



Hy-Line[®]

Commercial Layers

Edition 2

Hy-Line[®]

SILVER 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.

Performance Summary

Growing Period (to 17 weeks):

Livability	97%
Feed Consumed	5.99 kg
Body Weight at 17 Weeks	1.54 kg

Laying Period (to 80 weeks):

Percent Peak	96%
Hen-Day Eggs to 60 Weeks	266
Hen-Day Eggs to 80 Weeks	383
Hen-Housed Eggs to 60 Weeks	262
Hen-Housed Eggs to 80 Weeks	372
Livability to 60 Weeks	96%
Livability to 80 Weeks	94%
Days to 50% Production (from hatch)	138
Egg Weight at 26 Weeks	56.8 g/egg
Egg Weight at 38 Weeks	61.1 g/egg
Egg Weight at 70 Weeks	62.5 g/egg
Total Egg Mass per Hen-Housed (18–80 weeks)	22.5 kg
Body Weight at 32 Weeks	1.9 kg
Body Weight at 70 Weeks	2.1 kg
Freedom From Egg Inclusions	Excellent
Shell Strength	Excellent
Shell Color at 38 Weeks	88
Shell Color at 56 Weeks	85
Shell Color at 70 Weeks	82
Haugh Units at 38 Weeks	92
Haugh Units at 56 Weeks	87
Haugh Units at 70 Weeks	82
Average Daily Feed Consumption (18–80 weeks)	108 g/day per bird
Feed Conversion Rate, kg Feed/kg Eggs (20–60 weeks)	1.94
Feed Conversion Rate, kg Feed/kg Eggs (20–80 weeks)	2.06
Feed Utilization, kg Egg/kg Feed (20–60 weeks)	0.52
Feed Utilization, kg Egg/kg Feed (20–80 weeks)	0.49
Feed per Dozen Eggs (20–60 weeks)	1.37 kg
Feed per Dozen Eggs (20–80 weeks)	1.46 kg
Feather Color	White with brown tint
Skin Color	Yellow
Temperament	Very calm, adapts well to any management
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 Temperatures¹

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

¹Modify 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.

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.

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.

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	190
4	280
5	380
6	480
7	590
8	700
9	800
10	900
11	1000
12	1090
13	1180
14	1270
15	1360
16	1450
17**	1540
18	1610

* 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	13	91
2	20	231
3	25	406
4	29	609
5	33	840
6	37	1099
7	41	1386
8	46	1708
9	51	2065
10	56	2457
11	61	2884
12	66	3346
13	70	3836
14	74	4354
15	76	4886
16	78	5432
17	80	5992

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

Added Vitamins and Trace Minerals		
Item ¹	—Growing Period—	—Laying Period—
	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 D₃ is added to the diet, the levels of 'regular' Vitamin D₃ 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 D₃ 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	190 g	480 g	1090 g	1360 g	1540 g
Approximate age	0–3 weeks	4–6 weeks	7–12 weeks	13–15 weeks	16–17 weeks
Recommended concentration²					
Metabolizable energy, kcal/kg	2844–2922	2822–2900	2756–2867	2690–2756	2690–2756
Metabolizable energy, MJ/kg	11.91–12.23	11.81–12.14	11.54–12.00	11.26–11.54	11.26–11.54
Minimum recommended concentration					
Standardized (true) ileal digestible amino acids					
Lysine, %	0.95	0.90	0.80	0.57	0.70
Methionine, %	0.43	0.41	0.38	0.27	0.34
Methionine+cystine, %	0.72	0.70	0.65	0.50	0.63
Threonine, %	0.61	0.59	0.54	0.39	0.48
Tryptophan, %	0.17	0.17	0.17	0.13	0.15
Arginine, %	1.02	0.96	0.86	0.61	0.75
Isoleucine, %	0.67	0.65	0.59	0.43	0.56
Valine, %	0.68	0.67	0.62	0.46	0.60
Total amino acids³					
Lysine, %	1.04	0.99	0.88	0.62	0.77
Methionine, %	0.46	0.45	0.40	0.29	0.37
Methionine+cystine, %	0.81	0.79	0.73	0.57	0.71
Threonine, %	0.72	0.69	0.63	0.46	0.57
Tryptophan, %	0.20	0.20	0.20	0.15	0.18
Arginine, %	1.09	1.04	0.92	0.66	0.81
Isoleucine, %	0.72	0.70	0.64	0.46	0.60
Valine, %	0.75	0.73	0.69	0.50	0.66
Crude protein (nitrogen × 6.25), ³ %	20.00	18.25	17.50	15.50	16.50
Calcium, ⁴ %	1.00	1.00	1.00	1.40	2.50
Phosphorus (available), %	0.45	0.44	0.43	0.42	0.40
Sodium, %	0.18	0.17	0.16	0.16	0.15
Chloride, %	0.18	0.17	0.16	0.16	0.15
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 concentration²				
Metabolizable energy, kcal/kg	2778–2867	2734–2867	2679–2867	2558–2833
Metabolizable energy, MJ/kg	11.63–12.00	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	810	760
Methionine, mg/day	417	412	397	372
Methionine+cystine, mg/day	714	722	697	654
Threonine, mg/day	595	588	567	532
Tryptophan, mg/day	179	176	170	160
Arginine, mg/day	910	899	867	813
Isoleucine, mg/day	672	664	640	600
Valine, mg/day	765	756	729	684
Total amino acids³				
Lysine, mg/day	931	920	887	832
Methionine, mg/day	448	443	427	400
Methionine+cystine, mg/day	805	815	786	737
Threonine, mg/day	700	692	667	626
Tryptophan, mg/day	213	211	203	191
Arginine, mg/day	978	966	932	874
Isoleucine, mg/day	722	714	688	646
Valine, mg/day	844	834	804	754
Crude protein (nitrogen × 6.25), ³ g/day	18.00	17.00	17.00	16.00
Calcium, ⁴ g/day	4.00	4.30	5.00	5.20
Phosphorus (available), mg/day	440	400	360	350
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 concentration²																				
Metabolizable energy, kcal/kg	2778–2867					2734–2867					2679–2867					2558–2833				
Metabolizable energy, MJ/kg	11.63–12.00					11.44–12.00					11.21–12.00					10.71–11.86				
Feed consumption																				
g/day per bird	93	98	103*	108	113	100	105	110*	115	120	10	105	110*	115	120	99	104	109*	114	119
Standardized (true) ileal digestible amino acids																				
Lysine, %	0.94	0.89	0.85	0.81	0.77	0.84	0.80	0.76	0.73	0.70	0.80	0.76	0.73	0.70	0.67	0.75	0.71	0.68	0.65	0.62
Methionine, %	0.46	0.44	0.42	0.40	0.38	0.41	0.39	0.37	0.36	0.34	0.39	0.37	0.36	0.34	0.33	0.36	0.35	0.33	0.32	0.30
Methionine+cystine, %	0.79	0.75	0.71	0.68	0.65	0.72	0.69	0.66	0.63	0.60	0.69	0.66	0.63	0.60	0.58	0.64	0.61	0.58	0.56	0.54
Threonine, %	0.66	0.63	0.60	0.57	0.54	0.59	0.56	0.53	0.51	0.49	0.56	0.53	0.51	0.49	0.47	0.52	0.50	0.48	0.45	0.44
Tryptophan, %	0.20	0.19	0.18	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, %	1.01	0.96	0.91	0.87	0.83	0.90	0.86	0.82	0.78	0.75	0.86	0.82	0.78	0.75	0.72	0.80	0.76	0.73	0.69	0.67
Isoleucine, %	0.75	0.71	0.67	0.64	0.61	0.66	0.63	0.60	0.58	0.55	0.63	0.60	0.58	0.55	0.53	0.59	0.56	0.54	0.51	0.49
Valine, %	0.85	0.81	0.77	0.73	0.70	0.76	0.72	0.69	0.66	0.63	0.72	0.69	0.66	0.63	0.60	0.67	0.64	0.61	0.58	0.56
Total amino acids³																				
Lysine, %	1.03	0.98	0.93	0.89	0.85	0.92	0.88	0.84	0.80	0.77	0.88	0.84	0.80	0.76	0.73	0.82	0.78	0.74	0.71	0.68
Methionine, %	0.50	0.47	0.45	0.43	0.41	0.44	0.42	0.40	0.39	0.37	0.42	0.40	0.38	0.37	0.35	0.39	0.37	0.36	0.34	0.33
Methionine+cystine, %	0.89	0.85	0.81	0.77	0.73	0.82	0.78	0.74	0.71	0.68	0.78	0.74	0.71	0.68	0.65	0.72	0.69	0.66	0.63	0.60
Threonine, %	0.78	0.74	0.70	0.67	0.64	0.69	0.66	0.63	0.60	0.58	0.66	0.63	0.60	0.58	0.55	0.61	0.59	0.56	0.54	0.51
Tryptophan, %	0.24	0.22	0.21	0.20	0.19	0.21	0.20	0.19	0.18	0.18	0.20	0.19	0.18	0.18	0.17	0.19	0.18	0.17	0.16	0.16
Arginine, %	1.09	1.03	0.98	0.93	0.89	0.97	0.92	0.88	0.84	0.81	0.92	0.88	0.84	0.80	0.77	0.86	0.82	0.78	0.75	0.72
Isoleucine, %	0.80	0.76	0.72	0.69	0.66	0.71	0.68	0.65	0.62	0.60	0.68	0.65	0.62	0.59	0.57	0.63	0.60	0.58	0.55	0.53
Valine, %	0.94	0.89	0.84	0.80	0.77	0.83	0.79	0.76	0.73	0.70	0.80	0.76	0.72	0.69	0.66	0.74	0.70	0.67	0.64	0.62
Crude protein (nitrogen × 6.25), ³ %	20.00	18.95	18.00	17.14	16.36	17.00	16.19	15.45	14.78	14.17	16.83	16.04	15.32	14.66	14.05	15.69	14.95	14.29	13.68	13.11
Calcium, ⁴ %	4.44	4.21	4.00	3.81	3.64	4.30	4.10	3.91	3.74	3.58	4.95	4.72	4.50	4.31	4.13	5.10	4.86	4.64	4.44	4.26
Phosphorus (available), %	0.49	0.46	0.44	0.42	0.40	0.40	0.38	0.36	0.35	0.33	0.36	0.34	0.32	0.31	0.30	0.34	0.33	0.31	0.30	0.29
Sodium, %	0.20	0.19	0.18	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	0.16	0.15	0.15
Chloride, %	0.20	0.19	0.18	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	0.16	0.15	0.15
Linoleic acid (C18:2 n-6), %	1.11	1.05	1.00	0.95	0.91	1.00	0.95	0.91	0.87	0.83	0.99	0.94	0.90	0.86	0.83	0.98	0.93	0.89	0.85	0.82

*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.

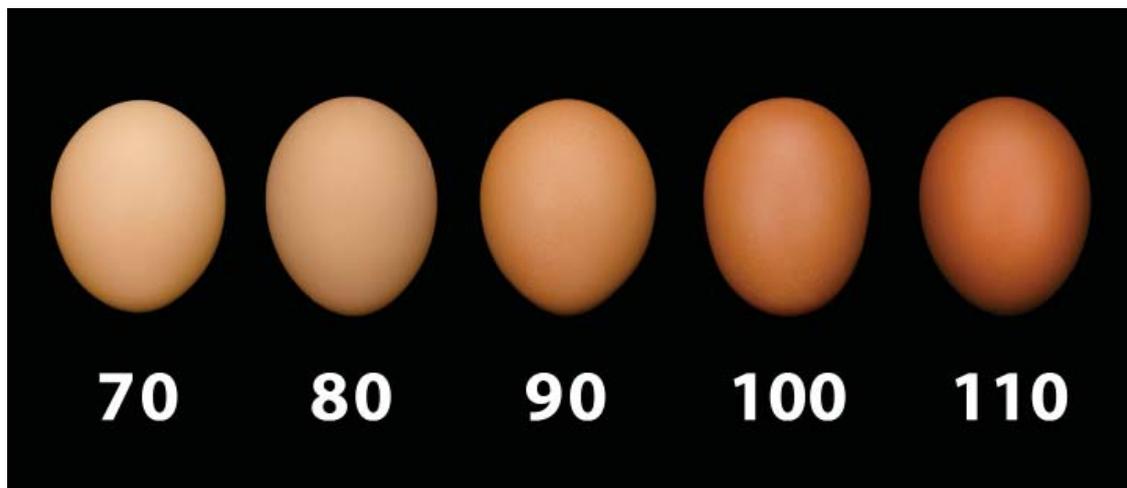
Performance Table											
Age in Weeks	% Hen-Day Production	% Mortality Cumulative	Hen-Day Eggs Cumulative	Hen-Housed Eggs Cumulative	Body Weight kg	Average Egg Weight* g/egg	Feed Consumption g/day per bird	Hen-Housed Egg Mass Cumulative kg	Egg Quality		
									Haugh Units	Breaking Strength	Shell Color
18	4	0.1	0.3	0.3	1.61	45.3	83	0.01	98.0	4680	91
19	28	0.1	2.2	2.2	1.70	46.5	87	0.10	97.7	4670	92
20	69	0.2	7.1	7.1	1.76	47.8	90	0.3	97.4	4660	93
21	87	0.3	13.2	13.1	1.78	50.8	93	0.6	97.1	4650	93
22	93	0.3	19.7	19.6	1.80	52.6	96	1.0	96.8	4640	92
23	94	0.4	26.3	26.2	1.82	53.6	98	1.3	96.5	4630	92
24	95	0.5	32.9	32.8	1.84	55.0	101	1.7	96.2	4620	91
25	96	0.6	39.6	39.5	1.86	56.0	103	2.1	95.9	4610	91
26	96	0.6	46.3	46.2	1.88	56.8	106	2.5	95.6	4600	90
27	96	0.7	53.1	52.8	1.90	57.5	107	2.8	95.3	4590	90
28	96	0.8	59.8	59.5	1.91	58.1	108	3.2	95.0	4580	90
29	96	0.9	66.5	66.2	1.92	58.6	108	3.6	94.7	4570	89
30	96	1.0	73.2	72.8	1.93	59.2	108	4.0	94.4	4560	89
31	95	1.0	79.9	79.4	1.94	59.7	109	4.4	94.1	4550	89
32	95	1.1	86.5	86.0	1.95	60.2	109	4.8	93.8	4540	89
33	95	1.2	93.2	92.5	1.96	60.6	109	5.2	93.5	4530	89
34	95	1.3	99.8	99.1	1.97	60.8	109	5.6	93.2	4520	89
35	94	1.4	106.4	105.6	1.98	60.9	110	6.0	92.9	4510	88
36	94	1.5	113.0	112.1	1.99	61.0	110	6.4	92.6	4500	88
37	94	1.5	119.6	118.6	2.00	61.1	110	6.8	92.3	4490	88
38	94	1.6	126.1	125.0	2.01	61.1	110	7.2	92.0	4480	88
39	93	1.7	132.7	131.4	2.01	61.2	110	7.6	91.7	4470	88
40	93	1.8	139.2	137.8	2.02	61.2	110	8.0	91.4	4460	88
41	93	1.9	145.7	144.2	2.02	61.3	110	8.4	91.1	4450	88
42	92	2.0	152.1	150.5	2.02	61.3	110	8.7	90.8	4440	88
43	92	2.1	158.6	156.8	2.02	61.4	110	9.1	90.5	4430	88
44	92	2.2	165.0	163.1	2.03	61.4	110	9.5	90.2	4420	87
45	92	2.3	171.4	169.4	2.03	61.5	110	9.9	89.9	4410	87
46	92	2.4	177.9	175.7	2.03	61.5	110	10.3	89.6	4400	87
47	92	2.4	184.3	182.0	2.03	61.6	110	10.7	89.3	4390	87
48	92	2.5	190.8	188.3	2.04	61.6	110	11.1	89.0	4380	87
49	91	2.6	197.1	194.5	2.04	61.7	110	11.4	88.7	4370	87
50	91	2.7	203.5	200.7	2.04	61.7	110	11.8	88.4	4360	86
51	91	2.8	209.9	206.9	2.04	61.8	111	12.2	88.1	4350	86
52	91	2.9	216.2	213.0	2.05	61.8	111	12.6	87.8	4340	86
53	91	3.0	222.6	219.2	2.05	61.8	111	13.0	87.5	4330	86
54	90	3.1	228.9	225.3	2.05	61.9	111	13.3	87.2	4320	86
55	90	3.2	235.2	231.4	2.05	61.9	111	13.7	86.9	4310	86
56	90	3.3	241.5	237.5	2.06	62.0	111	14.1	86.6	4300	85
57	90	3.4	247.8	243.6	2.06	62.0	111	14.5	86.3	4290	85
58	89	3.5	254.0	249.6	2.06	62.1	111	14.9	86.0	4280	85
59	89	3.6	260.3	255.6	2.06	62.1	111	15.2	85.7	4270	85
60	88	3.7	266.4	261.5	2.06	62.1	111	15.6	85.4	4260	84

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

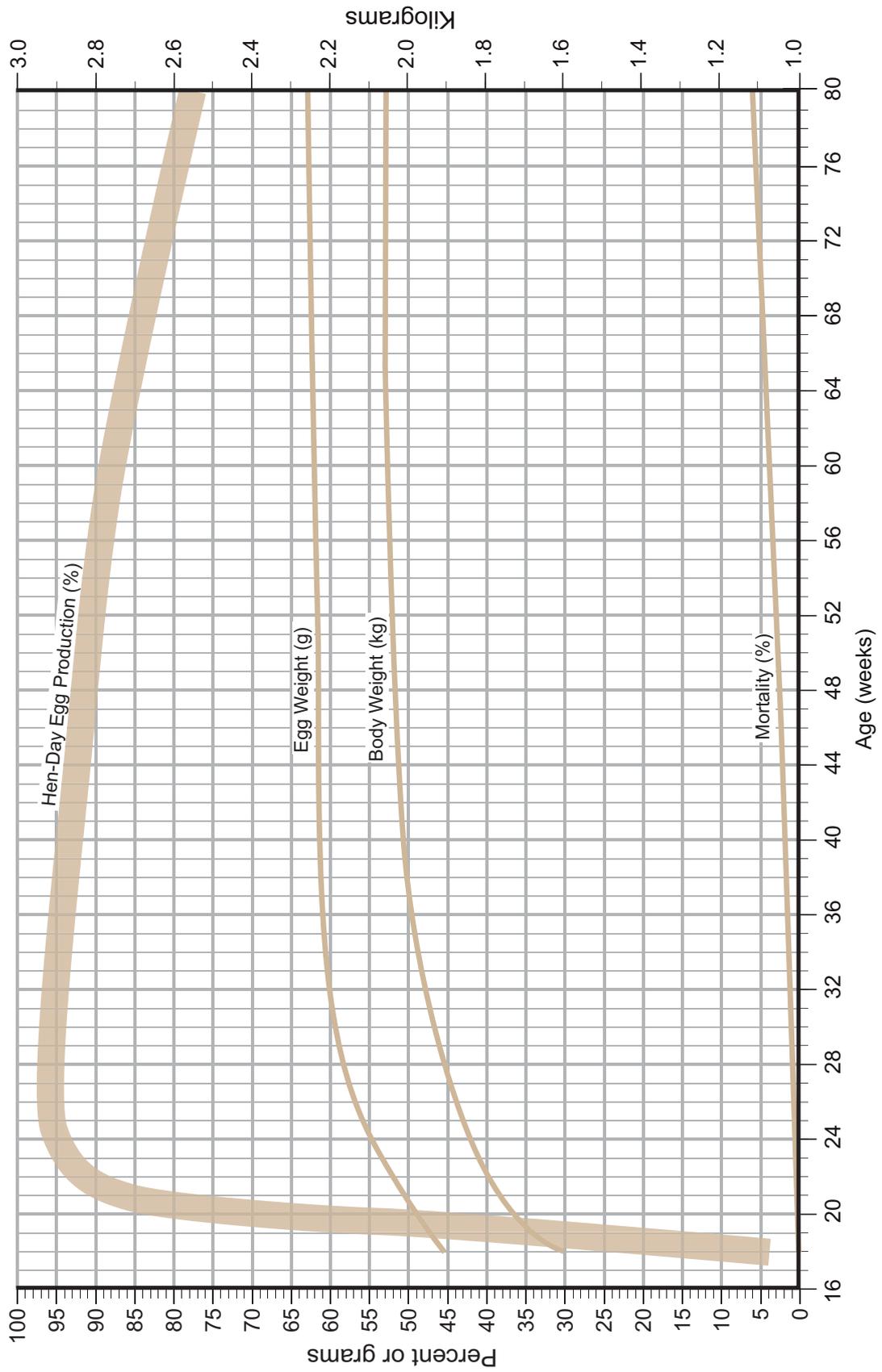
Performance Table											
Age in Weeks	% Hen-Day Production	% Mortality Cumulative	Hen-Day Eggs Cumulative	Hen-Housed Eggs Cumulative	Body Weight kg	Average Egg Weight* g/egg	Feed Consumption g/day per bird	Hen-Housed Egg Mass Cumulative kg	Haugh Units	Egg Quality Breaking Strength	Shell Color
61	88	3.8	272.6	267.5	2.06	62.2	111	16.0	85.1	4250	84
62	87	3.9	278.7	273.3	2.06	62.2	111	16.3	84.8	4240	84
63	87	4.1	284.8	279.2	2.06	62.2	111	16.7	84.5	4230	84
64	86	4.2	290.8	284.9	2.06	62.2	111	17.1	84.2	4220	83
65	86	4.3	296.8	290.7	2.06	62.2	111	17.4	83.9	4210	83
66	85	4.4	302.8	296.4	2.06	62.3	111	17.8	83.6	4200	83
67	85	4.5	308.7	302.1	2.06	62.3	111	18.1	83.3	4190	83
68	84	4.6	314.6	307.7	2.06	62.4	111	18.5	83.0	4180	82
69	84	4.7	320.5	313.3	2.06	62.4	111	18.8	82.7	4170	82
70	83	4.9	326.3	318.8	2.06	62.5	111	19.2	82.4	4160	82
71	83	5.0	332.1	324.3	2.06	62.5	110	19.5	82.1	4150	82
72	82	5.1	337.8	329.8	2.06	62.6	110	19.8	81.8	4140	81
73	82	5.2	343.6	335.2	2.06	62.6	110	20.2	81.5	4130	81
74	81	5.3	349.2	340.6	2.06	62.7	110	20.5	81.2	4120	81
75	81	5.5	354.9	345.9	2.06	62.7	110	20.9	80.9	4110	81
76	80	5.6	360.5	351.2	2.06	62.8	110	21.2	80.6	4100	80
77	80	5.7	366.1	356.5	2.06	62.8	110	21.5	80.3	4090	80
78	79	5.8	371.6	361.7	2.06	62.9	110	21.9	80.0	4080	80
79	79	5.9	377.2	366.9	2.06	62.9	110	22.2	79.7	4070	80
80	78	6.1	382.6	372.1	2.06	63.0	110	22.5	79.4	4060	80

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

Hy-Line Silver Brown Egg Shell Color Range



Performance Graph



Egg Size Distribution—South African Standards						
Age in Weeks	Average Egg Weight (g)	% Jumbo Over 66 g	% Extra Large 59–66 g	% Large 51–59 g	% Medium 43–51 g	% Small 33–43 g
20	47.8	0.0	0.7	23.7	60.8	14.8
22	52.6	0.3	8.9	53.9	34.7	2.3
24	55.0	1.6	20.1	56.7	20.7	0.9
26	56.8	4.1	29.8	52.4	13.2	0.5
28	58.1	6.8	36.5	47.7	8.8	0.2
30	59.2	9.6	42.0	42.7	5.7	0.1
32	60.2	12.3	47.2	37.2	3.3	0.0
34	60.8	14.4	49.9	33.4	2.3	0.0
36	61.0	15.4	50.5	32.1	2.1	0.0
38	61.1	15.4	51.7	31.1	1.8	0.0
40	61.2	15.9	51.8	30.5	1.8	0.0
42	61.3	16.4	52.0	29.8	1.8	0.0
44	61.4	17.4	51.6	29.2	1.8	0.0
46	61.5	17.9	51.4	28.9	1.8	0.0
48	61.6	18.9	51.3	28.1	1.7	0.0
50	61.7	19.5	51.1	27.7	1.7	0.0
52	61.8	20.5	50.5	27.3	1.7	0.0
54	61.9	21.1	50.3	26.9	1.7	0.0
56	62.0	22.1	49.7	26.5	1.7	0.0
58	62.1	22.7	49.6	26.0	1.7	0.0
60	62.1	23.1	49.2	26.0	1.7	0.0
62	62.2	23.7	49.2	25.6	1.6	0.0
64	62.2	23.8	49.0	25.6	1.6	0.0
66	62.3	24.7	48.5	25.2	1.6	0.0
68	62.4	25.3	48.4	24.7	1.6	0.0
70	62.5	26.2	47.8	24.4	1.6	0.0
72	62.6	26.8	47.7	23.9	1.6	0.0
74	62.7	27.4	47.6	23.4	1.6	0.0
76	62.8	28.4	46.9	23.1	1.6	0.0
78	62.9	29.0	46.8	22.6	1.6	0.0
80	63.0	29.6	46.4	22.4	1.6	0.0

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	47.8	0.0	0.1	12.9	87.1
22	52.6	0.0	1.5	45.2	53.3
24	55.0	0.0	5.8	59.4	34.8
26	56.8	0.1	12.0	64.2	23.7
28	58.1	0.3	17.5	65.4	16.8
30	59.2	0.4	22.9	65.1	11.7
32	60.2	0.5	28.3	63.7	7.5
34	60.8	0.6	32.0	61.8	5.6
36	61.0	0.6	33.4	60.8	5.1
38	61.1	0.6	34.1	60.8	4.6
40	61.2	0.7	34.6	60.2	4.5
42	61.3	0.7	35.3	59.7	4.3
44	61.4	0.9	36.3	58.5	4.3
46	61.5	1.0	37.0	57.9	4.2
48	61.6	1.1	38.0	56.8	4.2
50	61.7	1.2	38.5	56.2	4.2
52	61.8	1.4	39.3	55.1	4.2
54	61.9	1.5	40.0	54.5	4.1
56	62.0	1.7	40.7	53.5	4.1
58	62.1	1.8	41.2	52.9	4.1
60	62.1	2.0	41.4	52.4	4.1
62	62.2	2.1	41.9	51.9	4.1
64	62.2	2.1	41.9	51.9	4.1
66	62.3	2.4	42.7	50.9	4.0
68	62.4	2.5	43.2	50.3	4.0
70	62.5	2.8	43.8	49.4	4.0
72	62.6	2.9	44.2	48.9	4.0
74	62.7	3.1	44.8	48.3	3.9
76	62.8	3.4	45.2	47.4	3.9
78	62.9	3.6	45.7	46.9	3.9
80	63.0	4.0	46.1	46.0	3.9

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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info@hyline.com