



The Poultry Informed Professional®



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The 45th National Meeting on Poultry Health and Processing in Review

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In this edition of the PIP the current University of Georgia, Masters in Avian Medicine (MAM) students have compiled some interesting summaries of papers presented at the 45th National Meeting on Poultry Health and Processing held at Ocean City, Maryland in October 2008. The Masters in Avian Medicine Program has been offered by the University of Georgia at the Poultry Diagnostic and Research Center (PDRC) since 1970. MAM graduates hold prominent position the world over and the program has consequently earned the reputation of being the best and most practical poultry specialty training in the world.

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Broiler Live Production Cost	Average Company
Feed Cost/ton w/o color (\$)	234.31
Feed cost /lb meat (c)	21.65
Days to 4.6 lbs	41
Chick cost / lb (c)	5.35
Vac-Med cost/lb (c)	0.05
WB & ½ parts condemn. Cost/lb	0.22
% mortality	4.69
Sq.Ft. @ placement	0.81
Lbs/sq. ft.	7.12
Downtime (days)	19

Data for week ending 24 January 2009

Infectious Laryngotracheitis Virus

Evaluation of Innovax-ILT Effectiveness in Broilers Under Controlled Conditions - John Rosenberger

The control of ILT outbreaks depends on proper vaccination, biosecurity, sanitation, and temperature control. The vaccines available include the live CEO (Chick Embryo Origin) and TCO (Tissue Culture Origin) as well as recombinant products (Vectormune FP-LT and Innovax HVT-ILT). This study analyzed the impact of maternal antibody on susceptibility to ILTV challenge. The research also evaluated resistance to ILTV challenge in commercial layers post Innovax-ILT vaccination, the impact of route and timing with the Innovax-ILT product, and the resistance to Marek's Disease challenge post Innovax-ILT vaccination.

The study demonstrated that hyperimmunization of hens conferred some immunity to the offspring. Future research is needed to determine whether hyperimmunization of hens to ILT could protect the birds long enough for immunity from day-of age Innovax-ILT vaccination to reach adequate levels.

In an evaluation of Innovax vaccination, by subcutaneous route at day-of age, commercial layers were 100% protected by 3 weeks of age. The level of protection decreased to 80% and 70% by 20 and 30 weeks, respectively.

Challenge studies on broilers at 4 and 5 weeks of age, following Innovax plus Marek's (Rispens or SB1) vaccination in-ovo (18 or 19 days embryo age) or subcutaneous (day-of-age), were conducted to determine the impact of time and route of vaccine administration on protection. As indicated in the table below, these studies showed that the efficacy of the Innovax vaccine is affected by time and route of administration. Also, the administration of Innovax-ILT and SB-1 simultaneously in-ovo is safe and effective for control of Marek's Disease Virus. However, Innovax-ILT may lose efficacy as an ILTV vaccine if birds are exposed to vvMDV+ at an early age. The combination of the Innovax-ILT product with HVT Marek's vaccines simultaneously results in decreased efficacy of the HVT-ILT recombinant product.

Time/Route of Vaccination	Vaccine/Dose	% Protection at 4 Weeks	% Protection at 5
18 Days In Ovo	1x Innovax + SB-1	47%	87%
18 Days In Ovo	0.05x Innovax + Rispens	43%	73%
19 Days In Ovo	1x Innovax + SB-1	50%	54%
19 Days In Ovo	0.05x Innovax + Rispens	29%	57%
SC 1 Day of Age	1x Innovax + SB-1	57%	93%
SC 1 Day of Age	0.05x Innovax + Rispens	60%	86%

Recombinant HVT/ILTV Vaccine (Innovax-ILT): Field Application Issues - Ruud Hein

Innovax HVT-ILT vaccine is licensed by the USDA for use in long-lived breeders and layers for the administration by the subcutaneous route in day-of-age birds. The U.S. broiler industry has however adopted the practice of using this vaccine in-ovo, at half the recommended dose, in order to control ILT outbreaks. There are several reasons for adopting this practice when compared to the traditional, chick embryo origin (CEO) live vaccine. These are purported to be "more convenient administration, no latency, extended duration of protection, and no vaccine reaction". The success of this vaccination program is influenced by administration technique, interaction with other vaccines and/or antibiotics administered concurrently, and the time of field exposure.

Flock protection is directly correlated with bird coverage since missed or non-vaccinated birds are obviously not protected. Upside down eggs, clogged needles, inadequate quality control, and age of inoculation all influence the efficacy of this product. It's estimated that up to 10% of embryos miss vaccination due to these factors.

Simultaneous administration of the Marek's HVT vaccine and Innovax-ILT vaccine will result in a decreased efficacy of the Innovax-ILT product. Also, concurrent administration of gentamicin with Innovax-ILT results in a decreased vaccine titer.

The protection afforded by Innovax-ILT vaccination is relatively slow to develop so the timing of ILT virus field challenge is critical. One Intervet study indicates that flock protection, after half dose, in-ovo vaccination at 17, 18, and 19 days of embryo age, reached 90% between 25 and 30 days of age. The study also demonstrates that halving the dose delayed the onset of protection.

Infectious Bronchitis Virus

Status of Infectious Bronchitis in the US Broiler Industry: Identification of Variants and Control Strategies - Jack Gelb

The control of Infectious Bronchitis is challenging because the disease is highly contagious, has a very short incubation period, and spreads rapidly via direct and indirect routes.

Since this Coronavirus, damages the defense mechanisms of the respiratory tract responsible for clearing inhaled bacteria, infected birds are particularly susceptible to secondary bacterial infections of the respiratory tract.

Infectious Bronchitis Virus (IBV) is renowned for its existence as numerous antigenic types or serotypes. The viral, spike or S protein used for host cell recognition and attachment displays extensive structural and hence antigenic variation. This variation arises from genetic changes in the hypervariable regions of the S gene. Other IBV genes, although less well studied, undoubtedly influence the pathogenicity, immunogenicity, and tissue tropism.

Variant Selection is Influenced by Production Practices

New IBV variant strains are subject to strong, positive immunological selection, primarily because of the widespread use of IBV vaccination. The prevalence and persistence of an emergent IBV variant in a population of birds is thus directly proportional to how antigenically different it is from the vaccine strains. Novel IBV variants are most likely to arise from multi-age farms such as commercial layer operations where the virus is able to persist and circulate.

Although broilers are raised on single-age farms, the widespread use of live attenuated IBV vaccines may hasten the emergence of variant strains. Attenuated vaccines contain millions of highly related but not identical virus particles referred to as quasi species or subpopulations. Each of these subpopulations differ in virulence (level of attenuation) and antigenic characteristics making reversion to virulence possible. Back-passage of vaccine in the chicken has been shown to result in shifting of the viral subpopulations towards the predominant / virulent subpopulation at the expense of the original attenuated vaccine strain. In a field situation the back-passage of vaccine may, over time, result in a variant strain IBV challenge especially when, litter is reused, down time is short, and vaccination technique is poor. Over dilution (cutting) of vaccine, the use of inappropriate vaccine equipment (sprayers that produce a wide-range particle sizes), vaccine temperature abuse during storage and transport, poor administration and badly designed vaccination programs (using a vaccine strain (s) for only a season of the year, may accelerate the generation of variant strain IB challenge.

Current Variant Status in the USA

California: A variant, CA/1737/04, has been isolated from broilers continually since 2004, and more recently from 4-6 week old pullets with nephritis. From 2003-2007, a relative increase in the isolation of Conn genotype isolates was noted. Monoclonal antibody testing and multiple gene analysis have revealed differences among these isolates.

Connecticut: No activity reported.

Delmarva: Vaccine genotypes continue to be isolated in high numbers from broilers with respiratory disease. Arkansas IBV isolations represent the vast majority of the genotypes recovered. A "new" variant, DE/5642/06, was recovered from four broiler flocks with respiratory disease in February 2006, but not thereafter.

Georgia: New variants, GA07 and GA08, were reported in 2007 and 2008, respectively. GA07 viruses were isolated from broilers or broiler breeders with nephropathogenic IBV. GA08 was recovered from broilers with acute-chronic respiratory disease (airsacculitis) and colibacillosis. S1 sequencing suggests that these variants are novel.

North Carolina: Arkansas IBV reported.

Texas: Variants have not been reported. A few vaccine serotypes (Connecticut, Delaware, and Arkansas) have been recovered from broilers with chicken anemia or infectious bursal disease.

Recent Field Experiences with Variant Infectious Bronchitis Virus Outbreaks in Georgia - John Smith

The Coronavirus causing Infectious Bronchitis (IBV) is prone to mutation via insertions, deletions, random point mutations, and recombination. The use of reverse transcriptase-polymerase chain reaction (rt-PCR) has increased our awareness of these constant changes. We occasionally see minor S1 genomic variants in single clinical cases that are never detected again while other variants may persist in an area causing significant clinical problems and then disappear. Examples of these variants include the Holte, Gray, Iowa, JMK, and Florida viruses. Occasionally a particularly fit mutant strain emerges with sufficient serological divergence to circumvent vaccine protection and become firmly entrenched. The most notable example of this is the fairly recent emergence of the Arkansas (Ark) IBV variant serotype. In May of 2007, two IBV variant serotypes began emerging in Georgia and have to date, persisted and spread.

Georgia 07 In the spring of 2007 the GA 07 IBV serotype was detected in a flock of 46-day-old broilers experiencing severe flushing. Mortality increased between 43 and 47 days of age, water consumption increased and the litter became wet. At processing the condemnation rate was 6.34%: primarily septicemia-toxemia and airsacculitis. Histopathology revealed proximal tubular degeneration and a lymphoplasmacytic interstitial nephritis in the area of the distal tubules and medullary cones Database search of a small segment of S1 gene, via GenBank BLAST revealed no close matches to resident US strains. Subsequent analysis of a larger portion of S1 gene indicated that GA 07 is highly homologous to the 2004 California isolate CA1737/04 (98%) and DMV/5642/06. Cross neutralization studies in SPF embryos with GA 07 and Mass, Conn, Del 072, and Ark revealed little to no neutralization. Based on confirmed isolations from clinical cases it appears that GA 07 has persisted for at least a year, and may continue to cause problems.

Georgia 08. The increased prevalence of airsacculitis experienced in the winter of 2006-07 were at the time, attributed primarily to a combination of Runting-Stunting Syndrome (RSS), *Mycoplasma gallisepticum* (MG), and the extensive use of, chick-embryo-origin (CEO) Infectious Laryngotracheitis Virus (ILT) vaccine. These problems began again in the fall of 2007 in the absence of CEO ILTV vaccines, and after elimination of the MG. After a detailed diagnostic investigation of respiratory cases GA 08 was first detected in a flock of 47-day-old broilers in December, 2007. Birds exhibited typical signs and lesions of airsacculitis and condemnation from primarily airsacculitis was 3.34%. Analysis of S1 gene segment indicated an 86% similar to a 2003 California isolate CA 557/03. The GA 07 and GA 08 viruses are NOT highly homologous to one another (83% in one comparison). Cross neutralization studies with GA 08 and Mass, Conn, Del 072, and Ark revealed little neutralization.

Prevalence. The results of virus isolation attempts on 69 of the 74 submissions between 11/21/07 and 7/14/08 from flocks with signs of respiratory disease, wet litter, or both are summarized in Table 1.

Table 1. Results on 69 cases with completed VI on tracheas, 11/21/07-7/14/08.

Result (69 cases)	Number of Cases	Percent of Cases
Negative	23	33.3
Arkansas IBV	22	31.9
GA 08 IBV	12	17.4
GA 07 IBV	5	7.2
Adenovirus, Reovirus	4	5.8
IBV, ID Pending	3	4.3

Serology

Serological response to GA07 and GA08 as measured by ELISA indicates a modest rises in titers for IBV in vaccinated broilers. As these variant strains have spread, and particularly during the summer of 2008, IBV ELISA titers have increased but still not to the levels seen in previous outbreaks, as with Ark IBV for example. Variant specific HI titers indicate that the emergence and spread of the GA 07 and 08 variants has also changed the prevalence of other IBV variants. Del 072 titers have increased slightly while Ark titers have decreased slightly. Mass titers have risen considerably, but still not to the level of Del 072.

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

Chicken and Eggs

Released January 23, 2009, by the National Agricultural Statistics Service (NASS)

December Egg Production Down Slightly

U.S. egg production totaled 7.78 billion during December 2008, down slightly from last year. Production included 6.71 billion table eggs, and 1.07 billion hatching eggs, of which 1.00 billion were broiler-type and 67 million were egg-type. The total number of layers during December 2008 averaged 341 million, down 1 percent from last year. December egg production per 100 layers was 2,281 eggs, up 1 percent from December 2007. All layers in the U.S. on January 1, 2009 totaled 341 million, down 1 percent from last year. The 341 million layers consisted of 285 million layers producing table or market type eggs, 53.6 million layers producing broiler-type hatching eggs, and 2.81 million layers producing egg-type hatching eggs. Rate of lay per day on January 1, 2009, averaged 72.9 eggs per 100 layers, up 1 percent from January 1, 2008.

Egg-Type Chicks Hatched Up 1 Percent

Egg-type chicks hatched during December 2008 totaled 36.4 million, up 1 percent from December 2007. Eggs in incubators totaled 36.7 million on January 1, 2009, up 2 percent from a year ago. Domestic placements of egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 199 thousand during December 2008, down 19 percent from December 2007.

Broiler-Type Chicks Hatched Down 5 Percent

Broiler-type chicks hatched during December 2008 totaled 779 million, down 5 percent from December 2007. Eggs in incubators totaled 630 million on January 1, 2009, down 7 percent from a year earlier. Leading breeders placed 6.58 million broiler-type pullet chicks for future domestic hatchery supply flocks during December 2008, down 9 percent from December 2007.

Broiler Hatchery

Released January 28, 2009, by NASS, Agricultural Statistics Board, USDA.

Broiler-Type Eggs Set In 19 Selected States Down 8 Percent

Commercial hatcheries in the 19-State weekly program set 201 million eggs in incubators during the week ending January 24, 2009. This was down 8 percent from the eggs set the corresponding week a year

earlier. Average hatchability for chicks hatched during the week was 84 percent. Average hatchability is calculated by dividing chicks hatched during the week by eggs set three weeks earlier.

Broiler Chicks Placed Down 6 Percent

Broiler growers in the 19-State weekly program placed 168 million chicks for meat production during the week ending January 24, 2009. Placements were down 6 percent from the comparable week a year earlier. Cumulative placements from December 28, 2008 through January 24, 2009 were 672 million, down 6 percent from the same period a year earlier.

Turkey Hatchery

Released January 15, 2009, NASS, Agricultural Statistics Board, USDA

Eggs in Incubators on January 1 Down 6 Percent from Last Year

Turkey eggs in incubators on January 1, 2009, in the United States totaled 29.7 million, down 6 percent from January 1, 2008. Eggs in incubators were up 7 percent from the December 1, 2008 total of 27.8 million eggs. Regional changes from the previous year were: East North Central down 3 percent, West North Central down 4 percent, North and South Atlantic down 6 percent, and South Central and West down 16 percent.

Poults Hatched During October Down 3 Percent from Last Year

Turkey poults hatched during December 2008, in the United States totaled 24.3 million, down 3 percent from December 2007. Poults hatched were up 10 percent from November 2008 total of 22.0 million poults. Regional changes from the previous year were: East North Central down 5 percent, West North Central up 1 percent, North and South Atlantic up 2 percent, and South Central and West down 21 percent.

Net Poults Placed During December Down 4 Percent from Last Year

The 23.0 million net poults placed during December 2008 in the United States were down 4 percent from the number placed during the same month a year earlier. Net placements were up 11 percent from the November 2008 total of 20.7 million.

Current Month Charts

Broiler Performance Data Live Production Cost	Region					Average
	SW	Midwest	Southeast	Mid-Atlantic	S-Central	Company
Feed Cost/ton w/o color (\$)	235.32	220.18	238.82	236.08	230.14	234.31
Feed cost /lb meat (c)	21.69	20.35	21.77	22.37	21.64	21.65
Days to 4.6 lbs	42	41	41	40	41	41
Chick cost / lb (c)	5.29	4.98	5.65	4.73	5.28	5.35
Vac-Med cost/lb (c)	0.06	0.03	0.07	0.06	0.04	0.05
WB & ½ parts condemn. Cost/lb	0.21	0.28	0.20	0.22	0.19	0.22
% mortality	4.88	5.21	4.90	4.77	4.62	4.69
Sq.Ft. @ placement	0.78	0.79	0.80	0.88	0.80	0.81
Lbs/sq. ft.	7.21	7.07	6.87	7.47	7.51	7.12
Downtime (days)	17	14	23	21	19	19

Broiler Whole Bird Condemnation	Region					Average
	SW	Midwest	Southeast	Mid-Atlantic	S-Central	Company
% Septox	0.217	0.236	0.152	0.175	0.097	0.174
% Airsac	0.039	0.170	0.077	0.078	0.066	0.076
% I.P.	0.011	0.030	0.005	0.060	0.053	0.031
% Leukosis	0.001	0.001	0.000	0.004	0.000	0.001
% Bruises	0.004	0.002	0.005	0.003	0.003	0.003
% Other	0.009	0.003	0.023	0.010	0.009	0.011
% Total	0.280	0.532	0.261	0.321	0.228	0.251
% ½ parts condemns	0.318	0.304	0.297	0.400	0.404	0.356

Data for week ending 24 January, 2009

Previous Month Charts

Broiler Performance Data Live Production Cost	Region					Average
	SW	Midwest	Southeast	Mid-Atlantic	S-Central	Company
Feed Cost/ton w/o color (\$)	250.09	230.13	259.17	257.48	254.32	253.83
Feed cost /lb meat (c)	23.27	21.28	23.72	24.64	23.95	23.48
Days to 4.6 lbs	42	47	40	40	41	41
Chick cost / lb (c)	5.25	5.10	5.57	4.73	5.21	5.42
Vac-Med cost/lb (c)	0.04	0.03	0.07	0.09	0.05	0.08
WB & ½ parts condemn. Cost/lb	0.19	0.20	0.18	0.26	0.21	0.22
% mortality	4.14	4.42	4.31	4.56	3.80	4.18
Sq.Ft. @ placement	0.78	0.79	0.81	0.91	0.81	0.81
Lbs/sq. ft.	7.30	7.16	7.11	7.45	7.56	7.17
Downtime (days)	17	14	23	23	19	20

Broiler Whole Bird	Region					Average
	SW	Midwest	Southeast	Mid-Atlantic	S-Central	Company
% Septox	0.170	0.245	0.136	0.209	0.110	0.171
% Airsac	0.030	0.049	0.059	0.062	0.063	0.055
% I.P.	0.011	0.017	0.006	0.079	0.027	0.029
% Leukosis	0.000	0.007	0.000	0.006	0.000	0.001
% Bruises	0.004	0.001	0.006	0.003	0.003	0.004
% Other	0.005	0.003	0.009	0.008	0.008	0.007
% Total	0.220	0.316	0.218	0.367	0.211	0.267
% ½ parts condemns	0.300	0.279	0.250	0.423	0.456	0.356

Data for week ending 6 December 2009

Meetings, Seminars and Conventions

2009

March

March 23-25: 58th Western Poultry Diseases Conference. Holiday Inn Capitol Plaza, Sacramento, CA, USA. Contact Conference and Event Services, University of California, Davis. Phone 530-752-0198 Fax 530-752-5791 e-mail confandeventsvcs@ucdavis.edu Website conferences.ucdavis.edu/wpdc

2009

April

April 5-8: The 7th International Symposium on Avian Influenza, The University of Georgia Center for Continuing Education, Athens, Georgia, USA.: Online registration begins on August 1, 2008at: <http://www.georgiacenter.uga.edu/conferences/2009/Apr/05/avian.phtml> For additional information www.georgiacenter.uga.edu/conferences/ai.symposium@ars.usda.gov USDA-ARS, Southeast Poultry Research Laboratory, 934 College Station Road, Athens, Georgia 30605 USA. Phone: 706-546-3434; FAX 706-546-3161

2009

May

May 28-30: 5th International Symposium on Turkey Production, Berlin, Germany. **Registration Form: Deadline Jan 5, 2009** Contact: Prof Dr H.M. Hafez, Institute of Poultry Diseases, Königsweg 63, 14163, BERLIN, GERMANY. Phone: +49 30-83862677, Fax: +49 30-83862690, E-mail: hafez@vetmed.fu-berlin.de

2009

June

June 8-12: XVI Congress of the World Veterinary Poultry Association, Marrakesh/Morocco. Contact: [Prof. Mohamed El Houadfi](mailto:Prof.Mohomed.ElHouadfi), Moroccan Association of Avian Pathologists (AMPA), I.A.V. Hassan II, Department de Pathologie Aviaire, BP 6202, Rabat-Instituts. Phone: +212 (0)7 77 70 53, Fax: +212 (0)7 67 57 15, E-Mail: mhouadfi@iav.refer.org.ma, For more information, visit the website: [XVI WYPA Congress, Marrakesh 2009](http://www.xviwypa.org)

2009

July

July 11-15: AVMA Annual Convention Seattle Washington Call for papers. Deadline December 1st. <http://www.aaap.org>

2009

September

The 81st Northeastern Conference on Avian Diseases (**NECAD**) will be held in conjunction with the Pennsylvania Poultry Sales and Service Conference (**PSSC**) on **September 17-18, 2009** at the Holiday Inn - Grantville, Pennsylvania (Harrisburg Area / I-81 corridor). **Titles** for scientific presentations will be due on **June 1** and **abstracts** due on **September 1**. Registration materials and a tentative program will be available shortly. Titles should be emailed to: pierson@vt.edu

2010

April

April 20-23: VIV Europe 2010, Utrecht, The Netherlands. Contact: XNU Exhibitions Europe B.V, P.O. Box 8800, 3503 RV Utrecht, The Netherlands, Fax: +31 302-952-809; Website: www.viv.net



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Reminder

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