Issue 88

May
June 2006

The Poultry Informed Professional

Published by the Department of Population Health, University of Georgia
Editor: Dr. Stephen Collett, Assistant Professor
Co-Editor: Dr. Pedro Villegas, Professor
Department of Population Health

Phone (706) 542-1904 Fax (706) 542-5630
e-mail: dbaird@vet.uga.edu

Inclusion Body Hepatitis: Control in Breeder and Broiler Chickens

Reprinted with permission from AviaGen AviaTech. Vol 2, No. 1

Introduction

Eric L. Jensen, DVM, MAM

Pedro Villegas, DVM, PhD

Inclusion body hepatitis (IBH) was first described in the U.S. in 1963 (6) and since then has been reported in many countries around the world. Subsequently, it was determined to be associated with avian adenovirus (AAV) infection (4). The first AAV associated with clinical disease was isolated from an outbreak of respiratory disease in quail in 1950 (8). Since that time, AAVs have been found to be ubiquitous in all types and breeds of chickens (normal flora). They have been isolated from numerous species of birds, including both healthy and sick poultry. In addition to IBH, AAV has been associated with hydropericardium syndrome (HP), egg production drops, reduced growth rate and feed conversion, tenosynovitis, proventriculitis, gizzard erosions and respiratory disease.

Initially, it was thought that IBH could only be caused by adenovirus if the bird's immune system was first weakened by exposure to immunosuppressive agents such as infectious bursal disease (IBD) and chicken anemia virus (CAV). Recent work, however,

Continued on Page 2

Broiler Performance Data (Region)
Live Production Cost

	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color ($)	145.94	149.04	1151.42	150.52	150.82
Feed cost/lb meat (¢)	12.77	13.46	12.97	13.30	13.16
Days to 4.6 lbs	41	43	41	41	42
Chick cost/lb (¢)	4.57	5.31	3.53	3.35	3.89
Vac-Med cost/lb (¢)	0.09	0.09	0.09	0.13	0.14
WB & 1/2 parts condemn. cost/lb	0.15	0.12	0.13	0.17	0.17
% mortality	3.68	4.56	5.15	5.99	4.86
Sq. Ft. @ placement	0.73	0.70	0.82	0.88	0.77
Lbs./Sq. Ft.	6.35	5.74	7.80	8.17	7.31
Down time (days)	15	13	14	11	15

Data for week ending May 13, 2006

Contents

has demonstrated that virulent strains alone can produce the disease (2,9).

Adenovirus

Avian adenoviruses vary in their genetic make up, their ability to cause disease, the avian species they affect and the clinical symptoms they produce. They are divided into three groups. Group I, or conventional adenoviruses, causes IBH, HP (reported in Asia, Central and South America, and Russia) and quail bronchitis. Group II includes hemorrhagic enteritis virus of turkeys and marble spleen disease of pheasants while Group III viruses are found in ducks and cause egg drop syndrome in chickens.

Based on genetic sequencing and cross-neutralization testing, Group I AAV is further divided into five species that include 12 serotypes. Nearly every serotype has been reported to cause IBH; however, it is most commonly associated with serotype 8a in North America and serotypes 4 and 8a in other global regions. Different isolates of the same species and serogroups will vary in pathogenicity. Research has indicated there is a genetic relationship between virulent AAVs, even from different serotypes, while mildly virulent AAVs differed substantially based on PCRF analysis (3).

Because the various serotypes do not induce cross-protection, it is important to determine the specific serotype producing clinical IBH. The nomenclature used for the serotypes has created some confusion as different systems have been used in Europe and the U.S.; however, a revised nomenclature system has been published (1) that, if adopted, will clarify matters (Table 1).

Table 1

SPECIES	SEROTYPE NUMBER			PROPOSED TYPE STRAINS	
	Europe	USA	ICTV	Europe	USA
A	1	1	1	CELO	QBV/Phelps
B	5	8	5	340	M2/Tipton
C	4	4	4	KR5	J2
C	11	10	10	C2B	C2B
D	2	2	2	GAL-1	P7
D	3	3	3	SR49	--
D	10	9	9	A2	A2
D	12	12	11	380	--
E	6	5	6	CR119	--
E	7	11	7	YR36/X11	X11
E	8	6	8a	TR59	T8
E	9	7	8b	764	B3

Clinical Signs and Lesions

IBH typically occurs in meat-type chickens under six weeks of age but can occur as early as six days and as late as 20 weeks. In outbreaks, there is a sudden onset of mortality that usually ranges from 2 to 10 percent but in some cases may be over 40 percent. Mortality will vary depending on the pathogenicity of the virus, susceptibility of the chicks (level of maternal immunity) and secondary infections with other infectious agents. Mortality generally peaks within three to four days and ceases within one week, although in some cases it may linger for several weeks. Morbidity is low and sick birds that do not die will recover. Affected birds appear depressed with ruffled feathers.

The primary lesion is an enlarged, pale and friable liver (Figure 1). Small hemorrhages may be present in the liver and muscle and, in some cases, a straw-colored fluid is present in the sac surrounding the heart.

With HP, the lesions are similar except the incidence of fluid in the heart sac is greater, mortality is higher (Figure 2) and the age of onset tends to be later (three to five weeks).

Figure 1

Transmission

Both vertical and horizontal transmission plays a role in the spread of IBH. Most outbreaks are initiated by transmission of the virus through the embryonated egg and hens exposed during production will typically shed virus to their progeny for three to six weeks until development of immunity occurs. Horizontal spread occurs primarily from contact with infected feces. This seems to occur quite frequently and most cases are not diagnosed because they do not become a clinical problem. Commercial hatching eggs may be a mechanism of spread of endemic AAV from one area to another. There is evidence that adenovirus infections can become latent and that periods of stress, such as the onset of egg production, will reactivate viral shedding.

Diagnosis

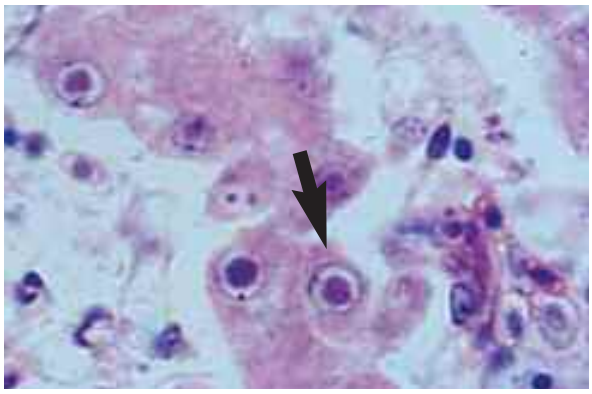
The diagnosis is made by submitting liver samples from affected birds for histopathological examination (formalin-fixed) and virus isolation (frozen). Positive samples will have large blue inclusion bod ies located within the nucleus of the liver cells (Figure 3). It is critical to isolate the virus from IBH-positive samples so that serotyping and/or molecular analysis can be performed.

The most common serologic test is the immunodiffusion test that detects the Group I antigen. This test is not sensitive so it is possible to miss positive birds, and does not differentiate by serotype. A Group I enzyme-linked immunosorbent assay (ELISA) is more sensitive but also will not differentiate by serotype. ELISA can be developed for individual serotypes but

Continued on Page 3

Figure 2

Figure 3



will not detect the presence of immunity to other serotypes. The serum neutralization test has been used to detect serotype-specific antibody but is labor intensive and expensive because 12 serotypes must be included.

Interpretation of serologic tests is difficult because AAV is found in both healthy and diseased birds. Serologic surveys of breeder flocks demonstrate that 75 to 100 percent of flocks are positive (7) and most flocks are infected with multiple serotypes (5). Serology is most useful in flocks that are expected to have little or no adenovirus exposure (SPF flocks, primary breeder flocks), or to evaluate the immune response in vaccinated birds. In most cases, it is of more value to conduct molecular analysis of the specific AAV involved.

Control

As most cases of IBH are the result of vertical transmission, ensuring that breeder flocks have seroconverted prior to the onset of egg production can prevent the disease. Typically, this occurs nat- urally as AAV is ubiquitous and relatively resistant to most disinfectants, heat and low pH. However, on newly constructed farms or those with exceptionally stringent biosecurity, seroconversion may only be obtained by vaccination. Live vaccines and inactivated vaccines have been highly successful at controlling IBH by preventing vertical transmission and inducing maternal immunity. Commercial vaccines are available in Mexico and other countriesbut not in the U.S. or Canada.

Another option is to expose a susceptible flock to contaminated bedding material from a seropositive flock. However, this practice represents a biosecurity risk as other pathogens may be inadvertently introduced into the flock as well.

Since endemic strains vary by region and company, it is evident that placing flocks from multiple sources may introduce new serotypes into a production system, and result in outbreaks of IBH. Limiting the number of breeding stock suppliers and not mixing stock from different suppliers would be prudent. It has also been suggested that new strains of AAV may be introduced into a flock by the addition of replacement males ("spiking"). Therefore, limiting male replacement or vaccinating male replacements against AAV may be helpful.

Frequently two or more serotypes can be isolated from an individual bird, indicating that there is little cross-protection. Therefore, in cases of IBH, it is important to isolate and serotype the virus or viruses. If multiple serotypes are identified, then progeny challenge studies need to be conducted to determine the relative virulence of each serotype. Otherwise, all serotypes isolated must be incorporated into the vaccine.

It is well documented that IBH will be more severe in birds with compromised immune systems. Therefore, it is important to control infectious bursal disease (IBD), chicken anemia virus (CAV), nutritional problems and management factors that cause stress.

Summary

Avian adenoviruses are present in most commercial poultry and many other avian species. Outbreaks of IBH are infrequent and generally cause only a small increase in mortality with no additional adverse effects on flock performance. However, as the poultry industry moves toward improved biosecurity and sanitation, the incidence of IBH is likely to increase since most cases are the result of vertical transmission from naive breeder flocks exposed to a new serotype of AAV during egg production. In most commercial situations, breeders will become immune during rear by natural exposure. In rare instances, it may be necessary to vaccinate flocks or expose them to contaminated litter prior to the onset of production to ensure immunity and prevent vertical transmission. Reducing factors that produce immunosuppression will decrease the severity of IBH infections. Currently, there is no effective treatment for IBH.

KEY FACTS

✓ IBH is a sporadic and infrequent disease caused by avian adenovirus.

✓ IBH typically occurs in breeder and broiler flocks less than six weeks of age. All breeds are affected.

✓ Mortality averages 2 percent to 10 percent and generally persists for one to two weeks.

✓ Sick birds that do not die will recover. Affected flocks will perform normally after cessation of mortality.

✓ The primary lesion is a pale, enlarged liver with hemorrhages.

✓ For diagnosis, both formalin-fixed and frozen liver samples must be submitted for histopathological examination and virus isolation.

✓ Many different serotypes of AAV may cause IBH but do not provide cross-protection. It is important to identify the specific serotype involved in an outbreak.

✓ Most IBH is caused by vertical transmission and can be prevented by ensuring that breeder flocks are seroconverted prior to the onset of lay.

✓ Endemic AAV can be spread from one area to another by the use of commercial hatching eggs from multiple sources.

✓ In commercial settings, most breeder flocks seroconvert by natural exposure. In rare instances, seroconversion by vaccination or exposure to contaminated bedding material may be required.

✓ Limiting the number of breeding stock suppliers and not mixing stock from different suppliers will help prevent outbreaks of IBH.

✓ IBH is more severe in birds with compromised immune systems; therefore, it is important to effectively control IBD, CAV, nutritional problems and management factors that cause stress.

REFERENCES

1 Benko, M., B. Harrach and W. C. Russsell. Family Adenoviridae. In M. H. V. Van Regenmortel, C. M. Fauquet, D. H. L. Bishop, E. B. Carstens, M. K. Estes, S. M. Lemon, J. Maniloff, M. A. Mayo, D. J. McGeoch, C. R. Pringle, R. B. Wickner (eds.). Virus Taxonomy. Seventh Report of the International Committee on Taxonomy of Viruses. Academic Press: New York and San Diego. 227–238. 2000.

2. Christensen, N. H. and Md. Saifuddin. A primary epidemic of inclusion body hepatitis in broilers. Avian Dis. 33:622–630. 1989.

3. Erny, K. M., D. A. Barr and K. J. Fahey. Molecular characterization of highly virulent fowl adenoviruses associated with outbreaks of inclusion body hepatitis. Avian Path. 20:597-606. 1991.

4. Fadly, A. M. and R. W. Winterfield. Isolation and some characteristics of an agent associated with inclusion body hepatitis, hemorrhages and aplastic anaemia in chickens. Avian Dis. 20:139–145.1973.

5. Grimes, T. M., D. H. Culver and D. J. King. Virus-neutralizing antibody titers against 8 avian adenovirus serotypes in breeder hens in Georgia by microneutralization procedure. Avian Dis. 21:220–229. 1977.

6. Helmboldt, C. F. and M. N. Frazier. Avian hepatic inclusion bodies of unknown significance. Avian Dis. 7:446–450. 1963.

7. MacMillan, R. The results of the California avian adenovirus survey. Proc 25th West. Poult. Dis. Conf. and 10th Poult. Health Symp., Davis, California. pp. 13–14. 1976.

8. Olson, N. O. A respiratory disease (bronchitis) of quail caused by a virus. Proc 54th Annual Meet. US Livestock Sanit. Assoc. pp. 171–174. 1950.

9. Reece, R. L., D. C. Grix and D. A. Barr. An unusual case of inclusion body hepatitis in a cockerel. Avian Dis. 30:224–227. 1986.

Based on a presentation at the 2005 Western Poultry Disease Conference, Vancouver, Canada.

Broiler Whole Bird Condemnation (Region)

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.162	0.108	0.106	0.166	0.189
% Airsac	0.081	0.070	0.065	0.108	0.085
% I.P.	0.018	0.030	0.039	0.009	0.020
% Leukosis	0.001	0.001	0.003	0.000	0.001
% Bruise	0.003	0.003	0.001	0.001	0.003
% Other	0.006	0.006	0.023	0.005	0.011
% Total	0.269	0.219	0.237	0.285	0.307
% 1/2 parts condemnations	0.419	0.253	0.309	0.368	0.359

Data for week ending May 13, 2006

Broiler Performance Data (Company)
Live Production Cost

	Average Co.	Top 25%	Top 5 Co.'s
Feed cost/ton w/o color ($)	149.65	148.84	149.65
Feed cost/lb meat (¢)	13.95	12.82	13.03
Days to 4.6 lbs	41	43	45
Chick cost/lb (¢)	4.00	5.28	5.35
Vac-Med cost/lb (¢)	0.11	0.11	0.18
WB & 1/2 parts condemn. cost/lb	0.16	0.12	0.13
% mortality	4.71	4.31	5.42
Sq. Ft. @ placement	0.81	0.71	0.69
Lbs./Sq. Ft.	7.19	5.68	5.88
Down time (days)	14	14	13

Data for week ending May 13, 2006

Broiler Whole Bird Condemnation (Company)

	Average Co.	Top 25%	Top 5 Co.'s
% Septox	0.166	0.094	0.156
% Airsac	0.075	0.080	0.048
% I.P.	0.029	0.044	0.007
% Leukosis	0.008	0.001	0.001
% Bruise	0.003	0.003	0.001
% Other	0.013	0.007	0.003
% Total	0.293	0.229	0.217
% 1/2 parts condemnations	0.347	0.256	0.272

Data for week ending May 13, 2006

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 Outlook"

Broiler-Type Eggs Set In 19 Selected States Down 1 Percent

According to the latest National Agricultural Statistics Service (NASS) reports, commercial hatcheries in the 19-State weekly program set 214 million eggs in incubators during the week ending May 13, 2006. This was down 1 percent from the eggs set the corresponding week a year earlier. Average hatchability for chicks hatched during the week was 83 percent. Average hatchability is calculated by dividing chicks hatched during the week by eggs set three weeks earlier.

Broiler Chicks Down 2 Percent

Broiler growers in the 19-State weekly program placed 174 million chicks for meat production during the week ending May 13, 2006. Placements were down 2 percent from the comparable week a year earlier. Cumulative placements from January 1, 2006 through May 13, 2006 were 3.32 billion, down 1 percent from the same period a year earlier.

April Egg Production Up 2 Percent

U.S. egg production totaled 7.54 billion during April 2006, up 2 percent from last year. Production included 6.48 billion table eggs, and 1.07 billion hatching eggs, of which 998 million were broiler-type and 68 million were egg-type. The number of layers during April 2006 averaged 348 million, up 1 percent from last year. April egg production per 100 layers was 2,164 eggs, up slightly from April 2005.

All layers in the U.S. on May 1, 2006, totaled 347 million, up 1 percent from last year. The 347 million layers consisted of 289 million layers producing table-type eggs, 55.3 million layers producing broiler-type hatching eggs, and 2.86 million layers producing egg-type hatching eggs. Rate of lay per day on May 1, 2006, averaged 71.5 eggs per 100 layers, down slightly from May 1, 2005.

Egg-Type Chicks Hatched Down 9 Percent

Egg-type chicks hatched during April 2006 totaled 34.6 million, down 9 percent from April 2005. Eggs in incubators totaled 37.0 million on May 1, 2006, down 1 percent from a year ago.

Domestic placements of egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 255,000 during April 2006, down 17 percent from April 2005.

Broiler-Type Chicks Hatched Down 1 Percent

Broiler-type chicks hatched during April 2006 totaled 787 million, down 1 percent from April 2005. Eggs in incubators totaled 658 million on May 1, 2006, down 1 percent from a year earlier..

Leading breeders placed 6.59 million broiler-type pullet chicks for future domestic hatchery supply flocks during April 2006, down 3 percent from April 2005.

Turkey Eggs in Incubators on May 1 Up 5 Percent

Turkey eggs in incubators on May 1, 2006, in the United States totaled 30.9 million, up 5 percent from May 1 a year ago. Eggs in incubators were up 2 percent from the April 1, 2006 total of 30.1 million eggs. Regional changes from the previous year were: East North Central up 3 percent, West North Central up 2 percent, North and South Atlantic up 17 percent, and South Central and West combined, down 6 percent.

Poults Placed During April Up 1 Percent From Last Year

The 23.9 million poults placed during April 2006 in the United States were up 1 percent from the number placed during the same month a year ago. Placements were 3 percent below March 2006. Regional changes from the previous year were: East North Central up 7 percent, West North Central down 6 percent, North and South Atlantic up 11 percent, and South Central and West were down 4 percent.

U.S. Broiler Production To Increase

According to the latest Economic Research Service (ERS) reports, U.S. broiler production is expected to total 36.8 billion pounds in 2007, up 1.9 percent from forecast production for 2006. Broiler production increases are expected to be held down by high levels of total meat production and higher feed prices. The broiler industry has had annual gains in overall production since the mid-1970s. Increases in production are expected to be relatively even throughout the year. With the smaller gains in production and expected growth in exports, domestic per capita consumption levels are expected to increase only marginally in 2007. Cold storage holdings of broiler products are expected to gradually decline with stock levels becoming tighter towards the end of 2007. Most of the gains in production are expected to come from higher average live weights as increases in the number of birds slaughtered are only

USDA Reports continued from page 5

expected to rise slightly.

Per capita domestic broiler consumption (retail weight basis) is expected to only increase marginally in 2007 after increasing over 2 pounds to nearly 88 pounds in 2006. Over the 10 year period (1998 to 2007) per capita broiler consumption is forecast to rise from 72 to over 88 pounds, an increase of 16 pounds or around 7.9 billion pounds overall. By comparison during the same period, per capita retail weight consumption of pork and beef are forecast to be basically unchanged.

The 12-city price for whole broilers is expected to average between 64 and 69 cents per pound in 2007. This is an increase of almost 7 percent from 2006, when broiler product prices are expected to be depressed through most of the year due to large supplies of meat products and high stock levels caused by strong production growth at the end of 2005 and the beginning of 2006. The increase is expected to come from higher prices throughout the year as supplies of broiler products are expected to be tighter. Production increases for beef and pork in 2007 are expected to act to hold down any large price increases for broiler parts.

Turkey Production To Increase Less Than 2 Percent Next Year

After growing to an expected 5.6 billion pounds in 2006, turkey production is forecast to reach 5.7 billion pounds in 2007, up about 1.7 percent. The growth is expected to come from a slightly higher number of birds slaughtered and higher weights. Even with 2 years of positive growth, per capita consumption of turkey on a retail weight basis is forecast at 16.6 pounds in 2007, about the same as expected in 2006 and down slightly from earlier in this decade. One reason for the decline is the expected growth in turkey exports, especially those to Mexico.

Prices for whole hen turkeys are expected to average between 68 and 74 cents per pound in 2007 down almost 4 cents per pound on average from the 2006 forecast. The decrease is expected to result from increases in cold storage holdings as they begin to put downward pressure on whole bird prices.

Broiler Production Higher in First-Quarter 2006

Broiler production in first-quarter 2006 totaled 8.94 billion pounds, up 4.1 percent from first-quarter 2005. The growth in production came from a mixture of an 1.8-percent increase in the number of birds going to slaughter and a 2.4-percent increase in the average liveweight of slaughtered birds.

Broiler production for second-quarter 2006 is forecast at 9.1 billion pounds, an increase of just under 2 percent from the previous year. During April, the daily broiler slaughter reported by the Agricultural Marketing Service (AMS) showed a 3.5-percent decline in the total liveweight of birds being slaughtered compared with April 2005. However, most of that decline is due to one additional slaughter day in April 2005. Another indicator pointing to slowing growth in broiler production is the weekly change in the number of chicks placed for growout. Over the last 5 weeks (April 8 through May 6) the number of chicks being placed for growout has averaged 1.5 percent lower than in the same period the previous year.

After reaching a high of 924 million pounds at the end of 2005, cold storage stocks declined to 865 million pounds by the end of first-quarter 2006, still 29 percent higher than the same period last year. This shows a large movement in broiler products, considering the strong (4.1 percent) increase in broiler production in firstquarter 2006. Most of the increases in cold storage holdings were of dark meat parts, particularly leg quarters which were up 143 percent from the end of firstquarter 2005.

Meetings, Seminars and Conventions

May 20: ***GPF Night of Knights,*** Cobb Galleria Center, Atlanta, GA. Contact: Georgia Poultry Federation, P.O. Box 763, Gainesville, GA 30503. Phone: 770-532-0473.
May 22-26: ***International Seminar in Poultry Pathology and Production,*** organized by The University of Georgia and the Colombian Poultry Veterinary Association (AMEVEA), at the University of Georgia, Athens, Georgia. Contact: Sem2006@uga.edu
May 24-26: ***VIV Russia 2006,*** Moscow, Russia. Contact: Website: sites.vnuexhibitions.com/sites/viv

2006 June

June 8-10: ***PT Poultry Festival,*** Little Rock, AR. Contact: Judith Kimbrell, The Poultry Federation, 321 S. Victory St., Little Rock, AR 72201. Phone: 501-375-8131; jud@alltel.net; http://www.thepoultryfederation.com
June 21-22: ***GEA Annual Convention,*** St. Simons Island, GA. Contact: Georgia Egg Association, 16 Forest Parkway, Forest Park, Ga 30297. Phone: 404-363-7661; goodeggs@bellsouth.net; http://www.georgiaeggs.org
June 23-24: ***Delmarva Chicken Festival,*** Snow Hill, MD. Contact: Delmarva Poultry Industry Inc., 16686 County Seat Hwy., Georgetown, Del. 19947. Phone: 302-858-9037; dpi@dpichicken.com: http://www.dpichicken.org

2006 July

July 11-12 : ***Hatchery-Breeder Clinic,*** Birmingham, AL. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Phone: 770-493-9401; seminar@poultryegg.org; http://www.poultryegg.org
July 15-19 : ***AVMA/AAAP Convention,*** Honolulu, Hawaii, Pa. Contact: American Veterinary Medical Association, 1931N. Meacham Road, Suite 100, Schaumburg, Ill. 60173. Phone: 847-925-8070; avmainfo@avma.org.
July 13-16 : ***SCPF Annual Conference,*** Crowne Plaza Resort, Hilton Head Island, S.C. Contact: South Carolina Poultry Federation, 1921-A Pickens St., Columbia, S.c. 29201. Phone: 803-779-4700; martyg@scpoultry.com
July 16-19 : ***Poultry Science Association (PSA) Annual Meeting 2006,*** Edmonton, Alberta, Canada. Contact: Mary Swenson, Poultry Science Association, Inc., 1111 N. Dunlap Avenue, Savoy, Illinois 61874 USA. Phone: +217 356 5285; Fax: +1 217 398 4119; Email: marys@assochq.org; Website: www.fass.org or www.poultryscience.org
July 20-22 : ***TPF Annual Convention,*** San Antonio, TX. Contact: Texas Poultry Federation, 595 Round Rock W. Drive, Suite 305, Round Rock, Texas 78681. Phone: 512-248-0600; tpf@texaspoultry.org; http://www.texaspoultry.org.

2006 August

Aug 4-5: ***TEPA Summer Getaway,*** Nashville, TN. Contact: Tennessee Egg & Poultry Association, P.O. Box 1272, Brentwood, Tennessee 37024-1272. Phone: 615-370-0001; annccox@aol.com; http://www.tnpoultry.org
Aug 5-8: ***4th International Workshop on Molecular Pathogenesis of Marek's Disease Virus,*** University of Delaware, USA. Contact: Website: http://ag.udel.edu/conference/mareksconference.htm
Aug 9-10: ***Poulltry Care and Handling Conference,*** Atlanta, GA. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Phone: 770-493-9401; Fax: 770-493-9257
Aug 17: ***North Carolina Poultry Federation Annual Meeting and Banquet,*** Greensboro, North Carolina. Contact: North Carolina Poultry Federation, 4020 Barrett Drive, Suite 102, Raleigh, North Carolina 27609. Phone: 919-783-8218; Fax: 919-783-8220

2006 September

Sept. 4-6: ***XVIII International Poultry Symposium,*** Rogow near Koluszki, Poland. Contact: Prof. Ewa Swiercaewska. Phone: +48 22 593 6558; Email: riedel@alpha.sggw.waw.pl
Sept. 10-14: ***12th European Poultry Conference,*** Veronafiere Congress Centre, Verona, Italy. Contact: Secretariat XII WPSA European Conference, Department of Food Science, Via San Giacoma 9, 40126 Bologna, Italy. Phone: +39 051 209 4221; Fax: +39 051 251 936; Email: wpsa@alma.unibo.it; Website: www.epc2006.veronafiere.it
Sept. 12-13: ***Poultry Production and Health Seminar,*** Memphis, Tennessee. Contact: U.S. Poultry & Egg Association. 1530 Cooledge Road, Tucker, GA 30084-7303. Phone: 770-493-9401; Fax: 770-493-9257
Sept. 13: ***Delmarva Breeder, Hatchery and Grow-out Conference,*** Location to be determined. Contact: Bud Malone, University of Delmarva. Phone: 302-856-7303
Sept. 27-29 : ***VIV China 2006,*** (Postponed from June 2006-dates not yet specified), Beijing, P.R. China. Contact: VNU Exhibitions Europe B.V., PO Box 8800, 3503 RV Utrecht, The Netherlands. Phone: +31 30 295 2772; Fax: +31 30 295 2809; Email: viv.china@vnuexhibitions.com; Website: sites.vnuexhibitions.com/sites/viv or Mr. Ruifent Xu, CNAVS Trade Fair Office. Phone +86 10 649 50 373; Fax: +86 10 649 50 374; Email: rfxu@china-av.net

2006 October

October 3-4: ***Poultry Federation Symposium,*** Springdale Holiday Inn, Springdale, Arkansas. Contact: Judity Kimbrell, The Poultry Federation, P.O. Box 1446, Little Rock, Arkansas 72203. Phone: 501-375-8131: Fax: 501-375-5519
October 9-11: ***National Meeting On Poultry Health & Processing,*** Clarion Resort Fountainebleau Hotel, Ocean City, Maryland. Contact: Karen Adams, Delmarva Poultry Industry, Inc., 16686 County Seat Highway, Georgetown, Delaware 19947-4881. PPhone: 302-856-9037; Fax: 302-856-1845. For information about meeting rooms and food accommodations at the Clarion Resort Fountainebleau Hotel, contact Kay Windwor, Phone: 1-800-638-2100.
October 10-11: ***Alabama Broiler Industry Seminar,*** Auburn University Hotel and Dixon Conference Center, Auburn, Alabama. Contact: Alabama Poultry & Egg Association, P.O. Box 240, Montgomery, AL 36101-0240. Phone: 334-265-2732; Fax: 334-265-0008.
October 10-14: ***World Poultry Science Association (WPSA) European Poultry Conference 2006,*** Verona, Italy. Contact: Secretariat - XII WPSA European Converence, Department of Food Science, University of Bologna, Via San Giacomo 9, 40126 Bologna, Italy. Phone: +39 041 209 4221; Fax: +39 051 251 936; Email: epc2006@wpsa.it; Website: www.epc2006.veronafiere.it
October 17-20: ***16th Expoaviga,*** Gran Via 2 exhibition complex, Barcelona, Spain. Contact: Fira Barcelona, Av. Reina Maria Cristina s/n, 08004 Barcelona, Spain. Phone: +34 655 98 53 56; Fax: +34 93 233 21 77; Email agurri.premsa@firabcn.es: Website: www.expoaviga.com
October 25-26: ***North Carolina Broiler Breeder and Hatchery Management Conference,*** Statesville, North Carolina. Contact: Mike Wineland. Phone: 919-515-5529

Meetings, Seminars and Conventions

2006 November

November 6-7: ***4th WorldMycotoxin Forum,*** Cincinnati, Ohio. Contact: Bastiaanse Communication, P.O. Box 179, 3720 AD Bilthoven, The Netherlands. Phone: +31 30 229 4247; Fax: +31 30 225 2910; Email: wmf@bastiaanse-communication.com; Website: www.bastiaanse-communication.com

November 7-8: ***Alabama Breeder/Hatchery Workshop,*** Auburn University Hotel annd Dixon Conference Center, Auburn, Alabama. Contact: Alabama Poultry & Egg Association, P.O. Box 240, Montgomery, AL 36101--0240. Phone: 334-265-2732; Fax: 334-265-0008

November 14-17: ***EuroTier 2006,*** Hanover, Germany. Contact: DLG (Deutsche Landwirtschafts-Gesellschaft e.V.), Eschborner-Landstrasse 122, 60489 Frankfurt-am-Main, Germany. Phone: +49 69 24788 265; Fax: +49 69 24788 113; Email: eurotier@DLG-Frankfurt.de; Website: www.eurotier.de

2007 January

Jan. 24-26: ***2007 International Poultry Exposition,*** Georgia World Congress Center, Atlanta, Georgia, USA. Contact: US Poultry & Egg Association, 1530 Cooledge Road, Tucker, Georgia 30084 USA. Phone: +1 770 493 9401; Fax: +1 770 493 9257; Website: www.poultryegg.org

2007 February

Feb. 12-14: ***Australian Poultry Science Symposium 2007,*** University of Sydney, Sydney, Australia. Contact: Poultry Research Foundation, University of Sydney, 425 Werombi Road, Camden, NSW 2570, Australia. Phone:+61 2 46 550 656; Fax: +61 2 46 550 693; Website: www.vetsci.usyd.edu.au/apss

2007 March

March 1-3: ***5th International Poultry Show and Seminars 2007,*** Dhaka, Bangladesh. Contact: International Seminar, Dr. Q.M.E. Huque, Bangladesh Livestock Research Institute, Savar, Dhaka 1341, Bangladesh. Phone: +8802 770 8324: Fax +880 2 770 8325; Email: qmehuque@bangla.net

March 7-9: ***VIV Asia 2007,*** Bangkok, Thailand. Contact: VNU Exhibitions Europe B.V., P.O. Box 8800, 3503 RV Utrecht, The Netherlands. Phone: +31 30 295 2778: _+66 2 229 3737; Fax: +31 30 295 2809; Website: www.viv.net

March 7-8: ***Nebraska Poultry Industries Annual Convention,*** New World Inn & Conference Center, Columbus, Nebraska. Contact: Nebraska Poultry Industries, Inc., University of Nebraska, A103 Animal Sciences, P.O. Box 830908, Lincoln, Nebraska 68583-0908. Phone: 402-472-2051.

March 12-15: ***PEPA Convention,*** Loews Coronado Bay Resort, Coronado, California. Contact: Pacific Egg & Poultry Associatioin, 1521 I Street, Sacramento, California 95814. Phone: 916 441 0801; Fax: 916 446 1063.

March 20-22: ***Midwest Poultry Federation Convention 2007,*** St. Paul, Minnesota USA. Contact: Midwest Poultry Federation, 108 Marty Drive, Buffalo, Minnesota 55313 USA. Phone: +1 763-682-2171; Fax: +1 763-682-5546; Email: Nicole@midwestpoultry.com; Website: www.midwestpoultry.com

March 27-29: ***4th Internatioinal Poultry Conference,*** Sharm El-sheikh, Egypt. Contact: Dr. MA. Kosba, Facultry of Agriculture, Alexandria University, Alexandria, Egypt. Phone: +20 35 921960; Fax _20 35 231939; Email: mkosba@hotmail.com

2007 May

May 23-25: ***VIV Russia 2007,*** Moscow,, Russia. Contact: VNU Exhibitions Europe B.V., P.O. Box 8800, 3503 RV Utrecht, The Netherlands. Phone: +31 30 295 2772; Fax: +31 30 295 2809; Email: viv.russia@vnuexhibitions.com; Website: www.viv.net

2008 July

July 8-12: ***Poultry Science Association Annual Meeting 2007,*** San Antonio, Texas. Contact: Website: www.poultryscience.org

2008 August

August 10-15: ***XXIII World's Poultry Congress,*** Convention and Exhibition Centre, Brisbane, Australia. Contact: WPC 2008 Congress, Intermedia Convention & Event Management, PO Box 1280, Milton, Queensland 4064, Australia. Phone: +61 7 3858 5594; Fax: +61 7 3858 5510; Email: wpc2008@im.com.au; Website: www.wpsa.info

August 26-30: ***16th European Symposium on Poultry Nutrition,*** Strasbourg, France. Contact: Groupe Francais de la WPSA, BP 5, 37380 Nouzilly, France. Fax: +33 2 47 56 11 39; Email: WPSAFrance@aol.com; Website: www.wpsa.fr

2007 October

October 8-10: ***2007 National Meeting on Poultry Health Processing,*** Clarion Resort Fountainebleau Hotel, Ocean City, Maryland. Contact: Karen Adams, Delmarva Poultry Industry, Inc., 16686 County Seat Highway, Georgetown, Delaware 19947-4881. Phone: 302-856 9037; Fax: 302-856-1845. For information about meeting rooms and food accommocations at the Clarion Resort Fontainebleau Hotel, contact Kay Windsor, Phone: 800-638-2100.

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.

Broiler Performance Data (Region) Live Production Cost					
	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color ($)	142.71	147.82	151.99	150.06	151.61
Feed cost/lb meat (¢)	12.46	12.70	14.58	15.18	14.02
Days to 4.6 lbs	41	43	41	41	42
Chick cost/lb (¢)	4.57	5.24	3.51	3.39	4.08
Vac-Med cost/lb (¢)	0.08	0.07	0.10	0.13	0.15
WB & 1/2 parts condemn. cost/lb	0.17	0.13	0.12	0.21	0.16
% mortality	3.41	3.91	4.19	7.00	5.01
Sq. Ft. @ placement	0.74	0.70	0.82	0.89	0.77
Lbs./Sq. Ft.	6.29	5.81	7.84	8.02	7.36
Down time (days)	16	13	12	15	14

Data for week ending April 29, 2006

Broiler Whole Bird Condemnation (Region)

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.201	0.122	0.085	0.179	0.166
% Airsac	0.078	0.078	0.045	0.133	0.112
% I.P.	0.015	0.036	0.030	0.015	0.027
% Leukosis	0.001	0.001	0.002	0.002	0.001
% Bruise	0.001	0.003	0.001	0.002	0.002
% Other	0.008	0.007	0.023	0.011	0.012
% Total	0.304	0.247	0.187	0.341	0.319
% 1/2 parts condemnations	0.494	0.258	0.287	0.441	0.318

Data for week ending April 29, 2006

Broiler Performance Data (Company)
Live Production Cost

	Average Co.	Top 25%	Top 5 Co.'s
Feed cost/ton w/o color ($)	149.27	148.62	147.19
Feed cost/lb meat (¢)	13.98	12.80	12.66
Days to 4.6 lbs	42	43	44
Chick cost/lb (¢)	4.04	5.26	5.26
Vac-Med cost/lb (¢)	0.11	0.10	0.12
WB & 1/2 parts condemn. cost/lb	0.17	0.13	0.14
% mortality	4.88	3.83	4.05
Sq. Ft. @ placement	0.81	0.70	0.69
Lbs./Sq. Ft.	7.14	5.75	5.92
Down time (days)	14	14	14

Data for week ending April 29, 2006

Broiler Whole Bird Condemnation (Company)

	Average Co.	Top 25%	Top 5 Co.'s
% Septox	0.171	0.105	0.188
% Airsac	0.086	0.084	0.056
% I.P.	0.031	0.048	0.007
% Leukosis	0.010	0.001	0.001
% Bruise	0.003	0.003	0.002
% Other	0.014	0.008	0.004
% Total	0.313	0.249	0.259
% 1/2 parts condemnations	0.340	0.237	0.267

Data for week ending April 29, 2006

COBB-VANTRESS

Aviagen

Hubbard

Primary Breeders Veterinary Association

HERITAGE

The Poultry Informed Professional Newsletter is published with support from The Primary Breeder Veterinarians Association.