www.WATTpoultry.com JANUARY 2009 volume 114 number 1

Egg Industry
WATT
News for the Egg Industry Worldwide

Justification for administering feed additives

By Dr. Simon Shane, Editor

Nutritionists and poultry health professionals are constantly faced with a decision as to whether to treat flocks by adding antibiotics or other approved compounds to hen diets in the event of a decline in production.

The Food and Drug Administration (FDA) has the legal authority to approve the use of all feed additives based on efficacy and safety criteria. Approved additives either alone or in combination are listed in reference texts and specific details on addition rates, the Material Safety Data Sheets and statutory withdrawal periods are provided by manufacturers. Statutory label instructions must be followed and a review of suppliers' supplementary literature is strongly advised.

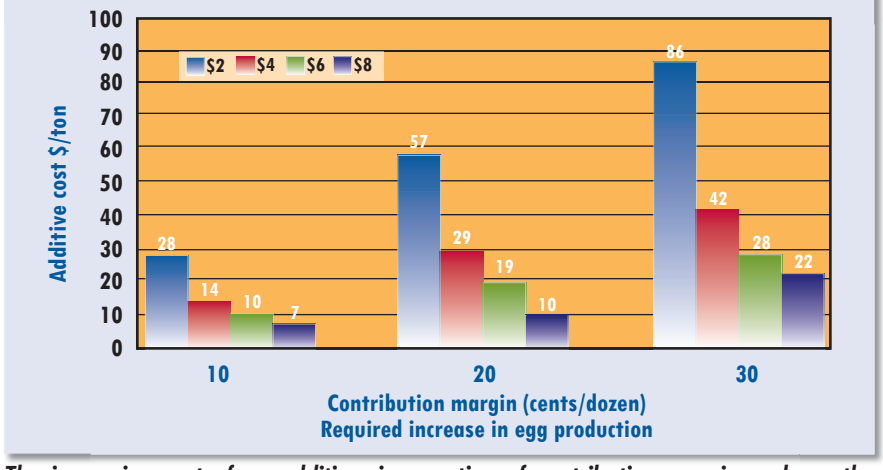
Decision to medicate

The administration of an approved compound should be in accordance with the FDA Principals of Prudent Drug Use for Veterinarians. The decision to medicate and the selection of the compound should be based on a professional field diagnosis taking into account the clinical and post mortem examination, and then subsequently confirmed by laboratory analysis of tissues. Prescription presumes a formal client-professional (or company-employee) relationship with a knowledge of flocks and the circumstances relating to the case.

Flocks medicated according to prescription by a veterinarian should be under the direct control of the health professional. The sensitivity of pathogens should be determined to ensure that administration of an antibiotic is appropriate and would be expected to result in a clinical response.

Drug classes not commonly used in human therapy should be selected to treat flocks. Due attention should be paid to the rules relating to extra-label drug use. Deviation from the Prudent Principals, involving frequent and inappropriate medication will potentially result in the development of drug resistance which can reduce the efficacy of subsequent treatment with the risk of transmission of drug-resistant pathogens to the human population.

FIGURE 1: BENEFIT COST RATIO FROM MEDICATION



The increasing cost of an additive, irrespective of contribution margin, reduces the benefit to cost ratio.

Cost versus return

The financial implications of medication are frequently ignored in the desire to "do something." A series of calculations were performed to determine the benefit to cost

Unlimited INNOVATION

No matter the age, ROVIMIX® HY-D® Makes Hens Stronger

Whether a pullet or a mature hen, peak lay performance requires a well developed skeletal frame built with only the strongest bones. Research indicates that bones with the best strength come from diets supplemented with ROVIMIX HY-D.

Science suggests that ROVIMIX HY-D provides birds with all the 25-hydroxyvitamin D_3 they need to develop and maintain bones that can withstand the stresses of egg production. In young pullets, stronger bones are necessary for optimal lay persistence which can translate into more eggs. As the hen ages, ROVIMIX HY-D will help promote better egg shell quality.

To learn more about how ROVIMIX HY-D can strengthen your flock, call your DSM Nutritional Products Account Manager or visit our website at **www.nutraaccess.com.**

Rovimix® Hy·D®
Building a better bird.

Unlimited. DSM

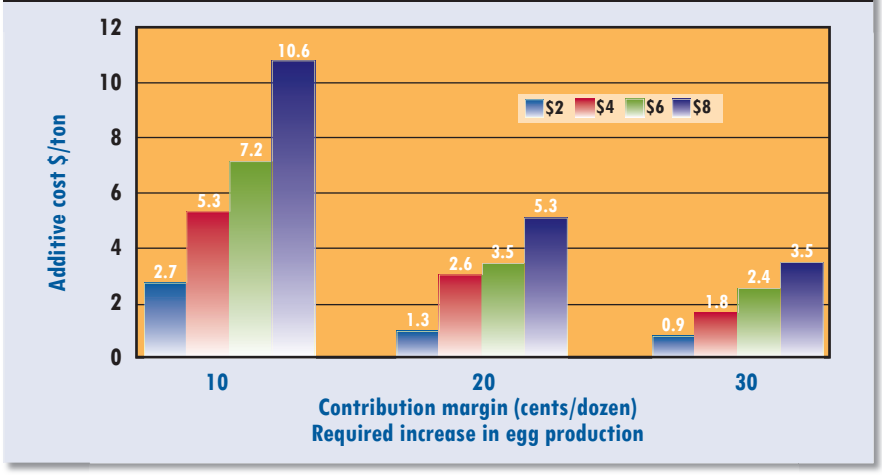
ratios associated with medication of flocks using approved compound in accordance with label instructions. For the purpose of the exercise, four additives costs were selected ranging from $2 to $8 per ton.

Since the return from administration of an antibiotic is best measured by an improvement in production, three levels of contribution margin were selected ranging from 10 cents per dozen to 30 cents per dozen. The contribution margin represents the difference between realization value in cents per dozen and the cost of production including all fixed and variable costs of operation.

The benefit to cost ratios for the three levels of treatment were determined by calculating the margin contribution from one dozen eggs at a selected contribution margin and dividing this by the incremental cost of the feed additive to produce one dozen eggs. For the calculation, it was assumed that hens would consume feed at the rate of 22 pounds per 100 hens per day and unaffected flocks would maintain an average production rate of 80% on a hen-day basis.

It can be seen from Figure 1 that increasing the cost of an additive, irrespective of contribution margin, reduces the benefit to cost ratio. For example, an additive costing $4 per ton would generate a 29:1 return with a margin of 20 cents. Obviously the benefit to cost ratio increases in proportion to the margin which in the short term associated with a disease outbreak would be attributable to selling price. The conclusion from this series of calculations is that the more expensive the additive the greater the selling price of eggs needs to be to cover cost.

FIGURE 2: EGG PRODUCTION REQUIRED TO OFFSET MEDICATION COST



Improvement to offset cost

A second series of calculations was performed to determine the percentage improvement in production required to offset the cost of medication. Again, four additives ranging in price from $2 to $8 per ton were considered at contribution margins of 10, 20 and 30 cents per dozen.

Figure 2 shows that a $4 per ton additive with a margin of 20 cents per dozen will require an improvement of 2.6% in production over non-treated flocks to cover the cost of medication, assuming a totally effective therapeutic response. It is obvious that as the cost of an additive increases, a higher differential in rate of production is required to cover the cost of medication.

At a margin of 20 cents per dozen, an

TABLE 1. FEED ADDITIVE COMPOUNDS APPROVED BY THE U.S. FDA FOR FLOCKS PRODUCING TABLE EGGS

COMPOUND	DOSE LEVEL IN FEED	INDICATION
Cryomazine	5ppm	Feed through fly larvacide
Tylosin	20-50ppm	Suppression of mycoplasmosis and secondary bacterial infection
Bacitracin	4-25ppm (first 7 months of production)	Improve feed efficiciency and suppress Gram + intestinal flora.
Amprolium	125ppm 250ppm (restricted to 2 weeks duration)	coccidiosis prevention coccidiosis therapy

Source: 2008 Feed Additives Compendium.

Compounds currently approved for flocks in the United States.

Egg Industry

published monthly by WATT
303 N Main St Ste 500, Rockford, Illinois 61101-1018 USA
Tel: (815) 966-5574, Fax: (815) 968-0941, http://www.wattpoultry.com

SUBSCRIPTIONS:
Subscription print edition prices: USA $84.00/yr, Canada $102.00/yr, Outside USA & Canada via Airmail $144.00/yr; $14/copy unless marked. Digital edition sent by e-mail: $36.00/yr. Prices in US Dollars. Business or occupation information must accompany each subscription order.

CONTENT DIRECTOR — POULTRY
Gary Thornton: gthornton@wattnet.net
PUBLISHER
Greg Watt: gwatt@wattnet.net
EDITOR
Simon M Shane: sshane@nc.rr.com
EDITORIAL CONSULTANT
Ed Clark: eclark@wattnet.net
SENIOR CONTENT EDITOR
Sue Roberts: sroberts@wattnet.net
MANAGING ART DIRECTOR
Tess Stukenberg: tstukenberg@wattnet.net

TO ADVERTISE CONTACT: US/CANADA
Pam Ballard: pballard@wattnet.net
Sue Snyder: ssnyder@wattnet.net
Denise Slager: dslager@wattnet.net
TO ADVERTISE CONTACT: SOUTHEAST ASIA
Dingding Li: dingdingli@vip.163.com

TO ADVERTISE CONTACT: INTERNATIONAL
Michael van den Dries: driesmvd@xs4all.nl
Bram Westers: bwesters@xs4all.nl
Frans Willem van Beeman: beemenfw@xs4all.nl
Tineke van Spanje: spanje@xs4all.nl

CHANGE OF ADDRESS:
Please report change of address to EGG INDUSTRY, WATT, 303 N Main St Ste 500, Rockford, Illinois 61101-1018 USA, Fax: (815) 968-0513, E-mail: jwessel@wattnet.net. Give BOTH old and new address.

additive costing $8 per ton would require a 5.3% increase in egg production over a non-treated flock covering the duration of medication. It is also evident that as margins decline, the cost of an additive becomes more important in terms of achieving a return. At a margin of 10 cents per dozen, an increase of almost 11% in hen-day production would be required to break even.

If a 20% drop in production is attributed directly to an infection which was susceptible to the antibiotic additive, the use of the compound costing $8 per ton would be justified but would only return a benefit to cost ratio of 2:1.

Under commercial conditions there are seldom opportunities to compare treated and untreated flocks since medication is carried out on an all-or-nothing basis.

The traditional approach results in overuse of additives for either "preventive" application or in an attempt to maximize production without ascertaining and confirming a diagnosis or establishing that the specific antibiotic or medication is effective.

The cost of medication should also be related to the duration of the withdrawal period or taking flocks out of production, as dictated by the FDA resulting in loss of revenue. The calculations provided presume an approved compound with no withdrawal period. The list of compounds currently approved for producing flocks is shown in Table 1.

Selection should be limited

From experience as a consulting veterinarian there are considerable differences in the approach to medication adopted by egg production integrators and individual farmers. There are many operations in the United States that have not used feed additive antibiotics in laying flocks for decades, relying on biosecurity, vaccination and good management practices especially with regard to ventilation to reduce the impact of disease.

The use of antibiotics in other than Europe, Canada and the United States is characterized by a reliance on administration of drugs in feed and water frequently unjustified and representing a potential hazard to consumers. Selection of antibiotic and non-antibiotic therapy should be limited by appropriate diagnostic procedures, compliance with statutory label requirements and an anticipation of a positive return from expenditure on medication. EI

Our industry's destiny is in our hands

We have had an opportunity to digest the implications of the passage of California Proposition 2 by the electorate in that state. There will be considerable consultation among industry leaders and within our associations this year.

It is hoped that a practical and persuasive strategy will be developed to counter misinformation and emotive propaganda against confined egg production which will inevitably lead to similar voter initiatives in other states, especially in New England.

The January 2009 edition of *Egg Industry* incorporates a number of invited articles and reports perpared by specialists which have as their common theme the enhancement of efficiency. Improving production conserves resources, preserves the environment and supports sustainability while providing a return on investment.

Simon Shane

We start 2009 with prospects of moderating ingredient prices and sustained margins. This situation is in large measure dependant on restraint in expansion to maintain equilibrium between supply and demand. The destiny of the industry is in our hands.

January marks the assumption of both power and responsibility by a new administration. We wish our president, his Cabinet and advisors, wisdom, judgment and skill in confronting the multitude of economic, social and international strategic challenges. The prosperity of our industry is integral to the resolution of financial restraints and factors responsible for the current recession.

The International Poultry Expo is an opportunity to acquire new knowledge, renew friendships and explore business opportunities. WATT has always supported this important annual event and we look forward to meeting with our readers and exchanging ideas and fellowship.

See y'all in Atlanta,

Simon

sshane@nc.rr.com

Flock vaccination reduces risk of *Salmonella enteritidis* infection

By Dr. Ivan R. Alvarado, DVM, MS, ACPV
Lohmann Animal Health International

Salmonella enterica serovar enteritidis (SE) emerged in the United States during the late 1980s and is considered as the main serotype associated with contamination of table eggs.

The probability of egg-borne infection in humans can be prevented by effective implementation of a comprehensive Egg Quality Assurance Program (EQAP). Surveys conducted by the U.S. Department of Agriculture (USDA)-National Animal Health Monitoring System (NAHMS) have demonstrated the presence of SE in the environment of laying hens with a special concentration in high-rise units in multi-aged, in-line operations.

Dr. Ivan R. Alvarado

EQAPs involve a coordinated approach to suppress SE infection. The chain of multiplication from elite stock to commercial pullets is regularly monitored to ensure freedom from vertically transmitted SE infection. Egg operations functioning in accordance with an EQAP are required to implement biosecurity procedures to limit the possibility of introduction of SE infection, requiring an active rodent control program.

Vaccination represents an important component of a preventive program, with the selection of commercial vaccines and frequency of administration based on the history of the farm and the risk of exposure.

Currently, monitoring programs for SE vary in intensity. They range from comprehensive sequential assays performed during the life of the flock, as required in the state of Pennsylvania and by a producer of nationally branded eggs, to a single assay performed at the time of flock depletion, as designated by the United Egg Producers (UEP).

The most recent Food and Drug Administration (FDA) initiative to suppress salmonellosis in consumers proposes a comprehensive protocol for sampling flocks, essentially in compliance with the Pennsylvania EQAP, which prescribes procedures to establish the SE status in the event of detecting environmental contamination.

Epidemiology of SE infection

The organism can be vertically transmitted through the egg to successive generations. For this reason, the National Poultry Improvement Plan (NPIP) has introduced a certification program involving breeding flocks and hatcheries. As with all salmonella serotypes, SE is readily transmitted through direct contact with infected chickens by the oral-fecal route.

In exposed flocks, the intestinal tract becomes colonized with SE organisms, which are excreted in an inconsistent pattern when hens are subjected to environmental stress. Indirect infection can occur by transfer of contaminated equipment, footwear or egg packing material. In the context of multi-age, in-line operations, mice exposed to SE become infected and serve as reservoirs of infection capable of disseminating the infection among houses and to successive flocks.

Intestinal colonization with SE, as detected by environmental swabs, does not directly represent a hazard to consumers since contamination of the eggshell during oviposition should be effectively removed by current washing and disinfection practices. The possibility exists that internal contamination of the egg will occur by passive penetration of SE through the shell.

A potential public health problem arises when hens are subjected to stress or are immunosuppressed, resulting in extension of infection from the intestinal tract to the liver, spleen, ovary and oviduct. If the reproductive tract is colonized, a proportion of eggs which are laid may contain SE organisms, albeit at a low concentration, perhaps in the hundreds per egg.

Prolonged storage, especially when commercial table eggs are subjected to temperatures above 50 F, will result in proliferation of SE to levels sufficient to infect consumers.

Circumstances which contribute to systemic dissemination of SE from the intestinal tract include stress associated with the onset of egg production and

Generally, chicks which receive a live gene-deleted mutant ST vaccine at the hatchery or within a day of placement develop protection within hours against invasion by salmonella organisms.

maintaining high production extending from twenty to thirty-five weeks.

Molting represents the second period of concern. The transition from initiation of molting by starvation to restricting the energy content in the feed has reduced the risk of systemic infection. Despite this improvement, reduction in feed intake, change in the consistency of diets, alteration of the intestinal flora and physiological changes may predispose flocks to extension of infection from the intestinal tract to the reproductive system.

Under commercial conditions, it is impossible to absolutely prevent the introduction of infection by the indirect route. With acceptable biosecurity and management, the risks of introducing infection in a flock are low, as long as adequate operating procedures are implemented.

Cost of infection

Financial consequences of infection can be considerable, especially if contamination results in human infection and can be traced-back by public health authorities to the plant and farm of origin. For this reason, vaccination is as an essential protective measure.

Vaccination against SE

Live attenuated *Salmonella typhimurium* (ST) USDA-approved vaccines are commercially available. Live ST vaccines have been developed by deletion of specific genes [aroA, cya, crp], resulting in a defective organism devoid of pathogenic properties. Live attenuated vaccine strains have a reduced capacity for replication, although they have the ability to colonize the intestinal tract, competing with wild salmonella strains for attachment receptors on the enterocytes (cells lining the intestinal tract).

One commercial ST vaccine does not interfere with routine SE assays since the defective metabolism of the selected strain results in identification, if present, as Hafnia alvei. Attenuated, gene-deleted ST vaccine strains can be administered either in drinking water or by coarse spray.

Introducing the vaccine into the intestinal tract of chicks within the first 48 hours after hatch usually results in colonization of enterocytes, followed by stimulation of protective cell-mediated immunity.

This is especially important in pullets during the first 21 days after placement, when the chicks do not have a fully developed intestinal flora able to compete with wild-type salmonella strains present in the feed or the environment. Generally, chicks which receive a live gene-deleted mutant ST vaccine at the hatchery or within a day of placement develop protection within hours against salmonella organisms.

Administration of antibiotics concurrently with Marek's vaccine at one day of age in the hatchery may adversely affect vaccine colonization and protection. Accordingly, the administration of the ST vaccine can be delayed until the second day of placement, although it is stressed that spray vaccination at the hatchery is the most effective meth-

od of obtaining early colonization and protection of the intestinal tract.

Vaccination at one day of age has not been associated with any adverse effect on livability in chicks of normal quality when handling and transportation procedures prevent chilling.

Successive administration of the attenuated, gene-deleted ST vaccine results in circulating immunity, which will provide some reproductive tract protection in the event of extension of infection from the cecum and terminal ileum of the intestine into the vascular system.

Inactivated oil emulsion vaccines, which were the first line of defense when SE emerged in the late 1980's, should be part of a coordinated protection program. Inactivated vaccines containing various phage types of SE stimulate the production of immunoglobulin G [IgG] antibodies, which are transferred to the yolk and will inactivate SE organisms which may be incorporated into eggs produced by infected hens.

Since inactivated SE vaccines can be combined with other antigens, including infectious bronchitis and Newcastle disease, protection against all three infections can be enhanced, justifying the cost of handling and administration of an inactivated emulsion to hens.

The Bottom Line

✓Prevention of SE is a critical performance function involving biosecurity, compliance with NPIP requirements, vaccination and monitoring. Vaccination with live attenuated gene-deleted *S. typhimurium* products of acceptable titer can reduce the risks of intestinal colonization in the event of exposure and also lower the probability of vertical transmission of SE in eggs which may lead to human infections.

✓Combining attenuated gene-deleted *S. typhimurium* vaccines with an inactivated oil emulsion SE vaccine will provide a high level of protection. This approach is strongly recommended for farms with a previous history of SE infection. Both humoral and cell mediated immunity will be stimulated to reduce environmental contamination, dissemination, and potential vertical transmission of SE through eggs.

✓Maintaining a high level of biosecurity and implementing an effective monitoring program are complementary to vaccination and should be included in a comprehensive EQAP.

Vaccination programs

Attenuated gene-deleted ST vaccines can be administered in either drinking water or by coarse spray at the hatchery or during the first 36 hours after placement. Vaccination should be re-

peated during the 21- to 30-day period following the development of a mature intestinal flora and then again at 12 to 14 weeks-of-age before transfer. The three-dose program is recommended for all flocks where there is no previous history of SE on the laying farm to which flocks are to be transferred.

Additional protection

An alternative program, which provides a higher degree of protection, would involve the first two attenuated gene-deleted ST vaccines followed by the administration of an inactivated SE vaccine at 14 to 16 weeks-of-age, preferably at least two weeks before transfer. The live and inactivated program is considered essential for farms or complexes with a history of SE.

Extra-label administration of attenuated ST vaccines has been applied on farms with a history of SE infection. Vaccines are administered on the specific recommendation of a veterinarian, usually two weeks before molting.

Financial projections have demonstrated highly positive benefit to cost ratios attributable to flock vaccination.

Depending on future FDA requirements, which at the least will involve diversion of eggs from infected flocks to breaking and pasteurization, the cost of vaccination is offset ten-fold even if an infection occurs at the mid-cycle of only one of eight consecutive flocks.

Calculation of the attractive financial benefits of vaccination, as reported at a regional meeting, did not take into account the degradation of brand image or the substantial legal costs associated with a confirmed infection resulting in lawsuits following a confirmed traced back case. **EI**

Dr. Ivan Alvarado was awarded the Veterinary Medicine degree from the University of Tolima Columbia in 1992, the Master of Science and Doctorate degrees in Medical Microbiology from the University of Georgia in 2001 and 2004 respectively, and was admitted as a Diplomate to the American College of Poultry Veterinarians in 2005. He served as a production veterinarian in the layer and broiler industries. He was appointed Technical Service Veterinarian by Lohmann Animal Health International in 2006. Reach Dr. Alavarado at ialvarado@lahinternational.com.

Obtaining maximum performance from cage installations

By Tom Lippi BME, MSIE,
Chore-Time Egg Production Systems

Some farms still operate with a "traditional" maintenance strategy – responding to breakdowns as quickly as possible and getting the system operating again by any expedient method. This is a potentially costly and inefficient approach.

First, there will surely be subsequent breakdowns. Over a 20-year period for any given mechanical component, annual breakdowns can gradually increase by a factor of 10 without effective preventive measures. Second, equipment life is greatly reduced by repeated repairs. Third, the cost of each repair becomes progressively higher, especially when failure causes collateral damage to other parts.

Corrosion damage from cooling pad droplets.

Eternal vigilance

Breakdowns can be reduced by making sure the personnel working in the pullet and hen houses have the same priorities regarding operation as those responsible for the grading and packing machinery of the complex.

For instance, neglecting obvious problems such as rollers packed with feathers or working with obsolete drinkers will eventually cause items to fail or wear out prematurely. Expensive replacement of components can result from a shortened product life.

When moisture from a poorly maintained cooling pad, for example, is allowed to spray droplets on a metal surface rust eventually makes replacement necessary. Failure to keep metal feeders, egg belts and manure belts properly adjusted can lead to feed wastage, egg damage, and tearing of expensive manure belts.

Types of maintenance

There are several types of maintenance:

✔Predictive maintenance uses historical data to build a schedule of routine tasks intended to keep equipment at optimum performance. These might include lubrication of bearings, inspecting and adjusting egg belts and replacing water filters.

✔Preventative maintenance goes a step beyond predictive maintenance by replacing parts before they fail. Typical measures would include replacing fan belts or gas heater jets.

✔Corrective maintenance is the repair of a part that has already failed or is about to fail, such as replacing a motor or patching damaged feed trough.

✔Failure-finding maintenance involves a safety check to make sure a system will work when needed. Testing alarms, back-up electrical generators or running egg conveyors before collection are examples of this activity.

Incorrectly adjusted egg transfer areas can result in shell damage.

Housekeeping, a complement to maintenance, involves keeping systems free of harmful contaminants, debris and dirt.

Establish a formal program

To develop a formal program, generate a list of critical preventative maintenance measures. Begin by gathering the instruction manuals for the various parts of the system. Most manuals contain scheduled maintenance advisories.

Identify all maintenance and safety decals that appear on equipment such as lubrication and cleaning directions. Contact the equipment manufacturer to obtain their latest recommendations.

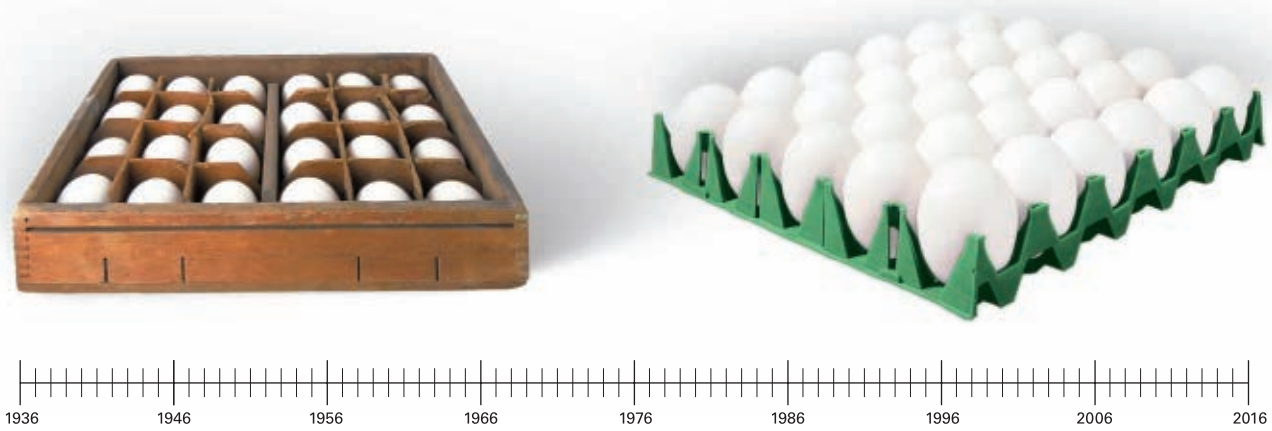
Finally, and most important, consult with supervisors and workers who are an excellent source of ideas based on their familiarity with operations. They know from experience which components tend to wear out, break, need adjusting or cleaning most often.

Develop a maintenance chart

Once all the information is gathered, prepare a chart using Figure 1 as a model. Tailor the chart to fit the facility, equipment and experience of personnel who will conduct the maintenance.

The various tasks and activities should be listed in the left-hand column. The

Feed conversion has never been more important than today.



That's why we started selecting for it generations ago.

Feed conversion is not a new concept at Hy-Line. Our never-ending research goal has been selecting layers that produce more eggs with higher egg mass on less feed. And since we started that research project in 1936, generations of efficient, high performance layers have been successfully adding to the profitability of egg producers around the world. And will be for generations to come.

***More eggs—less feed*; that's the Hy-Line advantage.**

Hy-Line®

Hy-Line International, West Des Moines, IA, U.S.A.
Telephone: 515.225.6030 • Fax: 515.225.6425 • www.hyline.com

Genetic Excellence®

frequency of the activity is then noted in one of the subsequent columns. The frequency of each job is specified as to daily, weekly, monthly or interflock intervals. The name or title of the person responsible for each activity should be indicated and a space should be provided for an initial and date indicating when the task is complete.

Under this mass of cobwebs is a motor that will overheat and fail.

The chart should be posted in a prominent place such as the farm office or breakroom. If employees are not proficient in English, post the chart in their language to ensure understanding.

Why housekeeping matters

Good housekeeping denotes an acceptable standard of management contributing to efficient operation and biosecurity. Keeping a layer cage system clean extends the life of equipment. Housekeeping issues contributing to early equipment failure include accumulation of dust, flies, manure, moisture and rodents.

Each of these factors impacts the effectiveness of various systems. For example, dirt and fly deposits can reduce light output of lamps by over 30%. Dirt around electrical components can lead to short circuits and fires.

The key to a good program of housekeeping is to develop a fixed work schedule. List all tasks, estimate the length of time needed for each activity, determine priority and decide on frequency for the various functions.

Since housekeeping is important to continued operation of equipment and flock health, this activity should not be relegated to a "do if time permits" status. Recognize the cost of housekeeping in the operational budget and include all labor, cleaning equipment and supplies.

Training is important

Establish a formal training program. Emphasize the importance of the program to each employee, and be sure that new employees receive adequate orientation.

Reinforce compliance with compliments for good work and constructive criticism where improvement is needed. Employees should be empowered to

take an active role in housekeeping and maintenance and to accept responsibility for the company standard. Some equipment manufacturers or their representatives are willing to participate in training sessions.

Keep good records

Documenting equipment problems in accessible failure and maintenance logs will shorten the time needed to correct a problem and prevent future breakdowns.

A factory service representative can help troubleshoot a breakdown more quickly if details are provided about what, when and where the problem occurred, along with any history of similar failures. Valuable time is lost if information is sketchy.

Failing to identify the primary cause of an isolated or recurring problem will likely lead to subsequent failures.

Maintenance logs that are signed and dated when activities are completed will ensure that critical preventative maintenance has been performed.

If a pattern of breakdowns emerges, documentation will help identify necessary changes to the program.

Audit to maintain program

No program can be sustained without a periodic review of effectiveness. An annual meeting should be held with key personnel to review the program and devise improvements.

A representative from an equipment manufacturer could be requested to make an inspection of the installation and to offer recommendations.

Use an audit to determine that the program has become an ingrained part of the company culture.

Benefits can be high

The payback ratio from an effective preventative maintenance program can be as high as 7:1. Early warning of potential problems allows for preemptive correction with minimal impact on production.

The costs for overtime needed to deal with weekend emergencies, expedited shipments of parts, and consequential damage to other components can often be avoided.

The useful life of equipment can be extended through good maintenance. Farm operations become more routine and predictable, allowing managers and workers to concentrate on optimizing production efficiency. **EI**

Five-point maintenance program for layer operations

A structured approach to maintenance would include:

1. Setting up a predictive/preventive maintenance program
2. Committing to good housekeeping
3. Training employees
4. Keeping good records
5. Conducting annual audits

A dozen significant industry statistics

The monthly egg statistics for the U.S. industry covering the period September-October 2008 were released by Don Bell, University of California, in mid-December. **Twelve significant findings are:**

1. Total pullet hatch for the year-to-date, was 5.4% higher than in the corresponding period in 2007, representing an additional 10 million pullets.

2. The 24-month previous hatch which is highly correlated with future egg prices showed a 3.8% increase in October with an accumulated hatch now amounting to 8.2 million more pullets compared to the corresponding period in 2007.

3. A total of 208 million pullets will have been placed in rearing houses by the end of 2008. This is approximately 10 million more than in 2007. Based on recent placements, it is estimated that the first three months of 2009 pullet transfers will increase by 3.8%.

4. The average number of hens in lay for 2008 to date has amounted to 280.1 million, a 1.5% decrease over the first 10 months of 2007.

5. Table egg production through October attained 63,800 million eggs, a minus 0.4% reduction from the corresponding period in 2007.

6. Through September 2008, an average of 24.6% of the flocks had been molted representing a decline of 2.9% over 2007.

7. Through October 2008, average monthly flock depletion averaged 5.97%, a 27% increase over the corresponding value for 2007.

8. Through October 2008, 5.75 million cases of eggs were consigned to breaking, a 2.8% increase over 2007.

9. The Urner-Barry (U-B) Mid-West, L-grade egg price averaged $1.32 per dozen for the first 10 months of 2008 compared to an average of $1.17 for calendar 2007. The ten-month comparison between 2007 and 2008 represented a 23% increase in the U-B price.

10. The 10-month average U-B breaker egg price attained 87.6 cents per dozen compared to 66.9 cents per dozen in 2007.

11. The 11-month average production cost in 2008 attained 65.8 cents, approximately 15% above 2007. Escalation was mainly attributed to an increase in feed ingredient costs which peaked mid-year corresponding to a July production cost of 73.1 cents which was 24.6% above the value in July 2007.

12. Average U.S. cost of production through November was estimated at 65.8 cents per dozen compared to a USDA all-grade wholesale egg price of 94.1 cents per dozen. Profit per hen through November 2008 was $5.65.

New management software

Chore-Time has developed C-Central Software as a complement to Chore-Tronics control systems. The professional management software is based on Windows and is Vista-compatible. Data for Chore-Tronics Control Systems can be displayed in tabular or graphic form or exported to spreadsheets. It can be used to analyze data on ventilation and environmental control.

Chore-time
www.choretimepoultry.com

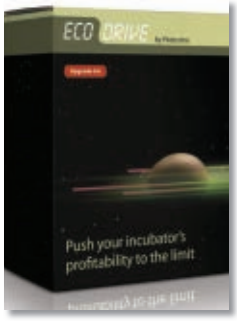
Tunnel doors

Proterra 'doors' (inlet baffles) from Agile Manufacturing Inc. are for tunnel-ventilated houses. The doors are constructed of extruded foam insulation sandwiched between plastic panels. The surfaces of the doors are finished in black to avoid light reflection and are designed to facilitate mixing of incoming air to produce even distribution at floor level.

Agile Manufacturing Inc.
www.agilemfg.com

Power savings for hatchers

Eco-Drive from Petersime reduces energy consumption of the pulsator motors by 50%, according to the company, without influencing the quality of the chicks. The frequency of the drive allows the motor to start-up slower, avoiding energy peaks and prolonging durability of mechanical parts. Eco-Drive is standard on the company's new AirStreamer setters and hatchers and can be retrofitted to existing AirStreamers.



Petersime NV, Belgium
www.petersime.com

WATT ONLINE ANIMAL NUTRITION & HEALTH FORUM

ANNOUNCING THE 1ST

WHAT IS AN "ONLINE FORUM"? A one-day educational event…on your computer…focused on the latest animal nutrition and health information for global poultry, swine and animal feed professionals. FREE! No flying, no hotels, no meals - 100% virtual, online and free to attend.

"THE ULTIMATE ONLINE EXPERIENCE PLATFORM FOR THE GLOBAL ANIMAL AGRIBUSINESS COMMUNITY TO INTERACT"

Greg Watt, President/CEO, WATT

WHY ATTEND? Education, learning, sharing with industry peers. See live panel and individual presentations on the latest animal nutrition and health information with question and answer sessions from top industry experts throughout the day. Thousands of attendees from around the world will be able to network with each other and access/download knowledge from a global forum of topics and speakers. Communicate via instant messaging, chat, e-mails or through exchange of electronic business cards with industry professionals.

WHO SHOULD ATTEND? Nutritionists, veterinarians, production/husbandry managers, technical consultants and manufacturers of animal health products, feed ingredients and feed additives.

WHEN? Wed. April 29, 2009 from 08.00 to 17.00 CST, 14.00 to 23.00 hrs GMT. The Forum will be archived and "on demand" for 90 days after the event to provide access for those who were not able to attend the "live" event.

For the latest information and to register for the 1st WATT Online Animal Nutrition & Health Forum visit:

- **WATTpoultry.com**
- **FeedIndustryNetwork.com**
- **Pig-International.com**

For more information about the Online Forum or to discuss sponsorship packages contact:

Jeff Miller
Director E-Strategy, WATT
jmiller@wattnet.net
+1.815.966.5582

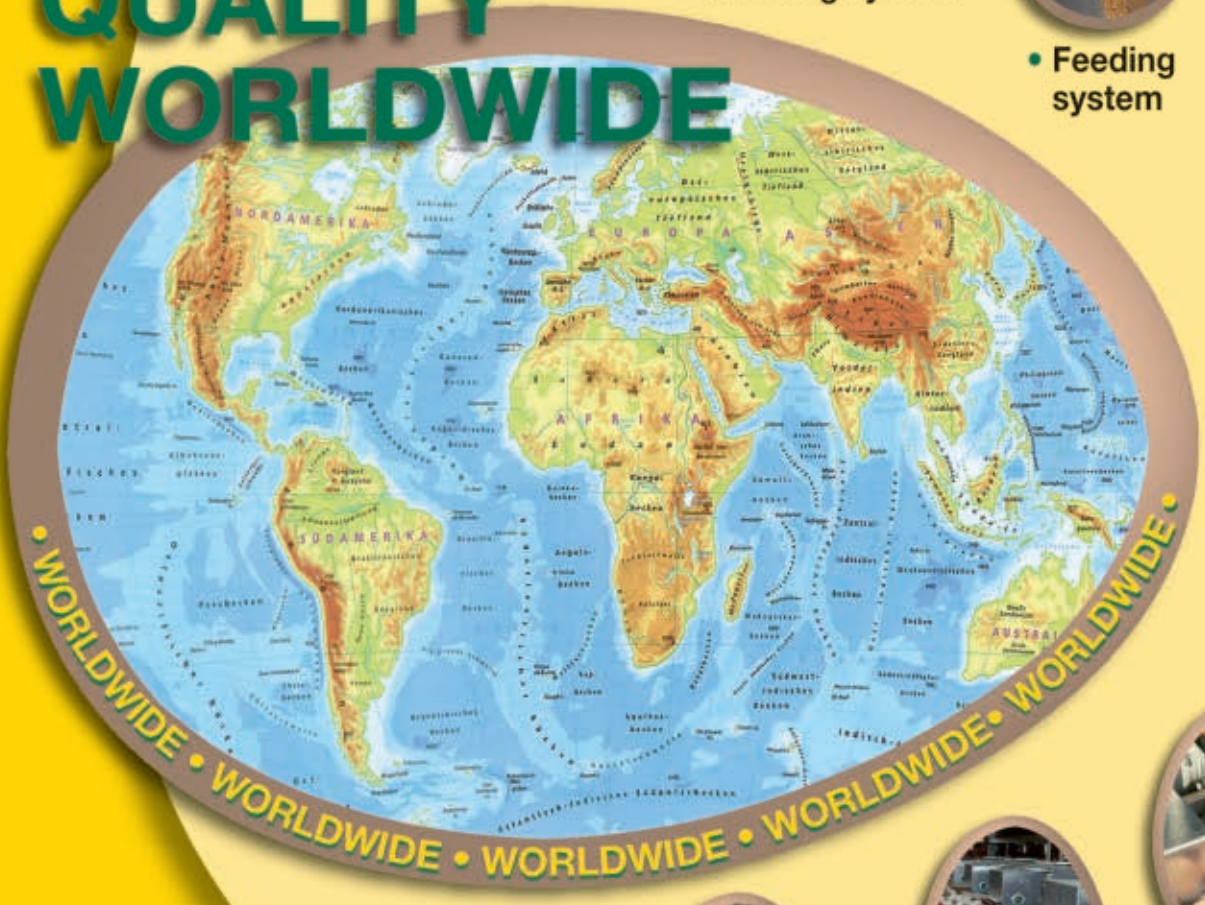
WATT
KNOWLEDGE | SOLUTIONS | SUCCESS
303 N. Main Street | Rockford, IL 61101 USA
Tel: +1.815.966.5400

MARKETPLACE

For more information on how to place your ad, contact:
Denise Slager
Tel: 815-966-5575 • Fax: 815-968-0941
E-mail: dslager@wattnet.net

Specht

QUALITY WORLDWIDE



• Drinking system

• Feeding system

• Group cage system

• Cage floor

• Egg belt

• Egg collecting system

• Manure drying system

ORIGINAL Specht® POULTRY EQUIPMENT

Poultry Equipment · Equipment Avicole

Ten Elsen GmbH & Co. KG
Dassendaler Weg 13 • D-47665 Sonsbeck (Germany)
Telefon +49 (0) 28 38 912-0 • Telefax +49 (0) 28 38 27 91
Ten_Elsen@t-online.de • www.specht-tenelsen.de

TeSo

Trusted Expertise

From our sales force and experienced veterinarians out in the field, to our CEO, and even the chairman of our board, the LAH team serving you has a wealth of real-world experience in nearly every aspect of the poultry industry. We truly are poultry people, with rich backgrounds including everything from hatchery manager to broiler and breeder technicians.

We've all walked in your shoes, which is why we are so focused on providing products and solutions that not only fit your individual operation's needs, but that address the ever-changing challenges to poultry health. Like you, we are avian professionals, and it's our job to arm you with the people, products and expertise that you can trust. We are your poultry health partner.

Imagine – expertise, reliability and strength, all under one umbrella of protection. AviPro from LAH. Your Avian Professionals.

In photos left to right are Lohmann Technical Veterinarians:
Dr. Ivan Alvarado, Dr. Mariano Salem with customers and Dr. Andy McRee with customer.

LOHMANN
ANIMAL HEALTH

The Avian Professionals

LOHMANN ANIMAL HEALTH
207.873.3989 ■ 800.655.1342 ■ 375 China Road ■ Winslow, ME 04901 ■ www.lahinternational.com