

SUBJECT INDEX

2009 Poultry Science Association Annual Meeting

Numbers following names are abstract numbers for oral presentations, abstract numbers followed by P are poster presentations.

A

abdominal fat, 264P
absolute growth index, 433P
acetyl CoA carboxylase, 395P
acid insoluble ash, 216
acid–base balance, 428P
active carbon, 156
acute phase response, 128
adaptation, 1
additives, 392P, 393P
adhesion, 442P
adipic acid, 273P
adipose tissue, 396P, 397P
adipose triglyceride lipase, 396P, 397P
admissions, 210
adrenocortical cell, 426P
adrenocorticotrophic hormone, 426P
adsorbent, 118
adsorbents, 325P
adsorption, 325P
aerobes, 276P
aflatoxicosis, 118
aflatoxin, 81, 118, 325P
AGP, 319P
AI, 328P
algae, 330P, 424P
alkaline solubilization, 440P
allantois, 154
Allzyme® SSF, 372P
aloe vera, 133
alternative feeds, 102
alternative food, 376P, 377P
alternative foods, 375P
alternative growth promoters, 313P
alternative heating sources, 27
alternative molting, 242P, 243P
alum, 273P
ambient temperature, 250P, 390P
AME_n, 121
amino acid, 87, 89, 183, 219, 220, 221, 222, 341P, 342P, 345P, 347P, 348P, 349P, 350P
amino acid digestibility, 96, 380P
amino acid digestibility methods, 92
amino acids requirements, 361P
ammonia, 26, 155, 156, 250P
amnion, 154, 411P, 412P
amylase, 185
anaerobes, 276P
angel food cake color, 226
animal science, 209
animal welfare, 2, 12
anterior pituitary, 419P
antibiotic resistance, 443P
antibiotic-free diets, 271P, 272P
antibody response, 294P
anticoccidial, 73, 193, 404P
antimicrobial, 436P, 445P

antimicrobial resistance, 235, 430P
antioxidant, 330P
antiviral, 206, 297P
APC, 228
arcobacter, 237
arginine, 78, 93, 298P
ascites, 30, 162
ascitis, 400P
ascorbic acid, 270P
assessment contest, 12
astrovirus, 199
attic inlets, 26
audit, 106
auditory brainstem response, 413P
autoinducer-2, 127
available, 218
avian, 202, 423P
avian development, 203
avian immunity, 36
avian influenza, 169, 204, 405P
avian pathogenic *E. coli*, 402P
avian reproduction, 69
AVT, 8

B

Bacillus licheniformis, 196
Bacillus, 74, 436P
bacitracin, 314P
bacitracin methylene disalicylate (BMD), 54
background microflora, 433P
backyard flock, 280P
bacteria, 72
bacterial reductions, 229
balanced selections, 3
barring, 163
beak trimming, 171, 172, 248P
behavior, 10, 175, 243P, 245P
beta defensin, 304P
beta glucan, 269P
BHT, 330P
bioavailability, 45
biochemical parameters, 379P
biocontrol, 267P
bioethics, 12
biofilm, 436P, 444P
bioluminescent bacteria, 233
biosecurity, 200
biotechnology, 368P, 369P
bird age, 446P
bird sex, 143
birds, 416P
blood metabolism, 308P
blood parameters, 327P
blood profile, 123
body weight, 82, 97, 259P, 260P, 316P, 386P
body weight gain, 24, 51

- bone, 312P, 340P, 424P
 bone ash, 51, 359P
 bone development, 23, 197, 257P
 bone mineralization, 178
 bone strength, 50
 BrdU, 423P
 breaking force, 211
 breast fillet, 104
 breast yield, 309P, 311P, 351P, 352P
 breeder, 70
 breeder hens, 53
 breeders, 339P
 breeding, 1, 10
 breeding objectives, 6
 broiler, 27, 30, 37, 39, 40, 42, 45, 46, 47, 49, 50, 51, 52, 61, 62, 66, 75, 76, 78, 85, 86, 87, 88, 94, 95, 98, 113, 115, 119, 121, 123, 126, 128, 137, 138, 139, 140, 141, 145, 146, 147, 149, 151, 152, 156, 157, 158, 159, 160, 161, 176, 177, 178, 179, 181, 183, 187, 188, 189, 190, 194, 197, 201, 208, 213, 214, 215, 218, 223, 235, 238, 249P, 261P, 262P, 263P, 264P, 266P, 272P, 273P, 274P, 287P, 300P, 301P, 306P, 307P, 308P, 310P, 311P, 312P, 313P, 316P, 318P, 321P, 324P, 327P, 328P, 329P, 337P, 342P, 343P, 344P, 351P, 352P, 355P, 359P, 364P, 365P, 377P, 379P, 380P, 381P, 383P, 385P, 403P, 411P, 435P, 447P, 451P
 broiler breast meat, 114
 broiler breeder, 16, 17, 19, 20, 22, 23, 124, 152, 213, 256P, 257P, 258P, 338P, 344P, 386P, 390P
 broiler breeder males, 18
 broiler breeder pullets, 24, 180
 broiler breeding, 3
 broiler chick, 54, 326P, 333P, 412P, 425P
 broiler chicken, 101, 125, 317P, 322P, 323P, 362P, 375P, 382P, 428P
 broiler hatching eggs, 148
 broiler houses, 278P
 broiler industry, 13
 broiler leg meat, 440P
 broiler meat, 374P
 broiler nutrition, 336P
 broiler performance, 26, 142, 143, 182, 211, 368P, 369P
 broiler production, 345P, 349P, 350P
 broiler progeny growth, 22
 broiler size, 104, 385P
 broiler welfare, 3
 broiler-type chick, 421P
 brooding, 261P, 262P
 brown egg layers, 353P, 354P
 brown-egg pullets performance, 144
 brown-shelled layers, 100
 budgerigar, 282P
 bursa, 301P
 busulfan, 58
 butyrate, 129
 by-products, 376P, 377P
- C**
C. coli, 432P
C. jejuni, 300P, 301P, 432P
 cage, 170, 246P
 cage eggs, 227
 cage free, 173
 cage production, 225
 caged, 255P
 caged hens, 228
 cage-free hens, 228
 calcitonin, 426P
 calcitonin receptor, 426P
 calcium, 450P
 calcium chloride, 105, 273P
 calcium silicate, 357P
 calorie, 179, 386P
 calsporin, 314P
 camelina meal, 97, 98
Campylobacter, 79, 173, 234, 236, 277P, 283P, 430P, 433P, 437P
Candida albican, 402P
 canola meal, 100
 caprylic acid, 79, 445P
 capsicum, 201
 capsicum oleoresin, 164, 293P
 carbohydrase, 212
 carbohydrase enzymes, 192
 carbohydrase, 214
 carcass, 133, 376P
 carcass chilling, 449P
 carcass injuries, 251P
 carcass rinse, 431P
 carcass yield, 344P, 345P, 346P, 369P
 cardiac glycoside, 94
 cardiac hypertrophy, 162
 cardiomyopathy, 400P
 carnitine, 339P
 L-carnitine, 411P, 412P
 carnosine, 446P
 carvacrol, 120, 164, 293P
 cathepsin, 449P
 CD154, 35
 CD25, 202
 cDNA library, 290P
 ceca, 430P, 444P
 cecum, 158, 283P
 centers of excellence, 15
 central nervous system, 421P
 challenge method, 194
 char, 156
 chemical composition, 102, 134, 375P
 chemokine, 9
 chick growth, 93
 chicken, 1, 41, 58, 68, 79, 80, 141, 164, 165, 166, 168, 170, 175, 195, 204, 205, 225, 234, 255P, 281P, 283P, 293P, 294P, 295P, 296P, 302P, 319P, 356P, 398P, 399P, 406P, 417P, 444P, 445P, 449P
 chicken CD40, 34
 chicken delta-like protein 1, 422P
 chicken nuggets, 438P
 chicks, 92, 130
 chilled carcasses, 452P
 cholesterol, 43
 cholesterol oxidative products, 439P
 chromic oxide, 216
 chukar, 193
 cinnamaldehyde, 164, 293P
 cinnamon extract, 85
 circadian, 414P
 citric acid, 105, 238
 classification, 10
 clock genes, 415P
 cloning and tissue distribution, 56, 332P
Clostridium, 436P
Clostridium perfringens, 77, 125, 158, 195, 196, 296P, 403P
 Cobb, 63
 coccidia, 193, 215, 335P
 coccidial vaccine, 119, 318P
 coccidiosis, 33, 73, 77, 78, 136, 181, 194, 195, 201, 302P, 306P, 404P
 coccidiosis vaccine, 75, 76
 Coenzyme Q10, 65
 coliforms, 276P
 collaboration, 13, 15
 college, 210
 colonization, 35, 111
 color, 112, 115, 367P
 comparative nutrition, 209
 compost, 161

- compound feed, 140
 concrete sealant, 436P
 conductance, 61
 contact information, 239
 control region, 282P
 conventional cage, 247P
 conveyor belt, 441P
 cook yield, 114
 copper, 43, 98, 238
 copper sulfate, 48
 core body temperature, 390P
 corn, 144, 220, 369P, 370P
 corn DDGS, 96
 corticosterone, 8, 60, 410P, 418P, 426P
Coturnix coturnix japonica, 252P, 253P, 260P, 427P
 creatine, 93
 CRH, 8
 crop, 315P
 crop mycosis, 402P
 crude protein, 90, 91
 crumble, 383P
 cryopreservation, 59
 crystal formation, 265P
 curcuma, 201
 curcuma longa, 42
 CXCL8, 303P
 CXCR1, 303P
 cyclooxygenase-2, 389P
 cytokine, 9, 42, 47, 201, 298P
 cytokines, 295P
- D**
- DA-MEL neurons, 415P
 Dandarawi, 286P
 daylength, 176
 DDGS, 84, 95, 110, 145, 146, 184, 212, 275P, 362P, 372P, 373P
 debone hour, 112
 decontamination, 234
 deep pectoral myopathy, 263P
 density, 248P, 424P
 deoxynivalenol, 322P
 depopulation, 175
 detection threshold, 28
 detoxification, 118, 325P
 developing country, 237
 development, 410P
 dexamethasone, 395P
 dexras1, 410P
 DFM, 39, 196, 315P
 diagnosis, 401P
 diarrhea, 199
 diatomaceous earth, 268P
 diet, 70
 dietary balanced protein, 115
 dietary folate supplementation, 56
 dietary phenylalanine, 356P
 dietary supplement, 42
 digestibility, 102, 145, 146, 183, 360P
 digestible arginine, 344P
 digestive tract, 315P
 digestive traits, 144
 dihydropyrimidinase, 57
 direct-fed microbial, 52, 74
 disease resistance, 31
 distance education, 209
 distillers dried grains with solubles, 155, 214, 371P
 distillers grains, 370P
 DNA, 167
 dopamine, 69
 drinking water, 133
 dry-stressed, 432P
 dual-energy X-ray absorptiometry, 178
 ducklings, 153
- E**
- E. coli*, 429P
E. coli O157:H7, 277P
Echinacea, 327P
 ecometric technique, 433P
 economic analysis, 143
 economic issues, 207
 economics, 82, 91
 egg, 55, 103, 107, 110, 229, 255P, 388P
 egg production, 17, 48, 81, 83, 97, 100, 371P, 378P
 egg quality, 43, 186, 348P
 egg shell, 450P
 egg testing, 448P
 egg traits, 16
 egg washing, 228
 egg weight, 82, 314P, 347P
 eggshell, 281P
 eggshell bacteria, 228
 eggshell thickness, 357P
 eggshell ultrastructure, 286P
Eimeria, 32, 37, 75, 76, 136, 181, 194, 195, 404P
Eimeria maxima, 302P
Eimeria tenella, 31, 42
 electrolytes, 340P
 electron-beam, 205
 embryo, 61, 149, 150, 154
 embryo development, 138
 embryo mortality, 258P
 embryo physiology, 63
 embryogenesis, 62
 embryonic, 418P
 embryonic development, 305P
 emulsifier, 324P
 energy, 26, 82, 135, 181, 208, 379P, 386P
 energy efficiency, 152, 278P
 energy metabolism, 39
 energy requirements, 180
 enriched egg, 44
 enrichment, 108
 enrichment broth, 236, 433P
 enrichments, 254P
 enteric colonization, 79
 enterococcus, 429P
 environmental, 29
 environmental issues, 207
 environmental modification, 11
 environmental temperature, 24, 180
 enzyme, 145, 183, 191, 213, 217, 219, 220, 221, 222, 331P, 360P, 362P, 392P, 393P
 enzyme activity level, 80
 enzyme efficacy, 142
 enzyme supplementation, 363P
 epidemiology, 237
 epigenetics, 289P
 eQTL, 288P
 essential amino acids, 90
 essential oil, 77
 ethanol, 294P
 ethylene-diamine-tetra-acetic acid, 232
 Europe, 7
 evoked potential, 413P
 excreta, 134
 excreta pH, 273P, 274P
 exhibition poultry, 280P

exogenous enzymes, 132
 extension, 208, 280P
 extension workshop, 12
 extention, 14
 extrusion, 145, 146

F

fasting, 397P
 fat, 284P, 324P, 396P
 fat deposition, 90, 395P
 fat source, 435P
 fatty acid, 139, 388P, 389P
 fatty acid metabolism, 339P
 fatty acid synthetase, 395P
 Fayoumi, 286P
 feed allocation, 24, 137, 180, 390P
 feed conversion, 132
 feed efficiency, 66, 81, 183, 231, 287P, 309P, 387P
 feed intake, 421P
 feed manufacture, 142
 feed manufacturing, 143, 384P
 feed mill, 384P
 feed moisture, 264P
 feed restriction, 24, 180
 feed withdrawal, 16
 feeding, 394P
 feeding programs, 22
 feedmill, 140
 fermentation, 94
 fertility, 19, 20, 124
 fertilization, 407P
 fillet dimensions, 113
 fillets, 447P
 five w's, 239
 flavor, 110
 flaxseed, 97, 98, 231
 FliC, 111
 flow cytometry, 34
 fluoride, 51
 focus group, 224
 folate, 55
 folate supplementation, 332P
 folic acid, 55, 331P
 food intake, 420P
 Food safety, 236
 foot pads, 5
 footpad dermatitis, 159
 format, 240
 formulation matrix, 186, 187
 free range eggs, 226
 free-range, 255P
 full fat soy, 222
 function, 174
 functional oils, 122
 functionality, 227
 fungus myceliated grain, 244P
 furnished cage, 247P
Fusarium mycotoxin, 322P, 323P

G

gain, 387P
 gait score, 178
 galanin, 417P
 galanin receptor, 417P
 gallisepticum, 401P
 GalTase-I, 407P
 gelatin, 425P

gene, 168
 gene expression, 9, 162, 197, 300P, 394P, 399P
 gene ontology, 165
 gene regulation, 203, 305P
 genetic diversity, 166, 283P
 genetic modification, 11
 genetic polymorphisms, 167
 genetics, 6, 7, 270P, 289P
 genome, 291P
 genomics, 7, 11, 290P
 germ cells, 406P
 germline replacement, 58
 ghrelin, 420P
 global gene expression, 287P
 β -glucan, 295P
 glucanase, 185
 glutamic acid, 88, 346P
 L-glutamine L-glutamate, 391P
 glycogen, 138
 glycosaminoglycan, 64
 GnRH-I, 416P
 goblet cell, 392P, 393P, 425P
 gonadotropin releasing hormone, 68
 gossypol, 80
 GP, 308P
 GPCR, 417P
 GR, 67
 graphics, 239
 GRE, 418P
 greenhouse, 30
 grobiotic, 130
 group selection, 4
 growing, 340P
 growth, 135, 140, 170, 176, 187, 259P
 growth efficiency, 271P
 growth hormone, 419P
 growth performance, 54, 85, 101, 126, 324P, 362P, 363P
 growth profile, 16, 17
 GRP78, 446P
 guanidino acetic acid, 93
 guar saponins, 127
 guava, 375P, 377P
 guinea fowl, 290P, 400P
 gut, 72
 gut health, 321P
 gut histology, 108
 gut morphology, 33

H

H5N1, 292P
 hatchability, 17, 124, 148
 hatchability, 258P
 hatching events, 63
 health, 280P
 health effects, 427P
 heat stability, 211
 heat stress, 40, 52
 helminthic parasites, 268P
 hematology, 323P
 hen lines, 103
 hen performance, 91
 hens, 184, 192, 267P
 heritage breed, 269P
 heritage chicken, 450P
 heterophil, 32, 304P
 heterophils, 296P
 high-density lipoproteins, 242P
 DL-HMTBA, 117

horizontal transmission, 173
 hot-blade, 172
 housing, 437P
 HPLC, 65
 humoral, 174
 humoral immunity, 328P
 husbandry, 174
 hydrogen sulfide, 155
 25-hydroxycholecalciferol, 53
 Hy-Line, 372P
 hypolipidemic, 313P
 hypothalamus, 290P

I

ideal protein, 89, 345P, 346P, 349P, 350P
 IL-19, 36
 IL-8, 303P
 ileum, 158, 315P, 319P
 imaging, 230
 imbalance, 356P
 immune, 32, 111, 174, 288P
 immune function, 39, 306P, 307P, 343P
 immune response, 35, 40, 78, 126
 immune system, 203, 305P
 immunity, 41, 71, 270P, 295P, 321P, 335P
 immunoassay, 448P
 immunology, 289P
 immunosuppression, 9
 impedance biosensor, 405P
 imprinting, 337P
 in ovo, 154
 in ovo feeding, 131
 in ovo injection, 411P, 412P
 inbreeding, 166
 incubation, 149, 150, 151, 153, 258P
 inducible nitric oxide synthase, 38
 induction, 263P
 industry, 14, 210
 industry associations, 15
 infected chickens, 405P
 infection, 442P
 inflammation, 129, 188
 infrared, 171, 172
 inhibition, 127
 injuries, 252P, 253P
 innate immune response, 301P
 innate immunity, 31, 37, 206, 293P

 insulin, 421P
 intensity, 441P
 internal egg quality, 357P
 intestinal development, 131
 intestinal morphology, 119, 215, 329P
 intestinal morphometrics, 323P
 intestinal transporter, 188
 intestine, 153
 introductory, 279P
 ionophore, 33
 iron, 45
 ISA Brown, 314P
 isoleucine, 88, 351P, 355P

J

Japanese quail, 59, 259P, 260P, 427P
 juvenile growth, 63

K

kidney lesions, 265P
 Kramer shear force, 116

L

lab animal, 427P
 lactic acid bacteria, 317P
Lactobacillus reuteri, 125
 latency, 413P
 layer, 43, 81, 97, 174, 186
 layer manure, 275P
 layer-type chick, 421P
 laying hen, 28, 44, 48, 55, 56, 84, 108, 155, 173, 231, 243P, 246P, 247P, 314P, 331P, 332P, 357P, 372P, 430P
 laying hen genetics, 4
 laying hen genomics, 4
 laying hen performance, 71
 LD, 414P
 LDL liposomes, 408P
 LEAP-2, 37, 302P
 leg health, 23, 257P
 leg weakness, 53
 Leghorns, 110, 371P
 length of storage, 366P
 lesion, 404P
 lesion development, 76, 194
 lesion scores, 122
 leukocyte, 298P
 leukocytes, 296P
 levamisole, 327P
 light, 176
 light intensity, 261P
 light source, 262P
 lighting, 177, 263P
 lighting systems, 18
 lipid oxidation, 105, 435P
 lipogenesis, 394P
 lipolysis, 396P, 397P
 lipopolysaccharide, 128, 298P, 307P
Listeria monocytogenes, 232
 litter, 157, 158, 249P
 litter depth, 159, 276P
 litter treatment, 160
 live weight gain, 132
 liveability, 5
 liver, 394P
 liver toxicity, 80
 local food, 224
 long lasting physiological memory, 62
 low protein, 88
 LSN chicken, 422P
 luciferase, 418P
 lupins, 380P
 lymphocytes, 299P
 lysine, 223, 351P, 352P, 353P, 354P

M

macrophages, 299P
 malabsorption, 181
 male, 19
 malic enzyme, 395P
 management, 23, 256P, 257P, 390P
 β -mannanase, 362P
 manuscript, 240
 manuscript preparation, 241
 mapping, 281P
 Marek's disease, 289P
 marinade, 443P

- marination, 114
 market, 224
 MAS, 284P
 mash, 141, 383P
 mass spectrometry, 304P, 334P
 maternal age, 50
 matrix values, 132
 maturation, 19
 Maxiban®, 73
 mayonnaise color, 226
 MDV, 285P
 mean particle size, 144
 meat and bone meal, 219
 meat quality, 104, 115, 116, 117, 381P, 447P, 449P
 mechanical properties, 286P
 mechanically separated turkey meat (MSTM), 105
 media, 236
 meiosis, 60, 406P
 melamine, 265P
 melanocyte, 163
 melanopsin, 69
Meleagris gallopavo, 291P
 melengesterol acetate, 245P
 metabolic efficiency, 108
 metabolic indices, 400P
 metabolism, 135, 139, 219, 220, 221, 222, 324P
 metabolizable energy, 102, 115, 179, 375P, 380P
Metarhizium anisopliae, 267P
 DL-methionine, 117
 methodology, 431P, 432P
 methylation, 285P, 289P
 methylcellulose, 438P
 5-methyltetrahydrofolate, 55, 331P
 microsatellite markers, 167
 microarray, 162, 164, 165, 203, 300P, 301P, 302P, 394P
 microbes, 161
 microbial load, 140
 microbial phytase, 238
 microbial populations, 130
 microbiology, 442P
 microcrack, 230
 microencapsulation, 120
 microflora, 238, 319P, 444P
 microRNA, 203, 285P, 305P
 microsatellite marker, 281P
 Minolta L*, 116
 Minos, 168
 mintrex, 46
 mite, 267P
 mitochondria, 65, 66
 mixer-added fat, 142
 mixing, 191
 mobility, 177
 model, 135
 modeling, 25, 147, 385P
 moisture, 159
 molting, 70, 71, 84, 245P, 378P
 molting layers, 244P
 monoclonal antibodies, 34, 448P
 monocyte, 298P
 mortality, 5, 161
 MR, 67
 mRNA abundance, 331P
 mRNA expression, 56, 332P
 mtGenome, 282P
 mucin RNA, 190
 mucosal enzymes, 101
 muscle, 64, 109, 152, 422P, 423P
 muscle phenotype, 65
 muscle type, 308P
 mushroom, 299P
 mW/sq. cm, 441P
 Mx, 169, 206, 297P
 Mx gene, 204
 mycoplasma, 401P
Mycoplasma gallisepticum, 428P
 mycotoxin, 81, 325P
 mycotoxin binder, 118
 mycotoxins, 373P
 myoblast, 423P
 myofiber number, 152
 myofibrillar proteins, 105
 myogenesis, 422P
 myopathy, 447P
- N**
- N glycosylation, 64
 napole yield, 117
 ND, 328P
 NE, 403P
 near-infrared spectroscopy, 96, 367P
 necrotic enteritis, 125, 195, 196, 403P
 nest-deprived, 416P
netB, 403P
 neural networks, 25
 neutral lipids, 440P
 new house, 29
 NF-Kappa-B, 288P
 NHE3, 199
 nicarbazin, 404P
 nipples, 249P
 NIR, 134
 nisin, 232
 nitrogen balance technique, 361P
 non feed removal diet, 378P
 nonessential amino acids, 90
 non-esterified fatty acid, 246P
 NPP, 338P
 NSP enzymes, 184, 186, 187
 nuclear receptor, 67
 NuPro, 321P
 nutrient balance, 382P
 nutrient composition, 225
 nutrient density, 147
 nutrient destruction, 142
 nutrient digestibility, 190
 nutrient ileal digestibility, 101
 nutrient profiles, 412P
 nutrient utilization, 272P
 nutrients, 157, 275P
 nutrients reduction, 360P
 nutrition, 23, 185, 257P, 280P
 nutritional value, 99
- O**
- oat hulls, 182
 obesity, 429P
 obestatin, 420P
 occurrence, 373P
 odor, 28
 1 α -OHD₃, 216
 oil seeds, 374P
 olfactometry, 28
 omega-3, 368P, 374P, 424P
 omega-3 eggs, 439P
 omega-3 fatty acids, 107, 231
 omega-3 PUFA, 108
 omega-6:3 ratio, 231

optical microscopy, 392P, 393P
 oregano essential oils, 317P
 organ weight, 294P, 322P
 organic acid, 266P, 320P
 organic and inorganic Cr, 40
 organic layer production, 268P
 organic trace mineral, 334P, 336P
 organic zinc, 333P
 origin, 365P, 367P
 outbreak, 200
 ovarian tissue, 59
 ovary, 260P
 oviduct, 260P
 oxidative stress, 294P
 oxygen uptake rate, 233
 oxytetracycline, 109
 ozone, 229

P

packaging, 435P
 particle size, 141, 380P
Passiflora alata, 252P, 253P
 pathogens, 79, 234
 paw scores, 159
 PDI, 384P
 pea hulls, 182
 pea protein isolate, 342P
 peak force, 438P
 pellet, 141, 217, 383P, 384P
 pellet durability index, 384P
 pellet quality, 143, 211
 pelleting, 191
 PEMS, 303P
 penetration, 103
Peniophora lycii, 184, 192, 218
 PepT1, 398P, 399P
 perches, 248P
 performance, 43, 72, 73, 75, 89, 94, 95, 98, 122, 133, 190, 214, 322P, 335P, 341P, 343P, 349P, 350P, 351P, 352P, 353P, 354P, 359P, 360P, 364P, 365P, 379P, 381P, 382P, 386P
 pH, 112, 438P
 pharmacokinetic, 109
 phase-feeding, 113, 387P
 pheasant, 193
 phenylalanine-pyruvate aminotransferase, 356P
 phosphate, 275P
 phosphorus, 50, 83, 218, 337P, 359P
 phosphorus rickets, 51
 photoperiod, 176, 177, 415P
 phylogenetics, 282P
 phytase, 83, 184, 186, 187, 188, 189, 190, 192, 211, 212, 214, 215, 216, 218, 275P, 359P
 phytase activity, 358P
 phytase sources, 358P
 phytase storage, 358P
 phytate P utilization, 216
 phytogetic additives, 132
 piggyBac, 168
 pigmentation, 163
 pineal gland, 414P
 Pit-1, 419P
 pituitaries, 68
 pituitary, 410P
 PK-1 system, 229
 planktonic, 444P
 plant, 299P
 plant extracts, 120, 267P

plant-derived supplement, 119, 318P
 plasma biochemistry, 323P
 polar lipids, 440P
 population structure, 166
 porins, 41
 post-hatch feeding, 340P
 POU-homeodomain, 419P
 poultry, 7, 25, 29, 72, 106, 109, 185, 207, 210, 237, 400P, 432P, 443P
 poultry litter, 236, 277P
 poultry processing, 233
 poultry science, 209, 279P
 PPAR α , 399P
 prebiotic, 312P, 392P, 393P
 prebiotics, 364P
 prediction, 96
 preincubation, 148
 pre-initial diet, 250P
 pressure, 230
 pre-starter, 264P
 primary chicken B-cells, 34
 primary chicken macrophages, 34
 primordial germ cells, 58
 PRL, 416P
 probiotic, 32, 33, 74, 75, 76, 128, 312P
 probiotics, 39, 316P
 problem-based learning, 279P
 processing, 106, 217, 235, 451P
 production, 172, 255P, 309P
 production issues, 207
 production performance, 86
 productive performance, 376P, 377P
 productivity, 247P
 profitability, 147, 385P
 progeny, 311P
 promoter activation, 419P
 propolis, 328P
 protease, 217, 219, 220, 221, 222, 223, 274P
 protein, 82, 135, 137, 343P
 protein concentration, 274P
 protein degradation, 449P
 protein quality, 99
 protein quality traits, 366P
 protein reduction, 346P
 protein source, 274P
 proteome, 57
 proteomics, 198
 proton leak kinetics, 66
 proton-coupled folate transporter (PCFT), 332P
 proximate analysis, 227
 public acceptability, 2
 public policy issues, 207
 publication, 240
 pullet, 248P, 269P
 pulmonary hypertension, 150
 purpurin, 414P
 pyrolysis, 156
 pyrosequencing, 136

Q

QTL, 284P
 quail, 102, 193
 quality, 227, 230
 quality defects, 104
 quality of poultry litter, 250P, 251P
 quantitative morphology, 391P
 quantitative trait loci, 281P

R

ractopamine-HCl, 116
 range, 170
 range eggs, 227
 range production, 225
 rapid screening, 405P
 ration, 341P
 RCAS, 305P
 real-time PCR, 36, 69, 237, 317P
 rearing, 18
 rearing programs, 20
 rearrangement, 282P
 receptor, 68
 Recognition Award, 12
 recovery, 446P
 red pre-starter, 383P
 reduced folate carrier (RFC), 56
 reduced protein, 89
 regeneration, 422P
 repetitive sequences, 167
 reporter, 418P
 reproduction, 415P
 reproductive tract, 430P
 requirements, 353P, 354P
 research, 14
 residues, 109
 response, 111
 retina, 414P
 retinoic acid, 406P
 rooster, 57, 92
 rooster semen, 408P
 rosemary, 232
 Ross, 63
 rRT-PCR, 405P

S

454 sequencing, 291P
Saccharomyces cerevisiae, 309P
Saccharomyces cerevisiae fermentation product, 306P, 307P
 safflower meal, 378P
Salmonella, 29, 35, 86, 111, 173, 205, 234, 235, 244P, 266P, 277P, 431P, 437P, 442P, 443P, 445P, 451P, 452P
Salmonella and *Eimeria* interactions, 320P
Salmonella control, 320P
Salmonella Enteritidis, 103, 229, 448P
Salmonella gallinarum, 41
Salmonella Typhimurium, 441P
 sampling plans, 452P
 sanitation chemicals, 233
 SAT, 210
 satellite cell, 423P
 scanning electron microscopy, 286P
 scientific prose, 240
 scientific writing, 240
 screening tool, 45
 season, 259P
 SED1, 407P
 selection, 1, 11, 166
 selection traits, 4
 selenium, 44, 326P, 329P, 439P
 sensory, 107
 sequence diversity, 169
 serogroup, 431P
 serogroup D1, 448P
 serology, 401P
 serotype, 235
 serum urea nitrogen, 85
 serum uric acid, 85
 sesame hull, 381P

sex determination, 60
 sex ratio, 60
 sexual maturation, 17, 68
 shear, 114
 shelf life, 435P
 shell color, 226
 shell egg, 225, 230
 shell quality, 16
 shell ultrastructure, 450P
 short, 239
 short chain fatty acid, 129
 short variable region, 283P
 short-term feeding, 130
 shRNA, 398P
 silymarin, 80
 simulation, 25, 452P
 site of injection, 154
 size exclusion chromatography, 334P
 skeletal muscle, 446P
 skin quality, 49
 slaughter yield, 411P
 slow-growing, 224
 SNP, 288P
 somatotroph, 410P
 soy hulls, 242P, 243P
 soybean meal, 221, 365P, 366P, 367P, 368P
 soybean meal origin, 363P, 364P
 soybean meal survey, 99
 sperm, 57, 407P
 sperm membrane integrity, 408P
 sperm motility, 408P
 sperm storage tubules, 409P
 stability, 120, 217
 standardized ileal digestibility, 342P
 statistics, 452P
 stearidonic acid, 368P
 sterilization, 58
 steroids, 67
 strain, 112, 113, 178, 364P, 387P
 stress, 9, 10, 175, 177, 248P
 stress hormones, 60
 striping, 447P
 sugar beet pulp, 182
 sugar syrup, 379P
 supplement, 49
 supplementation, 345P, 346P, 347P, 348P, 349P, 350P, 391P
 surveillance, 200
 survey, 106
 sustained genetic progress, 3
 syndecan-4, 64
 synthetic ice blocker, 408P

T

T regulatory, 202
 T3, 131
 T4, 90
 table salt (NaCl), 427P
 TAsV-2, 303P
 TBARS, 117, 438P, 439P, 440P
 teaching, 14
 technical editing, 241
 temperature, 61, 149, 153, 251P, 443P
 temulose, 130
 tenderness, 112
 testosterone, 21
 texture, 110
 Th2, 36
 therapeutic, 445P
 thermal manipulations, 62

thermostability, 191
thevetia peruviana cake, 94
Thr, 223
threonine, 343P, 353P
thyme, 126
thyroxin, 70
tibia, 344P
tibial dyschondroplasia, 198
TLRs, 37
tocopherol, 388P, 389P
tomato, 376P
tomato pomace, 378P
tonic immobility, 252P, 253P
toxicity, 356P
trace element, 160
trace minerals, 335P
trade media, 239
transcription factor, 288P
transplantation, 59
transponder, 61
transport stress, 270P, 308P
transposon, 168
triglycerides, 242P
tropical fruits, 310P
TSAA, 223
tumor cells, 299P
turkey, 5, 57, 64, 65, 69, 89, 131, 197, 224, 254P, 265P, 270P, 271P, 291P, 309P, 335P, 370P, 401P, 402P, 437P
turkey astrovirus, 38
turkey growth performance, 212
turkey ham, 232
turkey hen, 70
turkey poult, 363P
2D gel electrophoresis, 198

U

ultimate 24 hour pH, 116
ultrasonic bath, 114
uniformity, 19, 256P
university, 13, 14
uric acid, 246P
uterovaginal junction, 409P
UV treatment, 441P

V

vaccination, 151, 205, 215, 269P
vaccine, 32, 33
vaginal epithelium, 409P
valine, 87, 88, 352P, 354P, 355P
value, 189
vegetable, 161
vegetation, 28
ventilation, 437P
villi, 315P

villi indices, 425P
VIP, 416P
viral resistance, 169
virginiamycin, 125
virus, 204
vitamin D, 53, 450P
vitamin E, 78, 326P, 327P, 329P, 330P, 439P
vitamin U, 54

W

wastewater treatment, 233
water, 106
water consumption, 249P
water flow, 249P
water runoff, 277P
waveform, 413P
weight loss, 244P
welfare, 5, 6, 7, 10, 11, 246P, 247P, 254P
well-being, 1
wet litter, 134
wheat, 144
wheat DDGS, 96
wheat distiller's dried grains with solubles, 342P
white striping, 104
whole genome selection, 4
whole sorghum, 101, 382P
whole wheat, 382P
withdrawal period, 73

X

xylanase, 185, 191

Y

yeast, 72, 310P
yeast cell wall, 123, 442P
yeast derived protein, 321P
yeast infection, 402P
yeast-extract nucleotides, 131
yield, 113
yolk, 138
yolk color, 226
yolk membrane, 103
yucca and quillaja saponins, 127

Z

zeolite, 86
zinc, 46, 333P, 334P
zinc level, 49
zinc source, 47, 49
zinc sulfate, 333P
Zn proteinate, 333P
Zn(HMTBa)₂, 46