

Summer Meeting, 4–6 July 2011, 70th Anniversary: From plough through practice to policy

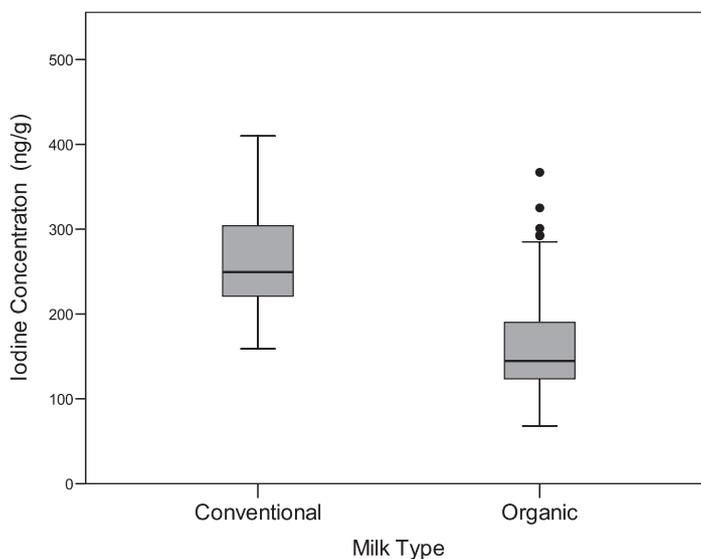
Does farm-management system affect milk-iodine concentration? Comparison study of organic and conventional milk

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Iodine is required for adequate thyroid hormone production, which is essential for brain development, particularly in the first trimester of pregnancy⁽¹⁾. Milk is the principal source of iodine in UK diets, contributing up to 42% of adult intake⁽²⁾, and while small studies in Europe^(3,4) have shown organic milk to have a lower iodine concentration than conventional milk, no such study has been conducted in Britain. In view of the increasing popularity of organic milk in the UK, we aimed to compare the iodine concentration of retail organic and conventional milk.

Ninety-two samples of organic and eighty samples of conventional milk (semi-skimmed) were purchased from retail outlets in sixteen areas of the UK (Southern England, Wales and Northern Ireland) during June, July and August 2009. The milk samples were analysed for iodine concentration using inductively coupled plasma MS.

The iodine concentration of the organic milk samples was significantly lower than that of the conventional milk samples ($P < 0.001$). The median value of organic milk (144.5 ng/g) was 42.1% lower than that of conventional milk (249.5 ng/g).



The difference in iodine content observed between the two milk types is likely explained by the restrictions on mineral supplementation in organic farming^(5,6). The lower iodine content of organic milk has important public-health implications, particularly in view of emerging evidence of iodine deficiency in UK population sub-groups, including pregnant women⁽⁷⁾. Individuals who choose organic milk should be aware that their iodine intake may be compromised and should ensure adequate iodine intake from alternative sources.

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1. Zimmermann MB (2009) *Endocr Rev* **30**, 376–408.
2. Henderson L, Irving K, Gregory J *et al.* (2003) London: HMSO.
3. Dahl L, Opsahl JA, Meltzer HM *et al.* (2003) *Br J Nutr* **90**, 679–685.
4. Rasmussen LB, Larsen EH & Ovesen L (2000) *Eur J Clin Nutr* **54**, 57–60.
5. European Union (2007) *J Eur Union* **50**, L189.
6. European Union (2008) *J Eur Union* **51**, L250.
7. Lazarus JH & Smyth PP (2008) *Lancet* **372**, 888.