

# SUBJECT INDEX

Abstracts without letters are oral presentations, abstract numbers preceded by M are Monday posters, numbers preceded by T are Tuesday posters, and numbers preceded by W are Wednesday posters.

Abstracts from the 2006 International Poultry Scientific Forum held in Atlanta, GA, January 23–24, 2006, are preceded by S-.

- A**
- $\alpha$ -1-acid glycoprotein (AGP), 231
- $\alpha$ -Amylase, S-T111
- $\alpha$ -galactosidase, 226
- $\alpha$ -tocopherol, 93
- acid-base balance, S-P154
- acidified sodium chlorite, S-P173
- acids, S-P183, S-P184
- ACTH, S-P154, S-M5
- ACTIVATE, 239
- active learning, M31
- active ventilation, 142
- acute phase response, 152
- additives, M21, T7, W53
- Adenovirus, S-T103
- adrenal hormones, T46
- aflatoxicosis, W24
- AgGard, S-P162
- agricultural security, S-P162
- agroterrorism, S-P162
- air emissions, 135, S-M35
- air-chilling, 125
- ALAD, S-P160
- albumen functionality, 249
- albumen, 267, T30
- Alcell Lignin, S-M24
- Allometry, S-M56
- 1 alpha-OH cholecalciferol, 161
- Alphamune™, T45, S-P186, S-M6
- alternative feed, M12
- alternative to antibiotic growth promoters, S-T128
- ALV, S-P174
- AME, 225
- AME, DE, W18
- AME, S-P177, S-T139
- amino acid digestibility, W4, S-P198
- amino acid requirements, 219
- amino acid transporter, 154
- amino acids, 31, 51, 145, 148, 149, 211, M6, M8, T1, S-M74, S-T135, S-T138, S-T139, S-T141, S-T142, S-T143, S-P195
- ammonia, 131, 132, 133, 134, S-M35, S-T127, S-P209
- ammonia release, W37
- ammonium chloride, S-M45
- AMP-activated protein kinase, T44
- amphiregulin (AR), 260
- amylase, 171, M25
- animal care guidelines, 273
- animal welfare, 9, 274
- animal well-being, 272
- antibacterial, M53
- antibiotic, 48, T2, S-M25, S-M24, S-T117
- antibiotic resistance, S-T134
- antibody, 88, W40
- antibody heat stability, W55
- anti-Gal, 97
- antimicrobial resistance, W51
- antimicrobial resistant, S-P163
- antimicrobials, 185, M52, T30 S-P170
- antioxidant, M34, S-M46, S-M82
- APEC, 62, M54
- apparent metabolizable energy, W4
- apple phenolics, 128
- arginine, 147, 176, S-M72
- ASC, S-P173
- ascites, 268
- Astrovirus, S-T98
- atmospheric NH<sub>3</sub>, S-T124
- automatic counting, 68
- automotive oil, S-P160
- automotive waste oil, S-P161
- Availa-Z/M, S-M32
- avian, 83, T53
- avian Adenovirus, S-M66
- avian influenza, 58, 84, S-T99, S-T100, S-T101, S-T102, S-T103, S-T104, S-P165
- avian model, 113
- Avian reovirus, S-M65
- avilamycin, 47
- Azolla meal, S-M75
- B**
- 3 $\beta$ -HSD, T48
- $\beta$ -mannanase, T11
- Bacillus coagulans*, T4
- Bacillus subtilis*, S-P152
- Bacillus subtilis* C-3102, 45
- bacteria, 68, 186, 244, W38, S-P203
- bacterial phytase, S-T109
- bacterial recovery, 187
- bacteriostatic, T30
- barley silage, 203
- BAX, S-M86
- beak trim, M39, M40
- behavior, 275, M40, S-M83
- behaviour, 200, 203, 204
- Beta-glucan, S-M47
- betaine, W6, S-P153, S-P196
- bifidobacteria, T19
- biofilm, 186, W26
- Bio-Mos, 46, S-M24
- biosensor, S-T102
- biotransformation, S-T118
- bird, 80, 81, 82
- bird performance, S-M52
- bleed-out, T27
- blindness, T49
- blood, 258
- blood constitute, S-M31
- blood factors, M3
- bloodserum, 223
- Blueberry, S-M49
- Blueberry by-products, S-M48
- B-mannanase, S-T148, S-T149
- body composition, M10
- body weight, 20, 55, W43, S-M37, S-M38, S-M55, S-T120, S-T149, S-P197
- bone, 183, M41, T6, S-P199
- bone ash methodology, 36
- bone mineral density, M14, S-P155
- bone mineralization, M13, M37
- bone strength, M13
- booster treatment, S-P213
- Box Behnken, S-M68
- brain regional neurochemistry, M35
- breast, S-T141
- breast meat, 55, 123
- breast meat yield, S-T131
- breeder, 157, 235
- breeder age, S-M8
- breeder hens, S-P213
- broiler breast, S-T123
- broiler breeder hens, 181, 214, M35, S-M2, S-M36, S-M37
- broiler breeders, 21, 22, 24, 33, 45, 143, 175, 180, 201, 217, M36, S-M38, S-M39, S-M40, S-M82
- broiler carcasses, 188, S-M84, S-P170
- broiler chick, 258
- broiler chicken skin, S-M50
- broiler chickens, 20, 104, 127, 128, 146, T14, T36, W5, S-M25, S-M48, S-M90, S-T105, S-T131, S-P165, S-P187
- broiler chicks, 52, M1, T23, T34, W19, S-P157
- broiler embryo, 50
- broiler genetic strain incubation, 115
- broiler growth curve, 120
- broiler heat stress, 166
- broiler house, S-T134
- broiler litter, 136, W37, S-T129
- broiler lung, 91
- broiler performance, W22, S-M80, S-M88
- broiler processing, S-P167
- broiler progeny, S-M40
- broiler strains, 53
- broiler transport, 142
- broiler-chicken meat, S-M46
- broileromatic, M45
- broilers, 18, 19, 26, 27, 31, 40, 43, 44, 47, 48, 51, 54, 59, 90, 101, 107, 129, 133, 134, 135, 140, 141, 145, 147, 150, 151, 152, 153, 155, 156, 160, 164, 165, 167, 171, 179, 204, 205, 213, 214, 220, 222, 223, 226, 227, 233, 234, 237, 269, M3, M10, M14, M16, M18, M20, M22, M25, M32, M37, M43, T4, T8, T10, T11, T13, T20, T25, T39, T40, T46, T58, W2, W4, W10, W14, W16, W17, W34, W51, W56, S-M3, S-M5, S-M9, S-M10, S-M16, S-M17, S-M18, S-M22, S-M23, S-M27, S-M28, S-M31, S-M42, S-M44, S-M45, S-M49, S-M51, S-M55, S-M57, S-M64, S-M69, S-M70,

- S-M71, S-M73, S-M74,  
S-M76, S-M77, S-M78,  
S-M81, S-M85, S-M86,  
S-M87, S-T100, S-T106,  
S-T113, S-T115, S-T117,  
S-T118, S-T119, S-T121,  
S-T122, S-T127, S-T133,  
S-T137, S-T138, S-T139,  
S-T140, S-T141, S-T143,  
S-T145, S-T146, S-T147,  
S-T149, S-P154, S-P155,  
S-P168, S-P171, S-P172,  
S-P175, S-P177, S-P178,  
S-P185, S-P188, S-P190,  
S-P191, S-P195, S-P198,  
S-P199, S-P200, S-P205,  
S-P206, S-P208, S-P210,  
S-P211
- broilers performance, W18  
bromine, S-M60
- C**
- C:N, 136  
CaCO<sub>3</sub> particle size, W14  
cage location, M42  
cake, S-T127  
calcium, 161, 163, T6, W13,  
S-T107, S-T111, S-P189,  
S-P195, S-P199  
caloric efficiency, S-P190  
CALSPORIN, 45  
cAMP, T48  
*Campylobacter*, 189, 238, 241,  
242, T19, T32, T52, W265,  
S-M85, S-P20, S-T133,  
S-P171, S-P206  
*Campylobacter jejuni*, T33,  
W25, W35  
canola meal, W5  
canola, S-T114  
carbohydrases, 169  
carbohydrate, M24  
carbon, 136  
carcass, W20, S-P200  
carcass microbiology, 188  
carcass quality, S-T131  
carcass rinses, S-P171, S-M86  
carcass wash, T27  
carcass yield, S-T113, S-T115  
cardiac function, S-P156  
carnitine, 114, 235, S-M4  
catastrophic disease, S-T101  
catching, S-T121, S-T122  
cathepsin, 127  
CAV, S-M66  
cDNA, M49, T42, W50  
ceca, S-P205, S-P206, S-P208  
cecal microflora, S-M90, S-P187  
cecum, S-M77  
cell-mediated immune system,  
S-M72
- cellulose, 100  
cereals, 225  
certification, 10  
chick quality, 13, 14, 264, 266  
chick supplement, S-M79  
chicken housing systems, 138  
chicken meat lipid oxidation,  
W31  
chicken meat, W30  
chickens, 71, 72, 96, 110, 112,  
130, 189, 196, M30, T1,  
T24, T42, T44, T49, W24,  
W49, S-M14, S-M61, S-T92,  
S-T94, S-T98, S-T103,  
S-T108  
chicks, 256, M24, W21, W23,  
S-M9, S-M19, S-T112,  
S-P192, S-P210  
chiller water, 243  
chiller water color, T27  
chlorinated water, S-M84  
chlorine, 188  
choice-feeding, M7  
cholesterol, S-M75, S-P204  
chromatogenic medium, 68  
chromium, S-P200  
Citrex, S-P151  
citric acid, 162, W8  
*Clostridium*, T31, T51, S-M61  
*Clostridium pefringens*, 67, 155,  
156, 191, S-M63, S-P169  
Cobb, S-M69  
Cobb 500, 146  
coccidia, 60, W6  
coccidial vaccination, S-T131  
coccidiosis, 4, T58, W56,  
S-M14, S-M63, S-T145  
coccidiosis vaccine, T3, W22  
cockerel chicks, S-T93  
cold stress, S-P186  
colicin production, S-P163  
coliforms, T40, S-P170  
collagenase activity, S-M50  
colonization, W25  
color, S-M52, S-M57  
color and damage scores, S-T124  
colostomized, 168  
colostomy, 33, 214  
Columbia, S-T95  
combination, T17, T18  
commercial layer, 259  
commercial poultry farms,  
S-T126  
compensatory growth, S-M70  
competitive exclusion, 190,  
M29, S-T128  
complexes, S-P188  
compost, T38, S-T129  
computerized scale, 20  
conductance, 118, 119, S-M7  
conjugated linoleic acid, M1,  
T15
- conjugated linoleic/Omega-3  
fatty acid, W33  
consumer sensory analysis, W32  
contamination, S-T129  
conversion, S-P211  
cook loss, 126, S-M51  
cool wash, 194  
copper, T25, S-M22, S-T145  
corn, S-T119  
corn germ meal, 105  
corn hybrid, 107, 108  
corn phytase, W19  
corn-SBM diet, 227  
correlation coefficient, W44  
corticosterone, 176, S-M5,  
S-M10, S-M74, S-T122  
cottonseed meal, T23  
counter-agroterrorism, S-P162  
cover panels, 201  
crab and lobster meal, 106  
crab meal, S-M52  
crate, S-P169  
*Crotalaria*, 220  
crude fiber, 109  
crude protein, T22, W9, S-P179  
Cry3Bb1 protein, M11  
culling, 202  
custard, 199  
cutaneous basophil hypersensi-  
tivity, S-M72  
cuticle, M52  
cyclooxygenase, M1  
cyclooxygenase-2, M4  
cytokines, S-M23, S-P157
- D**
- database, T42  
DBDMH, S-M60  
DDGS, 229  
deboning time, S-M59  
decontamination, S-T99  
defatted rice bran, 166  
defeathering, S-M85  
degermed-dehulled corn, W12  
deiodinase, 76  
deletion mutant, T33  
denaturing gradient gel electro-  
phoresis, 182  
densities, 276, M41  
deoxynivalenol, S-T118  
dephosphorylation, 158  
dermatitis, S-M61  
development, 78, M26, S-M56  
DF-1, M46  
DGGE, W45  
diet, S-M35  
diet uniformity, 99  
dietary amino acid density, 146  
dietary energy, 222, S-P180,  
S-P181  
dietary lipid, W30, W31
- dietary protein, 21, 95, S-T144  
digestibility, 169, 232, T17,  
S-M19, S-M20, S-M74  
direct fed microbial, 44, T31,  
T35, S-M23  
disease resistance, 5  
disinfectant, S-T99, S-P169  
dissacchridase, M25  
distillers grains, W3  
distillers dried grains with solu-  
bles, 105  
DIVA, S-T104  
DL-methionine, 213  
DNA markers, W42  
DNA sequence, W41  
dopamine, 75, 80  
dose, T20  
DPS, T3, W22  
drag swabs, M44, S-P208  
drinker management, S-M80  
drinking water, T9  
drinking water application, T37  
drug resistance litter, W35  
DT40, M46  
dual-energy X-ray absorptiome-  
try, M37, S-P155  
duck, T43  
dump coop, S-P169  
DXA, M10
- E**
- E. acervulina*, S-M63, S-M14  
*E. coli*, 62, T31 S-T108  
*E. coli* count, 130  
*E. coli* O157:H7, S-P173  
*E. maxima*, S-M14, S-M63  
early food restriction, 53  
early nutrition, S-T140  
economics, 25, 144, 145, S-T148  
efficacy, S-M26  
efficiency of energy retention  
(EER), 165  
EGF, 261  
egg antibody, T57  
egg characteristics, M12  
egg composition, S-P204  
egg mass, S-T144  
egg processing, 246  
egg production, 28, 173, S-M13,  
S-M30, S-M33, S-M36,  
S-T132, S-T144  
egg quality, 22, 34, 194, 196,  
249, 250, T5, S-M11, S-M47,  
S-M75, S-T136  
egg shape, 22  
egg sizes, 13, S-M42  
egg specific gravity, S-P207  
egg storage length, 11  
egg storage time, 32, S-P185  
egg temperature, 12, S-M43  
egg turning, 11

- egg weight, S-P207  
egg yolk antibodies, 60  
egg yolk pigmentation, 106  
egg-production performance, 108  
eggs, 29, 195, 198, 245, M28, T15, W11, W33, S-M13  
eggshell, M52, M53  
eggshell conductance, 115, S-P156  
eggshell matrix, M47  
eggshell quality, 259, T9  
eggshell thickness, M36  
EIA, S-M10  
eicosanoids, 271, M4  
*Eimeria*, 95, S-M14  
*Eimeria* spp., 26  
*Eimeria tenella*, S-P157  
electrocardiogram, 122  
electroencephlogram, 122  
electrolyte, 233  
electrolyzed water, S-M84  
ELISA, S-M64, S-T104  
embryo metabolism, 115, T50  
embryo nutrition, 267  
embryo stress, T50  
embryo survival, S-P156  
embryogenesis, 251  
embryonic development, S-M43  
embryos, 252, 253, 254, 255, 256, 257, 258, T1  
encephalic photoreceptors, 79  
endocrine parameters, 266  
endogenous, 148  
endogenous losses, M17, S-P177  
energetics, S-M23  
energy, 211, S-T141, S-T143, S-P194  
energy balance, 3  
energy density, S-T148  
energy metabolism, 49  
energy requirement, S-M82  
energy/protein, 25  
*Enterobacteriaceae*, 247  
environmental enrichment, 274  
environmental samples, S-T134  
environmental factors, 265  
enzyme, 18, 171, 227, 228, M5, M13, T17, T18, S-M18  
epidemiology, S-M44  
Epigen, 261  
epigenetic temperature adaptation, 265  
*Escherichia coli*, M55, W28, W51, S-M60, S-P152, S-P163 S-P186  
essential amino acid, S-M70  
essential genes, T55  
ethanol immersion, S-P205  
ethics, 10  
European registration, 190, M29  
European Union, S-T128  
euthanasia, 202, S-T100  
everyday feeding, 181, S-M36  
excreta moisture, M2  
excreta, S-M22  
excrete, S-M27, S-M71  
excretion, S-M34  
exotic Newcastle disease, 84  
extended aging, S-M59
- ## F
- F strain, S-P150  
facial nerve, 206  
fasting, 64  
fat, 50, 109, M16, S-P194  
feather pecking, 203  
feathering, S-M31  
fecal contamination, 241  
feed, W12, S-P183, S-P184  
feed additive, 34  
feed amount, S-M37  
feed and feedstuff, 192  
feed application, T37  
feed conversion, 55, S-M55, S-T149, S-P181  
feed enzymes, S-P196  
feed form, M39  
feed intake, 3, 225, S-P191  
feed manufacture, 102  
feed pasage, 40  
feed processing, S-T119  
feed program, S-M40, S-M82  
feed utilization, S-T117  
feed withdrawal, S-M3  
feeding programs, 180  
female Japanese quail, W47  
femur, 36, 37  
fertile eggs, 116, 180, 219, S-P212  
fertility, S-M15, S-M38, S-M40  
fiber, 42, 131  
fiber inclusion, 232, 237  
fibroid, 113  
field infection, S-P165  
fillet dimension, S-M51  
Finelact, S-P168  
finisher, M15  
FIS-FIT-FST, M48  
fishy egg taint, S-T114  
flaxseed, 170, S-M21  
fleshing, 21  
flies, S-P209  
flock age, S-M58  
flock performance, S-M21  
floor pens, S-M28  
flow rate, S-M81  
fluorine, W13  
foam, S-T100  
folate, 29, M28  
foliar N, S-T126  
food safety, S-M44  
foodborne pathogens, T38  
foodpad quality, S-M32  
formulation, S-T142  
FOS, 240  
fracture, 183  
free choice feeding, T13  
free range, 15, 16, S-P172  
F-strain *Mycoplasma gallisepticum*, 259  
FTA, S-T96, S-P159  
FTA cards, S-P174  
fumaric acid, S-T117  
functional genes, 177  
functionality, 198, 199  
fusarium mycotoxin, M35, M36  
FVAX-MG, S-P166
- ## G
- Gallus gallus*, W39  
game fowl, 84  
gangrenous dermatitis, T51  
gas stunning, 121  
gastrointestinal inflammation, 60  
gastrointestinal tract, 182, T45, S-M6  
gelatin, 52  
gene expression, 3, 6, 52, M15, S-M87  
gene networks, 2  
gene structure, T44  
genetic strain, 13  
genetics, W52  
genome, 5  
genomic analysis, S-T97  
genotype, W27  
germination, 234  
germplasm conservation, 110  
ghrelin receptor, S-M2  
GHS-R, M50  
global gene expression, 4  
glucanase, S-M18  
glucose, 98, S-M1  
glucose transporter, M20  
glutamic acid, T2  
glutamine, 98, T2  
glutathione peroxidase, W21, S-P192  
glycerol, S-M1  
glycine, 155  
glycocalyx, 111  
glycogen, 117  
glycogen methodology, S-M9  
glycogen status, S-P197  
GnIH, 71  
GnRH, 81  
GnRH-I, 75  
Gompertz, S-P202  
gonadotropin, W49  
GPR39, W50  
GPR-39, M50  
granulosa, S-M2  
granulosa cells, 260  
grower, S-T135  
grower education, 86  
growth, M49, W20, S-M55, S-M56, S-M81, S-M88, S-T141, S-P200  
growth equation, S-P202  
growth performance, 38, 57, 104, 107, 128, S-M19, S-M25, S-M48, S-M73  
growth profile, 23  
growth rate, 14, 24  
guar meal, M9  
gut, S-M24
- ## H
- 4-H, 87  
H7N2, S-T99  
halal slaughter, M38  
hand catching, S-T123  
haptoglobin, S-M8  
hatch, 114  
hatch rate, S-M4  
hatch time, 117  
hatchability, 11, T34, S-M38, S-M58, S-P197  
hatcher, T56  
hatchery, S-T133  
hatchery feeding, 51  
hatchery management, 263  
hatching chicks, S-M1  
heart, 270  
heart disease, S-M48  
heart failure, 179, 269  
heart rate, 255  
heat processing, S-T112  
heat stress, T46, T48, S-M17, S-M31, S-M33, S-P196  
heating, 142  
hemagglutinin, S-T102  
hematocrit, S-M5  
hemicell, 230  
Hemicell® b-mannanase, 231  
hemin, 178  
hemorrhagic enteritis, S-M67  
hen age, S-P186  
hen layer, W44  
hen-day production, S-M75  
hens, S-M35, S-P160, S-P161  
hen's age, 32, S-P185  
hepatic necrosis, 63  
heritage turkeys, W42  
heritage, 15  
heterophil, 96  
high altitude, S-P156  
high energy ration, S-T105  
high protein diets, S-M78  
HMTBA, S-P191  
holding, S-M79  
hot climate, S-T136  
housing, 274  
5-HT1A receptor, 73

- 5-HT<sub>2C</sub> receptor, 73  
 humerus, 184, S-P155  
 humoral immune response, W39  
 humoral immunity, 97, 138  
 hydrogen sulfide, S-M35  
 2-hydroxy-4(methylthio) butanoic acid, 213, S-M16, S-M17  
 25-hydroxy vitamin D<sub>3</sub>, 27  
 Hy-Line W-36, S-P207  
 hypertension, 69, 70  
 hypothalamus, 1
- I**
- IBDV, S-M66, S-T94, S-T96  
 ideal protein, 150, 151, M6  
 IGF-1, S-P153  
 IgY, 138, 191, W55  
 IL10 gene cluster, T41  
 ileal digestibility, 237, M22  
 ileal digestible energy, S-M18  
 imaging, S-T120  
 immediate early gene, 76  
 immersion chilling, 243  
 immune modulation, T7, W53  
 immunity, 41, 88, W54, S-P153  
 immunization protocol, T57  
 immunoassay, S-T102, S-P171  
 immunocapture, S-P165  
 immunocompetence, 57  
 immunoglobulins, S-M73  
 immunohistochemistry, 80, 81, 82, 113  
 immunological stimulus, S-M16  
 immunosuppression, S-T92  
 in ovo feeding, M24, S-P197  
 in ovo injection, S-M4  
 in shell eggs, 193  
*in vitro*, S-P152  
 inactivation, S-P159  
 inbreeding, M48  
 inclusion of fiber, T10  
 incubation, T50, S-M7, S-M42, S-M43, S-P210, S-P211  
 incubation parameters, 264  
 induced molt, 64  
 infection, S-M70  
 infectious bronchitis, S-T92  
 infectious bursal disease, 94  
 infectious bursa disease virus, T54, S-T93  
 inflammation, S-M8  
 ingredient, S-T135  
 inhibition, S-P152  
 innate immune system, 231  
 innate immunity, 27, 43  
 innate mucosal immunity, 4  
 inoculation, S-M11, S-M13  
 iNOS, 91  
 in-package pasteurization, 185  
 insemination, S-M15
- inside-outside bird washer, 241, S-M84  
 interfering factors, 266  
 intestinal colonization, S-P151  
 intestinal function, 44  
 intestinal health, S-T137  
 intestinal morphology, M21  
 intestinal morphometry, T3  
 intestinal viscosity, M28  
 intestine, T24, S-M3, S-M8, S-T140  
 inulin, T6  
 invasiveness, M55  
 ionic strength, S-P166  
 IPVL, W46  
 isoform, T43  
 isotopes, T12  
 issues education, 86
- J**
- Japanese quail, 28, S-M33
- K**
- keratinase, T23  
 ketanserin, 69  
 kosher slaughter, M38
- L**
- Lactobacillus*, S-P168  
 layer farm, S-P212  
 layer manure, 132  
 layers, 46, 65, 66, 137, 202, 212, 228, S-T132, S-P204, S-M75, S-T109, S-P196  
 laying hens, 30, 34, 39, 93, 106, 108, 131, 159, 170, 195, 200, 211, 236, 275, M2, M5, M8, M11, T5, T16, S-M26, S-M29, S-M30, S-M47, S-M52, S-M83, S-P168, S-P207  
 L-carnitine, M16  
 lead, S-P160  
 leaf N, S-T124  
 leg problems, 38  
 Leghorn, 197, S-P194  
 Leghorn chicks, S-P212, S-P213  
 leptin, W48  
 light intensity, 173, M42  
 light period, S-M33  
 lighting, S-M76  
 lighting program, 141, S-M50  
 lime, T39  
 lipid peroxidation and proteolysis, 129  
 lipids, 7  
 lipogenesis, 157  
 lipopolysaccharide, 90, T41, S-M70  
 litter, 19, 41, T39, W38, S-M32, S-T127, S-T131, S-P203  
 litter amendment, M43  
 litter phosphorus, S-M28  
 litter sampling, M44, S-P208  
 live performance, 16  
 liver, S-M9, S-M22  
 liver hemorrhage, S-M21  
 Lott flow, S-M80  
 low crude protein, 144, S-M69  
 low energy ration, S-T105  
 low protein diets, S-M87, S-P193  
 LPS, T20  
 lutein, T47  
 lycopene, 93  
 lymphocyte, 98  
 lymphoid organs, T52, S-P206  
 Lys, S-M68  
 lysine, 150, W1, S-T138, S-T139, S-T144, S-P198  
 lysine-energy, W5
- M**
- machine catching, S-T123  
 macrophage, 89, 91, 92  
 male mortality, 23  
 male selection, 24  
 maltase, 118, 119, S-M7  
 management, S-T127  
 manganese, 137, T8, S-M32, S-T146, S-P188  
 mannan oligosaccharides, W38, S-P175, S-P203  
 manure amendments, S-P209  
 marination, 124, 125, W32, S-M59  
 market weight, M32  
 mass balance, S-M34  
 mass disposal, S-T101  
 mass euthanasia, S-T101  
 mass spectrometry, 8, 89  
 maternal antibody, 94, S-T93  
 maternal conjugated linoleic acid, M26  
 mean separation, 216  
 meat and bone meal, 149, 224, M8  
 meat quality, M32, S-M57, S-T123  
 meat yield, S-M69, S-M76  
 media, 238  
 medullary bone, 184  
 Met, S-M68  
 meta analysis, S-T149  
 metabolic diseases, 271  
 metabolic pathways, 177  
 metabolisable energy, 221  
 metabolism, M15  
 metabolites, 139  
 metabolizable coefficients, M12  
 metabolizable energy, 230, T11, T22, W9, W16, S-P179, S-P190  
 metabolomics, 7  
 metals, S-T129  
 methionine, W1, W15, S-M17, S-T140, S-T144, S-P183, S-P191  
 methionine activity, S-T147  
 methionine analog, S-P184  
 methionine metabolism, T12  
 methiothepin, 69, 70  
 method, S-T133  
 MG, S-P150  
 MHC, 56  
 microarrays, 1, 2, 49, 177, S-M87  
 microbial activity, S-T137  
 microbial ecology, 42  
 microbial enzymes, S-M90, S-P187  
 microbiology, 248, S-T121  
 microbiota, 182  
 microflora, 140  
 microsatellite, M48  
 microwave, 193  
 microwave toe-treatment, S-M50  
 minced, S-M9  
 mineral chelator, T5  
 MINTREX<sup>®</sup>, 35, S-T145  
 MINTREX<sup>®</sup> Cu, S-T147  
 MINTREX<sup>®</sup> Mn, S-T147  
 MINTREX<sup>®</sup> Zn, S-T147  
 mitochondrion genome, W41  
 mixer analysis, 99  
 mobility, 205  
 models, 215, S-M61  
 moisture, 102  
 mold inhibitor, 102  
 molt, 196, 236, T57, S-M30  
 molt period, 236  
 molting, 25, 96, 275, W47, S-M83  
 molting breeders, S-M39  
 molting methods, S-P180  
 morbidity, S-M37  
 morphological changes, 67  
 mortality, 179, S-M37, S-P211  
 MOS, 47  
 motility, S-M15  
 mucosa, S-M22  
 multiple range tests, 216  
 multiplex, 62  
 muscle growth, 253  
 muscle physiology, 252  
 mushroom extract, T36  
 Myco-Ad A-Z, S-P182  
*Mycoplasma gallisepticum*, 65, 66, S-M11, S-M13, S-M62, S-P166

mycoplasmosis, S-M62  
Mycotoxins, S-T106, S-T116,  
S-T118

## N

n-3 fatty acids, 271  
<sup>15</sup>N natural abundance, W36  
naked neck, 57  
National Poultry Waste Manage-  
ment Symposium, 9  
national security, S-P162  
natural preservative, 191  
near-infrared, S-T142  
necrotic enteritis, 67, 156,  
S-M63, S-P168  
neural networks, 120, S-P202  
neuraminidase, S-T104  
Newcastle disease, S-T99  
Nigeria, T54  
nipple drinker, T35, S-M80,  
S-M81  
NIRS, S-T142  
nitrate, W10  
nitric oxide, 90, 140, S-M77  
nitrogen, 133, S-M34, S-P209  
nitrogen requirement, 218  
nitrogen-free diet, 148  
nociceptors, 206  
nonphytate phosphorus, S-T112  
nonstarch polysaccharides, M2  
norepinephrine, W48  
NPP retention, 168  
nutrient density, S-T138, S-T139  
nutrient digestibility, 109, M27  
nutrient management, 85  
nutrient transporters, T24  
nutrients, S-P209  
nutrition, W7, W54, S-M91  
nutritional history, S-T110

## O

oats, M7  
obestatin, W50  
ochratoxin, S-T116  
ochratoxin A, S-T106, S-T118  
oligosaccharides, 226  
Omega-3, T26  
Omega-3 fatty acid, T15  
optical waveguide, S-T102  
oral immunization, S-M65  
organ weights, S-M25  
organic, M7, T25, W15, S-P172  
organic acids, 238, 239, S-M91  
organic and inorganic chromium,  
129  
organic minerals, S-T146  
organic selenium, 39  
organic trace minerals, 35, 38,  
137, W7, W54

organic zinc, S-M88  
organoaluminosilicate, S-T106  
organs, 12, S-M42, S-M43  
osteopontin, M47  
ostrich, 218  
ovarian morphology, 143  
ovarian steroids, 71  
ovary, 112, 261, 262  
ovary transplantation, 110  
oviducts, 78, W47  
oviposition time, S-P207  
ovocalyxin-36, M53  
Ovocleidin-116, M47  
oxidant, M34  
oxidative stress, 30, 178  
oxygen, 176, S-P210, S-P211

## P

P rickets, S-P185  
PAC1-R, 262  
particle size, 232, T10  
pathogens, 246  
pathophysiology, 269, 270  
paw burns, M43, S-M78  
paw quality, 18, S-M78  
Pb, S-P161  
PCR, T33, W27  
peak performance, 219  
pearl grey guinea fowl, W9  
pearl gray guinea fowl pullets,  
T22, S-P179  
pearl millet, S-M20, S-M21  
pediococcus, W56  
Pekin ducks, 257  
pellet quality, 100  
pelleting, 101, M18, T14, T21,  
S-T113  
pentosans, 229  
PepT1, 154  
performance, 53, 54, 201, 276,  
T18, W34, S-M11, S-M13,  
S-M69, S-M76, S-M79,  
S-T113, S-T115, S-T136,  
S-P177, S-P188  
perinatal nutrition, S-M79  
permeability, S-M3  
pesticides, 139  
pH, S-M57, S-T123  
pH decline, S-M48  
phase feeding, 31, 104, S-M51,  
S-T143, S-P195  
phosphorus, 105, 160, 163, 167,  
S-M26, S-M27, S-M29,  
S-M34, S-M45, S-T107,  
S-T108, S-T109, S-P189,  
S-P195, S-P199  
phosphorus rickets, 32  
photoneuroendocrine system, 79  
photoperiod, 172, 173, 204, 205,  
S-M50, S-M76  
photoreception, 175  
photoreceptor, 174  
photorefractoriness, 172  
photostimulation, 75, 76, 143,  
175  
phylogenetic relatedness, W42  
physiology, 83  
phytase, 158, 159, 161, 162,  
163, 164, 165, 166, 169,  
M14, M17, M18, M23, T14,  
T21, W8, W18, W19, W23,  
S-M18, S-M19, S-M26,  
S-M27, S-M28, S-M29,  
S-M45, S-T108, S-T110,  
S-T112, S-T113, S-T115,  
S-P177, S-P189  
phytase/xylanase, M27  
phytate hydrolysis, W14  
phytate, 158, 159, W23  
phytic acid, S-T111  
phytoestrogen, 78  
phytohemagglutinin, S-M72  
pichia pastoris, S-T94  
pigment, T16  
Pit-1, T43  
pituitary, 1, 72  
plant growth, S-T124  
plant vaccine, S-M65  
pododermatitis, 35  
poly tent, S-T100  
portioning, 123  
postharvest interventions, 189  
post-hatch performance, 263  
poultry, 7, 160, 167, 242, 243,  
M34, W26, S-M44, S-M45,  
S-M62, S-T95, S-T101,  
S-T132, S-T136, S-P173  
poultry breast meat, S-M59  
poultry byproduct, W3  
poultry fat, 65  
poultry litter, W36  
poultry meat, W28  
poultry processing, 186, M31  
poultry welfare, 272, 273  
poults, S-M, S-M67  
prebiotics, M21, T7, T19, W53  
S-M24  
preproghrelin, M50  
prestarter, S-P178  
probiotics, 61, 92, 240, M3,  
M22, M23, T4, T36, T37,  
T56, T58, S-M90, S-M91,  
S-T128, S-P187, S-P212,  
S-P213  
procalcitonin, 72, 112  
processing, 247, S-M60  
product uniformity, 126  
production, W11, S-P204  
production performance, S-M26  
professional, 10  
progeny, M26  
prolactin, 73, M51

promoter, 260  
propionate, S-P200  
protease, W16  
protection, S-M64  
protein, 19, 135, 217, S-P181  
protein level, S-T137  
protein requirement, 218  
proteolysis, M33  
proteomics, 8, S-P150  
proviral DNA, S-T97  
PSAP, W40  
PUFA, T26  
pullet chicks, 221

## Q

QTL, 5, 6  
quail, 164  
quantitative RT-PCR, S-P174  
quinoa, T26, W11, W29

## R

radiograph, 183, 184  
random-bred, 43  
ratio, S-P199  
real time PCR, 79, 154, 192,  
M20, T53  
real-time RT-PCR, 58  
receptor, W49  
recognition award, 9  
recombinant protein, S-T94  
recombinant vaccine, S-T103  
recombination, 88  
rectal temperature, S-M33  
reduced dietary protein, 212  
relative growth, 23  
reovirus, T53, S-M64, S-P159  
repeatability, W43  
replacement pullet, S-T135  
reproduction, 39, 174, T49  
reproductive organ, 66  
reproductive tract, 245  
requirements, 147, 215, W17,  
S-T143  
residual yolk sac, 14  
resource manual, 87  
response surface, S-M68  
restriction, 157, 235  
retail, 248  
retention, S-T108  
reticuloendotheliosis virus,  
S-T97  
REV, S-T97  
Rfp-Y, 56  
RIA, S-M10  
RNA, M49  
RNA, S-P159  
rooster, T47  
rootworm corn, M11  
Ross 308, 144

- Ross broilers, W43  
 round heart disease, W52  
 rous saroma, 56  
 RT-PCR, T54, S-P159
- S**
- S. typhimurium*, S-P151  
*saccharomyces cerevisiae*, W24  
*Saccharomyces cerevisiae* cell wall, 48  
 safety assessment, 190, M29  
 salinomycin, W6  
*Salmonella*, 40, 42, 61, 64, 92, 195, 239, 240, 242, 244, 245, M45, T41, T52, T56, S-M44, S-M60, S-M73, S-M86, S-T128, S-T134, S-P152, S-P170, S-P183, S-P184, S-P206  
*Salmonella* control, S-P212, S-P213  
*Salmonella* detection, 192, M44, S-P208  
*Salmonella enterica*, S-P167  
*Salmonella enterica* during processing, S-P167  
*Salmonella enterica* in broiler, S-P167  
*Salmonella* Enteritidis, 193, T55, S-M91, S-P164  
*Salmonella* in broiler chickens, S-P164  
*Salmonella* issatschenko, S-P164  
*Salmonella* issatschenko pathogenesis, S-P164  
*Salmonella* pathogenesis, S-P164  
*Salmonella* serotype, W27  
 salt, 124, W32  
 sanitation, S-P173  
 scald conditions, 187  
 scalding, 244  
 scientific reporting, M38  
 SCWL rooster, M9  
 SDS, 59  
 second production cycle, 212  
 selection, S-M55, S-M57  
 selenite, S-P192  
 selenium, 97, S-M82, S-P204  
 selenium yeast, W21, S-P192  
 Sel-Plex, S-M31  
 semen, 114  
 sensory, 124, W29, S-P172  
 sequence, S-M67, S-T97, S-T98  
 serotonin, 70, 74  
 serotyping, W28, S-P163  
 sex differences, 77  
 shelf-life, M30  
 shell eggs, 194, 247, 248  
 shell quality, 197  
 shell temperature, 263  
 siadenovirus, S-M67  
 Sigma C protein, S-M65  
 Silica, S-M71  
 simulation, 120  
 Sinapine, S-T114  
 single nucleotide polymorphism, W39  
 skeletal integrity, S-T115  
 skeleton, W48  
 skin color, S-M49  
 skip-a-day feeding, 181, S-M36  
 slaughter, 121  
 SLC11A1, W40  
 slow-growing, W15  
 smoked chicken, 126  
 sodium, S-P178  
 sodium chloride, T9  
 sorghum, W1  
 soy protein isolate, 100  
 soybean meal, W2, S-T112  
 space, M41  
 specific gravity, 46, S-M47  
 sperm, 111, T47, S-M15  
 sperm mobility, S-M41  
 sperm quality index, S-M41  
 sperm viability, S-M41  
 sperm:egg interaction, W46  
 SPF, S-M64  
 Spleen, S-P205  
 splenic necrosis, 63  
 splenocyte, S-P153  
 spliced variant, 262  
 spoilage microflora, S-M84  
 sponge cake, 198  
 Spray washing, S-P170  
 SRBC, S-P153  
 stability, T21  
 stains, 254  
 standardized ileal digestibility, 149  
 starch, S-M20, S-T111  
 starter, S-T135  
 static flow, S-M80  
 statistical analysis, 216  
 steam conditioning, 101  
 storage, 199  
 strain cross, 151  
 strain, S-T107, S-T114, S-P180  
 stress, 77, 153, 233, S-M5, S-M74, S-M77, S-T122, S-P154  
 stunning/killing, 122  
 sulfamethazine, 174  
 sulfur amino acid, 217  
 sunflower oil, M19  
 sunn hemp, 220  
 superabsorbent polymer, 134  
 suppressive subtractive hybridization, M51  
 survival, S-P183, S-P184  
 sweet potato, 221  
 system biology, T32
- T**
- T lymphocytes, S-P157  
 T-2 toxin, S-T116, S-P182  
 tallow, M19  
 Tasker blue, 130, M30  
 TD, S-P185  
 teaching, 83  
 Tectra VIA, S-P171  
 telomere, M46  
 temperature, 141, 222, 252, 253, 255, 257, S-M42, S-T126  
 temperature regulation, 265  
 tenderness, 123, S-M51, S-M59  
 textural properties, M33  
 theca, S-M2  
 therapeutic, T32  
 thermal manipulations, 251  
 thermotolerance, 251  
 Thr, S-M68  
 threonine, 41, S-M73  
 thyme, S-M46  
 thymosin b4, 89  
 thyroid, 118, 119  
 thyroxine, S-M30  
 tibia, 37, S-P155  
 tier level, M42  
 tissue accretion, 152  
 Tissue, S-P192  
 TME, S-T110  
 TME<sub>n</sub>, M9, 224  
 tocopherols, M4, W33  
 Tomoko, 54  
 torpor, 256  
 total lysine concentration, W2  
 toxicology, S-P160, S-P161  
 trace minerals, S-T146, S-P189  
 traits, W44  
 transcriptome, 2  
 transcriptomics, 6  
 transportation, S-P169  
 transposon mutagenesis, T55  
 trayliner, S-T133  
 trees, S-T126  
 trehalose, W55  
 trigeminal nerve, 206  
 trimethylamine, S-T114  
 trimming model, S-P157  
 triticale, M45  
 true fertility, 254  
 tryptophan hydroxylase 2 mRNA, 74  
 tryptophan, 127, 153  
 ts-11, S-P150  
 turkey bologna, 185  
 turkey brainstem, 74  
 turkey embryo, M51  
 turkey farms, W35  
 turkey poult, W45  
 turkey poults, T34  
 turkey processing, 187  
 turkeys, 15, 16, 36, 37, 49, 111, 116, 117, 172, 230, M6, M17, M39, M40, M54, T35, W3, W7, W12, W20, W41, W52, S-M6, S-M8, S-M15, S-M34, S-M67, S-T98, S-T110, S-T148, S-P151, S-P186, S-P193, S-P197
- U**
- ultrabiotic, S-P151  
 urease inhibitor, 132, W37  
 uric acid, 178  
 urinary Ca and P, 33  
 urinary P and Ca, 168  
 Ussing chamber, S-M3
- V**
- vaccination, 95  
 vaccination formula, 94  
 vaccine, S-M11, S-M62  
 vaccine administration, 63  
 vacuum loaders, 246  
 variation, S-T142  
 vasculature, 270  
 vasopressin, 77  
 vegetable diets, S-M78  
 Vegpro, 228  
 ventillation, 12, S-M43  
 verxite, S-M71  
 viable egg assay, 139  
 video clips, M31  
 viginiamycin, 223  
 VIP, 82  
 viral RNA isolation, S-P174  
 virulence, S-M67  
 virulence factors, M55  
 virus isolation, 58, S-P165  
 vitamin A, 28  
 vitamin D, 59, M19  
 vitamin E, 30, W30, W31, S-M71, S-M72  
 vitamin U, 26  
 vitamins, T12  
 vitrification, W46  
 VP2, S-T94  
 vvIBDV, S-T95
- W**
- water, T40, W10  
 water chilling, 125  
 water quality, W34  
 water use, S-M81  
 watershed water quality, W36  
 weight measurement, S-T120  
 welfare, 200, 276, S-M83, S-T122  
 Western blotting, S-P150

WHC, M33  
wheat, S-P175  
wheat middlings, 162, W8  
wheat, 234, M5, M27  
White Leghorns, S-M21  
white meat, S-M56  
whole barley, 103  
whole egg functionality, 250  
whole grain, S-M20  
whole sorghum, 103

whole wheat, 103, T13  
WNV, S-P174

**X**

xylanase, 229, W25, S-M19

**Y**

yeast beta-glucan, 197, S-M25  
yeast extract, T45, S-M6

yeast two-hybrid, 8  
yield, S-M56, S-M88  
yolk, 50, W29  
yolk colour, T16  
yolk functionality, 250  
yolk pigmentation, S-M52  
yolk sac, 267, S-T140  
youth programs, 87

**Z**

$\omega$ -3 eggs, 170  
zearalenone, S-T116  
zeolite, S-T116  
ZEOTEK, S-T106  
zinc, T8, S-M32, S-T145,  
S-P188  
zinc propionate, S-M88  
zinc proteinate, W17  
zinc utilization, S-P193  
zona pellucida proteins, 116