

# Egg Industry

News for the Egg Industry Worldwide

WATT

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David A. Roland, PhD

**B**reaking the cycle of excess eggs from Easter to Labor Day has proven extremely difficult. Molting is the most common approach to reduce egg supply. Because the window of molting is at least eight weeks, producers can delay or accelerate the initiation of molting and increase the normal quantity of hens in molt soon after Easter. Although this can quickly get additional eggs off the market, molting does not allow a reduction in overall total supply of eggs due to differences in timing among producers with a variety of molt programs.

If the window of opportunity for molting occurs during a period of low egg prices, losses may be reduced at the same time as egg supply declines. However, molting is much like a two-edged sword. If producers have to

## Deviating from low egg prices: Can the cycle be broken?

*From April to September, egg prices drop. As a result, producers are looking for ways to maintain their profits.*

molt during periods of high egg prices, they will forgo profits.

Molting may prolong periods of oversupply. For example, molted flocks typically peak at levels about 10% greater than their production at the time of molt. Since the period of oversupply may be longer than 10 weeks, when molted hens return to production, total output will be increased, resulting in an increased supply of eggs when producers still need to reduce supply.

The increased production can significantly offset some of the benefits of leaving houses empty. This potential negative effect of molting is often overlooked because of the anticipation of increasing profits when egg prices increase. As the persistency of lay increases in modern strains (production up to 90% at 60 weeks), the potential economic benefit of molting for individual flocks may need to be re-evaluated.

In the past, hens have typically peaked 10% higher than pre-molt levels which helped offset some of the eggs lost during molt. Therefore, total production would only be about 5% less than that for non-molted flocks. As production

persistency continues to improve, the increase in peak production after molt will be nearer to 1%. The greater difference in total number of eggs produced by molted hens compared to non-molted hens could significantly reduce the economic benefit of molting for individual flocks and increase the benefit of molting in supply management.

### Balancing the scales

The goal of small-scale producers with a high cost structure is to maintain demand at a level higher than their production capacity. Eggs are purchased to meet needs even in periods of reduced demand. During times when prices are low these producers try to time molting to reduce potential supply to the market while at the same time buying in eggs to help fill orders. In many instances they can generate an incremental profit through marketing purchased eggs at the same time as they may be losing on eggs they produce.

Small-scale producers may be more reluctant to leave houses empty than large producers because leaving even one house empty in ad-

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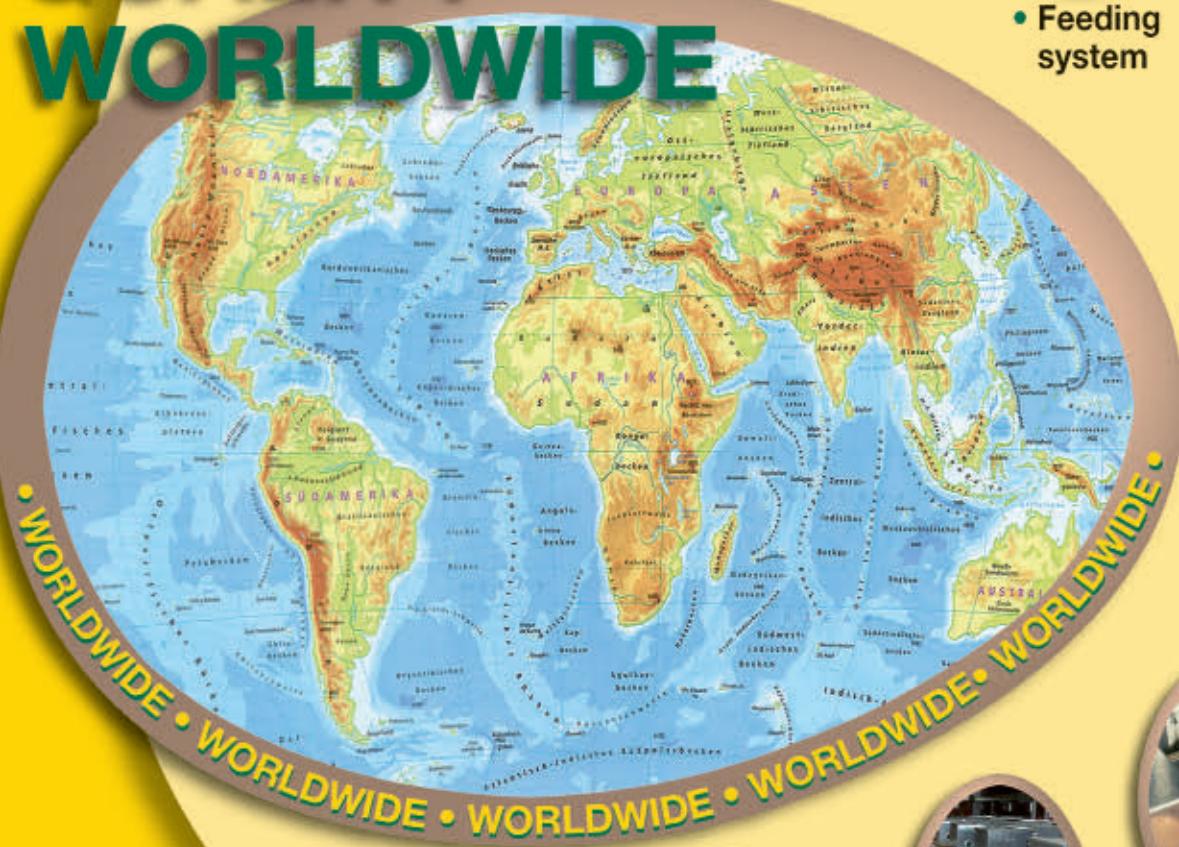
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## Deviating from low egg prices

dition to molting flocks early could leave them short of eggs even in a down market. Even though they may not obtain a selling price commensurate with variable production costs, the aggregate loss due to added fixed costs attributed to empty houses could be greater than the loss of keeping the hens in production.

It is much easier for large-scale producers to leave houses empty. Even for these operations timing of molting in relation to the market presents real challenges in scheduling and placement. Even when producers elect to deplete flocks early and leave houses empty for a longer period, the rate of flock reduction can be limited by logistic considerations especially with the trend to flocks of 250,000 hens. Failure to have pullets available to re-fill houses could result in producers missing some of the subsequent upswing in egg prices.

## Cost vs. demand

Although efforts to reduce egg supply contribute to supply management, changes in egg demand determine price. A small excess in egg supply can significantly decrease egg revenue for generics. During the 3 or 4 weeks following Easter of 2009, egg prices dropped about 60 cents/dozen, not from a sudden increase in hen numbers but because of a relatively larger seasonal drop in demand.

Although the largest recorded drop in egg prices, it should not have been a surprise given the economic situation. What was unusual was the price ratio of energy-to-protein (corn/soy in cents/lb.). Two years ago, who would have guessed that when egg prices dropped from their historic high levels, the energy-to-protein cost ratio would have been close to 0.4?

The reduced cost of crude oil lowered the demand and closely linked price of corn. The more the energy-to-protein cost ratio drops below 1.0, the greater the spread in feed price between two given protein levels. Instead of costing \$1 to \$2 to increase protein one unit with high prices for corn (high ratio) it can cost up to \$6 or more with a low ratio. The current higher spread in feed price along with low egg price is tending to shift dietary specifications required to optimize returns to a lower protein level.

Due to the current low energy-to-protein cost ratio, the industry is losing money not simply because of low egg prices and high feed costs but because of the influence of price spread on the correct nutrient level to feed.

Inappropriate formulation can have a significant adverse effect on supply management. Continuing to feed for optimal performance and not optimal return in a market characterized by oversupply is counterproductive.

## Applying varying ratios

Currently the cost ratio of corn-to-soy varies from below 0.4 to over 0.8 among producers. Even though the market price for corn and soy is closer to 0.4, some producers are still working down previously negotiated high-priced grain contracts. Other influencing factors are the cost of alternate ingredients and the number of phases and diets used in a program.

With the low energy-to-protein cost ratios, some of the more efficient producers could easily remove up to 3% or more of their eggs from the market reducing losses up to 1 cent/dozen. The saving in feed cost required to reduce production is greater than the aggregate loss in value represented by reduced performance and increased fixed costs. If all producers fed for optimal returns and not simply performance, especially during periods with low

energy-to-protein ratios, it would help control the supply of eggs which is an important determinant of profit.

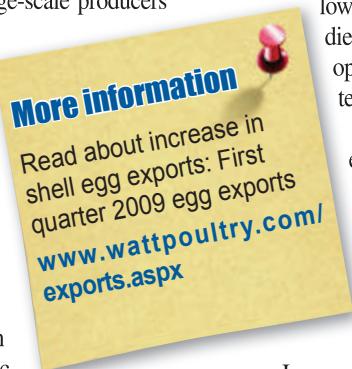
## Nutrition through manipulation

Even at normal energy-to-protein ratios or with relatively high priced corn in relation to soy, the cost of feeding diets containing a protein level required to reduce production by 1% to 3% would still be less than 2 cents/dozen and in many cases only 1 cent/dozen or less. By using nutrition to help control egg supply, hens are still available and ready to resume optimal production when egg prices return.

Using nutrition to optimize performance to a slightly lower level along with molting and leaving houses empty could change the length of time the industry experiences low egg prices. Manipulating or adjusting dietary formulations is simple and quick, and eliminates difficulties in placement and scheduling.

There is a wide range in the standard of production management and formulating capability among U.S. integrators and producers. Because hen performance can be affected by many factors, the influence of nutrition on output and quality are often misunderstood. Some hens managed incorrectly will not lay eggs on target regardless of nutrient level. However, every flock will respond to increasing or decreasing protein levels up to the requirement for optimal performance. Nothing is more important than control over supply. With only a little extra effort, most of the U.S. producers could easily use nutritional manipulation to optimize returns and indirectly assist in supply management. During periods of low energy to protein price ratios, producers can reduce market supply and minimize their losses. **E**

*Dr. David Roland is a Distinguished University Professor of Poultry Nutrition in the Department of Poultry Science at Auburn University. He has extensive experience in layer nutrition and the economics of production through academia and consulting. He can be contacted at [roland1@auburn.edu](mailto:roland1@auburn.edu).*



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# Preparing for hot weather

*High temperatures and humidity threaten to negatively impact the egg industry if precautions aren't taken.*

By Dr. Simon Shane

**T**he emergence of corn seedlings across the Midwest and the basketball and hockey playoffs remind us that it is time to prepare for the onset of hot weather which can adversely affect egg production and quality.

Items which should be considered include:

✓ Confirming that curtain release installations on open-sided houses operate correctly.

✓ Testing evaporative cooling pad systems and high pressure nozzle installations for correct function. Pads and nozzles should be cleaned and all piping, connectors, pumps and the electrical supply to thermostats and solenoids should be checked.

✓ Emergency generators should be run under load for at least 15 minutes at one or two week intervals. Adequate supplies of diesel should be held to allow operation in the event of a 48-hour outage following lighting strikes on transformers or other climatic events which interrupt power from a grid.

✓ In controlled environment houses, thermostats, fans, control modules and emergency alarms should be examined

for defects which could result in high mortality in the event of failure of the ventilation system.

## Adjust feed and water intake

Dietary formulations should be adjusted to compensate for decrease feed intake in both rearing pullets and hens. Special attention should be paid to the energy content of the diet including supplementation with ingredients with high energy density such as animal fat or by-product meals.

During hot weather:

✓ Critical amino acids including methionine and lysine should be evaluated on the basis of feed intake and egg mass.

✓ Mineral levels should be specified in relation to feed intake and production level. Nutrient specifications should be guided by breeders' recommendations.

✓ Half the calcium requirement should be in the form of coarse limestone which promotes absorption during the six to eight hours of darkness when mineral deposition in shells occurs at a high rate.

✓ Calcium and phosphorus levels should be balanced and supplementary

Vitamin D3 should be considered based on shell quality in older flocks.

✓ Increasing the frequency of operation of feeder systems will encourage feed intake. In the case of suboptimal consumption due to high temperatures during daylight hours, a "midnight feed" of approximately 30 minutes duration can be considered providing that there is at least 3 hours darkness on either side of the feed cycle.

## Monitor water intake

Water intake should be carefully monitored as hens require additional water for evaporative cooling which is the principal mode of heat loss when house temperatures exceed 80 F.

If water temperature in supply piping exceeds 60 F the lines should be flushed at frequent intervals to reduce temperature at the nipples to promote consumption.

Limited evidence shows that supplementing drinking water with electrolytes or adding vitamin C to diets has a positive benefit to cost ratio in the context of commercial U.S. production. Experimental data has been published supporting the use of these additives. **EI**

# EDITORIAL

WITH DR. SIMON SHANE

# Drop in egg price, production could spell trouble

The seasonal decline in egg price following Easter was unprecedented in magnitude. Although the U-B value has stabilized in the vicinity of break-even, there is cause for concern that in the prevailing economy any disturbance between supply and demand may lead to wide fluctuations in unit revenues. Restraint in expansion, molting and



Simon Shane

early depletion of flocks are all acceptable strategies when encountering periods of decreased consumption.

An article by Professor David Roland of Auburn University in this edition is timely as it highlights approaches to minimize losses through manipulation of egg output and adjusting nutritional specifications. Sacrificing performance through reducing feed cost is appropriate to the current situation. Careful evaluation of return taking into account fixed and variable costs of production with prevailing costs of energy and protein will be critical to optimizing return during the present downturn. The seasonality of demand coupled with expectations for a pro-

longed recovery of the economy suggests a more proactive approach in 2010 when we can expect a recurring decline in demand.

Other articles relate to statistical projections and events in our industry:

✓ reviews from the Alltech Symposium also in this issue, and

✓ "Egg prices down 31% compared to last year" from Don Bell on our Web site at [www.WATTpoultry.com/eggstats.aspx](http://www.WATTpoultry.com/eggstats.aspx).

Your continued support of *Egg Industry* and our advertisers is appreciated. Suggestions for topics to be reviewed and your comments are always welcome.

*Simon*

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# Innovation, invention and eggs:

## *An interview with James M. Nield*



**J**im Nield entered the egg industry in 1966 as a sales engineer with Diamond International. He progressed to sales manager and in 1975 was appointed president of the company. In 1983, along with David Keen, he purchased Diamond which was then



**Jim Nield**

subsequently sold to the Talon Group. He continued his association with Diamond, assisting with marketing, trade shows and engineering. When the company was sold to Moba in 2008 he established

Detroit Design Group, an engineering firm specializing in the development of egg processing systems and other industrial technology.

His achievements include the development of the first 120-case per hour grader in 1975 and the Diamond 8200 series in 1983. In 1990 he was instrumental in introducing in-line egg breaking. Nield received the first USDA approval on a multi-row egg breaker in 1994. He holds patents for cages, graders and breaker-separators. Jim has served as chairman of Allied Industry for the American Egg Board and United Egg Producers and has served as a member of the Exhibitor Committee for the International Poultry Exposition.

**Egg Industry:** You have started an engineering company, Detroit Design Group. What will your Group be doing?

**Jim Nield:** I decided to initiate a number of projects which would apply my expertise gained over 42 years. I was joined in this endeavor by six engineers who wanted the opportunity to be very creative. We are working on improving egg grading, inoculation of eggs for human vaccine production and have undertaken projects in robotics.

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**EI:** Who will be working with you in DDG?

**JN:** We have an outstanding group of mechanical, electrical and software engineers. It is exciting to have four generations of talent in one room. George Bliss who developed the first blood detector in the late 1940s, and then crack and dirt detectors, is as creative as ever even though he is approaching 90 years old. Our engineers range from the 20s right on up. The output from brainstorming sessions has been very productive and the passion and knowledge they have for the industry really moves the projects along very quickly.

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**EI:** What is your biggest surprise since you have returned full time to the industry?

**JN:** I'm amazed at how three separate engineering groups from three different disciplines can work so well together. Our teams communicate freely through video conferencing and frequent trips with great suggestions and mutual respect for each other's knowl-

edge and experience. I'm also pleasantly surprised to see how many of our potential customers are embracing the development of a new generation egg grader.

**EI: Who has influenced you in your career development?**

**JN:** In the early days George Page and George Bliss, who founded Page Detroit were extremely influential. Page Detroit eventually became Diamond Automation. Both mentors gave me great ideas and challenged me to succeed. Over the years I have enjoyed working with both our customers and the team at Diamond.

**EI: What innovations do you foresee in the future?**

**JN:** Equipment will incorporate designs which will enhance both efficiency and food safety. Maintenance costs will be reduced and the equipment will be easier to clean and

monitor under operating conditions. Working environments and the physical appearance of plants will continue to improve. Egg consumers will drive higher quality finished products. This will be especially important as the market continues to move from generic to specialty eggs which command a premium based on real and perceived attributes.

**EI: What other changes do you envision?**

**JN:** We will see improvements in egg packaging and especially in graphics in order to market products which are more attractive to consumers when viewed on the supermarket shelf. We will also use the carton to improved

traceability extending from the farm to consumer.

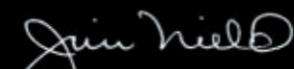
**EI: Do you have any other message to the industry based on your extensive experience?**

**JN:** I believe that U.S. farmers are the best in the world in terms of producing the most economic and the safest foods. It is our destiny to remain global food producers. To this end we should continually apply new technology and advanced methods of production through the entire chain extending from field to the market place. Mechanization will play an important role in harvesting and processing of grains, in live bird production, post harvest processing, and packaging of eggs and poultry meat. **EI**

Read more interviews with industry leaders:  
[www.wattpoultry.com/starkey.aspx](http://www.wattpoultry.com/starkey.aspx) & [www.wattpoultry.com/curtis.aspx](http://www.wattpoultry.com/curtis.aspx)

# Some things are worth waiting for...

...like the new family of Staalkat egg graders

  
Jim Nield

  
Craig England

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# Biofilm in watering systems

Dave Schreiber, Ziggity Systems Inc.



Breeders drink from a water supply laced with biofilm.



A look at biofilm under a microscope after having been stained.

The presence of biofilm in the watering system of flocks represents a potential disease risk that is frequently ignored by egg producers. Bacteria which are present in well water attach to suspended organic particles and become deposited on piping, creating a nutrient rich biofilm. This coating attracts additional bacteria and may rapidly become an active multispecies colony fre-

genic *E.coli* (APEC). Biofilm can also affect the integrity of nipple drinkers resulting in leakage. This, in turn, contributes to release of ammonia from the pits of high rise houses and contributes to the persistence and proliferation of flies and salmonella infection.

Producers commonly proportion chlorine in the form of sodium hypochlorite solution or chlorine gas into drinking systems to kill

should be introduced into water lines. The oxidation action of this compound dislodges accumulations of bacteria, preparing the system for flushing.

Hydrogen peroxide decomposes into water and oxygen and is therefore not an environmental hazard.

When used at recommended rates, commercial cleaning solutions will not affect the taste of the water or have any detrimental effect on flocks.

A regular schedule of weekly flushing at a pressure of 20-40psi will maintain the integrity of nipples and prevent the accumulation of biofilm.

Follow these flushing recommendations to minimize biofilm:

✓ Flush following administration of medication or vitamin supplements which contain carriers promoting deposition of a biofilm.

✓ Flush for one minute for every 100 feet of pipe length.

Water lines should be flushed weekly. **EI**

For further information on control of biofilm or management of water systems access the company website: [www.ziggity.com](http://www.ziggity.com)

quently incorporating disease causing organisms (pathogens).

Bacteria survive and multiply in the biofilm using nutrients in the water. Although closed watering systems are designed to promote the health of flocks, the presence of biofilm may contribute to enteritis and outbreaks of peritonitis caused by avian patho-

bacteria in water. Although this procedure will reduce the levels of suspended bacteria in water it won't dislodge biofilm in piping.

## Cleaning, flushing are required

To prevent accumulation of biofilm regular cleaning of piping followed by flushing is required. Hydrogen peroxide-based cleaners

# Nutrigenomics finds practical application

The recent 25th Alltech International Animal Health and Nutrition Symposium provided an opportunity to demonstrate the value of nutrigenomics, the branch of molecular biology which evaluates the effects

of nutrients on expression of genes, in the development of feeding strategies to enhance the performance of poultry flocks.

With this, scientists can compare alternative dietary formulations and investigate their effect on upregulating or suppressing genetic expression

to achieve a beneficial metabolic outcome.

With the technique, researchers:

- ✓ feed control and experimental diets to subjects;
- ✓ harvest tissue samples, usually comprising muscle or liver
- ✓ extract RNA for assay;
- ✓ label purified RNA with a fluorescent tag and apply to an Affymetrix GeneChip microarray.

Each of the chips contains probes, numbering over 1 million, that correspond to upwards of 20,000 genes.

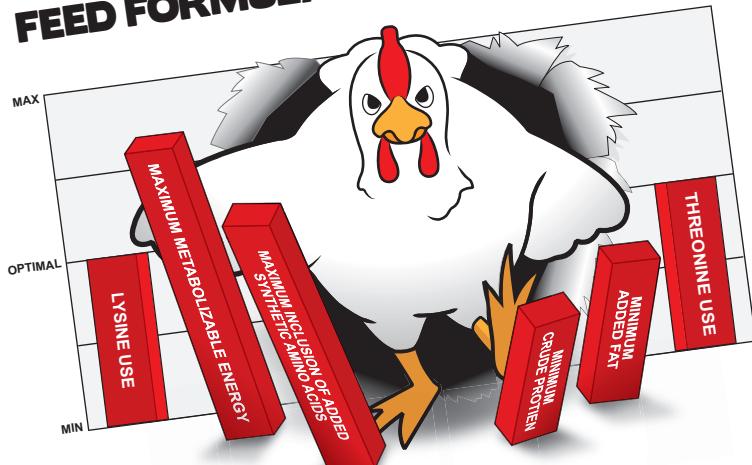
After allowing hybridization overnight, the chips are washed to remove non-hybridized RNA. using a special scanner, fluorescence is detected, the amount of which is proportional to the gene's activity.

Through investigation, microarray analysis was used to establish the effect of feeding selenomethionine on the genes associated with the syn-



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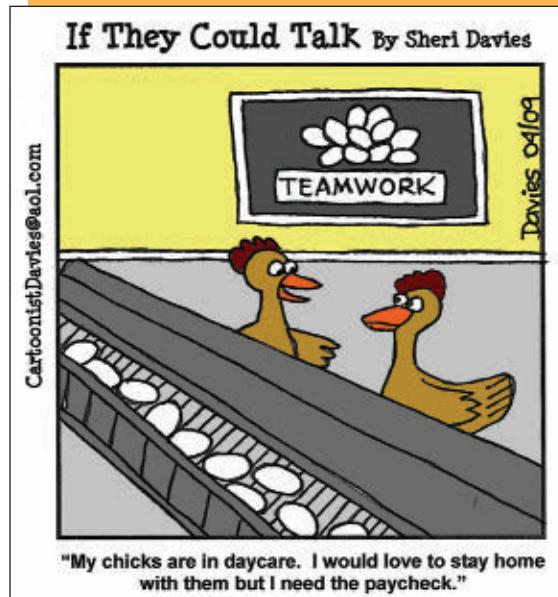
thesis of glutathione peroxidase. This enzyme, with co-factors such as selenium, is directly associated with the protection of cell membranes against oxidation.

Although growth weight and feed consumption were not affected by source of selenium, activity of GPxI, the gene responsible for production of the enzyme, was significantly upgraded when broilers received selenium in the organic form compared to inorganic sodium selenite.

This has implications for both immune response and resistance to stress.

Incorporating organic selenium in diets has also been shown to up-regulate the genes responsible for the metabolism of polyunsaturated fatty acids and enhancing the digestibility of nitrogen. **EI**

## The lighter side

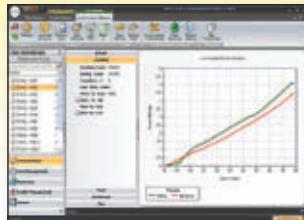


Egg Industry presents a series of industry-related cartoons drawn by Sheri Davies. Sheri is a graduate chemical engineer with a flair for art and we hope that her contributions will lighten your day.



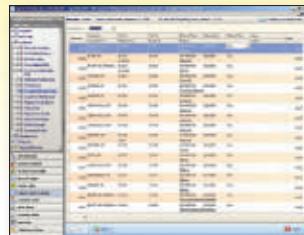
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# Establishing a focus on sustainability

*The theme of the 25th Alltech Symposium encouraged practical production methods for the agriculture industry.*

Professor Karl Dawson, worldwide director of research for Alltech Inc., the organizer of the 25th Annual International Animal Health and Nutrition Symposium, headlined the principles by which sustainability will become an established component of agriculture production. Sustainability relates to activities that meet the need of the present without compromising the ability of future generations to satisfy their own requirements.



Professor Karl Dawson discusses the role of sustainability.

Dawson predicted that organized agriculture must change from a supply-demand approach to more rational utilization of resources that will contribute to mitigating adverse environmental effects and to preserve the long-term productivity of our land and waters.

Dawson stressed that to be practical, sustainable agriculture systems must:

- ✓ respond to increasing demand for energy and protein;
- ✓ be economically viable;
- ✓ incorporate renewable inputs;
- ✓ be based on natural biological processes;
- ✓ be compatible with current storage and distribution needs;
- ✓ enhance the level of community health both now and in the future; and
- ✓ have minimal or preferably no adverse environmental impact.

Despite these ambitious criteria, sustainability is limited by economic

realities, expanding demand, regulatory barriers and, in some cases, ill-informed consumer perceptions. Harmonizing demand and sustainability will require innovation including the introduction and adoption of new technology, expanding education and the creation of novel business models.

Dawson is optimistic that productive changes will be made based on the ingrained sense of stewardship and the resiliency of the farming community.

In the context of U.S. egg produc-

tion, extracting optimal value from manure represents an obvious candidate for promoting sustainability.

The second area of opportunity is enhancing the nutritional value of ingredients by incorporating enzymes into diets to spare nutrients.

Developing biofuels from cellulose will restore total use of grains for animal and human food, reversing the trend of diversion to ethanol which has only short-term prospects, both financially and politically. **EI**



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## IEC appoints communications manager, launches Web site



Vikki Millichamp

The International Egg Commission (IEC) has appointed Vikki Millichamp as communications manager. She will apply her extensive experience in public relations and copywriting to the promotional activities of the IEC, benefiting both members and associate organizations.

She can be reached at [vikki@internationalegg.com](mailto:vikki@internationalegg.com).

## New Web site launched



The International Egg Commission, based in London, has launched a Web site, [www.thinkegg.com](http://www.thinkegg.com).

The site will be available in 10

languages and will include information on the health benefits of eggs, recipes and egg-related news.

## Return from alternative molting cycles

Don Bell of the University of California, Riverside, has circulated Part 13 B of the National Performance Study. This report considered income over feed costs and pullet depreciation for flocks with a first cycle length ranging from 47 through 91 weeks as the extremes.

Data was collected from 11 companies participating in the National Flock Performance Study. Seven of the 11 companies applied either non-molt or single molt programs. The contribution margin was calculated from the difference between revenue, using standardized prices for grades, minus feed cost and pullet depreciation. This value was multiplied by 52 weeks. The contribution margin ranged from \$3.93 per hen housed to \$5.37 per hen housed. The

differences among respondents reflected length of the laying cycle, strain selected, and management.

Lower returns were associated with shorter flock aged at either depletion or onset of molt and the higher contribution margins were associated with an extended first cycle usually with flock depletion at approximately 80 weeks of age. The correlation factor between contribution margin and age was 0.43. Each week of extending the first cycle from 50-90 weeks of age added 5.6 cents to the 52-week contribution margin.

## Organic food sales increase

A survey conducted by Liberman Research Group on behalf of the Organic Trade Association determined that organic food sales grew by 15.8% in 2008 attaining a retail value of \$23 billion.

It is estimated that organic food sales account for 3.5% of all food products marketed in the U.S. **E**

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## Measuring ammonia

The Litmus Ammonia Indicator, available from Grayson Upchurch Litmus LLC, was developed at a federal institute. The card can be used to measure ammonia levels over 4 to 24 hour periods with a range of 0-50 ppm.

Litmus FQI  
www.litmusfq.com

## New saddle adapter



Ziggity Systems Inc. has introduced a new saddle adapter compatible with round plastic

pipes supported by an aluminum profile. Existing obsolete drinkers can be removed and replaced with the saddle adapter which allows installation of the Max3 TL drinker. The change can be effected without tools or glue.

Ziggity Systems Inc.  
www.ziggity.com

## Ovotrack tracing system

Beekhuis Computer Solutions BV of Holland demonstrated the components required to maintain complete identity of consignments of eggs from farms through to distribution centers. The system was demonstrated at the product exhibition arranged concurrently with the Midwest Poultry Convention.

BCS BV  
www.ovotrack.nl

## Updated software package

MasterControl Inc. of Salt Lake City, Utah has released the MasterControl version 8.0 software package. Components of the new release include MasterControl Supplier which automatically links products and services to ensure that only inputs from qualified vendors are incorporated into a process. The MasterControl QMS CAPA Solutions software integrates quality process procedures including audit, training, resolution of non



conformance and customer complaints.

Master Control Inc.  
www.mastercontrol.com

## Single door tunnel inlet

Cumberland offers a single door tunnel inlet with an insulation value of R-8.



A rigid laminate foam panel, the door is lightweight for easy installation. It is delivered fully assembled. The door is black for dark out conditions. A profiled rubber seal keeps form and provides an airtight seal. Brackets are galvanized for durability and long life.

Cumberland Div of GSI Group  
www.cumberlandpoultry.com

## Refrigeration monitor



The Sensaphone Web600 alarm notification system from Phonetics Inc. is designed to protect product in

the event of malfunction of refrigeration installations. The Web600 connects to a local network and allows remote programming of sensors and monitoring of temperature and other parameters including humidity, water leaks and power outage.

Sensaphone  
www.sensaphone.com

## LED poultry bulbs

Glo Agrilamp LED light bulbs from Greengage Lighting were designed and manufactured specifically for the egg and broiler segments of the poultry industry. The company reports that they reduce lighting-related energy consumption by up to 90%, are fully dimmable and reduce heat emissions by 50%. Glo Agrilamp bulbs also operate with levels of infrared lower than some other types of bulbs.



Greengage Lighting Ltd  
www.greengagelighting.com

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Ad sizes start at one column by one inch and can be any size up to six column inches. Logos and photographs are acceptable. Add color for an additional \$30 per color per insertion. The rate for EGG INDUSTRY is \$120 per inch per insertion (1-time rate), \$110 per inch per insertion (6-time rate), and \$100 per inch per insertion (12-time rate). The production charge is included except for ads with excessive make-up demands.

For more information on how to place your ad, contact:  
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**Tel: 815-966-5591**  
**Fax: 815-968-0941**  
**E-mail: [gstadel@wattnet.net](mailto:gstadel@wattnet.net)**

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