Cobb 700 on Target For Low-Cost, High Meat Yield

The development of the Cobb 700, the need for this product, and its value to our customers is a story that stretches back almost eight years and involves the visions and talents of people from a variety of departments within Cobb as well as the board of directors. It is also a story of ingenuity, hard work and cooperation among Cobb team members.

The day was August 29, 1994. The place was a small meeting room in Siloam Springs, and the players included James Bell, Tony Barnes, Leland Tollett, Dr. John Hardiman, Jimmy Burns, Chet Hobart, Buddy Wray and Aubrey Cuzick. The discussion was the increasing demand for more breast meat by some of our customers and some complexes within Tyson.

The problem was that Cobb’s meat yields, although enormous in historical perspective, were being challenged by higher yielding crosses, but these roaster crosses were typically disappointing in growth rate and feed conversion.

This created a unique market opportunity for Cobb first voiced by board member Aubrey Cuzick. Cobb needed to develop a new type of product devoted to maximum meat yield at high broiler weights. Meat yield would be emphasized, perhaps at the expense of a small amount of growth rate, but it was decided from the start that this chicken would carry the Cobb trade marks of outstanding broiler feed conversion, excellent livability and low cost of production. The process of developing this bird involved the starting of new lines, new methods of selection and a new set of breeding goals.

Families from our highest yielding Cobb lines were chosen to begin new synthetic lines, and these lines were placed on an annual reproduction program on one of Cobb’s state-of-the-art pedigree farms. Dr. Igal Pevzner, Director of Research, was given the assignment of developing and selecting these lines while Dave Juenger, Director of R&D Production, and Mohammad Ismail, Pedigree Complex Manager, were assigned the duties of managing and producing special birds.

New innovations in genetics and in management were needed for this important project. Square footage was increased to give individual birds room to grow to higher weights, and feeding programs were adjusted to encourage egg production in these high yielding birds.

The Cobb 700 has been extensively tested in the United States where its one percent gain in breast meat yield over the Cobb 500 has been demonstrated, with feed conversion and broiler growth rates similar to the Cobb 500.

The first parent stock has been placed in South America and Europe where processors supplying products for the high meat yield, deboning and added value markets are showing considerable interest in the new breed. Broiler chicks will be available later this year for the start of customer trials.
New pedigree houses were prepared to house these unique birds and to permit complete sire and dam pedigreeding of each family. Unique line color-coding was created to prevent mixing these populations with other Cobb product lines and even farm records were color coded to assure genetic quality.

Igal set new, more aggressive goals for increasing meat yield but kept a skilled eye on feed conversion and livability. At broiler age every bird was weighed and evaluated for over a dozen broiler characteristics as well as breast conformation. Cobb's expertise in ultrasound - first developed in 1980 - was used to confirm meat yields in potential breeders.

Egg production, egg quality, fertility, hatchability, livability and chick quality information on each hen and her offspring were carefully added to a growing genetic database. Computer programs were upgraded to improve breeding value estimation for all valuable traits for each individual and to permit selection of birds with the optimum combination of each trait.

Four generations passed before the first Cobb 700 birds were ready for Cobb performance testing. Product testing was supervised by Doug Yoho at Cobb's new broiler and hen testing facility in Oklahoma. Cobb 700 chicks were hatched and placed in special broiler test houses and compared with broiler strains from competing companies and with Cobb 500 broilers. At the same time, Cobb 700's were compared for egg production, hatchability and livability with Cobb 500 parents.

Jay Hughes, Research Geneticist, organized the collection and analysis of this valuable data and prepared regular comparisons of the new product with Cobb 500 and other broiler crosses. For three years these comparisons continued, repeated over and over again to be certain of their accuracy.

Finally, in early 2000, company representatives, including James Bell, Jerry Moye, John Hardiman, Jimmy Burns, Dr. Ken Laughlin and Steve Iseler, representing administration, genetics, finance, technical service and marketing, reviewed the performance results for this new chicken and gave the signal to begin production and preliminary field testing.

Our first Cobb 700 GP flocks came into production in 2000 and parent sales began in limited numbers in 2001. Tyson Foods was one of the first customers to place orders for this new chicken and to provide Cobb with valuable feedback on actual field performance in both the broiler and hen house. Excitement grew as the first broiler data accumulated.

Broiler growth rates were better than expected nearly equaling those of the Cobb 500 broiler. Even more importantly, the Cobb 700 broiler feed conversions were almost identical to those of the industry's most efficient bird, the Cobb 500, and field livabilities were excellent even at large bird weights. Egg production was slightly lower than that of the Cobb 500 but well within product specifications.

Most important of all, breast meat yield of the Cobb 700 broiler had improved by a full one percent over the Cobb 500 broiler! The Cobb team had succeeded in breeding the industry's lowest cost, high breast meat yield product - the Cobb 700.

However, the work did not stop there. Dr. Ken Laughlin, Director of Technical Service and Support, and US Technical Service Director, Pete Shanoto, began the difficult job of studying and fine tuning customer programs for growing the Cobb 700 broiler and breeder. New field databases were started which permitted the comparison of flocks of birds grown under different conditions.

This information allowed the identification of the very best Cobb 700 growing programs for recommendation to future customers in the US and around the world. Stan Reid, Director of US Sales, and Steve Iseler, Director of Marketing, combined forces to sell and create a demand for the Cobb 700. The Cobb sales team began offering customers a unique product genetically designed for the high meat yield, deboning market and capable of maximizing profits from processing.

Cobb efforts to support and improve the Cobb 700 will continue, led by Dr. Leonard Fussell in producing this product for both US and international markets, by the leadership of Tom Hollopeter and Roy Mutimer in ensuring the highest quality in the Cobb 700, and by Stan Reid, Mark Barnes, Mark Glavey and Ronald Lelieveld in bringing this product to new customers worldwide. In addition, the continued technical support of Ken Laughlin and his team and the continued efforts of Igal Pevzner, Director of Research, and Dr. Terry Wing, Director of R&D Genetics, will continue to improve the genetic performance of the Cobb 700 for decades to come.
Hatcheries go back to school

A series of training schools for hatchery managers and senior staff is planned by Cobb’s World Technical Support Group.

A two-day school for grandparent and parent hatcheries and distributors in Europe and the Middle East was held in Holland in July, and another for parent stock customers in China took place in August.

The school, which took place at the Cobb Europe headquarters at Putten, was attended by hatchery managers from Egypt, Germany, Holland, Israel and the UK, and was led by Scott Martin and Steve Tweed, hatchery specialists in the World Technical Support Group.

“The school covered a wide range of issues involving quality assurance and chick health,” says Steve. “There was considerable interest in embryo diagnosis and in identifying the causes of pre-hatch mortality problems. It is easy, for instance, to blame infertility when the problem really starts with early dead germs.”

Plans are now going ahead for a further school scheduled later in the year for customers in Australia, New Zealand, Thailand and other South East Asian countries.

Atlanta ‘wonderful forum for customers’

Customers from more than 20 countries were hosted by Cobb-Vantress, Inc. at the 2002 International Poultry Exposition at Atlanta, Georgia. Support for the show, and for the associated tours of the US chicken industry organized by Cobb, was particularly strong from areas of the world such as Latin America and Asia, where the breed is making rapid advances.

The show is firmly established as the world’s leading event for the poultry industry, attracting altogether some 19,000 visitors from 49 states of the USA and 88 countries. There were 939 exhibitors displaying the latest in technology and products for the industry.

The Cobb stand featured not only the Cobb 500, one of the world’s most popular broiler breeders, but also the newly introduced Cobb 700 for higher meat yield and the Avian breeds now available in an increasing number of markets.

“The show provided a wonderful opportunity to converse with customers and potential customers,” says Steve Iseler, Director of Marketing for Cobb-Vantress. “We had employees at the show from domestic and international sales and technical service, as well as our senior executives and members of the world technical support group. This enables customers to network with a variety of groups within the company.”

Among customers visiting the booth were those from Brazil, Mexico, Canada, Ireland, Poland, Holland, Croatia, Bulgaria, Denmark, Thailand, Korea, the Philippines and Indonesia.

After the show, Cobb organized visits to the US industry for two parties of customers. There were three days of visits to hatcheries, breeder and broiler farms, and feedmills at both the Tyson Foods Green Forest / Berryville complex in Arkansas and the Monett complex in Missouri. Visitors also toured the Monett complex processing plant with a throughput of more than one million broilers a week supplying Burger King and other restaurant chains.

The 55 customers from Denmark, Holland, the UK, Poland, Croatia, Bulgaria, Thailand, Peru and Mexico also toured the Tyson corporate offices in Springdale, Arkansas, and visited the Cobb-Vantress headquarters where they welcomed by President James Bell and heard presentations by Dr. John Hardiman on research and development, Jerry Moye on the US market and Dr. Ken Laughlin on world technical support.

Looking ahead to next year, the date for the calendar is January 22 to 24 for the next International Poultry Exposition at the World Congress Center in Atlanta. We hope to welcome many of you there.

Golden Gate venue for world congress

More than 120 delegates from 50 companies will be gathering in San Francisco, California, for the second Cobb-Vantress worldwide pure line customer conference, Summit 2002, being held on October 8 to 11.

The event will provide the opportunity to discuss current global issues as well as to meet colleagues from all parts of the world. Topics will include poultry production costs around the world, the future of biotechnology, world protein supply and demand, future requirements of a world foodservice provider, product branding and consumer trends.

Keynote speaker will be Dan Glickman, former US Secretary of Agriculture, whose tenure was marked by a turbulent farm economy with commodity prices and agricultural exports first reaching new highs and then plunging to historic lows. He believed that a strong farm economy required a strong rural economy, and was also an enthusiastic advocate of biotechnology. For six years, he was chairman of the subcommittee on wheat, soybeans, and feedgrains, with jurisdiction over nearly three quarters of the USDA farm program budget.

One session will be devoted to McDonald’s, with a review of their market share and growth around the world, trends in poultry versus other forms of protein, selection of suppliers, product development and issues related to animal welfare and the environment which are having an increasing impact on the food industry.

Also speaking will be Sergio Zyman, former chief marketing officer of The Coca-Cola Company, whose new concept in marketing strategy boosted worldwide annual volume from 9 to 15 billion cases in the most explosive period in the company’s history.

Aside from the conference, delegates will be able to explore San Francisco’s legendary streets and landmarks such as The Golden Gate Bridge, one of the longest bridges in the world. The city has also more restaurants per capita than any other US city, offering a tremendous diversity of food. Nearby, Sonoma and Napa valleys produce some of the United States’ most noted wines.

Reports on the event will be featured in the next edition of Cobb Focus.
Two of the companies relying on the Cobb 500 are the retail groups Toledo Industries and CLC Supermarkets who purchase parent stock from Reproductores Cobb SA and have integrated operations producing their own chickens. Both have provided us with comments based on their experiences with the breed. In addition, Dr. Carlos Giardinelli, farm production manager of Toledo Industries, describes the scope of their poultry farming activities and how they satisfy their customers’ demand for fresh and added-value products.

**Toledo Industries**

The Poultry Division’s veterinarians at Toledo Supermarkets have adopted Cobb-Vantress due to its advantages over other breeds. We should like to mention in particular the following aspects that are extremely positive to the Cobb breed:

- Excellent conversion, which allows us to obtain a high yielding product at a lower cost
- Good conformation and bodyweight uniformity of the broilers, producing chicken that stands out against others. We consider this an important competitive advantage
- The genetic qualities make the broilers easy to rear and to obtain consistent and uniform results
- Male fertility contributes to optimum hatchability
- Birds adapt well to our region’s environmental conditions
- Immunologically, they show resistance to the normal poultry pathogens

In summary, due to the strengths of the Cobb-Vantress breed, the final product has an excellent quality, and is renowned for its appearance, weight and taste. This makes our chickens the first choice against others from competitors.

Sincerely,

Dr. Alejandro A. Beretta
Area Manager
Carlos Zonco Menghini, D.V.M.
Live Production Veterinarian

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**Broiler of the Sierras**

_by Carlos Giardinelli, D.V.M., of Toledo Industries_

Toledo Industries is involved in both integrated chicken production and in commercial eggs.

Our broiler breeders are located on five farms we own in Cnel. Vidal, Colonia Barragan and the zones of the Quintas de la Laguna de los Padres. Eggs produced on these farms are brought to the Sierra de los Padres hatchery, where they are set in incubators, maintaining the correct temperature and humidity to guarantee a good hatch.

The broilers are fast growing and are the real stars, with a reputation as double breasted chickens. The chicks are placed on a total of 14 farms - seven owned and seven contracted. Across the region we have the capacity to produce a total of 720,000 birds. This amounts to an annual production of 3,600,000 broilers, equivalent to around 16,314,188 lbs. (7,400,000 kilos).

In October 1998, we opened our new processing plant in the industrial park Gral. Savio Mar del Plata. This plant, the pride of our company, was made with high quality Dutch evisceration technology and has been updated to comply with the strict European Union requirements.

The plant has an initial capacity of 2,500 birds per hour, but has been designed to cope with up to 5,000 birds/hour easily. It also includes facilities for cutting up chicken and for further processing of ready-to-cook products, with the latest Dutch machinery ensuring the high quality of our final product - Pollo de las Sierras.

The commercial egg layer farm is located in Sierra de los Padres with capacity for 70,000 birds, and allows us to supply Mar del Plata, Balcarce, Necochea, Olavarria and Miramar. We also obtain eggs from other local producers with whom we establish agreements covering quality, type of egg and packing according to our different specifications.
**Focus on Argentina**

**CLC Supermarkets**

The fact that CLC Supermarkets has chosen Cobb as its genetic line is based on the following aspects:

**Breeder performance**
- Breeder flocks show excellent results in terms of chick number per hen housed
- Birds are easier to manage in rearing compared with other breeds and generally achieve lower mortality
- Egg production peaks are very acceptable bearing in mind the productive performance of the progeny
- Nutritional levels, especially vitamin and mineral requirements, are lower than for most of the other breeds on the market, which adds up to a significant feed cost saving
- We are very pleased with the male performance

**Broiler Performance**
- Feed conversion is very good, as are daily weight gain and health
- Cobb females show fast daily growth, which results in a better uniformity between males and females
- **Quality of final product**
  - This is the most important aspect for us because we sell processed broilers to our final customer
  - Cobb has excellent carcase pigmentation even if we use low levels of xanthophyll in our feed formulation
  - Carcase conformation is very good. Cobb is a breed with one of the highest yields of breast meat in the market
  - Yield at processing is high and uniform

For all these reasons we have decided that Cobb is the best option for our company’s integrated broiler production.

**Consumption doubles in ten years**

*Catering for Argentinean love of chicken*

The growing popularity of chicken - and the growing success of the Cobb 500 in Argentina - has led to major investment in a new grandparent complex.

The three-year project by Reproductores Cobb SA, the Argentinean distributor, is now in its final stages, with the farms and feed mill already in production and the hatchery under construction.

Currently the Cobb 500 is the market leader and Reproductores Cobb are hatching more than 1.3 million parent stock a year.

The company has developed from a family business that has grown with the poultry industry in Argentina. Joaquin De Grazia is President of Tres Arroyos which owns 80 percent of the business, with Cobb-Vantress, Inc. holding the remainder. He says that Cobb’s commitment to all aspects of production and training has built the reputation which the breed enjoys internationally.

“Our objective is to produce chickens of the highest possible quality, and to provide technical service and support that will help achieve the maximum genetic potential - the approach that has enabled Cobb from the beginning to attain a position of world leadership today,” says Joaquin De Grazia.

In choosing the location for the new grandparent project, the company has selected virgin territory, far away from all types of poultry and farm animals to provide the tightest biosecurity standards.

The site in the Santa Elena region of the Entre Rios province provides an ideal setting, covering 800 hectares (1,977 acres) with extensive woodland acting as a natural barrier.

There are six poultry units, each measuring 250 x 230 meters (820 x 755 ft.), with two rearing units supplying four production units. In the first stage each farm has two 155 x 13 m (509 x 43 ft.) houses, with space for a third to be added.

The farms benefit from the latest technology, using tunnel ventilation and cool cell techniques in a country where hot humid summers and cool winters provide a challenge for environment control.

There is a distance of 2,625 ft. (800 meters) between farms, which is all fenced. Illustrating the high health controls, there are separate roads to enter the rearing and production farms, one ‘clean’ and the other ‘dirty’ which is used to remove birds at the end of their cycle and for farm cleaning.

The complex includes its own feed mill to ensure that nutritional requirements are met free from contamination. The hatchery will make use of the latest technology in achieving top quality chicks, while the delivery vehicles are climate controlled to ensure the well-being of chicks during transport.

Mark Barnes, Cobb Manager for Latin America, is impressed by the new project and by the expansion of the Argentinean poultry industry over the past ten years.

“Poultry consumption doubled in the last ten years to around 28 kg (61.73 lbs) per person/year although this has now fallen back with the recent problems in the country’s economy,” he says. “Grilled chicken has become extremely popular, with the industry looking for heavy broilers of just under 6.61 lbs (3 kg).

“The expansion and modernization of the industry has been equally impressive. The Cobb 500 has become popular with many companies from the small independent producers to larger integrators, gaining a reputation for efficient, reliable performance. Customers value, too, the high level of technical service provided by our distributors who routinely accompany chick deliveries and visit the farms again a few weeks later."

Martin Labayen heads the technical service for Reproductores Cobb, for whom Edmond El Jammal is production manager of the new complex and Hugo Salomone is commercial manager.

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**Mr. Julio Carlos Cortese**
President

**Dr. Nestor Goyeneche**
Production Manager

**Dr. Jose Gargano**
Consultant

**Ing. Fabian Nahara**
Nutritionist

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**Reproductores Cobb grandparent farm.**
O nce again, Cobb-Vantress demonstrates its commitment to quality and innovation with the opening of a new hatchery in Brazil. The new grandparent hatchery meets world standards, reflecting the company’s focus on environmental control of each section within the hatchery.

The new Cobb-Vantress Brasil grandparent hatchery - the final stage in the major new investment featured in the last edition of Cobb Focus - was officially opened in May at an event attended by many of the largest customers in South America. More than 70 guests were joined by Cobb-Vantress President James Bell and Latin American Manager Mark Barnes, local Cobb representatives and the media. The hatchery, located 18.64 mi. (30 kilometers) from the great grandparent farms complex, will supply not only Brazil and South America, but also provide breeding stock to Africa and possibly also parts of Asia and Europe.

The project takes advantage of the latest developments in civil engineering and hatchery technology, with Scott Martin and Robert Barnwell of Cobb’s world technical support team involved in the design and choice of equipment. The construction is based on a clear span, steel frame design, with the walls and ceiling made of iso-thermic panels to provide improved environmental control of each section within the hatchery. The individual setters and hatchers have the latest climate controls and are installed so that there is good access to the loft area for any maintenance or health control needs.

Biosecurity concerns are central to the way that the movement of eggs, chicks and people is planned through the hatchery, ensuring no contact or cross-contamination between those working in the dirty zone and clean areas such as the egg rooms. There are three egg rooms providing the correct temperature and humidity for each stage of storage - up to four days, five to seven days and more than seven days - and another room designed for pre-heating before eggs are set. Similar care has been taken in planning chick handling, with separate rooms for sexing, processing, holding and final inspection before dispatch.

With the aim of exceeding customers’ expectations from day one, the hatchery workers were taken on in advance and given extensive training in the parent stock hatchery at Guapiacu, so that they were fully familiar with Cobb standards. In addition, one of the Guapiacu employees, Thomas Calil, was appointed hatchery and quality manager, and he is responsible for introducing and implementing the quality standards with the goal of achieving ISO 9002 certification at the end of this year.

The new mill at Siloam Springs which draws in clean air from a height of 52 meters (170 ft) and ducts it to the cooler - one of many precautions to achieve the highest quality standards.

The new Cobb feed mill at Siloam Springs goes into operation this autumn, supplying all Cobb pedigree, great grandparent and grandparent stock in the South West region of the United States.

The investment of more than $7 million by Cobb-Vantress Inc shows their commitment to produce consistently top quality feed, meeting the highest safety standards for their breeding stock. Designed with a single production line, it will operate at 40 tons per hour and produce 1200 (U.S.) tons a week, supplying Northwest Arkansas, Northeast Oklahoma and Southwest Missouri.

A state-of-the-art feed mill opens at Siloam Springs this autumn, supplying all Cobb pedigree, great grandparent and grandparent stock in the South West region of the United States. The project takes advantage of the latest developments in civil engineering and hatchery technology, with Scott Martin and Robert Barnwell of Cobb’s world technical support team involved in the design and choice of equipment. The construction is based on a clear span, steel frame design, with the walls and ceiling made of iso-thermic panels to provide improved environmental control of each section within the hatchery. The individual setters and hatchers have the latest climate controls and are installed so that there is good access to the loft area for any maintenance or health control needs.

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The Myth...and the Reality...in meeting biosecurity targets

Dr. Tony Marangos of Nutrition Solutions

I was asked recently to talk at a seminar on the subject of biosecurity and the production of clean feed. In preparing my paper, I began to realize how much these two topics could effect the profitability of poultry production and that they had serious consequences for the consumer.

Good quality feed is about careful selection of raw materials not just nutritional values and requirements. It ensures that raw materials are properly managed and stored, without the possibility of vermin contamination. The focus should be on biosecurity.

Since 1988, there have been a number of serious food scares in the UK that have undermined consumer confidence in the livestock production industry, e.g. salmonella in eggs, E. coli 0157 in Scotland and BSE in beef.

The industry has made major efforts in improving biosecurity and there has been a reduced incidence of food-borne disease in the human population (Figure 1). However, salmonella is still a major issue.

This article will address the problems with respect to biosecurity of raw materials, some of the solutions that help overcome these problems and the benefits that these solutions may bring to producers and the industry in general.

First, what are the problems? Many of the bacteria that contaminate raw materials and feed are normally found in the gut of animals and humans. Poor hygiene and faecal contamination therefore largely cause contamination of raw materials and feed. All bacteria should be regarded as potential human pathogens. Salmonella enteritidis and S. typhimurium are well known examples, the latter because of its growing resistance to antibiotics. However, S. virchow, S. hadar, S. heidelberg and S. kedougou are also found in humans suffering from food-borne illness.

Salmonella are just one type of bacteria belonging to a large family called the Enterobacteriaceae. This family also includes E. coli. Counting the numbers of Enterobacteriaceae in samples of raw materials or complete feed gives an assessment of the overall microbiological quality of feed. Figure 2 shows that wheat samples can contain up to 10⁶ Enterobacteriaceae/g.

Salmonella can be difficult to isolate from raw materials and finished feed because they are not distributed evenly. Thus, there is the possibility of finding negative samples from feed that is actually contaminated with salmonella. However, monitoring the numbers of Enterobacteriaceae is useful in indicating the likely presence of salmonella (Figure 3).

Salmonella is not just a feature of feed materials of animal origin, but raw materials of vegetable origin can be contaminated. As can be seen from Figure 3 many oilseed meal deliveries to feed mills can be clean, i.e. carrying less than 10 Enterobacteriaceae per g. However, during transport and storage there is the opportunity for microbes to contaminate and replicate giving some samples as high as 10⁷ Enterobacteriaceae per g of material. Figure 3 shows that when Enterobacteriaceae numbers exceed 10⁵/g the risk of isolating salmonella increases significantly. Similar graphs could be plotted for other materials, e.g. cereals.

A small proportion of a highly contaminated raw material can contaminate a whole clean batch of feed ingredients. In a survey carried out for a leading feed compounding in Europe, it was found that 52% of all material samples analyzed fell into the high risk category of >10⁷ Enterobacteriaceae/g. As a result, all of the mash sampled from the feed mixer also had a contamination rate of >10⁷ Enterobacteriaceae/g.

It is likely that in the near future, poultry feed will be subject to regulations imposing the monitoring of Enterobacteriaceae level and compliance with agreed standards. Such legislation is already being discussed in Europe. As a result, feed compounders will have to ensure that treatment of the feed materials is adequate to reduce the microbiological loading to satisfy the legal requirements. This can be accomplished by suitable heat treatment.

Successful heat treatment involves not only increased temperature, but also adequate moisture and time to achieve the required reduction in microbial numbers (Figure 4).

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Heat treatment requires a major capital investment and an ongoing cost which is likely to exceed £3 per metric tonne (€4.8 or $4.6) of feed treated. Many retailers request heat treatment of feed and have specified the conditions to be used, e.g. 176°F (80°C) minimum for 2 minutes at 15% moisture.

Heat treatment is effective in reducing bacteria, if the required conditions have been met. The myth is that the feed stays clean all the way to the poultry unit. The reality is that the moisture addition required for successful heat treatment can provide an excellent environment for bacteria to replicate. Condensation downstream can also increase the moisture content of feed. Often when tracking Enterobacteriaceae counts through the milling process, a good knock down of bacterial numbers during heat treatment/pelleting processes is indicated, but there is a subsequent rise from the coolers onwards (Figure 5). Someone recently remarked to me that for bacteria, certain locations in the cooler could be like living at the Ritz!

Depending on conditions, high levels of bacteria can be found in heat-treated feed as it goes into bulk storage. As a result, some companies have looked into methods of preventing this recontamination. Treating with chemicals can help prevent recontamination and nowadays a number of alternative products (e.g. organic acid mixtures, organic acid/salt mixtures and aldehyde/organic acid/salt mixtures) are available in both liquid and dry forms. Generally, the presence of aldehyde enables an equivalent kill to be achieved at lower addition rates.

Figure 6 shows the effect of adding several chemical products to a broiler starter mash with an initial Enterobacteriaceae content of 1,500,000 Enterobacteriaceae/g. A statistically significant reduction in Enterobacteriaceae was found only in the case of the aldehyde-containing product. When the mash was then deliberately contaminated with 5 million Enterobacteriaceae/g, only the aldehyde-containing product produced a significant reduction in the microbial population (Figure 7).

Aldehyde-containing products can maintain control over bacteria and prevent recontamination for many days following treatment. Beneficial effects right to the feed pans in the poultry house can be demonstrated with a suitable chemical treatment (Figure 8). With breeders, prolonged use of a suitable chemical treatment of feed can reduce the shedding of salmonella that over time leads to decontamination of the litter (Figure 9).

Heat treatment will certainly reduce bacterial numbers in feed effectively. However, it cannot prevent recontamination occurring later. Systems for the production of clean feed should ideally allow for both heat and chemical treatment (Figure 10). If the minimum requirements for suitable heat treatment are not being achieved then the chemical treatment can switch in.

The benefits of clean feed are obvious. In the case of breeding birds, clean feed is essential to protect their health status and that of their progeny. For broilers, clean feed means giving the final customers confidence in buying your products. Good quality means repeat orders. Good biosecurity and the production of clean feed improves the profitability of your business.
**NEW TEAM HANDLING YOUR ORDERS**

With the creation of Cobb Europe, new arrangements have been introduced for handling orders for our breeding stock.

The planning team at the Cobb Europe headquarters in Holland is now responsible for all orders for customers covered by the Cobb Europe sales area. The team is led by the new Director of Planning, Jan Buitenhuis, who has been working in a similar role with Cobb Holland over the past six years. He is widely experienced in the poultry industry and spent 26 years with the Product Board for Poultry and Eggs, where he was involved in legislation affecting the whole industry.

With Jan is Wout Van Wolfswinkel, who joined us 12 months ago after seven years' experience with a commercial broiler hatchery and then with a feed manufacturer working in a technical role. Wout will be responsible specifically for parent stock orders.

“Our aim is to serve our customers as efficiently as possible and the more you can plan ahead, the more it will help us all,” says Jan Buitenhuis. “And once you have placed an order, we will expect to meet your requirements without the need for any change.”

**You can contact our planning team at:**

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**UK GROWER MAKES HABIT OF WINNING AWARDS**

A farmer who regularly grows Cobb 500 broilers has won one of the top UK broiler awards for the second time in three years.

Robert Lanning, who only began the enterprise five years ago, has won the open award in the under 50,000 sq ft (4,650 sq meters) category in the broiler efficiency competition sponsored by Trouw Nutrition and the National Farmers Union. The award, presented by John Farrant, editor of Poultry World, at the British Pig and Poultry Fair, includes a holiday weekend in Paris or Dublin.

His winning entry, based on the average performance of three crops of which 50 percent were Cobb 500, achieved the remarkable European Production Efficiency Factor of 358 and a feed conversion of 1.727.

One of the judges, John Farrant, comments: “It is encouraging to see young men such as Robert Lanning coming into the industry with enthusiasm and rapidly acquiring the skills to be among the best broiler growers in the country. Robert has proved his consistency by being among the award’s highest achievers on EPEF in two of the past three years.”

Robert has always wanted to be a poultry farmer since he was given six day-old bantam chicks by his father David Lanning, now general manager-agriculture of Lloyd Maunder, one of the UK’s leading broiler processors.

He achieved the ambition five years ago when he bought a small poultry farm at Belstone within Dartmoor National Park, one of the most scenic areas of England. There he set up the business of Devonshire Poultry Ltd. and grows crops of 28,000 broilers.

Since then he has added a larger farm 45 miles (72 km) away at Callompton with capacity for 130,000 birds, planning permission for one third more and the potential to expand further.

Robert says he prefers growing Cobb broilers because they achieve 50 to 80 grams more weight for age, better feed efficiency and have the ability to thrive on a cheaper diet with up to 30 percent whole wheat. He attributes his consistent success in the competition to attention to detail and particularly the ability to spot potential problems before they develop, such as in monitoring water consumption to detect any variation that could signal a health or management issue.

His broilers are processed at the Willand plant of Lloyd Maunder which supplies high quality fresh chickens to major UK supermarket groups such as J Sainsbury.

Andrew Maunder, director of Lloyd Maunder, says that Robert’s success reflects well on both himself and on the company’s chick, feed and management practices.

“It highlights what present day chickens are capable of achieving under good conditions and so sets a target for all our farmers,” he adds. “The award is a morale booster for the whole company and it should give confidence to our supermarket customers that our chicken production standards are very high.”

**Robert Lanning’s winning flocks**

<table>
<thead>
<tr>
<th>49-day weight</th>
<th>Feed efficiency</th>
<th>Mortality</th>
<th>Rejects (%)</th>
<th>European Production Efficiency Factor</th>
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<tr>
<td>3236 (g)</td>
<td>7.13 (lbs.)</td>
<td>1.805</td>
<td>4.14</td>
<td>349.93</td>
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<td>3198 (g)</td>
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<td>1.772</td>
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<td>361.57</td>
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<td>3303 (g)</td>
<td>7.28 (lbs.)</td>
<td>1.825</td>
<td>2.69</td>
<td>365.23</td>
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</table>
**Impressive turn around for Bulgarian chicken industry**

Private enterprise is transforming chicken production in many central and eastern European countries, stimulated by the popularity of poultry with consumers.

Farms and facilities that lay empty for several years are being given a new lease of life, with substantial investment in renovation and refurbishment, equipping them to the latest standards.

Bulgaria, the Balkan state bordering the Black Sea, is one such country. There it is the Gradus Company, established in 1992 and owned by Luka and Ivan Angelov, which is leading the way and now produces more than 35 percent of the chicken eaten in a country with almost eight million people.

Within the past five years Gradus has developed a fully integrated broiler operation that has trebled production of poultry meat from 3,230 to 9,383 metric tons. While the production of frozen poultry products has almost doubled, significant new markets for fresh and further processed products have been developed. These are now the fastest growing segments of the market for chicken meat.

The company now sells around 80 different products including a range of sausages and delicacies. “Our brand is well known in the Bulgarian market for the consistent high quality,” says Ivan Angelov. “We have built up a strong marketing chain which is developing sales across the country.”

The business has been built up around the towns of Nova Zagora, Tchirpan, Yambol and Haskovo, acquiring farms which have stood empty for four or five years. The 144 buildings total 93 sq miles (150,000 sq m), of which just over two-thirds have been fully refurbished and are used for the production of hatching eggs and broiler chickens.

Gradus buys 180,000 to 200,000 Cobb 500 parent breeders every year. “We consider Cobb the best breed for us. It is well known for its genetic potential for high quality meat production,” says Mr. Angelov. The parent flocks produce 1.6 million hatching eggs a month, which go to three hatcheries. The largest hatchery, with a capacity of 960,000 chicks a month, was fully renovated and equipped with the latest electronic controls in 1999.

The company’s own farms rear 950,000 broilers a month. The remaining 40 percent of chicks are sold to customers throughout Bulgaria.

All the Gradus farms have been renovated to a standard pattern. They are fitted with Roxell automatic nipple drinkers and pan feeding systems and Fancom cross-flow ventilation and cooling equipment. Natural gas heating has been installed by Gasolex as part of a brooding system controlled by microprocessor to meet the precise needs of the chicks.

Mr. Angelov is very proud of the new feed mill, which was opened in 2001 to help ensure that the company was in full control of its key inputs. The mill has a capacity of 25 tons/hour and benefits from the latest CPM technology, including steam sterilization, for producing pelleted feed.

The quality and safety of the feed, as well as the health status of the birds, is constantly monitored at the company’s two veterinary laboratories in Yambol and Nova Zagora, which are staffed by qualified technicians.

Broilers are typically grown to around 4.2 lb (1.9 kg) liveweight at 41.5 days, with a 1.83 feed efficiency and 5.4 percent mortality.

Gradus moved into processing with the purchase of a plant in Stara Zagora in 1998. The plant stands on a 25-hectare (62-acre) site and covers around 2.49 sq miles (4,000 sq m). The existing equipment was no longer usable, and so the company spent some 250,000 DM ($125,000) reconstructing the plant and installing new conveyors and processing lines.

Today the factory slaughters 8,000 chickens an hour, producing a total of 1,400 tons of meat each month. There are now also modern facilities for deboning, cutting and vacuum packing to cater for the growing product range.

Large chilling rooms have been built to EU standards with capacity for 800 tons of fresh chicken, now estimated to be 20 - 30 percent of total meat production. Bulgarian consumers have a growing appetite for fresh whole and cut-up poultry meat, as well as ready-to-cook and processed products, including barbecued chicken.

Three refrigerated stores have been brought into operation for fast freezing 50 tons of meat. New compressors working with Freon 22, which has significantly improved the quality of the frozen meat, have replaced the old ammonia freezing system.

“I have seen this business grow from its early days,” says Ronald Lelieveld, Sales Director of Cobb Europe. “There is huge potential for growth in chicken meat production in eastern Europe for companies that are prepared to invest wisely in technology and expertise.”

The establishment of a fully integrated enterprise, with significant investment in all stages of production, has enabled Gradus to become the market leader in Bulgaria. Increasing automation has improved efficiency and reduced production costs. The renovation and refurbishment program includes a long-term plan, due for completion in 2004, to reconstruct the slaughter and processing facilities to EU standards. The next target is to export poultry meat west into the EU.
Privatezation has provided new opportunities to develop thriving poultry businesses in central Europe. One of the first to grasp the opportunities in what is now the Czech Republic, the Mach family is now looking back on ten years of dynamic growth and looking ahead to a future in the European Union.

During the past ten years, the Mach hatchery has increased production ten-fold to 100 million broiler chicks in 2002, and it now accounts for 45 percent of the Czech market.

The hatchery is situated in the historic town of Litomysl in Eastern Bohemia, utilizing an old building dating from 1660 called Hrabencin Dvur - Earl's Court. Today it is equipped with some of the latest hatching, handling and environment control systems installed during the ambitious modernization and expansion program.

The equipment includes Genesis II incubators from Buckeye, egg washing, candling and transfer systems and counting line from Breuil, and chick take-off line from Viscon - bringing together technology from leading European and US companies.

This technology helps the Mach hatchery to produce top quality broiler chicks, so too does the strict veterinary control program throughout the operations - from rearing parent stock to delivery of day-old chicks.

In cooperation with the Veterinary Research Institute in Brno, the HACCP approach to biosecurity has been adopted, and this year the company has obtained certification for the quality assurance and environmental standards ISO 9001/2000 and EN 14001/1997. Certificates were presented at the celebrations in July.

Chicks are sold to customers throughout the Czech Republic and other central European countries. The fleet of fully equipped, air-conditioned transport vehicles with capacities from 30,000 to 90,000 chicks has been augmented this year with an ultra-modern truck for 180,000 chicks, providing ideal conditions for transport.

The Mach hatchery has worked closely with parent stock suppliers in developing the business and today the Cobb 500 represents a substantial share of overall production.

Along with the hatchery expansion has come expansion of the breeding farms which this year will have capacity for 800,000 parents to provide for the growth in output.

Five pointers to success

The success of the Mach hatchery can be attributed to a highly professional approach to all aspects of the business, in particular:

- To increase competitiveness and market share by dynamic expansion in the Czech Republic and abroad
- To cater for the needs of broiler growers by delivering sexed day-old broiler chicks
- To provide professional technical service and assistance to broiler growers
- To maintain excellent chick health through targeted veterinary programs
- To retain ISO 9001 and EN 14001 status by continually improving quality as well as caring for the environment
Mach Hatchery ‘among world famous family businesses’

Ten years of business for the Mach hatchery was marked by two days of celebrations at Litomysl in the Czech Republic where more than 350 guests, including a number from the poultry industry worldwide, assembled to join in the festivities.

As featured on page 11, Jiri Mach and his family have developed the business since privatization into the country's largest broiler hatchery, producing 100 million chicks this year.

The celebrations were centered on Litomysl castle and other historic buildings where the variety of food, Czech wine, sightseeing and entertainment made it an occasion to remember.

The event, also coinciding with Jiri’s 60th birthday, enabled guests to see the hatchery developments at first hand and allowed the companies involved in the success story to record their appreciation.

Dr. Ken Laughlin, World Technical Director of Cobb-Vantress, Inc., said the fact they were already celebrating ten years of business for Mach when the Czech Republic was not yet ten years old, showed how quickly Jiri saw the opportunities presented by the opening of the borders to the west.

"Throughout the world the poultry industry has many family success stories, and the Mach family business has now achieved its first significant milestone and can be noted alongside those world famous family businesses," said Dr. Laughlin.

"Jiri and his team have worked hard to achieve the opportunities which were opened up ten years ago, and I am certain that they now look forward to readying themselves for a new set of opportunities in the next decade which will include the entry of the Czech Republic to the European Union."

He spoke about the position of the country in the global industry where the more reliance was placed on locally grown raw materials, the more a country was regarded as a ‘producer’ rather than ‘assembler’ of chicken using imported resources.

"It is interesting to note," he said, "that while the Czech Republic ranks below most existing EU countries on yields for grain crops, it is the highest of the Central European countries which have applied for EU membership.

"There was significant reduction in fertilizer use in Central Europe ten years ago - down to one third overall, and particularly low in the Czech Republic. Therefore, there may be some broader agricultural opportunities following entry to the EU that could impact the poultry industry to become a European producer."

"Yet one must also recognize that poultry is a truly global industry. The same major raw materials (maize, wheat and barley) and protein sources (soya and sorghum) are used by all producers and the price is governed by the world market."

The same equipment for feeding, watering and ventilating poultry is available worldwide, and with globalization of the food service and supermarket businesses, the big customers such as KFC, McDonalds, Walmart, Carrefour and Tesco are deciding specifications and standards for the world industry.

"Broadly speaking," said Dr. Laughlin, "the input opportunities and requirements for the industry are very similar anywhere in the world. Against this background, each company and country must determine what advantages, if any, it may have and ensure that it focuses on and maximizes those advantages."

He said Cobb looked forward to continuing its business association with Mach hatcheries and would do whatever it could to help them face the challenges and opportunities in the next decade.