Edition 2

Hy-Line®

BROWN

Performance Standards Manual

General Management Recommendations

The genetic potential of Hy-Line varieties can only be realized if good poultry husbandry practices and management are used. This booklet outlines the results of successful flock management programs for Hy-Line's varieties based on field experience compiled by Hy-Line and extensive commercial flock records catalogued by Hy-Line from all parts of the world. Hy-Line International management recommendations and principles taken from industry technical literature are available in the Hy-Line Red Book, *an Online Management Guide*, which is found at http://www.hyline.com/redbook/RedBook.aspx.

The information and suggestions contained in this booklet should be used for guidance and educational purposes only, recognizing that local environmental and disease conditions may vary and a guide cannot cover all possible circumstances. While every attempt has been made to ensure that the information presented is accurate and reliable at the time of publication, Hy-Line cannot accept responsibility for any errors, omissions or inaccuracies in such information or management suggestions. Further, Hy-Line does not warrant or make any representations or guarantees regarding the use, validity, accuracy, or reliability of, or flock performance or productivity resulting from the use of, or otherwise respecting, such information or management suggestions. In no event shall Hy-Line be liable for any special, indirect or consequential damages or special damages whatsoever arising out of or in connection with the use of the information or management suggestions contained in this booklet.

Hy-Line International Performance Standards Manuals are periodically updated as new performance data and/or nutrition information become available. To ensure you are using the latest Edition, please check at our website http://www.hyline.com/aspx/productsandservices/managementmanuals.aspx.

Performance Summary

Growing Period (to 17 weeks):	
Livability	97%
Feed Consumed	5.62 kg
Body Weight at 17 Weeks	1.40 kg
Laying Period (to 80 weeks):	
Percent Peak	94–96%
Hen-Day Eggs to 60 Weeks	253–259
Hen-Day Eggs to 80 Weeks	363–371
Hen-Housed Eggs to 60 Weeks	249–255
Hen-Housed Eggs to 80 Weeks	354–361
Hen-Housed Eggs to 110 Weeks	489.3
Livability to 60 Weeks	97%
Livability to 80 Weeks	94%
Days to 50% Production (from hatch)	140
Egg Weight at 26 Weeks	58.5 g/egg
Egg Weight at 38 Weeks	62.6 g/egg
Egg Weight at 70 Weeks	64.1 g/egg
Egg Weight at 84 Weeks	65.1 g/egg
Total Egg Mass per Hen-Housed (18–80 weeks)	22.0 kg
Body Weight at 32 Weeks	1.91 kg
Body Weight at 70 Weeks	1.97 kg
Freedom From Egg Inclusions	Excellent
Shell Strength	Excellent
Shell Color at 38 Weeks	87
Shell Color at 56 Weeks	85
Shell Color at 70 Weeks	81
Haugh Units at 38 Weeks	90
Haugh Units at 56 Weeks	84
Haugh Units at 70 Weeks	81
Average Daily Feed Consumption (18–80 weeks)	107 g/day per bird
Feed Conversion Rate, kg Feed/kg Eggs or lb Feed/lb Eggs (20–60 weeks)	1.99
Feed Conversion Rate, kg Feed/kg Eggs or lb Feed/lb Eggs (20–80 weeks)	2.04
Feed Utilization, kg Egg/kg Feed or lb Egg/lb Feed (20–60 weeks)	0.503
Feed Utilization, kg Egg/kg Feed or lb Egg/lb Feed (20–80 weeks)	0.490
Feed per Dozen Eggs (20–60 weeks)	1.47 kg
Feed per Dozen Eggs (20–80 weeks)	1.53 kg
Skin Color	Yellow
Condition of Droppings	Dry

Growing Recommendations

Cage Growing

Chicks started in cages should be placed in the upper levels (decks), where the air is warmer and the light brighter. Intermingle seemingly weak and strong chicks (from different transport boxes) to allow the stronger chicks to 'train' the weaker chicks to find water and feed. The starter feed should be placed inside the cage on the cage paper after the chicks have had a chance to drink. Continue feeding on the paper for the first 7 to 10 days after arrival. The chicks can be distributed among all cage levels around 14 days of age when the space has become too restricted in the upper levels.

Place paper on the cage floor during the brooding period. This will allow supplemental feeding on the cage paper to quickly get chicks eating. Place feed on the cage paper in front of the permanent feeder to train chicks to move towards the feeders. Remove the paper by 14 days of age to avoid build up of feces that could lead to enteric disease or coccidia infections.

Water lines should be flushed prior to arrival of the chicks. Drinking water temperature should be 25 to 30°C for the first week. Adjusting water system pressure in nipple drinkers to create a hanging drip will help chicks find water. Cup drinkers should be manually filled during the first 3 days to train chicks to drink.

Floor Growing

Chicks started on the floor should be transferred from the transport boxes to the litter under the water lines or near drinkers to encourage drinking. To make it easier for the chicks to drink, use supplemental drinkers in addition to the automatic drinkers. The supplemental drinkers should be used for the first 10 to 14 days and can also be used for administering the first vaccination if given in the water. When used, gradually move supplemental feeders and drinkers towards the permanent feeders and drinkers in the room to train the chicks to find the permanent feeders and waterers.

Birds should be grown in housing that allows adjustment to the lighting program and the light intensity. The lighting programs are usually similar to those used for birds in cage production, but light intensity may be different. It is important to provide floor-grown birds with enough light intensity to allow them to navigate their environment. A light intensity of 20 to 30 lux (2 to 3 foot-candles) should be used during the first week of age, dropping down to 15 lux (1.5 foot-candles) by week 4 and remaining at the level until week 15 of age. At week 15 of age, gradually increase the light intensity, reaching 20 to 30 lux (2 to 3 foot-candles) by the time the pullets are transferred to the layer house. Birds moving into open-sided housing should have higher light intensities of 30 to 40 lux (3 to 4 foot-candles) at the time of housing.

Pullet Growing Space Recommendations

	Colony/Cage	Floor
Bird Space	310 cm^2/bird	835 cm^2/bird
Feeder	5 cm/bird	5 cm/bird or 1 pan per 50 birds
Cups or nipples drinking system	1 per 8 birds	1 per 15 birds
Fountain drinking system 46 cm diameter	—	1 per 125 birds

Ambient Temperature and Relative Humidity

Observing the chicks will tell you whether or not the temperature is correct. If they are too cool, they will huddle near the heat source. If they are too warm, they will spread out away from the heat source. If there are drafts, they will huddle in groups to get away from the spot where the cool air enters the heated area. Comfortable chicks will spread out uniformly, without huddling, throughout the brooding area.

Look for signs of overheating (panting and drowsiness) or chilling (huddling and loud chirping) and make appropriate adjustments. Heat control is more critical in cage brooding because the chicks cannot move to find their comfort zone.

Birds are very sensitive to extremes of relative humidity. A relative humidity below 30% will cause increased agitation of the chicks and may cause aggressive behavior. Conversely, excessive moisture may cause wet litter conditions, associated with high ammonia concentrations, poor air quality, enteric diseases, and respiratory problems. Ideally, the relative humidity should be between 40 and 60%. Humidity control becomes increasingly important when warm-room brooding in cold climates. To increase the relative humidity, water can be sprayed on the walk ways or floors. Humidity will normally be lowered to 30 to 40% by the end of the growing period.

Recommended Brooding Temperatures[1]

Age (days)	Cage	Floor
1–3	33–36°C	35–36°C
4–7	30–32°C	33–35°C
8–14	28–30°C	31–33°C
15–21	26–28°C	29–31°C
22–28	23–26°C	26–27°C
29–35	21–23°C	23–25°C
36+	21°C	21°C

[1]Modify the temperatures as needed to meet the chicks' comfort needs.

Growing/Laying Recommendations

Water Consumption for Pullets and Layers

Drinking Water

Water is the most important nutrient and good-quality water must be available to the birds at all times. Only in special cases (e.g., prior to vaccine delivery through the drinking water), should drinking water be restricted, and then only for a short time and under careful monitoring.

Monitoring Drinking Water Intake

Water and feed consumption are directly related—when birds drink less water, they consume less feed, and production quickly declines accordingly. As a general rule, healthy adult birds will consume twice as much water as feed, although the ratio increases during periods of warm weather. Installation and use of water meters in each house or barn are recommended to monitor the flock's water intake on a daily basis. Such daily water-intake records can be used as an early warning of problems in the flock.

Water Consumed per 100 Birds per Day

Chicks should consume 0.83 liters per 100 birds on day one of age.

Age in Weeks	Liters
1	0.8–1.1
2	1.1–1.9
3	1.7–2.7
4	2.5–3.8
5	3.4–4.7
6	4.5–5.7
7	5.7–6.8
8	6.1–8.0
9	6.4–9.5
10–15	6.8–10.2
16–20	7.2–15.2
21–25*	9.9–18.2
Over 25*	15.2–20.8

* Chart shows an expected range of water consumption at normal environmental temperatures for bird comfort (21–27°C). At higher temperatures (32–38°C) water consumption may increase up to double the amounts shown.

Lighting Programs

Egg production is very closely related to the changes in day length. Body weight gain in grow, egg numbers, egg size, livability, and total profitability can be favorably influenced by a proper lighting program.

When open-type houses are used, which allow natural daylight to affect the flock, the lighting program must be planned in conjunction with changes in the natural day length. Because no two places have the same sunrise-sunset times year-round, custom lighting programs for any location worldwide are available.

A customizable lighting program is available in multiple languages and will create a downloadable spreadsheet with sunrise and sunset times for any location in the world and the lighting program for your flock. Visit www.hyline.com to access the customizable lighting program.

Controlling Egg Weight

It is recommended to closely monitor feed intake, body condition (through body weight and/or body scoring/fat-pad development), and egg weight of each flock and make nutritional changes as needed to ensure optimal production rate and egg weight. If smaller eggs are desired, the egg weight should be controlled even more aggressively at an early age.

Egg-weight control is achieved through a combination of limiting amino acid consumption and ensuring that the feed intake is not too high (achieved through control of the ambient temperature). To avoid excessively large eggs later in lay, use the peaking and second layer feeding phase diets for less time than shown in the Performance Standards Manual. This will provide a reduced level of added fat or oil, as well as amino acid contents, to control egg weight.

Control of ambient house temperature

At housing, an ambient temperature of 21 to 23˚C is desired. Increase the house temperature about 1˚C every 2 weeks until reaching a house temperature of 26 to 27˚C assuming the ventilation systems are able to maintain adequate air quality at these temperatures). Lower (colder) house temperatures will lead to greater feed intakes and may be counterproductive to egg-weight control, as well as optimal feed efficiency and adult hen body weights.

Colony/Cage Space Recommendations in Laying House

	U.S. Recommendations (United Egg Producers)	E.U. Recommendations Enriched Colony Systems*
Bird Space	490–555 cm^2/bird	750 cm^2/bird (600 usable cm^2)
Feeder	7.6 cm/bird	12 cm/bird
Cups or nipples drinking system	1 per 12 birds	2 within reach of each bird
Perches	—	15 cm/bird

* See regulations for other requirements such as nests, litter area, clearance, etc. Some countries have more specific requirements.

Target Weights

—Growing Period—

Age in Weeks	Body Weight* g
1	70
2	120
3	180
4	250
5	340
6	440
7	540
8	640
9	750
10	860
11	960
12	1060
13	1140
14	1200
15	1260
16	1320
17**	1400
18	1480

* Pullets grown on the floor or in a tropical climate can be 50 g lighter than shown.

** Move to Lay house

Feed Consumption*

—Growing Period—

Age in Weeks	Daily g/day per bird	Cumulative g to date
1	10	70
2	18	196
3	21	343
4	27	532
5	30	742
6	36	994
7	40	1274
8	43	1575
9	49	1918
10	54	2296
11	58	2702
12	62	3136
13	65	3591
14	68	4067
15	70	4557
16	75	5082
17	77	5621

* Pullet feed consumption varies with feed formulation and environmental temperatures.

Added Vitamins and Trace Minerals

	—Growing Period—	—Laying Period—
Item[1]	In 1000 kg complete diet	In 1000 kg complete diet
Vitamin A, IU	9,900,000	8,800,000
Vitamin D_3, IU	3,300,000	3,300,000
25-hydroxy Vitamin D_3,[2] mg	55	50
Vitamin E, IU	22,100	16,500
Vitamin K (menadione), g	3.3	2.2
Thiamin (B_1), g	2.2	1.7
Riboflavin (B_2), g	6.6	5.5
Niacin (B_3), g	33	28
Pantothenic acid (B_5), g	11.0	6.6
Pyridoxine (B_6), g	4.4	3.3
Biotin (B_7), mg	55	55
Folic acid (B_9), g	0.9	0.6
Cobalamine (B_{12}), mg	22.1	22.1
Choline, g	110	110
Manganese[3], g	88	88
Zinc[3], g	88	88
Iron, g	55	55
Copper, g	11.0	5.5
Iodine, g	1.7	1.7
Selenium, g	0.30	0.30

[1] Minimum recommendations for growing and laying periods. Local regulations may limit the dietary content of individual vitamins or minerals.

[2] If 25-OH Vitamin D_3 is added to the diet, the levels of 'regular' Vitamin D_3 in the premix could be lowered in accordance with the manufacturer's recommendations or to comply with local laws regulating the total amount of Vitamin D_3 added to the diet.

[3] 20% of Manganese or Zinc may be in organic form.

Growing Period Nutrition Recommendations

Item[1]	Starter 1	Starter 2	Grower	Developer	Pre-Lay[5]
Feed to a body weight of	180 g	440 g	1060 g	1260 g	1400 g
Approximate age	0–3 weeks	4–6 weeks	7–12 weeks	13–15 weeks	16–17 weeks
Recommended concentration[2]					
Metabolizable energy, kcal/kg	2811–2922	2811–2922	2789–2900	2712–2822	2734–2933
Metabolizable energy, MJ/kg	11.77–12.23	11.77–12.23	11.68–12.14	11.35–11.81	11.44–12.28
Minimum recommended concentration					
Standardized (true) ileal digestible amino acids					
Lysine, %	1.01	0.92	0.82	0.67	0.72
Methionine, %	0.45	0.42	0.39	0.31	0.35
Methionine+cystine, %	0.77	0.72	0.66	0.59	0.65
Threonine, %	0.65	0.60	0.55	0.46	0.50
Tryptophan, %	0.18	0.17	0.17	0.15	0.16
Arginine, %	1.08	0.98	0.88	0.72	0.77
Isoleucine, %	0.71	0.66	0.61	0.50	0.58
Valine, %	0.73	0.68	0.64	0.54	0.61
Total amino acids[3]					
Lysine, %	1.11	1.01	0.90	0.73	0.79
Methionine, %	0.49	0.46	0.41	0.34	0.38
Methionine+cystine, %	0.87	0.81	0.75	0.66	0.73
Threonine, %	0.76	0.70	0.65	0.54	0.58
Tryptophan, %	0.22	0.21	0.21	0.18	0.19
Arginine, %	1.16	1.06	0.94	0.77	0.83
Isoleucine, %	0.76	0.71	0.65	0.54	0.62
Valine, %	0.80	0.75	0.71	0.59	0.68
Crude protein (nitrogen × 6.25),[3] %	20.00	18.25	17.50	16.00	16.50
Calcium,[4] %	1.00	1.00	1.00	1.40	2.50
Phosphorus (available), %	0.45	0.44	0.43	0.45	0.48
Sodium, %	0.18	0.17	0.17	0.18	0.18
Chloride, %	0.18	0.17	0.17	0.18	0.18
Linoleic acid (C18:2 n-6), %	1.00	1.00	1.00	1.00	1.00

[1] Change diets at the recommended target body weight—the approximate age is a guide only.
[2] Differences in the metabolizable energy value assigned to feed ingredients of the same name can differ substantially; in some cases, the recommended dietary energy content may have to be adjusted accordingly (see the Hy-Line Red Book, *an Online Management Guide* for additional information).
[3] The minimum recommendations for total amino acids and crude protein are only appropriate with a corn and soybean meal diet; please formulate the diet on digestible amino acid basis instead.
[4] Calcium should be supplied as a fine calcium carbonate source (mean particle size less than 2 mm).
[5] Feed the Pre-Lay Diet for one or two weeks before the onset of egg production, when most pullets show some enlargement and reddening of their combs. Be prepared to change to the Peaking Diet at no later than 0.5–1.0% daily egg production, as the Pre-Lay Diet does not contain sufficient calcium to sustain egg production.

Laying Period Nutrition Recommendations

Item[1]	First Egg to Peak of Egg Production[5]	Post-peak to 90% Egg Production[6]	89% to 85% Egg Production	Less than 85% Egg Production
Recommended concentration[2]				
Metabolizable energy, kcal/kg	2778–2911	2734–2867	2679–2867	2558–2833
Metabolizable energy, MJ/kg	11.63–12.18	11.44–12.00	11.21–12.00	10.71–11.86
Minimum recommended concentration Standardized (true) ileal digestible amino acids				
Lysine, mg/day	850	840	800	750
Methionine, mg/day	417	412	392	368
Methionine+cystine, mg/day	714	722	688	645
Threonine, mg/day	595	588	560	525
Tryptophan, mg/day	179	176	168	158
Arginine, mg/day	910	899	856	803
Isoleucine, mg/day	672	664	632	593
Valine, mg/day	765	756	720	675
Total amino acids[3]				
Lysine, mg/day	931	920	876	821
Methionine, mg/day	448	443	422	395
Methionine+cystine, mg/day	805	815	776	727
Threonine, mg/day	700	692	659	618
Tryptophan, mg/day	213	211	201	188
Arginine, mg/day	978	966	920	863
Isoleucine, mg/day	722	714	680	637
Valine, mg/day	844	834	794	744
Crude protein (nitrogen × 6.25),[3] g/day	17.00	16.75	16.00	15.50
Calcium,[4] g/day	4.10	4.40	4.70	4.90
Phosphorus (available), mg/day	460	420	380	370
Sodium, mg/day	180	180	180	180
Chloride, mg/day	180	180	180	180
Linoleic acid (C18:2 n-6), g/day	1.00	1.00	1.00	1.00
Choline, mg/day	100	100	100	100

[1] Consumption of amino acids, fat, linoleic acid, and/or energy may be changed to optimize egg size.
[2] The recommended energy range is based on the energy values shown in the Hy-Line Red Book, *an Online Management Guide*. Differences in the metabolizable energy value assigned to feed ingredients of the same name can differ substantially; in some cases, the recommended dietary energy content may have to be adjusted accordingly (see the Hy-Line Red Book, *an Online Management Guide* for additional information).
[3] Total amino acids are only appropriate with a corn and soybean meal diet; please formulate the diet on digestible amino acid basis if a substantial amount of other protein-supplying ingredients are used.
[4] Approximately 65% of the added calcium carbonate (limestone) should be in particle sizes of 2–4 mm.
[5] This Peaking Diet should immediately follow the Pre-Lay Diet.
[6] Change to Post-peak Diet when egg production has decreased 2% from peak egg production.

Laying Period Nutrition Recommendations

Item[1]	First Egg to Peak of Egg Production[5]					Post-peak to 90% Egg Production[6]					89% to 85% Egg Production					Less than 85% Egg Production				
Recommended concentration[2]																				
Metabolizable energy, kcal/kg	2778–2911					2734–2867					2679–2867					2558–2833				
Metabolizable energy, MJ/kg	11.63–12.18					11.44–12.18					11.21–12.00					10.71–11.86				
Feed consumption																				
g/day per bird	93	98	**103***	108	113	100	105	**110***	115	120	100	105	**110***	115	120	99	104	**109***	114	119
Standardized (true) ileal digestible amino acids																				
Lysine, %	0.91	0.87	**0.83**	0.79	0.75	0.84	0.80	**0.76**	0.73	0.70	0.80	0.76	**0.73**	0.70	0.67	0.76	0.72	**0.69**	0.66	0.63
Methionine, %	0.45	0.43	**0.40**	0.39	0.37	0.41	0.39	**0.37**	0.36	0.34	0.39	0.37	**0.36**	0.34	0.33	0.37	0.35	**0.34**	0.32	0.31
Methionine+cystine, %	0.77	0.73	**0.69**	0.66	0.63	0.72	0.69	**0.66**	0.63	0.60	0.69	0.66	**0.63**	0.60	0.57	0.65	0.62	**0.59**	0.57	0.54
Threonine, %	0.64	0.61	**0.58**	0.55	0.53	0.59	0.56	**0.53**	0.51	0.49	0.56	0.53	**0.51**	0.49	0.47	0.53	0.50	**0.48**	0.46	0.44
Tryptophan, %	0.19	0.18	**0.17**	0.17	0.16	0.18	0.17	**0.16**	0.15	0.15	0.17	0.16	**0.15**	0.15	0.14	0.16	0.15	**0.14**	0.14	0.13
Arginine, %	0.98	0.93	**0.88**	0.84	0.81	0.90	0.86	**0.82**	0.78	0.75	0.86	0.82	**0.78**	0.74	0.71	0.81	0.77	**0.74**	0.70	0.67
Isoleucine, %	0.72	0.69	**0.65**	0.62	0.59	0.66	0.63	**0.60**	0.58	0.55	0.63	0.60	**0.57**	0.55	0.53	0.60	0.57	**0.54**	0.52	0.50
Valine, %	0.82	0.78	**0.74**	0.71	0.68	0.76	0.72	**0.69**	0.66	0.63	0.72	0.69	**0.65**	0.63	0.60	0.68	0.65	**0.62**	0.59	0.57
Total amino acids[3]																				
Lysine, %	1.00	0.95	**0.90**	0.86	0.82	0.92	0.88	**0.84**	0.80	0.77	0.88	0.83	**0.80**	0.76	0.73	0.83	0.79	**0.75**	0.72	0.69
Methionine, %	0.48	0.46	**0.43**	0.41	0.40	0.44	0.42	**0.40**	0.39	0.37	0.42	0.40	**0.38**	0.37	0.35	0.40	0.38	**0.36**	0.35	0.33
Methionine+cystine, %	0.87	0.82	**0.78**	0.75	0.71	0.82	0.78	**0.74**	0.71	0.68	0.78	0.74	**0.71**	0.67	0.65	0.73	0.70	**0.67**	0.64	0.61
Threonine, %	0.75	0.71	**0.68**	0.65	0.62	0.69	0.66	**0.63**	0.60	0.58	0.66	0.63	**0.60**	0.57	0.55	0.62	0.59	**0.57**	0.54	0.52
Tryptophan, %	0.23	0.22	**0.21**	0.20	0.19	0.21	0.20	**0.19**	0.18	0.18	0.20	0.19	**0.18**	0.17	0.17	0.19	0.18	**0.17**	0.16	0.16
Arginine, %	1.05	1.00	**0.95**	0.91	0.87	0.97	0.92	**0.88**	0.84	0.81	0.92	0.88	**0.84**	0.80	0.77	0.87	0.83	**0.79**	0.76	0.73
Isoleucine, %	0.78	0.74	**0.70**	0.67	0.64	0.71	0.68	**0.65**	0.62	0.60	0.68	0.65	**0.62**	0.59	0.57	0.64	0.61	**0.58**	0.56	0.54
Valine, %	0.91	0.86	**0.82**	0.78	0.75	0.83	0.79	**0.76**	0.73	0.70	0.79	0.76	**0.72**	0.69	0.66	0.75	0.72	**0.68**	0.65	0.63
Crude protein (nitrogen × 6.25),[3] %	18.28	17.35	**16.50**	15.74	15.04	16.75	15.95	**15.23**	14.57	13.96	16.00	15.24	**14.55**	13.91	13.33	15.66	14.90	**14.22**	13.60	13.03
Calcium,[4] %	4.41	4.18	**3.98**	3.80	3.63	4.40	4.19	**4.00**	3.83	3.67	4.70	4.48	**4.27**	4.09	3.92	4.95	4.71	**4.50**	4.30	4.12
Phosphorus (available),%	0.49	0.47	**0.45**	0.43	0.41	0.42	0.40	**0.38**	0.37	0.35	0.38	0.36	**0.35**	0.33	0.32	0.37	0.36	**0.34**	0.32	0.31
Sodium, %	0.19	0.18	**0.17**	0.17	0.16	0.18	0.17	**0.16**	0.16	0.15	0.18	0.17	**0.16**	0.16	0.15	0.18	0.17	**0.17**	0.16	0.15
Chloride, %	0.19	0.18	**0.17**	0.17	0.16	0.18	0.17	**0.16**	0.16	0.15	0.18	0.17	**0.16**	0.16	0.15	0.18	0.17	**0.17**	0.16	0.15
Linoleic acid (C18:2 n-6) , %	1.08	1.02	**0.97**	0.93	0.88	1.00	0.95	**0.91**	0.87	0.83	1.00	0.95	**0.91**	0.87	0.83	1.01	0.96	**0.92**	0.88	0.84

**Typical feed consumption for the age based on available data.*

[1] Consumption of amino acids, fat, linoleic acid, and/or energy may be changed to optimize egg size.

[2] The recommended energy range is based on the energy values shown in the Hy-Line Red Book, *an Online Management Guide*. Differences in the metabolizable energy value assigned to feed ingredients of the same name can differ substantially; in some cases, the recommended dietary energy content may have to be adjusted accordingly (see the Hy-Line Red Book, *an Online Management Guide* for additional information).

[3] Total amino acids are only appropriate with a corn and soybean meal diet; please formulate the diet on digestible amino acid basis if a substantial amount of other protein-supplying ingredients are used.

[4] Approximately 65% of the added calcium carbonate (limestone) should be in particle sizes of 2–4 mm.

[5] This Peaking Diet should immediately follow the Pre-Lay Diet.

[6] Change to Post-peak Diet when egg production has decreased 2% from peak egg production.

Non-Fast Molting Recommendations

Non-Fast Molting

Many producers use a Non-Fast Molting Program to induce molting. The Hy-Line laying hens will perform very well after a rest, particularly in the latter weeks of the molt cycle with excellent shell quality and persistency. The optimum age for molting depends on the current flocks' performance, local egg markets, and scheduling of the next pullet flock, but is usually between 65 to 75 weeks of age.

Induced molting can extend the productive life of a flock by improving rate of lay, shell quality, and albumen height. However, these levels will be somewhat lower than the best pre-molt values. Egg size will essentially remain unaffected and will continue to increase after egg production resumes.

Free access to water at all times during the non-fast molt is essential. It is important to know the sodium (Na) content of the drinking water. High sodium levels (i.e., 100 ppm or higher) can adversely affect this type of molt program.

The best post-molt egg production is achieved after a complete cessation of egg production that lasts for at least 2 weeks and a concomitant loss of body weight to the 18 week target weight. After the initial body weight loss, the body weight can be held steady by a combination of adjusting the number of feedings per day and/or a shift to a higher-energy (laying-hen-type) diet.

Because of the importance of the body weight loss during molt, it is recommeded to closely monitor the body weight of the flock during the molt process. Body weights should be collected twice per week from the same cages every time. The cages should be selected from bottom, middle, and top tiers; all rows; and from the front, middle, and end of the house.

The following table outlines the recommendations for the Non-Fast Molting Program recommended by Hy-Line.

Molt day	Light	Feed type	Feed modification[1]	Feed intake[2]	House temperature[3]	Comments
	Hours per day			g/day per bird	°C	
-7 to -5	16	Layer diet	Fine-particle $CaCO_3$	Full feed	24–25	Fine-particle $CaCO_3$ diet: Remove all large-particle size $CaCO_3$ and replace with fine-particle $CaCO_3$ (less than 2 mm mean diameter). Do NOT change the percent calcium in the laying-hen diet.
-4 to -1	24	Layer diet	Fine-particle $CaCO_3$, no added salt (NaCl)	Full feed	24–25	
0–6	6–8[4]	Molt diet[5]	Fine-particle $CaCO_3$	54–64	27–28	The higher house temperatures will help reduce feed intake and, in turn, facilitate a reduction in body weight to the 18 week target weight (note that brown laying hens should not lose more than 21–22% of the pre-molt body weight).
7–17	6–8	Molt diet	—	54–64	27–28	Maintain body weight.
18–19	12 or 16[6]	Layer diet[7]	Mixture of fine- and coarse-particle $CaCO_3$ as in a normal layer diet	64–73	27–28	Control (limit) feed intake to avoid fat birds.
20–21	16[6]	Layer diet[7]	—	Full feed	26–27	Lower house temperature as needed to increase feed intake.
22–24	16	Layer diet[7]	—	Full feed[7]	24–25	Lower the ambient temperature to "normal."

[1] Include a probiotic or a complex-carbohydrate product (e.g., mannan-oligo-saccharide; MOS) at 0.5 kg per metric ton finished diet through all stages of the molt program.
[2] Feed intake depends on house temperature. Lower temperatures (colder) may require more feed.
[3] Depends on air quality in house. The suggested house temperatures may not be achievable in cold weather.
[4] Set lights at 8 hours or natural day length in open-sided houses. Normally, it is not necessary to change the light intensity.
[5] The Molt Diet is high in fiber (low in energy) and contains no added sodium (Na) (i.e., no added NaCl or $NaHCO_3$).
[6] Light-stimulate the birds to bring the birds into production by increasing the light hours to the number of hours they were given before the molt (e.g., 15 or 16 hours). This increase can be performed over 1 week (i.e., from 8 hours to 16 hours in a single day) or over 2 weeks (i.e., from 8 to 12 hours and then from 12 to 16 hours). Monitor and control feed intake for the first few days after light stimulation to avoid fat birds as they are getting back into lay (which would significantly increase egg weight in the second cycle).
[7] According to the post-molt nutrition recommendations.

Molt Nutrition Recommendations

Recommended concentration[1]	Molt Diet
Metabolizable energy, kcal/kg	2600–2800
Metabolizable energy, MJ/kg	10.90–11.70
Minimum recommended concentration Standardized (true) ileal digestibility	
Lysine, %	0.30
Methionine, %	0.15
Methionine+cystine, %	0.32
Threonine, %	0.18
Tryptophan, %	0.10
Arginine, %	0.38
Isoleucine, %	0.18
Valine, %	0.23
Total amino acids[2]	
Lysine, %	0.33
Methionine, %	0.16
Methionine+cystine, %	0.36
Threonine, %	0.21
Tryptophan, %	0.12
Arginine, %	0.41
Isoleucine, %	0.20
Valine, %	0.26
Crude protein (nitrogen × 6.25),[2] %	8.50
Calcium,[3] %	1.3–2.0
Phosphorus (available), %	0.25
Sodium,[4] %	0.03
Chloride, %	0.03

[1] The recommended energy range is based on the energy values shown in the Hy-Line Red Book, *an Online Management Guide.* Differences in the metabolizable energy value assigned to feed ingredients of the same name can differ substantially; in some cases, the recommended dietary energy content may have to be adjusted accordingly (see the Hy-Line Red Book, *an Online Management Guide* for additional information).
[2] Total amino acids are only appropriate with a corn and soybean meal diet; please formulate the diet on digestible amino acid basis if a substantial amount of other protein-supplying ingredients are used.
[3] The added calcium carbonate (limestone) should be in particle sizes of less than 2 mm.
[4] The sodium content in the Molt Diet should not exceed 0.035%.

Post-Molt Nutrition Recommendations

After the Molt Diet, when egg production commences, formulate diets according to level of desired percentage egg production and egg weight. The Post-Molt Diets are formulated similar to that of the last Laying Hen Diet fed, albeit with the following modifications:

- 20 kcal/kg (0.08 MJ/kg) less energy
- 5% reduction in amino acid levels (corresponding to about 0.25 percentage points less crude protein)
- increased calcium content (see tables below)
- decreased available-phosphorus content (see tables below)

Minimum recommended daily consumption	Peaking	86% to 82% egg production	81% to 79% egg production	Less than 79% egg production
Calcium, g/day	4.70	4.90	5.10	5.30
Phosphorus (available), mg/day	440	400	380	340

Recommended post-molt dietary calcium and available phosphorus contents					
Peaking					
Feed consumption, g/day per bird	93	98	103*	108	113
Calcium,[1] %	5.05	4.80	4.56	4.35	4.16
Phosphorus (available), %	0.47	0.45	0.43	0.41	0.39
86% to 82% egg production					
Feed consumption, g/day per bird	100	105	110*	115	120
Calcium,[1] %	4.90	4.67	4.45	4.26	4.08
Phosphorus (available), %	0.40	0.38	0.36	0.35	0.33
81% to 79% egg production					
Feed consumption, g/day per bird	100	105	110*	115	120
Calcium,[1] %	5.10	4.86	4.64	4.43	4.25
Phosphorus (available), %	0.38	0.36	0.35	0.33	0.32
Less than 79% egg production					
Feed consumption, g/day per bird	99	104	109*	114	119
Calcium,[1] %	5.35	5.10	4.86	4.65	4.45
Phosphorus (available), %	0.34	0.33	0.31	0.30	0.29

** Typical feed consumption based on available data.*

[1] Approximately 65% of the added calcium carbonate (limestone) should be in particle sizes of 2–4 mm.

Performance Table

Age in Weeks	% Hen-Day Production		Mortality Cumulative	Hen-Day Eggs Cumulative		Hen-Housed Eggs Cumulative		Body Weight	Average Egg Weight*	Feed Consumption	Hen-Housed Egg Mass Cumulative	Egg Quality		
	Optimum Conditions	Average Conditions	%	Optimum Conditions	Average Conditions	Optimum Conditions	Average Conditions	kg	g/egg	g/day per bird	kg	Haugh Units	Breaking Strength	Shell Color
18	9	3	0.0	0.6	0.2	0.6	0.2	1.48	50.0	78	0.0	98.2	4620	90
19	16	11	0.1	1.8	1.0	1.7	1.0	1.53	50.6	80	0.0	98.0	4610	90
20	49	32	0.1	5.2	3.2	5.2	3.2	1.65	51.2	89	0.2	97.8	4605	89
21	72	65	0.2	10.2	7.8	10.2	7.8	1.72	53.2	93	0.4	97.2	4595	89
22	89	78	0.3	16.5	13.2	16.4	13.2	1.78	54.4	96	0.7	97.0	4590	89
23	93	87	0.3	23.0	19.3	22.9	19.3	1.80	55.5	100	1.0	96.5	4585	89
24	96	93	0.4	29.7	25.8	29.6	25.8	1.84	56.6	103	1.4	96.0	4580	89
25	96	93	0.4	36.4	32.3	36.3	32.2	1.85	57.7	104	1.8	95.5	4575	88
26	96	93	0.5	43.1	38.9	43.0	38.7	1.86	58.5	105	2.2	95.1	4570	88
27	96	94	0.6	49.8	45.4	49.6	45.2	1.88	58.9	106	2.5	94.7	4565	88
28	96	94	0.6	56.6	52.0	56.3	51.8	1.89	59.8	108	2.9	94.2	4560	88
29	96	94	0.7	63.3	58.6	63.0	58.3	1.90	60.2	108	3.3	93.7	4550	88
30	95	94	0.7	69.9	65.2	69.6	64.8	1.90	61.2	108	3.7	93.3	4540	88
31	95	93	0.8	76.6	71.7	76.2	71.3	1.90	61.4	109	4.1	92.8	4525	88
32	95	93	0.9	83.2	78.2	82.8	77.8	1.91	61.6	109	4.5	92.2	4515	88
33	94	93	0.9	89.8	84.7	89.3	84.2	1.91	62.0	110	4.9	92.0	4505	88
34	94	93	1.0	96.4	91.2	95.8	90.6	1.91	62.2	110	5.3	91.5	4490	88
35	94	92	1.1	103.0	97.7	102.3	97.0	1.91	62.3	110	5.7	91.1	4475	87
36	93	92	1.1	109.5	104.1	108.7	103.4	1.92	62.4	110	6.1	90.6	4450	87
37	93	92	1.2	116.0	110.5	115.2	109.7	1.92	62.5	110	6.5	90.4	4440	87
38	93	91	1.3	122.5	116.9	121.6	116.0	1.92	62.6	110	6.9	90.0	4425	87
39	93	91	1.4	129.0	123.3	128.0	122.3	1.93	62.7	110	7.3	89.6	4415	87
40	92	91	1.5	135.5	129.6	134.4	128.6	1.93	62.8	110	7.7	89.3	4405	87
41	92	90	1.5	141.9	135.9	140.7	134.8	1.93	63.0	110	8.1	88.9	4390	87
42	91	90	1.6	148.3	142.2	147.0	141.0	1.94	63.1	110	8.5	88.5	4375	87
43	91	90	1.7	154.6	148.5	153.2	147.2	1.94	63.1	110	8.9	88.0	4365	87
44	91	90	1.8	161.0	154.8	159.5	153.3	1.94	63.1	110	9.3	87.8	4355	87
45	90	90	1.9	167.3	161.1	165.7	159.5	1.95	63.2	110	9.6	87.4	4340	87
46	90	90	2.0	173.6	167.4	171.8	165.7	1.95	63.2	110	10.0	87.1	4320	87
47	89	90	2.1	179.8	173.7	177.9	171.9	1.95	63.2	110	10.4	86.7	4310	87
48	89	89	2.2	186.1	180.0	184.0	178.0	1.95	63.3	110	10.8	86.4	4305	87
49	89	89	2.3	192.3	186.2	190.1	184.0	1.95	63.3	110	11.2	86.1	4295	86
50	88	88	2.4	198.5	192.4	196.1	190.1	1.95	63.3	110	11.6	85.6	4280	86
51	88	88	2.5	204.6	198.5	202.1	196.1	1.95	63.3	110	12.0	85.0	4265	86
52	88	87	2.6	210.8	204.6	208.1	202.0	1.95	63.3	110	12.3	85.0	4250	86
53	87	87	2.7	216.9	210.7	214.0	207.9	1.95	63.4	110	12.7	84.8	4240	86
54	87	87	2.8	223.0	216.8	220.0	213.8	1.95	63.4	110	13.1	84.6	4225	86
55	87	86	2.9	229.0	222.8	225.9	219.7	1.96	63.4	110	13.5	84.3	4210	86
56	86	86	3.0	235.1	228.8	231.7	225.5	1.96	63.4	110	13.8	84.0	4190	85
57	86	85	3.1	241.1	234.8	237.5	231.3	1.96	63.5	110	14.2	83.8	4180	85
58	86	85	3.3	247.1	240.7	243.4	237.0	1.96	63.5	110	14.6	83.1	4170	85
59	86	85	3.4	253.1	246.7	249.2	242.8	1.96	63.5	110	14.9	82.8	4160	85
60	85	84	3.5	259.1	252.6	254.9	248.4	1.96	63.6	110	15.3	82.6	4150	85

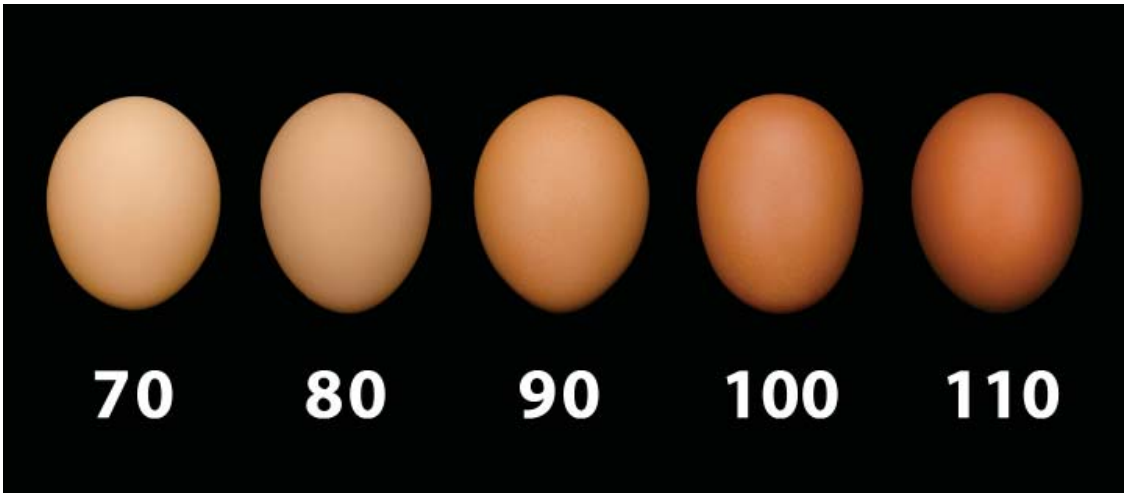
* Egg weights after 40 weeks of age assume phase feeding of protein to limit egg size.

Performance Table

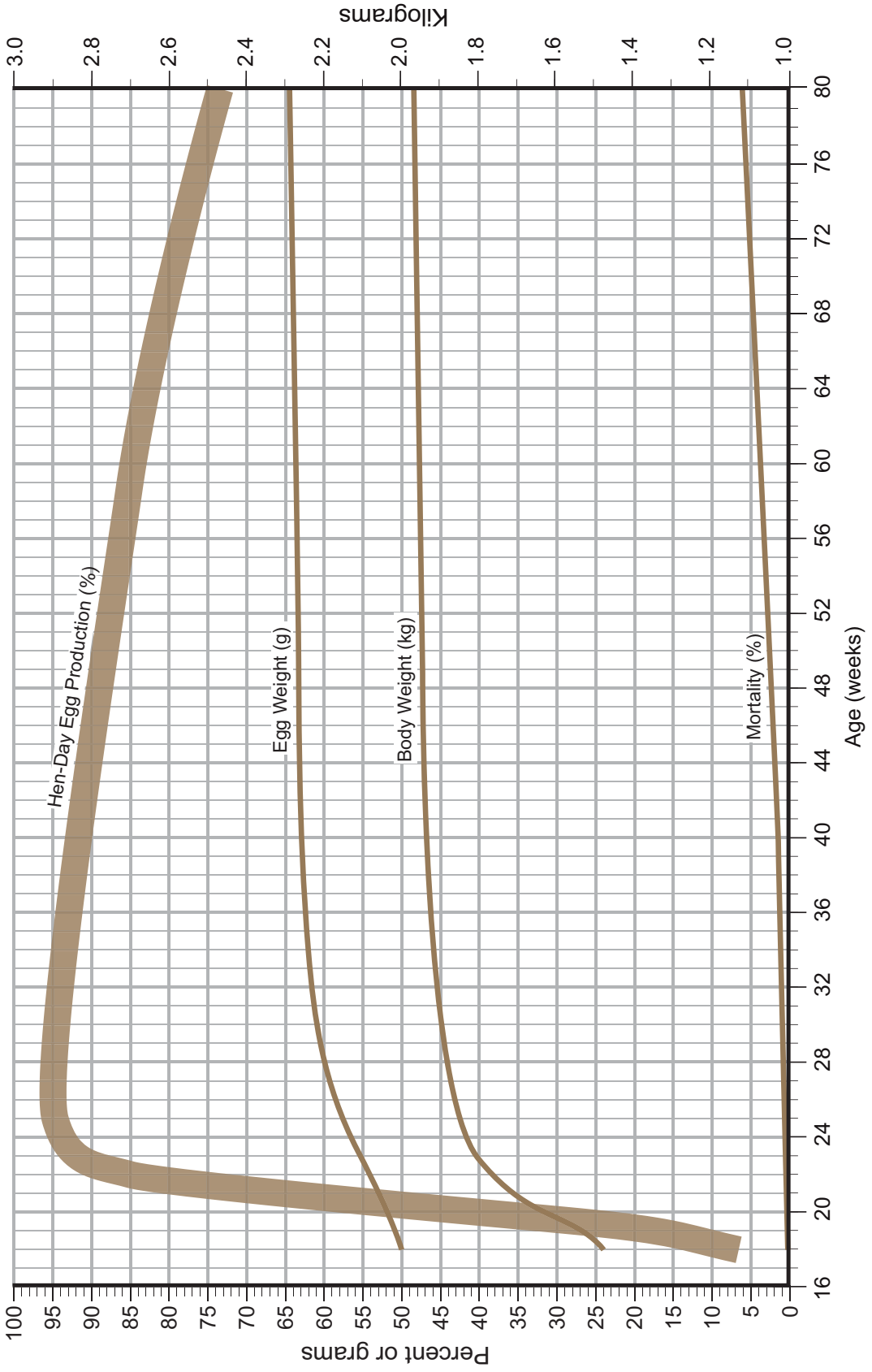
Age in Weeks	% Hen-Day Production		Mortality Cumulative	Hen-Day Eggs Cumulative		Hen-Housed Eggs Cumulative		Body Weight	Average Egg Weight*	Feed Consumption	Hen-Housed Egg Mass Cumulative	Egg Quality		
	Optimum Conditions	Average Conditions	%	Optimum Conditions	Average Conditions	Optimum Conditions	Average Conditions	kg	g/egg	g/day per bird	kg	Haugh Units	Breaking Strength	Shell Color
61	85	84	3.6	265.0	258.4	260.6	254.1	1.96	63.6	110	15.6	82.4	4140	84
62	84	83	3.7	270.9	264.3	266.3	259.7	1.96	63.7	110	16.0	82.2	4130	84
63	84	83	3.9	276.8	270.1	272.0	265.3	1.96	63.7	110	16.4	82.0	4120	84
64	83	83	4.0	282.6	275.9	277.5	270.9	1.96	63.8	110	16.7	81.9	4110	83
65	83	82	4.1	288.4	281.6	283.1	276.4	1.96	63.8	110	17.1	81.8	4095	83
66	82	82	4.2	294.1	287.4	288.6	281.9	1.96	63.9	109	17.4	81.6	4080	83
67	82	81	4.3	299.9	293.0	294.1	287.3	1.96	63.9	109	17.8	81.5	4070	82
68	81	81	4.5	305.6	298.7	299.5	292.7	1.96	64.0	109	18.1	81.5	4060	82
69	81	81	4.6	311.2	304.4	304.9	298.1	1.96	64.0	109	18.5	81.3	4050	82
70	80	80	4.7	316.8	310.0	310.2	303.4	1.97	64.1	109	18.8	81.1	4040	81
71	80	79	4.8	322.4	315.5	315.6	308.7	1.97	64.1	109	19.1	81.1	4030	81
72	79	79	5.0	328.0	321.0	320.8	314.0	1.97	64.2	109	19.5	81.0	4020	81
73	78	78	5.1	333.4	326.5	326.0	319.1	1.97	64.2	109	19.8	80.9	4010	80
74	78	77	5.2	338.9	331.9	331.2	324.2	1.97	64.3	109	20.1	80.8	4000	80
75	77	76	5.4	344.3	337.2	336.3	329.3	1.97	64.3	109	20.5	80.7	3995	80
76	77	76	5.5	349.7	342.5	341.4	334.3	1.97	64.4	109	20.8	80.5	3990	80
77	76	75	5.7	355.0	347.8	346.4	339.2	1.97	64.4	109	21.1	80.4	3985	80
78	75	74	5.8	360.2	352.9	351.3	344.1	1.97	64.5	109	21.4	80.2	3980	80
79	75	74	6.0	365.5	358.1	356.3	349.0	1.97	64.5	109	21.7	80.1	3975	80
80	74	74	6.1	370.7	363.3	361.1	353.9	1.97	64.6	109	22.0	80.0	3970	80

* Egg weights after 40 weeks of age assume phase feeding of protein to limit egg size.

Hy-Line Brown Egg Shell Color Range



Performance Graph

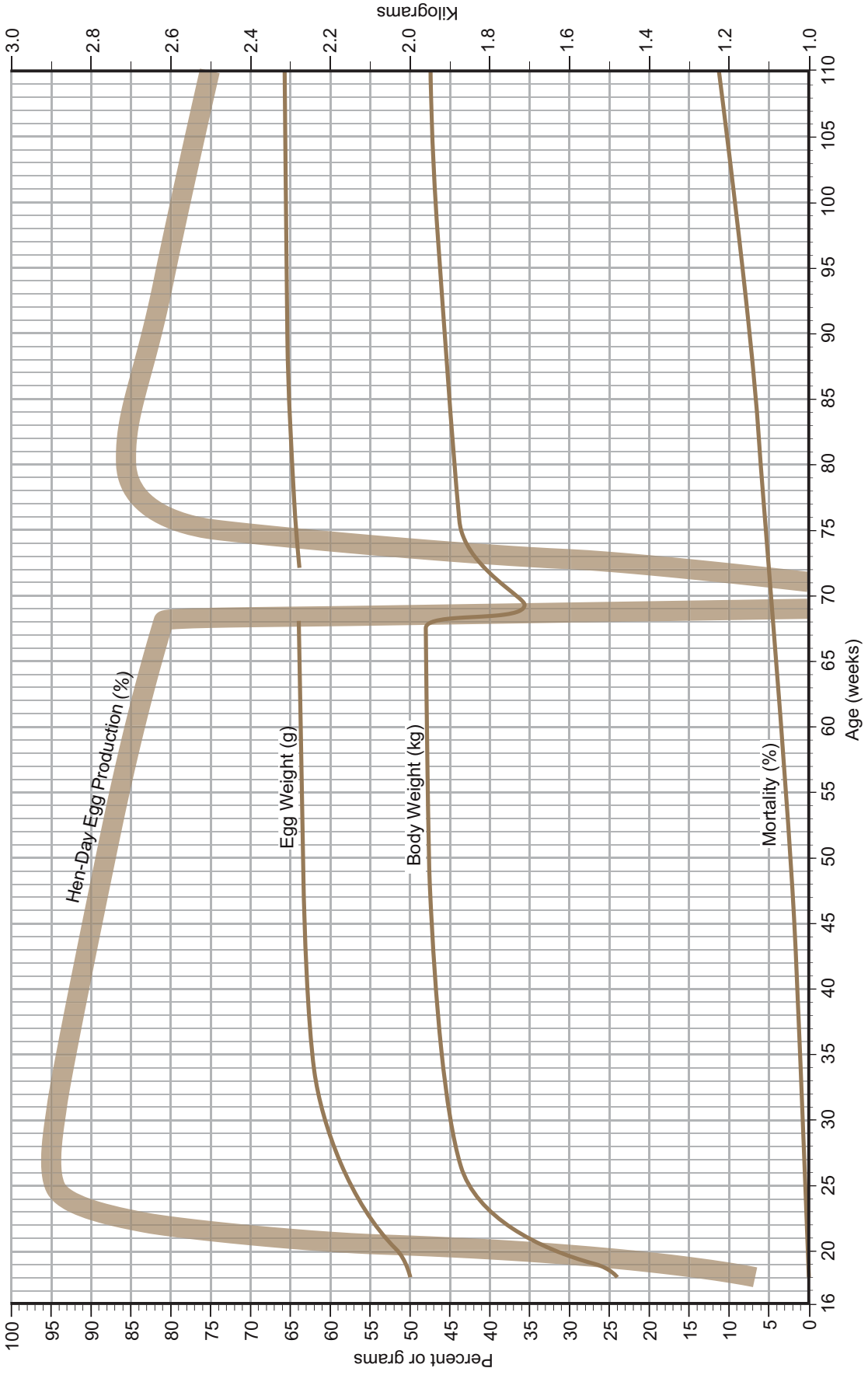


Post-Molt Performance Table

Age in Weeks	% Hen-Day Production	% Mortality Cumulative	Eggs Cumulative		Body Weight	Average Egg Weight*	Feed Consumption	Hen-Housed Egg Mass Cumulative
			Hen-Day	Hen-Housed	kg	g/egg	g/day per bird	kg
69	0	4.6	294.9	294.8	1.71	-	-	17.8
70	0	4.8	294.9	294.8	1.74	-	-	17.8
71	0	5.0	294.9	294.8	1.77	-	-	17.8
72	12	5.1	295.7	295.6	1.81	64.0	-	17.9
73	38	5.2	298.4	298.1	1.85	64.1	90	18.0
74	62	5.3	302.7	302.2	1.86	64.2	95	18.3
75	76	5.4	308.0	307.2	1.87	64.3	100	18.6
76	80	5.5	313.6	312.5	1.88	64.4	103	18.9
77	82	5.6	319.4	317.9	1.88	64.5	104	19.3
78	85	5.8	325.3	323.5	1.88	64.6	105	19.7
79	85	5.9	331.3	329.1	1.88	64.7	106	20.0
80	85	6.0	337.2	334.7	1.89	64.8	107	20.4
81	86	6.1	343.2	340.4	1.89	64.9	107	20.7
82	86	6.3	349.2	346.0	1.90	65.0	108	21.1
83	85	6.4	355.2	351.6	1.90	65.1	108	21.5
84	85	6.6	361.1	357.2	1.90	65.1	109	21.8
85	84	6.7	367.0	362.6	1.91	65.2	109	22.2
86	84	6.9	372.9	368.1	1.91	65.2	110	22.5
87	83	7.0	378.7	373.5	1.91	65.3	110	22.9
88	83	7.2	384.5	378.9	1.91	65.3	110	23.3
89	83	7.3	390.3	384.3	1.91	65.4	110	23.6
90	82	7.5	396.1	389.6	1.92	65.4	110	24.0
91	82	7.7	401.8	394.9	1.92	65.5	110	24.3
92	81	7.8	407.5	400.1	1.92	65.5	111	24.6
93	81	8.0	413.2	405.4	1.92	65.5	111	25.0
94	81	8.2	418.8	410.6	1.92	65.5	111	25.3
95	80	8.3	424.4	415.7	1.92	65.5	110	25.7
96	80	8.5	430.0	420.8	1.93	65.5	110	26.0
97	80	8.7	435.6	425.9	1.93	65.5	110	26.3
98	79	8.8	441.2	431.0	1.93	65.5	109	26.7
99	79	9.0	446.7	436.0	1.93	65.6	109	27.0
100	79	9.2	452.2	441.0	1.93	65.6	109	27.3
101	78	9.4	457.7	446.0	1.93	65.6	108	27.6
102	78	9.6	463.1	450.9	1.94	65.6	108	28.0
103	78	9.8	468.6	455.8	1.94	65.6	107	28.3
104	77	10.0	474.0	460.7	1.94	65.7	107	28.6
105	77	10.2	479.4	465.5	1.94	65.7	106	28.9
106	77	10.4	484.8	470.4	1.94	65.7	106	29.2
107	76	10.6	490.1	475.1	1.94	65.7	105	29.6
108	76	10.8	495.4	479.9	1.95	65.7	105	29.9
109	76	11.0	500.7	484.6	1.95	65.7	104	30.2
110	75	11.3	506.0	489.3	1.95	65.7	104	30.5

* These egg weights are those which can be achieved through controlled feeding of protein. Larger egg sizes can be achieved by feeding higher protein levels.

Performance Graph for Two Lay Cycles



Egg Size Distribution—E.U. Standards					
Age in Weeks	**% Average Egg Weight (g)**	**% Very Large Over 73 g**	**% Large 63–73 g**	**% Medium 53–63 g**	**% Small 43–53 g**
20	51.2	0.0	0.5	34.3	65.2
22	54.4	0.0	3.7	57.8	38.5
24	56.6	0.1	10.4	65.5	24.0
26	58.5	0.4	21.1	64.8	13.7
28	59.8	0.6	26.7	62.7	10.0
30	61.2	1.2	35.3	57.8	5.7
32	61.6	1.3	37.7	56.8	4.3
34	62.2	1.4	42.1	53.5	3.0
36	62.4	1.4	43.6	52.2	2.8
38	62.6	1.5	45.3	51.1	2.2
40	62.8	1.7	46.7	49.6	2.1
42	63.1	2.0	48.7	47.4	2.0
44	63.1	2.2	48.9	47.0	2.0
46	63.2	2.3	49.4	46.4	2.0
48	63.3	2.6	49.5	46.0	2.0
50	63.3	2.6	49.8	45.6	2.0
52	63.3	2.9	49.9	45.2	2.0
54	63.4	3.0	50.2	44.8	2.0
56	63.4	3.2	50.3	44.4	2.0
58	63.5	3.4	50.5	44.1	2.0
60	63.6	3.8	50.7	43.5	2.0
62	63.7	4.0	51.4	42.7	2.0
64	63.8	4.1	51.9	41.9	2.0
66	63.9	4.6	52.0	41.4	2.0
68	64.0	4.8	52.1	41.1	2.0
70	64.1	5.3	52.6	40.1	2.0
72	64.2	5.5	53.2	39.3	2.0
74	64.3	5.7	53.3	38.9	2.0
76	64.4	6.2	53.6	38.2	1.9
78	64.5	6.5	54.1	37.5	1.9
80	64.6	7.0	54.3	36.9	1.9

Egg Size Distribution—U.S. Standards

Age in Weeks	Average Egg Weight (lb/case)	% Jumbo Over 30 oz/dozen	% Extra Large 27–30 oz/dozen	% Large 24–27 oz/dozen	% Medium 21–24 oz/dozen	% Small 18–21 oz/dozen	% Peewee Under 18 oz/dozen
20	40.6	0.0	0.3	11.3	52.0	33.4	3.0
22	43.2	0.0	2.5	29.1	52.5	15.2	0.7
24	44.9	0.3	7.7	41.3	42.3	8.2	0.3
26	46.4	1.1	16.2	48.1	30.5	4.0	0.1
28	47.5	1.8	20.8	49.5	25.2	2.7	0.1
30	48.6	3.1	27.8	50.3	17.6	1.1	0.0
32	48.9	3.2	29.9	50.2	15.9	0.8	0.0
34	49.4	3.8	33.5	49.5	12.7	0.5	0.0
36	49.5	4.0	34.8	49.3	11.4	0.5	0.0
38	49.7	4.2	36.1	49.0	10.4	0.4	0.0
40	49.8	4.6	37.2	48.0	9.8	0.4	0.0
42	50.1	5.3	38.5	46.6	9.3	0.4	0.0
44	50.1	5.6	38.8	46.0	9.3	0.3	0.0
46	50.2	5.9	39.4	45.3	9.2	0.3	0.0
48	50.2	6.4	39.5	44.7	9.1	0.3	0.0
50	50.2	6.5	39.6	44.6	9.1	0.3	0.0
52	50.2	6.9	39.7	44.1	9.0	0.3	0.0
54	50.3	7.1	39.8	43.7	9.0	0.3	0.0
56	50.3	7.7	39.9	43.1	9.0	0.3	0.0
58	50.4	8.2	40.0	42.7	8.9	0.2	0.0
60	50.5	8.5	40.1	42.2	8.9	0.2	0.0
62	50.6	8.8	40.6	41.5	8.9	0.2	0.0
64	50.6	9.1	41.0	41.0	8.7	0.2	0.0
66	50.7	9.8	41.0	40.2	8.7	0.2	0.0
68	50.8	10.2	41.4	39.6	8.6	0.1	0.0
70	50.9	11.0	41.5	38.9	8.5	0.1	0.0
72	51.0	11.2	41.7	38.6	8.3	0.1	0.0
74	51.0	11.7	41.8	38.1	8.2	0.1	0.0
76	51.1	12.4	42.0	37.4	8.1	0.1	0.0
78	51.2	12.7	42.6	36.8	7.8	0.1	0.0
80	51.3	13.5	42.7	36.1	7.6	0.1	0.0

Hy-Line International Welfare Goals and Principles

To promote animal well-being and produce birds of the highest quality, we adhere to the following welfare goals and principles. These goals and principles are the essential building blocks for the humane and professional care of our birds:

- Feed and Water
  Provide access to good quality water and nutritionally balanced diets at all times
- Health and Veterinary Care
  Provide science-based health programs and prompt veterinary care
- Environment
  Provide shelter that is designed, maintained and operated to meet the bird's needs and to facilitate daily inspection
- Husbandry and Handling Practices
  Provide comprehensive care and handling procedures that ensure the bird's well-being throughout its life
- Transportation
  Provide transportation that minimizes travel time and stress

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