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Food Standards Australia New Zealand  
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To whom It may concern

On behalf of the Australian Almond Industry Nuts for Life would like to provide the following **submission** on **Proposal P1016** - Hydrocyanic acid in Apricot Kernels & other Foods consultation paper.

We note on page 3 the following paragraph from the Introduction:

*Many plants store cyanogenic precursors in their seeds. Examples are apples, pears, **almonds**, apricot, peach, flax and lima beans. The concentration of HCN in seeds varies widely. However, in bitter almonds and apricots it can reach toxic levels (Haque and Bradbury, 2002; Codex Committee on Contaminants in Foods, 2008).*

We are concerned that consumers may misinterpret this information and assume that all almonds varieties contain cyanide compounds at high levels.

Almonds are called either “sweet” or “bitter” to distinguish the varieties with cyanide compounds grown in Europe “bitter flavours” from those grown in Australia and the United States “sweet flavours”.

These “sweet” varieties include Non parell, Price and Carmel and have been specifically bred to dramatically reduce the levels of cyanide compounds in kernels and improve the flavour.

We note FSANZ’s Report on survey of cyanogenic glycosides in plant-based foods(1) that almonds usually contain less than 10mgHCN/kg for “sweet” almonds and those almonds tested as part of the survey were found to contained an average 8.4 (4.8-12.4)mgHCN/kg.

Whereas the FAO 2008 Codex report found “bitter” almonds contain vast quantities 300-3400mgHCN/kg (2)

A Spanish research group has been investigating the differences in genotype and resulting levels of cyanogenic amygdalin in “bitter” and “sweet” almonds. They found only sweet almond trees are able to breakdown cyanide compounds which explains very low levels found in sweet almond kernels.(3-5)

The Australian Almond Industry produces around 20,000 tonnes of “sweet” almonds a year. We would like to request that in any consumer materials, web copy and reports on this issue that statements are included that “sweet” almonds are safe to eat and are different from “bitter” almonds to avoid any further confusion.

A vast body of research has found that “sweet” almonds, when eaten as part of a healthy diet, can help lower total and LDL cholesterol ,contributing to heart health, without the risk of weight gain.(6-8) Further information on the health benefits of almonds is available on request.

Should you need further information my contact numbers are below.

Kind regards

[REDACTED]

Program Manager and Dietitian

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## References

- 1) <http://www.foodstandards.gov.au/publications/Pages/Report-on-survey-of-cyanogenic-glycosides-in-plant-based-foods.aspx>
- 2) [ftp://ftp.fao.org/codex/meetings/CCCF/cccf3/cf03\\_11e.pdf](ftp://ftp.fao.org/codex/meetings/CCCF/cccf3/cf03_11e.pdf)
- 3) Sánchez-Pérez R, Belmonte FS et al. Prunasin hydrolases during fruit development in sweet and bitter almonds. *Plant Physiol*. 2012 Apr;158(4):1916-32.
- 4) Sánchez-Pérez R, Jørgensen K, Olsen CE, Dicenta F, Møller BL Bitterness in almonds. *Plant Physiol* 2008;146: 1040–1052
- 5) Dicenta F, Martínez-Gómez P, et al Relationship between cyanogenic compounds in kernels, leaves, and roots of sweet and bitter kernelled almonds. *J Agric Food Chem*. 2002 Mar 27;50(7):2149-52.
- 6) Nishi S et al Effect of almond consumption on the serum fatty acid profile: a dose-response study. *Br J Nutr*. 2014 Oct 14;112(7):1137-46.
- 7) Berryman CE et al Effects of Daily Almond Consumption on Cardiometabolic Risk and Abdominal Adiposity in Healthy Adults With Elevated LDL-Cholesterol: A Randomized Controlled Trial. *J Am Heart Assoc*. 2015 Jan 5;4(1). pii: e000993. doi: 10.1161/JAHA.114.000993.
- 8) Kamil A, Chen CY. Health benefits of almonds beyond cholesterol reduction. *J Agric Food Chem*. 2012 Jul 11;60(27):6694-702.