Omega-3 enriched egg production: the effect of α-linolenic ω-3 fatty acid sources on laying hen performance and yolk lipid content and fatty acid composition

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Resumen

1. Diets high in total lipids, saturated fatty acids, trans fatty acids, and having high ω-6:ω-3 fatty acid ratios, have been shown to be related to increased instances of coronary heart disease, while diets high in ω-3 fatty acids have been shown to decrease the risk.2. Feeding ω-3 fatty acid diets to laying hens has been shown to improve the quality of eggs produced in terms of saturation and ω-3 content.3. A study was undertaken to determine if the ω-3 fatty acid source, when fed to hens, influences the amount transferred to eggs.4. Flaxseed and flaxseed oil, along with chia seed and chia seed oil, were the two main sources of ω-3 fatty acid examined during the 84 d trial.5. All α-linolenic enriched treatments yielded significantly higher ω-3 fatty acid contents per g of yolk and per yolk, than the non-α-linolenic enriched diets. Chia oil and chia seed yielded 54·5 and 63·5% more mg of ω-3 fatty acid per g of yolk for the 56 d test period, and 13·4 and 66·2% more for the 84 d test period, than flaxseed oil and flaxseed, respectively.6. The differences in omega-3 content were significant, except for the chia oil compared with the flax oil, at the end of the trial.7. This trial has shown that differences in conversion exist among ω-3 fatty acid sources, at least when fed to hens, and indicates that chia may hold a significant potential as a source of ω-3 fatty acid for enriching foods, thereby making these foods a healthier choice for consumers.

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