

Grand Opening Ceremony

EFA was thrilled to host more than 40 distinguished guests at Brant Colony on Monday, July 25, for the grand opening of the Canadian egg industry's first net-zero layer barn. Brant Colony's egg manager, Darrel Mandel, lead the group – including the Honourable Oneil Carlier, Minister of Agriculture and Forestry, MLA David Schneider, and a variety of egg industry stakeholders – on a tour of the barn, highlighting the innovative technology that was integrated into the design and construction of the facility.

The official grand opening was the culmination of two years' worth of dedication, collaboration, hard work and a vision to build a sustainable provincial egg industry facility. The goal of the project is for the facility to be balanced in terms of its energy inputs and outputs, in order to achieve net-zero. Over a given year, the facility will strive to produce enough power through renewable systems to offset power supplied to it by conventional fossil fuels.

Congratulations to Darrel and every one at Brant Colony for hosting such a wonderful and engaging event. Thanks also to Kelly Lund from Alberta Agriculture and Forestry, and EFA's own Jenna Griffin, for leading this important project to demonstrate what environmentally responsible farming practices are capable of, and what is required to actually achieve a net-zero balance in a layer barn.

Feed Efficiency

What it means and what it tells you about your operation (Part 2)

By Matt Oryschak, Research Associate – Alberta Agriculture and Forestry

Introduction

In part one of this article (see the June issue of *EggNotes*), we described what feed efficiency is, how it can be calculated for an operation, and what it can tell you about your feeding program. In part two, we are going to focus on dispelling a myth about feed efficiency – that maximum feed efficiency equals maximum profitability. I hope by the end of this article to have convinced you that this is not necessarily the case.

How strongly connected is feed efficiency to profitability?

Let's start by rephrasing the question as 'if your operation's feed efficiency is lower than another's, does that mean that you are less profitable?' To put it simply, the answer is no – or at least not necessarily.

Since there is a biological maximum egg production per hen, it follows that there is a maximum to how much revenue can be generated from a fixed number of hens. This means profitability is ultimately tied to minimizing cost, specifically feed costs, to support optimum egg production. This is not the same as simply minimizing total feed cost – less than optimal production will also reduce profitability!

So how do you maximize the *ratio* of feed cost to production? The simplest answer is looking at less expensive feedstuffs – for instance canola meal, DDGS, etc. There is a problem with that: a feedstuff's value is tied to its nutrient density, most often its energy density. Canola meal, for instance, contains less protein and less energy than soybean meal, so it is not a simple 1:1 exchange in a feed formulation. Often times, oil needs to be added to the diet to make up for the shortfall in energy when using such ingredients, which adds significantly to the cost of the ration. How then do we take advantage of the abundance and variety of feedstuffs to enhance profitability?

Recall that in part one of this article I said that energy intake is an important driver of egg production. Breed companies publish recommended energy densities in their guides, but it is important to remember that: 1) these are recommendations not commandments; and 2) they are based on a specific feed consumption or allocation. Few people would argue that under average to good management conditions, hens have the capacity to consume more than the 100 or 105 g that guide recommendations are based on, if allowed to do so (trust me – I have the data).

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The question is why not take advantage of this unused capacity. How? By:

1) dropping the target energy density of the diet (thereby allowing more of the cheaper ingredients into the feed formula); and

2) increasing feed allocation (because remember, hens still need the same number of calories per day to produce that optimum egg).

Your immediate observation (based on part 1 of the article) would be that this will necessarily reduce feed efficiency. But the more important question is what happens to the feed costs/hen/d?

What will determine the net economic benefit to dropping target energy density in the diet is that the % reduction in feed costs (\$/tonne) should exceed the increase in feed allocation. For instance, if feed allocation is increased from 105 to 115 g/hen/d (~10% increase) to offset a 10% reduction in target energy density (ie: 2600 vs 2900 kcal/kg), but the cost of the ration drops by more than 15%, there should be a net improvement in profitability. We thought it was time to put this theory to the test.

The evidence from our research

In a 12-week trial our group recently conducted at the Poultry Research Centre, we compared the performance and relative profitability of hens fed diets containing either soybean meal or canola meal as the major protein

source that we formulated to the recommended energy density or 90% of recommended (ie: lower energy). Target levels of all other nutrients (ie: amino acids, minerals) in the diet were tied in a ratio to energy, so that we were not putting surplus nutrients into the feed that the birds would not be able to convert into egg mass. Unlike commercial practice, birds were given free access to feed. This was so we could observe whether the hens would voluntarily change their feed intake to compensate for the lower energy density in the 90% diets.

We found that all diets supported excellent productivity, with a slight edge going to the soybean meal diet formulated to the recommended energy density. As expected, feed efficiency was poorer for the diets formulated to 90% of recommended because hens consumed more feed to maintain equivalent performance. When it came to profitability however, there were a couple of interesting findings – as illustrated in Table 1.

Table 1. Relative profitability of hens fed diets based on soybean meal or canola meal formulated to 100% or 90% of recommended energy density.

	Soybean meal-based		Canola meal-based	
	Recommended energy density	90% energy density	Recommended energy density	90% energy density
Feed costs				
Feed consumption, g/hen/d	119.4	120.7	114.7	121.1
Formula cost, \$/t	314.12	259.21	316.53	241.11
\$/hen housed/d	0.038	0.031	0.036	0.029
\$/average AB flock ¹ /d	450.18	375.56	435.56	350.26
Revenue				
Lay percentage, %	95.31	93.86	92.64	93.11
Weighed price ² , \$/dozen eggs	2.055	2.040	2.043	2.047
Revenue, \$/hen housed/d	0.163	0.160	0.158	0.159
Revenue, \$/average AB flock/d	1,958.42	1,914.60	1,892.92	1,905.62
Profit (Revenue – feed costs)				
Profit, \$/hen housed/d	0.126	0.128	0.121	0.130
Profit, \$/average AB flock/d	1,508.24	1,539.04	1,457.36	1,555.36
Profit, \$/average AB flock/yr	550,507.65	561,748.84	531,937.37	567,706.23

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EFA Staff Update

Catherine Kelly, who had been working as the On Farm Programs Administrator, is no longer working with EFA. Those tasks have now been divided between current staff members, as follows:

Erin Johnston – flock permits and flock counts

Brandy Addai – salmonella results

Dave Lastiwka – corrective actions for on-farm programs including SC-SC and Animal Care Program

The EFA team will continue to bring you a high level of customer service. If you have any questions regarding these changes, please contact Christina Robinson, Farm Programs Manager.

“Yolk” of the Month

Guaranteed to crack you up!



Q: What is a chicken's definition of relay?

A: It's what hens do after the egg farmer collects their eggs!

Q: What do you get if a chicken lays an egg on top of the barn?

A: An egg roll!

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¹ Based on the most recent statistics available, an average Alberta flock has 12,000 hens. This is used simply for illustrative purposes.

² The weighted price for each treatment was determined by adjusting the price per dozen by the distribution of eggs in each grade for each treatment over the entire 12-week period.

The first finding worthy of note is that when formulating diets to recommended energy densities, the use of less expensive co-products is tricky and actually reduces profitability (compare columns 1 and 3). This is because more oil needs to be added to the diet to compensate for the lower energy content in solvent-extracted canola meal. It is for this reason that canola meal generally does not find its way into commercial poultry rations beyond 10%.

The more important finding however is that when you relax the target energy density in the diet (and increase your feed allocation per hen accordingly), you can start to see the cost-saving power of ingredients like canola meal. Hens increased their feed consumption to compensate for the lower energy density in the 90% density diet (ie: 121.1 vs. 114.7, or 6% in canola meal-based diets), but this was more than offset by the difference in daily feed costs – which was nearly 19% lower for the 90% density diets. The net result of relaxing the target energy density in the diet was a 2-3 % increase in profitability of 2-3%, or in the context of an average flock in Alberta (12,000 hens), about \$10,000 – \$15,000/year.

Take home message

Feed efficiency, like all productivity metrics, can provide important information about an operation but it is important that it is viewed in its proper context. What I hope I have been able to do is illustrate in these articles that feed efficiency is a valuable piece of information, but it is not the last word when it comes to your farm's bottom line, and at the very least it is a poor indicator of net profitability.

I hope I have also tempted some of you to reconsider the emphasis you place on feed efficiency in your feeding program. I hope to also have inspired you to initiate conversations with your nutritionist and peers in the industry about whether your operation (and the industry as a whole) would be better served by shifting more emphasis to minimizing feed costs **per unit of production (e.g. egg mass)**. Remember – this is not the same as minimizing total feed cost! Egg producers are paid for the number and size of eggs they ship to the plant – how best to get there is up to you.