



The Poultry Informed Professional

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The American Association of Avian Pathologists held their annual meeting at the 137th AVMA annual convention in Salt Lake City, Utah July 22-26, 2000. The 2-day scientific program was preceded by a seminar on "Molecular Identification and Epidemiology of Avian Pathogens."

Comparison of Streptogramin-resistant *Enterococcus faecium* from Poultry and Humans

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^AUniversity of Maryland School of Medicine

^AVeterans Affairs Maryland Health Care System; ^BU.S. FDA and ^CUniversity of Maryland, College Park

Resistance to multiple antimicrobial agents often complicates human infections from *Enterococcus faecium*. Speculation exists as to whether agricultural use of antibiotics contributes to resistance in the human population, and has intensified with the recent approval of the human streptogramin Synercid. Virginiamycin, which is also a Streptogramin antibiotic, has been used as a feed additive antibiotic for several years. This study investigated the relatedness of streptogramin-resistant *E. faecium* isolates from humans and poultry to determine if isolates from poultry are colonizing or infecting humans.

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Broiler Performance Data (Region) Live Production Cost					
	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color (\$)	130.79	123.15	135.32	138.97	134.64
Feed cost/lb meat (¢)	12.25	11.49	13.56	13.14	12.65
Days to 4.6 lbs	46	44	42	44	44
Med. cost/ton (¢)	2.90	1.93	2.78	2.98	2.57
Chick cost/lb (¢)	4.08	3.74	3.58	3.97	3.87
Vac-Med cost/lb (¢)	0.05	0.03	0.08	0.15	0.09
WB & 1/2 parts condemn. cost/lb	0.21	0.17	0.21	0.21	0.24
% mortality	3.96	3.09	4.70	3.88	5.09
Sq. Ft. @ placement	0.80	0.78	0.81	0.81	0.83
Lbs./Sq. Ft.	5.80	6.43	7.04	6.35	6.37
Down time (days)	10	10	11	11	13

Data for week ending 8/5/00

Summary from 137th AVMA Annual Meeting...

Continued from Page 1

Fifty *E. faecium* isolates from poultry farms or poultry transport containers were compared to fifty *E. faecium* isolates from hospitals. Twelve of the isolates from hospitals were known Synercid-resistant strains. The strains were tested for resistance against a panel of antibiotics in use in human and agriculture settings. Genetic relatedness was determined by ribotyping, using the RiboPrinter Automated Characterization System (Qualicon). Poultry and human isolates both showed extensive genetic diversity, but clustered in separate classes. Antibiotic resistant isolates were common in both populations; however there were some significant differences. Streptogramin resistance was common in poultry isolates, but rare in human isolates. Vancomycin resistance was common in human *E. faecium*, but was not found in poultry isolates. Tetracycline resistance was more common in poultry isolates than in human isolates.

Enterococci from poultry and humans represent apparently distinct populations, suggesting that direct colonization from chickens to humans is rare or transitory. However, further work is needed to determine whether transfer of resistance genes is occurring between agricultural and human isolates.

William A. Stanley, DVM
MAM Candidate

The effect of 6/85 strain *Mycoplasma gallisepticum* on egg production, selected egg and eggshell quality parameters, and egg size distribution in commercial layers

Scott L. Branton, DVM, PhD
USDA-ARS, South Central Poultry Research Laboratory
Mississippi State, MS

In this study, parameters including egg production, selected egg and eggshell quality, and egg size distribution were followed over an entire laying cycle of 43 weeks to determine the impact of vaccinating with the 6/85 strain of *Mycoplasma gallisepticum*. Two trials were conducted with vaccinated and unvaccinated controls utilized in each trial. The hens were housed in isolation units through 65 weeks of age. Eggs were collected daily and egg size was determined by individual egg weights. Eggshell strength, blood/meat spot and pimpling incidence were determined for all eggs collected.

No significant difference was observed between the treatments for 43-week means of egg production, for any of the egg or eggshell quality parameters, or for the number of extra-large, large, medium, small, pee wee, or undergrade egg sizes. A significant difference was observed for the number of jumbo-sized eggs between the two treatments, with the greater number being laid by the 6/85 MG-inoculated chickens.

The vaccination of layer chickens at 10 weeks of age with 6/85 strain MG does not result in any deleterious effects on egg production, the egg or eggshell quality parameters measured in this study, or in the distribution pattern of egg sizes laid over a 43-week laying cycle.

William A. Stanley, DVM
MAM Candidate

Riboflavin Deficiency in Commercial California Poultry Operations

Dr. Bruce R. Charlton from the California Animal Health & Food Safety Laboratory System, University of California, Davis, presented a summary of case reports of riboflavin deficiency in California Poultry operations during the last ten years.

Riboflavin deficiency is an uncommon diagnosis in the California poultry industry. Between 1991 and 1997, only one case of suspected riboflavin deficiency was diagnosed. In 1998 and 1999 several cases of riboflavin deficiency were diagnosed and involved two different types of operations. The first operation was a large commercial pullet brooding facility with 51,000 birds. Birds 3-weeks of age, were submitted due to leg weakness. The birds showed evidence of splayed legs and curled toes. Nerves were swollen, had yellow discoloration, and had loss of cross-striations. Histologically, the nerves showed perivascular and neural edema, mild vacuolization of peripheral nerves with Schwann cell proliferation and fragmentation of myelin sheaths, and mild infiltration of small lymphocytes. Additional affected birds were obtained from the farm. These birds were given vitamin B injections and fed new pullet feed obtained from a local feed store. All birds recovered in 4 to 5 days. The feed involved when the initial leg weakness was occurring was unavailable for analysis. When subsequent loads of feed did not resolve the problem, a riboflavin level was performed and found to be below the recommended level.

Summary from 137th AVMA Annual Meeting...

Continued from Page 2

The second series of riboflavin deficiency cases involved an organic pullet brooding facility with a 30,000 bird capacity. Two separate incidences occurred in November 1998 and October 1999 where there was an increase in mortality and birds sitting on their hocks. The gross and microscopic lesions were identical to the case already mentioned. Rapid response to riboflavin supplementation and the detection of inadequate feed levels (3.61 mg/kg) of riboflavin supported the diagnosis. Subsequent investigation of the feed source for this particular pullet operation revealed a history of wide fluctuations on the levels of a variety of ingredients in the certified organic feed.

In conclusion, the increase in alternative poultry operations may lead to an increase in a number of previously well-managed disease conditions. Although riboflavin deficiency is not a common diagnosis, the presence of rather distinctive clinical signs, gross lesions, and histologic picture aid in arriving at the correct diagnosis. Prompt vitamin supplementation not only confirms the diagnosis but also alleviates substantial subsequent losses.

Jaime Ruiz, DVM
MAM Candidate

Facial Cellulitis Associated with *Pasteurella multocida* in Male Turkeys

Dr. Rocio Crespo from the California Animal Health & Food Safety Laboratory System, University of California, Davis, Fresno branch, presented a case report that described an unusual presentation of fowl cholera in turkeys.

Facial cellulitis of head, snood and wattles is a clinical condition frequently associated with Erysipelas infections in turkeys. Outbreaks of this disease commonly start suddenly and the infection is generally acute and fulminating in toms.

In this specific case, male turkeys between 16 and 19 weeks of age from two different companies were submitted with a history of sudden increase in mortality and severe cellulitis of head, snood and wattles. At necropsy, in addition to facial cellulitis, some of the birds also had pneumonia, airsacculitis, and pericarditis. On the same day, the rest of the flock started treatment with tetracycline, and mortality decreased rapidly. *Pasteurella multocida* was isolated from skin, sinus, air sacs, heart and lung.

In summary, facial cellulitis could be an unusual presentation for fowl cholera in male turkeys and should be differentiated from erysipelas.

Jaime Ruiz, DVM
MAM Candidate

PCR tests and detection and differentiation of *Haemophilus paragallinarum*

Dr. P. Blackall (Agency for Food and Fibre Sciences, Animal Research Institute, Department of Primary Industries, Yeerongpilly, Queensland, Australia) presented an update on the use of PCR test (HP-2 PCR) for the detection of *Haemophilus paragallinarum* and the use of Enterobacteriaceae Repetitive Intergenic Consensus Sequences (ERIC-PCR) as a typing approach for the organism. The HP-2 PCR gave 15 of 39 birds and 6 of 8 farms as positive and the classical bacteriological culture procedure gave only 8 of 39 chickens and 4 of 8 farms as positive. In other studies in China from 67 suspected coryza outbreaks, the HP-2 PCR gave 14 positive results in contrast with only 4 positive results obtained by the traditional culture procedure. However, problems of poor samples, delayed transport and poor quality of the media and bacteriological procedures were discussed in this high bacteriological failure rate and as an advantage to the PCR.

The ERIC-PCR technique was able to differentiate 17 molecular patterns among 11 reference strains and 25 field isolates. Two Australian strains (HP14 and HP60) belonged to different Page serovars shared the same PCR pattern. However, ERIC-PCR was able to differentiate 16 Australian field isolates from 9 Chinese isolates. So far, ERIC-PCR as a typing approach of *H. paragallinarum* is still not able to give a good correlation with the classical Page of Kume schemes of serotyping, but the ERIC-PCR typing can be used to determine if isolates have a common source, which can be very useful for epidemiological analysis.

Miguel Ruano, DVM
MAM Candidate

Summary from 137th AVMA Annual Meeting...

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Chicken Passage of Pigeon Paramyxovirus-1 (PPMV-1) isolates increased their virulence

Dr. Daniel King (USDA-ARS, Southeast Poultry Research Laboratory, Athens, GA) discussed pathogenicity studies on six pigeon Newcastle disease virus (NDV) isolates. Embryo propagated virus from the last passage was used for pathogenicity comparisons with the original virus inoculum. Two different clinical signs were observed in chickens inoculated with the six pigeon isolates. Four isolates that gave HI positive reaction with pigeon-specific monoclonal antibody 161/167 and designated as pigeon paramyxovirus-1 (PPMV-1), caused nervous signs and depression with no increased severity of the disease during chicken passage. The other two pigeon isolates were non-reactive to the monoclonal antibody 161/167 and produced severe depression and mortality with typical lesions of viscerotropic velogenic NDV (VVNDV) in the initial passage. It was concluded that the chicken passage of the four PPMV-1 characterized as non-viscerotropic velogenic NDV (n-VVNDV) increased their virulence, but not to the level inherent in the pigeon VVNDV. The pathotype of the non-VVNDV pigeon isolates was greater than mesogenic, but less than velogenic NDV. It was evident that these isolates are a greater hazard to chickens than the lentogenic strains routinely recovered from commercial poultry in the United States.

Miguel Ruano, DVM
MAM Candidate

Respiratory Disease in Poultry Associated with Neisseria-like Bacteria

Dr. Richard Chin, University of California, Davis, Fresno branch, presented recent findings about Neisseria-like bacterial infection in poultry cases submitted in California. Neisseria as a species are gram negative motile rod, catalase positive and oxidase positive. It can be separated from *Ornithobacterium rhinotracheale* (ORT) by the catalase test as ORT is negative. The lab in California has obtained 56 isolates of this bacterium, from 26 cases. Turkeys comprised 25 of the submissions, with the remaining case a backyard chicken. The history on the cases was respiratory disease and increased mortality. Gross lesions included pneumonia with a fibrinous pleuritis. Histopathologically, lung parenchyma showed acute inflammation with edema and fibrin in peribronchiolar spaces. To isolate the organism, trachea and lung are the best areas to culture. Typically, the organism is found in a mixed culture with *Escherichia coli*, ORT, *Mycoplasmas*, and *Pasteurella multocida*.

Pathological Lesions Induced by Neisseria-like Organisms in Turkeys

In a related paper, Dr. Alberto Back also from University of California, Davis, Fresno branch presented results from a trial to reproduce lesions similar to field cases of Neisseria-like bacteria.

4.5 week old turkeys were separated into 10 bird groups. Birds were serologically negative for antibodies to *Ornithobacterium rhinotracheale* (ORT). Each group was inoculated with a different concentration of Neisseria-like bacteria or in combination with ORT. Inoculation was intra-tracheal. Birds were evaluated for clinical signs and lesions at 3 and 10 days post-inoculation. Clinical observations were depression and dyspnea in affected birds. Lesions seen at 3 dpi included dark, firm, and congested lungs and mild airsacculitis. Histopathological examination revealed severe pneumonia with all 3 differing concentrations of bacteria. At 10dpi, no lesions were found. When combined with ORT, more severe lesions were observed.

The birds were cultured at both time periods. The Neisseria-like bacteria was only recovered at 3 dpi and no organisms were found at 10 dpi. This finding suggests the bacteria are cleared quickly following infection.

Using a pure culture of Neisseria-like bacteria, the researchers were able to reproduce a pneumonia and recover the bacteria from affected birds at 3 dpi. Lesions were observed in birds inoculated with as low as 1×10^4 CFU. Infection severity was increased when the organism was co-infected with ORT.

Karen Burns, DVM
MAM Candidate

Summary from 137th AVMA Annual Meeting...

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Mitigation of Horizontal Transmission of Subgroup J Avian Leukosis Virus during and Immediately Following Hatching

Dr. Richard L. Witter, of the USDA-Agricultural Research Service, Avian Disease and Oncology Laboratory, East Lansing, MI, presented, "Mitigation of Horizontal Transmission of Subgroup J Avian Leukosis virus During and Immediately following Hatching." In this study donor chickens from two strains of commercial broiler breeder chickens were inoculated with avian leukosis virus, subgroup J, as embryos to simulate congenital infection to uninfected hatchmates. The results showed that transmission occurred readily when chicks were hatched in direct physical contact with infected donors, or were exposed in the hatchery by manual cloacal transfer, needle transfer during subcutaneous inoculation, or ingestion of infected meconium. However, transmission did not result from short-term direct or indirect contact. Multiple interventions based on hatching, handling, and rearing chicks in small groups successfully reduced infection levels.

Isolation of Quinupristin-Dalfopristin-Resistant Enterococcal Faecium From Human Stool specimens and Retail Chicken Products in the United States: Use of Virginiamycin May Compromise New Human Antimicrobial Agent

A poster entitled "Isolation of Quinupristin-Dalfopristin-Resistant Enterococcus Faecium From Human Stool Specimens and Retail Chicken products in the United States; Use of Virginiamycin May Compromise New Human antimicrobial Agent" was presented by S. Rossiter, K. Joyce, G. Hill and N. Marano of the Centers for Disease Control and Prevention. In this study, the resistance of human and chicken isolates to Quinupristin-Dalfopristin (QD) was compared. Between July 1998 and June 1999, laboratories in Georgia, Maryland, Minnesota, and Oregon used Gram positive selective media and QSD-resistant selective media to culture human stools and chickens purchased from grocery stores. Isolates of enterococci were forwarded to CDC for species identification and antimicrobial susceptibility testing using broth microdilution. Of the 39 *E. faecium* human isolates, 3 (8%) were QD resistant. Of the 189 *E. faecium* chicken isolates, 178 (94%) were QD resistant. The carriage rate of QD-resistant *E. faecium* in chickens was 61% versus 1% in human stool. From this data it was concluded that chickens represent a vast reservoir of QD-resistant *E. faecium*, to which humans are exposed; and that continued use of virginiamycin to promote the growth of chickens and other food animals may compromise the effectiveness of QD.

Naola Ferguson, DVM
MAM Candidate

Broiler Whole Bird Condemnation (Company)

	Average Co.	Top 25%	Top 5 Co.'s
% Septox	0.246	0.200	0.177
% Airsac	0.127	0.046	0.028
% I.P.	0.066	0.022	0.028
% Leukosis	0.006	0.002	0.003
% Bruise	0.010	0.007	0.004
% Other	0.015	0.006	0.002
% Total	0.470	0.283	0.241
% 1/2 parts condemnations	0.407	0.246	0.264

Data for week ending 8/5/00

**Broiler Performance Data (Company)
Live Production Cost**

	Average Co.	Top 25%	Top 5 Cos.
Feed cost/ton w/o color (\$)	133.97	127.51	123.86
Feed cost/lb meat (¢)	12.72	11.57	11.07
Days to 4.6 lbs	44	45	45
Med. cost/ton (¢)	2.74	2.03	1.89
Chick cost/lb (¢)	3.95	3.89	3.84
Vac-Med cost/lb (¢)	0.09	0.03	0.03
WB & 1/2 parts condemn. cost/lb	0.22	0.13	0.13
% mortality	4.30	3.16	2.82
Sq. Ft. @ placement	0.81	0.77	0.75
Lbs./Sq. Ft.	6.29	5.96	5.93
Down time (days)	11	12	12

Data for week ending 8/5/00

Broiler Whole Bird Condemnation (Region)

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.265	0.270	0.262	0.151	0.249
% Airsac	0.090	0.040	0.125	0.194	0.126
% I.P.	0.044	0.048	0.043	0.064	0.105
% Leukosis	0.010	0.002	0.009	0.004	0.004
% Bruise	0.009	0.005	0.008	0.013	0.011
% Other	0.021	0.012	0.016	0.022	0.009
% Total	0.439	0.376	0.462	0.488	0.504
% 1/2 parts condemnations	0.386	0.286	0.385	0.411	0.457

Data for week ending 8/5/00



The University of Georgia is committed to the principle of affirmative action and shall not discriminate against otherwise qualified persons on the basis of race, color, religion, national origin, sex, age, physical or mental handicap, disability, or veteran's status in its recruitment, admissions, employment, facility and program accessibility, or services.

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Excerpts from the latest USDA National Agricultural Statistics Service (NASS) "Broiler Hatchery," "Chicken and Eggs" and "Turkey Hatchery" Reports and Economic Research Service (ERS) "Livestock, Dairy and Poultry Situation and Outlook" Reports

Broiler Production Increases Slowing

According to the most recent Economic Research Service (ERS) U.S. broiler production in first-quarter 2000 was 7.6 billion pounds, 4 percent higher than in first-quarter 1999. However, production increases in the second quarter are expected to be considerably smaller with production forecast at 7.750 billion pounds, only 2 percent more than in the previous year. Production increases for the rest of 2000 are expected to be relatively small compared with growth rates in previous years. Weekly data on broiler egg sets and chick placements have shown almost no growth compared with previous years, and stagnant prices at both the wholesale and retail levels do little to encourage greater production. Adding to the expected slowdown in broiler production is the fact that the broiler hatchery flock at the beginning of July was down 1.5 percent from a year earlier. Also, over the first half of 2000 the cumulative slaughter of broiler-breeder type hens was 2 percent higher than the previous year.

Boiler Exports Continue Strong in April

Boiler exports in May totaled 406.8 million pounds, up 28 million from April and 25 percent higher than the previous year. Over the first 5 months of 2000, boiler exports totaled 2.264 billion pounds, up 25 percent from the same period in 1999. While direct exports to the Russian market varied greatly from month to month, total exports to Russia (either directly or through the Baltic countries) rebounded strongly from the previous year. Over the first 5 months of 2000 combined shipments to Russia and Latvia have totaled just over three-quarters of a billion pounds. Exports to China also continued to grow, rising 4 percent after expanding 25 percent in 1999. Boiler exports are also expected to show strong increases to Korea and Taiwan. Boiler exports to the Philippines had been up sharply, but are expected to decline due to a slowdown in the issuance of import certificates.

Turkey Production Growth Slowing, Exports Lower in Second Quarter

Federally inspected turkey production totaled 1.284 billion pounds in first-quarter 2000, up 6 percent from the previous year. However, turkey production is expected to show only small gains at best in the rest of 2000. Meat production in April and May was about even with a year earlier and producers reported a smaller number of eggs being placed in incubators and a lower number of poults being placed. The cumulative number of eggs in incubators at the start of July was 34.1 million 2 percent lower than in 1999 and the cumulative number of poults placed through June was 153 million, about even with a year earlier. Turkey exports in 2000 are forecast at 434 million pounds, up 14 percent from 1999. Much of the increase is due to the sharp upturn in exports in the first quarter, when shipments rose more than 48 percent. Exports in the second quarter are expected to be considerably smaller due to lower shipments to Russia and somewhat slower shipments to Mexico. Because Mexico is a major importer of U.S. turkey products, the Mexican economy's reaction to newly elected government's transition to power will play a critical role in exports for the remainder of 2000. Over the first 5 months of 2000 shipments to Mexico totaled 86 million pounds, up 25 percent from 1999. Turkey exports so far in 2000 have also benefited from a larger increase in shipments to Russia. So far in 2000, trade to Russia is already double that of all of 1999. However, turkey exports to Russia tend to vary widely from month to month. In March 2000 shipments were reported at 27 million pounds, but in May had fallen to only 116,000 pounds.

Higher Production, Lower Prices for Eggs

Retail egg prices for the second quarter averaged 87.6 cents a dozen, down 6 percent from the previous year. The weakness in egg prices reflects continuing growth in production, stable domestic demand, and a relatively slow export market. Table egg production rose 4 percent in first-quarter 2000 and is expected to increase 3 percent in the second quarter. The downward pressure on table egg prices is expected to continue into the third quarter as the number of table egg layers at the beginning of June was 2 percent higher than at the same time in 1999.

Total U.S. egg exports were down 26 percent in 1999, but over the first 5 months of 2000 exports have been about even with the previous year. Stronger exports to Mexico and Japan have offset declines in shipments to Canada and Hong Kong. The outlook for shell egg exports to Hong Kong have been declining as more shell eggs are imported from the Chinese mainland.

Broiler Eggs Set In 15 Selected States Down 2 Percent

Commercial hatcheries in the 15-State weekly program set in incubators 177 million eggs during the week ending August 5, 2000. This was down 2 percent from the eggs set the corresponding week a year earlier. Average hatchability for chicks hatched during the week was 82 percent. Average hatchability is calculated by dividing chicks hatched during the week by eggs set three weeks earlier.

Broiler Chicks Placed Down 3 Percent

Broiler growers in the 15-State weekly program placed 141 million chicks for meat production during the week ending August 5, 2000. Placements were down 3 percent from the comparable week in 1999. Cumulative placements from January 2, 2000, through August 5, 2000, were 4.54 billion, up 1 percent from the same period a year earlier.

June Egg Production Up 1 Percent

According to the latest National Agricultural Statistics Service (NASS) report U.S. egg production totaled 6.80 billion during June 2000, up 1 percent from the 6.74 billion produced in 1999. Production included 5.72 billion table eggs and 1.08 billion hatching eggs, of which 1.02 billion were broiler-type and 65.0 million were egg-type. The total number of layers during June 2000 averaged 325 million, up 1 percent from the total average number of layers during June 1999. June egg production per 100 layers was 2,092 eggs, down 1 percent from 2,104 eggs in June 1999.

All layers in the U.S. on July 1, 2000, totaled 325 million, up 1 percent from a year ago. The 325 million layers consisted of 266 million layers producing table or commercial type eggs, 56.5 million layers producing broiler-type hatching eggs, and 2.72 million layers producing egg-type hatching eggs. Rate of lay per day on July 1, 2000, averaged 69.4 eggs per 100 layers, down 1 percent from the 69.8 a year ago.

Laying flocks in the 30 major egg producing States produced 6.66 billion eggs during June, up 2 percent from June 1999. The average number of layers during June, at 306 million, was up 1 percent from a year earlier.

Egg-Type Chicks Hatched Down 12 Percent

Egg-type chicks hatched during June totaled 36.6 million, down 12 percent from June 1999. Eggs in incubators totaled 30.6 million on July 1, 2000, down slightly from a year ago. Domestic placements of egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 223,000 during June 2000, up 19 percent from June 1999.

Broiler Hatch Up Slightly

The June 2000 hatch of broiler-type chicks, at 748 million, was up slightly from June of the previous year. There were 615 million eggs in incubators on July 1, 2000, down 2 percent from a year earlier.

Leading breeders placed 6.83 million broiler-type pullet chicks for future domestic hatchery supply flocks during June 2000, down 3 percent from June 1999.

Turkey Eggs in Incubators on August 1 Down 3 Percent From Last Year

Turkey eggs in incubators on August 1, 2000, in the United States totaled 31.1 million, down 3 percent from August 1 a year ago. Eggs in incubators were also down 9 percent from the July 1 total of 34.2 million. Regional changes from the previous year were: East North Central, down 3 percent; West North Central, down 7 percent; North and South Atlantic, up 1 percent; South Central, up 1 percent; and West, down 2 percent.

Poults Placed During July Up 1 Percent From Last Year

The 27.1 million poults placed during July 2000 in the United States were up 1 percent from the number placed during the same month a year ago. Placements were up slightly from the May total of 27.0 million. Regional changes from the previous year were: East North Central, down 7 percent; West North Central, down 1 percent; North and South Atlantic, up 2 percent; South Central, down 7 percent; and West, up 23 percent.

Thank you for responding to our recent survey requesting your thoughts and input regarding future editorial topics for *The Poultry Informed Professional Newsletter*. We will work to continue improving this publication by incorporating articles on those topics you have suggested which are both useful and meaningful.

Chuck Hofacre , Associate Professor
 Department of Avian Medicine, University of Georgia

	Topics	Least Interest			Most Interest	TOTAL RESPONSES
A.	Additional information regarding the Antimicrobial Resistance Issue	2	13	8	13	36
B.	Additional information regarding Food Safety on Farm Issues	1	10	15	11	36
C.	Updates on new/emerging poultry diseases for the U.S.		1	11	26	38
D.	Updates on new/emerging poultry diseases worldwide	3	6	9	19	37
E.	Additional information regarding the environmental impact of poultry and intensive livestock	4	18	9	6	37
F.	More information regarding disease issues globally	3	11	13	10	37
G.	I would like to have more articles regarding management and poultry health.	3	5	15	15	38
H.	I would like more articles regarding nutrition	10	10	8	10	38
	Back to school - a refresher on:					
I.	Infectious Bronchitis Virus	1	4	11	22	38
J.	Infectious Bursal Disease Virus	4	2	14	17	37
K.	Newcastle Disease Virus	2	10	12	13	37
L.	Virus isolation for poultry pathogens	5	12	7	14	38
M.	Bacterial Isolation for poultry pathogens	3	11	14	10	38
N.	Interpreting serology	3	5	10	19	37
TOTALS		44	118	156	205	

Please give us additional suggestions or comments regarding the content of the PIP newsletter and send this page back to us at: sclanton@arches.uga.edu or fax to Sue Clanton at (706) 542-5630.

Meetings, Seminars and Conventions

2000 August

Aug. 19-21: 89th Annual Meeting - Poultry Science Association, Preceding XXII World's Poultry Congress. Montreal's Convention Centre, Montreal, Quebec. See PSA website for more information.

<http://www.psa.uluc.edu/meet/psa2000/psa2000.html>

Aug. 20-25: XXI World's Poultry Congress, Convention Centre, Montreal, Quebec, Canada. Contact: Rosaleen Rinzier, WPC 2000 Congress Secretariat, Events International Meeting Planners Inc., 759 Victoria Square, Suite 300, Montreal, Quebec, Canada H2Y 2J7. Phone: 514-286-0855.

2000 September

Sept. 10-13: Fourth Discover Conference on Food Animal Agriculture: Probiotics for Food Animals, Abe Martin Lodge in Brown County State Park, Nashville, Indiana. For more information contact: ADSA Discover Conferences, 1111 N. Dunlap Ave., Savoy, IL 61874. Phone: 217-356-3182. e-mail: adsa@assoqh.org or visit the conference website at: <http://www.adsa.org/discover/fourth.html>

Sept. 13-15: Effective Broiler Breeder Management, Utrecht, Holland. Contact: Elaine Robson, Conference Organizer, Positive Action Conferences, P.O. Box 4, Driffield, East Yorkshire 4025 9D1 England. Phone: +44 0 1377 256316; Fax: +44 0 1377 254663

E-mail: Conf@positiveaction.co.uk
Website: www.positiveaction.co.uk
Sept. 18-20: Effective Poultry Health Management, Utrecht, Holland. Contact: Elaine Robson, Conference Organizer, Positive Action Conferences, P.O. Box 4, Driffield, East Yorkshire 4025 9D1 England. Phone: +44 0 1377 256316; Fax: +44 0 1377 254663

E-mail: Conf@positiveaction.co.uk
Website: www.positiveaction.co.uk
Sept. 20-21: Poultry Production and Health Seminar, Sheraton Hotel, Birmingham, AL. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30094. Phone: 770-493-9401

Sept. 20-21: California Poultry Federation Annual Conference, Modesto, California.

For information check the California Poultry Federation website at 222.cpf.org or contact 3117 A McHenry Ave., Modesto, CA 95350. Phone: 209-576-6355; Fax: 209-576-6119; e-mail: califpoultry@cs.com

Sept. 21-23: Effective Table Egg Layer Management, Utrecht, Holland. Contact: Elaine Robson, Conference Organizer, Positive Action Conferences, P.O. Box 4, Driffield, East Yorkshire 4025 9D1 England. Phone: +44 0 1377 256316;

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E-mail: Conf@positiveaction.co.uk
Website: www.positiveaction.co.uk

Sept. 27-29: VIV America Latina, International Trade Show for Intensive Animal Production and Processing, Expo Center Norte, Sao Paulo, SP Brazil. Contact: Royal Dutch Jaarbeurs Brasil, Phone: +55 15 262 3133; Fax: +55 15 262 3575; E-mail: rdjbr@uol.com.br

2000 October

Oct. 3-4: Broiler Workshop, Auburn University, Auburn, AL. Contact: Alabama Poultry & Egg Association, P.O. Box 240, Montgomery, Alabama 36101-0240. Phone: 334-265-2732.

Oct. 6-7: Kentucky Poultry Festival, Galt House, Louisville, KY. Contact: Carole Knoblett, Kentucky Poultry Federation, P.O. Box 21829, Lexington, KY 40522-1829. Phone: 606-266-8375.

Oct. 12-14: Layer Symposium, Lexington, KY. Contact: Carol Johnson, Alltech Inc., 3031 Catnip Hill Pike, Nicholasville, KY 40356. Phone: 606-887-3242

Oct. 13-14: Poultry Protein & Fat Seminar, DoubleTree Hotel, Nashville, TN. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30094. Phone: 770-493-9401.

Oct. 15-17: Broiler Symposium, Lexington, KY. Contact: Carol Johnson, Alltech Inc., 3031 Catnip Hill Pike, Nicholasville, KY 40356. Phone: 606-887-3242

Oct. 18-20: National Meeting on Poultry Health and Processing, Sheraton Ocean City, Ocean City, Maryland. Sponsored by Delmarva Poultry Industry, Inc. Contact: Sharon Webb. Phone: 302-856-9037; Fax: 302-856-1845; E-mail: dpi@ce.net

2000 November

Nov. 7-10: Expoaviga, International Poultry & Livestock Technology Show, Montjuic Trade Fair Center, Fira de Barcelona, Spain. Contact: F. Xavier Castells, Manager, Expoaviga, Avda. Reina Mo. Cristina, s/n 08004 Barcelona, Spain. Fax: +34 93 23 32602.

Nov. 14-15: Breeder/Hatchery Workshop, Auburn University, Auburn, AL. Contact: Alabama Poultry & Egg Association, P.O. Box 240, Montgomery, AL 36101-0240. Phone: 334-265-2732.

Nov. 15-17: XVI Central America Poultry Congress, Hotel El Panama, Ciudad de Panama, Panama. Contact: Dr. Evelio Quiroz, Presendente APECA, Apartado No 6-3994, Estafeta El Dorado, Panama. Fax: +507 261 1352

Nov. 16: CFIA Poultry Nutrition Conference, Sheraton Imperial Hotel, Research Triangle Park, NC. Contact: Owen Robertson, Carolina Feed Industry Association secretary-treasurer, 2116 N. Shoreline Drive, Sanford, NC 27330. Phone: 919-776-3054

Nov. 27: Coccidiosis 2000, Hannover, Germany. Contact: Elaine Robson, Conference Organizer, Positive Action Conferences, P.O. Box 4, Driffield, East Yorkshire Y025 9D1 England. Phone: +44 (0) 1377-256316; Fax: +44 (0) 1377-254663.

Nov. 8 - Dec. 1: EUROTIER International Exhibition for Livestock & Poultry Production, Hannover, Germany. Contact: Daniel M. Koning, DLG, Eschborner Landstrasse 122, D-60489 Frankfurt, Germany. Fax: +49 69 2478 8113.

2001 January

Jan. 17-19: 2001 International Poultry Exposition, Georgia World Congress Centre, Atlanta, Georgia, USA. Contact: US Poultry & Egg Association, 1530 Cooledge Road, Tucker, Georgia 30084, USA. Fax: +1 770-493-9257.