



NUTRITION NOTES

Innovation + Research from Kent Nutrition Group

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KENT RESEARCH SHOWS THAT HOME FRESH EXTRA EGG OUTPERFORMS THE LEADING NATIONAL BRAND

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PURPOSE STATEMENT: The purpose of this study was to evaluate the effects of two different feed treatments, Home Fresh Extra Egg (HFEE) and the leading national brand (LNB), on the performance, egg quality, and nutritional value of Hy-Line Brown Layers. The research aimed to compare egg production, cost per egg, egg quality parameters (including eggshell thickness, eggshell strength, and yolk color), sensory evaluation (taste), and nutrient composition of eggs from layers fed HFEE versus those fed LNB.

OVERVIEW: In this study, we utilized 72 Hy-Line Brown Layers allotted to two treatments. Treatment 1 consisted of Home Fresh Extra Egg (HFEE) while Treatment 2 layers were fed the leading national brand (LNB). Both feeds were pellets, and each treatment had 6 pens of 6 layers per pen. On July 18th, when the layers were in full production (about 22 weeks old), we started the trial which was conducted for 18 weeks. We utilized a 16-hour lighting schedule (5 AM to 9 PM) by using timers from the recommendation of our supplier. The layers were fed ad libitum and eggs were collected daily. HFEE and LNB were priced at retail (with no sale prices) per 50 lb bag, respectively.

In this trial, we measured several parameters, including: 1. egg production and cost per egg; 2. egg quality (eggshell thickness, eggshell strength, hough height, grade, and yolk color) via testing at Iowa State lab; 3. Sensory Evaluation (taste) panel via Iowa State lab; and 4. nutrient analysis of whole eggs via Michigan State lab.

RESULTS: The results listed in Table 1 show that HFEE results in a lower feed intake (due to a high-energy feed) than the LNB. Layers require a given amount of energy intake each day, and with low-energy feeds, they consume a much greater amount of feed, which increases cost. In addition, the layers on HFEE had a lower cost per egg, a deeper orange-yellow yolk, and a stronger shell than those layers fed the LNB.

- **Sensory Evaluation (Taste) Panel:** The lab at Iowa State utilized 36 participants each time. We conducted three tests over the 18-week study. The conclusions were: 1. HFEE yolk color significantly preferred to LNB all three times; 2. In one of the three studies, there was a trend ($P = 0.10$) for the eggs from the HFEE to be preferred in taste over the LNB. In the other two studies, there was a numerical preference for the HFEE to taste better than the LNB egg.
- **Whole Egg Analysis:** Twenty-four of the 30 eggs from HFEE and LNB were randomly selected and pooled to do a nutrient analysis on the whole egg. The eggs from the HFEE layers had 85, 17, 45, and 6% increases in Vitamin E, Vitamin A, Manganese, and Zinc which are very important for human health and the immune system.
- **Bottom Line:** Layers fed Home Fresh Extra Egg Layer produce more eggs at a lower cost, have better egg quality and nutrition, and are preferred in taste over the layers fed LNB.

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Table 1. Performance and Egg Quality with HFEE vs. LNB

Weeks 0-18	HFEE	LNB
Feed/Layer/Week ¹ , lb	1.98B	2.33A
Eggs/Layer/Week	6.66	6.40
Cost of Egg ¹ , Cents	12.50B	16.10A
Egg Quality³		
Egg Weight, grams	62.44	62.54
Albumen Height, mm	9.75	9.70
Yolk Color ¹	10.37A	5.59B
Haugh Unit	95.35	94.94
Shell Strength ² , N	50.69C	46.52D
Shell Thickness, mm	0.371	0.367

¹Means with different superscripts within a row are different ($P < 0.001$) via Tukey's; ²Means with different superscripts within a row are different ($P < 0.06$) via Tukey's; ³Egg Weight range is 60 to 65 grams; Albumen Height range is 3 to 15 mm; 12 mm in good quality fresh eggs; higher the albumen height, the better the albumen quality; Yolk Color range is 1 to 16 (Deep-Yellow to Orange-Yellow would range from 9 to 12; Haugh Unit is the height of the albumen surrounding the yolk, combined with the egg weight; higher the score the better the egg quality; average of 75 to 85 units is acceptable, AA eggs are 72 or more; A eggs are 60-71; Egg Shell Strength is measured in Newtons, average is about 30; Egg Shell Thickness from 0.3 to 0.4 mm is acceptable.