



Do Consumers Exhibit a Preference Between Control and Camelina Inclusion Eggs?

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Project timeline: January 2013 – Present

Camelina sativa (L.) Crantz seeds are harvested and pressed to obtain camelina oil, used in the biojet fuel and biofilm industries. The camelina seed has a high vitamin E content and is an excellent omega-3 source, which provides health benefits. In Canada, camelina meal used as livestock feed is not yet authorized, however, use has been approved up to 10% of total diet of laying hens in the USA. Camelina contains trimethylamine (TMA), a compound associated with a fishy aroma at elevated concentrations.



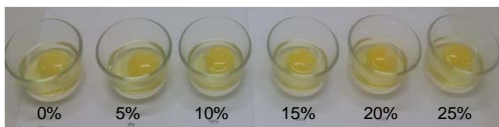
Problem

Preliminary data on consumer preference of camelina meal incorporated into the diets of laying hens will be obtained in this study.

Research Questions:

1. What is the optimal level of camelina inclusion in eggs and does frequency of egg consumption influence consumer preference?
2. Do consumers associate health benefits with the consumption of omega-3 fatty acids and is egg preference influenced by current omega-3 egg consumption behaviours?

The Livestock Research Branch of Alberta Agriculture and Rural Development provided white shelled eggs from layers fed increasing camelina meal inclusions (0 - 25%).



Egg yolks were darker yellow with increasing camelina inclusion

Scrambled eggs were cooked to a minimum internal temperature of 64° C and served to 37 panelists, 18-50 years of age, within the University of Alberta community (Edmonton, Alberta). Panelists evaluated five pairs of egg samples in ascending order of camelina meal inclusion and indicated the preferred sample. Two-alternative forced choice (2-AFC) preference tests were used to evaluate the samples, as per American Society for Testing and Materials (ASTM) method E2263-12 (ASTM 2004). A significance level of P=0.05 was used.



Our Observations

Research Question 1:

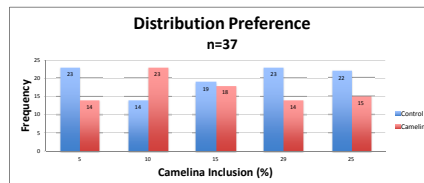


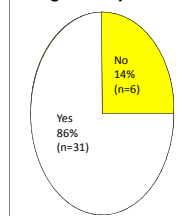
Figure 1. Frequencies of preference

- No significant preference difference is observed between the control and camelina samples at any inclusion level

- Based on participant weekly egg consumption no significant preference difference is observed between the control and camelina samples

Research Question 2:

Are Health Benefits Associated with the Consumption of Omega-3 Fatty Acids?



Health benefits associated with consumption of omega-3 fatty acids include:

- Reduced risk of cardiovascular disease (68%)
- Promotion of higher brain function (54%)
- Reduced blood cholesterol levels (41%)

Figure 2. Association of health benefits

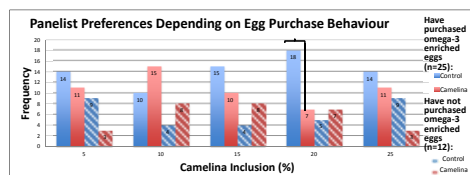


Figure 3. Frequencies of preference based on egg purchase behaviour

- Panelists who have purchased omega-3 enriched eggs preferred (P<0.05) control eggs to 20% camelina

What Does this mean?

- Similar sensory preference is observed between the control and camelina inclusion samples
- Optimal level of camelina inclusion can not be confirmed with the lack of significant preference difference
- The majority of panelists associated health benefits with the consumption of omega-3 fatty acids
- Larger, more diverse population is required to validate observed trends with the ASTM method (desired n=64)

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