



# The Poultry Informed Professional



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## Overview of Salmonella In the U.S.

by Dr. Charles Beard  
U.S. Poultry & Egg Association

If you were to poll consumers in this country asking them for an example of a foodborne illness and the most frequent source of that illness, my prediction is that a high percentage would respond "Salmonella from chickens..." There is, however, some encouraging news that may eventually help change the "Salmonella from chickens" perception that is so common in our society.

Surprisingly, the good news comes directly from USDA-FSIS, the regulators who inspect processing plants and develop the regulations that govern slaughter/processing operations. FSIS conducted a microbiological survey of processed whole broilers in plants around the U.S. that represent 99 percent of all chickens slaughtered in the U.S. the broiler-in-the-bag rinse technique was used with 400 ml of sterile buffer to rinse off and capture bacteria from the inside and outside of the carcasses. The fluid was cultured for the presence of Salmonella.

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

	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color	191.90	191.31	201.71	195.14	199.70
Feed cost/lb meat	19.12	17.94	19.53	20.14	20.46
Days to 4.6 lbs	46	44	46	44	44
Med. cost/ton	4.25	4.12	3.92	3.42	3.78
Chick cost/lb	4.15	4.47	4.44	4.01	4.01
Vac-Med cost/lb	0.11	0.07	0.11	0.14	0.11
WB & 1/2 parts condemn. cost/lb.	0.28	0.26	0.21	0.30	0.37
% mortality	3.70	5.05	3.86	4.70	5.40
Sq. Ft. @ placement	0.81	0.74	0.80	0.78	0.86
Lbs./Sq.Ft.	5.87	6.30	5.87	6.63	6.22
Down time (days)	11	9	10	11	12

Data for week ending 06/27/97.

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## Overview of Salmonella in the U.S.

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There was no Salmonella recovered from 80 percent of the 1,297 broiler samples: None, not a single cell. Of the 20 percent that were positive, over 87 percent resulted in less than 0.3 bacteria being found per ml of rinse fluid; 96.5 percent of the positive broilers had 3 or fewer bacterial cells per ml of rinse fluid.

These results reflect a continuing decline in the incidence and levels of Salmonella bacteria on raw broiler carcasses based on previous similar surveys. It is remarkable that the industry has achieved such a low level and incidence of Salmonella on a product that is to be cooked before it is consumed.

It is the foods that are not cooked but contain Salmonella that are now gaining ever increasing attention from public health epidemiologists. Human outbreaks are now associated with melons, tomatoes, lettuce, alfalfa sprouts, orange juice, milk and ice cream. Foods such as eggs that are frequently broken, cut, pooled, temperature abused and then inadequately cooked have also caused highly publicized foodborne illnesses due to *S. enteritidis*.

The ever increasing number of immuno-compromised individuals in this country due to old age, organ transplants, cancer chemotherapy and AIDS will assure that the pressure will stay on the poultry industry to lower Salmonella levels even more. Faced with the reality that Salmonella is present in essentially all of the animal species and, therefore, in the environment all around us, it is highly unlikely that the industry can produce, with 100 percent assurance, a constant supply of broilers that are completely free of Salmonella. It is also likely that both the levels and incidence of Salmonella will continue the overall downward trend interspersed with occasional periods that show increased spikes associated with weather or unknown factors.

Will the Salmonella levels on raw, to-be-cooked foods ever get low enough to overcome the detrimental effects of inadequate refrigeration, improper handling, inadequate cooking and filthy preparation conditions by Salmonella-colonized and shedding workers? The obvious answer is a definite "No." There will still be outbreaks of foodborne illness in humans, especially those who eat out, even if food producers provide a completely sterile product. There is also a good likelihood that chicken will get its share of the blame even though the Salmonella incidence and levels become less and less.

Unfortunately, about the only defense the industry has is to get the incidence and levels on all raw chicken as low as humanly possible while operating within the regulatory constraints of government that limit the use of chemicals, such as formaldehyde and feed additives, which has enabled countries like Sweden to make significant progress in the Salmonella arena.

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

**Broiler Whole Bird Condemnation (Region)**  
Live Production Cost

	Average Co.	Top 25%	Top 5 Co's
Feed cost/ton w/o color	197.32	194.47	191.28
Feed cost/lb meat	19.64	18.35	17.22
Days to 4.6 lbs	45	46	45
Med. cost/ton	3.98	3.72	4.15
Chick cost/lb	4.28	4.28	4.64
Vac-Med. cost/lb	0.11	0.10	0.06
WB & 1/2 parts condemn. cost/lb	0.29	0.23	0.23
% Mortality	4.47	4.13	4.13
Sq. Ft. @ placement	0.80	0.78	0.75
Lbs/Sq. Ft.	6.16	5.92	5.77
Down time (days)	11	11	12

Data for week ending 06/27/97.

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.337	0.449	0.167	0.308	0.295
% Airsac	0.128	0.078	0.222	0.303	0.273
% I.P.	0.080	0.138	0.141	0.111	0.330
% Leukosis	0.012	0.014	0.004	0.046	0.008
% Bruise	0.011	0.012	0.014	0.009	0.014
% Other	0.023	0.021	0.027	0.032	0.026
% Total	0.591	0.711	0.575	0.809	0.946
% 1/2 parts condemnations.	0.519	0.341	0.270	0.381	0.542

Data for week ending 06/27/97.

## Overview of Salmonella in the U.S.

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There is no way that industry alone can quickly change the public perception of the Salmonella-chicken connection. We can only continue to improve the poultry products to the point where, when Salmonella foodborne outbreaks occur, the investigators will have to look at uncooked foods and institutional abuses as the likely source of the problem. There is nothing to be gained by debating the pros and cons of reducing the presence of Salmonella on poultry products even more. We need to just get going and get it done.

*Presentation to the 31st National Meeting on Poultry Health and Processing, Ocean City, MD, October 23. Dr. Beard is Vice President, Research & Technology, U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, GA 30084-7303. Tel. 770-493-9401.*

### **Excerpts from the Latest Economic Research Service and National Agricultural Statistics Service USDA Reports**

#### **“Livestock, Dairy and Poultry Situation and Outlook” (ERS)**

#### **“Broiler Hatchery” and “Chicken and Eggs” (NASS)**

eggs during week ending June 21, 1997. This was up 5 percent from the corresponding week last year. Average hatchability was 82 percent.

#### **Broiler Chick placements up 4 percent**

NASS reports growers placed 141 million broiler chicks for meat production during the week ending June 21, 1997. Placements were up 4 percent from the comparable week last year. Cumulative placements from December 29, 1996 through June 21, 1997 were 3.47 billion, 3 percent above the 3.37 billion placed during the same period a year earlier.

#### **Broiler Hatch up 3 percent in May**

According to NASS, the May 1997 hatch of broiler-type chicks, at 721 million, was up 3 percent from May 1996. Leading breeders placed 7.06 million broiler-type pullet chicks for future domestic hatchery supply flocks during May 1997, up 4 percent from May 1996.

#### **Turkey Production Decreasing**

The latest ERS report indicates turkey meat production is expected to equal last year in the second quarter, but lower production in the first and third quarters is expected to bring lower production for the year. This would be the first year-over-year decline in annual production since 1982. Net returns to producers continue negative even with higher prices and lower feed costs than last year. Positive net returns are expected when prices are above 70 cents per pound, which should occur in late summer or early fall.

#### **Broiler Production Increasing**

Economic Research Service (ERS) reports production increases are accelerating with approximately 5 percent more broiler meat expected to have been produced in June. First-quarter production was slightly below a year ago, the first year-over-year decline in quarterly meat production since 1980.

During June the 12-city wholesale price for whole birds was expected to average 10 percent lower than 1976. Breast and leg quarter prices have been lower than a year ago by about 5 and 25 percent, respectively, during early June, but are increasing from May. Feed costs considerably below a year ago will keep broiler returns positive, but below last year.

#### **Broiler Eggs set up 5 percent**

The National Agricultural Statistics Service (NASS) reported commercial hatcheries in 15 selected states set 174 million

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**Excerpts from NASS USDA Reports**  
*(continued from page 3)*

Placements for January-April were below a year ago, indicating weaker production for May-September. If fourth quarter production is to increase, stronger poult placements will be necessary in June and July.

**Egg Prices Falling**

Egg demand appears to have weakened considerably in recent months. Shell egg exports were about 17 percent lower during the first quarter of 1997 than a year ago. Domestic consumption was nearly unchanged in the first quarter from 1996 with retail prices 1-2 cents per dozen lower. Lower egg prices brought negative net returns for May and June. However lower feed costs are expected to keep egg production profitable for 1996.

247 million layers produced table or commercial-type eggs, and 2.69 million layers produced egg-type hatching eggs. Laying flocks in the 30 major egg production states produced 6.50 billion eggs during May, up 3 percent from May 1996.

Egg-type chicks hatched during May totaled 38.9 million, up 1 percent from May 1996. Eggs in incubators totaled 33.4 million on June 1, 1997 up 5 percent from a year ago.

Domestic placements for egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 268,000 during May 1997, down 8 percent from the 291,000 of May 1996.

**Poultry Diagnostic and Research Center News**

Dr. Richard (Dick) Davis recently retired. He has adjusted quite well. He has already cut two strokes from his golf handicap and claims to be catching a lot of fish.

Dr. Maricarmen Garcia has recently joined our faculty as an assistant professor. Dr. Garcia was previously with the Southeast Poultry Research Laboratory. She will be conducting research in virology and participating in the diagnostic virology services.

We have two new M.A.M. students who started in June. Dr. A.J. (Chip) Garritty recently received his D.V.M. from the Virginia-Maryland Regional College of Veterinary Medicine and Dr. Scott Westall just received his D.V.M. from North Carolina State University. They are scheduled to complete the M.A.M. program in December, 1998.

**Broiler Whole Bird Condemnation (Company)  
 Live Production Cost**

	Average Co.	Top 25%	Top 5 Co.'s
% Septox	0.306	0.276	0.360
% Airsac	0.203	0.146	0.087
% I.P.	0.155	0.105	0.086
% Leukosis	0.018	0.008	0.009
% Bruise	0.013	0.010	0.005
% Other	0.029	0.028	0.016
% Total	0.723	0.572	0.564
% 1/2 parts condemnations	0.446	0.339	0.366

**GVMA Meeting Highlights**

**Dr. Aly Fady—Myeloblastosis**  
*GVMA, Jekyll Island, Georgia—June 1997*

Dr. Fady discussed recent information regarding subgroup J retroviruses, a new addition to the avian leukosis/sarcoma group of Avian Retroviruses. The usual case history for breeder flocks infected by the virus is: GGP/GP flocks > 24 weeks old, mortality is 0.5% above weekly normals and affected birds are usually hens of the male line. Dr. Fady has diagnosed infections in 13-14 weeks old birds as well as an exceptionally young broiler breeder flock that was only 4 weeks old. In the former

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## GVMA Meeting Highlights...

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flock, the virus appeared to affect females of a female line. Gross and microscopic lesions were described. Grossly one can find neoplastic lesions in the liver, spleen, lung, or adhered to the sternum. Cloacal lesions are variable. Gross lesions are not pathognomonic. Microscopic lesions, however, are characteristic due to the distinct infiltrates of immature myelocytes. Virus isolation can be done from either blood samples or lesions. Selective CEF cell lines can be used to eliminate unwanted viral contaminants. VN or PCR can be used to further characterize the virus in question. Thus far, Dr. Fadly has made many isolations from breeder flocks of different primary breeders. The implication is that all primary breeder companies may have infected flocks. Horizontal transmission is *very efficient* with subgroup J, especially in meat versus laying breeds. This increased transmission efficiency makes subgroup J virus difficult to control. The earlier age at which infection is being found also implies that subgroup J may eventually be seen in broiler flocks. One interesting aspect of subgroup J versus A is the differences in immunotolerance. Whereas A induces immunotolerance if transmitted congenitally or is present in large amounts at an early age, subgroup J, in meat-type birds, can cause immunotolerance at a later age. Within the next six months, there is hope that a rapid ELISA test that is specific for subgroup J virus will be available. Suggestions by Dr. Fadly included: testing breeders at an early age, prior to co-mingling sexes, in an attempt to isolate the infected line. All positive birds should be removed in order to stop or slow the rate of transmission to birds.

—Abstract provided by Dr. Bob O'Connor, M.A.M. student

### Dr. Richard Chin—*Ornithobacterium rhinotracheale*

GVMA, Jekyll Island, Georgia—June, 1997

*Ornithobacterium rhinotracheale* (ORT) is a gram negative organism which has been isolated from almost all bird species around the world. It was first reported in Germany in 1981 in turkeys experiencing a respiratory disease. In 1990, it was reported in the U.S. in turkeys, chickens, and other avian species. This organism is most commonly isolated from the trachea but also from the air sacs and lungs. It is a non-motile, non-sporulating, pleomorphic rod. ORT can easily be overgrown by other bacteria on blood agar (*E. coli*, etc.) It yields very small colonies at 24 hours but in 48 hours, colonies are larger, circular, convex, grey and entire. It does not grow on McConkey agar. In 1995, CVDLS reported that turkeys were more commonly affected accounting for 59% of the total ORT isolations. It is very difficult to reproduce respiratory disease with ORT experimentally. It has been proposed that other respiratory etiologies (NDV, IBV, or pneumovirus) could trigger the respiratory effect of ORT in the field. Currently, there is an agglutination test for diagnosis. An ELISA system has been developed in Europe and will be available soon commercially.

—Abstract provided by Dr. Luis Gómez, M.A.M. student

# Meetings, Seminars and Conventions

## 1997 July

**July 6-10: 7th International Congress of the European Association for Veterinary Pharmacology and Toxicology (EAVTP)**, Madrid, Spain. Contact: Prof. D.A. Anadón, Chairman, Department of Toxicology, Faculty of Veterinary Medicine, Universidad Complutense de Madrid, 28040 Madrid, Spain. Phone +34 1 3943834. Fax +34 1 3943840. E-mail: anadon@eucmax.sim.ucm.es

**July 10-12: Texas Poultry Federation Convention**, San Antonio, TX. Contact: James C. Grimm, Executive VP, Texas Poultry Federation, 8140 Burnet Rd., Austin, TX 78757-7799. Phone (512) 451-6816.

**July 10-12: National Meat Association Spanish-language HACCP Workshop**, Los Angeles, CA. Contact: NMA. 1970 Broadway, Ste. 825, Oakland, CA 94612. Phone (510) 763-1533. Fax (510) 763-6186.

**July 10-13 South Carolina Poultry Federation Convention**, Crown Plaza Resort, Hilton Head Island, S.C., Contact S.C. Poultry Federation, 1201 Main St., Suite 1220, Columbia S.C. 29201. Phone (803) 748-1283.

**July 14-15: American Safety Institute Meat & Poultry HACCP Certification Workshop**, St. Louis, MO. Contact: ASI, One Green St., Hulmeville, PA 19047. Phone (800) 723-3873. Fax (215) 757-9521.

**July 15-16: US Poultry Hatchery/Breeder Clinic**, Hilton Hotel Downtown, Atlanta, GA. Contact: U.S. Poultry and Egg Assn., 1530 Cooledge Rd., Tucker, GA 30084-7303. Phone (770) 493-9401.

**July 16-17 Broiler Marketing Seminar '97**, Nemaacolin Woodlands Resort, Farmington, PA. Contact: National Broiler Council, 1155 15th Street, N.W., Washington, D.C. 20005-2707. Phone (202) 296-2622.

**July 18 NBC Marketing Committee Meeting**, Nemaacolin Woodlands Resort, Farmington, PA. Contact: National Broiler Council, 1155 15th Street, N.W. Washington, D.C. 20005-2707. Phone (202) 296-2622.

**July 21-22 American Safety Institute Meat & Poultry HACCP Certification Workshop**, Minneapolis, MN. Contact: ASI, One Green St., Hulmeville, PA 19047. Phone (800) 723-3873. Fax (215) 757-9521.

## 1997 August

**August 3-4: 1997 Poultry Science Association Annual Meeting and Expo**, The Georgia Center for Continuing Education, Athens, GA, USA. Contact: PSA Headquarters, 1111 North Dunlap Avenue, Savoy, IL 61874, USA. Phone (217) 356-3182. Fax (217) 398-4119. E-mail: psa@adsa.org.

**August 4-6: USPEA Information Systems Seminar**, Hilton Hotel, Myrtle Beach, S.C. Contact: U.S. Poultry and Egg Assn., 1530 Cooledge Road, Tucker, GA 30084-7303. Phone (770) 493-9401.

**August 4-8: 86th Annual Meeting of the Poultry Science Assoc.**, University of Georgia, Athens, GA, USA. Contact: PSA Meetings, 1111 North Dunlap Avenue, Savoy, IL 61874, USA. Phone (217) 356-3182. Fax (217) 398-4119. E-mail: psa@adsa.org.

**August 18-22: XIth Congress of the World Veterinary Poultry Association**, Budapest, Hungary. Contact: Organising Committee, XIth Congress of WVPA, Veterinary Medical Research Institute, Hungarian Academy of Sciences, P.O. Box 18, Budapest 1581, Hungary. Phone +36 1 252-2455. Fax +36 1 252--1069.

**August 21-22: USPEA Poultry Environmental Management Seminar**, Omni Hotel, Atlanta, GA. Contact: U.S. Poultry and Egg Association, 1530 Cooledge Rd., Tucker, GA 30084-7303. Phone (770) 493-9401.

## 1997 September

**September 1-5: VIIIth International Coccidiosis Conference**, Oxford University's Keble College, Oxford, UK. Contact: Drs. M.W. Shirley and F. Tomley, Institute for Animal Health, Compton Laboratory, Compton, Nr Newbury, Berks RG20 7NN, UK. Phone +44 1635 577275/6, Fax +44 1635 577263.

**September 17-18: Poultry Production and Health Seminar**, Hilton Hotel Downtown, Atlanta, GA. Contact: U.S. Poultry and Egg Assn., 1530 Cooledge Road, Tucker, GA 30084-7303. Phone (770) 493-9401, Fax (770) 493-9257.

**September 17-19: 25th Poultry Science Symposium: Poultry Meat Science**, Bristol University, UK. Contact: Dr. I. Richardson, Division of Food Animal Science, University of Bristol, Langford, Bristol, BS18 7DY, UK. Phone +44 117 928 9291, Fax +44 117 928 9324.

**September 23-24: Missouri Poultry Federation Fall Convention**, Sheraton Hawthorn Park, Springfield, MO. Contact: Johanna Derda, Missouri Poultry Federation, 225 East Capitol Ave., Jefferson City, MO 65101. Phone (573) 761-5610.

**September 23-26: XV Latin American Poultry Congress**, Convention Center, Cancun, Mexico. Contact: Union Nacional de Avicultores, Medellín 325, Col. Roma, 06760, Mexico DF, Mexico. Phone +52-5 564-9322. Fax +52-5 584-2594.

**September 24-25: Northeast Poultry Show**, Holiday Inn, Lancaster, PA. Contact: Pennsylvania Poultry Federation, 500 N. Progress Ave., Harrisburg, PA 17109. Phone (717) 652-7530.

## 1997 October

**October 8-10: NBC Annual Conference**, Mayflower Hotel, Washington, D.C. Contact: NBC, 1155 15th St., N.W., Washington, D.C. 20005-2707. Phone (202) 296-2622.

**October 9: Alabama Processor Workshop**, Birmingham, AL. Contact: Alabama Poultry and Egg Association, P.O. Box 240, Montgomery, AL 36101. Phone (334) 265-2732.

**October 15-17 National Meeting on Poultry Health and Processing**, Ocean City, MD. Contact: Sharon Webb, Delmarva Poultry Industry, Rd. 6, Box 47, Georgetown, DE 19947-9662. Phone (302) 856-9037.

**October 20-22 Fourth International Symposium on Turkey Reproduction**, sponsored by North Carolina State University, Department of Poultry Science, Jane S. McKimmon Center, NCSU, Raleigh, NC. Contact: Jesse L. Grimes. Phone (919) 515-5406. Fax (919) 7070.

**October 22-23 Twenty-first Annual North Carolina Turkey Industry Days Conference**, Jane S. McKimmon Center, NCSU, Raleigh, NC. Contact: Jesse L. Grimes. Phone (919) 515-5406. Fax 515-7070.

