



The Poultry Informed Professional

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SUMMARIES OF PRESENTATIONS; THE SOUTHERN CONFERENCE ON AVIAN DISEASES - JANUARY 15-16, 2001

Conductance constant effects on embryonic and hatchling cardiac physiology

V.L. Christensen, M.J. Wineland, B.D. Fairchild
NC State University, Raleigh, NC

Dealing with hatching considerations for high yielding breeds for both chickens and turkeys has placed added emphasis on hatching quality. The new high yielding breeds have variations in their eggs that directly impact a measurement known as eggshell conductance. The conductance is affected by three variables, egg weight, conductance constant and incubation period. Dr. Christensen explained how the eggshell conductance impacts the embryonic development of heart and vascular function. The experiment compared two strains of turkeys and two incubation periods, one normal and one shorter. The two strains of turkeys differed in the three components of eggshell conductance. To examine the effects on cardiac function the following parameters were measured: heart weight, heart glycogen content, plasma glucose and lactate, lactate dehydrogenase, and creatine kinase. The two groups had

Broiler Performance Data (Region) Live Production Cost					
	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color (\$)	136.95	126.87	140.75	139.44	140.98
Feed cost/lb meat (¢)	12.79	12.16	13.30	13.56	13.23
Days to 4.6 lbs	45	45	44	45	45
Med. cost/ton (¢)	NA	NA	NA	NA	NA
Chick cost/lb (¢)	4.02	4.00	4.05	3.70	3.97
Vac-Med cost/lb (¢)	0.05	0.02	0.11	0.06	0.10
WB & 1/2 parts condemn. cost/lb	0.26	0.25	0.28	0.30	0.25
% mortality	6.12	4.60	4.73	5.41	5.05
Sq. Ft. @ placement	0.76	0.75	0.77	0.76	0.81
Lbs./Sq. Ft.	6.46	6.90	6.71	7.18	6.58
Down time (days)	16	17	18	18	16

Data for week ending 2/10/01

Contents

Summaries of Presentations... Pages 1-4
 Broiler Performance Data (Region) Page 1
 Broiler Performance Data (Company) Page 2
 Broiler Whole Bird Condemnations (Region) Page 2
 Broiler Whole Bird Condemnations (Company) Page 5
 Excerpts.. "Broiler Hatchery" "Chicken and Eggs" and "Turkey Hatchery, ... Pages 7-8
 Meetings, Seminars and Conventions Page 9

significant differences in the above measurements due to conductance constants. The control group with a longer incubation also displayed increased glycogen, blood glucose, lactate, and elevated LDH during pipping, hatching and up to 3 days post-hatch.

From these findings, it can be concluded that incubation periods can be adjusted to allow for these changes in conductance constants to improve bird cardiovascular health at hatching.

Karen E. Burns, DVM

Effect of vaccination against IBDV on incidence and severity of proventriculitis in SPF leghorns

*T.V. Dormitorio, J.J. Giambrone, F.J. Hoerr, T.F. Kelly, and S.B. Lockaby
Auburn University and Alabama State Diagnostic Laboratory, Auburn, AL*

In the past 2 years, a proventriculitis syndrome has been identified in broilers in North Alabama and other areas of the southeast. The proventriculitis is associated with a loss of feed efficiency and weight gain, resulting in feed passage, stunting, mortality and plant contamination. IBDV has been implicated as the causative agent in previous work.

This study examined the effectiveness of IBDV vaccination on reducing the lesions of proventriculitis. Two-week-old SPF leghorns were vaccinated with a live IBDV vaccine, that contained standard and variant strains. One week later, the birds were inoculated with two proventricular homogenates, (2054 and V1). The study outlined the lesion of proventriculitis as thickened walls and distinct glandular pores.

Unvaccinated birds displayed a 60% incidence of proventriculitis following challenge with either isolate. Vaccinated birds challenged with 2054 had a 20% reduction in lesions, while those vaccinates challenged with V1 exhibited no proventriculitis. As a control, birds were inoculated with a control proventricular homogenate from clean SPF birds. These birds showed no lesions or clinical signs.

The source of IBDV isolates to perform the challenge was also analyzed. The proventricular homogenates produced 20% more lesions in challenged birds compared to those challenged with bursal homogenates.

In conclusion, vaccination at 2 weeks with a live IBDV vaccine containing standard and variant virus reduced the incidence of proventriculitis after challenge with a known proventriculitis causing IBDV isolate.

Karen E. Burns, DVM

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

	Average Co.	Top 25%	Top 5 Cos.
Feed cost/ton w/o color (\$)	138.51	132.98	126.38
Feed cost/lb meat (¢)	13.05	12.50	12.20
Days to 4.6 lbs	45	45	46
Med. cost/ton (¢)	NA	NA	NA
Chick cost/lb (¢)	4.07	3.68	2.95
Vac-Med cost/lb (¢)	0.07	0.04	0.03
WB & 1/2 parts condemn. cost/lb	0.29	0.22	0.14
% mortality	5.31	4.23	4.10
Sq. Ft. @ placement	0.77	0.77	0.80
Lbs./Sq. Ft.	6.60	6.77	7.31
Down time (days)	17	15	11

Data for week ending 2/10/01

Broiler Whole Bird Condemnation (Region)

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.391	0.340	0.230	0.370	0.289
% Airsac	0.144	0.088	0.279	0.242	0.163
% I.P.	0.052	0.024	0.092	0.073	0.133
% Leukosis	0.005	0.002	0.003	0.014	0.002
% Bruise	0.009	0.006	0.017	0.013	0.012
% Other	0.025	0.006	0.020	0.017	0.026
% Total	0.626	0.466	0.641	0.729	0.627
% 1/2 parts condemnations	0.449	0.562	0.461	0.437	0.399

Data for week ending 2/10/01

A PEMS-associated reovirus causes alterations in liver and lymphoid organs in turkey poults.

Dr. C.L. Heggen-Peay from North Carolina State University, Raleigh, NC, presented an update in the pathogenesis of PEMS-associated reovirus infections in turkey poults.

Poult enteritis Complex (PEC) is a general term that encompasses the infectious intestinal diseases of young turkeys. Some diseases, such as coronaviral enteritis and stunting syndrome, are relatively well characterized, while others, such as transmissible viral enteritis, poult growth depression and poult enteritis mortality syndrome (PEMS), remain undefined. All forms of PEC are multifactorial, transmissible and infectious. Salient clinical features include stunting and poor feed utilization that result from enteritis. In the more severe forms, runting, immune dysfunction and mortality are reported.

The search for etiological agents associated with PEMS has led to the isolation of novel viruses. In previous studies, the group in which Dr. C.L. Heggen-Peay works in association with researchers from Cornell University and University of California, Davis, have reported the isolation of a viral particle, the Cornell isolate, from fecal material of poults with PEMS. Recent studies suggest that this may be a reovirus. The objective of their study was to investigate the effects of this virus alone on immune and performance parameters of turkey poults.

In two independent trials, commercial poults were placed in bubble-type isolation units on day of hatch with ad-libitum access to sterile food and water. At 7 days of age, poults were inoculated orally with 1 ml of virus (10^5 TCID₅₀) or sham inoculated. Body weights and organ weights were evaluated at 3,6,10 (both trials) and 20 (trial 2 only) days post-infection (DPI). Fecal material was collected for re-isolation of the virus. No significant differences were observed in body weight or thymus weight between the treatment groups in the first trial. In contrast, spleen weight was enlarged significantly ($P<=0.05$) whereas bursa ($P<=0.01$) and liver ($P<=0.05$) weights were decreased significantly in the virus poults at 6 DPI. The significant decrease in liver weight was also observed at 10 DPI ($P<=0.01$). However, by 20 DPI, significant differences in organ weights between the treatment groups were not observed, suggesting a "recovery". Virus was re-isolated from 10/10 fecal samples from virus poults at 3 and 6 DPI. However, at 10 and 20 DPI, virus was reisolated from only 5/10 fecal samples from virus poults. No virus was re-isolated from control fecal material. Similar transient decrease in lymphoid organ weights were observed in virus poults in the second trial, including a significant decrease ($P<=0.01$) in bursa weight at 6 DPI and a significant decrease in liver weight ($P<=0.01$) at 3 and 6 DPI. As in the first trial, virus was re-isolated from 10/10 virus poults at 3 DPI, but was more difficult to detect at later time points.

These results suggest that this agent is pathogenic to poults and compromises health and performance. Furthermore, because this virus causes organ weight alterations, it may contribute to increased susceptibility to opportunistic pathogens.

Jaime Ruiz, DVM

The influence of Vanadium on pigmentation of Brown-Shelled Eggs.

J.P.Sutly, R.D Miles, C.W. Comer and M Balaban, University of Florida, Gainesville, FL.

Vanadium (V) toxicity in poultry has been reported in situations where birds are fed contaminated sources of phosphate. Growth rate in young chicks will be affected at 10-20 ppm vanadium, while 20-30 ppm vanadium fed to layers causes significant reduction in albumen thickness. While much is known about the detrimental effect of V on egg albumen quality, a void exists in the literature about its effect on eggshell pigmentation.

An experiment was conducted with broiler breeders in order to determine what effect V would have on pigmentation of brown-shelled eggs. All eggs were collected from eight floor pens, each containing 11-15 broiler breeders, for a baseline period of three days. Eggshell pigmentation was determined on each egg using a color machine vision system coupled with color analysis software. Following the baseline collection period three experimental diets were fed to the birds. A corn-soybean meal diet served as the control (0 ppm added V). Two other diets were supplement-

ed with sodium metavanadate at concentrations to provide 50 and 100 ppm V, respectively. Two pens of birds served as control and the diets containing V were fed to three pens of birds each. Shell pigmentation was determined on each egg laid during the experimental period. Results indicated that there were no significant differences in luminosity during the baseline period. A significant increase in shell luminosity (less pigment) was observed for eggs collected from birds fed with V in the diet compared to control eggs. These data confirm that V, does have a bleaching effect on brown eggshells.

Jaime Ruiz, DVM

Efficacy of In Ovo Administration of Infectious Bursal Disease Vaccine

Dr. Joseph Giambrone of Auburn University presented "Efficacy of In Ovo Administration of Infectious Bursal Disease Vaccine". Two almost identical studies were done to determine the efficacy of three commercially available live intermediate IBDV vaccines administered in ovo.

In the first study, vaccines were given at one half dose to 18 day commercial broiler embryos in ovo which had maternal antibodies against IBDV. The chicks were then challenged with either a virulent standard or antigenic variant IBD virus at 3 weeks of age.

The chicks in the second study were challenged at 5 weeks instead of 3 weeks.

It appears from the results of these studies that all of the vaccines used were relatively effective at the three week challenge, but only one-half to one-third as effective at the five week challenge. It also appears that in both studies that in ovo vaccination is more effective against the standard strain than the variant strain.

Since this is the first efficacy study for the use of these vaccines, more work needs to be done before any conclusions can be made.

Phillip B. Eidson, DVM

CONGRATULATIONS

Dr. Holly Sellers was appointed Assistant Professor in the Department of Avian Medicine in January 2001. She received her bachelor's degree in Biology at Stephen F. Austin State University in Nacogdoches, Texas. She received both her Master's and PhD degrees in Medical Microbiology from the University of Georgia. Following her graduate work at UGA, she was a post-doctoral research associate at the Southeast Poultry Research Laboratory, US Dept. of Agriculture/Agriculture Research Services in Athens, Georgia. Her areas of interest include clinical and molecular avian virology and enteric viruses.

**Georgia Veterinary Medical Association
Poultry Program
June 8-9, 2001
Jekyll Island, Georgia**

The GVMA Program is Featured on the Next Page

Be sure to make your room reservations early.

- Clarion Resort Buccaneer Hotel.....(912) 635-2261
- Jekyll Inn Resort(800) 736-1046
- Jekyll Island Club.....(800) 535-9547
- Holiday Inn(800) 7-JEKYLL
- Seafarer Inn & Suites.....(912) 635-2202
- Villas by the Sea.....(800) 841-6262

Broiler Whole Bird Condemnation (Company)

	Average Co.	Top 25%	Top 5 Co.'s
% Septox	0.333	0.270	0.235
% Airsac	0.198	0.179	0.121
% I.P.	0.086	0.057	0.018
% Leukosis	0.008	0.005	0.003
% Bruise	0.012	0.011	0.007
% Other	0.020	0.013	0.003
% Total	0.656	0.534	0.388
% 1/2 parts condemnations	0.488	0.388	0.225

Data for week ending 2/10/01



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GVMA 2001 Poultry Program

Friday, June 8

Moderator - Dr. John Glisson

9:00 - 9:45	MG Epidemiology in North Carolina	Dr. Algis Martinez <i>(North Carolina State University)</i>
9:45 - 10:15	Current Research on Infectious Laryngotracheitis	Dr. Maricarmen Garcia <i>(University of Georgia)</i>
10:15 - 10:45	Break	
10:45 - 11:45	Advances in Transgenic Research in Chickens	Dr. Mike McDonell <i>(AviGenics, Inc.)</i>
11:45 - 12:15	Review of Respiratory Disease for 2000-2001	Dr. Louise Dufour-Zavala <i>(Georgia Poultry Laboratories)</i>

Saturday, June 9

Moderator - Dr. Stan Kleven

8:30 - 9:30	Clinical Presentation of Exotic Diseases Velogenic Newcastle Disease	Dr. Bill Hewat <i>(Tyson Foods, Inc.)</i>
	Avian Pneumovirus	Dr. Dave Halvorson <i>(University of Minnesota)</i>
9:30 - 10:00	Antibiotic Resistance Issues	Dr. Chuck Hofacre <i>(University of Georgia)</i>
10:00 - 10:30	Break	
10:30 - 11:15	Management of Broiler Breeder Males	Dr. Leonard Fussell <i>(Cobb Vantress, Inc.)</i>
11:15 - 12:15	Inactivated Autogenous IBDV Vaccines	Dr. John Donahoe <i>(Lohmann Animal Health)</i> Dr. John Smith <i>(Fielddale Farms, Inc.)</i> Dr. Marshall Putnam <i>(Wayne Poultry)</i>

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 Eggs Set In 15 Selected States Up 2 Percent

According to the most recent National Agricultural Statistics Service (NASS) report, Commercial hatcheries in the 15-State weekly program set 181 million eggs in incubators during the week ending February 10, 2001. This was up 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 2 Percent

Broiler growers in the 15-State weekly program placed 143 million chicks for meat production during the week ending February 10, 2001. Placements down 2 percent from the comparable week in 2000. Cumulative placements from December 31, 2000 through February 10, 2001 were 861 million, down 1 percent from the same period a year earlier.

Turkey Eggs in Incubators on February 1 Up 3 Percent From Last Year

Turkey eggs in incubators on February 1, 2001, in the United States totaled 31.8 million, up 3 percent from February 1 a year ago. Eggs in incubators were up 1 percent from the January 1 total of 31.7 million. Regional changes from the previous year were: East North Central, up 1 percent; West North Central, up 8 percent; North and South Atlantic, up 3 percent; South Central, down 12 percent; and West, up 8 percent.

Poults Placed During January Up 3 Percent From Last Year

The 25.5 million poults placed during January 2001 in the United States were up 3 percent from the number placed during the same month a year ago. Placements were up 9 percent from the December 2000 total of 23.3 million. Regional changes from the previous year were: East North Central, up 3 percent; West North Central, up 6 percent; North and South Atlantic, up 5 percent; South Central, down 11 percent; and West, up 5 percent.

December Egg Production Down Slightly

U.S. egg production totaled 7.28 billion during December 2000, down slightly from last year. Production included 6.20 billion table eggs and 1.08 billion hatching eggs, of which 1.02 billion were broiler-type and 63.0 million were egg-type. The total number of layers during December 2000 averaged 332 million, up 1 percent from the total average number of layers during December 1999. December egg production per 100 layers was 2,192 eggs, down 1 percent from 2,214 eggs in December 1999.

All layers in the U.S. on January 1, 2001, totaled 332 million, up 1 percent from a year ago. The 332 million layers consisted of 274 million layers producing table or commercial type eggs, 55.2 million layers producing broiler-type hatching eggs, and 2.85 million layers producing egg-type hatching eggs. Rate of lay per day on January 1, 2001, averaged 70.3 eggs per 100 layers, down 1 percent from the 71.0 eggs a year ago.

Laying flocks in the 30 major egg producing States produced 6.81 billion eggs during December 2000, down 1 percent from December 1999. The average number of layers during December, at 311 million, was up 1 percent from a year earlier.

Egg-Type Chicks Hatched Up 6 Percent

Egg-type chicks hatched during December totaled 35 million, up 6 percent from December 1999. Eggs in incubators totaled 33.9 million on January 1, 2001, up 11 percent from a year ago.

Domestic placements of egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 324,000 during December 2000, up 85 percent from December 1999.

Broiler Hatch Down 1 Percent

The December 2000 hatch of broiler-type chicks, at 739 million, was down 1 percent from December of the previous year. There were 611 million eggs in incubators on January 1, 2001, down 2 percent from a year earlier.

Leading breeders placed 6.43 million broiler-type pullet chicks for future domestic hatchery supply flocks during December 2000, down 8 percent from December 1999.

Broiler Output Revised Downward for 2001

According to the most recent Economic Research Service (ERS) reports, in response to continued low prices through most of 2000, broiler producers have begun to slow down production growth. Broiler production in 2001 is now forecast at 31.2 billion pounds, down 300 million pounds from the earlier estimate. Looking at the short term, weekly reports of broiler eggs set and broiler chicks placed have been averaging below a year earlier since the middle of November. This would point towards slower growth in the first quarter of 2001. On a longer term basis, the number of birds in the breeding flocks also is smaller. The estimated number of broiler-breeders was 53.8 million birds on November 1, down 3.6 percent from the previous year.

Broiler exports continue to show considerable strength. In 2000, total broiler exports are forecast at 5.5 billion pounds, 11 percent higher than in 1999. Exports to Russia continue to rebound strongly. Over the first 11 months of 2000, shipments to Russia alone (not including shipments to the Baltic Nations) have totaled 1.261 billion pounds, 94 percent higher than a year earlier. Shipments to Hong Kong/China (our second largest market) have totaled 1.288 billion pounds, an increase of 18 percent. This growth follows a 25-percent increase in shipments to Hong Kong/China in 1999.

REMINDER

All previous issues of the Poultry Informed Professional are archived on our website www.avian.uga.edu under the Online Documents and The Poultry Informed Professional links.

Meetings, Seminars and Conventions

2001 March

March 14-15: *MPF Convention*, Touchstone Energy@Place, RiverCentre, St. Paul, Minn. Contact: Midwest Poultry Federation, 2380 Wycliff St., St. Paul, Minn. 44114-1257. Phone: 651-464-4553.

March 14-16: *VIV Asia*, Queen Sirikit National Convention Center, Bangkok, Thailand. Contact: VIV Secretariat, Royal Netherlands Industries Fair, PO Box 8500 NL-3503 RM Utrecht, The Netherlands. Phone: +31 20 295 5662; Fax: +31 30 295 5709.

March 23-26: *American College of Poultry Veterinarians Workshop and the 50th Western Poultry Disease Conference*, University of California, Davis. Contact: Conferences & Event Services. Phone: 530-757-3331; Fax: 530-757-7943. Website: conferences.ucdavis.edu (click on Academic Conferences).

March 28-29: *NPI Annual Convention*, New World Inn, Hwy. 30 & 81 S., Columbus, Nebraska. contact: Nebraska Poultry Industries Inc., A103 Animal Sciences, University of Nebraska, P.O. Box 830908, Lincoln, Nebraska 68583-0908. Phone: 402-472-2051.

March 30-31: *Florida Poultry Days*, Orlando, Fla. Contact: Florida Poultry Federation, 4508 Oak Flair Blvd., Suite 290, Tampa, Fla. 33610. Phone: 813-628-4551.

2001 April

April 5-7: *Chicken Cooking Contest*, Hyatt Regency Hotel & Conference Center, Sacramento, Calif. Contact: National Chicken Council, 1015 15th St., N.W., Suite 930, Washington, D.C. 20005-2605. Phone: 202-296-2622.

April 6: *AP&EA Processors Meeting*, Auburn University. Contact: Alabama Poultry & Egg Association, P.O. Box 240, Montgomery, AL 36101. Phone: 334-265-2732.

April 11-13: *Poultry Industry Conference & Exhibition*, Western Fairgrounds, London, Ontario, Canada. Contact: WesternFair Association, P.O. box 7550, London ON N5Y 5PA. Phone 519-438-7203 x 222. Fax: 519-679-3124. E-mail: info@westernfair.com <http://www.westernfair.com>

April 17-18: *Health & Management Seminar*, Airport Clarion Hotel, Roanoke, VA. Contact: Rockingham Poultry

Serviceman's Committee, Virginia Poultry Federation Inc., 333 Neff Ave., Suite C, Harrisonburg, VA 22801. Phone: 540-433-2451.

April 24-26: *Victam Europe 2001 "The Global Event Supplying the Feed & Food Chain" Utrecht Trade Fair*, Utrecht, The Netherlands. Contact: Phone: +31 33 246 4404; Fax: +31 33246 4706 or Email expo@victam.com

April 24-26: *Agro-Foodtech China 2001 International Exhibition for Agriculture, Animal Breeding and Food-Processing Industries in China*, Contact: Florence Mouscadet. Phone: +33 149 685677; Fax: +33 149 685299.

April 25-27: *24th Technical Turkey Conference*, Shrigley Hall Hotel near Macclesfield, UK. Contact:

Fax: +44 1969 6637644 or

Email: Turkeys@Compuserve.com

April 26-29: *GPF Spring Meeting*, Callaway Gardens, GA. Contact: Georgia Poultry Federation, P.O. Box 763, Gainesville, GA 30503. Phone 770-532-0473.

2001 May

May 3-4: *National Breeders Roundtable*, St. Louis, MO. Contact: U.S. Poultry & Egg Association, 1530 Cooleedge Road, Tucker, GA 30084-7303. Phone: 770-493-9401.

May 7-11: *Pepa Annual Convention*, Double Tree Hotel, Monterey, Calif. Contact: Pacific Egg & Poultry Association, 1521 I St., Sacramento, Calif. 95814. Phone: 916-441-0801.

May 14-15: *World Mycotoxin Forum*, Grand Hotel Huis ter Duin, Noordwijk, the Netherlands. Contact: Conference Secretariat, Bastiaanse Communication, P.O. Box 179, NL-3720 AD Bithoven, the Netherlands. Phone: 31-30-2294247.

May 19: *GPF Night of Knights*, Cobb Galleria, Atlanta, GA Contact: Georgia Poultry Federation, P.O. Box 763, Gainesville, GA 30503. Phone 770-532-0473.

2001 June

June 1-3: *AP&EA Conv.*, Birmingham-Jefferson Convention Complex, Birmingham, AL. Contact: Alabama Poultry & Egg Association, P.O. Box 240, Montgomery, AL 36101. Phone: 334-265-2732.

June 7-10: *Georgia Veterinary Medical Association Annual Meeting*, Jekyll Island, GA. Contact: GVMA, 3050 Holcomb Bridge Rd., Norcross, GA 30071-1362. Phone : 770-416-1633; Fax: 770-416-9095.

June 8-9: *APF Poultry Festival*, Arlington Hotel, Hot Springs, Ark. Contact: Judy Kimbrell, Poultry Federation, P.O. Box 1446, Little Rock, Ark. 72203. Phone: 501-375-8131.

2001 July

July 14-18: *AVMA-AAAP Meeting*, Boston, MA

2001 September

Sept. 1-4: *6th European Symposium on Poultry Welfare*, Zollikofen, Switzerland. Contact: Alois Mettler, WPSA Symposium 2001, Burgerweg 24, CH-3052 Zollikofen, Switzerland. Fax: +41 31 911 64 60.

Sept. 9-12: *IX European Symposium on the Quality of Eggs and Egg Products & XV European Symposium on the Quality of Poultry Meat*, Contact: Dr. S. Yalcin, Secretary of WPSA Turkish Branch, Ege University, Faculty of Agriculture, Dept. of Animal Science, 35100 Izmir-Turkey. Phone +90 232 388 4000/1449 (ext.); Fax: +90 232 388 1864.

E-mail: yalcin@ziraat.ege.edu.tr

Sept. 17-21: *World Veterinary Poultry Association XII International Congress*, Current developments and prospects for poultry disease prevention and control, Cairo, Egypt. contact: Cairo International Conference Centre, Prof. Dr. A.A. Sami Ahmed, President, Organising Committee, PO Box 2399, Cairo, Egypt. Phone: +202 2442587; Fax: +202 2474955; E-mail: mipco@thewayout.net

Sept. 30-Oct. 4: *13th European Symposium on Poultry Nutrition*, Floreal Club, Koning Albertlaan 59, 8370 Blankenberge, Belgium. contact: Semico-Seminar and Congress Organisation Office, Korte Meer, 16.

2001 October

Oct. 17-19: *National Meeting on Poultry Health and Processing*, Sheraton, Ocean City, Maryland. Contact: Sharon Webb, Delmarva Poultry Industry, Inc. at dpi@ce.net or Fax: 302-856-1845.