Product Update

Hy-Line®

W-36

EFFECTS OF NUTRIENT DENSITY ON HY-LINE W-36 PERFORMANCE

Diets for the modern layer should be designed with the feed intake as an important parameter. As not all varieties of hens eat the same volume of feed, diets need to be appropriately formulated based on the observed number of grams of feed intake per day. The genetic potential of highly efficient birds, such as the Hy-Line W-36, may be compromised by a diet designed for a bird that eats more. A higher density diet is required for a more efficient bird to achieve the egg numbers and egg weights that she is capable of producing. Although a higher density diet may cost more to formulate, the expense is justified by lower feed intake and higher egg output.

The effects of varying nutrient levels in layer diets were examined in a cooperative study by the University of Illinois and Hy-Line International. Hy-Line W-36 hens were randomly assigned to one of five groups by the level of nutrition supplied by their diet.

The 100% diet (control diet) was formulated to meet the recommended energy and nutrient levels in the 2009 Hy-Line W-36 Management Guide.* All diets were formulated on a least-cost basis using corn (maize), soybean meal, wheat middlings, distiller's dried grains with solubles and soybean hulls.

OPTIMAL NUTRITION

Recent research shows targeted nutrition results in the highest egg production in Hy-Line W-36 layers

Diets were fed in 3 phases: 18 to 25 weeks, 26 to 31 weeks and 32 to 70 weeks of age. Phase feeding was done to maximize egg production. Researchers collected data on body weight, egg production, feed intake, feed efficiency, egg weights and egg mass.

Diet Analysis – Phase 1 – 18-25 weeks of age

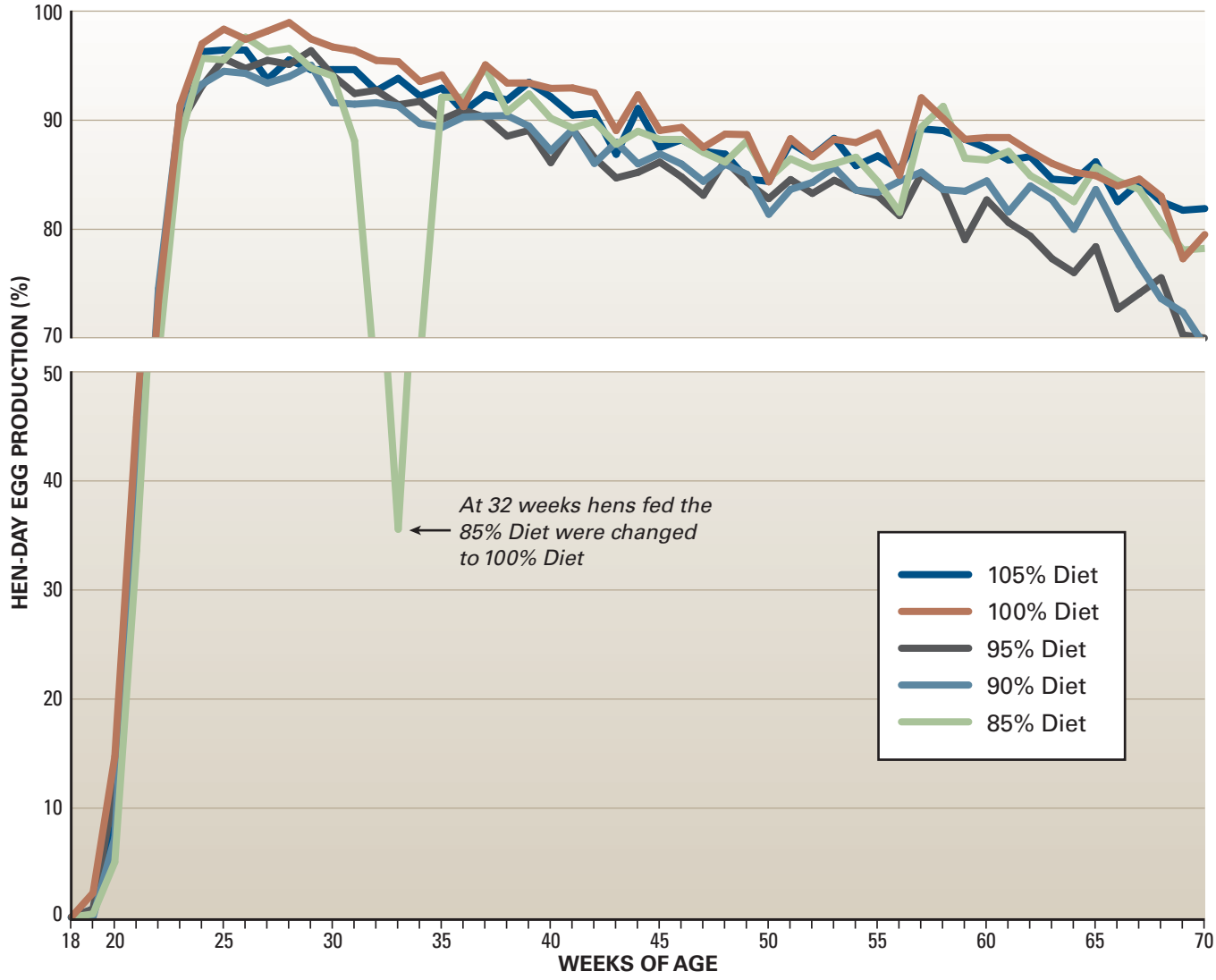
	% of Recommended Nutrients				
	85%	90%	95%	100%	105%
Digestible methionine+cysteine	0.72%	0.75%	0.79%	0.82%	0.87%
Digestible lysine	0.92%	0.95%	1.01%	1.07%	1.14%
Crude protein	19.66%	19.89%	20.87%	21.56%	22.62%
Metabolizable energy	2750 kcal/kg 11.51 MJ/kg	2817 kcal/kg 11.79 MJ/kg	2884 kcal/kg 12.07 MJ/kg	2950 kcal/kg 12.35 MJ/kg	3017 kcal/kg 12.63 MJ/kg
Calcium	4.24%	4.43%	4.65%	4.88%	5.13%
Available phosphorus	0.53%	0.55%	0.58%	0.61%	0.64%
Sodium	0.19%	0.20%	0.21%	0.22%	0.23%

** Updated nutrition recommendations for the W-36 are available in the most recent Performance Standards Manual found at http://www.hyline.com/UserDocs/Pages/36_COM_ENG.pdf*

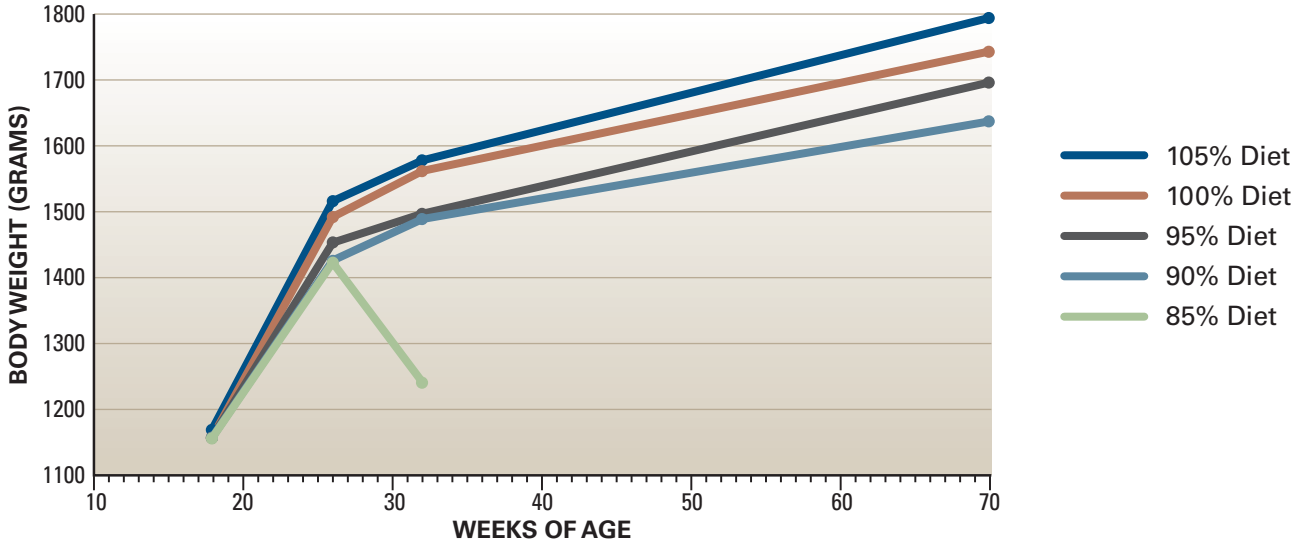
RESULTS

- A clear correlation between nutrient density and both egg production and egg weight was proven in this study. As nutrient density increased, so did egg numbers and egg weights.
- The best balance of performance and nutrient level was feeding at 100% of the recommendation found in the Hy-Line Management Guide. This diet provided the highest egg numbers and outstanding feed efficiency.
- Also, a significant correlation between nutrient density and body weight was shown. This implies a relationship between proper body weight and egg production.
- A reduction in nutrition of even 5% or 10% had substantial effects on hen-day egg production and feed efficiency. The birds fed 90% of nutrients prescribed in the control diet, ate more feed and produced a smaller egg – resulting in the lowest feed efficiency.
- The 105% diet resulted in higher egg weights and feed efficiency. Feeding this level of energy may be warranted in situations where feed intake is reduced – such as high ambient temperatures.

Effect of Nutrient Density in Diets on Egg Production



Effect of Nutrient Density in Diets on Body Weight



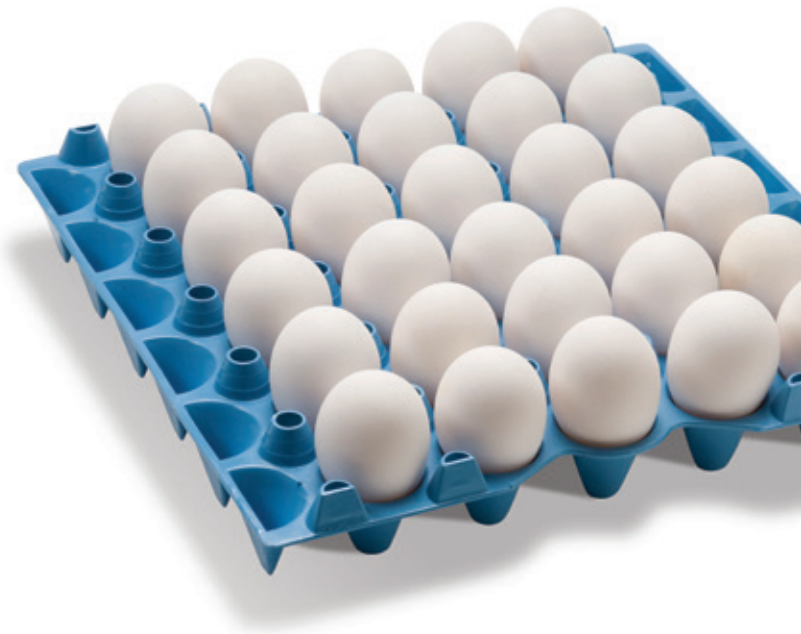
100% DIET GROUP SHOWS THE HIGHEST PRODUCTION FROM 18 TO 70 WEEKS

Data Confirm the Correlation Between Nutrient Density and Egg Production and Weight

	Diet Group (% of Nutrients)			
	90%	95%	100%	105%
Eggs per hen housed	304	302	319	314
Egg production, hen-day	81.9%	81.3%	86.0%	84.6%
Egg weight, per egg	58.4 g	59.2 g	59.1 g	60.0 g
Egg mass, egg per hen per day	46.8 g	47.4 g	47.7 g	48.3 g
Feed intake, hen per day	100.1 g	98.9 g	99.9 g	98.7 g
Feed efficiency, g egg:g feed	0.473	0.482	0.487	0.495

INTERESTING RESULTS OF THE LOW NUTRIENT DENSITY DIET

During the onset of egg production, the hens fed the least nutritious diet (85%) experienced rapid weight loss from 26-31 weeks of age before a dramatic decrease in egg production was seen at 31 weeks of age. Further investigation showed that the diet for that group was mistakenly deficient in sodium. The birds did not compensate for the low nutrient density or salt deficiency by consuming more feed to maintain egg production – they simply stopped laying eggs. Then, at 32 weeks the 85% group was switched to the 100% diet (which contained proper sodium levels) and the birds resumed egg production. Incredibly, this group ended the study with results similar to the birds continuously fed the 100% diet!



Hy-Line's superior feed efficiency
makes the equation simple:

Less Feed = More Profit

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