LOHMANN LSL-LITE
LAYERS

LOHMANN
TIERZUCHT

MANAGEMENT GUIDE
NORTH AMERICAN EDITION
CAGE HOUSING

BREEDING FOR SUCCESS ... TOGETHER

LOHMANN LSL-CLASSIC

LOHMANN BROWN-CLASSIC

LOHMANN LSL-LITE
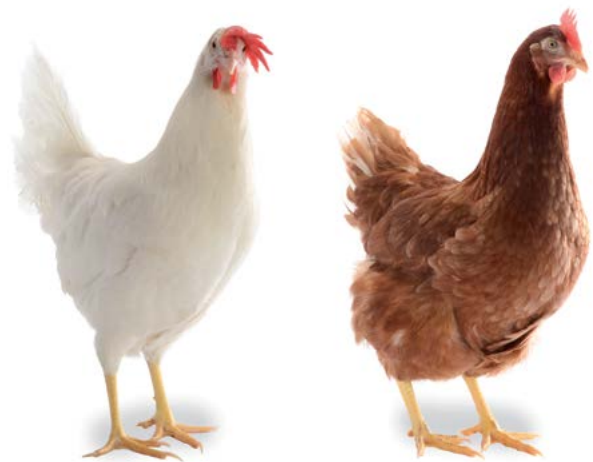
LOHMANN BROWN-LITE

LOHMANN LSL-EXTRA

LOHMANN BROWN-EXTRA

**LOHMANN TRADITION**

LOHMANN SANDY

LOHMANN SILVER

The mainstream products are **LOHMANN LSL-CLASSIC** and **LOHMANN BROWN-CLASSIC,** well known for their efficient production of quality white and brown eggs, respectively.

Increasing worldwide concentration and growing competition in the poultry industry requires efficient layers to satisfy specific market requirements.

LOHMANN TIERZUCHT offers a wide range of high quality layer strains "bred in Germany" to meet these demands.

The intensive monitoring program of all breeding farms and hatcheries by our Veterinary Laboratory assures the highest possible health status of chicks supplied by LOHMANN TIERZUCHT.
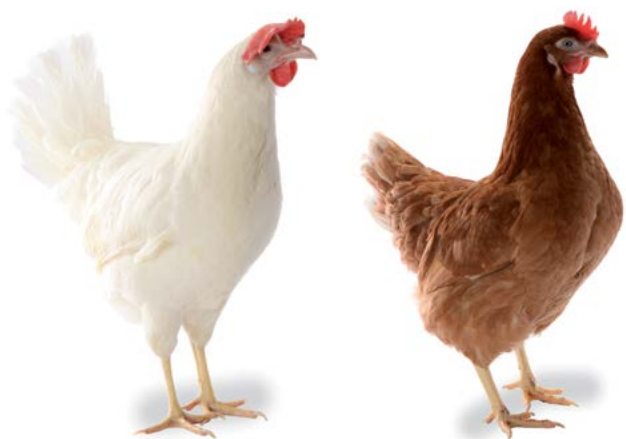
LOHMANN LSL-LITE and **LOHMANN BROWN-LITE** are two products, designed for markets which prefer smaller eggs and measure efficiency in g feed per egg.

For markets requiring more XL-size eggs **LOHMANN-LSL-EXTRA** and **BROWN-EXTRA** are the ideal white and brown layers.

LOHMANN SANDY is a white feathering layer for the production of cream colored eggs. The layer has an outstanding feed conversion and robustness.

LOHMANN TRADITION, a brown egg layer with high early egg weight is being developed mainly for markets requiring even bigger egg size.

LOHMANN SILVER is a predominately white feathering layer for the production of uniform brown eggs with reduced egg weight. Her special advantage is the excellent feathering.

CONTENTS

Why should you study this management guide?

Most people who are involved in commercial egg production, have seen management guides for different strains of layers before and may think "if you have seen one, you've seen them all". Others take the contents more seriously and expect frequent updates to find specific data which apply to the current generation of layers and current management practices.

Newcomers in the business may need more detailed explanations than can be presented in this compact format.
We hope that each reader will find some useful information, to confirm proven management practices or to stimulate improvements. ■
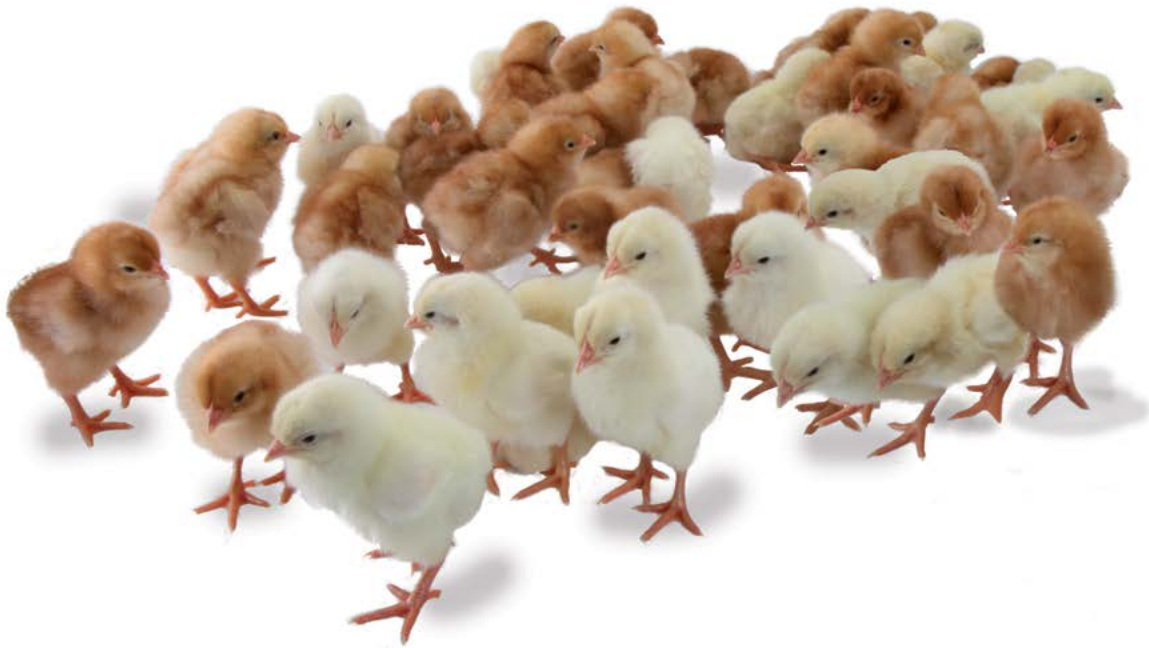
In recent decades advanced methods have significantly improved breeding quality. Due to the development of powerful electronic data processing systems, it has become possible to put the theory of selection systematically into practice – thus turning modern quantitative genetics into reality.

From very early on, LOHMANN TIERZUCHT used these new techniques and can therefore offer an extensive range of experience and know-how. A highly qualified team of specialists guarantees prompt utilization of the latest research results. The market's changing demands can therefore be met quickly and effectively.

Moreover, nationally and internationally, LOHMANN TIERZUCHT is ranked as first class for questions on poultry health, which is one of the decisive factors for performance and profitability.

Intensive research in our own Veterinary Laboratory, besides increasing resistance to diseases by genetic means and ensuring the strictest conditions of hygiene, is fundamental to the quality of LOHMANN TIERZUCHT products.

In addition, LOHMANN TIERZUCHT also provides expert advice on all questions of feed, nutrition and technical service.

Practice profits from this extensive expertise in all aspects of poultry management. With LOHMANN TIERZUCHT products, eggs are produced in top quality and at competitive costs.

Results of performance comparisons in the field and in independent institutes are proof of this success. LOHMANN TIERZUCHT products are often the winners and are always among the few at the top, worldwide. LOHMANN TIERZUCHT – the right partner for progressive, successful poultry management. ◼

BREEDING SCHEME

Pure Lines

A♂   A♀   B♂   B♀   C♂   C♀   D♂   D♀

Grandparents

A♂   B♀   C♂   D♀

Parents

AB ♂   CD ♀

Commercials

ABCD   ABCD   ABCD
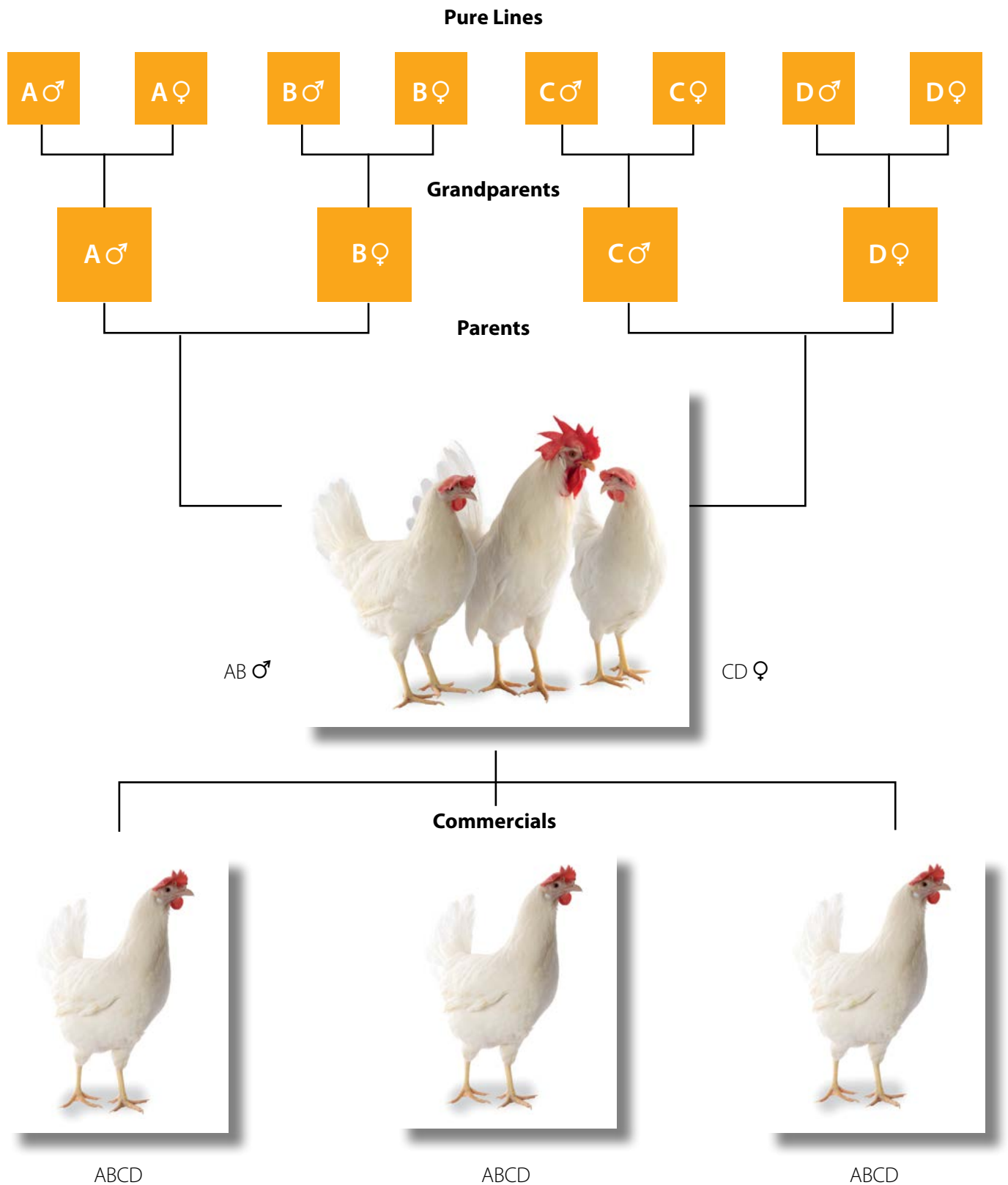
LSL-LITE Layer

Egg Production	Age at 50 % production	140 – 150 days
	Peak production	94 – 96 %
	Eggs per Hen Housed	
	in 60 Weeks of Age	255 – 260
	in 72 Weeks of Age	325 – 330
	in 80 Weeks of Age	368 – 373
	in 90 Weeks of Age	415 – 420
	Egg Mass per Hen Housed	
	in 60 Weeks of Age	15.0 – 15.5 kg (33.1 – 34.2 lbs.)
	in 72 Weeks of Age	19.5 – 20.0 kg (43.0 – 44.1 lbs.)
	in 80 Weeks of Age	22.5 – 23.0 kg (49.6 – 50.7 lbs.)
	in 90 Weeks of Age	25.0 – 26.0 kg (55.1 – 57.3 lbs.)
	Average Egg Weight	
	in 60 Weeks of Age	59.7 – 60.7 g (25.4 – 25.7 Oz./Doz.)
	in 72 Weeks of Age	60.5 – 61.5 g (25.6 – 26.0 Oz./Doz.)
	in 80 Weeks of Age	61.0 – 62.0 g (25.8 – 26.3 Oz./Doz.)
	in 90 Weeks of Age	61.5 – 62.5 g (26.0 – 26.4 Oz./Doz.)
Egg Characteristics	Shell color	attractive white
	Shell strength	over 40 Newton
Feed Consumption	1st – 20th week	6.8 – 7.3 kg (14.5 – 16.1 lbs.)
	Production	95 – 105 g/day (20.9 – 23.1 lbs./100/day)
	Feed conversion	app. 2.00 – 2.04 kg/kg egg mass or
		lbs./lbs. Egg Mass
Body Weight	at 20 weeks	1.3 – 1.4 kg (2.86 – 3.10 lbs.)
	at End of production	1.6 – 1.75 kg (3.52 – 3.86 lbs.)
Livability	Rearing	97 – 98 %
	Laying period	91 – 93 %
Consistency of Droppings	Excellent dry	

Cage Systems

- Before bringing in the chicks, check if everything is in good working order.
- Warm up the house in good time, i.e. up to 35 – 36 °C (95 – 97 °F) before the chicks are delivered. In summer start heating at least 24 hours and in winter at least 48 hours before the chicks arrive. When the right temperature has been achieved, supply minimum ventilation. This will avoid temperature differences within the house.
- Maintain the recommended temperature of 35 – 36 °C (95 – 97 °F) during the first 48 – 72 hours.
- Relative humidity should be at least 60 %.
- Adjust cage floors and feeding grids according to the manufacturer's instruction.
- Place sheets of paper on the cage floor for the first days and distribute a bit of feed on this paper. The papers must be removed by day 7.
- Reduce the water pressure of the nipples in order to enable the chicks to find water easily and trigger nipples/water cups to encourage birds to drink. Keep drinking water temperature between 20 – 25 °C (68 – 77 °F) by temporarily flushing the nipple drinker lines.
- Unload all chick boxes and distribute them in the house. Remove all lids and place them on the top of the boxes.
- Quickly place the chicks near feeders and drinkers. Distribute the chicks evenly among the cages starting at the far end of the house.
- Follow the recommended Lighting Program (refer to page 22)

Floor Systems

- Before bringing in the chicks, check if everything is in good working order.
- Warm up the house in good time, i.e. up to 35 – 36 °C (95 – 97 °F) before the chicks are delivered. In summer start heating at least 24 hours and in winter at least 48 hours before the chicks arrive. When the right temperature has been achieved, supply minimum ventilation. This will avoid temperature differences within the house. Maintain the recommended temperature of 35 – 36 °C (95 – 97 °F) during the first 48 – 72 hours.
- Measure the brooder temperature by placing the thermometer 8 cm (3 in) inside the outer edge of the brooder and 8 cm (3 in) above the litter.
- Relative humidity should be at least 60 %.
- After arrival, place chicks under hover as soon as possible.
- Reduce the water pressure of the nipples in order to enable the chicks to find water easily. Dip the beaks of a few chicks and trigger nipple or water cups to help them start drinking. When drinking water has been found by all chicks (this will take approx. 2 – 3 hours), they will start to eat. Keep drinking water temperature between 20 – 25 °C (68 – 77 °F) by temporarily flushing the nipple drinker lines or renewing the water in the chick founts.
- Supply Chicks with additional feeding pans to ensure a better feed intake in the first few days.
- Check the chicks frequently, even during the night to avoid any problems.
- Chicks should be fully feathered before brooding equipment can be removed.
- Follow the recommended Lighting Program (refer to page 22).

After a few hours, check whether the chicks have settled down well. The chicks' behavior is the best indicator of their well being:
- If the chicks are evenly spread out and moving freely, temperature and ventilation are all right.
- If the chicks are crowding together or avoiding certain areas within the house, temperature is too low or there is a draft.
- If the chicks are laying on the floor with their wings spread out and gasping for air, temperature is too high.

At first signs that the chicks are not feeling well determine the reason, correct the situation and check more frequently.

Environmental conditions have an effect on the well-being and performance of the birds. Important environmental factors are temperature, humidity and level of toxic gases in the air. The optimal temperature depends on the age of the birds. The following table is a guide to the recommended temperature at bird level. As mentioned before, the birds behavior is the best indicator for correct temperature.

Table 1: Desired Temperatures at Bird Level Dependent on Age

Age	Cage Rearing		Floor Rearing	
	°C	°F	°C	°F
Day 1 – 2 *	35	95	36	97
Day 3 – 4	33	91	34	93
Day 5 – 7	31	88	32	90
Week 2	28	82	29	84
Week 3	26	79	27	81
Week 4	22	72	24	75
From Week 5	18 – 20	64 – 68	18 – 20	64 – 68

Body temperatures of 40 – 41 °C (104 – 106 °F) are the optimum for the chicks.

The air quality should meet the following minimum requirements:

Table 2: Minimum Air Quality Requirements

O_2	over	20 %
CO_2	under	0.3 %
CO	under	40 ppm
NH_3	under	20 ppm
H_2S	under	5 ppm

Brooding Temperature

Always reduce temperature gradually, and avoid sudden changes.
If the ventilation system is used to regulate temperature, take care that the necessary fresh air is supplied. The relative humidity inside the house should be 60 – 70 %.

Body Temperature of the Chicks

There are findings which confirm that the temperature of chicks is between 40.0 (104 °F) and 41.0 °C (105.8 °F) after the moment of full homeothermy. This information can be parallelly used with the behavior of the housed chicks to adjust house temperatures in an optimal way. Use modern ear thermometers, known from human medicine, as these are useful devices to measure the body temperature of day old chicks.

Make sure that you collect samples of chicks in different parts of the house and control the rectal temperature of the latter. Proceed in a way like you normally would do when weighing chicks / pullets and check for uniformity. Obtain samples from chicks distributed throughout the house in order to have reliable readings. Collect the information, calculate the average and adjust the house temperatures accordingly to achieve optimal chick temperatures.

If the actual barn temperature, humidity or uniformity of air distribution are significantly below the recommended levels, chick growth maybe adversely affected due to chilling. ◼

VACCINATION

General Recommendations

Vaccination is an important way of preventing diseases. Different regional epidemic situations require suitably adapted vaccination programs. Therefore, please be guided, by the advice of your local veterinarian and poultry health service. Only healthy flocks should be vaccinated. Check the expiration date of the vaccine. The vaccine must not be used after this date. Keep records of all vaccinations and vaccine serial numbers.

Vaccination Methods

Individual Vaccinations such as injections and eye-drops are very effective and generally well tolerated but also very labor intensive.

Drinking Water Vaccinations are not labor intensive but must be carried out with the greatest care to be effective. The water used for preparing the vaccine solution must not contain any disinfectants. The amount of vaccine solution should be calculated for complete consumption within 2–4 hours. When vaccinating with live vaccines, you may add 0.267 ounces of skim milk powder per gallon of water (2 g/liter) or canned milk in order to protect the virus titer, if no water stabilisator is available.

Spray Vaccinations are not labor intensive and are highly effective, but may occasionally have side effects. For chicks up to the age of 3 weeks apply only coarse spray. Use distilled water for vaccination.

Special Recommendations

Marek Re-Vaccinations have proved to be successful after long transportation and in areas with high infection risk. Consult your veterinarian and the Lohmann Veterinary Laboratory for further information.

Mycoplasmosis Vaccinations are only advisable if the farm cannot be kept free of mycoplasmosis. Infections with virulent mycoplasma species during the production period lead to performance depression. The best performance is achieved by flocks which are kept free of mycoplasmosis and are not vaccinated.

Vaccination against Coccidiosis is the most reliable method in the floor rearing to develop immunity against this disease. Never use coccidiostats in the feed when pullets are vaccinated.

Applying Vitamins in the first two to three days after vaccination can help to reduce stress and prevent undesired reactions. To what extent depends on the specific situation on each farm.

Table 3: Example of a Vaccination Program for LOHMANN LSL-LITE Layers

Disease	Occurrence		Application Methods	Remarks
	Worldwide	Locally		
Marek	●		SC – IM	Day 1 – Hatchery
Newcastle *	●		DW – SP – SC – IM	Number of vaccinations according to disease pressure
Gumboro	●		DW	2 live vaccinations recommended
Infectious Bronchitis *	●		DW – SP – SC – IM	Number of vaccinations according to disease pressure
AE	●		DW – SC – WW	Vaccination of PS and Commercials is recommended
Mycoplasmosis		●	SP – ED – SC – IM	Vaccination before transfer
Fowl Pox		●	WW	Vaccination before transfer
Pasteurellosis		●	SC	2 vaccinations approx. at week 8 and 14
Infectious Coryza		●	SC	2 vaccinations approx. at week 8 and 14
Salmonella		●	DW – SP – IM	Vaccination before transfer
ILT		●	DW – ED	2 vaccinations between 6–14 weeks

■ *DW: Drinking Water*   ■ *SP: Spray*   ■ *ED: Eye Drop*   ■ *WW: Wing Web*   ■ *IM: Intramuscular Injection*   ■ *SC: Subcutaneous Injection*

■ *Vaccination against Coccidiosis is optional for floor rearing systems.*

■ *A severe vaccination program especially intramuscular injections may depress the body weight development.*

* *An implementation of early live vaccination for Newcastle Disease (ND) and Infectious Bronchitis (IB) is of high value in order to induce local protection in the respiratory system of the chicks (priming effect). The right choice of vaccine is crucial. Never vaccinate very young birds with high-virulence live vaccine. Depending on infectious pressure, birds are vaccinated with inactivated vaccine during the rearing and/or prior onset of lay for booster the immunity. Revaccination with live ND and/or IB every 6–8 weeks during production period is beneficial in order to improve the local immunity.*

Beak treatment is not necessary under optimal conditions. In practice, it is widely used in environmental controlled and light-tight facilities, as an efficient precaution against cannibalism and feather pecking. Such behavior may develop at any age as a result of excessive light intensity, unbalanced feed, poor ventilation, overstocking or boredom.

Especially in floor management and/or open houses with uncontrollable light intensity, we recommend beak treatment subject to local animal welfare regulations. A very gentle and highly recommended method of beak treatment is the infrared treatment of the upper and lower beak by means of a special technique, performed shortly after chicks hatch. This procedure can already be done in the hatchery under very hygienic conditions by specially trained personnel. Another method of beak treatment is to treat the beaks with a hot blade.

Observe the following precautions for a conventional beak treatment:

- Treat only healthy, unstressed birds, at the age of 7 – 10 days.

- Allow only experienced personnel to do the work.

- Work slowly and carefully.

- Use only equipment and blades in perfect working order; adjust the blade temperature so that cauterization is guaranteed and the beak is not damaged.

- Adjust temperature and duration of the treatment according to the chicks' beak size, strength and quality.

- Do not feed for 12 hours before treating.

- Offer free feeding immediately after treating.

- Increase the level of feed in the troughs.

- Increase the temperature in the house for a few days after treating.

- For 3 – 5 days after beak treating provide an extra hour of light and supply feed in the late evening or at night.

Giving vitamins via the drinking water can also help to alleviate stress. ▪

NUTRITION

General

To get the best out of the genetic performance potential of LOHMANN LSL-LITE layers, feeding them with a good structured mash feed with full nutritive value is a must. Such nutrition can best be guaranteed by a complete feed adapted to the performance potential.

Our feeding recommendations concentrate on the essential nutrients and are designed to cover the requirements for the best performance in every stage of development.

Feed Consumption

Feed consumption is mainly affected by:

- Body weight

- Performance

- House temperature:
  Low temperature increases the maintenance requirement for energy.

- Condition of feathering:
  Poor feathering condition due to management mistakes or malnutrition increases the maintenance requirement for energy.

- Feed texture:
  Coarse texture increases while fine texture decreases feed intake.

- Energy level:
  The higher the energy level of the feed, the lower the feed intake and vice versa.

- Nutrient imbalances:
  The hen will try to compensate for any nutrient deficits by increasing feed consumption especially in the latest stages of production.

Rearing

A nutrient balanced diet during the rearing stage is essential to enable the chick to develop into a mature pullet. Chicks and pullets should be fed a coarse diet (for particle sizes see table on page 11) of a meal-type consistency. A high proportion of very fine components or a structure that is too coarse can lead to selective feed intake and an unbalanced nutrient supply. A diet with an extremely fine consistency reduces the feed intake of the birds and can result in a lacking supply of certain nutrients. If pelletizing of feed is inevitable for hygienic reasons the pellets should be crumbled to the recommended consistency. During the different growth phases of chicks and pullets, qualitatively different feed varieties should be used in which the nutrient content meets the birds changing needs.

The diets are matched to the nutrient requirement and weight development at each stage of growth. The use of chick starter is recommended if the standard bodyweight is not reached by feeding grower feed or if the daily feed intake is expected to be low. The switch to developer should only be made when the standard body weight has been reached. A reduced nutrient density and an increased content of crude fiber (5 – 6 %) during this phase is beneficial for improving the eating capacity.

The pre-layer diet has about twice the calcium content of developer as well as higher levels of protein and amino acids. Feeding such a diet for about 10 days prior to the planned start of lay is therefore beneficial. This diet improves flock uniformity by providing a better nutrient supply to late maturing birds and by enabling early maturing birds to obtain sufficient calcium for eggshell production of the first eggs.

Crude Fiber

Crude fiber, sometimes described as insoluble NSP *, may not have nutritional value for poultry, but it does have other benefits for a healthy and stable digestive physiology.

Used in the second half of the rearing period, it can positively influence the development of the digestive tract, the crop size and the appetite of pullets. This is beneficial for young layers, especially at the start of production, when the appetite of the birds is sometimes not sufficient enough to meet their nutrient demands. The tool has been proven to be very beneficial under varying feeding situations in a lot of countries.

This is the reason for the implementation of a minimum recommendation of crude fiber (5–6 %) in the developer feed for LOHMANN layers.

Cereals and their by-products (e.g. bran) or oil seed by-products (e.g. meal of sunflowers or rapeseed), can be used as a source of crude fiber. DDGS ** can be used as a source of crude fiber as well. Other raw materials. which are rich of crude fiber, may be used if available, but only as long as their inclusion does not reduce the energy level of the diet. With a classical corn-soy diet, the recommended crude fiber content can hardly be achieved. In such cases, other feed ingredients must be used. For advice, please contact the technical service department at LOHMANN TIERZUCHT.

Non-Starch Polysaccharides
**Dried Distillers Grains with Solubles*

Table 4: Recommended Particle-Size Distribution for Chick Starter, Grower, Developer and Layer Feed (MASH)

Sieve Size	Passing Part	Sieve Size Interval	Part of Interval
0.5 mm	19 %	0 – 0.5 mm	19 %
1.0 mm	40 %	0.51 – 1.0 mm	21 %
1.5 mm	75 %	1.01 – 1.5 mm	35 %
2.0 mm	90 %	1.51 – 2.0 mm	15 %
2.5 mm	100 %	> 2 mm	10 % *
			100 %

Individual Particles not bigger than
  • *3 mm in chick superstarter-/starter diets*   • *5 mm in grower, developer and layer*

Correct Use of Pre-Layer Feed

Pre-layer feed should be used for a short period of time before a flock starts being supplied with Pre-Peak diet. This leads to a smooth transition from the developer feed (low calcium and low nutrient density) to a diet with high calcium and nutrient levels. It helps to avoid the often reduced appetite/daily feed intake during early production. Typically, pre-layer feed contains about 2.0 – 2.5 % calcium. This is too much for a typical feed for rearing but not enough for a bird starting to produce eggs. From a nutritional point of view, it's therefore considered a compromise and never as "optimal" feed. Nevertheless, it's worthwhile to use pre-layer feed for a short period of time, and correct use can enhance the uniformity of a pullet flock, especially for flocks with very low uniformity. It can also aid the development of Ca-metabolism in medullar bones. Since pre-layer feed does not meet the nutrient requirements of a layer in full production, it only should be used for a short period and only when timing and logistics permit.

Please consider the following recommendations while using pre-layer feed:

• Start using pre-layer feed depending on to the birds sexual maturity, age and their standard body weights.

• Use pre-layer feed for about 10 days with a maximum of 1 kg (2.2 lbs.) per bird.

• The wrong way to use pre-layer feed is either to start using it too early and/or use it too long.

Start feeding pre-layer feed two weeks before anticipated onset of lay and change to layer feed before 5 % production.

Table 5: Body Weight Development and Feed Consumption of LOHMANN LSL-LITE Pullets/Layers

Age in Weeks	Body Weight				Feed Consumption								Feed*
	aver-age lbs.	range in lbs.	aver-age g	range in g	kJ**/ bird Day	kJ/ bird cu-mul.	kcal/ bird day	kcal/ bird cu-mul.	lbs./ 100/ day	lbs. cu-mul.	g/ bird/ day	g/ bird/ cu-mul.	
1	0.15	0.15 – 0.16	70	67 – 73	120	840	29	201	2	0.15	10	70	
2	0.26	0.25 – 0.28	120	115 – 125	204	2268	49	542	4	0.42	17	189	Grower/Starter
3	0.41	0.39 – 0.42	185	178 – 192	276	4200	66	1003	5	0.77	23	350	
4	0.56	0.54 – 0.58	255	245 – 265	331	6514	79	1556	6	1.20	28	546	
5	0.74	0.71 – 0.77	334	321 – 347	388	9227	93	2204	7	1.71	33	776	
6	0.94	0.90 – 0.97	425	408 – 442	433	12260	103	2928	8	2.28	37	1033	
7	1.16	1.11 – 1.20	524	503 – 545	479	15611	114	3729	9	2.90	41	1317	
8	1.36	1.31 – 1.42	618	593 – 643	524	19282	125	4605	10	3.59	44	1628	
9	1.57	1.51 – 1.63	712	684 – 740	559	23192	133	5539	10	4.32	47	1960	Developer
10	1.77	1.70 – 1.84	802	770 – 834	593	27342	142	6530	11	5.10	50	2311	
11	1.94	1.86 – 2.02	879	844 – 914	627	31731	150	7578	12	5.92	53	2683	
12	2.09	2.01 – 2.17	948	910 – 986	661	36359	158	8684	12	6.78	56	3075	
13	2.22	2.13 – 2.31	1008	968 – 1048	695	41227	166	9846	13	7.69	59	3488	
14	2.34	2.25 – 2.43	1062	1020 – 1104	730	46334	174	11066	14	8.64	62	3921	
15	2.45	2.35 – 2.55	1112	1068 – 1156	764	51681	182	12343	14	9.64	65	4374	
16	2.55	2.45 – 2.65	1156	1110 – 1202	809	57347	193	13696	15	10.70	69	4854	
17	2.65	2.55 – 2.76	1203	1155 – 1251	855	63332	204	15126	16	11.82	72	5361	Pre-Layer
18	2.76	2.65 – 2.87	1253	1203 – 1303	901	69636	215	16631	17	13.00	76	5895	
19	2.89	2.77 – 3.00	1310	1258 – 1362	946	76259	226	18213	18	14.23	80	6457	Pre-Peak
20	3.02	2.90 – 3.14	1370	1315 – 1425	1003	83282	240	19891	19	15.55	85	7052	

*   The basis for switching between diet types is the hens' body weight development. The correct time for changing the diet is determined not by age but by body weight. Chicks and pullets should therefore be weighed at regular intervals.

** 1 kcal = 4.187 kJ

Table 6: Body Weight Development at intermediate Stages of LOHMANN LSL-LITE Pullets/Layers

Age in Weeks	Body Weight		Average grams per bird on intermediate days					
	average in g	range in g	1	2	3	4	5	6
1	70	67 – 73	77	84	91	99	106	113
2	120	115 – 125	129	139	148	157	166	176
3	185	178 – 192	195	205	215	225	235	245
4	255	245 – 265	266	278	289	300	311	323
5	334	321 – 347	347	360	373	386	399	412
6	425	408 – 442	439	453	467	482	496	510
7	524	503 – 545	537	551	564	578	591	605
8	618	593 – 643	631	645	658	672	685	699
9	712	684 – 740	725	738	751	763	776	789
10	802	770 – 834	813	824	835	846	857	868
11	879	844 – 914	889	899	909	918	928	938
12	948	910 – 986	957	965	974	982	991	999
13	1008	968 – 1048	1016	1023	1031	1039	1047	1054
14	1062	1020 – 1104	1069	1076	1083	1091	1098	1105
15	1112	1068 – 1156	1118	1125	1131	1137	1143	1150
16	1156	1110 – 1202	1163	1169	1176	1183	1190	1196
17	1203	1155 – 1251	1210	1217	1224	1232	1239	1246
18	1253	1203 – 1303	1261	1269	1277	1286	1294	1302
19	1310	1258 – 1362	1319	1327	1336	1344	1353	1361
20	1370	1315 – 1425	1377	1384	1391	1399	1406	1413

Table 7: Recommendations for Nutrient Levels for LOHMANN LSL-LITE Pullets

Diet type*		Starter**	Grower	Developer	Pre-Layer
Nutrient		1. – 3. Week	4. – 8. Week	9. – 16. Week	17. Week – 5 % Production
Metabol. Energy	kcal / kg	2900	2800	2800	2800
	kcal / lbs	1315	1275	1275	1275
Minimum	MJ / kg	12.00	11.70	11.70	11.70
Crude Protein	%	20.00	18.50	15.00	17.00
Methionine	%	0.48	0.40	0.34	0.36
Dig. Methionine	%	0.39	0.33	0.28	0.29
Methionine/Cystine	%	0.83	0.70	0.60	0.68
Digestible M./C.	%	0.68	0.57	0.50	0.56
Lysine	%	1.20	1.00	0.70	0.85
Digestible Lysine	%	0.98	0.82	0.57	0.70
Valine	%	0.89	0.75	0.53	0.64
Dig. Valine	%	0.76	0.64	0.46	0.55
Tryptophan	%	0.23	0.21	0.16	0.20
Dig. Tryptophan	%	0.19	0.17	0.13	0.16
Threonine	%	0.80	0.70	0.50	0.60
Dig. Threonine	%	0.65	0.57	0.40	0.49
Isoleucine	%	0.83	0.75	0.60	0.74
Dig. Isoleucine	%	0.68	0.62	0.50	0.61
Calcium	%	1.05	1.00	0.90	2.50
Phosphorus total	%	0.75	0.70	0.58	0.65
Phosphorus available	%	0.48	0.45	0.37	0.45
Sodium	%	0.18	0.17	0.16	0.16
Chlorine	%	0.20	0.19	0.16	0.16
Linoleic Acid	%	2.00	1.40	1.00	1.00

*   The basis for switching between diet types is the hens' body weight development. The correct time for changing the diet is determined not by age, but by body weight. Chicks and pullets, should therefore be weighed at regular intervals.

** Chick Starter should be fed until the standard body weight is reached or when daily feed intake is expected to be low.

Laying Period

LOHMANN LSL-Lite is easy to handle. Their feed intake capacity is genetically well established. After the onset of lay, phase feeding based on feed intake and egg mass output/day, is recommended. The application period of the different feed types in weeks can be slightly modified depending on the production development of a flock. Nevertheless, it must be taken into consideration that hens with outstanding production require higher calcium and lower phosphorus levels based on their age, which is a key aspect when changing phase feeds.

All 5 recommended phase feed types are based on an energy level of 11.7 MJ/kg/2800 kcal/kg (1270 – 1290 kcal/lbs) as well as 22 °C (72 °F) room temperature and well established plumage conditions. Un-der these conditions, a daily feed intake of 95 – 105 g (20.9 – 23.1 lbs./100/day) per LOHMANN LSL-Lite hen can be expected.

Table 8: Recommended Nutrient Levels for LOHMANN LSL-LITE Layers for Different Daily Feed Consumptions
Pre-Peak (~ 18 weeks to 50 % Production)

Nutrient		Daily Feed Consumption /Hen			
		90 g (19.8 lbs./100 birds)	95 g (20.9 lbs./100 birds)	100 g* (22.0 lbs./100 birds)	105 g (23.2 lbs./100 birds)
Protein	%	20.00	18.95	18.00	17.14
Calcium**	%	4.22	4.00	3.80	3.62
Phosphorus***	%	0.71	0.68	0.64	0.61
Av. Phosphorus	%	0.50	0.47	0.45	0.43
Sodium	%	0.20	0.19	0.18	0.17
Chlorine	%	0.20	0.19	0.18	0.17
Lysine	%	0.93	0.89	0.84	0.80
Dig. Lysine	%	0.77	0.73	0.69	0.66
Methionine	%	0.46	0.44	0.41	0.39
Dig. Methionine	%	0.38	0.36	0.34	0.32
Meth./Cyst.	%	0.84	0.80	0.76	0.72
Dig. M/C	%	0.69	0.65	0.62	0.59
Arginine	%	0.96	0.91	0.87	0.82
Dig. Arginine	%	0.79	0.75	0.71	0.68
Valine	%	0.78	0.74	0.71	0.67
Dig. Valine	%	0.67	0.63	0.60	0.57
Tryptophan	%	0.20	0.19	0.18	0.17
Dig. Tryptophan	%	0.17	0.16	0.15	0.14
Threonine	%	0.65	0.62	0.59	0.56
Dig. Threonine	%	0.53	0.51	0.48	0.46
Isoleucine	%	0.75	0.71	0.67	0.64
Dig. Isoleucine	%	0.61	0.58	0.55	0.52
Linoleic Acid	%	2.44	2.32	2.20	2.10

*   equals daily intake requirement of nutrient in g/hen or lbs. per 100 birds

**   see table about relation of fine and coarse limestone

*** without phytase

Table 9: Recommended Nutrient Levels for LOHMANN LSL-LITE Layers in Phase 1 for Different Daily Feed Consumptions
(50 % Production to 40 weeks ~ up to 59.4 g Egg Mass/Hen/Day)

Nutrient		Daily Feed Consumption /Hen			
		95 g (20.9 lbs./100 birds)	100 g* (22.0 lbs./100 birds)	105 g (23.2 lbs./100 birds)	110 g (24.3 lbs./100 birds)
Protein	%	18.57	17.64	16.80	16.04
Calcium**	%	4.32	4.10	3.90	3.73
Phosphorus***	%	0.66	0.63	0.60	0.57
Av. Phosphorus	%	0.46	0.44	0.42	0.40
Sodium	%	0.19	0.18	0.17	0.16
Chlorine	%	0.19	0.18	0.17	0.16
Lysine	%	0.87	0.82	0.79	0.75
Dig. Lysine	%	0.71	0.68	0.64	0.61
Methionine	%	0.43	0.41	0.39	0.37
Dig. Methionine	%	0.35	0.33	0.32	0.30
Meth./Cyst.	%	0.78	0.74	0.71	0.67
Dig. M/C	%	0.64	0.61	0.58	0.55
Arginine	%	0.89	0.85	0.81	0.77
Dig. Arginine	%	0.73	0.70	0.66	0.63
Valine	%	0.73	0.69	0.66	0.63
Dig. Valine	%	0.62	0.59	0.56	0.53
Tryptophan	%	0.19	0.18	0.17	0.16
Dig. Tryptophan	%	0.15	0.15	0.14	0.13
Threonine	%	0.60	0.57	0.55	0.52
Dig. Threonine	%	0.50	0.47	0.45	0.43
Isoleucine	%	0.69	0.66	0.63	0.60
Dig. Isoleucine	%	0.57	0.54	0.51	0.49
Linoleic Acid	%	2.32	2.20	2.10	2.00

*   equals daily intake requirement of nutrient in g/hen or lbs. per 100 birds

** see table about relation of fine and coarse limestone

*** without phytase

Table 10: Recommended Nutrient Levels for LOHMANN LSL-LITE Layers in Phase 2 for Different Daily Feed Consumptions
(41 to 50 weeks ~ up to 59.5 g Egg Mass/Hen/Day)

Nutrient		Daily Feed Consumption /Hen			
		95 g (20.9 lbs./100 birds)	100 g* (22.0 lbs./100 birds)	105 g (23.2 lbs./100 birds)	110 g (24.3 lbs./100 birds)
Protein	%	18.19	17.28	16.46	15.71
Calcium**	%	4.42	4.20	4.00	3.82
Phosphorus***	%	0.65	0.62	0.59	0.56
Av. Phosphorus	%	0.45	0.43	0.41	0.39
Sodium	%	0.18	0.17	0.16	0.16
Chlorine	%	0.18	0.17	0.16	0.16
Lysine	%	0.85	0.81	0.77	0.73
Dig. Lysine	%	0.70	0.66	0.63	0.60
Methionine	%	0.42	0.40	0.38	0.36
Dig. Methionine	%	0.34	0.33	0.31	0.30
Meth./Cyst.	%	0.76	0.73	0.69	0.66
Dig. M/C	%	0.63	0.60	0.57	0.54
Arginine	%	0.87	0.83	0.79	0.76
Dig. Arginine	%	0.72	0.68	0.65	0.62
Valine	%	0.71	0.68	0.65	0.62
Dig. Valine	%	0.61	0.58	0.55	0.52
Tryptophan	%	0.18	0.18	0.17	0.16
Dig. Tryptophan	%	0.15	0.14	0.14	0.13
Threonine	%	0.59	0.56	0.54	0.51
Dig. Threonine	%	0.49	0.46	0.44	0.42
Isoleucine	%	0.68	0.64	0.61	0.59
Dig. Isoleucine	%	0.56	0.53	0.50	0.48
Linoleic Acid	%	1.68	1.60	1.52	1.45

*   equals daily intake requirement of nutrient in g/hen or lbs. per 100 birds

**   see table about relation of fine and coarse limestone

*** without phytase

Table 11: Recommended Nutrient Levels for LOHMANN LSL-LITE Layers in Phase 3 for Different Daily Feed Consumptions
(51 to 65 weeks ~ up to 58.9 g Egg Mass/Hen/Day)

Nutrient		Daily Feed Consumption /Hen			
		95 g (20.9 lbs./100 birds)	100 g* (22.0 lbs./100 birds)	105 g (23.2 lbs./100 birds)	110 g (24.3 lbs./100 birds)
Protein	%	17.62	16.74	15.94	15.22
Calcium**	%	4.53	4.30	4.10	3.91
Phosphorus***	%	0.63	0.60	0.57	0.54
Av. Phosphorus	%	0.44	0.42	0.40	0.38
Sodium	%	0.18	0.17	0.16	0.15
Chlorine	%	0.18	0.17	0.16	0.15
Lysine	%	0.82	0.78	0.75	0.71
Dig. Lysine	%	0.68	0.64	0.61	0.58
Methionine	%	0.41	0.39	0.37	0.35
Dig. Methionine	%	0.33	0.32	0.30	0.29
Meth./Cyst.	%	0.74	0.70	0.67	0.64
Dig. M/C	%	0.61	0.58	0.55	0.52
Arginine	%	0.85	0.81	0.77	0.73
Dig. Arginine	%	0.70	0.66	0.63	0.60
Valine	%	0.69	0.66	0.63	0.60
Dig. Valine	%	0.59	0.56	0.53	0.51
Tryptophan	%	0.18	0.17	0.16	0.15
Dig. Tryptophan	%	0.15	0.14	0.13	0.13
Threonine	%	0.57	0.54	0.52	0.49
Dig. Threonine	%	0.47	0.45	0.43	0.41
Isoleucine	%	0.66	0.62	0.59	0.57
Dig. Isoleucine	%	0.54	0.51	0.49	0.47
Linoleic Acid	%	1.47	1.40	1.33	1.27

*   equals daily intake requirement of nutrient in g/hen or lbs. per 100 birds

**   see table about relation of fine and coarse limestone

*** without phytase

Table 12: Recommended Nutrient Levels for LOHMANN LSL-LITE Layers in Phase 4 for Different Daily Feed Consumptions
(after week 65 ~ up to 56.3 g Egg Mass/Hen/Day)

Nutrient		Daily Feed Consumption /Hen			
		95 g (20.9 lbs./100 birds)	100 g* (22.0 lbs./100 birds)	105 g (23.2 lbs./100 birds)	110 g (24.3 lbs./100 birds)
Protein	%	17.05	16.20	15.43	14.73
Calcium**	%	4.74	4.50	4.29	4.09
Phosphorus***	%	0.61	0.58	0.55	0.53
Av. Phosphorus	%	0.43	0.41	0.39	0.37
Sodium	%	0.17	0.16	0.15	0.15
Chlorine	%	0.17	0.16	0.15	0.15
Lysine	%	0.80	0.76	0.72	0.69
Dig. Lysine	%	0.65	0.62	0.59	0.56
Methionine	%	0.39	0.37	0.36	0.34
Dig. Methionine	%	0.32	0.31	0.29	0.28
Meth./Cyst.	%	0.72	0.68	0.65	0.62
Dig. M/C	%	0.59	0.56	0.53	0.51
Arginine	%	0.82	0.78	0.74	0.71
Dig. Arginine	%	0.67	0.64	0.61	0.58
Valine	%	0.67	0.64	0.61	0.58
Dig. Valine	%	0.57	0.54	0.51	0.49
Tryptophan	%	0.17	0.16	0.16	0.15
Dig. Tryptophan	%	0.14	0.14	0.13	0.12
Threonine	%	0.55	0.53	0.50	0.48
Dig. Threonine	%	0.45	0.43	0.41	0.39
Isoleucine	%	0.64	0.60	0.57	0.55
Dig. Isoleucine	%	0.52	0.50	0.47	0.45
Linoleic Acid	%	1.26	1.20	1.14	1.09

*   equals daily intake requirement of nutrient in g/hen or lbs. per 100 birds

**   see table about relation of fine and coarse limestone

*** without phytase

Nutrition and Egg Weight

Within certain limits egg weight can be adapted to farm specific requirements by adjusting rations. The following nutritional factors should be noted:

* Growing
  Feeding for higher body weight/frame size increases the egg weight throughout the whole laying period.

* Feed composition
  – crude protein and methionine
  – linoleic acid

* Feeding technique
  – feed texture
  – feeding time
  – feed level in troughs
  – controlled feeding
  – frequency of feeding

By stimulating feed intake egg weight can be increased and can be limited by controlled feeding. Adjusting house temperature, when possible, can be used to affect feed consumption an egg weight.

Contact your LOHMANN TIERZUCHT specialists for specific programs with recommendations for nutrition and management adjusted to your conditions and requirements.

Supplements

Supplements ensure the necessary supply of essential vitamins, trace elements and substances such as antioxidants or carotenoids.

Suitable supplementation can compensate for the varying contents of raw materials and safeguard the supply of all necessary nutrients.

Remark: Vitamin C is synthezised by poultry normally and is not considerd essential, however in some circumstances, like heat stress or hot climate, it may be important/beneficial to add 100 – 200 mg/kg complete feed during production period.

Table 13: Recommended Micro-Nutrient Specification

Supplements per kg Feed		Starter/Grower	Developer	Pre-Layer/Layer
Vitamin A	I.U.	12000	12000	10000
Vitamin D_3	I.U.	2000	2000	2500
Vitamin E	mg	20 – 30**	20 – 30**	15 – 30**
Vitamin K_3	mg	3***	3***	3***
Vitamin B_1	mg	1	1	1
Vitamin B_2	mg	6	6	4
Vitamin B_6	mg	3	3	3
Vitamin B_{12}	mcg	20	20	25
Pantothenic Acid	mg	8	8	10
Nicotinic Acid	mg	30	30	30
Folic Acid	mg	1.0	1.0	0.5
Biotin	mcg	50	50	50
Choline	mg	300	300	400
Antioxidant	mg	100 –150**	100 –150**	100 –150**
Coccidiostat		as required	as required	–
Manganese*	mg	100	100	100
Zinc*	mg	60	60	60
Iron	mg	25	25	25
Copper*	mg	5	5	5
Iodine	mg	0.5	0.5	0.5
Selenium*	mg	0.2	0.2	0.2

*   So called "organic sources" should be considered with higher bioavailability.

**   according to fat addition

*** double in case of heat treated feed

Table 14: Continuous Supply of Fine and Coarse Limestone (Recommended Relation in Feed)

Feed type	Fine Limestone 0 – 0.5 mm	Coarse Limestone* 1.5 – 3.5 mm
Pre Peak / Layer Phase 1	30 %	70 %
Layer Phase 2/3	25 %	75 %
Layer Phase 4/5	15 %	85 %

* can be partly replaced by oyster shells

General

The lighting program controls the onset of lay and affects the performance. Within certain limits, performance can be adapted to farm specific requirements by adjusting the lighting program. Easiest to follow are the lighting programs in closed houses without the effect of natural daylight. In these, the hours of light and light intensity can be adjusted to changing needs. Rearing birds in closed houses and producing eggs in light-tight houses enable the producers to maximize performance. Follow the lighting program which is recommended for this type of housing system.

Closed houses are not feasible in every case. For open or brown-out houses, a tailormade program has to be developed depending on the season and geographical location where pullets are being reared and stimulated to lay.

In general, the lighting program should follow the basic principles:

- **Never increase hours of light during the rearing period.**

- **Never decrease hours of light during the production period**

- **Always keep in mind that artificial and natural daylight can have an influence in open or brown-out houses.**

Intermittent Lighting Program for Day Old Chicks

When the day old chicks arrive on the farm, they have already been intensively handled in the hatchery and often have a long transport to their final destination. Common practice is to give them 24 hours of light to help them recover in the first 2 or 3 days after arrival and to provide them enough time to eat and drink. In practice, it can be observed that after arrival and housing, some chicks continue to sleep whereas others start to look for feed and water. The activity of the flock will always be irregular. Especially in this phase, poultry men have difficulties interpreting the chicks behavior and their condition.

There is a practically proven principal in splitting the day into phases of resting and activity using a special designed intermittent lighting program. The aim is to synchronize the chicks' activities. The farmer gets a better impression of the flocks condition and the birds are encouraged by the groups behavior to search for water and feed.

Therefore, LOHMANN TIERZUCHT advises to give chicks a rest after they arrive at the rearing farm and then start with four hours of light followed by two hours of darkness.

Lighting Program after Arrival
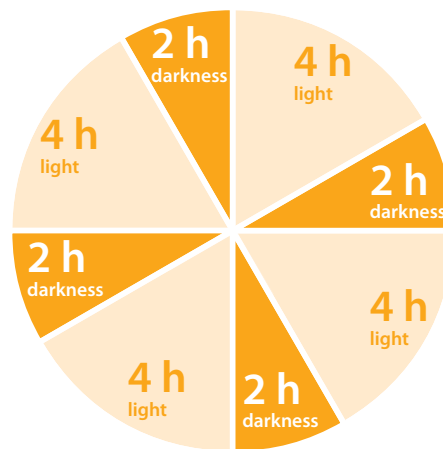
This program can be used for up to 7 or 10 days after arrival, then switch to the regular step down lighting program. The use of the following lighting program brings about the following advantages:

- The chicks will rest and/or sleep at the same time. This means that the behavior of the chicks will be synchronized.

- Weak chicks will be stimulated by stronger ones to move as well as to eat and drink.

- The behavior of the flock is more uniform and the monitoring of the birds is made easier.

- Mortality will decrease.

Lighting Program for Closed Houses

To which extent lighting hours are reduced during the growing period, and the time when stimulation begins by increasing the lighting hours, are means by which performance can be adjusted to specific farm require- ments. The following Standard Lighting Program is designed for a quick start into production.
Depending on the development of the pullets' body weight, the program can be accompanied by controlled feeding between 10 – 15 weeks of age.

Table 15: Lighting Program for Windowless Houses for LOHMANN LSL-LITE Pullets/Layers

Age (Weeks)	Hours of Light	Light Intensity (Lux)	
	(Standard)	Foot Candle	Lux
Day 1 – 2 *	24	2 – 4	20 – 40
Day 3 – 6 *	16	2 – 3	20 – 30
2	14	1 – 2	10 – 20
3	13	0.5 – 1	5 – 10
4	12	0.4 – 0.6	4 – 6
5	11	0.4 – 0.6	4 – 6
6	10	0.4 – 0.6	4 – 6
7	10	0.4 – 0.6	4 – 6
8	10	0.4 – 0.6	4 – 6
9	10	0.4 – 0.6	4 – 6
10	10	0.4 – 0.6	4 – 6
11	10	0.4 – 0.6	4 – 6
12	10	0.4 – 0.6	4 – 6
13	10	0.4 – 0.6	4 – 6
14	10	0.4 – 0.6	4 – 6
15	10	0.4 – 0.6	4 – 6
16	10	0.4 – 0.6	4 – 6
17	10	0.4 – 0.6	4 – 6
18	12	1 – 1.5	10 – 15
19	13	1 – 1.5	10 – 15
20	14	1 – 1.5	10 – 15
21	15	1 – 1.5	10 – 15
22	16	1 – 1.5	10 – 15
23	16	1 – 1.5	10 – 15
24	16	1 – 1.5	10 – 15
25	16	1 – 1.5	10 – 15
26	16	1 – 1.5	10 – 15
27	16	1 – 1.5	10 – 15
28	16	1 – 1.5	10 – 15
29	16	1 – 1.5	10 – 15
30**	16	1 – 1.5	10 – 15

*   or run an Intermittent Lighting Program

** until the end of production

Growing in Closed House to Open House Production

The lighting program for closed houses, the step down procedure and the subsequent constant day length between 7 – 10 weeks of age, have to be adjusted to the length of the day at the time when the birds have to be transferred to the layer house. This depends on the season and the latitude of where the farms are located. Birds hatched in the first days of December and placed at 40 N. Latitude, will be exposed to a nearly 13-hour length of day at 17 weeks of age. The step down program for such a flock should stop at 13 hours and guarantee a constant day length of 13 hours from week 3 until transfer. At week 19, the flock should be exposed to a 120-minutes increase in day length. A weekly increase of 60 minutes until the maximal day length of 16 hours is sufficient to induce stimulation. If the day length at the time of transfer is more than 14 hours per day, an increase of 30 minutes can be used to prolong the light stimulation period. Light intensity has to be adapted to natural daylight 2 – 3 weeks prior to transfer.

Growing in Open House to Open House Production

The lighting program and the step down procedure have to be adjusted to the longest length of day to which the birds are exposed to in the period from 3 to 17 weeks of age. Birds which are hatched in the first days of April and are reared at 20° N. Latitude, will be exposed to a 13-hour day length up to 17 weeks of age, maximum. This will determine the clock setting during rearing. At week 19, the flock should be exposed to a 120-minutes longer day length. A weekly increase of 30 minutes until the maximal length of day with 16 hours is sufficient for stimulation.

Growing in Open House to Closed House Production

For pullets which have been reared in open houses and then transferred to closed houses, please refer to the recommendations as stated in "Growing in Open House to Open House Production".

Lighting Program for Open Houses

An example of a lighting program for LOHMANN LSL-LITE Layers adjusted to location, condition and requirements by LOHMANN TIERZUCHT lighting program tool

Adjusted Lighting Program for Open Houses

Lighting Program for Dark Houses

Adjusted Lighting Program for LSL-LITE Commercials
Hatch Date: December 8th, Location: Modesto CA.
Open House Rearing, Open House Production
Stimulation/Transfer Age: 18 Weeks

Week of Age

Hours of Light

Week of Year

Lighting-Program   Lighting Standard   Twilight   Daylight

Extremes

A very extreme situation will occur when the birds are reared during Spring and Summer at 50° N. Latitude in non-light tight houses. They will be exposed to a nearly 17-hour length of day in June. Good light stimulation for these flocks is almost impossible. Therefore, we generally recommend to rear layers in light-tight houses.

Attention: Natural daylight and artificial lighting program during rearing and production have to be synchronized. Additional artificial lighting has to be adjusted to the seasonal fixed sunrise and sunset.

Table 16: Hours between sunrise and sunset in the Northern and Southern Hemisphere

Northern Date	0°		10°		20°		30°		40°		50°		Southern Date
	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	
Jan 05	12	7	11	34	10	59	10	17	9	27	8	14	Jul 05
Jan 20	12	7	11	38	11	5	10	31	9	47	8	45	Jul 20
Feb 05	12	7	11	44	11	19	10	52	10	19	9	32	Aug 05
Feb 20	12	6	11	50	11	35	11	16	10	55	10	23	Aug 20
Mar 05	12	6	11	58	11	49	11	38	11	28	11	11	Sep 05
Mar 20	12	6	12	7	12	6	12	6	12	7	12	9	Sep 20
Apr 05	12	6	12	14	12	25	12	35	12	49	13	8	Oct 05
Apr 20	12	6	12	24	12	41	13	2	13	27	14	3	Oct 20
May 05	12	7	12	31	12	56	13	26	14	2	14	54	Nov 05
May 20	12	7	12	37	13	8	13	45	14	32	15	37	Nov 20
Jun 05	12	7	12	41	13	17	14	0	14	53	16	9	Dec 05
Jun 20	12	7	12	42	13	20	14	5	15	1	16	22	Dec 20
Jul 05	12	7	12	41	13	19	14	1	14	55	16	14	Jan 05
Jul 20	12	7	12	37	13	11	13	49	14	38	15	46	Jan 20
Aug 05	12	7	12	32	12	59	13	29	14	9	15	2	Feb 05
Aug 20	12	6	12	25	12	44	13	6	13	35	14	14	Feb 20
Sep 05	12	6	12	17	12	26	12	40	12	55	13	16	Mar 05
Sep 20	12	6	12	8	12	10	12	13	12	16	12	22	Mar 20
Oct 05	12	7	12	1	11	53	11	46	11	37	11	26	Apr 05
Oct 20	12	7	11	52	11	36	11	20	10	59	10	31	Apr 20
Nov 05	12	7	11	44	11	20	10	55	10	21	9	36	May 05
Nov 20	12	7	11	38	11	7	10	34	9	51	8	51	May 20
Dec 05	12	7	11	35	10	59	10	19	9	29	8	18	Jun 05
Dec 20	12	7	11	33	10	55	10	13	9	20	8	5	Jun 20

Hygiene

- Set up the farm at a safe distance from other poultry houses and fence in.

- Keep birds of only one age group on the farm.

- Keep no other poultry on the farm.

- Allow no visitors to enter the farm.

- Wear only the farm´s own protective clothing within the farm area.

- Provide the farm´s own protective clothing for veterinarians, service and maintenance workers and consultants.

- Disinfect boots before entering the houses.

- Use bulk feed if possible. Do not allow the truck driver to enter the houses.

- Safeguard the houses against wild birds and vermin. Keep rats and mice under constant control.

- Dispose of dead birds hygienically. Follow local laws and regulations.

Daily Control

Check at least once daily:

- Health status
- Temperature
- Ventilation
- Feed and water consumption
- Lighting
- Mortality

When assessing the state of health, do not just go by the general impression and mortality rate, but also take note of feed and water consumption as well as the consistency of droppings.

Water Supply

Clean water is as equally important as good feed for top performance. Therefore fresh, clean, potable water must be available at all times for the layers and an adequate consumption must always be assured. A water meter is a very useful tool to monitor water consumption. The optimal water temperature is about 20 °C (68 °F).

Furthermore feed and water intake are closely correlated. If birds don't drink enough water for any reason, feed intake is consequently reduced.
The water to feed ratio at comfortable temperature is around 1.8 – 2 : 1, but this relation increases up to 5 : 1 at high ambient temperatures above 30 °C (86 °F). During exposure to high temperatures, birds consume less feed, but more water in an effort to cool their body down.

Check the water quality regularly, especially if you use your own water supply like well water.
For example excessive salt levels in drinking water can cause persistent damage to shell quality and hard water with high TDS* levels may cause kidney damage.

TDS: Total Dissolved Solids

Grit

Feeding grit is not a must but is recommended when rations are supplemented by grains. This stimulates the development of the crop and the gizzard during the rearing period, which in turn has a positive effect on feed intake capacity.

Table 17: Amount and Granulation of Grit Dependent on Age

Week 1 – 2	once a week 1 g / bird (size 1 – 2 mm / 0.04 – 0.08 in)
Week 3 – 8	once a week 2 g / bird (size 3 – 4 mm / 0.12 – 0.16 in)
From week 9	once a month 3 g / bird (size 4 – 6 mm / 0.16 – 0.24 in)

GENERAL RECOMMENDATIONS

Egg Quality and Egg Collection

LOHMANN LSL-LITE layers produce eggs of excellent quality. To preserve the quality, the following points should be observed:

- Collect eggs at least once a day.

- Store eggs at temperatures of 7 °C (45 °F) with a relative humidity between 80 – 85 %.

Storing at higher temperatures and lower humidity leads to rapid loss of weight and impairs the quality of the egg white due to an increase in gas exchange.

Nests (Non Cage Housing)

The quality of nests is also a factor that affects egg quality. Renew the litter in litter-type nests regularly and keep them clean. Provide individual nests at a rate of one nest per 4 hens. Collect floor eggs frequently to keep their rate as low as possible.

In addition to sufficient nesting space in family type nests, the following factors are important for a low rate of floor eggs:

- Clean, dry litter or soft nest lining

- Easy access

- Even distribution of the nests within the barn

- Only one type of nest in the barn

For optimum egg quality, rollaway nests in combination with slats are better than litter-type nests or family type nests.

Litter (Non Cage Housing)

Only use shavings from untreated wood in order to avoid poisoning and residues in the egg.
Provide sufficient ventilation to ensure good litter condition and remove wet litter, if necessary.

Space Requirements

Table 18: Space Allowances and Equipment for Rearing

Age / Equipment		Cage Rearing		Floor Rearing	
		0 – 4 weeks	5 – 17 weeeks	0 – 4 weeks	5 – 17 weeks
Chicks/Hover				500	
Floor Space		140 sq cm/bird 22 sq in /bird	285 sq cm/bird 44 sq in/bird	20 birds/sq m 0.5 sq ft/bird	10 birds/sq m 1 sq ft/bird
Feeder Space	trough (cm/bird) trough (in/bird) pan (birds/pan)	2.5 1 24	5 2 12	4 1.5 60	8 3 30
Water Space	birds/cup birds/nipple birds/fountain trough (cm/bird) trough (in/bird)	16 16 50 (mini) 1.25 0.5	8 8 – 2.5 1	50 20 150 1.25 0.5	25 10 75 2.5 1

Table 19: Space Recommendations and Equipment for Laying

	Floor Space			Feeder Space		Water Space		
	Cage Area	Light Controlled Floor	Open Floor	Trough/ Bird	Birds/ Tube or Pan	Birds/ Nipple or Cup	Birds/ Fountain	Trough/ Bird
Recommended*	456 sq cm/bird 72 sq in/bird	8.5. birds/sq m 1.25 ft/bird	8.5 birds/sq m 1.25 sq ft/bird	10 cm 4 in	20 1.5 in	6	50	4 cm
Minimum	350 sq cm/bird 54 sq in/bird	10 birds/sq m 1.0 sq ft/bird	10 birds/sq m 1.0 sq ft/bird	8 cm 3 in	25	8 8	75	2.5 cm 1.0 in

*Follow the local laws and statutory regulations.

Birds which are kept on the floor during production, must also be reared on the floor.

An important aspect of floor rearing is to develop immunity against Coccidiosis. We recommend vaccination as the most reliable method to achieve this goal. never use Coccidiostats in the feed when pullets are vaccinated.

Stocking Density

The optimal bird density depends on management conditions and to which extent climate can be controlled. 6 – 8 birds/m² can be taken as a general guide for barn systems.

Table 20: Body Weight Development of LOHMANN LSL-LITE
Week 1 – 90

Age in Weeks	Weight Range (g)		Age in Weeks	Weight Range (g)	
	lbs.	gram		lbs.	gram
1	0.15 – 0.16	67 – 73	32	3.46 – 3.75	1571 – 1701
2	0.25 – 0.28	115 – 125	34	3.47 – 3.76	1574 – 1706
3	0.39 – 0.42	178 – 192	36	3.48 – 3.77	1578 – 1710
4	0.54 – 0.58	245 – 265	38	3.49 – 3.78	1582 – 1714
5	0.71 – 0.77	321 – 347	40	3.50 – 3.79	1586 – 1718
6	0.90 – 0.97	408 – 442	42	3.51 – 3.81	1594 – 1726
7	1.11 – 1.20	503 – 545	44	3.52 – 3.81	1596 – 1728
8	1.31 – 1.42	593 – 643	46	3.52 – 3.82	1597 – 1731
9	1.51 – 1.63	684 – 740	48	3.53 – 3.82	1599 – 1733
10	1.70 – 1.84	770 – 834	50	3.53 – 3.82	1601 – 1735
11	1.86 – 2.02	844 – 914	52	3.50 – 3.80	1590 – 1722
12	2.01 – 2.17	910 – 986	54	3.51 – 3.80	1592 – 1724
13	2.13 – 2.31	968 – 1048	56	3.53 – 3.83	1603 – 1737
14	2.25 – 2.43	1020 – 1104	58	3.54 – 3.83	1605 – 1739
15	2.35 – 2.55	1068 – 1156	60	3.54 – 3.84	1607 – 1740
16	2.45 – 2.65	1110 – 1202	62	3.54 – 3.84	1608 – 1741
17	2.55 – 2.76	1155 – 1251	64	3.55 – 3.84	1608 – 1743
18	2.65 – 2.87	1203 – 1303	66	3.55 – 3.84	1609 – 1744
19	2.77 – 3.00	1258 – 1362	68	3.55 – 3.85	1610 – 1745
20	2.90 – 3.14	1315 – 1425	70	3.55 – 3.85	1611 – 1746
21	3.01 – 3.26	1363 – 1477	72	3.55 – 3.85	1612 – 1747
22	3.10 – 3.36	1406 – 1524	74	3.56 – 3.85	1613 – 1748
23	3.19 – 3.45	1445 – 1565	76	3.56 – 3.86	1614 – 1749
24	3.26 – 3.53	1478 – 1602	78	3.56 – 3.86	1615 – 1750
25	3.32 – 3.60	1507 – 1633	80	3.56 – 3.86	1616 – 1751
26	3.38 – 3.66	1531 – 1659	82	3.57 – 3.86	1618 – 1752
27	3.42 – 3.70	1550 – 1680	84	3.57 – 3.87	1619 – 1753
28	3.44 – 3.73	1560 – 1690	86	3.57 – 3.87	1620 – 1754
29	3.45 – 3.74	1565 – 1695	88	3.57 – 3.87	1620 – 1756
30	3.45 – 3.74	1567 – 1697	90	3.57 – 3.87	1621 – 1757

Growth and Body Weight (lbs.) Development Curve of LOHMANN LSL-LITE

Body Weight in lbs.

Age in Weeks
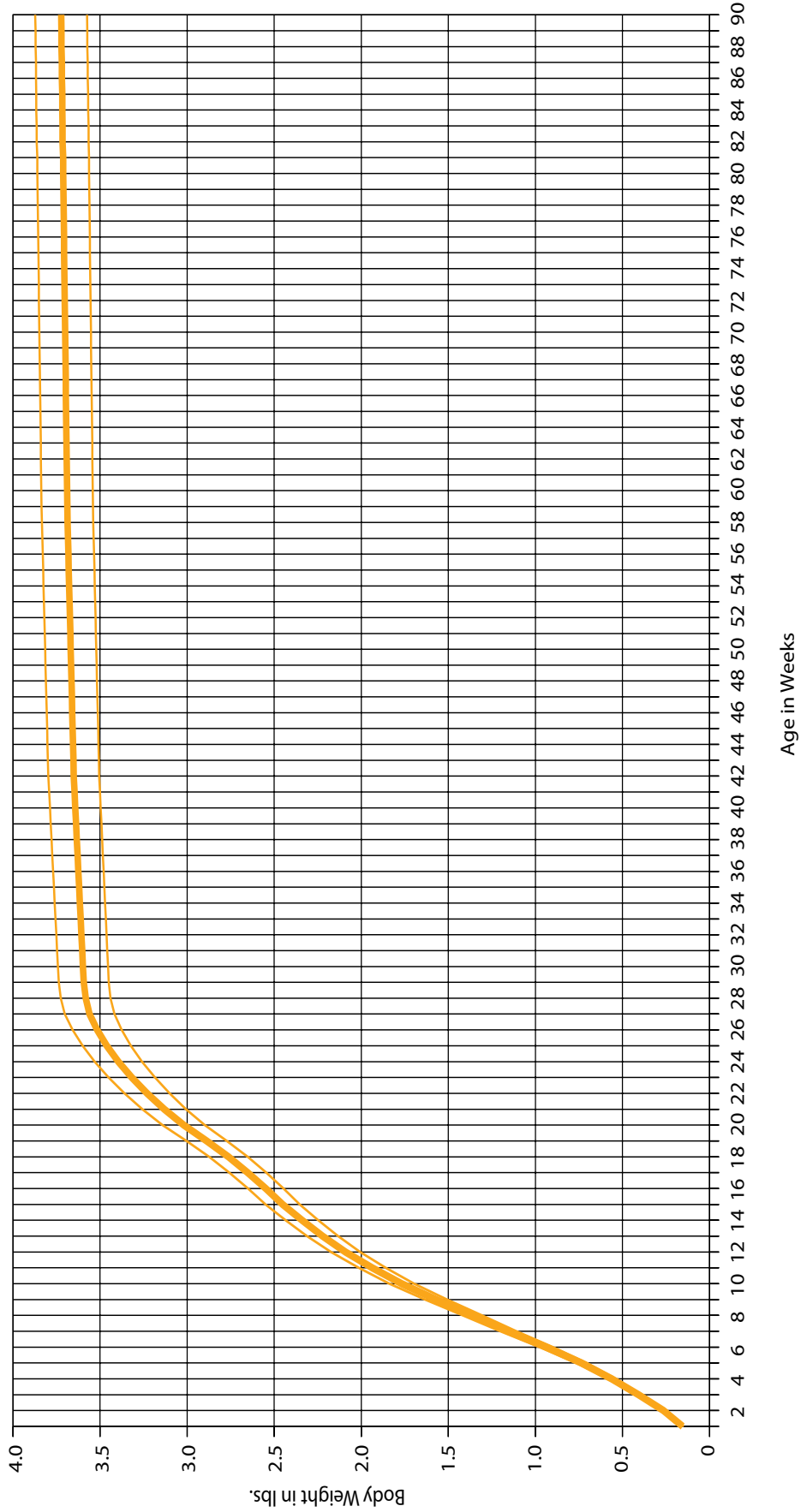
Table 21: LOHMANN LSL-LITE Performance Goals – One Cycle
Week 19 – 54

Age	Liv-abil-ity	Num-ber of eggs	Rate of Lay H.D.	Body weight in g	Body weight in lbs.	Feed Gram Feed/Bird/Day	Feed Lbs. Feed/100/Day	Egg weight in week g	Egg weight in week Oz./Doz.	Egg weight in week Net. Lbs./30 Doz. Case	Egg weight cumulative g	Egg weight cumulative Oz./Doz.	Egg weight cumulative Net. Lbs./30 Doz. Case	% Grade A Large & Above 23 Oz.	% Grade A Large & Above 24 Oz.	Egg mass g/H.D. in week	Egg mass Oz./Doz./H.D. in week	Egg mass cumulative kg/H.H.	Egg mass cumulative Lbs./H.H.
19	100.0	0.7	10.0	1310	2.89	80	17.7	41.0	17.4	32.5	41.0	17.4	32.5	0	0	4.1	1.7	0.03	0.1
20	100.0	3.2	35.0	1370	3.02	85	18.7	44.0	18.6	34.9	43.3	18.3	34.4	0	0	15.4	6.5	0.14	0.3
21	99.9	7.0	55.1	1420	3.13	92	20.2	47.0	19.9	37.3	45.4	19.2	36.0	2	0	25.9	11.0	0.32	0.7
22	99.9	12.1	73.1	1465	3.23	97	21.3	49.5	21.0	39.3	47.1	19.9	37.4	9	3	36.2	15.3	0.57	1.3
23	99.8	17.9	83.2	1505	3.32	100	21.9	51.8	21.9	41.1	48.6	20.6	38.6	27	12	43.1	18.2	0.87	1.9
24	99.8	24.2	89.2	1540	3.40	101	22.4	53.5	22.6	42.5	49.9	21.1	39.6	44	25	47.7	20.2	1.20	2.7
25	99.7	30.6	92.3	1570	3.46	103	22.8	55.0	23.3	43.7	51.0	21.6	40.4	58	38	50.8	21.5	1.56	3.4
26	99.7	37.1	93.8	1595	3.52	103	22.8	56.4	23.9	44.8	51.9	22.0	41.2	69	49	52.9	22.4	1.93	4.3
27	99.6	43.7	94.6	1615	3.56	104	23.0	57.3	24.3	45.5	52.7	22.3	41.8	76	57	54.2	23.0	2.31	5.1
28	99.6	50.4	95.2	1625	3.58	104	23.0	57.9	24.5	46.0	53.4	22.6	42.4	79	63	55.1	23.3	2.69	5.9
29	99.5	57.0	95.5	1630	3.59	104	23.0	58.4	24.7	46.3	54.0	22.9	42.9	83	67	55.8	23.6	3.08	6.8
30	99.4	63.7	95.7	1632	3.60	104	23.0	58.8	24.9	46.7	54.5	23.1	43.3	85	70	56.3	23.8	3.47	7.6
31	99.3	70.3	95.9	1634	3.60	104	23.0	59.2	25.1	47.0	54.9	23.3	43.6	87	74	56.8	24.0	3.86	8.5
32	99.2	77.0	96.0	1636	3.61	104	23.0	59.6	25.2	47.3	55.3	23.4	43.9	89	77	57.2	24.2	4.26	9.4
33	99.1	83.7	96.2	1638	3.61	104	23.0	60.0	25.4	47.6	55.7	23.6	44.2	90	79	57.7	24.4	4.66	10.3
34	99.0	90.3	96.3	1640	3.62	104	23.0	60.4	25.6	47.9	56.1	23.7	44.5	92	82	58.1	24.6	5.07	11.2
35	98.9	97.0	96.3	1642	3.62	104	23.0	60.7	25.7	48.2	56.4	23.9	44.7	92	83	58.5	24.7	5.47	12.1
36	98.8	103.7	96.3	1644	3.62	104	23.0	61.0	25.8	48.4	56.7	24.0	45.0	93	84	58.7	24.9	5.88	13.0
37	98.7	110.3	96.3	1646	3.63	104	23.0	61.3	25.9	48.7	57.0	24.1	45.2	94	85	59.0	25.0	6.28	13.9
38	98.6	117.0	96.2	1648	3.63	103	22.8	61.4	26.0	48.7	57.2	24.2	45.4	94	87	59.1	25.0	6.69	14.8
39	98.5	123.6	96.2	1650	3.64	103	22.8	61.6	26.1	48.9	57.4	24.3	45.6	95	87	59.3	25.1	7.10	15.7
40	98.4	130.2	96.1	1652	3.64	103	22.8	61.8	26.2	49.0	57.7	24.4	45.8	95	88	59.4	25.1	7.51	16.6
41	98.3	136.8	96.0	1654	3.65	103	22.8	61.9	26.2	49.1	57.9	24.5	45.9	95	88	59.4	25.1	7.92	17.5
42	98.2	143.4	95.9	1656	3.65	103	22.8	62.0	26.2	49.2	58.1	24.6	46.1	95	88	59.4	25.2	8.33	18.4
43	98.1	150.0	95.8	1657	3.65	103	22.8	62.1	26.3	49.3	58.2	24.7	46.2	95	89	59.5	25.2	8.74	19.3
44	98.0	156.5	95.6	1658	3.66	103	22.8	62.2	26.3	49.4	58.4	24.7	46.4	96	89	59.4	25.2	9.14	20.2
45	97.9	163.1	95.4	1659	3.66	103	22.8	62.3	26.4	49.4	58.6	24.8	46.5	96	89	59.4	25.1	9.55	21.1
46	97.8	169.6	95.1	1660	3.66	103	22.8	62.4	26.4	49.5	58.7	24.8	46.6	96	90	59.4	25.1	9.96	21.9
47	97.7	176.1	94.8	1661	3.66	103	22.8	62.5	26.5	49.6	58.8	24.9	46.7	96	91	59.3	25.1	10.36	22.8
48	97.6	182.5	94.5	1662	3.66	103	22.8	62.6	26.5	49.7	59.0	25.0	46.8	96	91	59.2	25.0	10.77	23.7
49	97.5	189.0	94.2	1663	3.67	102	22.6	62.7	26.5	49.8	59.1	25.0	46.9	97	91	59.1	25.0	11.17	24.6
50	97.4	195.4	93.9	1664	3.67	102	22.6	62.8	26.6	49.8	59.2	25.1	47.0	97	91	59.0	25.0	11.57	25.5
51	97.2	201.7	93.7	1665	3.67	102	22.6	62.9	26.6	49.9	59.3	25.1	47.1	97	92	58.9	24.9	11.97	26.4
52	97.1	208.1	93.4	1666	3.67	102	22.6	63.0	26.7	50.0	59.5	25.2	47.2	97	92	58.8	24.9	12.37	27.3
53	96.9	214.4	93.0	1667	3.68	102	22.6	63.1	26.7	50.1	59.6	25.2	47.3	97	92	58.7	24.8	12.77	28.2
54	96.8	220.7	92.7	1668	3.68	102	22.6	63.2	26.8	50.2	59.7	25.3	47.4	97	92	58.6	24.8	13.17	29.0

Table 21: LOHMANN LSL-LITE Performance Goals – One Cycle
Week 55 – 90

Age	Liv-abil-ity	Num-ber of eggs	Rate of Lay H.D.	Body weight		Feed		Egg weight in week			Egg weight cumulative			% Grade A Large & Above		Egg mass			
				in g	in lbs.	Gram Feed/ Bird/ Day	Lbs. Feed/ 100/ Day	g	Oz./ Doz.	Net. Lbs./ 30 Doz. Case	g	Oz./ Doz.	Net. Lbs./ 30 Doz. Case	23 Oz.	24 Oz.	g/ H.D. in week	Oz./ Doz./ H.D. in week	cu-mula-tive kg/ H.H.	cu-mula-tive Lbs./ H.H.
55	96.6	226.9	92.3	1669	3.68	102	22.6	63.3	26.8	50.2	59.8	25.3	47.4	97	93	58.4	24.7	13.56	29.9
56	96.5	233.1	91.9	1670	3.68	102	22.6	63.4	26.8	50.3	59.9	25.3	47.5	97	93	58.3	24.7	13.96	30.8
57	96.3	239.3	91.5	1671	3.68	102	22.6	63.5	26.9	50.4	60.0	25.4	47.6	97	93	58.1	24.6	14.35	31.6
58	96.2	245.4	91.2	1672	3.69	102	22.6	63.5	26.9	50.4	60.0	25.4	47.7	97	93	57.9	24.5	14.74	32.5
59	96.0	251.5	90.8	1673	3.69	102	22.6	63.6	26.9	50.5	60.1	25.5	47.7	97	93	57.7	24.4	15.12	33.3
60	95.9	257.6	90.3	1674	3.69	102	22.6	63.6	26.9	50.5	60.2	25.5	47.8	97	93	57.5	24.3	15.51	34.2
61	95.7	263.6	89.9	1674	3.69	102	22.6	63.6	26.9	50.5	60.3	25.5	47.8	98	94	57.2	24.2	15.89	35.0
62	95.6	269.6	89.5	1675	3.69	101	22.4	63.7	27.0	50.6	60.4	25.6	47.9	98	94	57.0	24.1	16.27	35.9
63	95.4	275.5	89.0	1675	3.69	101	22.4	63.7	27.0	50.6	60.4	25.6	48.0	98	94	56.7	24.0	16.65	36.7
64	95.3	281.5	88.6	1676	3.69	101	22.4	63.8	27.0	50.6	60.5	25.6	48.0	98	94	56.5	23.9	17.03	37.5
65	95.1	287.3	88.2	1676	3.69	101	22.4	63.8	27.0	50.6	60.6	25.6	48.1	98	94	56.3	23.8	17.40	38.4
66	95.0	293.2	87.7	1677	3.70	101	22.4	63.9	27.0	50.7	60.6	25.7	48.1	98	94	56.1	23.7	17.78	39.2
67	94.8	298.9	87.3	1677	3.70	101	22.4	63.9	27.0	50.7	60.7	25.7	48.2	98	94	55.8	23.6	18.15	40.0
68	94.7	304.7	86.8	1678	3.70	101	22.4	64.0	27.1	50.8	60.8	25.7	48.2	98	94	55.5	23.5	18.52	40.8
69	94.5	310.4	86.3	1678	3.70	101	22.4	64.0	27.1	50.8	60.8	25.7	48.3	98	94	55.2	23.4	18.88	41.6
70	94.4	316.1	85.8	1679	3.70	100	22.2	64.1	27.1	50.9	60.9	25.8	48.3	98	94	55.0	23.3	19.24	42.4
71	94.2	321.7	85.2	1679	3.70	100	22.2	64.1	27.1	50.9	60.9	25.8	48.4	98	95	54.6	23.1	19.60	43.2
72	94.1	327.3	84.7	1680	3.70	100	22.2	64.2	27.2	51.0	61.0	25.8	48.4	98	95	54.4	23.0	19.96	44.0
73	93.9	332.8	84.2	1680	3.70	100	22.2	64.2	27.2	51.0	61.0	25.8	48.5	98	95	54.0	22.9	20.32	44.8
74	93.8	338.3	83.7	1681	3.70	100	22.2	64.3	27.2	51.0	61.1	25.9	48.5	98	95	53.8	22.8	20.67	45.6
75	93.6	343.7	83.1	1681	3.71	100	22.2	64.3	27.2	51.0	61.2	25.9	48.5	98	95	53.4	22.6	21.02	46.3
76	93.5	349.1	82.6	1682	3.71	100	22.2	64.4	27.3	51.1	61.2	25.9	48.6	98	95	53.2	22.5	21.37	47.1
77	93.3	354.5	81.9	1682	3.71	100	22.2	64.4	27.3	51.1	61.3	25.9	48.6	98	95	52.8	22.3	21.71	47.9
78	93.2	359.8	81.3	1683	3.71	100	22.2	64.5	27.3	51.2	61.3	25.9	48.7	98	95	52.4	22.2	22.06	48.6
79	93.0	365.0	80.6	1683	3.71	100	22.2	64.5	27.3	51.2	61.3	26.0	48.7	99	96	52.0	22.0	22.39	49.4
80	92.9	370.2	80.0	1684	3.71	100	22.2	64.6	27.3	51.3	61.4	26.0	48.7	99	96	51.7	21.9	22.73	50.1
81	92.7	375.4	79.3	1684	3.71	100	22.2	64.6	27.3	51.3	61.4	26.0	48.8	99	96	51.3	21.7	23.06	50.8
82	92.6	380.5	78.7	1685	3.71	100	22.2	64.6	27.3	51.3	61.5	26.0	48.8	99	96	50.8	21.5	23.39	51.6
83	92.4	385.5	78.0	1685	3.71	100	22.2	64.6	27.3	51.3	61.5	26.0	48.8	99	96	50.4	21.3	23.72	52.3
84	92.3	390.5	77.3	1686	3.72	100	22.2	64.6	27.3	51.3	61.6	26.1	48.9	99	96	49.9	21.1	24.04	53.0
85	92.1	395.5	76.5	1686	3.72	100	22.2	64.6	27.3	51.3	61.6	26.1	48.9	99	96	49.4	20.9	24.36	53.7
86	92.0	400.3	75.8	1687	3.72	100	22.2	64.7	27.4	51.3	61.6	26.1	48.9	99	96	49.0	20.8	24.67	54.4
87	91.8	405.2	75.1	1687	3.72	100	22.2	64.7	27.4	51.3	61.7	26.1	48.9	99	96	48.6	20.6	24.99	55.1
88	91.6	409.9	74.3	1688	3.72	100	22.2	64.7	27.4	51.3	61.7	26.1	49.0	99	96	48.1	20.3	25.29	55.8
89	91.5	414.6	73.4	1688	3.72	100	22.2	64.7	27.4	51.3	61.7	26.1	49.0	99	96	47.5	20.1	25.60	56.4
90	91.3	419.3	72.6	1689	3.72	100	22.2	64.7	27.4	51.3	61.8	26.1	49.0	99	96	47.0	19.9	25.90	57.1

Table 22: LOHMANN LSL-LITE Performance Goals – Pre and Post Molt
Week 19 – 50

Age	Liv-abil-ity	Num-ber of eggs	Rate of Lay H.D.	Body weight in g	Body weight in lbs.	Feed Gram Feed/Bird/Day	Feed Lbs. Feed/100/Day	Egg weight in week g	Egg weight in week Oz./Doz.	Egg weight in week Net. Lbs./30 Doz. Case	Egg weight cumulative g	Egg weight cumulative Oz./Doz.	Egg weight cumulative Net. Lbs./30 Doz. Case	% Grade A Large & Above 23 Oz.	% Grade A Large & Above 24 Oz.	Egg mass g/H.D. in week	Egg mass Oz./Doz./H.D. in week	Egg mass cumulative kg/H.H.	Egg mass cumulative Lbs./H.H.
19	100.0	0.7	10.0	1310	2.89	80	17.7	41.0	17.4	32.5	41.0	17.4	32.5	0	0	4.1	1.7	0.03	0.1
20	100.0	3.2	35.0	1370	3.02	85	18.7	44.0	18.6	34.9	43.3	18.3	34.4	0	0	15.4	6.5	0.14	0.3
21	99.9	7.0	55.1	1420	3.13	92	20.2	47.0	19.9	37.3	45.4	19.2	36.0	2	0	25.9	11.0	0.32	0.7
22	99.9	12.1	73.1	1465	3.23	97	21.3	49.5	21.0	39.3	47.1	19.9	37.4	9	3	36.2	15.3	0.57	1.3
23	99.8	17.9	83.2	1505	3.32	100	21.9	51.8	21.9	41.1	48.6	20.6	38.6	27	12	43.1	18.2	0.87	1.9
24	99.8	24.2	89.2	1540	3.40	101	22.4	53.5	22.6	42.5	49.9	21.1	39.6	44	25	47.7	20.2	1.20	2.7
25	99.7	30.6	92.3	1570	3.46	103	22.8	55.0	23.3	43.7	51.0	21.6	40.4	58	38	50.8	21.5	1.56	3.4
26	99.7	37.1	93.8	1595	3.52	103	22.8	56.4	23.9	44.8	51.9	22.0	41.2	69	49	52.9	22.4	1.93	4.3
27	99.6	43.7	94.6	1615	3.56	104	23.0	57.3	24.3	45.5	52.7	22.3	41.8	76	57	54.2	23.0	2.31	5.1
28	99.6	50.4	95.1	1625	3.58	104	23.0	57.9	24.5	46.0	53.4	22.6	42.4	79	63	55.1	23.3	2.69	5.9
29	99.5	57.0	95.5	1630	3.59	104	23.0	58.4	24.7	46.3	54.0	22.9	42.9	83	67	55.8	23.6	3.08	6.8
30	99.4	63.7	95.7	1632	3.60	104	23.0	58.8	24.9	46.7	54.5	23.1	43.3	85	70	56.3	23.8	3.47	7.6
31	99.3	70.3	95.9	1634	3.60	104	23.0	59.2	25.1	47.0	54.9	23.3	43.6	87	74	56.8	24.0	3.86	8.5
32	99.2	77.0	96.0	1636	3.61	104	23.0	59.6	25.2	47.3	55.3	23.4	43.9	89	77	57.2	24.2	4.26	9.4
33	99.1	83.7	96.2	1638	3.61	104	23.0	60.0	25.4	47.6	55.7	23.6	44.2	90	79	57.7	24.4	4.66	10.3
34	99.0	90.3	96.3	1640	3.62	104	23.0	60.4	25.6	47.9	56.1	23.7	44.5	92	82	58.1	24.6	5.07	11.2
35	98.9	97.0	96.3	1642	3.62	104	23.0	60.7	25.7	48.2	56.4	23.9	44.7	92	83	58.5	24.7	5.47	12.1
36	98.8	103.7	96.3	1644	3.62	104	23.0	61.0	25.8	48.4	56.7	24.0	45.0	93	84	58.7	24.9	5.88	13.0
37	98.7	110.3	96.3	1646	3.63	104	23.0	61.3	25.9	48.7	57.0	24.1	45.2	94	85	59.0	25.0	6.28	13.9
38	98.6	117.0	96.2	1648	3.63	103	22.8	61.4	26.0	48.7	57.2	24.2	45.4	94	87	59.1	25.0	6.69	14.8
39	98.5	123.6	96.2	1650	3.64	103	22.8	61.6	26.1	48.9	57.4	24.3	45.6	95	87	59.3	25.1	7.10	15.7
40	98.4	130.2	96.1	1652	3.64	103	22.8	61.8	26.2	49.0	57.7	24.4	45.8	95	88	59.4	25.1	7.51	16.6
41	98.3	136.8	96.0	1654	3.65	103	22.8	61.9	26.2	49.1	57.9	24.5	45.9	95	88	59.4	25.1	7.92	17.5
42	98.2	143.4	95.9	1656	3.65	103	22.8	62.0	26.2	49.2	58.1	24.6	46.1	95	88	59.4	25.2	8.33	18.4
43	98.1	150.0	95.8	1657	3.65	103	22.8	62.1	26.3	49.3	58.2	24.7	46.2	95	89	59.5	25.2	8.74	19.3
44	98.0	156.5	95.6	1658	3.66	103	22.8	62.2	26.3	49.4	58.4	24.7	46.4	96	89	59.4	25.2	9.14	20.2
45	97.9	163.1	95.4	1659	3.66	103	22.8	62.3	26.4	49.4	58.6	24.8	46.5	96	89	59.4	25.1	9.55	21.1
46	97.8	169.6	95.1	1660	3.66	103	22.8	62.4	26.4	49.5	58.7	24.8	46.6	96	90	59.4	25.1	9.96	21.9
47	97.7	176.1	94.8	1661	3.66	103	22.8	62.5	26.5	49.6	58.8	24.9	46.7	96	91	59.3	25.1	10.36	22.8
48	97.6	182.5	94.5	1662	3.66	103	22.8	62.6	26.5	49.7	59.0	25.0	46.8	96	91	59.2	25.0	10.77	23.7
49	97.5	189.0	94.2	1663	3.67	102	22.6	62.7	26.5	49.8	59.1	25.0	46.9	97	91	59.1	25.0	11.17	24.6
50	97.4	195.4	93.9	1664	3.67	102	22.6	62.8	26.6	49.8	59.2	25.1	47.0	97	91	59.0	25.0	11.57	25.5

Table 22: LOHMANN LSL-LITE Performance Goals – Pre and Post Molt
Week 51 – 82

Age	Liv-abil-ity	Num-ber of eggs	Rate of Lay H.D.	Body weight in g	Body weight in lbs.	Gram Feed/ Bird/ Day	Lbs. Feed/ 100/ Day	Egg weight in week g	Egg weight in week Oz./ Doz.	Egg weight in week Net. Lbs./ 30 Doz. Case	Egg weight cumulative g	Egg weight cumulative Oz./ Doz.	Egg weight cumulative Net. Lbs./ 30 Doz. Case	% Grade A Large & Above 23 Oz.	% Grade A Large & Above 24 Oz.	g/ H.D. in week	Oz./ Doz./ H.D. in week	cu-mula-tive kg/ H.H.	cu-mula-tive Lbs./ H.H.
51	97.2	201.7	93.7	1665	3.67	102	22.6	62.9	26.6	49.9	59.3	25.1	47.1	97	92	58.9	24.9	11.97	26.4
52	97.1	208.1	93.4	1666	3.67	102	22.6	63.0	26.7	50.0	59.5	25.2	47.2	97	92	58.8	24.9	12.37	27.3
53	96.9	214.4	93.0	1667	3.68	102	22.6	63.1	26.7	50.1	59.6	25.2	47.3	97	92	58.7	24.8	12.77	28.2
54	96.8	220.7	92.6	1668	3.68	102	22.6	63.2	26.8	50.2	59.7	25.3	47.4	97	92	58.5	24.8	13.17	29.0
55	96.6	226.9	92.3	1669	3.68	102	22.6	63.3	26.8	50.2	59.8	25.3	47.4	97	93	58.4	24.7	13.56	29.9
56	96.5	233.1	91.9	1670	3.68	102	22.6	63.4	26.8	50.3	59.9	25.3	47.5	97	93	58.2	24.7	13.96	30.8
57	96.3	239.3	91.5	1671	3.68	102	22.6	63.5	26.9	50.4	60.0	25.4	47.6	97	93	58.1	24.6	14.35	31.6
58	96.2	245.4	91.1	1672	3.69	102	22.6	63.5	26.9	50.4	60.0	25.4	47.7	97	93	57.9	24.5	14.74	32.5
59	96.0	251.5	90.8	1673	3.69	102	22.6	63.6	26.9	50.5	60.1	25.5	47.7	97	93	57.7	24.4	15.12	33.3
60	95.9	257.6	90.3	1674	3.69	102	22.6	63.6	26.9	50.5	60.2	25.5	47.8	97	93	57.4	24.3	15.51	34.2
61	95.7	263.6	89.9	1674	3.69	102	22.6	63.6	26.9	50.5	60.3	25.5	47.8	98	94	57.2	24.2	15.89	35.0
62	95.6	269.6	89.4	1675	3.69	101	22.4	63.7	27.0	50.6	60.4	25.6	47.9	98	94	57.0	24.1	16.27	35.9
63	95.4	275.5	89.0	1675	3.69	101	22.4	63.7	27.0	50.6	60.4	25.6	48.0	98	94	56.7	24.0	16.65	36.7
64	95.3	281.5	88.6	1676	3.69	101	22.4	63.8	27.0	50.6	60.5	25.6	48.0	98	94	56.5	23.9	17.03	37.5
65	95.1	287.3	88.2	1676	3.69	101	22.4	63.8	27.0	50.6	60.6	25.6	48.1	98	94	56.3	23.8	17.40	38.4
66	95.0	293.2	87.7	1677	3.70	101	22.4	63.9	27.0	50.7	60.6	25.7	48.1	98	94	56.0	23.7	17.78	39.2
67	94.8	298.9	87.3	1677	3.70	101	22.4	63.9	27.0	50.7	60.7	25.7	48.2	98	94	55.8	23.6	18.15	40.0
68	94.7	304.7	86.7	1678	3.70	101	22.4	64.0	27.1	50.8	60.8	25.7	48.2	98	94	55.5	23.5	18.52	40.8
69	94.5	310.4	86.3	1678	3.70	101	22.4	64.0	27.1	50.8	60.8	25.7	48.3	98	94	55.2	23.4	18.88	41.6
70	94.4	316.1	85.7	1679	3.70	100	22.2	64.1	27.1	50.9	60.9	25.8	48.3	98	94	55.0	23.3	19.24	42.4
71	93.8	321.7	85.6	1379	3.04	0	0.0	64.1	27.1	50.9	60.9	25.8	48.4	98	95	54.9	23.2	19.60	43.2
72	93.3	321.7	0.1	1329	2.93	19	4.3	0.0	0.0	0.0	60.9	25.8	48.4	98	95	0.0	0.0	19.60	43.2
73	92.8	321.7	0.0	1304	2.87	58	12.8	0.0	0.0	0.0	60.9	25.8	48.4	0	0	0.0	0.0	19.60	43.2
74	92.7	321.7	0.0	1284	2.83	63	13.8	0.0	0.0	0.0	60.9	25.8	48.4	0	0	0.0	0.0	19.60	43.2
75	92.6	321.7	0.0	1269	2.80	82	18.1	59.0	25.0	46.8	60.9	25.8	48.4	0	0	0.0	0.0	19.60	43.2
76	92.5	322.0	5.4	1364	3.01	87	19.2	63.0	26.7	50.0	60.9	25.8	48.4	84	69	3.4	1.4	19.63	43.3
77	92.4	324.1	32.5	1459	3.22	97	21.3	64.0	27.1	50.8	61.0	25.8	48.4	97	92	20.8	8.8	19.76	43.6
78	92.3	328.7	70.4	1564	3.45	111	24.5	64.5	27.3	51.2	61.0	25.8	48.4	99	96	45.4	19.2	20.05	44.2
79	92.2	333.7	77.5	1714	3.78	111	24.5	64.9	27.5	51.5	61.1	25.8	48.5	99	96	50.3	21.3	20.38	44.9
80	92.1	338.9	80.7	1714	3.78	111	24.5	64.9	27.5	51.5	61.1	25.9	48.5	99	96	52.3	22.1	20.72	45.7
81	92.0	344.3	83.4	1715	3.78	109	24.1	64.9	27.5	51.5	61.2	25.9	48.6	99	96	54.1	22.9	21.06	46.4
82	91.9	349.7	84.8	1715	3.78	109	24.1	65.0	27.5	51.6	61.2	25.9	48.6	99	96	55.1	23.3	21.42	47.2

Table 22: LOHMANN LSL-LITE Performance Goals – Pre and Post Molt
Week 83 – 115

Age	Liv-abil-ity	Num-ber of eggs	Rate of Lay H.D.	Body weight		Feed		Egg weight in week			Egg weight cumulative			% Grade A Large & Above		Egg mass			
				in g	in lbs.	Gram Feed/Bird/Day	Lbs. Feed/100/Day	g	Oz./Doz.	Net. Lbs./30 Doz. Case	g	Oz./Doz.	Net. Lbs./30 Doz. Case	23 Oz.	24 Oz.	g/H.D. in week	Oz./Doz. H.D. in week	cu-mula-tive kg/H.H.	cu-mula-tive Lbs./H.H.
83	91.8	355.2	85.4	1716	3.78	109	24.1	65.0	27.5	51.6	61.3	25.9	48.7	99	96	55.5	23.5	21.77	48.0
84	91.7	360.7	85.8	1716	3.78	107	23.6	65.0	27.5	51.6	61.4	26.0	48.7	99	96	55.7	23.6	22.13	48.8
85	91.5	366.2	85.8	1717	3.78	107	23.6	65.0	27.5	51.6	61.4	26.0	48.7	99	96	55.7	23.6	22.49	49.6
86	91.4	371.7	85.5	1717	3.78	105	23.2	65.1	27.5	51.6	61.5	26.0	48.8	99	96	55.6	23.5	22.85	50.4
87	91.2	377.1	85.2	1718	3.79	105	23.2	65.1	27.5	51.6	61.5	26.0	48.8	99	96	55.4	23.5	23.20	51.1
88	91.1	382.5	84.7	1718	3.79	103	22.8	65.1	27.5	51.6	61.6	26.1	48.9	99	96	55.1	23.3	23.55	51.9
89	90.9	387.9	84.2	1719	3.79	103	22.8	65.1	27.5	51.6	61.6	26.1	48.9	99	96	54.8	23.2	23.90	52.7
90	90.8	393.2	83.5	1719	3.79	101	22.4	65.1	27.5	51.6	61.7	26.1	48.9	99	96	54.3	23.0	24.24	53.4
91	90.6	398.4	82.8	1720	3.79	101	22.4	65.1	27.5	51.6	61.7	26.1	49.0	99	96	53.9	22.8	24.59	54.2
92	90.4	403.6	82.1	1720	3.79	101	22.4	65.1	27.5	51.6	61.7	26.1	49.0	99	96	53.4	22.6	24.92	54.9
93	90.3	408.8	81.4	1721	3.79	101	22.4	65.1	27.5	51.6	61.8	26.2	49.0	99	96	53.0	22.4	25.26	55.7
94	90.1	413.9	80.6	1721	3.79	101	22.4	65.1	27.5	51.6	61.8	26.2	49.1	99	96	52.5	22.2	25.59	56.4
95	90.0	418.9	79.9	1722	3.80	101	22.4	65.1	27.5	51.6	61.9	26.2	49.1	99	96	52.0	22.0	25.92	57.1
96	89.8	423.9	79.1	1722	3.80	101	22.4	65.1	27.5	51.6	61.9	26.2	49.1	99	96	51.5	21.8	26.24	57.9
97	89.6	428.8	78.4	1723	3.80	101	22.4	65.3	27.6	51.8	61.9	26.2	49.2	99	97	51.2	21.7	26.56	58.6
98	89.4	433.7	77.7	1723	3.80	101	22.4	65.3	27.6	51.8	62.0	26.2	49.2	99	97	50.7	21.5	26.88	59.3
99	89.2	438.5	77.0	1724	3.80	101	22.4	65.3	27.6	51.8	62.0	26.3	49.2	99	97	50.2	21.3	27.19	60.0
100	89.0	443.2	76.2	1724	3.80	101	22.4	65.3	27.6	51.8	62.1	26.3	49.2	99	97	49.8	21.1	27.50	60.6
101	88.8	447.9	75.5	1725	3.80	101	22.4	65.3	27.6	51.8	62.1	26.3	49.3	99	97	49.3	20.8	27.81	61.3
102	88.6	452.6	74.7	1725	3.80	101	22.4	65.3	27.6	51.8	62.1	26.3	49.3	99	97	48.7	20.6	28.11	62.0
103	88.4	457.1	73.9	1726	3.80	101	22.4	65.3	27.6	51.8	62.2	26.3	49.3	99	97	48.2	20.4	28.41	62.6
104	88.2	461.6	73.1	1726	3.80	101	22.4	65.4	27.7	51.9	62.2	26.3	49.4	99	97	47.8	20.2	28.71	63.3
105	88.0	466.1	72.3	1727	3.81	101	22.4	65.4	27.7	51.9	62.2	26.3	49.4	99	97	47.3	20.0	29.00	63.9
106	87.8	470.5	71.5	1727	3.81	101	22.4	65.4	27.7	51.9	62.2	26.3	49.4	99	97	46.7	19.8	29.29	64.6
107	87.6	474.8	70.7	1727	3.81	101	22.4	65.4	27.7	51.9	62.3	26.4	49.4	99	97	46.2	19.6	29.57	65.2
108	87.4	479.1	69.8	1728	3.81	101	22.4	65.4	27.7	51.9	62.3	26.4	49.4	99	97	45.6	19.3	29.85	65.8
109	87.2	483.3	68.9	1728	3.81	101	22.4	65.4	27.7	51.9	62.3	26.4	49.5	99	97	45.1	19.1	30.12	66.4
110	87.0	487.5	68.1	1729	3.81	101	22.4	65.4	27.7	51.9	62.4	26.4	49.5	99	97	44.5	18.8	30.39	67.0
111	86.8	491.5	67.2	1729	3.81	101	22.4	65.5	27.7	52.0	62.4	26.4	49.5	99	97	44.0	18.6	30.66	67.6
112	86.6	495.6	66.2	1730	3.81	101	22.4	65.5	27.7	52.0	62.4	26.4	49.5	99	97	43.4	18.4	30.92	68.2
113	86.4	499.5	65.2	1730	3.81	101	22.4	65.5	27.7	52.0	62.4	26.4	49.5	99	97	42.7	18.1	31.18	68.7
114	86.2	503.4	64.2	1731	3.82	101	22.4	65.5	27.7	52.0	62.5	26.4	49.6	99	97	42.0	17.8	31.44	69.3
115	86.0	507.2	63.2	1731	3.82	101	22.4	65.5	27.7	52.0	62.5	26.4	49.6	99	97	41.4	17.5	31.69	69.9

Table 23: LOHMANN LSL-LITE Expected Egg Grades (%) for different Egg weights* – within Production Weeks
Week 19 – 54

Week	Egg Weight gram	Egg Weight Net.Lbs./ 30 Doz. Case	<42 g Pewee <18 Oz./Doz.	42 g – 50 g Small 18 – 21 Oz./Doz.	50 g – 57 g Medium 18 – 21 Oz./Doz	57 g – 64 g Large 24 – 27 Oz./Doz	64 g – 71 g Extra Large 27 – 30 Oz./Doz	>71 Jumbo >30 Oz./Doz
19	41.0	32.5	63.6	36.3	0.1	0.0	0.0	0.0
20	44.0	34.9	25.8	71.6	2.6	0.0	0.0	0.0
21	47.0	37.3	6.5	75.5	17.8	0.3	0.0	0.0
22	49.5	39.3	1.4	54.1	42.0	2.5	0.0	0.0
23	51.8	41.1	0.3	30.5	57.0	12.1	0.0	0.0
24	53.5	42.5	0.1	16.8	58.2	24.8	0.1	0.0
25	55.0	43.7	0.0	9.7	50.5	38.8	1.0	0.0
26	56.4	44.8	0.0	5.4	40.7	51.1	2.8	0.0
27	57.3	45.5	0.0	3.5	33.9	57.7	4.8	0.0
28	57.9	46.0	0.0	2.5	29.4	61.6	6.5	0.1
29	58.4	46.3	0.0	2.1	26.0	63.3	8.6	0.1
30	58.8	46.7	0.0	1.6	23.1	65.2	10.0	0.1
31	59.2	47.0	0.0	1.3	20.8	65.4	12.2	0.2
32	59.6	47.3	0.0	1.0	18.0	66.7	14.0	0.2
33	60.0	47.6	0.0	0.9	16.2	65.9	16.6	0.4
34	60.4	47.9	0.0	0.7	14.4	65.0	19.2	0.6
35	60.7	48.2	0.0	0.6	12.7	65.1	21.0	0.7
36	61.0	48.4	0.0	0.5	11.6	63.8	23.2	1.0
37	61.3	48.7	0.0	0.4	10.5	62.4	25.3	1.2
38	61.4	48.7	0.0	0.4	10.2	62.0	26.1	1.3
39	61.6	48.9	0.0	0.3	9.1	61.8	27.5	1.3
40	61.8	49.0	0.0	0.3	8.6	60.6	28.9	1.6
41	61.9	49.1	0.0	0.3	8.3	60.0	29.6	1.8
42	62.0	49.2	0.0	0.3	8.1	59.4	30.4	1.9
43	62.1	49.3	0.0	0.3	7.8	58.8	31.1	2.1
44	62.2	49.4	0.0	0.3	7.5	58.2	31.8	2.2
45	62.3	49.4	0.0	0.2	7.3	57.6	32.5	2.4
46	62.4	49.5	0.0	0.2	7.0	56.9	33.2	2.5
47	62.5	49.6	0.0	0.2	6.8	56.3	34.0	2.7
48	62.6	49.7	0.0	0.2	6.2	56.1	35.0	2.5
49	62.7	49.8	0.0	0.2	6.0	55.4	35.6	2.8
50	62.8	49.8	0.0	0.2	5.8	54.7	36.3	3.0
51	62.9	49.9	0.0	0.2	5.7	54.0	36.9	3.2
52	63.0	50.0	0.0	0.2	5.5	53.3	37.6	3.5
53	63.1	50.1	0.0	0.2	5.3	52.6	38.2	3.7
54	63.2	50.2	0.0	0.1	5.1	51.9	38.9	4.0

excluding double-yolk eggs

Table 23: LOHMANN LSL-LITE Expected Egg Grades (%) for different Egg weights * – within Production Weeks
Week 55 – 90

Week	Egg Weight gram	Egg Weight Net.Lbs./ 30 Doz. Case	<42 g Pewee <18 Oz./Doz.	42 g – 50 g Small 18 – 21 Oz./Doz.	50 g – 57 g Medium 18 – 21 Oz./Doz	57 g – 64 g Large 24 – 27 Oz./Doz	64 g – 71 g Extra Large 27 – 30 Oz./Doz	>71 Jumbo >30 Oz./Doz
55	63.3	50.2	0.0	0.1	4.9	51.2	39.5	4.2
56	63.4	50.3	0.0	0.1	4.7	50.5	40.2	4.5
57	63.5	50.4	0.0	0.1	4.3	49.9	41.5	4.2
58	63.5	50.4	0.0	0.1	4.3	49.9	41.5	4.2
59	63.6	50.5	0.0	0.1	4.1	49.2	42.0	4.5
60	63.6	50.5	0.0	0.1	4.1	49.2	42.0	4.5
61	63.6	50.5	0.0	0.1	4.1	49.2	42.0	4.5
62	63.7	50.6	0.0	0.1	4.0	48.5	42.5	4.9
63	63.7	50.6	0.0	0.1	4.0	48.5	42.5	4.9
64	63.8	50.6	0.0	0.1	3.9	47.7	43.1	5.2
65	63.8	50.6	0.0	0.1	3.9	47.7	43.1	5.2
66	63.9	50.7	0.0	0.1	3.8	47.0	43.6	5.6
67	63.9	50.7	0.0	0.1	3.8	47.0	43.6	5.6
68	64.0	50.8	0.0	0.1	3.6	46.3	44.1	5.9
69	64.0	50.8	0.0	0.1	3.6	46.3	44.1	5.9
70	64.1	50.9	0.0	0.1	3.5	45.5	44.6	6.3
71	64.1	50.9	0.0	0.1	3.5	45.5	44.6	6.3
72	64.2	51.0	0.0	0.1	3.4	44.8	45.1	6.6
73	64.2	51.0	0.0	0.1	3.4	44.8	45.1	6.6
74	64.3	51.0	0.0	0.1	3.2	44.1	45.6	7.0
75	64.3	51.0	0.0	0.1	3.2	44.1	45.6	7.0
76	64.4	51.1	0.0	0.1	3.1	43.4	46.2	7.3
77	64.4	51.1	0.0	0.1	3.1	43.4	46.2	7.3
78	64.5	51.2	0.0	0.1	3.0	42.6	46.7	7.6
79	64.5	51.2	0.0	0.1	3.0	42.6	46.7	7.6
80	64.6	51.3	0.0	0.1	2.7	41.9	47.9	7.5
81	64.6	51.3	0.0	0.1	2.7	41.9	47.9	7.5
82	64.6	51.3	0.0	0.1	2.7	41.9	47.9	7.5
83	64.6	51.3	0.0	0.1	2.7	41.9	47.9	7.5
84	64.6	51.3	0.0	0.1	2.7	41.9	47.9	7.5
85	64.6	51.3	0.0	0.1	2.7	41.9	47.9	7.5
86	64.7	51.3	0.0	0.1	2.6	41.1	48.2	8.0
87	64.7	51.3	0.0	0.1	2.6	41.1	48.2	8.0
88	64.7	51.3	0.0	0.1	2.6	41.1	48.2	8.0
89	64.7	51.3	0.0	0.1	2.6	41.1	48.2	8.0
90	64.7	51.3	0.0	0.1	2.6	41.1	48.2	8.0

* excluding double-yolk eggs

Table 24: LOHMANN LSL-LITE Expected Egg Grades (%) for different Egg weights* – cumulative over Production Period
Week 19 – 54

Week	Egg Weight gram	Egg Weight Net.Lbs./ 30 Doz. Case	<42 g Pewee <18 Oz./Doz.	42 g – 50 g Small 18 – 21 Oz./Doz.	50 g – 57 g Medium 18 – 21 Oz./Doz	57 g – 64 g Large 24 – 27 Oz./Doz	64 g – 71 g Extra Large 27 – 30 Oz./Doz	>71 Jumbo >30 Oz./Doz
19	41.0	32.5	63.6	36.3	0.1	0.0	0.0	0
20	43.3	34.4	34.1	63.9	2.0	0.0	0.0	0
21	45.4	36.0	18.7	70.3	10.8	0.2	0.0	0
22	47.1	37.4	11.3	63.4	24.2	1.2	0.0	0
23	48.6	38.6	7.6	52.4	35.2	4.8	0.0	0
24	49.9	39.6	5.6	43.0	41.3	10.1	0.0	0
25	51.0	40.4	4.4	35.9	43.2	16.2	0.2	0
26	51.9	41.2	3.6	30.4	42.8	22.5	0.7	0
27	52.7	41.8	3.1	26.3	41.4	27.9	1.3	0
28	53.4	42.4	2.7	23.1	39.8	32.3	2.0	0
29	54.0	42.9	2.4	20.7	38.2	36.0	2.8	0
30	54.5	43.3	2.1	18.6	36.6	39.1	3.6	0
31	54.9	43.6	1.9	17.0	35.1	41.6	4.4	0.1
32	55.3	43.9	1.7	15.6	33.6	43.8	5.2	0.1
33	55.7	44.2	1.6	14.4	32.2	45.5	6.1	0.1
34	56.1	44.5	1.5	13.4	30.9	47.0	7.1	0.1
35	56.4	44.7	1.4	12.5	29.6	48.2	8.1	0.2
36	56.7	45.0	1.3	11.7	28.5	49.2	9.0	0.2
37	57.0	45.2	1.2	11.1	27.4	50.0	10.0	0.3
38	57.2	45.4	1.1	10.4	26.4	50.7	10.9	0.4
39	57.4	45.6	1.1	9.9	25.5	51.3	11.8	0.4
40	57.7	45.8	1.0	9.4	24.6	51.8	12.7	0.5
41	57.9	45.9	1.0	9.0	23.8	52.2	13.5	0.5
42	58.1	46.1	0.9	8.6	23.1	52.5	14.3	0.6
43	58.2	46.2	0.9	8.2	22.4	52.8	15.0	0.7
44	58.4	46.4	0.9	7.9	21.8	53.0	15.7	0.7
45	58.6	46.5	0.8	7.6	21.2	53.2	16.4	0.8
46	58.7	46.6	0.8	7.3	20.7	53.3	17.0	0.9
47	58.8	46.7	0.8	7.0	20.2	53.4	17.6	0.9
48	59.0	46.8	0.7	6.8	19.7	53.5	18.2	1
49	59.1	46.9	0.7	6.6	19.2	53.6	18.8	1
50	59.2	47.0	0.7	6.4	18.8	53.6	19.4	1.1
51	59.3	47.1	0.7	6.2	18.4	53.6	20.0	1.2
52	59.5	47.2	0.6	6.0	18.0	53.6	20.5	1.2
53	59.6	47.3	0.6	5.8	17.6	53.6	21.0	1.3
54	59.7	47.4	0.6	5.7	17.3	53.6	21.5	1.4

excluding double-yolk eggs

Table 24: LOHMANN LSL-LITE Expected Egg Grades (%) for different Egg weights* – cumulative over Production Period

Week 55 – 90

Week	Egg Weight gram	Egg Weight Net.Lbs./ 30 Doz. Case	<42 g Pewee <18 Oz./Doz.	42 g – 50 g Small 18 – 21 Oz./Doz.	50 g – 57 g Medium 18 – 21 Oz./Doz	57 g – 64 g Large 24 – 27 Oz./Doz	64 g – 71 g Extra Large 27 – 30 Oz./Doz	>71 Jumbo >30 Oz./Doz
55	59.8	47.4	0.6	5.5	16.9	53.5	22.0	1.5
56	59.9	47.5	0.6	5.4	16.6	53.4	22.5	1.5
57	60.0	47.6	0.6	5.2	16.3	53.3	23.0	1.6
58	60.0	47.7	0.5	5.1	16.0	53.2	23.4	1.7
59	60.1	47.7	0.5	5.0	15.7	53.1	23.9	1.7
60	60.2	47.8	0.5	4.9	15.4	53.1	24.3	1.8
61	60.3	47.8	0.5	4.8	15.2	53.0	24.7	1.9
62	60.4	47.9	0.5	4.7	14.9	52.9	25.1	1.9
63	60.4	48.0	0.5	4.6	14.7	52.8	25.5	2
64	60.5	48.0	0.5	4.5	14.5	52.7	25.8	2.1
65	60.6	48.1	0.5	4.4	14.3	52.6	26.2	2.1
66	60.6	48.1	0.5	4.3	14.1	52.5	26.5	2.2
67	60.7	48.2	0.5	4.2	13.9	52.4	26.8	2.3
68	60.8	48.2	0.4	4.1	13.7	52.2	27.2	2.3
69	60.8	48.3	0.4	4.1	13.5	52.1	27.5	2.4
70	60.9	48.3	0.4	4.0	13.3	52.0	27.8	2.5
71	60.9	48.4	0.4	3.9	13.2	51.9	28.1	2.5
72	61.0	48.4	0.4	3.9	13.0	51.8	28.4	2.6
73	61.0	48.5	0.4	3.8	12.8	51.7	28.6	2.7
74	61.1	48.5	0.4	3.7	12.7	51.6	28.9	2.7
75	61.2	48.5	0.4	3.7	12.5	51.4	29.2	2.8
76	61.2	48.6	0.4	3.6	12.4	51.3	29.4	2.9
77	61.3	48.6	0.4	3.6	12.2	51.2	29.7	2.9
78	61.3	48.7	0.4	3.5	12.1	51.1	29.9	3
79	61.3	48.7	0.4	3.5	12.0	50.9	30.2	3.1
80	61.4	48.7	0.4	3.4	11.9	50.8	30.4	3.1
81	61.4	48.8	0.4	3.4	11.7	50.7	30.6	3.2
82	61.5	48.8	0.4	3.3	11.6	50.6	30.9	3.2
83	61.5	48.8	0.4	3.3	11.5	50.5	31.1	3.3
84	61.6	48.9	0.3	3.3	11.4	50.4	31.3	3.4
85	61.6	48.9	0.3	3.2	11.3	50.3	31.5	3.4
86	61.6	48.9	0.3	3.2	11.2	50.2	31.7	3.5
87	61.7	48.9	0.3	3.1	11.1	50.0	31.9	3.5
88	61.7	49.0	0.3	3.1	11.0	49.9	32.1	3.6
89	61.7	49.0	0.3	3.1	10.9	49.8	32.3	3.6
90	61.8	49.0	0.3	3.0	10.8	49.8	32.4	3.7

excluding double-yolk eggs

Egg Production Curve for LOHMANN LSL-LITE Layers

Egg Production (%) per Hen-Day

Age in Weeks

NOTES
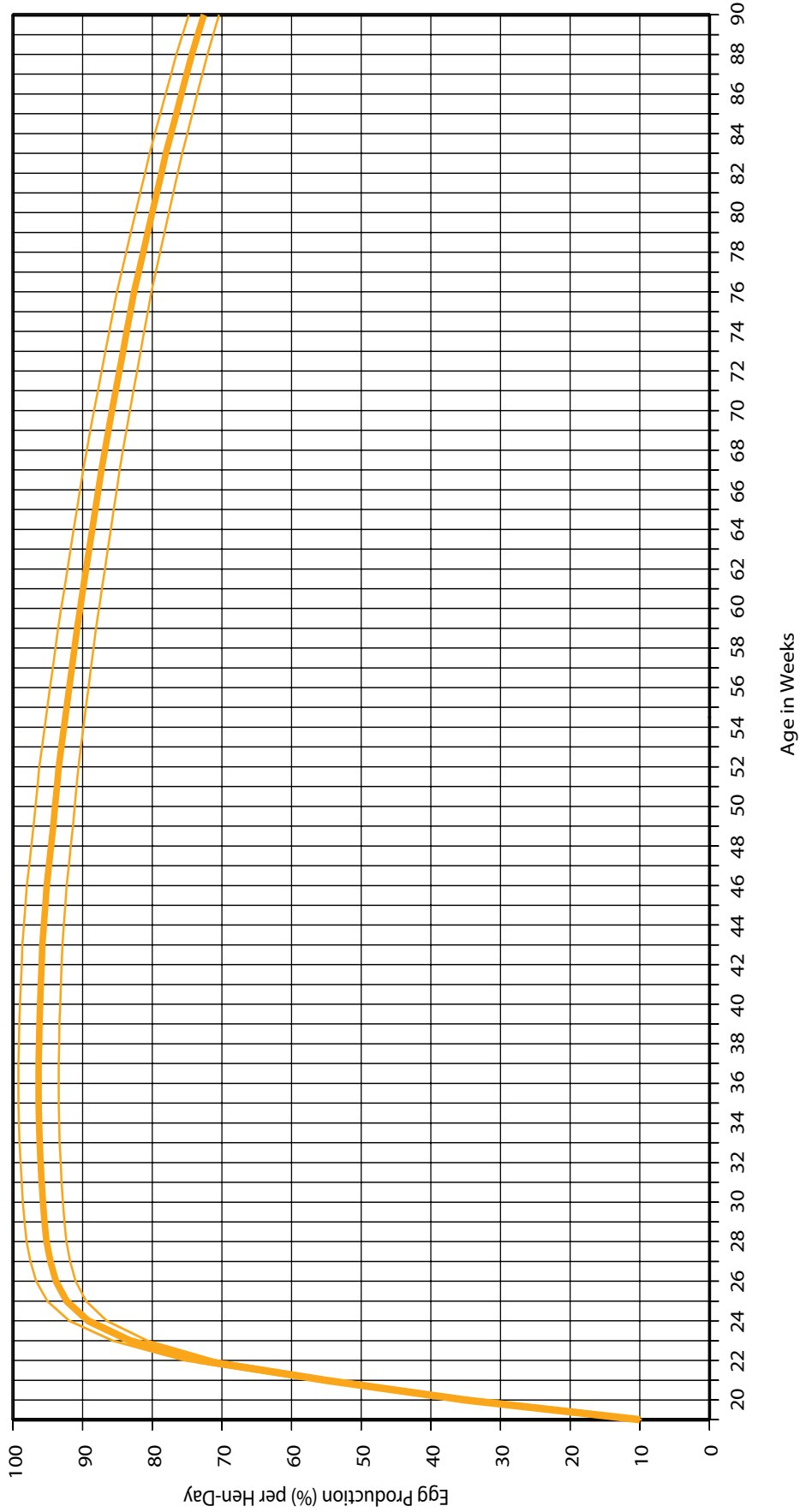
How LOHMANN TIERZUCHT calculates the energy content of feed and raw materials (International WPSA-formula):

ME MJ/kg =   g crude protein x 0.01551
               + g crude fat x 0.03431
               + g crude starch x 0.01669
               + g sugar x 0.01301 (as Saccharose)

ME =   **metabolizable energy in MJ/kg**
               1 kcal = 4.187 kJ

Consultation and diagnostics in all questions of poultry health through:

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Veterinary-Laboratory[3]

- ■ **Diagnostics**
- ■ **Quality Control**
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