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Editors: Charles Hofacre and Pedro Villegas, Department of Avian Medicine

Phone (706) 542-5645 Fax (706) 542-0249
e-mail: sclanton@uga.edu

Fan Belts, Pulleys, Shutters, Cool Pads – And Profits

Reprinted from "The Poultry Engineering, Economics & Management Newsletter" published by Auburn University, in cooperation with the U.S. Poultry & Egg Association

Jim Donald
Extension Engineer
and
Jess Campbell,
Poultry Housing Technician
Auburn University

Each summer we have the opportunity to visit many poultry houses under full tunnel conditions. While many growers do a good job of routine maintenance on their houses, there are still plenty of folks who just won't take the time or don't see the value of keeping their air moving and evaporative cooling equipment in top shape. Many poultry newsletters have been written on this topic and many more will follow. The fact is, those growers that take proper care of fans, fan belts, pulleys, shutters and cooling pads will be rewarded for their time and effort in increased meat production, better feed conversion, and lower mortalities. This newsletter explains the importance of maintaining air-moving and cooling equipment and points out the most important things you should be doing to keep birds growing fast in hot weather.

What's wrong with this picture (that would cost a grower money)? See page 2 for answer.

Broiler Performance Data (Region)
Live Production Cost

	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color ($)	193.64	182.72	190.14	194.17	192.36
Feed cost/lb meat (¢)	17.86	16.38	18.48	18.83	18.30
Days to 4.6 lbs	43	41	44	43	43
Chick cost/lb (¢)	4.21	4.44	3.76	3.55	3.88
Vac-Med cost/lb (¢)	0.06	0.07	0.08	0.08	0.07
WB & 1/2 parts condemn. cost/lb	0.15	0.20	0.23	0.20	0.25
% mortality	3.60	4.20	4.62	4.47	5.06
Sq. Ft. @ placement	0.80	0.76	0.86	0.84	0.82
Lbs./Sq. Ft.	6.44	6.66	6.82	7.31	6.91
Down time (days)	10	8	9	11	12

Data for week ending July 24, 2004

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How Important?
The chart below shows how important air velocity is for getting maximum broiler performance. The data, from research done at Mississippi State University by Dr. Berry Lott, especially demonstrates the effect on birds being grown at 600 fpm vs. 400 fpm. The low wind speed house was 0.30 lbs per bird lighter by week 7. For example, 0.30 lbs x 20,000 birds x $0.05 per bird nets $300 per house in added weight. And that's without taking the improved feed conversion into account.

Notice also that these birds were not being reared in optimum thermometer temperatures. The research setup was designed only to test how important wind-chill cooling is, with temperatures controlled at 77°F during the night and 86°F during the day, and no evaporative cooling was used. In other words, at these temperatures, wind-chill effect alone was adequate to get good performance if air velocity was high enough. When temperatures go above the mid-80s, you definitely need the additional real temperature drop from evaporative cooling to keep birds growing fast.

Air Velocity = Weight Gain

		Week 4	Week 5	Week 6	Week 7
		---------Body Weight Lbs---------			
Air	0	2.96	4.24	5.32	6.10
Velocity	400	3.00	4.44	5.81	6.92
(fpm)	600	3.02	4.49	5.92	7.22

Research at Mississippi State shows how high tunnel air velocity translates into weight gain. Starting from the same point, male broiler birds were reared from 3 weeks to 7 weeks in still air, 400 fpm air, and 600 fpm air. Each batch of birds were kept in a controlled 24-hour cyclic temperature of 77-86-77˚F, simulating summer weather conditions.

What happens in hot weather if good air velocity is maintained but the evaporative cooling system is neglected and doesn't perform as designed? Analysis of other research done by Dr. Lott indicated that if groups of birds were grown at the same wind speed, but with one group at a constant 81°F and the other at a constant 86°F, the birds grown at the higher temperature would be about 20% lighter in weight. In real world summertime conditions, of course, we aren't likely to see a constant round-the-clock overtemperature. These studies do, however, provide a basis for a reasonable expectation that a cooling system allowing temperature to run +5°F warmer than normal during the heat of the day (slightly less than one-third of 24 hours) would be likely to cost us about 6% of the birds body weight.

How much would that cost the grower? In a house growing 20,000 birds to 7 lbs, we would produce 140,000 lbs of meat. A 6% loss in weight would be 8,400 lbs. At $0.05/lb grower pay that is a $420 per house price for not keeping cool pads in top shape. There would also be a loss due to a drastic reduction in feed conversion, which we are ignoring here for the sake of this simplified example.

Conclusion: The only way to get top bird performance is to maintain both good air velocity and good cooling.

Fan Maintenance
Fan rpm's and air movement (cfm's and velocity) are directly related. A fan turning 10% slower in rpm's moves 10% less air. A fan turning 15% slower moves 15% less air than normal. And it 's the fan belt and pulley that determine fan rpm. As a fan belt wears, it becomes thinner and rides deeper in the pulley than when new. The effect is exactly the same as installing a smaller motor pulley: the fan rpm speed is reduced. The same thing happens with a worn pulley, of course. Note: Tightening a worn belt does not cure the problem. Field studies have found a surprising number of farms where growers have kept fan belts tight but the fan rpm's have been reduced because the pulleys and the belts were worn.

When pulleys or belts are worn, thin belts ride low in the motor pulley, as shown in top photo above. Result: blade rpm's are greatly reduced, thus robbing cfm's, air speed and wind chill cooling. Belts should be tight and ride high in the motor pulley, as in bottom photo, to achieve maximum fan rpm's and best wind-chill and evaporative cooling.

How serious a problem is a 10% loss in air velocity? For example, if a house has 10 fans in good condition and the air speed in the house is 600 fpm, the estimated wind chill cooling will be 15 degrees F (see wind-chill figure on facing page). A 10% reduction in rpm's will result in 540 fpm wind speed, which produces about 12 degrees of wind chill cooling, a significant 3-degree loss.

Another important fan maintenance item is cleaning fan shutters and blades. Research shows that if shutters and blades are allowed to become caked with dust, fan performance can be cut by as much as 30%. This means that fans delivering 600 fpm when clean may deliver only 420 fpm when they are dirty.

These are realistic numbers. Without proper fan maintenance, conditions will be nowhere near optimum and bird growth rate and feed conversion will be greatly hurt. Check and clean fan blades and shutters on a weekly basis. Replace belts and pulleys before they have an effect on rpm's.

Evaporative Cooling Maintenance

Like fans, evaporative cooling systems are expensive items that pay off by helping keep birds in optimum growth conditions. But you can't get the benefits you paid for unless you do what's needed to keep your cooling pads operating at top efficiency. Following is a list of the most important items to keep up with.

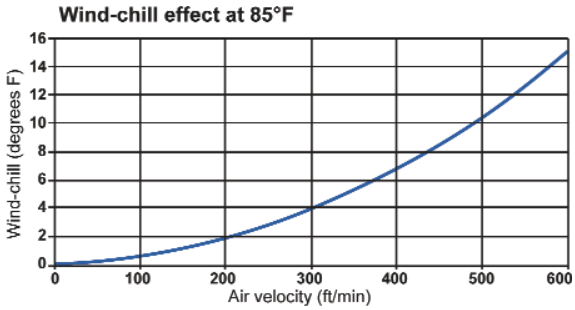

Chart shows approximate wind chill cooling for birds above 5 lbs weight in 85˚F air. Note that the curve is not a straight line. At higher wind speeds a slight loss in fan performance causes drastic changes in bird cooling. A 10% drop in air velocity, from 600 fpm to 540 fpm, will reduce wind-chill cooling effect from 15 to 12 degrees.

1. The first step in getting maximum cooling from pads is to get the house tight and get all incoming air going through the pads. Hot outside air that leaks in through cracks works against the pad cooling system. Find and seal all house air leaks. Curtain flaps help minimize air leaks around curtains, so that houses run cooler in summer and save gas in winter.

2. The second step to get good pad cooling is to make sure that pads have 100% wetted surface area. Any dry area on a pad is the same as any other air leak in the house, allowing hot air to come in without being cooled. This means it is imperative to check pad plumbing, and especially the distribution header holes in recirculating systems, to make sure water is flowing properly and you have thoroughly wetted the pads to get the cooling you need. If you have a spray pad system, be certain also that worn or clogged nozzles are cleaned or replaced, so that 100% of the pad area is kept wet.

3. Like fan blades and shutters, cooling pads will get dirty and must be kept clean to work at top efficiency. The required maintenance is to check and if necessary unclog the pad flute holes. One of the best ways to unclog channels in a cooling pad is just to spray a lot of water on them. Use normal water pressure only. High pressure systems can cut or damage pads. Several products are available that help loosen dirt on pads. These are normally sprayed onto the pads with a garden type sprayer and allowed to soak. Then loose material can be flushed out with just plain water. Be certain that whatever material you use to clean your pads does not contain chlorine and is approved for use on the pads.

4. In addition to collecting dirt and dust, pads can also become clogged with algae. If you see green growth, use a manufacturer approved cleaning agent only. Do not use chlorine or bromine to control algae growth on your cooling pads. If you are not sure about a product, do not use it. Contact the manufacturer of your pad for assistance in selecting a cleaning agent. Dump the water from the sump tank at least one time every two weeks to keep algae from growing in the sump.

5. Another item that helps prevent algae growth and keeps water flowing properly is to clean water filters weekly. Filters prevent dirt, bugs, and other foreign debris from making their way into the water distribution header. They are often the source behind your pads not being wetted thoroughly by clogging up the holes in the header. Filters that are clogged greatly reduce the amount of water flowing to the pad, which can reduce cooling as well as reduce the life of your pads.

Above photo shows how dirty fan blades and shutters can get in just a short time. Build-up of dust and dirt on shutters and blades can reduce fan performance by as much as 30% in real world applications.

Above photo is a close-up view of a fan blade that has not been cleaned for several weeks. The dust and dirt build-up changes the aerodynamics of the blade and puts additional drag on the blade, severely reducing fan performance.

6. Cooling pads need to be dried out at least once each day after being used. At night when you are not using the pads turn them off between, say 10 pm and 9 am, so that they are allowed to dry at night before use again.

7. If you have in-house foggers, you need to make sure all nozzles are clear and in good condition, and that pressure regulation and fogging coverage are adequate.

Bottom Line

The good money you have paid for quality fans and evaporative cooling equipment will largely go to waste and give you little or no return unless you make sure the equipment is maintained to operate at top efficiency. In the heat of summer, you can easily lose several hundred dollars per house in just a few weeks if you let fans and shutters get dirty, don't check and replace worn belts, or fail to see and correct an evaporative cooling problem.

For most efficient and effective pad cooling, pads must be thoroughly wet. For recirculating pad systems, it is important to check headers regularly to be certain there are no plugged holes in the discharge pipe. Photo at left above shows properly functioning header. Right photo shows a thoroughly clogged pad. Flushing pads with water and using one of the widely available cleaning products helps prevent pad clogging. Clogged pads raise static pressure, reduce fan cfm's and wind speed, and reduce both real and wind-chill effective cooling.

Avian Cellulitis — An Old Problem Returns

Reprinted from the Current Concepts in Broiler Production with the permission of Dr. Joe Hess, Auburn University.

Robert A. Norton, Ph.D
Auburn University
Poultry Science Department

Avian cellulitis is an infection that occurs under the skin of poultry damaged by cuts or scratches. Although, cellulitis can occur in any age bird, lesions that were observed at processing generally occur in the previous two to three weeks. In the last several years the problem of cellulitis was discussed less, although the problem did not actually diminish. Most processing operations learned to live with the problem by adding additional carcass trimming and salvage capacity. Once again, however, the problem of cellulitis has seemed to emerge more prominently in some operations and therefore it appears appropriate to once again review what we know.

Avian cellulitis can be caused by a wide variety of bacteria, although *Escherichia coli* is most commonly isolated. Regardless of the bacteria that cause the infections, none can penetrate intact skin. Once the defenses are bypassed, through a cut or abrasion, the bacteria quickly colonize and proliferate. The immune reaction of the bird is very rapid and lesions, which initially are a mixture of bacterial cells and immune related cells and fluids can form very rapidly. Experiments at Auburn University revealed that characteristic cellulitis lesions (often called plaques) could form in as little as 2-3 hours in some cases. This finding was particularly significant because it indicated that it was possible that some cellulitis plaques could have formed in the time that it would take for a bird to be transported to processing. In other words, a bird that otherwise might be devoid of cellulitis lesions, could theoretically be scratched during catching and by the time the bird was processed 2-3 or more hours later, the lesions could actually have developed. It was also found that other, more slowly developing lesions could result from contaminated scratches occurring 8-10 hours prior to slaughter. Data from both field studies and controlled experiments indicate that the majority of scratches observed at processing are generally less than two weeks old.

Cellulitis management and prevention has had a difficult history, largely to the lack of scientific investigation when the problem began to emerge in the U.S. That rapidly changed when research at Auburn revealed the problem was not due to hatchery borne infections, as first conjectured, but in fact occurred primarily due to scratches. Cellulitis is a growout problem first and foremost. Although, the importance of overall chick quality should be considered essential for overall bird health, other strategies should be used for addressing the problem. The primary goal in a cellulitis prevention program is to minimize the birds from scratching each other.

Cellulitis is often a problem associated with a given farm or a given house. Although, management quality is sometimes an issue, it is frequently observed that the best managers with the biggest birds experience elevated levels of cellulitis. The explanation is simple, bigger, faster growing birds are generally more aggressive and always more crowded. Managers that can achieve the growth targets earlier have to consider themselves at higher risk for cellulitis and adjust accordingly. Meal feeding or lighting programs, which cause dramatic behavior changes at feeding time must be modified to minimize aggressive behavior. Birds that are scrambling over each other will have higher rates of cellulitis. Males will have higher rates of cellulitis, again due to the inherent aggressiveness, compared to females. In houses with older equipment, careful and regular examination for sharp edges and objects should occur. Noise and startling movements of personnel and equipment should be minimized. One farm, situated close to a road was experiencing significant cellulitis problems. A survey of the farm revealed that birds were frightened multiple times of days when trucks passed nearby. The birds suffered from very high rates of scratches. In houses with side curtains, dark curtains, standard in most areas of the country have been shown to lessen the frequency of scratches, as opposed to light curtains. Reduced lighting levels will always help minimize aggressive behavior. Anti-migration barriers may also be useful in eliminating movement and therefore minimize birds jostling each other. In summary, anything that will diminish the number of scratches should be considered the first step in diminishing cellulitis problems.

Broiler Whole Bird Condemnation (Region)

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.190	0.232	0.227	0.208	0.195
% Airsac	0.041	0.046	0.087	0.082	0.084
% I.P.	0.012	0.006	0.042	0.043	0.017
% Leukosis	0.000	0.000	0.001	0.023	0.001
% Bruise	0.003	0.001	0.009	0.005	0.002
% Other	0.008	0.006	0.007	0.005	0.021
% Total	0.173	0.291	0.373	0.365	0.320
% 1/2 parts condemnations	0.364	0.632	0.401	0.373	0.525

Data for week ending July 24, 2004

Broiler Performance Data (Company) Live Production Cost

	Average Co.
Feed cost/ton w/o color ($)	189.85
Feed cost/lb meat (¢)	17.80
Days to 4.6 lbs	43
Chick cost/lb (¢)	4.08
Vac-Med cost/lb (¢)	0.07
WB & 1/2 parts condemn. cost/lb	0.21
% mortality	4.34
Sq. Ft. @ placement	0.81
Lbs./Sq. Ft.	6.90
Down time (days)	10

Data for week ending July 24, 2004

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 Whole Bird Condemnation (Company)

	Average Co.
% Septox	0.192
% Airsac	0.072
% I.P.	0.028
% Leukosis	0.006
% Bruise	0.004
% Other	0.008
% Total	0.311
% 1/2 parts condemnations	0.422

Data for week ending July 24, 2004

COBB-VANTRESS

Aviagen

Hubbard

Primary Breeders Veterinary Association

HERITAGE

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

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 Eggs Set In 19 Selected States Up 2 Percent

According to the latest National Agricultural Statistics Service (NASS) reports, commercial hatcheries in the 19-State weekly program set 213 million eggs in incubators during the week ending July 24, 2004. This was up 2 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 Placed Up 3 Percent

Broiler growers in the 19-State weekly program placed 173 million chicks for meat production during the week ending July 24, 2004. Placements were up 3 percent from the comparable week a year earlier. Cumulative placements from December 28, 2003 through July 24, 2004 were 5.16 billion, up 2 percent from the same period a year earlier.

June Egg Production Up 2 Percent

U.S. egg production totaled 7.27 billion during June 2004, up 2 percent from last year. Production included 6.20 billion table eggs, and 1.07 billion hatching eggs, of which 1.02 billion were broiler-type and 54.0 million were egg-type. The total number of layers during June 2004 averaged 342 million, up 2 percent from a year earlier. June egg production per 100 layers was 2,126 eggs, up slightly from June 2003.

All layers in the U.S. on July 1, 2004, totaled 342 million, up 2 percent from a year ago. The 342 million layers consisted of 283 million layers producing table or commercial type eggs, 56.8 million layers producing broiler-type hatching eggs, and 2.25 million layers producing egg-type hatching eggs. Rate of lay per day on July 1, 2004, averaged 71.3 eggs per 100 layers,
down slightly from a year ago.

Laying flocks in the 30 major egg producing States produced 6.79 billion eggs during June 2004, up 2 percent from a year ago. The average number of layers during June, at 319 million,
was up 2 percent from a year ago.

Egg-Type Chicks Hatched Up 4 Percent

Egg-type chicks hatched during June totaled 38.1 million, up 4 percent from June 2003. Eggs in incubators totaled 36.1 million on July 1, 2004, up 12 percent from a year ago.

Domestic placements of egg-type pullet chicks for future hatchery supply flocks by leading breeders totaled 212,000 during June 2004, down 31 percent from June 2003.

Broiler Hatch Up 1 Percent

The June 2004 hatch of broiler-type chicks, at 786 million, was up 1 percent from June of the previous year. There were 659 million eggs in incubators on July 1, 2004, up 4 percent from a year earlier.

Leading breeders placed 6.7 million broiler-type pullet chicks for future domestic hatchery supply flocks during June 2004, down slightly from June 2003.

Turkey Eggs in Incubators on July 1 Down 1 Percent

Turkey eggs in incubators on July 1, 2004, in the United States totaled 30.2 million, down 6 percent from July 1 a year ago. Eggs in incubators were 1 percent above the June 2004 total of 29.9 million eggs. Regional changes from the previous year were: East North Central up 1 percent, West North Central down 9 percent, North and South Atlantic down 8 percent, South Central down 7 percent, and West up 5 percent.

Poults Placed During June Down 8 Percent From Last Year

The 23.5 million poults placed during June 2004 in the United States were down 8 percent from the number placed during the same month a year ago. Placements were down 1 percent from the May 2004 total of 23.7 million. Regional changes from the previous year were: East North Central down 5 percent, West North Central down slightly, North and South Atlantic down 15 percent, South Central down 2 percent, and West down 16 percent.

Broiler Meat Production Down Slightly in May, but Estimate for Second Quarter Increased

According to the latest Economic Resarch Service (ERS) reports, U.S. broiler meat production was up over 5 percent in the first quarter of 2004 and the revised estimate for the second quarter is now 8.525 billion pounds. This is an increase of 10 million pounds from last month and 3 percent higher than in the same period last year. This adjustment pushes the estimate for 2004 to 33.93 billion pounds, an increase of 3.6 percent from 2003.

Broiler meat production in May was down less than 1 percent from a year earlier. That decline was the result of a 1.7 percent decrease in the number of birds being slaughtered. However, the decrease in the number of birds slaughtered was partially offset by a 1-percent increase in the average liveweight of birds going to slaughter. The decrease in the number of birds going to

USDA Reports continued from page 6

slaughter can be attributed to the fact that May 2004 had one less working day than in May 2003. This will be reversed for June, with June 2004 having one additional working day than June 2003. Preliminary data point toward a significant increase in the amount of broiler meat produced in June due to a higher number of birds being slaughtered combined with a 1-to 2-percent increase in weight.

Even with second quarter production now estimated to be 3 percent higher than last year, wholesale prices for most broiler products continued to be well above their year earlier levels. Over the first 6 months of 2004, prices for boneless / skinless breast meat averaged nearly $2.06 per pound, up 38 percent from the same period in 2003. Prices for whole birds also increased, with the 12-City composite price averaging 27 percent higher than in the first half of 2003. Leg quarter prices, which more greatly reflect strength in export markets, also rose, even though exports are down. Over the first 6 months of 2004, leg quarter prices averaged 35.1 cents per pound, 61 percent higher than in 2003, but prices in June were about even with May and are expected to decline in July. With broiler production now forecast to be 3.3 percent higher in the third quarter than last year, price increases for most products are expected to slow down. However, prices, for export sensitive parts, like leg quarters, may strengthen if exports resume to major markets like China.

Broiler exports in May were 345 million pounds, down 11 from the previous year and considerably lower than average shipments over the last several years. Over the first 5 months of 2004, broiler shipments were down 11 percent from the same period in 2003. Even though the quantity of broiler exports was lower, it was offset by higher prices. The total value of broiler exports over the first 5 months of 2004 is $640 million, up 23 percent from the previous year. Most of the decline in broiler exports through May has come from lower shipments to Russia, and Hong Kong / China which accounted for 42 percent of all broiler exports in 2003 and through May were down 7 and 71 percent, respectively.

Turkey Production Falls in May

Domestic turkey production totaled 448.9 million pounds in May, down 6.8 percent from last year. Turkey production has fallen in 6 of the last 7 months and so far in 2004 is down 5.8 percent from 2003. With hatchery numbers continuing to point to lower production in the future, the estimate for second quarter 2004 production was reduced to 1.36 billion pounds, down about 80 million pounds from a year the second quarter in 2003.

The declines in turkey production have begun to raise prices for a number of turkey products. Prices for whole birds have been strengthening over the last several months and averaged 66.6 cents in the second quarter, up 6 cents (almost 10 percent) from last year. Prices for other products have also risen and with continued lower production, prices are expected to continue to strengthen in the second half of the year.

Turkey exports totaled 34 million pounds in May, down 15 percent from the previous year. Over the first 5 months of 2004, turkey exports have been 141 million pounds, down 20 from the same period in 2003. As with broilers most of the decline has come from lower shipments to Hong Kong / China and Russia. Also like broiler exports, higher prices have more than offset the lower volume. Through May, the value of turkey exports totaled $23 million, up 17 percent from the previous year.

Meetings, Seminars and Conventions

2004 August

August 25-27: *XVII Central American Poultry Congress,* San Pedro Sula, Honduras. See www.anavih.org for details. Contact: Email: anavih@honduras.quik.com
August 31-September 2: *agriChina,* Shanghai New International Expo Center, (SNIEC), Shanghai, P.R. China. Contact: K-M Luth, DLG-Agriservice GmbH, Eschborner-Landstrasse 122, 60489 Frankfurt-am-Main, Germany.
Ph: +49 69 24788 257. Fax: +49 69 24788 113; www.agritechnica.de

2004 September

September 7-9, *VIV China 2004,* Shanghai Everbright Convention and Exhibition Center, Shanghai, P.R. China. Contact: VNU Exhibitions Europe BV, PO Box 8800, 3503 RV Utrecht, The Netherlands, Tel; +31 30 295 2772, Fax: +31 30 295 2809, Email: viv.china@vnuexhibitions.com
September 8: *Delmarva Breeder, hatchery and Grow-out Conference,* Delmarva convention Center, Delmar, Maryland. This is a University of Delaware meeting and not a DPI meeting. Contact: Bud Malone, University of Delaware. Phone: 302-856-7303 or email: malone@udel.edu
September 15-16: *Poultry Production and Health Seminar,* Memphis Marriott Downtown, Memphis, Tennessee USA. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, Georgia 30084-7303 USA, Tel: +1 770 493 9401; Fax+1 770 493 9257, Website: www.poultryegg.org
September 23-24: *California Poultry Federation Annual Meeting and Conference,* The Lodge, Sonoma, California USA. Contact: California Poultry Federation, 3117 A McHenry Avenue, Modesto, California 95352 USA, Phone: +1 209 576 6355, Email: CalifPoultry@cs.com
September 24-26: *Mississippi Poultry Association Annual Convention,* Beau Rivage, Biloxi, Mississippi USA. Contact: Natalie M. Tillman, Mississippi Poultry Association, Inc., Phone: +1 601 355 0248, Fax: +1 601 353 3840, Email" mpaoffice@bellsouth.net
September 27-October 1: *International Short Course in Modern Poultry Production,* University of Arkansas. Contact: Frank Jones; Phone: 479-575-5443 or email: ftjones@uark.edu

2004 October

October 6-8: *National Meeting on Poultry Health & Processing,* Clarion Resort Fontainbleau Hotel, Ocean City, Maryland. Contact: Karen Adams, Phone: 302-856-9037 or email: adams@dpi
October 6-9: *43rd Fieravicola,* Forli, Italy. Contact: Fiera di Forli, Via Punta di Ferro, 47100 Forli, Italy. Tel: +39 9543 793511; Fax: +39 0543 724488; Email: info@fieravicola.com; Website: ww.fieravicola.com

October 7-8: *Poultry Protein & Fat Seminar,* Doubletree Hotel, Nashville, Tennessee USA. Contact: U.S. Poultry & Egg Association, 1530 Cooledge Road, Tucker, Georgia 30084-7303 USA, Phone: +1 770 493 9401, Fax: +1 770 403 9457, Website: www.poultryegg.org

2004 November

November 8: *Chick Quality 2004,* The Queens Hotel, Hanover, Germany. Contact: Alison Burdass, Conference Organiser, Positive Action Publications LTD, P.O. Box 4, Driffield, East Yorkshire, YO25 9DJ. Phone: +44 1377 241724; Fax: +44 1377 253640; Email: ab@positiveaction.co.uk; Website: www.positiveaction.co.uk
November 9-12: *EuroTier 2004,* 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: eurotiet@DLG-grankfurt.de
November 23-26: *EXPOAVIGA International Poultry & Livestock Technology Exhibition,* Montjudc Exhibition Center, Barcelona, Spain. Contact: Expoaviga, Av. Reina Ma Cristina, s/n, 08004 Barcelona, Spain. Phone: +34 902 23 3200; Fax: +34 93 233 2355; Email: expoaviga@firabcn.es; Website: www.expoaviga.com

2005 January

January 26-28: *2005 International Poultry Exposition,* Georgia World Congress Center, Atlanta, GA. Contact: US Poultry & Egg Assn., 1530 Cooledge Rd., Tucker, GA 30084; Phone: 770-493-9401; Fax: 770-493-9257; www.poultryegg.org

2005 February

February 6-8: *National Turkey Federation Convention,* Long Beach, California USA. Contact: National Turkey Federation, 1225 New York Avenue, NW, Suite 400, Washington, DC 20005 USA, Phone: +1 202 898 0100, Fax: +1 202 898 0203, Website: www.eatturkey.com
February 20-25: *1st Nigerian International Poultry Summit (NIPS),* Ota, Ogun State, Nigeria. Contact: 1st NIPS, c/o Obasanjo Farms, Ota, Owode, Idiroko Road, Ote Ogun State, Nigeria, West Africa. Phone: +234 803 405 3035; Email: first_nips@yahoo.com Website: www.nipsng.com

2005 March

March 9-10: *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, NE 68583-0908. Phone: 402-472-2051

March 15-17: *Midwest Poultry Federation Convention,* St. Paul, Minnesota USA. Contact: Lara Durben, Phone: +1 763 682 2171; Email: lara@midwestpoultry.com
March 16-18: *VIV Asia,* BITEC (Bangkok International Trade & Exhibition Centre), Bangkok, Thailand. Contact: Organisation: VNU Exhibitions Europe BV, PO Box 8800, 3503 RV Utrecht, The Netherlands. Phone: +31 30 295 2772; Fax: +31 30 295 2809; Email: viv.asia@vnuexhibitions.com; Website: www.viv.net. Visitors: NCC Management & Development Co. Ltd. 60 New Rachadapisek Road, Klongtoey, Bangkok 10110 Thailand. Phone: +66 2 229 3000; Fax: +66 2 229 3191; Email: viv@gsncc.co.th; Website: www.qsncc.co.th

2005 April

April 25-27: *54th Western Poultry Disease Conference,* The Fairmont Hotel Vancouver, Vancouver, BC, Canada. Contact: Dr. R.P. Chin. Email: rpchin@ucdavis.edu

Meetings, Seminars and Conventions

2005 May

May 23-26: ***XVII European Symposium on the Quality of Poultry Meat and the XI European Symposium on the Quality of Eggs and Egg Products,*** Golden Tulip Parkhotel Doorwerth, Doorwerth, The Netherlands. Contact: Dorien Kleverwal, Symposium Secretariat, Wolterinkhofstraat 39, 7437 AX Bathmen, The Netherlands. Phone: +31 570 541948; Fax: +31 570541948 or +31 55 506 4858; Email: info@eggmeat2005.nl; Website: www.eggmeat2005.nl

2005 June

June 3-4: ***Georgia Veterinary Medical Association Annual Convention,*** Sandestin Resort, Florida. Contact: Beth Monte, GVMA. Phone: 678-309-9800; Email: gvma@gvma.net; Website: www.GVMA.net

June 22-24: ***Georgia Egg Association's 44th Annual Meeting,*** St. Simons Island, GA. Contact: Robert Howell, Executive Director, Georgia Egg Association, 16 Forrest Parkway, Forest Park, GA 30297. Phone: 404-363-7661; Fax: 404-363-7664; Email: goodeggs@bellsouth.net

2005 July

July 16-20: ***AVMA/AAAP Meeting,*** Minneapolis, MN. Contact: AVMA (800) 248-2862, Ext. 268, or www.avma.org

July 16-20: ***94th Annual Meeting of the Poultry Science Association,*** Auburn University, Auburn , Alabama. Contact: James W. Kessler, Executive Director, Poultry Science Association, 1111 North Dunlap Avenue, Savoy, IL 61874. Phone: 909-677-0069; Fax: 909-677-2420. Email: jamesk@assochq.org

2005 August

August 22-26: ***14th World Veterinary Poultry Congress & Exhibition,*** Istanbul, Turkey. Contact: Congress organiser: IT Consortium, Mete Cad. 16/11, 34437 Taksim, Istanbul, Turkey. Phone: +90 212 244 71 71; Fax: +90 212 244 71 81; Email: info@wvpc2005.org. Website: www.wvpc2005.org. Scientific matters: Ankara University Veterinary Faculty, Department of Animal Nutrition, 06110 Ankara, Turkey. Phone: +90 312 517 25 65; Fax: +90 312 517 25 65; Email: akan@veteinary.ankara.edu.tr; Website: www.veterinertavukculuk.org

2005 September

September 24-29: ***15th European Symposium on Poultry Nutrition,*** Balatonfüred, Hungary. Contact: Dr K Dublecz, University of Veszprem, Georgikon Faculty of Agriculture, Hungary. Tel: +36 83 312 330; Fax: +36 83 315; Email: dublecz@georgikon.hu, Website: growcare.katki.hu / wpsa2005

2005 November

November 1-4: ***VIV Europe 2005,*** Jaarbeurs, Utrecht, The Netherlands. Contact: VNU Exhibitions Europe BV, PO Box 880. 3503 RV Utrecht, The Netherlands, Phone: +31 30 295 2772; Fax: +31 3 295 2809; Email: viv.europe@vnuexhibitions.com, Website: www.viv.net

2006 January

January 25-27: ***2006 International Poultry Exposition,*** Georgia World Congress Center, Atlanta, Georgia USA, Contact: US Poultry & Egg Assn., 1530 Cooledge Road, Tucker, Georgia 30084 USA, Phone: +1 770 403 0401; Fax: +1 770 403 9257, Website: www.poultryegg.com

2006 September

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

2007 January

Jan. 31-Feb. 2: ***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

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

Broiler Performance Data (Region) Live Production Cost					
	SW	Midwest	Southeast	Mid-Atlantic	S-Central
Feed cost/ton w/o color ($)	190.72	187.57	193.72	194.87	193.43
Feed cost/lb meat (¢)	18.36	16.72	17.91	19.21	18.02
Days to 4.6 lbs	44	40	43	42	44
Chick cost/lb (¢)	3.86	4.43	4.30	3.64	4.16
Vac-Med cost/lb (¢)	0.09	0.07	0.07	0.12	0.08
WB & 1/2 parts condemn. cost/lb	0.20	0.20	0.13	0.20	0.20
% mortality	4.60	6.16	3.74	4.75	4.51
Sq. Ft. @ placement	0.85	0.76	0.80	0.87	0.80
Lbs./Sq. Ft.	6.74	6.76	6.60	7.48	6.75
Down time (days)	11	9	12	11	11

Data for week ending June 26, 2004

Broiler Performance Data (Company)
Live Production Cost

	Average Co.
Feed cost/ton w/o color ($)	192.56
Feed cost/lb meat (¢)	17.94
Days to 4.6 lbs	43
Chick cost/lb (¢)	4.19
Vac-Med cost/lb (¢)	0.07
WB & 1/2 parts condemn. cost/lb	0.18
% mortality	4.23
Sq. Ft. @ placement	0.81
Lbs./Sq. Ft.	6.72
Down time (days)	14

Data for week ending June 26, 2004

Broiler Whole Bird Condemnation (Region)

	SW	Mid-West	S. East	Mid-Atlantic	S. Central
% Septox	0.194	0.254	0.119	0.224	0.181
% Airsac	0.078	0.046	0.041	0.101	0.082
% I.P.	0.040	0.006	0.014	0.016	0.018
% Leukosis	0.001	0.000	0.001	0.048	0.002
% Bruise	0.007	0.001	0.003	0.003	0.004
% Other	0.008	0.006	0.009	0.006	0.007
% Total	0.328	0.314	0.186	0.398	0.295
% 1/2 parts condemnations	0.345	0.629	0.301	0.296	0.378

Data for week ending June 26, 2004

Broiler Whole Bird Condemnation (Company)

	Average Co.
% Septox	0.182
% Airsac	0.067
% I.P.	0.022
% Leukosis	0.004
% Bruise	0.003
% Other	0.007
% Total	0.286
% 1/2 parts condemnations	0.369

Data for week ending June 26, 2004