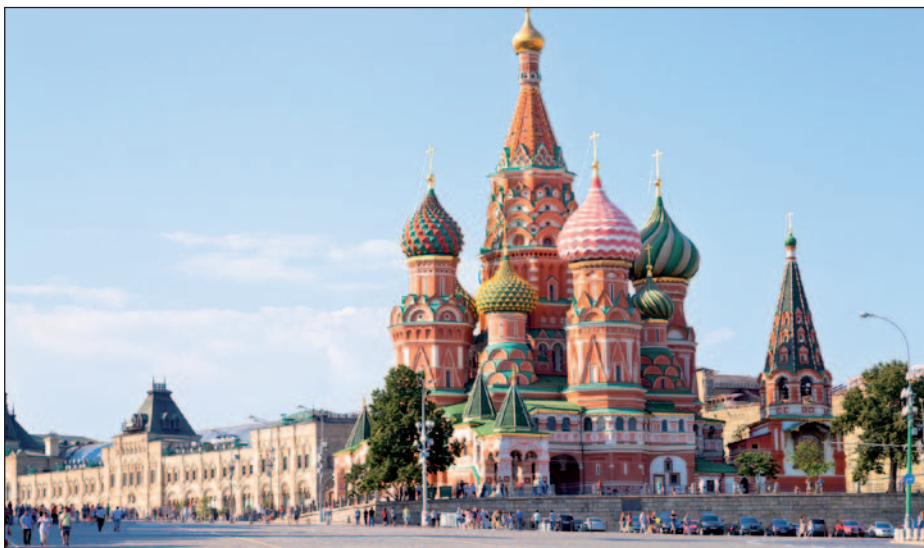


# Poultry News

LOHMANN TIERZUCHT 2/2013

## Russia: A booming poultry market



**The poultry industry in Russia is one of the fastest growing markets as compared to other international markets not to mention one of the best performing sectors in Russia. Despite great efforts, the industry has still not managed to reach the high level of 1990, which is a goal for many industries. It was the year of the collapse of the Soviet Union and the beginning of a new era.**

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Development plans are often out of reach and despite tremendous growth in some regions, the past few years have shown stagnation in egg production. According to official figures, egg production is currently at about 42 billion eggs, of which just over 20 % (9.3 billion eggs) are produced in small house plants (Fig. 1, next page).

What seems to be quite unrealistic when compared to the rest of Europe, the per capita consumption of eggs lies at 297 eggs per year – a high level indeed. By 2020, this is expected to increase even

### LOHMANN ... Editorial

#### The world is moving. How about you?

While breeding has taken “generations” to implement improvements and zootechnical advances, the other protagonists in the egg production industry have made the necessary arrangements to match this potential.



Recurring economic crises in this sector have marked the adaptation time for it: the profounder the crisis, the shorter the time of adaptation, e.g. in investments, management improvements, etc.

Additionally, the locations of the industry and its potential markets, as well as legislation, consumer behavior and climatic peculiarities in the production area, have an influence on these adjustments. Thus, areas such as Western Europe had to prioritize the adaptation to current legal standards whilst tropical/warm areas improved their productions through appropriate management practices. Management costs in countries with higher living standards and/or cold weather called for an improvement of automation costs and energy savings.

To all this, poultry genetics in general and in particular the one of LOHMANN TIERZUCHT, offered a solution and made new lines and varieties available to meet every need.

However, recent progresses in selection methods (i.e. Genomics), and the proximity generated by the ever-globalizing markets, forecast that the genetic generations will be shorter than the social generations. The industry may choose to be equally agile in adapting to its needs by taking advantage of the genetic potential which LOHMANN TIERZUCHT has to offer.

**It only needs to wish for it ...  
Let's move!**

Javier Ramirez

Continued from page 1

more, i.e. up to 315 eggs per capita. However, if one looks at the actual development more closely, you will quickly discover that the increase in production takes place in only a few regions (Fig. 2).

In addition, it is striking that the largest increase is expected in regions that have limited feed resources, for example in Krasnojarskij Kraj Tumenskiy, Kemerowskiy and in the Nowosibirskiy region, which are in Siberia or in the Leningradskiy region (St. Petersburg) in the North. Southern regions of Russia and the Volga region, which have enormous reserves of feed, are rarely mentioned in the plans.

Like almost all countries of the world, Russia has huge problems with obtaining affordable raw feed materials. In recent years, grain was immediately exported after being harvested and poultry farms had to buy their feed at very high prices from distant regions. Raw materials that could be bought at relatively affordable prices, often did not meet the required quality. Grain from subsidized reserves of the country especially led to big problems due to their toxic load. Flocks which were affected due to the consumption of this feed displayed a deterioration in performance and also resulted in mortality. Despite rapid increases in feed prices from about RUB 4,000 per ton in 2008–2009 and up to 12,000–14,000 RUB/ton in May 2013 despite a relatively constant currency exchange rate of approximately RUB 40/EUR, egg prices remained constant, with the exception of seasonal fluctuations in the summer months. For years now, the delivery prices of the farms (Figure 3, green line) has been under RUB 30 per 10 eggs and the retailer sale price is at about RUB 40 per 10 eggs (Figure 3, blue line).

Through the increasing productivity and efficiency of LOHMANN TIERZUCHT's laying hens and both of our leading breeds, the LSL-Classic and LB-Classic, we could constantly expand our market shares over

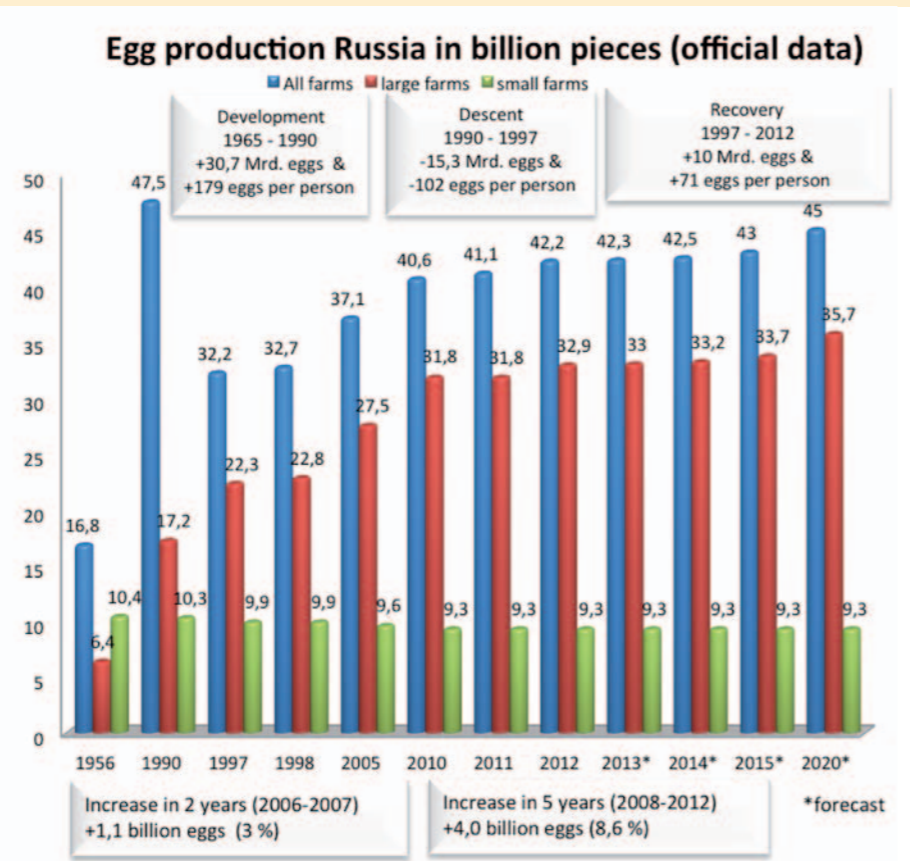


Figure 1: Egg production in Russia in billion pieces (official data of Rospticesojuz)

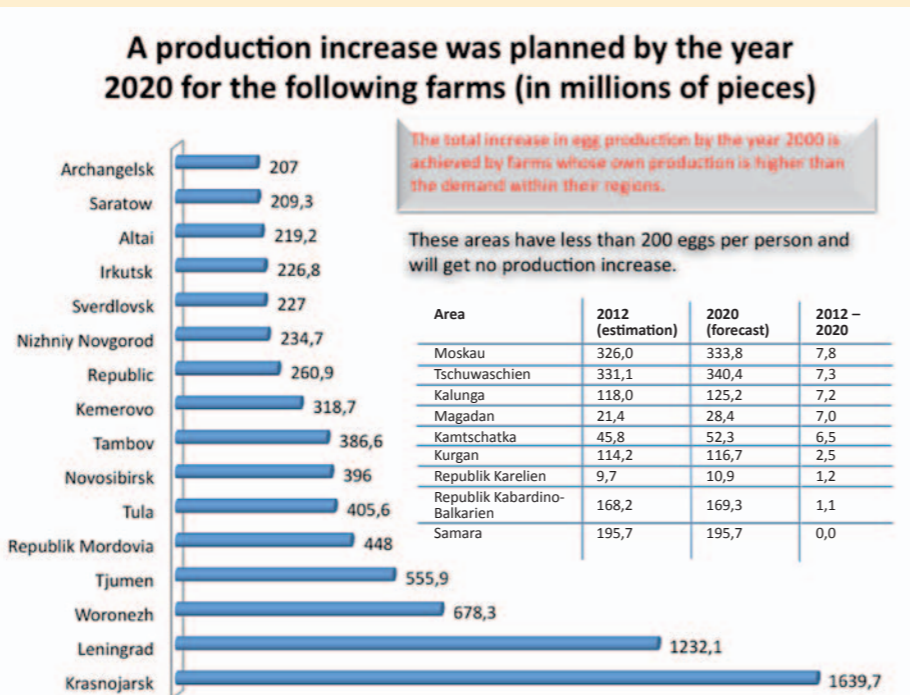


Figure 2: Development plan of egg production in the regions of Russia until 2020 (in millions) - from top to bottom, the regions identified - Krasnojarsk, Leningrad (St. Petersburg), Voronezh, Tyumen, Mordovia, Tula, Novosibirsk, Tambov, Kemerovo region, Nishnyj Novgorod, Ekaterinburg, Irkutsk, Altai, Saratov and Arhangelsk

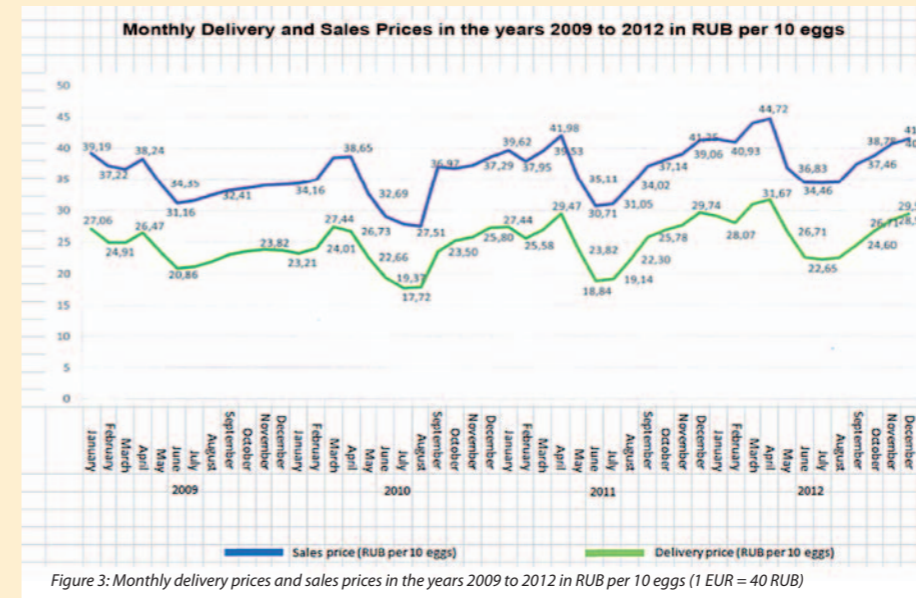


Figure 3: Monthly delivery prices and sales prices in the years 2009 to 2012 in RUB per 10 eggs (1 EUR = 40 RUB)

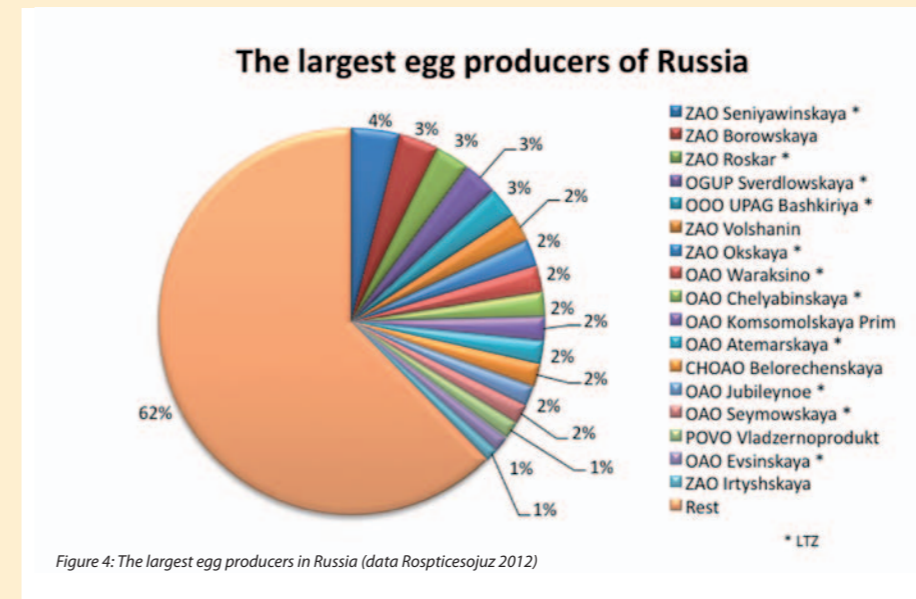


Figure 4: The largest egg producers in Russia (data Rospticesojuz 2012)

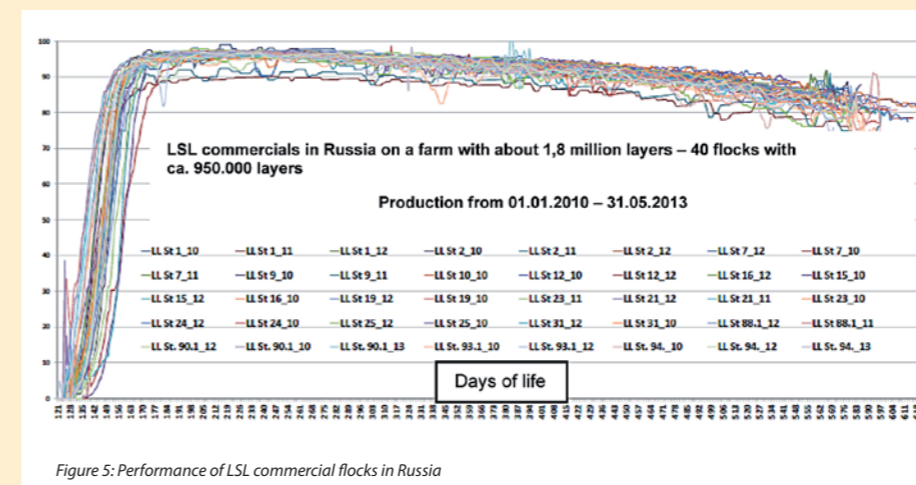


Figure 5: Performance of LSL commercial flocks in Russia

the years despite stagnation in the market. The top results of our best customers (Sverdlovskaya PF – LTZ customer since 1995, Pyschminskaya PF – customer since 2001, Chelyabinsk PF – customer since 2001, Roskar – customer since 2004, Okskaya PF and Seniyawinskaya) have set benchmarks for the entire industry (Table 1). The strength of our hens is particularly noticeable in the following figure. Eleven of the 17 largest egg producing enterprises in Russia (11.2 of 32.7 billion eggs produced) keep LOHMANN TIERZUCHT laying hens (Total number of LOHMANN TIERZUCHT customers in Russia - 17) (Figure 4).

Due to a constant increase in performance (dia.1), very efficient feed consumption and a constantly increasing laying period, these poultry farms are also the most economically efficient ones (Figure 6, next page).

Today, almost 40 % of Russian eggs are produced by LOHMANN TIERZUCHT hens, with a rising trend.

Another major problem is the supply of chicks and / or pullets to small and medium poultry farms. In the past, i.e. until 1990, almost every poultry farm had its own parent stock flocks as well as an own hatchery. It was therefore possible to offer parent stock chicks from these breeding farms at a cheaper price.

The progressive reconstruction of the farms has resulted in an imbalance between the capacity of the facilities and the possibilities of the hatcheries. There is hardly a hatchery which can produce 50,000 - 80,000 chicks in one hatch. There are very often facilities which are able to handle such a capacity but since the main focus has been placed on the table egg market, there is hardly any interest to supply the free market with chicks or pullets. As a result of this, LOHMANN TIERZUCHT GmbH now places a great emphasis on the expansion of our franchise distributors.

There are already the first success stories such as in the franchise facilities in Kemero-vo Inskaya PF which recently sold nearly 4 million chicks/year, Vologodskiy Centr Pticwodstwa in Vologda – about 2.5 million chicks, Waraksino in Izhevsk – nearly 2 million chicks or Roskar, Pyshminskaya or Sverdlovskaya), which have been supplying the market.

With the inclusion of a layer operation, the farm Aleksandrowskiy in Ryasan, which is LTZ's partner since 2005, the largest breeding farm in Russia, Okskaya was established.

In 2011, they started keeping LOHMANN TIERZUCHT laying hens and in 2013, the largest and most unique hatchery in Russia was opened (Fig. 5). With the support of Pas Reform Technik, 15 million LOHMANN hens are produced here every year. The capacity can and should be doubled in a second phase. In order to utilize the hatchery's full capacity of over 250,000, LSL and LB parents are being reared here. Thanks to modern transport technology, farms can be supplied with day-old chicks within a radius of about 2,000 km.

A major challenge remains in the expensive transportation of PS/GP chicks to Russia. Together with our customers, we are working on an appropriate solution.

Despite difficult market conditions, we still continue to see Russia as a very important growth market.

Norbert Mischke,  
Area Sales & Service Manager



Okskaya PF's PS Broodingfarm and PS housing

Russia 2011 – Performance Data of 25 Million Layers  
Official Data of Rospticesojus

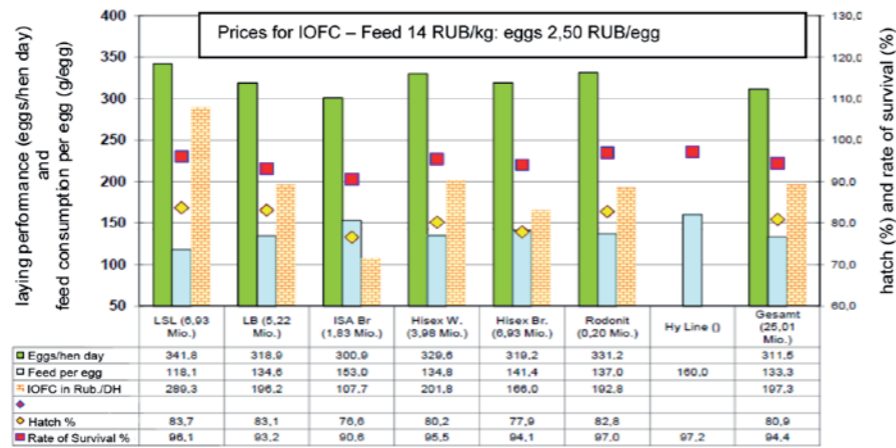


Figure 6: Performance of the different lines, according to Rospticesojus 2011

Table 1: Performance data of LTZ customers in Russia 2012

Poultry farm	Number of hens ('000)	Number of eggs/aver. hen	Number of eggs (m)	Feed consumption (g/egg)
Sverdlovskaya PF	2505	344	863	118
ChelyabinskayaPf	1792	340	609	
Roskar	2640	322	850	130
Waraksino	2713	341	667	135
Okskaya	1995	295	589	156

# Sweden: Gimranäs seminar in Jönköping

**On June 25th, Gimranäs AB invited egg producers, pullet growers, representatives of the professional journals and feed industry to a seminar held in the central Swedish town of Jönköping.**

More than 40 participants gathered together amidst glorious weather in the Elite Stora Hotel located at Lake Vättern. After snacks and coffee, Mr. Börje Hjalmarsson welcomed his guests. In the first presentation, Dr. Hans-Heinrich Thiele, head of LTZ's technical service department, highlighted the necessity of appropriate pullet rearing in order to achieve a good performance of the laying hen at a later stage. The second speaker, Robert Pottgüter, a nutritionist at LTZ, illustrated the basics of modern layer feeding. Today's LTZ layers have to be supplied with optimal nutrients to tap the full their genetic potential for a 90+ weeks production cycle!

After lunch, the geneticist Dr. Matthias Schmutz fascinated the audience with his speech. Using several examples, he illustrated different breeding strategies for the LSL/LB-Converter and pointed out the advantages of the Converter hens as compared to the Classic birds in terms of feed conversion especially for markets which are able to accept a slightly reduced egg size. After an exciting discussion and the summary of Mr. Börje Hjalmarsson, all participants made their way home in the early evening.

Niels Fischer  
Area Sales & Service Manager



The participants received lots of new information pertaining to breeding, growth and feeding for the LSL and LB Converter birds



## Dr. Ling Ling Chuah – new team member of LOHMANN TIERZUCHT

Dr. Chuah was born in Malaysia. In 2009, she graduated as a veterinarian at the Putra University in Malaysia. Already during her studies, she was able to gain practical experience within the poultry sector. After completing her training, she was employed in the Technical Service Department at our long-standing customer, Huat Lai Resources Berhad in Malaysia and

thereafter, as a Farm Manager at N&N Agriculture PTE LTD in Singapore. After an intensive training program in Cuxhaven from September until December 2012, Dr. Chuah now supports our Technical Service Team in the Asian region and operates directly from her home country, Malaysia.



## A new face at LOHMANN TIERZUCHT – Dr. Sohail Habib Syed

We welcome Dr. Sohail Habib Syed as a new member of our Sales and Service Team. Dr. Syed, a native of Pakistan, is a veterinarian and is responsible for the area of Sales and Technical Service in Pakistan. He performs his duties for LOHMANN TIERZUCHT directly from his home country. In order to prepare himself for his new field of activ-

ity, Dr. Syed completed a two-month training programme in Germany. Before working for LOHMANN TIERZUCHT, Dr. Syed was employed at Tec Man International as a Sales and Service manager.

Nicole Rehse  
Sales Department

# In ovo sex determination

**We, who are active in the world of poultry, all know it very well, but are you sure that the consumer is also aware that his roast chicken isn't the brother of the hen laying his eggs for breakfast?**

A highly negative correlation prevents breeding improvements in both laying performance and growth at the same time. This is how specialized lines came about as time went by, either for efficient production of high quality eggs or efficient production of poultry meat. Whilst both males and females are fattened in broiler production, it is not possible for males of layers to be reared economically. The result? Routine culling of day-old male chicks in the hatchery which is a great ethical problem and finding alternative solutions to this is a big challenge for breeding companies, science and hatcheries.

In this context, several projects are discussed and underway:

1. Spring chickens: despite their reduced growth performance, males of layer lines are still reared and fattened. Dependent on feeding and breed, the birds can be slaughtered at an approximate weight of 650 g after 49 days.

2. Dual purpose breeds: a cross of meat and layer lines which result in a „compromise“ that naturally comes along with both a lower egg production and growth performance and higher production costs (feed consumption).
3. Sex determination before eggs are incubated: with the aid of optical methods in which light is used for analysis, the germinal disc is examined to determine the size of the chromosome which indicates the sex of the embryo.
4. Sex determination of incubated eggs: male and female embryos can be detected according to different hormone levels in the allantoic fluid.

LOHMANN TIERZUCHT is involved in each and every one of these projects. In one research project, LTZ reared spring chickens and initiated marketing strategies for this niche product. The combined breeding for egg production and growth performance at the same time, resulted in „LOHMANN DUAL“, a dual purpose bird that received a

lot of attention at the Franchise Distributor Meeting 2012 in Berlin.

The third and fourth topics – possibilities and applications of in ovo sex determination prior to or during incubation, are subjects of a research project supported by the Federal Institute of Agriculture and Nutrition (BLE), where aside from LOHMANN TIERZUCHT scientists of the universities of Leipzig, Dresden and Jena are involved. The endocrinological approach, i.e. in ovo sex determination by hormone levels, will be described in this article.

For several years now, there are techniques which are known to be able to determine the hormonal status of embryos in the second half of the incubation period (i.e. days 13 – 17). Second phase particles such as sex determining hormones and related substances are accumulated in the allantois – the urinary bladder of the embryo – in different amounts, which can be used for gender differentiation. However, analy-

ses at this stage are relatively late and must also be critically considered from an ethical point of view. According to today's knowledge, the embryo's perception of pain begins on around the 10<sup>th</sup> day of incubation, so culling / removing eggs from the incubator at a later stage cannot be seen as an alternative to the culling of day-old chicks.

In numerous trials with several hormones at different stages of development, the working group of the Leipzig University led by Prof. Einspanier in the Endocrinology Department found out that hormones and their derivatives can be detected in allantoic fluid as early as the seventh day of incubation. The amount of estrone sulfate (a form of oestrogene) has been proven to be the best indicator for gender differentiation. Whilst there were no differences on day 7, the amount of estrone sulfate on day 9 was three times higher in female embryos than in males (Weißmann et al., 2013). Hatching eggs containing male embryos could therefore be easily recognised and removed making it possible for only female chicks to hatch after 21 days.

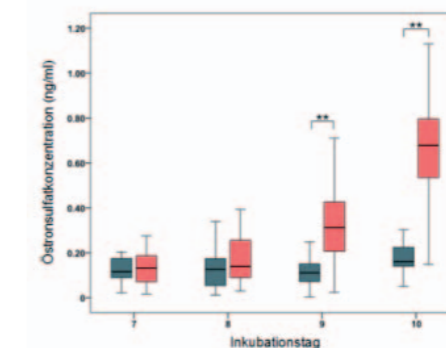
### How does this work practically?

Essentially:

1. Eggs are incubated for nine days, as usual.
2. Eggs are candled on day 10.
3. The egg shell of fertilized eggs is per-

forated (e.g. with a drill) close to the air cell.

4. A small amount of allantoic fluid is withdrawn with a syringe.
5. Hormone content is measured with the aid of an ELISA-test in the lab.
6. The amount of estrone sulfate is an indicator for the sex of the embryo.



Estrone sulfate concentrations in allantoic fluid of male (green bar) and female (red bar) eggs\*\*; p < 0.001

With much more eggs than in laboratory trials, the practicability of this approach was tested in the hatchery. In three different trials, allantoic fluid was obtained from more than 4000 LB eggs either on day 9 or 10 of incubation. Almost the same number of eggs was used for each test as control group. All the eggs were labelled and hatched separately under a cover so that the predicted and actual gender could be assigned individually. Furthermore, chicks were weighed individually after each

hatch. In these trials, sex could be correctly determined in nearly 95 % of the chicks, with only less than 3 % reduction in hatchability. Chick weight was not significantly different ranging from 37.9 – 38.6 g.

### Have all problems been solved now?

For starters: Yes, sex determination with this technique is indeed possible with sufficient accuracy and only small losses in hatchability. But (and this is a big But!): At the moment, one person is able to take 250 samples on one day in the hatchery. And again one person per day is needed to analyse these 250 samples in the lab since analyses are not possible in the hatchery. Considering that 45 million female chicks are hatched in Germany per year, around 2.3 million eggs would have to be analysed per week!

So although the results are promising, in-ovo sex determination still seems to be far off from daily business. The automation of the technical processes, egg handling and the implementation of short-term analytics in the hatchery are challenges we have to deal with in the near future.

Dr. Anke Förster  
Genetics

Literature:  
Weißmann, A., S. Reitemeier, A. Hahn, J. Gottschalk, A. Einspanier (2013). Sexing domestic chicken before hatch: A new method for in ovo gender identification. *Theriogenology* 80, 199-205



Figure 1: Experimental set-up in the hatchery

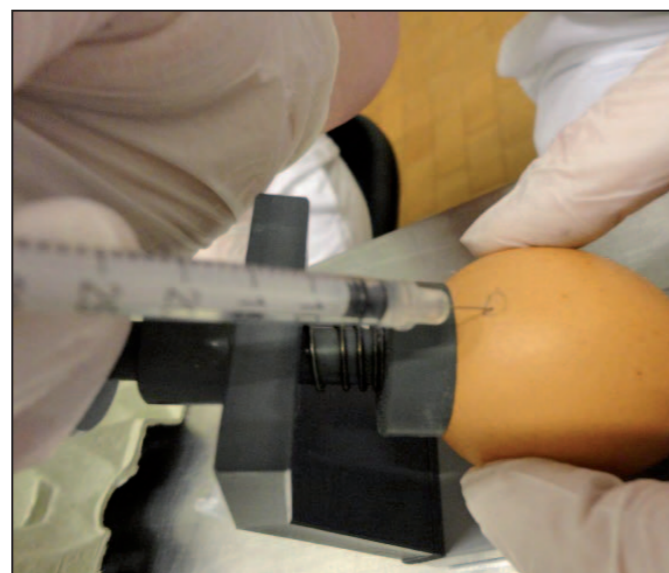


Figure 2: Withdrawal of allantoic fluid

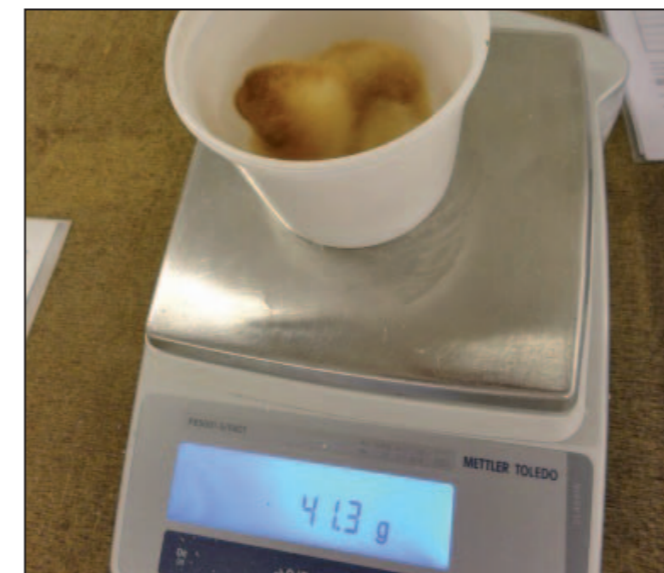


Figure 3: Individual weighing of chicks



Figure 4: Hatching eggs were sorted and set by sex according to hormonal analysis

# LOHMANN DUAL – Layer and Broiler at the very same time

**Dear readers,**  
**As you may perhaps remember, we announced the two new layer lines, LB- and LSL-Converter in the last edition of our LOHMANN Poultry News. Two layers which have an excellent feed conversion ratio thereby contributing to more sustainability and conservation of resources. Aside from economical aspects, ethical aspects also need to be considered in animal breeding. One of these animal welfare issues is indisputably the culling of day-old male layers. Therefore, different strategies and approaches, e.g. sex determination on incubated or rather on non-incubated eggs have to be further developed or rather, the utilisation of male layer chicks need to be extensively explored. In regard to the rearing of males, one proposal is the so-called “Spring Chicken” and the other, the dual purpose chicken. What exactly is a dual purpose chicken? Which performances can be expected and how the concept looks like from an economical point of view, are described in the following article.**

Whilst hens lay eggs, the cockerels have to gain more meat. The dual purpose chicken unites both of these production forms, but it may also require a compromise from both sides: Laying more eggs and at the same time gaining more meat, is simply implausible. Nevertheless, with the cross-breed “LOHMANN DUAL”, we have attempted to achieve this act of balance. Contrary to the new Converter line which is

the result of precise selection from existing lines, the LOHMANN DUAL is a new cross between layer and broiler genetics and combines the advantages of both breeding lines in the best way possible. All females and males of the same hatch are either reared together or separately. However, in order to exploit their full growing potential, males need to be reared separately. If you rear both genders together, you will have

to orientate on the females to optimally prepare them for laying. However, in using standardised grower and developer laying hen feed, losses in meat gain on the part of the male has to be accepted. On the other hand, heated houses for the first weeks are linked to high energy costs which can be used more efficiently when rearing all the chicks together.



## LOHMANN DUAL Layer

Unlike the LOHMANN BROWN, LOHMANN DUAL layers have a larger appetite. In production, feed consumption is up to 140 g per hen and day. Together with an expected egg number of 250 eggs per annum and a slightly lighter egg weight, LOHMANN DUAL has a less favourable feed efficiency than LOHMANN BROWN. When including feed costs from rearing into economic calculations, feeding expenses alone are € 3 higher per hen housed up to 68 weeks of age, i.e. assuming a feed price of € 35/100 kg of feed. Furthermore, egg weight is in a much higher range for Lohmann Dual than it is for LOHMANN BROWN layers. Egg size is particularly smaller at the beginning of production. Less eggs

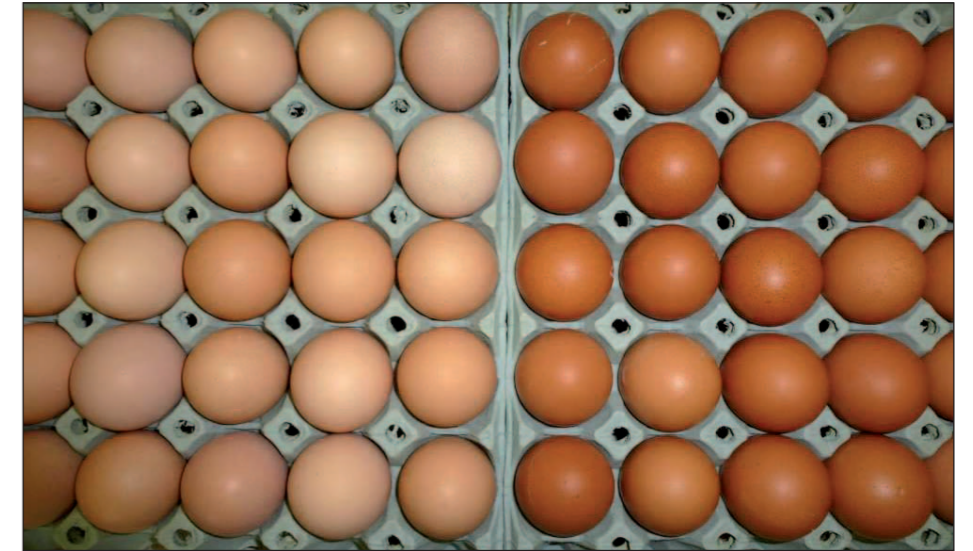


Figure 2: Comparison on eggshell colour: LOHMANN DUAL vs. LOHMANN BROWN

Table 1: Economic comparison of LOHMANN DUAL layers

	LB Layer	DN Layer
Egg number/68 weeks	290	250
Feed/day	120 g.	140 g.
Feed consumption in production	40 kg	47 kg
Feed consumption in rearing	6 kg	8 kg
Feed/egg incl. rearing	158 g.	220 g.
Feed costs incl. rearing	€ 16	€ 19
Profit/hen (€ 1.3/kg EM)	€ 24	€ 21
Profit minus feed costs	€ 8	€ 2

and additionally, smaller eggs, reduce egg mass production and therefore, the profit per hen. The difference in profit between LOHMANN DUAL and LOHMANN BROWN minus feed costs is € 6 per bird. This economic disadvantage as well as the appreciable lower ecological balance, resulting from a higher feed intake with simultaneously reduced production of high-quality food, can only be compensated to a small extent by an increased gain of meat in

LOHMANN DUAL birds. A practicable and economically viable egg production via dual purpose chickens is therefore only possible when these eggs are sold at a higher egg price. The lighter brown eggshell colour which is clearly different as compared to LOHMANN BROWN eggs, could be helpful to point out that LOHMANN DUAL eggs do indeed have a unique feature.

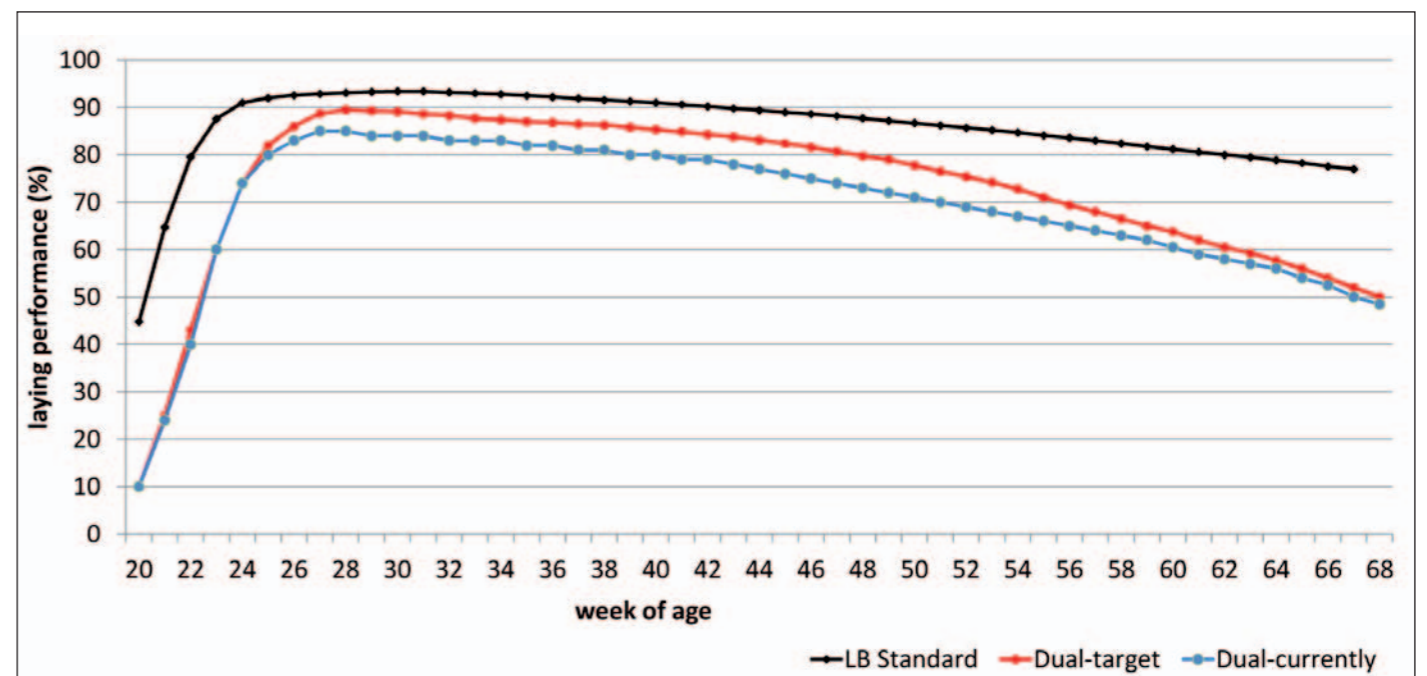


Figure 1: Egg production of currently tested LOHMANN DUAL layers as well as the breeding target of this cross and standard LOHMANN BROWN performance.

**LOHMANN DUAL Male/Broiler**

Live weight gain in LOHMANN DUAL is moderate in comparison to a slow-growing broiler. From week three until ten weeks of age, dual birds and broilers grow further apart. Even on a long-term fattening period of 12 weeks, slow-growing broilers might already become adipose although both breeds had a slight difference in body weight. Fed with broiler diets for 70 days, the dual cockerels attained a live weight of 3 kg. The weight of the carcass was around 2 kg. In terms of carcass performance, there were hardly any differences between the dual cockerels and conventional broilers. The amount of valuable parts was at 50 %. Unlike special broiler lines, dual cockerels have a much lesser portion of breast meat in favour of the portion of the thighs.

The fattening performance of LOHMANN DUAL males is very satisfactory. Feed conversion ratio is with 1:2.5 much better as compared to a LOHMANN BROWN cockerel (1:4). However, the economic advantage of € 1.20 for one cockerel of LOHMANN DUAL is accompanied by an economic disadvantage of € 6.00 for each LOHMANN DUAL Layer which is due to 40 % higher feed expenses per egg. Furthermore, the produc-

tion cycle of a LOHMANN DUAL layer is at this time much shorter than for LOHMANN BROWN layers. At an age of 68 weeks, laying performance of LOHMANN DUAL is decreased to less than 50 %. Therefore, a prolonged production period to 75/80 weeks of age is unprofitable. However, there is some good news too. So far, all performances for LOHMANN DUAL shown are based on an unselected flock. This means, the LOHMANN DUAL birds available are the first approach.

By consequent performance testing and selection on LOHMANN layers, genetic pro-

gress in relevant traits can be expected in the coming years.

Dr. Wiebke Icken and Dr. Matthias Schmutz, Genetics

Table 2: Economic comparison LOHMANN DUAL - male

	LB male	DUAL male
Live weight at 70 days	1.4 kg	3.5 kg
Feed conversion ratio	1 : 4	1 : 2.5
Feed consumption	5.5 kg	7.5 kg
Feed costs	€ 2.20	€ 3.00
Profit/kg	€ 0.7	€ 1.0
Profit per bird	€ 1.00	€ 3.00
Profit minus feed costs	€ - 1.20	€ 0.00

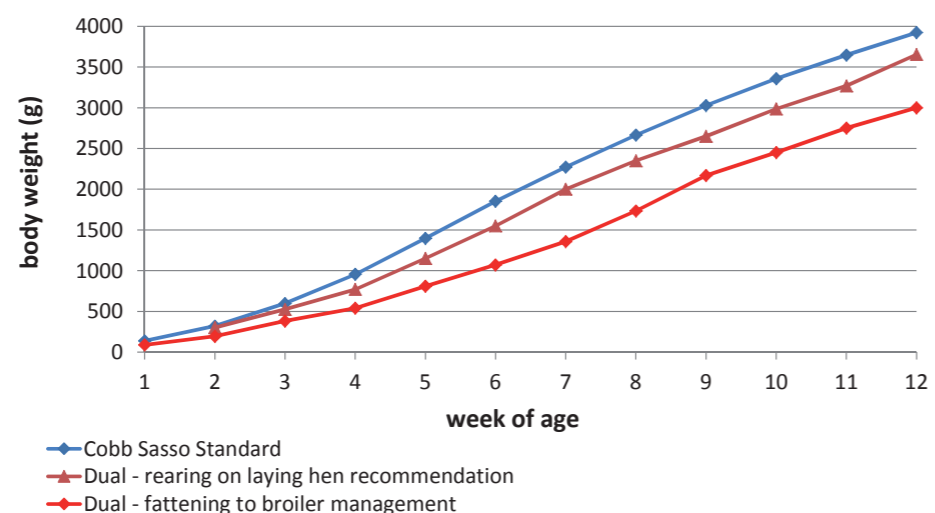


Figure 3. Live weight development of slow-growing broilers vs. Lohmann Dual males fattened in regard to laying hen rearing recommendations or respectively, to a broiler management.



Figure 4: Comparison of carcasses at 70 Days of age (LOHMANN BROWN - male, LOHMANN DUAL - male, slow growing broiler)

# LOHMANN TIERZUCHT market leader in Algeria

**With 2,3 Mio square meters and 32 Mio inhabitants, Algeria is one of the biggest layer market in Africa together with Nigeria and South Africa.**

24 Mio layers are produced every year in Algeria with an unknown number of chicks smuggled additionally into the country over the Moroccan boarder. The supply of layer and broiler chicks used to be the responsibility of the 3 government farms Oravio, Oravie and Orac, named after their location in the East, the West and the center of the country. Nowadays, about 50 % of the market is in private hands with 15 layer parentstock operations mainly in the Northern, fertile and relatively cooler part of the country.

About 80 % of the farmers are producing their own feed due to the high costs and insecure quality of the fabricated feed. A production peak over 93 % is common as well as 12-16 weeks of production over 90 %.



The participants of this year Lohmann School in Algiers

Algeria is a market for XLarge brown eggs produced nowadays mainly in cages. The traditional houses with only natural ventilation and manual feeding systems are more and more replaced by modern, environmental controlled houses. Main problem is the high density of poultry production in the North with a lack of biosecurity on the farms, therefore Gumboro, IB and ND challenges are very common.

A trial with LOHMANN BROWN in the 90's showed that the egg producers are looking for a much bigger egg size than the LB. Luckily the genetic department had purchased a line with very big egg size from a university in Germany and after a couple of years was able to offer a new breed named LOHMANN TRADITION specially for these kind of markets. With the XL eggs, very calm behavior and good plumage until the end of production which is a very good selling point for the life stock market, this hen seemed to be the ideal line for Africa so the first LOHMANN TRADITION flock was supplied to Oravio in 2003. It became a success story and nowadays 43 % of the egg producers in Algeria are using this breed produced by 6 hatcheries, 5 private and one government farm. Apart from the egg size the Algerian producers are also

appreciating the good laying performance of the bird and the excellent shell quality until end of production.

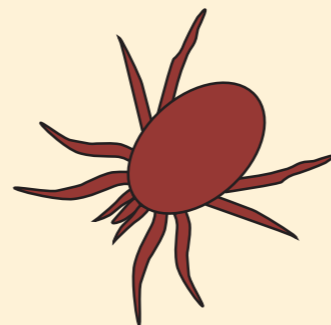
To support the egg producers and breeder customers LOHMANN TIERZUCHT is organizing annual seminars in Algeria as well as biannual francophone LOHMANN SCHOOLS in either France or French speaking countries, apart from regular technical visits to the farms. This year the Algerian seminar took place in Algiers at the Hilton Hotel with 39 participants and the LOHMANN TIERZUCHT representative Dr. Salim Benkelil has done an excellent job organizing this fruitful event. Guest speakers from LOHMANN FRANCE Joël Audefrey and Julien Flori from Bio-Chêne Vert impressed the audience with presentations about layer management and vaccination techniques while LTZ sales director Michael Seidel gave an overview of the EW group and the LOHMANN TIERZUCHT company. The meeting was rounded up by a festive lunch.

**The next francophone LOHMANN SCHOOL will take place in Nantes in October.**

Viola Holik  
Area Sales & Service Manager



# Poultry Red Mite – a big challenge for egg producers



**Among all the poultry Ectoparasites such as fowl ticks, lice and flies, mites are considered to be the most destructive ones. Particularly the poultry red mite (*Dermanyssus Gallinae*, also known as the Fowl Red Mite) has been identified as the most harmful one for laying hens.**

The title “Red” has been given to this mite as it turns from grey to red or dark red after being engorged with blood. Red mites are nocturnal (night-active) parasites which suck the birds’ blood during periods of darkness and hide themselves in all kinds of gaps and cracks during the daytime. This behaviour makes the treatment of red mites harder and more complicated than other mite species like the northern fowl mite (*Ornithonyssus sylviarum*). Unlike the red mite, the northern fowl mite spends its entire life attached to its host. As such, treatment should only be applied directly on the birds. On the other hand, the red mite is able to survive long periods of time in the surroundings without being on the host bird and without even having a single meal of blood. This means that any treatment against fowl red mite must be applied on the birds as well as within the house and on the equipment. This implies that even after the removal of the birds, the poultry house will remain infested for

a long time, i.e. if no appropriate treatment would be applied. Furthermore, the long period of egg production allows for red mites to create large populations and cause heavy infestation in poultry farms. Under favourable conditions (i.e. within ambient temperatures of between 25 – 30 °C and a relative humidity of 60 – 70 %), the life cycle of a red mite from an egg to an adult, can be completed within 7 – 14 days.

Fowl red mites are spread almost worldwide. Especially farmers in Europe, the Middle East and Asia do not only suffer from production losses but are also confronted with health as well as financial damages caused by the infestation of these mites. The problem of its infestation and the consequences are often underestimated. Losses due to red mite infestation are estimated to be between 0.50 and 1€ per laying hen per year in Europe depending on housing system, infestation intensity and control methods.

## Treatments against poultry red mite

The methods of controlling red mite can be divided into applications of conventional chemicals and alternative solutions.

### Conventional treatments:

Synthetic acaricides such as Organo Phosphates, Carbomates, Pyrethroids are the most common chemicals used against mite infestations, although it must be mentioned that due to some problems, their efficiency and the success of their application are getting to be more questionable. Developing resistance against acaricides caused by red mite populations has been ongoing for years now which might make treatment almost ineffective. Furthermore, wrong dosage and improper application of an acaricide can also accelerate the process of resistance development. Using higher dosages of pesticide is also a risk for the health of birds and consumers due to

possible residues which might be found in eggs and meat. On the other hand, constant changes in legislations in respective countries and a very limited number of pesticides licensed against red mite, make the situation even harder for farmers to control this pest.

### Alternative treatments:

In order to tackle the abovementioned problems and other hindrances in the use of conventional chemicals and pesticides against poultry red mite, new alternative solutions were developed in recent years. It is well-known that “**Essential oils**” derived from plants such as garlic, neem tree, thyme and tea have a toxic effect against red mites. Based on this fact, various products in forms of drinking and feeding additives are available on the market. Side effects such as tainting eggs may occur whilst using these products.

“**Biological pesticides**” such as Spinosad which has been used against mites of agricultural crops for several years now, also have a good reputation for controlling poultry mites. Spinosad is a natural product based on the fermentation of the bacteria *S.Spinosa*. Proper application is essential for a successful treatment.

### Few general recommendations are useful when applying a chemical treatment:

- Specialised veterinary laboratories should test the efficiency of a product by conducting a resistance test before application.
- Avoid using an acaricide repeatedly.
- Apply the treatment properly and follow the manufacturer’s instructions carefully.
- Depending on the construction of the house, make sure that the mites are directly targeted and treated with pesticides in cracks and gaps during the treatment process.
- Apply the treatment during a period of darkness when the mites are out of their hideouts.

Using so-called “**Predator mites**” is another rather new method of controlling red mites. As a natural enemy, the predator mite is able to combat and eat poultry

red mites. Choosing the correct predator candidates in addition to proper management are essential for this method of control.

Based on the fact that temperatures above 45 °C are considered as lethal for poultry red mites, “**Heat treatments**” have been practiced lately in European countries. Heating up the poultry house to up to 60 °C for about 2 hours or 45 °C for a longer time after birds are removed, are common models of this treatment. The fusibility of plastic parts of the equipment must be considered and treatment should be performed by experts with great caution. “**Low temperature treatments**” with liquid nitrogen and dry ice have also been experimented on. These methods are too expensive and still need to be developed for common practice.

Special “**Intermittent lighting programs**” are also tools to control red mites and this is being practiced mainly in Middle Eastern and African countries. Negative effects on feed consumption, laying performance and disturbance of circadian rhythm can be expected. However, the European bird welfare legislation forbids such lighting regimes.

An example of a very common treatment against poultry red mite in Germany and the Netherlands is the use of “**Inert dusts**”, a physical treatment based on Silicon Dioxide compounds which blocks the joints between chitin shell and causes the immobilisation of mites. Furthermore, silicate dust enters the respiratory system of the red mites causing suffocation. Choosing the proper product, mixture, particle size, pressure and appropriate application are crucial for a successful treatment. On the other hand, application of inert dusts in poultry houses causes stress and health problems for birds and staff. The impact and side effects of this treatment should be further investigated.

### The most important consequences of red mite infestation are as follows:

- Restlessness and stress in the flock (esp. during the night and in the nest)
- Drop in egg production
- Mortality in cases of extreme infestations
- Skin irritation, reduced plumage quality, dermatitis
- Increase of second-grade eggs
- Health problems and stress for the farm staff (Dermatitis, allergic reactions)
- Feather-pecking, cannibalism
- Transmission of poultry diseases and zoonosis (Salmonella, ND, Pasteurella, etc.)
- Weight loss, anaemia (pale wattles and combs as an indicator)
- Reduce of seminal fluid volume in parent stock male birds



Apply a treatment as soon as the first mites have been detected and before the mite population increases. (A heavy infestation of fowl red mites in a poultry house, Photo: Farhad Mozafar / LTZ)

The development of "Vaccines" is also another alternative solution in controlling the populations of poultry mites. There are different research groups which are working on identifications and characterisation of possible antigens against red mites. If such vaccines can be successfully developed, the first candidates for a commercial vaccine against poultry red mites might just be available in the near future.

### Conclusion

Unfortunately, the current treatment methods which are available are not effective enough to keep red mite infestation under control in many poultry farms worldwide. The ban of conventional cages in Europe and keeping more laying hens in alternative systems like free-range which is, by the way, favoured by red mites, make the situation even more difficult. These kinds of

systems give mites more hiding possibilities and they can therefore escape control methods more easily. Hence, there is still a great demand in developing more useful effective treatments such as vaccines to keep red mite infestations under control. However, controlling red mite population still remains a very big challenge in the keeping of laying hens.

Farhad Mozafar  
Technical Service

### General Recommendations

Some simple basic tools besides biosecurity measures and hygiene management issues can be very useful in controlling the infestation of red mites. Some of these are as follows:

- Find an effective and individual concept, e.g. the combination of different treatments suitable for your farm and housing system.
- Give mites little or no possibility to hide themselves in equipment and in the building of your farm.
- Use monitoring tools like mite traps to start a treatment as soon as the first mites have been detected and before the mite population increases.
- Apply treatment directly after the removal of the birds and before the mites get a chance to hide themselves in cracks and crevices.
- The use of an effective insecticide against red mite eggs is highly recommended since many treatments do not show efficiency against mite eggs.
- Prevent the occurrence of red mite reinfestation in your farm (from rearing, construction of houses, transport vehicles, staff, visitors, wild birds etc.)



Choosing the proper product, mixture, particle size, pressure and appropriate application are crucial for a successful treatment with inert dusts. The impact and side effects of this treatment on birds and humans should be further investigated. (A poultry house after Silicate dust treatment, Photo: Farhad Mozafar / LTZ)



Use tools like adhesive mite traps or cardboards to monitor infestation intensity in your farm (different kinds of red mite monitoring tools, Photo: Farhad Mozafar / LTZ)

# Ghen Corporation has been rising LOHMANN's sun in Japan for 50 years now



Since its foundation by former chairman Hideo Tokoro in 1963, Ghen Corporation of Gifu, Japan has grown to be the undisputed leader in the Japanese layer chick industry. At present, this full subsidiary of EW Group supplies nearly 90 % of all layer breeders in Japan.

About 22 independent hatcheries purchase breeders from Ghen's GPS operation and distribute the layer chicks all over Japan. Although the Japanese consumers prefer white-shelled eggs which is about 65 %, brown (28 %) and tinted (7 %) eggs are also sold as so-called branded eggs.

A recently founded company called Nihon Layer which also belongs to the EW Group is a key producer of commercial layer chicks with an annual capacity of

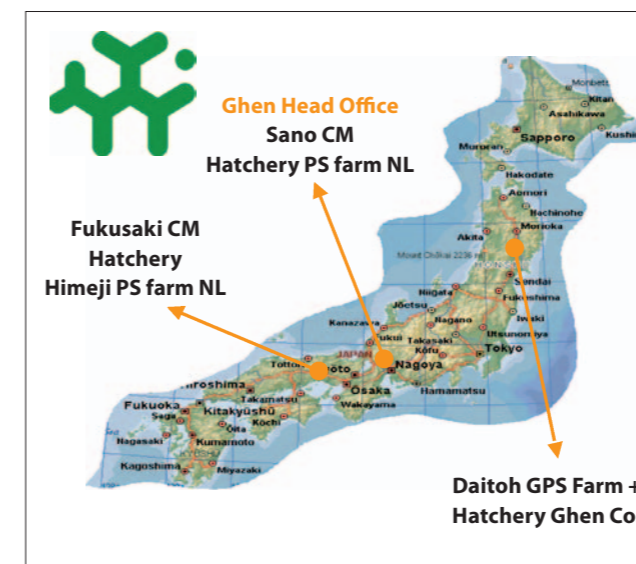


almost 25 million chicks. Since the early nineties, the market shares of LSL commercials (called Julia in Japan) have grown to more than 85 % of the domestic white egg layers. LOHMANN TIERZUCHT supplies both LSL-Classic and LSL-Lite grandmothers to Japan to safeguard continuous production of breeding stocks. Both breeds form a perfect match for producers who need M and L class eggs. In 2012, a variety of LSL called "LSL-Ultra-Lite" with predominantly M-S sized eggs completed the package.

### LOHMANN TIERZUCHT senior staff attends celebrations

During 2013, several events were organized to commemorate the anniversary of the company. Earlier this year Mr. Erich Wesjohann, chairman of EW Group, attended the so-called "Presidents Celebration" which was also attended by owners of all hatcheries. In August, a party was arranged for Ghen's staff where LOHMANN TIERZUCHT was represented by its Managing Director Prof. Dr. Rudolf Preisinger and Sales Director Michael B. Seidel. On this occasion, they expressed their gratitude for the great achievements Ghen's team has realized over the years.

Ron Eek  
Area Sales & Service Manager





# Ommat achieves another milestone

**First layer hatchery in the Gulf region starts production in November 2012.**

In mid-November 2012, Ommat Co., also known as Arab Poultry Breeders Company with its main office in Jeddah, Saudi Arabia, hatched their first batch of LOHMANN LSL chicks in their brand new hatchery in the United Arab Emirates (UAE).



Team of Ommat UAE hatchery with Eng. Shaikh Eldin, GM Ommat UAE (red-grey jacket) and Ron Eek of LOHMANN TIERZUCHT (in white) during hatchery inspection.

After nearly 4 years of preparation, the state of the art hatchery made their first chick delivery for the domestic market. Ommat UAE is a full subsidiary of the Ommat group, which already has operations in Saudi Arabia, Egypt and Sudan for many years now. The general manager of the operation, engineer Mr. Shaikh Eldin, has extensive experience of more than 25 years in the poultry industry. Thanks to his endurance and the vision of Ommat's chairman Mr. Hussein Bahri, layer farms in the Gulf area can now enjoy secure, top-quality

supply of locally produced layer chicks. The table egg market in the UAE has enjoyed a dramatic growth in recent years with about 12 modern layer farms at present. Individual companies have very strong

branding of eggs which is appreciated by most consumers. Table egg consumption in most countries in the Middle East region is below the global average (table 1) so there is still room for further expansion. Producers of table eggs face strong competition though from subsidized exports from USA, Europe and Brazil and low-cost countries like India and Saudi Arabia. For several years now, costs of imported raw materials for feed have increased, as well as energy costs which have resulted in almost double production costs. Increased costs

can only partly be transferred to consumers as authorities put price caps on essential foodstuffs like eggs and no governmental subsidies are granted.

The project is located in the emirate of Abu Dhabi, about 230 kilometers west of the capital in a remote desert area, free of any other poultry projects. The building has a dimension of 70 x 36 meters and is equipped with Genesis 4 incubators from ChickMaster and PasReform air handling equipment. At present, 12 setters and 6 hatchers have been installed giving a total annual capacity of 7.5 M. layer chicks. The hatchery was built with an eye for the future; the total capacity can be easily extended to 10 M. layer chicks within the coming years.

With the design and materials used for construction, high emphasis has been put on hygiene and one-way principle of hatching eggs, without any cross-overs. A team of about 15 experienced hatchery staff has been hired, completed with drivers for the brand new chick trucks which will transport chicks directly from the hatchery to the customer's brooding facilities. Logistics and service will be organized from the office near Abu Dhabi.

The preparation and design of the project started back in 2008 when layer chicks supply to the UAE and other Gulf countries faced some problems due to import restrictions. Ommat took their responsibility and dedication towards their customers seriously and decided to build an operation in the area. Besides supplying chicks to a fast expanding UAE market, Ommat also aims at supplying their chicks to Oman and

have exports to third countries through the well-connected airports in UAE.

Ron Eek, area manager for sales and technical support, visited Ommat's hatchery in December 2012 and was impressed by the high standards of the facility. This hatchery exceeds standards used in modern hatcheries in Europe and USA where environmental constraints, energy-saving issues and limitation of labour force are more important than common sense production of top-quality chicks.

Traditionally, individual farms in the Gulf region used to import layer chicks from Europe. Nowadays, only very few farms continue to import from overseas.

Domestic production prevails due to:

- increased freight charges by airlines and limited capacity to transport live chicks
- reduced number of sizeable flocks of white layer-type breeders in Europe due to a shift to brown layers

The advantages are:

- quality compromises for chicks by air-freight compared to direct delivery by special chick trucks
- convenience of direct delivery by truck as compared to own airport transfer
- presence of service staff is a clear advantage especially when the layer farm requires fast support
- common countries are banned for export due to veterinary restrictions; domestic supply gives security

Ommat group is part of a high profile multi-national group of companies founded by



Check of setters by Shaikh Eldin and Ron Eek.

Mr. Hussein Bahri in 1989. Over the years, the group has expanded their position in the Middle East poultry industry continuously with subsidiaries in Egypt and Sudan (broiler (-breeders) and processing) and Abu Dhabi (UAE) and Jeddah (Saudi Arabia) for the layer chick business.

For more than 20 years now, Ommat is the exclusive distributor of LOHMANN layer chicks in Saudi Arabia, the Gulf region and

Yemen with well above 75 % market share in the region. LOHMANN TIERZUCHT takes great pride in cooperating with a professional partner such as Ommat. The combination of outstanding genetics and excellent distribution and service by Ommat is the basis for success for the table egg producers in the region.

Ron Eek  
Area Sales & Service Manager

Table 1: Table egg production / consumption in the Arabic Peninsula

Country	Production (M.) 2012	Production (M.) 2015 (expected)	Consumption eggs / person
Bahrain	50	50	60
Kuwait	445	461	182
Oman	163	192	73
Saudi Arabia	3418	3804	115
Utd. Arab Em.	465	478	126
Yemen	1230	1538	47
Arab. World (22 x)	30.556	33.549	83
World		1.044.050	157

Sources: FAO - IEC

# LOHMANN TIERZUCHT successful at the IPPE (Atlanta) and the VIV Asia (Bangkok)

LOHMANN TIERZUCHT can glance back at two successful shows. Interesting discussions with an interactive exchange of great knowledge, not to mention the acquisition of new customers have made these

two shows a great success for us. The gathering of international poultry experts is always an ideal opportunity to network with other experts from the poultry industry.

**We look forward to the upcoming SPACE**

**exhibition in Rennes, France from September 10<sup>th</sup> to 13<sup>th</sup> September 2013!**

Stella Schnor  
Marketing

# EuroTier 2012 – a big success

From November 13<sup>th</sup> – 16<sup>th</sup> 2012, Hanover opened its doors once again to welcome the EuroTier. After 2008, LOHMANN TIERZUCHT presented itself with a new booth at the fair. With 2428 exhibitors, an area of 251,000 square meters and 159 896 visi-

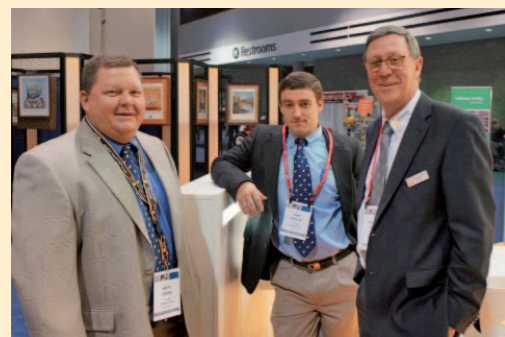
tors, the EuroTier in 2012 was once again very successful.

The booth was visited by a great number of visitors and as expected, interesting discussions and lively exchanges took place between customers and new visitors. The

booth party which was also a highlight for LTZ at the show was a great success and was attended by over 200 guests. Finger foods, drinks and good music rounded up the last day of the exhibition.

Stella Schnor  
Marketing

IPPE (Atlanta)



VIV Asia (Bangkok)



EuroTier 2012



# LOHMANN LSL wins the first prize at the egg quality contest held at the Festa do Ovo in Bastos (Brazil)



**The Festa do Ovo is one of the few shows exclusively dedicated to the layer business worldwide. It is held every year in Bastos, a small city located in San Pablo state. This region has a high concentration of egg producers with 20 million layers housed in very different types of management systems. The highlight of this show is the egg quality contest and its results are anxiously expected not only by the local poultry people, but also by all Brazilian egg producers.**

The procedure is as follows:

## First step: Visual Selection

Each judge selects the best 12 samples of each colour in terms of the external quality (shell smoothness, uniformity in colour, egg shape etc.)

## Second step: Closer subjective selection

The judges are divided into groups and each group gives scores to the pre-selected best samples in terms of external and this time, also internal quality of 6 eggs per sample that are broken for this purpose.

## Third step: Mechanical scoring

Parallel to the scoring of internal quality, the so-called "Digital Egg Tester Electronic Machine" will give an index for each sample which includes egg shell thickness and resistance, egg weight, egg yolk colour and Haugh Units. This step bears the same im-

portance in the scoring as with a group of judges (maximum 300 points)

After six hours of intensive selection work, the six best samples of each colour would be announced.

This year, the winner on the white sector was the LSL sample presented by the farm Granja Ovo Forte by Mr. Francisco Nunes da Silva also known as "Tica". Mr. da Silva is a Poultry Technician with 35 years of experience and has reared layer pullets for the Brazilian market for 20 years now. Only three years ago, he started his own business and presently has 80,000 layers in production. The high quality of the eggs produced by his LSL flock at 30 weeks of age is expressed by the score of 1118 points. His company was awarded with the first prize whereas his contenders received the second prize for a score of 1062.50 and the third prize for 1057 points. We congratulate him and the members of the Technical Service of LOHMANN DO BRASIL who supported him with nutrition and management advice to achieve this highly regarded prize.

Dr. Luciano Cousinet  
Area Sales & Service Manager



The selection and scoring of the eggs sent by the participants is performed by 13 judges by means of a very sophisticated procedure that guarantees absolute fairness and anonymity.

Each egg producer is allowed to participate with two samples (30 eggs each) of each layer type (white and brown). The minimum egg weight is 60 gr. Each sample received a coded identification.

The panel of 13 judges consists of vets, poultry technicians and researchers as well as one representative from each genetic provider.

stance, egg weight, egg yolk colour and Haugh Units. This step bears the same im-

## Calendar

### VIV Europe

20<sup>th</sup> – 22<sup>nd</sup> May 2014, Utrecht, The Netherlands

### Midwest Poultry Federation

18<sup>th</sup>–20<sup>th</sup> March 2014,  
Saint Paul, Minnesota, USA

### British Pig & Poultry Fair

13<sup>th</sup>–14<sup>th</sup> May 2014,  
Stoneleigh Park, Warwickshire, Great Britain

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**Editor:** LOHMANN TIERZUCHT GmbH  
Am Seedeich 9 – 11 · 27472 Cuxhaven (Germany)  
P.O. Box 460 · 27454 Cuxhaven (Germany)  
Phone +49 (0)47 21 - 505 - 0 · Telefax +49 (0) 4721 - 505 - 222  
Email: Info@ltz.de · www.ltz.de

**Responsible:** Stella Schnor (schnor@ltz.de)  
**Editorial collaboration:** Javier Ramirez, Norbert Mischke, Niels Fischer,  
Dr. Anke Förster, Dr. Wiebke Icken, Dr. Matthias Schmutz, Viola Holik,  
Farhad Mozafar, Ron Eek, Nicole Rehse and Stella Schnor

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