

SUBMISSION FOR APPLICATION A1041 – FOOD DERIVED FROM STEARIDONIC ACID SOYBEAN LINE MON87769

**Food Policy and Programs Branch, SA Health
05 May 2011**

Thank you for the opportunity to provide comments to the Assessment Report for A1041. SA Health raises no objection to proceeding with an amendment to Standard 1.5.2 to include food derived from stearidonic acid (SDA) soybean line MON87769 but wishes to offer the following comments for consideration:-

- The benefits of SDA soy appears to be overstated in the Report as there are a number of plant foods (conventional and GM) that will supply omega-3 essential fatty acids in the diet, particularly canola oil (see Table 1). Additionally, it is questioned whether the cost benefit analysis adequately represents the impacts on consumers and enforcement agencies as an increased supply of GM foods on the market will increase enforcement costs. This is a broader issue for many GM foods and should be considered further.
- Conventional soybean oil is already a source of omega 3 PUFAs in the form of alpha-linolenic acid (ALA). While its conversion rate to EPA and DHA is not efficient, there are varying conversion rates reported in the literature, for example James et al (2003) found that the conversion rate of SDA ranged from 3.1 to 5 fold that of ALA depending on the dose.¹ It is therefore not representative to express only the lower end of the range ("as little as 0.2%" reported on page 3, Nutrition Assessment). Additionally foods containing ALA still make an important contribution to omega 3 intakes.
- Section 1.3.2 of the Nutrition Assessment also states that there are no commercially available plant-based sources of long chain omega 3 PUFAs. However canola oil is a commercially available plant based source of long chain omega 3 PUFA with approximately 10% of its total fatty acid content being omega 3. (See Table 1 for comparison of fatty acid profiles)
- Section 2.2.2 of the Report states that "1 g of dietary SDA is approximately equivalent to 300mg dietary EPA in terms of increasing plasma and erythrocyte concentrations of EPA. However, the trial results indicate that about 3.7 g/day of SDA is required before a statistically significant response in erythrocyte EPA is observed". Given the Nutrient Reference values for ALA (i.e. the precursor of SDA) for men (1.3 g/day) and women (0.8 g/day), and the Heart Foundation's findings that a diet with 2 g/day of ALA decreases the risk of heart disease, the higher SDA intake of 3.7 g per day required to achieve statistically significant erythrocyte response suggests that the need and value of the SDA soybean oil by Monsanto is overemphasised as a practical and useful source of omega-3 for most Australians, as it requires higher intakes and the intake of soybean oil in Australia is low..

¹ James MJ, Ursin VM, Cleland LG. Metabolism of stearidonic acid in human subjects: comparison with the metabolism of other n-3 fatty acids. Am J Clin Nutr 2003; 77:1140-5.

- Furthermore, in regard to the effect of SDA on DHA levels, Monsanto's research shows no measured effect of SDA on DHA levels in blood plasma or erythrocytes. DHA is the most abundant n-3 PUFA in tissues and is generally considered to be the most essential n-3 PUFA, and the Heart Foundation's review of evidence² states that "DHA has at least equally important cardio protective effects and may be more important than EPA for the beneficial cardiovascular effects". Hence, again, the significance and usefulness of SDA to omega-3 intake for Australians is overstated.

Table 1: Comparison of fatty acid profiles of various soybean oils and canola oil

	Mono-unsat fat %	Saturat fat %	Omega-6 poly-unsat fat %	Omega-3 poly-unsat fat %	SDA omega-3 content (% of total fatty acid)⁴	Trans- SDA & trans-ALA (% of total fatty acid)⁴
Conventional soybean oil³	23	15	54	8	Not detectable	0.14 (t-ALA)
SDA soy bean oil⁴	*	*	*	*	~23%	0.51 (t-ALA) 0.26 (t-SDA)
Canola oil³	62	8	20	10	*	*

*NB Values not included in these references

Labelling issues

- SA Health supports the requirement for MON87769 soybean products to be labelled as genetically modified and to carry a voluntary PUFA claim.
- It is also considered that additional labelling statements should be used to alert consumers to the altered nutrient profile. However, as additional labelling was not required for the recently approved GM soybean (A1018), consideration should be given to equability in this instance.
- Further guidance in the Code regarding labelling of GM foods with altered characteristics to provide transparent information to the consumer on the nature of the genetically altered characteristic may be needed as the number of these applications rise.

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² National Heart Foundation of Australia (2008). Review of evidence. Fish, fish oils, n-3 polyunsaturated fatty acids and cardiovascular health.

³ Goodman Fielder. Comparison of Oils and Spreads (nutrients per 100g).
<http://www.spreadthefacts.com.au/oil-and-fat-facts/oil-facts.html> . Accessed 28 March 2011.

⁴ Application A1041- Food derived from stearidonic acid soybean line MON87769 Supporting document 2: Nutrition Assessment – 2nd Assessment Report

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