## POULTRY SCIENCE

**Volume 57**  
**SEPTEMBER 1978**  
**Number 5**

### CONTENTS

#### BREEDING AND GENETICS

- Effects of the Northern Fowl Mite, *Ornithonyssus sylviarum* (Canestrini and Fanzago), on Fertility and Hatchability of Eggs from Artificially Inseminated White Leghorn Hens.  
  *J. A. DeVaney*  
  1189

  *R. M. G. Hamilton*  
  1192

- Studies on Abdominal Fat with Four Commercial Strains of Male Broiler Chicken.  
  *L. Griffiths, S. Leeson, and J. D. Summers*  
  1198

#### EDUCATION AND PRODUCTION

- Layer Cage Depth Effects on Nervousness, Feathering, Shell Breakage, Performance, and Net Egg Returns.  
  *A. T. Hill and J. R. Hunt*  
  1204

- A Survey of Poultry Ectoparasite Problems and Their Research in the United States.  
  *A. DeVaney*  
  1217

#### ENVIRONMENT AND HEALTH

- Toxicity of *Penicillium citrinum* AUA-532 Contaminated Corn and Citrinin in Broiler Chicks.  
  *W. T. Roberts and E. C. Mora*  
  1221

- Anticoccidial Activity of Lonomycin (SQ 12,525) in Chicks.  
  *L. R. Cruthers, J. Szanto, W. H. Linkenheimer, D. C. Maplesden, and W. E. Brown*  
  1227

- Transmission of Radioactivity into Eggs from Laying Hens (*Gallus domesticus*) Administered Tritium Labeled T-2 Toxin.  
  *M. S. Chi, T. S. Robison, C. J. Mirocha, J. C. Bebrens, and W. Shimoda*  
  1234

- Hatchability of Chicken Eggs Exposed to Electromagnetic Fields Prior to Incubation.  
  *P. Y. Hester, B. B. Bobren, and I. Fabijanska*  
  1239

- Battery Efficacy Studies with Arprinocid against Field Strains of Coccidia.  
  *G. Olson, T. Tamas, D. A. Smith, R. M. Weppelman, K. Scbleim, and E C. McManus*  
  1245

- Acquired Resistance in Turkey Poults to *Pasteurella multocida* (P-1059 strain) during Aflatoxin Consumption.  
  1251

#### MARKETING AND PRODUCTS

- Effect of Skin Content on Some Properties of Poultry Meat Loaves.  
  *J. C. Acton and R. L. Dick*  
  1255

- Yolk Cholesterol in Eggs from Various Avian Species.  
  *C. W. Bair and W. W. Marion*  
  1260

- Development of Antimicrobial Agents for the Extension of Poultry Shelf-Life.  
  *M. N. Islam, R. J. H. Gray, and J. N. Geiser*  
  1266

- A Review and Testing of Selective Media for Psychrotrophic Bacteria.  
  *A. W. Brant, R. W. A. W. Mulder, L. W. J. Dorresteyn, and R. F. M. Pelgrom*  
  1272
METABOLISM AND NUTRITION


The Effect of Aflatoxin B1 on the Utilization of Cholecalciferol by Chicks. F. H. Bird. .......................... 1293

Use of a Rye-Soybean Ration to Evaluate Growth Promotants in Chickens. W. L. Marusich, E. F. Ogrinz, N. Camerlengo, and M. Mitrovic .................................. 1297


Copper Salts for Growth Stimulation and Alleviation of Aortic Rupture Losses in Turkeys. E. Guenther, C. W. Carlson, and R. J. Emerick ........................................... 1313

Feed and Water Management of the Broiler Chick for the First 72 Hours. P. V. Twining, Jr., J. L. Nicholson, and O. P. Thomas ........................................ 1325

Evaluation of Brewers Dried Grains and Yeast in Turkey Diets. T. W. Sullivan, H. J. Kubl, Jr., and D. P. Holder ........................................ 1329


Growth Rate, Feed Conversion, and Dietary Metabolizable Energy in Response to Virginiamycin Supplementation of Different Diets. B. E. March, R. Soong, and C. Mac-Millan ............................................................ 1346

Influence of Cellulose and Ambient Temperature on Feed Intake and Growth of Chicks. R. A. Dvorak and D. J. Bray ........................................ 1351

The Effects of Dietary Protein Level on Productive Performance and Egg Quality of Four Strains of White Leghorn Hens. R. M. G. Hamilton .................................. 1355

PHYSIOLOGY AND REPRODUCTION

Ultrastructure of Shell Gland Tissue from Hens Producing Good and Poor Eggshells. D. M. Huntley and D. P. Holder ........................................ 1365

Behavioral Temperature Regulation in Neonate Chick of Bantam Hen (Gallus domesticus). K. Mybrey .................. 1369

Drugs Used for Avian Anesthesia: A Review. M. R. Fedde ........................................ 1376

Response of Avian Intrapulmonary Smooth Muscle to Changes in Carbon Dioxide Concentration. G. M. Barnas, F. B. Mather, and M. R. Fedde ........................................ 1400


Gaseous Metabolism of Leghorns and Broilers during Early Growth: Resting Metabolic Rate. D. M. Denbow and W. J. Kuenzel .................. 1417

The Influence of Intermittent Light on Growth of Broilers. B. L. Goodman ........................................ 1423

Immunobiology of the Fowl. H. S. Siegel ........................................ 1429

Influence of Temperature on the Immune Response of Birds. P. Thaxton .................. 1430

The Immune Response in the Chicken: Lymphoid Development of the Bursa of Fabricius and Thymus and An Immune Response Role for the Gland of Harder. B. Glick .................. 1441

The Number and Size of the Follicular Epithelium (FE) and Follicles in the Bursa of Fabricius. I. Olab and B. Glick ........................................ 1445

Identification of the Chicken Serum Proteins by Immunoelectrophoretic Methods. G. Singh .................. 1451
Dietary Fiber and Meal Feeding Influence on Broiler Growth and Crop Fermentation.
   R. C. Bayer, W. H. Hoover, and F. V. Muir ........................................... 1456

RESEARCH NOTES

Glycogen Depletion and Repletion in the Chick. R. W. Rosebrough, E. Geis, K. Henderson,
   and L. T. Frobisb .................................................................................. 1460
Precisely Controlled Temperature Variations: Effect on Hematocrit Values of Broiler and
   Laying Stock. G. Huggins and R. W. Lewis ........................................... 1463
A New Method for Recording Spontaneous Activity of Chicken Embryos in Intact Eggs.
   H. Petry and J. Wittmann ................................................................. 1466
Free Amino Acids in Broiler Chicken Meat in Relation to Initial pH. A. Niewiarowicz, J.
   Pikul, M. Trojan, and J. E. Thompson ............................................... 1468
Comparison of Growth Rate, Body Weight, and Feed Conversion between Coturnix D1
   Quail and Bobwhite Quail. J. E. Jones and B. L. Hughes .................... 1471