INFECTIOUS BRONCHITIS VACCINATION:
THE MINIMALIST APPROACH

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Poultry Diagnostic and Research Center
The University of Georgia
Athens, Georgia

Much confusion has arisen in recent years concerning choosing the correct vaccination program to use to protect broilers against infectious bronchitis (IB). This confusion has been fueled by the spread of the Delaware (Del) and Arkansas (Ark) serotypes of infectious bronchitis virus (IBV) into broiler producing areas which had previously experienced only the

<table>
<thead>
<tr>
<th>Broiler Performance Data (Region)</th>
<th>Live Production Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SW</td>
</tr>
<tr>
<td>Feed cost/ton w/o color ($)</td>
<td>149.92</td>
</tr>
<tr>
<td>Feed cost/lb meat (¢)</td>
<td>13.21</td>
</tr>
<tr>
<td>Days to 4.6 lbs</td>
<td>44</td>
</tr>
<tr>
<td>Chick cost/lb (¢)</td>
<td>4.05</td>
</tr>
<tr>
<td>Vac-Med cost/lb (¢)</td>
<td>0.05</td>
</tr>
<tr>
<td>WB &amp; 1/2 parts condemm. cost/lb</td>
<td>0.21</td>
</tr>
<tr>
<td>% mortality</td>
<td>4.22</td>
</tr>
<tr>
<td>Sq. Ft. @ placement</td>
<td>0.74</td>
</tr>
<tr>
<td>Lbs./Sq. Ft.</td>
<td>6.99</td>
</tr>
<tr>
<td>Down time (days)</td>
<td>19</td>
</tr>
</tbody>
</table>

Data for week ending 11/30/02

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Massachusetts (Mass) and Connecticut (Conn) serotypes. In the past, companies simply had to decide whether to use Mass IBV vaccine, Conn IBV vaccine, or both. Now, in many areas where Del IBV and Ark IBV have appeared, managers must decide between four different serotypes of IBV vaccines when designing vaccination programs to protect broilers against infectious bronchitis. Should we just vaccinate with all four serotypes of IBV vaccine? Should we be a little more selective when choosing IBV vaccines? Is there a reasonable and logical approach that will help us make this decision?

Several points should be revisited and considered when designing IBV vaccination programs for broilers. Immunity to IBV is serotype specific. For example, vaccination with Mass IBV vaccine only provides protection against Mass IBV. If Mass IBV is the only IBV serotype present in the field in a growout area, then only Mass IBV vaccine is needed to protect broilers against IBV. If another IBV serotype, such as Conn IBV, is also present in the growout area, then both Mass IBV and Conn IBV vaccines are necessary to protect the broilers against IBV. This is a fairly simple concept but often overlooked. For example, if Ark IBV is the only IBV serotype present in the field in a growout area, is Mass IBV vaccine necessary to protect the broilers against IBV? Likewise, if Ark IBV and Del IBV are the only IBV’s present in the field in an area, should any IBV vaccines be used other than Ark and Del? Obviously, it is not necessary to vaccinate against IBV serotypes which do not exist in an area; however, many companies worry that they should vaccinate with extra serotypes of IBV vaccine, just in case. Is this wise?

There are several reasons why we should use the minimal number of serotypes of IBV vaccine. There is a growing concern that broilers cannot effectively produce an effective immune response to three or 4 IBV vaccines at one time. By adding in unnecessary serotypes of IBV vaccines, the immunity to the necessary serotypes of IBV may be impaired. Another potential problem caused by using unnecessary IBV vaccines is enhanced vaccine reaction. Minimizing vaccine reaction should be a goal of any broiler vaccination program. A third factor to consider is cost. When

<table>
<thead>
<tr>
<th>Broiler Whole Bird Condemnation (Region)</th>
<th>SW</th>
<th>Mid-West</th>
<th>S. East</th>
<th>Mid-Atlantic</th>
<th>S. Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Septox</td>
<td>0.316</td>
<td>0.407</td>
<td>0.159</td>
<td>0.306</td>
<td>0.170</td>
</tr>
<tr>
<td>% Air sac</td>
<td>0.099</td>
<td>0.110</td>
<td>0.092</td>
<td>0.109</td>
<td>0.072</td>
</tr>
<tr>
<td>% L.P.</td>
<td>0.052</td>
<td>0.061</td>
<td>0.036</td>
<td>0.031</td>
<td>0.084</td>
</tr>
<tr>
<td>% Leukosis</td>
<td>0.002</td>
<td>0.005</td>
<td>0.001</td>
<td>0.009</td>
<td>0.001</td>
</tr>
<tr>
<td>% Bruise</td>
<td>0.010</td>
<td>0.005</td>
<td>0.011</td>
<td>0.007</td>
<td>0.010</td>
</tr>
<tr>
<td>% Other</td>
<td>0.039</td>
<td>0.008</td>
<td>0.013</td>
<td>0.009</td>
<td>0.014</td>
</tr>
<tr>
<td>% Total</td>
<td>0.518</td>
<td>0.596</td>
<td>0.310</td>
<td>0.471</td>
<td>0.030</td>
</tr>
<tr>
<td>% ½ parts condemnation</td>
<td>0.383</td>
<td>0.492</td>
<td>0.243</td>
<td>0.475</td>
<td>0.460</td>
</tr>
</tbody>
</table>

Data for week ending 11/30/02

<table>
<thead>
<tr>
<th>Broiler Performance Data (Company)</th>
<th>Live Production Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Co.</td>
<td>Top 25%</td>
</tr>
<tr>
<td>Feed cost/ton w/o color ($)</td>
<td>146.50</td>
</tr>
<tr>
<td>Feed cost/lb meat (¢)</td>
<td>13.50</td>
</tr>
<tr>
<td>Days to 4.6 lbs</td>
<td>43</td>
</tr>
<tr>
<td>Chick cost/lb (¢)</td>
<td>4.11</td>
</tr>
<tr>
<td>Vac-Med cost/lb (¢)</td>
<td>0.05</td>
</tr>
<tr>
<td>WB &amp; 1/2 parts condemnation cost/lb</td>
<td>0.20</td>
</tr>
<tr>
<td>% mortality</td>
<td>3.89</td>
</tr>
<tr>
<td>Sq. Ft. @ placement</td>
<td>0.77</td>
</tr>
<tr>
<td>Lbs./Sq. Ft.</td>
<td>6.77</td>
</tr>
<tr>
<td>Down time (days)</td>
<td>18</td>
</tr>
</tbody>
</table>

Data for week ending 11/30/02
three or four serotypes of IBV vaccine are used together, it is necessary to buy several products and mix them together. This typically significantly affects cost. Finally, by using IBV serotypes that do not occur naturally in a growout area, there is a risk of introducing a new serotype of virus into the field. Live IBV vaccines are not stably attenuated and may revert to virulence as they pass through birds in the field.

Serotypes of IBV appear and disappear over time in growout areas. Mass IBV and Conn IBV have not been identified in some areas for several years. In many areas, Ark IBV and/or Del IBV appear to be the only IBV in the field. In these areas, it is very difficult to justify the use of Mass or Conn IBV vaccine. Yet, because of traditional use, many companies are reluctant to stop using them.

So, what is the most reasonable approach to vaccinating broilers for IBV? Companies should closely monitor, using serology and virus isolation, the occurrence of different IBV serotypes in the field. Vaccination of the broilers should focus on those serotypes of IBV found in the field. This minimalist approach to IBV vaccination should enhance the protection of the broilers against IBV, minimize reaction, and minimize costs.

### Broiler Whole Bird Condemnation (Company)

<table>
<thead>
<tr>
<th></th>
<th>Average Co.</th>
<th>Top 25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Septox</td>
<td>0.265</td>
<td>0.206</td>
</tr>
<tr>
<td>% Airsac</td>
<td>0.095</td>
<td>0.074</td>
</tr>
<tr>
<td>% I.P.</td>
<td>0.056</td>
<td>0.053</td>
</tr>
<tr>
<td>% Leukosis</td>
<td>0.003</td>
<td>0.007</td>
</tr>
<tr>
<td>% Bruise</td>
<td>0.010</td>
<td>0.015</td>
</tr>
<tr>
<td>% Other</td>
<td>0.017</td>
<td>0.007</td>
</tr>
<tr>
<td>% Total</td>
<td>0.447</td>
<td>0.362</td>
</tr>
<tr>
<td>% 1/2 parts condemnations</td>
<td>0.405</td>
<td>0.320</td>
</tr>
</tbody>
</table>

Data for week ending 11/30/02
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.

The Poultry Informed Professional Newsletter is published with support from Bayer Corporation.
Subject to University and Regents approval, Dr. John Glisson, Professor of Avian Medicine, will be appointed to the position of Associate Dean for Public Service and Outreach. He will begin as Acting Associate Dean immediately after the retirement of Edward A. Mahaffey from the position. Glisson’s official appointment occurs in January, 2003.

“Dr. Glisson is a perfect fit for the position,” says Dean Keith W. Prasse. “He has experience in leadership with complex human interactions; he has experience in fundraising at the six- and seven-figure levels; and he is recognized for excellence in public service and outreach.”

The broad responsibilities of the associate dean include administrative coordination of both the Athens Veterinary Diagnostic Laboratory and the Tifton Diagnostic and Investigational Laboratory, the Veterinary Medical Teaching Hospital, the Southeastern Cooperative Wildlife Disease Study, and other public service and outreach programs offered by the College.

The associate dean is also responsible for continuing education programs of the college and external affairs activities, including development, alumni affairs, and communication.

“I started on the UGA faculty in September 1984, and I’ve been here ever since,” says Glisson, who also has a graduate appointment in the Department of Medical Microbiology in the College of Veterinary Medicine. “It’s the best decision I ever made.”

Since July 1996, Glisson has served as Clinical Services Chief in the Poultry Diagnostic and Research Center which renders invaluable services to the poultry industry in Georgia and the other 49 states.

“There’s no other program in the world like the Master’s of Avian Medicine program,” Glisson says. “It was developed at the University of Georgia about 30 years ago and is considered the top program of its type anywhere in the world.”

About 20 percent of his time was devoted to teaching students earning a Master’s of Avian Medicine, the degree program which trains the majority of poultry veterinarians in the U.S. and abroad. He also consulted with poultry companies within driving range of Athens. “We were looking at disease problems, trying to fix them, trying to prevent them next time.”

Glisson grew up in South Georgia, earned a bachelor’s in biology from Valdosta State College and a DVM at UGA in 1980. He practiced veterinary medicine in Valdosta for two years before beginning work on his Masters of Avian Medicine at UGA, followed by a Ph.D. in medical microbiology.

An involved member of the Oconee County Board of Education, Glisson is a past president and will continue to be active in the American Association of Avian Pathologists. He also chairs the committee working on plans for a new hospital at the College of Veterinary Medicine.
December 5, 2002

Dear Friends,

If you have not already heard, I wanted to let you know that I have accepted the position of Associate Dean for Public Service and Outreach at the College of Veterinary Medicine at The University of Georgia. I will remain a member of the faculty at the Poultry Diagnostic and Research Center; however, my activities at PDRC will be limited by my new responsibilities.

Dr. Chuck Hofacre has assumed my previous position as Clinical Services Chief at PDRC. He and Dr. Jean Sander will be working together to help you with all your needs for diagnostic service in the laboratory and in the field. My vacant position at PDRC will be filled with a new clinician as soon as possible.

I have enjoyed greatly working daily with the poultry industry over the last 20 years and I will miss it tremendously. I plan to maintain as much contact with the industry as possible, but realistically, my new responsibilities will dominate my time.

We at PDRC value greatly the positive relationship we have with the poultry industry, and we will insure that the quality service you depend on from us will only improve. Please call Chuck Hofacre (706 / 542-5653) or our Diagnostic Lab Manager, Chris Lobesinger (706 / 542-0501) any time. If there is something that I might help with, you can call me at 706 / 542-5716.

Thank you for all of the help you have given me all of these years. I do not plan to be a stranger in the poultry industry. I hope to keep in contact with all of my friends and colleagues.

Sincerely,

John R. Glisson, DVM, MAM, PhD
Associate Dean for Public Service and Outreach

JRG/se
Broiler Eggs Set in 19 Selected States Down 5 Percent
According to the latest National Agricultural Statistics Service (NASS) reports, commercial hatcheries in the 19-State weekly program set 201 million eggs in incubators during the week ending November 30, 2002. This was down 5 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 19-State weekly program placed 161 million chicks for meat production during the week ending November 30, 2002. Placements were down 3 percent from the comparable week in 2001. Cumulative placements from December 30, 2001 through November 30, 2002 were 8.00 billion.

October Egg Production Up 1 Percent
U.S. egg production totaled 7.41 billion during October 2002, up 1 percent from last year. Production included 6.34 billion table eggs and 1.07 billion hatching eggs, of which 1.01 billion were broiler-type and 58.0 million were egg-type. The total number of layers during October 2002 averaged 338 million, up slightly from a year earlier. October egg production per 100 layers was 2,192 eggs, up 1 percent from the 2,180 eggs in October 2001.

Egg-Type Chicks Hatched Down 11 Percent
Egg-type chicks hatched during October totaled 32.0 million, down 11 percent from October 2001. Eggs in incubators totaled 30.4 million on November 1, 2002, up 7 percent from a year ago.

Domestic placements of egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 186,000 during October 2002, up 24 percent from October 2001.

Broiler Hatch Down 4 Percent
The October 2002 hatch of broiler-type chicks, at 720 million, was down 4 percent from October of the previous year. There were 574 million eggs in incubators on November 1, 2002, down 2 percent from a year earlier.

Leading breeders placed 6.3 million broiler-type pullet chicks for future domestic hatchery supply flocks during October 2002, down 7 percent from October 2001.

Turkey Eggs in Incubators on November 1 Down 2 Percent
Turkey eggs in incubators on November 1, 2002, in the United States totaled 29.9 million, down 2 percent from November 1 a year ago. Eggs in incubators were 2 percent above the October 1 total of 29.2 million. Regional changes from the previous year were: East North Central, down 2 percent; West North Central, down slightly; North and South Atlantic, down 3 percent; South Central, down 12 percent; and West, up 2 percent.

Poults Placed During October Down 1 Percent From Last Year
The 23.8 million poults placed during October 2002 in the United States were down 1 percent from the number placed during the same month a year ago. Placements were up 5 percent from the September 2002 total of 22.7 million. Regional changes from the previous year were: East North Central, up 2 percent; West North Central, up 9 percent; North and South Atlantic, down 8 percent; South Central, down 20 percent; and West, down 4 percent.
**Broiler Export Forecast Raised**

According to the latest Economic Research Service (ERS) reports, U.S. broiler exports for the third quarter of 2002 have been revised upward from 1.16 billion pounds to 1.40 billion pounds, based mainly on the strength of exports in August. This increases the estimate for 2002 exports to 5.1 billion pounds, down 8 percent from 2001, but still the second-highest annual total. Exports in August were 535 million pounds, the second-highest monthly exports ever and 15 percent higher than the previous year. The growth of exports in August, compared to the previous year, was the result of higher shipments to a number of smaller markets, as exports to the four largest markets—Russia, Hong Kong, Mexico, and Japan—all were down from a year earlier. The declines were especially steep for exports to Mexico, down 42 percent from the previous August, and exports to Japan, down 37 percent. The declines in these major markets were more than offset by large shipments to such countries as China, Poland, Georgia, Angola, Colombia, and Romania. Shipments to Angola have been very strong throughout the first 8 months of 2002, and so far the total quantity shipped there is about equal with shipments to Japan.

This increase in exports, however, has not translated into higher domestic prices, due to continued growth in broiler production and high stock levels. U.S. broiler production in the third quarter was 8.25 billion pounds, 4.7 percent above the previous year. The growth in production was divided between an increase in the number of birds slaughtered (up 2.8 percent) and an increase in their average weight (2.1 percent). Federally inspected slaughter in the fourth quarter of 2002 is forecast at 7.98 billion pounds, an increase of 1.4 percent from the previous year. The increase in production is expected to come chiefly through heavier birds as the number of birds slaughtered in the fourth quarter is expected to be near the year earlier total. The weekly broiler hatchery report shows that, for 6 of the last 8 weeks (Sept. 14 through Nov. 2) the number of broiler chicks placed for growout was lower than the total for the same week last year. The figures for eggs placed in incubators points to continued lower chick placements as the number of eggs placed has been down by 2 or 3 percent the last 3 weeks. The third quarter growth in broiler output also added to stock levels. Ending stocks for broilers held in cold storage as of the end of September were 826 million pounds, 34 percent higher than the previous year.

Higher domestic production and higher stocks has resulted in lower domestic broiler prices. In September, breast meat prices were down 8 percent and prices for leg quarters and wings were down 46 and 45 percent from last year. Prices for whole broilers are expected to remain below the previous year through the fourth quarter. Prices for broiler parts are expected to remain depress until the rate of growth in production starts to decline and broiler stocks are drawn down.

**Wholesale Turkey Prices Lower, Stocks Higher**

In October the 3-region price for whole turkeys (hens and toms) averaged 62.5 cents a pound down 11 percent from the previous year. Prices for turkey parts have also fallen from last year, with breast prices averaging 98.2 cents a pound in September, down 5 percent, and drumstick and wing prices averaging 20.6 and 22.1 cents a pound, down 44 and 36 percent. While retail prices for whole turkeys around Thanksgiving are often very low due to special price discounts, retailers will have bought at wholesale prices below those of the previous year.

Over the first 9 months of 2002, U.S. turkey production totaled 4.2 billion pounds, 3 percent higher than during the same period in 2001. This increase in production was due to both a 1-percent increase in the number of birds slaughtered and a 2-percent gain in the average weight. Along with the increase in production, turkey exports over the first 8 months of 2002 were 7 percent lower than during the same period in 2001. The increase in production with lower exports has raised turkey stocks. At the end of September, stocks of whole turkeys were 2 percent higher than the previous year and stocks of turkey parts had increased 63 percent.
Meetings, Seminars and Conventions

2003
January

January 22-24: International Poultry Exposition, Georgia World Congress Center, Atlanta, GA. Contact: U.S. Poultry and Egg Association, 1530 Coolidge Road, Tucker, GA 30084. Phone: 770-493-9401; Fax: 770-493-9527

February

February 6-8: NTF Annual Convention, Georgia World Congress Center, Atlanta, GA. Contact: U.S. Poultry and Egg Association, 1530 Coolidge Road, Tucker, GA 30084. Phone: 770-493-9401; Fax: 770-493-9527

March

March 5-6: Nebraska Poultry Industries Annual Convention, New World Inn and Conference Center, Columbus, Nebraska. Contact: Nebraska Poultry Industries, Inc., University of Nebraska, A-103 Animal Sciences, P.O. box 830908, Lincoln, NE 68583-0908. Phone: 402-472-2051

March 4-5: ACPV Sponsored Workshop, Molecular Biology Made Easy, Contact: H.L. Shivaprasad, 2789 S. Orange Ave., Fresno, CA 93725.

March 9-11: 52nd Western Poultry Disease Conference, Capitol Plaza Holiday Inn, Sacramento, CA. Contact: R.P. Chin, 2789 S. Orange Ave., Fresno, CA 93725

March 18-20: MPF Conference, RiverCentre, St. Paul, Minn. Contact: Midwest Poultry Federation, 108 Marty Drive, Buffalo, Minn. 55313. Phone: 763-682-2171; http://www.midwestpoultry.com


April

April 4-5: Florida Poultry Days, Orlando, FL. Contact: Florida Poultry Association, 4508 Oak Fair Blvd., No. 290, Tampa, FL 33601

April 20-23: Middle East Poultry Show, Dubai World Trade Center Exhibition Complex, United Arab Emirates. Contact: Mediac Communication and Promotion, P.O. Box 5196, Dubai, UAE. Phone: +971 4 2692004; Fax: +971 4 2691298


May

May 1-4: GPF Annual Meeting, Brasstown Valley Resort, Young Harris, GA. Contact: Georgia Poultry Federation, P.O. Box 763, Gainesville, GA 30503. Phone: 706-732-0473; claudette@gpfa.org


May 17: GPF Night of Knights, Cobb Galleria Centre, Atlanta, GA. Contact: Georgia Poultry Federation. Phone: 770-532-0473; claudette@gpfa.org

June

June 5-7: IVV Poultry Yutav, World Trade Center, Yesulusky, Istanbul, Turkey. Contact: Jaabeurs Exhibitions and Media, P.O. Box 8800, 3503 RM Utrecht, The Netherlands. Phone: +31 30 295 2772; Fax: +31 30 295 2809


July

July 19-23: XIII Congress of the World Veterinary Poultry Association and the American Association of Avian Pathologists, Denver, CO, USA. Contact: Details are posted on the web site of the American Association of Avian Pathologists. Website: http://www.avian.uga.edu/~wvpa/

## Meetings, Seminars and Conventions

### 2003 September

- **Sept 17-18:** U.S. Poultry Production & Health, The Peabody Hotel, Memphis, TN. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Phone 770-493-9401; [http://www.poultryegg.org](http://www.poultryegg.org)

### 2003 October

- **Oct 9-10:** U.S. Poultry Protein & Fat, The Peabody Hotel, Memphis, TN. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Phone 770-493-9401; [http://www.poultryegg.org](http://www.poultryegg.org)
- **Oct 11-15:** Anuga Food Show, KölnMesse, Cologne, Germany. Contact: KölnMesse GmbH, Messeplatz 1, D-50679 Köln, Germany. Phone: +49 821 33 05; Fax: +49 821 34 10. Email: m.schleveter@koelnmesse.de
- **Oct 23-24:** U.S. Poultry Women in Management, Park Vista Hotel, Gatlinburg, TN. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Phone 770-493-9401; [http://www.poultryegg.org](http://www.poultryegg.org)

### 2003 November

- **Nov 12:** U.S. Poultry Grain Forecast and Economic Outlook, Atlanta Airport Hilton Hotel, Atlanta, GA. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Phone 770-493-9401; [http://www.poultryegg.org](http://www.poultryegg.org)