimize/balance use, pH, PAA dosage levels, food safety intervention, and wastewater impacts.
Food Safety	Devise rapid and precise enumeration methods to improve the detection of the most pathogenic <i>Salmonella</i> strains – those which pose the greatest risk to human health.
Hatchery Management	Devise and validate enhanced hatching egg management and operational sanitation methods to improve microbiological quality of hatching eggs and chicks/poults while protecting worker safety.
Nutrition	Determine the influence of breeder nutrition on chick and poult performance.
Processing	Determine additional automation capabilities in processing facilities from arrival of live birds through to packaging and dispatch.
Employee & Safety Health	Industrial hygiene monitoring and sampling protocols -- identify potential exposures and develop a protocol for determining permissible exposure levels and for determining required frequency and methodology for routine sampling – including ammonia, chlorine, nuisance dusts, formaldehyde, carbon dioxide and a variety of airborne infectious diseases such as aspergillosis and histoplasmosis.

Animal Welfare

Rank	Research Needs Statement
1	Evaluate new methods of mass depopulation, specifically for broilers, turkeys, layers, and breeders.
2	Develop methods to determine the sex of embryos prior to hatch.
3	Investigate approaches to improve bird welfare during catching, cage unloading, and bird movement through to shackling (including unloading area design).
4	Devise and test improved conveyances (vehicles, transport containers, loading/unloading devices) that result in reduced bird stress, injuries, and losses and enhance product quality and public image in live transport and unloading. Methods may be specific to an area of production or poultry species.
5	Evaluate the ability of probiotics/feed supplements to improve gut health leading to decreased litter moisture and improved welfare outcomes (i.e., foot condition, hock condition, etc.) for poultry while in the house.
6	Define the contribution of genetic selection to leg weakness and skeletal problems and devise selection strategies to ameliorate these issues.
7	Devise and test qualitative and quantitative methods to objectively evaluate key bird welfare outcomes (i.e., distribution, gait, activity, and enrichment use, etc.). Methods may be specific to an area of production or poultry species.
8	Establish what enrichments and lighting programs (type, intensity) are best for welfare outcomes for indoor-raised, commercial broilers (standard breeds).
9	Develop and evaluate management practices, technologies, and incentive-based approaches that promote drier litter conditions to reduce the incidence and severity of footpad dermatitis while maintaining bird health and production performance.
10	Develop and evaluate management practices, technologies, and incentive-based approaches that promote improved welfare outcomes as birds are loaded and conveyed to the shackling area at the processing plant.

Breeder Management

Rank	Research Needs Statement
1	Improve the understanding of the transmission of all critical public health <i>Salmonella</i> serovars from breeders to progeny.
2	Develop alternative feeding and nutrition management programs for replacement pullets aimed at eliminating current feed restriction programs.
3	Develop improved methods for egg management, sanitation, and storage to optimize chick quality.
4	Establish feeding and lighting schedules for pullets/hens and turkey breeder hens for maximum production/hatchability.
5	Develop rapid, non-destructive, and quantitative methods for determining egg microbiological quality for routine quality control practices (hatching eggs).
6	Determine etiology, epidemiology, prevention, and control measures for mortality of breeder hens and roosters from housing to peak production.
7	Identify and evaluate novel, sustainable fiber sources for inclusion in pullet and hen diets to improve gastrointestinal function, welfare, production performance, and environmental sustainability.
8	Develop and validate practical, rapid, and reliable breeding soundness examinations for roosters that assess reproductive health, semen quality, sperm motility, and fertility to improve breeder flock performance.

Meat Bird Management

Rank	Research Needs Statement
1	Define and describe the microbiological effects of layout time and interventions that can substitute for layout time (i.e., sanitation practices, litter composting, litter amendments, etc.).
2	Develop/evaluate strategies and tools for effective and economical house cleaning and disinfection during the life of the flock and between flocks.
3	Determine the influence of spectrum, intensity, and photoperiod for different ages on performance and wellbeing.
4	Devise methods to effectively reduce viral shedding from houses affected with Highly Pathogenic Avian Influenza (HPAI) prior to depopulation.
5	Compare different brooding methods using energy consumption, mortality, and growth rate as criteria.
6	Develop and evaluate a feeding program and management practices (lights, feed pan management, water pressure, temperature, etc.) to slow the growth of normal growing commercial broilers and turkeys in the field that can be immediately implemented during an emergency.
7	Develop nutrition/management programs to maximize performance in antibiotic-free production systems.
8	Develop and evaluate innovative strategies—including feed additives, water additives, vaccines, biologics, management practices, or other interventions—to prevent, mitigate, or control protozoal infections in commercial poultry.
9	Determine enhanced heat stress prevention and management strategies for commercial turkeys (i.e., medication, environmental management, transportation, processing).

Commercial Egg Production

Rank	Research Needs Statement
1	Identify an appropriate type of sample to take in the hatchery which will assist in understanding <i>Salmonella</i> transmission from hatch to the grower house. Determine if the sample type is adequate for a <i>Salmonella</i> surveillance program.
2	Develop rapid, non-destructive, and quantitative methods for determining egg microbiological quality for routine quality control practices in commercial eggs.
3	Develop effective, practical, and economical strategies to eradicate <i>Mycoplasma</i> from multi-age housing systems.
4	Devise systems to prevent starve-outs and/or injuries.
5	Devise environmentally acceptable and residue-free systems for fly control.
6	Devise means of controlling marketing eggs in a multi-aged layer complex when one house is infected with Low Pathogenic Avian Influenza (LPAI).
7	Devise environmentally acceptable working conditions for employees in alternative housing systems.

Diseases

Rank	Research Needs Statement
1	Develop a live <i>Salmonella</i> vaccine that is equally effective across multiple serogroups.
2	Develop a live vaccine which will provide protection against current reovirus strains.
3	Determine Avian Metapneumovirus transmission vectors, mechanical and biological vectors.
4	Investigate Avian Metapneumovirus mitigation options such as vaccination (killed & modified-live) and prevention beyond biosecurity.
5	Devise ways to improve the immune response of poultry through genetics, including resistance to colonization by <i>Salmonella</i> and <i>Campylobacter</i> .
6	Determine risk factors, epidemiology, pathogenesis, prevention, and control of the various clostridial diseases of poultry (gangrenous dermatitis, clostridial dermatitis, necrotic enteritis, focal duodenal necrosis, cholangiohepatitis, etc.).
7	Develop improved <i>Histomoniasis</i> treatment and prevention options.
8	Enhanced Gut Health – Improve microbiome, including the mechanism and impact of prebiotics and probiotics; understanding host/pathogen interaction; understanding the role of viruses; develop strategies to manage gut health; improve diagnostics.
9	Devise improved methods for the diagnosis and control of variant strains of infectious bronchitis.
10	Determine risk factors, epidemiology, pathogenesis, prevention, and control of <i>Enterococcus</i> infection in chickens.
11	Devise methods for prevention/reduction of pathogenic bacteria colonizing poultry.
12	Determine the risk factors, epidemiology, and prevention of reovirus infection in broilers and meat turkeys.
13	Determine risk factors, epidemiology, pathogenesis, prevention, and control of <i>Campylobacter</i> hepaticus infection in chickens.
14	Investigate the epidemiology, transmission dynamics, and risk factors associated with infectious laryngotracheitis (ILT) outbreaks to improve prevention, surveillance, and control strategies in commercial poultry.
15	How do emerging <i>Mycoplasma synoviae</i> (MS) strains in breeder flocks differ in pathogenicity, transmission, environmental persistence, and antimicrobial susceptibility, and what role do they play in disease severity, vertical transmission, and spread within commercial poultry production systems?

Environmental Management

Rank	Research Needs Statement
1	Develop best practices for peracetic acid use in poultry processing to optimize/balance use, pH, PAA dosage levels, food safety intervention, and wastewater impacts.
2	Development of a feed decontaminant/antimicrobial similar in cost and effectiveness as formaldehyde but with less concern regarding worker safety.
3	Devise methods for odor and ammonia control from poultry production houses via diet manipulation, litter additives, etc.
4	Devise methods for water reuse, conservation, and recycling.
5	Identify alternatives for DAF skimmings management and recovery of beneficial materials.

Food Safety

Rank	Research Needs Statement
1	Devise rapid and precise enumeration methods to improve the detection of the most pathogenic <i>Salmonella</i> strains – those which pose the greatest risk to human health.
2	Determine pre-harvest <i>Salmonella</i> indicators that correlate to finished product (parts or grind).
3	Determine safe and effective antimicrobial applications to reduce <i>Salmonella</i> and <i>Campylobacter</i> levels and/or prevalence associated with mechanically deboned poultry, poultry parts, and heat-treated (Not-Ready-To-Eat) poultry products, as well as the raw materials used to produce them.
4	Development of a <i>Salmonella</i> vaccine that is effective for group C <i>Salmonella</i> .
5	Develop post-chill handling methods to reduce microbial contamination.
6	Devise methods for the prevention/reduction of pathogenic bacteria of food safety concern colonizing poultry.
7	Determine the portion of human <i>Salmonella</i> and <i>Campylobacter</i> infections that are scientifically linked to consumption of poultry products.
8	Develop methods for cleaning deep skin <i>Salmonella</i> contamination in poultry carcasses or parts.
9	Develop novel methods for detecting foodborne pathogens.
10	Evaluate effectiveness of carcass dips/sprays in reducing microbial contamination.
11	Estimate <i>Salmonella</i> and <i>Campylobacter</i> prevalence in poultry feeds and feed ingredients, and the significance/role in relation to <i>Salmonella</i> and <i>Campylobacter</i> prevalence in finished products.
12	Evaluate the critical contamination points between turkey live hang and post-chill, utilizing qualitative and quantitative data, and identify key locations for more targeted interventions.
13	Provide best practices for grinding – how temperature, pressure, etc. affect <i>Salmonella</i> populations.
14	Define the impact of cleaning catching and hauling equipment on bacterial load on carcasses, especially <i>Salmonella</i> and <i>Campylobacter</i> .
15	Develop next-generation vaccines and immunization strategies to provide effective protection against <i>Salmonella</i> serogroups B, D, and C and improve preharvest <i>Salmonella</i> control in commercial poultry.

Hatchery Management

Rank	Research Needs Statement
1	Devise and validate enhanced hatching egg management and operational sanitation methods to improve microbiological quality of hatching eggs and chicks/poults while protecting worker safety.
2	Develop alternative methods to enhance chick quality without the use of antibiotics.
3	Evaluate the effects of prolonged time lapses between poult hatching and placement in the field. Determine what the optimal time range is to place poults after hatching to achieve maximal well-being.
4	Devise and validate measures to reduce stress and injuries in automated bird handling systems.
5	Evaluate the value of in-hatchery feeding of chicks.
6	Develop integrated monitoring and traceability systems to identify and diagnose the root causes of poor chick quality, including breeder flock health and management, egg handling, incubation conditions, hatchery equipment, and processing factors.
7	Assess and validate outcomes for day-old poultry handling in the hatchery (mechanical systems and manual handling) to reduce potential welfare risks and injuries.
8	Develop an approach for optimizing the management and handling of eggs from breeder flocks with different <i>Salmonella</i> statuses, including methods to better quantify and capture the value and downstream benefits of <i>Salmonella</i> reduction or elimination programs implemented in breeder flocks.

Nutrition

Rank	Research Needs Statement
1	Determine the influence of breeder nutrition on chick and poult performance.
2	Determine the optimal energy and protein needs of broiler breeders at various stages of production.
3	Define the optimal intestinal microflora for maximizing the genetic potential of current broiler and turkey strains.
4	Define diets and withdrawal strategies to control contamination in processing.
5	Determine the impact that various ingredient combinations have on the microbial status of the bird.
6	Devise cost-effective ways to improve pellet quality.
7	Define optimal protein (amino acid) and energy needs of broilers grown to various weights and marketing programs (deboning/whole birds) with modern genetics as well as slow-growth broilers.
8	Define poultry feed formulations that reflect sustainable production parameters.
9	Devise nutrition management programs to support extended lay in laying hens.
10	Impact of varying levels of individual vitamins on performance, health, and livability of current broilers and turkeys.
11	Determine the cost effectiveness of enzyme combinations that maximize energy and/or amino acid utilization from commonly fed feed ingredients.

Processing

Rank	Research Needs Statement
1	Determine additional automation capabilities in processing facilities from arrival of live birds through to packaging and dispatch.
2	Devise technological methods that would allow plants to run a wider range of bird weights within the same processing facility during a crisis where there is a need to process birds at greater sizes/weights.
3	Devise improved and rapid methods for the detection of metal fragments, bone, and other foreign materials in meat.
4	Develop methods to prevent cross contamination and ingesta contamination leading to the elimination of adulterated final product.
5	Define the cause of "white striping" and "woody breast" and other myopathies in chicken breast meat and determine procedures to reduce its incidence.
6	Determine effects of preslaughter stress on feather release, moisture gain/retention, and muscle tissue quality.
7	Define the effect of gas stunning on delay in defeathering, chilling, and meat quality in broilers and turkeys.
8	Determine the actual feasibility of irradiation of poultry meat.
9	Assess meat quality changes over time due to genetics, live operations, and primary processing changes, and determine future research and grading needs to maintain or improve eating quality.
10	Develop and validate post-grinding antimicrobial interventions for ground poultry products that enhance pathogen reduction, maintain product quality, and support regulatory approval and commercial implementation.

Employee Safety & Health

Rank	Research Needs Statement
1	Industrial Hygiene monitoring and sampling protocols -- identify potential exposures and develop a protocol for determining permissible exposure levels and for determining required frequency and methodology for routine sampling -- including ammonia, chlorine, nuisance dusts, formaldehyde, carbon dioxide and a variety of airborne infectious diseases such as aspergillosis and histoplasmosis.
2	Identify existing and novel practices to prevent dissipation and spread of any public health virus aerosols from workers near one another in processing plants. Provide safety guidelines and design criteria for communal areas such as break rooms, bathrooms, etc.
3	Determine the incidence of repetitive motion disorders in catchers and live hang workers and develop strategies to minimize these conditions.