



Challenging the concept of maximum dietary inclusion levels of canola meal in laying hen diets

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Background

Canola meal is a co-product of canola crushing and has long been recognized as a valuable domestically-produced protein ingredient in livestock rations. One of the practical barriers to achieving high inclusion levels of canola meal in monogastric rations is its relatively low dietary energy content.

Brassica juncea (i.e., brown mustard) is a close relative of *Brassica napus* (i.e., conventional canola) but has a thinner seed coat, resulting in a meal with less fibre and therefore potentially higher energy density (Figure 1). Alternatively, expeller-pressed canola meals have high residual oil content, resulting in approximate 25 to 35% higher energy density. Using lower fibre or high residual oil content meals may therefore allow higher dietary inclusion in poultry diets.

Current feed industry recommendations suggest upper inclusion limits of 10% canola meal in layer rations, citing concerns regarding increased mortality. The objective of the present study was to compare the health, performance and egg quality resulting from feeding laying hens nutritionally complete diets containing high dietary inclusions (20%) of solvent-extracted or expeller-pressed *B. napus* or *B. juncea* canola meals.

This poster reports the results relating to layer performance.

Our approach

In a 36-week experiment, 96 laying hens housed 4 to a test cage (668 cm²/hen) in a commercial battery were assigned to one of 6 dietary regimens. Dietary regimens consisted of complete diets containing 20% of either expeller-pressed or solvent-extracted *B. napus* or *B. juncea* meal. Similar digestible nutrient densities were assumed for the expeller-pressed meals and the solvent-extracted meals, respectively (i.e., assumed that *napus*=*juncea*). Diets within each layer phase were formulated to contain the same level of dietary energy (AME) and similar levels of digestible amino acids, crude protein and crude fat across all treatments.

Egg production (#/d) for each test cage was measured daily; individual egg weight and egg mass production determined weekly; and feed consumption and feed efficiency determined at 4-week intervals throughout the study.

What we observed

Despite previous reports suggesting increased mortality in relation to moderately high inclusions of canola meal (~16%) there was no indication of adverse effects of any of the treatments on layer health. Within individual days, weeks or 4-week phases of the experiment, there were no consistent differences among treatments for any performance trait measured (Figure 2). Instead, performance of

birds on all dietary treatments approximated or exceeded the specifications in the production guide for this layer strain (Brown Nick, H & N International).

Implications

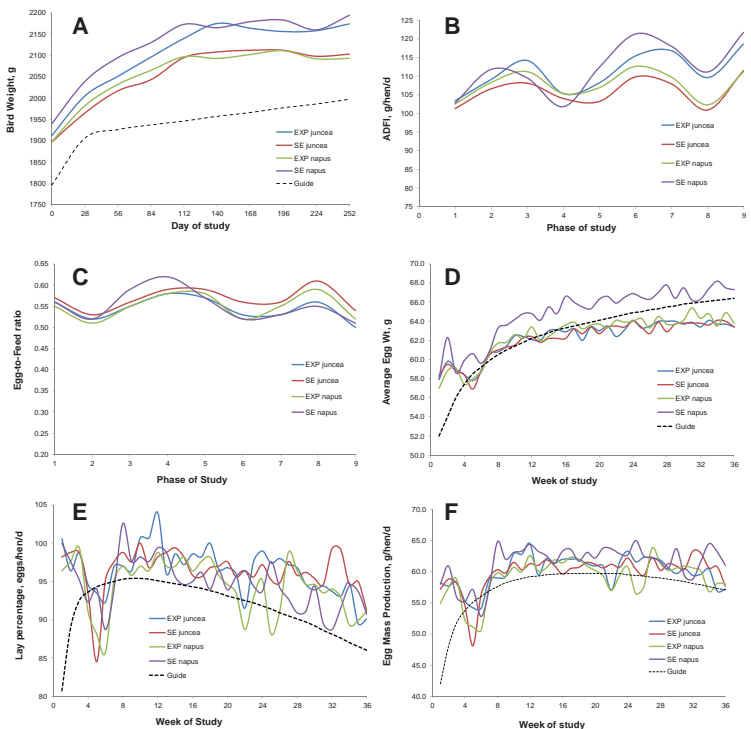


Figure 2. Effect of high (20%) dietary inclusion of expeller-pressed or solvent-extracted *B. napus* or *B. juncea* meal on a) bird weight; b) feed intake; c) feed efficiency; d) average egg weight; e) lay percentage; and, f) daily egg mass production. (Dotted lines on selected graphs indicate expected performance based on the production guide for this layer strain)

Laying hen diets formulated on a digestible nutrient basis can contain up to 20% of either expeller-pressed or solvent-extracted *B. napus* or *B. juncea* canola meals without any adverse effect on performance.

For more information

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